



September 01, 2009

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

Re: Tronox Henderson  
Work Order: 234414

Dear Mr. Hagar:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 03, 2009, August 04, 2009 and July 31, 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: 2027.001.00348, 2027.001.00462, 2027.001.00466, 2027.001.00472, 2027.001.00484,  
2027.001.00489, 2027.001.00494, 2027.001.00512 and 2027.001.00513  
Enclosures

**Tronox LLC**  
**Tronox Henderson**  
**SDG:234414**

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# **Case Narrative**

**CASE NARRATIVE**  
**for**  
**Tronox LLC**  
**Tronox Henderson**  
**SDG:234414**

**September 01, 2009**

**Laboratory Identification:**

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

**Summary**

**Sample receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on August 03, 2009, August 04, 2009 and July 31, 2009 for analysis. Shipping container temperatures were checked, documented, and within specifications. Two samples were received on August 3, COC# 2027.001.00348, which were not listed on the COC. The samples were SA127-5B-berm and SA127-10B-berm. The client was notified and e-mailed a revised COC. For COC# 2027.001.00512, there were two different samples listed on the chain as associated with the equipment blank. The client was notified and clarified the issue. Please refer to the attached e-mails for further details. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

**Items of Note**

All samples under this SDG were logged as an open SDG until a sufficient amount of samples were received by the lab. The client was notified that the SDG was closed on August 4, 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 234414023. The client was notified that Ra-228 was detected in EB080309-SO above the MDA and provided with the associated method blank results. The soil Thorium method blank did not meet contract detection limits for Th-228 and Th-230 and it was counted for the maximum count time. The soil U lab dup did not meet the Tronox QA program sample result uncertainty of <30% with activity between 2 and 5 times the MDA and counted for the maximum possible count time. 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: 234414001, 234414003, 234414014, 234414015, 234414016, 234414017 and 234414023. The following samples did not meet the Tronox QA program sample tracer yield requirements of 70-120% for Alpha Spec Uranium due to matrix issues: and 234414014. 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 234414013. The following samples did not meet the Tronox QA program sample result uncertainty limit of <30% for Alpha Spec Uranium with the results greater than 5 times the MDA and were counted for the maximum time: 234414010 and 234414011. For the Thorium water samples the method blank did not meet the Tronox QA program sample result uncertainty limit of <30% with activity between 2 and 5 times the MDA for Th-230. The LCS did not meet the Tronox QA program sample result uncertainty limit of <30% with activity between 2 and 5 times the MDA for Th-228. Samples were counted the maximum count time to achieve the best possible uncertainties. The LCS did not meet the Tronox QA program tracer yield requirements of 70-120%. With a value of 67.1%, the tracer yield met the GEL standard requirement and both the LCS and LCS dup met the Th230 recovery requirements. All other samples in the batch met the contract tracer yield requirement. Please refer to the attached e-mails for further details.

## Sample Identification

The laboratory received the following samples:

<u>Laboratory ID</u>	<u>Client ID</u>
234414001	SA49-32B
234414002	SA63-10B
234414003	SA63-23B
234414004	RSAM5-0.5B
234414005	RSAM5009-0.5B
234414006	RSAM5-10B
234414007	RSAM5-28B
234414008	SA127-10B
234414009	SA127-20B
234414010	SA127-32B
234414011	RSAJ3-10B
234414012	RSAJ3-29B
234414013	SA28-0.5B
234414014	SA28-10B
234414015	SA28009-10B
234414016	SA28-25B
234414017	SA28-40B
234414018	SA28-55B
234414019	EB073109-SO
234414020	EB080309-SO
234414021	FB080309-SO
234414022	SA127-5B-berm
234414023	SA127-10B-berm

## 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**

2344141.



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. 2027.001.00472  
Page: 1 of 1  
Cooler # \_\_\_\_\_

Required Ship to Lab:				Required Project Information:				Required Invoice Information:										
Lab Name:	GEL Laboratories, LLC	Site ID #:	TRONOX LLC, HENDERSON	Send Invoice to:	Susan Crowley Tronox LLC	TAT: Standard 30 day	<input checked="" type="checkbox"/> Rush	Mark One										
Address:	2040 Savage Road	Project #:	2027.001	Address:	PO Box 55	If Rush, Date due												
City:	Charleston, SC 29407	Site Address:	1500 W. Lake Mead Drive	City/State:	Henderson, NV 89009	Phone #:	(949) 260-9293	QC level Required:	Standard	Special	EPA Stage 4	Mark one						
Lab PM:	Edith M. Kent	City:	Henderson	State:	NV	Reimbursement project?	<input checked="" type="checkbox"/>	Non-reimbursement project?										
Phone/Fax:	(843) 556-8171	Site PM Name:	Derrick Willis	Send EDD to:	frank.hagan@ngem.com	Send EDD to:	frank.hagan@ngem.com	CC Hardcopy report to:	PDF Electronic Version Only	MA MCP Cert?	<input type="checkbox"/>	CT RCP Cert?	<input type="checkbox"/>					
Lab PM email:	emk@gel.com	Phone/Fax:	(949) 375-7004	CC Hardcopy report to:	see additional comments below													
Applicable Lab Quota #:		Site PM Email:	derrick.willis@ngem.com															
#	ITEM	SAMPLE ID One Character per box. (A-Z, 0-9, -)	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	#OF CONTAINERS	FIELD FILTERED? (Y/N)	ACCEPTED BY / AFFILIATION	DATE	TIME	DATE	TIME	SAMPLE RECEIPT CONDITIONS	Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?	
1	SA49-10B		SO	7-30-09	1115	1	N		7-30-09	1700	7-30-09	1700	Y/N	Y/N	Y/N	Y/N	Y/N	
2	SA49-20B		SO	7-30-09	1136	1	N		7-30-09	1700	7-30-09	1700	Y/N	Y/N	Y/N	Y/N	Y/N	
3	SA49-32B		SO	7-30-09	1201	1	N		7-30-09	1700	7-30-09	1700	Y/N	Y/N	Y/N	Y/N	Y/N	
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		

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

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

REINQUISHED BY / AFFILIATION  
DATE TIME  
ACCEPTED BY / AFFILIATION  
DATE TIME

SHIPPING METHOD: (mark as appropriate)  
UPS COURIER FEDEX  
PRINT Name of SAMPLER:  
SIGNATURE of SAMPLER:

SAMPLER NAME AND SIGNATURE  
DATE SIGNED

US MAIL  
Time: 1514







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

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COC No. 2027.001.00462  
Page: 1 of 1  
Cooler # 1 of 1

Required Ship to Lab:				Required Project Information:				Required Invoice Information:				TAT: Standard 30 day		X	Rush	Mark One																					
Lab Name: GEL Laboratories, LLC				Site ID #: TRONOX LLC, HENDERSON				Send Invoice to: Susan Crowley Tronox LLC				IF Rush, Date due																									
Address: 2040 Savage Road Charleston, SC 29407				Project #: 2027.001				Address: PO Box 55 Henderson, NV 89009				City/State		Phone #: (949) 260-9293		Special EPA Stage 4		Mark one																			
Lab P.M.: Edith M. Kent				City: Henderson				State: NV				Reimbursement project?		X	Non-reimbursement project?			Mark one																			
Phone/Fax: (843) 566-5171				Site PM Name: Derrick Willis				Send EDD to: frank.hagar@ngem.com				CC Hardcopy report to		PDF Electronic Version Only	MA MCP Cert?			CT RCP Cert?																			
Lab PM email: emk@gel.com				Phone/Fax: (949) 375-7004				Site PM Email: derrick.willis@ngem.com				CC Hardcopy report to		see additional comments below	Lab Project ID (lab use)																						
Applicable Lab Quote #:				Valid Matrix Codes								Requested Analyses																									
#	ITEM	SAMPLE ID One character per box. (A-Z, 0-9 / ) Samples IDs MUST BE UNIQUE	MATRIX	MATRIX										FIELD FILTERED? (Y/N)	# OF CONTAINERS	SAMPLE TIME	SAMPLE DATE	DATE TIME	ACCEPTED BY - AFFILIATION	Sample Receipt Conditions																	
				WV	WP	WS	WP	WS	WP	WS	WP	WS	WP							WS	WP	WS	WP	WS	WP	WS	WP	WS	WP	WS	WP	WS	WP	WS	WP	WS	WP
1		RSAM5-0.5B	SO														7-30-09	1254	7-30-09	12:54	Mark Hagar GEL	7-31-09	08:00	25	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N				
2		RSAM5009-0.5B	SO													7-30-09	1254	7-30-09	12:54																		
3		RSAM5-10B	SO													7-30-09	1331	7-30-09	13:31																		
4		RSAM5-28B	SO													7-30-09	1409	7-30-09	14:09																		
5																																					
6																																					
7																																					
8																																					
9																																					
10																																					
11																																					
12																																					
13																																					



# SAMPLE RECEIPT & REVIEW FORM

Client: <u>KEPP/NORTHSTAR</u>		SDG/ARCOC/Work Order: <u>2344141</u>	
Received By: <u>mk</u>		Date Received: <u>7-31-09</u>	
<b>Suspected Hazard Information</b>		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>23c</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 7978 0955 6729

PM (or PMA) review: Initials AD Date 7-31-09

2344141



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(949) 260-9293

**CHAIN-OF-CUSTODY / Analytical Request Document**  
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COC No. 2027.001.00348  
Page: 1 of 1  
Cooler # 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 Tronex LLC	City/State:	Henderson, NV	Phone #:	(949) 260-9293	QC level Required:	Standard	Special EPA Stage 4	Mark one
Address:	2040 Savage Road Charleston, SC 29407	Project #:	2027.001	Address:	PO Box 85	City/State:	Henderson, NV	Phone #:	(949) 260-9293	Reimbursement project?	X	Non-reimbursement project?	
Lab PM:	Edith M. Kent	City:	Henderson	State:	NV	Site PM Name:	Derrick Willis	Phone/Fax:	(949) 375-7004	Send EDD to:	frank.hagar@ngem.com	CC Hardcopy report to:	see additional comments below
Phone/Fax:	(949) 556-8171	Site PM Email:	derrick.willis@ngem.com	Matrix Code:	SO	Sample Type:	G	Sample Date:	7-31-09	Sample Time:	0934	Field Filtered? (Y/N)	N
Lab PM email:	emk@gel.com	Matrix Code:	SO	Sample Type:	G	Sample Date:	7-31-09	Sample Time:	1001	Field Filtered? (Y/N)	N	Field Filtered? (Y/N)	N
Applicable Lab Quote #:		Matrix Code:	SO	Sample Type:	G	Sample Date:	7-31-09	Sample Time:	1025	Field Filtered? (Y/N)	N	Field Filtered? (Y/N)	N
1	SA127-10B	Matrix Code:	SO	Sample Type:	G	Sample Date:	7-31-09	Sample Time:	0934	Field Filtered? (Y/N)	N	Field Filtered? (Y/N)	N
2	SA127-20B	Matrix Code:	SO	Sample Type:	G	Sample Date:	7-31-09	Sample Time:	1001	Field Filtered? (Y/N)	N	Field Filtered? (Y/N)	N
3	SA127-32B	Matrix Code:	SO	Sample Type:	G	Sample Date:	7-31-09	Sample Time:	1025	Field Filtered? (Y/N)	N	Field Filtered? (Y/N)	N
4		Matrix Code:		Sample Type:		Sample Date:		Sample Time:		Field Filtered? (Y/N)		Field Filtered? (Y/N)	
5		Matrix Code:		Sample Type:		Sample Date:		Sample Time:		Field Filtered? (Y/N)		Field Filtered? (Y/N)	
6		Matrix Code:		Sample Type:		Sample Date:		Sample Time:		Field Filtered? (Y/N)		Field Filtered? (Y/N)	
7		Matrix Code:		Sample Type:		Sample Date:		Sample Time:		Field Filtered? (Y/N)		Field Filtered? (Y/N)	
8		Matrix Code:		Sample Type:		Sample Date:		Sample Time:		Field Filtered? (Y/N)		Field Filtered? (Y/N)	
9		Matrix Code:		Sample Type:		Sample Date:		Sample Time:		Field Filtered? (Y/N)		Field Filtered? (Y/N)	
10		Matrix Code:		Sample Type:		Sample Date:		Sample Time:		Field Filtered? (Y/N)		Field Filtered? (Y/N)	
11		Matrix Code:		Sample Type:		Sample Date:		Sample Time:		Field Filtered? (Y/N)		Field Filtered? (Y/N)	
12		Matrix Code:		Sample Type:		Sample Date:		Sample Time:		Field Filtered? (Y/N)		Field Filtered? (Y/N)	
13		Matrix Code:		Sample Type:		Sample Date:		Sample Time:		Field Filtered? (Y/N)		Field Filtered? (Y/N)	

REL. INQUIRY BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE RECEIPT CONDITIONS
<i>Peter Egle</i>	7-31-09	10:25	<i>Patrick Snuffer</i>	8-5-09	18:30	Y/N Y/N Y/N Y/N
						Y/N Y/N Y/N Y/N
						Y/N Y/N Y/N Y/N
						Y/N Y/N Y/N Y/N

SHIPPING METHOD: (mark as appropriate)	SAMPLER NAME AND SIGNATURE	
UPS COURIER <b>FEDEX</b>	<i>Patrick Snuffer</i>	DATE SIGNED: 7-31
US MAIL	<i>Patrick Snuffer</i>	TIME: 1440



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(949) 260-9293

# CHAIN-OF-CUSTODY / Analytical Request Document

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COC No. 2027.001.00348  
Page: 1 of 1  
Cooler # \_\_\_\_\_ of \_\_\_\_\_

Required Ship to Lab:		Required Project Information:		Required Invoice Information:		TAT: Standard 30 day		Rush		Mark One				
Lab Name:	GEL Laboratories, LLC	Site ID #:	TRODIX LLC, HENDERSON	Send Invoice to:	Susan Crowley Troxon, LLC	City/State:	Henderson, NV 89009	Project #:	2027.001	City/State:	Henderson, NV 89009	Project #:	2027.001	Special EPA Stage 4/Mark one
Address:	2040 Savage Road Charleston, SC 29407	Project #:	2027.001	Address:	PO Box 85	City/State:	Henderson, NV 89009	Phone #:	(949) 260-9293	City/State:	Henderson, NV 89009	Phone #:	(949) 260-9293	Special EPA Stage 4/Mark one
Lab P/N:	Edith M. Kent	City:	Henderson	Site Address:	560 W. Lake Mead Drive	City/State:	Henderson, NV 89009	Phone #:	(949) 260-9293	City/State:	Henderson, NV 89009	Phone #:	(949) 260-9293	Special EPA Stage 4/Mark one
Phone/Fac:	(843)566-6171	City:	Henderson	Site Address:	560 W. Lake Mead Drive	City/State:	Henderson, NV 89009	Phone #:	(949) 260-9293	City/State:	Henderson, NV 89009	Phone #:	(949) 260-9293	Special EPA Stage 4/Mark one
Lab P/N email:	emk@gel.com	City:	Henderson	Site Address:	560 W. Lake Mead Drive	City/State:	Henderson, NV 89009	Phone #:	(949) 260-9293	City/State:	Henderson, NV 89009	Phone #:	(949) 260-9293	Special EPA Stage 4/Mark one
Applicable Lab Quote #:		City:	Henderson	Site Address:	560 W. Lake Mead Drive	City/State:	Henderson, NV 89009	Phone #:	(949) 260-9293	City/State:	Henderson, NV 89009	Phone #:	(949) 260-9293	Special EPA Stage 4/Mark one
Matrix Code	Matrix Code	Matrix Code	Matrix Code	Matrix Code	Matrix Code	Matrix Code	Matrix Code	Matrix Code	Matrix Code	Matrix Code	Matrix Code	Matrix Code	Matrix Code	Matrix Code
Sample ID	SA127-10B	Sample ID	SA127-20B	Sample ID	SA127-32B	Sample ID	SA127-5B-beam	Sample ID	SA127-10B-beam	Sample ID		Sample ID		Sample ID
Character	One Character per box. (A-Z, 0-9 / -)	Character		Character		Character		Character		Character		Character		Character
Notes	Samples IDs MUST BE UNIQUE	Notes		Notes		Notes		Notes		Notes		Notes		Notes
Requested		Requested		Requested		Requested		Requested		Requested		Requested		Requested
Accepted		Accepted		Accepted		Accepted		Accepted		Accepted		Accepted		Accepted
Sample Receipt		Sample Receipt		Sample Receipt		Sample Receipt		Sample Receipt		Sample Receipt		Sample Receipt		Sample Receipt

\* \* \*





Client: <u>Kerr-TMDX</u>		SDG/ARCOC/Work Order: <u>234414</u>	
Received By: <u>DS</u>		Date Received: <u>8/3/09</u>	
<b>Suspected Hazard Information</b>	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*: <u>20CPM</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>26</u>
3	Chain of custody documents included with shipment?			<input checked="" type="checkbox"/>	<u>2 samples rec'd that are not on COC see below</u>
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:  
 Received 2 extra 250 jars - ID SA127-5B - Berm 7/31 @ 8:30  
 ID SA127-10B - Berm 7/31 @ 8:54  
 NO COC  
 rec'd ex: 7978 1343 7322  
 7968 2619 350

PM (or PMA) review: Initials DS Date 8.4.09



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

# CHAIN-OF-CUSTODY / Analytical Request Document

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COC No. 2027.001.00513  
Page: 1 of 1  
Cooler # \_\_\_\_\_ of \_\_\_\_\_

Required Ship to Lab:			Required Project Information:			Required Invoice Information:					
Lab Name:	GEL Laboratories, LLC	Lab ID #:	TRONOX LLC, HENDERSON	Send Invoice to:	Susan Crowley	Address:	PO Box 65	TAT: Standard 30 day	<input checked="" type="checkbox"/> Rush	Mark One	
Address:	2040 Savages Road	Project #:	2027.001	City/State:	Henderson, NV 89009	Phone #:	(949) 260-9293	QC level Required:	Standard	Special EPA Stage 4	
City:	Edith M. Kent	Site Address:	960 W. Lake Mead Drive	Reimbursement project?	<input checked="" type="checkbox"/>	Non-reimbursement project?		NJ Reduced Deliverable Package?		Mark one	
Lab PM:	Edith M. Kent	City:	Henderson	State:	NV	Send EDD to:	Frank Hagar, Northgate Environmental Management, Inc frank.hagar@ngem.com	MA MCP Cert?		CT RCP Cert?	
Phone/Fax:	(843) 556-8171	Site PM Name:	Derrick Willis	CC Hardcopy report to:	PDF Electronic Version Only	CC Hardcopy report to:	see additional comments below	Lab Project ID (lab use)		Mark One	
Lab PM email:	emk@gel.com	Phone/Fax:	(949) 375-7004	Sample Matrix Code:		Matrix Code:		Requested Analyses:			
Applicable Lab Quote #:		Site PM Email:	derrick.willis@ngem.com	Matrix Code:		Sample Date:		Requested Preservatives:			
				Matrix Code:		Sample Time:		Requested Field Filtered? (YN)			
				Matrix Code:		Sample Date:		Requested # of Containers			
				Matrix Code:		Sample Date:		Requested Sample Type			
				Matrix Code:		Sample Date:		Requested G-GRAB C-COMP			
ITEM #	SAMPLE ID	One Character per box. (A-Z, 0-9 / -)	SAMPLE TYPE	MATRIX CODE	MATRIX	MATRIX	MATRIX	MATRIX	MATRIX	MATRIX	Comments/Lab Sample I.D.
1	SA28-0.5B	SAMPLES IDS MUST BE UNIQUE	G	SO	DRINKING WATER WASTEWATER WASTE WATER WATER COOLING WATER PRODUCT SEWAGE SLURRY OTHER OTHER	DRINKING WATER WASTEWATER WASTE WATER WATER COOLING WATER PRODUCT SEWAGE SLURRY OTHER OTHER	DRINKING WATER WASTEWATER WASTE WATER WATER COOLING WATER PRODUCT SEWAGE SLURRY OTHER OTHER	DRINKING WATER WASTEWATER WASTE WATER WATER COOLING WATER PRODUCT SEWAGE SLURRY OTHER OTHER	DRINKING WATER WASTEWATER WASTE WATER WATER COOLING WATER PRODUCT SEWAGE SLURRY OTHER OTHER	DRINKING WATER WASTEWATER WASTE WATER WATER COOLING WATER PRODUCT SEWAGE SLURRY OTHER OTHER	250 ml Plastic jar
2	SA28-10B		G	SO							250 ml Plastic jar
3	SA28009-10B		G	SO							250 ml Plastic jar
4	SA28-25B		G	SO							250 ml Plastic jar
5	SA28-40B		G	SO							250 ml Plastic jar
6	SA28-55B		G	SO							250 ml Plastic jar
7											
8											
9											
10											
11											
12											
13											

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

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

REQUISITIONED BY: ACTUATION  
 DATE: 8/31/09  
 TIME: 1550  
 ACCEPTED BY: ACTUATION  
 DATE: 9/4/09  
 TIME: 0845  
 SIGNATURE: B. Mulholland / NCEM  
 SIGNATURE: B. Mulholland  
 DATE SIGNED: 8/31/09  
 TIME: 1550  
 SHIPPER NAME AND SIGNATURE: Brendan Mulholland  
 SHIPPING METHOD: (Mark as appropriate)  
 UPS COURIER FEDEX  
 UPS MAIL

Temp in OC  
 Samples on Ice?  
 Sample Intact?  
 Trip Blank?





Client: XERR/NORTHGATE SDG/ARCOC/Work Order: 234414

Received By: MK Date Received: 8-4-09

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>am 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>24c</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 3042 0404

PM (or PMA) review: Initials HS Date 8-4-09

234414 /

2337767-2336127  
HS 8/4/09



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. 2027.001.00494  
Page: 1 of 1  
Cooler # 1 of 1

<b>Required Ship to Lab:</b> Lab Name: GEL Laboratories, LLC Address: 2040 Savage Road Charleston, SC 29407 Lab P/N: Edith M. Kent Phone/Fax: (843)556-8171 Lab PM email: emk@gel.com Applicable Lab Quote #:		<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: 949-375-7004 Site PM Email: derrick.willis@ngem.com		<b>Required Invoice Information:</b> Send Invoice to: Susan Crowley Tronox LLC Address: PO Box 55 City/State: Henderson, NV 89009 Phone #: (949)260-9293 Reimbursement project? <input checked="" type="checkbox"/> Non-reimbursement project? <input type="checkbox"/> Mark one Send EDD to: Frank Hagar Northgate Environmental Management, Inc 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 NJ Reduced Deliverable Package? MA MCP Cert? <input type="checkbox"/> CT RCP Cert? <input type="checkbox"/> Mark One														
ITEM #	SAMPLE ID	Character per box. (A-Z, 0-9 / , -) Samples IDs MUST BE UNIQUE	Matrix Code	SAMPLE TYPE	G-RAB C-COMP	FIELD FILTERED? (Y/N)	# OF CONTAINERS	SAMPLE TIME	SAMPLE DATE	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Sample Receipt Conditions	Temp in 00	Samples On Ice?	Sample Intact?	Trip Blank?	
																				Valid Matrix Codes
1	EB073109-SO	One	W	G		N	1	1152	7-31-09		1152									
2	EB073109-SO		W	G		N	1	1152	7-31-09		1152									
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)

Equipment Blank is associated with SA127-32B.  
 All PDF reports and EDDs will be uploaded to:  
 Northgate Environmental Management, Inc.  
 FTP site address provided to labs  
 Notifications provided to:  
 cindy.arnold@ngem.com & frank.hagar@ngem.com

SHIPPING METHOD: (mark as appropriate)  
 UPS COURIER  PEDEX   
 SIGNATURE OF SAMPLER: Patrick Farringer  
 DATE SIGNED: 7-31 Time: 1440

Requested Analyses

EPA 903.1902.0  
EML HASL 300\*

Comments/Lab Sample I.D.  
2 L Poly Clear/RSA.16-18B  
2 L Poly Clear/RSA.16-19B



SAMPLE RECEIPT & REVIEW FORM

Client: <u>Kerr-TMDX</u>		SDG/ARCO/Work Order: <u>234414</u>	
Received By: <u>DS</u>		Date Received: <u>8/3/09</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>20 CPM</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>26</u>
3	Chain of custody documents included with shipment?			<input checked="" type="checkbox"/>	<u>2 samples rec'd that are not on COC see below</u>
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:

Received 2 extra 250 jars - ID SA127-5B - Berm 7/31 @ 8:30  
 NO COC ID SA127-10B - Berm 7/31 @ 8:54

Rec'd ex: 7978 1343 7322  
 7968 2619 350

PM (or PMA) review: Initials DS Date 8.4.09

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

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	City/State:	Henderson, NV	Phone #:	949260-9293	QC level Required:	Standard	Special	EPA Stage	Mark one						
Address:	2040 Savage Road Charleston, SC 29407	Project #:	2027.001	Address:	PO Box 55	City/State:	Henderson, NV	Phone #:	949260-9293	QC level Required:	Standard	Special	EPA Stage	Mark one						
Lab PM:	Edith M. Kent	City:	Henderson	State:	NV	Reimbursement project?	<input checked="" type="checkbox"/>	Non-reimbursement project?		NJ Reduced Deliverable Package?		CT RCP Cert?		Mark One						
Phone/Fax:	(843)856-8171	Site PM Name:	Derrick Willis	Send EDD to:	frank.hagar@ngem.com	CC Hardcopy report to:	PDF Electronic Version Only	MA MCP Cert?		Lab Project ID (lab use)										
Lab PM email:	emk@gel.com	Phone/Fax:	949-375-7004	Site PM Email:	derrick.willis@ngem.com	CC Hardcopy report to:	see additional comments below													
Applicable Lab Quote #:		Valid Matrix Codes		Matrix		Preservatives		FIELD FILTERED? (Y/N)		# OF CONTAINERS		SAMPLE TIME		SAMPLE DATE		SAMPLE TYPE		MATRIX CODE		
<b>SAMPLE ID</b>	<b>One</b>	DRINKING WATER	WF	WATER	W	G-GRAB C-COMP														
<b>Character per box.</b>		GROUND WATER	WG	SURFACE WATER	WS															
<b>Samples IDs MUST BE UNIQUE</b>		SLURRY	SL	SOLID	SL															
		FREE PRODUCT	FP	SOLUBLE	SO															
		SOIL	SO	SLURRY	SL															
		WASTE	WA	SLURRY	SL															
		WASTE	WA	SLURRY	SL															
		AMBIENT AIR	AA	ANIMAL TISSUE	TA															
		SOIL GAS	SG																	
1	EB080309-SO					G	8/3/2009	11:50	1	N										
2	EB080309-SO					G	8/3/2009	11:50	1	N										
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
Additional Comments/Special Instructions:		RELINQUISHED BY / AFFILIATION		DATE		ACCEPTED BY / AFFILIATION		DATE		SAMPLE RECEIPT CONDITIONS		Temp in 0C		Samples On Ice?		Sample Intact?		Trip Blank?		
FULL DIGESTION SPECIFICATION EMSL HASL 300* - DOE EMSL HASL 300 modified (alpha spectroscopy) Thorium (isotopic) and Uranium (isotopic)		Phil Brickerhoff		8/3/2009		Phil Brickerhoff		8/3/2009		8/3/2009		8/3/2009		Y/N		Y/N		Y/N		
Equipment Blank is associated with RSAL7-27B. 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		SIGNATURE of SAMPLER		DATE Signed		SIGNATURE of SAMPLER		DATE Signed		SIGNATURE of SAMPLER		DATE Signed		SIGNATURE of SAMPLER		DATE Signed		SIGNATURE of SAMPLER		
		SHIPING METHOD. (mark as appropriate)		SAMPLE NAME AND SIGNATURE		SHIPING METHOD. (mark as appropriate)		SAMPLE NAME AND SIGNATURE		SHIPING METHOD. (mark as appropriate)		SAMPLE NAME AND SIGNATURE		SHIPING METHOD. (mark as appropriate)		SAMPLE NAME AND SIGNATURE		SHIPING METHOD. (mark as appropriate)		
		UPS COURIER		FEDEX		UPS COURIER		FEDEX		UPS COURIER		FEDEX		UPS COURIER		FEDEX		UPS COURIER		
		US MAIL				US MAIL				US MAIL				US MAIL				US MAIL		



### SAMPLE RECEIPT & REVIEW FORM

Client: <u>Keller / Northgate</u>		SDG/ARCOC/Work Order: <u>2344141</u>	
Received By: <u>MK</u>		Date Received: <u>8-4-09</u>	
<b>Suspected Hazard Information</b>		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\*: 9m 30

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>ddc</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 7978 1765 3180

PM (or PMA) review: Initials fd Date 8-4-09



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. 2027.001.00484  
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		If Rush, Date due																
Address: 2040 Savage Road		Project #: 2027.001		Address: PO Box 55																		
Charleston, SC 29407		City: Henderson		City/State: Henderson, NV 89009		Phone #: (949)260-9293		QC level Required: Standard		Special EPA Stage 4												
Lab P/M: Edith M. Kent		State: NV		Reimbursement project? <input checked="" type="checkbox"/>		Non-reimbursement project? <input type="checkbox"/>		NJ Reduced Deliverable Package?		Mark one												
Phone/Fax: (643)556-8171		Site PM Name: Derrick Willis		Send EDD to: frank.hagar@ngem.com		Frank Hagar Nortgate Environmental Management, Inc		MA MCP Cert?		Mark One												
Lab PM email: emk@gel.com		Phone/Fax: 949-375-7004		CC Hardcopy report to: PDF Electronic Version Only		CC Hardcopy report to: see additional comments below		CT RCP Cert?														
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 Character per box. (A-Z, 0-9 / -)	Valid Matrix Codes	MATRIX	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	FIELD FILTERED? (Y/N)	Preservatives										Requested Analyses	Comments/Lab Sample I.D.		
									UNPRESERVED	H2SO4	HNO3	HCl	NaOH	Na2S2O5	Methanol	Other	UNPRESERVED	H2SO4			HNO3	HCl
1	FB073009-50	W	DRINKING WATER	G	8/23/09	1400	1	N	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	EPA 903.1(b)(4)	2 L Poly Clear/RSAJ6-19B	
2	FB073009-50	W	WASTE WATER	G	8/23/09	1400	1	N	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	EML HASL 300*	2 L Poly Clear/RSAJ6-19B	
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)  
 Field Blank Associated with Area II  
 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

RELINQUISHED BY / AFFILIATION: B. Mollath / NCEM  
 DATE: 8/23/09 1700  
 ACCEPTED BY / AFFILIATION: Mike Fisher / GEL  
 DATE: 8-24-09 0855  
 SHIPPING METHOD: (mark as appropriate)  
 UPS COURIER FEDEX  
 SIGNATURE OF SAMPLER: B. Mollath  
 SIGNATURE OF SAMPLER: Mike Fisher  
 TIME OF SAMPLER: 1700  
 TIME OF SAMPLER: 0855  
 SAMPLE NAME AND SIGNATURE: Doug Davis  
 TIME: 1700  
 Temp in 00: Trip Blank  
 Samples on Ice? Sample Intact? Y/N Y/N Y/N Y/N Y/N Y/N Y/N Y/N Y/N Y/N



SAMPLE RECEIPT & REVIEW FORM

Client: <u>Keen / Northgate</u>		SDG/ARCOC/Work Order: <u>234414</u>	
Received By: <u>MK</u>		Date Received: <u>8-4-09</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>4m 2D</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>24c</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 7978 1768 0460

PM (or PMA) review: Initials 45 Date 8-4-09

**Subject:** [Fwd: GEL sample receipt 8/3/09 - Please advise; COC# 2027.001.00348]  
**From:** Heather Shaffer <Heather.Shaffer@gel.com>  
**Date:** Tue, 01 Sep 2009 10:11:30 -0400  
**To:** Edie Kent <emk@gel.com>

--  
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)

---

**Subject:** RE: GEL sample receipt 8/3/09 - Please advise; COC# 2027.001.00348  
**From:** "Victoria Hansen" <Victoria.Hansen@gesnevada.com>  
**Date:** Tue, 4 Aug 2009 10:05:14 -0700  
**To:** "Vivian Willis" <vivian.willis@verdant-solutions.com>, "Heather Shaffer" <Heather.Shaffer@gel.com>  
**CC:** "Cindy Arnold" <Cindy.Arnold@ngem.com>, "Frank Hagar" <Frank.Hagar@ngem.com>, "Derrick Willis" <Derrick.Willis@ngem.com>

Hi Heather,

Here is the amended CoC.

**-Victoria Hansen-**

GES - Geotechnical & Environmental Services, Inc.  
Environmental Staff Scientist  
Office: 702.365.1001  
Cell: 702.275.8386  
Fax: 702.341.7120  
Email: [victoria.hansen@gesnevada.com](mailto:victoria.hansen@gesnevada.com)  
[www.gesnevada.com](http://www.gesnevada.com)



*We make the ground work for you...<sup>SM</sup>*

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**From:** Vivian Willis [mailto:[vivian.willis@verdant-solutions.com](mailto:vivian.willis@verdant-solutions.com)]  
**Sent:** Tuesday, August 04, 2009 8:46 AM  
**To:** 'Heather Shaffer'; Victoria Hansen  
**Cc:** 'Cindy Arnold'; 'Frank Hagar'; 'Derrick Willis'  
**Subject:** RE: GEL sample receipt 8/3/09 - Please advise; COC# 2027.001.00348

Victoria,

I have attached the revised COC for Friday 7/31/09 which has the additional berm samples GEL took. Could you



please have the COC signed and emailed to Heather Shaffer at GEL as soon as you have it.

Heather I have included you on this email so that you have a temporary unsigned COC with the samples and methods on it.

Vivian Willis



---

**From:** Vivian Willis [mailto:vivian.willis@verdant-solutions.com]  
**Sent:** Monday, August 03, 2009 8:45 AM  
**To:** 'Frank Hagar'  
**Cc:** 'Cindy Arnold'; 'Derrick Willis'  
**Subject:** RE: GEL sample receipt 8/3/09 - Please advise; COC# 2027.001.00348

I spoke with Heather this morning and I have attached the revised COC with the two berm samples added, so you can send it to Victoria. I checked the Columbia COC and it was revised.

We still have the issue of extra bottles at GEL, Heather is going to look on the labels and see what method was requested for them.

Vivian Willis



---

**From:** Heather Shaffer [mailto:Heather.Shaffer@gel.com]  
**Sent:** Monday, August 03, 2009 8:35 AM  
**To:** Cindy Arnold; vivian.willis@verdant-solutions.com; Derrick Willis; Frank Hagar  
**Cc:** Edie Kent  
**Subject:** GEL sample receipt 8/3/09 - Please advise; COC# 2027.001.00348

We received 2 additional sample containers today (Monday) that were not listed on the COC.  
The sample IDs are: SA127-5B-berm collected 7/31/09 08:30 and SA127-10B-berm collected 7/31/09 08:54.

Thank you,  
Heather

--  
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)

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**GEL sample receipt 8/3/09 - Please advise; COC# 2027.001.00348.eml**

**Content-Type:** message/rfc822

**Content-Encoding:** 7bit

**GEL CoC 2027.001.00348 amended.pdf**

**Content-Description:** GEL CoC 2027.001.00348 amended.pdf

**Content-Type:** application/octet-stream

**Content-Encoding:** base64

**Subject:** RE: COC 2027.001.00512 EB question

**From:** <frank.hagar@ngem.com>

**Date:** Tue, 4 Aug 2009 11:44:35 -0700

**To:** "Heather Shaffer" <Heather.Shaffer@gel.com>, "Vivian Willis" <vivian.willis@verdant-solutions.com>

**CC:** "Cindy Arnold" <Cindy.Arnold@ngem.com>, "Edie Kent" <emk@gel.com>, "Heather Shaffer" <hea01394@gel.com>

This EB is associated with RSAJ3-29

There were all sorts of struggles yesterday for the field crews.

---

**From:** Heather Shaffer [mailto:Heather.Shaffer@gel.com]

**Sent:** Tuesday, August 04, 2009 11:39 AM

**To:** Frank Hagar; Vivian Willis

**Cc:** Cindy Arnold; Edie Kent; Heather Shaffer

**Subject:** COC 2027.001.00512 EB question

All,  
I am a little confused by the COC received today and just need a few things verified. The comment notes that "equipment blank is associated with RSAL7-27B". I do not think we have received this sample yet, and cannot locate it in our system. Do you know when we will be receiving it? Also, I attached a copy of the COC. In the comments/lab sample I.D. field is lists "2 L Poly Clear/RSAJ6-19B". I am confused by the sample ID RSAJ6-19B and how this relates to this chain of custody. The sample in question was received on July 18 and the work order was closed on July 22. Could this be a typo? I highlighted the question on the chain.

Thanks,  
Heather

--  
Heather Shaffer  
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**Subject:** GEL Closed SDG 234414

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

**Date:** Wed, 05 Aug 2009 13:45:38 -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 yesterday's receipts, we closed soil SDG 234414. 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  
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Fax: 843.766.1178  
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Web: [www.gel.com](http://www.gel.com)

<b>234414.xls</b>	<b>Content-Type:</b> application/msexcel <b>Content-Encoding:</b> base64
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**Subject:** SDG 234414, Ra-228 Equipment Blank Detect

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

**Date:** Mon, 31 Aug 2009 18:03:54 -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>

Sample EB080309-SO, GEL ID 234414020, is an equipment blank with an activity above the MDA. Ra-228 was detected in the sample at 3.53 pCi/L with an uncertainty of 1.85 and an MDA of 2.78.

Edie

--

Edith M. Kent  
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Web: [www.gel.com](http://www.gel.com)

**Subject:** SDG 234414 QC Issues - Alpha Spec Th, Alpha Spec U, Ra-226

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

**Date:** Tue, 01 Sep 2009 08:10:56 -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>

**C** Martha Harrison <Martha.Harrison@gel.com>

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

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

The following samples do not meet the Tronox QA program sample result uncertainty limit of <30% with activity between 2 and 5 times the MDA and were counted for the maximum possible count time: SA127-10B-berm (234414023).

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

Sample SA28-0.5B (234414013) did not meet the Tronox QA program tracer yield requirements of 70-120%. The sample had a tracer yield of 123.6% which met the GEL standard tracer yield requirements and the Tronox QA program detection limits and uncertainty requirements were met. The sample was counted for the maximum count time.

The method blank did not meet the Tronox QA program detection limits for Th-228 and Th-230 due to keeping the blank aliquot consistent with the sample aliquots. The blank was counted for the maximum count time in order to achieve the lowest MDA possible.

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

The method blank did not meet the Tronox QA program sample result uncertainty limit of <30% with activity between 2 and 5 times the MDA for Th-230. The LCS did not meet the Tronox QA program sample result uncertainty limit of <30% with activity between 2 and 5 times the MDA for Th-228. Samples were counted the maximum count time to achieve the best possible uncertainties.

The LCS did not meet the Tronox QA program tracer yield requirements of 70-120%. With a value of 67.1%, the tracer yield met the GEL standard requirement and both the LCS and LCS dup met the Th230 recovery requirements. All other samples in the batch met the contract tracer yield requirement.

**\*Soil 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: SA49-32B (234414001), SA63-23B (234414003), SA28-10B (234414014), 234414015, 234414016, 234414017, SA127-10B-berm (234414023), and the lab DUP.

The following samples do not meet the Tronox QA program sample result uncertainty limit of <30% with activity greater than 5 times the MDA for U235/236 and were counted for the maximum possible count time: SA127-32B (234414010), RSAJ3-10B (234414011).

Sample SA28-10B (234414014) did not meet the Tronox QA program tracer yield requirements of 70-120%. However, the sample did meet the GEL standard requirements with a recovery of 125%. The blank and LCS met the contract yield recovery requirements.

This will be noted in the case narrative.

Edie

--  
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# **Laboratory Certifications**



**List of current GEL Certifications as of 31 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 234414**

**Method/Analysis Information**

**Product:** Alphaspec Th, Solid  
Analytical Method: DOE EML HASL-300, Th-01-RC Modified  
Prep Method: Dry Soil Prep  
Analytical Batch Number: 893411  
Prep Batch Number: 891120

<b>Sample ID</b>	<b>Client ID</b>
234414001	SA49-32B
234414002	SA63-10B
234414003	SA63-23B
234414004	RSAM5-0.5B
234414005	RSAM5009-0.5B
234414006	RSAM5-10B
234414007	RSAM5-28B
234414008	SA127-10B
234414009	SA127-20B
234414010	SA127-32B
234414011	RSAJ3-10B
234414012	RSAJ3-29B
234414013	SA28-0.5B
234414014	SA28-10B
234414015	SA28009-10B
234414016	SA28-25B
234414017	SA28-40B
234414018	SA28-55B
234414022	SA127-5B-berm
234414023	SA127-10B-berm
1201900829	Method Blank (MB)
1201900830	234414002(SA63-10B) Sample Duplicate (DUP)
1201900831	234414002(SA63-10B) Matrix Spike (MS)
1201900832	Laboratory Control Sample (LCS)

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

**SOP Reference**

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

**Calibration Information:****Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

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

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

**Designated QC**

The following sample was used for QC: 234414002 (SA63-10B).

**QC Information**

All of the QC samples met the required acceptance limits.

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

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

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

Samples were recounted due to a suspected blank false positive. Samples were recounted due to high relative percent difference/relative error ratio. Sample 1201900829 (MB) was recounted due to a suspected blank false positive.

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

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

NCR 728180 was generated due to Failed Recovery for Surrogate or Tracer. 1. Sample 234414013 does not meet the client tracer yield requirements of 70 to 120 percent. 1. Sample has a tracer yield of 123.6 percent, which does meet the GEL standard tracer yield requirements of 15 to 125 percent and the detection limits and Uncertainty requirements were met for the sample. Sample was counted for the maximum count time of 1000 minutes. Project Manager notified. Reporting results.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The blank did not meet the detection limits for Th-228 and Th-230 due to keeping the blank volume consistent with the other sample aliquots. All other samples met the detection limits.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

**Product:** Alphaspec Th, Liquid

Analytical Method: DOE EML HASL-300, Th-01-RC Modified

Analytical Batch Number: 897494

<b>Sample ID</b>	<b>Client ID</b>
234414019	EB073109-SO
234414020	EB080309-SO
234414021	FB080309-SO
1201911149	Method Blank (MB)
1201911150	Laboratory Control Sample (LCS)
1201911151	Laboratory Control Sample Duplicate (LCSD)

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

**SOP Reference**

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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

A laboratory control sample and a laboratory control sample duplicate, 1201911150 (LCS) and 1201911151 (LCSD), were run with the batch instead of a sample duplicate due to limited sample volume.

**QC Information**

Refer to Non-Conformance Report.

**Technical Information:**

**Holding Time**

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

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

Samples were reprepared due to low carrier/tracer yield. Samples were reprepared due to high recovery.

**Miscellaneous Information:**

**NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG: NCR 727516 was generated due to Failed Recovery for Surrogate or Tracer and Other. 1. The laboratory control sample duplicate, 1201909631, tracer yield is slightly below the client requirement of 70 - 120%. 2. Sample 1201911149 has Thorium-230 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity. Sample 1201911150 has Thorium-228 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity. 1. With a value of 67.1%, the tracer yield meets the GEL standard requirement and both the LCS and LCSD meet the Th230 recovery requirements. All other samples meet the client’s tracer yield requirement. Group leader consulted, project manager notified. Reporting results. 2. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties. PM notified, reporting results.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The Th230 blank result is greater than the MDC but less than the detection limit.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Alphaspec U, Liquid</b>
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Analytical Batch Number:	892925

<b>Sample ID</b>	<b>Client ID</b>
234414019	EB073109-SO
234414020	EB080309-SO
234414021	FB080309-SO
1201899628	Method Blank (MB)
1201899629	Laboratory Control Sample (LCS)
1201899630	Laboratory Control Sample Duplicate (LCSD)

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

### **SOP Reference**

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

### **Calibration Information:**

#### **Calibration Information**

All initial and continuing calibration requirements have been met.

#### **Standards Information**

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

#### **Sample Geometry**

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

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

#### **Blank Information**

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

#### **Designated QC**

A laboratory duplicate was not run with the analytical batch since it was designated by the client as a field QC. A laboratory control sample duplicate 1201899630 (LCSD) was analyzed for precision.

#### **QC Information**

All of the QC samples met the required acceptance limits.

### **Technical Information:**

#### **Holding Time**

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

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

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Alphaspec U, Solid</b>
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	893412
Prep Batch Number:	891120



<b>Sample ID</b>	<b>Client ID</b>
234414001	SA49-32B
234414002	SA63-10B
234414003	SA63-23B
234414004	RSAM5-0.5B
234414005	RSAM5009-0.5B
234414006	RSAM5-10B
234414007	RSAM5-28B
234414008	SA127-10B
234414009	SA127-20B
234414010	SA127-32B
234414011	RSAJ3-10B
234414012	RSAJ3-29B
234414013	SA28-0.5B
234414014	SA28-10B
234414015	SA28009-10B
234414016	SA28-25B
234414017	SA28-40B
234414018	SA28-55B
234414022	SA127-5B-berm
234414023	SA127-10B-berm
1201900833	Method Blank (MB)
1201900834	234414002(SA63-10B) Sample Duplicate (DUP)
1201900835	234414002(SA63-10B) Matrix Spike (MS)
1201900836	Laboratory Control Sample (LCS)

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

#### **SOP Reference**

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

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met.

##### **Standards Information**

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

##### **Sample Geometry**

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

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

##### **Blank Information**

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

**Designated QC**

The following sample was used for QC: 234414002 (SA63-10B).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

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

Sample 234414014 (SA28-10B) was recounted due to high carrier/tracer yield.

**Miscellaneous Information:**

**NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG: NCR 727860 was generated due to Other. 1. Samples 234414008, 234414010 and 234414011 have Uranium-235/236 activity greater than five times the MDA and uncertainty greater than 30% of that activity. Samples 234414001, 234414003, 234414014, 234414015, 234414016, 234414017, 234414023 and 1201900834 have Uranium-235/236 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity. 2. Sample 234414014 does not meet the client’s tracer yield requirements. 1. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties. PM notified, reporting results. 2. The sample does meet GEL’s standard tracer yield recovery requirements with a recovery of 125%. The blank and LCS both meet the client’s yield recovery requirements. PM notified, reporting results.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Gas Flow Radium 228</b>
Analytical Method:	EPA 904.0/SW846 9320 Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	891157
Prep Batch Number:	891120

<b>Sample ID</b>	<b>Client ID</b>
234414001	SA49-32B
234414002	SA63-10B
234414003	SA63-23B
234414004	RSAM5-0.5B
234414005	RSAM5009-0.5B
234414006	RSAM5-10B
234414007	RSAM5-28B
234414008	SA127-10B
234414009	SA127-20B
234414010	SA127-32B
234414011	RSAJ3-10B
234414012	RSAJ3-29B
234414013	SA28-0.5B
234414014	SA28-10B
234414015	SA28009-10B
234414016	SA28-25B
234414017	SA28-40B
234414018	SA28-55B
234414022	SA127-5B-berm
234414023	SA127-10B-berm
1201895459	Method Blank (MB)
1201895460	234414002(SA63-10B) Sample Duplicate (DUP)
1201895461	234414002(SA63-10B) Matrix Spike (MS)
1201895462	Laboratory Control Sample (LCS)

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

#### **SOP Reference**

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

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met.

##### **Standards Information**

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

##### **Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

The following sample was used for QC: 234414002 (SA63-10B).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

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

Samples 1201895460 (SA63-10B), 234414001 (SA49-32B), 234414002 (SA63-10B), 234414004 (RSAM5-0.5B), 234414005 (RSAM5009-0.5B), 234414008 (SA127-10B), 234414009 (SA127-20B), 234414011 (RSAJ3-10B) and 234414023 (SA127-10B-berm) recounted the maximum time of 380 minutes due to the samples not meeting the uncertainty requirements. Second count reporting.

**Chemical Recoveries**

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>GFPC, Ra228, Liquid</b>
Analytical Method:	EPA 904.0/SW846 9320 Modified
Analytical Batch Number:	891394

<b>Sample ID</b>	<b>Client ID</b>
234414019	EB073109-SO
234414020	EB080309-SO
234414021	FB080309-SO
1201896008	Method Blank (MB)
1201896009	Laboratory Control Sample (LCS)
1201896010	Laboratory Control Sample Duplicate (LCSD)

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

### **SOP Reference**

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

A laboratory duplicate was not run with the analytical batch since it was designated by the client as a field QC. A laboratory control sample duplicate 1201896010 (LCSD) was analyzed for precision.

#### **QC Information**

All of the QC samples met the required acceptance limits.

### **Technical Information:**

#### **Holding Time**

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

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

Samples were reprecipitated and recounted due to high blank activity.

#### **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: 892760

<b>Sample ID</b>	<b>Client ID</b>
234414019	EB073109-SO
234414020	EB080309-SO
234414021	FB080309-SO
1201899206	Method Blank (MB)
1201899207	Laboratory Control Sample (LCS)
1201899208	Laboratory Control Sample Duplicate (LCSD)

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

**SOP Reference**

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

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met.

**Standards Information**

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

**Sample Geometry**

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

**Quality Control (QC) Information:**

**Blank Information**

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

**Designated QC**

A laboratory duplicate was not run with the analytical batch since it was designated by the client as a field QC. A laboratory control sample duplicate 1201899208 (LCSD) was analyzed for precision.

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

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

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

**Miscellaneous Information:**

**NCR Documentation**

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

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>Lucas Cell, Ra226, solid</b>
Analytical Method:	EPA 903.1 Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	893452
Prep Batch Number:	891120

<b>Sample ID</b>	<b>Client ID</b>
234414001	SA49-32B
234414002	SA63-10B
234414003	SA63-23B
234414004	RSAM5-0.5B
234414005	RSAM5009-0.5B
234414006	RSAM5-10B
234414007	RSAM5-28B
234414008	SA127-10B
234414009	SA127-20B
234414010	SA127-32B
234414011	RSAJ3-10B
234414012	RSAJ3-29B
234414013	SA28-0.5B
234414014	SA28-10B
234414015	SA28009-10B
234414016	SA28-25B
234414017	SA28-40B
234414018	SA28-55B
234414022	SA127-5B-berm
234414023	SA127-10B-berm
1201900982	Method Blank (MB)
1201900983	234414002(SA63-10B) Sample Duplicate (DUP)
1201900984	234414002(SA63-10B) Matrix Spike (MS)
1201900985	Laboratory Control Sample (LCS)

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

#### **SOP Reference**

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

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met.

##### **Standards Information**

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

##### **Sample Geometry**

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

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

##### **Blank Information**

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



**Designated QC**

The following sample was used for QC: 234414002 (SA63-10B).

**QC Information**

All of the QC samples met the required acceptance limits.

**Technical Information:**

**Holding Time**

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

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

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

**Miscellaneous Information:**

**NCR Documentation**

Nonconformance reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. The following NCR was generated for this SDG: NCR 727947 was generated due to Other. 1. Sample 234414023, has activity between 2 and 5 times the MDA. Uncertainty is greater than 30 percent and sample counted the maximum count time. 1. Reporting results

**Additional Comments**

Additional comments were not required for this sample set.

**Qualifier information**

Manual qualifiers were not required.

**Certification Statement**

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

**Review Validation:**

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

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

**Reviewer/Date:** \_\_\_\_\_  5/31/09

**COMPANY - WIDE NONCONFORMANCE REPORT**

<b>Mo.Day Yr.</b> 28-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> 897494	<b>Sample Numbers:</b> See below		

**Potentially affected work order(s)(SDG): 234267,234414**

**Application Issues:**

Failed Recovery for Surrogate or Tracer

Other

<b>Specification and Requirements Nonconformance Description:</b>	<b>NRG Disposition:</b>
<p>1. The laboratory control sample duplicate, 1201909631, tracer yield is slightly below the client requirement of 70 - 120%.</p> <p>2. Sample 1201911149 has Thorium-230 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity. Sample 1201911150 has Thorium-228 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity.</p>	<p>1. With a value of 67.1%, the tracer yield meets the GEL standard requirement and both the LCS and LCSD meet the Th230 recovery requirements. All other samples meet the client's tracer yield requirement. Group leader consulted, project manager notified. Reporting results.</p> <p>2. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties. PM notified, reporting results.</p>

**Originator's Name:**

Joseph Moulden      28-AUG-09

**Data Validator/Group Leader:**

Joseph Moulden

**COMPANY - WIDE NONCONFORMANCE REPORT**

<b>Mo.Day Yr.</b> 28-AUG-09	<b>Division:</b> Radiochemistry	<b>Quality Criteria:</b> Specifications	<b>Type:</b> Product
<b>Instrument Type:</b> ALPHA SPECTROMETER	<b>Test / Method:</b> DOE EML HASL-300, U-02-RC Modified	<b>Matrix Type:</b> Solid	<b>Client Code:</b> KERR
<b>Batch ID:</b> 893412	<b>Sample Numbers:</b> See Below.		

**Potentially affected work order(s)(SDG): 234414**

**Application Issues:**

Other

<b>Specification and Requirements Nonconformance Description:</b>	<b>NRG Disposition:</b>
<p>1. Samples 234414008, 234414010 and 234414011 have Uranium-235/236 activity greater than five times the MDA and uncertainty greater than 30% of that activity. Samples 234414001, 234414003, 234414014, 234414015, 234414016, 234414017, 234414023 and 1201900834 have Uranium-235/236 activity between two and five times the MDA and uncertainty greater than 30% of that respective activity.</p> <p>2. Sample 234414014 does not meet the client's tracer yield requirements.</p>	<p>1. Samples were all counted the maximum count time of 1000 minutes to achieve the best possible uncertainties. PM notified, reporting results.</p> <p>2. The sample does meet GEL's standard tracer yield recovery requirements with a recovery of 125%. The blank and LCS both meet the client's yield recovery requirements. PM notified, reporting results.</p>

**Originator's Name:**

Eric Brimstin                      28-AUG-09

**Data Validator/Group Leader:**

Scott Moreland                      30-AUG-09

**COMPANY - WIDE NONCONFORMANCE REPORT**

<b>Mo.Day Yr.</b> 31-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> Solid	<b>Client Code:</b> KERR
<b>Batch ID:</b> 893452	<b>Sample Numbers:</b> See Below		
<b>Potentially affected work order(s)(SDG): 234414</b>			
<b>Application Issues:</b> Other			
<b>Specification and Requirements Nonconformance Description:</b>		<b>NRG Disposition:</b>	
1. Sample 234414023, has activity between 2 and 5 times the MDA. Uncertainty is greater than 30 percent and sample counted the maximum count time.		1. Reporting results	

**Originator's Name:**  
Takesha Mungo      31-AUG-09

**Data Validator/Group Leader:**  
Lesley Anderson      31-AUG-09

**COMPANY - WIDE NONCONFORMANCE REPORT**

<b>Mo.Day Yr.</b> 31-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> Solid	<b>Client Code:</b> KERR
<b>Batch ID:</b> 893411	<b>Sample Numbers:</b> See Below		

**Potentially affected work order(s)(SDG): 234414**

**Application Issues:**

Failed Recovery for Surrogate or Tracer

**Specification and Requirements  
Nonconformance Description:**

1. Sample 234414013 does not meet the client tracer yield requirements of 70 to 120 percent.

**NRG Disposition:**

1. Sample has a tracer yield of 123.6 percent, which does meet the GEL standard tracer yield requirements of 15 to 125 percent and the detection limits and Uncertainty requirements were met for the sample. Sample was counted for the maximum count time of 1000 minutes. Project Manager notified. Reporting results.

**Originator's Name:**

Jessica Downey 31-AUG-09

**Data Validator/Group Leader:**

Joseph Moulden 31-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: 234414 GEL Work Order: 234414

**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.

 8/31/09

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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 31, 2009

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

Client Sample ID: SA49-32B  
Sample ID: 234414001  
Matrix: SO  
Collect Date: 30-JUL-09 12:01  
Receive Date: 31-JUL-09  
Collector: Client

Project: KERRHenderson  
Client ID: KERR003

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.13	+/-0.193	0.130	0.050	pCi/g		KXM	08/28/09	2051	893411	1
											4	
Thorium-230		4.18	+/-0.350	0.0836	0.050	pCi/g						
Thorium-232		0.915	+/-0.166	0.0724	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		3.52	+/-0.218	0.0584	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.119	+/-0.0486	0.0471	0.040	pCi/g						
Uranium-238		3.32	+/-0.210	0.0424	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		2.10	+/-0.499	0.759	0.500	pCi/g		JXC5	08/13/09	1104	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		1.78	+/-0.297	0.189	0.500	pCi/g		KSD1	08/30/09	1500	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			92.0	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			102	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			87.1	(25%-125%)



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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID: SA63-10B  
Sample ID: 234414002  
Matrix: SO  
Collect Date: 30-JUL-09 10:12  
Receive Date: 31-JUL-09  
Collector: Client

Project: KERRHenderson  
Client ID: KERR003

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.84	+/-0.235	0.124	0.050	pCi/g		KXM	08/28/09	2051	893411	1
											4	
Thorium-230		2.43	+/-0.262	0.0797	0.050	pCi/g						
Thorium-232		1.64	+/-0.213	0.0216	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		2.51	+/-0.215	0.0674	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.0925	+/-0.0532	0.064	0.040	pCi/g						
Uranium-238		2.24	+/-0.203	0.0627	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.28	+/-0.366	0.558	0.500	pCi/g		JXC5	08/13/09	1104	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		1.33	+/-0.270	0.163	0.500	pCi/g		KSD1	08/30/09	1500	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			96.3	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			75.8	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			99.5	(25%-125%)

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## Certificate of Analysis

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

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

Report Date: September 1, 2009

Client Sample ID:	SA63-23B	Project:	KERRHenderson
Sample ID:	234414003	Client ID:	KERR003
Matrix:	SO		
Collect Date:	30-JUL-09 10:41		
Receive Date:	31-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, Solid "Dry Weight Corrected"</i>											
Thorium-228		1.28	+/-0.187	0.102	0.050	pCi/g		KXM 08/28/09	2051	893411	1
							4				
Thorium-230		2.29	+/-0.241	0.0198	0.050	pCi/g					
Thorium-232		1.01	+/-0.161	0.0506	0.100	pCi/g					
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>											
Uranium-233/234		2.46	+/-0.195	0.0602	0.040	pCi/g		KXM 08/20/09	2133	893412	2
							4				
Uranium-235/236		0.0826	+/-0.0415	0.0372	0.040	pCi/g					
Uranium-238		2.24	+/-0.185	0.0435	0.040	pCi/g					
<b>Rad Gas Flow Proportional Counting</b>											
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>											
Radium-228		1.29	+/-0.352	0.360	0.500	pCi/g		JXC5 08/13/09	0755	891157	3
<b>Rad Radium-226</b>											
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>											
Radium-226		1.59	+/-0.304	0.216	0.500	pCi/g		KSD1 08/30/09	1500	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			101	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			88.9	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			90.5	(25%-125%)

# GEL LABORATORIES LLC

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID: RSAM5-0.5B	Project: KERRHenderson
Sample ID: 234414004	Client ID: KERR003
Matrix: SO	
Collect Date: 30-JUL-09 12:54	
Receive Date: 31-JUL-09	
Collector: Client	

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.33	+/-0.192	0.143	0.050	pCi/g		KXM	08/28/09	2051	893411	1
											4	
Thorium-230		0.982	+/-0.153	0.0581	0.050	pCi/g						
Thorium-232		1.17	+/-0.168	0.0671	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		0.830	+/-0.0988	0.0331	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.0481	+/-0.0281	0.0283	0.040	pCi/g						
Uranium-238		0.784	+/-0.0957	0.0287	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.47	+/-0.377	0.562	0.500	pCi/g		JXC5	08/13/09	1104	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		1.34	+/-0.298	0.157	0.500	pCi/g		KSD1	08/30/09	1500	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			112	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			114	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			96.8	(25%-125%)

# GEL LABORATORIES LLC

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	RSAM5009-0.5B	Project:	KERRHenderson
Sample ID:	234414005	Client ID:	KERR003
Matrix:	SO		
Collect Date:	30-JUL-09 12:54		
Receive Date:	31-JUL-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.91	+/-0.228	0.122	0.050	pCi/g		KXM	08/28/09	2051	893411	1
											4	
Thorium-230		1.08	+/-0.165	0.0499	0.050	pCi/g						
Thorium-232		1.62	+/-0.204	0.0721	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		1.07	+/-0.121	0.0519	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.0545	+/-0.0339	0.0402	0.040	pCi/g						
Uranium-238		0.858	+/-0.107	0.0375	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.48	+/-0.464	0.725	0.500	pCi/g		JXC5	08/13/09	1105	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		1.10	+/-0.244	0.194	0.500	pCi/g		KSD1	08/30/09	1500	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			101	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			102	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			86.5	(25%-125%)

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	RSAM5-10B	Project:	KERRHenderson
Sample ID:	234414006	Client ID:	KERR003
Matrix:	SO		
Collect Date:	30-JUL-09 13:31		
Receive Date:	31-JUL-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.53	+/-0.207	0.127	0.050	pCi/g		KXM	08/28/09	2051	893411	1
											4	
Thorium-230		1.04	+/-0.164	0.0628	0.050	pCi/g						
Thorium-232		1.53	+/-0.197	0.0501	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		1.10	+/-0.122	0.0604	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.0608	+/-0.0327	0.031	0.040	pCi/g						
Uranium-238		1.09	+/-0.120	0.0502	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		0.526	+/-0.252	0.333	0.500	pCi/g		JXC5	08/13/09	0756	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		0.707	+/-0.185	0.113	0.500	pCi/g		KSD1	08/30/09	1530	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			107	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			111	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			89.8	(25%-125%)

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	RSAM5-28B	Project:	KERRHenderson
Sample ID:	234414007	Client ID:	KERR003
Matrix:	SO		
Collect Date:	30-JUL-09 14:09		
Receive Date:	31-JUL-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.29	+/-0.181	0.0711	0.050	pCi/g		KXM	08/28/09	2051	893411	1
											4	
Thorium-230		1.93	+/-0.220	0.0782	0.050	pCi/g						
Thorium-232		1.08	+/-0.163	0.0487	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		2.19	+/-0.171	0.0457	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.0927	+/-0.0437	0.0466	0.040	pCi/g						
Uranium-238		1.95	+/-0.160	0.0327	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.03	+/-0.384	0.533	0.500	pCi/g		JXC5	08/13/09	0756	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		1.21	+/-0.262	0.179	0.500	pCi/g		KSD1	08/30/09	1530	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			107	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			106	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			101	(25%-125%)

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID: SA127-10B  
Sample ID: 234414008  
Matrix: SO  
Collect Date: 31-JUL-09 09:34  
Receive Date: 03-AUG-09  
Collector: Client

Project: KERRHenderson  
Client ID: KERR003

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.73	+/-0.224	0.115	0.050	pCi/g		KXM	08/28/09	2051	893411	1
											4	
Thorium-230		1.75	+/-0.218	0.0538	0.050	pCi/g						
Thorium-232		1.22	+/-0.182	0.0211	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		1.60	+/-0.149	0.0344	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.0932	+/-0.0399	0.0133	0.040	pCi/g						
Uranium-238		1.48	+/-0.144	0.0397	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.82	+/-0.349	0.498	0.500	pCi/g		JXC5	08/13/09	1105	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		1.63	+/-0.363	0.289	0.500	pCi/g		KSD1	08/30/09	1530	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			98.4	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			97.5	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			98.5	(25%-125%)

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	SA127-20B	Project:	KERRHenderson
Sample ID:	234414009	Client ID:	KERR003
Matrix:	SO		
Collect Date:	31-JUL-09 10:01		
Receive Date:	03-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.01	+/-0.160	0.0828	0.050	pCi/g		KXM	08/28/09	2051	893411	1
											4	
Thorium-230		2.74	+/-0.254	0.0468	0.050	pCi/g						
Thorium-232		0.831	+/-0.145	0.0819	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		2.99	+/-0.190	0.030	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.174	+/-0.052	0.0296	0.040	pCi/g						
Uranium-238		2.46	+/-0.172	0.030	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.85	+/-0.415	0.613	0.500	pCi/g		JXC5	08/13/09	1257	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		2.14	+/-0.334	0.200	0.500	pCi/g		KSD1	08/30/09	1530	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			110	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			113	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			96.8	(25%-125%)



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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	SA127-32B	Project:	KERRHenderson
Sample ID:	234414010	Client ID:	KERR003
Matrix:	SO		
Collect Date:	31-JUL-09 10:25		
Receive Date:	03-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.22	+/-0.187	0.101	0.050	pCi/g		KXM	08/28/09	2052	893411	1
											4	
Thorium-230		1.60	+/-0.210	0.0852	0.050	pCi/g						
Thorium-232		1.22	+/-0.181	0.053	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		1.62	+/-0.144	0.0497	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.0883	+/-0.0369	0.012	0.040	pCi/g						
Uranium-238		1.94	+/-0.156	0.0311	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		2.99	+/-0.545	0.572	0.500	pCi/g		JXC5	08/13/09	0756	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		0.978	+/-0.229	0.166	0.500	pCi/g		KSD1	08/30/09	1530	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			97.3	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			111	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			96.0	(25%-125%)

# GEL LABORATORIES LLC

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	RSAJ3-10B	Project:	KERRHenderson
Sample ID:	234414011	Client ID:	KERR003
Matrix:	SO		
Collect Date:	31-JUL-09 12:27		
Receive Date:	03-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.60	+/-0.205	0.0884	0.050	pCi/g		KXM	08/28/09	2052	893411	1
											4	
Thorium-230		2.11	+/-0.230	0.0499	0.050	pCi/g						
Thorium-232		1.30	+/-0.183	0.0625	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		2.22	+/-0.180	0.050	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.0877	+/-0.0394	0.0138	0.040	pCi/g						
Uranium-238		1.70	+/-0.156	0.0286	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.73	+/-0.424	0.631	0.500	pCi/g		JXC5	08/13/09	1257	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		1.90	+/-0.297	0.142	0.500	pCi/g		KSD1	08/30/09	1605	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			104	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			93.7	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			95.8	(25%-125%)

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	RSAJ3-29B	Project:	KERRHenderson
Sample ID:	234414012	Client ID:	KERR003
Matrix:	SO		
Collect Date:	31-JUL-09 13:14		
Receive Date:	03-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.21	+/-0.178	0.0973	0.050	pCi/g		KXM	08/28/09	2052	893411	1
											4	
Thorium-230		1.26	+/-0.175	0.0481	0.050	pCi/g						
Thorium-232		1.07	+/-0.161	0.0188	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		1.29	+/-0.132	0.0269	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.0564	+/-0.0329	0.0332	0.040	pCi/g						
Uranium-238		1.27	+/-0.132	0.0388	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.06	+/-0.401	0.543	0.500	pCi/g		JXC5	08/13/09	0756	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		0.830	+/-0.221	0.200	0.500	pCi/g		KSD1	08/30/09	1605	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			108	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			102	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			87.7	(25%-125%)

# GEL LABORATORIES LLC

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

## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	SA28-0.5B	Project:	KERRHenderson
Sample ID:	234414013	Client ID:	KERR003
Matrix:	SO		
Collect Date:	03-AUG-09 08:30		
Receive Date:	04-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.58	+/-0.189	0.0813	0.050	pCi/g		KXM	08/28/09	2052	893411	1
											4	
Thorium-230		0.860	+/-0.138	0.0535	0.050	pCi/g						
Thorium-232		1.22	+/-0.163	0.0535	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		0.919	+/-0.118	0.0504	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.0372	+/-0.0288	0.0356	0.040	pCi/g						
Uranium-238		0.850	+/-0.111	0.0113	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.17	+/-0.330	0.360	0.500	pCi/g		JXC5	08/13/09	0752	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		0.792	+/-0.222	0.193	0.500	pCi/g		KSD1	08/30/09	1605	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			124	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			95.7	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			94.4	(25%-125%)

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	SA28-10B	Project:	KERRHenderson
Sample ID:	234414014	Client ID:	KERR003
Matrix:	SO		
Collect Date:	03-AUG-09 08:50		
Receive Date:	04-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.54	+/-0.212	0.103	0.050	pCi/g		KXM	08/28/09	2052	893411	1
											4	
Thorium-230		1.21	+/-0.182	0.0543	0.050	pCi/g						
Thorium-232		1.16	+/-0.179	0.0543	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		0.991	+/-0.103	0.0301	0.040	pCi/g		KXM	08/27/09	1801	893412	2
											4	
Uranium-235/236		0.0673	+/-0.0309	0.0258	0.040	pCi/g						
Uranium-238		0.844	+/-0.094	0.00817	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.21	+/-0.342	0.375	0.500	pCi/g		JXC5	08/13/09	0752	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		0.888	+/-0.233	0.194	0.500	pCi/g		KSD1	08/30/09	1605	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			96.9	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			125	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			94.0	(25%-125%)

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	SA28009-10B	Project:	KERRHenderson
Sample ID:	234414015	Client ID:	KERR003
Matrix:	SO		
Collect Date:	03-AUG-09 08:50		
Receive Date:	04-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.70	+/-0.211	0.112	0.050	pCi/g		KXM	08/28/09	2052	893411	1
											4	
Thorium-230		1.22	+/-0.172	0.0479	0.050	pCi/g						
Thorium-232		1.31	+/-0.177	0.0188	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		1.07	+/-0.116	0.0355	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.0714	+/-0.0348	0.0304	0.040	pCi/g						
Uranium-238		0.941	+/-0.108	0.0308	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.57	+/-0.399	0.493	0.500	pCi/g		JXC5	08/13/09	0752	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		0.628	+/-0.179	0.143	0.500	pCi/g		KSD1	08/30/09	1605	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			108	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			109	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			106	(25%-125%)

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	SA28-25B	Project:	KERRHenderson
Sample ID:	234414016	Client ID:	KERR003
Matrix:	SO		
Collect Date:	03-AUG-09 09:45		
Receive Date:	04-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.32	+/-0.190	0.146	0.050	pCi/g		KXM	08/28/09	2052	893411	1
											4	
Thorium-230		1.88	+/-0.212	0.0958	0.050	pCi/g						
Thorium-232		1.19	+/-0.165	0.0453	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		2.34	+/-0.171	0.0487	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.122	+/-0.0456	0.0377	0.040	pCi/g						
Uranium-238		2.04	+/-0.159	0.0392	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		0.884	+/-0.396	0.583	0.500	pCi/g		JXC5	08/13/09	0753	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		0.656	+/-0.178	0.112	0.500	pCi/g		KSD1	08/30/09	1635	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			112	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			110	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			95.8	(25%-125%)

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	SA28-40B	Project:	KERRHenderson
Sample ID:	234414017	Client ID:	KERR003
Matrix:	SO		
Collect Date:	03-AUG-09 11:15		
Receive Date:	04-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.41	+/-0.200	0.0874	0.050	pCi/g		KXM	08/28/09	2052	893411	1
											4	
Thorium-230		2.16	+/-0.241	0.0211	0.050	pCi/g						
Thorium-232		1.30	+/-0.188	0.0537	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		2.14	+/-0.162	0.0387	0.040	pCi/g		KXM	08/20/09	2133	893412	2
											4	
Uranium-235/236		0.120	+/-0.0437	0.0297	0.040	pCi/g						
Uranium-238		2.07	+/-0.158	0.00942	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		0.664	+/-0.354	0.528	0.500	pCi/g		JXC5	08/13/09	0753	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		1.36	+/-0.278	0.208	0.500	pCi/g		KSD1	08/30/09	1635	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			97.5	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			110	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			89.4	(25%-125%)



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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	SA28-55B	Project:	KERRHenderson
Sample ID:	234414018	Client ID:	KERR003
Matrix:	SO		
Collect Date:	03-AUG-09 12:00		
Receive Date:	04-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.38	+/-0.214	0.142	0.050	pCi/g		KXM	08/28/09	2052	893411	1
											4	
Thorium-230		1.44	+/-0.207	0.0728	0.050	pCi/g						
Thorium-232		1.10	+/-0.183	0.0841	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		1.38	+/-0.137	0.0425	0.040	pCi/g		KXM	08/20/09	2134	893412	2
											4	
Uranium-235/236		0.0598	+/-0.0355	0.0409	0.040	pCi/g						
Uranium-238		1.39	+/-0.136	0.0264	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.32	+/-0.330	0.312	0.500	pCi/g		JXC5	08/13/09	0803	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		1.02	+/-0.259	0.227	0.500	pCi/g		KSD1	08/30/09	1635	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			90.6	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			99.0	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			100	(25%-125%)

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	EB073109-SO	Project:	KERRHenderson
Sample ID:	234414019	Client ID:	KERR003
Matrix:	W		
Collect Date:	31-JUL-09 11:52		
Receive Date:	04-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Liquid "As Received"</i>												
Thorium-228	U	0.0256	+/-0.0199	0.0287	0.030	pCi/L		JXD2	08/27/09	0805	897494	1
Thorium-230	U	-1.11E-09	+/-0.0112	0.0257	0.030	pCi/L						
Thorium-232		0.00698	+/-0.0079	0.00698	0.030	pCi/L						
<i>Alphaspec U, Liquid "As Received"</i>												
Uranium-233/234	U	0.0109	+/-0.0132	0.022	0.030	pCi/L		JXD2	08/15/09	1748	892925	2
Uranium-235/236	U	0.00246	+/-0.00482	0.00737	0.030	pCi/L						
Uranium-238	U	0.00199	+/-0.0117	0.0245	0.030	pCi/L						
<b>Rad Gas Flow Proportional Counting</b>												
<i>GFPC, Ra228, Liquid "As Received"</i>												
Radium-228	U	0.682	+/-1.23	2.17	3.00	pCi/L		MXS2	08/12/09	1008	891394	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, liquid "As Received"</i>												
Radium-226	U	0.468	+/-0.341	0.505	1.00	pCi/L		KSD1	08/22/09	1405	892760	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"			74.7	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			87.1	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			73.4	(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 31, 2009

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

Client Sample ID:	EB080309-SO	Project:	KERRHenderson
Sample ID:	234414020	Client ID:	KERR003
Matrix:	W		
Collect Date:	03-AUG-09 11:50		
Receive Date:	04-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Liquid "As Received"</i>												
Thorium-228	U	0.0263	+/-0.0201	0.0293	0.030	pCi/L		JXD2	08/27/09	0805	897494	1
Thorium-230	U	0.00219	+/-0.00742	0.0167	0.030	pCi/L						
Thorium-232	U	0.00219	+/-0.00742	0.0167	0.030	pCi/L						
<i>Alphaspec U, Liquid "As Received"</i>												
Uranium-233/234	U	0.0086	+/-0.0114	0.0194	0.030	pCi/L		JXD2	08/15/09	1748	892925	2
Uranium-235/236	U	0.00434	+/-0.0085	0.0166	0.030	pCi/L						
Uranium-238	U	0.0105	+/-0.0119	0.0194	0.030	pCi/L						
<b>Rad Gas Flow Proportional Counting</b>												
<i>GFPC, Ra228, Liquid "As Received"</i>												
Radium-228		3.53	+/-1.85	2.78	3.00	pCi/L		MXS2	08/12/09	1008	891394	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, liquid "As Received"</i>												
Radium-226	U	0.205	+/-0.191	0.281	1.00	pCi/L		KSD1	08/22/09	1405	892760	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"			75.9	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			95.1	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			73.0	(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 31, 2009

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

Client Sample ID:	FB080309-SO	Project:	KERRHenderson
Sample ID:	234414021	Client ID:	KERR003
Matrix:	W		
Collect Date:	03-AUG-09 14:00		
Receive Date:	04-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Liquid "As Received"</i>												
Thorium-228	U	0.0172	+/-0.0159	0.0219	0.030	pCi/L		JXD2	08/27/09	0808	897494	1
Thorium-230	U	0.00572	+/-0.00793	0.00858	0.030	pCi/L						
Thorium-232	U	0.00572	+/-0.00793	0.00858	0.030	pCi/L						
<i>Alphaspec U, Liquid "As Received"</i>												
Uranium-233/234	U	0.0147	+/-0.0121	0.0175	0.030	pCi/L		JXD2	08/15/09	1800	892925	2
Uranium-235/236	U	0.0039	+/-0.00765	0.0149	0.030	pCi/L						
Uranium-238		0.0126	+/-0.00978	0.0121	0.030	pCi/L						
<b>Rad Gas Flow Proportional Counting</b>												
<i>GFPC, Ra228, Liquid "As Received"</i>												
Radium-228	U	1.34	+/-1.58	2.66	3.00	pCi/L		MXS2	08/12/09	1008	891394	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, liquid "As Received"</i>												
Radium-226	U	-0.0816	+/-0.192	0.440	1.00	pCi/L		KSD1	08/22/09	1405	892760	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"			76.7	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Liquid "As Received"			95.8	(15%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			76.8	(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 31, 2009

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

Client Sample ID:	SA127-5B-berm	Project:	KERRHenderson
Sample ID:	234414022	Client ID:	KERR003
Matrix:	SO		
Collect Date:	31-JUL-09 08:30		
Receive Date:	03-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		2.02	+/-0.234	0.104	0.050	pCi/g		KXM	08/28/09	2052	893411	1
											4	
Thorium-230		0.876	+/-0.156	0.0896	0.050	pCi/g						
Thorium-232		1.47	+/-0.196	0.0641	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		0.828	+/-0.114	0.074	0.040	pCi/g		KXM	08/20/09	2134	893412	2
											4	
Uranium-235/236		0.0583	+/-0.034	0.0343	0.040	pCi/g						
Uranium-238		0.842	+/-0.109	0.0348	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		1.77	+/-0.391	0.340	0.500	pCi/g		JXC5	08/13/09	0803	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		0.770	+/-0.215	0.139	0.500	pCi/g		KSD1	08/30/09	1635	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			99.3	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			98.6	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			91.3	(25%-125%)

# GEL LABORATORIES LLC

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## Certificate of Analysis

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

Report Date: August 31, 2009

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

Client Sample ID:	SA127-10B-berm	Project:	KERRHenderson
Sample ID:	234414023	Client ID:	KERR003
Matrix:	SO		
Collect Date:	31-JUL-09 08:54		
Receive Date:	03-AUG-09		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Rad Alpha Spec Analysis</b>												
<i>Alphaspec Th, Solid "Dry Weight Corrected"</i>												
Thorium-228		1.82	+/-0.222	0.107	0.050	pCi/g		KXM	08/28/09	2052	893411	1
											4	
Thorium-230		0.845	+/-0.148	0.0628	0.050	pCi/g						
Thorium-232		1.50	+/-0.194	0.0197	0.100	pCi/g						
<i>Alphaspec U, Solid "Dry Weight Corrected"</i>												
Uranium-233/234		1.11	+/-0.125	0.051	0.040	pCi/g		KXM	08/20/09	2134	893412	2
											4	
Uranium-235/236		0.0614	+/-0.0321	0.0131	0.040	pCi/g						
Uranium-238		1.01	+/-0.118	0.0271	0.040	pCi/g						
<b>Rad Gas Flow Proportional Counting</b>												
<i>Gas Flow Radium 228 "Dry Weight Corrected"</i>												
Radium-228		2.15	+/-0.559	0.861	0.500	pCi/g		JXC5	08/13/09	1458	891157	3
<b>Rad Radium-226</b>												
<i>Lucas Cell, Ra226, solid "Dry Weight Corrected"</i>												
Radium-226		0.664	+/-0.202	0.199	0.500	pCi/g		KSD1	08/30/09	1635	893452	4

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	CXC1	08/05/09	1057	891120

**The following Analytical Methods were performed**

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

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Actinium-227 Tracer	Alphaspec Th, Solid "Dry Weight Corrected"			107	(15%-125%)
Uranium-232 Tracer	Alphaspec U, Solid "Dry Weight Corrected"			102	(15%-125%)
Barium-133 Tracer	Gas Flow Radium 228 "Dry Weight Corrected"			99.0	(25%-125%)

# QUALITY CONTROL DATA

# GEL LABORATORIES LLC

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

## QC Summary

Report Date: August 31, 2009

Page 1 of 5

Northgate Environmental Management, Inc.

1100 Quail St., Suite 102  
Newport Beach, California

Contact: Mr. Frank Hagar

Workorder: 234414

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Alpha Spec</b>											
Batch	892925										
QC1201899629	LCS										
Uranium-233/234				3.15	pCi/L				JXD2	08/15/09	17:48
				+/-0.172							
Uranium-235/236				0.132	pCi/L						
				+/-0.0407							
Uranium-238	3.15			3.20	pCi/L		102	(75%-125%)			
				+/-0.173							
QC1201899630	LCSD										
Uranium-233/234				2.84	pCi/L	10.4				08/15/09	17:48
				+/-0.148							
Uranium-235/236				0.146	pCi/L	10.0					
				+/-0.0372							
Uranium-238	3.15			3.03	pCi/L	5.43	96.2	(0%-20%)			
				+/-0.153							
QC1201899628	MB										
Uranium-233/234			U	0.011	pCi/L					08/15/09	18:00
				+/-0.0125							
Uranium-235/236			U	0.00617	pCi/L						
				+/-0.0107							
Uranium-238			U	0.00666	pCi/L						
				+/-0.00799							
Batch	893411										
QC1201900830	234414002	DUP									
Thorium-228				1.84	pCi/g	14.0		(0% - 20%)	KXM4	08/28/09	20:52
				+/-0.235	+/-0.233						
Thorium-230				2.43	pCi/g	2.76		(0% - 20%)			
				+/-0.262	+/-0.250						
Thorium-232				1.64	pCi/g	10.9		(0% - 20%)			
				+/-0.213	+/-0.191						
QC1201900832	LCS										
Thorium-228			U	0.0876	pCi/g					08/28/09	20:52
				+/-0.0841							
Thorium-230	8.26			9.12	pCi/g		110	(75%-125%)			
				+/-0.528							
Thorium-232			U	-0.0709	pCi/g			(75%-125%)			
				+/-0.0598							
QC1201900829	MB										
Thorium-228			U	0.103	pCi/g					08/29/09	17:50
				+/-0.0778							
Thorium-230			U	0.00784	pCi/g						
				+/-0.0266							
Thorium-232			U	0.00784	pCi/g						



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## QC Summary

Workorder: 234414

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Alpha Spec</b>											
Batch	893411										
QC1201900831	234414002	MS		+/-0.0266							
Thorium-228			1.84	1.89	pCi/g				KXM4	08/28/09	20:52
			+/-0.235	+/-0.230							
Thorium-230	8.46		2.43	10.6	pCi/g		96.6	(75%-125%)			
			+/-0.262	+/-0.538							
Thorium-232			1.64	1.40	pCi/g			(75%-125%)			
			+/-0.213	+/-0.196							
Batch	893412										
QC1201900834	234414002	DUP									
Uranium-233/234			2.51	2.29	pCi/g	9.27		(0% - 20%)	KXM4	08/20/09	21:34
			+/-0.215	+/-0.169							
Uranium-235/236			0.0925	0.0948	pCi/g	2.42		(0% - 100%)			
			+/-0.0532	+/-0.041							
Uranium-238			2.24	2.08	pCi/g	7.60		(0% - 20%)			
			+/-0.203	+/-0.160							
QC1201900836	LCS										
Uranium-233/234				4.23	pCi/g					08/20/09	21:34
				+/-0.184							
Uranium-235/236				0.312	pCi/g						
				+/-0.0555							
Uranium-238	4.85			4.58	pCi/g		94.3	(75%-125%)			
				+/-0.190							
QC1201900833	MB										
Uranium-233/234			U	-0.0199	pCi/g					08/25/09	23:46
				+/-0.017							
Uranium-235/236			U	0.00758	pCi/g						
				+/-0.0149							
Uranium-238			U	-0.0123	pCi/g						
				+/-0.0147							
QC1201900835	234414002	MS									
Uranium-233/234			2.51	7.09	pCi/g					08/20/09	21:34
			+/-0.215	+/-0.310							
Uranium-235/236			0.0925	0.335	pCi/g						
			+/-0.0532	+/-0.0761							
Uranium-238	4.97		2.24	7.24	pCi/g		101	(75%-125%)			
			+/-0.203	+/-0.311							
Batch	897494										
QC1201911150	LCS										
Thorium-228				0.0264	pCi/L				JXD2	08/27/09	08:08
				+/-0.0172							
Thorium-230	2.68			2.99	pCi/L		112	(75%-125%)			
				+/-0.183							
Thorium-232			U	0.00585	pCi/L			(75%-125%)			
				+/-0.0115							

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## QC Summary

Workorder: 234414

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Alpha Spec</b>											
Batch	897494										
QC1201911151		LCS									
Thorium-228			U	0.0132	pCi/L	66.3			JXD2	08/27/09	08:08
				+/-0.0159							
Thorium-230	2.68			3.09	pCi/L	3.29	115	(0%-20%)			
				+/-0.198							
Thorium-232			U	0.00661	pCi/L	12.2		(0%-20%)			
				+/-0.00916							
QC1201911149		MB									
Thorium-228			U	0.00293	pCi/L					08/27/09	08:08
				+/-0.00994							
Thorium-230				0.0205	pCi/L						
				+/-0.0152							
Thorium-232			U	0.00	pCi/L						
				+/-0.00573							
<b>Rad Gas Flow</b>											
Batch	891157										
QC1201895460	234414002	DUP									
Radium-228				1.28	pCi/g	38.5		(0% - 100%)	JXC5	08/13/09	14:58
				+/-0.366							
QC1201895462	LCS										
Radium-228	7.76			8.61	pCi/g		111	(75%-125%)		08/13/09	08:04
				+/-0.773							
QC1201895459	MB										
Radium-228			U	0.285	pCi/g					08/13/09	08:04
				+/-0.237							
QC1201895461	234414002	MS									
Radium-228	79.0			1.28	pCi/g		120	(75%-125%)		08/13/09	08:04
				+/-0.366							
QC1201895461	234414002	MS									
Radium-228	79.0			1.28	pCi/g		120	(75%-125%)		08/13/09	08:04
				+/-0.366							
Batch	891394										
QC1201896009	LCS										
Radium-228	40.6			39.7	pCi/L		97.9	(75%-125%)	MXS2	08/12/09	10:08
				+/-4.76							
QC1201896010	LCS										
Radium-228	40.6			36.5	pCi/L	8.47	89.9	(0%-20%)		08/12/09	10:08
				+/-4.81							
QC1201896008	MB										
Radium-228			U	0.924	pCi/L					08/12/09	10:08
				+/-1.32							
<b>Rad Ra-226</b>											
Batch	892760										
QC1201899207	LCS										
Radium-226	24.2			21.5	pCi/L		88.9	(75%-125%)	KSD1	08/22/09	14:05
				+/-1.63							
QC1201899208	LCS										
Radium-226	24.2			21.9	pCi/L	1.81	90.5	(0%-20%)		08/22/09	15:05
				+/-1.61							
QC1201899206	MB										

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## QC Summary

Workorder: 234414

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Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
<b>Rad Ra-226</b>											
Batch	892760										
Radium-226			U	0.155	pCi/L					08/22/09	15:05
				+/-0.279							
Batch	893452										
QC1201900983	234414002	DUP									
Radium-226		1.33		1.38	pCi/g	4.21		(0% - 20%)	KSD1	08/30/09	17:05
		+/-0.270		+/-0.291							
QC1201900985	LCS										
Radium-226	22.5			23.6	pCi/g		105	(75%-125%)		08/30/09	17:05
				+/-1.09							
QC1201900982	MB										
Radium-226			U	0.0439	pCi/g					08/30/09	17:05
				+/-0.0961							
QC1201900984	234414002	MS									
Radium-226	24.1	1.33		20.4	pCi/g		79.2	(75%-125%)		08/30/09	17:05
		+/-0.270		+/-0.996							

Notes:

The Qualifiers in this report are defined as follows:

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

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## QC Summary

Workorder: 234414

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Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
^										
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**

# URANIUM

### Radiochemistry Batch Checklist, Rev 9

Batch# 893412      Product: U      Date: 8/28/09

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 # 727860
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%.		✓	NCR# 727860
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.			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 # 727860
Batch non-conformances second reviewed and disposition verified to be completed.	✓		NCR# 727860
Aliquot Correction completed if required.			N/A
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: [Signature] 8/28/09

Secondary Review Performed By: [Signature] 8/28/09

KEER

08/21 - 9/1

# Uranium Que Sheet

13-AUG-09

Batch #: 893412 Analyst: KXM4 First Client Due Date: 01-SEP-09 Internal Due Date: 21-AUG-09  
 Tracer Isotope: U-232/U-236 Tracer Code: 1263-E Expiration Date: 1-7-10 Vol: 0.1ml  
 LCS Isotope: U-238 LCS Code: 1163-U Expiration Date: 4-16-10 Vol: 0.1ml  
 Spike Isotope: U-238 Spike Code: 1163-U Expiration Date: 4-16-10 Vol: 0.1ml  
 Prep Date: 8-11-09 Initials: KR Pipet ID: 2971058 Balance ID: 50110172

Witness: ~~8/14/09~~ 8/14/09

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g/l/f)	U Det #
234414001-1	SA49-32B	SAMPLE		.04 pCi/g	SOIL	KERR003	30-JUL-09	1	1	0.505	138
234414002-1	SA63-10B	SAMPLE		.04 pCi/g	SOIL	KERR003	30-JUL-09	2	2	0.509	139
234414003-1	SA63-23B SA63-23B	SAMPLE		.04 pCi/g	SOIL	KERR003	30-JUL-09	3	3	0.506	140
234414004-1	RSAM5-05B	SAMPLE		.04 pCi/g	SOIL	KERR003	30-JUL-09	4	4	0.510	141
234414005-1	RSAM5009-05B	SAMPLE		.04 pCi/g	SOIL	KERR003	30-JUL-09	5	5	0.503	142
234414006-1	RSAM5-10B	SAMPLE		.04 pCi/g	SOIL	KERR003	30-JUL-09	6	6	0.506	143
234414007-1	RSAM5-28B	SAMPLE		.04 pCi/g	SOIL	KERR003	30-JUL-09	7	7	0.504	144
234414008-1	SA127-10B	SAMPLE		.04 pCi/g	SOIL	KERR003	31-JUL-09	8	8	0.511	145
234414009-1	SA127-20B	SAMPLE		.04 pCi/g	SOIL	KERR003	31-JUL-09	9	9	0.512	146
234414010-1	SA127-32B	SAMPLE		.04 pCi/g	SOIL	KERR003	31-JUL-09	10	10	0.505	147
234414011-1	RSAJ3-10B	SAMPLE		.04 pCi/g	SOIL	KERR003	31-JUL-09	11	11	0.519	148
234414012-1	RSAJ3-29B	SAMPLE		.04 pCi/g	SOIL	KERR003	31-JUL-09	12	12	0.509	149
234414013-1	SA28-05B	SAMPLE		.04 pCi/g	SOIL	KERR003	03-AUG-09	13	13	0.503	150
234414014-1	SA28-10B	SAMPLE		.04 pCi/g	SOIL	KERR003	03-AUG-09	14	14	0.505	151
234414015-1	SA28009-10B	SAMPLE		.04 pCi/g	SOIL	KERR003	03-AUG-09	15	15	0.515	152
234414016-1	SA28-25B	SAMPLE		.04 pCi/g	SOIL	KERR003	03-AUG-09	16	16	0.513	153
234414017-1	SA28-40B	SAMPLE		.04 pCi/g	SOIL	KERR003	03-AUG-09	17	17	0.508	154
234414018-1	SA28-55B	SAMPLE		.04 pCi/g	SOIL	KERR003	03-AUG-09	18	18	0.506	155
234414022-1	SA127-5B-berm	SAMPLE		.04 pCi/g	SOIL	KERR003	31-JUL-09	19	19	0.508	156
234414023-1	SA127-10B-berm	SAMPLE		.04 pCi/g	SOIL	KERR003	31-JUL-09	20	20	0.506	157
1201900833-1	MB for batch 893412	MB		.04 pCi/g	SOIL	QC ACCOUNT		21	21	0.519	140
1201900834-1	SA63-10B(234414002DUP)	DUP		.04 pCi/g	SOIL	QC ACCOUNT	30-JUL-09	22	22	0.510	159
1201900835-1	SA63-10B(234414002MS)	MS		.04 pCi/g	SOIL	QC ACCOUNT	30-JUL-09	23	23	0.507	160
1201900836-1	LCS for batch 893412	LCS		.04 pCi/g	SOIL	QC ACCOUNT		24	24	0.519	169

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

Solid Sample Dissolution by: LEACH OF DIGESTION  
 Circle One

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



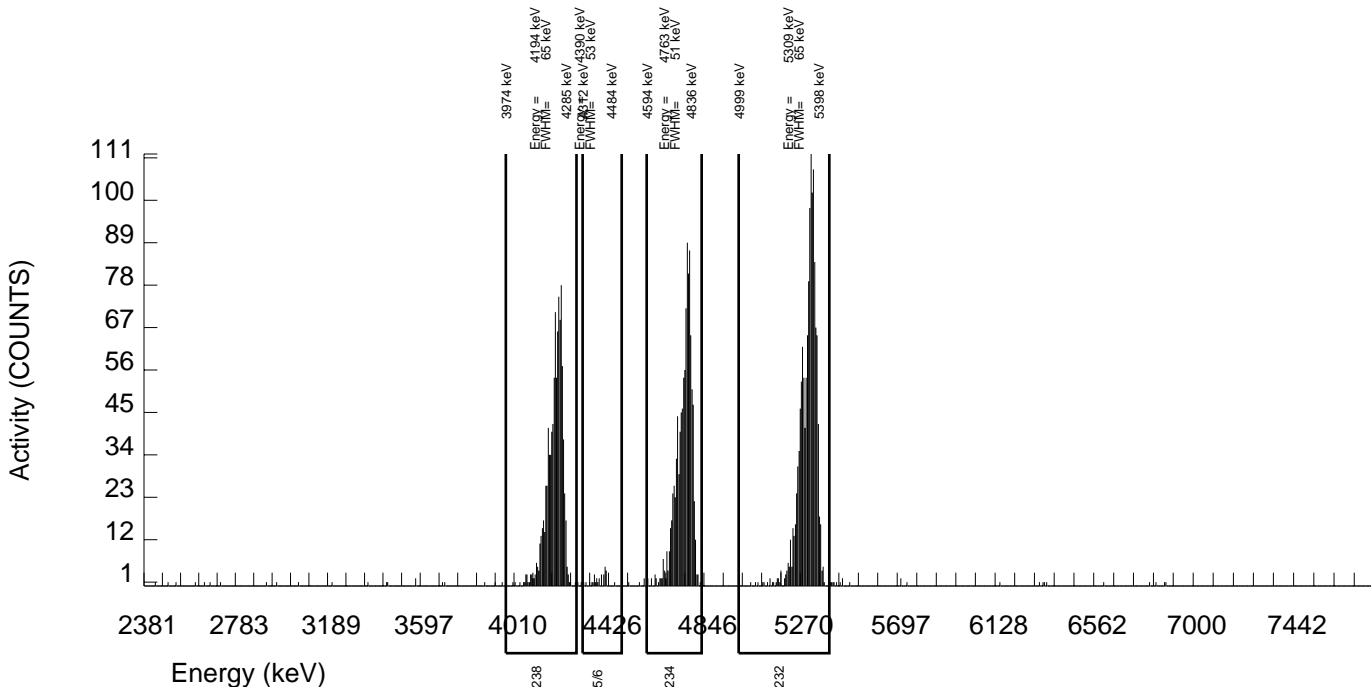
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 30-JUL-2009 00:00:00		SAMPLE ID : S0234414001_UU SAMPLE QTY: 0.505 G	
DETECTOR NUMBER :65877 AVERAGE %EFFICIENCY :25.5083 % YIELD : 101.564		COUNT DATE:20-AUG-2009 21:33:18 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.988E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.988E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26413 dpm RESULTS : 5.34649 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B138.CNF;343 BKG DATE : 16-AUG-2009 EFF FILE : W138.CNF;92 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	1036.000	1022.883	9.000	3.0000	100.0000	3.52E+00	5.26E-01	5.84E-02	2.40E-02	2.18E-01
U232	5302.100	1367.000	1363.000	4.000	2.0000	100.0000	4.70E+00	6.85E-01	4.24E-02	1.60E-02	2.50E-01
U-235	4391.000	31.000	28.000	3.000	1.7321	80.90000	1.19E-01	5.13E-02	4.71E-02	1.71E-02	4.86E-02
U-238	4184.730	968.000	964.000	4.000	2.0000	100.0000	3.32E+00	4.98E-01	4.24E-02	1.60E-02	2.10E-01

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



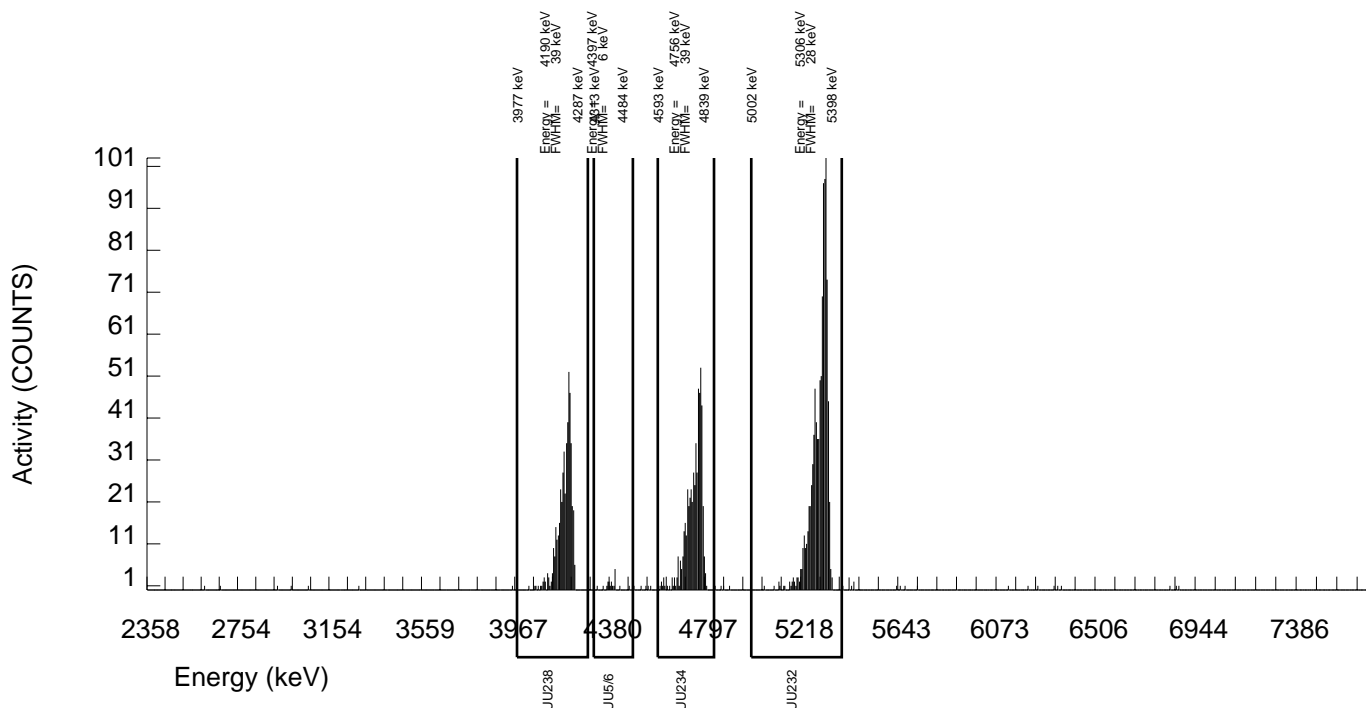
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 30-JUL-2009 00:00:00		SAMPLE ID : S0234414002_UU SAMPLE QTY: 0.509 G	
DETECTOR NUMBER :76231 AVERAGE %EFFICIENCY :24.9377 % YIELD : 75.839		COUNT DATE:20-AUG-2009 21:33:19 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.949E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.949E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26413 dpm RESULTS : 3.99228 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B139.CNF;340 BKG DATE : 16-AUG-2009 EFF FILE : W139.CNF;92 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	546.000	536.995	6.000	2.4495	100.0000	2.51E+00	4.18E-01	6.74E-02	2.67E-02	2.15E-01
U232	5302.100	1003.000	995.000	8.000	2.8284	100.0000	4.66E+00	7.25E-01	7.57E-02	3.08E-02	2.92E-01
U-235	4391.000	19.000	16.000	3.000	1.7321	80.90000	9.25E-02	5.48E-02	6.40E-02	2.33E-02	5.32E-02
U-238	4184.730	484.000	479.000	5.000	2.2361	100.0000	2.24E+00	3.78E-01	6.27E-02	2.43E-02	2.03E-01

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



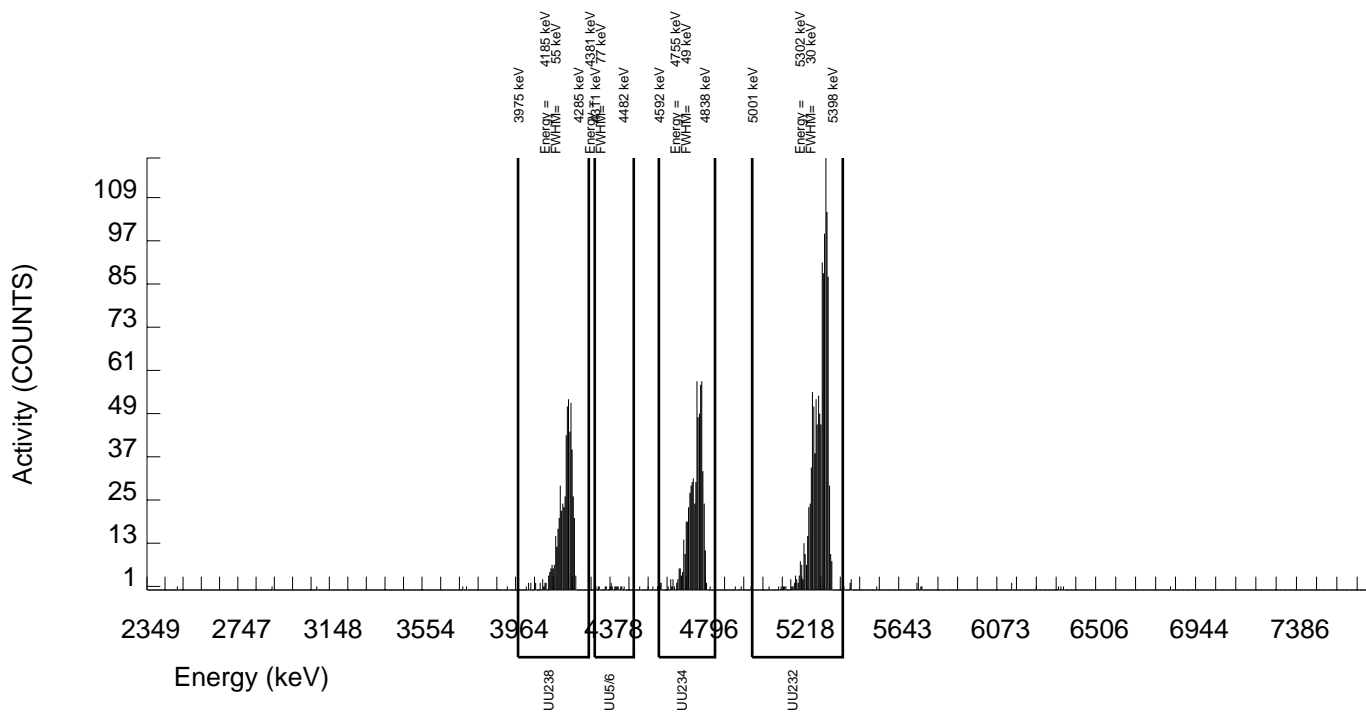
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 30-JUL-2009 00:00:00		SAMPLE ID : S0234414003_UU SAMPLE QTY: 0.506 G	
DETECTOR NUMBER :78771 AVERAGE %EFFICIENCY :25.4523 % YIELD : 88.943		COUNT DATE:20-AUG-2009 21:33:23 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.978E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.978E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26413 dpm RESULTS : 4.68208 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B140.CNF;340 BKG DATE : 16-AUG-2009 EFF FILE : W140.CNF;97 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	637.000	626.403	7.000	2.6458	100.0000	2.46E+00	3.91E-01	6.02E-02	2.42E-02	1.95E-01
U232	5302.100	1200.000	1191.000	9.000	3.0000	100.0000	4.69E+00	6.98E-01	6.67E-02	2.75E-02	2.68E-01
U-235	4391.000	18.000	17.000	1.000	1.0000	80.90000	8.26E-02	4.31E-02	3.72E-02	1.13E-02	4.15E-02
U-238	4184.730	573.000	570.000	3.000	1.7321	100.0000	2.24E+00	3.59E-01	4.35E-02	1.58E-02	1.85E-01

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



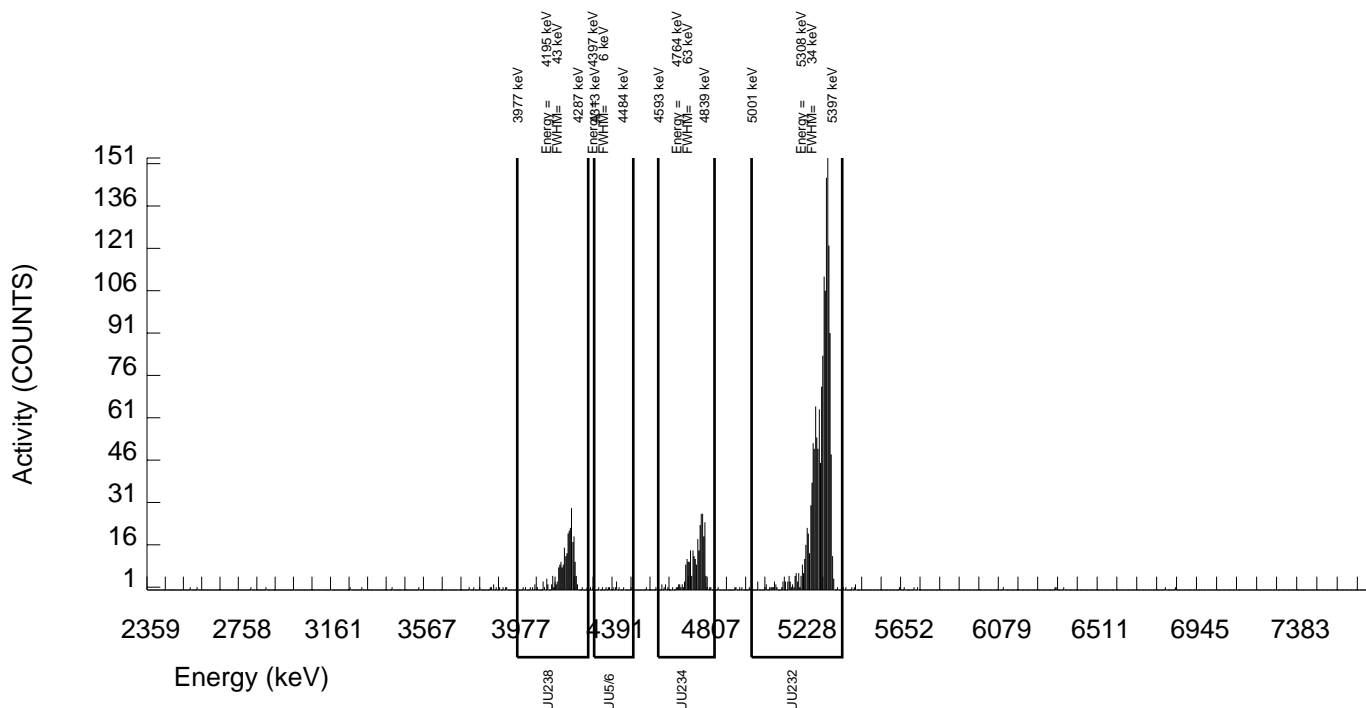
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 30-JUL-2009 00:00:00		SAMPLE ID : S0234414004_UU SAMPLE QTY: 0.510 G	
DETECTOR NUMBER :76232 AVERAGE %EFFICIENCY :25.8470 % YIELD : 114.132		COUNT DATE:20-AUG-2009 21:33:25 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.939E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.939E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26413 dpm RESULTS : 6.00807 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B141.CNF;343 BKG DATE : 16-AUG-2009 EFF FILE : W141.CNF;95 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	285.000	277.313	3.000	1.7321	100.0000	8.30E-01	1.51E-01	3.31E-02	1.21E-02	9.88E-02
U232	5302.100	1558.000	1552.000	6.000	2.4495	100.0000	4.65E+00	6.80E-01	4.31E-02	1.71E-02	2.32E-01
U-235	4391.000	14.000	13.000	1.000	1.0000	80.90000	4.81E-02	2.89E-02	2.83E-02	8.61E-03	2.81E-02
U-238	4184.730	264.000	262.000	2.000	1.4142	100.0000	7.84E-01	1.44E-01	2.87E-02	9.85E-03	9.57E-02

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



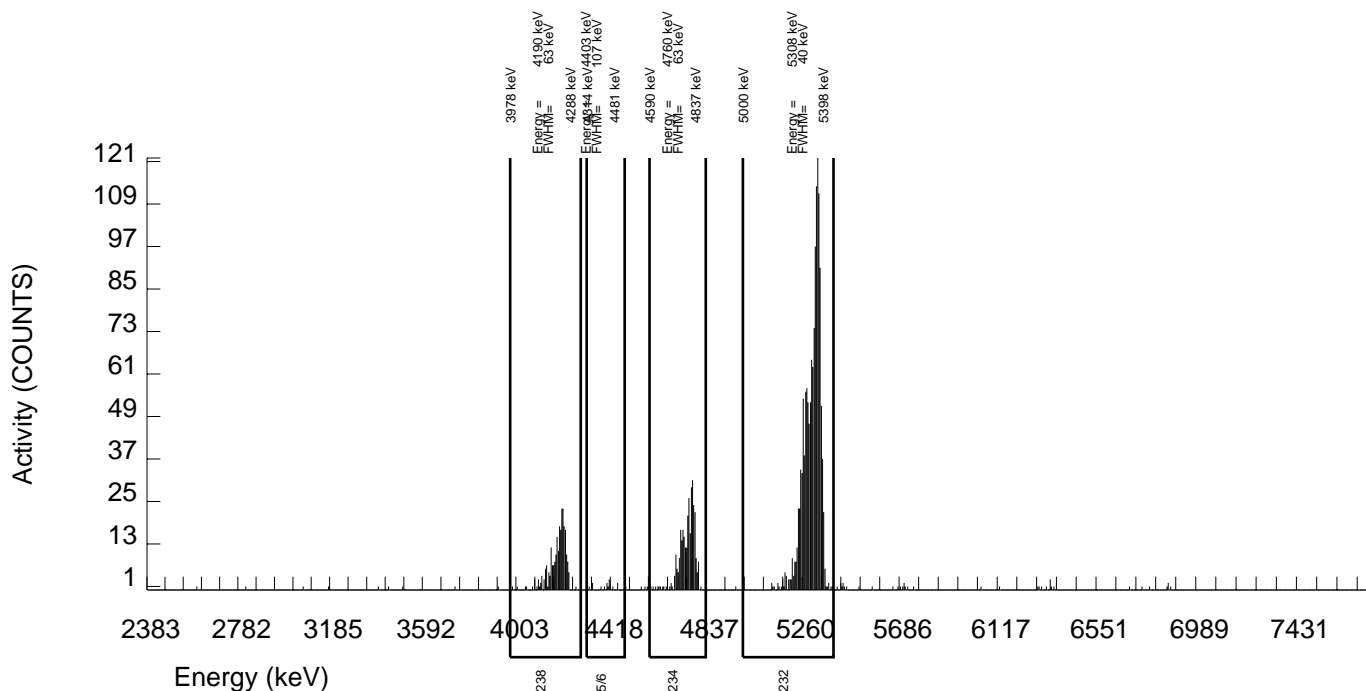
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 30-JUL-2009 00:00:00		SAMPLE ID : S0234414005_UU SAMPLE QTY: 0.503 G	
DETECTOR NUMBER :64261 AVERAGE %EFFICIENCY :26.0044 % YIELD : 101.528		COUNT DATE:20-AUG-2009 21:33:27 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 5.008E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 5.008E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26413 dpm RESULTS : 5.34454 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B142.CNF;337 BKG DATE : 16-AUG-2009 EFF FILE : W142.CNF;99 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	328.000	316.805	7.000	2.6458	100.0000	1.07E+00	1.90E-01	5.19E-02	2.09E-02	1.21E-01
U232	5302.100	1403.000	1389.000	14.000	3.7417	100.0000	4.71E+00	6.88E-01	6.93E-02	2.95E-02	2.50E-01
U-235	4391.000	15.000	13.000	2.000	1.4142	80.90000	5.45E-02	3.47E-02	4.02E-02	1.38E-02	3.39E-02
U-238	4184.730	256.000	253.000	3.000	1.7321	100.0000	8.58E-01	1.58E-01	3.75E-02	1.37E-02	1.07E-01

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



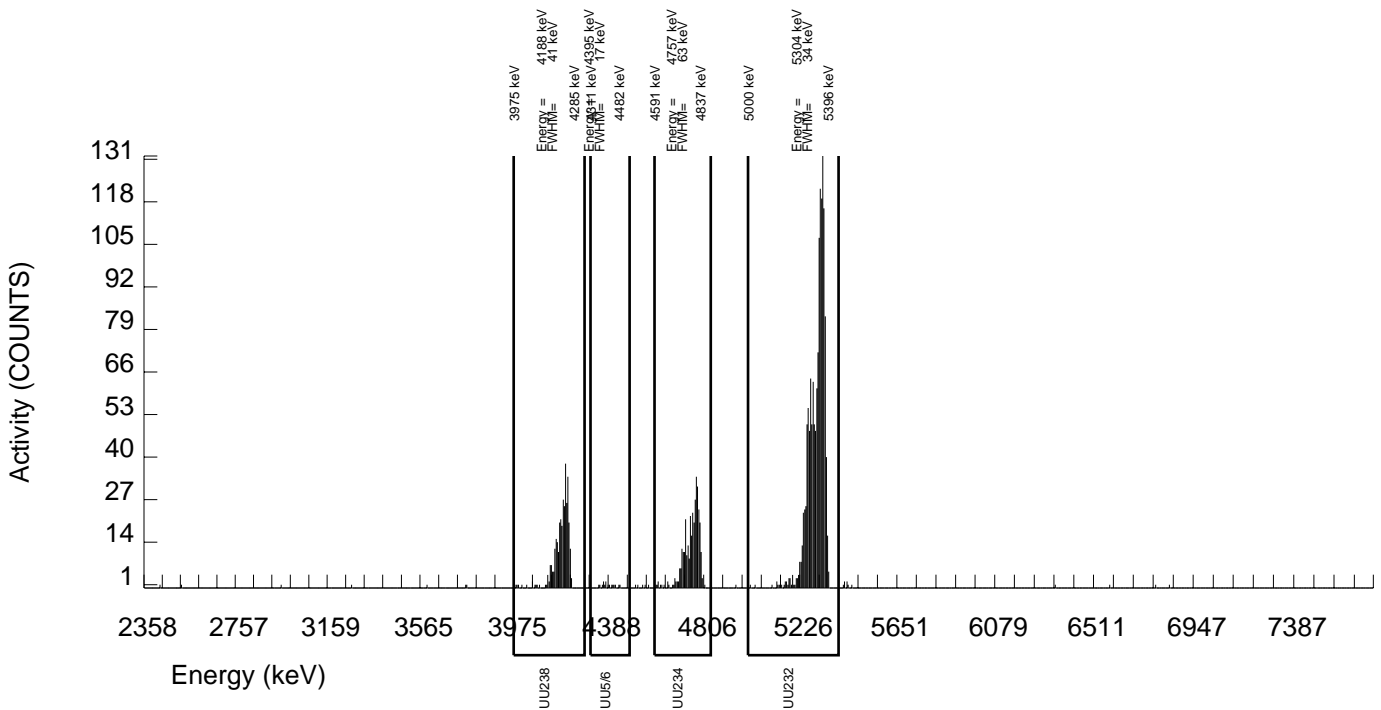
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 30-JUL-2009 00:00:00		SAMPLE ID : S0234414006_UU SAMPLE QTY: 0.506 G	
DETECTOR NUMBER :65882 AVERAGE %EFFICIENCY :24.4194 % YIELD : 111.230		COUNT DATE:20-AUG-2009 21:33:30 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.978E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.978E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26413 dpm RESULTS : 5.85531 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B143.CNF;340 BKG DATE : 16-AUG-2009 EFF FILE : W143.CNF;102 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	352.000	336.684	11.000	3.3166	100.0000	1.10E+00	1.95E-01	6.04E-02	2.53E-02	1.22E-01
U232	5302.100	1440.000	1429.000	11.000	3.3166	100.0000	4.69E+00	6.93E-01	6.04E-02	2.53E-02	2.45E-01
U-235	4391.000	16.000	15.000	1.000	1.0000	80.90000	6.08E-02	3.38E-02	3.10E-02	9.42E-03	3.27E-02
U-238	4184.730	341.000	334.000	7.000	2.6458	100.0000	1.09E+00	1.93E-01	5.02E-02	2.02E-02	1.20E-01

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



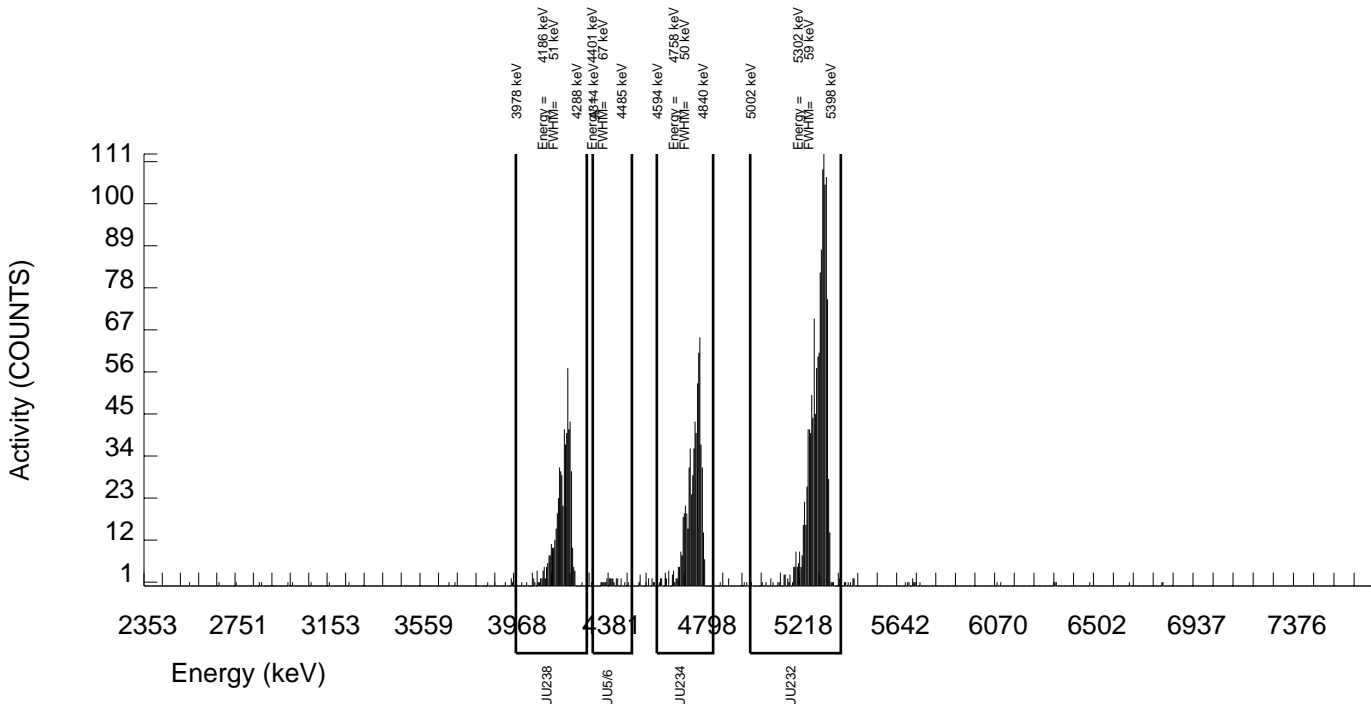
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 30-JUL-2009 00:00:00		SAMPLE ID : S0234414007_UU SAMPLE QTY: 0.504 G	
DETECTOR NUMBER :75551 AVERAGE %EFFICIENCY :24.6877 % YIELD : 106.172		COUNT DATE:20-AUG-2009 21:33:32 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.998E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.998E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26413 dpm RESULTS : 5.58906 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B144.CNF;339 BKG DATE : 16-AUG-2009 EFF FILE : W144.CNF;96 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	652.000	642.835	5.000	2.2361	100.0000	2.19E+00	3.43E-01	4.57E-02	1.77E-02	1.71E-01
U232	5302.100	1390.000	1379.000	11.000	3.3166	100.0000	4.70E+00	6.86E-01	6.29E-02	2.63E-02	2.50E-01
U-235	4391.000	25.000	22.000	3.000	1.7321	80.90000	9.27E-02	4.55E-02	4.66E-02	1.70E-02	4.37E-02
U-238	4184.730	573.000	571.000	2.000	1.4142	100.0000	1.95E+00	3.09E-01	3.27E-02	1.12E-02	1.60E-01

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



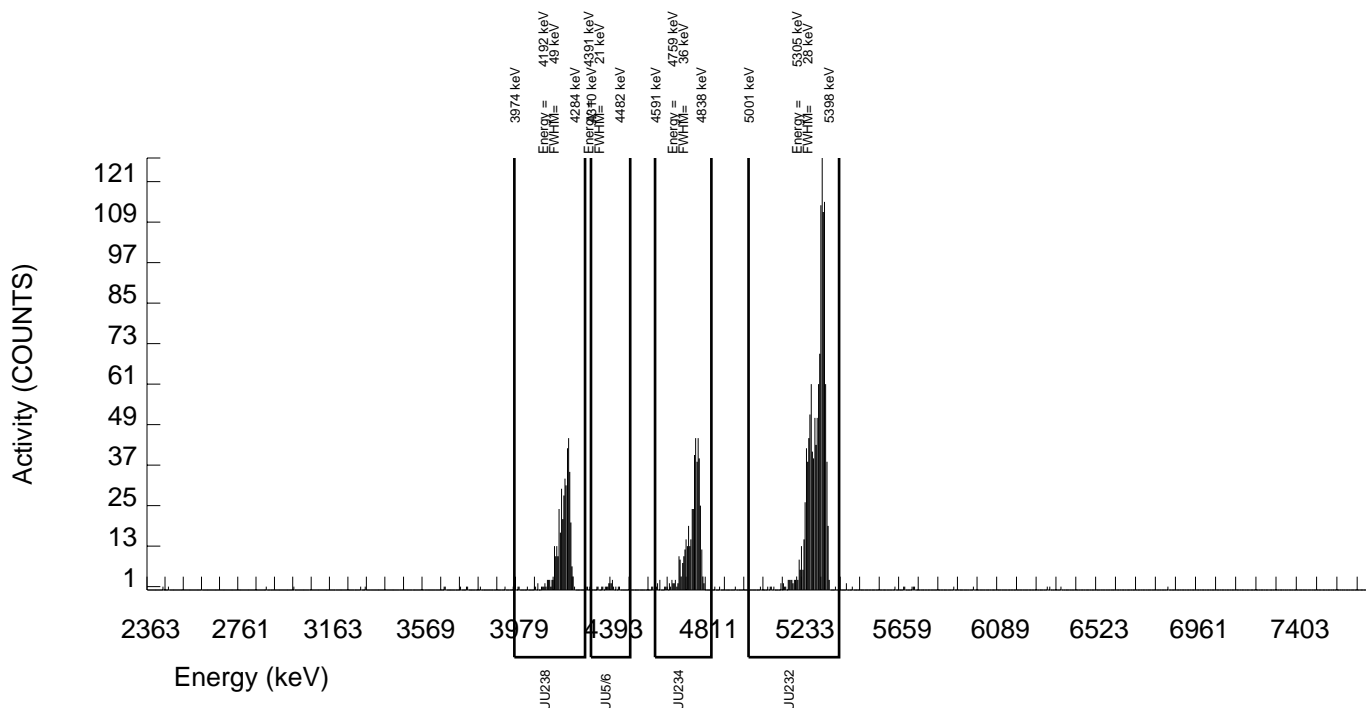
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 31-JUL-2009 00:00:00		SAMPLE ID : S0234414008_UU SAMPLE QTY: 0.511 G	
DETECTOR NUMBER :72526 AVERAGE %EFFICIENCY :25.1607 % YIELD : 97.528		COUNT DATE:20-AUG-2009 21:33:35 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.929E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.929E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26399 dpm RESULTS : 5.13388 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B145.CNF;337 BKG DATE : 16-AUG-2009 EFF FILE : W145.CNF;101 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	451.000	445.101	2.000	1.4142	100.0000	1.60E+00	2.68E-01	3.44E-02	1.18E-02	1.49E-01
U232	5302.100	1298.000	1291.000	7.000	2.6458	100.0000	4.64E+00	6.94E-01	5.50E-02	2.21E-02	2.54E-01
U-235	4391.000	21.000	21.000	0.000	0.0000	80.90000	9.32E-02	4.19E-02	1.33E-02	0.00E+00	3.99E-02
U-238	4184.730	415.000	412.000	3.000	1.7321	100.0000	1.48E+00	2.51E-01	3.97E-02	1.45E-02	1.44E-01

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





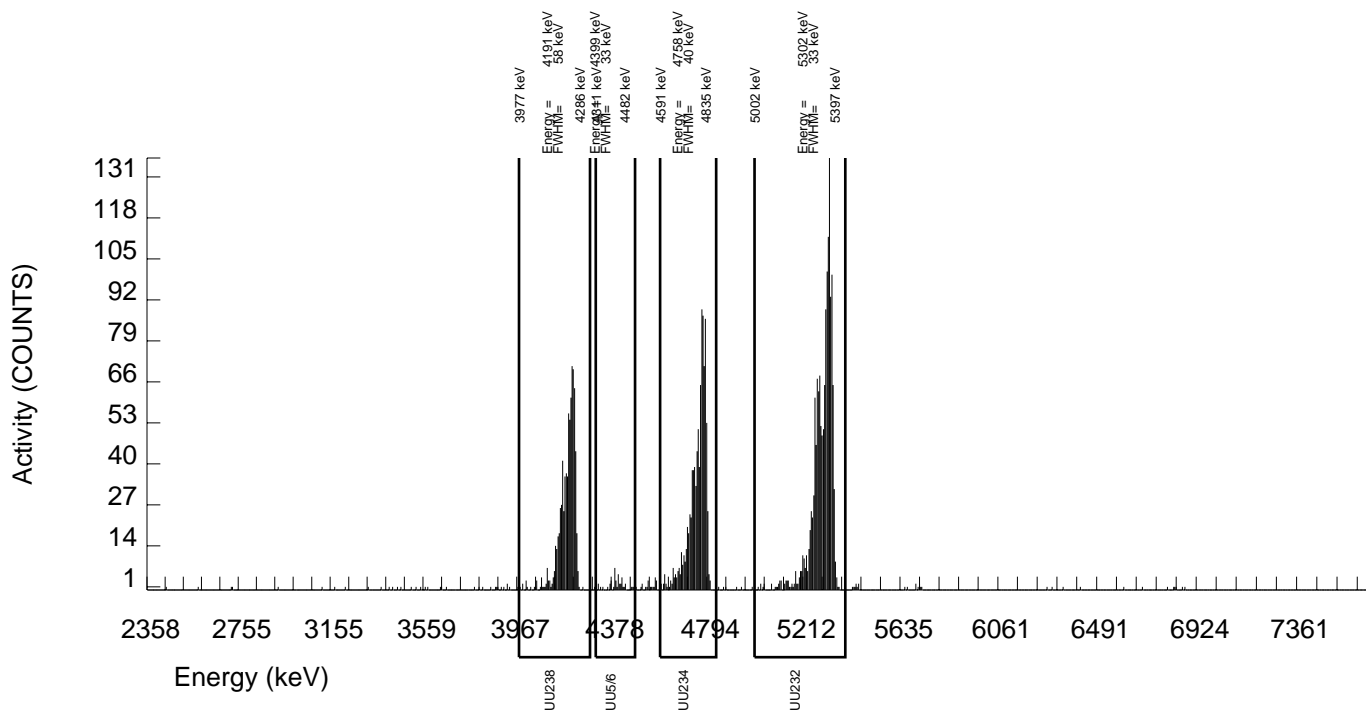
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 31-JUL-2009 00:00:00		SAMPLE ID : S0234414009_UU SAMPLE QTY: 0.512 G	
DETECTOR NUMBER :72527 AVERAGE %EFFICIENCY :24.8777 % YIELD : 113.002		COUNT DATE:20-AUG-2009 21:33:37 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.920E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.920E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26399 dpm RESULTS : 5.94841 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B146.CNF;342 BKG DATE : 16-AUG-2009 EFF FILE : W146.CNF;103 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	961.000	954.533	2.000	1.4142	100.0000	2.99E+00	4.46E-01	3.00E-02	1.03E-02	1.90E-01
U232	5302.100	1484.000	1479.000	5.000	2.2361	100.0000	4.63E+00	6.69E-01	4.20E-02	1.63E-02	2.37E-01
U-235	4391.000	46.000	45.000	1.000	1.0000	80.90000	1.74E-01	5.70E-02	2.96E-02	9.00E-03	5.20E-02
U-238	4184.730	787.000	785.000	2.000	1.4142	100.0000	2.46E+00	3.74E-01	3.00E-02	1.03E-02	1.72E-01

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



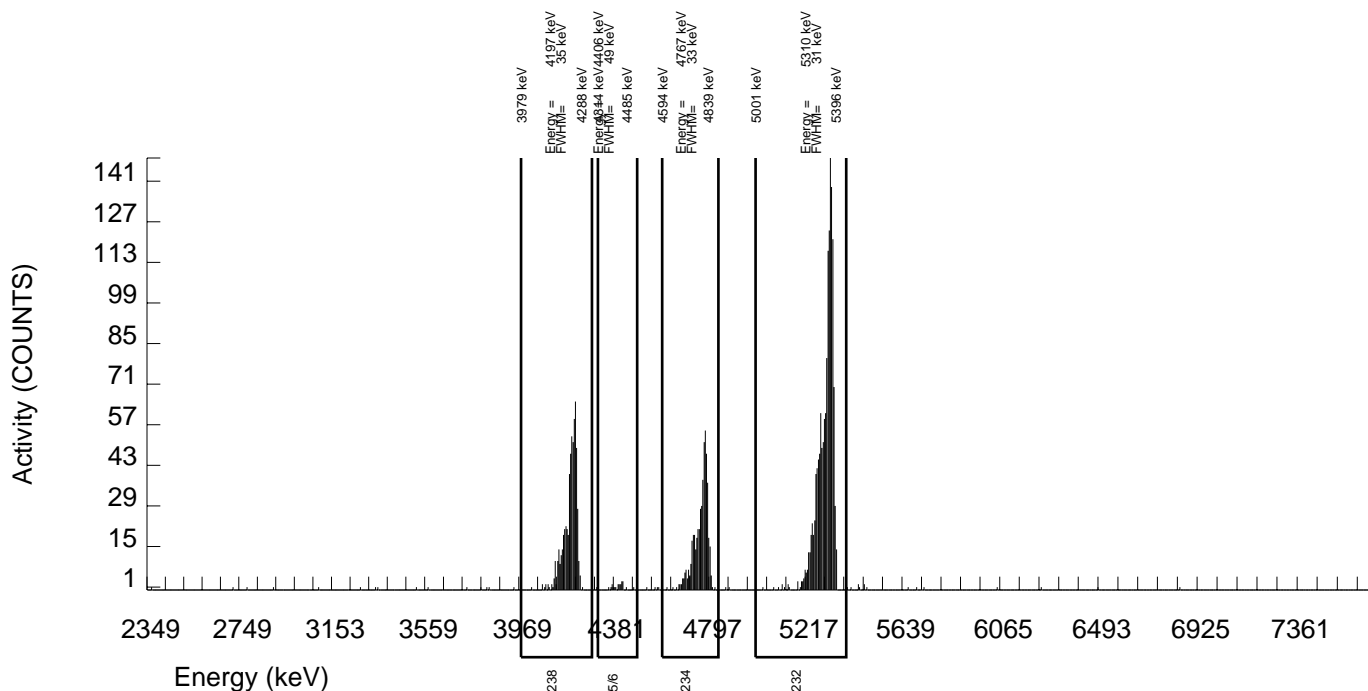
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 31-JUL-2009 00:00:00		SAMPLE ID : S0234414010_UU SAMPLE QTY: 0.505 G	
DETECTOR NUMBER :75550 AVERAGE %EFFICIENCY :24.7098 % YIELD : 111.154		COUNT DATE:20-AUG-2009 21:33:40 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.988E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.988E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26399 dpm RESULTS : 5.85116 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B147.CNF;342 BKG DATE : 16-AUG-2009 EFF FILE : W147.CNF;102 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	509.000	497.636	7.000	2.6458	100.0000	1.62E+00	2.66E-01	4.97E-02	2.00E-02	1.44E-01
U232	5302.100	1452.000	1445.000	7.000	2.6458	100.0000	4.70E+00	6.93E-01	4.97E-02	2.00E-02	2.43E-01
U-235	4391.000	22.000	22.000	0.000	0.0000	80.90000	8.83E-02	3.89E-02	1.20E-02	0.00E+00	3.69E-02
U-238	4184.730	599.000	597.000	2.000	1.4142	100.0000	1.94E+00	3.10E-01	3.11E-02	1.07E-02	1.56E-01

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



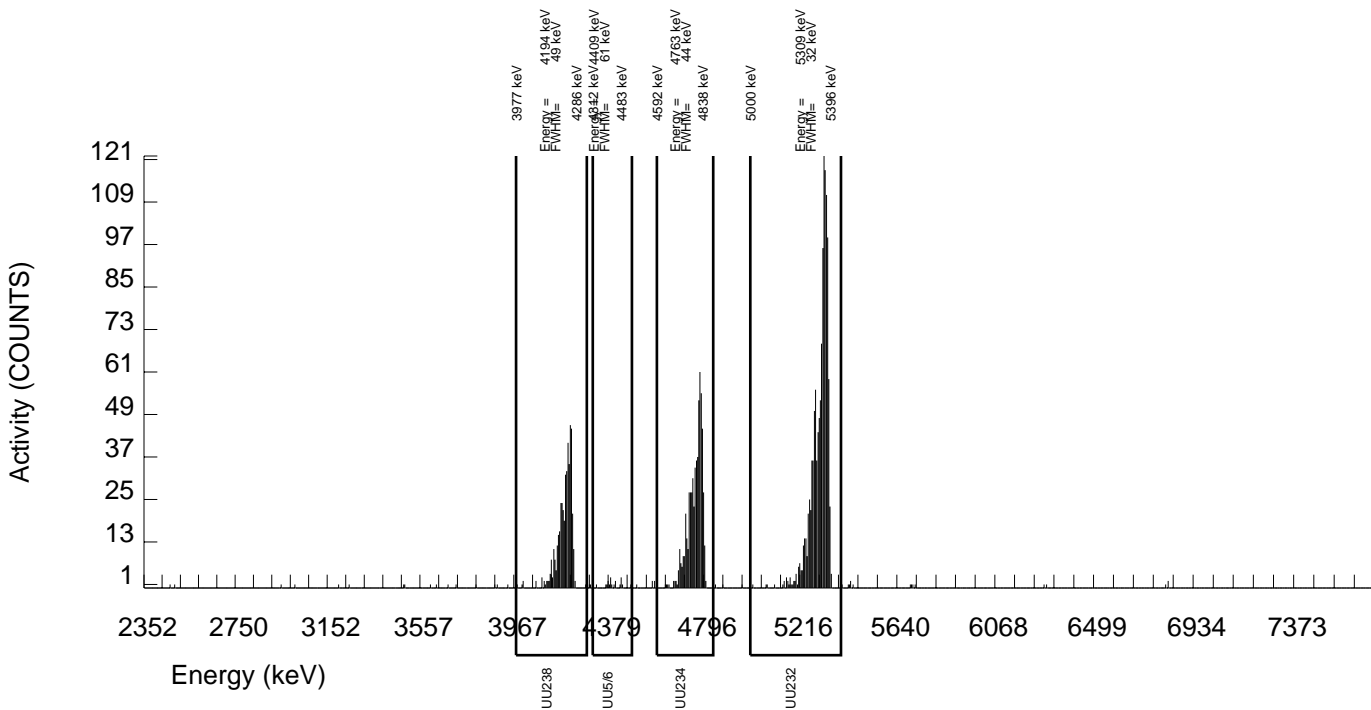
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 31-JUL-2009 00:00:00		SAMPLE ID : S0234414011_UU SAMPLE QTY: 0.519 G	
DETECTOR NUMBER :74429 AVERAGE %EFFICIENCY :24.8097 % YIELD : 93.698		COUNT DATE:20-AUG-2009 21:33:43 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.853E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.853E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26399 dpm RESULTS : 4.93228 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B148.CNF;341 BKG DATE : 16-AUG-2009 EFF FILE : W148.CNF;117 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	602.000	593.306	5.000	2.2361	100.0000	2.22E+00	3.53E-01	5.00E-02	1.94E-02	1.80E-01
U232	5302.100	1227.000	1223.000	4.000	2.0000	100.0000	4.57E+00	6.77E-01	4.60E-02	1.74E-02	2.57E-01
U-235	4391.000	19.000	19.000	0.000	0.0000	80.90000	8.77E-02	4.12E-02	1.38E-02	0.00E+00	3.94E-02
U-238	4184.730	456.000	455.000	1.000	1.0000	100.0000	1.70E+00	2.80E-01	2.86E-02	8.69E-03	1.56E-01

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



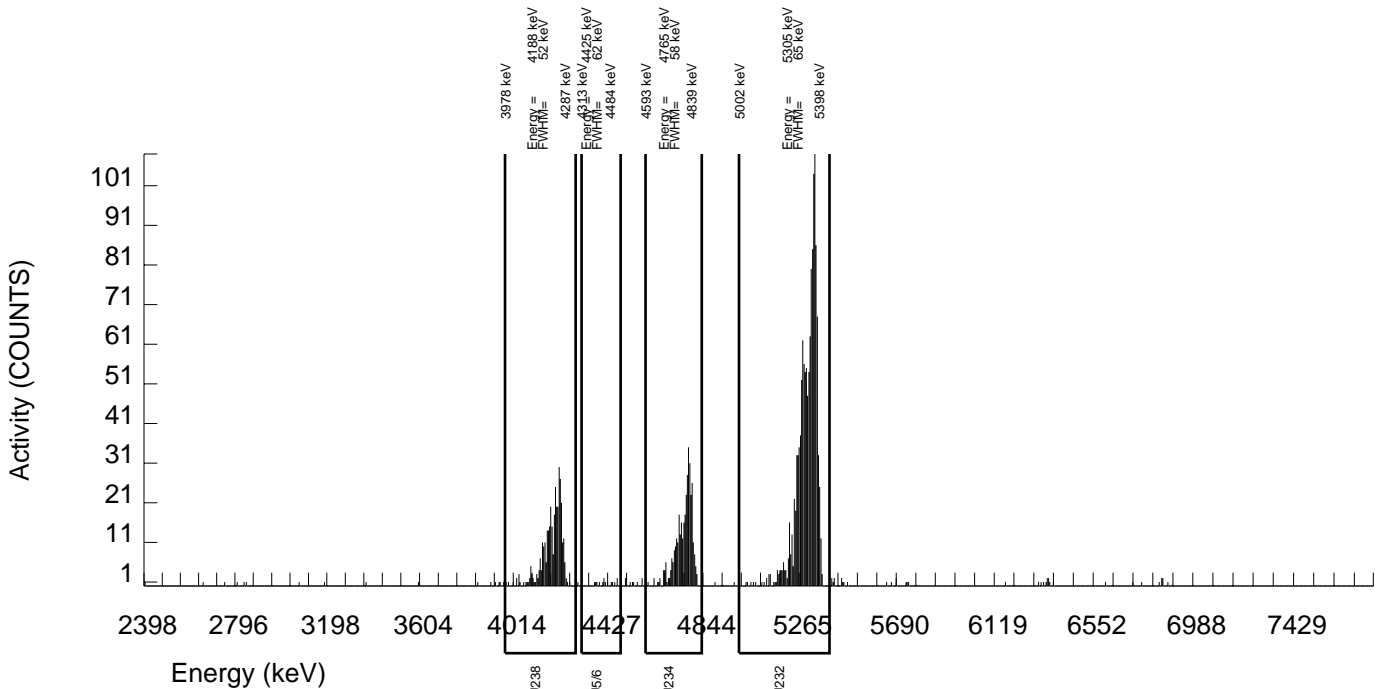
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 31-JUL-2009 00:00:00		SAMPLE ID : S0234414012_UU SAMPLE QTY: 0.509 G	
DETECTOR NUMBER :33449 AVERAGE %EFFICIENCY :24.6514 % YIELD : 102.242		COUNT DATE:20-AUG-2009 21:33:45 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.949E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.949E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26399 dpm RESULTS : 5.38203 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/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	372.000	366.995	1.000	1.0000	100.0000	1.29E+00	2.20E-01	2.69E-02	8.17E-03	1.32E-01
U232	5302.100	1332.000	1326.000	6.000	2.4495	100.0000	4.66E+00	6.83E-01	5.06E-02	2.00E-02	2.52E-01
U-235	4391.000	14.000	13.000	1.000	1.0000	80.90000	5.64E-02	3.38E-02	3.32E-02	1.01E-02	3.29E-02
U-238	4184.730	366.000	363.000	3.000	1.7321	100.0000	1.27E+00	2.18E-01	3.88E-02	1.41E-02	1.32E-01

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412  
SAMPLE DATE : 3-AUG-2009 00:00:00.

SAMPLE ID : S0234414013\_UU  
SAMPLE QTY: 0.503 G

DETECTOR NUMBER :75552  
AVERAGE %EFFICIENCY :24.8653  
% YIELD : 95.706

COUNT DATE:20-AUG-2009 21:33:48  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 5.008E+00

LCS/LCSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 5.008E+00

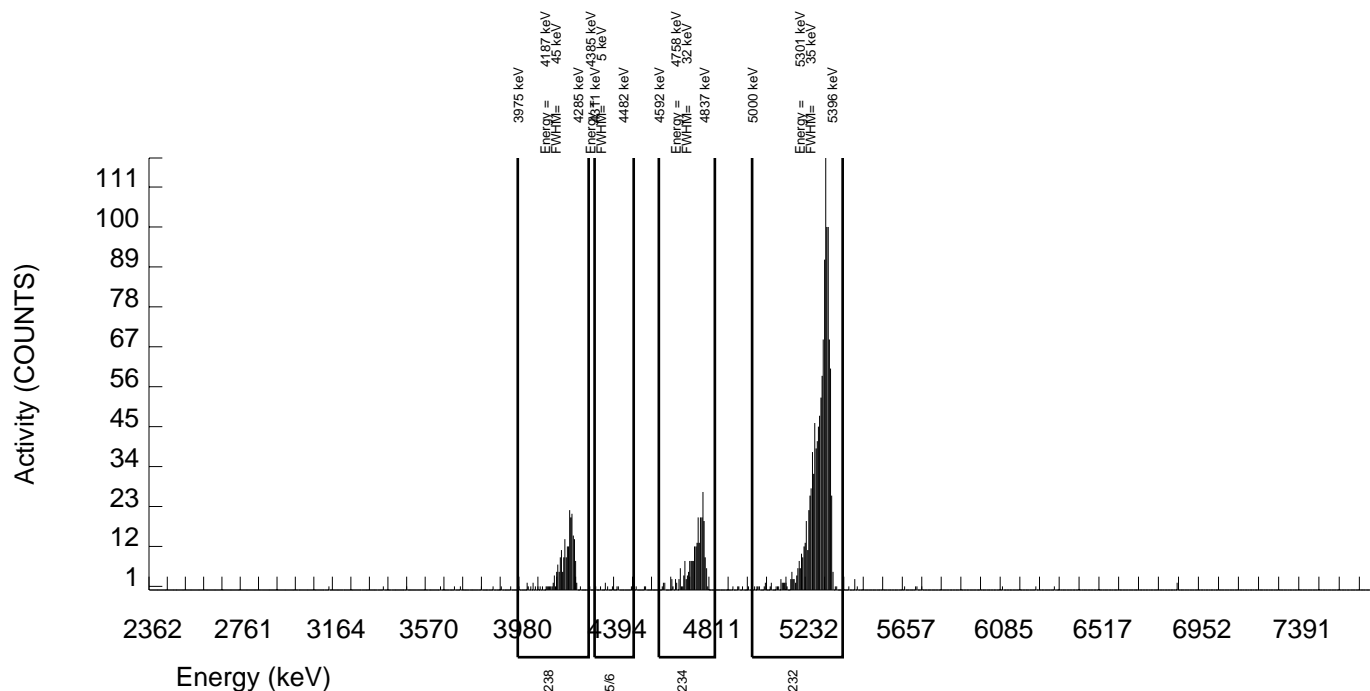
TRACER  
ID : 1283-E  
ISOTOPE : U232  
NOMINAL : 5.26358 dpm  
RESULTS : 5.03756 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B150.CNF;346  
BKG DATE : 16-AUG-2009  
EFF FILE : W150.CNF;110  
CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	253.000	244.219	5.000	2.2361	100.0000	9.19E-01	1.72E-01	5.04E-02	1.96E-02	1.18E-01
U232	5302.100	1258.000	1252.000	6.000	2.4495	100.0000	4.71E+00	6.96E-01	5.42E-02	2.15E-02	2.62E-01
U-235	4391.000	9.000	8.000	1.000	1.0000	80.90000	3.72E-02	2.93E-02	3.56E-02	1.08E-02	2.88E-02
U-238	4184.730	226.000	226.000	0.000	0.0000	100.0000	8.50E-01	1.61E-01	1.13E-02	0.00E+00	1.11E-01

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



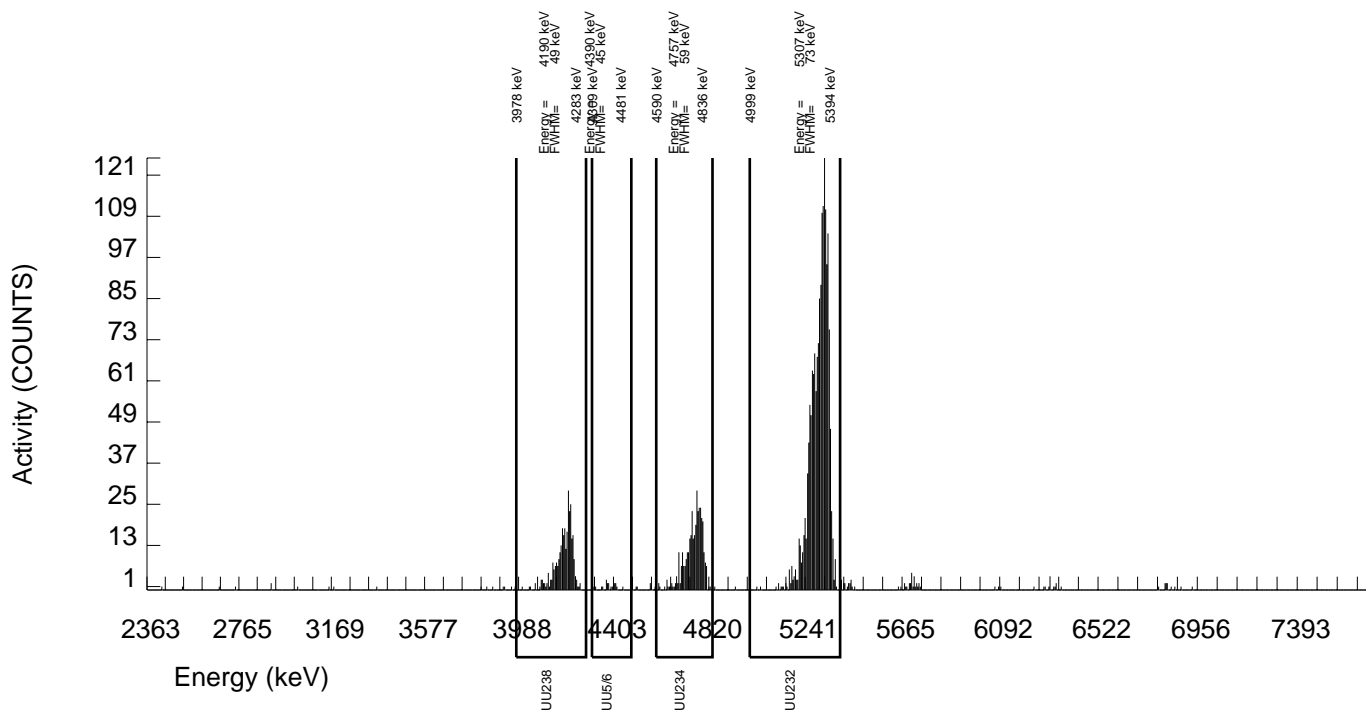
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 3-AUG-2009 00:00:00.		SAMPLE ID : S0234414014_UU SAMPLE QTY: 0.505 G	
DETECTOR NUMBER :45-132FF2 AVERAGE %EFFICIENCY :26.1701 % YIELD : 125.166		COUNT DATE:27-AUG-2009 18:01:58 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.988E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.988E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26358 dpm RESULTS : 6.58820 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/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	372.000	363.795	3.000	1.7321	100.0000	9.91E-01	1.67E-01	3.01E-02	1.10E-02	1.03E-01
U232	5302.100	1726.000	1723.000	3.000	1.7321	100.0000	4.70E+00	6.65E-01	3.01E-02	1.10E-02	2.22E-01
U-235	4391.000	21.000	20.000	1.000	1.0000	80.90000	6.73E-02	3.22E-02	2.58E-02	7.83E-03	3.09E-02
U-238	4184.730	310.000	310.000	0.000	0.0000	100.0000	8.44E-01	1.47E-01	8.17E-03	0.00E+00	9.40E-02

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



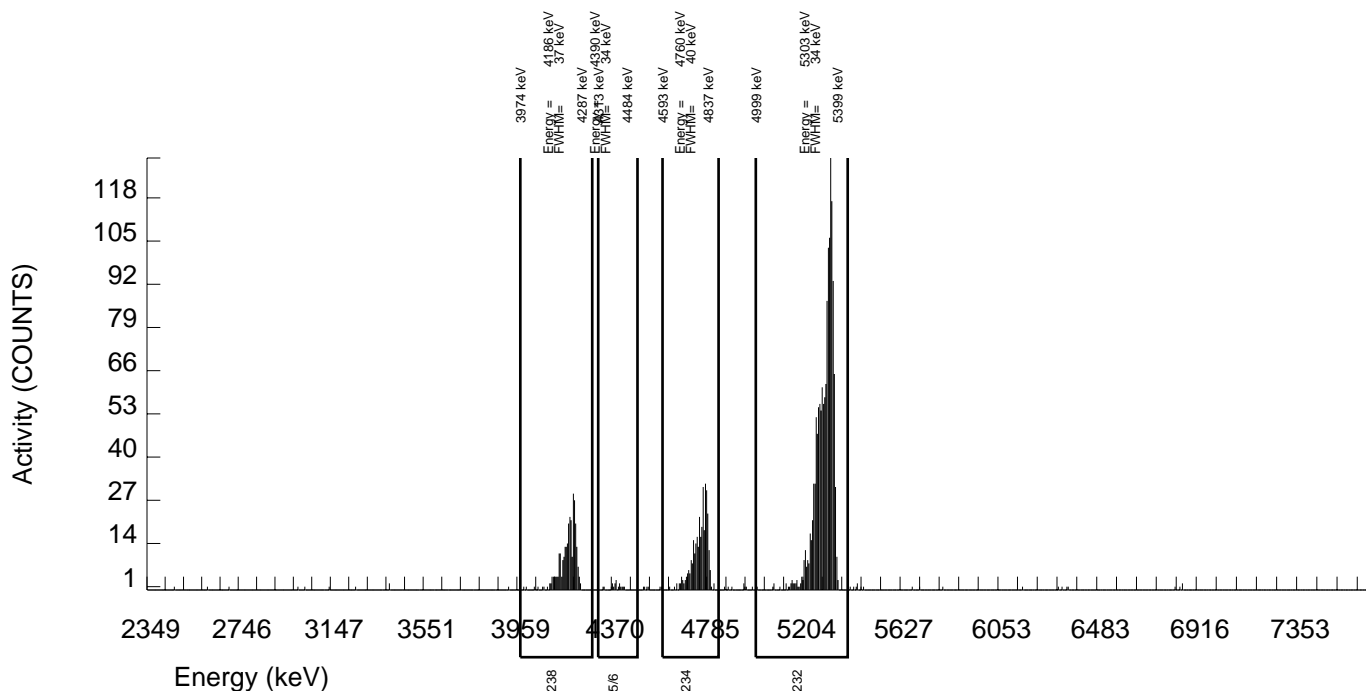
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 3-AUG-2009 00:00:00.		SAMPLE ID : S0234414015_UU SAMPLE QTY: 0.515 G	
DETECTOR NUMBER :76222 AVERAGE %EFFICIENCY :24.9016 % YIELD : 109.382		COUNT DATE:20-AUG-2009 21:33:53 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.891E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.891E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26358 dpm RESULTS : 5.75741 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B152.CNF;338 BKG DATE : 16-AUG-2009 EFF FILE : W152.CNF;95 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	339.000	331.672	3.000	1.7321	100.0000	1.07E+00	1.85E-01	3.55E-02	1.29E-02	1.16E-01
U232	5302.100	1442.000	1433.000	9.000	3.0000	100.0000	4.60E+00	6.68E-01	5.45E-02	2.24E-02	2.40E-01
U-235	4391.000	19.000	18.000	1.000	1.0000	80.90000	7.14E-02	3.61E-02	3.04E-02	9.23E-03	3.48E-02
U-238	4184.730	295.000	293.000	2.000	1.4142	100.0000	9.41E-01	1.67E-01	3.08E-02	1.06E-02	1.08E-01

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



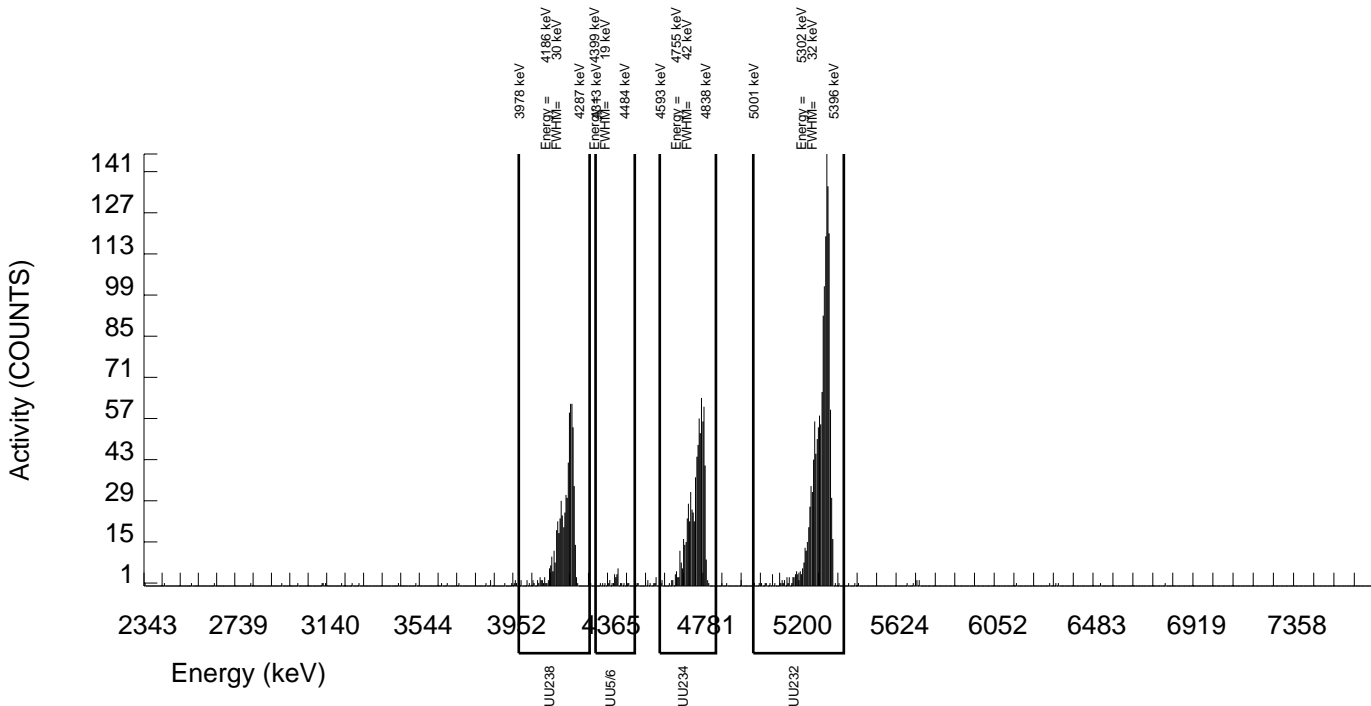
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 3-AUG-2009 00:00:00.		SAMPLE ID : S0234414016_UU SAMPLE QTY: 0.513 G	
DETECTOR NUMBER :76223 AVERAGE %EFFICIENCY :25.1908 % YIELD : 109.560		COUNT DATE:20-AUG-2009 21:33:55 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.910E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.910E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26358 dpm RESULTS : 5.76680 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B153.CNF;333 BKG DATE : 16-AUG-2009 EFF FILE : W153.CNF;98 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	747.000	735.615	7.000	2.6458	100.0000	2.34E+00	3.60E-01	4.87E-02	1.96E-02	1.71E-01
U232	5302.100	1474.000	1452.000	22.000	4.6904	100.0000	4.62E+00	6.71E-01	7.90E-02	3.47E-02	2.41E-01
U-235	4391.000	33.000	31.000	2.000	1.4142	80.90000	1.22E-01	4.85E-02	3.77E-02	1.29E-02	4.56E-02
U-238	4184.730	646.000	642.000	4.000	2.0000	100.0000	2.04E+00	3.19E-01	3.92E-02	1.48E-02	1.59E-01

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





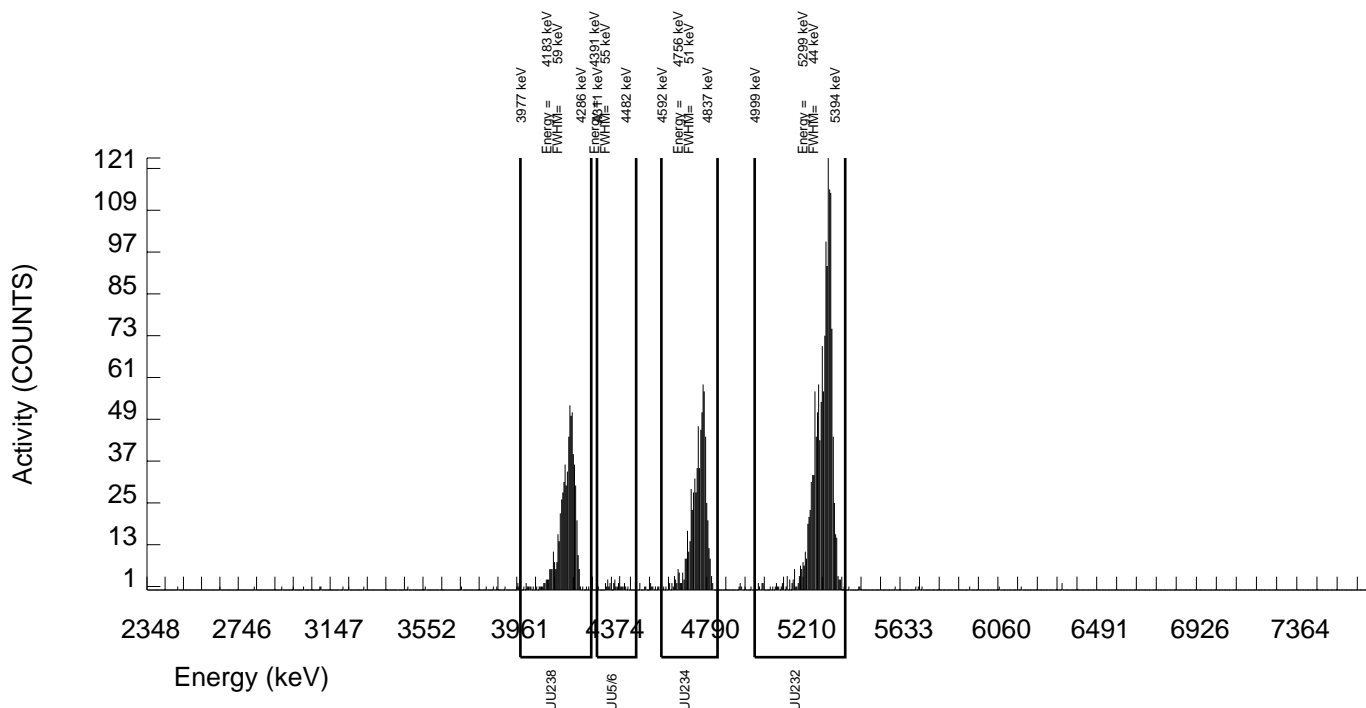
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 3-AUG-2009 00:00:00.		SAMPLE ID : S0234414017_UU SAMPLE QTY: 0.508 G	
DETECTOR NUMBER :76224 AVERAGE %EFFICIENCY :25.5940 % YIELD : 110.285		COUNT DATE:20-AUG-2009 21:33:58 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.958E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.958E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26358 dpm RESULTS : 5.80492 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B154.CNF;335 BKG DATE : 16-AUG-2009 EFF FILE : W154.CNF;96 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	690.000	681.515	4.000	2.0000	100.0000	2.14E+00	3.31E-01	3.87E-02	1.46E-02	1.62E-01
U232	5302.100	1493.000	1485.000	8.000	2.8284	100.0000	4.67E+00	6.74E-01	5.08E-02	2.07E-02	2.39E-01
U-235	4391.000	32.000	31.000	1.000	1.0000	80.90000	1.20E-01	4.66E-02	2.97E-02	9.03E-03	4.37E-02
U-238	4184.730	659.000	659.000	0.000	0.0000	100.0000	2.07E+00	3.21E-01	9.42E-03	0.00E+00	1.58E-01

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412  
SAMPLE DATE : 3-AUG-2009 00:00:00.

SAMPLE ID : S0234414018\_UU  
SAMPLE QTY: 0.506 G

DETECTOR NUMBER :75553  
AVERAGE %EFFICIENCY :26.0403  
% YIELD : 98.978

COUNT DATE:20-AUG-2009 21:34:00  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 4.978E+00

LCS/LCSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 4.978E+00

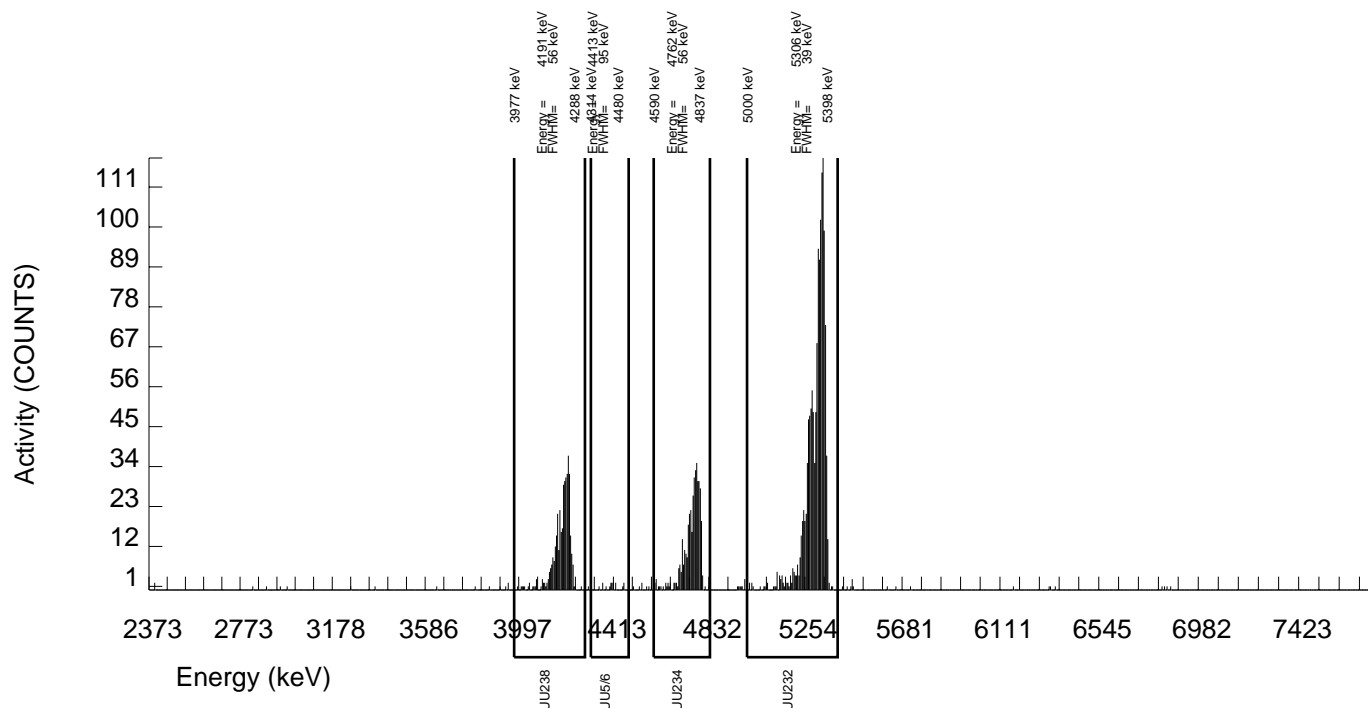
TRACER  
ID : 1283-E  
ISOTOPE : U232  
NOMINAL : 5.26358 dpm  
RESULTS : 5.20981 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B155.CNF;342  
BKG DATE : 16-AUG-2009  
EFF FILE : W155.CNF;105  
CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	408.000	399.905	4.000	2.0000	100.0000	1.38E+00	2.32E-01	4.25E-02	1.61E-02	1.37E-01
U232	5302.100	1365.000	1356.000	9.000	3.0000	100.0000	4.69E+00	6.85E-01	5.86E-02	2.41E-02	2.51E-01
U-235	4391.000	16.000	14.000	2.000	1.4142	80.90000	5.98E-02	3.64E-02	4.09E-02	1.40E-02	3.55E-02
U-238	4184.730	403.000	402.000	1.000	1.0000	100.0000	1.39E+00	2.33E-01	2.64E-02	8.04E-03	1.36E-01

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412  
SAMPLE DATE : 31-JUL-2009 00:00:00

SAMPLE ID : S0234414022\_UU  
SAMPLE QTY: 0.508 G

DETECTOR NUMBER :75554  
AVERAGE %EFFICIENCY :24.7825  
% YIELD : 98.633

COUNT DATE:20-AUG-2009 21:34:03  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 4.958E+00

LCS/LCSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 4.958E+00

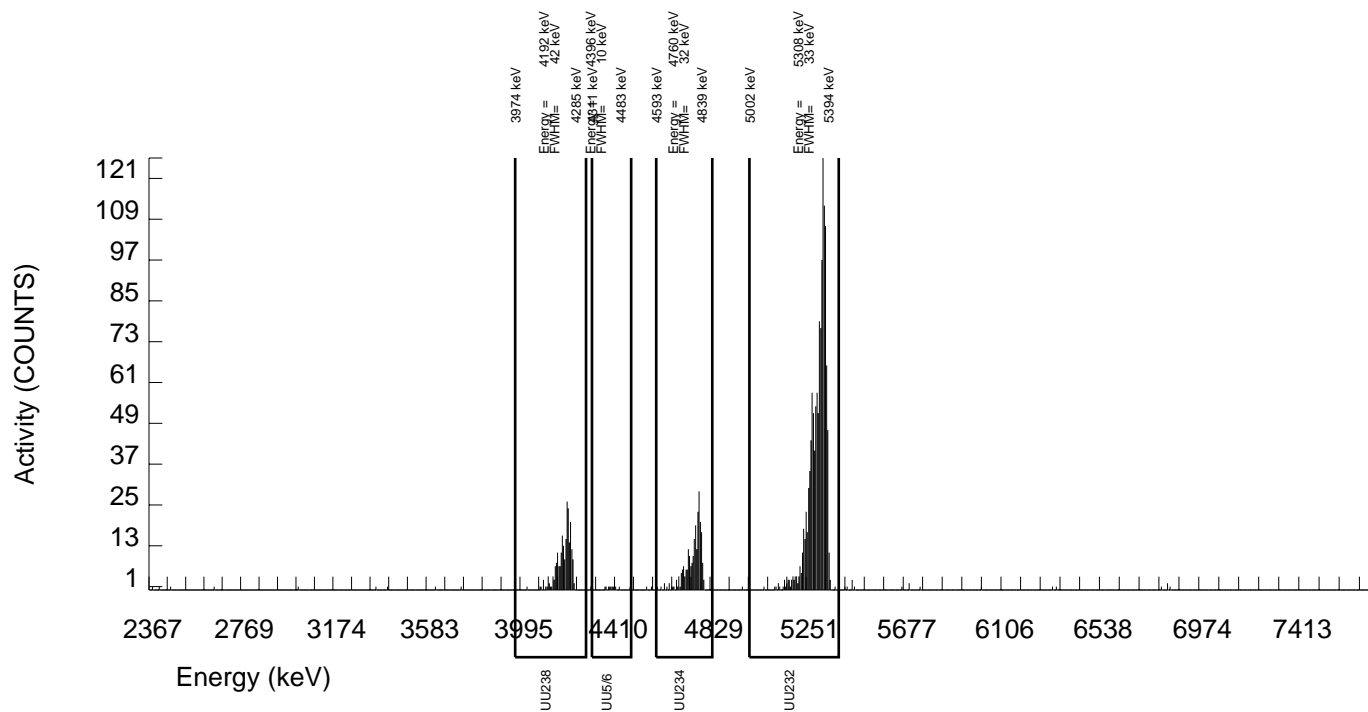
TRACER  
ID : 1283-E  
ISOTOPE : U232  
NOMINAL : 5.26399 dpm  
RESULTS : 5.19204 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B156.CNF;343  
BKG DATE : 16-AUG-2009  
EFF FILE : W156.CNF;109  
CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	246.000	228.116	14.000	3.7417	100.0000	8.28E-01	1.60E-01	7.40E-02	3.16E-02	1.14E-01
U232	5302.100	1292.000	1286.000	6.000	2.4495	100.0000	4.67E+00	6.87E-01	5.23E-02	2.07E-02	2.56E-01
U-235	4391.000	14.000	13.000	1.000	1.0000	80.90000	5.83E-02	3.50E-02	3.43E-02	1.04E-02	3.40E-02
U-238	4184.730	234.000	232.000	2.000	1.4142	100.0000	8.42E-01	1.59E-01	3.48E-02	1.19E-02	1.09E-01

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412  
SAMPLE DATE : 31-JUL-2009 00:00:00

SAMPLE ID : S0234414023\_UU  
SAMPLE QTY: 0.506 G

DETECTOR NUMBER :75555  
AVERAGE %EFFICIENCY :24.5957  
% YIELD : 102.087

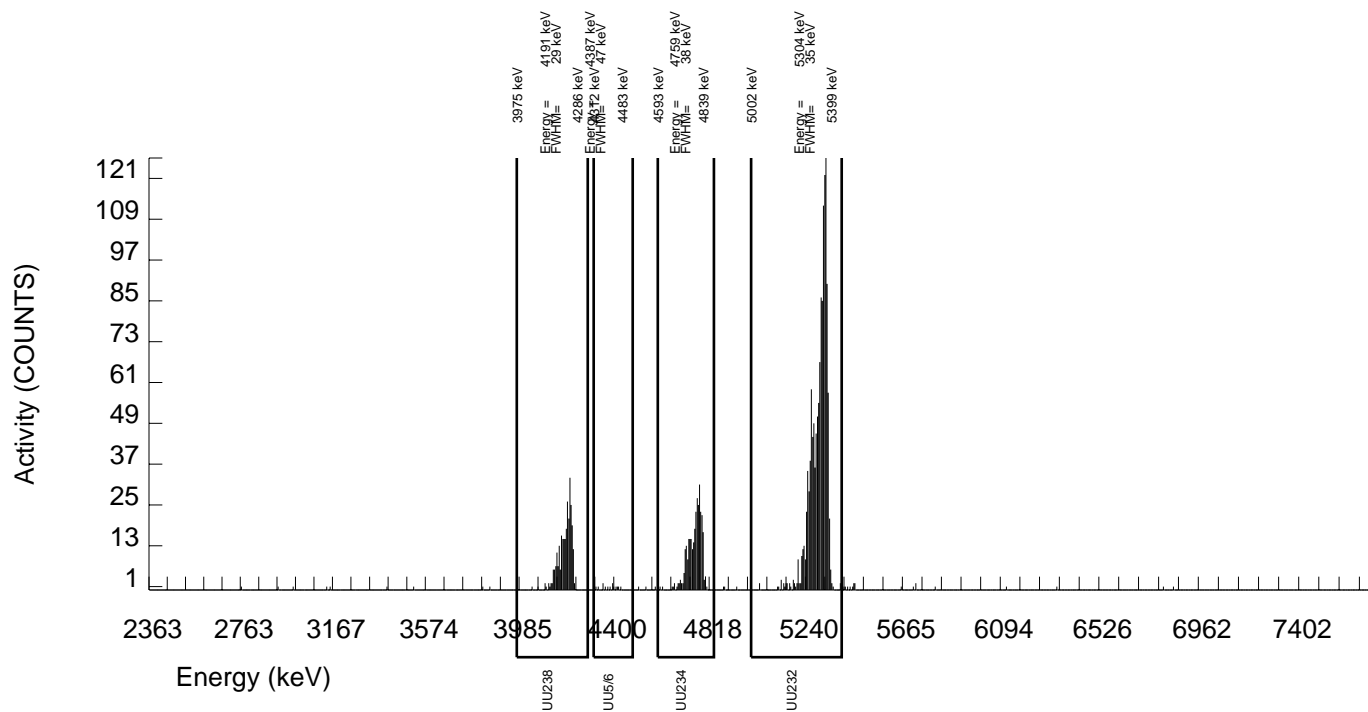
COUNT DATE:20-AUG-2009 21:34:06  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.978E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.978E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26399 dpm RESULTS : 5.37387 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B157.CNF;343 BKG DATE : 16-AUG-2009 EFF FILE : W157.CNF;99 CAL DATE : 17-AUG-2009
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NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	322.000	312.010	6.000	2.4495	100.0000	1.11E+00	1.96E-01	5.10E-02	2.02E-02	1.25E-01
U232	5302.100	1328.000	1321.000	7.000	2.6458	100.0000	4.69E+00	6.87E-01	5.43E-02	2.18E-02	2.54E-01
U-235	4391.000	14.000	14.000	0.000	0.0000	80.90000	6.14E-02	3.32E-02	1.31E-02	0.00E+00	3.21E-02
U-238	4184.730	285.000	284.000	1.000	1.0000	100.0000	1.01E+00	1.81E-01	2.71E-02	8.25E-03	1.18E-01

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



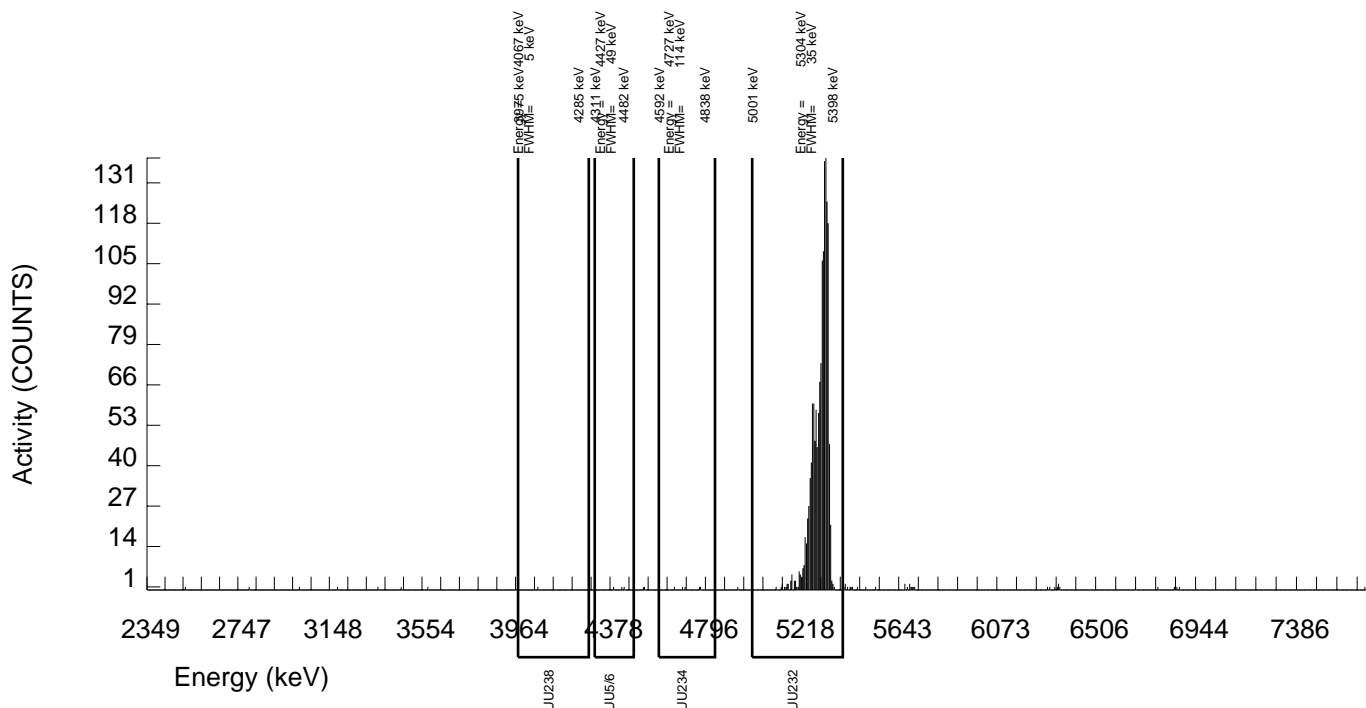
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 14-AUG-2009 00:00:00		SAMPLE ID : S1201900833_UU SAMPLE QTY: 0.519 G	
DETECTOR NUMBER :78771 AVERAGE %EFFICIENCY :25.4523 % YIELD : 111.212		COUNT DATE:25-AUG-2009 23:46:55 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.853E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.853E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26205 dpm RESULTS : 5.85206 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B140.CNF;343 BKG DATE : 23-AUG-2009 EFF FILE : W140.CNF;97 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	5.000	-6.498	7.000	2.6458	100.0000	-1.99E-02	1.70E-02	4.69E-02	1.89E-02	1.70E-02
U232	5302.100	1493.000	1489.000	4.000	2.0000	100.0000	4.57E+00	6.59E-01	3.77E-02	1.43E-02	2.33E-01
U-235	4391.000	3.000	2.000	1.000	1.0000	80.90000	7.58E-03	1.49E-02	2.90E-02	8.82E-03	1.49E-02
U-238	4184.730	1.000	-4.000	5.000	2.2361	100.0000	-1.23E-02	1.47E-02	4.11E-02	1.60E-02	1.47E-02

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



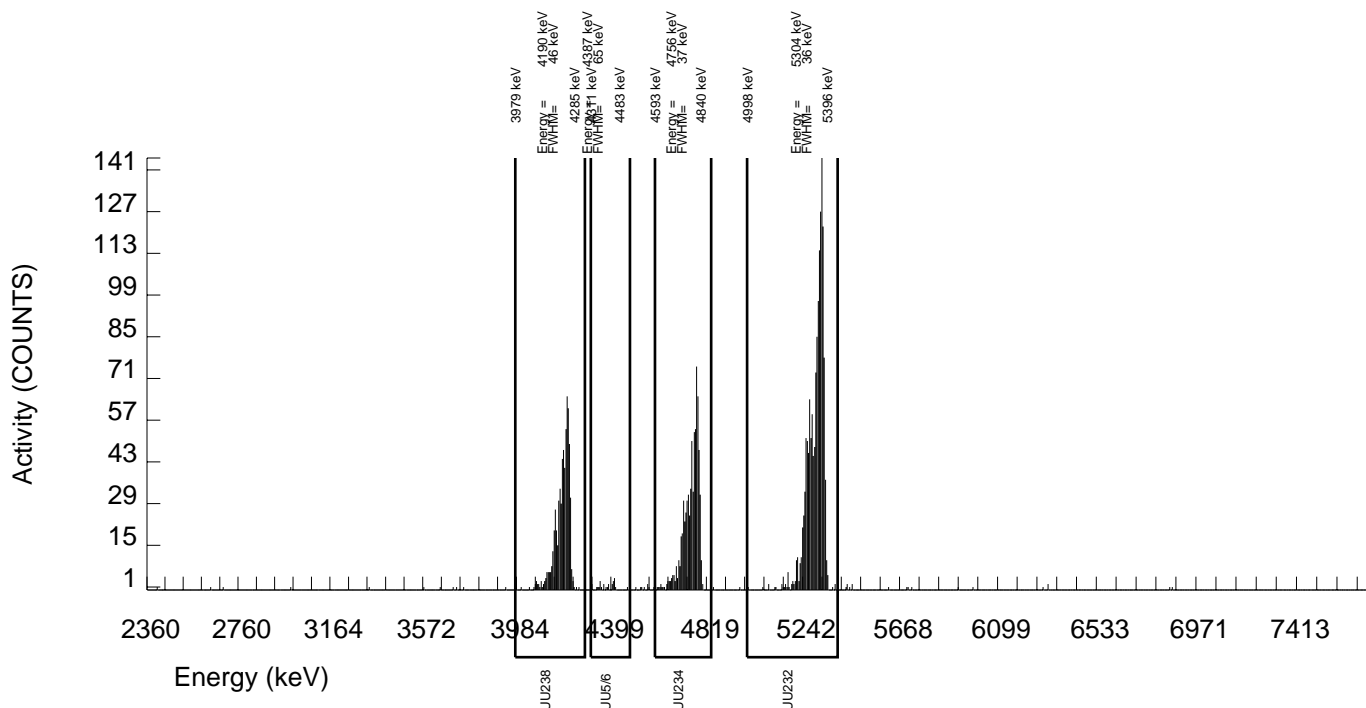
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 30-JUL-2009 00:00:00		SAMPLE ID : S1201900834_UU SAMPLE QTY: 0.510 G	
DETECTOR NUMBER :76225 AVERAGE %EFFICIENCY :25.3619 % YIELD : 108.971		COUNT DATE:20-AUG-2009 21:34:10 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.939E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.939E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26413 dpm RESULTS : 5.73638 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B159.CNF;317 BKG DATE : 16-AUG-2009 EFF FILE : W159.CNF;94 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	726.000	716.609	5.000	2.2361	100.0000	2.29E+00	3.53E-01	4.28E-02	1.66E-02	1.69E-01
U232	5302.100	1463.000	1454.000	9.000	3.0000	100.0000	4.65E+00	6.73E-01	5.42E-02	2.23E-02	2.40E-01
U-235	4391.000	26.000	24.000	2.000	1.4142	80.90000	9.48E-02	4.29E-02	3.78E-02	1.30E-02	4.10E-02
U-238	4184.730	652.000	650.000	2.000	1.4142	100.0000	2.08E+00	3.23E-01	3.06E-02	1.05E-02	1.60E-01

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



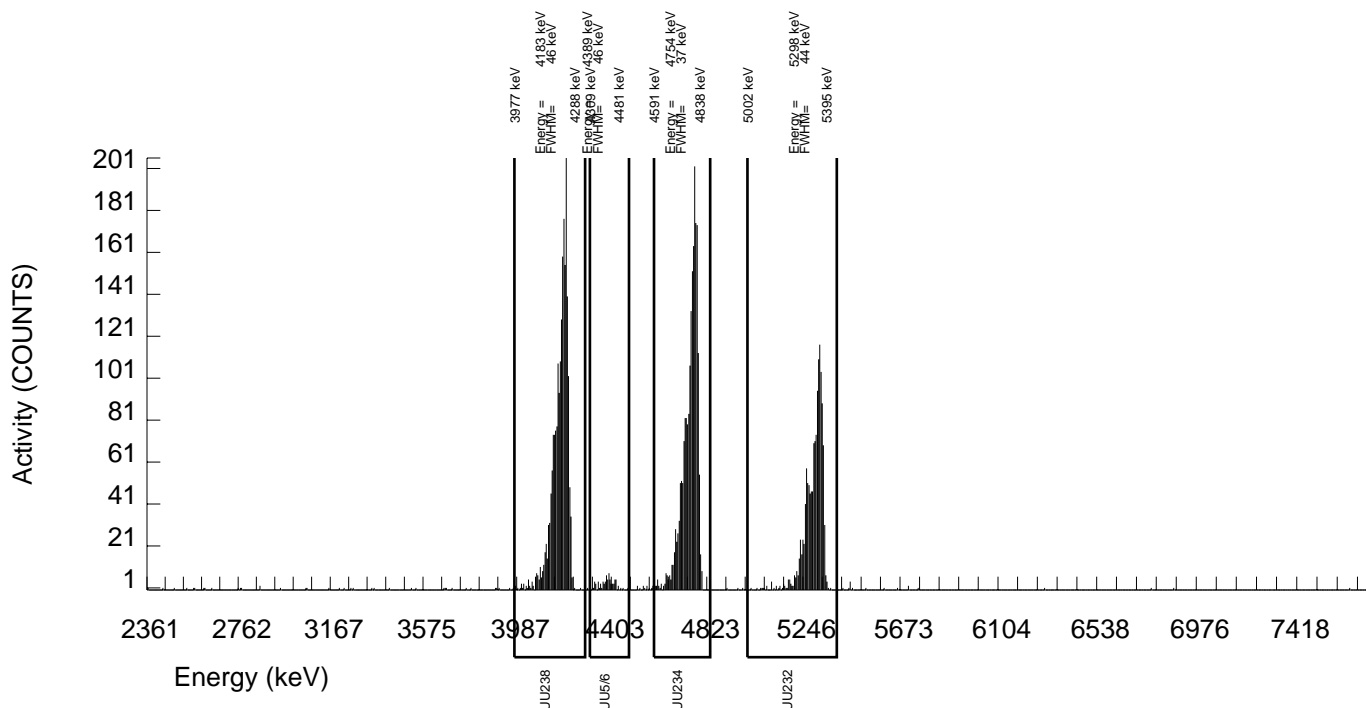
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412 SAMPLE DATE : 30-JUL-2009 00:00:00		SAMPLE ID : S1201900835_UU SAMPLE QTY: 0.507 G	
DETECTOR NUMBER :76226 AVERAGE %EFFICIENCY :24.5094 % YIELD : 104.463		COUNT DATE:20-AUG-2009 21:34:13 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.968E+00	LCS/LCSD ID : 1163-G ISOTOPE : U-238 PCI/G : 4.968E+00	TRACER ID : 1283-E ISOTOPE : U232 NOMINAL : 5.26413 dpm RESULTS : 5.49907 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B160.CNF;319 BKG DATE : 16-AUG-2009 EFF FILE : W160.CNF;102 CAL DATE : 17-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	2062.000	2041.932	16.000	4.0000	100.0000	7.09E+00	1.01E+00	7.50E-02	3.23E-02	3.10E-01
U232	5302.100	1357.000	1347.000	10.000	3.1623	100.0000	4.68E+00	6.85E-01	6.15E-02	2.55E-02	2.52E-01
U-235	4391.000	80.000	78.000	2.000	1.4142	80.90000	3.35E-01	8.87E-02	4.11E-02	1.41E-02	7.61E-02
U-238	4184.730	2088.000	2087.000	1.000	1.0000	100.0000	7.24E+00	1.03E+00	2.66E-02	8.07E-03	3.11E-01

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893412  
SAMPLE DATE : 14-AUG-2009 00:00:00

SAMPLE ID : S1201900836\_UU  
SAMPLE QTY: 0.519 G

DETECTOR NUMBER :72548  
AVERAGE %EFFICIENCY :37.7690  
% YIELD : 112.126

COUNT DATE:20-AUG-2009 21:34:16  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

MS/MSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 4.853E+00

LCS/LCSD  
ID : 1163-G  
ISOTOPE : U-238  
PCI/G : 4.853E+00

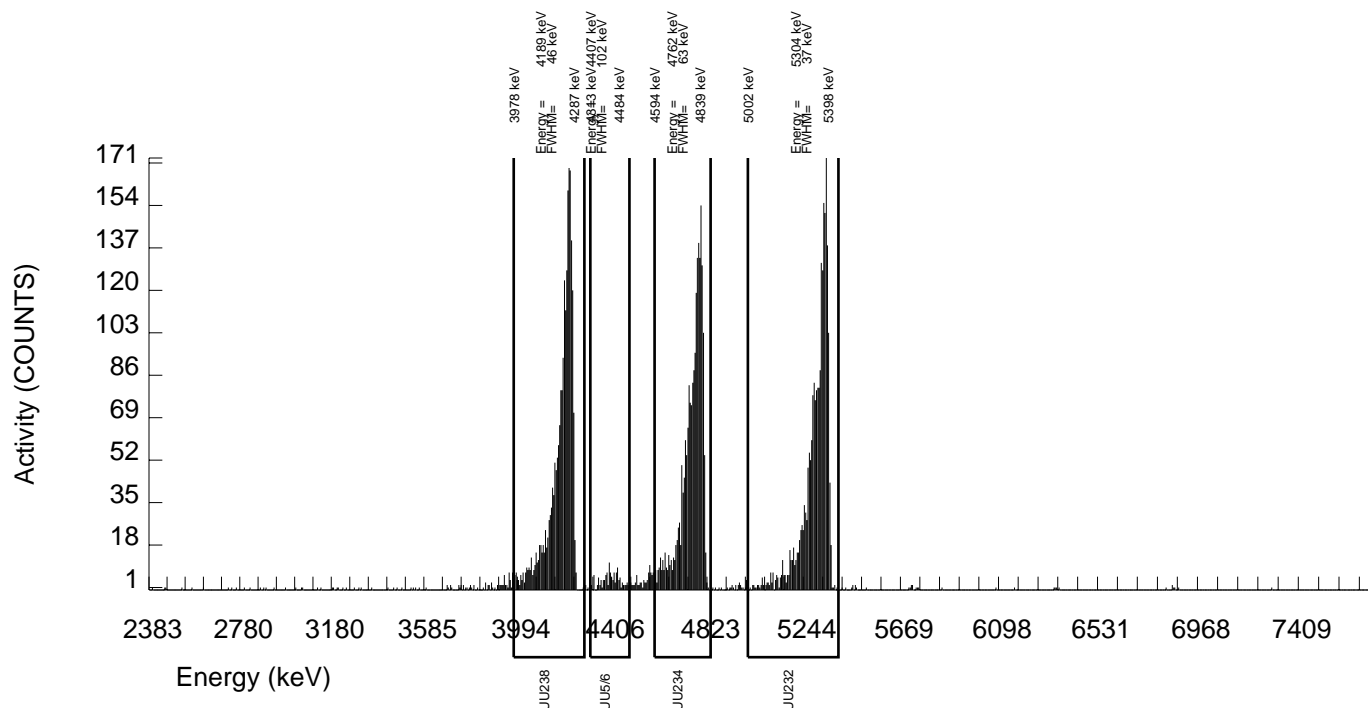
TRACER  
ID : 1283-E  
ISOTOPE : U232  
NOMINAL : 5.26206 dpm  
RESULTS : 5.90015 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B169.CNF;118  
BKG DATE : 16-AUG-2009  
EFF FILE : W169.CNF;47  
CAL DATE : 4-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
U-3/4	4763.020	2086.000	2066.271	13.000	3.6056	100.0000	4.23E+00	5.86E-01	4.05E-02	1.72E-02	1.84E-01
U232	5302.100	2242.000	2228.000	14.000	3.7417	100.0000	4.57E+00	6.30E-01	4.18E-02	1.78E-02	1.91E-01
U-235	4391.000	124.000	123.000	1.000	1.0000	80.90000	3.12E-01	6.90E-02	1.94E-02	5.89E-03	5.55E-02
U-238	4184.730	2237.000	2233.000	4.000	2.0000	100.0000	4.58E+00	6.31E-01	2.52E-02	9.54E-03	1.90E-01

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





### Radiochemistry Batch Checklist, Rev 9

Batch# 892925 Product: u Date: 8/20/09

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)			N/A
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.	✓		
Tracer yield is 15-125% . Carrier yield 25-125%.	✓		
Or meets the client's contract acceptance criteria.	✓		
Method blank is less than the RDL/ LLD. (If rad samples. < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.	✓		
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.	✓		
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly stated.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	✓		
Batch non-conformances completed. if applicable.			N/A
Batch non-conformances second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (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:  8/20/09

Secondary Review Performed By:  8/20/09

KERR

8/15 - 8/26

# Uranium Que Sheet

11-AUG-09

Batch #: 892925 Analyst: JXD2 First Client Due Date: 26-AUG-09 Internal Due Date: 15-AUG-09

Tracer Isotope: U-235 (U-235) Tracer Code: 1283-E Expiration Date: 01/15/10 Vol: 0.1  
 LCS Isotope: U-238 LCS Code: 1162-G Expiration Date: 04/15/10 Vol: 0.1  
 Spike Isotope: U-238 Spike Code: \_\_\_\_\_ Expiration Date: \_\_\_\_\_ Vol: \_\_\_\_\_  
 Prep Date: 08/12/09 Initials: JXD Pipet ID: 277-058 Balance ID: 16750207

Witness: 8/12/09 CMM

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g/μf)	U Det #
234120018-1	EB072709-SO	SAMPLE		.03 pCi/L	WATER	KERR003	27-JUL-09	1	1	0.800	9
234267018-1	FB072909-SO	SAMPLE		.03 pCi/L	WATER	KERR003	29-JUL-09	2	2	0.800	13
234414019-1	EB073109-SO	SAMPLE		.03 pCi/L	WATER	KERR003	31-JUL-09	3	3	0.800	15
234414020-1	EB080309-SO	SAMPLE		.03 pCi/L	WATER	KERR003	03-AUG-09	4	4	0.800	16
234414021-1	FB080309-SO	SAMPLE		.03 pCi/L	WATER	KERR003	03-AUG-09	5	5	0.800	161
1201899628-1	MB for batch 892925	MB		.03 pCi/L	WATER	QC ACCOUNT	27-JUL-09 12-Aug-09	6	6	0.800	162
1201899629-1	LCS for batch 892925	LCS		.03 pCi/L	WATER	QC ACCOUNT	27-JUL-09 12-Aug-09	7	7	0.800	17
1201899630-1	LCS for batch 892925	LCS		.03 pCi/L	WATER	QC ACCOUNT	27-JUL-09 12-Aug-09	8	8	0.800	18

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

Solid Sample Dissolution by: LEACH or DIGESTION  
 Circle One

Data Reviewed By: [Signature] 8/20/09  
[Signature] 8/21/09

111

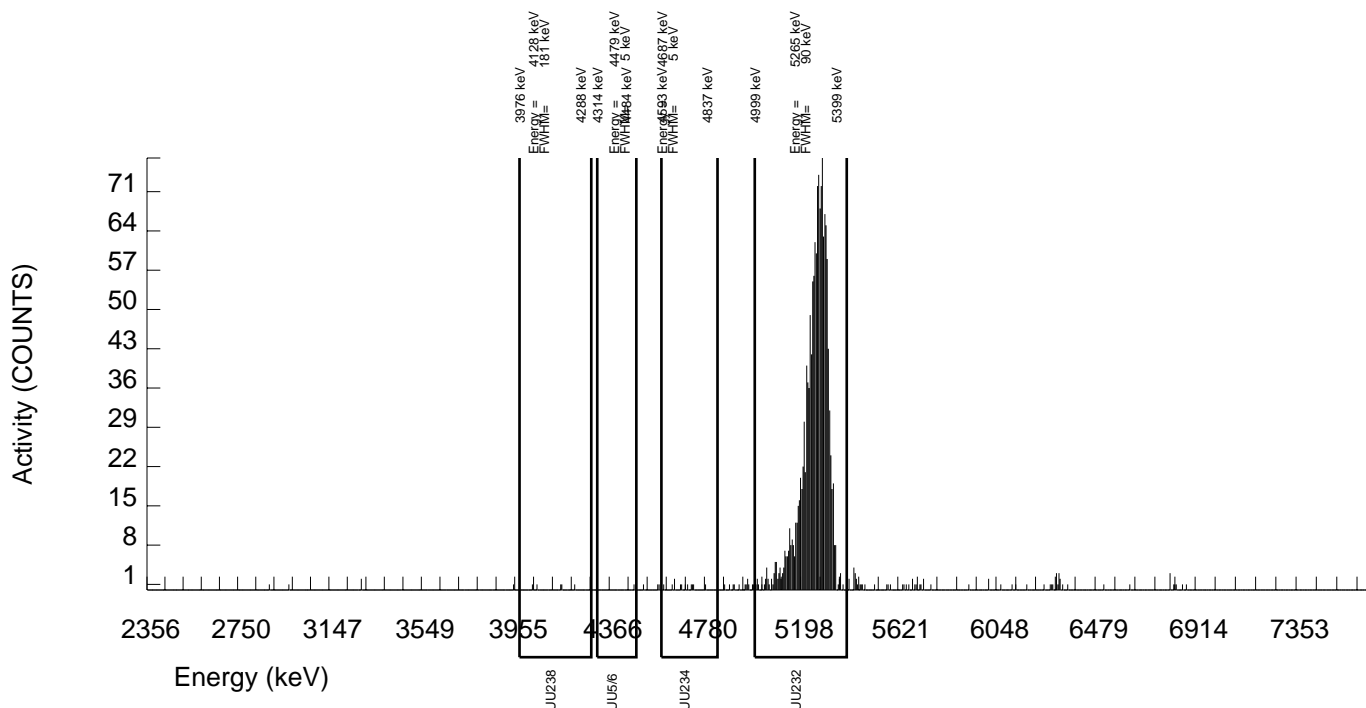
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 892925 SAMPLE DATE : 31-JUL-2009 00:00:00		SAMPLE ID : S0234414019_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :61581 AVERAGE %EFFICIENCY :32.4959 % YIELD : 87.142		COUNT DATE:15-AUG-2009 17:48:40 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 : 5.26399 dpm RESULTS : 4.58714 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B015.CNF;1054 BKG DATE : 9-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	13.000	5.500	3.000	1.7321	100.0000	1.09E-02	1.33E-02	2.20E-02	8.01E-03	1.32E-02
U232	5302.100	1497.000	1490.000	7.000	2.6458	100.0000	2.96E+00	4.26E-01	3.05E-02	1.22E-02	1.51E-01
U-235	4391.000	1.000	1.000	0.000	0.0000	80.90000	2.46E-03	4.83E-03	7.37E-03	0.00E+00	4.82E-03
U-238	4184.730	5.000	1.000	4.000	2.0000	100.0000	1.99E-03	1.17E-02	2.45E-02	9.25E-03	1.17E-02

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



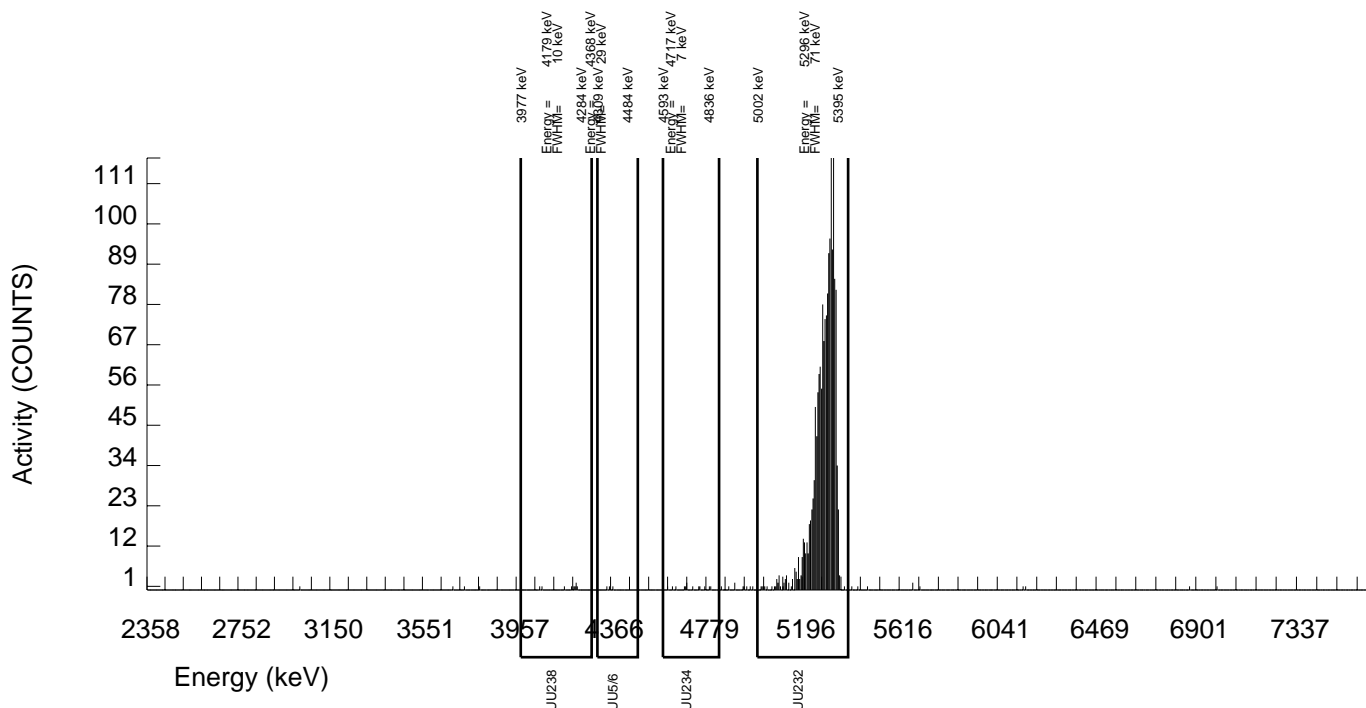
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 892925 SAMPLE DATE : 3-AUG-2009 00:00:00.		SAMPLE ID : S0234414020_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :78774 AVERAGE %EFFICIENCY :33.7280 % YIELD : 95.115		COUNT DATE:15-AUG-2009 17:48:40 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 : 5.26358 dpm RESULTS : 5.00648 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B016.CNF;1030 BKG DATE : 9-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	13.000	4.903	3.000	1.7321	100.0000	8.60E-03	1.14E-02	1.94E-02	7.07E-03	1.14E-02
U232	5302.100	1689.000	1688.000	1.000	1.0000	100.0000	2.96E+00	4.19E-01	1.34E-02	4.08E-03	1.41E-01
U-235	4391.000	3.000	2.000	1.000	1.0000	80.90000	4.34E-03	8.52E-03	1.66E-02	5.05E-03	8.50E-03
U-238	4184.730	9.000	6.000	3.000	1.7321	100.0000	1.05E-02	1.20E-02	1.94E-02	7.07E-03	1.19E-02

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



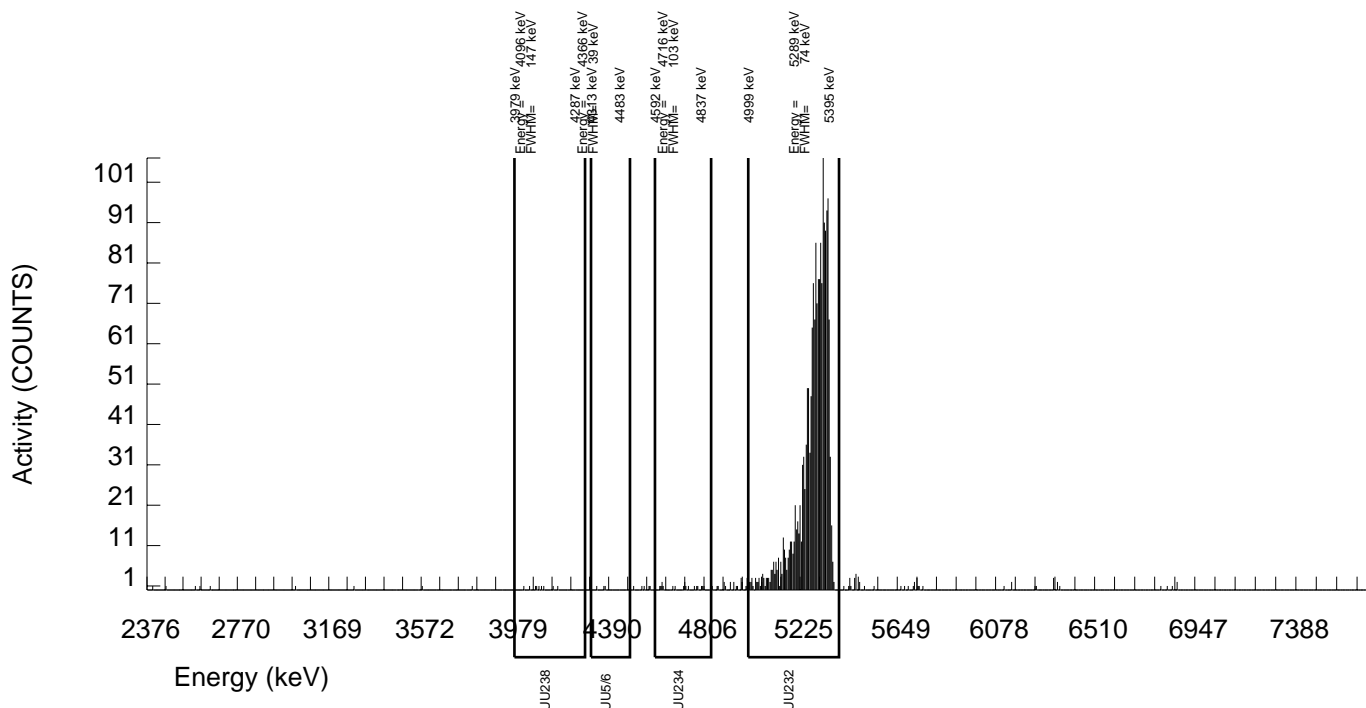
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 892925 SAMPLE DATE : 3-AUG-2009 00:00:00.		SAMPLE ID : S0234414021_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :70321 AVERAGE %EFFICIENCY :37.2449 % YIELD : 95.778		COUNT DATE:15-AUG-2009 18:00:04 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 : 5.26358 dpm RESULTS : 5.04135 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B161.CNF;113 BKG DATE : 9-AUG-2009 EFF FILE : W161.CNF;40 CAL DATE : 23-JUL-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
U-3/4	4763.020	18.000	9.332	3.000	1.7321	100.0000	1.47E-02	1.23E-02	1.75E-02	6.36E-03	1.21E-02
U232	5302.100	1887.000	1877.000	10.000	3.1623	100.0000	2.96E+00	4.14E-01	2.80E-02	1.16E-02	1.35E-01
U-235	4391.000	3.000	2.000	1.000	1.0000	80.90000	3.90E-03	7.67E-03	1.49E-02	4.54E-03	7.65E-03
U-238	4184.730	9.000	8.000	1.000	1.0000	100.0000	1.26E-02	9.92E-03	1.21E-02	3.67E-03	9.78E-03

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



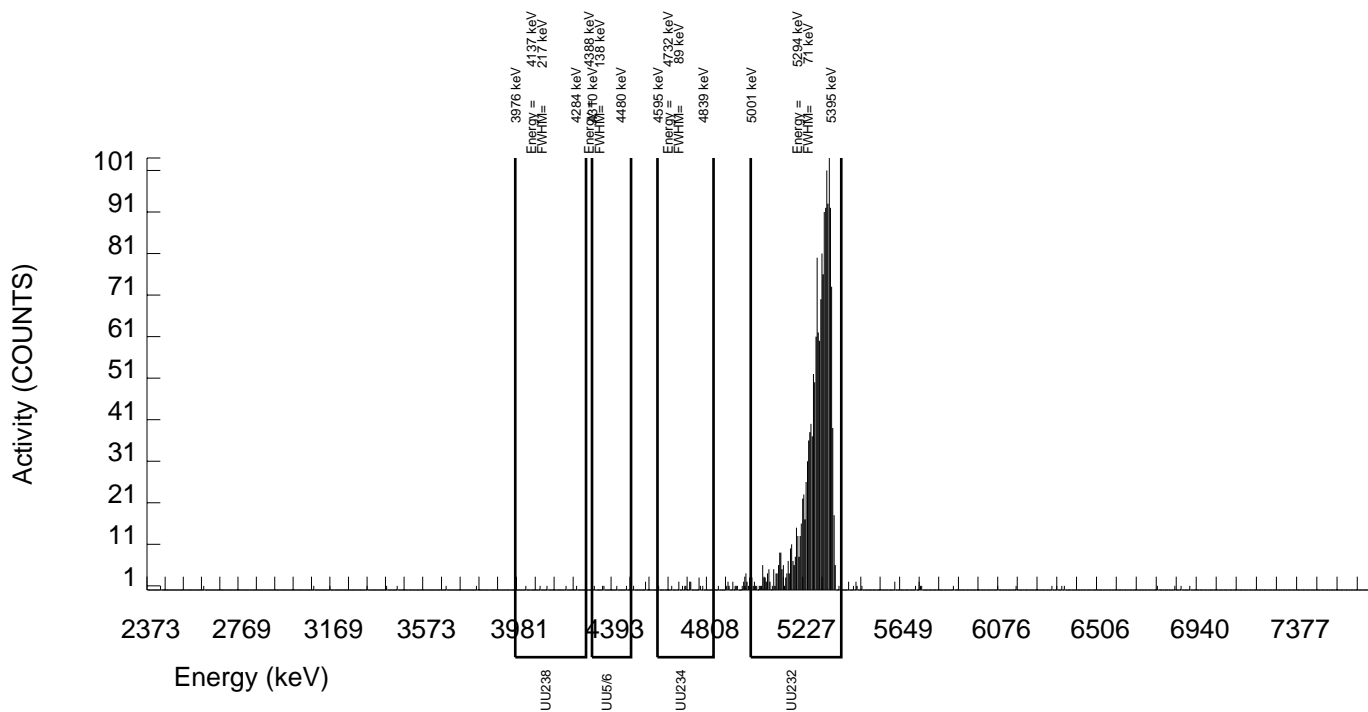
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 892925 SAMPLE DATE : 12-AUG-2009 00:00:00		SAMPLE ID : S1201899628_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :70323 AVERAGE %EFFICIENCY :37.1124 % YIELD : 91.153		COUNT DATE:15-AUG-2009 18:00:06 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 : 5.26234 dpm RESULTS : 4.79676 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B162.CNF;115 BKG DATE : 9-AUG-2009 EFF FILE : W162.CNF;49 CAL DATE : 4-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	16.000	6.625	4.000	2.0000	100.0000	1.10E-02	1.26E-02	2.05E-02	7.74E-03	1.25E-02
U232	5302.100	1787.000	1780.000	7.000	2.6458	100.0000	2.96E+00	4.16E-01	2.55E-02	1.02E-02	1.38E-01
U-235	4391.000	5.000	3.000	2.000	1.4142	80.90000	6.17E-03	1.07E-02	1.97E-02	6.77E-03	1.07E-02
U-238	4184.730	5.000	4.000	1.000	1.0000	100.0000	6.66E-03	8.04E-03	1.27E-02	3.87E-03	7.99E-03

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



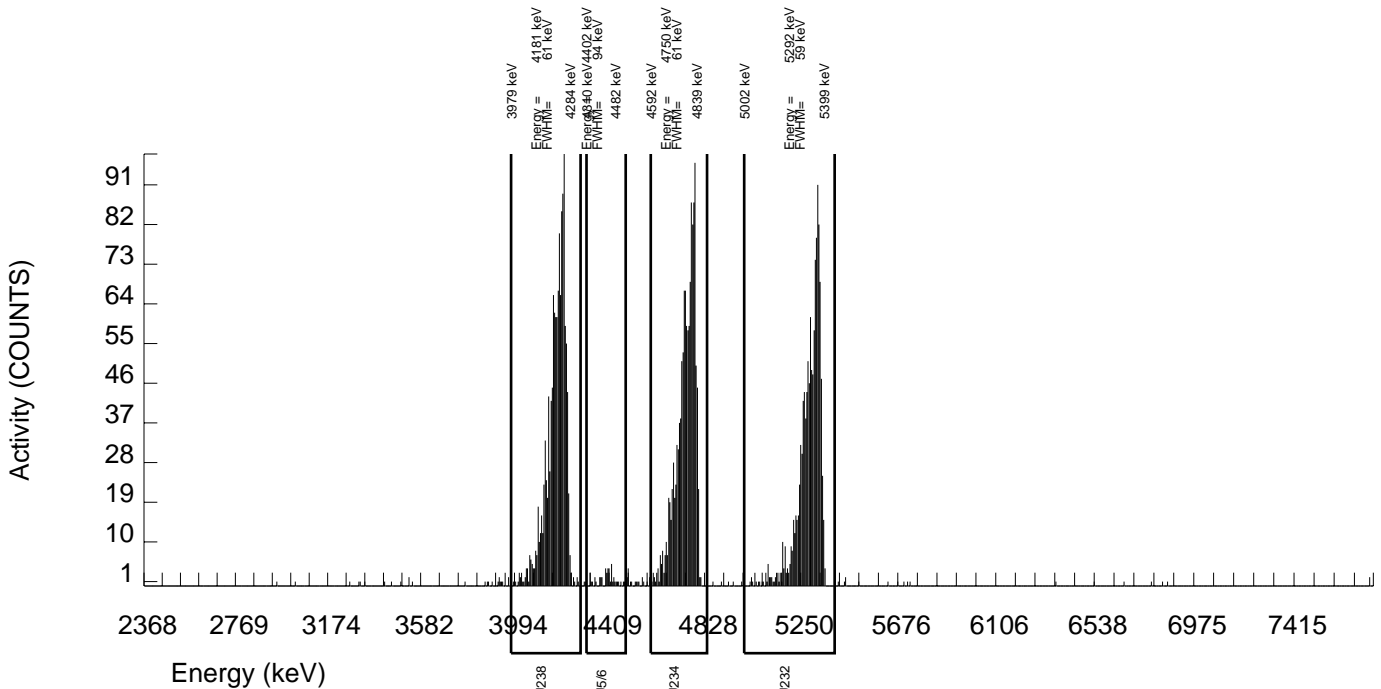
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 892925 SAMPLE DATE : 12-AUG-2009 00:00:00		SAMPLE ID : S1201899629_UU SAMPLE QTY: 0.800 L	
DETECTOR NUMBER :78791 AVERAGE %EFFICIENCY :29.2091 % YIELD : 79.445		COUNT DATE:15-AUG-2009 17:48:40 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 : 5.26234 dpm RESULTS : 4.18065 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B017.CNF;1877 BKG DATE : 9-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	1308.000	1298.313	6.000	2.4495	100.0000	3.15E+00	4.63E-01	3.49E-02	1.38E-02	1.72E-01
U232	5302.100	1223.000	1221.000	2.000	1.4142	100.0000	2.96E+00	4.37E-01	2.32E-02	7.98E-03	1.66E-01
U-235	4391.000	46.000	44.000	2.000	1.4142	80.90000	1.32E-01	4.45E-02	2.87E-02	9.87E-03	4.07E-02
U-238	4184.730	1320.000	1317.000	3.000	1.7321	100.0000	3.20E+00	4.69E-01	2.68E-02	9.78E-03	1.73E-01

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



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 892925  
SAMPLE DATE : 12-AUG-2009 00:00:00

SAMPLE ID : S1201899630\_UU  
SAMPLE QTY: 0.800 L

DETECTOR NUMBER :78782  
AVERAGE %EFFICIENCY :31.7210  
% YIELD : 88.731

COUNT DATE:15-AUG-2009 17:48:40  
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

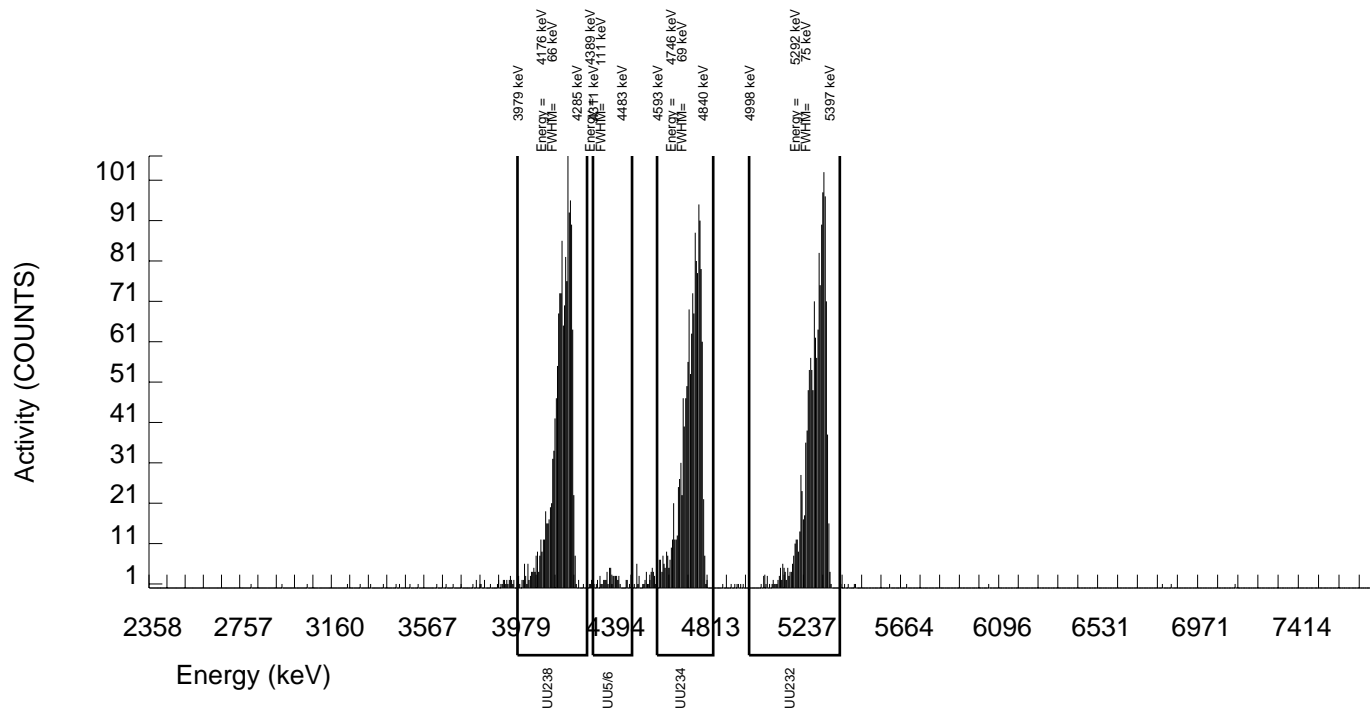
TRACER  
ID : 1283-E  
ISOTOPE : U232  
NOMINAL : 5.26234 dpm  
RESULTS : 4.66934 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B018.CNF;1029  
BKG DATE : 9-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	1428.000	1418.528	5.000	2.2361	100.0000	2.84E+00	4.09E-01	2.68E-02	1.04E-02	1.48E-01
U232	5302.100	1487.000	1481.000	6.000	2.4495	100.0000	2.96E+00	4.26E-01	2.88E-02	1.14E-02	1.52E-01
U-235	4391.000	59.000	59.000	0.000	0.0000	80.90000	1.46E-01	4.21E-02	7.42E-03	0.00E+00	3.72E-02
U-238	4184.730	1518.000	1513.000	5.000	2.2361	100.0000	3.03E+00	4.34E-01	2.68E-02	1.04E-02	1.53E-01

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





# THORIUM

**Radiochemistry Batch Checklist, Rev 9**

Batch# 893411 Product: Th Date: 8/31/09

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.	✓		CASE NARRATIVE
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%. 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# 728180
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 stated.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			NA
Batch entered into Case Narrative.	✓		
Batch non-conformances completed, if applicable.			NCR# 728180
Batch non-conformances second reviewed and disposition verified to be completed.	✓		NCR# 728180
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:

[Signature] 8/31/09

Secondary Review Performed By:

[Signature] 8/31/09

8/26-9/11  
KTR

# Thorium (Ac-227 Tracer) Que Sheet

13-AUG-09

Batch #: 893411

Analyst: KXM4 First Client Due Date: 01-SEP-09

Internal Due Date: 21-AUG-09

Tracer Isotope: Ac-227

Tracer Code: 0377-D-107

Expiration Date: 7-23-10

Vol: 0.1ml

Ac-227 Separation Date/Time: 8-18-09/10:21

LCS Isotope: Th-230

LCS Code: A2196-3

Expiration Date: 4-13-10

Vol: 0.1ml

Spike Isotope: Th-230

Spike Code: A2196-3

Expiration Date: 4-13-10

Vol: 0.1ml

Prep Date: 8-14-09

Initials: KM

Pipet ID: 297051

Balance ID: 5010272

Witness: ~~Stark~~ 8/14/09

Wet/Dry

Aliquot (g) 1/f Det # 889109

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g) 1/f	Th Det #
234414001-1	SA49-32B	SAMPLE		.05 pCi/g	SOIL	KERR003	30-JUL-09	1	1	0.255	25 175
234414002-1	SA63-10B	SAMPLE		.05 pCi/g	SOIL	KERR003	30-JUL-09	2	2	0.253	26 176
234414003-1	SA63-23B	SAMPLE		.05 pCi/g	SOIL	KERR003	30-JUL-09	3	3	0.252	27 177
234414004-1	RSAM5-05B	SAMPLE		.05 pCi/g	SOIL	KERR003	30-JUL-09	4	4	0.256	28 178
234414005-1	RSAM5009-05B	SAMPLE		.05 pCi/g	SOIL	KERR003	30-JUL-09	5	5	0.251	29 179
234414006-1	RSAM5-10B	SAMPLE		.05 pCi/g	SOIL	KERR003	30-JUL-09	6	6	0.253	30 180
234414007-1	RSAM5-28B	SAMPLE		.05 pCi/g	SOIL	KERR003	30-JUL-09	7	7	0.257	31 181
234414008-1	SA127-10B	SAMPLE		.05 pCi/g	SOIL	KERR003	31-JUL-09	8	8	0.257	32 182
234414009-1	SA127-20B	SAMPLE		.05 pCi/g	SOIL	KERR003	31-JUL-09	9	9	0.255	33 183
234414010-1	SA127-32B	SAMPLE		.05 pCi/g	SOIL	KERR003	31-JUL-09	10	10	0.257	34 184
234414011-1	RSAJ3-10B	SAMPLE		.05 pCi/g	SOIL	KERR003	31-JUL-09	11	11	0.258	35 185
234414012-1	RSAJ3-29B	SAMPLE		.05 pCi/g	SOIL	KERR003	31-JUL-09	12	12	0.257	36 186
234414013-1	SA28-05B	SAMPLE		.05 pCi/g	SOIL	KERR003	03-AUG-09	13	13	0.259	37 187
234414014-1	SA28-10B	SAMPLE		.05 pCi/g	SOIL	KERR003	03-AUG-09	14	14	0.253	38 188
234414015-1	SA28009-10B	SAMPLE		.05 pCi/g	SOIL	KERR003	03-AUG-09	15	15	0.256	39 189
234414016-1	SA28-25B	SAMPLE		.05 pCi/g	SOIL	KERR003	03-AUG-09	16	16	0.258	40 190
234414017-1	SA28-40B	SAMPLE		.05 pCi/g	SOIL	KERR003	03-AUG-09	17	17	0.251	41 191
234414018-1	SA28-55B	SAMPLE		.05 pCi/g	SOIL	KERR003	03-AUG-09	18	18	0.256	42 192
234414022-1	SA127-5B-berm	SAMPLE		.05 pCi/g	SOIL	KERR003	31-JUL-09	19	19	0.258	43 193
234414023-1	SA127-10B-berm	SAMPLE		.05 pCi/g	SOIL	KERR003	31-JUL-09	20	20	0.251	44 194
1201900829-1	MB for batch 893411	MB		.05 pCi/g	SOIL	QC ACCOUNT	30-JUL-09	21	21	0.259	45 195
1201900830-1	SA63-10B(234414002DUP)	DUP		.05 pCi/g	SOIL	QC ACCOUNT	30-JUL-09	22	22	0.252	46 196
1201900831-1	SA63-10B(234414002MS)	MS		.05 pCi/g	SOIL	QC ACCOUNT	30-JUL-09	23	23	0.253	47 197
1201900832-1	LCS for batch 893411	LCS		.05 pCi/g	SOIL	QC ACCOUNT	30-JUL-09	24	24	0.259	48 198

Choose SOP Used: GL-RAD-A-038  
 Solid Sample Dissolution by: LEACH OF DIGESTION Data Reviewed By: Julia D. Stiles  
 Circle One

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

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414001\_TH  
SAMPLE QTY: 0.255 G

DETECTOR NUMBER :74433  
AVERAGE %EFFICIENCY :25.4147  
% YIELD : 91.957

COUNT DATE:28-AUG-2009 20:51:38  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

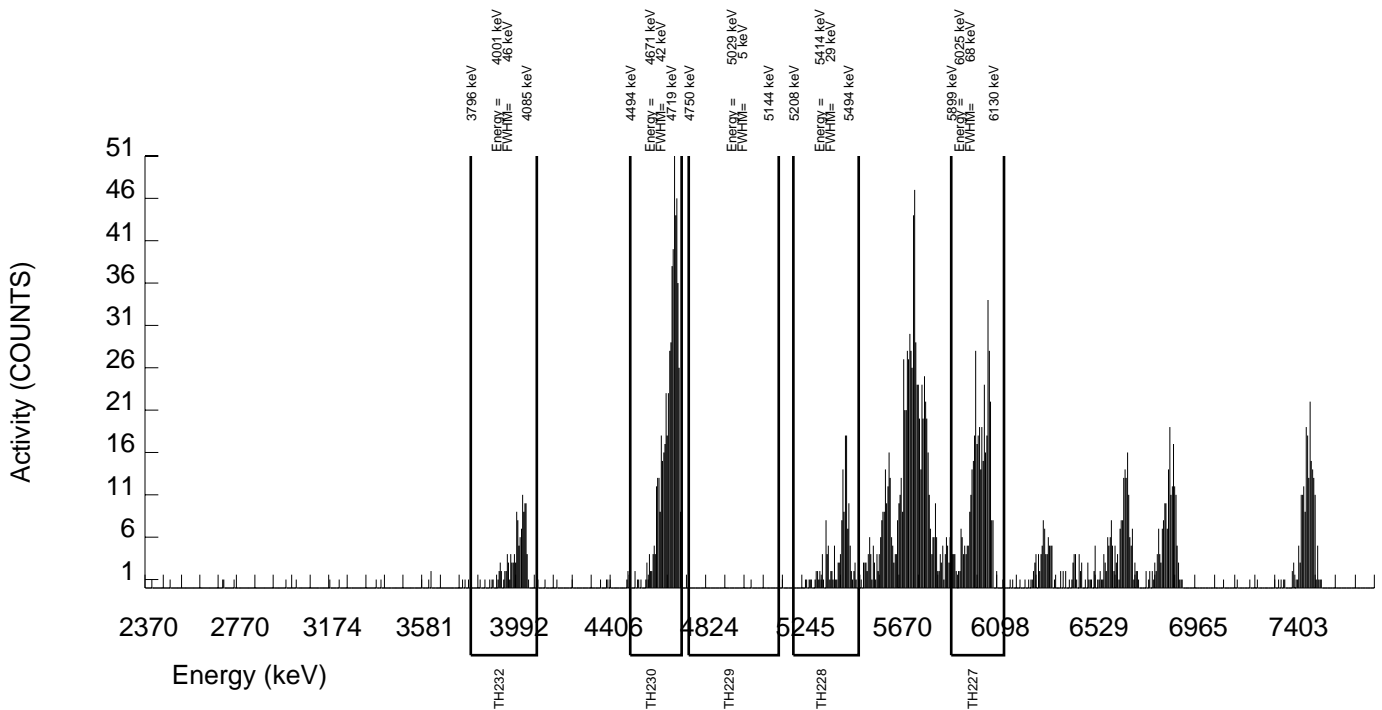
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.393E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 3.60052 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B175.CNF;120  
BKG DATE : 23-AUG-2009  
EFF FILE : W175.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	420.000	418.000	2.000	1.4142	68.10000	6.92E+00	7.83E-01	1.59E-01	5.44E-02	6.66E-01
TH-228	5363.000	157.000	148.000	9.000	3.0000	99.94000	1.13E+00	2.04E-01	1.30E-01	5.34E-02	1.93E-01
TH229	4900.000	1.000	-2.000	3.000	1.7321	99.52000	-1.52E-02	2.98E-02	8.40E-02	3.06E-02	2.98E-02
TH-230	4625.000	556.000	553.000	3.000	1.7321	100.0000	4.18E+00	4.29E-01	8.36E-02	3.05E-02	3.50E-01
TH-232	3972.000	123.000	121.000	2.000	1.4142	100.0000	9.15E-01	1.74E-01	7.24E-02	2.49E-02	1.66E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414002\_TH  
SAMPLE QTY: 0.253 G

DETECTOR NUMBER :74434  
AVERAGE %EFFICIENCY :25.6584  
% YIELD : 96.314

COUNT DATE:28-AUG-2009 20:51:40  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

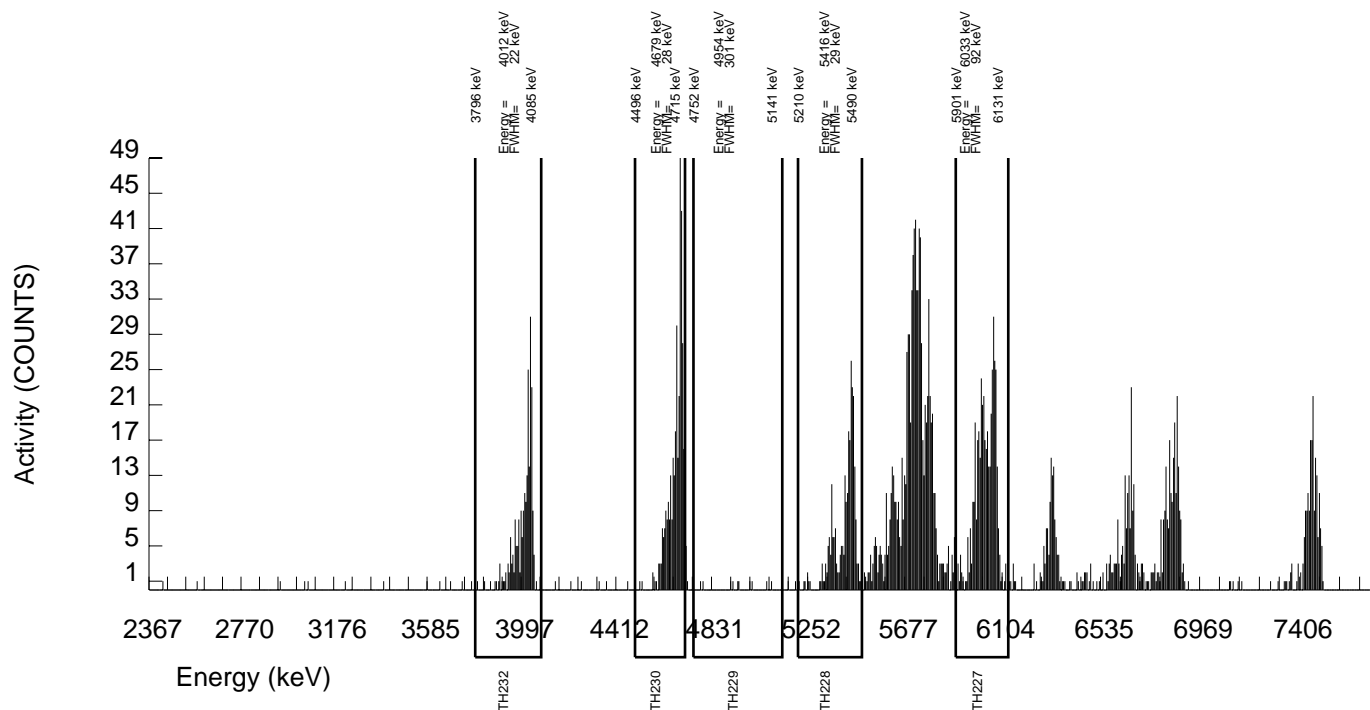
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.459E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 3.77109 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B176.CNF;120  
BKG DATE : 23-AUG-2009  
EFF FILE : W176.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	444.000	442.000	2.000	1.4142	68.10000	6.97E+00	7.74E-01	1.51E-01	5.19E-02	6.53E-01
TH-228	5363.000	262.000	253.000	9.000	3.0000	99.94000	1.84E+00	2.59E-01	1.24E-01	5.09E-02	2.35E-01
TH229	4900.000	10.000	4.000	6.000	2.4495	99.52000	2.90E-02	5.68E-02	1.04E-01	4.13E-02	5.68E-02
TH-230	4625.000	340.000	337.000	3.000	1.7321	100.0000	2.43E+00	2.99E-01	7.97E-02	2.90E-02	2.62E-01
TH-232	3972.000	228.000	228.000	0.000	0.0000	100.0000	1.64E+00	2.35E-01	2.16E-02	0.00E+00	2.13E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414003\_TH  
SAMPLE QTY: 0.252 G

DETECTOR NUMBER :74435  
AVERAGE %EFFICIENCY :26.6815  
% YIELD : 101.422

COUNT DATE:28-AUG-2009 20:51:42  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

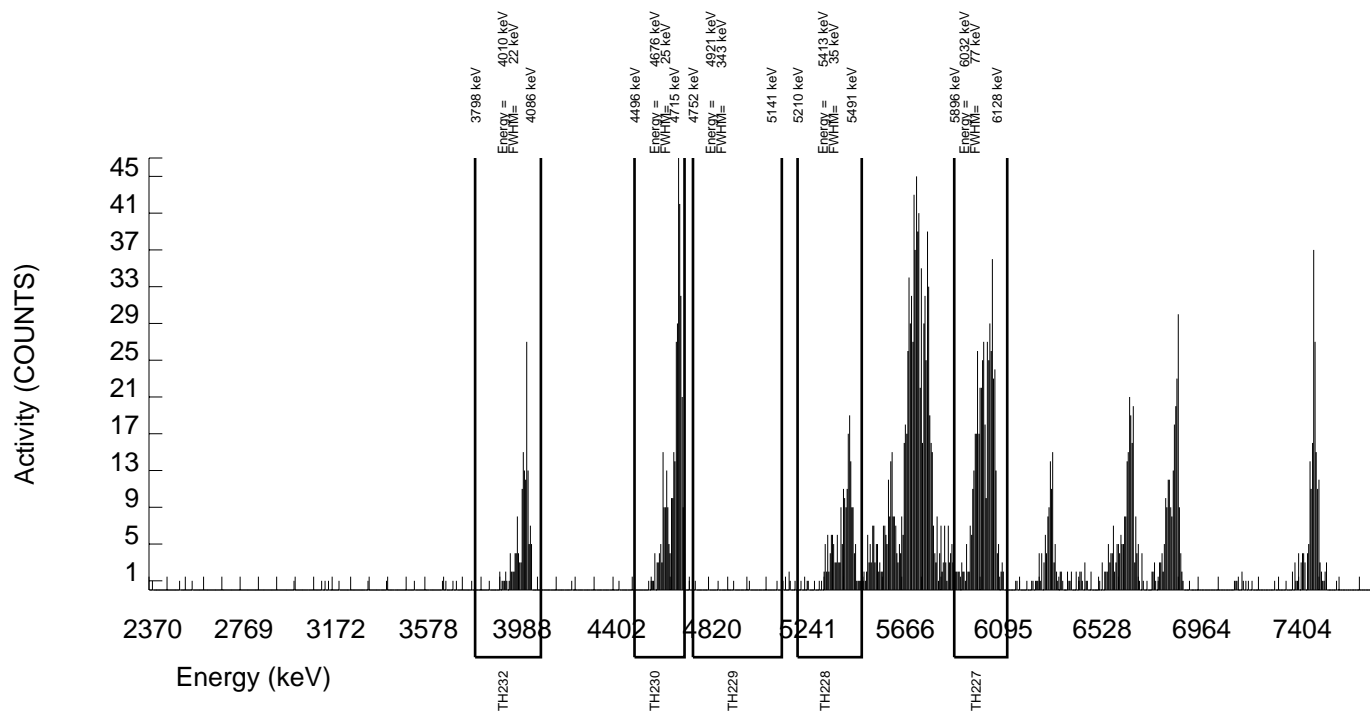
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.493E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 3.97108 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B177.CNF;120  
BKG DATE : 23-AUG-2009  
EFF FILE : W177.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	486.000	484.000	2.000	1.4142	68.10000	7.00E+00	7.52E-01	1.39E-01	4.76E-02	6.26E-01
TH-228	5363.000	198.000	191.000	7.000	2.6458	99.94000	1.28E+00	2.02E-01	1.02E-01	4.11E-02	1.87E-01
TH229	4900.000	6.000	4.000	2.000	1.4142	99.52000	2.65E-02	3.68E-02	6.36E-02	2.18E-02	3.68E-02
TH-230	4625.000	346.000	346.000	0.000	0.0000	100.0000	2.29E+00	2.77E-01	1.98E-02	0.00E+00	2.41E-01
TH-232	3972.000	154.000	153.000	1.000	1.0000	100.0000	1.01E+00	1.72E-01	5.06E-02	1.54E-02	1.61E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414004\_TH  
SAMPLE QTY: 0.256 G

DETECTOR NUMBER :74436  
AVERAGE %EFFICIENCY :25.9519  
% YIELD : 111.814

COUNT DATE:28-AUG-2009 20:51:44  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

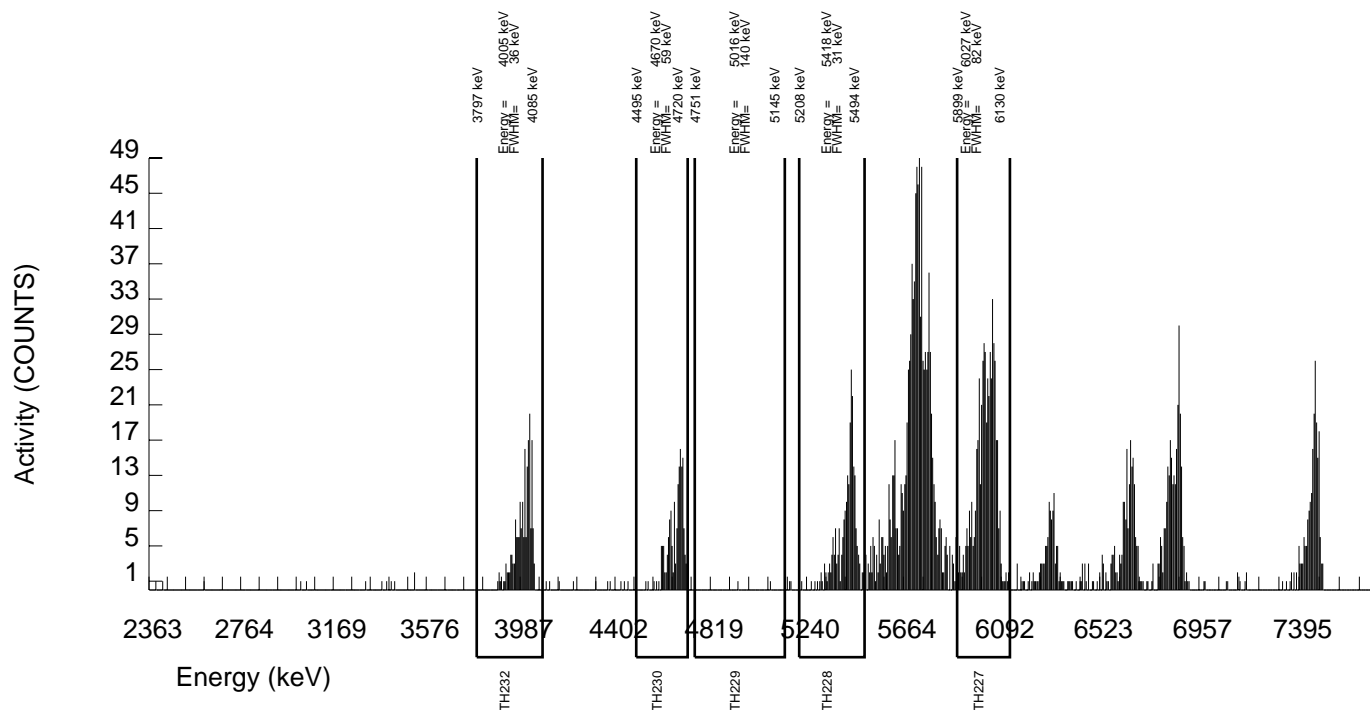
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.360E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 4.37798 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B178.CNF;120  
BKG DATE : 23-AUG-2009  
EFF FILE : W178.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	521.000	519.000	2.000	1.4142	68.10000	6.89E+00	7.22E-01	1.27E-01	4.37E-02	5.95E-01
TH-228	5363.000	236.000	217.000	19.000	4.3589	99.94000	1.33E+00	2.08E-01	1.43E-01	6.22E-02	1.92E-01
TH229	4900.000	2.000	-4.000	6.000	2.4495	99.52000	-2.44E-02	3.38E-02	8.77E-02	3.47E-02	3.38E-02
TH-230	4625.000	164.000	162.000	2.000	1.4142	100.0000	9.82E-01	1.64E-01	5.81E-02	1.99E-02	1.53E-01
TH-232	3972.000	196.000	193.000	3.000	1.7321	100.0000	1.17E+00	1.81E-01	6.71E-02	2.44E-02	1.68E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414005\_TH  
SAMPLE QTY: 0.251 G

DETECTOR NUMBER :74437  
AVERAGE %EFFICIENCY :27.1823  
% YIELD : 101.199

COUNT DATE:28-AUG-2009 20:51:47  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

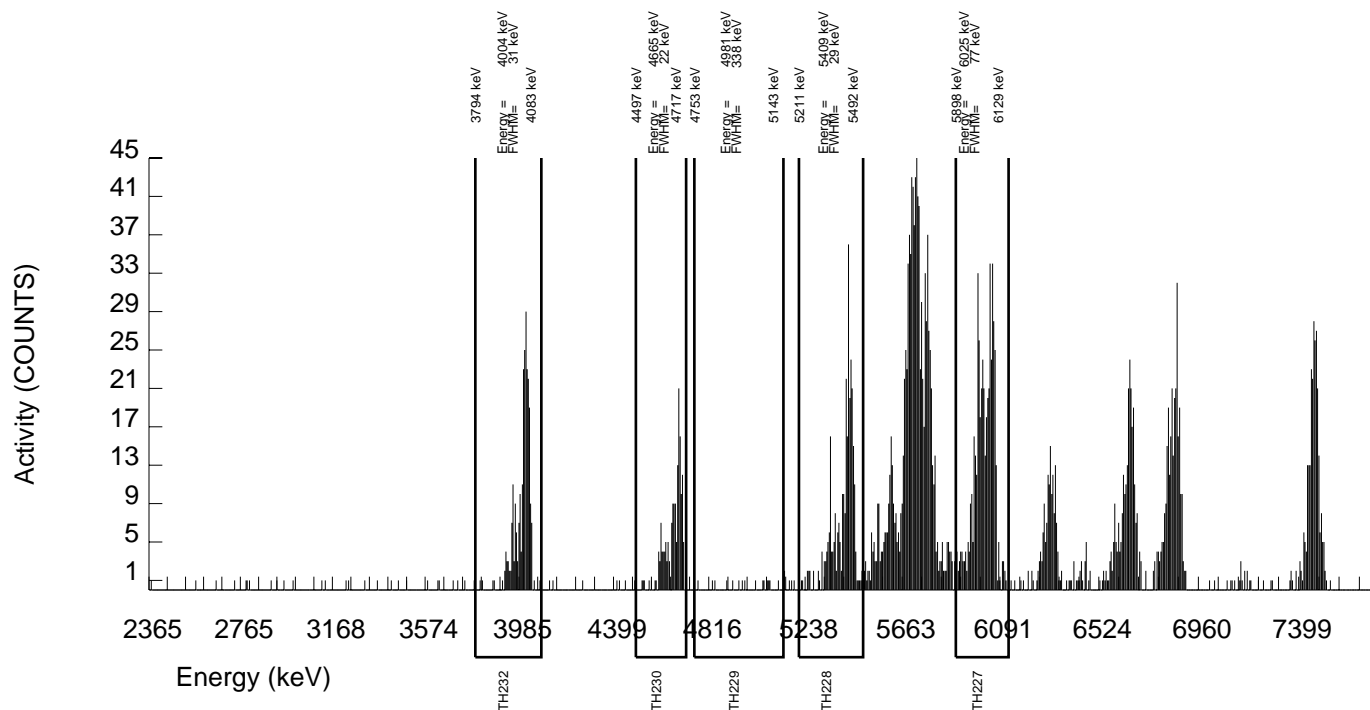
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.527E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 3.96236 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B179.CNF;120  
BKG DATE : 23-AUG-2009  
EFF FILE : W179.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	499.000	492.000	7.000	2.6458	68.10000	7.03E+00	7.56E-01	2.19E-01	8.79E-02	6.30E-01
TH-228	5363.000	300.000	289.000	11.000	3.3166	99.94000	1.91E+00	2.55E-01	1.22E-01	5.09E-02	2.28E-01
TH229	4900.000	15.000	6.000	9.000	3.0000	99.52000	3.93E-02	6.30E-02	1.11E-01	4.58E-02	6.29E-02
TH-230	4625.000	166.000	165.000	1.000	1.0000	100.0000	1.08E+00	1.77E-01	4.99E-02	1.52E-02	1.65E-01
TH-232	3972.000	252.000	249.000	3.000	1.7321	100.0000	1.62E+00	2.26E-01	7.21E-02	2.63E-02	2.04E-01





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414006\_TH  
SAMPLE QTY: 0.253 G

DETECTOR NUMBER :74438  
AVERAGE %EFFICIENCY :25.2837  
% YIELD : 107.472

COUNT DATE:28-AUG-2009 20:51:51  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

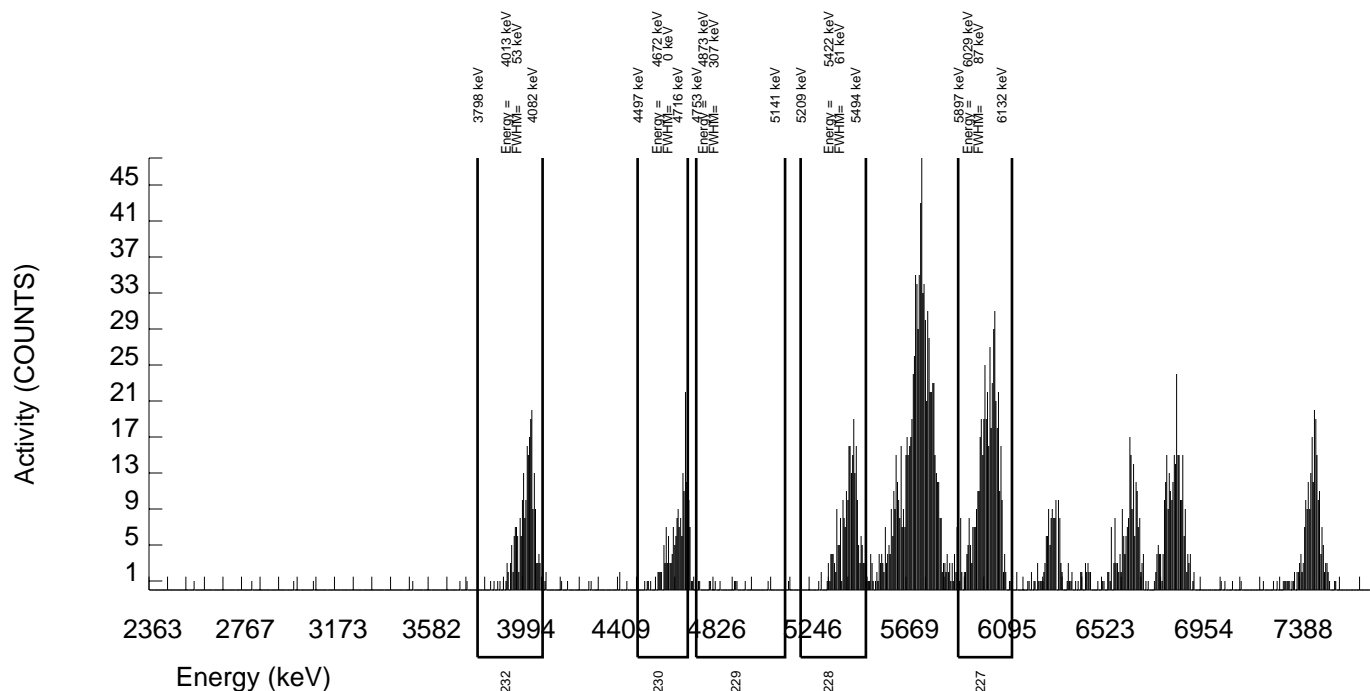
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.459E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 4.20796 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B180.CNF;122  
BKG DATE : 23-AUG-2009  
EFF FILE : W180.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	488.000	486.000	2.000	1.4142	68.10000	6.97E+00	7.48E-01	1.37E-01	4.72E-02	6.22E-01
TH-228	5363.000	243.000	231.000	12.000	3.4641	99.94000	1.53E+00	2.27E-01	1.27E-01	5.34E-02	2.07E-01
TH229	4900.000	12.000	5.000	7.000	2.6458	99.52000	3.29E-02	5.63E-02	1.01E-01	4.05E-02	5.62E-02
TH-230	4625.000	161.000	159.000	2.000	1.4142	100.0000	1.04E+00	1.75E-01	6.28E-02	2.16E-02	1.64E-01
TH-232	3972.000	235.000	234.000	1.000	1.0000	100.0000	1.53E+00	2.17E-01	5.01E-02	1.52E-02	1.97E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414007\_TH  
SAMPLE QTY: 0.257 G

DETECTOR NUMBER :74439  
AVERAGE %EFFICIENCY :25.6768  
% YIELD : 107.351

COUNT DATE:28-AUG-2009 20:51:53  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

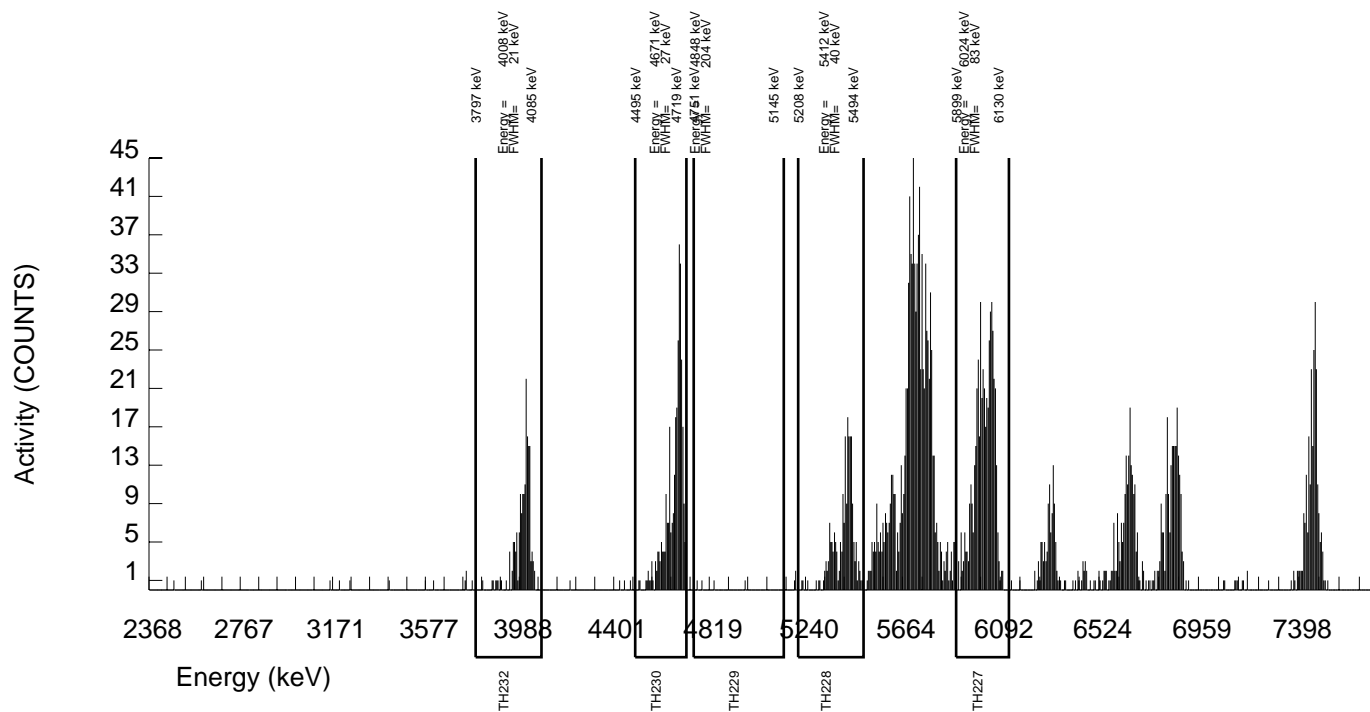
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.328E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 4.20323 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B181.CNF;120  
BKG DATE : 23-AUG-2009  
EFF FILE : W181.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	497.000	493.000	4.000	2.0000	68.10000	6.86E+00	7.34E-01	1.71E-01	6.48E-02	6.11E-01
TH-228	5363.000	203.000	200.000	3.000	1.7321	99.94000	1.29E+00	1.96E-01	7.11E-02	2.59E-02	1.81E-01
TH229	4900.000	4.000	-2.000	6.000	2.4495	99.52000	-1.28E-02	3.96E-02	9.20E-02	3.64E-02	3.96E-02
TH-230	4625.000	307.000	303.000	4.000	2.0000	100.0000	1.93E+00	2.48E-01	7.82E-02	2.96E-02	2.20E-01
TH-232	3972.000	171.000	170.000	1.000	1.0000	100.0000	1.08E+00	1.76E-01	4.87E-02	1.48E-02	1.63E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414008\_TH  
SAMPLE QTY: 0.257 G

DETECTOR NUMBER :74440  
AVERAGE %EFFICIENCY :25.3473  
% YIELD : 98.379

COUNT DATE:28-AUG-2009 20:51:55  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

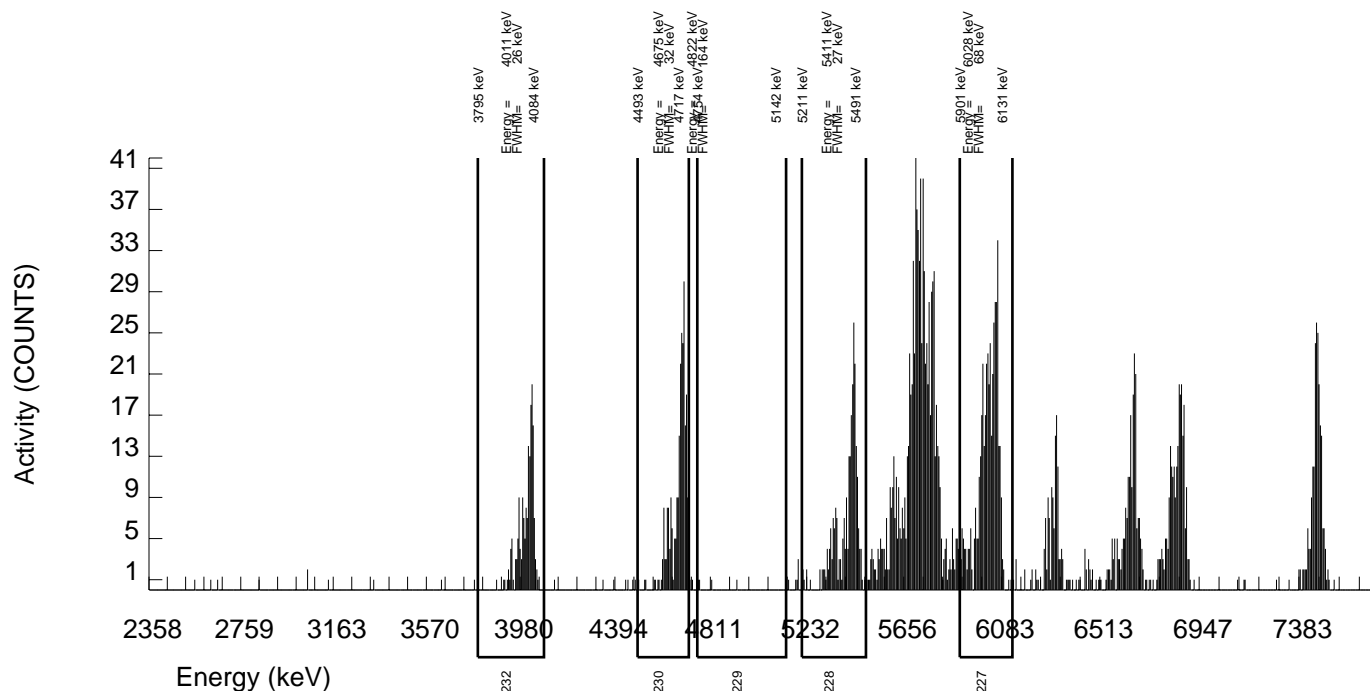
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.328E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 3.85194 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B182.CNF;120  
BKG DATE : 23-AUG-2009  
EFF FILE : W182.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	449.000	446.000	3.000	1.7321	68.10000	6.86E+00	7.60E-01	1.70E-01	6.20E-02	6.41E-01
TH-228	5363.000	251.000	243.000	8.000	2.8284	99.94000	1.73E+00	2.47E-01	1.15E-01	4.68E-02	2.24E-01
TH229	4900.000	4.000	3.000	1.000	1.0000	99.52000	2.12E-02	3.10E-02	5.40E-02	1.64E-02	3.10E-02
TH-230	4625.000	250.000	249.000	1.000	1.0000	100.0000	1.75E+00	2.42E-01	5.38E-02	1.64E-02	2.18E-01
TH-232	3972.000	174.000	174.000	0.000	0.0000	100.0000	1.22E+00	1.96E-01	2.11E-02	0.00E+00	1.82E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414009\_TH  
SAMPLE QTY: 0.255 G

DETECTOR NUMBER :74441  
AVERAGE %EFFICIENCY :26.3759  
% YIELD : 109.593

COUNT DATE:28-AUG-2009 20:51:57  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

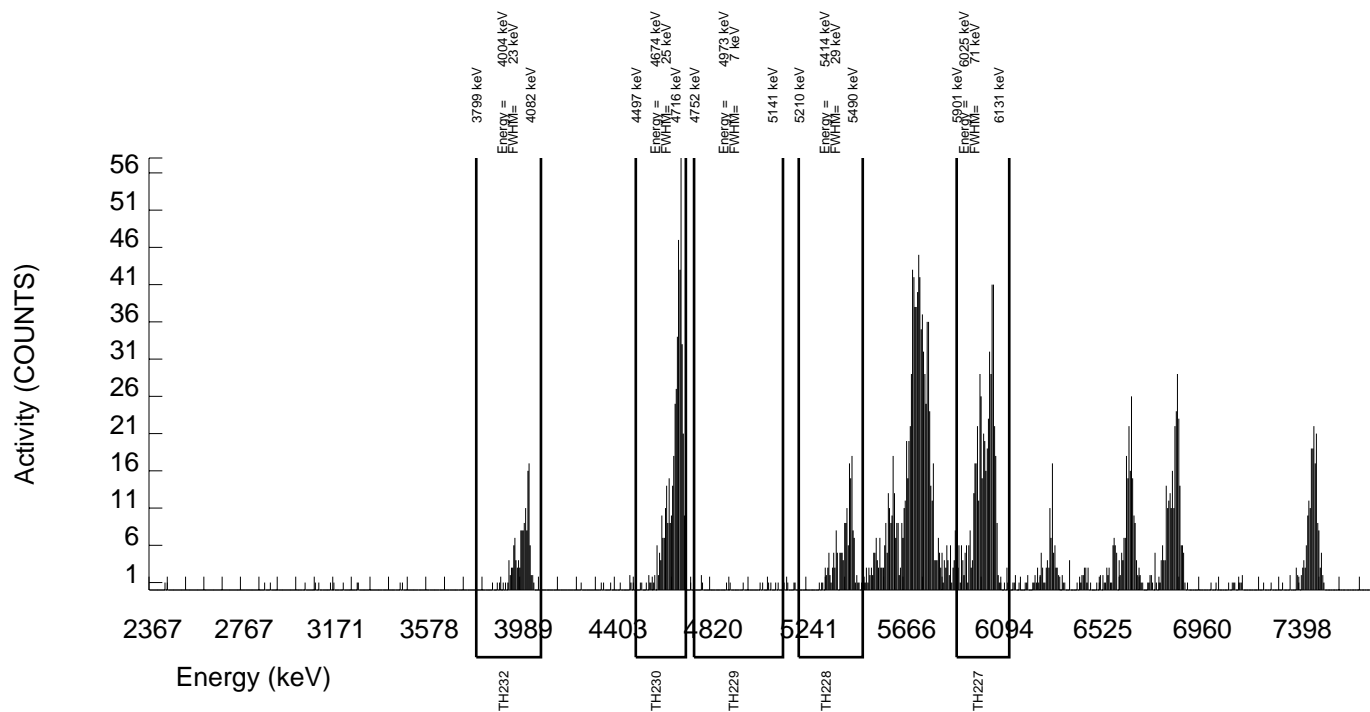
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.393E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 4.29102 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B183.CNF;120  
BKG DATE : 23-AUG-2009  
EFF FILE : W183.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	517.000	517.000	0.000	0.0000	68.10000	6.92E+00	7.24E-01	4.01E-02	0.00E+00	5.96E-01
TH-228	5363.000	169.000	164.000	5.000	2.2361	99.94000	1.01E+00	1.71E-01	8.28E-02	3.22E-02	1.60E-01
TH229	4900.000	12.000	7.000	5.000	2.2361	99.52000	4.30E-02	4.97E-02	8.23E-02	3.19E-02	4.96E-02
TH-230	4625.000	449.000	448.000	1.000	1.0000	100.0000	2.74E+00	3.02E-01	4.68E-02	1.42E-02	2.54E-01
TH-232	3972.000	141.000	136.000	5.000	2.2361	100.0000	8.31E-01	1.53E-01	8.19E-02	3.18E-02	1.45E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414010\_TH  
SAMPLE QTY: 0.257 G

DETECTOR NUMBER :74442  
AVERAGE %EFFICIENCY :26.0400  
% YIELD : 97.265

COUNT DATE:28-AUG-2009 20:52:01  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

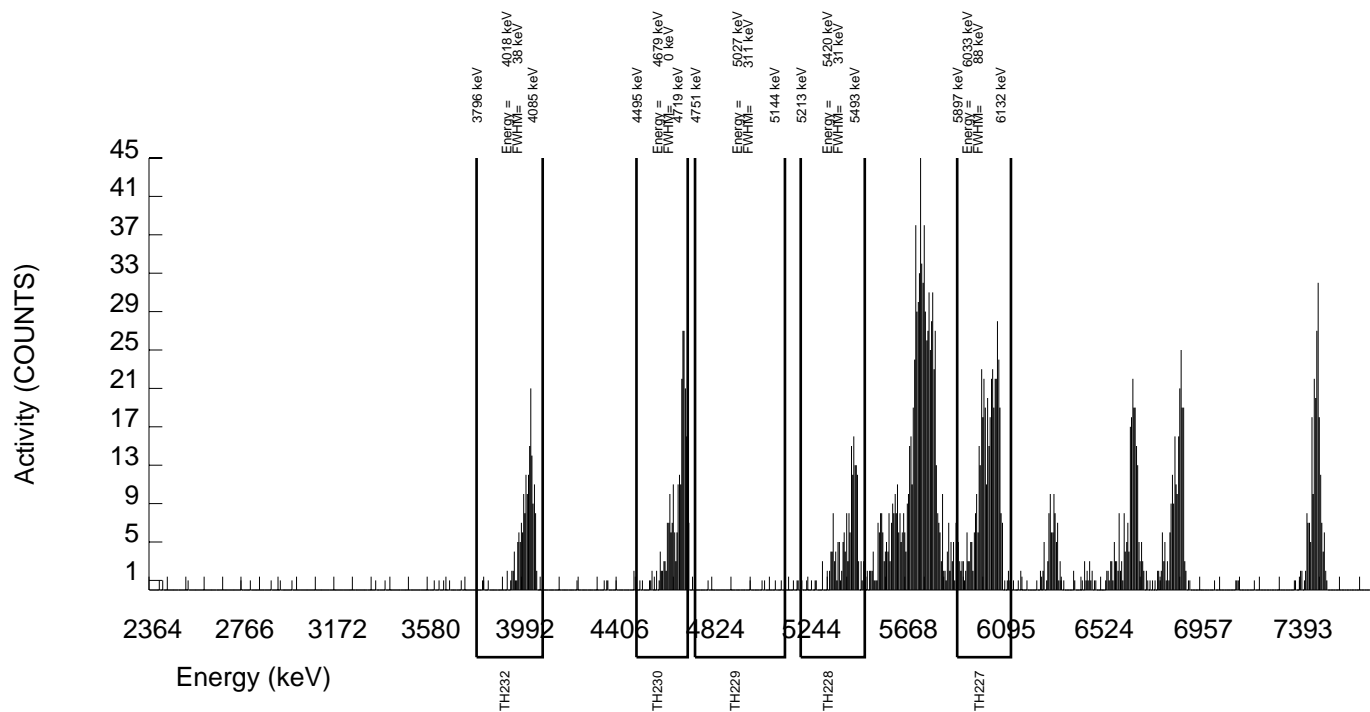
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.328E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 3.80833 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B184.CNF;122  
BKG DATE : 23-AUG-2009  
EFF FILE : W184.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	454.000	453.000	1.000	1.0000	68.10000	6.86E+00	7.53E-01	1.16E-01	3.52E-02	6.33E-01
TH-228	5363.000	180.000	174.000	6.000	2.4495	99.94000	1.22E+00	2.01E-01	1.01E-01	3.99E-02	1.87E-01
TH229	4900.000	6.000	4.000	2.000	1.4142	99.52000	2.78E-02	3.86E-02	6.66E-02	2.29E-02	3.85E-02
TH-230	4625.000	235.000	231.000	4.000	2.0000	100.0000	1.60E+00	2.30E-01	8.52E-02	3.22E-02	2.10E-01
TH-232	3972.000	177.000	176.000	1.000	1.0000	100.0000	1.22E+00	1.95E-01	5.30E-02	1.61E-02	1.81E-01

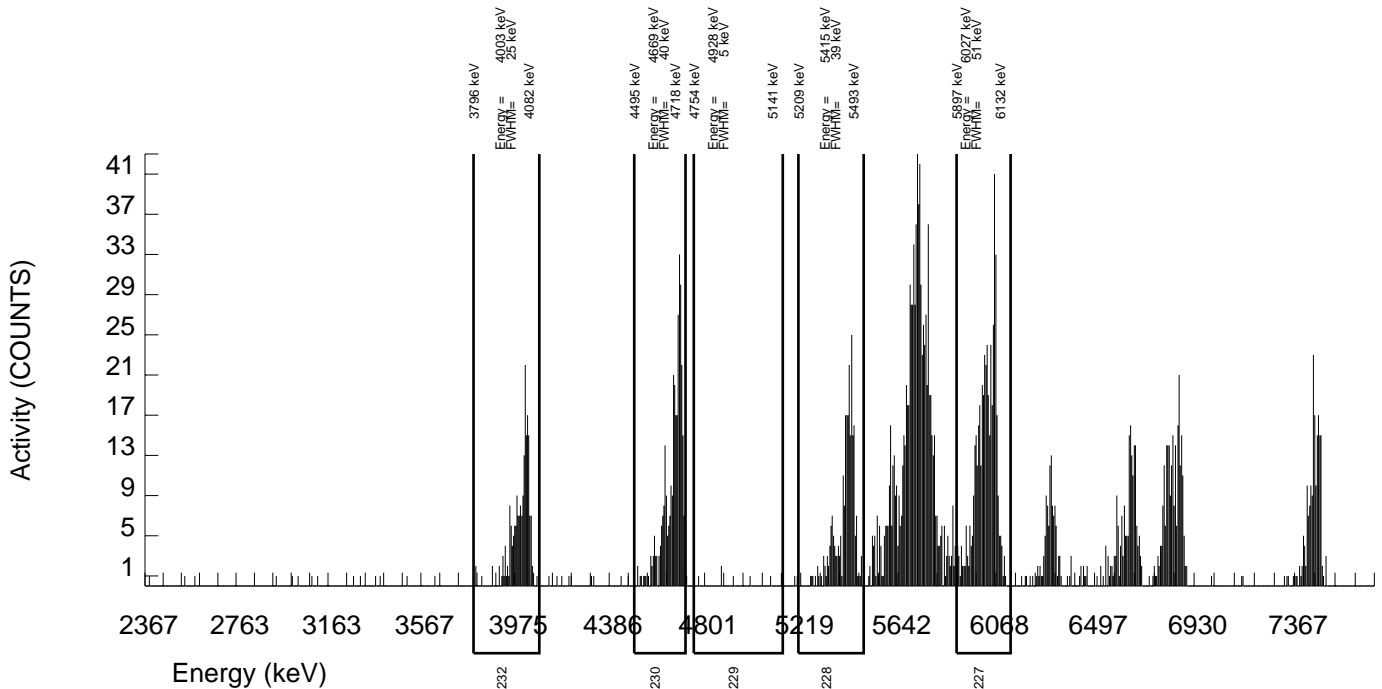


GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411 SAMPLE DATE : 18-AUG-2009 10:21:00		SAMPLE ID : S0234414011_TH SAMPLE QTY: 0.258 G	
DETECTOR NUMBER :68615 AVERAGE %EFFICIENCY :25.8400 % YIELD : 103.644		COUNT DATE:28-AUG-2009 20:52:03 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : A2796-J ISOTOPE : TH-230 PCI/G : 8.295E+00	LCS/LCSD ID : A2796-J ISOTOPE : TH-230 PCI/G : 8.295E+00	TRACER ID : 0387-B-102 ISOTOPE : AC227 NOMINAL : 3.91541 dpm RESULTS : 4.05808 dpm	LIB FILE : ENV_ALPHA_TH.N BKG FILE : B185.CNF;102 BKG DATE : 23-AUG-2009 EFF FILE : W185.CNF;38 CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	479.000	479.000	0.000	0.0000	68.10000	6.84E+00	7.35E-01	4.28E-02	0.00E+00	6.12E-01
TH-228	5363.000	247.000	242.000	5.000	2.2361	99.94000	1.60E+00	2.26E-01	8.84E-02	3.43E-02	2.05E-01
TH229	4900.000	6.000	3.000	3.000	1.7321	99.52000	1.97E-02	3.85E-02	7.24E-02	2.64E-02	3.85E-02
TH-230	4625.000	324.000	323.000	1.000	1.0000	100.0000	2.11E+00	2.62E-01	4.99E-02	1.52E-02	2.30E-01
TH-232	3972.000	202.000	200.000	2.000	1.4142	100.0000	1.30E+00	1.98E-01	6.25E-02	2.14E-02	1.82E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414012\_TH  
SAMPLE QTY: 0.257 G

DETECTOR NUMBER :68616  
AVERAGE %EFFICIENCY :25.7841  
% YIELD : 108.205

COUNT DATE:28-AUG-2009 20:52:05  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

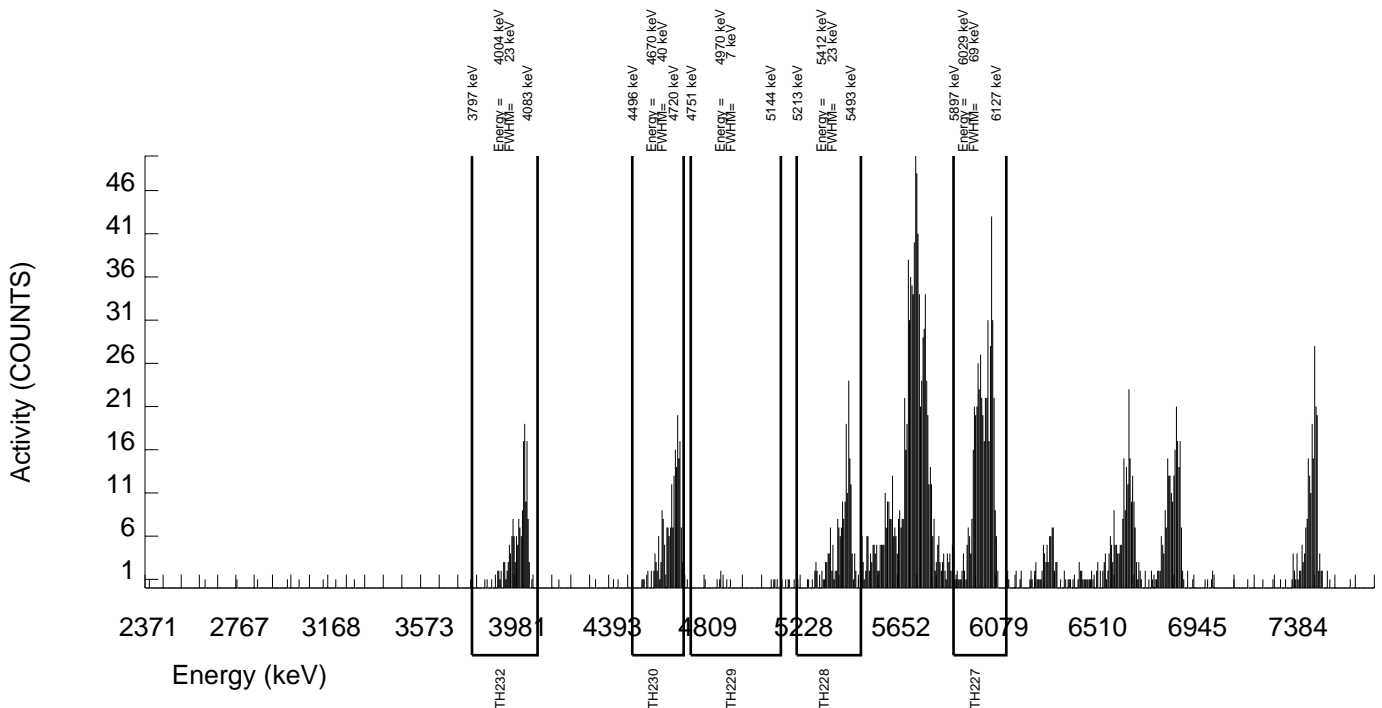
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.328E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 4.23669 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B186.CNF;102  
BKG DATE : 23-AUG-2009  
EFF FILE : W186.CNF;39  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	501.000	499.000	2.000	1.4142	68.10000	6.86E+00	7.29E-01	1.32E-01	4.52E-02	6.05E-01
TH-228	5363.000	198.000	191.000	7.000	2.6458	99.94000	1.21E+00	1.92E-01	9.73E-02	3.91E-02	1.78E-01
TH229	4900.000	11.000	10.000	1.000	1.0000	99.52000	6.31E-02	4.30E-02	4.83E-02	1.47E-02	4.29E-02
TH-230	4625.000	202.000	201.000	1.000	1.0000	100.0000	1.26E+00	1.91E-01	4.81E-02	1.46E-02	1.75E-01
TH-232	3972.000	171.000	171.000	0.000	0.0000	100.0000	1.07E+00	1.73E-01	1.88E-02	0.00E+00	1.61E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414013\_TH  
SAMPLE QTY: 0.259 G

DETECTOR NUMBER :68620  
AVERAGE %EFFICIENCY :25.2055  
% YIELD : 123.556

COUNT DATE:28-AUG-2009 20:52:09  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

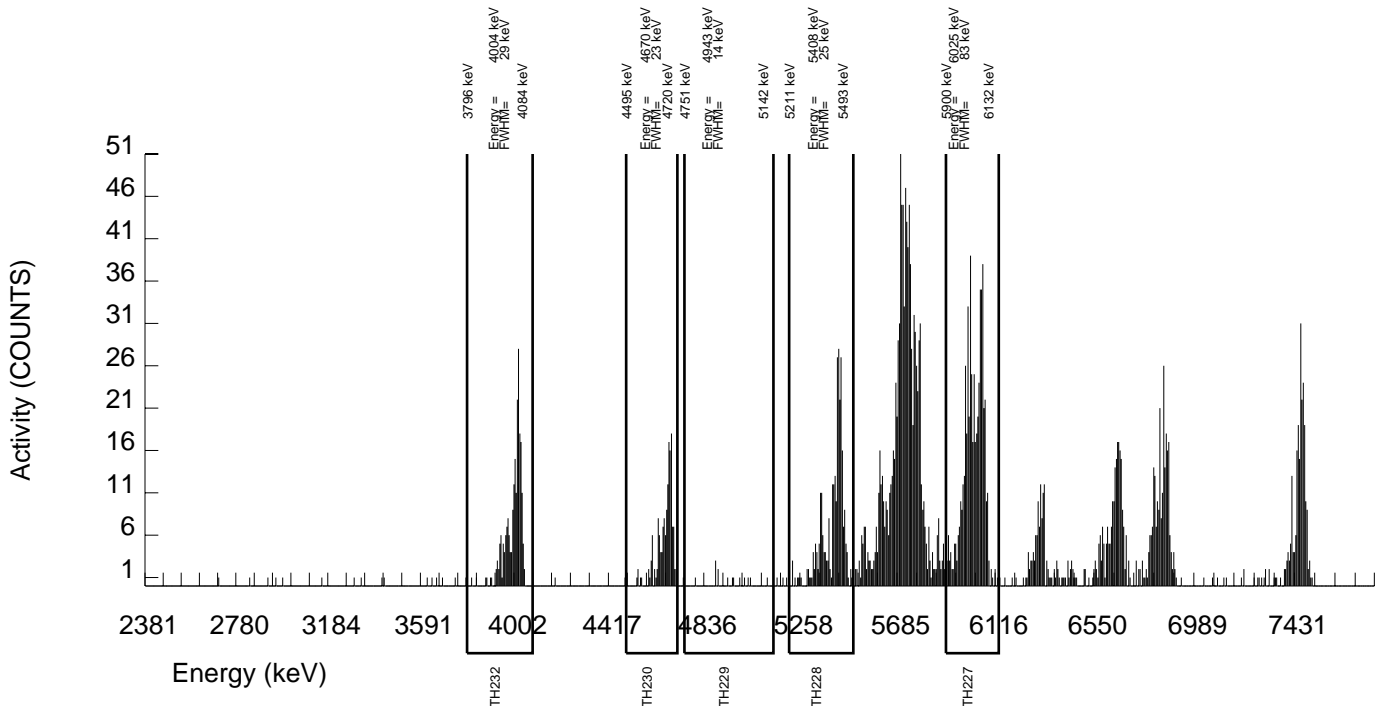
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 4.83771 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B187.CNF;102  
BKG DATE : 23-AUG-2009  
EFF FILE : W187.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	559.000	557.000	2.000	1.4142	68.10000	6.81E+00	7.09E-01	1.17E-01	4.02E-02	5.68E-01
TH-228	5363.000	286.000	280.000	6.000	2.4495	99.94000	1.58E+00	2.13E-01	8.13E-02	3.22E-02	1.89E-01
TH229	4900.000	15.000	4.000	11.000	3.3166	99.52000	2.24E-02	5.61E-02	1.03E-01	4.33E-02	5.61E-02
TH-230	4625.000	156.000	154.000	2.000	1.4142	100.0000	8.60E-01	1.48E-01	5.35E-02	1.84E-02	1.38E-01
TH-232	3972.000	220.000	218.000	2.000	1.4142	100.0000	1.22E+00	1.80E-01	5.35E-02	1.84E-02	1.63E-01





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414014\_TH  
SAMPLE QTY: 0.253 G

DETECTOR NUMBER :68621  
AVERAGE %EFFICIENCY :25.9021  
% YIELD : 96.920

COUNT DATE:28-AUG-2009 20:52:11  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

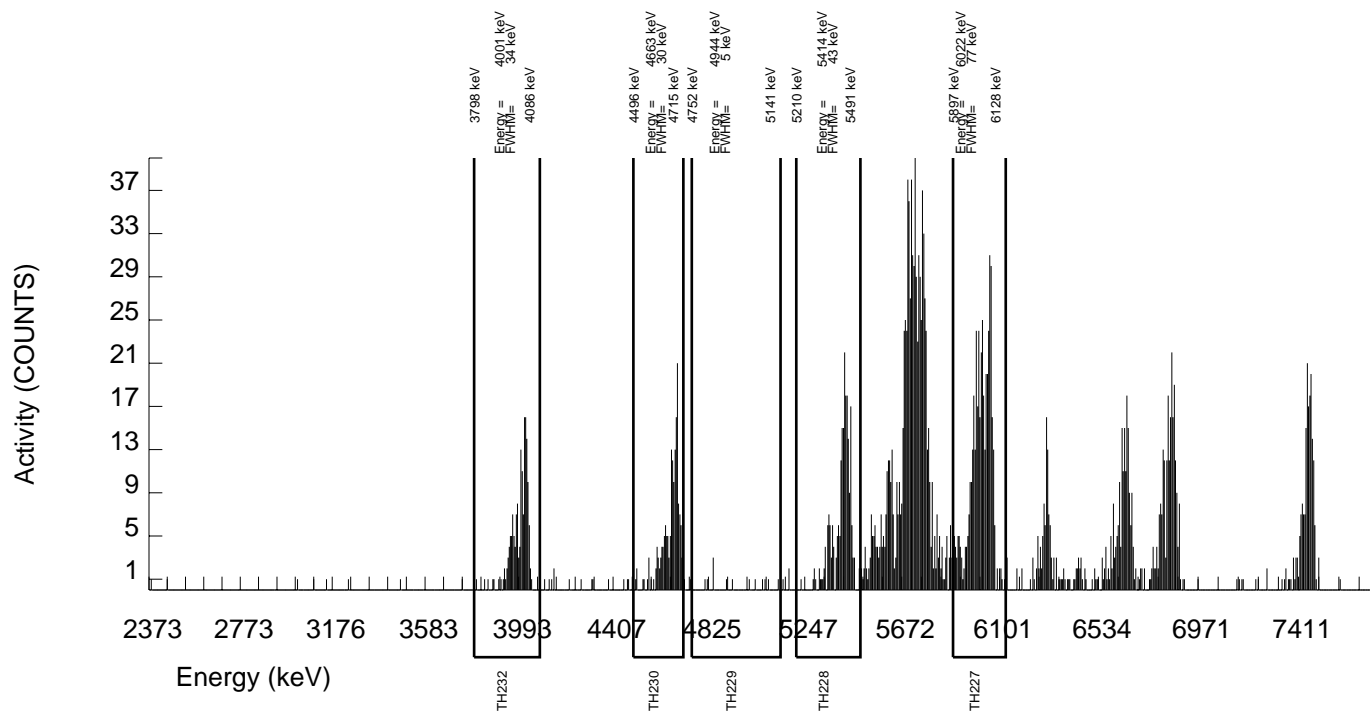
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.459E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 3.79482 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B188.CNF;102  
BKG DATE : 23-AUG-2009  
EFF FILE : W188.CNF;39  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	451.000	449.000	2.000	1.4142	68.10000	6.97E+00	7.70E-01	1.49E-01	5.11E-02	6.48E-01
TH-228	5363.000	221.000	215.000	6.000	2.4495	99.94000	1.54E+00	2.31E-01	1.03E-01	4.09E-02	2.12E-01
TH229	4900.000	14.000	6.000	8.000	2.8284	99.52000	4.28E-02	6.56E-02	1.15E-01	4.69E-02	6.55E-02
TH-230	4625.000	171.000	170.000	1.000	1.0000	100.0000	1.21E+00	1.96E-01	5.43E-02	1.65E-02	1.82E-01
TH-232	3972.000	164.000	163.000	1.000	1.0000	100.0000	1.16E+00	1.91E-01	5.43E-02	1.65E-02	1.79E-01

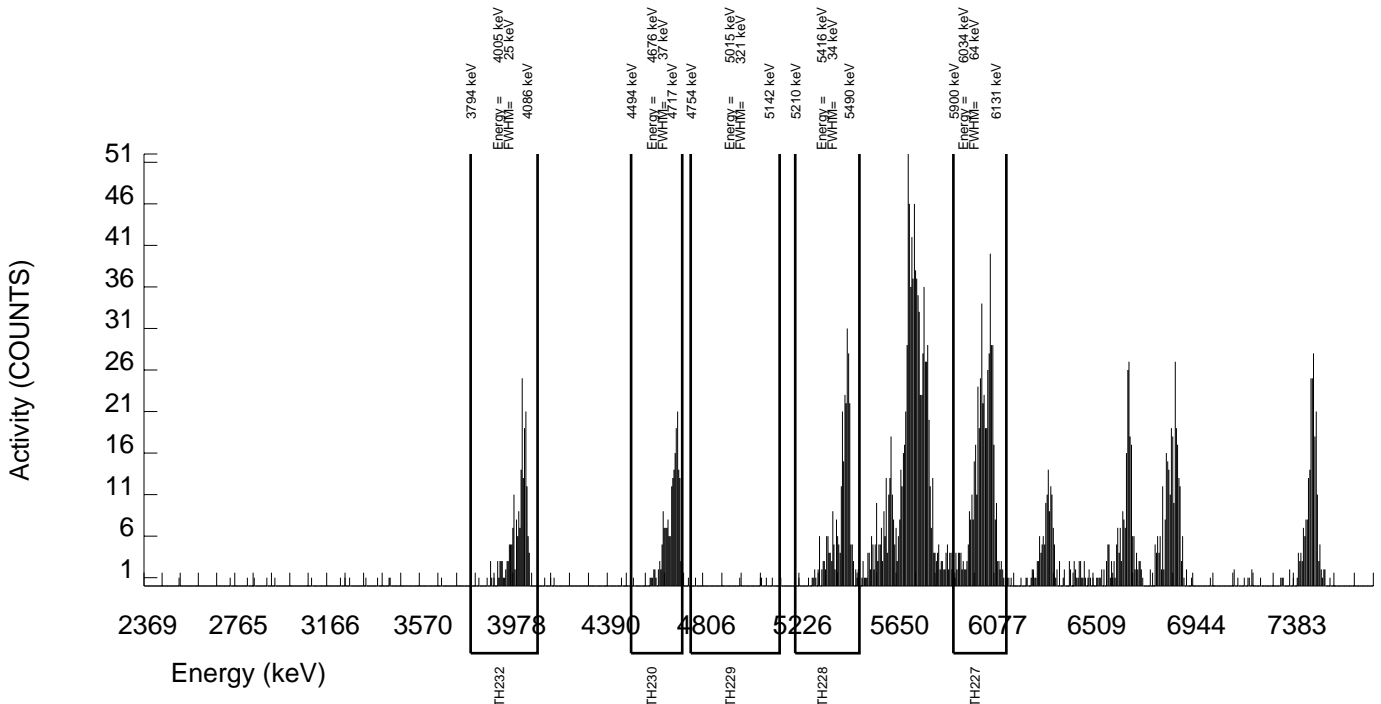


GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411 SAMPLE DATE : 18-AUG-2009 10:21:00		SAMPLE ID : S0234414015_TH SAMPLE QTY: 0.256 G	
DETECTOR NUMBER :68622 AVERAGE %EFFICIENCY :26.0501 % YIELD : 107.960		COUNT DATE:28-AUG-2009 20:52:14 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : A2796-J ISOTOPE : TH-230 PCI/G : 8.360E+00	LCS/LCSD ID : A2796-J ISOTOPE : TH-230 PCI/G : 8.360E+00	TRACER ID : 0387-B-102 ISOTOPE : AC227 NOMINAL : 3.91541 dpm RESULTS : 4.22706 dpm	LIB FILE : ENV_ALPHA_TH.N BKG FILE : B189.CNF;102 BKG DATE : 23-AUG-2009 EFF FILE : W189.CNF;38 CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	507.000	503.000	4.000	2.0000	68.10000	6.89E+00	7.45E-01	1.69E-01	6.37E-02	6.07E-01
TH-228	5363.000	279.000	269.000	10.000	3.1623	99.94000	1.70E+00	2.36E-01	1.12E-01	4.66E-02	2.11E-01
TH229	4900.000	6.000	2.000	4.000	2.0000	99.52000	1.26E-02	3.90E-02	7.74E-02	2.93E-02	3.90E-02
TH-230	4625.000	196.000	195.000	1.000	1.0000	100.0000	1.22E+00	1.88E-01	4.79E-02	1.46E-02	1.72E-01
TH-232	3972.000	209.000	209.000	0.000	0.0000	100.0000	1.31E+00	1.95E-01	1.88E-02	0.00E+00	1.77E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414016\_TH  
SAMPLE QTY: 0.258 G

DETECTOR NUMBER :68623  
AVERAGE %EFFICIENCY :26.2771  
% YIELD : 112.134

COUNT DATE:28-AUG-2009 20:52:16  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

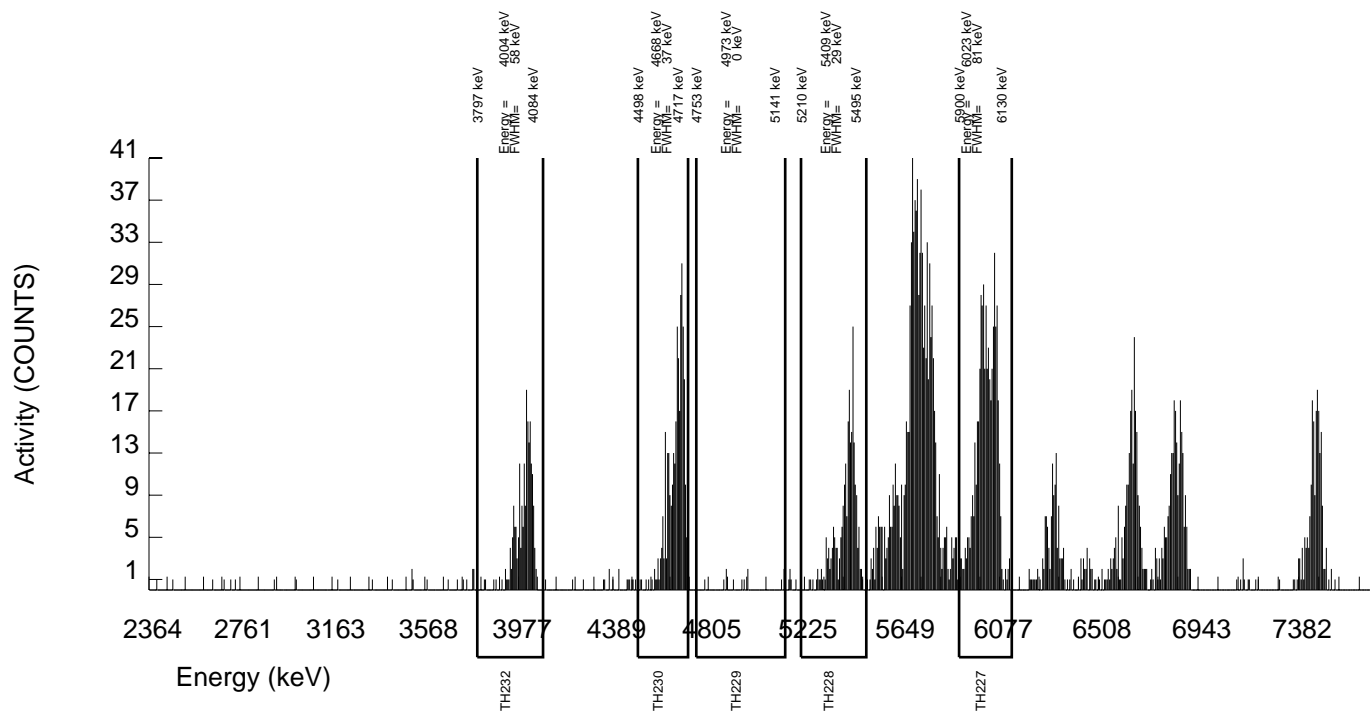
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.295E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 4.39050 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B190.CNF;102  
BKG DATE : 23-AUG-2009  
EFF FILE : W190.CNF;39  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	530.000	527.000	3.000	1.7321	68.10000	6.84E+00	7.14E-01	1.43E-01	5.23E-02	5.87E-01
TH-228	5363.000	242.000	221.000	21.000	4.5826	99.94000	1.32E+00	2.06E-01	1.46E-01	6.39E-02	1.90E-01
TH229	4900.000	12.000	-11.000	23.000	4.7958	99.52000	-6.55E-02	6.90E-02	1.51E-01	6.64E-02	6.90E-02
TH-230	4625.000	325.000	317.000	8.000	2.8284	100.0000	1.88E+00	2.40E-01	9.58E-02	3.90E-02	2.12E-01
TH-232	3972.000	202.000	201.000	1.000	1.0000	100.0000	1.19E+00	1.80E-01	4.53E-02	1.38E-02	1.65E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414017\_TH  
SAMPLE QTY: 0.251 G

DETECTOR NUMBER :68624  
AVERAGE %EFFICIENCY :26.2136  
% YIELD : 97.475

COUNT DATE:28-AUG-2009 20:52:18  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

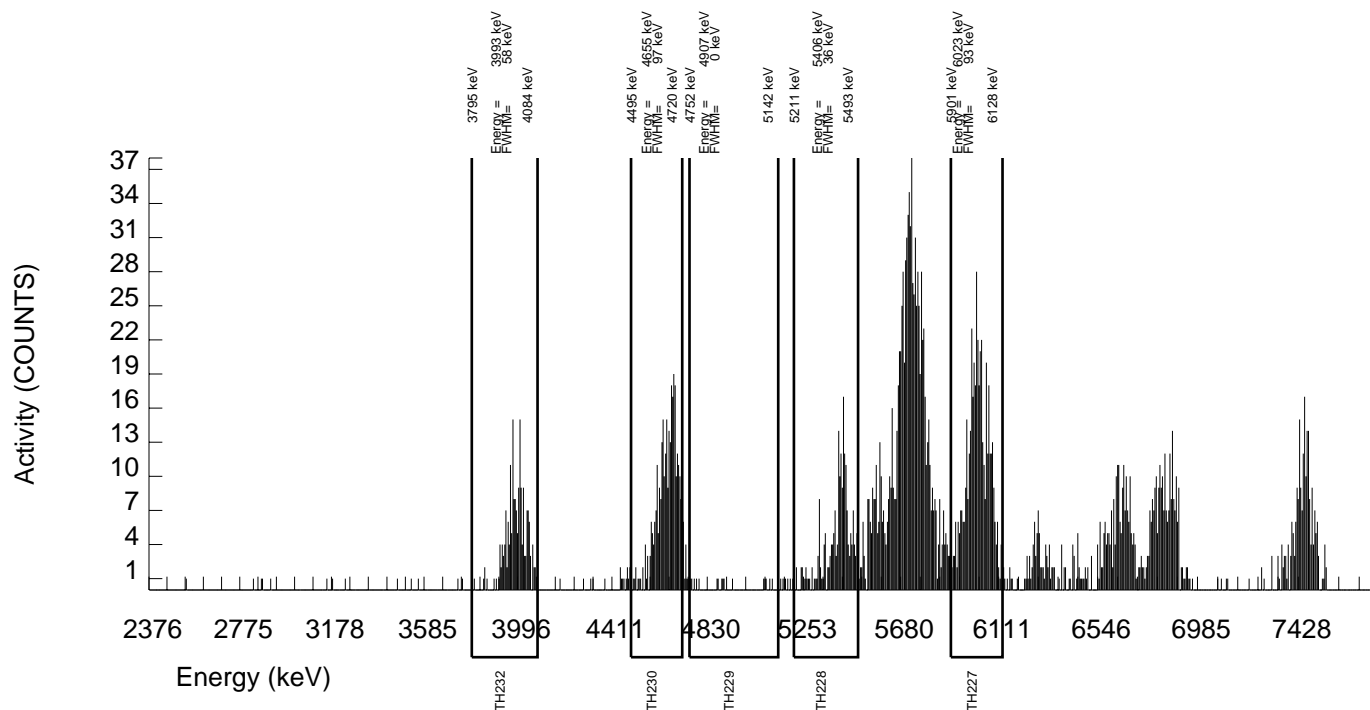
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.527E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 3.81654 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B191.CNF;104  
BKG DATE : 23-AUG-2009  
EFF FILE : W191.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	458.000	457.000	1.000	1.0000	68.10000	7.03E+00	7.82E-01	1.18E-01	3.58E-02	6.46E-01
TH-228	5363.000	203.000	199.000	4.000	2.0000	99.94000	1.41E+00	2.19E-01	8.74E-02	3.31E-02	2.00E-01
TH229	4900.000	18.000	14.000	4.000	2.0000	99.52000	9.88E-02	6.52E-02	8.68E-02	3.28E-02	6.49E-02
TH-230	4625.000	307.000	307.000	0.000	0.0000	100.0000	2.16E+00	2.77E-01	2.11E-02	0.00E+00	2.41E-01
TH-232	3972.000	186.000	185.000	1.000	1.0000	100.0000	1.30E+00	2.05E-01	5.37E-02	1.63E-02	1.88E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414018\_TH  
SAMPLE QTY: 0.256 G

DETECTOR NUMBER :74430  
AVERAGE %EFFICIENCY :25.5545  
% YIELD : 90.581

COUNT DATE:28-AUG-2009 20:52:20  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

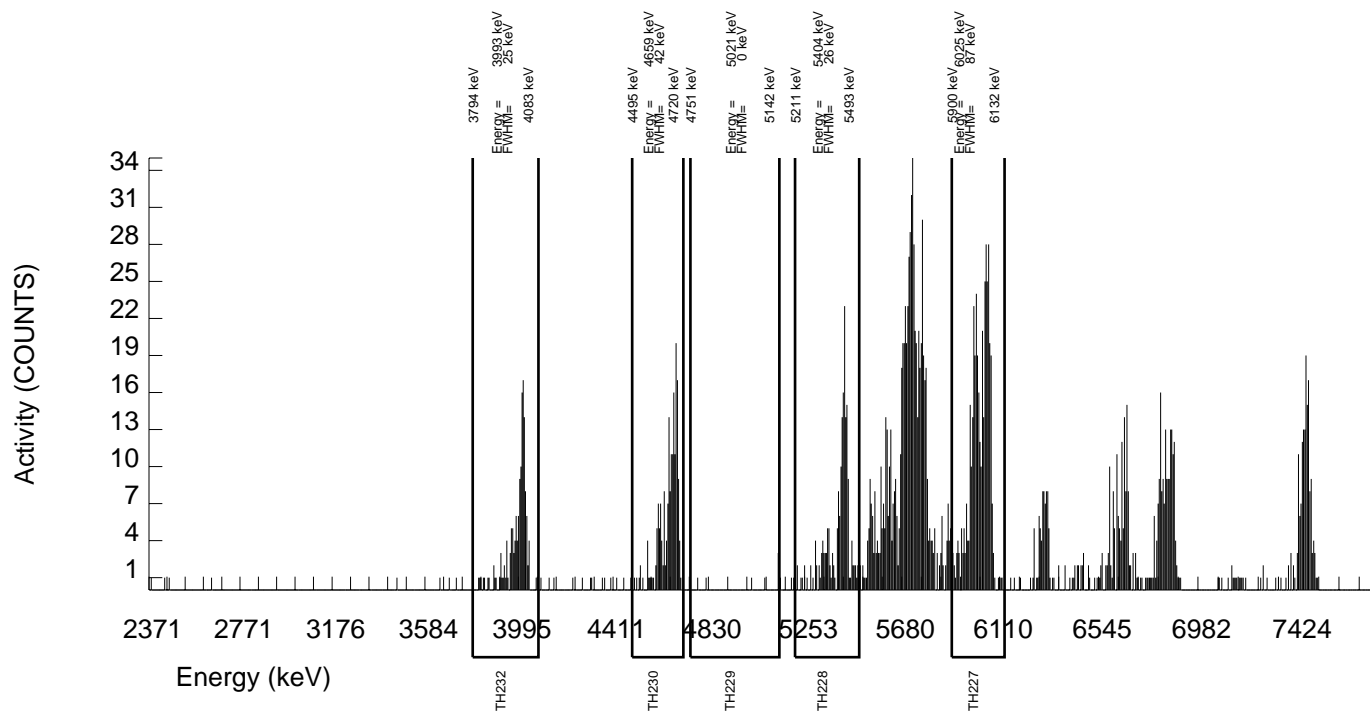
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.360E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 3.54661 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B192.CNF;102  
BKG DATE : 23-AUG-2009  
EFF FILE : W192.CNF;45  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	416.000	414.000	2.000	1.4142	68.10000	6.89E+00	7.83E-01	1.59E-01	5.47E-02	6.67E-01
TH-228	5363.000	190.000	179.000	11.000	3.3166	99.94000	1.38E+00	2.29E-01	1.42E-01	5.93E-02	2.14E-01
TH229	4900.000	7.000	5.000	2.000	1.4142	99.52000	3.82E-02	4.50E-02	7.32E-02	2.51E-02	4.49E-02
TH-230	4625.000	191.000	189.000	2.000	1.4142	100.0000	1.44E+00	2.24E-01	7.28E-02	2.50E-02	2.07E-01
TH-232	3972.000	148.000	145.000	3.000	1.7321	100.0000	1.10E+00	1.94E-01	8.41E-02	3.06E-02	1.83E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414022\_TH  
SAMPLE QTY: 0.258 G

DETECTOR NUMBER :68627  
AVERAGE %EFFICIENCY :26.2903  
% YIELD : 99.317

COUNT DATE:28-AUG-2009 20:52:23  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

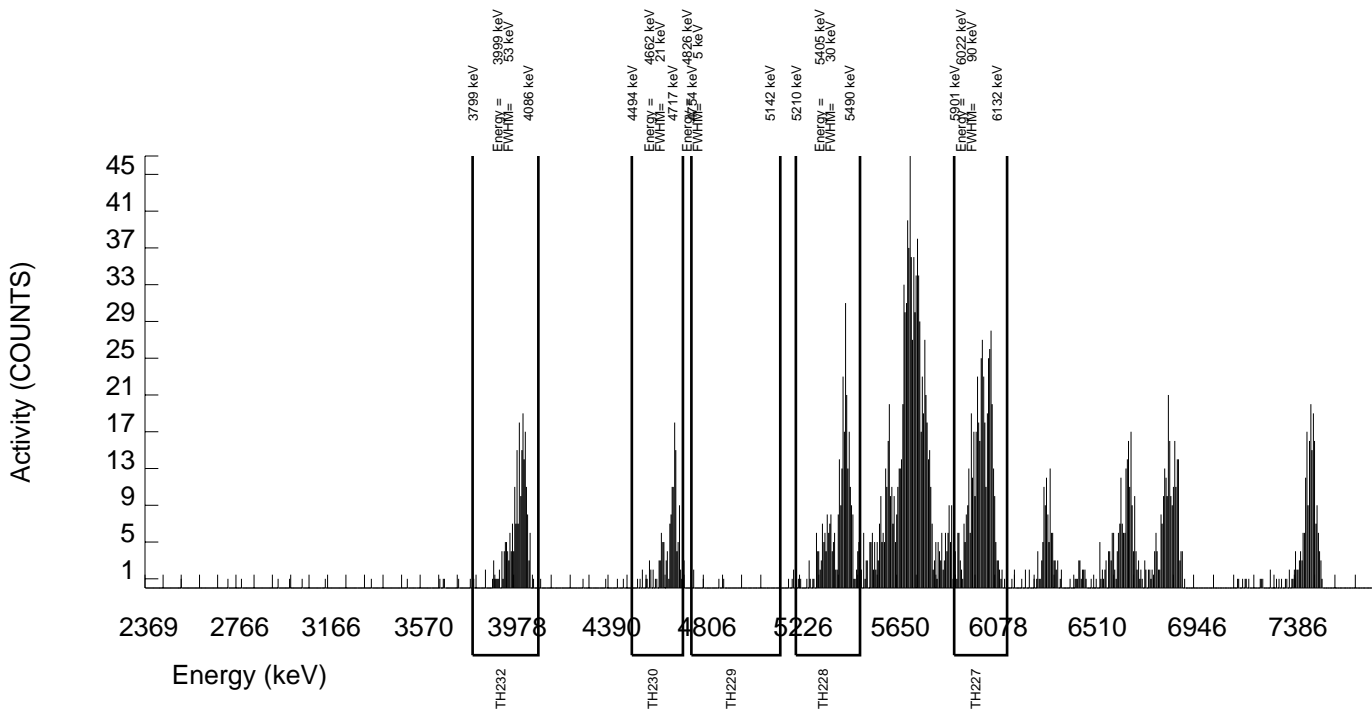
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.295E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 3.88868 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B193.CNF;104  
BKG DATE : 23-AUG-2009  
EFF FILE : W193.CNF;37  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	470.000	467.000	3.000	1.7321	68.10000	6.84E+00	7.56E-01	1.62E-01	5.90E-02	6.24E-01
TH-228	5363.000	305.000	298.000	7.000	2.6458	99.94000	2.02E+00	2.66E-01	1.04E-01	4.16E-02	2.34E-01
TH229	4900.000	5.000	1.000	4.000	2.0000	99.52000	6.72E-03	3.95E-02	8.27E-02	3.13E-02	3.95E-02
TH-230	4625.000	136.000	131.000	5.000	2.2361	100.0000	8.76E-01	1.65E-01	8.96E-02	3.48E-02	1.56E-01
TH-232	3972.000	222.000	220.000	2.000	1.4142	100.0000	1.47E+00	2.17E-01	6.41E-02	2.20E-02	1.96E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S0234414023\_TH  
SAMPLE QTY: 0.251 G

DETECTOR NUMBER :68635  
AVERAGE %EFFICIENCY :25.5915  
% YIELD : 107.054

COUNT DATE:28-AUG-2009 20:52:26  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

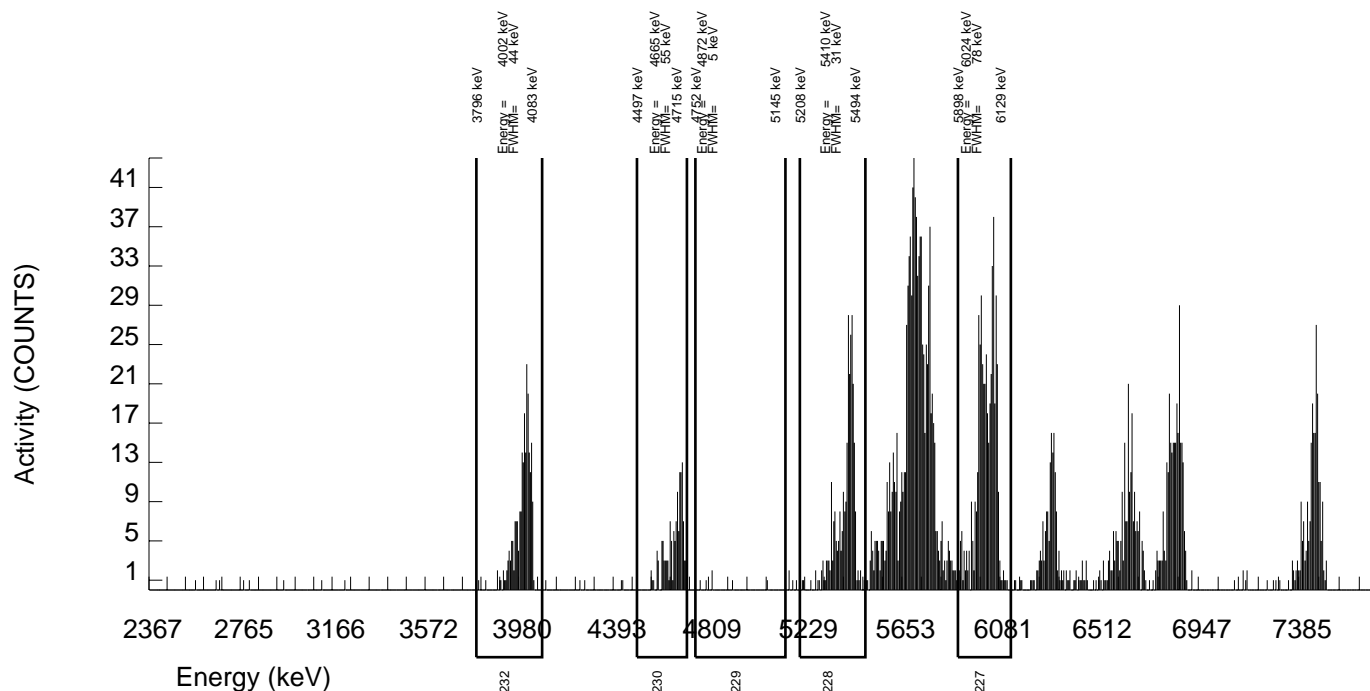
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.527E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 4.19162 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B194.CNF;102  
BKG DATE : 23-AUG-2009  
EFF FILE : W194.CNF;38  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	491.000	490.000	1.000	1.0000	68.10000	7.03E+00	7.51E-01	1.10E-01	3.34E-02	6.23E-01
TH-228	5363.000	283.000	275.000	8.000	2.8284	99.94000	1.82E+00	2.47E-01	1.07E-01	4.36E-02	2.22E-01
TH229	4900.000	6.000	4.000	2.000	1.4142	99.52000	2.63E-02	3.65E-02	6.31E-02	2.17E-02	3.65E-02
TH-230	4625.000	131.000	129.000	2.000	1.4142	100.0000	8.45E-01	1.56E-01	6.28E-02	2.16E-02	1.48E-01
TH-232	3972.000	229.000	229.000	0.000	0.0000	100.0000	1.50E+00	2.14E-01	1.97E-02	0.00E+00	1.94E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S1201900829\_TH  
SAMPLE QTY: 0.259 G

DETECTOR NUMBER :68621  
AVERAGE %EFFICIENCY :25.9021  
% YIELD : 85.615

COUNT DATE:29-AUG-2009 17:50:15  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

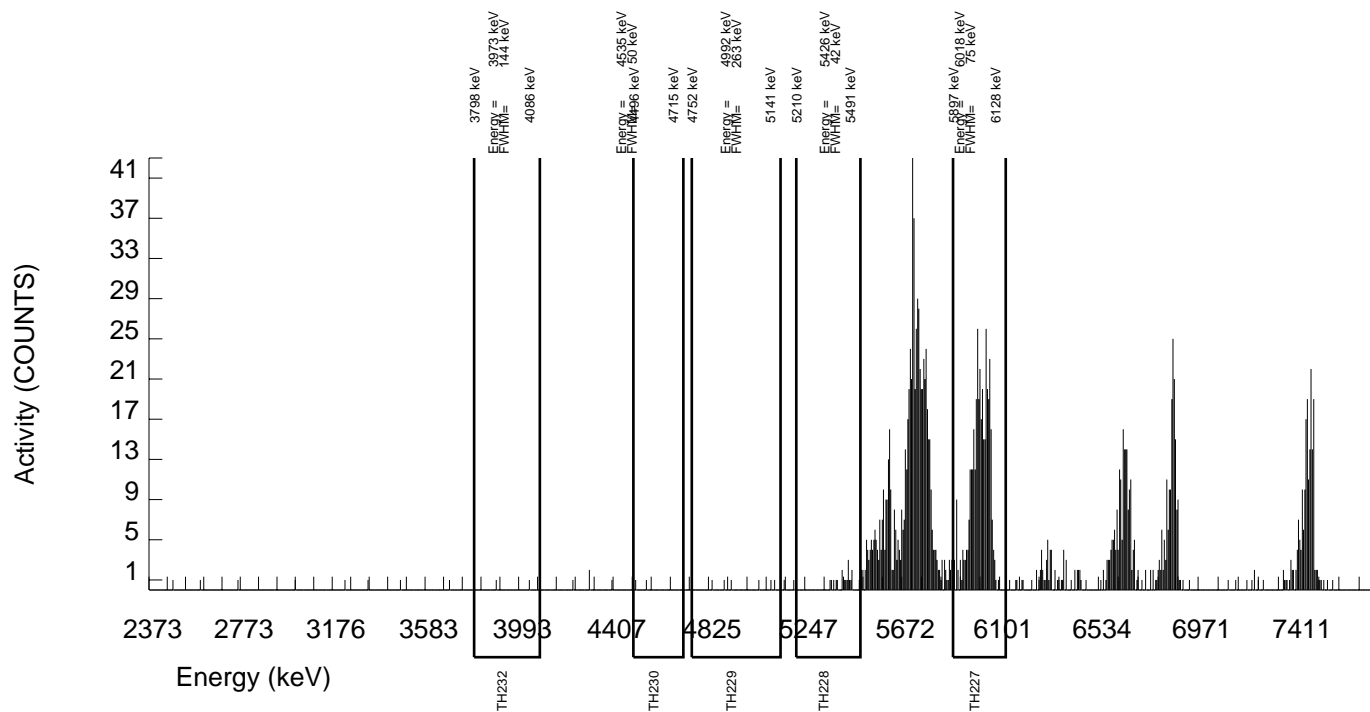
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 3.35217 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B188.CNF;102  
BKG DATE : 23-AUG-2009  
EFF FILE : W188.CNF;39  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	386.000	384.000	2.000	1.4142	68.10000	6.81E+00	7.95E-01	1.70E-01	5.83E-02	6.85E-01
TH-228	5363.000	19.000	13.000	6.000	2.4495	99.94000	1.03E-01	7.80E-02	1.14E-01	4.52E-02	7.78E-02
TH229	4900.000	6.000	-2.000	8.000	2.8284	99.52000	-1.58E-02	5.78E-02	1.27E-01	5.19E-02	5.78E-02
TH-230	4625.000	2.000	1.000	1.000	1.0000	100.0000	7.84E-03	2.66E-02	6.00E-02	1.82E-02	2.66E-02
TH-232	3972.000	2.000	1.000	1.000	1.0000	100.0000	7.84E-03	2.66E-02	6.00E-02	1.82E-02	2.66E-02



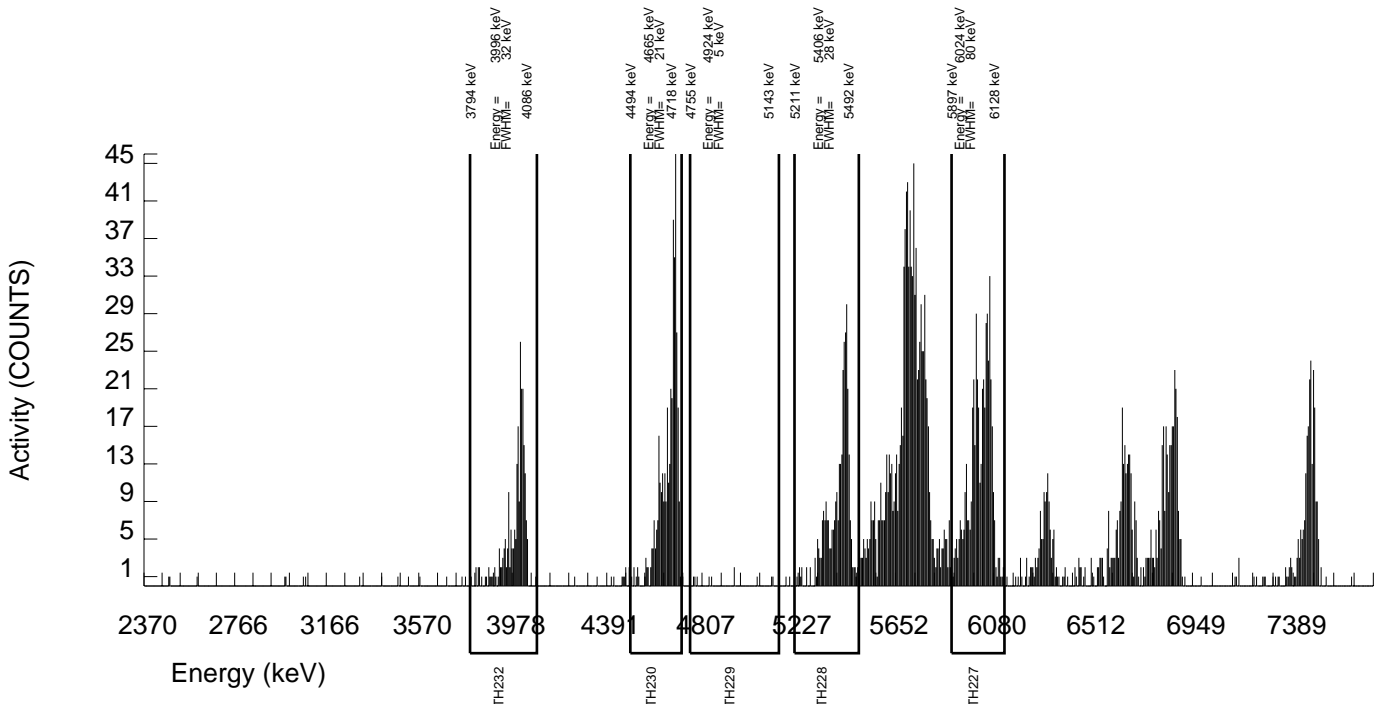


GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411 SAMPLE DATE : 18-AUG-2009 10:21:00		SAMPLE ID : S1201900830_TH SAMPLE QTY: 0.252 G	
DETECTOR NUMBER :68637 AVERAGE %EFFICIENCY :25.6349 % YIELD : 108.400		COUNT DATE:28-AUG-2009 20:52:32 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : A2796-J ISOTOPE : TH-230 PCI/G : 8.493E+00	LCS/LCSD ID : A2796-J ISOTOPE : TH-230 PCI/G : 8.493E+00	TRACER ID : 0387-B-102 ISOTOPE : AC227 NOMINAL : 3.91541 dpm RESULTS : 4.24432 dpm	LIB FILE : ENV_ALPHA_TH.N BKG FILE : B196.CNF;103 BKG DATE : 23-AUG-2009 EFF FILE : W196.CNF;38 CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	500.000	497.000	3.000	1.7321	68.10000	7.00E+00	7.47E-01	1.56E-01	5.67E-02	6.19E-01
TH-228	5363.000	330.000	326.000	4.000	2.0000	99.94000	2.12E+00	2.65E-01	8.01E-02	3.03E-02	2.33E-01
TH229	4900.000	10.000	6.000	4.000	2.0000	99.52000	3.88E-02	4.75E-02	7.95E-02	3.01E-02	4.74E-02
TH-230	4625.000	390.000	388.000	2.000	1.4142	100.0000	2.50E+00	2.91E-01	6.16E-02	2.12E-02	2.50E-01
TH-232	3972.000	229.000	229.000	0.000	0.0000	100.0000	1.47E+00	2.10E-01	1.93E-02	0.00E+00	1.91E-01

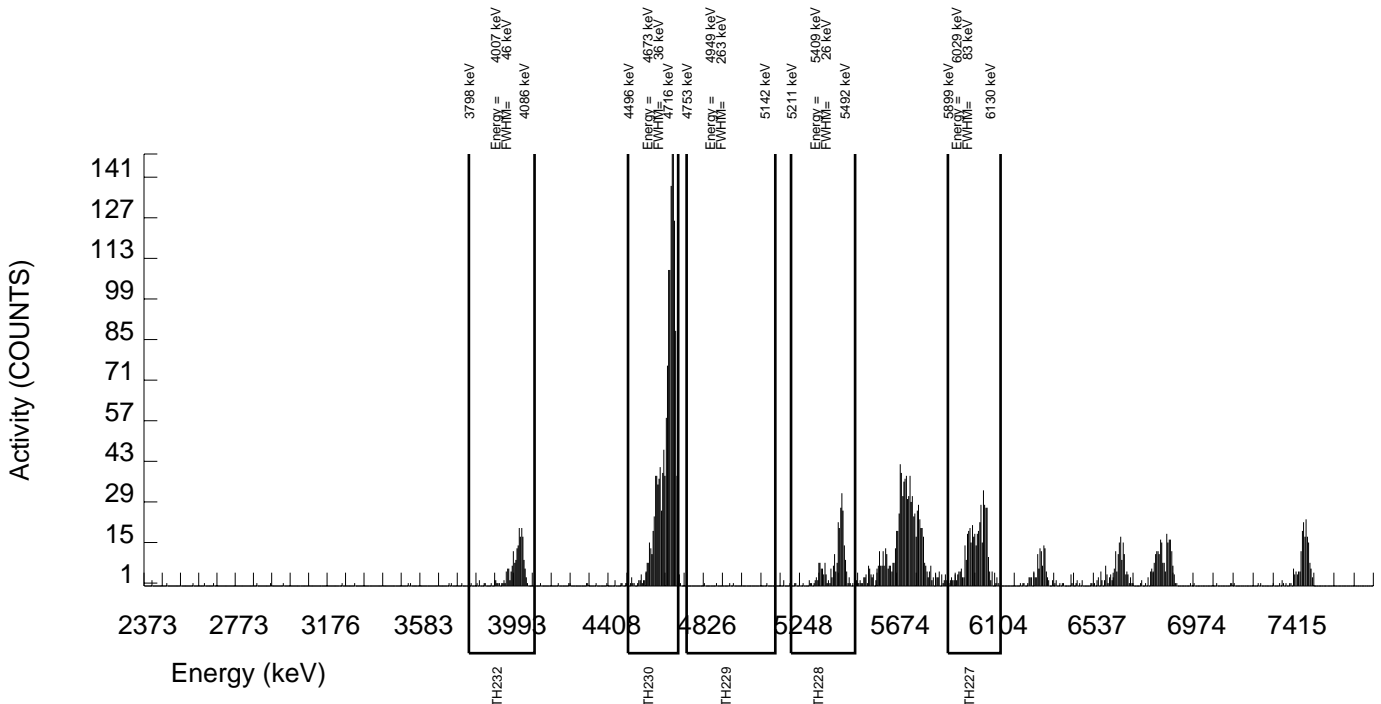


GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411 SAMPLE DATE : 18-AUG-2009 10:21:00		SAMPLE ID : S1201900831_TH SAMPLE QTY: 0.253 G	
DETECTOR NUMBER :78896 AVERAGE %EFFICIENCY :25.0157 % YIELD : 100.579		COUNT DATE:28-AUG-2009 20:52:34 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :KXM4	
MS/MSD ID : A2796-J ISOTOPE : TH-230 PCI/G : 8.459E+00	LCS/LCSD ID : A2796-J ISOTOPE : TH-230 PCI/G : 8.459E+00	TRACER ID : 0387-B-102 ISOTOPE : AC227 NOMINAL : 3.91541 dpm RESULTS : 3.93807 dpm	LIB FILE : ENV_ALPHA_TH.N BKG FILE : B199.CNF;48 BKG DATE : 23-AUG-2009 EFF FILE : W199.CNF;35 CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	453.000	450.000	3.000	1.7321	68.10000	6.97E+00	7.70E-01	1.71E-01	6.24E-02	6.48E-01
TH-228	5363.000	267.000	264.000	3.000	1.7321	99.94000	1.89E+00	2.57E-01	7.91E-02	2.88E-02	2.30E-01
TH229	4900.000	5.000	2.000	3.000	1.7321	99.52000	1.42E-02	3.94E-02	7.86E-02	2.87E-02	3.94E-02
TH-230	4625.000	1503.000	1500.000	3.000	1.7321	100.0000	1.06E+01	8.31E-01	7.83E-02	2.85E-02	5.38E-01
TH-232	3972.000	199.000	198.000	1.000	1.0000	100.0000	1.40E+00	2.13E-01	5.42E-02	1.65E-02	1.96E-01



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 893411  
SAMPLE DATE : 18-AUG-2009 10:21:00

SAMPLE ID : S1201900832\_TH  
SAMPLE QTY: 0.259 G

DETECTOR NUMBER :78900  
AVERAGE %EFFICIENCY :26.8457  
% YIELD : 82.268

COUNT DATE:28-AUG-2009 20:52:37  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :KXM4

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

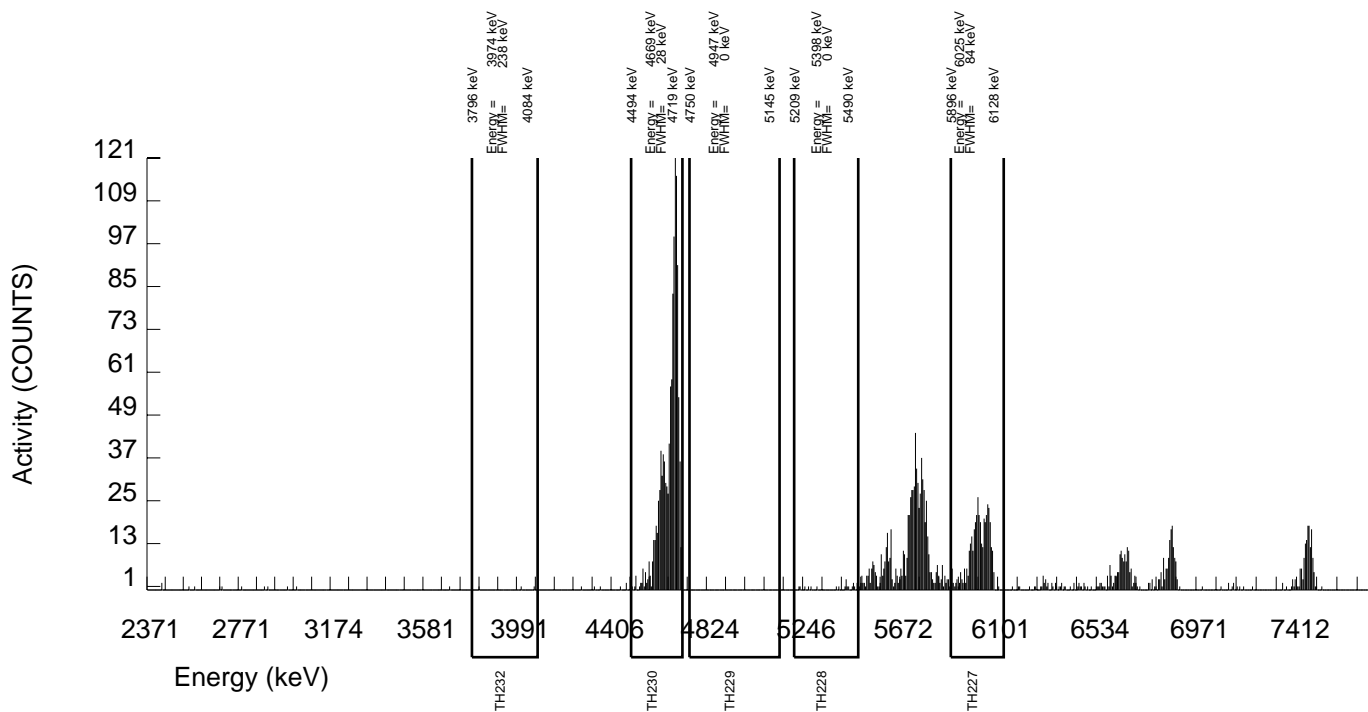
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/G : 8.263E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91541 dpm  
RESULTS : 3.22112 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B200.CNF;48  
BKG DATE : 23-AUG-2009  
EFF FILE : W200.CNF;35  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1.96-SIGMA	MDA pCi/G	Lc pCi/G	UNC pCi/G
AC-227	6038.010	401.000	395.000	6.000	2.4495	68.10000	6.81E+00	7.92E-01	2.48E-01	9.82E-02	6.82E-01
TH-228	5363.000	20.000	11.000	9.000	3.0000	99.94000	8.76E-02	8.42E-02	1.35E-01	5.56E-02	8.41E-02
TH229	4900.000	0.000	-7.000	7.000	2.6458	99.52000	-5.54E-02	4.39E-02	1.21E-01	4.87E-02	4.39E-02
TH-230	4625.000	1164.000	1158.000	6.000	2.4495	100.0000	9.12E+00	7.56E-01	1.13E-01	4.49E-02	5.28E-01
TH-232	3972.000	3.000	-9.000	12.000	3.4641	100.0000	-7.09E-02	5.98E-02	1.51E-01	6.35E-02	5.98E-02



### Radiochemistry Batch Checklist, Rev 9

Batch# 897494 Product: Th Date: 8/28/09

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)			N/A
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%. Or meets the client's required RER acceptance criteria.	✓		
Tracer yield is 15-125% . Carrier yield 25-125%. Or meets the client's contract acceptance criteria.		✓	NCR 727516
Method blank is less than the RDL/ LLD. (If rad samples, < 5% of lowest activity)	✓		Case narrative
Sample was run within hold time.	✓		
Sample was correctly preserved if required.	✓		
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms. All line outs initialed and dated.	✓		
No transcription errors are apparent.			
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly stasured.	✓		
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 727516
Batch non-conformances second reviewed and disposition verified to be completed.	✓		NCR 727516
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:

JagLM/L 8/28/09  
DW On 8/28/09

Secondary Review Performed By:

8/22 8/28

KERR

# Thorium (Ac-227 Tracer) Que Sheet

26-AUG-09

Batch #: 897494      Analyst: JXD2      First Client Due Date: 28-AUG-09      Internal Due Date: 22-AUG-09  
 Tracer Isotope: Ac-227      Tracer Code: 0387-β-102      Expiration Date: 02/23/10      Vol: 0.1      Ac-227 Separation Date/Time: 08/26/09 20:02  
 LCS Isotope: Th-230      LCS Code: A2796-J      Expiration Date: 04/15/10      Vol: 0.1  
 Spike Isotope: Th-230      Spike Code: \_\_\_\_\_      Expiration Date: \_\_\_\_\_      Vol: \_\_\_\_\_  
 Prep Date: 08/26/09      Initials: JK      Pipet ID: PA71058      Balance ID: LG350202      Witness: ML8/26/09

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Aliquot (g) (D)	Th Det #
234267018-3	FB072909-SO	SAMPLE		.03 pCi/L	WATER	KERR003	29-JUL-09	1	1	0.800	27
234414019-3	EB073109-SO	SAMPLE		.03 pCi/L	WATER	KERR003	31-JUL-09	2	2	0.800	36
234414020-3	EB080309-SO	SAMPLE		.03 pCi/L	WATER	KERR003	03-AUG-09	3	3	0.800	43
234414021-3	FB080309-SO	SAMPLE		.03 pCi/L	WATER	KERR003	03-AUG-09	4	4	0.800	197
1201911149-1	MB for batch 897494	MB		.03 pCi/L	WATER	QC ACCOUNT	29-JUL-09	5	5	0.800	198
1201911150-1	LCS for batch 897494	LCS		.03 pCi/L	WATER	QC ACCOUNT	29-JUL-09	6	6	0.800	205
1201911151-1	LCS for batch 897494	LCS		.03 pCi/L	WATER	QC ACCOUNT	29-JUL-09	7	7	0.800	206

8/28/09

Choose SOP Used: GL-RAD-A-038 ✓  
 GL-RAD-A-045 \_\_\_\_\_  
 GL-RAD-A-043 \_\_\_\_\_  
 GL-RAD-A-032 \_\_\_\_\_  
 GEL Laboratories LLC, Radiochemistry Division

Solid Sample Dissolution by: LEACH OR DIGESTION  
Circle One

Data Reviewed By: Jap LML- 8/28/09

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 897494  
SAMPLE DATE : 26-AUG-2009 20:02:00

SAMPLE ID : S0234414019\_TH  
SAMPLE QTY: 0.800 L

DETECTOR NUMBER :78203  
AVERAGE %EFFICIENCY :32.3872  
% YIELD : 74.740

COUNT DATE:27-AUG-2009 08:05:29  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

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

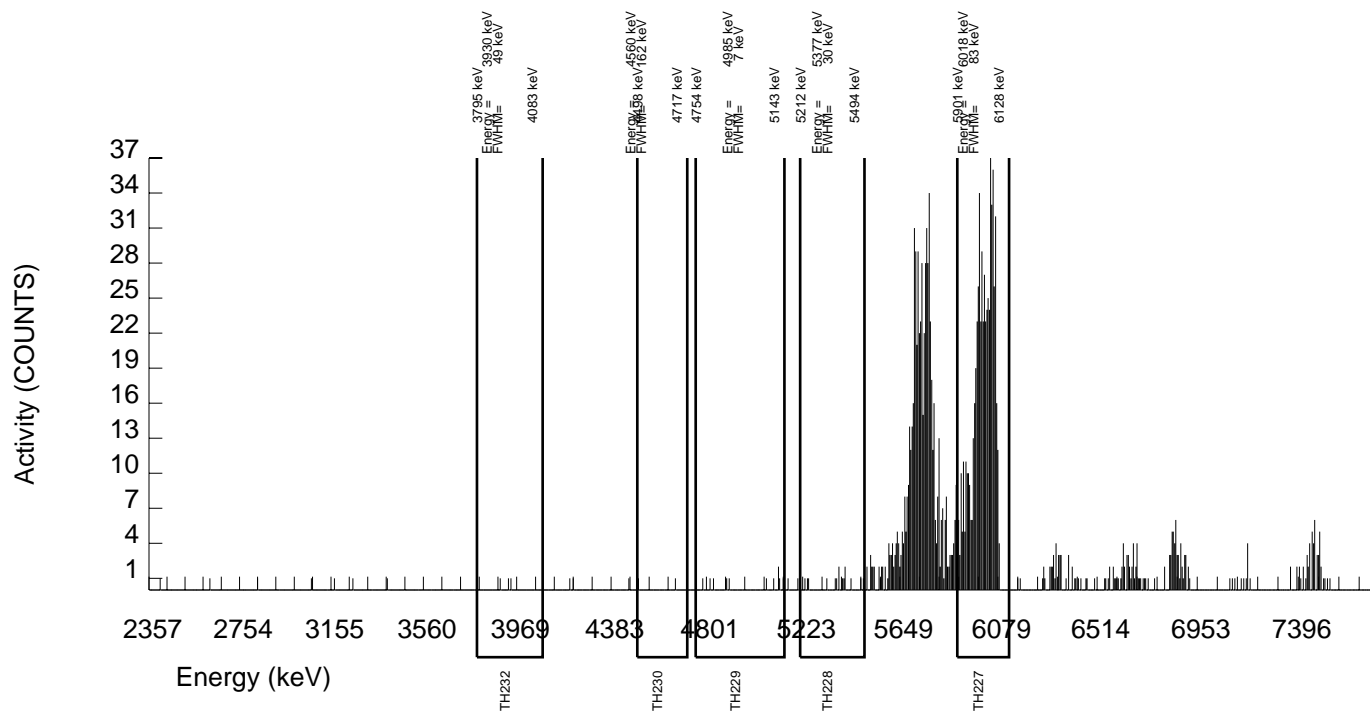
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 2.675E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91255 dpm  
RESULTS : 2.92422 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B036.CNF;1050  
BKG DATE : 23-AUG-2009  
EFF FILE : W036.CNF;318  
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	625.000	5.000	2.2361	68.10000	2.20E+00	2.11E-01	4.72E-02	1.83E-02	1.74E-01
TH-228	5363.000	15.000	11.000	4.000	2.0000	99.94000	2.56E-02	1.99E-02	2.87E-02	1.08E-02	1.99E-02
TH229	4900.000	12.000	2.000	10.000	3.1623	99.52000	4.67E-03	2.15E-02	4.14E-02	1.72E-02	2.15E-02
TH-230	4625.000	3.000	0.000	3.000	1.7321	100.0000	-1.11E-09	1.12E-02	2.57E-02	9.37E-03	1.12E-02
TH-232	3972.000	3.000	3.000	0.000	0.0000	100.0000	6.98E-03	7.91E-03	6.98E-03	0.00E+00	7.90E-03



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 897494  
SAMPLE DATE : 26-AUG-2009 20:02:00

SAMPLE ID : S0234414020\_TH  
SAMPLE QTY: 0.800 L

DETECTOR NUMBER :76543  
AVERAGE %EFFICIENCY :33.9498  
% YIELD : 75.863

COUNT DATE:27-AUG-2009 08:05:31  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

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

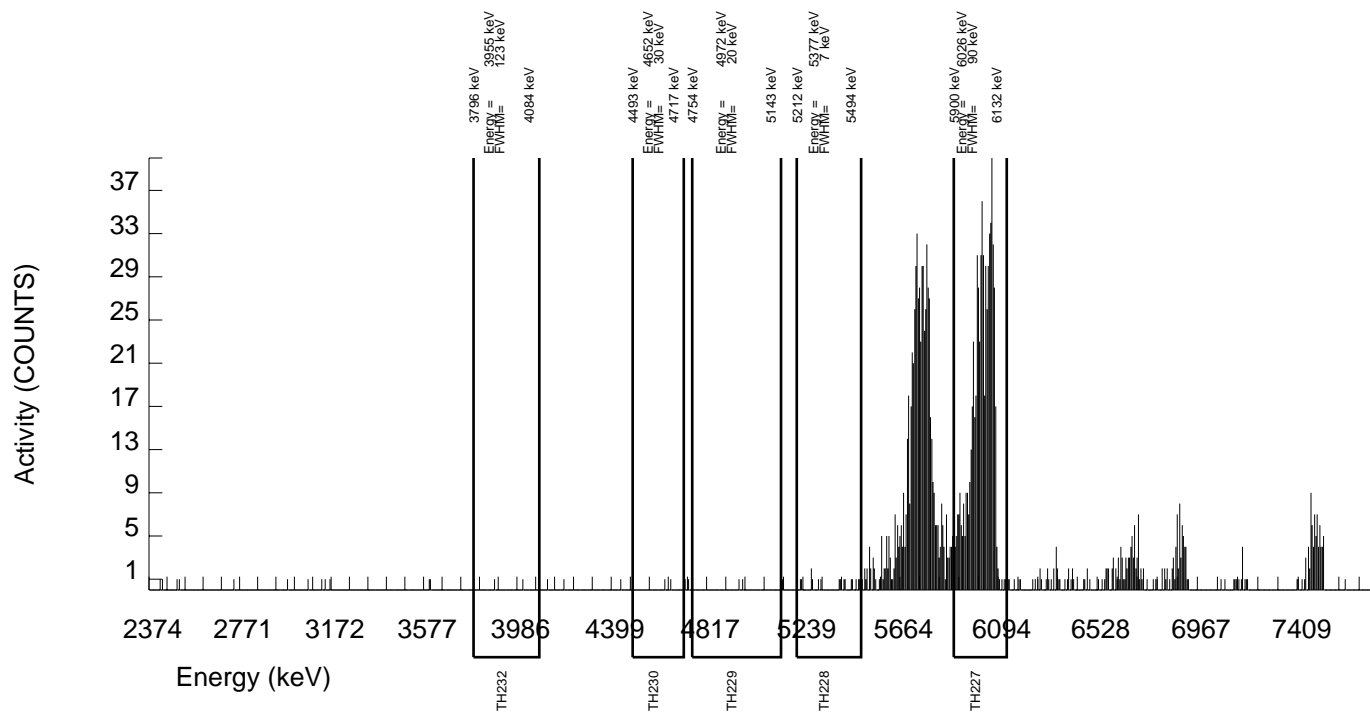
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 2.675E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91255 dpm  
RESULTS : 2.96816 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B043.CNF;1049  
BKG DATE : 23-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	668.000	665.000	3.000	1.7321	68.10000	2.20E+00	2.06E-01	3.66E-02	1.33E-02	1.68E-01
TH-228	5363.000	17.000	12.000	5.000	2.2361	99.94000	2.63E-02	2.02E-02	2.93E-02	1.14E-02	2.01E-02
TH229	4900.000	2.000	-2.000	4.000	2.0000	99.52000	-4.39E-03	1.05E-02	2.70E-02	1.02E-02	1.05E-02
TH-230	4625.000	2.000	1.000	1.000	1.0000	100.0000	2.19E-03	7.42E-03	1.67E-02	5.09E-03	7.42E-03
TH-232	3972.000	2.000	1.000	1.000	1.0000	100.0000	2.19E-03	7.42E-03	1.67E-02	5.09E-03	7.42E-03



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 897494  
SAMPLE DATE : 26-AUG-2009 20:02:00

SAMPLE ID : S0234414021\_TH  
SAMPLE QTY: 0.800 L

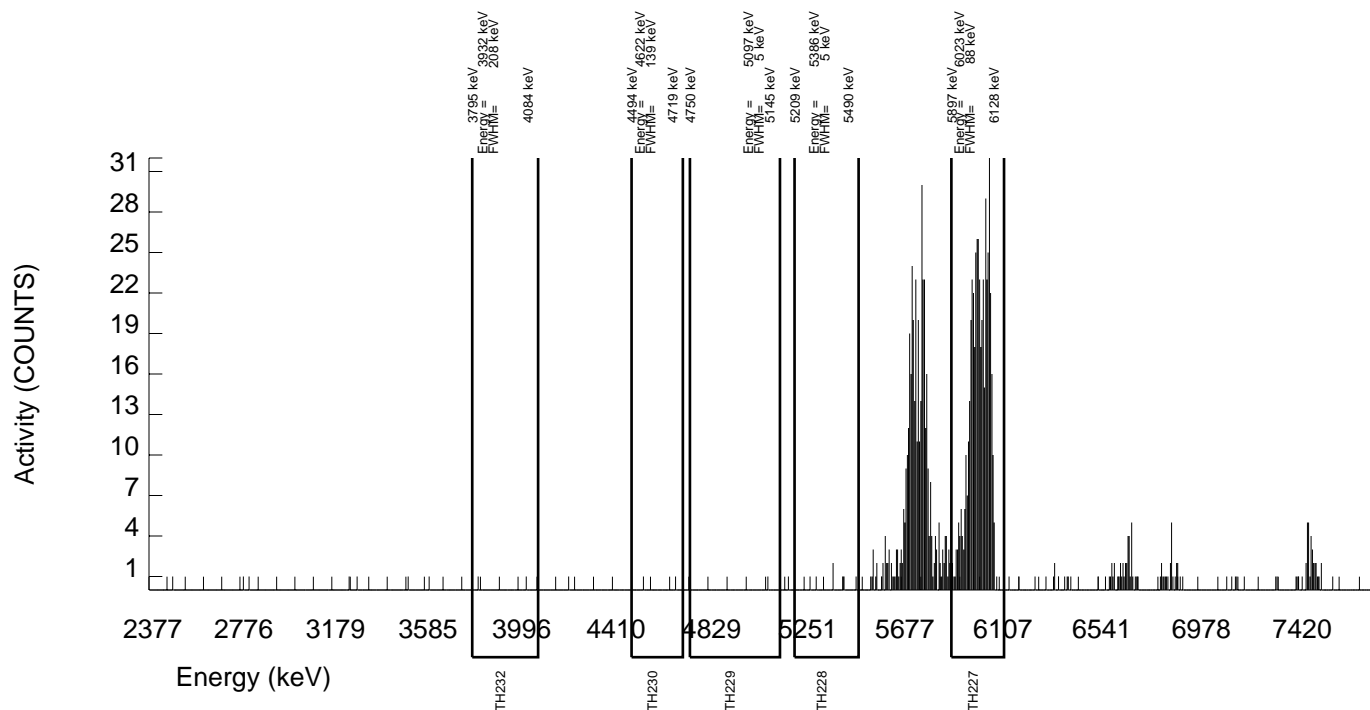
DETECTOR NUMBER :78894  
AVERAGE %EFFICIENCY :25.6555  
% YIELD : 76.694

COUNT DATE:27-AUG-2009 08:08:33  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 2.675E+00	LCS/LCSD ID : A2796-J ISOTOPE : TH-230 PCI/L : 2.675E+00	TRACER ID : 0387-B-102 ISOTOPE : AC227 NOMINAL : 3.91255 dpm RESULTS : 3.00069 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
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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	508.000	508.000	0.000	0.0000	68.10000	2.20E+00	2.26E-01	1.30E-02	0.00E+00	1.92E-01
TH-228	5363.000	7.000	6.000	1.000	1.0000	99.94000	1.72E-02	1.59E-02	2.19E-02	6.67E-03	1.59E-02
TH229	4900.000	1.000	0.000	1.000	1.0000	99.52000	0.00E+00	7.97E-03	2.20E-02	6.69E-03	7.97E-03
TH-230	4625.000	2.000	2.000	0.000	0.0000	100.0000	5.72E-03	7.94E-03	8.58E-03	0.00E+00	7.93E-03
TH-232	3972.000	2.000	2.000	0.000	0.0000	100.0000	5.72E-03	7.94E-03	8.58E-03	0.00E+00	7.93E-03





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 897494  
SAMPLE DATE : 26-AUG-2009 20:02:00

SAMPLE ID : S1201911149\_TH  
SAMPLE QTY: 0.800 L

DETECTOR NUMBER :78895  
AVERAGE %EFFICIENCY :25.4102  
% YIELD : 75.758

COUNT DATE:27-AUG-2009 08:08:35  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

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

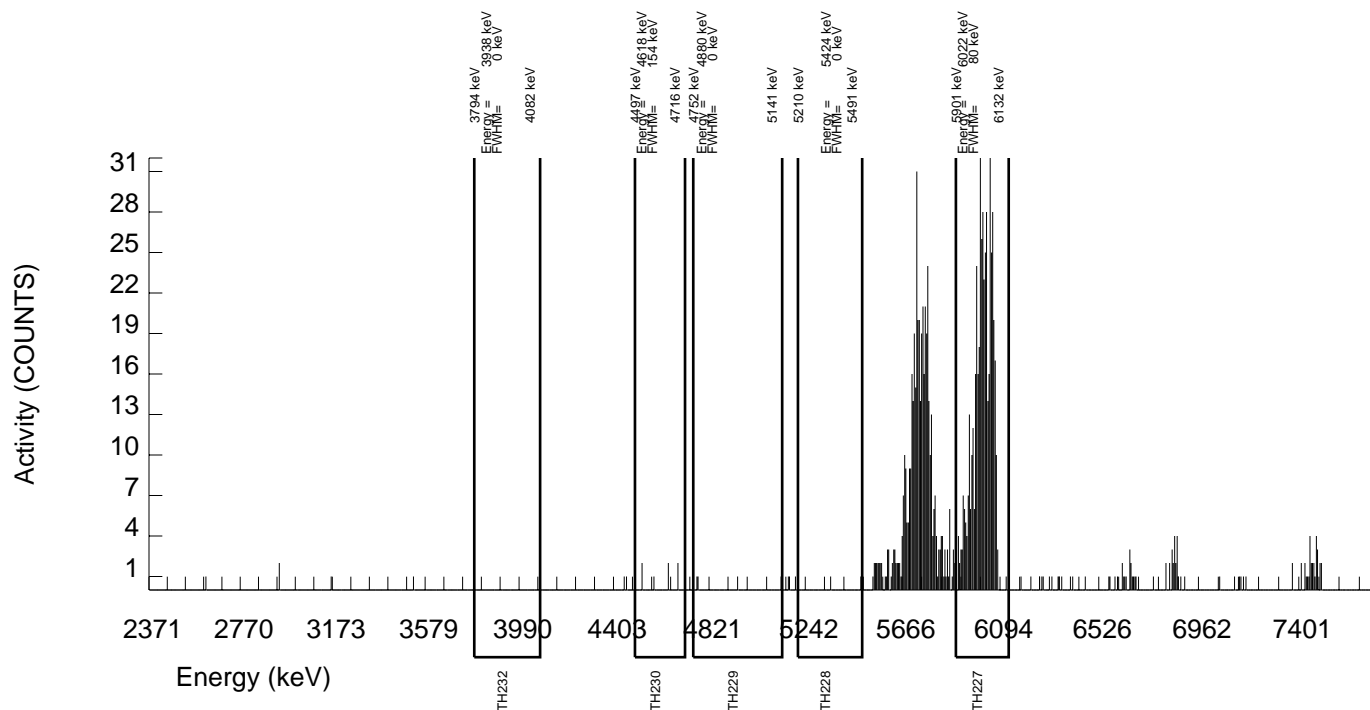
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 2.675E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91255 dpm  
RESULTS : 2.96406 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	497.000	497.000	0.000	0.0000	68.10000	2.20E+00	2.27E-01	1.33E-02	0.00E+00	1.94E-01
TH-228	5363.000	2.000	1.000	1.000	1.0000	99.94000	2.93E-03	9.95E-03	2.24E-02	6.81E-03	9.94E-03
TH229	4900.000	5.000	5.000	0.000	0.0000	99.52000	1.47E-02	1.29E-02	8.82E-03	0.00E+00	1.29E-02
TH-230	4625.000	7.000	7.000	0.000	0.0000	100.0000	2.05E-02	1.52E-02	8.77E-03	0.00E+00	1.52E-02
TH-232	3972.000	0.000	0.000	0.000	0.0000	100.0000	0.00E+00	5.74E-03	8.77E-03	0.00E+00	5.73E-03



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 897494  
SAMPLE DATE : 26-AUG-2009 20:02:00

SAMPLE ID : S1201911150\_TH  
SAMPLE QTY: 0.800 L

DETECTOR NUMBER :78908  
AVERAGE %EFFICIENCY :25.6002  
% YIELD : 75.196

COUNT DATE:27-AUG-2009 08:08:55  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

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

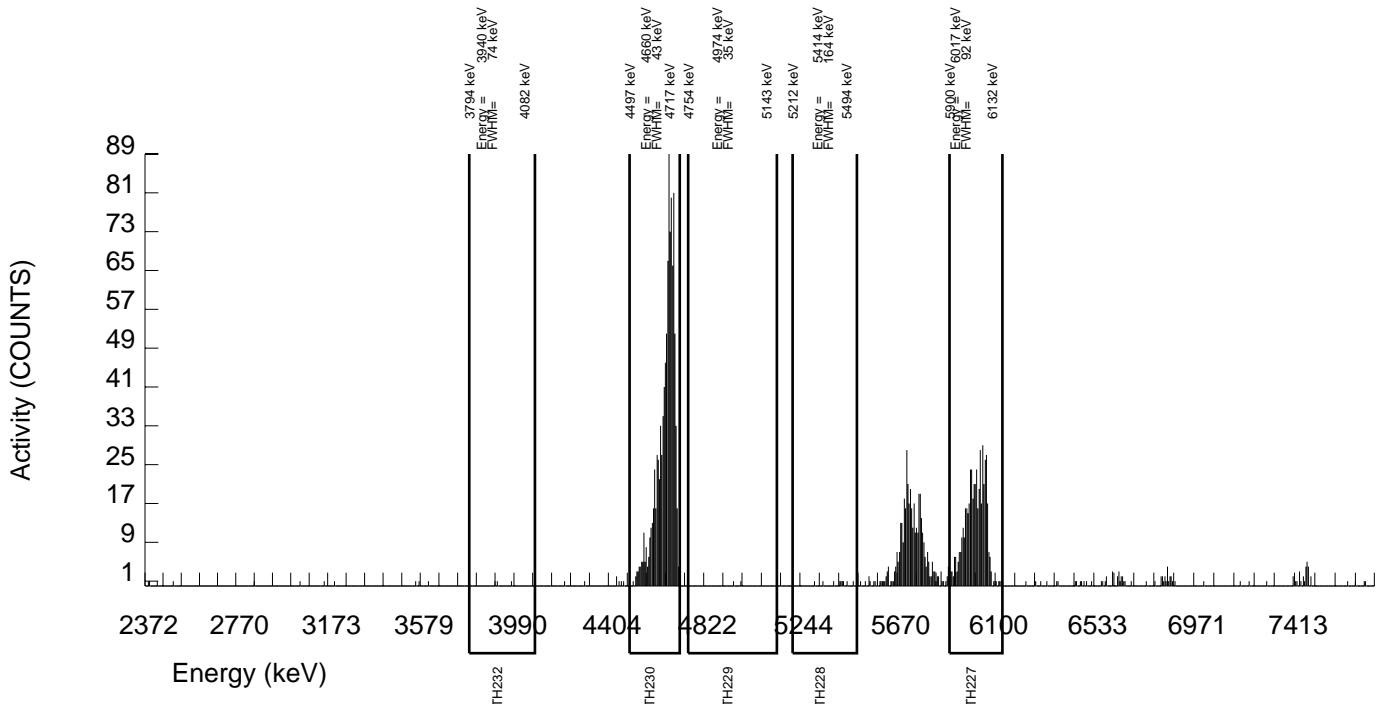
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 2.675E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91255 dpm  
RESULTS : 2.94209 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B205.CNF;48  
BKG DATE : 23-AUG-2009  
EFF FILE : W205.CNF;35  
CAL DATE : 24-AUG-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/L	TPU 1.96-SIGMA	MDA pCi/L	Lc pCi/L	UNC pCi/L
AC-227	6038.010	499.000	497.000	2.000	1.4142	68.10000	2.20E+00	2.28E-01	4.25E-02	1.46E-02	1.94E-01
TH-228	5363.000	9.000	9.000	0.000	0.0000	99.94000	2.64E-02	1.73E-02	8.79E-03	0.00E+00	1.72E-02
TH229	4900.000	2.000	2.000	0.000	0.0000	99.52000	5.88E-03	8.15E-03	8.82E-03	0.00E+00	8.15E-03
TH-230	4625.000	1022.000	1021.000	1.000	1.0000	100.0000	2.99E+00	2.44E-01	2.24E-02	6.80E-03	1.83E-01
TH-232	3972.000	3.000	2.000	1.000	1.0000	100.0000	5.85E-03	1.15E-02	2.24E-02	6.80E-03	1.15E-02



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 897494  
SAMPLE DATE : 26-AUG-2009 20:02:00

SAMPLE ID : S1201911151\_TH  
SAMPLE QTY: 0.800 L

DETECTOR NUMBER :78909  
AVERAGE %EFFICIENCY :25.3986  
% YIELD : 67.101

COUNT DATE:27-AUG-2009 08:08:59  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

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

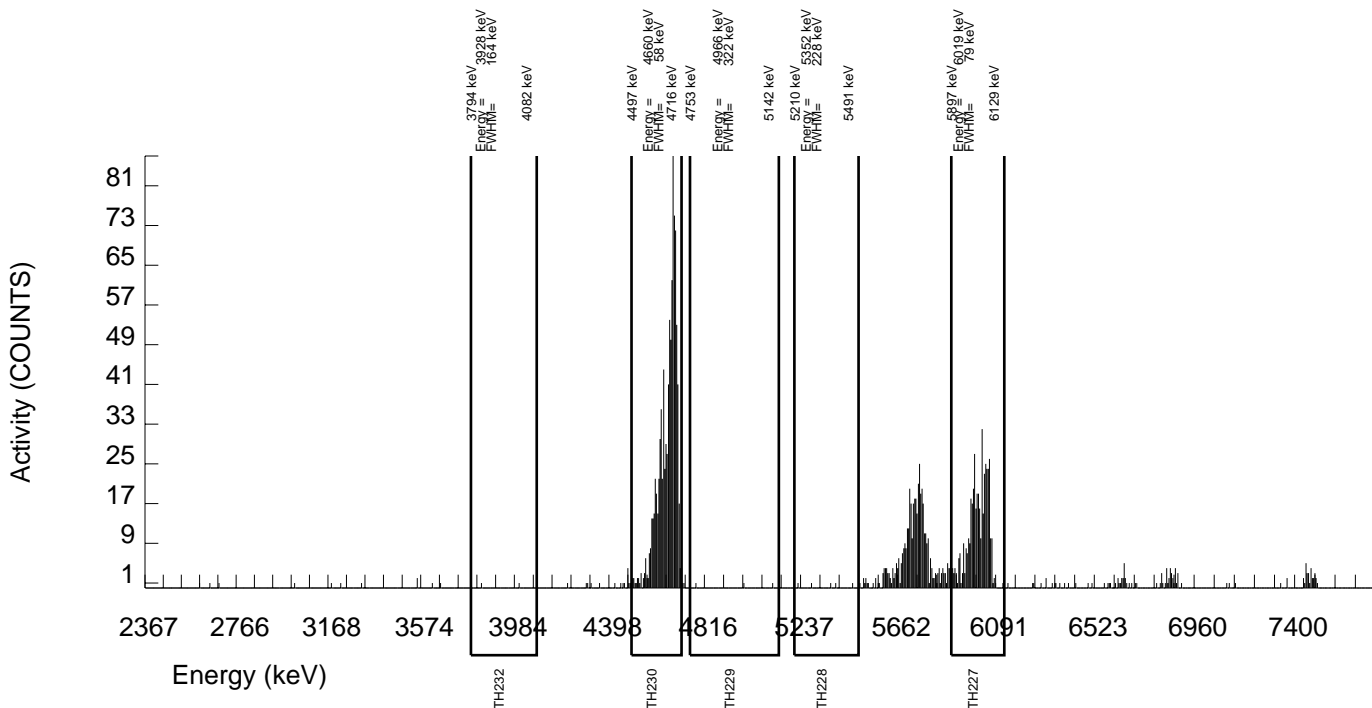
LCS/LCSD  
ID : A2796-J  
ISOTOPE : TH-230  
PCI/L : 2.675E+00

TRACER  
ID : 0387-B-102  
ISOTOPE : AC227  
NOMINAL : 3.91255 dpm  
RESULTS : 2.62534 dpm

LIB FILE : ENV\_ALPHA\_TH.N  
BKG FILE : B206.CNF;48  
BKG DATE : 23-AUG-2009  
EFF FILE : W206.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	440.000	440.000	0.000	0.0000	68.10000	2.20E+00	2.38E-01	1.50E-02	0.00E+00	2.06E-01
TH-228	5363.000	5.000	4.000	1.000	1.0000	99.94000	1.32E-02	1.59E-02	2.53E-02	7.70E-03	1.59E-02
TH229	4900.000	3.000	2.000	1.000	1.0000	99.52000	6.64E-03	1.30E-02	2.54E-02	7.72E-03	1.30E-02
TH-230	4625.000	935.000	935.000	0.000	0.0000	100.0000	3.09E+00	2.59E-01	9.91E-03	0.00E+00	1.98E-01
TH-232	3972.000	2.000	2.000	0.000	0.0000	100.0000	6.61E-03	9.16E-03	9.91E-03	0.00E+00	9.16E-03



# RADIUM 228

### Radiochemistry Batch Checklist, Rev 9

Batch# 891157 Product: RAZZB Date: 8/13/09

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)			N/A
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%. Or meets the client's required RER acceptance criteria.	✓		
Tracer yield is 15-125% . Carrier yield 25-125%. Or meets the client's contract acceptance criteria.	✓		N/A 8/13/09
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.			N/A
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms. All line outs initialed and dated. No transcription errors are apparent.	✓		
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly stated.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)	✓		
Batch entered into Case Narrative.	✓		
Batch non-conformances completed, if applicable.			N/A
Batch non-conformances second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (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:  8/13/09

Secondary Review Performed By: 

# Radium-228 Que Sheet

Batch #: 891157 Analyst: JXC5 First Client Due Date: 09/01/2009 Internal Due Date: 8/21/2009  
 Spike Isotope: Radium-228 Spike Code: 0503-B Expiration Date: 9/13/09 Ac-228 Ingrow: 8-11-09 / 1145  
 LCS Isotope: Radium-228 LCS Code: 0503-B Expiration Date: 9/13/09 Ac-228 Separation Date/Time: 8-13-09 / 0530  
 Tracer Isotope: Barium-133 Tracer Code: 0112-D Expiration Date: 2/17/10 Witness: PXM 8/5/09  
 Prep Date: 8/6/09 Initials: JAS Pipet ID: 276653 Balance ID: 1795560

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collect Date & Time	Pos. #	Vol (mL)	Ba Yield (%)	Gamma Det. #
234414001-1	SA49-32B	SAMPLE		.5 pCi/g	SOIL	KERR003	30-JUL-09 12:01 PM	1	1.003	87.14	B1
234414002-1	SA63-10B 6 <sup>th</sup>	SAMPLE		.5 pCi/g	SOIL	KERR003	30-JUL-09 10:12 AM	2	1.020	99.55	B3
234414003-1	SA-63-23B SA63-23B	SAMPLE		.5 pCi/g	SOIL	KERR003	30-JUL-09 10:41 AM	3	1.009	90.52	B4
234414004-1	RSAM5-0.5B	SAMPLE		.5 pCi/g	SOIL	KERR003	30-JUL-09 12:54 PM	4	1.011	96.75	E1
234414005-1	RSAM5009-0.5B	SAMPLE		.5 pCi/g	SOIL	KERR003	30-JUL-09 12:54 PM	5	1.003	86.51	E4
234414006-1	RSAM5-10B	SAMPLE		.5 pCi/g	SOIL	KERR003	30-JUL-09 01:31 PM	6	1.013	89.85	A1
234414007-1	RSAM5-28B	SAMPLE		.5 pCi/g	SOIL	KERR003	30-JUL-09 02:09 PM	7	1.024	100.72	A2
234414008-1	SA127-10B	SAMPLE		.5 pCi/g	SOIL	KERR003	31-JUL-09 09:34 AM	8	1.014	98.47	
234414009-1	SA127-20B	SAMPLE		.5 pCi/g	SOIL	KERR003	31-JUL-09 10:01 AM	9	1.021	96.80	
234414010-1	SA127-32B	SAMPLE		.5 pCi/g	SOIL	KERR003	31-JUL-09 10:25 AM	10	1.015	96.8	
234414011-1	RSAJ3-10B	SAMPLE		.5 pCi/g	SOIL	KERR003	31-JUL-09 12:27 PM	11	1.016	95.85	
234414012-1	RSAJ3-29B	SAMPLE		.5 pCi/g	SOIL	KERR003	31-JUL-09 01:14 PM	12	1.010	87.18	
234414013-1	SA28-0.5B	SAMPLE		.5 pCi/g	SOIL	KERR003	03-AUG-09 08:30 AM	13	1.047	94.36	
234414014-1	SA28-10B	SAMPLE		.5 pCi/g	SOIL	KERR003	03-AUG-09 08:50 AM	14	1.009	93.95	
234414015-1	SA28009-10B	SAMPLE		.5 pCi/g	SOIL	KERR003	03-AUG-09 08:50 AM	15	1.035	105.91	
234414016-1	SA28-25B	SAMPLE		.5 pCi/g	SOIL	KERR003	03-AUG-09 09:45 AM	16	1.009	95.85	
234414017-1	SA28-40B	SAMPLE		.5 pCi/g	SOIL	KERR003	03-AUG-09 11:15 AM	17	1.017	87.35	
234414018-1	SA28-55B	SAMPLE		.5 pCi/g	SOIL	KERR003	03-AUG-09 12:00 PM	18	1.007	100.32	
234414022-1	SA127-5B-berm	SAMPLE		.5 pCi/g	SOIL	KERR003	31-JUL-09 08:30 AM	19	1.017	91.29	D2
234414023-1	SA127-10B-berm	SAMPLE		.5 pCi/g	SOIL	KERR003	31-JUL-09 08:54 AM	20	1.014	98.96	D3
1201895459-1	MB for batch 891157	MB		.5 pCi/g	SOIL	QC ACCOUNT		21	1.047	97.92	
1201895460-1	SA63-10B(234414002DUP)	DUP		.5 pCi/g	SOIL	QC ACCOUNT		22	1.016	96.16	
1201895461-1	SA63-10B(234414002MS)	MS		.5 pCi/g	SOIL	QC ACCOUNT		23	0.103	95.19	
1201895462-1	LCS for batch 891157	LCS		.5 pCi/g	SOIL	QC ACCOUNT		24	1.047	97.79	

Comments:  Data Reviewed By:  8/13/09  
 8/13/09

# Radium-228 Solid

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

Spike S/N : 0503-B  
 Spike Exp Date : 9/13/2009  
 Spike Activity (dpm/ml): 180.26  
 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 : 891157  
 Analyst : JXC5  
 Prep Date : 8/6/2009

LCS S/N : 0503-B  
 LCS Exp Date : 9/13/2009  
 LCS Activity (dpm/ml): 180.26  
 LCS Volume Added: 0.10

Procedure Code : GFC28RAS  
 Parmname : Radium-228  
 Required MDA : 0.5 pCi/g  
 Half-life of Ra-228 : 5.75 years  
 Half-life of Ac-228 : 6.13 hours  
 Batch counted on : LB4100  
 BKG Count time : 500 min

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

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

Geometry: CeF on 25mm Filter

Pos.	Sample Characteristics			Sample Date/Time	Tracer Calculations			Tracer Samp.		
	Sample ID	Sample Aliquot G	Sample Aliquot StDev. G		Tracer Concentration (Ba-133 Ref.) (cpm)	Tracer Count Uncertainty (cpm)	Tracer Concentration (Ba-133 Samp.) (cpm)	Tracer Count Uncertainty (cpm)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	234414001.1	1.0030	3.3237E-03	7/30/2009 12:01	221.6	4.21%	193.1	4.56%	0.1	0.000701
2	234414002.1	1.0200	3.3254E-03	7/30/2009 10:12	221.6	4.21%	220.6	4.22%	0.1	0.000701
3	234414003.1	1.0090	3.3243E-03	7/30/2009 10:41	221.6	4.21%	200.6	4.46%	0.1	0.000701
4	234414004.1	1.0110	3.3245E-03	7/30/2009 12:54	221.6	4.21%	214.4	4.29%	0.1	0.000701
5	234414005.1	1.0030	3.3237E-03	7/30/2009 12:54	221.6	4.21%	191.7	4.58%	0.1	0.000701
6	234414006.1	1.0130	3.3247E-03	7/30/2009 13:31	221.6	4.21%	199.1	4.48%	0.1	0.000701
7	234414007.1	1.0240	3.3258E-03	7/30/2009 14:09	221.6	4.21%	223.2	4.19%	0.1	0.000701
8	234414008.1	1.0190	3.3253E-03	7/31/2009 9:34	221.6	4.21%	218.2	4.25%	0.1	0.000701
9	234414009.1	1.0210	3.3255E-03	7/31/2009 10:01	221.6	4.21%	214.5	4.29%	0.1	0.000701
10	234414010.1	1.0150	3.3249E-03	7/31/2009 10:25	221.6	4.21%	212.8	4.31%	0.1	0.000701
11	234414011.1	1.0160	3.3250E-03	7/31/2009 12:27	221.6	4.21%	212.4	4.31%	0.1	0.000701
12	234414012.1	1.0100	3.3244E-03	7/31/2009 13:14	221.6	4.21%	194.3	4.54%	0.1	0.000701
13	234414013.1	1.0470	3.3282E-03	8/3/2009 8:30	221.6	4.21%	209.1	4.35%	0.1	0.000701
14	234414014.1	1.0090	3.3243E-03	8/3/2009 8:50	221.6	4.21%	208.2	4.36%	0.1	0.000701
15	234414015.1	1.0350	3.3270E-03	8/3/2009 8:50	221.6	4.21%	234.7	4.07%	0.1	0.000701
16	234414016.1	1.0090	3.3243E-03	8/3/2009 9:45	221.6	4.21%	212.4	4.31%	0.1	0.000701
17	234414017.1	1.0170	3.3251E-03	8/3/2009 11:15	221.6	4.21%	198.0	4.49%	0.1	0.000701
18	234414018.1	1.0070	3.3241E-03	8/3/2009 12:00	221.6	4.21%	222.3	4.20%	0.1	0.000701
19	234414022.1	1.0170	3.3251E-03	7/31/2009 8:30	221.6	4.21%	202.3	4.44%	0.1	0.000701
20	234414023.1	1.0140	3.3248E-03	7/31/2009 8:54	221.6	4.21%	219.3	4.24%	0.1	0.000701
21	1201895459.1	1.0470	3.3282E-03	8/6/2009 0:00	221.6	4.21%	217.0	4.26%	0.1	0.000701
22	1201895460.1	1.0160	3.3250E-03	7/30/2009 10:12	221.6	4.21%	213.1	4.31%	0.1	0.000701
23	1201895461.1	0.1030	3.2298E-03	7/30/2009 10:12	221.6	4.21%	211.6	4.32%	0.1	0.000701
24	1201895462.1	1.0470	3.3282E-03	8/6/2009 0:00	221.6	4.21%	216.7	4.27%	0.1	0.000701

Count raw Data										Weekly Bkg			Detector		Detector Efficiency Error		Detector Efficiency (cpm/dpm)		Detector Efficiency (cpm/dpm)		Detector Efficiency Error (cpm/dpm)		Count		Ra-228 Decay		Ac-228 Decay		Ac-228 Count Correction		Calculated Sample Recovery %		Sample Recovery Error %	
Pos.	Detector ID	Counting Time (min.)	Gross Alpha	Gross Beta	Beta cpm	Detector Efficiency (cpm/dpm)	Detector Efficiency (cpm/dpm)	Detector Efficiency (cpm/dpm)	Detector Efficiency Error (cpm/dpm)	cpm	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 %																
1	B1	380	57	910	2.395	0.5207	0.01808	0.01808	0.01808	1.590	500	8/13/2009 5:30	8/13/2009 11:04	0.995	0.533	1.400	87.14%	3.26%																
2	B3	380	26	584	1.537	0.4880	0.01849	0.01849	0.01849	1.004	500	8/13/2009 5:30	8/13/2009 11:04	0.995	0.533	1.400	99.55%	3.14%																
3	7D	60	6	93	1.550	0.6257	0.00816	0.00816	0.00816	0.378	500	8/13/2009 5:30	8/13/2009 7:55	0.995	0.760	1.058	90.52%	3.22%																
4	B4	380	49	556	1.463	0.4746	0.02075	0.02075	0.02075	0.890	500	8/13/2009 5:30	8/13/2009 11:04	0.995	0.533	1.400	96.75%	3.16%																
5	E1	380	48	763	2.008	0.5248	0.02284	0.02284	0.02284	1.444	500	8/13/2009 5:30	8/13/2009 11:05	0.995	0.532	1.400	86.51%	3.26%																
6	9A	60	5	50	0.833	0.6496	0.00816	0.00816	0.00816	0.340	500	8/13/2009 5:30	8/13/2009 7:56	0.995	0.759	1.058	89.85%	3.23%																
7	9B	60	6	140	2.333	0.6356	0.00816	0.00816	0.00816	1.258	500	8/13/2009 5:30	8/13/2009 7:56	0.995	0.759	1.058	100.72%	3.13%																
8	E4	380	19	703	1.850	0.5533	0.04966	0.04966	0.04966	1.004	500	8/13/2009 5:30	8/13/2009 11:05	0.996	0.532	1.400	96.47%	3.15%																
9	A1	380	26	688	1.811	0.5861	0.01870	0.01870	0.01870	1.084	500	8/13/2009 5:30	8/13/2009 12:57	0.996	0.430	1.400	96.80%	3.16%																
10	10B	60	12	242	4.033	0.6137	0.00816	0.00816	0.00816	1.198	500	8/13/2009 5:30	8/13/2009 7:56	0.996	0.758	1.058	96.03%	3.17%																
11	A2	380	21	609	1.603	0.5495	0.01949	0.01949	0.01949	0.976	500	8/13/2009 5:30	8/13/2009 12:57	0.996	0.430	1.400	95.85%	3.17%																
12	10D	60	23	112	1.867	0.6320	0.00816	0.00816	0.00816	0.924	500	8/13/2009 5:30	8/13/2009 7:56	0.996	0.758	1.058	87.68%	3.25%																
13	11D	60	13	99	1.650	0.6348	0.00816	0.00816	0.00816	0.480	500	8/13/2009 5:30	8/13/2009 7:52	0.997	0.764	1.058	94.36%	3.19%																
14	13A	60	32	100	1.667	0.6410	0.00816	0.00816	0.00816	0.488	500	8/13/2009 5:30	8/13/2009 7:52	0.997	0.764	1.058	93.95%	3.19%																
15	13B	60	19	186	3.100	0.6526	0.00816	0.00816	0.00816	1.308	500	8/13/2009 5:30	8/13/2009 7:52	0.997	0.764	1.058	105.91%	3.09%																
16	13C	60	18	140	2.333	0.6538	0.00816	0.00816	0.00816	1.440	500	8/13/2009 5:30	8/13/2009 7:53	0.997	0.764	1.058	95.85%	3.17%																
17	13D	60	16	94	1.567	0.6377	0.00816	0.00816	0.00816	0.952	500	8/13/2009 5:30	8/13/2009 7:53	0.997	0.764	1.058	89.35%	3.23%																
18	1A	60	6	99	1.650	0.6303	0.00600	0.00600	0.00600	0.336	500	8/13/2009 5:30	8/13/2009 8:03	0.997	0.748	1.058	100.32%	3.19%																
19	1B	60	10	117	1.950	0.6282	0.00409	0.00409	0.00409	0.334	500	8/13/2009 5:30	8/13/2009 8:03	0.996	0.748	1.058	91.29%	3.22%																
20	D2	380	94	915	2.408	0.6361	0.03039	0.03039	0.03039	1.668	500	8/13/2009 5:30	8/13/2009 14:58	0.996	0.748	1.400	96.96%	3.15%																
21	1D	60	3	46	0.767	0.6043	0.00511	0.00511	0.00511	0.490	500	8/13/2009 5:30	8/13/2009 8:04	0.998	0.748	1.058	97.92%	3.15%																
22	D3	380	23	583	1.534	0.6336	0.07231	0.07231	0.07231	0.902	500	8/13/2009 5:30	8/13/2009 14:58	0.995	0.342	1.400	96.16%	3.17%																
23	2B	60	13	615	10.250	0.6167	0.00383	0.00383	0.00383	1.140	500	8/13/2009 5:30	8/13/2009 8:04	0.995	0.748	1.058	95.49%	3.17%																
24	2C	60	25	510	8.500	0.5969	0.00575	0.00575	0.00575	0.264	500	8/13/2009 5:30	8/13/2009 8:04	0.998	0.748	1.058	97.79%	3.16%																



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

Pos.	Decision Level pCi/G	Critical Level pCi/G	Required MDA pCi/G	MDA pCi/G	Sample Act. Conc. pCi/G	Sample Act. Error pCi/G	Net Count Rate CPM	Net Count Rate Error CPM	2 SIGMA		2 SIGMA		Sample QC	Sample Type	RPD	RER	Nominal pCi/G	Recovery
									Counting Uncertainty pCi/G	Total Prop. Uncertainty pCi/G	Counting Uncertainty pCi/G	Total Prop. Uncertainty pCi/G						
1	0.5229	0.3692	0.5	0.7590	2.1046	0.1267	0.8047	0.0974	0.4991	0.5224	0.4991	0.5224		SAMPLE				
2	0.3816	0.2694	0.5	0.5578	1.2799	0.1505	0.5328	0.0778	0.3663	0.3776	0.3663	0.3776		SAMPLE				
3	0.2158	0.1523	0.5	0.3598	1.2921	0.1431	1.1720	0.1631	0.3524	0.3624	0.3524	0.3624		SAMPLE				
4	0.3835	0.2707	0.5	0.5617	1.4693	0.1363	0.5732	0.0750	0.3770	0.3926	0.3770	0.3926		SAMPLE				
5	0.4987	0.3521	0.5	0.7249	1.4759	0.1652	0.5639	0.0904	0.4638	0.4780	0.4638	0.4780		SAMPLE				
6	0.1979	0.1397	0.5	0.3328	0.5261	0.2469	0.4933	0.1207	0.2523	0.2546	0.2523	0.2546		SAMPLE				
7	0.3434	0.2425	0.5	0.5330	1.0343	0.1920	1.0753	0.2035	0.3836	0.3892	0.3836	0.3892		SAMPLE				
8	0.3410	0.2407	0.5	0.4984	1.8154	0.1144	0.8460	0.0829	0.3488	0.4069	0.3488	0.4069		SAMPLE				
9	0.4199	0.2965	0.5	0.6130	1.8480	0.1204	0.7265	0.0833	0.4151	0.4361	0.4151	0.4361		SAMPLE				
10	0.3674	0.2594	0.5	0.5715	2.9899	0.0987	2.8353	0.2639	0.5453	0.5784	0.5453	0.5784		SAMPLE				
11	0.4313	0.3045	0.5	0.6307	1.7252	0.1308	0.6266	0.0785	0.4238	0.4423	0.4238	0.4423		SAMPLE				
12	0.3450	0.2436	0.5	0.5435	1.0627	0.1955	0.9427	0.1815	0.4011	0.4072	0.4011	0.4072		SAMPLE				
13	0.2199	0.1553	0.5	0.3604	1.1668	0.1479	1.1700	0.1687	0.3297	0.3383	0.3297	0.3383		SAMPLE				
14	0.2290	0.1617	0.5	0.3748	1.2136	0.1476	1.1787	0.1696	0.3422	0.3511	0.3422	0.3511		SAMPLE				
15	0.3184	0.2248	0.5	0.4933	1.5672	0.1339	1.7920	0.2330	0.3994	0.4114	0.3994	0.4114		SAMPLE				
16	0.3781	0.2669	0.5	0.5834	0.8842	0.2311	0.8933	0.2044	0.3965	0.4006	0.3965	0.4006		SAMPLE				
17	0.3355	0.2369	0.5	0.5277	0.6639	0.2744	0.6147	0.1674	0.3543	0.3570	0.3543	0.3570		SAMPLE				
18	0.1851	0.1307	0.5	0.3396	1.3182	0.1317	1.3140	0.1678	0.3300	0.3403	0.3300	0.3403		SAMPLE				
19	0.2017	0.1424	0.5	0.3396	1.7716	0.1173	1.6160	0.1821	0.3913	0.4074	0.3913	0.4074		SAMPLE				
20	0.5938	0.4192	0.5	0.8614	2.1454	0.1400	0.7399	0.0983	0.5589	0.5886	0.5589	0.5886		SAMPLE				
21	0.2297	0.1622	0.5	0.3758	0.2852	0.4252	0.2767	0.1173	0.2369	0.2376	0.2369	0.2376		SAMPLE				
22	0.4504	0.3180	0.5	0.6596	1.8908	0.1444	0.6322	0.0764	0.4480	0.5353	0.4480	0.5353		MB				
23	3.5875	2.5328	0.5	5.5934	96.1548	0.0640	9.1100	0.4161	8.6074	12.0554	8.6074	12.0554	234414002.1	DUP	38.5%	79.0061	120.1%	
24	0.1710	0.1207	0.5	0.2937	8.6091	0.0560	8.2360	0.3771	0.7726	0.9450	0.7726	0.9450	234414002.1	LCS		7.7555	111.0%	

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine
234414001	B1	380	57	910	8/13/2009 11:04	8/13/2009 17:24	LB4100
234414002	B3	380	26	584	8/13/2009 11:04	8/13/2009 17:24	LB4100
234414003	7D	60	6	93	8/13/2009 7:55	8/13/2009 8:55	Protean
234414004	B4	380	49	556	8/13/2009 11:04	8/13/2009 17:24	LB4100
234414005	E1	380	48	763	8/13/2009 11:05	8/13/2009 17:25	LB4100
234414006	9A	60	5	50	8/13/2009 7:56	8/13/2009 8:56	Protean
234414007	9B	60	6	140	8/13/2009 7:56	8/13/2009 8:56	Protean
234414008	E4	380	19	703	8/13/2009 11:05	8/13/2009 17:25	LB4100
234414009	A1	380	26	688	8/13/2009 12:57	8/13/2009 19:17	LB4100
234414010	10B	60	12	242	8/13/2009 7:56	8/13/2009 8:56	Protean
234414011	A2	380	21	609	8/13/2009 12:57	8/13/2009 19:17	LB4100
234414012	10D	60	23	112	8/13/2009 7:56	8/13/2009 8:56	Protean
234414013	11D	60	13	99	8/13/2009 7:52	8/13/2009 8:52	Protean
234414014	13A	60	32	100	8/13/2009 7:52	8/13/2009 8:52	Protean
234414015	13B	60	19	186	8/13/2009 7:52	8/13/2009 8:52	Protean
234414016	13C	60	18	140	8/13/2009 7:53	8/13/2009 8:53	Protean
234414017	13D	60	16	94	8/13/2009 7:53	8/13/2009 8:53	Protean
234414018	1A	60	6	99	8/13/2009 8:03	8/13/2009 9:03	Protean
234414022	1B	60	10	117	8/13/2009 8:03	8/13/2009 9:03	Protean
234414023	D2	380	94	915	8/13/2009 14:58	8/13/2009 21:18	LB4100
1201895459	1D	60	3	46	8/13/2009 8:04	8/13/2009 9:04	Protean
1201865460	D3	380	23	583	8/13/2009 14:58	8/13/2009 21:18	LB4100
1201895461	2B	60	13	615	8/13/2009 8:04	8/13/2009 9:04	Protean
1201895462	2C	60	25	510	8/13/2009 8:04	8/13/2009 9:04	Protean

ASSAY 11-Aug-09 13:14:41

Protocol id 9 228\_REC2  
Time limit 180  
Count limit 50000  
Isotope Ba-133  
Protocol date 9-Apr-07 10:02:22  
Run id. 71

POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
1	87	1	180	756	221.6	4.21		13:14:44
2	87	2	180	670	193.1	4.56	87.14	13:17:55
3	87	3	180	753	220.6	4.22	99.55	13:21:06
4	87	4	180	693	200.6	4.46	90.52	13:24:18
5	87	5	180	734	214.4	4.29	96.75	13:27:29
6	99	6	180	666	191.7	4.58	86.51	13:30:54
7	99	7	180	689	199.1	4.48	89.85	13:34:05
8	99	8	180	761	223.2	4.19	100.72	13:37:16
9	99	9	180	746	218.2	4.25	98.47	13:40:27
10	99	10	180	735	214.5	4.29	96.80	13:43:39
11	72	11	180	730	212.8	4.31	96.03	13:47:04
12	72	12	180	728	212.4	4.31	95.85	13:50:15
13	72	13	180	674	194.3	4.54	87.68	13:53:26
14	72	14	180	719	209.1	4.35	94.36	13:56:38
15	72	15	180	716	208.2	4.36	93.95	13:59:49
16	66	16	180	795	234.7	4.07	105.91	14:03:14
17	66	17	180	728	212.4	4.31	95.85	14:06:25
18	66	18	180	685	198	4.49	89.35	14:09:37
19	66	19	180	758	222.3	4.2	100.32	14:12:48
20	66	20	180	698	202.3	4.44	91.29	14:15:59
21	68	21	180	749	219.3	4.24	98.96	14:19:24
22	68	22	180	742	217	4.26	97.92	14:22:35
23	68	23	180	731	213.1	4.31	96.16	14:25:47
24	68	24	180	726	211.6	4.32	95.49	14:28:58
25	68	25	180	741	216.7	4.27	97.79	14:32:09

END OF ASSAY

### Radiochemistry Batch Checklist, Rev 9

Batch# 891394 Product: Radium 228 Date: 8/12/09

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 stasused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			ND
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:

*[Signature]*

8/26  
KERE

Secondary Review Performed By:

*[Signature]* 8/13/09

# Radium-228 Que Sheet

General Engineering Laboratories, Radiochemistry Division  
08/06/2009

Batch #: 891394      Analyst: MXS2      First Client Due Date: 08/26/2009      Internal Due Date: 08/15/2009  
 Spike Isotope: Radium-228      Spike Code: \_\_\_\_\_      Expiration Date: \_\_\_\_\_      Ac-228 Ingrow: 8-7-09 1050  
 LCS Isotope: Radium-228      LCS Code: 0503-8      Expiration Date: 9-13-09  
 Tracer Isotope: Barium-133      Tracer Code: 0117-3      Expiration Date: 2-17-10      Ac-228 Separation Date/Time: 8-10-09 10515  
 Prep Date: 8-6-09      Initials: MS      Pipet ID: 2766953      Balance ID: 17955160      Witness: MCB 8-6-04

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collect Date & Time	Pos. #	Vol (mL)	Det #	Ba Yield (%)	Gamma Det. #
234120018-1	EB072709-SO	SAMPLE		3 pCi/L	WATER	KERR003	27-JUL-09 01:30 PM	1	200	1A	88.31	
234267018-1	FB072909-SO	SAMPLE		3 pCi/L	WATER	KERR003	29-JUL-09 02:25 PM	2	200	1C	78.03	
234414019-1	EB073109-SO	SAMPLE		3 pCi/L	WATER	KERR003	31-JUL-09 11:52 AM	3	200	1D	87.21	
234414020-1	EB080309-SO	SAMPLE		3 pCi/L	WATER	KERR003	03-AUG-09 11:50 AM	4	200	2A	86.81	
234414021-1	FB080309-SO	SAMPLE		3 pCi/L	WATER	KERR003	03-AUG-09 02:00 PM	5	200	2C	76.75	
1201896008-1	MB for batch 891394	MB		3 pCi/L	WATER	QC ACCOUNT	27-JUL-09 01:30 PM	6	200	2D	77.51	
1201896009-1	LCS for batch 891394	LCS		3 pCi/L	WATER	QC ACCOUNT	27-JUL-09 01:30 PM	7	200	3C	87.00	
1201896010-1	LCS for batch 891394	LCS		3 pCi/L	WATER	QC ACCOUNT	27-JUL-09 01:30 PM	8	200	3D	78.61	

daily ✓

N 8/12/09

Comments: \_\_\_\_\_  
 Data Reviewed By: Michael Henry III



# Radium-228 Liquid

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

Batch : 891394  
 Analyst : MXS2  
 Prep Date : 8/6/2009

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

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

Geometry: CeF on 25mm Filter

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) : 180.26  
 LCS Volume Added: 0.10

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

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

Sample Characteristics			Tracer Calculations			Tracer Ref.			Tracer Samp.				
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot L	Sample Aliquot StDev.	Sample Date/Time	Tracer Concentration (cpm) (Ba-133 Ref.)	Tracer Count	Tracer Uncertainty (cpm)	Tracer Concentration (cpm) (Ba-133 Samp.)	Tracer Count	Tracer Uncertainty (cpm)	Tracer Aliquot (mL)	Tracer Aliquot StDev. (mL)
1	234120018.1	0.2000	1.6007E-05	1.6007E-05	7/27/2009 13:30	231.8	4.10%	4.10%	176.7	4.80%	4.80%	0.1	0.000701
2	234267018.1	0.2000	1.6007E-05	1.6007E-05	7/29/2009 14:25	217.8	4.25%	4.25%	169.5	4.92%	4.92%	0.1	0.000701
3	234414019.1	0.2000	1.6007E-05	1.6007E-05	7/31/2009 11:52	231.8	4.10%	4.10%	170.1	4.91%	4.91%	0.1	0.000701
4	234414020.1	0.2000	1.6007E-05	1.6007E-05	8/3/2009 11:50	231.8	4.10%	4.10%	169.3	4.93%	4.93%	0.1	0.000701
5	234414021.1	0.2000	1.6007E-05	1.6007E-05	8/3/2009 14:00	233.3	4.09%	4.09%	179.2	4.76%	4.76%	0.1	0.000701
6	1201896008.1	0.2000	1.6007E-05	1.6007E-05	8/6/2009 0:00	233.3	4.09%	4.09%	176.5	4.81%	4.81%	0.1	0.000701
7	1201896009.1	0.2000	1.6007E-05	1.6007E-05	8/6/2009 0:00	233.3	4.09%	4.09%	178.1	4.78%	4.78%	0.1	0.000701
8	1201896010.1	0.2000	1.6007E-05	1.6007E-05	8/6/2009 0:00	231.8	4.10%	4.10%	174.4	4.84%	4.84%	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	2A	90	5	57	0.633	0.6172	0.00349	500	8/12/2009 7:00	8/12/2009 10:07	0.995	0.702	1.087	76.23%	3.31%
2	2D	90	10	41	0.456	0.6119	0.00479	500	8/12/2009 7:00	8/12/2009 10:07	0.995	0.702	1.087	77.82%	3.40%
3	5A	90	8	48	0.533	0.6258	0.00816	500	8/12/2009 7:00	8/12/2009 10:08	0.996	0.702	1.087	73.38%	3.35%
4	5C	90	26	114	1.267	0.6368	0.00816	500	8/12/2009 7:00	8/12/2009 10:08	0.997	0.701	1.087	73.04%	3.36%
5	6B	90	29	84	0.933	0.6163	0.00816	500	8/12/2009 7:00	8/12/2009 10:08	0.997	0.701	1.087	76.81%	3.29%
6	6D	90	11	56	0.622	0.6120	0.00816	500	8/12/2009 7:00	8/12/2009 10:08	0.998	0.701	1.087	75.65%	3.31%
7	2B	60	7	398	6.633	0.6167	0.00383	500	8/12/2009 7:00	8/12/2009 10:08	0.998	0.701	1.058	76.34%	3.30%
8	3A	60	60	334	5.567	0.5682	0.00943	500	8/12/2009 7:00	8/12/2009 10:08	0.998	0.701	1.058	75.24%	3.32%



Notes:

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

Pos.	Decision Level pCi/L	Critical Level pCi/L	Required MDA pCi/L	MDA pCi/L	Sample Act. Conc. pCi/L	Sample Act. Error pCi/L	Net Count Rate CPM	Net Count Rate Error CPM	2 SIGMA		2 SIGMA		Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
									Counting Uncertainty pCi/L	Total Prop. Uncertainty pCi/L	Counting Uncertainty pCi/L	Total Prop. Uncertainty pCi/L						
1	1.3747	0.9706	3	2.1895	1.1577	0.5765	0.1553	0.0894	1.3060	1.3394	1.3060	1.3394		SAMPLE				
2	1.1214	0.7917	3	1.8288	0.9537	0.5845	0.1296	0.0756	1.0906	1.1179	1.0906	1.1179		SAMPLE				
3	1.3564	0.9576	3	2.1696	0.6816	0.9247	0.0893	0.0825	1.2345	1.2469	1.2345	1.2469		SAMPLE				
4	1.7943	1.2668	3	2.7845	3.5284	0.2693	0.4687	0.1252	1.8472	2.0586	1.8472	2.0586		SAMPLE				
5	1.7117	1.2085	3	2.6636	1.3416	0.6019	0.1813	0.1090	1.5802	1.6174	1.5802	1.6174		SAMPLE				
6	1.4262	1.0069	3	2.2659	0.9240	0.7286	0.1222	0.0890	1.3182	1.3395	1.3182	1.3395		MB			40.5999	97.9%
7	2.4589	1.7360	3	3.8337	39.7409	0.0696	5.4933	0.3359	4.7630	11.2661	4.7630	11.2661		LCS			40.5999	89.9%
8	2.5160	1.7763	3	3.9510	36.5120	0.0755	4.5827	0.3078	4.8068	10.5621	4.8068	10.5621	8.5%	LCSD			40.5999	89.9%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine
234120018	2A	90	5	57	8/12/2009 10:07	8/12/2009 11:37	Protean
234267018	2D	90	10	41	8/12/2009 10:07	8/12/2009 11:37	Protean
234414019	5A	90	8	48	8/12/2009 10:08	8/12/2009 11:38	Protean
234414020	5C	90	26	114	8/12/2009 10:08	8/12/2009 11:38	Protean
234414021	6B	90	29	84	8/12/2009 10:08	8/12/2009 11:38	Protean
1201896008	6D	90	11	56	8/12/2009 10:08	8/12/2009 11:38	Protean
1201896009	2B	60	7	398	8/12/2009 10:08	8/12/2009 11:08	Protean
1201896010	3A	60	60	334	8/12/2009 10:08	8/12/2009 11:08	Protean

ASSAY 11-Aug-09 6:13:52

Protocol id 9 228\_REC2  
Time limit 180  
Count limit 50000  
Isotope Ba-133  
Protocol date 9-Apr-07 10:02:22  
Run id. 62

POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
1	90	1	180	787	231.8	4.1		06:13:59
2	90	2	180	621	176.7	4.8	76.23	06:17:11
<del>3</del>	<del>90</del>	<del>3</del>	<del>180</del>	<del>558</del>	<del>155.5</del>	<del>5.19</del>	<del>67.08</del>	<del>06:20:22</del> <i>9/11/10</i>
4	90	4	180	602	170.1	4.91	73.38	06:23:33
5	90	5	180	599	169.3	4.93	73.04	06:26:45
<del>6</del>	<del>75</del>	<del>6</del>	<del>180</del>	<del>557</del>	<del>155.2</del>	<del>5.19</del>	<del>66.95</del>	<del>06:30:09</del> <i>9/11/10</i>
<del>7</del>	<del>75</del>	<del>7</del>	<del>180</del>	<del>555</del>	<del>154.6</del>	<del>5.2</del>	<del>66.70</del>	<del>06:33:21</del> <i>9/11/10</i>
<del>8</del>	<del>75</del>	<del>8</del>	<del>180</del>	<del>544</del>	<del>151.1</del>	<del>5.28</del>	<del>65.19</del>	<del>06:36:32</del> <i>9/11/10</i>
9	75	9	180	614	174.4	4.84	75.24	06:39:44

END OF ASSAY

ASSAY 11-Aug-09 8:04:11

Protocol id 9 228\_REC2  
Time limit 180  
Count limit 50000  
Isotope Ba-133  
Protocol date 9-Apr-07 10:02:22  
Run id. 64

POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
1	90	1	180	745	217.8	4.25		08:04:19
2	90	2	180	600	169.5	4.92	77.82	08:07:30

END OF ASSAY

ASSAY 11-Aug-09 7:39:39

Protocol id 9 228\_REC2  
Time limit 180  
Count limit 50000  
Isotope Ba-133  
Protocol date 9-Apr-07 10:02:22  
Run id. 63

POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT TIME
1	90	1	180	791	233.3	4.09		07:39:47
<del>2</del>	<del>90</del>	<del>2</del>	<del>180</del>	<del>570</del>	<del>159.7</del>	<del>5.1</del>	<del>68.45</del>	<del>07:42:58</del>
3	90	3	180	629	179.2	4.76	76.81	07:46:09
4	90	4	180	621	176.5	4.81	75.65	07:49:21
5	90	5	180	626	178.1	4.78	76.34	07:52:32

910 8-11-10

END OF ASSAY

# RADIUM 226

### Radiochemistry Batch Checklist, Rev 9

Batch# 893452 Product: Radium 226 Date: 8-31-09

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.			NA
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 stated.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			NA
Batch entered into Case Narrative.	✓		
Batch non-conformances completed, if applicable.	✓		NCR 727947
Batch non-conformances second reviewed and disposition verified to be completed.	✓		NCR 727947
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: JM [Signature]

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

KERR 9-1-09

# Radium-226 Que Sheet

Batch #: 893452 Analyst: KSD1 First Client Due Date: 09/01/2009 Internal Due Date: 08/21/2009

Spike Isotope: Radium-226 Spike Code: 0625A Expiration Date: 7/1/10 Vol: 0.1 Non Conc: 24.1118

LCS Isotope: Radium-226 LCS Code: 0625A Expiration Date: 7/1/10 Vol: 0.1 Nom Conc: 22.5424

Prep Date: 8/11/09 Pipet ID: 1476303 Initials: KD Witness: DJM 8-9-09 Sample Count Time: 30 (Min) Bkg Count Time: 30 (Min)

Sample I	Client Description	Hazard Type	Code Matrix	Min CRDL	Client	Vol (mL)	End Init Degas Date/Tin	End LN De-em Date/Time	Start Count Date/Time	Cell #	Det #	Bkg counts	Total Counts
234414001-1	SA49-32B	SAMPLE	SOIL	.5 pCi/g	KERR003 1	1.001	8/11/09 1520	8/21/09 1105	8-30-09 1500	111	1	8	160
234414002-1	SA63-10B	SAMPLE	SOIL	.5 pCi/g	KERR003 2	1.003	8/11/09 1520	8/21/09 1105	8-30-09 1500	118	3	4	104
234414003-1	SA63-23B	SAMPLE	SOIL	.5 pCi/g	KERR003 3	1.007	8/11/09 1520	8/21/09 1105	8-30-09 1500	116	4	8	127
234414004-1	RSAM5-0.5B	SAMPLE	SOIL	.5 pCi/g	KERR003 4	1.001	8/11/09 1520	8/21/09 1105	8-30-09 1500	504	5	2	84
234414005-1	RSAM5009-0.5B	SAMPLE	SOIL	.5 pCi/g	KERR003 5	1.013	8/11/09 1520	8/21/09 1105	8-30-09 1500	1011	4	8	190
234414006-1	RSAM5-10B	SAMPLE	SOIL	.5 pCi/g	KERR003 6	1.035	8/11/09 1520	8/21/09 1105	8-30-09 1530	111	1	2	62
234414007-1	RSAM5-28B	SAMPLE	SOIL	.5 pCi/g	KERR003 7	1.022	8/11/09 1520	8/21/09 1105	8-30-09 1530	111	3	5	96
234414008-1	SA127-10B	SAMPLE	SOIL	.5 pCi/g	KERR003 8	1.011	8/11/09 1520	8/21/09 1105	8-30-09 1530	117	4	8	79
234414009-1	SA127-20B	SAMPLE	SOIL	.5 pCi/g	KERR003 9	1.024	8/11/09 1520	8/21/09 1105	8-30-09 1530	501	5	8	181
234414010-1	SA127-32B	SAMPLE	SOIL	.5 pCi/g	KERR003 10	1.002	8/11/09 1520	8/21/09 1105	8-30-09 1530	104	6	5	84
234414011-1	RSAJ3-10B	SAMPLE	SOIL	.5 pCi/g	KERR003 11	1.004	8/11/09 1520	8/21/09 1140	8-30-09 1605	111	1	4	169
234414012-1	RSAJ3-29B	SAMPLE	SOIL	.5 pCi/g	KERR003 12	1.002	8/11/09 1520	8/21/09 1140	8-30-09 1605	103	3	8	75
234414013-1	SA28-0.5B	SAMPLE	SOIL	.5 pCi/g	KERR003 13	1.022	8/11/09 1520	8/21/09 1140	8-30-09 1605	104	4	6	65
234414014-1	SA28-10B	SAMPLE	SOIL	.5 pCi/g	KERR003 14	1.005	8/11/09 1520	8/21/09 1140	8-30-09 1605	111	5	6	72
234414015-1	SA28009-10B	SAMPLE	SOIL	.5 pCi/g	KERR003 15	1.051	8/11/09 1520	8/21/09 1140	8-30-09 1605	101	4	4	58
234414016-1	SA28-25B	SAMPLE	SOIL	.5 pCi/g	KERR003 16	1.004	8/11/09 1520	8/21/09 1100	8-30-09 1635	110	1	2	58
234414017-1	SA28-40B	SAMPLE	SOIL	.5 pCi/g	KERR003 17	1.002	8/11/09 1520	8/21/09 1100	8-30-09 1635	105	3	8	114
234414018-1	SA28-55B	SAMPLE	SOIL	.5 pCi/g	KERR003 18	1.001	8/11/09 1520	8/21/09 1100	8-30-09 1635	110	4	8	81
234414022-1	SA127-5B-berm	SAMPLE	SOIL	.5 pCi/g	KERR003 19	1.072	8/11/09 1520	8/21/09 1100	8-30-09 1635	511	5	2	55
234414023-1	SA127-10B-berm	SAMPLE	SOIL	.5 pCi/g	KERR003 20	1.002	8/11/09 1520	8/21/09 1100	8-30-09 1635	101	6	8	62
1201900982-1	MB for batch 893452	MB	QC ACCOUNT	.5 pCi/g	QC ACCOUNT	1.001	8/11/09 1520	8/21/09 1105	8-30-09 1705	101	1	8	12
1201900983-1	SA63-10B(234414002DUP)	DUP	SOIL	.5 pCi/g	QC ACCOUNT	1.001	8/11/09 1520	8/21/09 1105	8-30-09 1705	101	3	8	109
1201900984-1	SA63-10B(234414002MS)	MS	SOIL	.5 pCi/g	QC ACCOUNT	1.001	8/11/09 1520	8/21/09 1105	8-30-09 1705	101	4	8	1644
1201900985-1	LCS for batch 893452	LCS	SOIL	.5 pCi/g	QC ACCOUNT	1.072	8/11/09 1520	8/21/09 1105	8-30-09 1705	511	5	2	1793

dailies ✓

Comments: Instrument ID's: LUCAS1:90988, LUCAS2:136917, LUCAS3:90989, LUCAS4:102753, LUC5:132286, LUC6:170055  
 Data Reviewed By: JM 8-31-09



# Radium-226 Solid

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: 0.20

Batch : 893452  
 Analyst : KSD1  
 Prep Date : 8/19/2009  
 Ra-226 Abundance : 1  
 Ra-226 Method Uncertainty : 0.1153

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

Sample Characteristics			Sample			Sample Date/Time			Count Raw Data			Weekly Background			Detector	
Pos.	Sample ID	Sample Aliquot G	Sample Aliquot StDev. G	Sample Date/Time	Cell Number	Counting Time (min.)	Gross Counts	Gross CPM	Counts	CPM	Count Time (min.)	Efficiency (cpm/dpm)	Count Time (min.)	CPM	Count Time (min.)	Efficiency (cpm/dpm)
1	234414001.1	1.0010	3.3234E-03	7/30/2009 12:01	202	30	160	5.333	8	0.267	30	2.2610	30	0.267	30	2.2610
2	234414002.1	1.0230	3.3257E-03	7/30/2009 10:12	308	30	104	3.467	4	0.133	30	1.9500	30	0.133	30	1.9500
3	234414003.1	1.0070	3.3241E-03	7/30/2009 10:41	412	30	127	4.233	8	0.267	30	1.9670	30	0.267	30	1.9670
4	234414004.1	1.0010	3.3234E-03	7/30/2009 12:54	504	30	84	2.800	2	0.067	30	1.6150	30	0.067	30	1.6150
5	234414005.1	1.0130	3.3247E-03	7/30/2009 12:54	601	30	100	3.333	8	0.267	30	2.1810	30	0.267	30	2.1810
6	234414006.1	1.0350	3.3270E-03	7/30/2009 13:31	211	30	62	2.067	2	0.067	30	2.1710	30	0.067	30	2.1710
7	234414007.1	1.0220	3.3256E-03	7/30/2009 14:09	312	30	96	3.200	5	0.167	30	1.9440	30	0.167	30	1.9440
8	234414008.1	1.0110	3.3245E-03	7/31/2009 9:34	403	30	99	3.300	8	0.267	30	1.4630	30	0.267	30	1.4630
9	234414009.1	1.0240	3.3258E-03	7/31/2009 10:01	501	30	181	6.033	8	0.267	30	2.0870	30	0.267	30	2.0870
10	234414010.1	1.0020	3.3235E-03	7/31/2009 10:25	604	30	84	2.800	5	0.167	30	2.1330	30	0.167	30	2.1330
11	234414011.1	1.0040	3.3238E-03	7/31/2009 12:27	209	30	169	5.633	4	0.133	30	2.2910	30	0.133	30	2.2910
12	234414012.1	1.0020	3.3235E-03	7/31/2009 13:14	303	30	75	2.500	8	0.267	30	2.1360	30	0.267	30	2.1360
13	234414013.1	1.0220	3.3256E-03	8/3/2009 8:30	404	30	65	2.167	6	0.200	30	1.9310	30	0.200	30	1.9310
14	234414014.1	1.0050	3.3239E-03	8/3/2009 8:50	511	30	72	2.400	6	0.200	30	1.9590	30	0.200	30	1.9590
15	234414015.1	1.0510	3.3286E-03	8/3/2009 8:50	602	30	58	1.933	4	0.133	30	2.1680	30	0.133	30	2.1680
16	234414016.1	1.0040	3.3238E-03	8/3/2009 9:45	210	30	58	1.933	2	0.067	30	2.2530	30	0.067	30	2.2530
17	234414017.1	1.0020	3.3235E-03	8/3/2009 11:15	305	30	114	3.800	8	0.267	30	2.0570	30	0.267	30	2.0570
18	234414018.1	1.0010	3.3234E-03	8/3/2009 12:00	410	30	81	2.700	8	0.267	30	1.8860	30	0.267	30	1.8860
19	234414022.1	1.0720	3.3308E-03	7/31/2009 8:30	507	30	55	1.833	2	0.067	30	1.7010	30	0.067	30	1.7010
20	234414023.1	1.0020	3.3235E-03	7/31/2009 8:54	605	30	62	2.067	8	0.267	30	2.1490	30	0.267	30	2.1490
21	1201900982.1	1.0720	3.3308E-03	8/19/2009 0:00	203	30	12	0.400	8	0.267	30	2.2540	30	0.267	30	2.2540
22	1201900983.1	1.0010	3.3234E-03	7/30/2009 10:12	307	30	109	3.633	8	0.267	30	1.9310	30	0.267	30	1.9310
23	1201900984.1	1.0010	3.3234E-03	7/30/2009 10:12	402	30	1644	54.800	8	0.267	30	2.1180	30	0.267	30	2.1180
24	1201900985.1	1.0720	3.3308E-03	8/19/2009 0:00	502	30	1793	59.767	2	0.067	30	1.8780	30	0.067	30	1.8780

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	
0.07722	12/19/2008	12/19/2009	8/25/2009 15:20	8/30/2009 11:05	8/30/2009 15:00	0.583	0.971	1.002	1.000
0.06082	2/4/2009	2/4/2010	8/25/2009 15:20	8/30/2009 11:05	8/30/2009 15:00	0.583	0.971	1.002	1.000
0.12371	3/2/2009	3/2/2010	8/25/2009 15:20	8/30/2009 11:05	8/30/2009 15:00	0.583	0.971	1.002	1.000
0.14377	3/25/2009	3/25/2010	8/25/2009 15:20	8/30/2009 11:05	8/30/2009 15:00	0.583	0.971	1.002	1.000
0.06605	8/4/2009	8/4/2010	8/25/2009 15:20	8/30/2009 11:25	8/30/2009 15:30	0.584	0.970	1.002	1.000
0.07722	12/19/2008	12/19/2009	8/25/2009 15:20	8/30/2009 11:25	8/30/2009 15:30	0.584	0.970	1.002	1.000
0.06082	2/4/2009	2/4/2010	8/25/2009 15:20	8/30/2009 11:25	8/30/2009 15:30	0.584	0.970	1.002	1.000
0.12371	3/2/2009	3/2/2010	8/25/2009 15:20	8/30/2009 11:25	8/30/2009 15:30	0.584	0.970	1.002	1.000
0.14377	3/25/2009	3/25/2010	8/25/2009 15:20	8/30/2009 11:25	8/30/2009 15:30	0.584	0.970	1.002	1.000
0.06605	8/4/2009	8/4/2010	8/25/2009 15:20	8/30/2009 11:25	8/30/2009 15:30	0.584	0.970	1.002	1.000
0.07722	12/19/2008	12/19/2009	8/25/2009 15:20	8/30/2009 11:40	8/30/2009 16:05	0.585	0.967	1.002	1.000
0.06082	2/4/2009	2/4/2010	8/25/2009 15:20	8/30/2009 11:40	8/30/2009 16:05	0.585	0.967	1.002	1.000
0.12371	3/2/2009	3/2/2010	8/25/2009 15:20	8/30/2009 11:40	8/30/2009 16:05	0.585	0.967	1.002	1.000
0.14377	3/25/2009	3/25/2010	8/25/2009 15:20	8/30/2009 11:40	8/30/2009 16:05	0.585	0.967	1.002	1.000
0.06605	8/4/2009	8/4/2010	8/25/2009 15:20	8/30/2009 11:40	8/30/2009 16:05	0.585	0.966	1.002	1.000
0.07722	12/19/2008	12/19/2009	8/25/2009 15:20	8/30/2009 12:00	8/30/2009 16:35	0.586	0.966	1.002	1.000
0.06082	2/4/2009	2/4/2010	8/25/2009 15:20	8/30/2009 12:00	8/30/2009 16:35	0.586	0.966	1.002	1.000
0.12371	3/2/2009	3/2/2010	8/25/2009 15:20	8/30/2009 12:00	8/30/2009 16:35	0.586	0.966	1.002	1.000
0.14377	3/25/2009	3/25/2010	8/25/2009 15:20	8/30/2009 12:00	8/30/2009 16:35	0.586	0.966	1.002	1.000
0.06605	8/4/2009	8/4/2010	8/25/2009 15:20	8/30/2009 12:15	8/30/2009 17:05	0.587	0.964	1.002	1.000
0.07722	12/19/2008	12/19/2009	8/25/2009 15:20	8/30/2009 12:15	8/30/2009 17:05	0.587	0.964	1.002	1.000
0.06082	2/4/2009	2/4/2010	8/25/2009 15:20	8/30/2009 12:15	8/30/2009 17:05	0.587	0.964	1.002	1.000
0.12371	3/2/2009	3/2/2010	8/25/2009 15:20	8/30/2009 12:15	8/30/2009 17:05	0.587	0.964	1.002	1.000
0.14377	3/25/2009	3/25/2010	8/25/2009 15:20	8/30/2009 12:15	8/30/2009 17:05	0.587	0.964	1.002	1.000

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

Pos.	Decision Level		Critical Level	Required MDA	MDA	Sample Act. Conc.	Sample Act. Error	Net Count Rate	Net Count Rate Error	2 SIGMA Counting Uncertainty		2 SIGMA Total Prop. Uncertainty		Sample Type	Sample QC	RPD	RER	Nominal pCi/G	Recovery
	pCi/G	pCi/G								pCi/G	CPM	CPM	pCi/G						
1	0.1091	0.0770	0.0770	0.5	0.1891	1.7786	0.1151	5.0667	0.4320	0.2973	0.5679	0.5679	SAMPLE						
2	0.0875	0.0618	0.0618	0.5	0.1634	1.3276	0.1205	3.3333	0.3464	0.2704	0.4339	0.4339	SAMPLE						
3	0.1246	0.0880	0.0880	0.5	0.1261	1.5911	0.1576	3.9667	0.3873	0.3045	0.6090	0.6090	SAMPLE						
4	0.0763	0.0539	0.0539	0.5	0.1569	1.3433	0.1829	2.7333	0.3091	0.2978	0.5694	0.5694	SAMPLE						
5	0.1117	0.0789	0.0789	0.5	0.1937	1.1028	0.1309	3.0667	0.3464	0.2442	0.3770	0.3770	SAMPLE						
6	0.0549	0.0388	0.0388	0.5	0.1129	0.7068	0.1541	2.0000	0.2667	0.1847	0.2666	0.2666	SAMPLE						
7	0.0982	0.0693	0.0693	0.5	0.1786	1.2124	0.1261	3.0333	0.3350	0.2624	0.4061	0.4061	SAMPLE						
8	0.1668	0.1178	0.1178	0.5	0.2892	1.6285	0.1680	3.0333	0.3448	0.3628	0.6505	0.6505	SAMPLE						
9	0.1154	0.0815	0.0815	0.5	0.2002	2.1427	0.1643	5.7667	0.4583	0.3337	0.8430	0.8430	SAMPLE						
10	0.0913	0.0644	0.0644	0.5	0.1660	0.9784	0.1365	2.6333	0.3145	0.2290	0.3426	0.3426	SAMPLE						
11	0.0759	0.0536	0.0536	0.5	0.1418	1.9010	0.1110	5.5000	0.4384	0.2970	0.5964	0.5964	SAMPLE						
12	0.1154	0.0815	0.0815	0.5	0.2001	0.8296	0.1490	2.2333	0.3037	0.2211	0.3063	0.3063	SAMPLE						
13	0.1084	0.0765	0.0765	0.5	0.1933	0.7923	0.1890	1.9667	0.2809	0.2218	0.3437	0.3437	SAMPLE						
14	0.1086	0.0767	0.0767	0.5	0.1938	0.8884	0.1964	2.2000	0.2944	0.2330	0.3966	0.3966	SAMPLE						
15	0.0766	0.0541	0.0541	0.5	0.1431	0.6280	0.1601	1.8000	0.2625	0.1795	0.2429	0.2429	SAMPLE						
16	0.0546	0.0385	0.0385	0.5	0.1122	0.6557	0.1585	1.8667	0.2582	0.1778	0.2518	0.2518	SAMPLE						
17	0.1198	0.0846	0.0846	0.5	0.2077	1.3621	0.1207	3.5333	0.3682	0.2782	0.4456	0.4456	SAMPLE						
18	0.1308	0.0923	0.0923	0.5	0.2267	1.0242	0.1789	2.4333	0.3145	0.2594	0.4273	0.4273	SAMPLE						
19	0.0677	0.0478	0.0478	0.5	0.1392	0.7698	0.2024	1.7667	0.2517	0.2149	0.3515	0.3515	SAMPLE						
20	0.1146	0.0809	0.0809	0.5	0.1988	0.6642	0.1685	1.8000	0.2789	0.2017	0.2658	0.2658	SAMPLE						
21	0.1022	0.0722	0.0722	0.5	0.1772	0.0439	1.1207	0.1333	0.1491	0.0961	0.0969	0.0969	MB						
22	0.1278	0.0902	0.0902	0.5	0.2216	1.3847	0.1232	3.3667	0.3606	0.2907	0.4580	0.4580	DUP	234414002.1	4.2%		24.1418	79.2%	
23	0.1165	0.0822	0.0822	0.5	0.2020	20.4496	0.1262	54.5333	1.3548	0.9958	6.8520	6.8520	MS	234414002.1			22.5424	104.6%	
24	0.0613	0.0433	0.0433	0.5	0.1261	23.5752	0.1457	59.7000	1.4122	1.0931	8.5867	8.5867	LOS						

### Radiochemistry Batch Checklist, Rev 9

Batch# 892760      Product: Tl-226      Date: 8/22/09

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.			NA
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.			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 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: Symphony Pare

Secondary Review Performed By: Lhok 8/24/09

KERTZ 8/26/09

# Radium-226 Que Sheet

08/11/2009

General Engineering Laboratories, Radiochemistry Division

Batch #: 892760 Analyst: KSD1

First Client Due Date: 08/26/2009

Internal Due Date: 08/15/2009

Spike Isotope: Radium-226 Spike Code: 00584

Expiration Date: 7/17/10 Vol: 0.1

Nom Conc: 24.1655 pCi/L

LCS Isotope: Radium-226 LCS Code: 00584

Expiration Date: 7/17/10 Vol: 0.1

Nom Conc: 24.1655 pCi/L

Prep Date: 8/18/09

Pipet ID: 1429303

Initials: LD Witness: DL-8-18-09

Sample Count Time: 30 (Min)

Bkg Count Time: 30 (Min)

Sample I	Client Description	Type	Hazard Code	Matrix	Min CRDL	Client	Vol (mL)	End Init	End LN	De-em	Start Count	Cell #	Det #	Bkg counts	Total Counts
234120018-1	EB072709-SO	SAMPLE	WATER	1 pCi/L	KERR003 1	500	8/18/09 1320	8/22/09 0845	8/22/09 1405	1055	1055	212	3	6	14
234267018-1	FB072909-SO	SAMPLE	WATER	1 pCi/L	KERR003 2	500	8/18/09 1320	8/22/09 0845	8/22/09 1330	1330	1330	404	4	8	16
234414019-1	EB073109-SO	SAMPLE	WATER	1 pCi/L	KERR003 3	500	8/18/09 1320	8/22/09 0845	8/22/09 1405	1405	1405	506	5	8	23
234414020-1	EB080309-SO	SAMPLE	WATER	1 pCi/L	KERR003 4	500	8/18/09 1320	8/22/09 0845	8/22/09 1405	1405	1405	604	6	8	29
234414021-1	FB080309-SO	SAMPLE	WATER	1 pCi/L	KERR003 5	500	8/18/09 1320	8/22/09 0845	8/22/09 1405	1405	1405	204	2	8	5
1201899206-1	MB for batch 892760	MB	WATER	1 pCi/L	QC ACCOUNT 6	500	8/18/09 1320	8/22/09 0845	8/22/09 1505	1505	1505	301	3	8	13
1201899207-1	LCS for batch 892760	LCS	WATER	1 pCi/L	QC ACCOUNT 7	500	8/18/09 1320	8/22/09 0845	8/22/09 1405	1405	1405	412	4	6	684
1201899208-1	LCS for batch 892760	LCS	WATER	1 pCi/L	QC ACCOUNT 8	500	8/18/09 1320	8/22/09 0845	8/22/09 1405	1405	1405	501	5	8	735

\*PP 8/22/09

Comments:

Instrument ID's:

LUCAS1:90988, LUCAS2:136917, LUCAS3:90989, LUCAS4:102753, LUC5:132286, LUC6:170055

Data Reviewed By:

*Andrew Pore 8/22/09*

# Radium-226 Liquid

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

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

Spike S/N : N/A  
 Spike Exp Date : N/A  
 Spike Activity (dpm/ml): N/A  
 Spike Volume Added: N/A

Batch : 892760  
 Analyst : KSD1  
 Prep Date : 8/18/2009  
 Ra-226 Abundance : 1  
 Ra-226 Method Uncertainty : 0.0918

Procedure Code : LUC26RAL  
 Parmname : Radium-226  
 Required MDA : 1 pCi/L  
 Halflife of Ra-226 : 1600 years  
 Halflife of Rn-222: 3.823 days  
 Batch counted on : LUCAS CELL DETECTOR  
 BKG Count time : 30 min

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

Pos.	Sample Characteristics		Sample Date/Time	Count Raw Data			Weekly Background			Detector Efficiency (cpm/dpm)
	Sample ID	Sample Aliquot L		Cell Number	Gross Counts	Gross CPM	Counts	CPM	Count Time (min.)	
1	234120018.1	0.5000	7/27/2009 13:30	312	14	0.467	6	0.200	30	1.9440
2	234267018.1	0.5000	7/29/2009 14:25	404	16	0.533	8	0.267	30	1.9310
3	234414019.1	0.5000	7/31/2009 11:52	506	23	0.767	8	0.267	30	2.0040
4	234414020.1	0.5000	8/3/2009 11:50	604	9	0.300	2	0.067	30	2.1330
5	234414021.1	0.5000	8/3/2009 14:00	209	5	0.167	8	0.267	30	2.2910
6	1201899206.1	0.5000	8/18/2009 0:00	301	13	0.433	8	0.267	30	2.0210
7	1201899207.1	0.5000	8/18/2009 0:00	412	684	22.800	6	0.200	30	1.9670
8	1201899208.1	0.5000	8/18/2009 0:00	501	735	24.500	8	0.267	30	2.0870

Detector Efficiency Error (cpm/dpm)	Cell Calibration Date	Cell Calibration Due Date	De-Gas Date/Time	Rn-222 Ingrow		Count Start Date/Time	Rn-222 Corrections		Ra-226 Decay
				End Date/Time	De-Gas to Ingrowth		Ingrowth to Count	During Count	
0.06082	2/4/2009	2/4/2010	8/18/2009 13:20	8/22/2009 8:45	8/22/2009 14:05	0.499	0.961	1.002	1.000
0.12371	3/2/2009	3/2/2010	8/18/2009 13:20	8/22/2009 8:45	8/22/2009 13:30	0.499	0.965	1.002	1.000
0.14377	3/25/2009	3/25/2010	8/18/2009 13:20	8/22/2009 8:45	8/22/2009 14:05	0.499	0.961	1.002	1.000
0.06605	8/4/2009	8/4/2010	8/18/2009 13:20	8/22/2009 8:45	8/22/2009 14:05	0.499	0.961	1.002	1.000
0.07722	12/19/2008	12/19/2009	8/18/2009 13:20	8/22/2009 9:00	8/22/2009 14:05	0.500	0.962	1.002	1.000
0.06082	2/4/2009	2/4/2010	8/18/2009 13:20	8/22/2009 9:00	8/22/2009 15:05	0.500	0.955	1.002	1.000
0.12371	3/2/2009	3/2/2010	8/18/2009 13:20	8/22/2009 9:00	8/22/2009 14:05	0.500	0.962	1.002	1.000
0.14377	3/25/2009	3/25/2010	8/18/2009 13:20	8/22/2009 9:00	8/22/2009 15:05	0.500	0.955	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	0.2598	0.1834	1	0.4634	0.2575	0.5623	0.2667	0.1491	0.2821	0.2876		SAMPLE				
2	0.3007	0.2123	1	0.5213	0.2581	0.6247	0.2667	0.1633	0.3098	0.3194		SAMPLE				
3	0.2910	0.2054	1	0.5046	0.4683	0.3981	0.5000	0.1856	0.3407	0.3750		SAMPLE				
4	0.1367	0.0965	1	0.2810	0.2053	0.4784	0.2333	0.1106	0.1907	0.1961		SAMPLE				
5	0.2536	0.1790	1	0.4397	-0.0816	1.2043	-0.1000	0.1202	0.1923	0.1924		SAMPLE				
6	0.2896	0.2045	1	0.5022	0.1554	0.9185	0.1667	0.1528	0.2791	0.2811		MB			24.1655	88.9%
7	0.2558	0.1806	1	0.4562	21.4857	0.1296	22.6000	0.8756	1.6316	6.6892		LCS			24.1655	90.5%
8	0.2805	0.1980	1	0.4863	21.8785	0.1486	24.2333	0.9086	1.6078	7.4893		LCSD	1.8%			



# METHOD CALIBRATION DATA

# **GAS FLOW PROPORTIONAL COUNTERS**


**General Engineering Laboratories**

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

**Gas Flow Proportional Counter Calibration Package**

Method: Ra-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





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	6182.998937	0.6478	Average EFF
11D	4	7/1/09 10:45	7/1/2009 11:56	0.8738	1.5	6363.2	9544.8	15191	3	5063.7	5794.733717	0.6071	0.6348
12A	1	7/1/09 10:45	7/1/2009 12:15	0.8437	1.5	6363.2	9544.8	15450	3	5150.0	6104.026984	0.6395	
12A	2	7/1/09 10:45	7/1/2009 12:28	0.8234	1.5	6363.2	9544.8	15016	3	5005.3	6078.958269	0.6369	
12A	3	7/1/09 10:45	7/1/2009 12:24	0.8296	1.5	6363.2	9544.8	14984	3	4994.7	6020.558384	0.6308	Average EFF
12A	4	7/1/09 10:45	7/1/2009 12:20	0.8358	1.5	6363.2	9544.8	14530	3	4843.3	5794.58497	0.6071	0.6286
12B	1	7/1/09 10:45	7/1/2009 12:20	0.8362	1.5	6363.2	9544.8	15404	3	5134.7	6140.635636	0.6433	
12B	2	7/1/09 10:45	7/1/2009 12:15	0.8437	1.5	6363.2	9544.8	15607	3	5202.3	6166.05496	0.6460	
12B	3	7/1/09 10:45	7/1/2009 12:28	0.8232	1.5	6363.2	9544.8	15060	3	5020.0	6097.91718	0.6389	Average EFF
12B	4	7/1/09 10:45	7/1/2009 12:24	0.8295	1.5	6363.2	9544.8	14553	3	4851.0	5848.11587	0.6127	0.6352
12C	1	7/1/09 10:45	7/1/2009 12:24	0.8300	1.5	6363.2	9544.8	15183	3	5061.0	6097.649845	0.6388	
12C	2	7/1/09 10:45	7/1/2009 12:20	0.8361	1.5	6363.2	9544.8	15651	3	5217.0	6239.881493	0.6537	
12C	3	7/1/09 10:45	7/1/2009 12:15	0.8436	1.5	6363.2	9544.8	15216	3	5072.0	6012.519531	0.6299	Average EFF
12C	4	7/1/09 10:45	7/1/2009 12:28	0.8231	1.5	6363.2	9544.8	14117	3	4705.7	5716.805229	0.5989	0.6304
12D	1	7/1/09 10:45	7/1/2009 12:28	0.8235	1.5	6363.2	9544.8	15174	3	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

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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



Notes:

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

\* indicates results calculated at 100% recovery

Decision Level	Critical Level	Required MDA	Sample Act. Conc.	Sample Act. Error	Net Count Rate	Net Count Rate	2 SIGMA Counting		Total Prop. Uncertainty	Sample Type	Nominal pCi/L	Recovery
							MDA	MDA				
pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	CPM	CPM	pCi/L	pCi/L	pCi/L		pCi/L	%
0.3471	0.2451	1	0.6937	134.0279	0.0254	131.6880	2.9666	5.9178	21.6466	LCS	164.3409	81.6%
0.3647	0.2575	1	0.7192	133.0399	0.0251	130.2580	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	122.0833	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	129.8854	0.0284	108.9047	2.7042	6.3116	21.1935	LCS	164.3409	78.9%
0.9035	0.6379	1	1.5022	135.4510	0.0266	119.6900	2.8455	6.3115	21.9803	LCS	164.3409	82.4%
0.6078	0.4291	1	1.0779	141.2594	0.0255	128.6447	2.9382	6.3235	22.8259	LCS	164.3409	86.0%
0.5473	0.3864	1	0.9987	155.5960	0.0247	137.7700	3.0378	6.7244	25.0636	LCS	164.3409	94.7%
0.6283	0.4436	1	1.1054	135.5336	0.0264	124.2433	2.8986	6.1761	21.9739	LCS	164.3409	83.3%
0.9036	0.6379	1	1.4942	136.9155	0.0254	125.4287	2.9134	6.2333	22.1127	LCS	164.3409	88.8%
0.7676	0.5419	1	1.3079	145.9826	0.0252	130.3400	2.9624	6.5032	23.5621	LCS	164.3409	90.0%
0.4809	0.3395	1	0.9027	134.9611	0.0269	120.7040	2.8427	6.2312	21.9265	LCS	164.3409	82.1%
0.8974	0.4924	1	1.2076	131.4742	0.0271	117.9500	2.8170	6.1544	21.3797	LCS	164.3409	80.0%
0.6530	0.4610	1	1.1419	148.2299	0.0259	132.9873	2.9894	6.4406	23.6659	LCS	164.3409	89.0%
0.7661	0.5409	1	1.3064	156.3706	0.0255	139.2187	3.0605	6.7377	25.2668	LCS	164.3409	95.2%
0.6899	0.4871	1	1.1997	134.1883	0.0270	118.9960	2.8288	6.2523	21.8127	LCS	164.3409	81.7%
0.6079	0.4292	1	1.0862	137.0396	0.0269	120.3027	2.8412	6.3436	22.2643	LCS	164.3409	83.4%
0.9509	0.6713	1	1.5725	146.0056	0.0264	127.0307	2.9817	6.6044	23.6775	LCS	164.3409	88.8%
0.4376	0.3090	1	0.8562	144.5849	0.0276	113.7727	2.7577	6.3903	21.8573	LCS	164.3409	88.0%
0.4227	0.2984	1	0.8330	134.2390	0.0275	118.4887	2.8152	6.4094	22.3723	LCS	164.3409	92.4%
0.4360	0.3079	1	0.8480	137.6373	0.0270	118.4887	2.8152	6.4094	22.3723	LCS	164.3409	92.4%
0.3962	0.2797	1	0.7956	151.8935	0.0262	128.6313	2.9319	6.7858	24.6318	LCS	164.3409	92.6%
0.4480	0.3163	1	0.8657	152.1131	0.0261	130.4707	2.9539	6.7499	24.6318	LCS	164.3409	92.6%
0.6932	0.4470	1	1.1278	127.8251	0.0279	109.4120	2.7108	6.2072	20.8618	LCS	164.3409	77.8%
0.8917	0.6931	1	1.6167	135.1471	0.0273	117.2540	2.8197	6.3699	21.9896	LCS	164.3409	82.2%
0.5779	0.4080	1	1.0463	148.5864	0.0263	127.3240	2.9214	6.5922	23.7610	LCS	164.3409	89.2%
0.8422	0.5946	1	1.4301	141.4935	0.0272	117.4880	2.8147	6.4441	23.0149	LCS	164.3409	86.1%
0.4379	0.3091	1	0.8509	130.5505	0.0276	112.2200	2.7400	6.2478	21.2682	LCS	164.3409	79.4%
0.7972	0.5629	1	1.3635	133.7974	0.0277	112.5273	2.7540	6.4182	21.9026	LCS	164.3409	81.4%
0.4475	0.3159	1	0.8728	144.2924	0.0269	119.7633	2.8301	6.6832	23.4437	LCS	164.3409	87.8%
0.8154	0.5757	1	1.3863	150.8313	0.0263	128.3747	2.9406	6.7718	24.4459	LCS	164.3409	91.8%
0.4063	0.2868	1	0.8104	134.4151	0.0285	119.5507	2.7553	6.3927	21.8871	LCS	164.3409	81.8%
1.9322	1.3641	1	2.9747	135.0540	0.0265	109.6040	2.7857	6.7277	22.0820	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	88.1%
0.3432	0.2423	1	0.6763	135.4546	0.0253	141.3227	3.0730	5.7736	21.8705	LCS	164.3409	82.4%
0.3289	0.2322	1	0.6397	131.6931	0.0247	150.2887	3.1684	5.4434	21.2189	LCS	164.3409	80.1%
0.2949	0.2082	1	0.5922	148.3038	0.0237	169.2980	3.3626	5.7929	23.8966	LCS	164.3409	90.5%
0.3379	0.2385	1	0.6530	151.8473	0.0235	172.6707	3.3968	6.8549	24.3615	LCS	164.3409	92.4%
0.4616	0.3400	1	0.8577	131.6889	0.0249	148.2120	3.2186	5.4891	21.2301	LCS	164.3409	80.1%
0.7498	0.5287	1	1.2332	134.8966	0.0246	153.3873	3.2186	5.5483	21.7215	LCS	164.3409	82.1%
0.4447	0.3140	1	0.8052	148.8317	0.0238	162.8880	3.3080	5.8232	23.8962	LCS	164.3409	90.8%
0.6180	0.4363	1	1.0494	143.9479	0.0241	162.8880	3.3080	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%
0.6469	0.4602	1	1.0649	146.0021	0.0240	163.4967	3.3053	5.7852	23.4616	LCS	164.3409	88.8%
0.3316	0.2341	1	0.6469	146.0021	0.0235	174.3747	3.4225	6.1425	25.6134	LCS	164.3409	97.2%
0.6355	0.4487	1	1.0805	159.6717	0.0251	144.5507	3.1078	5.5650	21.3060	LCS	164.3409	80.4%
0.3136	0.2214	1	0.6255	132.0625	0.0254	145.4707	3.1861	5.8215	22.7970	LCS	164.3409	82.5%
1.4618	1.0321	1	2.2506	135.6135	0.0254	154.5427	3.2193	5.7718	21.9000	LCS	164.3409	86.2%
0.3185	0.2249	1	0.6330	141.6298	0.0245	158.8520	3.2579	5.8988	23.6017	LCS	164.3409	89.5%
0.3327	0.2349	1	0.6546	146.7439	0.0242	158.8520	3.2579	5.8988	23.6017	LCS	164.3409	89.5%

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine
1	1A	15	36	1980	7/2/2009 8:39	7/2/2009 8:54	Protean
2	1B	15	27	1959	7/2/2009 8:40	7/2/2009 8:55	Protean
3	1C	15	44	2108	7/2/2009 8:40	7/2/2009 8:55	Protean
4	1D	15	108	2265	7/2/2009 8:40	7/2/2009 8:55	Protean
5	2A	15	69	1838	7/2/2009 8:40	7/2/2009 8:55	Protean
6	2B	15	8	2053	7/2/2009 8:40	7/2/2009 8:55	Protean
7	2C	15	96	1982	7/2/2009 8:40	7/2/2009 8:55	Protean
8	2D	15	93	1984	7/2/2009 9:08	7/2/2009 9:23	Protean
1	3A	15	233	1645	7/2/2009 9:08	7/2/2009 9:23	Protean
2	3B	15	99	1821	7/2/2009 9:08	7/2/2009 9:23	Protean
3	3C	15	96	1942	7/2/2009 9:08	7/2/2009 9:23	Protean
4	3D	15	90	2076	7/2/2009 9:08	7/2/2009 9:23	Protean
5	4A	15	79	1877	7/2/2009 9:08	7/2/2009 9:23	Protean
6	4B	15	13	1909	7/2/2009 9:08	7/2/2009 9:23	Protean
7	4C	15	97	1974	7/2/2009 9:09	7/2/2009 9:24	Protean
8	4D	15	181	1880	7/2/2009 9:25	7/2/2009 9:40	Protean
1	5A	15	53	1818	7/2/2009 9:26	7/2/2009 9:41	Protean
2	5B	15	59	1785	7/2/2009 9:26	7/2/2009 9:41	Protean
3	5C	15	43	2009	7/2/2009 9:26	7/2/2009 9:41	Protean
4	5D	15	59	2107	7/2/2009 9:26	7/2/2009 9:41	Protean
5	6A	15	35	1800	7/2/2009 9:27	7/2/2009 9:42	Protean
6	6B	15	71	1816	7/2/2009 9:27	7/2/2009 9:42	Protean
7	6C	15	81	1933	7/2/2009 9:27	7/2/2009 9:42	Protean
8	6D	15	81	1826	7/2/2009 9:47	7/2/2009 10:02	Protean
1	7A	15	75	1711	7/2/2009 9:48	7/2/2009 10:03	Protean
2	7B	15	59	1783	7/2/2009 9:48	7/2/2009 10:03	Protean
3	7C	15	74	1934	7/2/2009 9:48	7/2/2009 10:03	Protean
4	7D	15	83	1963	7/2/2009 9:48	7/2/2009 10:03	Protean
5	8A	15	49	1653	7/2/2009 9:48	7/2/2009 10:03	Protean
6	8B	15	20	1788	7/2/2009 9:48	7/2/2009 10:03	Protean
7	8C	15	34	1920	7/2/2009 9:48	7/2/2009 10:03	Protean
8	8D	15	45	1782	7/2/2009 10:07	7/2/2009 10:22	Protean
1	9A	15	17	1689	7/2/2009 10:06	7/2/2009 10:21	Protean
2	9B	15	13	1706	7/2/2009 10:06	7/2/2009 10:21	Protean
3	9C	15	13	1802	7/2/2009 10:06	7/2/2009 10:21	Protean
4	9D	15	15	1945	7/2/2009 10:06	7/2/2009 10:21	Protean
5	10A	15	10	1708	7/2/2009 10:07	7/2/2009 10:22	Protean
6	10B	15	19	1743	7/2/2009 10:07	7/2/2009 10:22	Protean
7	10C	15	15	1826	7/2/2009 10:07	7/2/2009 10:22	Protean
8	10D	15	14	1769	7/2/2009 10:22	7/2/2009 10:37	Protean
1	11A	15	19	2125	7/2/2009 7:26	7/2/2009 7:41	Protean
2	11B	15	22	2260	7/2/2009 7:26	7/2/2009 7:41	Protean
3	11C	15	13	2544	7/2/2009 7:26	7/2/2009 7:41	Protean
4	11D	15	14	2596	7/2/2009 7:26	7/2/2009 7:41	Protean
5	12A	15	17	2235	7/2/2009 7:26	7/2/2009 7:41	Protean
6	12B	15	10	2330	7/2/2009 7:26	7/2/2009 7:41	Protean
7	12C	15	16	2530	7/2/2009 7:26	7/2/2009 7:41	Protean
8	12D	15	10	2463	7/2/2009 7:26	7/2/2009 7:41	Protean
1	13A	15	11	2231	7/2/2009 7:49	7/2/2009 8:04	Protean
2	13B	15	13	2190	7/2/2009 7:49	7/2/2009 8:04	Protean
3	13C	15	11	2458	7/2/2009 7:49	7/2/2009 8:04	Protean

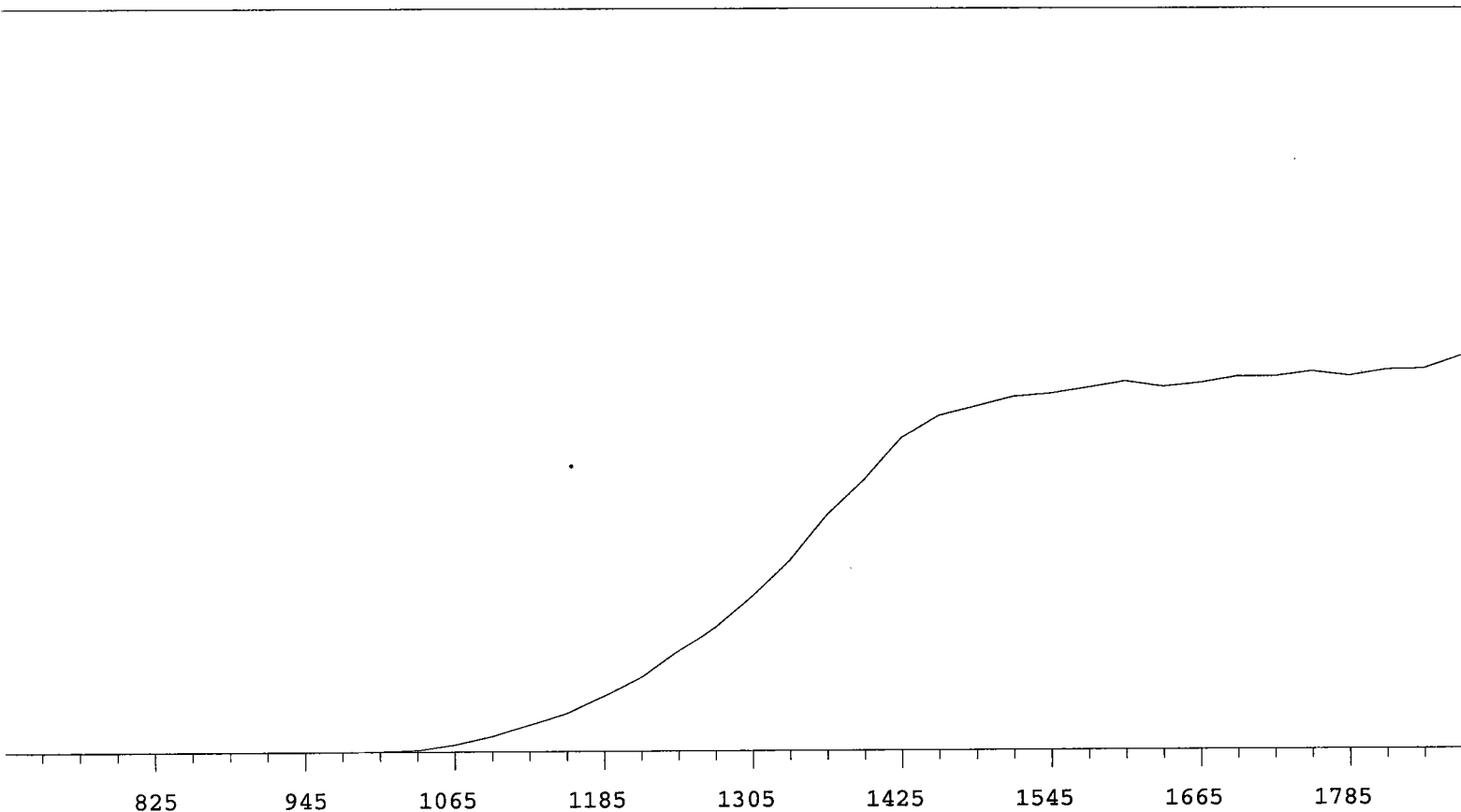
219  
7/2/09

4	13D	15	12	2635	7/2/2009 7:50	7/2/2009 8:05	Protean
5	14A	15	11	2173	7/2/2009 7:50	7/2/2009 8:05	Protean
6	14B	15	11	2281	7/2/2009 7:50	7/2/2009 8:05	Protean
7	14C	15	14	2323	7/2/2009 7:50	7/2/2009 8:05	Protean
8	14D	15	14	2388	7/2/2009 7:50	7/2/2009 8:05	Protean

Ra-228 Protean	Cal Date A0	7/2/2009 A1	Exp Date A2	7/31/2009 A3	A4
1A	6.30258E-01				
1B	6.28221E-01				
1C	6.17615E-01				
1D	6.04341E-01				
2A	6.17224E-01				
2B	6.16681E-01				
2C	5.96919E-01				
2D	6.11886E-01				
3A	5.68218E-01				
3B	5.98041E-01				
3C	6.16431E-01				
3D	5.99405E-01				
4A	6.20765E-01				
4B	6.20459E-01				
4C	6.05183E-01				
4D	5.87325E-01				
5A	6.25790E-01				
5B	6.28027E-01				
5C	6.36802E-01				
5D	6.23741E-01				
6A	6.22050E-01				
6B	6.16280E-01				
6C	6.11053E-01				
6D	6.12043E-01				
7A	6.17961E-01				
7B	6.27962E-01				
7C	6.17791E-01				
7D	6.25720E-01				
8A	6.24723E-01				
8B	6.33167E-01				
8C	6.33890E-01				
8D	6.28089E-01				
9A	6.496412E-01				
9B	6.356321E-01				
9C	6.273008E-01				
9D	6.432553E-01				
10A	6.389066E-01				
10B	6.137441E-01				
10C	6.249999E-01				
10D	6.319781E-01				
11A	5.82502E-01				
11B	6.37172E-01				
11C	6.35171E-01				
11D	6.34840E-01				
12A	6.28566E-01				
12B	6.35234E-01				
12C	6.30366E-01				
12D	6.31956E-01				
13A	6.40953E-01				

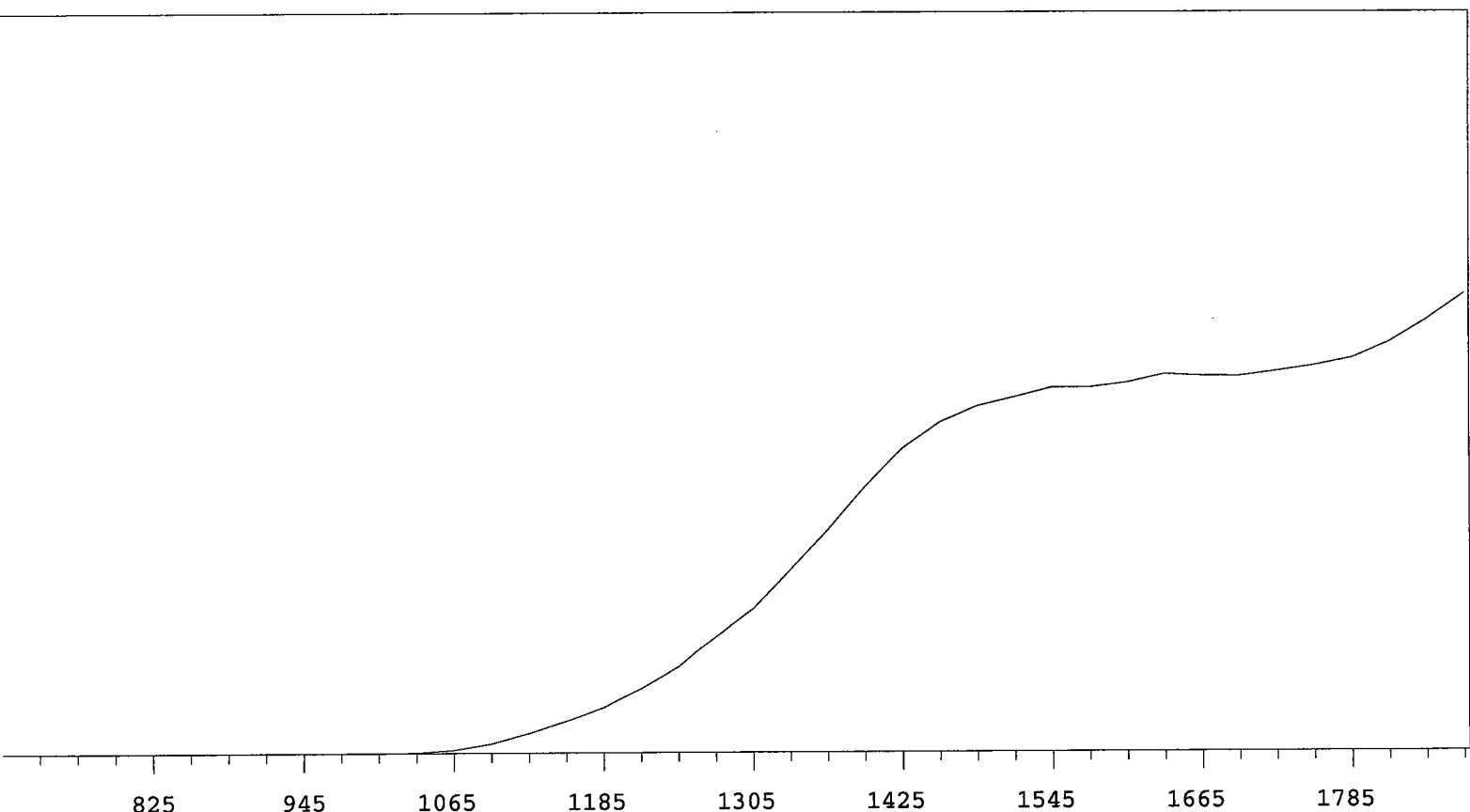


<b>13B</b>	6.52643E-01
<b>13C</b>	6.53798E-01
<b>13D</b>	6.37701E-01
<b>14A</b>	6.39290E-01
<b>14B</b>	6.26611E-01
<b>14C</b>	6.37531E-01
<b>14D</b>	6.32609E-01



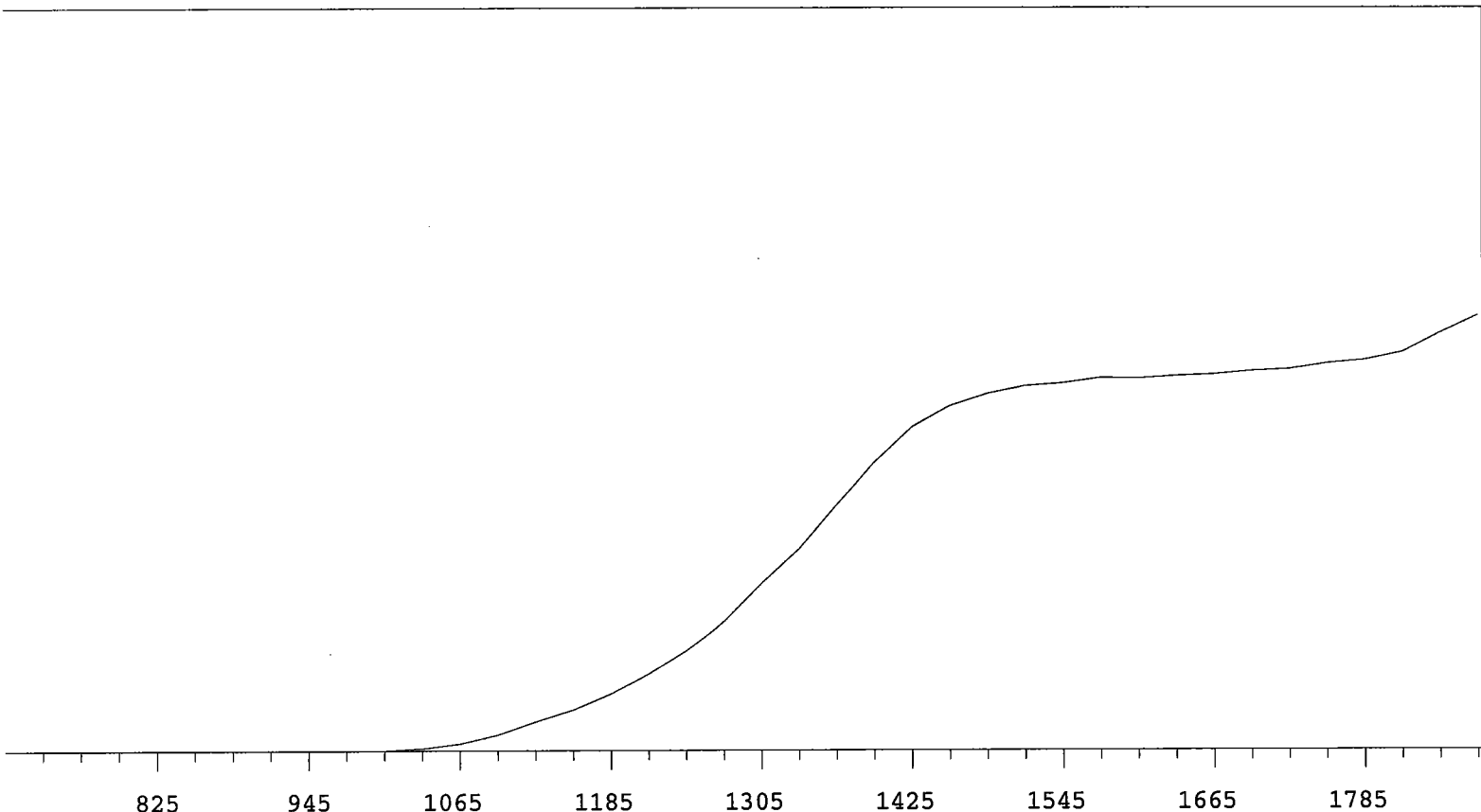
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	11640	+69.78
735	1		1335	14241	+62.88
765	0		1365	17534	+55.91
795	0	+0.00	1395	20127	+45.04
825	0	>100	1425	23254	+31.29
855	1	>100	1455	24902	+20.41
885	0	+55.56	1485	25605	+10.49
915	2	+66.67	1515	26310	+6.44
945	0	>100	1545	26535	+5.31
975	2	>100	1575	26953	+2.79
1005	42	>100	1605	27399	+1.83
1035	145	>100	1635	27000	+1.71
1065	544	>100	1665	27255	+1.62
1095	1136	>100	1695	27723	+3.14
1125	1967	>100	1725	27705	+1.56
1155	2845	>100	1755	28072	+1.15
1185	4078	>100	1785	27729	+1.43
1215	5483	+93.18	1815	28194	+3.24
1245	7400	+83.35	1845	28243	
1275	9328	+75.40	1875	29191	

Alpha Volts: 1575 Beta Volts: 1575

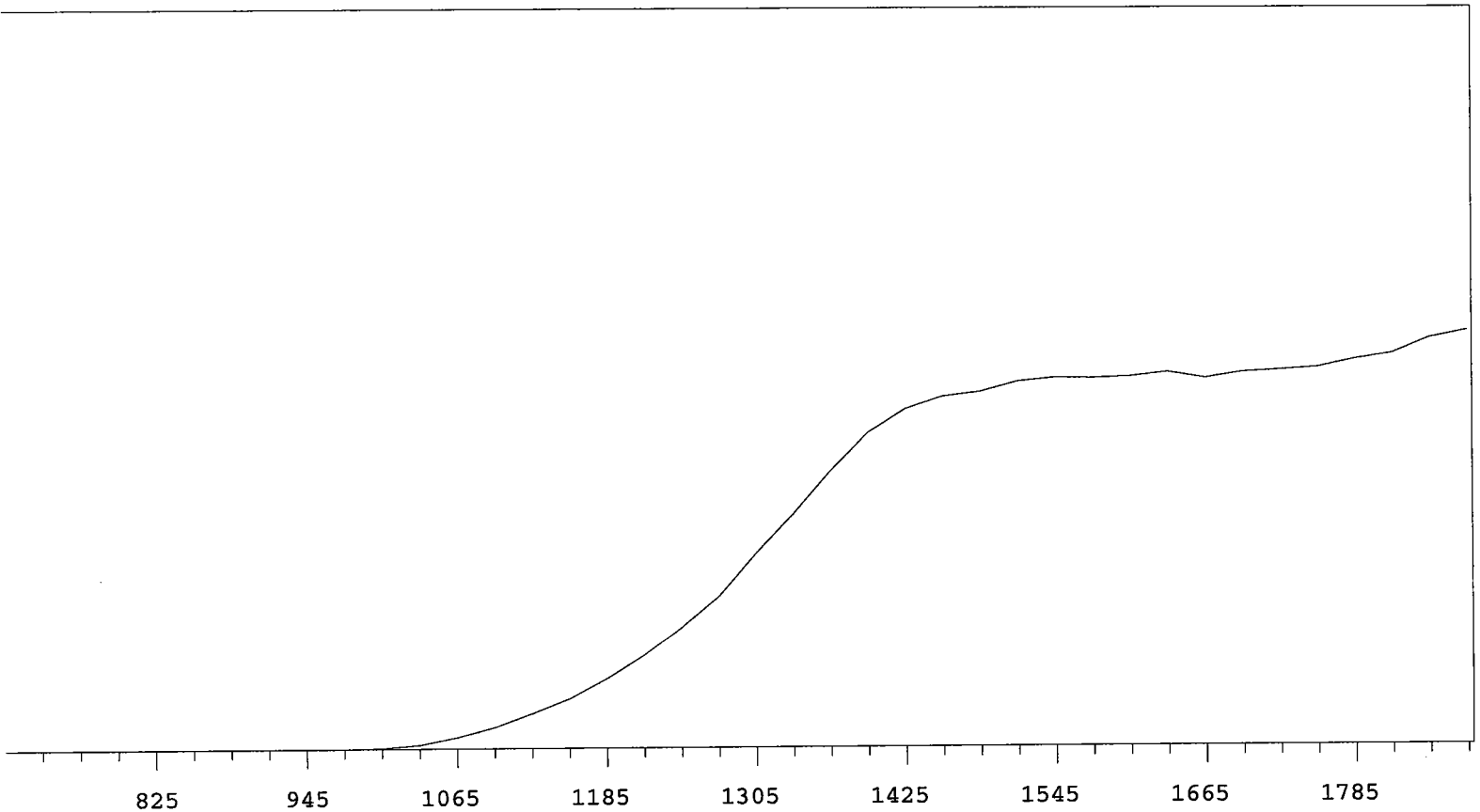


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	13188	+75.92
735	0		1335	16818	+67.60
765	0	+55.56	1365	20420	+59.86
795	1	+83.33	1395	24341	+47.85
825	1	+55.56	1425	27854	+35.51
855	0	>100	1455	30288	+23.26
885	1	+0.00	1485	31798	+14.54
915	0	+0.00	1515	32622	+8.32
945	1	>100	1545	33496	+5.11
975	0	>100	1575	33475	+4.43
1005	4	>100	1605	33903	+3.09
1035	56	>100	1635	34654	+2.46
1065	292	>100	1665	34485	+1.74
1095	890	>100	1695	34445	+1.84
1125	1841	>100	1725	34908	+3.91
1155	2936	>100	1755	35401	+6.80
1185	4179	>100	1785	36062	+10.27
1215	5837	>100	1815	37505	+14.30
1245	7821	+91.28	1845	39508	
1275	10638	+83.88	1875	41843	

Alpha Volts: 1575 Beta Volts: 1575



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	14817	+71.06
735	0		1335	17823	+63.34
765	1	+0.00	1365	21704	+53.63
795	0	>100	1395	25422	+42.55
825	1	-55.56	1425	28424	+29.21
855	1	+55.56	1455	30244	+18.11
885	0	>100	1485	31305	+10.10
915	1	>100	1515	31989	+6.07
945	0	>100	1545	32223	+3.43
975	4	>100	1575	32671	+2.15
1005	32	>100	1605	32621	+1.68
1035	206	>100	1635	32837	+1.52
1065	639	>100	1665	32961	+2.01
1095	1416	>100	1695	33249	+2.64
1125	2551	>100	1725	33409	+3.21
1155	3619	>100	1755	33931	+4.07
1185	5037	+98.68	1785	34234	+7.20
1215	6875	+91.19	1815	34909	+10.28
1245	8915	+85.53	1845	36660	
1275	11519	+77.28	1875	38205	

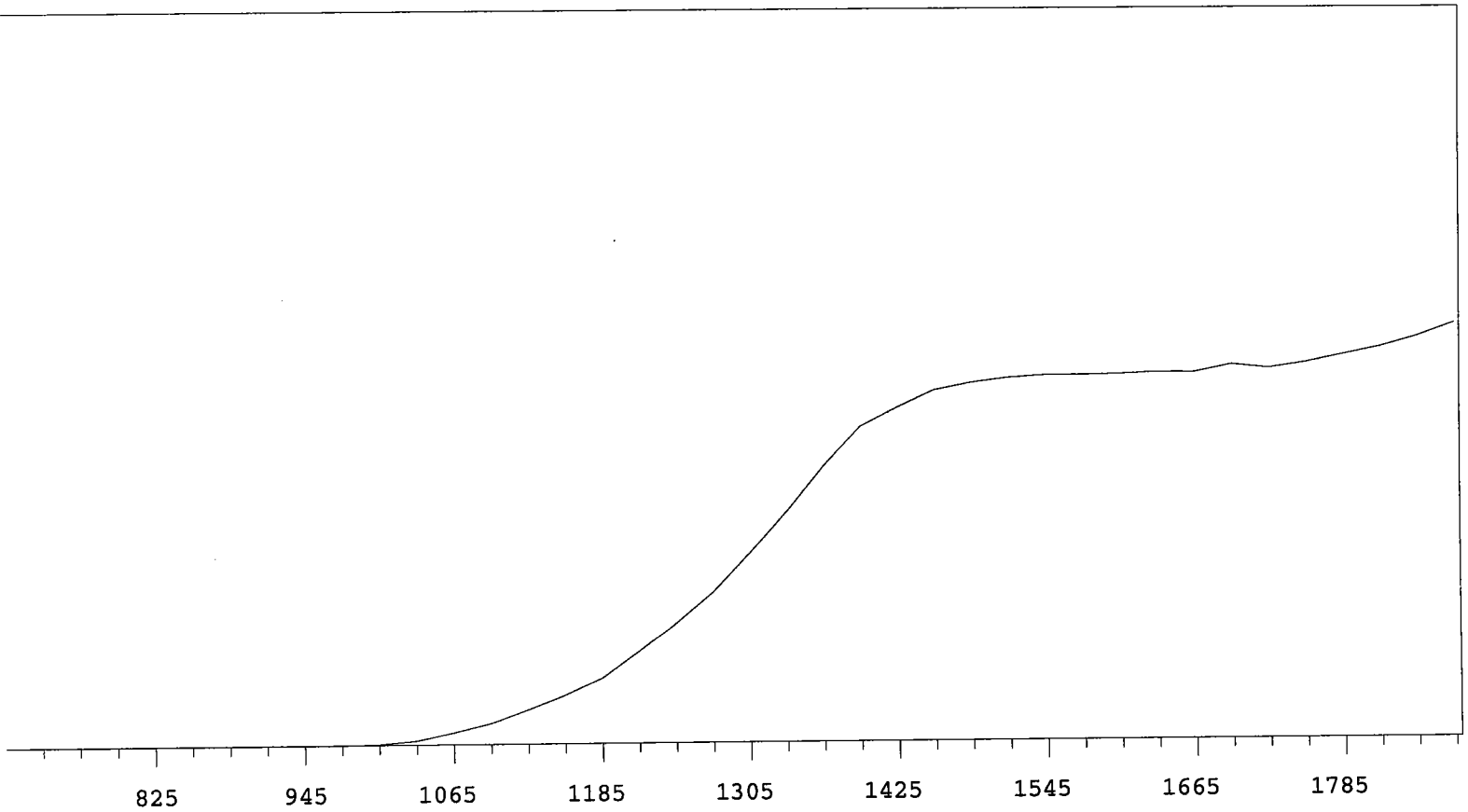


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	15202	+66.36
735	1		1335	18216	+57.86
765	0	+0.00	1365	21597	+45.58
795	1	+0.00	1395	24648	+32.96
825	0	+0.00	1425	26505	+19.92
855	1	>100	1455	27475	+11.42
885	0	>100	1485	27836	+7.08
915	0	>100	1515	28609	+4.51
945	0	>100	1545	28896	+2.93
975	8	>100	1575	28862	+1.66
1005	75	>100	1605	28969	+0.36
1035	303	>100	1635	29292	+0.80
1065	872	>100	1665	28836	+1.06
1095	1656	>100	1695	29279	+1.48
1125	2729	>100	1725	29439	+3.59
1155	3862	>100	1755	29642	+4.07
1185	5425	+98.19	1785	30243	+6.51
1215	7256	+88.82	1815	30699	+7.79
1245	9510	+81.89	1845	31876	
1275	11944	+74.07	1875	32444	

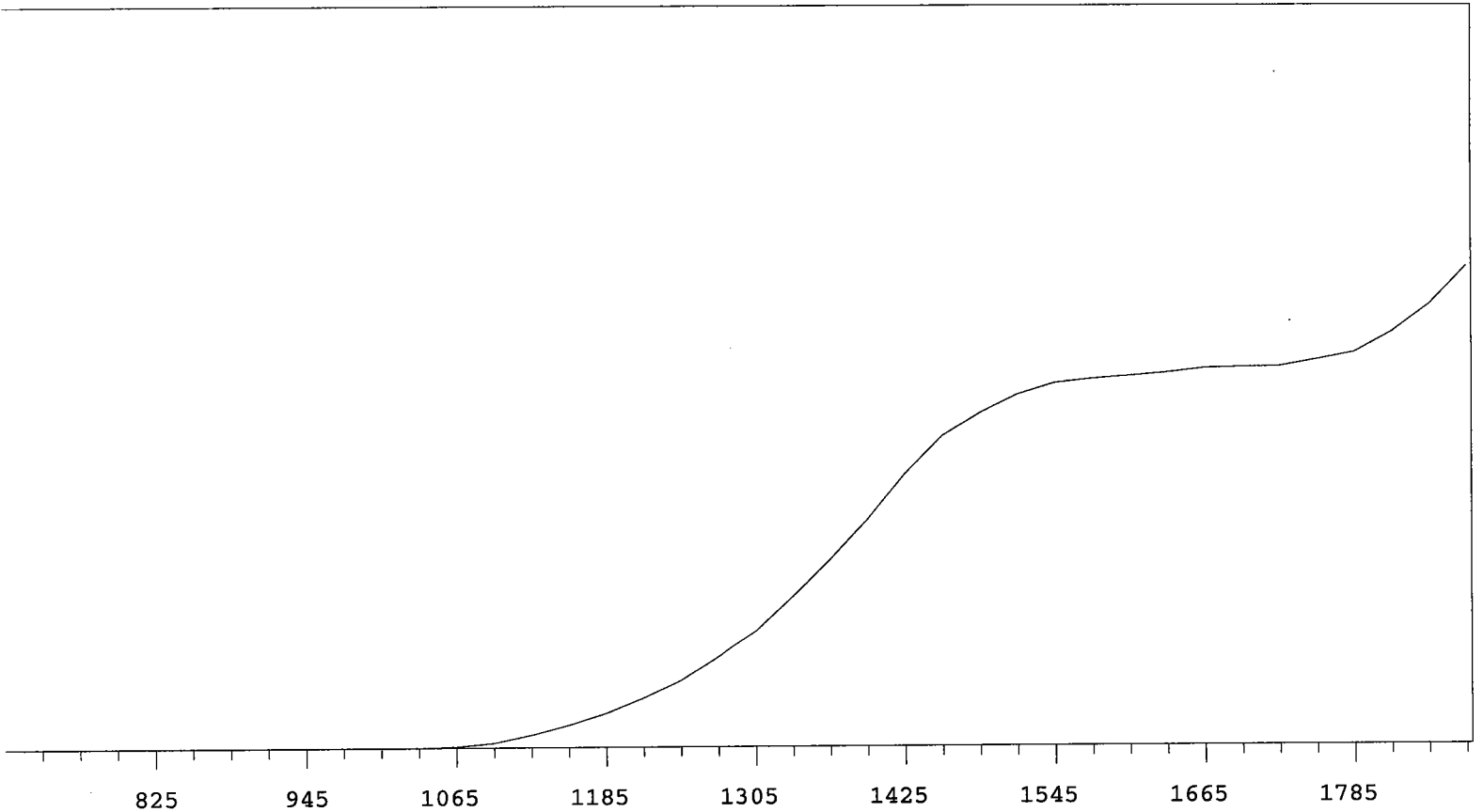
MPC 9600 Plateau  
 Alpha Volts: 705

Instrument 2 MPC 9604 Detector A  
 Beta Volts: 1575

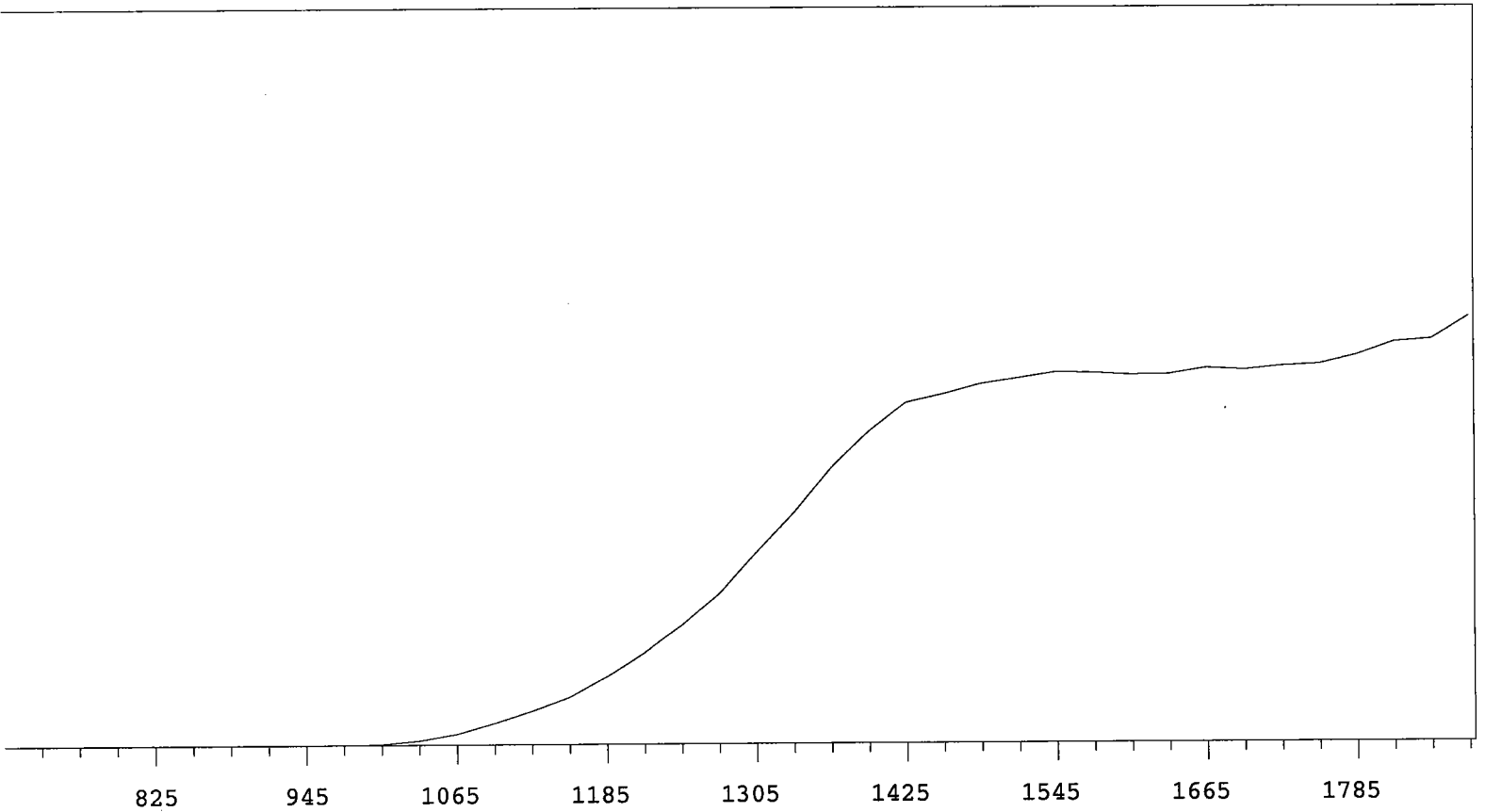
7/1/2009



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	19017	+67.45
735	1		1335	23157	+59.23
765	0	+83.33	1365	27625	+45.78
795	0	-83.33	1395	31465	+32.72
825	1	>100	1425	33352	+20.41
855	0	>100	1455	35084	+11.74
885	1	+100.00	1485	35819	+7.11
915	1	>100	1515	36292	+3.35
945	2	>100	1545	36527	+1.63
975	12	>100	1575	36540	+0.87
1005	91	>100	1605	36585	+0.48
1035	421	>100	1635	36742	+1.76
1065	1239	>100	1665	36691	+1.53
1095	2155	>100	1695	37461	+1.89
1125	3527	>100	1725	37073	+3.07
1155	4974	>100	1755	37603	+4.02
1185	6647	+97.44	1785	38346	+6.58
1215	9250	+89.00	1815	39111	+7.95
1245	12041	+82.15	1845	40115	
1275	15094	+73.81	1875	41409	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	12541	+83.18
735	1		1335	16192	+74.48
765	0		1365	20083	+67.17
795	0	>100	1395	24273	+58.43
825	0	>100	1425	29090	+46.86
855	0	>100	1455	33223	+34.56
885	0	>100	1485	35608	+22.67
915	0	>100	1515	37581	+13.63
945	1	>100	1545	38762	+8.18
975	2	>100	1575	39185	+4.42
1005	3	>100	1605	39484	+3.06
1035	14	>100	1635	39806	+2.61
1065	127	>100	1665	40264	+2.03
1095	500	>100	1695	40353	+2.32
1125	1332	>100	1725	40431	+3.28
1155	2373	>100	1755	41127	+7.09
1185	3614	>100	1785	41882	+12.40
1215	5227	>100	1815	44049	+18.52
1245	7060	+97.33	1845	46950	
1275	9574	+90.30	1875	51097	



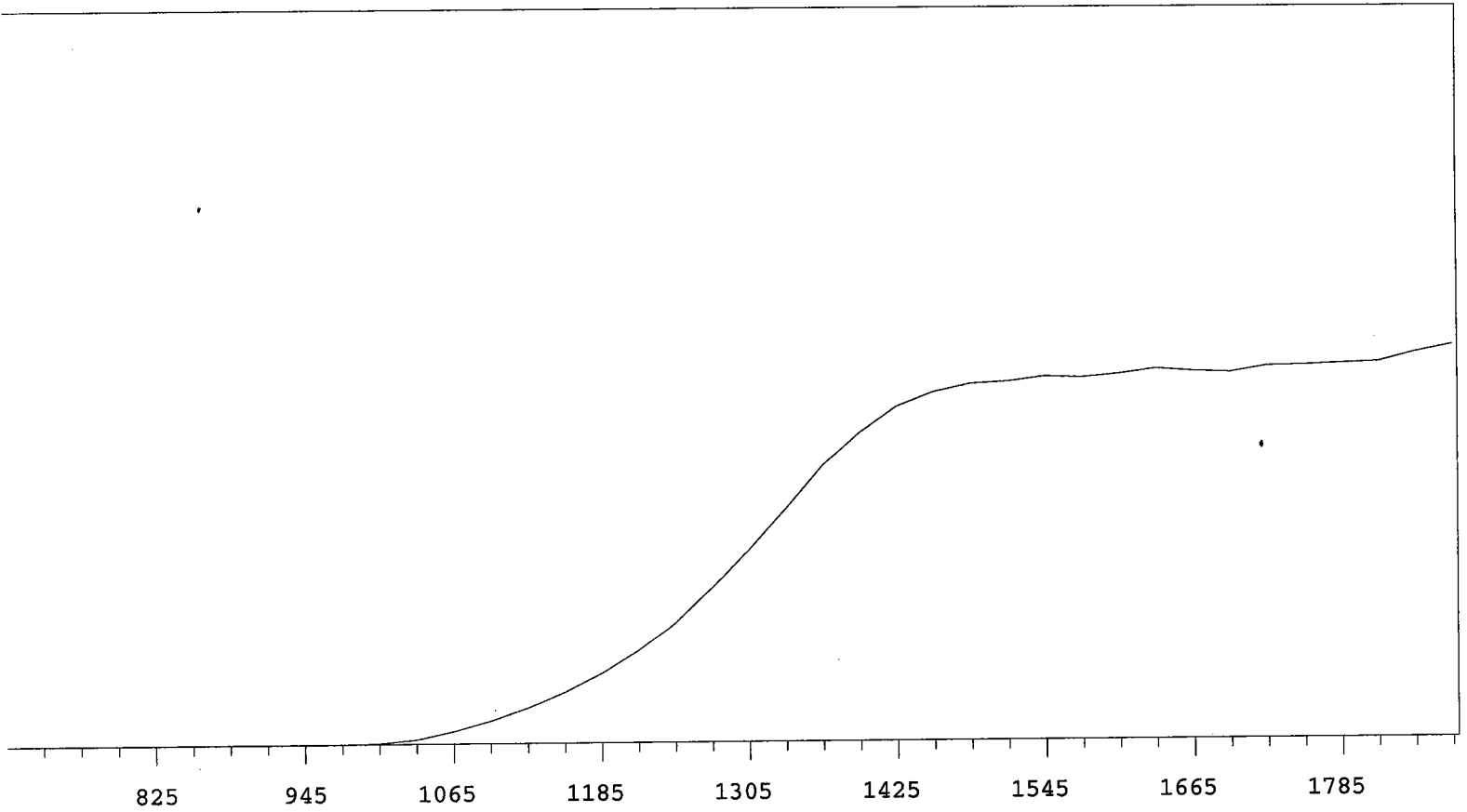
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	18216	+67.74
735	0		1335	21995	+58.11
765	0		1365	26173	+46.11
795	0	>100	1395	29479	+32.75
825	0	>100	1425	32186	+20.62
855	0	>100	1455	33022	+12.13
885	0	>100	1485	33981	+7.22
915	1	>100	1515	34520	+4.95
945	0	>100	1545	35095	+2.07
975	17	>100	1575	35014	+0.38
1005	87	>100	1605	34812	+0.55
1035	438	>100	1635	34859	+1.11
1065	1055	>100	1665	35460	+1.94
1095	2114	>100	1695	35273	+1.95
1125	3282	>100	1725	35629	+2.73
1155	4625	>100	1755	35811	+5.77
1185	6554	+97.66	1785	36656	+6.44
1215	8743	+88.09	1815	37896	+9.21
1245	11345	+81.31	1845	38145	
1275	14261	+74.60	1875	40283	



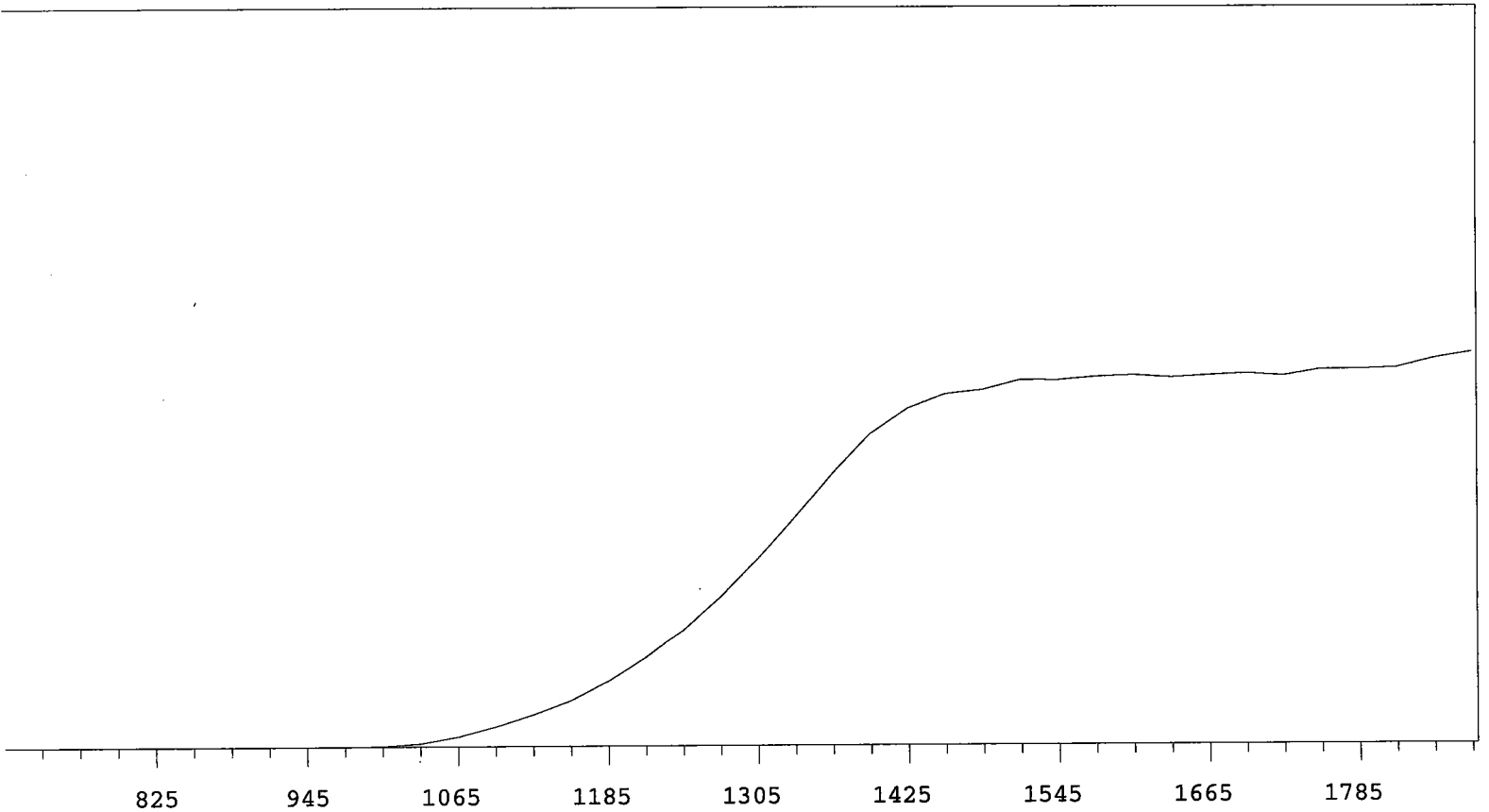
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 2 MPC 9604 Detector D  
Beta Volts: 1575

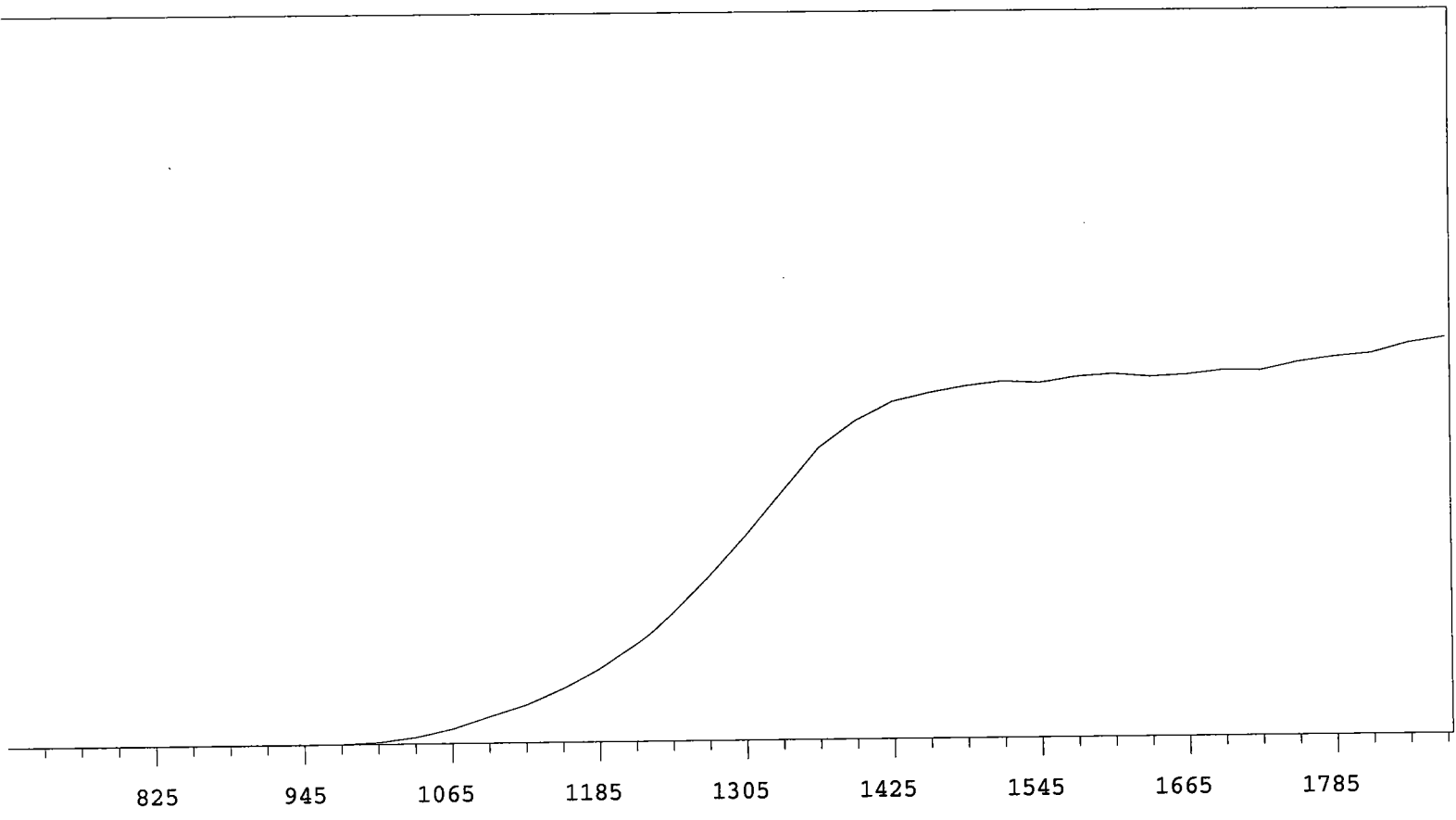
7/1/2009



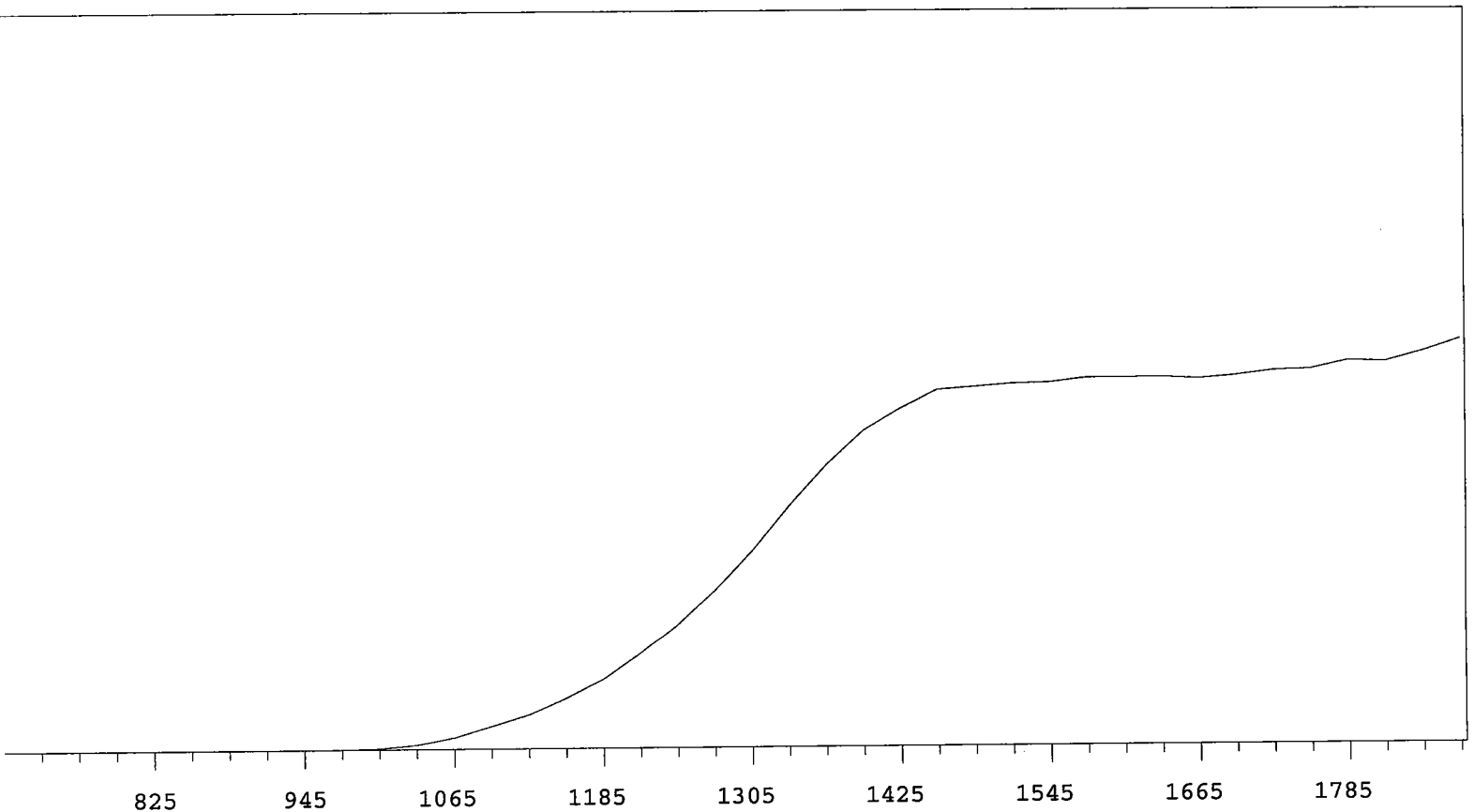
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	18675	+65.94
735	0		1335	22620	+55.69
765	0	+83.33	1365	26869	+44.63
795	2	+55.56	1395	29957	+32.08
825	1	>100	1425	32494	+20.49
855	0	>100	1455	33836	+11.98
885	0	>100	1485	34627	+6.45
915	0	>100	1515	34849	+3.22
945	2	>100	1545	35298	+1.98
975	9	>100	1575	35180	+2.37
1005	89	>100	1605	35503	+1.57
1035	439	>100	1635	36006	+0.99
1065	1198	>100	1665	35722	+0.89
1095	2164	>100	1695	35597	+0.93
1125	3436	>100	1725	36188	+1.86
1155	4917	>100	1755	36272	+1.90
1185	6762	+96.59	1785	36389	+2.55
1215	9006	+89.14	1815	36529	+4.39
1245	11800	+81.34	1845	37459	
1275	15132	+73.59	1875	38170	



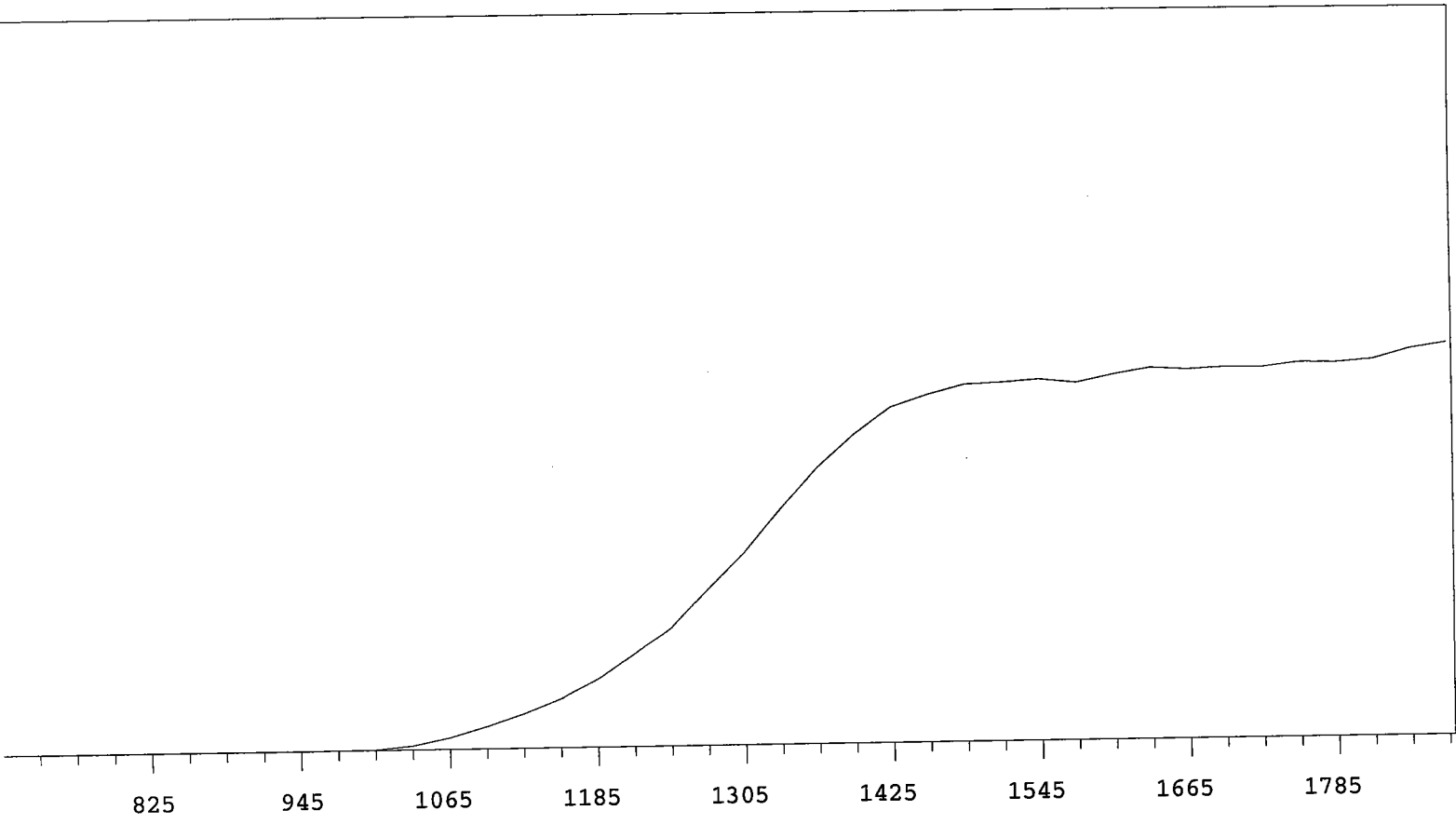
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	16654	+68.57
735	0		1335	20416	+59.26
765	0	+55.56	1365	24191	+47.28
795	1	>100	1395	27643	+34.04
825	1	+0.00	1425	29891	+21.08
855	1	>100	1455	31183	+12.30
885	0	>100	1485	31558	+6.67
915	0	>100	1515	32444	+4.05
945	0	>100	1545	32413	+2.90
975	9	>100	1575	32704	+0.81
1005	53	>100	1605	32837	+0.71
1035	302	>100	1635	32629	+0.49
1065	878	>100	1665	32797	+0.16
1095	1805	>100	1695	32964	+1.32
1125	2887	>100	1725	32746	+1.40
1155	4163	>100	1755	33308	+1.56
1185	5842	+99.81	1785	33318	+3.21
1215	7959	+90.90	1815	33456	+3.92
1245	10323	+83.03	1845	34283	
1275	13250	+75.91	1875	34815	



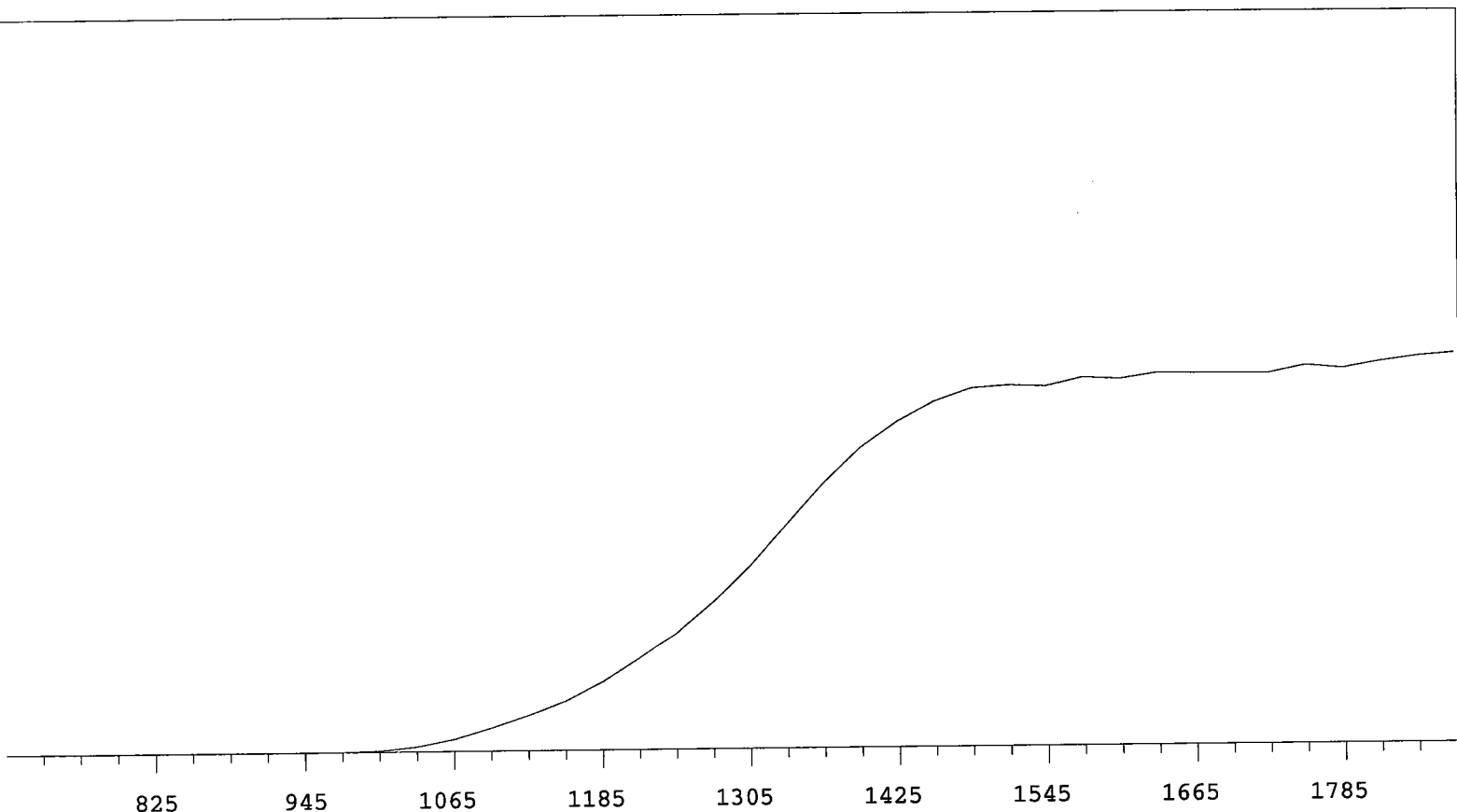
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	19810	+64.73
735	1		1335	23962	+52.62
765	0	-55.56	1365	28091	+39.27
795	0	>100	1395	30594	+25.61
825	1	>100	1425	32381	+14.86
855	3	+33.33	1455	33206	+8.91
885	0	+0.00	1485	33832	+4.41
915	1	>100	1515	34260	+3.01
945	2	>100	1545	34071	+2.33
975	29	>100	1575	34623	+1.34
1005	165	>100	1605	34848	+1.22
1035	613	>100	1635	34564	+0.89
1065	1394	>100	1665	34733	+1.01
1095	2558	>100	1695	35144	+2.76
1125	3702	>100	1725	35084	+3.66
1155	5222	>100	1755	35839	+3.97
1185	7161	+96.06	1785	36332	+5.39
1215	9507	+89.18	1815	36654	+5.35
1245	12552	+81.52	1845	37609	
1275	16030	+73.64	1875	38164	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	21412	+66.80
735	1		1335	26262	+56.32
765	1		1365	30679	+43.71
795	0	>100	1395	34466	+31.61
825	0	+0.00	1425	36949	+20.14
855	0	>100	1455	38998	+11.16
885	1	>100	1485	39313	+5.34
915	1	>100	1515	39625	+2.44
945	1	>100	1545	39751	+2.04
975	17	>100	1575	40227	+1.45
1005	122	>100	1605	40228	+0.56
1035	533	>100	1635	40255	+0.13
1065	1287	>100	1665	40075	+1.22
1095	2493	>100	1695	40384	+1.95
1125	3753	>100	1725	40900	+3.50
1155	5482	>100	1755	41028	+3.05
1185	7538	+99.39	1785	41899	+3.71
1215	10305	+90.31	1815	41767	+5.64
1245	13415	+82.57	1845	42852	
1275	17141	+75.13	1875	44132	



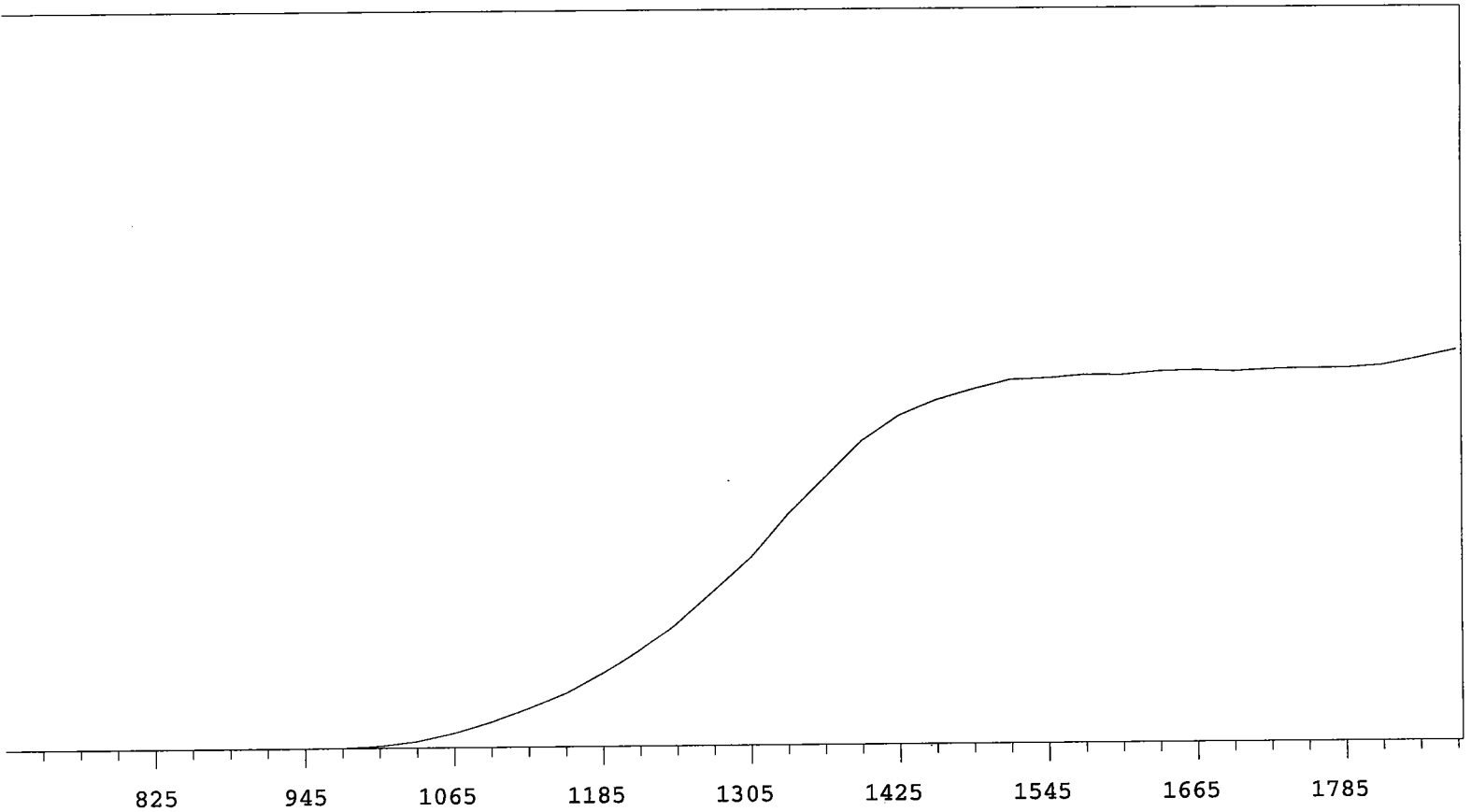
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	14171	+66.45
735	1		1335	17362	+54.90
765	0	+0.00	1365	20310	+43.83
795	1	>100	1395	22647	+30.82
825	0	+83.33	1425	24551	+20.19
855	0	-83.33	1455	25440	+11.69
885	1	>100	1485	26124	+5.90
915	0	>100	1515	26245	+2.21
945	1	>100	1545	26428	+1.39
975	12	>100	1575	26151	+2.69
1005	51	>100	1605	26721	+2.72
1035	298	>100	1635	27168	+2.80
1065	848	>100	1665	27007	+0.87
1095	1649	>100	1695	27135	+0.70
1125	2535	>100	1725	27089	+1.24
1155	3602	>100	1755	27414	+1.43
1185	5036	+98.31	1785	27373	+3.21
1215	6880	+91.37	1815	27581	+4.34
1245	8822	+82.29	1845	28332	
1275	11546	+74.61	1875	28750	



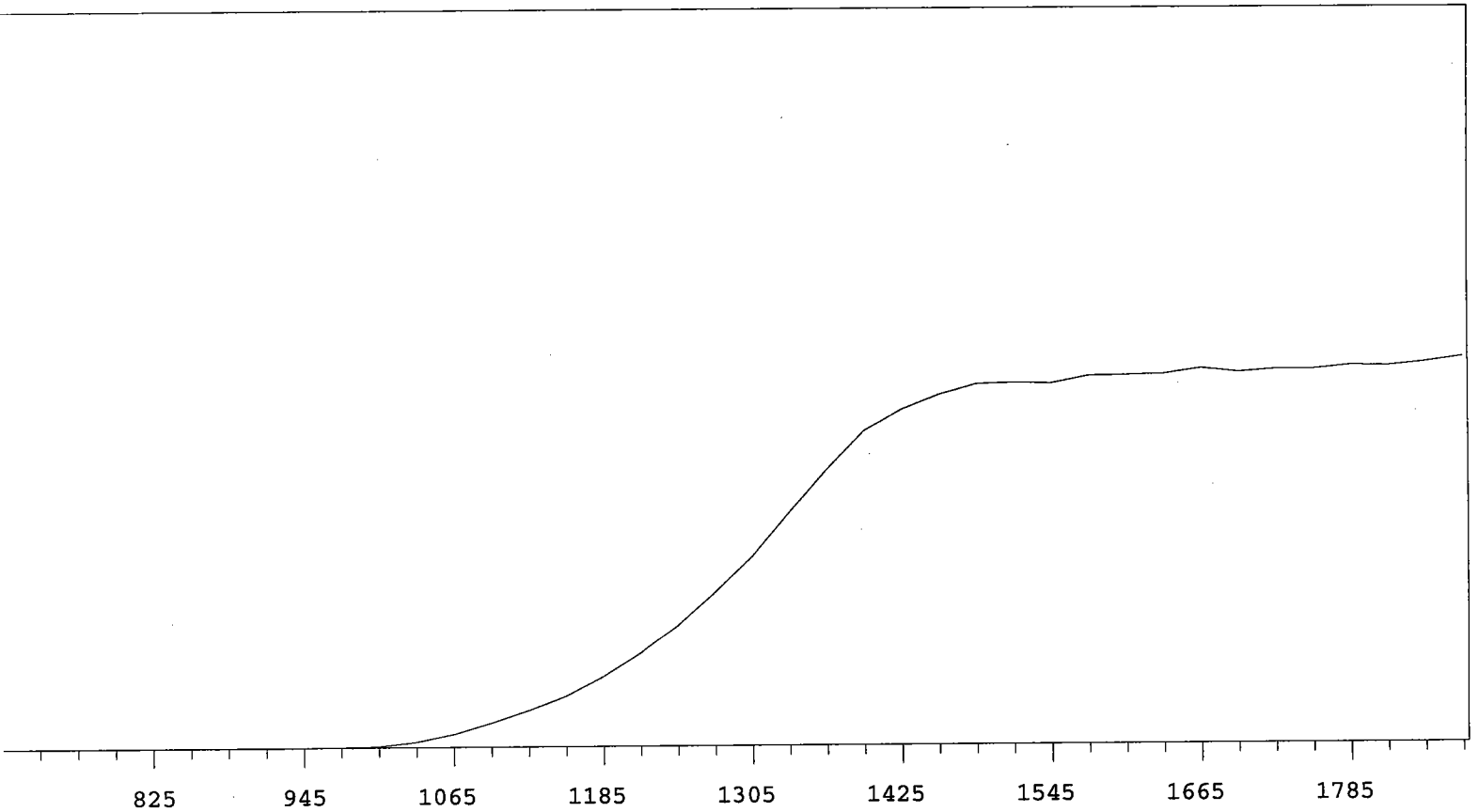
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16442	+66.24
735	0		1335	20146	+57.40
765	0		1365	23769	+46.40
795	0	>100	1395	26926	+34.68
825	2	+55.56	1425	29276	+24.40
855	1	>100	1455	31037	+15.28
885	0	-55.56	1485	32197	+7.91
915	3	>100	1515	32425	+4.33
945	0	>100	1545	32314	+2.14
975	16	>100	1575	33071	+2.66
1005	114	>100	1605	32918	+2.52
1035	451	>100	1635	33435	+1.02
1065	1100	>100	1665	33382	+0.73
1095	2068	>100	1695	33349	+1.07
1125	3189	>100	1725	33324	+1.28
1155	4386	>100	1755	34001	+2.26
1185	6094	+94.81	1785	33701	+3.08
1215	8184	+87.09	1815	34304	+2.97
1245	10489	+78.88	1845	34744	
1275	13273	+72.66	1875	35012	

MPC 9600 Plateau  
 Alpha Volts: 705

Instrument 4 MPC 9604 Detector B 7/1/2009  
 Beta Volts: 1575



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	15747	+62.38
735	1		1335	19230	+54.19
765	0	+0.00	1365	22255	+44.46
795	1	>100	1395	25299	+32.45
825	0	>100	1425	27370	+22.24
855	0	>100	1455	28625	+14.10
885	0	>100	1485	29467	+8.56
915	0	>100	1515	30213	+5.29
945	2	>100	1545	30326	+2.77
975	31	>100	1575	30564	+1.57
1005	176	>100	1605	30548	+1.52
1035	550	>100	1635	30820	+0.85
1065	1218	>100	1665	30898	+0.79
1095	2114	>100	1695	30779	+0.44
1125	3212	>100	1725	30934	+0.45
1155	4416	>100	1755	31008	+0.96
1185	6066	+92.28	1785	30991	+2.01
1215	7936	+85.60	1815	31196	+3.80
1245	10288	+76.79	1845	31781	
1275	13020	+70.59	1875	32406	



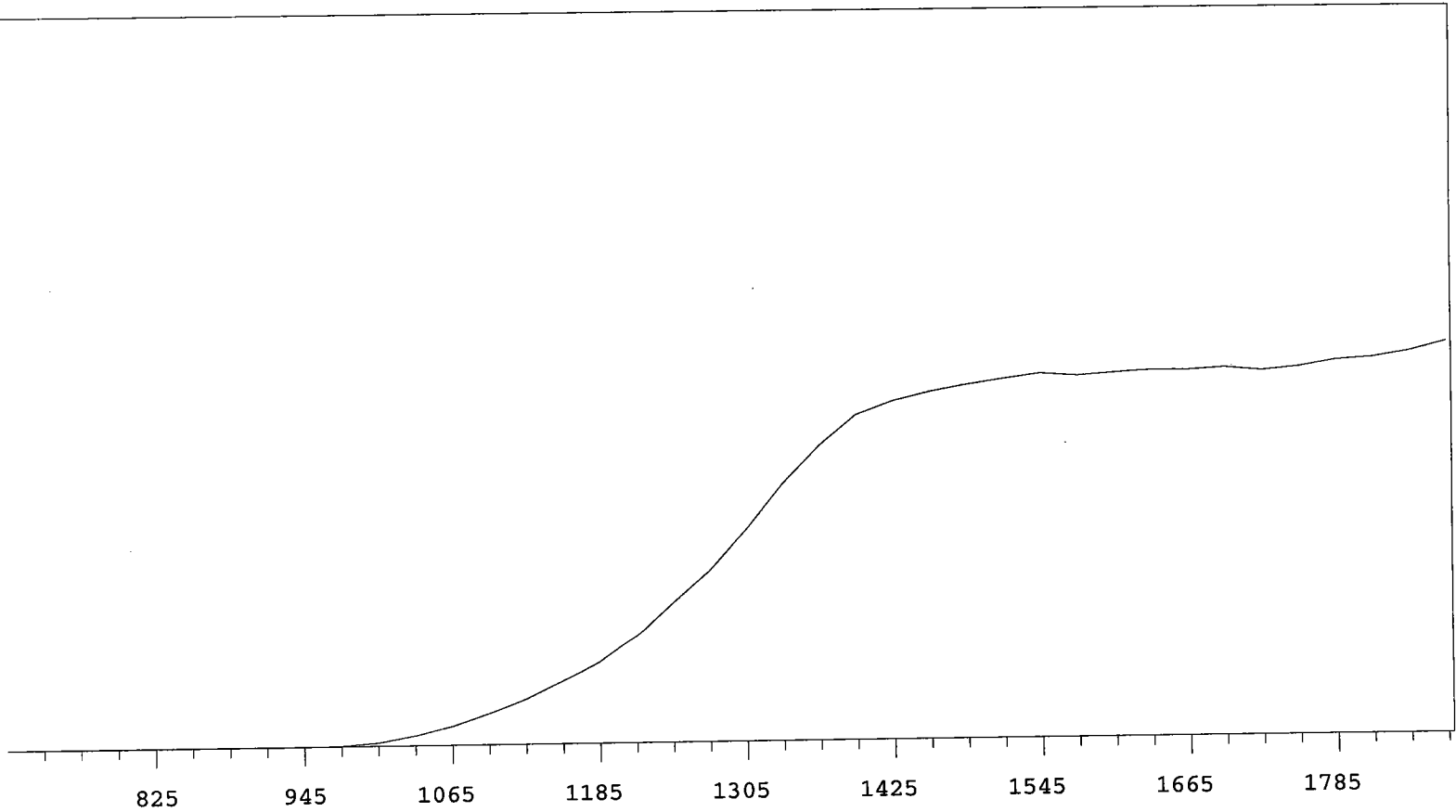
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	19796	+65.77
735	1		1335	24338	+57.55
765	0	+55.56	1365	28686	+45.86
795	2	+0.00	1395	32750	+32.27
825	0	-55.56	1425	34919	+20.83
855	1	>100	1455	36434	+11.45
885	0	>100	1485	37487	+5.80
915	0	>100	1515	37623	+3.32
945	2	>100	1545	37528	+2.07
975	24	>100	1575	38277	+2.12
1005	134	>100	1605	38338	+2.70
1035	558	>100	1635	38426	+1.12
1065	1361	>100	1665	39007	+1.06
1095	2511	>100	1695	38592	+0.64
1125	3762	>100	1725	38870	+0.63
1155	5246	>100	1755	38868	+1.30
1185	7268	+96.29	1785	39238	+1.45
1215	9733	+88.98	1815	39169	+2.34
1245	12701	+79.94	1845	39570	
1275	16176	+73.13	1875	40086	



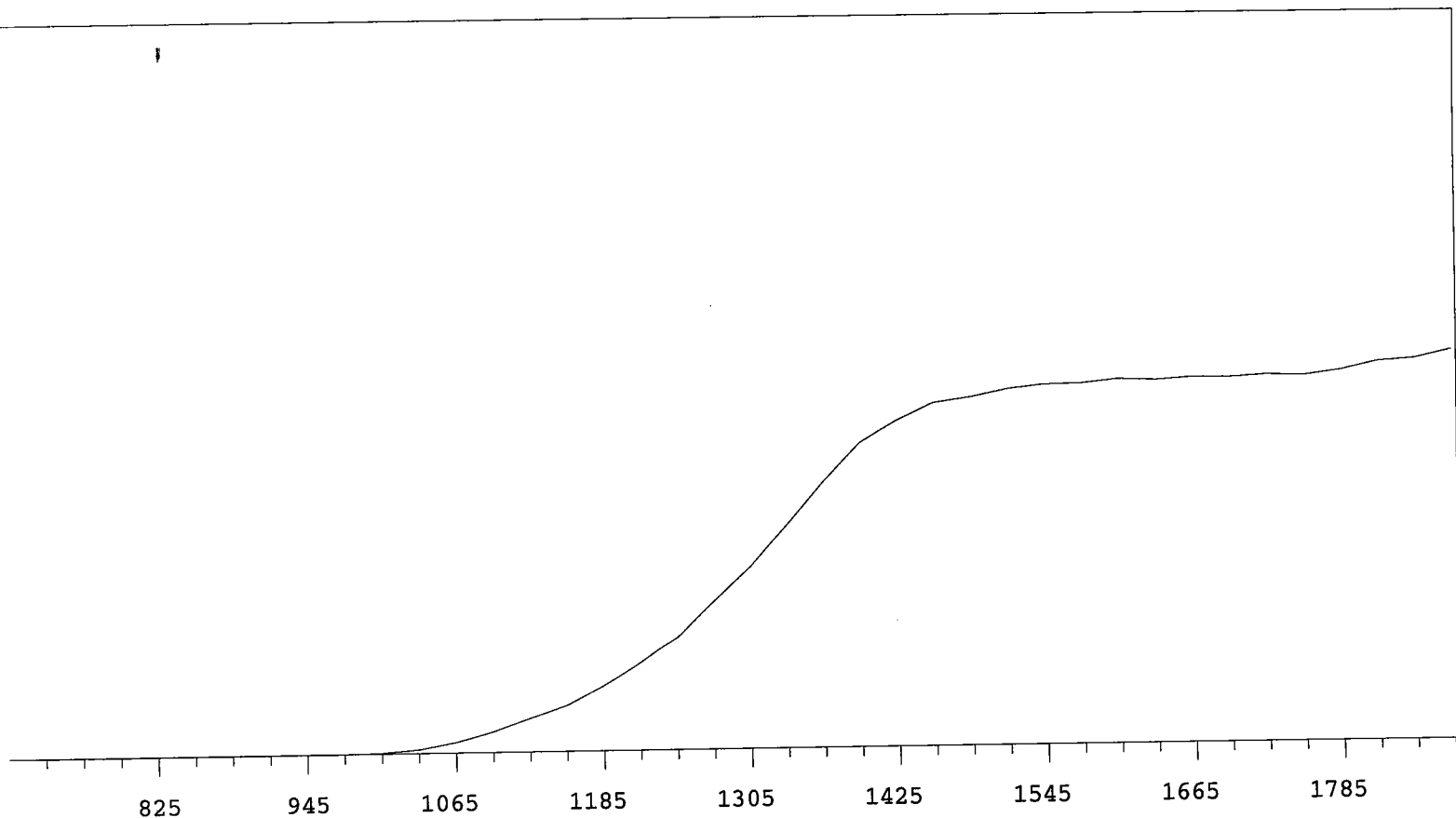
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 4 MPC 9604 Detector D  
Beta Volts: 1575

7/1/2009



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	18491	+61.09
735	0		1335	22444	+51.56
765	0	+0.00	1365	25756	+37.44
795	0	>100	1395	28379	+23.82
825	1	+83.33	1425	29517	+14.00
855	1	+55.56	1455	30309	+8.08
885	0	+0.00	1485	30874	+6.03
915	1	>100	1515	31345	+3.66
945	1	>100	1545	31782	+2.17
975	60	>100	1575	31567	+1.31
1005	297	>100	1605	31789	+0.78
1035	855	>100	1635	31963	+1.34
1065	1647	>100	1665	31956	+0.29
1095	2700	>100	1695	32123	+0.20
1125	3921	>100	1725	31850	+1.46
1155	5471	+96.54	1755	32114	+2.39
1185	7042	+90.21	1785	32665	+3.95
1215	9405	+82.23	1815	32876	+4.96
1245	12266	+76.33	1845	33399	
1275	14989	+69.38	1875	34206	

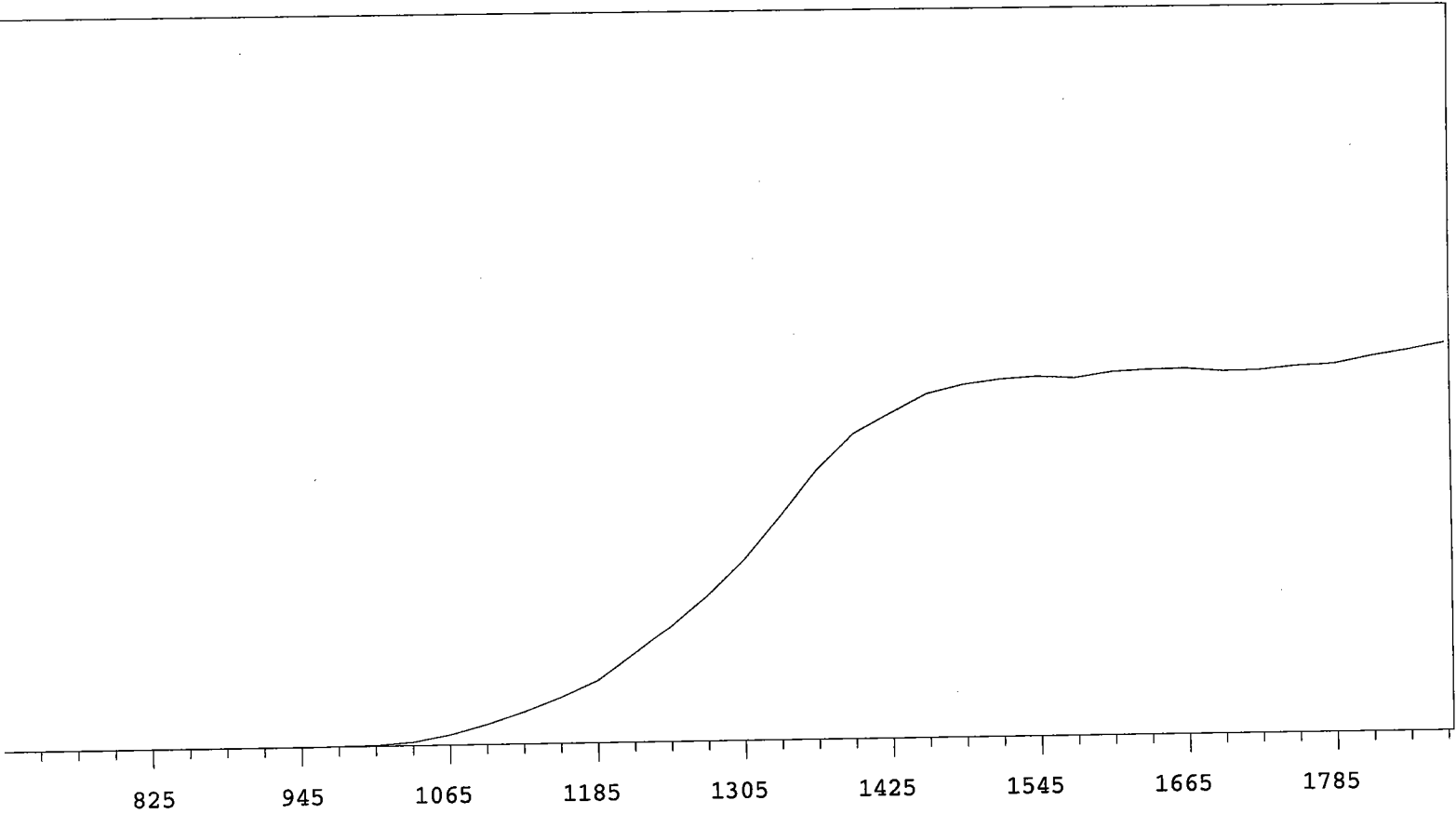


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	13974	+68.00
735	0		1335	17170	+58.62
765	1		1365	20456	+47.04
795	1	+83.33	1395	23332	+33.83
825	1	-83.33	1425	24996	+21.10
855	1	>100	1455	26290	+12.40
885	0	-55.56	1485	26683	+7.74
915	0	>100	1515	27270	+4.43
945	1	>100	1545	27590	+3.48
975	9	>100	1575	27635	+1.71
1005	76	>100	1605	27932	+1.20
1035	308	>100	1635	27807	+0.88
1065	814	>100	1665	28006	+0.62
1095	1600	>100	1695	27964	+0.63
1125	2598	>100	1725	28112	+0.98
1155	3596	>100	1755	28020	+2.84
1185	5065	+96.05	1785	28392	+3.76
1215	6773	+90.23	1815	29028	+5.17
1245	8717	+81.43	1845	29220	
1275	11391	+74.83	1875	29849	

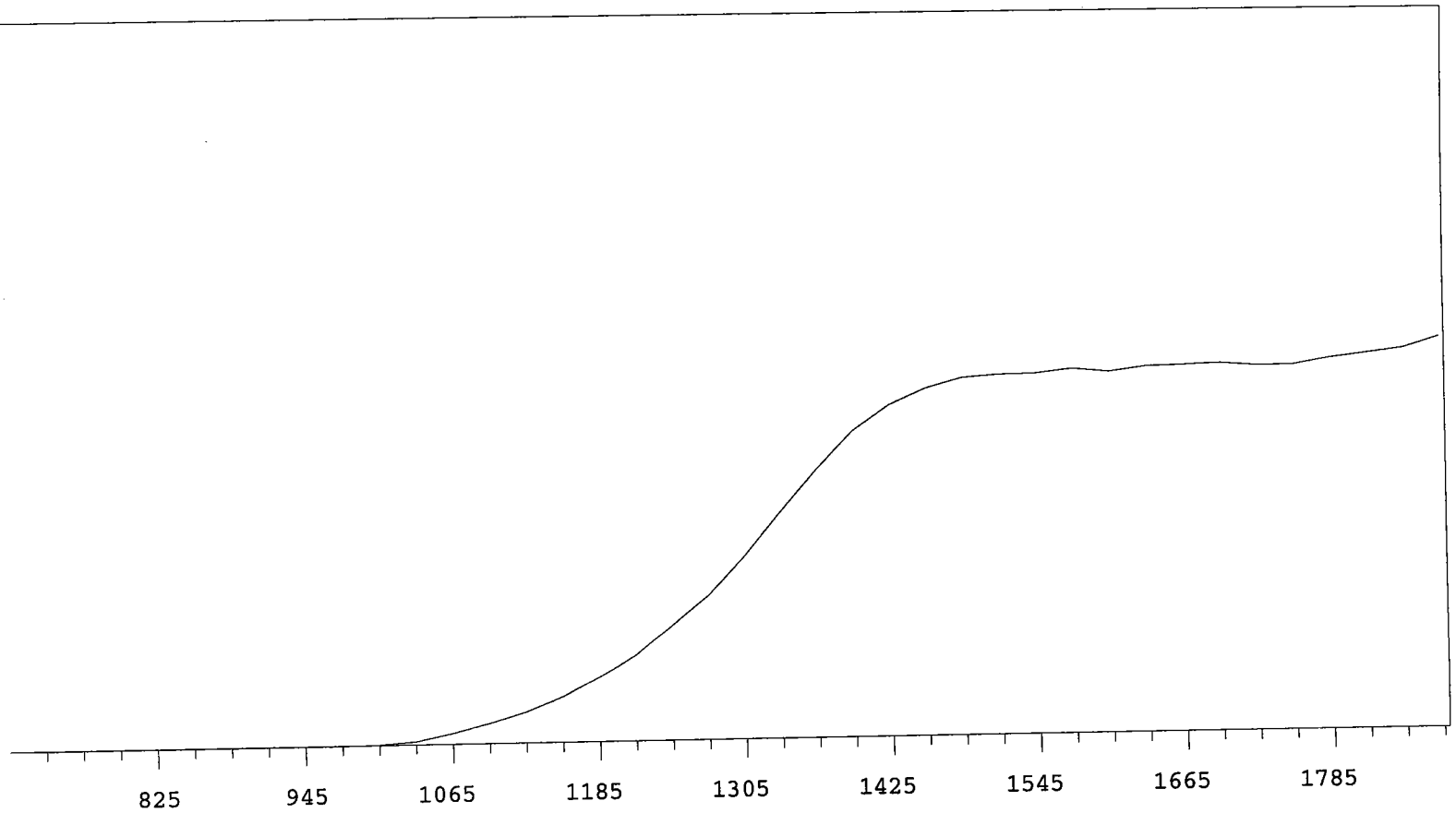
MPC 9600 Plateau  
 Alpha Volts: 705

Instrument 5 MPC 9604 Detector B  
 Beta Volts: 1575

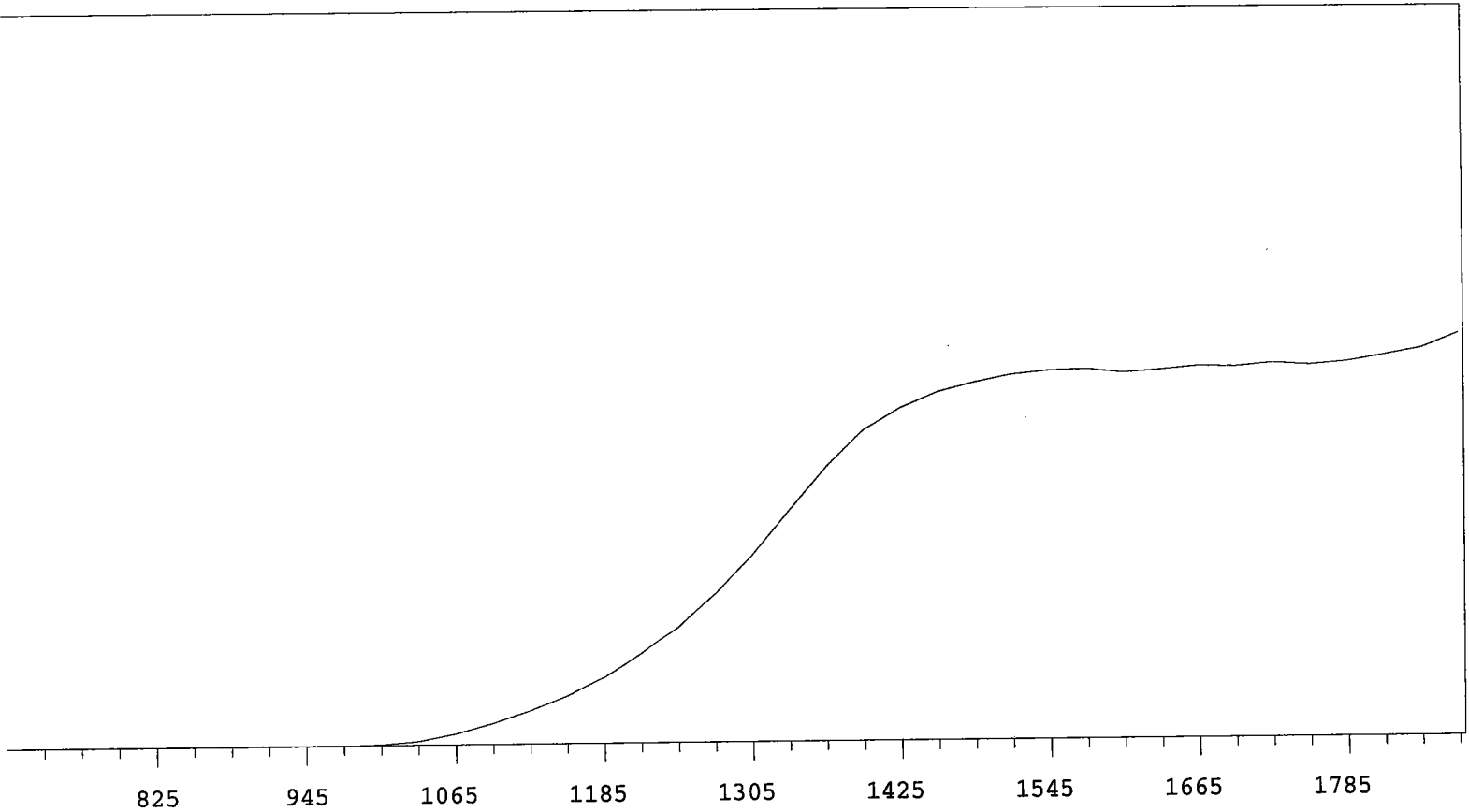
7/1/2009



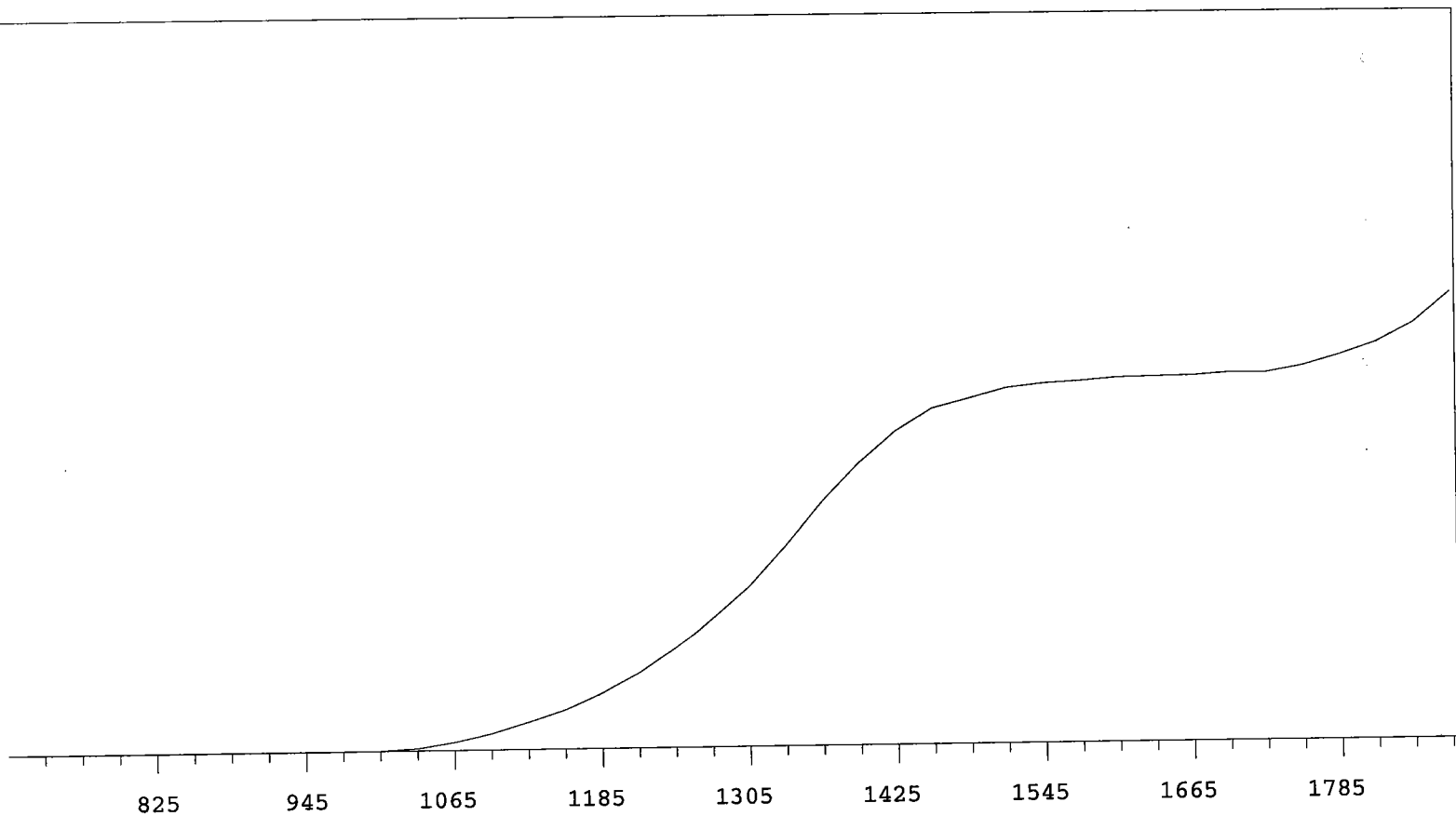
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	17414	+68.46
735	0		1335	21540	+59.98
765	0		1365	25854	+46.75
795	0	>100	1395	29222	+33.38
825	1	>100	1425	31128	+21.52
855	1	+41.67	1455	32995	+13.26
885	2	-33.33	1485	33846	+8.09
915	0	>100	1515	34289	+3.25
945	1	>100	1545	34528	+2.00
975	17	>100	1575	34311	+1.78
1005	87	>100	1605	34866	+1.78
1035	336	>100	1635	35046	+1.14
1065	1010	>100	1665	35087	-0.26
1095	1955	>100	1695	34795	+0.11
1125	3124	>100	1725	34857	+0.93
1155	4486	>100	1755	35220	+2.81
1185	6017	>100	1785	35363	+3.98
1215	8507	+91.20	1815	36028	+4.79
1245	11148	+82.59	1845	36577	
1275	14003	+74.21	1875	37207	



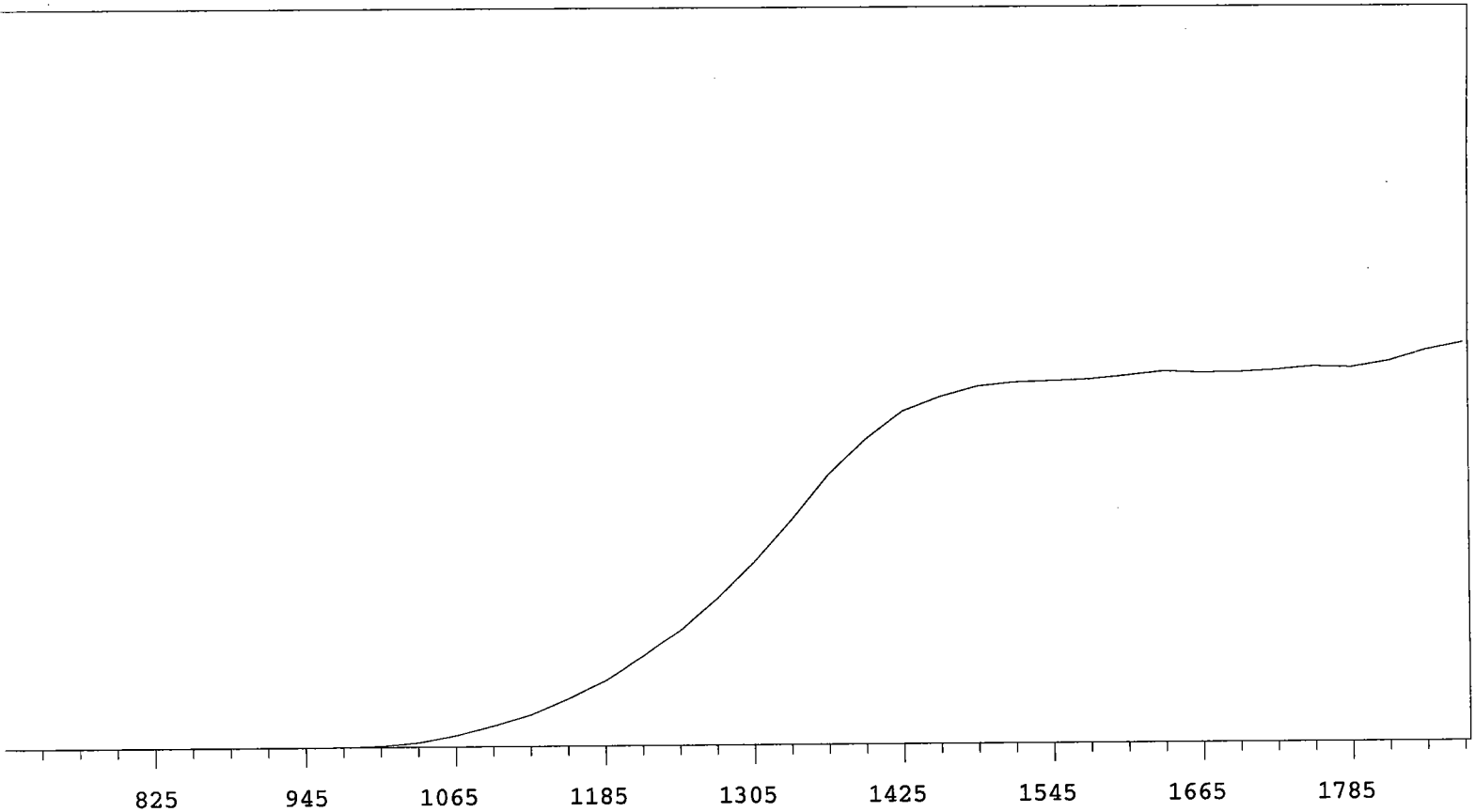
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	17085	+68.24
735	0		1335	21135	+59.99
765	0		1365	25066	+47.39
795	0	>100	1395	28530	+33.93
825	0	>100	1425	30823	+22.30
855	1	>100	1455	32287	+12.93
885	0	>100	1485	33217	+6.71
915	1	>100	1515	33474	+3.57
945	2	>100	1545	33517	+1.17
975	7	>100	1575	33921	+1.13
1005	56	>100	1605	33584	+1.27
1035	305	>100	1635	34014	+1.12
1065	982	>100	1665	34116	+0.98
1095	1874	>100	1695	34225	-0.22
1125	2890	>100	1725	33980	+0.58
1155	4260	>100	1755	33971	+1.96
1185	6001	>100	1785	34541	+3.64
1215	8050	+91.54	1815	34954	+5.38
1245	10895	+82.98	1845	35375	
1275	13556	+76.26	1875	36384	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	15025	+68.87
735	0		1335	18640	+58.97
765	0		1365	22048	+45.84
795	0	>100	1395	24877	+32.08
825	0	>100	1425	26653	+20.83
855	0	>100	1455	27899	+13.08
885	0	>100	1485	28670	+8.43
915	0	>100	1515	29257	+5.13
945	0	>100	1545	29568	+2.06
975	6	>100	1575	29683	+0.52
1005	81	>100	1605	29362	+0.57
1035	318	>100	1635	29589	+0.80
1065	897	>100	1665	29870	+1.82
1095	1710	>100	1695	29783	+0.90
1125	2714	>100	1725	30077	+0.75
1155	3925	>100	1755	29889	+2.02
1185	5395	+97.31	1785	30152	+3.33
1215	7282	+88.49	1815	30656	+6.54
1245	9426	+81.36	1845	31211	
1275	12007	+75.65	1875	32389	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16217	+71.57
735	0		1335	20184	+63.76
765	0		1365	24605	+53.98
795	0	>100	1395	28528	+41.40
825	0	>100	1425	31675	+28.02
855	0	>100	1455	33899	+17.93
885	0	>100	1485	34826	+10.65
915	0	>100	1515	35815	+6.13
945	0	>100	1545	36225	+4.15
975	7	>100	1575	36456	+2.28
1005	31	>100	1605	36747	+1.47
1035	238	>100	1635	36801	+1.26
1065	810	>100	1665	36859	+0.85
1095	1637	>100	1695	37095	+1.85
1125	2743	>100	1725	37072	+4.01
1155	3932	>100	1755	37724	+6.65
1185	5579	>100	1785	38802	+10.33
1215	7602	+94.41	1815	40036	+14.71
1245	10078	+84.86	1845	41975	
1275	13091	+77.67	1875	45123	

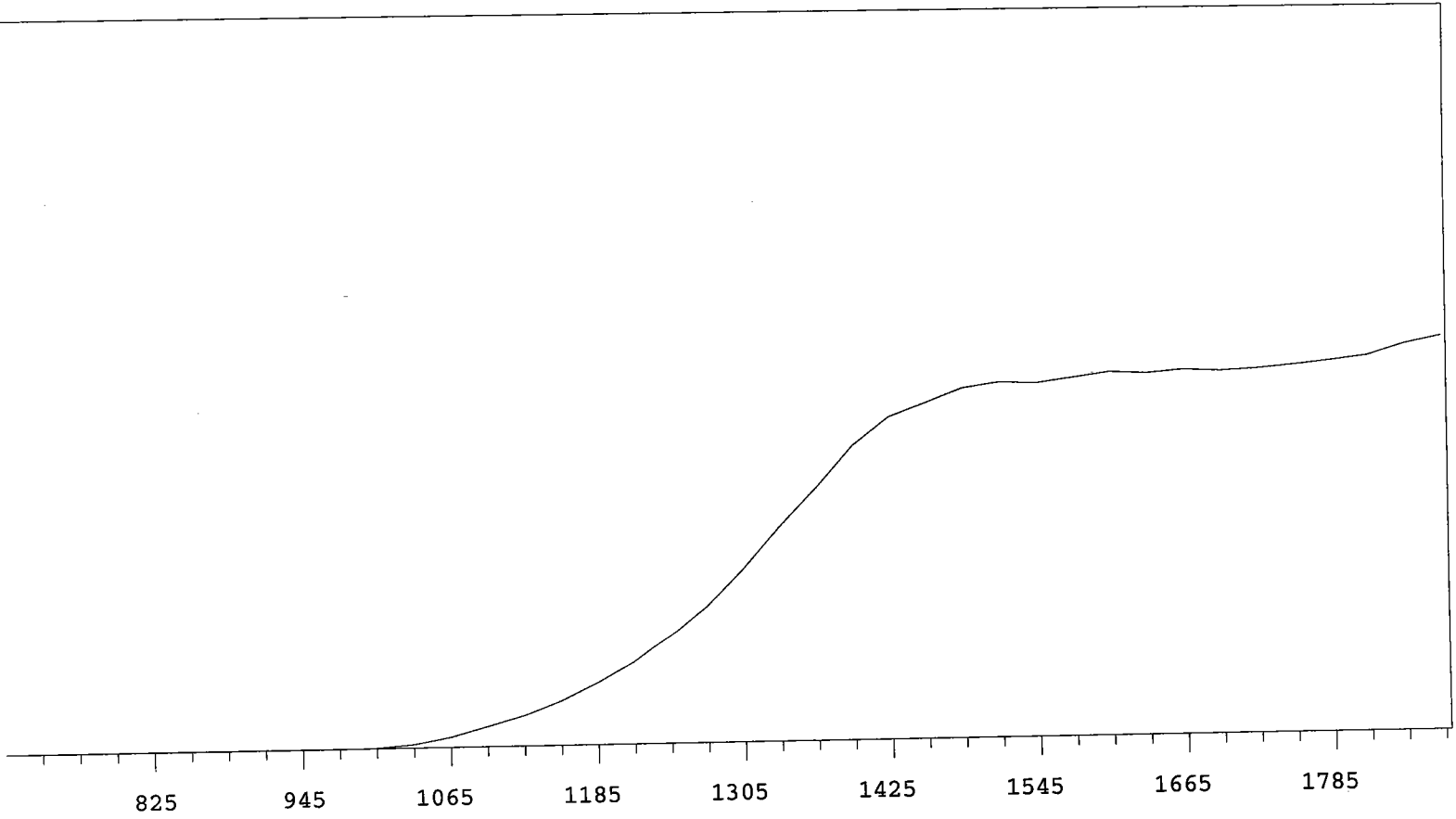


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	20094	+68.67
735	0		1335	24665	+59.40
765	0		1365	29591	+47.86
795	0	>100	1395	33376	+34.51
825	1	+83.33	1425	36440	+22.50
855	1	-83.33	1455	38024	+13.58
885	0	>100	1485	39187	+7.04
915	0	>100	1515	39608	+3.63
945	5	>100	1545	39722	+2.10
975	18	>100	1575	39894	+2.32
1005	125	>100	1605	40298	+2.09
1035	482	>100	1635	40711	+1.41
1065	1255	>100	1665	40574	+0.80
1095	2318	>100	1695	40608	+1.02
1125	3540	>100	1725	40839	+1.28
1155	5288	>100	1755	41201	+1.97
1185	7168	+98.51	1785	41065	+3.74
1215	9760	+88.48	1815	41711	+5.42
1245	12656	+81.52	1845	42917	
1275	16065	+74.58	1875	43699	

MPC 9600 Plateau  
 Alpha Volts: 705

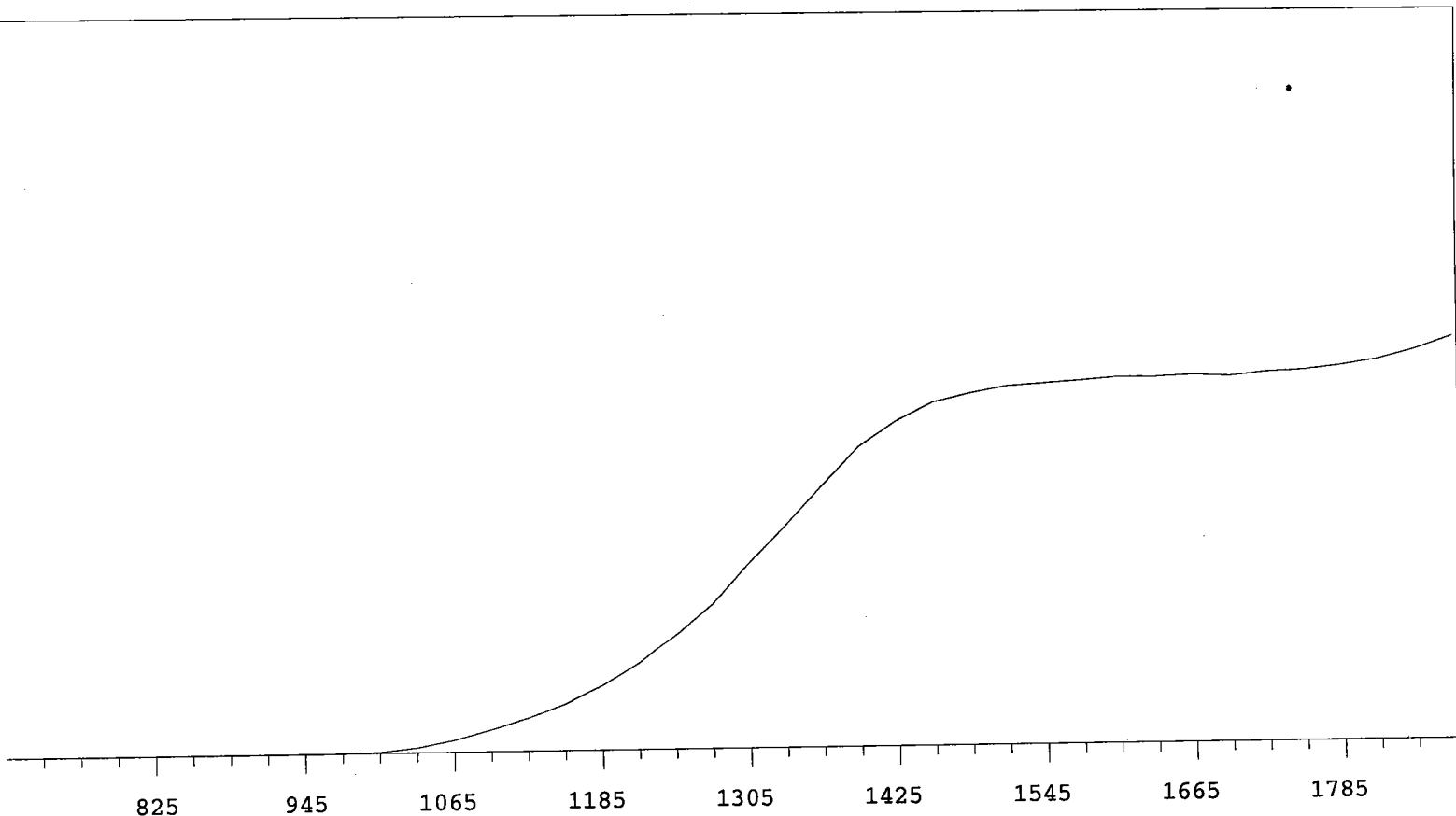
Instrument 6 MPC 9604 Detector C  
 Beta Volts: 1575

7/1/2009



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	17350	+67.80
735	0		1335	21371	+60.27
765	1	+0.00	1365	25084	+49.32
795	0	>100	1395	29177	+36.15
825	0	+0.00	1425	31927	+24.86
855	0	>100	1455	33217	+14.70
885	1	>100	1485	34545	+7.74
915	1	>100	1515	35097	+4.64
945	2	>100	1545	34927	+2.96
975	8	>100	1575	35439	+2.21
1005	70	>100	1605	35939	+2.41
1035	353	>100	1635	35763	+0.94
1065	990	>100	1665	36053	+0.35
1095	1956	>100	1695	35886	+1.15
1125	3024	>100	1725	36066	+1.77
1155	4400	>100	1755	36379	+3.03
1185	6173	+99.75	1785	36768	+4.80
1215	8230	+89.85	1815	37193	+6.14
1245	10904	+82.36	1845	38320	
1275	13747	+76.18	1875	39061	



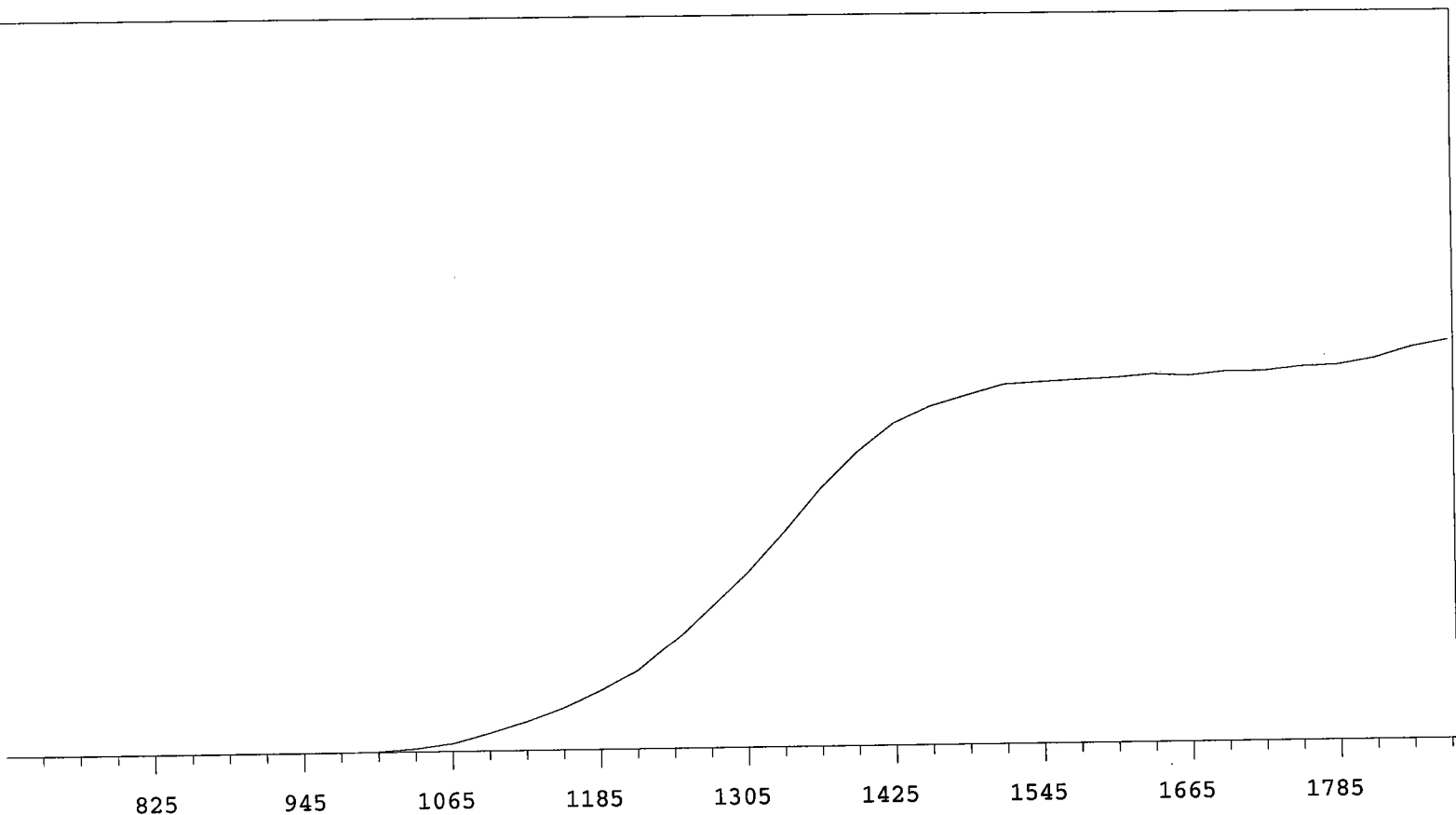


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	17954	+65.82
735	0		1335	21482	+57.64
765	0		1365	25373	+45.78
795	1	+0.00	1395	29042	+34.80
825	0	>100	1425	31373	+23.29
855	0	+0.00	1455	33143	+14.25
885	0	>100	1485	34006	+8.49
915	1	>100	1515	34662	+4.71
945	0	>100	1545	34892	+3.14
975	14	>100	1575	35129	+1.86
1005	109	>100	1605	35411	+1.49
1035	481	>100	1635	35380	+0.62
1065	1177	>100	1665	35554	+0.65
1095	2133	>100	1695	35385	+1.18
1125	3243	>100	1725	35755	+1.89
1155	4554	>100	1755	35907	+3.26
1185	6285	+98.38	1785	36305	+4.62
1215	8468	+89.75	1815	36870	+6.98
1245	11266	+83.13	1845	37807	
1275	14088	+74.43	1875	39047	

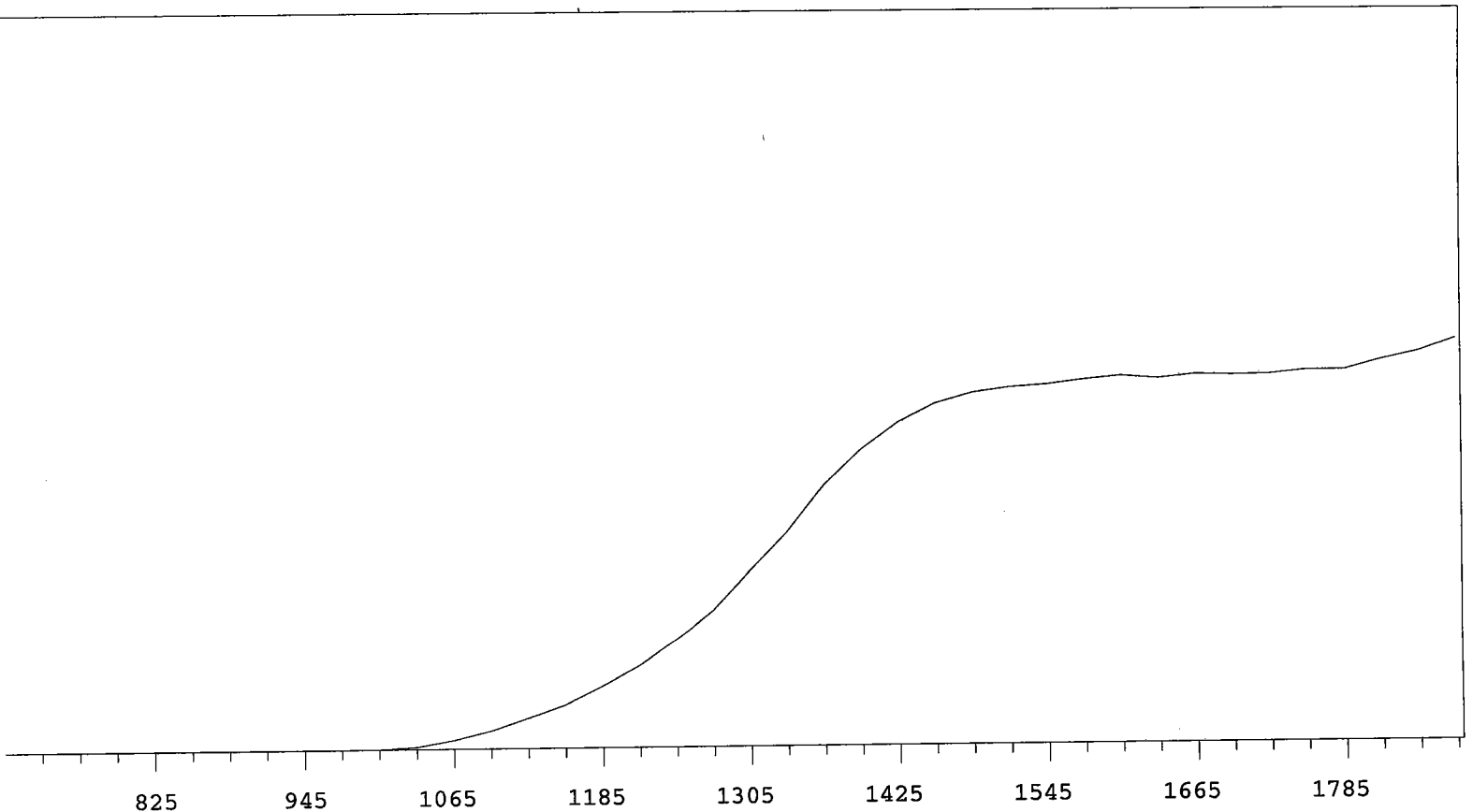
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 7 MPC 9604 Detector A  
Beta Volts: 1575

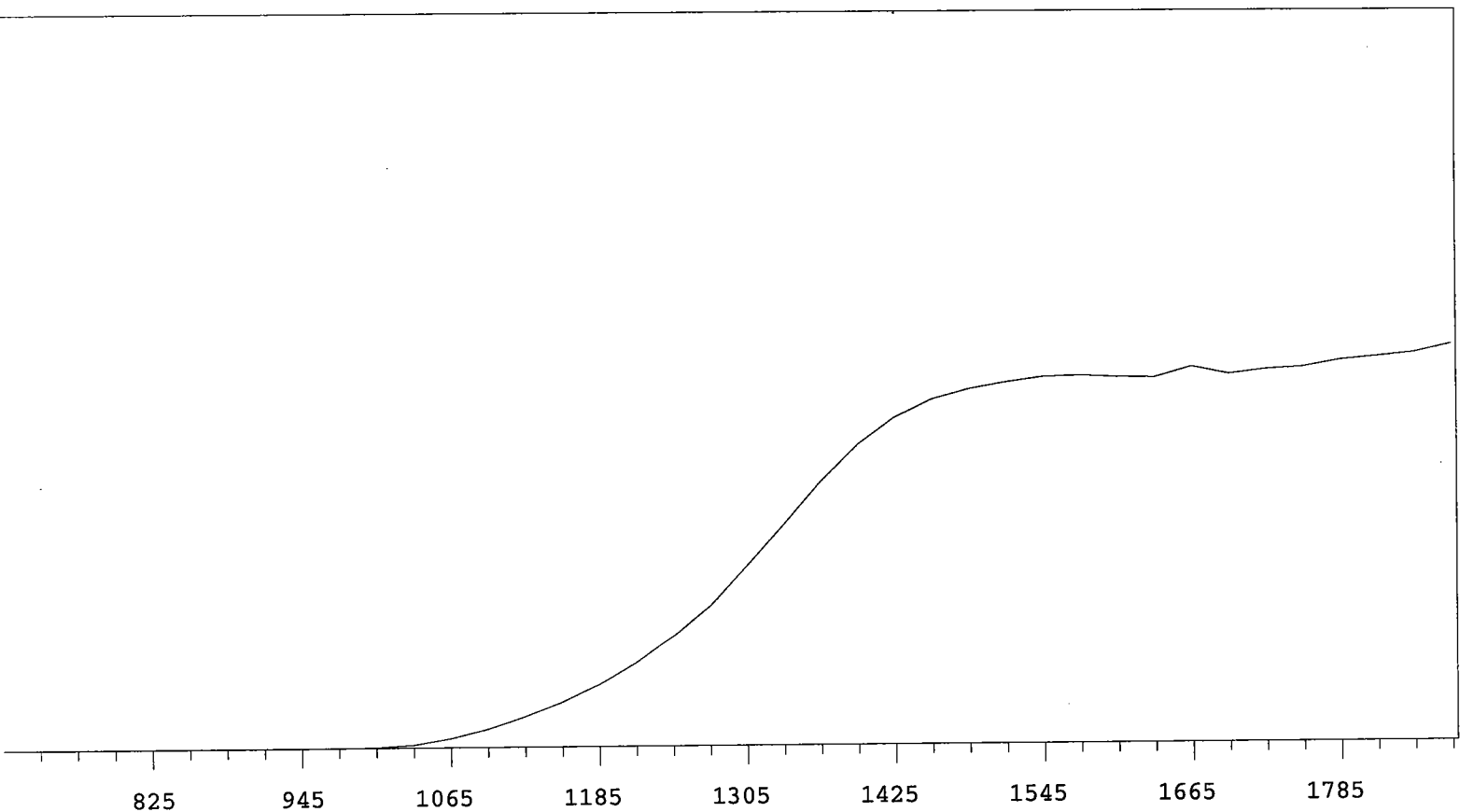
7/1/2009



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	13228	+70.36
735	0		1335	16271	+60.12
765	0		1365	19506	+49.19
795	0	>100	1395	22188	+36.46
825	1	+83.33	1425	24373	+24.43
855	1	-83.33	1455	25649	+15.99
885	0	-55.56	1485	26433	+9.58
915	0	>100	1515	27195	+5.74
945	1	>100	1545	27367	+3.24
975	3	>100	1575	27490	+1.86
1005	42	>100	1605	27608	+1.22
1035	242	>100	1635	27841	+1.33
1065	613	>100	1665	27695	+1.11
1095	1353	>100	1695	27999	+1.42
1125	2213	>100	1725	27992	+2.04
1155	3256	>100	1755	28289	+2.52
1185	4474	>100	1785	28408	+4.56
1215	5932	+94.10	1815	28863	+5.70
1245	8072	+87.32	1845	29664	
1275	10579	+79.61	1875	30148	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16978	+70.97
735	0		1335	20569	+61.39
765	0		1365	24989	+48.97
795	0	>100	1395	28389	+36.69
825	0	>100	1425	30977	+24.05
855	0	>100	1455	32727	+14.93
885	0	>100	1485	33697	+8.42
915	1	>100	1515	34195	+4.89
945	1	>100	1545	34437	+3.49
975	3	>100	1575	34850	+2.11
1005	34	>100	1605	35174	+1.62
1035	221	>100	1635	34923	+0.68
1065	825	>100	1665	35250	+0.35
1095	1709	>100	1695	35171	+1.24
1125	2873	>100	1725	35237	+1.02
1155	4078	>100	1755	35584	+2.79
1185	5858	>100	1785	35587	+4.59
1215	7809	+91.82	1815	36485	+6.74
1245	10336	+85.02	1845	37270	
1275	13215	+77.79	1875	38453	

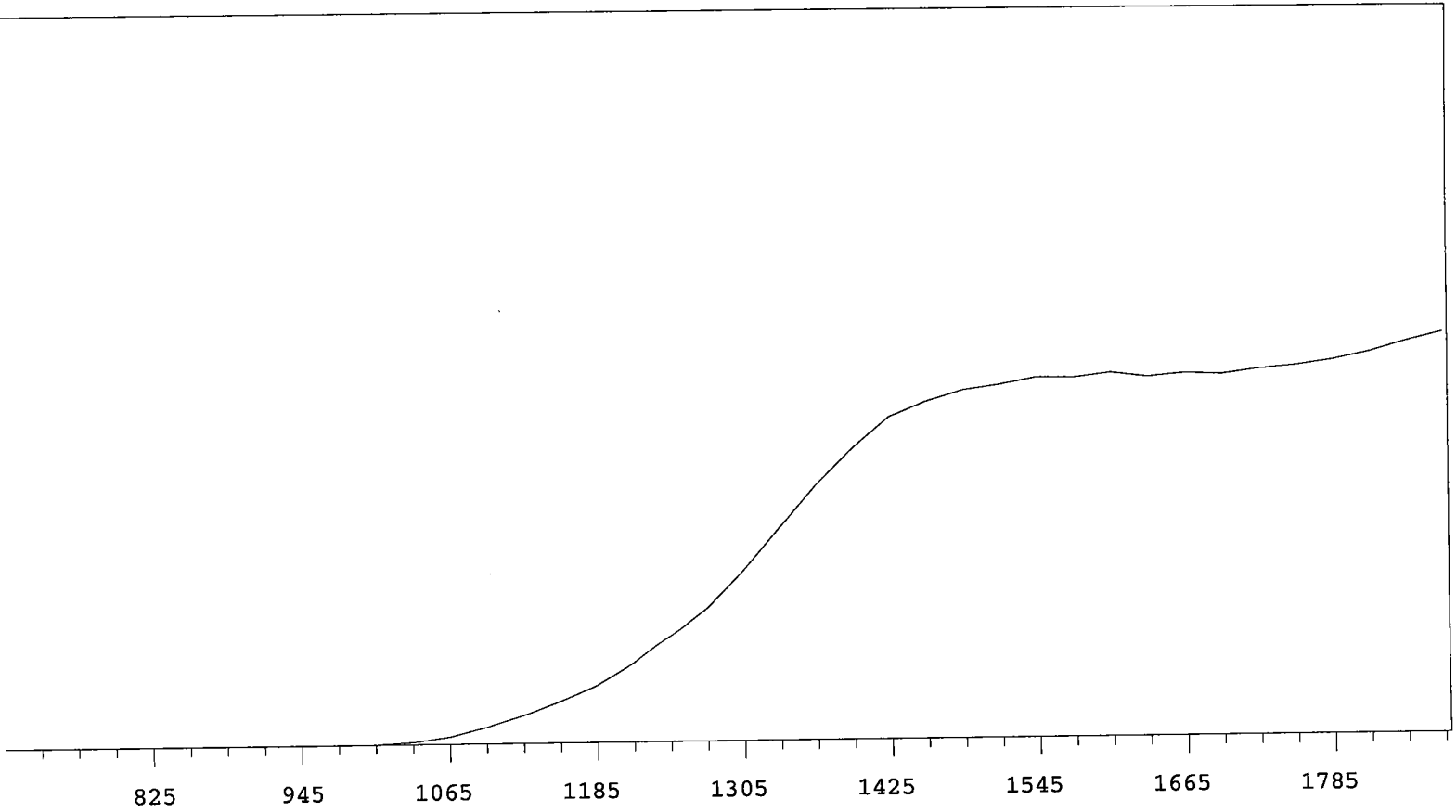


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16543	+70.03
735	0		1335	20257	+60.71
765	0		1365	24245	+48.17
795	0	>100	1395	27602	+35.50
825	0	>100	1425	30019	+23.48
855	0	>100	1455	31614	+14.53
885	0	>100	1485	32522	+8.91
915	0	>100	1515	33103	+5.28
945	0	>100	1545	33572	+2.60
975	4	>100	1575	33695	+0.70
1005	57	>100	1605	33525	+1.48
1035	277	>100	1635	33477	+0.99
1065	817	>100	1665	34432	+1.49
1095	1666	>100	1695	33745	+1.43
1125	2766	>100	1725	34149	+1.60
1155	4077	>100	1755	34350	+3.69
1185	5667	>100	1785	34955	+3.62
1215	7694	+91.50	1815	35251	+4.44
1245	10209	+84.83	1845	35592	
1275	12950	+77.50	1875	36382	

MPC 9600 Plateau  
 Alpha Volts: 705

Instrument 7 MPC 9604 Detector D  
 Beta Volts: 1575

7/1/2009

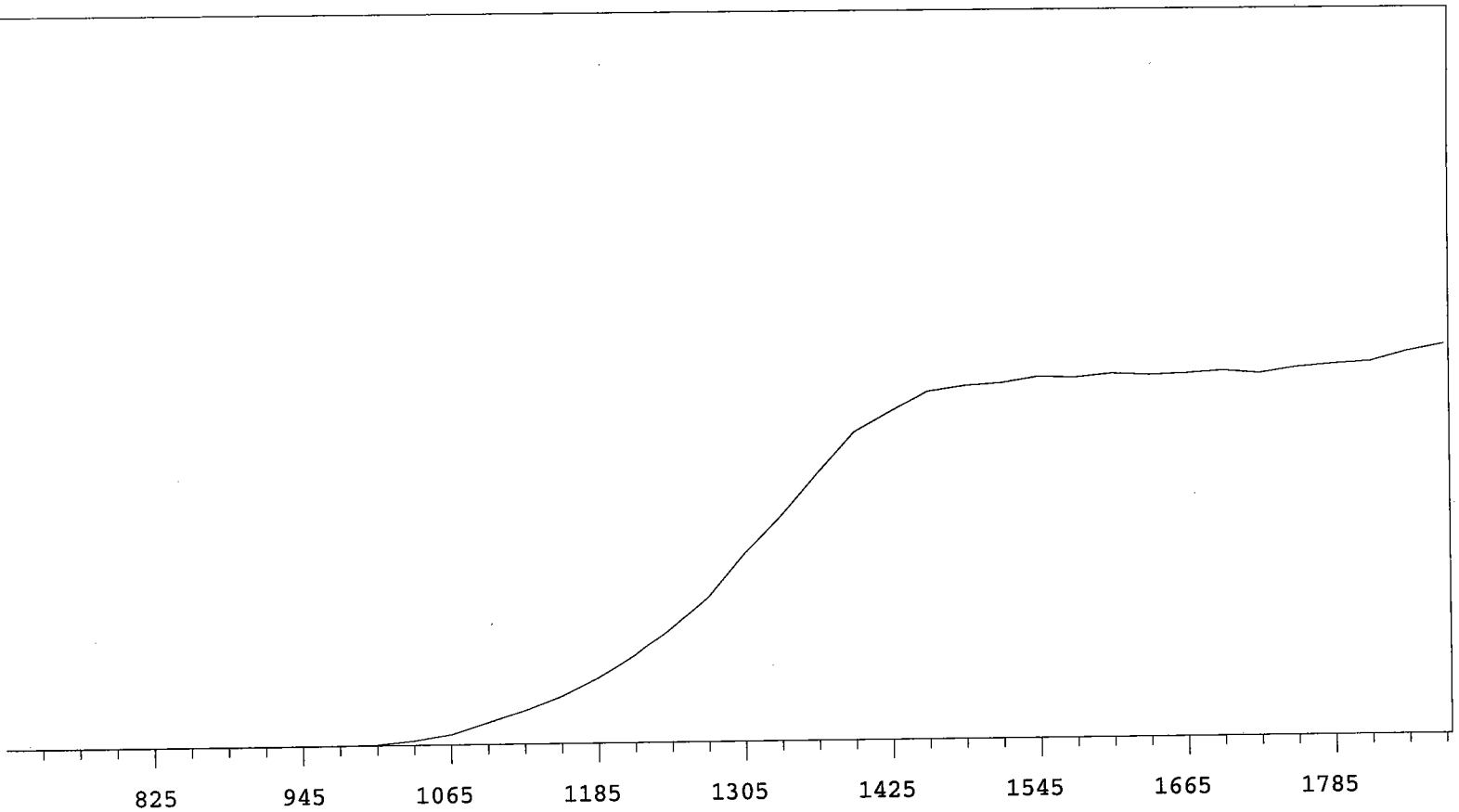


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	14016	+71.42
735	0		1335	17436	+62.21
765	0		1365	20814	+50.32
795	0	>100	1395	23760	+36.91
825	0	>100	1425	26302	+24.91
855	0	>100	1455	27519	+15.17
885	0	>100	1485	28410	+8.91
915	0	>100	1515	28843	+5.41
945	0	>100	1545	29396	+3.58
975	5	>100	1575	29357	+1.54
1005	29	>100	1605	29719	+0.51
1035	204	>100	1635	29358	+0.23
1065	609	>100	1665	29623	+0.57
1095	1354	>100	1695	29509	+2.12
1125	2316	>100	1725	29896	+2.84
1155	3418	>100	1755	30165	+4.42
1185	4654	>100	1785	30570	+5.65
1215	6455	+92.99	1815	31180	+6.95
1245	8669	+86.45	1845	31995	
1275	10931	+79.15	1875	32717	

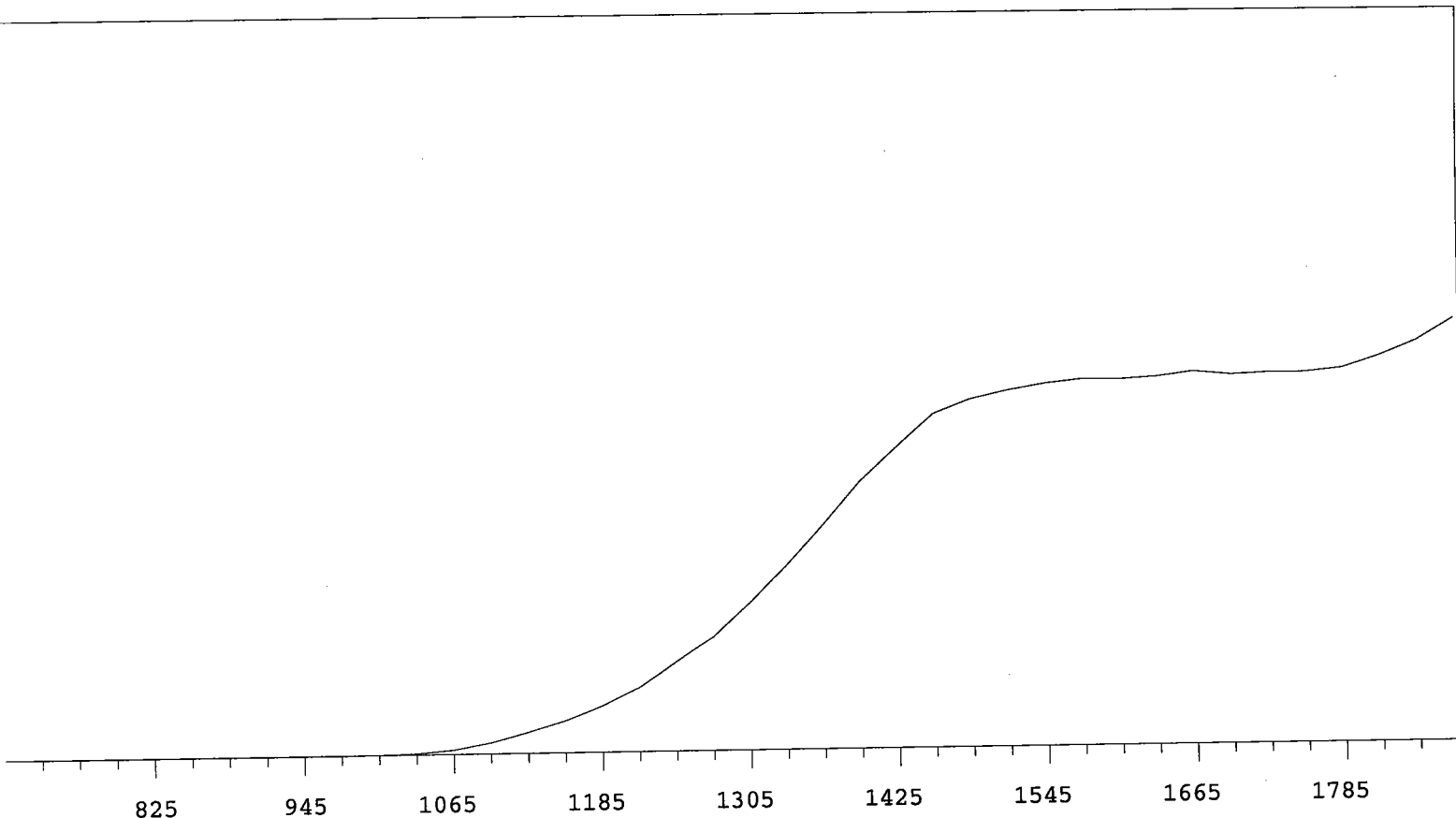
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 8 MPC 9604 Detector A  
Beta Volts: 1575

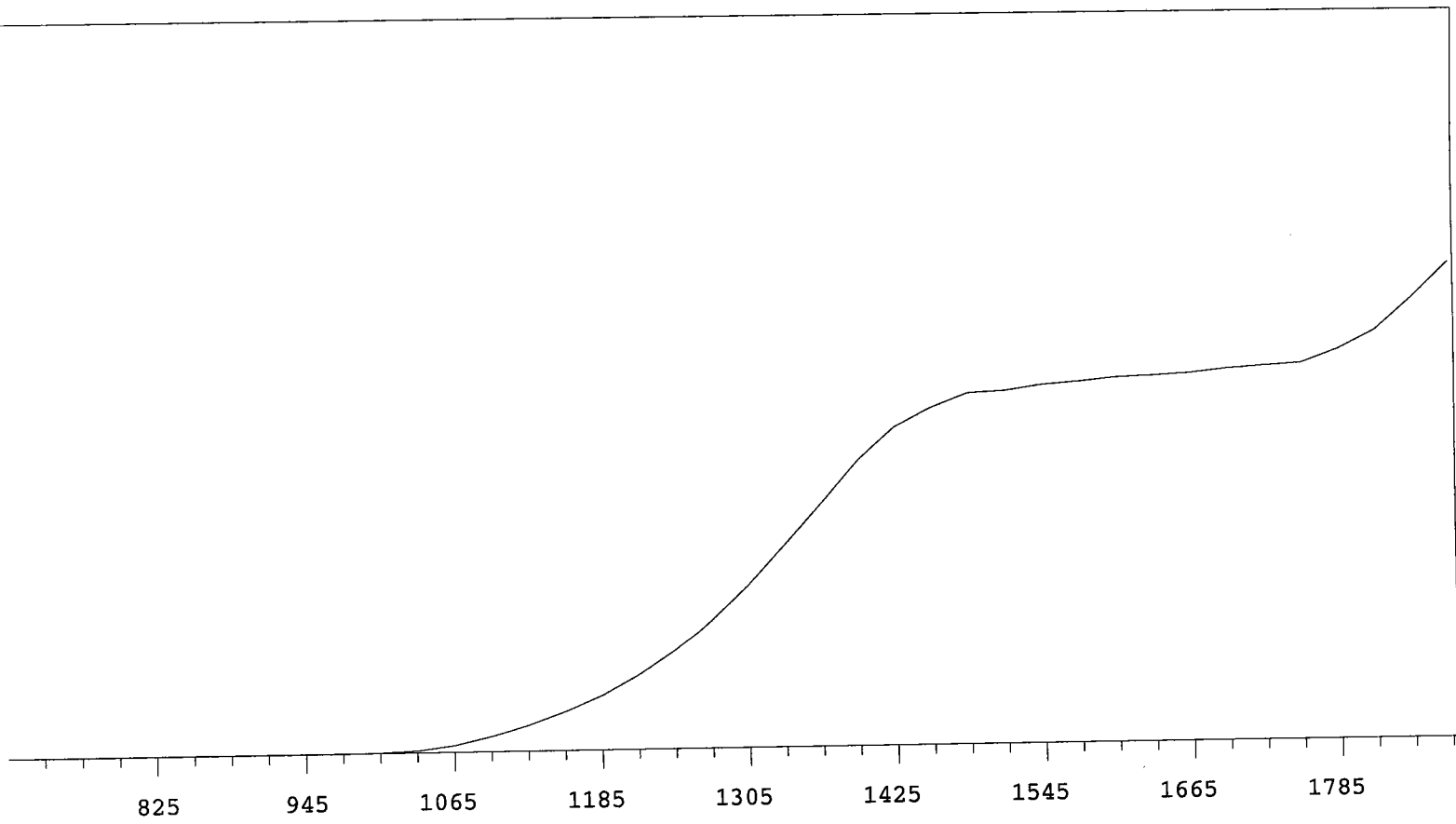
7/1/2009



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	19482	+67.45
735	0		1335	23344	+59.35
765	0		1365	27793	+45.86
795	0	>100	1395	31916	+34.29
825	0	>100	1425	33979	+21.61
855	0	>100	1455	35993	+11.71
885	0	>100	1485	36530	+7.04
915	0	>100	1515	36796	+3.11
945	1	>100	1545	37393	+2.44
975	9	>100	1575	37279	+1.41
1005	96	>100	1605	37650	+0.49
1035	468	>100	1635	37458	+0.91
1065	1084	>100	1665	37579	+0.12
1095	2286	>100	1695	37828	+1.10
1125	3479	>100	1725	37535	+1.72
1155	4912	>100	1755	38104	+2.18
1185	6819	+98.23	1785	38416	+4.12
1215	9153	+89.05	1815	38633	+4.92
1245	12105	+83.21	1845	39649	
1275	15122	+75.24	1875	40366	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16337	+74.91
735	0		1335	20471	+68.07
765	0		1365	25012	+57.86
795	0	>100	1395	29694	+47.48
825	0	>100	1425	33409	+35.17
855	0	>100	1455	37013	+23.27
885	0	>100	1485	38629	+14.35
915	0	>100	1515	39529	+7.69
945	0	>100	1545	40284	+4.34
975	0	>100	1575	40711	+2.52
1005	20	>100	1605	40642	+1.97
1035	122	>100	1635	40879	+1.11
1065	511	>100	1665	41405	+0.98
1095	1263	>100	1695	41011	+0.30
1125	2390	>100	1725	41182	+0.41
1155	3641	>100	1755	41178	+3.28
1185	5246	>100	1785	41573	+6.47
1215	7212	+98.32	1815	42858	+10.82
1245	9897	+89.80	1845	44440	
1275	12742	+82.40	1875	46780	



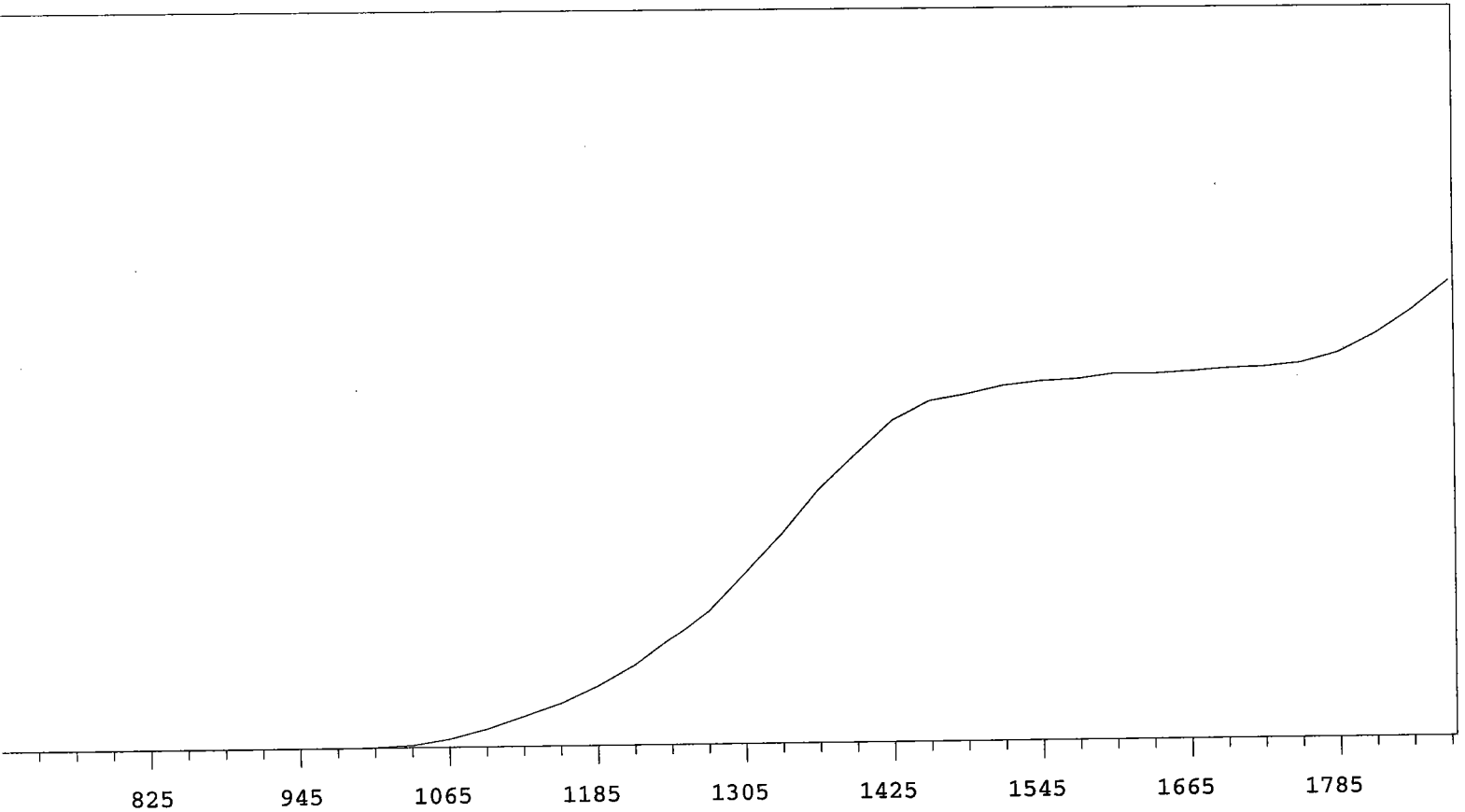
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16303	+72.82
735	0		1335	20309	+64.32
765	0		1365	24364	+53.82
795	0	>100	1395	28527	+40.95
825	0	>100	1425	31774	+28.74
855	0	>100	1455	33631	+16.87
885	0	>100	1485	35030	+9.25
915	0	>100	1515	35208	+5.21
945	0	>100	1545	35741	+3.27
975	4	>100	1575	36019	+2.95
1005	46	>100	1605	36373	+2.21
1035	202	>100	1635	36484	+2.27
1065	697	>100	1665	36713	+2.28
1095	1532	>100	1695	37093	+2.46
1125	2614	>100	1725	37325	+4.17
1155	3953	>100	1755	37543	+7.52
1185	5474	>100	1785	38833	+13.43
1215	7466	+93.09	1815	40656	+19.49
1245	9842	+86.73	1845	43753	
1275	12814	+80.29	1875	47246	



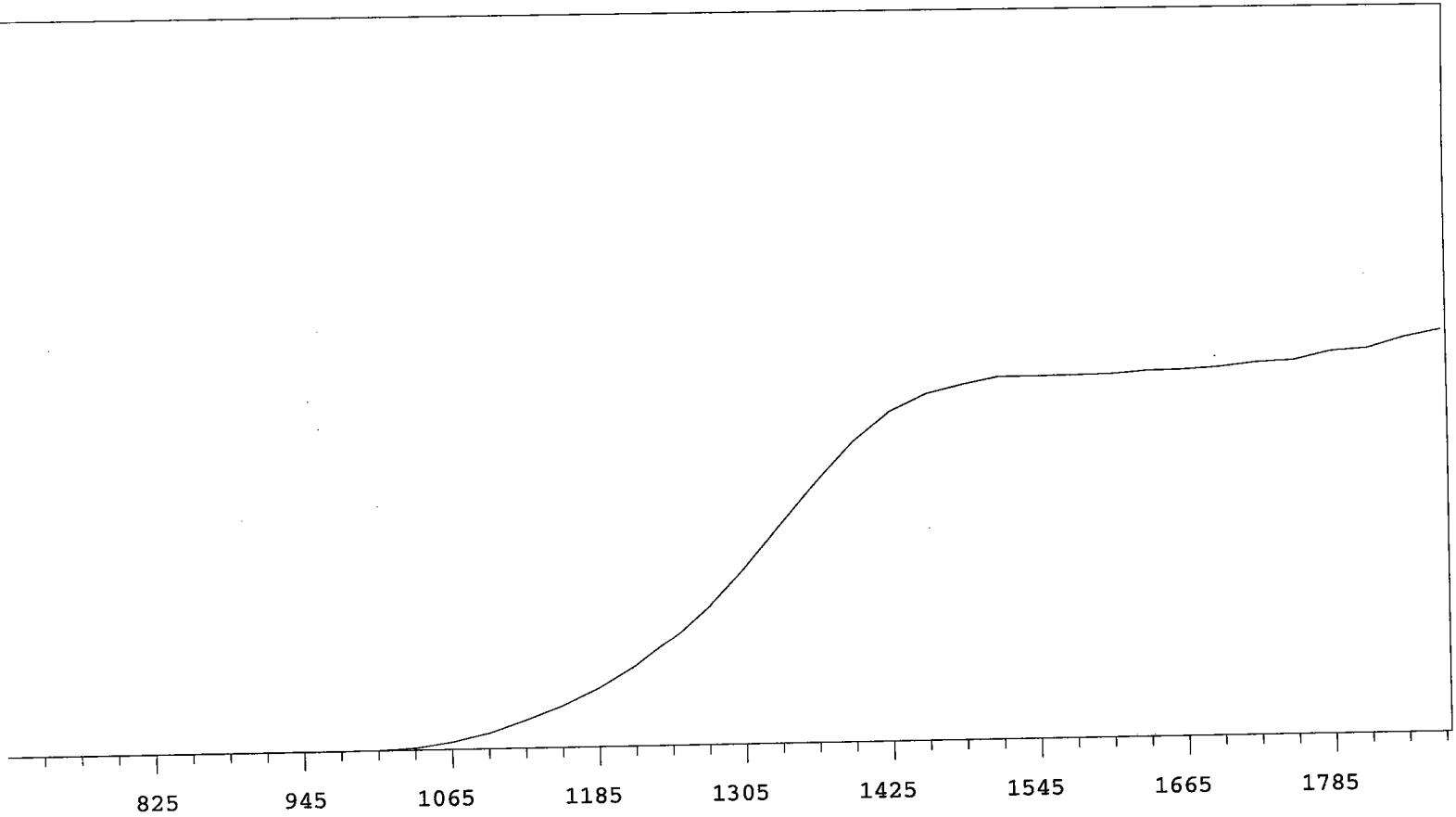
MPC 9600 Plateau  
Alpha Volts: 705

Instrument 8 MPC 9604 Detector D  
Beta Volts: 1575

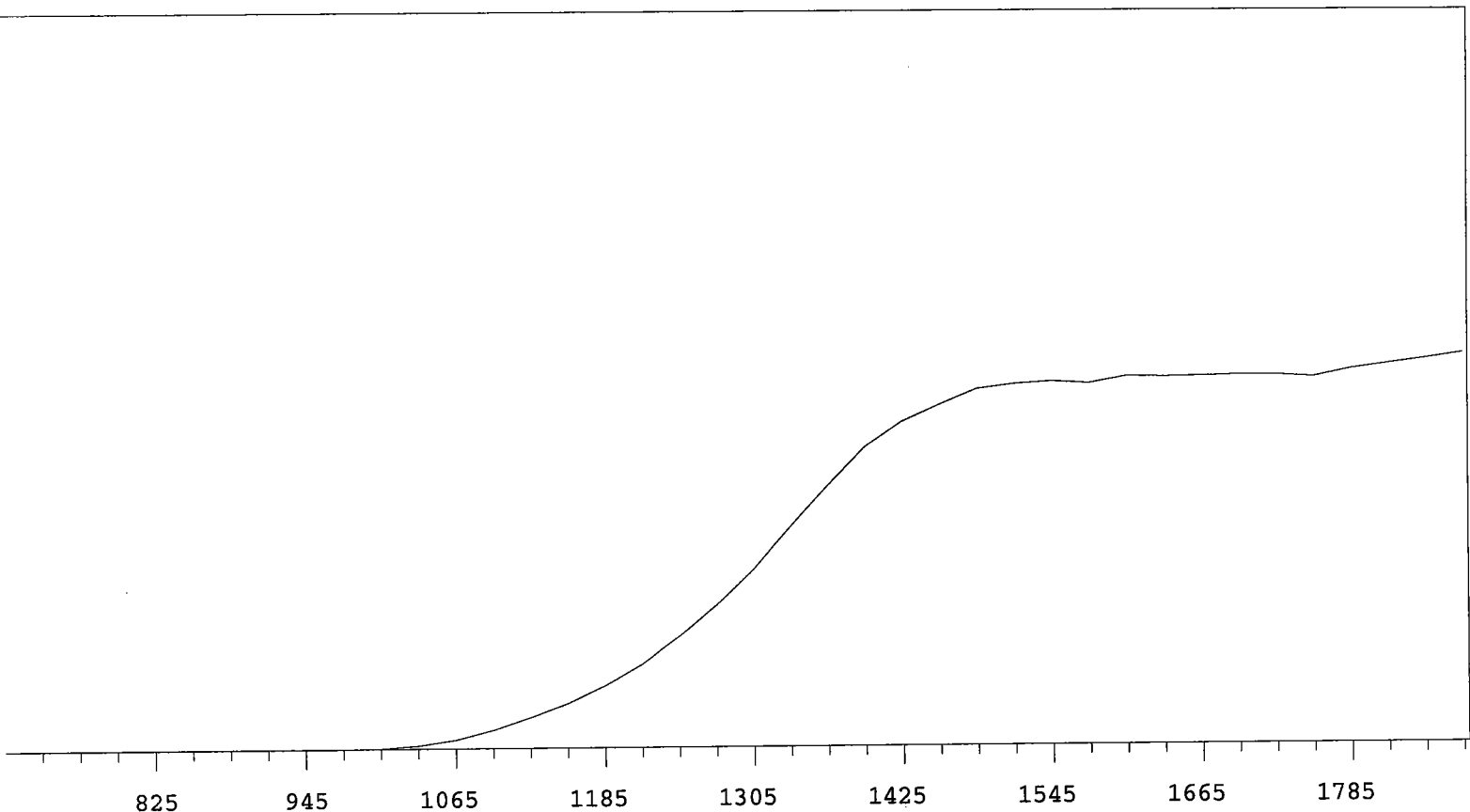
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VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16889	+70.18
735	0		1335	20600	+61.29
765	1	+0.00	1365	24824	+50.40
795	0	>100	1395	28208	+38.85
825	0	>100	1425	31539	+25.79
855	0	>100	1455	33391	+16.06
885	0	>100	1485	33991	+8.60
915	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	



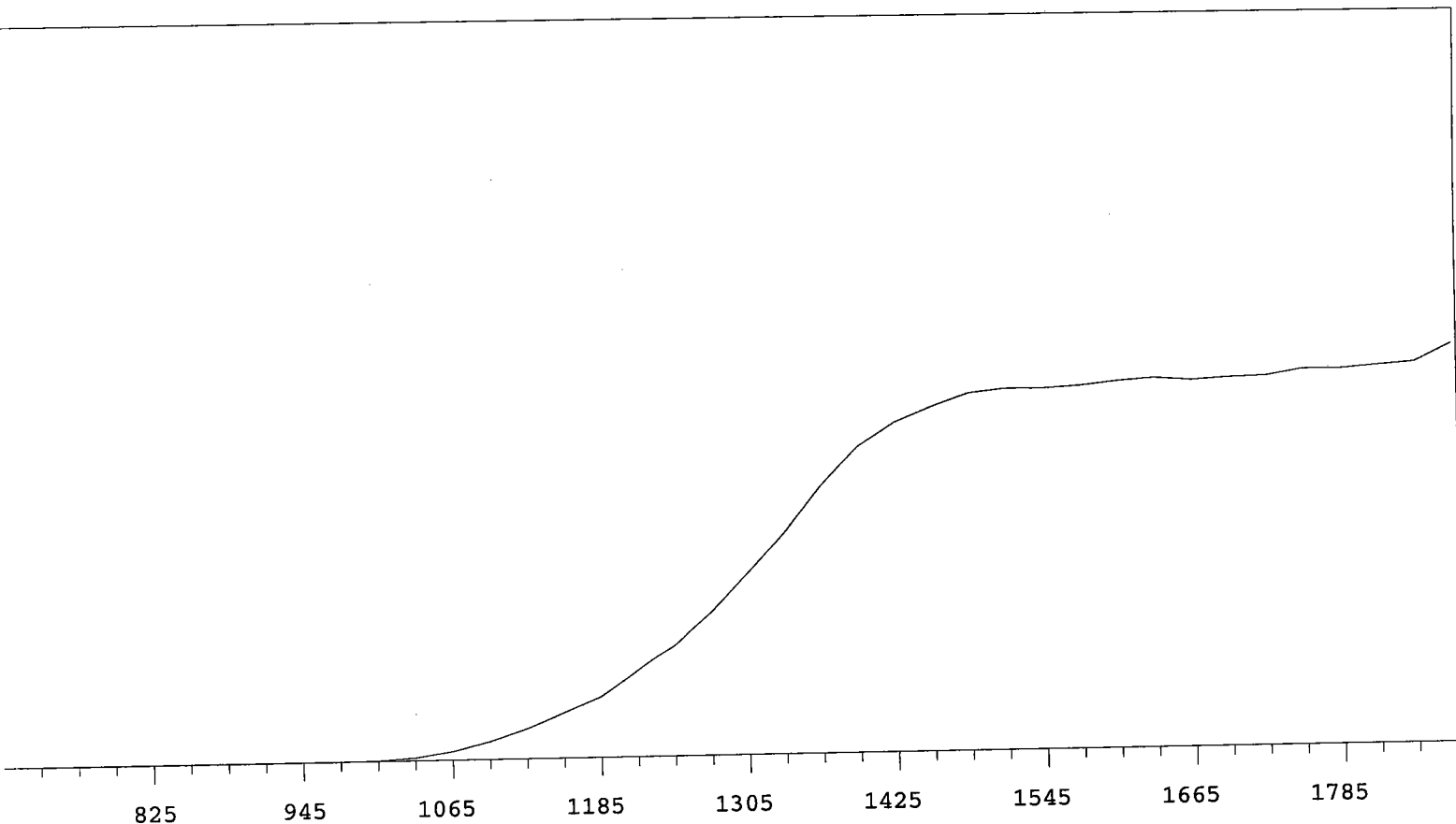
VOLTS	COUNTS	%/100 Volts
705	0	
735	0	
765	0	
795	0	>100
825	0	>100
855	0	>100
885	0	>100
915	0	>100
945	0	>100
975	4	>100
1005	45	>100
1035	300	>100
1065	836	>100
1095	1742	>100
1125	2896	>100
1155	4198	>100
1185	5849	>100
1215	7887	+92.20
1245	10561	+83.55
1275	13442	+76.62

VOLTS	COUNTS	%/100 Volts
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	

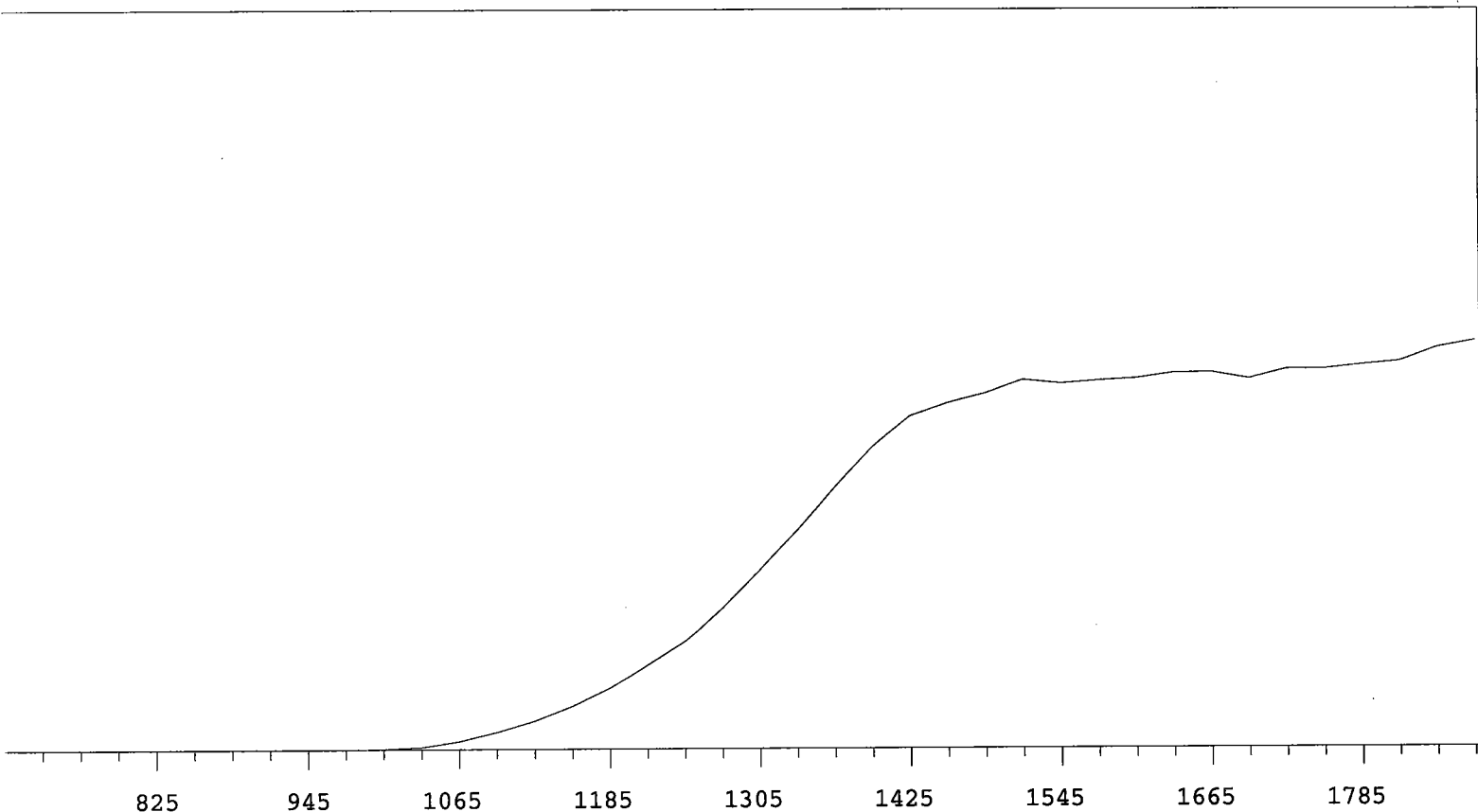
MPC 9600 Plateau  
Alpha Volts: 870

Instrument 9 MPC 9604 Detector C  
Beta Volts: 1530

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VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	20192	+70.39
735	0		1335	24524	+60.97
765	0		1365	29650	+48.44
795	0	>100	1395	33904	+35.09
825	0	>100	1425	36549	+22.73
855	0	>100	1455	38217	+13.58
885	1	>100	1485	39628	+7.51
915	1	>100	1515	40035	+3.73
945	2	>100	1545	40020	+1.92
975	3	>100	1575	40236	+2.06
1005	64	>100	1605	40680	+1.62
1035	349	>100	1635	40953	+1.03
1065	970	>100	1665	40643	+0.43
1095	1982	>100	1695	40882	+1.41
1125	3328	>100	1725	40979	+2.18
1155	5012	>100	1755	41654	+2.20
1185	6669	>100	1785	41602	+2.27
1215	9448	+92.67	1815	41935	+4.50
1245	12293	+86.58	1845	42259	
1275	15917	+76.99	1875	44183	

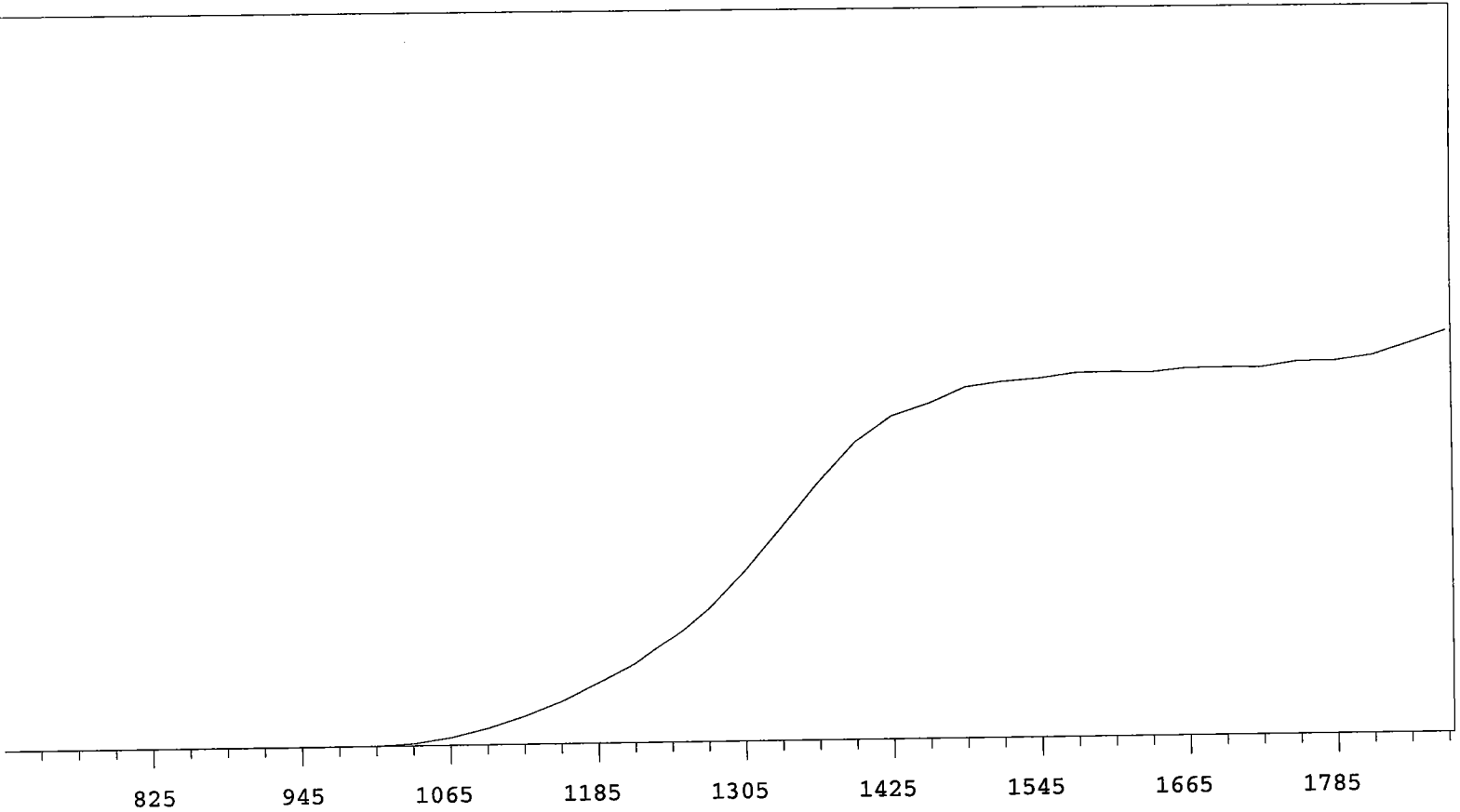


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	13319	+70.94
735	0		1335	16319	+61.35
765	0		1365	19577	+50.27
795	0	>100	1395	22498	+36.85
825	0	>100	1425	24782	+23.90
855	0	>100	1455	25761	+15.37
885	0	>100	1485	26486	+8.38
915	1	>100	1515	27503	+5.11
945	0	>100	1545	27223	+2.67
975	5	>100	1575	27453	+1.71
1005	35	>100	1605	27604	+2.70
1035	186	>100	1635	28021	+0.78
1065	618	>100	1665	28059	+1.05
1095	1280	>100	1695	27548	+0.90
1125	2141	>100	1725	28280	+2.16
1155	3268	>100	1755	28290	+3.51
1185	4659	>100	1785	28600	+4.46
1215	6343	+90.68	1815	28879	+6.35
1245	8064	+83.46	1845	29913	
1275	10497	+77.03	1875	30417	

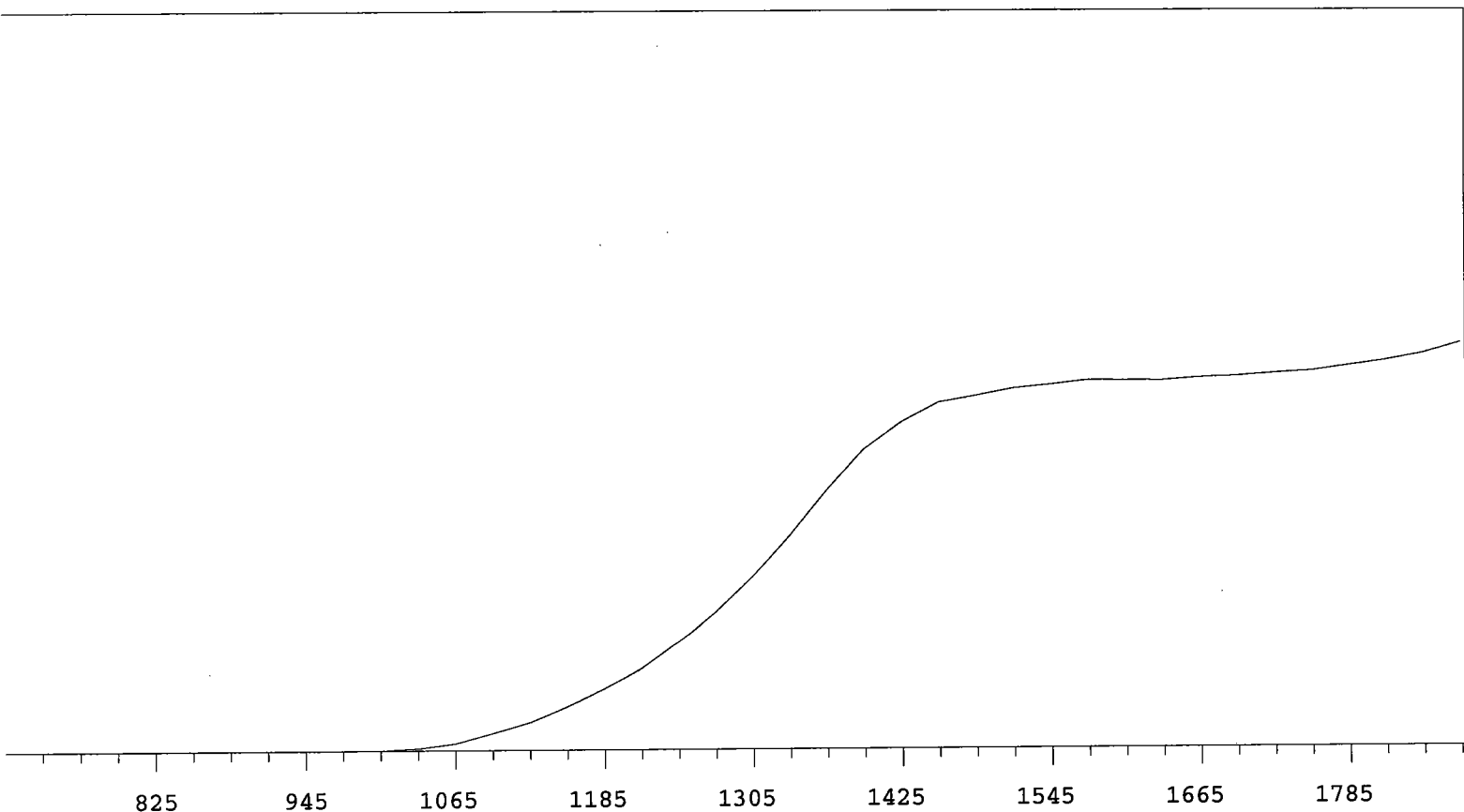
MPC 9600 Plateau  
Alpha Volts: 870

Instrument 10 MPC 9604 Detector A  
Beta Volts: 1552

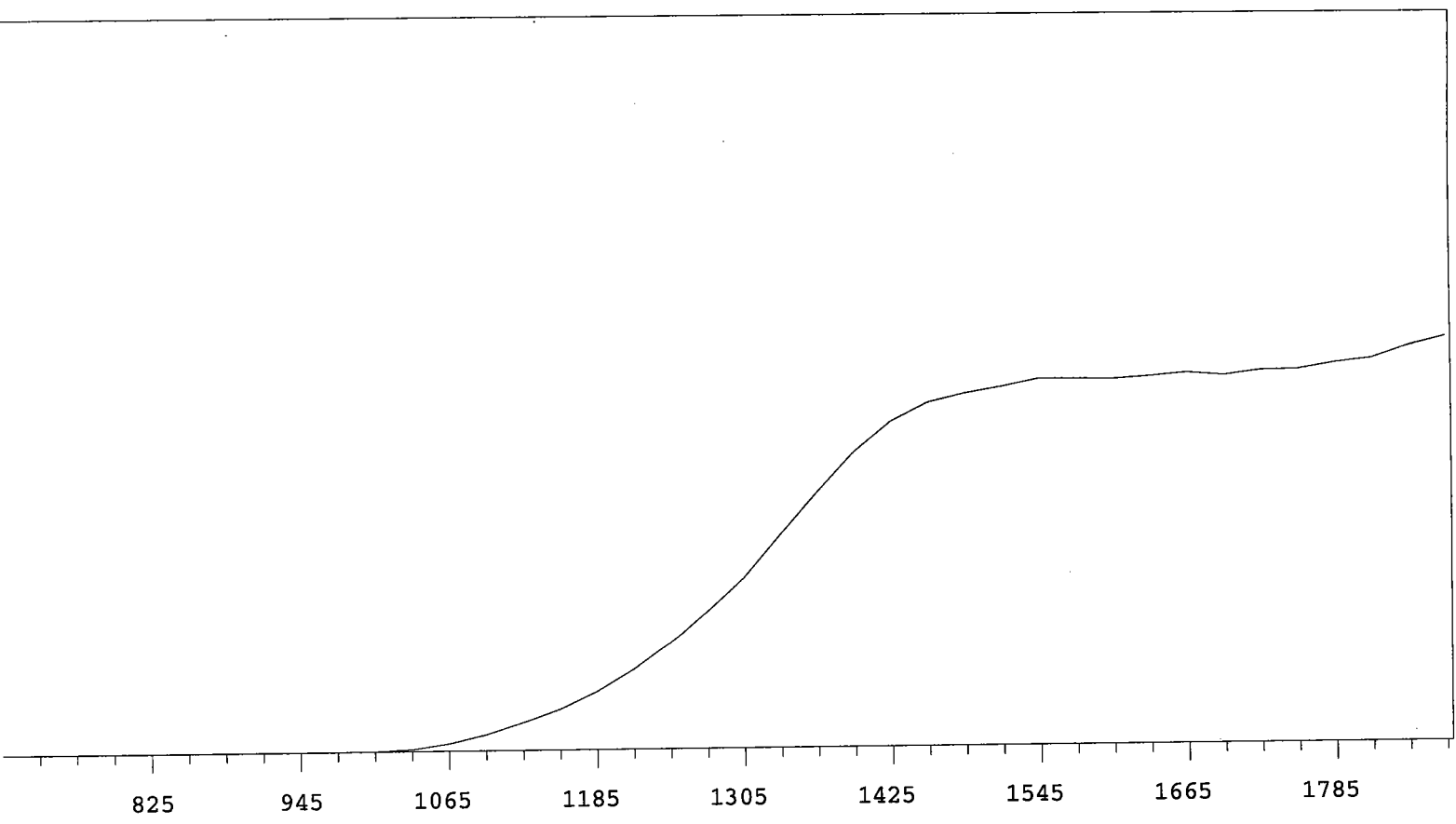
7/1/2009



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	16076	+72.76
735	1		1335	19985	+63.85
765	0		1365	24102	+50.95
795	0	>100	1395	27819	+36.01
825	0	>100	1425	30228	+23.86
855	0	>100	1455	31343	+14.40
885	0	>100	1485	32811	+8.77
915	0	>100	1515	33243	+6.10
945	0	>100	1545	33518	+3.25
975	1	>100	1575	34010	+1.98
1005	37	>100	1605	34061	+1.59
1035	198	>100	1635	33973	+0.97
1065	687	>100	1665	34346	+0.93
1095	1491	>100	1695	34366	+1.72
1125	2580	>100	1725	34341	+1.54
1155	3920	>100	1755	34860	+2.47
1185	5588	>100	1785	34897	+4.50
1215	7384	+91.32	1815	35377	+6.60
1245	9794	+84.81	1845	36458	
1275	12572	+79.73	1875	37630	

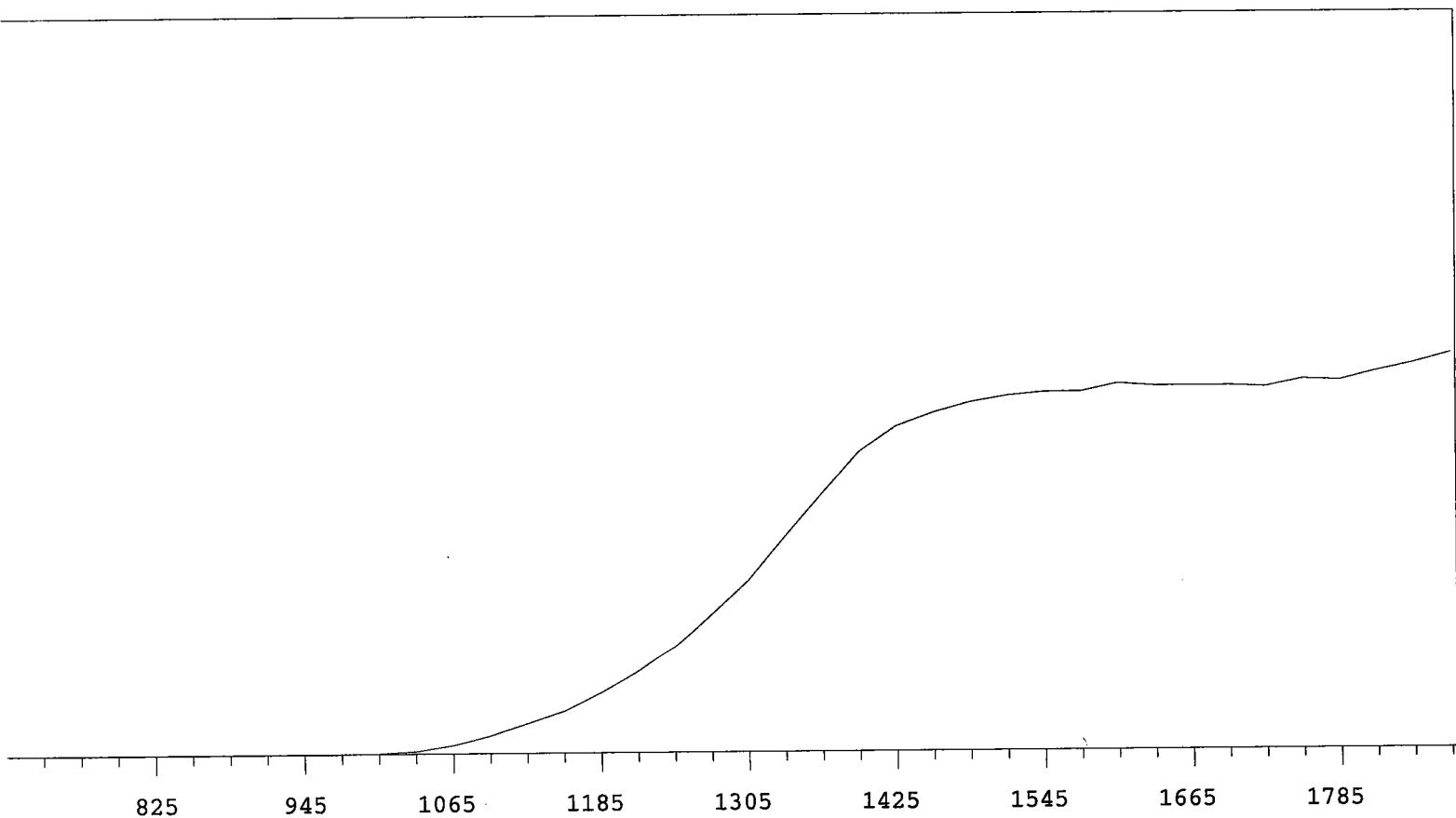


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	14469	+71.08
735	0		1335	17904	+63.07
765	0		1365	21677	+51.20
795	0	>100	1395	25027	+38.06
825	0	>100	1425	27237	+24.55
855	0	>100	1455	28914	+14.61
885	0	>100	1485	29480	+8.48
915	0	>100	1515	30075	+5.06
945	1	>100	1545	30374	+3.42
975	7	>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	



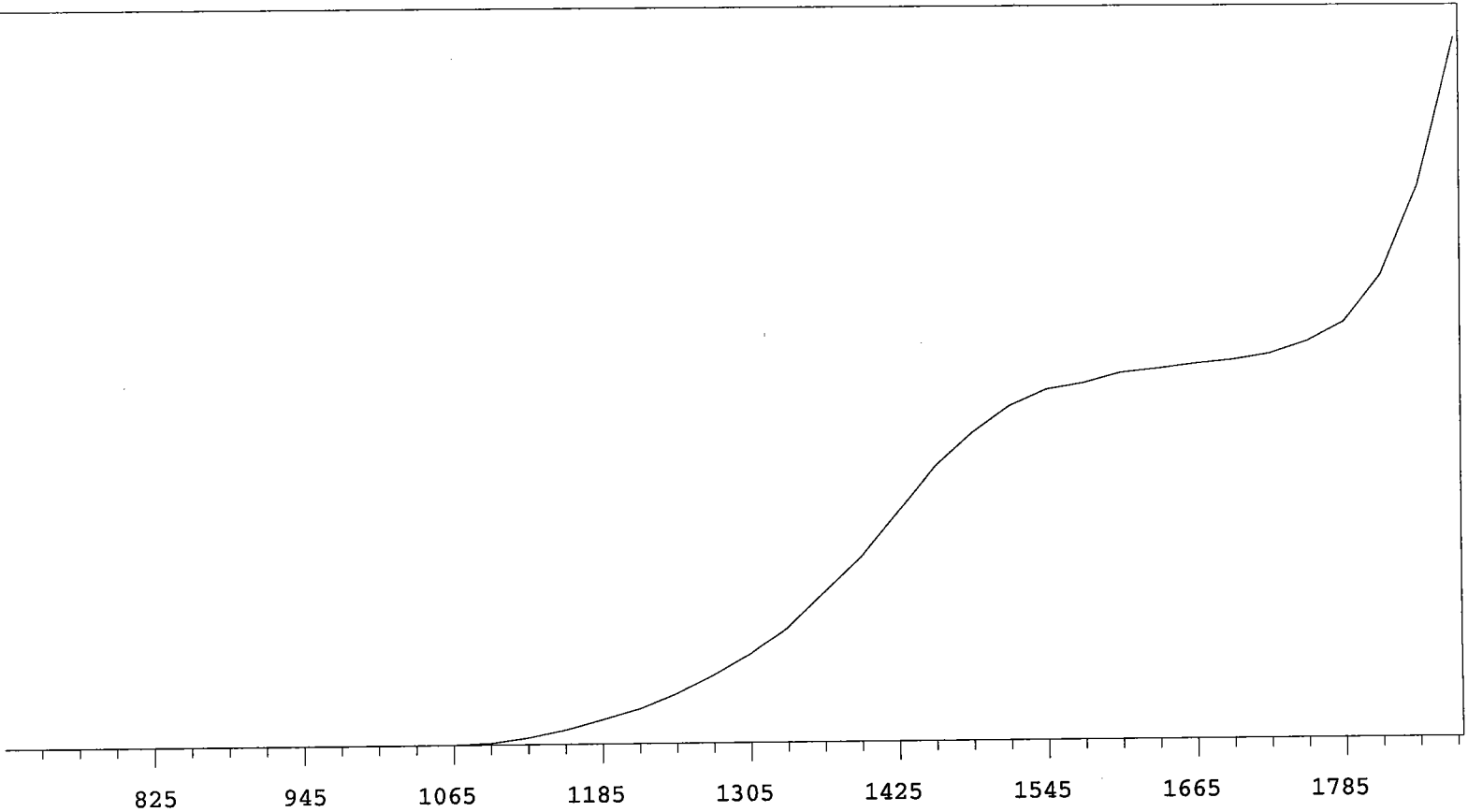
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	18051	+71.16
735	0		1335	22586	+62.34
765	0		1365	26973	+51.47
795	0	>100	1395	31137	+38.24
825	0	>100	1425	34321	+25.70
855	0	>100	1455	36267	+15.37
885	1	>100	1485	37197	+9.21
915	0	>100	1515	37851	+5.38
945	2	>100	1545	38622	+3.00
975	2	>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	



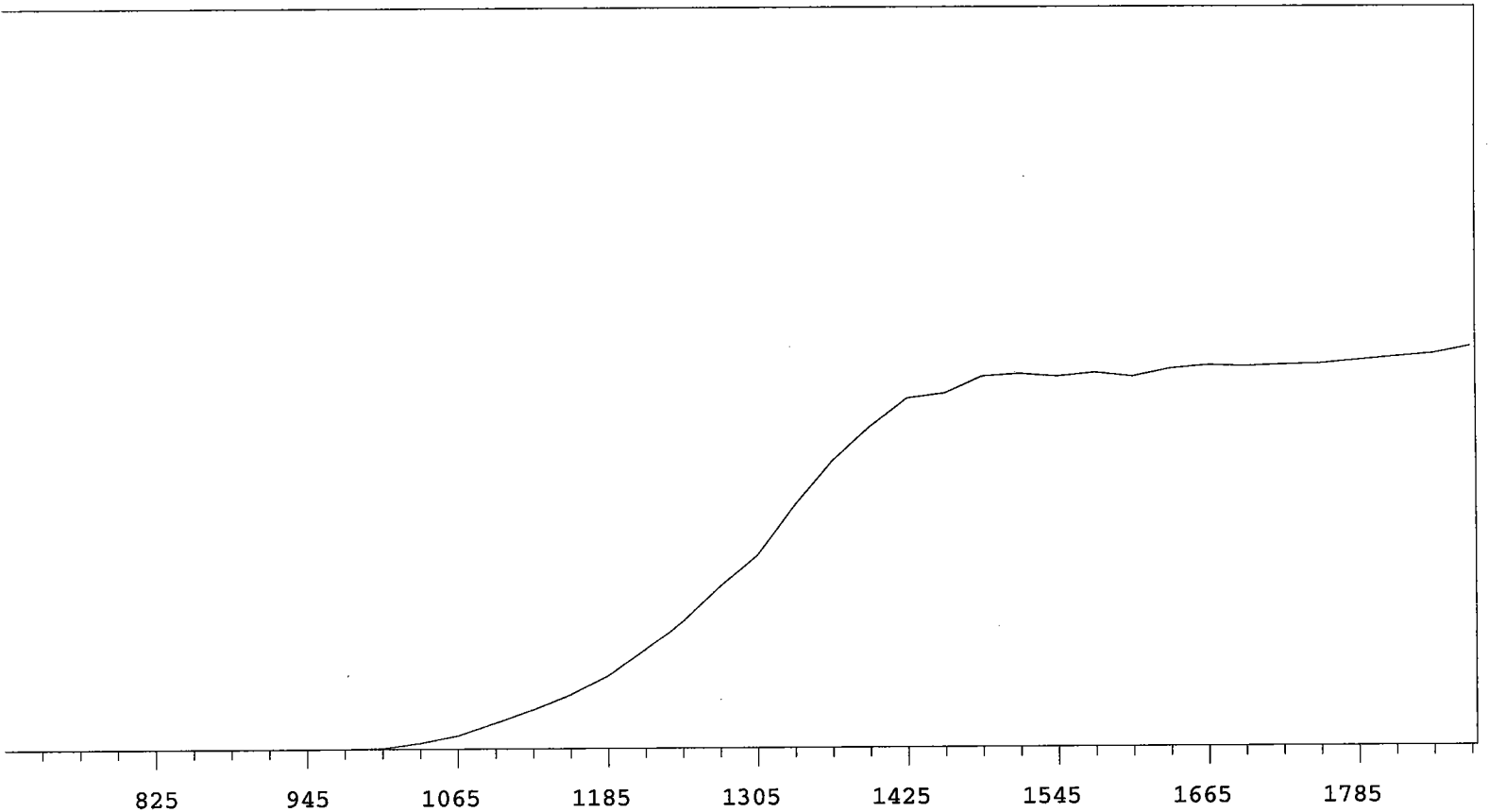


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	15430	+69.87
735	0		1335	19258	+61.49
765	0		1365	23018	+50.06
795	0	>100	1395	26562	+35.34
825	0	>100	1425	28750	+22.67
855	0	>100	1455	29911	+13.20
885	0	>100	1485	30798	+8.01
915	0	>100	1515	31375	+4.83
945	0	>100	1545	31684	+3.74
975	3	>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	

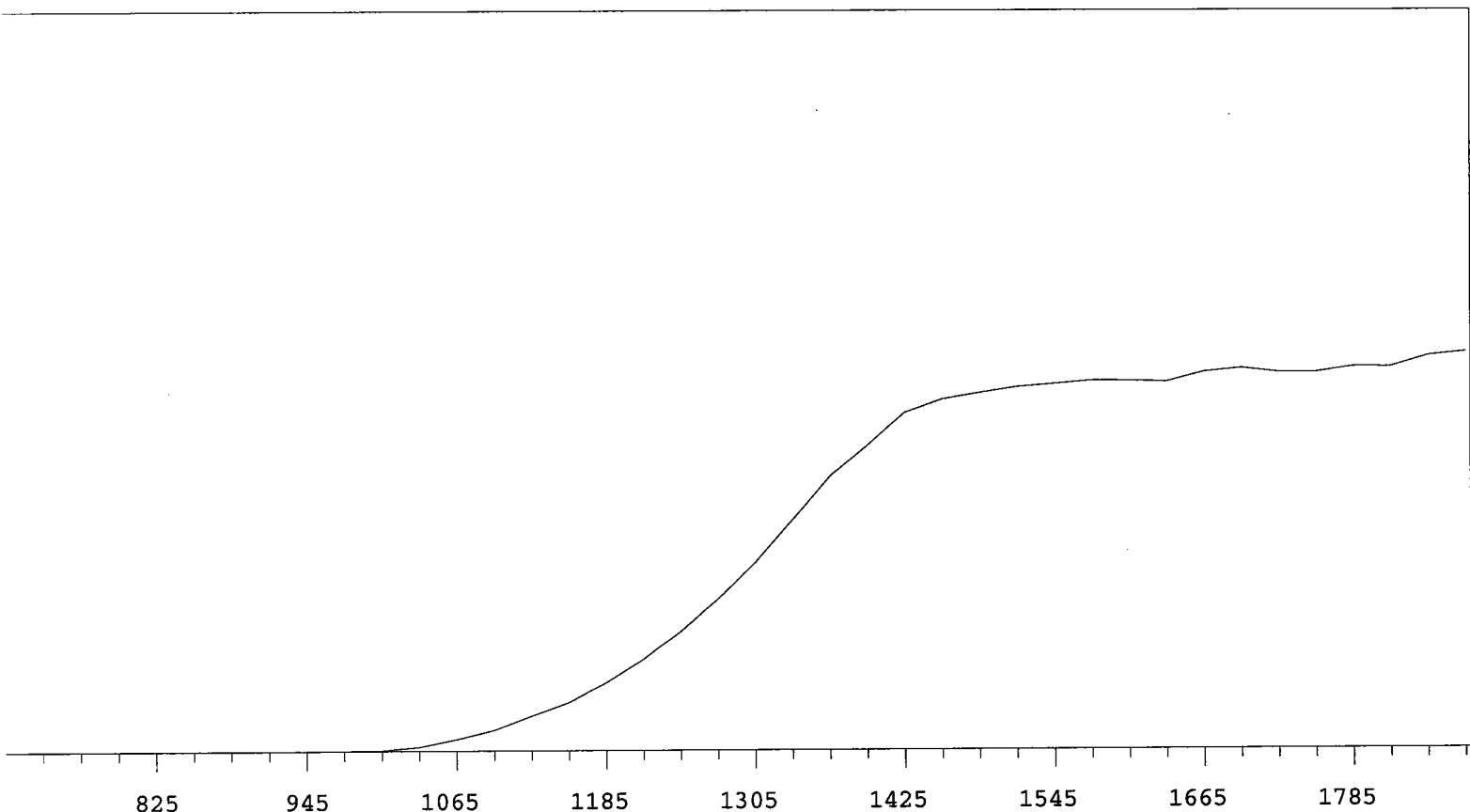
Alpha Volts: 1515 Beta Volts: 1515



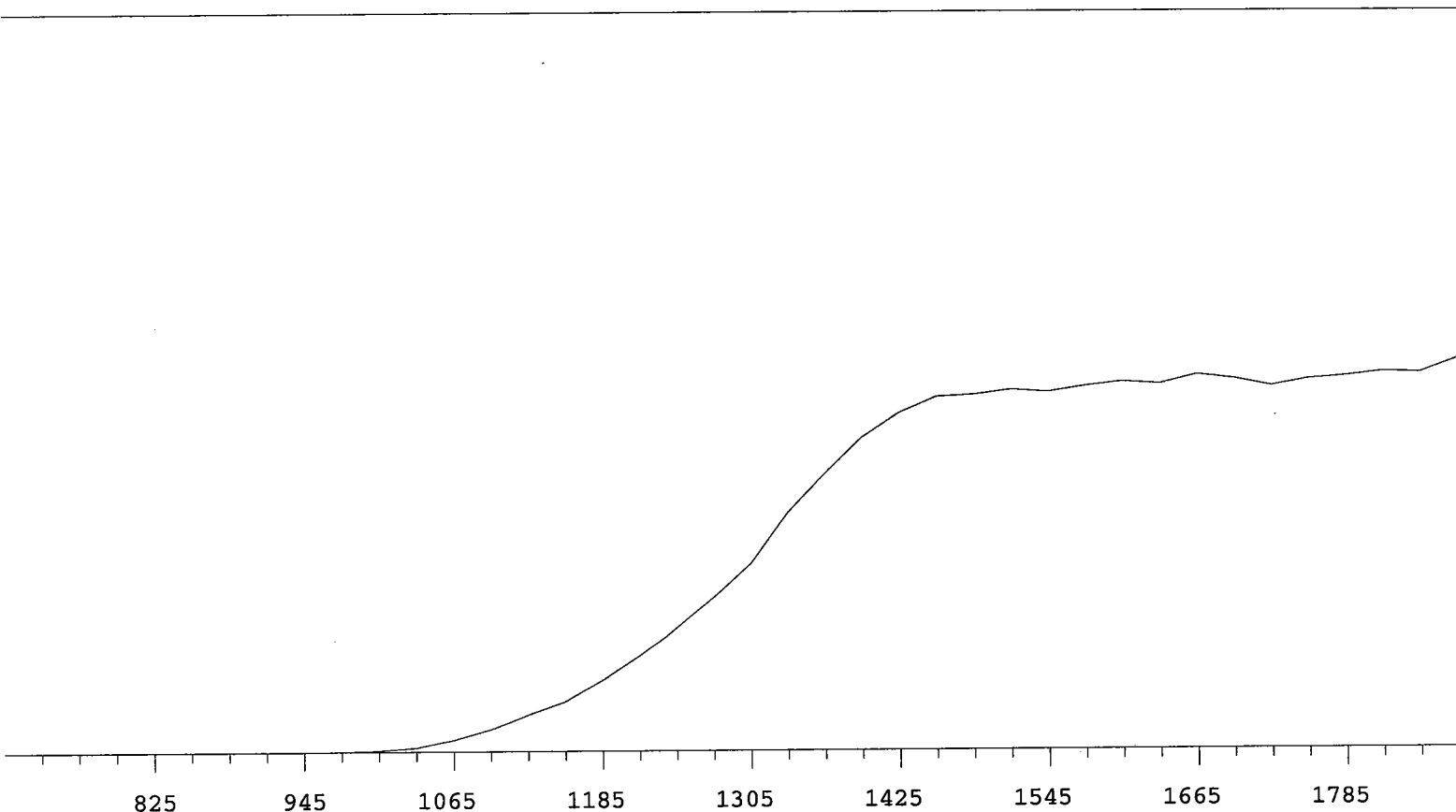
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	3225	+87.64
735	1		1335	4189	+80.15
765	0		1365	5428	+75.12
795	0	>100	1395	6662	+68.60
825	0	>100	1425	8241	+58.14
855	0	>100	1455	9857	+46.65
885	0	>100	1485	11018	+33.24
915	0	>100	1515	11953	+21.01
945	1	+0.00	1545	12538	+13.57
975	0	>100	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	



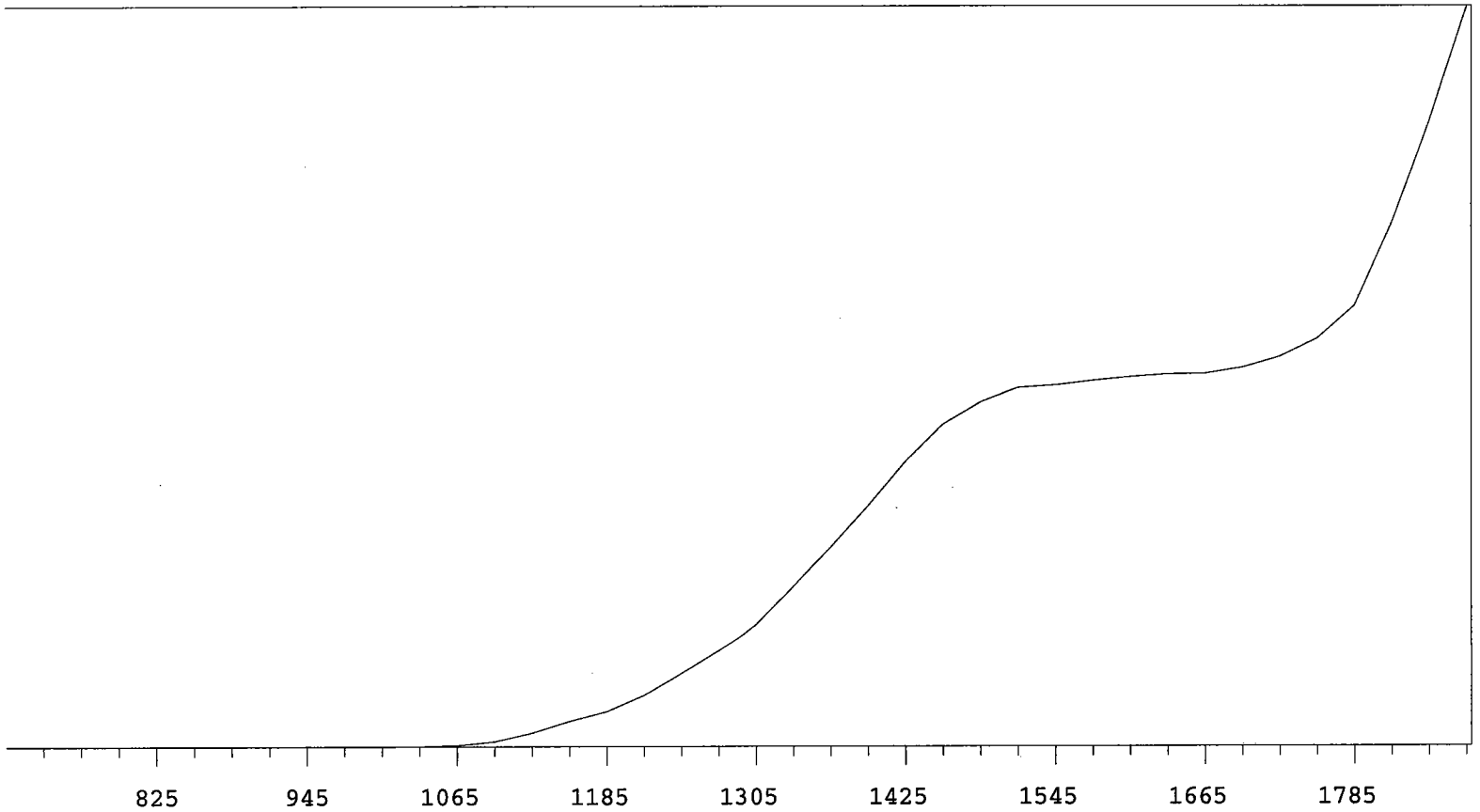
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	8947	+65.63
735	0		1335	11238	+56.58
765	0		1365	13246	+46.66
795	0	>100	1395	14838	+30.69
825	0	>100	1425	16166	+20.11
855	0	>100	1455	16396	+11.95
885	0	>100	1485	17161	+5.61
915	1	>100	1515	17274	+3.59
945	0	>100	1545	17144	-0.00
975	11	>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	



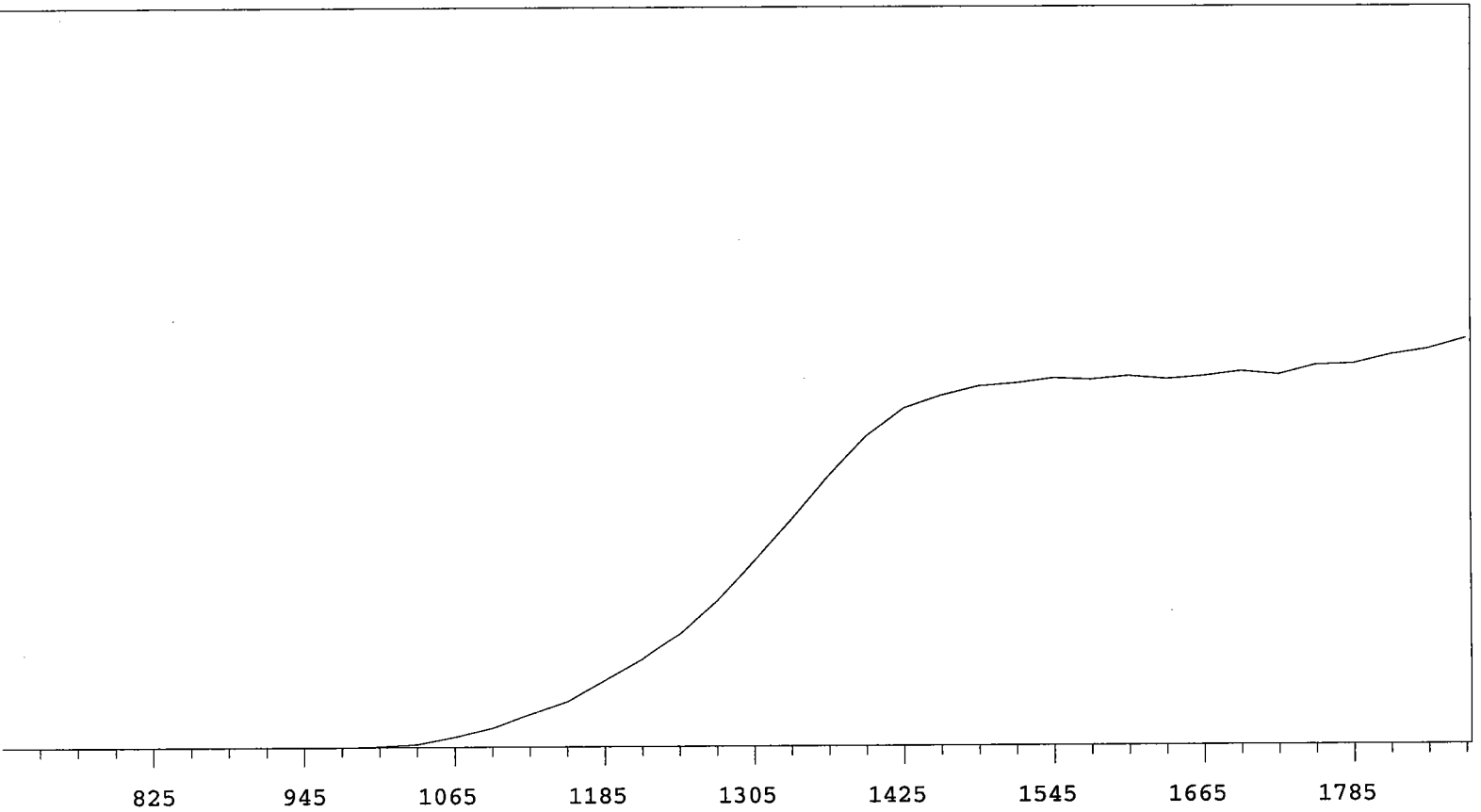
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	8636	+66.44
735	0		1335	10593	+56.56
765	0	+0.00	1365	12582	+46.23
795	0	>100	1395	13957	+33.45
825	1	+0.00	1425	15443	+21.49
855	0	>100	1455	16048	+13.14
885	0	+0.00	1485	16331	+6.45
915	0	>100	1515	16603	+4.19
945	1	>100	1545	16736	+2.73
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	



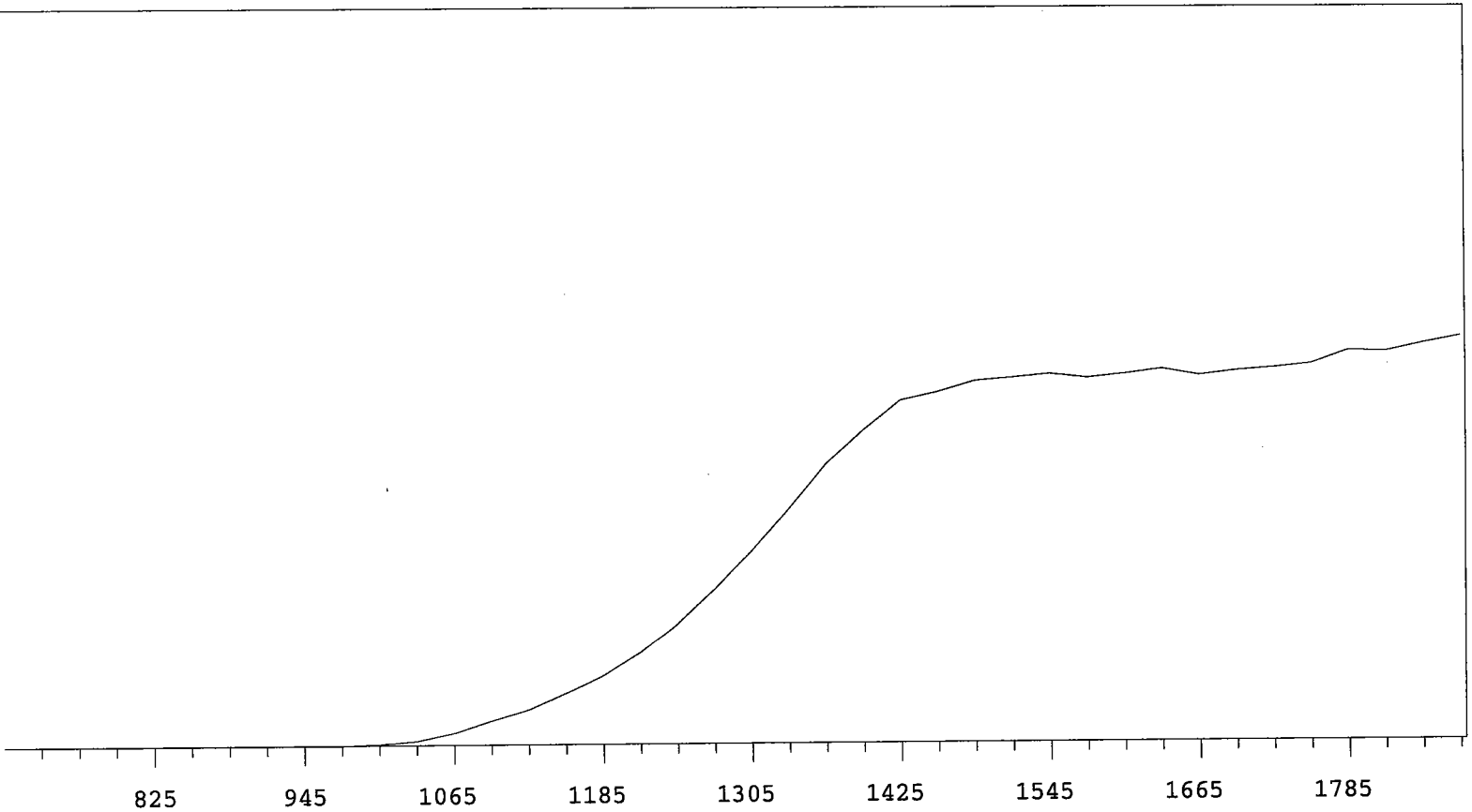
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	7679	+65.97
735	0		1335	9737	+57.57
765	0		1365	11301	+45.87
795	0	>100	1395	12767	+31.71
825	0	>100	1425	13767	+19.90
855	1	+83.33	1455	14399	+10.72
885	1	+55.56	1485	14467	+4.38
915	0	>100	1515	14671	+2.12
945	1	>100	1545	14576	+2.61
975	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	

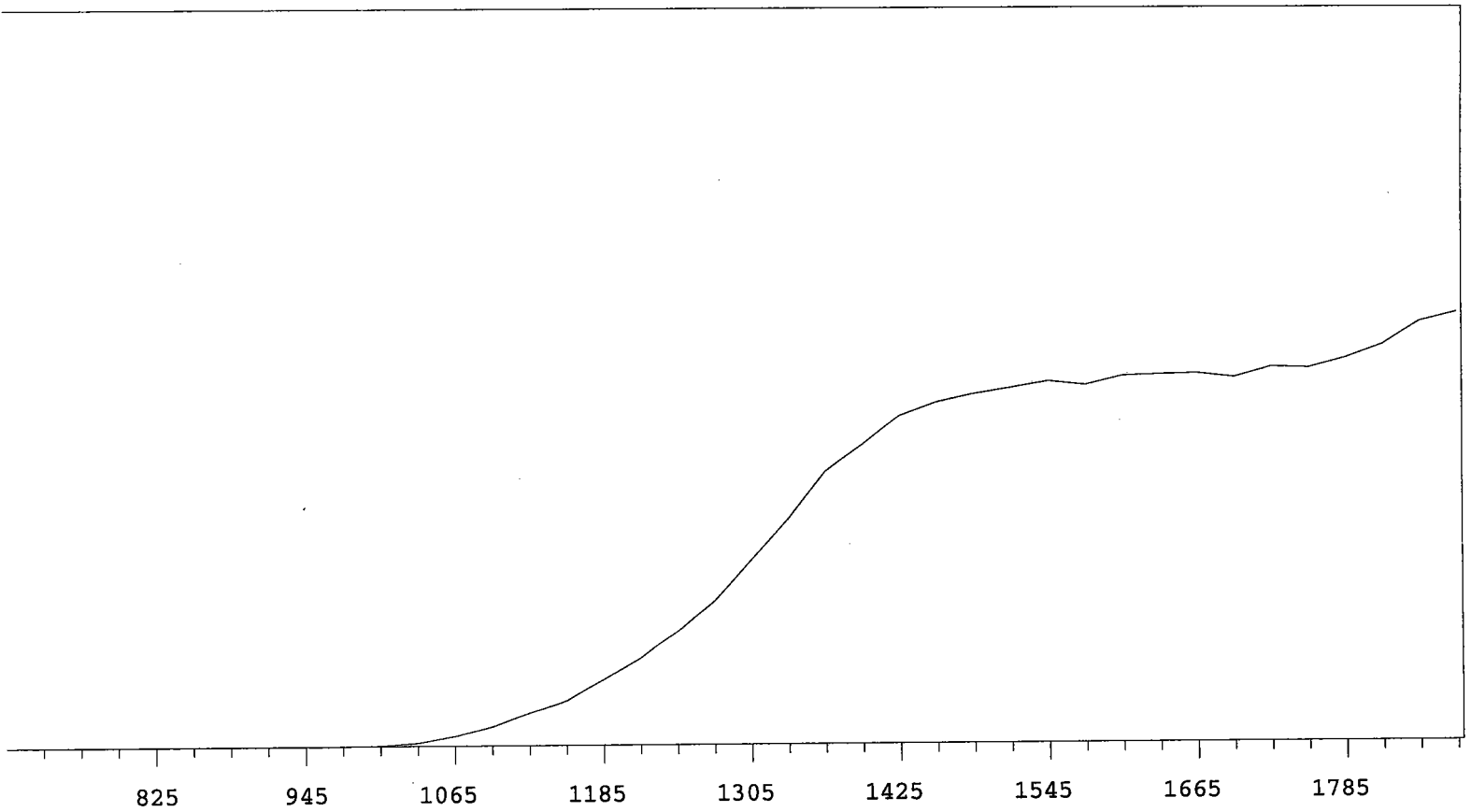


VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	9543	+67.01
735	0		1335	11617	+56.47
765	0		1365	13791	+45.47
795	0	>100	1395	15387	+31.66
825	0	>100	1425	16819	+20.02
855	0	>100	1455	17210	+11.63
885	1	+0.00	1485	17742	+6.05
915	0	>100	1515	17892	+3.04
945	0	>100	1545	18070	+1.09
975	7	>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	

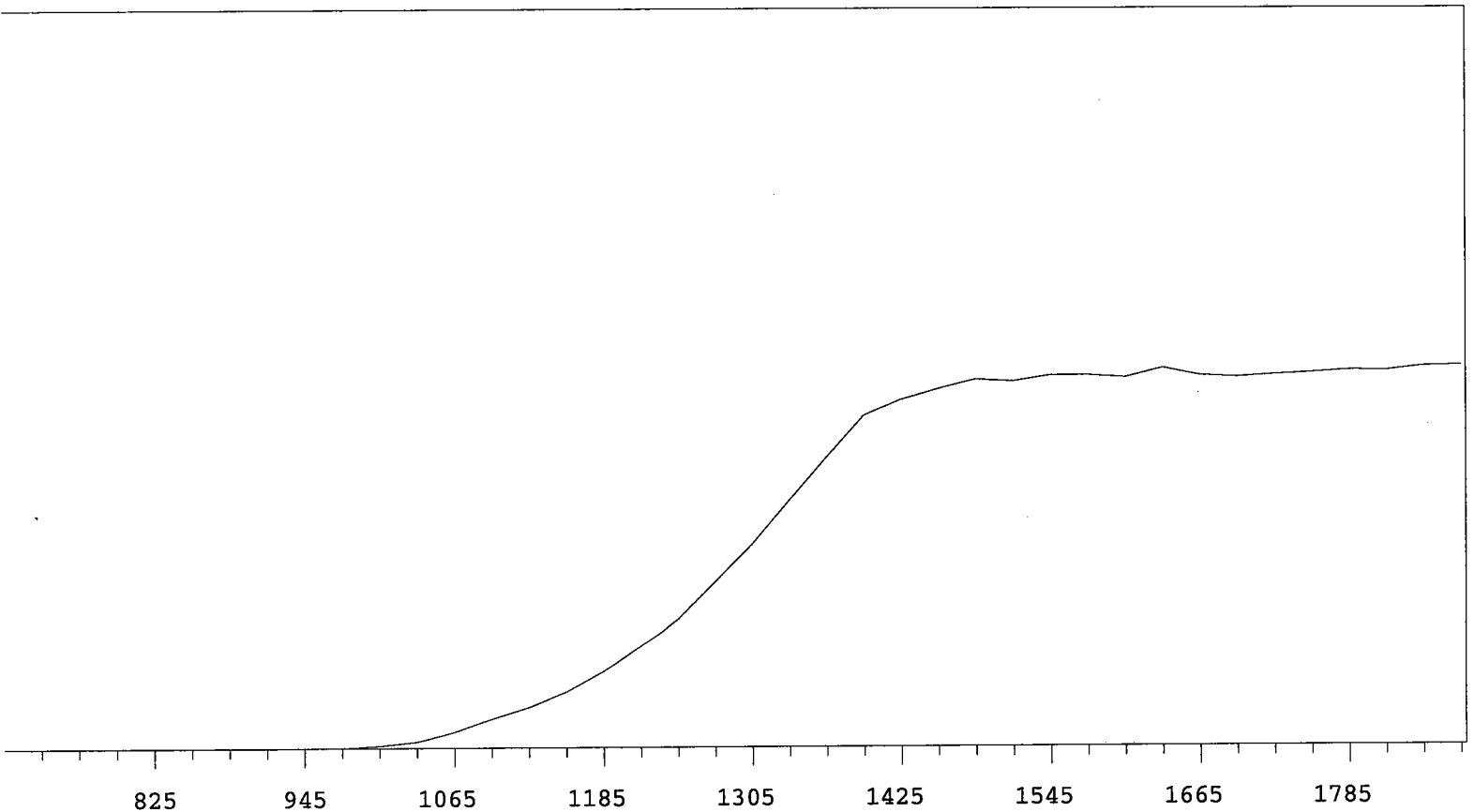


Alpha Volts: 705

Beta Volts: 1515



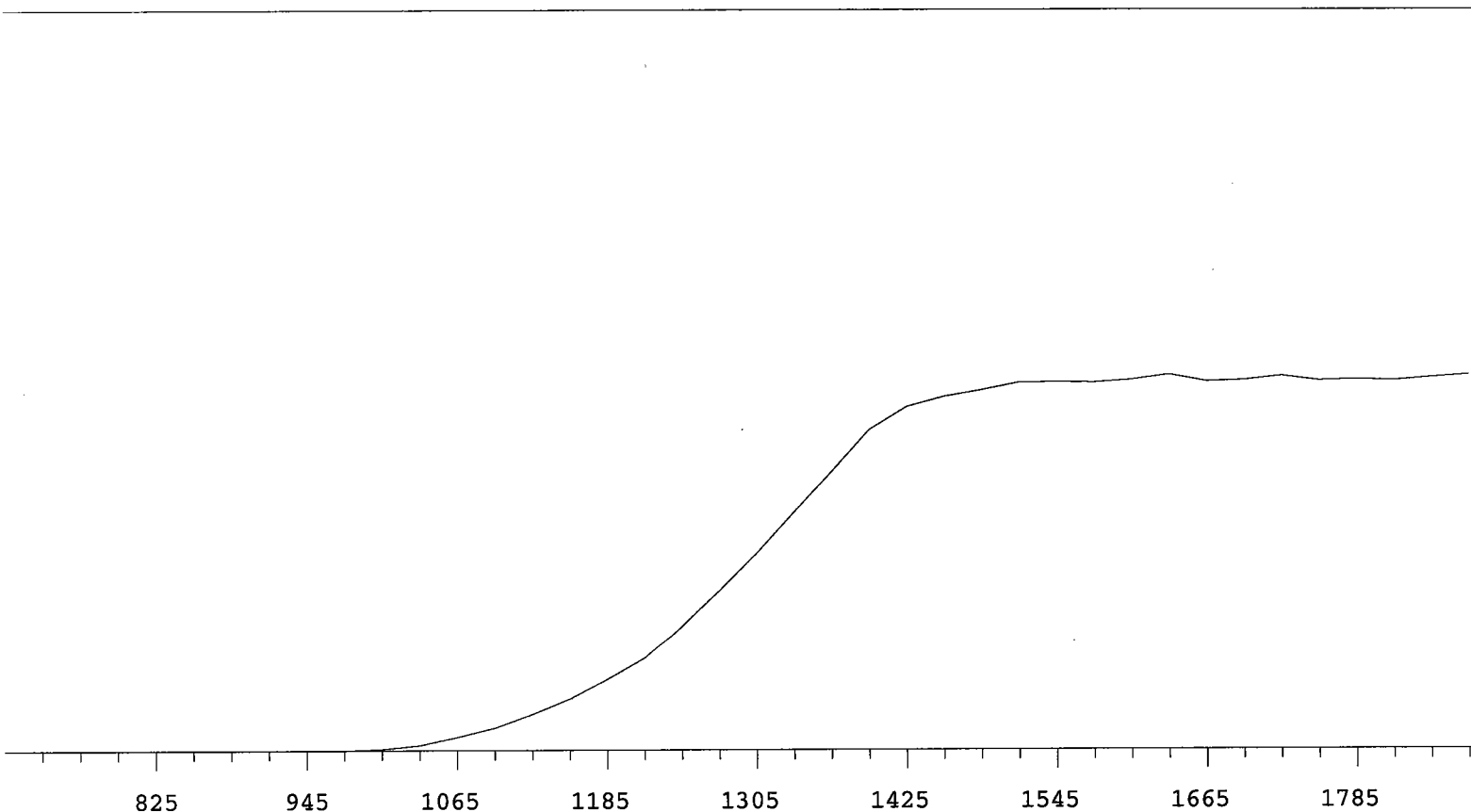
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	9144	+69.92
735	0		1335	11120	+58.43
765	0		1365	13399	+45.40
795	0	>100	1395	14711	+32.57
825	0	>100	1425	16134	+20.69
855	0	>100	1455	16805	+13.46
885	0	>100	1485	17209	+7.90
915	0	>100	1515	17500	+4.31
945	0	>100	1545	17812	+3.48
975	4	>100	1575	17629	+2.80
1005	26	>100	1605	18066	+2.23
1035	169	>100	1635	18122	+1.44
1065	483	>100	1665	18166	+1.20
1095	955	>100	1695	17967	+1.60
1125	1639	>100	1725	18469	+3.41
1155	2233	>100	1755	18409	+6.35
1185	3262	+98.61	1785	18884	+9.47
1215	4306	+89.77	1815	19535	+11.98
1245	5662	+82.36	1845	20630	
1275	7113	+76.36	1875	21076	



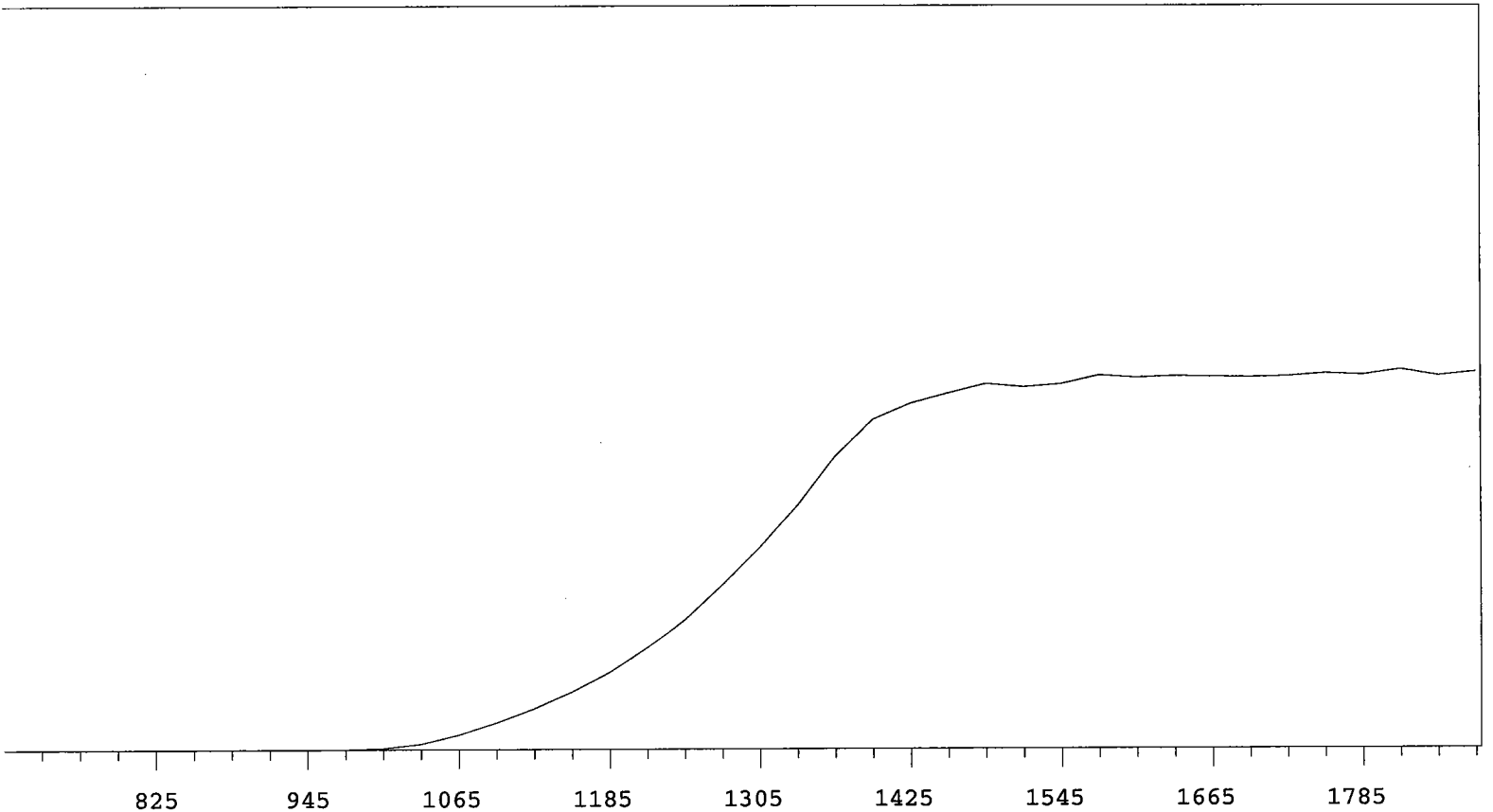
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	9209	+64.55
735	1		1335	11200	+55.94
765	0	+55.56	1365	13123	+43.27
795	2	>100	1395	14957	+29.04
825	0	+0.00	1425	15658	+17.41
855	0	>100	1455	16123	+8.01
885	1	>100	1485	16530	+4.92
915	0	>100	1515	16437	+2.71
945	1	>100	1545	16704	+0.83
975	14	>100	1575	16707	+2.14
1005	104	>100	1605	16602	+0.55
1035	281	>100	1635	17024	-0.28
1065	720	>100	1665	16684	-0.42
1095	1302	>100	1695	16597	-0.85
1125	1834	>100	1725	16711	+1.27
1155	2544	>100	1755	16796	+1.51
1185	3485	+92.28	1785	16903	+1.57
1215	4624	+85.50	1815	16880	+1.46
1245	5878	+77.82	1845	17066	
1275	7515	+71.49	1875	17085	

Alpha Volts: 705

Beta Volts: 1515



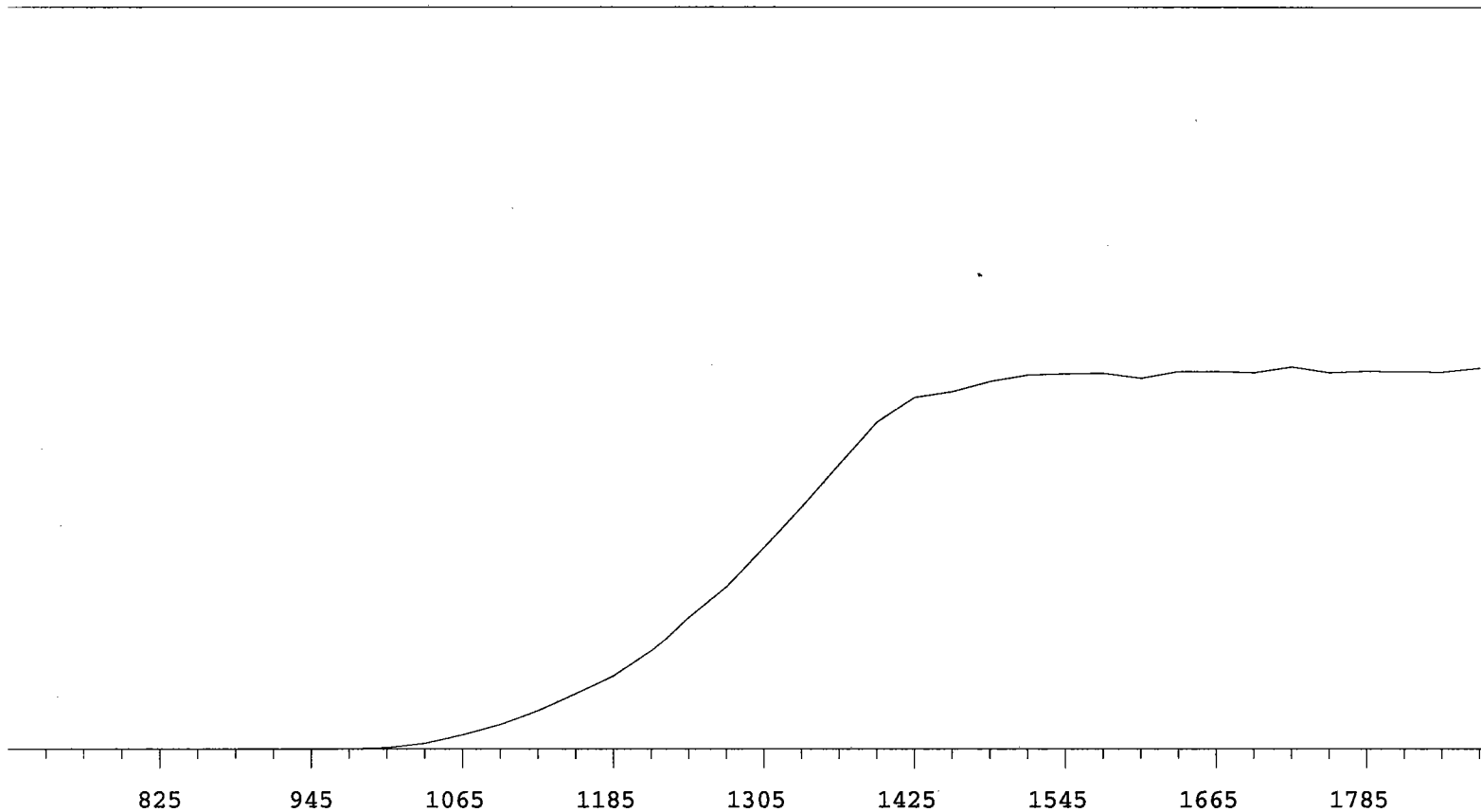
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	9666	+64.39
735	0		1335	11722	+55.91
765	0		1365	13680	+44.91
795	0	>100	1395	15677	+31.56
825	0	>100	1425	16786	+19.46
855	0	>100	1455	17283	+10.57
885	0	>100	1485	17608	+5.95
915	1	>100	1515	17972	+3.32
945	0	>100	1545	18006	+1.84
975	4	>100	1575	17970	+1.58
1005	70	>100	1605	18104	+0.74
1035	257	>100	1635	18351	+0.24
1065	648	>100	1665	18016	+0.16
1095	1116	>100	1695	18080	-0.63
1125	1784	>100	1725	18283	+0.29
1155	2560	>100	1755	18047	-0.47
1185	3531	+96.11	1785	18110	-0.32
1215	4568	+89.22	1815	18040	+1.17
1245	6137	+81.65	1845	18200	
1275	7855	+74.42	1875	18320	



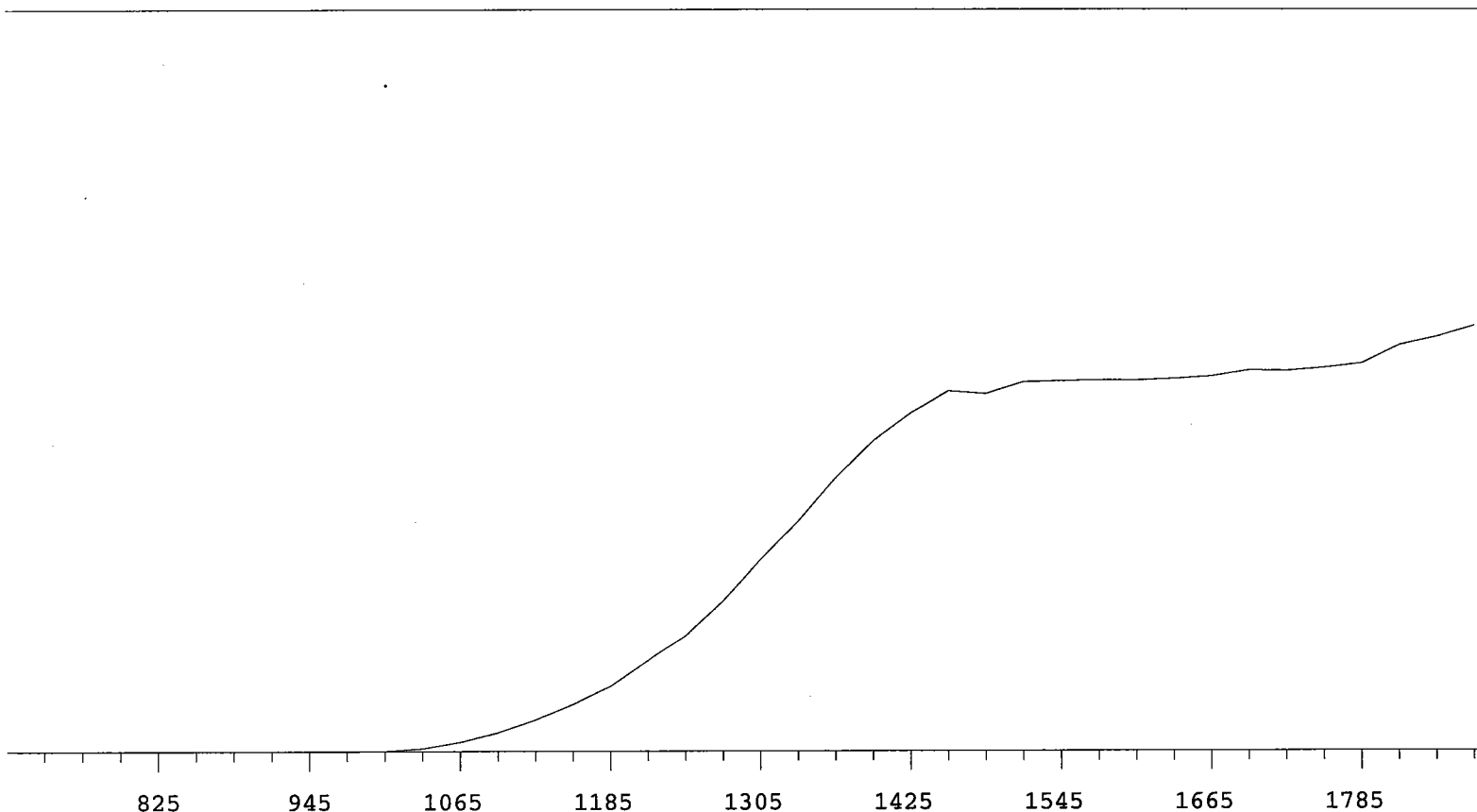
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	11573	+64.95
735	0		1335	13929	+56.47
765	0		1365	16726	+43.82
795	0	>100	1395	18834	+29.38
825	0	>100	1425	19743	+16.84
855	0	>100	1455	20314	+7.95
885	0	>100	1485	20860	+4.16
915	0	>100	1515	20670	+3.23
945	0	>100	1545	20844	+2.09
975	9	>100	1575	21330	+2.48
1005	93	>100	1605	21188	+1.16
1035	325	>100	1635	21280	-0.32
1065	834	>100	1665	21237	+0.08
1095	1525	>100	1695	21202	+0.42
1125	2318	>100	1725	21254	+0.60
1155	3233	>100	1755	21406	+1.41
1185	4357	+92.07	1785	21326	+0.42
1215	5755	+85.64	1815	21619	+0.16
1245	7438	+78.35	1845	21282	
1275	9463	+70.89	1875	21478	

Alpha Volts: 705

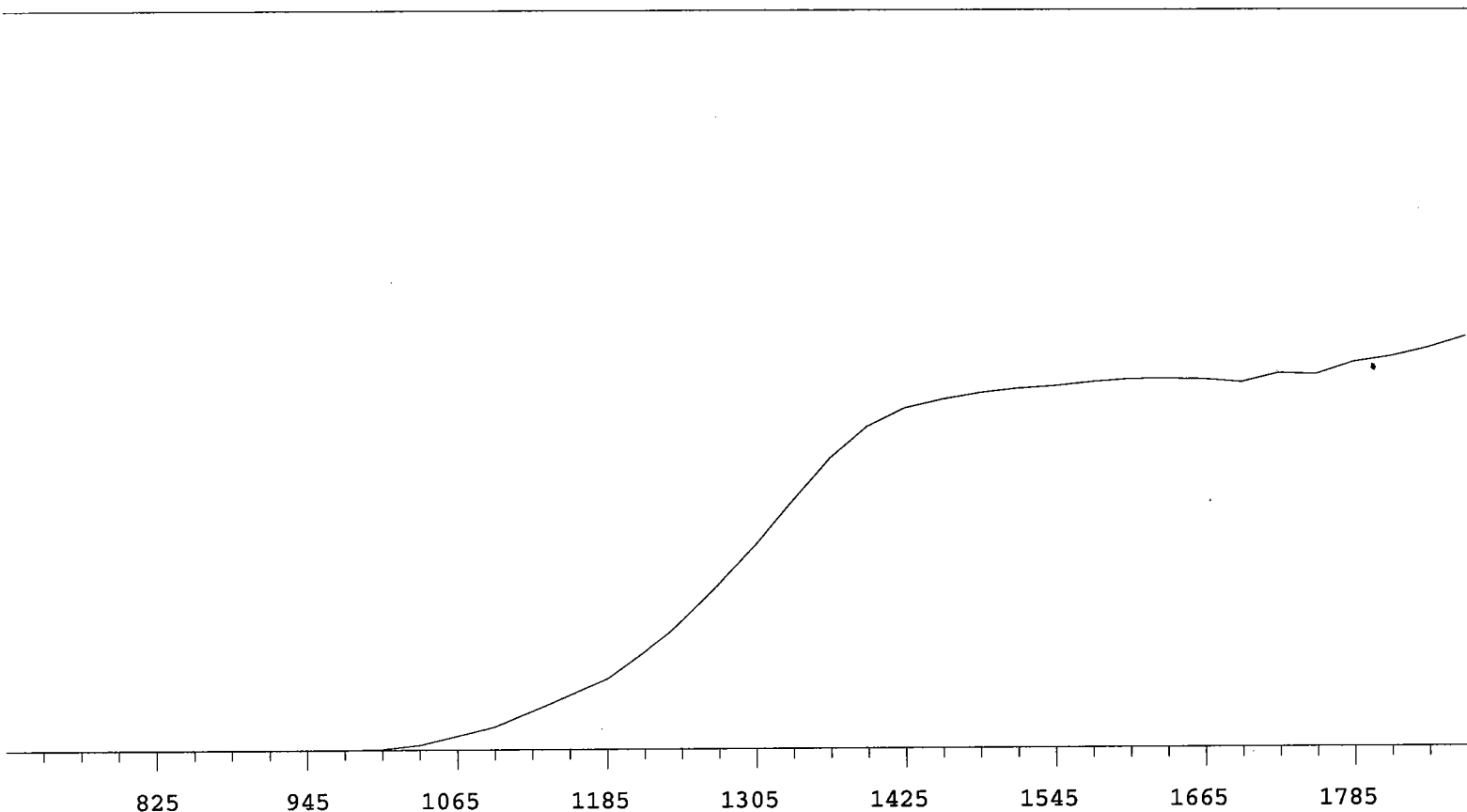
Beta Volts: 1515



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	1		1305	7524	+61.93
735	0		1335	9002	+55.36
765	0		1365	10542	+44.70
795	0	>100	1395	12064	+31.21
825	0	>100	1425	12981	+19.20
855	0	>100	1455	13192	+10.41
885	0	>100	1485	13570	+5.93
915	0	>100	1515	13820	+4.08
945	0	>100	1545	13866	+0.75
975	9	>100	1575	13880	+0.21
1005	58	>100	1605	13695	+0.59
1035	228	>100	1635	13950	+0.77
1065	544	>100	1665	13954	+1.92
1095	936	>100	1695	13911	+0.19
1125	1468	>100	1725	14116	+0.02
1155	2110	>100	1755	13908	-0.24
1185	2770	+94.71	1785	13960	-0.81
1215	3670	+85.91	1815	13939	+0.71
1245	4937	+79.46	1845	13931	
1275	6066	+70.79	1875	14071	



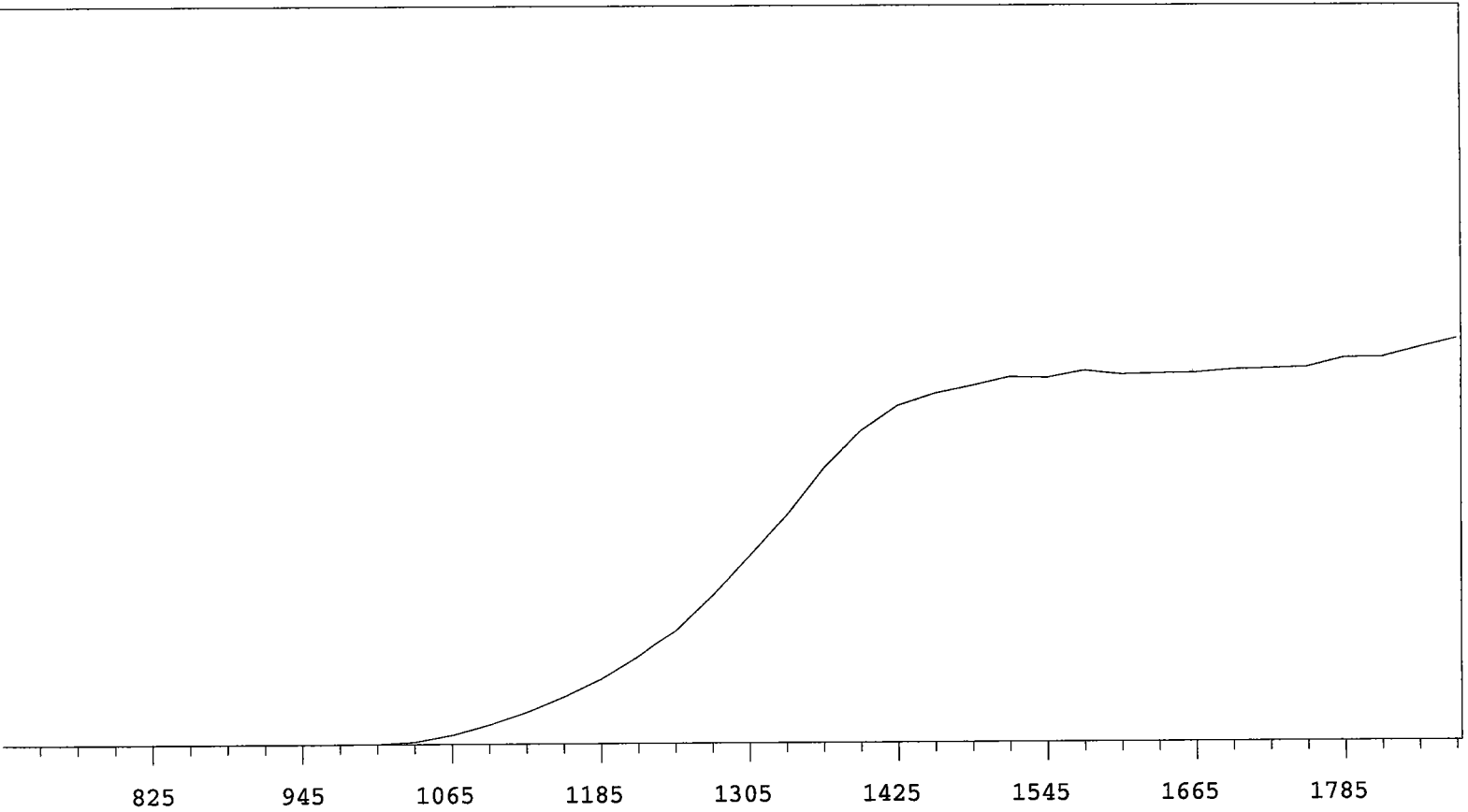
VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	8778	+67.49
735	0		1335	10502	+57.68
765	0		1365	12516	+46.36
795	0	>100	1395	14215	+35.88
825	0	>100	1425	15472	+22.01
855	0	>100	1455	16469	+12.99
885	1	+0.00	1485	16342	+6.70
915	0	>100	1515	16874	+3.07
945	0	>100	1545	16918	+2.53
975	0	>100	1575	16950	+0.58
1005	18	>100	1605	16943	+0.95
1035	137	>100	1635	17008	+2.13
1065	430	>100	1665	17130	+2.45
1095	865	>100	1695	17403	+2.43
1125	1444	>100	1725	17377	+2.43
1155	2151	>100	1755	17515	+4.88
1185	2981	>100	1785	17710	+7.54
1215	4168	+92.14	1815	18533	+9.04
1245	5377	+84.73	1845	18905	
1275	6924	+74.92	1875	19415	



VOLTS	COUNTS	%/100 Volts	VOLTS	COUNTS	%/100 Volts
705	0		1305	8797	+65.44
735	0		1335	10726	+54.47
765	0		1365	12570	+41.11
795	0	>100	1395	13917	+26.79
825	0	>100	1425	14687	+15.44
855	1	+0.00	1455	15048	+8.47
885	0	>100	1485	15318	+5.00
915	0	>100	1515	15494	+3.76
945	0	>100	1545	15606	+3.04
975	3	>100	1575	15776	+2.35
1005	40	>100	1605	15889	+1.44
1035	210	>100	1635	15907	-0.16
1065	590	>100	1665	15881	+0.64
1095	983	>100	1695	15741	+1.21
1125	1645	>100	1725	16124	+3.63
1155	2342	>100	1755	16076	+5.41
1185	3045	+96.43	1785	16588	+5.79
1215	4201	+90.42	1815	16830	+7.53
1245	5579	+83.64	1845	17185	
1275	7121	+74.44	1875	17682	

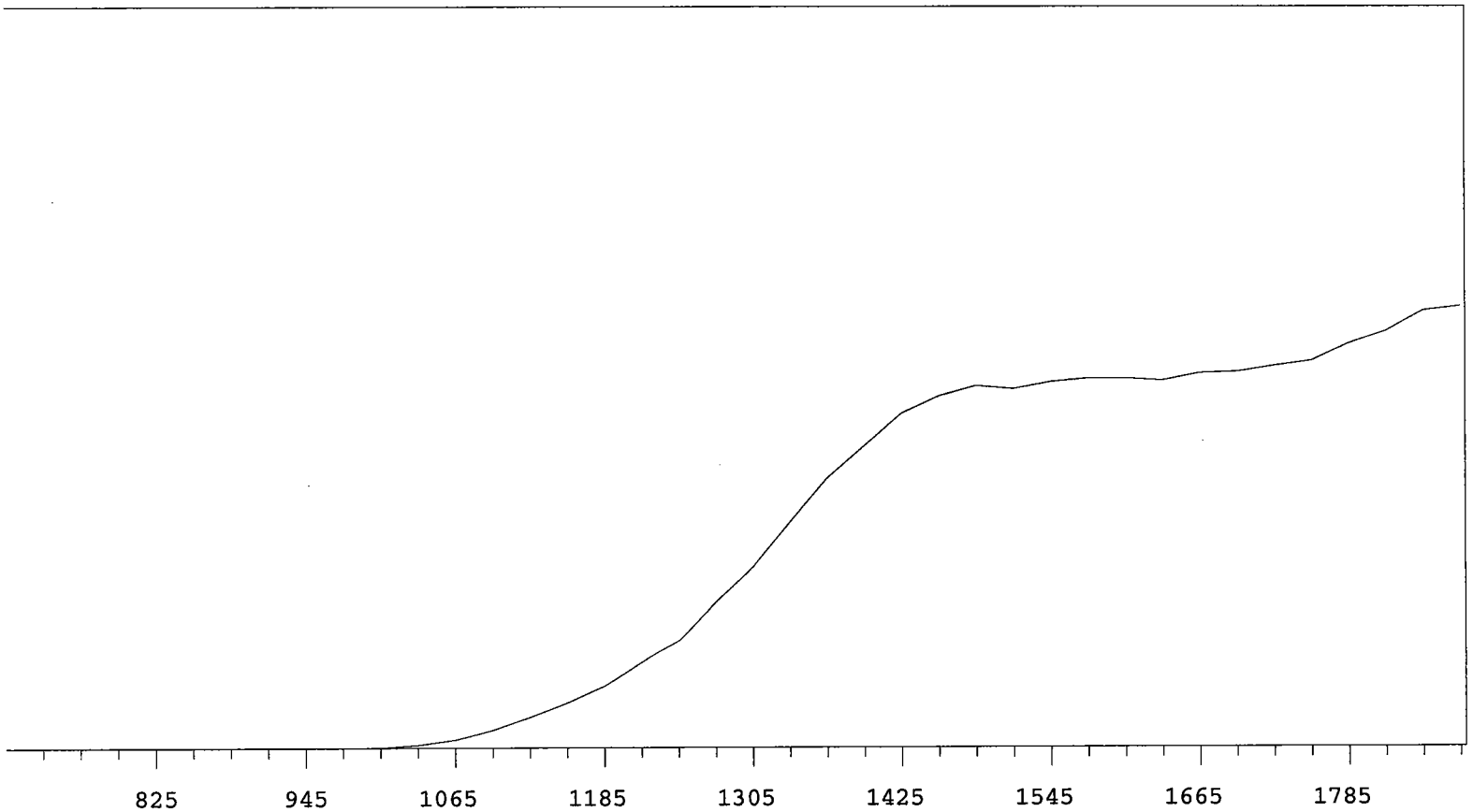
Alpha Volts: 705

Beta Volts: 1515



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:

J.M. Muth 4-23-03



# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0553-A	Isotope:	Radium-228 SPIKE
Prepared By:	Lonnie Morris	Prepared By:	Lonnie Morris
Carrier Conc:	0.5M HCl	Prep Date:	04/25/2003
Reference Date:	04/23/2003	Verification Date:	04/27/2005
Ampoule Mass (g):	5.0235 g	Expiration Date:	04/27/2006
Uncertainty:	+/-	Primary Code:	0553-B
LogBook No:	RC-S-035-068	Dilution(mL):	1000 mL
		Mass of Parent(g):	30.535 g
		Density(g/mL):	
		Balance ID:	

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

$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm/mL)}) * (\text{conversion dpm to dpm}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm/mL)}) * (\text{conversion dpm to dpm}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(30.535 \text{ g}) * (13419.8626 \text{ dpm/mL}) * (1 \text{ dpm/dpm}) / (1000 \text{ mL}) = 409.7755 \text{ dpm/mL}$
$(30.535 \text{ g}) * (13419.8626 \text{ dpm/mL}) * (1 \text{ dpm/dpm}) / (\text{g/mL}) / (1000 \text{ mL}) = \text{dpm/g}$

### 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  
 Stdev = 3.063655617 dpm/mL

102.890426 Pass  
 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  
26

16 SEP 2008 16:24

**ID: TOTAL ACTIVITY**

USER:11 COMMENT:GOLD

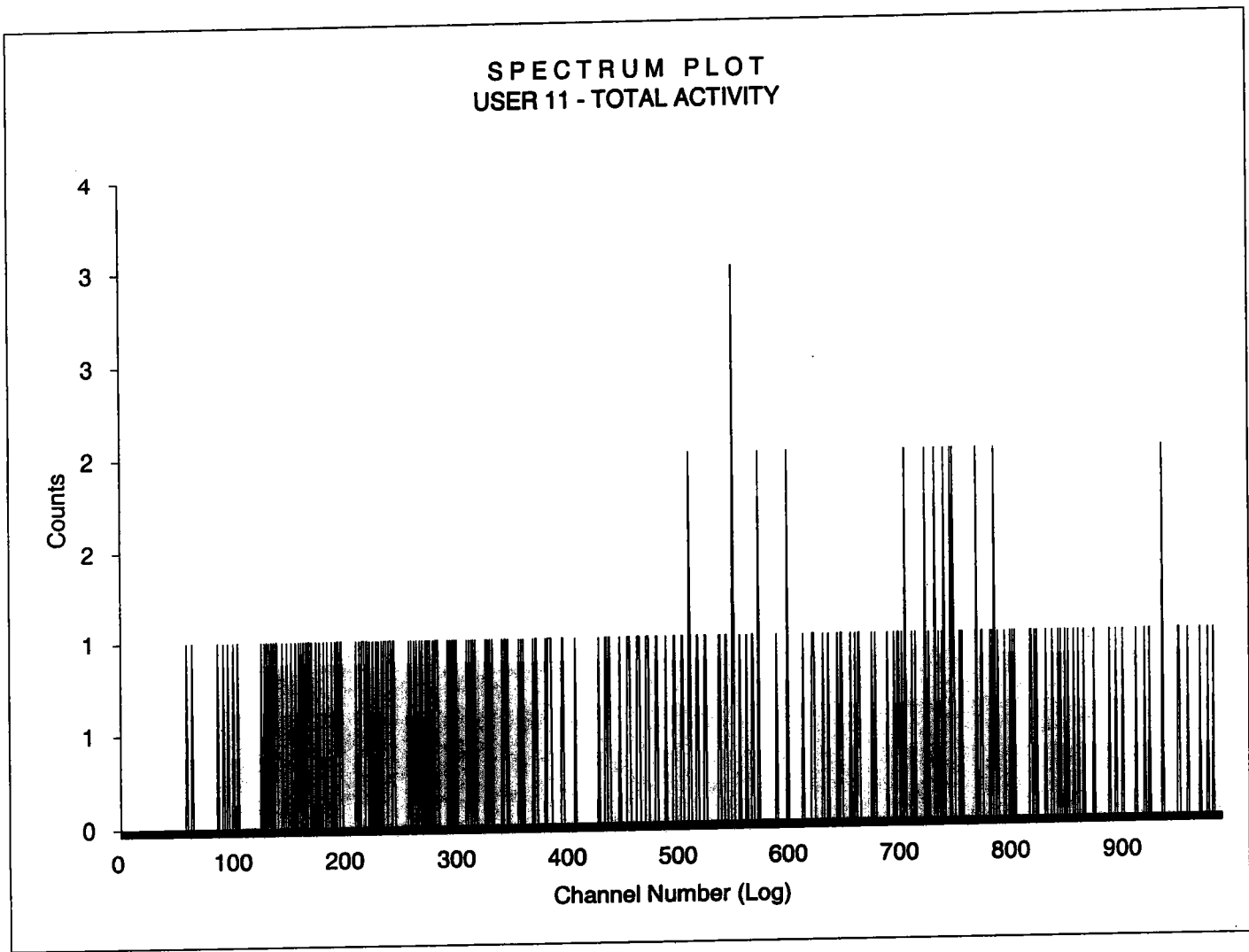
PRESET TIME : 5.00  
 DATA CALC : CPM H# :YES SAMPLE REPEATS: 1 PRINTER : STD  
 COUNT BLANK : NO IC# : NO REPLICATES : 1 RS232 :EDIT  
 TWO PHASE : NO AQC : NO CYCLE REPEATS : 1 DISK : OFF  
 SCINTILLATOR: LIQUID LUMEX:YES LOW SAMPLE REJ: 0  
 LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

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

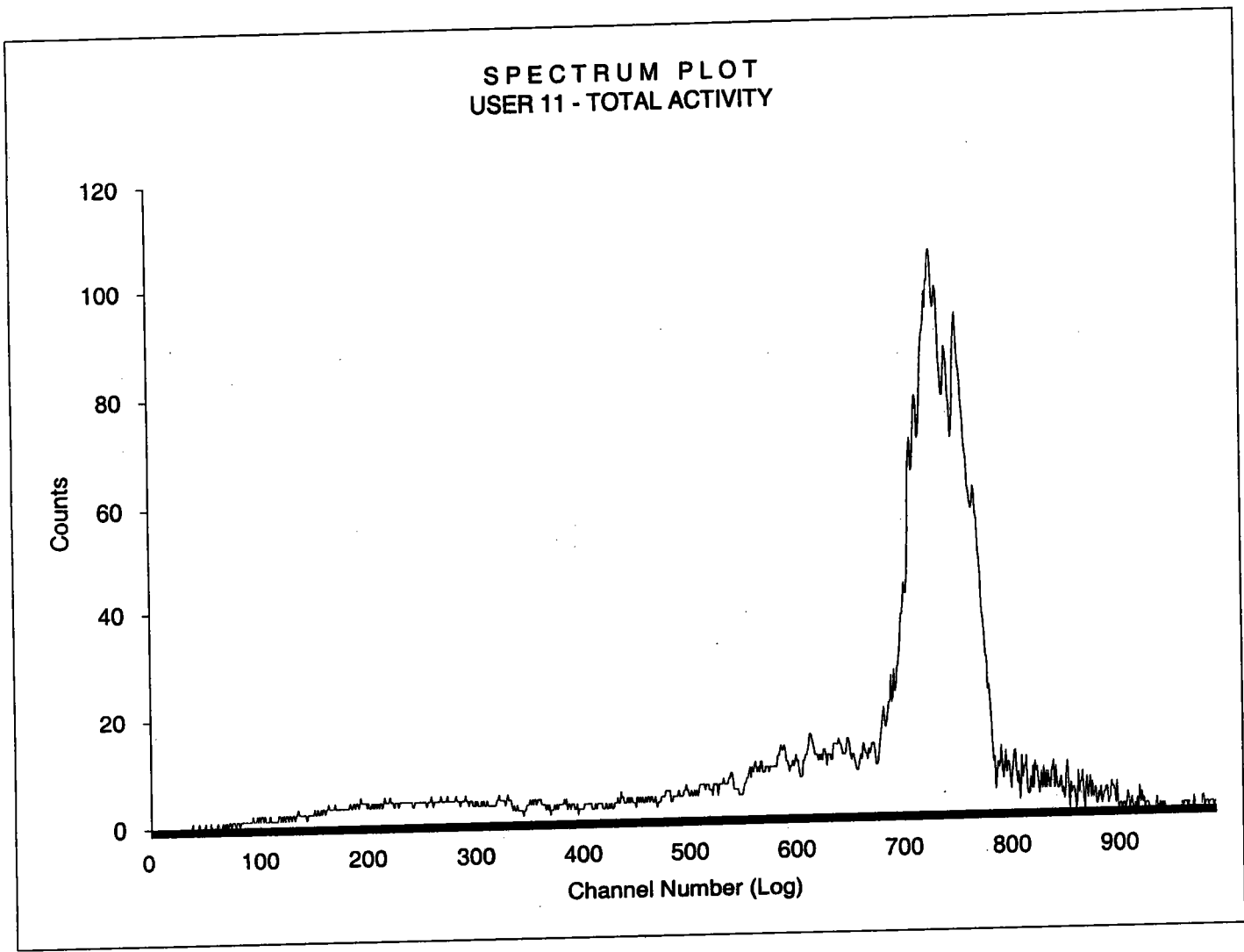
Sample Count Start Time: 16 Sep 2008 16:46:59  
Data Capture Date: 9/16/2008 16:52:01  
User Filename: S11091611-5A.WK1  
U11091611-1A.WK1  
Spectrum Type: Log Counts  
User Number: 11  
User Id: TOTAL ACTIVITY  
User Comment: GOLD  
Isotope Name: 14C  
Scintillator: LIQUID  
Sample, Rack-Pos, Time: 5 11-5 5.00  
H#, Total Counts: 97.9 69  
Start, End, X-Axis: 0 990 Channel Number





50/9/16  
25

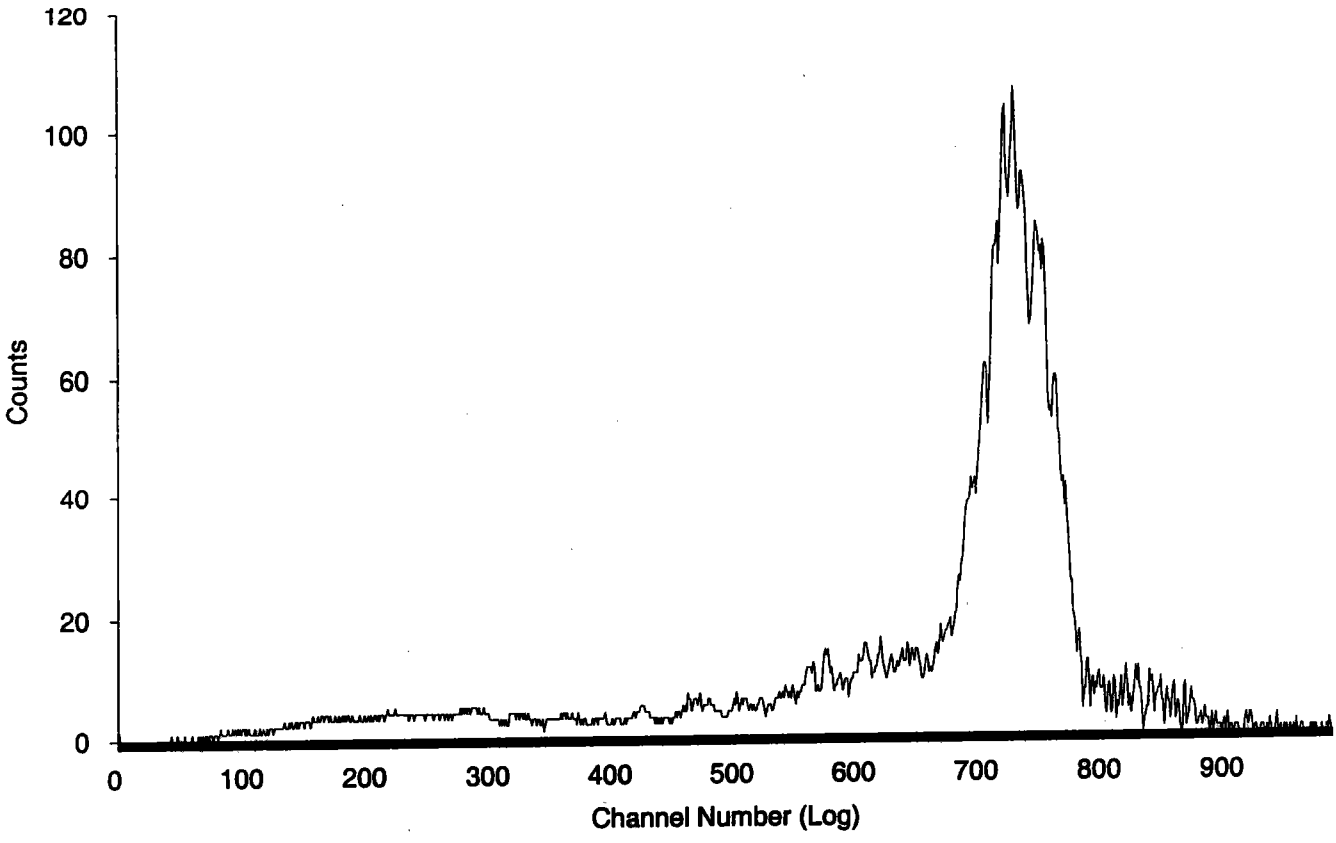
Sample Count Start Time: 16 Sep 2008 16:53:01  
Data Capture Date: 9/16/2008 16:58:06  
User Filename: S11091611-6A.WK1  
U11091611-1A.WK1  
Spectrum Type: Log Counts  
User Number: 11  
User Id: TOTAL ACTIVITY  
User Comment: GOLD  
Isotope Name: 14C  
Scintillator: LIQUID  
Sample, Rack-Pos, Time: 6 11-6 5.00  
H#, Total Counts: 110.7 7666  
Start, End, X-Axis: 0 990 Channel Number



8/16/08  
SJS

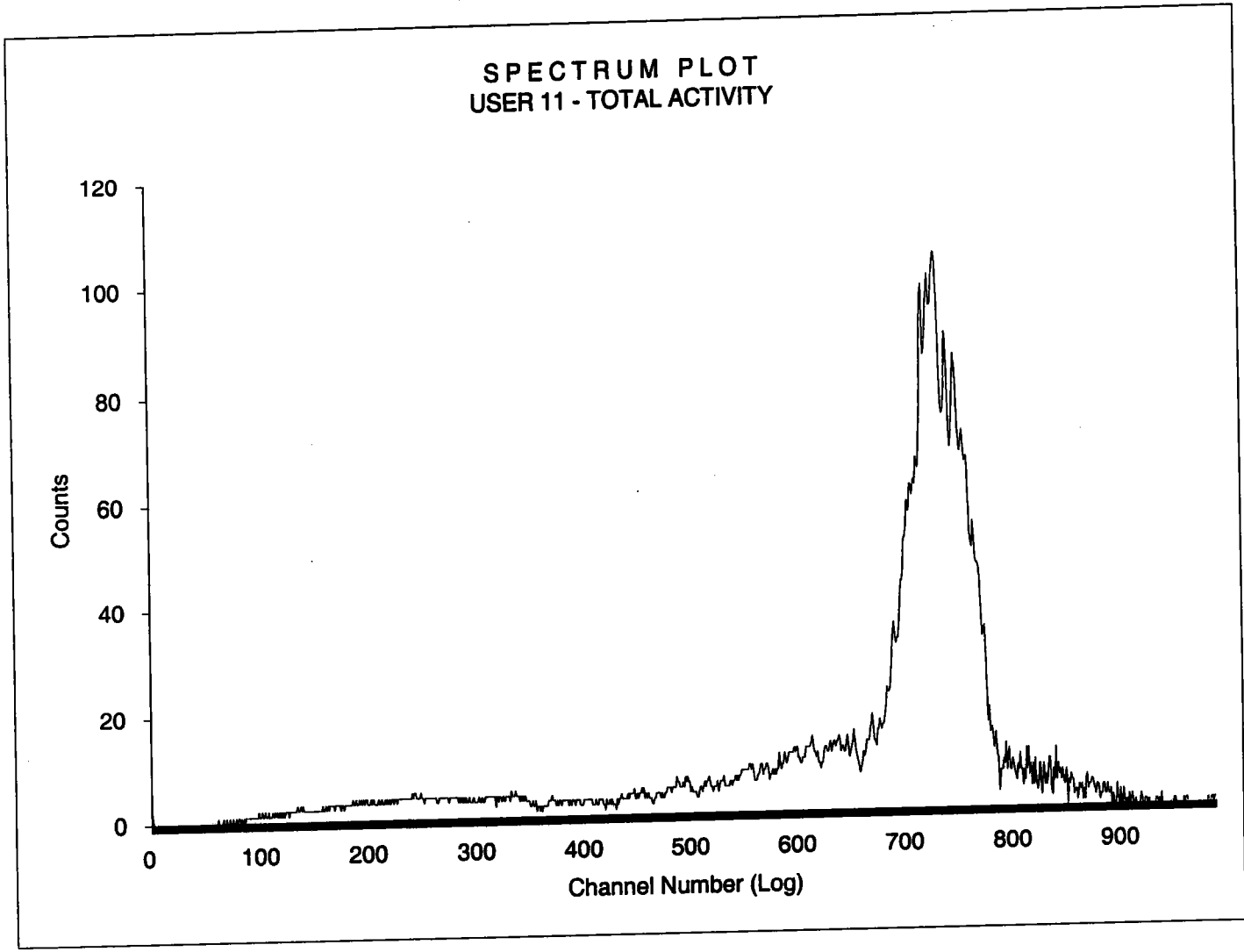
Sample Count Start Time: 16 Sep 2008 16:59:07  
Data Capture Date: 9/16/2008 17:04:12  
User Filename: S11091611-7A.WK1  
U11091611-1A.WK1  
Spectrum Type: Log Counts  
User Number: 11  
User Id: TOTAL ACTIVITY  
User Comment: GOLD  
Isotope Name: 14C  
Scintillator: LIQUID  
Sample, Rack-Pos, Time: 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



# Radium-228 Que Sheet

SR 6/30/09

Batch #: 881540 Analyst: DXM2 First Client Due Date: Internal Due Date 07/03/2009  
 Spike Isotope: Radium-228 Spike Code: NA Expiration Date: 9/13/09 Ac-228 Ingrow: 2025 6/30/09  
 LCS Isotope: Radium-228 LCS Code: 0503-B Expiration Date: 2/17/10 Ac-228 Separation Date/Time: 7-2-09 0540  
 Tracer Isotope: Barium-133 Tracer Code: 0112-2 Expiration Date: 2/17/10 Witness: ADG 6/30/09  
 Prep Date: 6/30/09 Initials: SR Pipet ID: 1734212 Balance ID: NA

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collect Date & Time	Pos. #	Vol (mL)	Det #	Ba Yield (%)	Gamma Det. #
1201872112-1	LCS for batch 881540	LCS		3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	1	20		100.83	↑
1201872113-1	LCS for batch 881540	LCS		3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	2	20		108.20	
1201872114-1	LCS for batch 881540	LCS		3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	3	20		114.22	
1201872115-1	LCS for batch 881540	LCS		3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	4	20		120.58	WZAL
1201872116-1	LCS for batch 881540	LCS		3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	5	20		105.84	
1201872117-1	LCS for batch 881540	LCS		3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	6	20		107.70	
1201872118-1	LCS for batch 881540	LCS		3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	7	20		112.82	
1201872119-1	LCS for batch 881540	LCS		3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	8	20		111.91	↓

SR 7/2/09

SR 7/2/09

Comments: \_\_\_\_\_ Data Reviewed By: \_\_\_\_\_

ASSAY 30-Jun-09 19:32:06

Protocol id 8 228\_REC  
Time limit 180  
Count limit 50000  
Isotope Ba-133  
Protocol date 9-Apr-07 10:03:07  
Run id. 54

POS	RACK	BATCH	TIME	COUNTS	CPM	ERROR	% RECOVERY	COUNT	TIME
1	97	1	180	779	229.3	4.13			19:32:13
2	97	2	180	785	231.2	4.11	100.83		19:35:24
3	97	3	180	835	248.1	3.95	108.20		19:38:35
4	97	4	180	877	261.9	3.83	114.22		19:41:47
5	97	5	180	921	276.5	3.71	120.58		19:44:58
6	72	6	180	819	242.7	4	105.84		19:48:17
7	72	7	180	798	235.5	4.07	102.70		19:51:28
8	72	8	180	867	258.7	3.85	112.82		19:54:40
9	72	9	180	861	256.6	3.87	111.91		19:57:51

END OF ASSAY

*[Handwritten signature]*  
7/2/09

# General Engineering Laboratories

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

## Gas Flow Proportional Counter Calibration Package

Method: Ra-228 (LB4100)

	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?		<input checked="" type="checkbox"/>	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"/>		
	<input checked="" type="checkbox"/>		
5) Is the method Carrier Standardization included?			n/m

Prepared By: 

Date: 7/2/09

Reviewed By: 

Date: 7/2/09

Effective Date: 7/2/09

# Ra-228 Calibration LB4100 Detectors

Detector #	Source #	Seperation time		Ac-228 decay (dec)	Spike Vol. Ra-228 (mL)	Std. Act. Ra-228 dpm/mL	Standard Nominal dpm	raw beta counts	ct. time (min)	Beta cpm	corrected* cpm	Ra-228 eff (cpm/dpm)	
		Seperation date	Count date										
A1	1	7/1/09 10:45	7/1/2009 19:45	0.3618	1.5	6363.2	9544.8	14312	7	2044.6	5650.451935	0.5920	
A1	2	7/1/09 10:45	7/1/2009 20:23	0.3372	1.5	6363.2	9544.8	13406	7	1915.1	5678.831855	0.5950	
A1	3	7/1/09 10:45	7/1/2009 20:14	0.3425	1.5	6363.2	9544.8	13510	7	1930.0	5634.986037	0.5904	
A1	4	7/1/09 10:45	7/1/2009 20:06	0.3477	1.5	6363.2	9544.8	13173	7	1881.9	5411.558512	0.5670	Average EFF 0.5861
A2	1	7/1/09 10:45	7/1/2009 20:06	0.3477	1.5	6363.2	9544.8	13044	7	1863.4	5358.732334	0.5614	
A2	2	7/1/09 10:45	7/1/2009 19:45	0.3618	1.5	6363.2	9544.8	13149	7	1878.4	5191.293495	0.5439	
A2	3	7/1/09 10:45	7/1/2009 20:23	0.3372	1.5	6363.2	9544.8	12665	7	1809.3	5364.941477	0.5621	Average EFF 0.5495
A2	4	7/1/09 10:45	7/1/2009 20:14	0.3425	1.5	6363.2	9544.8	12143	7	1734.7	5064.813875	0.5306	
A3	1	7/1/09 10:45	7/1/2009 20:14	0.3425	1.5	6363.2	9544.8	13110	7	1872.9	5468.147072	0.5729	
A3	2	7/1/09 10:45	7/1/2009 20:06	0.3477	1.5	6363.2	9544.8	12992	7	1856.0	5337.536949	0.5592	
A3	3	7/1/09 10:45	7/1/2009 19:45	0.3618	1.5	6363.2	9544.8	13187	7	1883.9	5206.296092	0.5455	Average EFF 0.5551
A3	4	7/1/09 10:45	7/1/2009 20:23	0.3372	1.5	6363.2	9544.8	12227	7	1748.7	5179.403035	0.5426	
A4	1	7/1/09 10:45	7/1/2009 20:23	0.3372	1.5	6363.2	9544.8	0	7	0.0	0	0.0000	
A4	2	7/1/09 10:45	7/1/2009 20:14	0.3425	1.5	6363.2	9544.8	0	7	0.0	0	0.0000	
A4	3	7/1/09 10:45	7/1/2009 20:06	0.3477	1.5	6363.2	9544.8	1	7	0.1	0.410832585	0.0000	Average EFF 0.0000
A4	4	7/1/09 10:45	7/1/2009 19:45	0.3618	1.5	6363.2	9544.8	1	7	0.1	0.394805194	0.0000	
B1	1	7/1/09 10:45	7/1/2009 20:31	0.3323	1.5	6363.2	9544.8	11346	7	1620.9	4877.864129	0.5110	
B1	2	7/1/09 10:45	7/1/2009 20:59	0.3150	1.5	6363.2	9544.8	11955	7.5	1594.0	5060.550375	0.5302	
B1	3	7/1/09 10:45	7/1/2009 20:50	0.3206	1.5	6363.2	9544.8	12374	7.5	1649.9	5146.322987	0.5392	Average EFF 0.5207
B1	4	7/1/09 10:45	7/1/2009 20:39	0.3267	1.5	6363.2	9544.8	11749	7.5	1566.5	4794.329075	0.5023	
B2	1	7/1/09 10:45	7/1/2009 20:39	0.3267	1.5	6363.2	9544.8	11855	7.5	1580.7	4837.583725	0.5068	
B2	2	7/1/09 10:45	7/1/2009 20:31	0.3323	1.5	6363.2	9544.8	11193	7	1599.0	4811.889177	0.5041	
B2	3	7/1/09 10:45	7/1/2009 20:59	0.3150	1.5	6363.2	9544.8	11275	7.5	1503.3	4772.706439	0.5000	Average EFF 0.5034
B2	4	7/1/09 10:45	7/1/2009 20:50	0.3206	1.5	6363.2	9544.8	11535	7.5	1538.0	4797.384488	0.5026	
B3	1	7/1/09 10:45	7/1/2009 20:50	0.3206	1.5	6363.2	9544.8	11857	7.5	1580.9	4931.45819	0.5167	
B3	2	7/1/09 10:45	7/1/2009 20:39	0.3267	1.5	6363.2	9544.8	11336	7.5	1511.5	4625.799165	0.4846	
B3	3	7/1/09 10:45	7/1/2009 20:31	0.3323	1.5	6363.2	9544.8	10797	7	1542.4	4641.793563	0.4863	Average EFF 0.4880
B3	4	7/1/09 10:45	7/1/2009 20:59	0.3150	1.5	6363.2	9544.8	10470	7.5	1398.0	4432.088884	0.4643	
B4	1	7/1/09 10:45	7/1/2009 20:59	0.3150	1.5	6363.2	9544.8	10999	7.5	1466.5	4656.021551	0.4878	
B4	2	7/1/09 10:45	7/1/2009 20:50	0.3206	1.5	6363.2	9544.8	11461	7.5	1528.1	4766.757385	0.4994	
B4	3	7/1/09 10:45	7/1/2009 20:40	0.3267	1.5	6363.2	9544.8	11008	7.5	1467.7	4492.095338	0.4706	Average EFF 0.4746
B4	4	7/1/09 10:45	7/1/2009 20:31	0.3323	1.5	6363.2	9544.8	9783	7	1397.6	4205.991416	0.4407	
C1	1	7/1/09 10:45	7/1/2009 21:07	0.3100	1.5	6363.2	9544.8	10578	7.5	1410.4	4549.36662	0.4786	
C1	2	7/1/09 10:45	7/1/2009 21:35	0.2944	1.5	6363.2	9544.8	10627	8	1328.4	4511.572327	0.4727	
C1	3	7/1/09 10:45	7/1/2009 21:26	0.2993	1.5	6363.2	9544.8	10782	8	1347.8	4503.540516	0.4718	Average EFF 0.4698
C1	4	7/1/09 10:45	7/1/2009 21:16	0.3051	1.5	6363.2	9544.8	10001	7.5	1333.5	4370.7709	0.4579	
C2	1	7/1/09 10:45	7/1/2009 21:16	0.3051	1.5	6363.2	9544.8	12199	7.5	1626.5	5331.370283	0.5586	
C2	2	7/1/09 10:45	7/1/2009 21:07	0.3100	1.5	6363.2	9544.8	12229	7.5	1630.5	5259.425637	0.5510	
C2	3	7/1/09 10:45	7/1/2009 21:35	0.2944	1.5	6363.2	9544.8	12414	8	1551.8	5270.22291	0.5522	Average EFF 0.5459
C2	4	7/1/09 10:45	7/1/2009 21:26	0.2993	1.5	6363.2	9544.8	11925	8	1490.6	4981.116994	0.5219	
C3	1	7/1/09 10:45	7/1/2009 21:26	0.2993	1.5	6363.2	9544.8	13141	8	1642.6	5489.044731	0.5751	
C3	2	7/1/09 10:45	7/1/2009 21:16	0.3051	1.5	6363.2	9544.8	12874	7.5	1689.9	5538.961142	0.5803	
C3	3	7/1/09 10:45	7/1/2009 21:07	0.3100	1.5	6363.2	9544.8	12199	7.5	1626.5	5246.687687	0.5497	Average EFF 0.5602
C3	4	7/1/09 10:45	7/1/2009 21:35	0.2944	1.5	6363.2	9544.8	12044	8	1505.5	5113.303821	0.5357	
C4	1	7/1/09 10:45	7/1/2009 21:35	0.2944	1.5	6363.2	9544.8	12858	8	1582.3	5373.978725	0.5630	
C4	2	7/1/09 10:45	7/1/2009 21:26	0.2992	1.5	6363.2	9544.8	13120	8	1640.0	5480.44467	0.5742	
C4	3	7/1/09 10:45	7/1/2009 21:16	0.3051	1.5	6363.2	9544.8	12240	7.5	1632.0	5349.456266	0.5605	Average EFF 0.5595
C4	4	7/1/09 10:45	7/1/2009 21:07	0.3100	1.5	6363.2	9544.8	11995	7.5	1599.3	5158.948996	0.5405	
D1	1	7/1/09 10:45	7/1/2009 21:46	0.2882	1.5	6363.2	9544.8	13008	8	1626.0	5642.032339	0.5911	
D1	2	7/1/09 10:45	7/1/2009 22:19	0.2711	1.5	6363.2	9544.8	10674	7	1524.9	5624.62003	0.5893	
D1	3	7/1/09 10:45	7/1/2009 22:09	0.2762	1.5	6363.2	9544.8	10824	7	1560.6	5650.918253	0.5920	Average EFF 0.5842
D1	4	7/1/09 10:45	7/1/2009 21:58	0.2820	1.5	6363.2	9544.8	10636	7	1519.4	5387.80639	0.5645	
D2	1	7/1/09 10:45	7/1/2009 21:58	0.2820	1.5	6363.2	9544.8	12055	7	1722.1	6106.619597	0.6398	
D2	2	7/1/09 10:45	7/1/2009 21:46	0.2882	1.5	6363.2	9544.8	14016	8	1752.0	6079.237797	0.6369	
D2	3	7/1/09 10:45	7/1/2009 22:19	0.2711	1.5	6363.2	9544.8	11697	7	1671.0	6163.685637	0.6458	Average EFF 0.6361
D2	4	7/1/09 10:45	7/1/2009 22:09	0.2762	1.5	6363.2	9544.8	11472	7	1638.9	5934.581242	0.6218	
D3	1	7/1/09 10:45	7/1/2009 22:09	0.2762	1.5	6363.2	9544.8	12072	7	1724.6	6244.96729	0.6543	
D3	2	7/1/09 10:45	7/1/2009 21:58	0.2820	1.5	6363.2	9544.8	12274	7	1753.4	6217.556941	0.6514	
D3	3	7/1/09 10:45	7/1/2009 21:46	0.2882	1.5	6363.2	9544.8	13577	8	1697.1	5889.0124	0.6170	Average EFF 0.6336
D3	4	7/1/09 10:45	7/1/2009 22:19	0.2711	1.5	6363.2	9544.8	11077	7	1582.4	5836.979208	0.6115	
D4	1	7/1/09 10:45	7/1/2009 22:19	0.2711	1.5	6363.2	9544.8	11753	7	1679.0	6193.388661	0.6489	
D4	2	7/1/09 10:45	7/1/2009 22:09	0.2762	1.5	6363.2	9544.8	12148	7	1735.4	6284.282856	0.6584	
D4	3	7/1/09 10:45	7/1/2009 21:58	0.2820	1.5	6363.2	9544.8	12137	7	1733.9	6148.350426	0.6442	Average EFF 0.6422
D4	4	7/1/09 10:45	7/1/2009 21:46	0.2882	1.5	6363.2	9544.8	13588	8	1698.5	5893.783641	0.6175	
E1	1	7/1/09 10:45	7/1/2009 22:47	0.2573	1.5	6363.2	9544.8	11061	8.5	1301.3	5057.676785	0.5299	
E1	2	7/1/09 10:45	7/1/2009 23:35	0.2347	1.5	6363.2	9544.8	11891	10	1189.1	5065.999157	0.5308	
E1	3	7/1/09 10:45	7/1/2009 23:06	0.2482	1.5	6363.2	9544.8	10666	8.5	1254.8	5055.369515	0.5296	Average EFF 0.5248
E1	4	7/1/09 10:45	7/1/2009 22:56	0.2528	1.5	6363.2	9544.8	10435	8.5	1227.6	4855.745827	0.5087	
E2	1	7/1/09 10:45	7/1/2009 22:56	0.2528	1.5	6363.2	9544.8	11785	8.5	1386.5	5483.944856	0.5745	
E2	2	7/1/09 10:45	7/1/2009 22:47	0.2573	1.5	6363.2	9544.8	11972	8.5	1408.5	5474.234379	0.5735	
E2	3	7/1/09 10:45	7/1/2009 23:35	0.2347	1.5	6363.2	9544.8	12860	10	1286.0	5479.000128	0.5740	Average EFF 0.5694
E2	4	7/1/09 10:45	7/1/2009 23:06	0.2482	1.5	6363.2	9544.8	11188	8.5	1316.2	5302.94828	0.5556	
E3	1	7/1/09 10:45	7/1/2009 23:06	0.2482	1.5	6363.2	9544.8	10133	8.5	1192.1	4802.893719	0.5032	
E3	2	7/1/09 10:45	7/1/2009 22:56	0.2528	1.5	6363.2	9544.8	10161	8.5	1195.4	4728.244691	0.4954	
E3	3	7/1/09 10:45	7/1/2009 22:47	0.2573	1.5	6363.2	9544.8	10256	8.5	1206.6	4689.588021	0.4913	Average EFF

E3	4	7/1/09 10:45	7/1/2009 23:35	0.2347	1.5	6363.2	9544.8	10524	10	1052.4	4483.747849	0.4698	0.4899
E4	1	7/1/09 10:45	7/1/2009 23:35	0.2347	1.5	6363.2	9544.8	12442	10	1244.2	5301.077419	0.5554	
E4	2	7/1/09 10:45	7/1/2009 23:06	0.2482	1.5	6363.2	9544.8	11506	8.5	1353.6	5453.675627	0.5714	
E4	3	7/1/09 10:45	7/1/2009 22:56	0.2528	1.5	6363.2	9544.8	11279	8.5	1326.9	5248.651009	0.5499	Average EFF
E4	4	7/1/09 10:45	7/1/2009 22:47	0.2573	1.5	6363.2	9544.8	11203	8.5	1318.0	5122.606726	0.5367	0.5533

\*Background is considered negligible



SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Count Start Time	Count End Time	Machine
1	1 A1	7	86	14312	7/1/2009 19:45	7/1/2009 19:52	LB4100
2	2 A1	7	80	13406	7/1/2009 20:23	7/1/2009 20:30	LB4100
3	3 A1	7	53	13510	7/1/2009 20:14	7/1/2009 20:21	LB4100
4	4 A1	7	87	13173	7/1/2009 20:06	7/1/2009 20:13	LB4100
1	1 A2	7	91	13044	7/1/2009 20:06	7/1/2009 20:13	LB4100
2	2 A2	7	78	13149	7/1/2009 19:45	7/1/2009 19:52	LB4100
3	3 A2	7	75	12665	7/1/2009 20:23	7/1/2009 20:30	LB4100
4	4 A2	7	107	12143	7/1/2009 20:14	7/1/2009 20:21	LB4100
1	1 A3	7	89	13110	7/1/2009 20:14	7/1/2009 20:21	LB4100
2	2 A3	7	80	12992	7/1/2009 20:06	7/1/2009 20:13	LB4100
3	3 A3	7	82	13187	7/1/2009 19:45	7/1/2009 19:52	LB4100
4	4 A3	7	99	12227	7/1/2009 20:23	7/1/2009 20:30	LB4100
1	1 A4	7	0	0	7/1/2009 20:23	7/1/2009 20:30	LB4100
2	2 A4	7	0	0	7/1/2009 20:14	7/1/2009 20:21	LB4100
3	3 A4	7	0	1	7/1/2009 20:06	7/1/2009 20:13	LB4100
4	4 A4	7	0	1	7/1/2009 19:45	7/1/2009 19:52	LB4100
1	1 B1	7	74	11346	7/1/2009 20:31	7/1/2009 20:38	LB4100
2	2 B1	7.5	97	11955	7/1/2009 20:59	7/1/2009 21:06	LB4100
3	3 B1	7.5	97	12374	7/1/2009 20:50	7/1/2009 20:57	LB4100
4	4 B1	7.5	142	11749	7/1/2009 20:39	7/1/2009 20:47	LB4100
1	1 B2	7.5	90	11855	7/1/2009 20:39	7/1/2009 20:47	LB4100
2	2 B2	7	104	11193	7/1/2009 20:31	7/1/2009 20:38	LB4100
3	3 B2	7.5	72	11275	7/1/2009 20:59	7/1/2009 21:06	LB4100
4	4 B2	7.5	152	11535	7/1/2009 20:50	7/1/2009 20:57	LB4100
1	1 B3	7.5	121	11857	7/1/2009 20:50	7/1/2009 20:57	LB4100
2	2 B3	7.5	94	11336	7/1/2009 20:39	7/1/2009 20:47	LB4100
3	3 B3	7	105	10797	7/1/2009 20:31	7/1/2009 20:38	LB4100
4	4 B3	7.5	150	10470	7/1/2009 20:59	7/1/2009 21:07	LB4100
1	1 B4	7.5	61	10999	7/1/2009 20:59	7/1/2009 21:07	LB4100
2	2 B4	7.5	101	11461	7/1/2009 20:50	7/1/2009 20:57	LB4100
3	3 B4	7.5	80	11008	7/1/2009 20:40	7/1/2009 20:47	LB4100
4	4 B4	7	100	9783	7/1/2009 20:31	7/1/2009 20:38	LB4100
1	1 C1	7.5	86	10578	7/1/2009 21:07	7/1/2009 21:15	LB4100
2	2 C1	8	78	10627	7/1/2009 21:35	7/1/2009 21:43	LB4100
3	3 C1	8	73	10782	7/1/2009 21:26	7/1/2009 21:34	LB4100
4	4 C1	7.5	144	10001	7/1/2009 21:16	7/1/2009 21:23	LB4100
1	1 C2	7.5	77	12199	7/1/2009 21:16	7/1/2009 21:23	LB4100
2	2 C2	7.5	72	12229	7/1/2009 21:07	7/1/2009 21:15	LB4100
3	3 C2	8	68	12414	7/1/2009 21:35	7/1/2009 21:43	LB4100
4	4 C2	8	98	11925	7/1/2009 21:26	7/1/2009 21:34	LB4100
1	1 C3	8	84	13141	7/1/2009 21:26	7/1/2009 21:34	LB4100
2	2 C3	7.5	82	12674	7/1/2009 21:16	7/1/2009 21:23	LB4100
3	3 C3	7.5	96	12199	7/1/2009 21:07	7/1/2009 21:15	LB4100
4	4 C3	8	110	12044	7/1/2009 21:35	7/1/2009 21:43	LB4100
1	1 C4	8	81	12658	7/1/2009 21:35	7/1/2009 21:43	LB4100
2	2 C4	8	101	13120	7/1/2009 21:26	7/1/2009 21:34	LB4100
3	3 C4	7.5	82	12240	7/1/2009 21:16	7/1/2009 21:23	LB4100
4	4 C4	7.5	125	11995	7/1/2009 21:07	7/1/2009 21:15	LB4100
1	1 D1	8	122	13008	7/1/2009 21:46	7/1/2009 21:54	LB4100
2	2 D1	7	94	10674	7/1/2009 22:19	7/1/2009 22:26	LB4100
3	3 D1	7	80	10924	7/1/2009 22:09	7/1/2009 22:16	LB4100
4	4 D1	7	169	10636	7/1/2009 21:58	7/1/2009 22:05	LB4100

1	1 D2	7	87	12055	7/1/2009 21:58	7/1/2009 22:05	LB4100
2	2 D2	8	125	14016	7/1/2009 21:46	7/1/2009 21:54	LB4100
3	3 D2	7	91	11697	7/1/2009 22:19	7/1/2009 22:26	LB4100
4	4 D2	7	139	11472	7/1/2009 22:09	7/1/2009 22:16	LB4100
1	1 D3	7	77	12072	7/1/2009 22:09	7/1/2009 22:16	LB4100
2	2 D3	7	124	12274	7/1/2009 21:58	7/1/2009 22:05	LB4100
3	3 D3	8	111	13577	7/1/2009 21:46	7/1/2009 21:54	LB4100
4	4 D3	7	138	11077	7/1/2009 22:19	7/1/2009 22:26	LB4100
1	1 D4	7	103	11753	7/1/2009 22:19	7/1/2009 22:26	LB4100
2	2 D4	7	113	12148	7/1/2009 22:09	7/1/2009 22:16	LB4100
3	3 D4	7	96	12137	7/1/2009 21:58	7/1/2009 22:05	LB4100
4	4 D4	8	148	13588	7/1/2009 21:46	7/1/2009 21:54	LB4100
1	1 E1	8.5	101	11061	7/1/2009 22:47	7/1/2009 22:55	LB4100
2	2 E1	10	119	11891	7/1/2009 23:35	7/1/2009 23:45	LB4100
3	3 E1	8.5	86	10666	7/1/2009 23:06	7/1/2009 23:14	LB4100
4	4 E1	8.5	136	10435	7/1/2009 22:56	7/1/2009 23:04	LB4100
1	1 E2	8.5	106	11785	7/1/2009 22:56	7/1/2009 23:04	LB4100
2	2 E2	8.5	121	11972	7/1/2009 22:47	7/1/2009 22:55	LB4100
3	3 E2	10	100	12860	7/1/2009 23:35	7/1/2009 23:45	LB4100
4	4 E2	8.5	139	11188	7/1/2009 23:06	7/1/2009 23:14	LB4100
1	1 E3	8.5	127	10133	7/1/2009 23:06	7/1/2009 23:14	LB4100
2	2 E3	8.5	132	10161	7/1/2009 22:56	7/1/2009 23:04	LB4100
3	3 E3	8.5	109	10256	7/1/2009 22:47	7/1/2009 22:55	LB4100
4	4 E3	10	157	10524	7/1/2009 23:35	7/1/2009 23:45	LB4100
1	1 E4	10	129	12442	7/1/2009 23:35	7/1/2009 23:45	LB4100
2	2 E4	8.5	118	11506	7/1/2009 23:06	7/1/2009 23:14	LB4100
3	3 E4	8.5	98	11279	7/1/2009 22:56	7/1/2009 23:04	LB4100
4	4 E4	8.5	123	11203	7/1/2009 22:47	7/1/2009 22:55	LB4100

# Radium-228 Liquid

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

Spike S/N : N/A  
 Spike Exp Date : N/A  
 Spike Activity (dpm/ml): N/A  
 Spike Volume Added: N/A

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

Batch : 595514  
 Analyst : DXM2  
 Prep Date : 6/30/2009

LCS S/N : 0503-B  
 LCS Exp Date : 9/13/2009  
 LCS Activity (dpm/ml): 182.48  
 LCS Volume Added: 2.00

Procedure Code : GFC90SRL  
 Pariname : Radium-228  
 Required MDA : 3 pCi/L  
 Halfife of Ra-228 : 5.75 years  
 Halfife of Ac-228 : 6.13 hours  
 Batch counted on : LB4100  
 BKG Count time : 500 min

Ra-228 Abundance : 1

Ra-228 Method Uncertainty : 0.0784

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

Calibration Date : 6/1/2008

Calibration Due Date : 3/1/2009

Sample Characteristics				Tracer Calculations				Tracer Samp.			
Pos.	Sample ID	Sample Aliquot L	Sample Aliquot StDev. L	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 (mL)	Tracer Aliquot StDev. (mL)	
1	1201245712.1	1.0000	2.0399E-05	229.3	4.13%	231.2	4.11%	0.1	0.000701	0.000701	
2	1201245713.1	1.0000	2.0399E-05	229.3	4.13%	248.1	3.95%	0.1	0.000701	0.000701	
3	1201245714.1	1.0000	2.0399E-05	229.3	4.13%	261.9	3.83%	0.1	0.000701	0.000701	
4	1201245715.1	1.0000	2.0399E-05	229.3	4.13%	276.5	3.71%	0.1	0.000701	0.000701	
5	1201245716.1	1.0000	2.0399E-05	229.3	4.13%	242.7	4.00%	0.1	0.000701	0.000701	
6	1201245717.1	1.0000	2.0399E-05	229.3	4.13%	235.5	4.07%	0.1	0.000701	0.000701	
7	1201245718.1	1.0000	2.0399E-05	229.3	4.13%	258.7	3.85%	0.1	0.000701	0.000701	
8	1201245719.1	1.0000	2.0399E-05	229.3	4.13%	256.6	3.87%	0.1	0.000701	0.000701	
9	1201245720.1	1.0000	2.0399E-05	229.3	4.13%	231.2	4.13%	0.1	0.000701	0.000701	
10	1201245721.1	1.0000	2.0399E-05	229.3	4.13%	248.1	4.13%	0.1	0.000701	0.000701	
11	1201245722.1	1.0000	2.0399E-05	229.3	4.13%	261.9	4.11%	0.1	0.000701	0.000701	
12	1201245723.1	1.0000	2.0399E-05	229.3	4.13%	276.5	4.11%	0.1	0.000701	0.000701	
13	1201245724.1	1.0000	2.0399E-05	229.3	4.13%	242.7	4.11%	0.1	0.000701	0.000701	
14	1201245725.1	1.0000	2.0399E-05	229.3	4.13%	235.5	4.11%	0.1	0.000701	0.000701	
15	1201245726.1	1.0000	2.0399E-05	229.3	4.13%	258.7	4.11%	0.1	0.000701	0.000701	
16	1201245727.1	1.0000	2.0399E-05	229.3	4.13%	256.6	4.11%	0.1	0.000701	0.000701	
17	1201245728.1	1.0000	2.0399E-05	229.3	4.13%	231.2	4.11%	0.1	0.000701	0.000701	
18	1201245729.1	1.0000	2.0399E-05	229.3	4.13%	248.1	4.11%	0.1	0.000701	0.000701	
19	1201245730.1	1.0000	2.0399E-05	229.3	4.13%	261.9	4.11%	0.1	0.000701	0.000701	
20	1201245731.1	1.0000	2.0399E-05	229.3	4.13%	276.5	4.11%	0.1	0.000701	0.000701	

Count raw Data		Counting		Gross Counts		Beta	Detector	Detector	Detector	Weekly Bkg		Count	Ra-228	Ac-228	Ac-228	Calculated	Sample
Pos.	ID	Time (min.)	Alpha	Beta	Counts	cpm	Efficiency (cpm/dpm)	Efficiency Error (cpm/dpm)	cpm	cpm	Time (min.)	Start Date/Time	Decay	Decay	Correction	Sample Recovery %	Recovery Error %
1	A1	15	6	1459	97.267	0.5861	0.01870	1.140	500	7/2/2009 5:40	7/2/2009 10:39	0.999	0.569	1.014	100.83%	3.08%	
2	A2	15	17	1307	87.133	0.5495	0.01949	1.114	500	7/2/2009 5:40	7/2/2009 10:39	0.999	0.569	1.014	108.20%	3.02%	
3	A3	15	15	1527	101.800	0.5551	0.02780	2.590	500	7/2/2009 5:40	7/2/2009 10:39	0.999	0.569	1.014	114.22%	2.99%	
4	A4	15	0	16	1.067	0.0000	0.01530	42.454	500	7/2/2009 5:40	7/2/2009 10:39	0.999	0.569	1.014	120.58%	2.95%	
5	B1	15	7	1097	73.133	0.5207	0.01808	1.336	500	7/2/2009 5:40	7/2/2009 11:54	0.999	0.494	1.014	105.84%	3.04%	
6	B2	15	18	1335	89.000	0.5034	0.01942	2.462	500	7/2/2009 5:40	7/2/2009 10:39	0.999	0.569	1.014	102.70%	3.06%	
7	B3	15	20	1329	88.600	0.4880	0.01849	1.260	500	7/2/2009 5:40	7/2/2009 10:39	0.999	0.569	1.014	112.82%	2.99%	
8	B4	15	9	1187	79.133	0.4746	0.02075	1.002	500	7/2/2009 5:40	7/2/2009 10:39	0.999	0.569	1.014	111.91%	3.00%	
9	C1	15	12	1185	79.000	0.4698	0.01902	1.310	500	7/2/2009 5:40	7/2/2009 10:57	0.999	0.550	1.014	100.83%	3.08%	
10	C2	15	14	1345	89.667	0.5459	0.01220	16.594	500	7/2/2009 5:40	7/2/2009 11:53	0.999	0.495	1.014	108.20%	3.08%	
11	C3	15	10	1504	100.267	0.5602	0.02111	1.088	500	7/2/2009 5:40	7/2/2009 10:57	0.999	0.550	1.014	114.22%	3.08%	
12	C4	15	8	1616	107.733	0.5595	0.02048	2.848	500	7/2/2009 5:40	7/2/2009 10:57	0.999	0.550	1.014	120.58%	3.08%	
13	D1	15	12	1482	98.800	0.5842	0.01320	1.034	500	7/2/2009 5:40	7/2/2009 11:02	0.999	0.545	1.014	105.84%	3.08%	
14	D2	15	11	1609	107.267	0.6361	0.03039	1.404	500	7/2/2009 5:40	7/2/2009 11:02	0.999	0.545	1.014	102.70%	3.08%	
15	D3	15	9	1689	112.600	0.6336	0.07231	0.950	500	7/2/2009 5:40	7/2/2009 11:02	0.999	0.545	1.014	112.82%	3.08%	
16	D4	15	26	1662	110.800	0.6422	0.05596	2.518	500	7/2/2009 5:40	7/2/2009 11:02	0.999	0.545	1.014	111.91%	3.08%	
17	E1	15	16	1210	80.667	0.5248	0.02284	1.590	500	7/2/2009 5:40	7/2/2009 11:18	0.999	0.529	1.014	100.83%	3.08%	
18	E2	15	19	1768	117.867	0.5694	0.02185	1.000	500	7/2/2009 5:40	7/2/2009 11:18	0.999	0.529	1.014	108.20%	3.08%	
19	E3	15	14	1169	77.933	0.4899	0.05054	2.006	500	7/2/2009 5:40	7/2/2009 11:18	0.999	0.529	1.014	114.22%	3.08%	
20	E4	15	14	1547	103.133	0.5533	0.04966	0.914	500	7/2/2009 5:40	7/2/2009 11:18	0.999	0.529	1.014	120.58%	3.08%	

- 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

\* indicates results calculated at 100% recovery

Pos.	Decision Level		Critical Level	Required MDA	MDA	Sample Act. Conc.	Sample Act. Error	Net Count Rate	Net Count Rate Error	2 SIGMA		Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
	pCi/L	pCi/L								Counting Uncertainty	Total Prop. Uncertainty						
1	*	0.8939	0.6311	3	1.5364	131.8069	0.0447	96.1267	2.5469	6.8448	23.3157		LCS			164.3951	80.2%
2	*	0.9424	0.6654	3	1.6232	125.7965	0.0456	86.0193	2.4106	6.9097	22.3632		LCS			164.3951	76.5%
3	*	1.4227	1.0045	3	2.2985	143.6471	0.0485	99.2100	2.6061	7.3959	25.9585		LCS			164.3951	87.4%
4	*	#####	#####	3	#####	-1576311.1110	0.0346	-41.3873	0.3950	29486.2445	29489.2890		LCS			164.3951	#####
5	*	1.2556	0.8865	3	2.1288	127.7429	0.0469	71.7973	2.2087	7.7022	22.8713		LCS			164.3951	77.7%
6	*	1.5294	1.0798	3	2.4788	138.1498	0.0459	86.5380	2.4369	7.6248	24.6025		LCS			164.3951	84.0%
7	*	1.1287	0.7968	3	1.9230	143.8337	0.0449	87.3400	2.4309	7.8463	25.4633		LCS			164.3951	87.5%
8	*	1.0349	0.7306	3	1.8000	132.3002	0.0468	78.1313	2.2873	7.6244	23.6819		LCS			164.3951	80.5%
9	*	1.2369	0.8732	3	2.1004	137.5054	0.0468	77.6900	2.2955	7.9632	24.6016		LCS			164.3951	83.6%
10	*	4.2094	2.9719	3	6.2823	123.6725	0.0472	73.0727	2.4517	8.1329	22.1796		LCS			164.3951	75.2%
11	*	0.9453	0.6674	3	1.6316	147.2054	0.0455	99.1787	2.5859	7.5225	26.1588		LCS			164.3951	89.5%
12	*	1.5312	1.0810	3	2.4593	155.8638	0.0449	104.8853	2.6810	7.8089	27.6066		LCS			164.3951	94.8%
13	*	0.8917	0.6296	3	1.5464	140.4184	0.0426	97.7660	2.5669	7.2259	24.5506		LCS			164.3951	85.4%
14	*	0.9544	0.6738	3	1.6115	139.6581	0.0501	105.8627	2.6747	6.9159	25.4660		LCS			164.3951	85.0%
15	*	0.7882	0.5565	3	1.3779	147.8798	0.0823	111.6500	2.7402	7.1135	32.9508		LCS			164.3951	90.0%
16	*	1.2659	0.8937	3	2.0488	141.4812	0.0686	108.2820	2.7188	6.9626	28.8924		LCS			164.3951	86.1%
17	*	1.2685	0.8955	3	2.1206	130.2858	0.0483	79.0767	2.3197	7.4909	23.5097		LCS			164.3951	79.3%
18	*	0.9270	0.6545	3	1.6127	177.4443	0.0447	116.8667	2.8035	8.3432	31.3906		LCS			164.3951	107.9%
19	*	1.5261	1.0774	3	2.5078	133.9943	0.0664	75.9273	2.2803	7.8873	26.9746		LCS			164.3951	81.5%
20	*	0.9121	0.6439	3	1.6004	159.7213	0.0638	102.2193	2.6225	8.0315	31.6443		LCS			164.3951	97.2%

\* Detector AH will not be used during this calibration cycle. gl 7/2/09

SampleID	Instr	Time (min.)	Alpha Counts	Beta Counts	Total Counts	Count Start Time	Count End Time	Machine
1	A1	15	6	1459		7/2/2009 10:39	7/2/2009 10:54	LB4100
2	A2	15	17	1307		7/2/2009 10:39	7/2/2009 10:54	LB4100
3	A3	15	15	1527		7/2/2009 10:39	7/2/2009 10:54	LB4100
4	A4	15	0	16		7/2/2009 10:39	7/2/2009 10:54	LB4100
1	B1	15	7	1097		7/2/2009 11:54	7/2/2009 12:09	LB4100
6	B2	15	18	1335		7/2/2009 10:39	7/2/2009 10:54	LB4100
7	B3	15	20	1329		7/2/2009 10:39	7/2/2009 10:54	LB4100
8	B4	15	9	1187		7/2/2009 10:39	7/2/2009 10:54	LB4100
1	C1	15	12	1185		7/2/2009 10:57	7/2/2009 11:12	LB4100
2	C2	15	14	1345		7/2/2009 11:53	7/2/2009 12:08	LB4100
3	C3	15	10	1504		7/2/2009 10:57	7/2/2009 11:12	LB4100
4	C4	15	8	1616		7/2/2009 10:57	7/2/2009 11:12	LB4100
5	D1	15	12	1482		7/2/2009 11:02	7/2/2009 11:17	LB4100
6	D2	15	11	1609		7/2/2009 11:02	7/2/2009 11:17	LB4100
7	D3	15	9	1689		7/2/2009 11:02	7/2/2009 11:17	LB4100
8	D4	15	26	1662		7/2/2009 11:02	7/2/2009 11:17	LB4100
1	E1	15	16	1210		7/2/2009 11:18	7/2/2009 11:33	LB4100
2	E2	15	19	1768		7/2/2009 11:18	7/2/2009 11:33	LB4100
3	E3	15	14	1169		7/2/2009 11:18	7/2/2009 11:33	LB4100
4	E4	15	14	1547		7/2/2009 11:18	7/2/2009 11:33	LB4100

Ra-228 LB4100	Cal Date A0	7/2/2009 A1	Exp Date A2	7/31/2009 A3	A4
A1	5.86074E-01				
A2	5.49508E-01				
A3	5.55050E-01				
A4	2.11015E-05				
B1	5.20673E-01				
B2	5.03404E-01				
B3	4.87992E-01				
B4	4.74627E-01				
C1	4.69765E-01				
C2	5.45903E-01				
C3	5.60200E-01				
C4	5.59541E-01				
D1	5.84229E-01				
D2	6.36056E-01				
D3	6.33552E-01				
D4	6.42229E-01				
E1	5.24757E-01				
E2	5.69423E-01				
E3	4.89913E-01				
E4	5.53338E-01				
F1					
F2					
F3					
F4					
G1					
G2					
G3					
G4					
H1					
H2					
H3					
H4					

Plateau Raw Data

Detector #	Sample I.D.	Pgm time (min)	Total (counts)	Voltage	%slope/100V	Date/Time
A1	Sr-90'	0.11	1	750	1.2	7/1/2009 15:09
A1	Sr-90'	0.12	1	780	2.2	7/1/2009 15:09
A1	Sr-90'	0.5	71	810	3.6	7/1/2009 15:10
A1	Sr-90'	0.5	197	840	6.3	7/1/2009 15:11
A1	Sr-90'	0.5	436	870	9.1	7/1/2009 15:11
A1	Sr-90'	0.5	768	900	11.7	7/1/2009 15:12
A1	Sr-90'	0.5	1146	930	14.3	7/1/2009 15:12
A1	Sr-90'	0.5	1601	960	17.2	7/1/2009 15:13
A1	Sr-90'	0.5	2167	990	20.3	7/1/2009 15:14
A1	Sr-90'	0.5	2839	1020	23.6	7/1/2009 15:14
A1	Sr-90'	0.5	3575	1050	27.3	7/1/2009 15:15
A1	Sr-90'	0.5	4430	1080	33.0	7/1/2009 15:16
A1	Sr-90'	0.5	5461	1110	38.9	7/1/2009 15:16
A1	Sr-90'	0.5	6850	1140	44.3	7/1/2009 15:17
A1	Sr-90'	0.5	8198	1170	46.9	7/1/2009 15:18
A1	Sr-90'	0.5	9713	1200	44.5	7/1/2009 15:18
A1	Sr-90'	0.5	11070	1230	40.2	7/1/2009 15:19
A1	Sr-90'	0.5	12096	1260	32.3	7/1/2009 15:20
A1	Sr-90'	0.5	13036	1290	23.4	7/1/2009 15:20
A1	Sr-90'	0.5	13569	1320	14.3	7/1/2009 15:21
A1	Sr-90'	0.5	13839	1350	7.0	7/1/2009 15:21
A1	Sr-90'	0.5	13834	1380	5.3	7/1/2009 15:22
A1	Sr-90'	0.5	13947	1410	3.7	7/1/2009 15:23
A1	Sr-90'	0.5	14310	1440	4.9	7/1/2009 15:23
A1	Sr-90'	0.5	14159	1470	1.6	7/1/2009 15:24
A1	Sr-90'	0.5	14463	1500	-0.7	7/1/2009 15:25
A1	Sr-90'	0.5	14107	1530	0.8	7/1/2009 15:25
A1	Sr-90'	0.5	14237	1560	-1.5	7/1/2009 15:53
A1	Sr-90'	0.5	14392	1590	0.1	7/1/2009 15:53
A1	Sr-90'	0.5	14095	1620	16.5	7/1/2009 15:54
A1	Sr-90'	0.5	14197	1650	16.6	7/1/2009 15:55
A2	Sr-90'	0.11	5	750	16.4	7/1/2009 15:09
A2	Sr-90'	0.5	52	780	16.3	7/1/2009 15:09
A2	Sr-90'	0.5	164	810	5.3	7/1/2009 15:10
A2	Sr-90'	0.5	362	840	8.4	7/1/2009 15:11
A2	Sr-90'	0.5	643	870	11.5	7/1/2009 15:11
A2	Sr-90'	0.5	1065	900	15.3	7/1/2009 15:12
A2	Sr-90'	0.5	1537	930	19.4	7/1/2009 15:12
A2	Sr-90'	0.5	2206	960	23.9	7/1/2009 15:13
A2	Sr-90'	0.5	2982	990	29.1	7/1/2009 15:14
A2	Sr-90'	0.5	3922	1020	32.4	7/1/2009 15:14
A2	Sr-90'	0.5	5045	1050	38.2	7/1/2009 15:15
A2	Sr-90'	0.5	6034	1080	44.5	7/1/2009 15:16
A2	Sr-90'	0.5	7649	1110	49.6	7/1/2009 15:16
A2	Sr-90'	0.5	9297	1140	57.5	7/1/2009 15:17
A2	Sr-90'	0.5	10846	1170	55.5	7/1/2009 15:18
A2	Sr-90'	0.5	13066	1200	52.9	7/1/2009 15:18
A2	Sr-90'	0.5	14085	1230	46.3	7/1/2009 15:19
A2	Sr-90'	0.5	15618	1260	35.4	7/1/2009 15:20
A2	Sr-90'	0.5	16518	1290	29.3	7/1/2009 15:20
A2	Sr-90'	0.5	17153	1320	18.3	7/1/2009 15:21
A2	Sr-90'	0.5	17712	1350	9.3	7/1/2009 15:21
A2	Sr-90'	0.5	17772	1380	1.8	7/1/2009 15:22
A2	Sr-90'	0.5	17602	1410	-1.3	7/1/2009 15:23
A2	Sr-90'	0.5	17483	1440	-1.1	7/1/2009 15:23
A2	Sr-90'	0.5	17666	1470	1.0	7/1/2009 15:24
A2	Sr-90'	0.5	17571	1500	2.6	7/1/2009 15:25
A2	Sr-90'	0.5	17710	1530	2.0	7/1/2009 15:25
A2	Sr-90'	0.5	17851	1560	1.0	7/1/2009 15:53
A2	Sr-90'	0.5	17830	1590	-1.5	7/1/2009 15:53



**Plateau Raw Data**

A2	Sr-90'	0.5	17655	1620	20.6	7/1/2009 15:54
A2	Sr-90'	0.5	17586	1650	20.6	7/1/2009 15:55
A3	Sr-90'	0.12	2	750	20.5	7/1/2009 15:09
A3	Sr-90'	0.11	10	780	20.3	7/1/2009 15:09
A3	Sr-90'	0.5	158	810	6.3	7/1/2009 15:10
A3	Sr-90'	0.5	412	840	9.8	7/1/2009 15:11
A3	Sr-90'	0.5	752	870	13.1	7/1/2009 15:11
A3	Sr-90'	0.5	1186	900	16.1	7/1/2009 15:12
A3	Sr-90'	0.5	1743	930	20.3	7/1/2009 15:12
A3	Sr-90'	0.5	2332	960	24.4	7/1/2009 15:13
A3	Sr-90'	0.5	3228	990	28.2	7/1/2009 15:14
A3	Sr-90'	0.5	4102	1020	33.6	7/1/2009 15:14
A3	Sr-90'	0.5	5082	1050	38.9	7/1/2009 15:15
A3	Sr-90'	0.5	6439	1080	47.4	7/1/2009 15:16
A3	Sr-90'	0.5	7892	1110	54.0	7/1/2009 15:16
A3	Sr-90'	0.5	9804	1140	56.5	7/1/2009 15:17
A3	Sr-90'	0.5	11495	1170	55.1	7/1/2009 15:18
A3	Sr-90'	0.5	13109	1200	49.0	7/1/2009 15:18
A3	Sr-90'	0.5	14504	1230	41.8	7/1/2009 15:19
A3	Sr-90'	0.5	15649	1260	31.8	7/1/2009 15:20
A3	Sr-90'	0.5	16497	1290	21.3	7/1/2009 15:20
A3	Sr-90'	0.5	16882	1320	11.8	7/1/2009 15:21
A3	Sr-90'	0.5	17082	1350	6.1	7/1/2009 15:21
A3	Sr-90'	0.5	17120	1380	5.1	7/1/2009 15:22
A3	Sr-90'	0.5	17292	1410	4.4	7/1/2009 15:23
A3	Sr-90'	0.5	17541	1440	3.6	7/1/2009 15:23
A3	Sr-90'	0.5	17524	1470	1.1	7/1/2009 15:24
A3	Sr-90'	0.5	17542	1500	-0.5	7/1/2009 15:25
A3	Sr-90'	0.5	17462	1530	-0.2	7/1/2009 15:25
A3	Sr-90'	0.5	17501	1560	-0.4	7/1/2009 15:53
A3	Sr-90'	0.5	17517	1590	0.0	7/1/2009 15:53
A3	Sr-90'	0.5	17449	1620	-0.4	7/1/2009 15:54
A3	Sr-90'	0.5	17488	1650	-0.5	7/1/2009 15:55
A4	Sr-90'	0.12	0		1.3	7/1/2009 15:09
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:09
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:10
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:11
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:11
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:12
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:12
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:13
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:14
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:14
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:15
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:16
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:16
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:17
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:18
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:18
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:19
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:20
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:20
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:21
A4	Sr-90'	0.11	0		#DIV/0!	7/1/2009 15:21
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:22
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:23
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:23
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:24
A4	Sr-90'	0.13	0		#DIV/0!	7/1/2009 15:25
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:25
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:26
A4	Sr-90'	0.12	0		#DIV/0!	7/1/2009 15:53

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					#DIV/0!	
A4	Sr-90'	0.12	0			7/1/2009 15:54
A4	Sr-90'	0.12	0			7/1/2009 15:55
B1	Sr-90'	0.11	2	750	0.1	7/1/2009 15:09
B1	Sr-90'	0.12	5	780	1.2	7/1/2009 15:09
B1	Sr-90'	0.5	74	810	2.8	7/1/2009 15:10
B1	Sr-90'	0.5	259	840	4.9	7/1/2009 15:10
B1	Sr-90'	0.5	604	870	8.8	7/1/2009 15:10
B1	Sr-90'	0.5	1066	900	12.3	7/1/2009 15:11
B1	Sr-90'	0.5	1521	930	16.1	7/1/2009 15:12
B1	Sr-90'	0.5	2215	960	20.5	7/1/2009 15:12
B1	Sr-90'	0.5	3106	990	24.7	7/1/2009 15:13
B1	Sr-90'	0.5	3985	1020	29.4	7/1/2009 15:14
B1	Sr-90'	0.5	5047	1050	34.3	7/1/2009 15:14
B1	Sr-90'	0.5	6386	1080	39.2	7/1/2009 15:15
B1	Sr-90'	0.5	7782	1110	46.0	7/1/2009 15:16
B1	Sr-90'	0.5	9521	1140	53.3	7/1/2009 15:16
B1	Sr-90'	0.5	11467	1170	58.8	7/1/2009 15:17
B1	Sr-90'	0.5	13368	1200	61.3	7/1/2009 15:18
B1	Sr-90'	0.5	15059	1230	60.4	7/1/2009 15:18
B1	Sr-90'	0.5	16782	1260	52.4	7/1/2009 15:19
B1	Sr-90'	0.5	17615	1290	40.4	7/1/2009 15:20
B1	Sr-90'	0.5	18143	1320	27.3	7/1/2009 15:20
B1	Sr-90'	0.5	18471	1350	17.5	7/1/2009 15:21
B1	Sr-90'	0.5	18973	1380	17.1	7/1/2009 15:22
B1	Sr-90'	0.5	19758	1410	14.4	7/1/2009 15:22
B1	Sr-90'	0.5	19657	1440	12.4	7/1/2009 15:23
B1	Sr-90'	0.5	19984	1470	11.1	7/1/2009 15:24
B1	Sr-90'	0.49	20518	1500	5.9	7/1/2009 15:25
B1	Sr-90'	0.47	20211	1530	4.2	7/1/2009 15:26
B1	Sr-90'	0.43	20172	1560	1.5	7/1/2009 15:54
B1	Sr-90'	0.41	20383	1590	0.2	7/1/2009 15:55
B1	Sr-90'	0.4	20465	1620	1.5	7/1/2009 15:57
B1	Sr-90'	0.39	20290	1650		7/1/2009 15:58
B2	Sr-90'	0.11	0	750		7/1/2009 16:00
B2	Sr-90'	0.11	9	780		7/1/2009 15:09
B2	Sr-90'	0.5	109	810	5.8	7/1/2009 15:09
B2	Sr-90'	0.5	325	840	9.8	7/1/2009 15:10
B2	Sr-90'	0.5	717	870	13.6	7/1/2009 15:11
B2	Sr-90'	0.5	1181	900	17.1	7/1/2009 15:12
B2	Sr-90'	0.5	1714	930	21.6	7/1/2009 15:12
B2	Sr-90'	0.5	2393	960	26.7	7/1/2009 15:13
B2	Sr-90'	0.5	3345	990	34.1	7/1/2009 15:14
B2	Sr-90'	0.5	4370	1020	41.0	7/1/2009 15:14
B2	Sr-90'	0.5	5845	1050	47.3	7/1/2009 15:15
B2	Sr-90'	0.5	7288	1080	53.3	7/1/2009 15:16
B2	Sr-90'	0.5	8981	1110	59.1	7/1/2009 15:16
B2	Sr-90'	0.5	10794	1140	66.4	7/1/2009 15:17
B2	Sr-90'	0.5	12959	1170	70.8	7/1/2009 15:18
B2	Sr-90'	0.5	15256	1200	68.7	7/1/2009 15:18
B2	Sr-90'	0.5	17372	1230	55.6	7/1/2009 15:19
B2	Sr-90'	0.5	18895	1260	39.3	7/1/2009 15:20
B2	Sr-90'	0.5	19482	1290	27.6	7/1/2009 15:20
B2	Sr-90'	0.49	20099	1320	15.3	7/1/2009 15:21
B2	Sr-90'	0.5	20913	1350	7.7	7/1/2009 15:22
B2	Sr-90'	0.48	20468	1380	0.8	7/1/2009 15:22
B2	Sr-90'	0.46	20449	1410	-1.9	7/1/2009 15:23
B2	Sr-90'	0.46	20458	1440	1.9	7/1/2009 15:24
B2	Sr-90'	0.45	20631	1470	-0.2	7/1/2009 15:25
B2	Sr-90'	0.43	20659	1500	-0.4	7/1/2009 15:26
B2	Sr-90'	0.4	20326	1530	-4.0	7/1/2009 15:54
B2	Sr-90'	0.37	20546	1560	-1.6	7/1/2009 15:55
B2	Sr-90'	0.35	20090	1590	1.1	7/1/2009 15:57

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B2	Sr-90'	0.34	20530	1620		7/1/2009 15:58
B2	Sr-90'	0.33	20505	1650		7/1/2009 16:00
B3	Sr-90'	0.16	4	750		7/1/2009 15:09
B3	Sr-90'	0.11	7	780		7/1/2009 15:09
B3	Sr-90'	0.5	123	810	5.1	7/1/2009 15:10
B3	Sr-90'	0.5	351	840	8.9	7/1/2009 15:10
B3	Sr-90'	0.5	602	870	12.1	7/1/2009 15:11
B3	Sr-90'	0.5	1104	900	16.3	7/1/2009 15:12
B3	Sr-90'	0.5	1561	930	20.0	7/1/2009 15:12
B3	Sr-90'	0.5	2320	960	23.4	7/1/2009 15:13
B3	Sr-90'	0.5	3001	990	28.5	7/1/2009 15:14
B3	Sr-90'	0.5	3889	1020	32.8	7/1/2009 15:14
B3	Sr-90'	0.5	5051	1050	39.8	7/1/2009 15:15
B3	Sr-90'	0.5	6217	1080	46.0	7/1/2009 15:16
B3	Sr-90'	0.5	7803	1110	53.0	7/1/2009 15:16
B3	Sr-90'	0.5	9410	1140	58.7	7/1/2009 15:17
B3	Sr-90'	0.5	11403	1170	61.2	7/1/2009 15:18
B3	Sr-90'	0.5	13228	1200	58.5	7/1/2009 15:18
B3	Sr-90'	0.5	15074	1230	47.7	7/1/2009 15:19
B3	Sr-90'	0.5	16346	1260	34.9	7/1/2009 15:20
B3	Sr-90'	0.5	17002	1290	21.9	7/1/2009 15:20
B3	Sr-90'	0.5	17498	1320	17.0	7/1/2009 15:21
B3	Sr-90'	0.5	17784	1350	19.0	7/1/2009 15:22
B3	Sr-90'	0.5	18505	1380	19.3	7/1/2009 15:22
B3	Sr-90'	0.5	19344	1410	19.5	7/1/2009 15:23
B3	Sr-90'	0.5	19614	1440	14.7	7/1/2009 15:24
B3	Sr-90'	0.5	20160	1470	8.1	7/1/2009 15:25
B3	Sr-90'	0.49	20302	1500	4.3	7/1/2009 15:26
B3	Sr-90'	0.46	20220	1530	0.7	7/1/2009 15:54
B3	Sr-90'	0.42	20225	1560	1.2	7/1/2009 15:55
B3	Sr-90'	0.4	20304	1590	1.4	7/1/2009 15:57
B3	Sr-90'	0.39	20442	1620		7/1/2009 15:58
B3	Sr-90'	0.38	20327	1650		7/1/2009 16:00
B4	Sr-90'	0.12	0	750		7/1/2009 15:09
B4	Sr-90'	0.11	6	780		7/1/2009 15:09
B4	Sr-90'	0.5	96	810	5.1	7/1/2009 15:10
B4	Sr-90'	0.5	302	840	8.3	7/1/2009 15:10
B4	Sr-90'	0.5	616	870	11.7	7/1/2009 15:11
B4	Sr-90'	0.5	992	900	15.1	7/1/2009 15:12
B4	Sr-90'	0.5	1511	930	18.6	7/1/2009 15:12
B4	Sr-90'	0.5	2118	960	22.1	7/1/2009 15:13
B4	Sr-90'	0.5	2837	990	26.1	7/1/2009 15:14
B4	Sr-90'	0.5	3650	1020	32.3	7/1/2009 15:14
B4	Sr-90'	0.5	4667	1050	38.3	7/1/2009 15:15
B4	Sr-90'	0.5	6052	1080	44.6	7/1/2009 15:16
B4	Sr-90'	0.5	7378	1110	51.6	7/1/2009 15:16
B4	Sr-90'	0.5	8977	1140	54.8	7/1/2009 15:17
B4	Sr-90'	0.5	10948	1170	57.4	7/1/2009 15:18
B4	Sr-90'	0.5	12490	1200	54.0	7/1/2009 15:18
B4	Sr-90'	0.5	14225	1230	42.7	7/1/2009 15:19
B4	Sr-90'	0.5	15436	1260	31.5	7/1/2009 15:20
B4	Sr-90'	0.5	15887	1290	20.5	7/1/2009 15:20
B4	Sr-90'	0.5	16380	1320	16.2	7/1/2009 15:21
B4	Sr-90'	0.5	16833	1350	18.5	7/1/2009 15:22
B4	Sr-90'	0.5	17391	1380	17.3	7/1/2009 15:22
B4	Sr-90'	0.5	18163	1410	16.2	7/1/2009 15:23
B4	Sr-90'	0.5	18306	1440	15.9	7/1/2009 15:24
B4	Sr-90'	0.5	18799	1470	17.1	7/1/2009 15:25
B4	Sr-90'	0.5	19464	1500	16.9	7/1/2009 15:53
B4	Sr-90'	0.48	20148	1530	13.5	7/1/2009 15:54
B4	Sr-90'	0.45	20170	1560	7.4	7/1/2009 15:55
B4	Sr-90'	0.43	20474	1590	1.8	7/1/2009 15:57

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B4	Sr-90'	0.42	20404	1620	23.6	7/1/2009 15:58
B4	Sr-90'	0.4	20306	1650	23.8	7/1/2009 16:00
C1	Sr-90'	0.11	3	750	23.7	7/1/2009 15:09
C1	Sr-90'	0.12	8	780	23.5	7/1/2009 15:09
C1	Sr-90'	0.5	135	810	5.9	7/1/2009 15:10
C1	Sr-90'	0.5	353	840	9.2	7/1/2009 15:10
C1	Sr-90'	0.5	711	870	12.0	7/1/2009 15:11
C1	Sr-90'	0.5	1103	900	14.8	7/1/2009 15:11
C1	Sr-90'	0.5	1565	930	18.4	7/1/2009 15:12
C1	Sr-90'	0.5	2153	960	22.0	7/1/2009 15:13
C1	Sr-90'	0.5	2943	990	26.8	7/1/2009 15:13
C1	Sr-90'	0.5	3707	1020	31.9	7/1/2009 15:14
C1	Sr-90'	0.5	4809	1050	37.8	7/1/2009 15:15
C1	Sr-90'	0.5	6002	1080	44.8	7/1/2009 15:15
C1	Sr-90'	0.5	7464	1110	49.4	7/1/2009 15:16
C1	Sr-90'	0.5	9096	1140	54.5	7/1/2009 15:16
C1	Sr-90'	0.5	10669	1170	56.4	7/1/2009 15:17
C1	Sr-90'	0.5	12567	1200	51.0	7/1/2009 15:18
C1	Sr-90'	0.5	14181	1230	44.2	7/1/2009 15:18
C1	Sr-90'	0.5	14993	1260	33.0	7/1/2009 15:19
C1	Sr-90'	0.5	16093	1290	22.2	7/1/2009 15:20
C1	Sr-90'	0.5	16566	1320	14.2	7/1/2009 15:20
C1	Sr-90'	0.5	16722	1350	6.5	7/1/2009 15:21
C1	Sr-90'	0.5	16806	1380	5.5	7/1/2009 15:22
C1	Sr-90'	0.5	16948	1410	4.8	7/1/2009 15:22
C1	Sr-90'	0.5	17275	1440	1.1	7/1/2009 15:23
C1	Sr-90'	0.5	17203	1470	-0.4	7/1/2009 15:23
C1	Sr-90'	0.5	16846	1500	-1.1	7/1/2009 15:24
C1	Sr-90'	0.5	17103	1530	-1.1	7/1/2009 15:25
C1	Sr-90'	0.5	17160	1560	0.7	7/1/2009 15:25
C1	Sr-90'	0.5	16887	1590	-1.3	7/1/2009 15:26
C1	Sr-90'	0.5	17065	1620		7/1/2009 15:27
C1	Sr-90'	0.5	16958	1650		7/1/2009 15:27
C2	Sr-90'	0.11	0	750		7/1/2009 15:09
C2	Sr-90'	0.12	1	780		7/1/2009 15:09
C2	Sr-90'	0.5	47	810	3.2	7/1/2009 15:10
C2	Sr-90'	0.5	176	840	5.8	7/1/2009 15:10
C2	Sr-90'	0.5	397	870	9.0	7/1/2009 15:11
C2	Sr-90'	0.5	700	900	12.3	7/1/2009 15:11
C2	Sr-90'	0.5	1129	930	15.6	7/1/2009 15:12
C2	Sr-90'	0.5	1653	960	19.5	7/1/2009 15:13
C2	Sr-90'	0.5	2258	990	24.3	7/1/2009 15:13
C2	Sr-90'	0.5	3063	1020	28.9	7/1/2009 15:14
C2	Sr-90'	0.5	4071	1050	33.8	7/1/2009 15:15
C2	Sr-90'	0.5	5074	1080	39.0	7/1/2009 15:15
C2	Sr-90'	0.5	6319	1110	46.0	7/1/2009 15:16
C2	Sr-90'	0.5	7785	1140	53.8	7/1/2009 15:17
C2	Sr-90'	0.5	9615	1170	56.3	7/1/2009 15:17
C2	Sr-90'	0.5	11493	1200	55.4	7/1/2009 15:18
C2	Sr-90'	0.5	12903	1230	51.4	7/1/2009 15:18
C2	Sr-90'	0.5	14448	1260	43.4	7/1/2009 15:19
C2	Sr-90'	0.5	15845	1290	36.3	7/1/2009 15:20
C2	Sr-90'	0.5	16538	1320	26.0	7/1/2009 15:20
C2	Sr-90'	0.5	17303	1350	16.2	7/1/2009 15:21
C2	Sr-90'	0.5	17622	1380	8.3	7/1/2009 15:22
C2	Sr-90'	0.5	17729	1410	1.2	7/1/2009 15:22
C2	Sr-90'	0.5	17572	1440	-0.5	7/1/2009 15:23
C2	Sr-90'	0.5	17507	1470	0.5	7/1/2009 15:23
C2	Sr-90'	0.5	17657	1500	2.7	7/1/2009 15:24
C2	Sr-90'	0.5	17758	1530	1.4	7/1/2009 15:25
C2	Sr-90'	0.5	17852	1560	1.7	7/1/2009 15:25
C2	Sr-90'	0.5	17621	1590	0.7	7/1/2009 15:26

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C2	Sr-90'	0.5	17984	1620		7/1/2009 15:27
C2	Sr-90'	0.5	17797	1650		7/1/2009 15:27
C3	Sr-90'	0.11	0	750		7/1/2009 15:09
C3	Sr-90'	0.11	1	780		7/1/2009 15:09
C3	Sr-90'	0.11	5	810	3.3	7/1/2009 15:10
C3	Sr-90'	0.5	146	840	6.5	7/1/2009 15:10
C3	Sr-90'	0.5	419	870	10.9	7/1/2009 15:11
C3	Sr-90'	0.5	776	900	14.3	7/1/2009 15:11
C3	Sr-90'	0.5	1319	930	17.7	7/1/2009 15:12
C3	Sr-90'	0.5	1837	960	21.7	7/1/2009 15:13
C3	Sr-90'	0.5	2548	990	25.2	7/1/2009 15:13
C3	Sr-90'	0.5	3420	1020	31.1	7/1/2009 15:14
C3	Sr-90'	0.5	4313	1050	36.7	7/1/2009 15:15
C3	Sr-90'	0.5	5621	1080	42.8	7/1/2009 15:15
C3	Sr-90'	0.5	6946	1110	51.9	7/1/2009 15:16
C3	Sr-90'	0.5	8517	1140	58.5	7/1/2009 15:17
C3	Sr-90'	0.5	10649	1170	64.5	7/1/2009 15:17
C3	Sr-90'	0.5	12537	1200	67.2	7/1/2009 15:18
C3	Sr-90'	0.5	14612	1230	64.4	7/1/2009 15:18
C3	Sr-90'	0.5	16617	1260	56.7	7/1/2009 15:19
C3	Sr-90'	0.5	18266	1290	44.5	7/1/2009 15:20
C3	Sr-90'	0.5	19218	1320	30.5	7/1/2009 15:20
C3	Sr-90'	0.5	19990	1350	17.2	7/1/2009 15:21
C3	Sr-90'	0.5	20330	1380	9.3	7/1/2009 15:22
C3	Sr-90'	0.5	20293	1410	3.9	7/1/2009 15:22
C3	Sr-90'	0.5	20457	1440	1.2	7/1/2009 15:23
C3	Sr-90'	0.49	20504	1470	2.9	7/1/2009 15:23
C3	Sr-90'	0.49	20402	1500	-0.1	7/1/2009 15:24
C3	Sr-90'	0.5	20751	1530	-0.7	7/1/2009 15:25
C3	Sr-90'	0.49	20326	1560	1.1	7/1/2009 15:25
C3	Sr-90'	0.49	20435	1590	1.3	7/1/2009 15:26
C3	Sr-90'	0.5	20730	1620		7/1/2009 15:27
C3	Sr-90'	0.5	20748	1650		7/1/2009 15:27
C4	Sr-90'	0.12	0	750		7/1/2009 15:09
C4	Sr-90'	0.11	0	780		7/1/2009 15:09
C4	Sr-90'	0.11	2	810	2.1	7/1/2009 15:10
C4	Sr-90'	0.5	103	840	4.3	7/1/2009 15:10
C4	Sr-90'	0.5	259	870	6.9	7/1/2009 15:11
C4	Sr-90'	0.5	521	900	9.3	7/1/2009 15:11
C4	Sr-90'	0.5	831	930	11.9	7/1/2009 15:12
C4	Sr-90'	0.5	1216	960	14.4	7/1/2009 15:13
C4	Sr-90'	0.5	1699	990	17.6	7/1/2009 15:13
C4	Sr-90'	0.5	2244	1020	21.6	7/1/2009 15:14
C4	Sr-90'	0.5	2955	1050	25.8	7/1/2009 15:15
C4	Sr-90'	0.5	3821	1080	31.0	7/1/2009 15:15
C4	Sr-90'	0.5	4783	1110	35.5	7/1/2009 15:16
C4	Sr-90'	0.5	5977	1140	38.8	7/1/2009 15:17
C4	Sr-90'	0.5	7204	1170	43.3	7/1/2009 15:17
C4	Sr-90'	0.5	8425	1200	44.9	7/1/2009 15:18
C4	Sr-90'	0.5	10053	1230	42.6	7/1/2009 15:18
C4	Sr-90'	0.5	11280	1260	36.6	7/1/2009 15:19
C4	Sr-90'	0.5	12165	1290	28.3	7/1/2009 15:20
C4	Sr-90'	0.5	12855	1320	20.1	7/1/2009 15:20
C4	Sr-90'	0.5	13515	1350	13.9	7/1/2009 15:21
C4	Sr-90'	0.5	13616	1380	8.4	7/1/2009 15:22
C4	Sr-90'	0.5	13872	1410	4.0	7/1/2009 15:22
C4	Sr-90'	0.5	13942	1440	3.0	7/1/2009 15:23
C4	Sr-90'	0.5	13948	1470	1.3	7/1/2009 15:23
C4	Sr-90'	0.5	14027	1500	3.1	7/1/2009 15:24
C4	Sr-90'	0.5	14021	1530	2.0	7/1/2009 15:25
C4	Sr-90'	0.5	14373	1560	0.9	7/1/2009 15:25
C4	Sr-90'	0.5	14078	1590	0.1	7/1/2009 15:26

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C4	Sr-90'	0.5	14134	1620		7/1/2009 15:27
C4	Sr-90'	0.5	14161	1650		7/1/2009 15:27
D1	Sr-90'	0.11	0	750		7/1/2009 15:09
D1	Sr-90'	0.11	1	780		7/1/2009 15:09
D1	Sr-90'	0.5	72	810	5.0	7/1/2009 15:10
D1	Sr-90'	0.5	270	840	8.8	7/1/2009 15:11
D1	Sr-90'	0.5	615	870	13.4	7/1/2009 15:11
D1	Sr-90'	0.5	1053	900	17.1	7/1/2009 15:12
D1	Sr-90'	0.5	1693	930	20.6	7/1/2009 15:13
D1	Sr-90'	0.5	2291	960	23.8	7/1/2009 15:14
D1	Sr-90'	0.5	3080	990	28.2	7/1/2009 15:15
D1	Sr-90'	0.5	3936	1020	34.8	7/1/2009 15:15
D1	Sr-90'	0.5	5093	1050	40.1	7/1/2009 15:16
D1	Sr-90'	0.5	6502	1080	48.6	7/1/2009 15:17
D1	Sr-90'	0.5	7816	1110	56.3	7/1/2009 15:18
D1	Sr-90'	0.5	9861	1140	62.6	7/1/2009 15:19
D1	Sr-90'	0.5	11853	1170	66.5	7/1/2009 15:19
D1	Sr-90'	0.5	13871	1200	63.1	7/1/2009 15:20
D1	Sr-90'	0.5	15783	1230	56.3	7/1/2009 15:21
D1	Sr-90'	0.5	17367	1260	45.6	7/1/2009 15:22
D1	Sr-90'	0.5	18552	1290	32.7	7/1/2009 15:22
D1	Sr-90'	0.5	19322	1320	19.4	7/1/2009 15:23
D1	Sr-90'	0.5	19713	1350	10.4	7/1/2009 15:24
D1	Sr-90'	0.5	19695	1380	5.3	7/1/2009 15:25
D1	Sr-90'	0.5	19923	1410	2.4	7/1/2009 15:26
D1	Sr-90'	0.5	20015	1440	-0.9	7/1/2009 15:26
D1	Sr-90'	0.5	19909	1470	-2.8	7/1/2009 15:27
D1	Sr-90'	0.5	19560	1500	-3.0	7/1/2009 15:28
D1	Sr-90'	0.5	19731	1530	-0.4	7/1/2009 15:29
D1	Sr-90'	0.5	19656	1560	1.3	7/1/2009 15:30
D1	Sr-90'	0.5	19805	1590	0.8	7/1/2009 15:30
D1	Sr-90'	0.5	19711	1620		7/1/2009 15:31
D1	Sr-90'	0.5	19827	1650		7/1/2009 15:32
D2	Sr-90'	0.11	2	750		7/1/2009 15:09
D2	Sr-90'	0.11	0	780		7/1/2009 15:09
D2	Sr-90'	0.12	8	810	3.7	7/1/2009 15:10
D2	Sr-90'	0.5	183	840	7.3	7/1/2009 15:11
D2	Sr-90'	0.5	461	870	11.1	7/1/2009 15:11
D2	Sr-90'	0.5	873	900	14.3	7/1/2009 15:12
D2	Sr-90'	0.5	1331	930	17.1	7/1/2009 15:13
D2	Sr-90'	0.5	1899	960	20.1	7/1/2009 15:14
D2	Sr-90'	0.5	2520	990	24.9	7/1/2009 15:15
D2	Sr-90'	0.5	3298	1020	30.4	7/1/2009 15:15
D2	Sr-90'	0.5	4359	1050	36.7	7/1/2009 15:16
D2	Sr-90'	0.5	5534	1080	42.9	7/1/2009 15:17
D2	Sr-90'	0.5	6912	1110	48.8	7/1/2009 15:18
D2	Sr-90'	0.5	8458	1140	55.7	7/1/2009 15:19
D2	Sr-90'	0.5	10221	1170	60.7	7/1/2009 15:19
D2	Sr-90'	0.5	12229	1200	59.3	7/1/2009 15:20
D2	Sr-90'	0.5	14132	1230	54.2	7/1/2009 15:21
D2	Sr-90'	0.5	15397	1260	44.8	7/1/2009 15:22
D2	Sr-90'	0.5	16761	1290	32.3	7/1/2009 15:22
D2	Sr-90'	0.5	17632	1320	23.4	7/1/2009 15:23
D2	Sr-90'	0.5	17862	1350	14.5	7/1/2009 15:24
D2	Sr-90'	0.5	18357	1380	8.4	7/1/2009 15:25
D2	Sr-90'	0.5	18569	1410	4.9	7/1/2009 15:26
D2	Sr-90'	0.5	18543	1440	-2.0	7/1/2009 15:26
D2	Sr-90'	0.5	18507	1470	-1.9	7/1/2009 15:27
D2	Sr-90'	0.5	18087	1500	-0.4	7/1/2009 15:28
D2	Sr-90'	0.5	18508	1530	1.2	7/1/2009 15:29
D2	Sr-90'	0.5	18487	1560	2.0	7/1/2009 15:30
D2	Sr-90'	0.5	18483	1590		7/1/2009 15:30

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D2	Sr-90'	0.5	18406	1620		7/1/2009 15:31
D2	Sr-90'	0.5	18558	1650		7/1/2009 15:32
D3	Sr-90'	0.11	0	750		7/1/2009 15:09
D3	Sr-90'	0.11	2	780		7/1/2009 15:09
D3	Sr-90'	0.11	13	810	3.5	7/1/2009 15:10
D3	Sr-90'	0.5	180	840	7.3	7/1/2009 15:11
D3	Sr-90'	0.5	443	870	11.9	7/1/2009 15:11
D3	Sr-90'	0.5	889	900	16.7	7/1/2009 15:12
D3	Sr-90'	0.5	1450	930	21.0	7/1/2009 15:13
D3	Sr-90'	0.5	2177	960	24.5	7/1/2009 15:14
D3	Sr-90'	0.5	2948	990	29.5	7/1/2009 15:15
D3	Sr-90'	0.5	3811	1020	35.9	7/1/2009 15:15
D3	Sr-90'	0.5	5065	1050	43.8	7/1/2009 15:16
D3	Sr-90'	0.5	6499	1080	51.6	7/1/2009 15:17
D3	Sr-90'	0.5	8172	1110	58.7	7/1/2009 15:18
D3	Sr-90'	0.5	10000	1140	67.5	7/1/2009 15:19
D3	Sr-90'	0.5	12119	1170	72.7	7/1/2009 15:19
D3	Sr-90'	0.5	14648	1200	75.0	7/1/2009 15:20
D3	Sr-90'	0.5	16756	1230	69.6	7/1/2009 15:21
D3	Sr-90'	0.5	18932	1260	50.7	7/1/2009 15:22
D3	Sr-90'	0.49	20419	1290	28.7	7/1/2009 15:22
D3	Sr-90'	0.47	20417	1320	7.9	7/1/2009 15:23
D3	Sr-90'	0.45	20316	1350	1.1	7/1/2009 15:24
D3	Sr-90'	0.44	20172	1380	-0.5	7/1/2009 15:25
D3	Sr-90'	0.45	20699	1410	3.2	7/1/2009 15:26
D3	Sr-90'	0.44	20157	1440	0.3	7/1/2009 15:26
D3	Sr-90'	0.45	20796	1470	-3.9	7/1/2009 15:27
D3	Sr-90'	0.44	20171	1500	-0.2	7/1/2009 15:28
D3	Sr-90'	0.44	20106	1530	0.5	7/1/2009 15:29
D3	Sr-90'	0.44	20476	1560	4.9	7/1/2009 15:30
D3	Sr-90'	0.45	20713	1590	3.7	7/1/2009 15:30
D3	Sr-90'	0.45	20599	1620		7/1/2009 15:31
D3	Sr-90'	0.45	20602	1650		7/1/2009 15:32
D4	Sr-90'	0.11	1	750		7/1/2009 15:09
D4	Sr-90'	0.11	1	780		7/1/2009 15:09
D4	Sr-90'	0.11	7	810	3.2	7/1/2009 15:10
D4	Sr-90'	0.5	147	840	7.0	7/1/2009 15:11
D4	Sr-90'	0.5	404	870	11.2	7/1/2009 15:11
D4	Sr-90'	0.5	853	900	15.0	7/1/2009 15:12
D4	Sr-90'	0.5	1327	930	17.8	7/1/2009 15:13
D4	Sr-90'	0.5	1936	960	20.5	7/1/2009 15:14
D4	Sr-90'	0.5	2527	990	24.2	7/1/2009 15:15
D4	Sr-90'	0.5	3323	1020	29.1	7/1/2009 15:15
D4	Sr-90'	0.5	4264	1050	36.1	7/1/2009 15:16
D4	Sr-90'	0.5	5435	1080	42.7	7/1/2009 15:17
D4	Sr-90'	0.5	6888	1110	51.1	7/1/2009 15:18
D4	Sr-90'	0.5	8412	1140	56.9	7/1/2009 15:19
D4	Sr-90'	0.5	10433	1170	59.9	7/1/2009 15:19
D4	Sr-90'	0.5	12204	1200	61.4	7/1/2009 15:20
D4	Sr-90'	0.5	13978	1230	56.9	7/1/2009 15:21
D4	Sr-90'	0.5	15844	1260	49.4	7/1/2009 15:22
D4	Sr-90'	0.5	17152	1290	38.6	7/1/2009 15:22
D4	Sr-90'	0.5	18022	1320	24.6	7/1/2009 15:23
D4	Sr-90'	0.5	18681	1350	14.6	7/1/2009 15:24
D4	Sr-90'	0.5	18775	1380	10.1	7/1/2009 15:25
D4	Sr-90'	0.5	18959	1410	5.8	7/1/2009 15:26
D4	Sr-90'	0.5	19392	1440	2.8	7/1/2009 15:26
D4	Sr-90'	0.5	19243	1470	-2.5	7/1/2009 15:27
D4	Sr-90'	0.5	19058	1500	-4.4	7/1/2009 15:28
D4	Sr-90'	0.5	18753	1530	-2.5	7/1/2009 15:29
D4	Sr-90'	0.5	18970	1560	2.3	7/1/2009 15:30
D4	Sr-90'	0.5	18909	1590	2.7	7/1/2009 15:30

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D4	Sr-90'	0.5	19318	1620		7/1/2009 15:31
D4	Sr-90'	0.5	18979	1650		7/1/2009 15:32
E1	Sr-90'	0.11	2	750		7/1/2009 16:53
E1	Sr-90'	0.11	5	780		7/1/2009 16:54
E1	Sr-90'	0.5	105	810	4.8	7/1/2009 16:54
E1	Sr-90'	0.5	272	840	7.7	7/1/2009 16:55
E1	Sr-90'	0.5	586	870	10.2	7/1/2009 16:55
E1	Sr-90'	0.5	917	900	12.7	7/1/2009 16:56
E1	Sr-90'	0.5	1310	930	15.1	7/1/2009 16:57
E1	Sr-90'	0.5	1822	960	17.8	7/1/2009 16:57
E1	Sr-90'	0.5	2394	990	21.9	7/1/2009 16:58
E1	Sr-90'	0.5	3047	1020	26.4	7/1/2009 16:59
E1	Sr-90'	0.5	3979	1050	30.7	7/1/2009 16:59
E1	Sr-90'	0.5	4991	1080	36.2	7/1/2009 17:00
E1	Sr-90'	0.5	6025	1110	40.8	7/1/2009 17:00
E1	Sr-90'	0.5	7460	1140	44.7	7/1/2009 17:01
E1	Sr-90'	0.5	8857	1170	46.7	7/1/2009 17:02
E1	Sr-90'	0.5	10283	1200	42.6	7/1/2009 17:02
E1	Sr-90'	0.5	11614	1230	36.4	7/1/2009 17:03
E1	Sr-90'	0.5	12474	1260	28.4	7/1/2009 17:04
E1	Sr-90'	0.5	13226	1290	20.6	7/1/2009 17:04
E1	Sr-90'	0.5	13737	1320	14.1	7/1/2009 17:05
E1	Sr-90'	0.5	14075	1350	7.7	7/1/2009 17:05
E1	Sr-90'	0.5	14159	1380	3.5	7/1/2009 17:06
E1	Sr-90'	0.5	14167	1410	2.0	7/1/2009 17:07
E1	Sr-90'	0.5	14219	1440	3.8	7/1/2009 17:07
E1	Sr-90'	0.5	14348	1470	3.2	7/1/2009 17:08
E1	Sr-90'	0.5	14643	1500	0.4	7/1/2009 17:09
E1	Sr-90'	0.5	14432	1530	-0.1	7/1/2009 17:09
E1	Sr-90'	0.5	14241	1560	-0.1	7/1/2009 17:10
E1	Sr-90'	0.5	14536	1590	2.5	7/1/2009 17:10
E1	Sr-90'	0.5	14569	1620		7/1/2009 17:11
E1	Sr-90'	0.5	14650	1650		7/1/2009 17:12
E2	Sr-90'	0.11	1	750		7/1/2009 16:53
E2	Sr-90'	0.11	3	780		7/1/2009 16:54
E2	Sr-90'	0.5	81	810	4.5	7/1/2009 16:54
E2	Sr-90'	0.5	238	840	7.9	7/1/2009 16:55
E2	Sr-90'	0.5	551	870	11.3	7/1/2009 16:55
E2	Sr-90'	0.5	958	900	15.1	7/1/2009 16:56
E2	Sr-90'	0.5	1416	930	18.1	7/1/2009 16:57
E2	Sr-90'	0.5	2066	960	21.2	7/1/2009 16:57
E2	Sr-90'	0.5	2713	990	25.8	7/1/2009 16:58
E2	Sr-90'	0.5	3496	1020	30.6	7/1/2009 16:59
E2	Sr-90'	0.5	4569	1050	37.2	7/1/2009 16:59
E2	Sr-90'	0.5	5734	1080	44.5	7/1/2009 17:00
E2	Sr-90'	0.5	7168	1110	50.7	7/1/2009 17:00
E2	Sr-90'	0.5	8866	1140	56.4	7/1/2009 17:01
E2	Sr-90'	0.5	10605	1170	58.5	7/1/2009 17:02
E2	Sr-90'	0.5	12472	1200	55.9	7/1/2009 17:02
E2	Sr-90'	0.5	14141	1230	48.8	7/1/2009 17:03
E2	Sr-90'	0.5	15488	1260	37.9	7/1/2009 17:04
E2	Sr-90'	0.5	16420	1290	27.4	7/1/2009 17:04
E2	Sr-90'	0.5	17015	1320	19.0	7/1/2009 17:05
E2	Sr-90'	0.5	17485	1350	12.1	7/1/2009 17:05
E2	Sr-90'	0.5	17805	1380	6.0	7/1/2009 17:06
E2	Sr-90'	0.5	17843	1410	2.5	7/1/2009 17:07
E2	Sr-90'	0.5	17729	1440	0.6	7/1/2009 17:07
E2	Sr-90'	0.5	17899	1470	0.2	7/1/2009 17:08
E2	Sr-90'	0.5	17869	1500	1.8	7/1/2009 17:09
E2	Sr-90'	0.5	17806	1530	0.0	7/1/2009 17:09
E2	Sr-90'	0.5	18040	1560	2.2	7/1/2009 17:10
E2	Sr-90'	0.5	17819	1590	1.9	7/1/2009 17:10



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E2	Sr-90'	0.5	18188	1620		7/1/2009 17:11
E2	Sr-90'	0.5	18023	1650		7/1/2009 17:12
E3	Sr-90'	0.11	6	750		7/1/2009 16:53
E3	Sr-90'	0.5	100	780		7/1/2009 16:54
E3	Sr-90'	0.5	299	810	8.2	7/1/2009 16:54
E3	Sr-90'	0.5	562	840	12.0	7/1/2009 16:55
E3	Sr-90'	0.5	998	870	15.3	7/1/2009 16:55
E3	Sr-90'	0.5	1557	900	18.2	7/1/2009 16:56
E3	Sr-90'	0.5	2103	930	21.5	7/1/2009 16:57
E3	Sr-90'	0.5	2734	960	25.7	7/1/2009 16:57
E3	Sr-90'	0.5	3637	990	32.2	7/1/2009 16:58
E3	Sr-90'	0.5	4648	1020	38.0	7/1/2009 16:59
E3	Sr-90'	0.5	5981	1050	43.0	7/1/2009 16:59
E3	Sr-90'	0.5	7264	1080	48.2	7/1/2009 17:00
E3	Sr-90'	0.5	8773	1110	52.4	7/1/2009 17:00
E3	Sr-90'	0.5	10478	1140	56.1	7/1/2009 17:01
E3	Sr-90'	0.5	12239	1170	54.1	7/1/2009 17:02
E3	Sr-90'	0.5	13953	1200	47.1	7/1/2009 17:02
E3	Sr-90'	0.5	15145	1230	37.8	7/1/2009 17:03
E3	Sr-90'	0.5	16088	1260	27.2	7/1/2009 17:04
E3	Sr-90'	0.5	16835	1290	18.2	7/1/2009 17:04
E3	Sr-90'	0.5	17187	1320	9.6	7/1/2009 17:05
E3	Sr-90'	0.5	17323	1350	4.3	7/1/2009 17:05
E3	Sr-90'	0.5	17281	1380	4.2	7/1/2009 17:06
E3	Sr-90'	0.5	17438	1410	2.2	7/1/2009 17:07
E3	Sr-90'	0.5	17763	1440	1.7	7/1/2009 17:07
E3	Sr-90'	0.5	17411	1470	-0.9	7/1/2009 17:08
E3	Sr-90'	0.5	17545	1500	-0.4	7/1/2009 17:09
E3	Sr-90'	0.5	17408	1530	2.9	7/1/2009 17:09
E3	Sr-90'	0.5	17704	1560	1.8	7/1/2009 17:10
E3	Sr-90'	0.5	17768	1590	0.6	7/1/2009 17:10
E3	Sr-90'	0.5	17641	1620		7/1/2009 17:11
E3	Sr-90'	0.5	17535	1650		7/1/2009 17:12
E4	Sr-90'	0.12	0	750		7/1/2009 16:53
E4	Sr-90'	0.12	1	780		7/1/2009 16:54
E4	Sr-90'	0.5	62	810	3.5	7/1/2009 16:54
E4	Sr-90'	0.5	205	840	6.0	7/1/2009 16:55
E4	Sr-90'	0.5	428	870	8.7	7/1/2009 16:55
E4	Sr-90'	0.5	712	900	12.1	7/1/2009 16:56
E4	Sr-90'	0.5	1114	930	15.5	7/1/2009 16:57
E4	Sr-90'	0.5	1670	960	17.6	7/1/2009 16:57
E4	Sr-90'	0.5	2269	990	21.0	7/1/2009 16:58
E4	Sr-90'	0.5	2774	1020	25.3	7/1/2009 16:59
E4	Sr-90'	0.5	3713	1050	30.9	7/1/2009 16:59
E4	Sr-90'	0.5	4742	1080	38.0	7/1/2009 17:00
E4	Sr-90'	0.5	5922	1110	41.9	7/1/2009 17:00
E4	Sr-90'	0.5	7364	1140	46.6	7/1/2009 17:01
E4	Sr-90'	0.5	8687	1170	48.0	7/1/2009 17:02
E4	Sr-90'	0.5	10345	1200	46.5	7/1/2009 17:02
E4	Sr-90'	0.5	11633	1230	42.6	7/1/2009 17:03
E4	Sr-90'	0.5	12867	1260	35.1	7/1/2009 17:04
E4	Sr-90'	0.5	13814	1290	27.5	7/1/2009 17:04
E4	Sr-90'	0.5	14521	1320	17.8	7/1/2009 17:05
E4	Sr-90'	0.5	14937	1350	11.4	7/1/2009 17:05
E4	Sr-90'	0.5	14976	1380	6.8	7/1/2009 17:06
E4	Sr-90'	0.5	15298	1410	4.0	7/1/2009 17:07
E4	Sr-90'	0.5	15356	1440	3.4	7/1/2009 17:07
E4	Sr-90'	0.5	15348	1470	2.5	7/1/2009 17:08
E4	Sr-90'	0.5	15467	1500	1.5	7/1/2009 17:09
E4	Sr-90'	0.5	15614	1530	-0.3	7/1/2009 17:09
E4	Sr-90'	0.5	15441	1560	-2.2	7/1/2009 17:10
E4	Sr-90'	0.5	15310	1590	-0.7	7/1/2009 17:10

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E4	Sr-90'	0.5	15285	1620		7/1/2009 17:11
E4	Sr-90'	0.5	15594	1650		7/1/2009 17:12
F1	Sr-90'	0.11	1	750		7/1/2009 16:53
F1	Sr-90'	0.5	41	780		7/1/2009 16:54
F1	Sr-90'	0.5	140	810	5.8	7/1/2009 16:54
F1	Sr-90'	0.5	386	840	9.6	7/1/2009 16:55
F1	Sr-90'	0.5	692	870	13.4	7/1/2009 16:55
F1	Sr-90'	0.5	1203	900	17.5	7/1/2009 16:56
F1	Sr-90'	0.5	1739	930	22.0	7/1/2009 16:57
F1	Sr-90'	0.5	2486	960	24.4	7/1/2009 16:57
F1	Sr-90'	0.5	3345	990	28.5	7/1/2009 16:58
F1	Sr-90'	0.5	4063	1020	33.4	7/1/2009 16:59
F1	Sr-90'	0.5	5218	1050	39.9	7/1/2009 16:59
F1	Sr-90'	0.5	6559	1080	49.9	7/1/2009 17:00
F1	Sr-90'	0.5	8089	1110	56.9	7/1/2009 17:00
F1	Sr-90'	0.5	10105	1140	63.2	7/1/2009 17:01
F1	Sr-90'	0.5	11973	1170	63.6	7/1/2009 17:02
F1	Sr-90'	0.5	14100	1200	60.5	7/1/2009 17:02
F1	Sr-90'	0.5	15625	1230	51.4	7/1/2009 17:03
F1	Sr-90'	0.5	17349	1260	40.8	7/1/2009 17:04
F1	Sr-90'	0.5	18058	1290	29.0	7/1/2009 17:04
F1	Sr-90'	0.5	19007	1320	16.9	7/1/2009 17:05
F1	Sr-90'	0.5	19153	1350	11.1	7/1/2009 17:05
F1	Sr-90'	0.5	19337	1380	4.5	7/1/2009 17:06
F1	Sr-90'	0.5	19560	1410	4.6	7/1/2009 17:07
F1	Sr-90'	0.5	19474	1440	2.9	7/1/2009 17:07
F1	Sr-90'	0.5	19777	1470	2.2	7/1/2009 17:08
F1	Sr-90'	0.5	19660	1500	2.0	7/1/2009 17:09
F1	Sr-90'	0.5	19795	1530	1.4	7/1/2009 17:09
F1	Sr-90'	0.5	19765	1560	1.5	7/1/2009 17:10
F1	Sr-90'	0.5	19927	1590	-0.9	7/1/2009 17:10
F1	Sr-90'	0.5	19825	1620		7/1/2009 17:11
F1	Sr-90'	0.5	19634	1650		7/1/2009 17:12
F2	Sr-90'	0.11	3	750		7/1/2009 16:53
F2	Sr-90'	0.5	75	780		7/1/2009 16:54
F2	Sr-90'	0.5	255	810	8.6	7/1/2009 16:54
F2	Sr-90'	0.5	549	840	12.8	7/1/2009 16:55
F2	Sr-90'	0.5	1053	870	16.1	7/1/2009 16:56
F2	Sr-90'	0.5	1600	900	20.7	7/1/2009 16:56
F2	Sr-90'	0.5	2150	930	24.4	7/1/2009 16:57
F2	Sr-90'	0.5	3108	960	30.2	7/1/2009 16:57
F2	Sr-90'	0.5	3956	990	37.2	7/1/2009 16:58
F2	Sr-90'	0.5	5225	1020	43.1	7/1/2009 16:59
F2	Sr-90'	0.5	6673	1050	52.0	7/1/2009 16:59
F2	Sr-90'	0.5	8221	1080	57.9	7/1/2009 17:00
F2	Sr-90'	0.5	10263	1110	65.3	7/1/2009 17:00
F2	Sr-90'	0.5	12122	1140	70.5	7/1/2009 17:01
F2	Sr-90'	0.5	14514	1170	70.5	7/1/2009 17:02
F2	Sr-90'	0.5	16669	1200	64.7	7/1/2009 17:02
F2	Sr-90'	0.5	18558	1230	50.8	7/1/2009 17:03
F2	Sr-90'	0.5	19798	1260	30.8	7/1/2009 17:04
F2	Sr-90'	0.5	20571	1290	14.2	7/1/2009 17:04
F2	Sr-90'	0.48	20276	1320	4.2	7/1/2009 17:05
F2	Sr-90'	0.48	20444	1350	-2.3	7/1/2009 17:05
F2	Sr-90'	0.48	20498	1380	-0.7	7/1/2009 17:06
F2	Sr-90'	0.47	20110	1410	0.6	7/1/2009 17:07
F2	Sr-90'	0.47	20341	1440	0.6	7/1/2009 17:07
F2	Sr-90'	0.48	20608	1470	2.6	7/1/2009 17:08
F2	Sr-90'	0.47	20343	1500	1.8	7/1/2009 17:09
F2	Sr-90'	0.48	20506	1530	-0.2	7/1/2009 17:09
F2	Sr-90'	0.48	20655	1560	1.8	7/1/2009 17:10
F2	Sr-90'	0.47	20420	1590	-0.3	7/1/2009 17:10

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F2	Sr-90'	0.48	20663	1620		7/1/2009 17:11
F2	Sr-90'	0.47	20459	1650		7/1/2009 17:12
F3	Sr-90'	0.11	4	750		7/1/2009 16:53
F3	Sr-90'	0.5	50	780		7/1/2009 16:54
F3	Sr-90'	0.5	177	810	6.3	7/1/2009 16:54
F3	Sr-90'	0.5	380	840	10.6	7/1/2009 16:55
F3	Sr-90'	0.5	779	870	14.1	7/1/2009 16:56
F3	Sr-90'	0.5	1332	900	17.5	7/1/2009 16:56
F3	Sr-90'	0.5	1821	930	21.0	7/1/2009 16:57
F3	Sr-90'	0.5	2490	960	24.7	7/1/2009 16:57
F3	Sr-90'	0.5	3348	990	30.7	7/1/2009 16:58
F3	Sr-90'	0.5	4268	1020	37.1	7/1/2009 16:59
F3	Sr-90'	0.5	5535	1050	43.6	7/1/2009 16:59
F3	Sr-90'	0.5	6954	1080	49.9	7/1/2009 17:00
F3	Sr-90'	0.5	8548	1110	54.8	7/1/2009 17:00
F3	Sr-90'	0.5	10239	1140	59.6	7/1/2009 17:01
F3	Sr-90'	0.5	12114	1170	60.8	7/1/2009 17:02
F3	Sr-90'	0.5	14106	1200	57.4	7/1/2009 17:02
F3	Sr-90'	0.5	15735	1230	48.0	7/1/2009 17:03
F3	Sr-90'	0.5	17035	1260	35.4	7/1/2009 17:04
F3	Sr-90'	0.5	17852	1290	25.4	7/1/2009 17:04
F3	Sr-90'	0.5	18355	1320	15.1	7/1/2009 17:05
F3	Sr-90'	0.5	18889	1350	7.9	7/1/2009 17:05
F3	Sr-90'	0.5	18778	1380	4.9	7/1/2009 17:06
F3	Sr-90'	0.5	18827	1410	2.1	7/1/2009 17:07
F3	Sr-90'	0.5	19124	1440	2.7	7/1/2009 17:07
F3	Sr-90'	0.5	19026	1470	1.2	7/1/2009 17:08
F3	Sr-90'	0.5	19090	1500	-0.3	7/1/2009 17:09
F3	Sr-90'	0.5	19021	1530	0.7	7/1/2009 17:09
F3	Sr-90'	0.5	19089	1560	1.2	7/1/2009 17:10
F3	Sr-90'	0.5	19128	1590	2.1	7/1/2009 17:10
F3	Sr-90'	0.5	19221	1620		7/1/2009 17:11
F3	Sr-90'	0.5	19274	1650		7/1/2009 17:12
F4	Sr-90'	0.12	0	750		7/1/2009 16:53
F4	Sr-90'	0.11	0	780		7/1/2009 16:54
F4	Sr-90'	0.5	125	810	5.6	7/1/2009 16:54
F4	Sr-90'	0.5	346	840	9.4	7/1/2009 16:55
F4	Sr-90'	0.5	671	870	13.3	7/1/2009 16:56
F4	Sr-90'	0.5	1133	900	16.8	7/1/2009 16:56
F4	Sr-90'	0.5	1726	930	20.4	7/1/2009 16:57
F4	Sr-90'	0.5	2343	960	24.5	7/1/2009 16:57
F4	Sr-90'	0.5	3123	990	28.7	7/1/2009 16:58
F4	Sr-90'	0.5	4105	1020	34.6	7/1/2009 16:59
F4	Sr-90'	0.5	5144	1050	40.7	7/1/2009 16:59
F4	Sr-90'	0.5	6524	1080	46.8	7/1/2009 17:00
F4	Sr-90'	0.5	8020	1110	53.6	7/1/2009 17:00
F4	Sr-90'	0.5	9687	1140	59.4	7/1/2009 17:01
F4	Sr-90'	0.5	11603	1170	59.9	7/1/2009 17:02
F4	Sr-90'	0.5	13644	1200	58.2	7/1/2009 17:02
F4	Sr-90'	0.5	15027	1230	50.3	7/1/2009 17:03
F4	Sr-90'	0.5	16711	1260	38.9	7/1/2009 17:04
F4	Sr-90'	0.5	17608	1290	27.3	7/1/2009 17:04
F4	Sr-90'	0.5	18185	1320	15.4	7/1/2009 17:05
F4	Sr-90'	0.5	18391	1350	9.8	7/1/2009 17:05
F4	Sr-90'	0.5	18626	1380	5.6	7/1/2009 17:06
F4	Sr-90'	0.5	18863	1410	3.4	7/1/2009 17:07
F4	Sr-90'	0.5	18792	1440	2.1	7/1/2009 17:07
F4	Sr-90'	0.5	18816	1470	-0.5	7/1/2009 17:08
F4	Sr-90'	0.5	18962	1500	1.5	7/1/2009 17:09
F4	Sr-90'	0.5	18700	1530	1.6	7/1/2009 17:09
F4	Sr-90'	0.5	19073	1560	0.5	7/1/2009 17:10
F4	Sr-90'	0.5	18996	1590	1.6	7/1/2009 17:10

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F4	Sr-90'	0.5	18893	1620		7/1/2009 17:11
F4	Sr-90'	0.5	19035	1650		7/1/2009 17:12
G1	Sr-90'	0.11	2	750		7/1/2009 16:53
G1	Sr-90'	0.11	8	780		7/1/2009 16:54
G1	Sr-90'	0.5	142	810	5.3	7/1/2009 16:54
G1	Sr-90'	0.5	309	840	8.5	7/1/2009 16:54
G1	Sr-90'	0.5	643	870	11.6	7/1/2009 16:55
G1	Sr-90'	0.5	1029	900	14.5	7/1/2009 16:56
G1	Sr-90'	0.5	1529	930	17.1	7/1/2009 16:56
G1	Sr-90'	0.5	2045	960	20.8	7/1/2009 16:57
G1	Sr-90'	0.5	2698	990	24.9	7/1/2009 16:58
G1	Sr-90'	0.5	3567	1020	30.5	7/1/2009 16:58
G1	Sr-90'	0.5	4501	1050	34.9	7/1/2009 16:59
G1	Sr-90'	0.5	5717	1080	42.1	7/1/2009 16:59
G1	Sr-90'	0.5	6865	1110	49.7	7/1/2009 17:00
G1	Sr-90'	0.5	8707	1140	54.5	7/1/2009 17:01
G1	Sr-90'	0.5	10467	1170	57.3	7/1/2009 17:01
G1	Sr-90'	0.5	12095	1200	52.8	7/1/2009 17:02
G1	Sr-90'	0.5	13759	1230	47.4	7/1/2009 17:03
G1	Sr-90'	0.5	14976	1260	37.0	7/1/2009 17:03
G1	Sr-90'	0.5	16137	1290	25.1	7/1/2009 17:04
G1	Sr-90'	0.5	16455	1320	16.0	7/1/2009 17:04
G1	Sr-90'	0.5	16791	1350	8.1	7/1/2009 17:05
G1	Sr-90'	0.5	17045	1380	5.8	7/1/2009 17:06
G1	Sr-90'	0.5	17060	1410	2.2	7/1/2009 17:06
G1	Sr-90'	0.5	17183	1440	0.5	7/1/2009 17:07
G1	Sr-90'	0.5	17051	1470	-0.1	7/1/2009 17:08
G1	Sr-90'	0.5	17124	1500	0.2	7/1/2009 17:08
G1	Sr-90'	0.5	17071	1530	1.3	7/1/2009 17:09
G1	Sr-90'	0.5	17202	1560	0.7	7/1/2009 17:09
G1	Sr-90'	0.5	17214	1590	1.5	7/1/2009 17:10
G1	Sr-90'	0.5	17159	1620		7/1/2009 17:11
G1	Sr-90'	0.5	17321	1650		7/1/2009 17:11
G2	Sr-90'	0.11	2	750		7/1/2009 16:53
G2	Sr-90'	0.11	8	780		7/1/2009 16:54
G2	Sr-90'	0.5	148	810	5.7	7/1/2009 16:54
G2	Sr-90'	0.5	324	840	9.1	7/1/2009 16:54
G2	Sr-90'	0.5	700	870	12.3	7/1/2009 16:55
G2	Sr-90'	0.5	1101	900	15.5	7/1/2009 16:56
G2	Sr-90'	0.5	1601	930	18.8	7/1/2009 16:56
G2	Sr-90'	0.5	2197	960	23.0	7/1/2009 16:57
G2	Sr-90'	0.5	2979	990	28.0	7/1/2009 16:58
G2	Sr-90'	0.5	3866	1020	33.2	7/1/2009 16:58
G2	Sr-90'	0.5	4971	1050	38.4	7/1/2009 16:59
G2	Sr-90'	0.5	6177	1080	44.0	7/1/2009 16:59
G2	Sr-90'	0.5	7579	1110	50.4	7/1/2009 17:00
G2	Sr-90'	0.5	9156	1140	56.2	7/1/2009 17:01
G2	Sr-90'	0.5	11042	1170	59.0	7/1/2009 17:01
G2	Sr-90'	0.5	12872	1200	58.2	7/1/2009 17:02
G2	Sr-90'	0.5	14577	1230	50.9	7/1/2009 17:03
G2	Sr-90'	0.5	16124	1260	38.8	7/1/2009 17:03
G2	Sr-90'	0.5	17054	1290	26.4	7/1/2009 17:04
G2	Sr-90'	0.5	17456	1320	16.4	7/1/2009 17:04
G2	Sr-90'	0.5	17867	1350	9.5	7/1/2009 17:05
G2	Sr-90'	0.5	18172	1380	5.6	7/1/2009 17:06
G2	Sr-90'	0.5	18119	1410	3.2	7/1/2009 17:06
G2	Sr-90'	0.5	18174	1440	2.4	7/1/2009 17:07
G2	Sr-90'	0.5	18347	1470	2.6	7/1/2009 17:08
G2	Sr-90'	0.5	18411	1500	2.6	7/1/2009 17:08
G2	Sr-90'	0.5	18383	1530	0.5	7/1/2009 17:09
G2	Sr-90'	0.5	18551	1560	0.4	7/1/2009 17:09
G2	Sr-90'	0.5	18352	1590	-1.0	7/1/2009 17:10

**Plateau Raw Data**

G2	Sr-90'	0.5	18482	1620		7/1/2009 17:11
G2	Sr-90'	0.5	18274	1650		7/1/2009 17:11
G3	Sr-90'	0.11	1	750		7/1/2009 16:53
G3	Sr-90'	0.12	0	780		7/1/2009 16:54
G3	Sr-90'	0.5	43	810	2.8	7/1/2009 16:54
G3	Sr-90'	0.5	140	840	6.1	7/1/2009 16:54
G3	Sr-90'	0.5	346	870	10.0	7/1/2009 16:55
G3	Sr-90'	0.5	770	900	13.8	7/1/2009 16:56
G3	Sr-90'	0.5	1233	930	17.3	7/1/2009 16:56
G3	Sr-90'	0.5	1759	960	21.4	7/1/2009 16:57
G3	Sr-90'	0.5	2451	990	25.6	7/1/2009 16:58
G3	Sr-90'	0.5	3366	1020	31.4	7/1/2009 16:58
G3	Sr-90'	0.5	4276	1050	35.9	7/1/2009 16:59
G3	Sr-90'	0.5	5558	1080	42.3	7/1/2009 16:59
G3	Sr-90'	0.5	6744	1110	49.0	7/1/2009 17:00
G3	Sr-90'	0.5	8480	1140	55.9	7/1/2009 17:01
G3	Sr-90'	0.5	10165	1170	63.6	7/1/2009 17:01
G3	Sr-90'	0.5	12235	1200	67.0	7/1/2009 17:02
G3	Sr-90'	0.5	14404	1230	67.4	7/1/2009 17:03
G3	Sr-90'	0.5	16407	1260	59.3	7/1/2009 17:03
G3	Sr-90'	0.5	18185	1290	47.6	7/1/2009 17:04
G3	Sr-90'	0.5	19233	1320	33.5	7/1/2009 17:04
G3	Sr-90'	0.5	20131	1350	19.1	7/1/2009 17:05
G3	Sr-90'	0.5	20459	1380	9.5	7/1/2009 17:06
G3	Sr-90'	0.49	20432	1410	3.7	7/1/2009 17:06
G3	Sr-90'	0.49	20500	1440	1.6	7/1/2009 17:07
G3	Sr-90'	0.49	20665	1470	-0.3	7/1/2009 17:08
G3	Sr-90'	0.49	20578	1500	-1.6	7/1/2009 17:08
G3	Sr-90'	0.48	20348	1530	-1.6	7/1/2009 17:09
G3	Sr-90'	0.48	20420	1560	1.5	7/1/2009 17:09
G3	Sr-90'	0.48	20503	1590	3.3	7/1/2009 17:10
G3	Sr-90'	0.48	20725	1620		7/1/2009 17:11
G3	Sr-90'	0.48	20692	1650		7/1/2009 17:11
G4	Sr-90'	0.12	0	750		7/1/2009 16:53
G4	Sr-90'	0.12	2	780		7/1/2009 16:54
G4	Sr-90'	0.12	10	810	2.1	7/1/2009 16:54
G4	Sr-90'	0.5	96	840	4.3	7/1/2009 16:54
G4	Sr-90'	0.5	266	870	7.1	7/1/2009 16:55
G4	Sr-90'	0.5	522	900	9.6	7/1/2009 16:56
G4	Sr-90'	0.5	858	930	11.1	7/1/2009 16:56
G4	Sr-90'	0.5	1238	960	13.8	7/1/2009 16:57
G4	Sr-90'	0.5	1580	990	16.0	7/1/2009 16:58
G4	Sr-90'	0.5	2232	1020	19.4	7/1/2009 16:58
G4	Sr-90'	0.5	2756	1050	24.6	7/1/2009 16:59
G4	Sr-90'	0.5	3567	1080	28.0	7/1/2009 16:59
G4	Sr-90'	0.5	4603	1110	33.4	7/1/2009 17:00
G4	Sr-90'	0.5	5501	1140	38.6	7/1/2009 17:01
G4	Sr-90'	0.5	6802	1170	41.7	7/1/2009 17:01
G4	Sr-90'	0.5	8262	1200	44.3	7/1/2009 17:02
G4	Sr-90'	0.5	9472	1230	42.5	7/1/2009 17:03
G4	Sr-90'	0.5	10818	1260	38.5	7/1/2009 17:03
G4	Sr-90'	0.5	11904	1290	32.4	7/1/2009 17:04
G4	Sr-90'	0.5	12821	1320	23.7	7/1/2009 17:04
G4	Sr-90'	0.5	13335	1350	16.3	7/1/2009 17:05
G4	Sr-90'	0.5	13662	1380	8.9	7/1/2009 17:06
G4	Sr-90'	0.5	13925	1410	5.9	7/1/2009 17:06
G4	Sr-90'	0.5	13865	1440	2.8	7/1/2009 17:07
G4	Sr-90'	0.5	14125	1470	0.9	7/1/2009 17:08
G4	Sr-90'	0.5	13975	1500	2.0	7/1/2009 17:08
G4	Sr-90'	0.5	14009	1530	2.4	7/1/2009 17:09
G4	Sr-90'	0.5	14226	1560	3.7	7/1/2009 17:09
G4	Sr-90'	0.5	14366	1590	2.1	7/1/2009 17:10

**Plateau Raw Data**

G4	Sr-90'	0.5	14354	1620		7/1/2009 17:11
G4	Sr-90'	0.5	14254	1650		7/1/2009 17:11
H1	Sr-90'	0.11	3	750		7/1/2009 16:53
H1	Sr-90'	0.12	4	780		7/1/2009 16:54
H1	Sr-90'	0.5	120	810	5.0	7/1/2009 16:54
H1	Sr-90'	0.5	277	840	8.3	7/1/2009 16:55
H1	Sr-90'	0.5	613	870	11.3	7/1/2009 16:55
H1	Sr-90'	0.5	1000	900	15.1	7/1/2009 16:56
H1	Sr-90'	0.5	1459	930	18.3	7/1/2009 16:56
H1	Sr-90'	0.5	2112	960	22.4	7/1/2009 16:57
H1	Sr-90'	0.5	2797	990	26.1	7/1/2009 16:58
H1	Sr-90'	0.5	3684	1020	31.3	7/1/2009 16:58
H1	Sr-90'	0.5	4585	1050	36.5	7/1/2009 16:59
H1	Sr-90'	0.5	5908	1080	43.0	7/1/2009 17:00
H1	Sr-90'	0.5	7164	1110	49.9	7/1/2009 17:00
H1	Sr-90'	0.5	8847	1140	54.0	7/1/2009 17:01
H1	Sr-90'	0.5	10607	1170	56.0	7/1/2009 17:01
H1	Sr-90'	0.5	12293	1200	52.8	7/1/2009 17:02
H1	Sr-90'	0.5	13845	1230	45.0	7/1/2009 17:03
H1	Sr-90'	0.5	15147	1260	35.9	7/1/2009 17:03
H1	Sr-90'	0.5	15927	1290	24.6	7/1/2009 17:04
H1	Sr-90'	0.5	16632	1320	15.7	7/1/2009 17:05
H1	Sr-90'	0.5	16799	1350	10.3	7/1/2009 17:05
H1	Sr-90'	0.5	17067	1380	6.6	7/1/2009 17:06
H1	Sr-90'	0.5	17254	1410	5.4	7/1/2009 17:06
H1	Sr-90'	0.5	17390	1440	2.6	7/1/2009 17:07
H1	Sr-90'	0.5	17444	1470	-1.0	7/1/2009 17:08
H1	Sr-90'	0.5	17357	1500	-0.5	7/1/2009 17:08
H1	Sr-90'	0.5	17121	1530	1.8	7/1/2009 17:09
H1	Sr-90'	0.5	17478	1560	3.5	7/1/2009 17:10
H1	Sr-90'	0.5	17655	1590	2.8	7/1/2009 17:10
H1	Sr-90'	0.5	17621	1620	20.4	7/1/2009 17:11
H1	Sr-90'	0.5	17476	1650		7/1/2009 17:11
H2	Sr-90'	0.11	0	750		7/1/2009 16:53
H2	Sr-90'	0.11	2	780		7/1/2009 16:54
H2	Sr-90'	0.11	9	810	3.0	7/1/2009 16:54
H2	Sr-90'	0.5	130	840	5.7	7/1/2009 16:55
H2	Sr-90'	0.5	386	870	8.8	7/1/2009 16:55
H2	Sr-90'	0.5	671	900	11.9	7/1/2009 16:56
H2	Sr-90'	0.5	1065	930	14.0	7/1/2009 16:56
H2	Sr-90'	0.5	1570	960	18.0	7/1/2009 16:57
H2	Sr-90'	0.5	2032	990	22.2	7/1/2009 16:58
H2	Sr-90'	0.5	2889	1020	26.1	7/1/2009 16:58
H2	Sr-90'	0.5	3732	1050	31.4	7/1/2009 16:59
H2	Sr-90'	0.5	4634	1080	34.9	7/1/2009 17:00
H2	Sr-90'	0.5	5875	1110	40.7	7/1/2009 17:00
H2	Sr-90'	0.5	7057	1140	46.8	7/1/2009 17:01
H2	Sr-90'	0.5	8628	1170	52.3	7/1/2009 17:01
H2	Sr-90'	0.5	10272	1200	54.8	7/1/2009 17:02
H2	Sr-90'	0.5	12110	1230	50.3	7/1/2009 17:03
H2	Sr-90'	0.5	13536	1260	42.6	7/1/2009 17:03
H2	Sr-90'	0.5	14535	1290	31.4	7/1/2009 17:04
H2	Sr-90'	0.5	15451	1320	21.6	7/1/2009 17:05
H2	Sr-90'	0.5	15866	1350	13.4	7/1/2009 17:05
H2	Sr-90'	0.5	16110	1380	7.8	7/1/2009 17:06
H2	Sr-90'	0.5	16214	1410	5.3	7/1/2009 17:06
H2	Sr-90'	0.5	16443	1440	2.9	7/1/2009 17:07
H2	Sr-90'	0.5	16489	1470	1.2	7/1/2009 17:08
H2	Sr-90'	0.5	16408	1500	0.0	7/1/2009 17:08
H2	Sr-90'	0.5	16413	1530	1.6	7/1/2009 17:09
H2	Sr-90'	0.5	16476	1560	0.9	7/1/2009 17:10
H2	Sr-90'	0.5	16689	1590	0.2	7/1/2009 17:10

**Plateau Raw Data**

H2	Sr-90'	0.5	16407	1620		7/1/2009 17:11
H2	Sr-90'	0.5	16470	1650		7/1/2009 17:11
H3	Sr-90'	0.11	0	750		7/1/2009 16:53
H3	Sr-90'	0.11	2	780		7/1/2009 16:54
H3	Sr-90'	0.11	10	810	2.2	7/1/2009 16:54
H3	Sr-90'	0.5	107	840	5.0	7/1/2009 16:55
H3	Sr-90'	0.5	281	870	8.6	7/1/2009 16:55
H3	Sr-90'	0.5	620	900	12.4	7/1/2009 16:56
H3	Sr-90'	0.5	1041	930	16.8	7/1/2009 16:56
H3	Sr-90'	0.5	1590	960	20.0	7/1/2009 16:57
H3	Sr-90'	0.5	2316	990	24.3	7/1/2009 16:58
H3	Sr-90'	0.5	2989	1020	29.6	7/1/2009 16:58
H3	Sr-90'	0.5	3989	1050	35.8	7/1/2009 16:59
H3	Sr-90'	0.5	5187	1080	42.4	7/1/2009 17:00
H3	Sr-90'	0.5	6593	1110	48.1	7/1/2009 17:00
H3	Sr-90'	0.5	8042	1140	56.1	7/1/2009 17:01
H3	Sr-90'	0.5	9778	1170	62.8	7/1/2009 17:01
H3	Sr-90'	0.5	12005	1200	68.0	7/1/2009 17:02
H3	Sr-90'	0.5	14024	1230	67.5	7/1/2009 17:03
H3	Sr-90'	0.5	16121	1260	59.0	7/1/2009 17:03
H3	Sr-90'	0.5	17840	1290	49.1	7/1/2009 17:04
H3	Sr-90'	0.5	18952	1320	33.9	7/1/2009 17:05
H3	Sr-90'	0.5	19970	1350	20.2	7/1/2009 17:05
H3	Sr-90'	0.5	20148	1380	11.3	7/1/2009 17:06
H3	Sr-90'	0.5	20279	1410	3.1	7/1/2009 17:06
H3	Sr-90'	0.5	20488	1440	1.9	7/1/2009 17:07
H3	Sr-90'	0.49	20260	1470	1.2	7/1/2009 17:08
H3	Sr-90'	0.5	20448	1500	0.3	7/1/2009 17:08
H3	Sr-90'	0.49	20478	1530	0.5	7/1/2009 17:09
H3	Sr-90'	0.49	20420	1560	-1.7	7/1/2009 17:10
H3	Sr-90'	0.49	20351	1590	-1.3	7/1/2009 17:10
H3	Sr-90'	0.49	20252	1620		7/1/2009 17:11
H3	Sr-90'	0.49	20370	1650		7/1/2009 17:11
H4	Sr-90'	0.12	1	750		7/1/2009 16:53
H4	Sr-90'	0.11	3	780		7/1/2009 16:54
H4	Sr-90'	0.11	6	810	2.6	7/1/2009 16:54
H4	Sr-90'	0.5	150	840	5.2	7/1/2009 16:55
H4	Sr-90'	0.5	313	870	8.6	7/1/2009 16:55
H4	Sr-90'	0.5	632	900	11.7	7/1/2009 16:56
H4	Sr-90'	0.5	1050	930	16.1	7/1/2009 16:56
H4	Sr-90'	0.5	1541	960	19.0	7/1/2009 16:57
H4	Sr-90'	0.5	2266	990	21.7	7/1/2009 16:58
H4	Sr-90'	0.5	2881	1020	26.3	7/1/2009 16:58
H4	Sr-90'	0.5	3633	1050	31.4	7/1/2009 16:59
H4	Sr-90'	0.5	4798	1080	36.1	7/1/2009 17:00
H4	Sr-90'	0.5	6014	1110	42.2	7/1/2009 17:00
H4	Sr-90'	0.5	7109	1140	46.2	7/1/2009 17:01
H4	Sr-90'	0.5	8810	1170	50.5	7/1/2009 17:01
H4	Sr-90'	0.5	10328	1200	53.0	7/1/2009 17:02
H4	Sr-90'	0.5	11973	1230	48.7	7/1/2009 17:03
H4	Sr-90'	0.5	13484	1260	43.5	7/1/2009 17:03
H4	Sr-90'	0.5	14544	1290	33.5	7/1/2009 17:04
H4	Sr-90'	0.5	15574	1320	21.0	7/1/2009 17:05
H4	Sr-90'	0.5	15946	1350	13.2	7/1/2009 17:05
H4	Sr-90'	0.5	15928	1380	8.1	7/1/2009 17:06
H4	Sr-90'	0.5	16344	1410	7.2	7/1/2009 17:06
H4	Sr-90'	0.5	16589	1440	5.8	7/1/2009 17:07
H4	Sr-90'	0.5	16693	1470	1.0	7/1/2009 17:08
H4	Sr-90'	0.5	16624	1500	0.0	7/1/2009 17:08
H4	Sr-90'	0.5	16474	1530	-1.0	7/1/2009 17:09
H4	Sr-90'	0.5	16692	1560	-0.1	7/1/2009 17:10
H4	Sr-90'	0.5	16507	1590	-0.7	7/1/2009 17:10

**Plateau Raw Data**

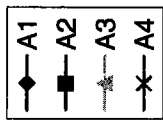
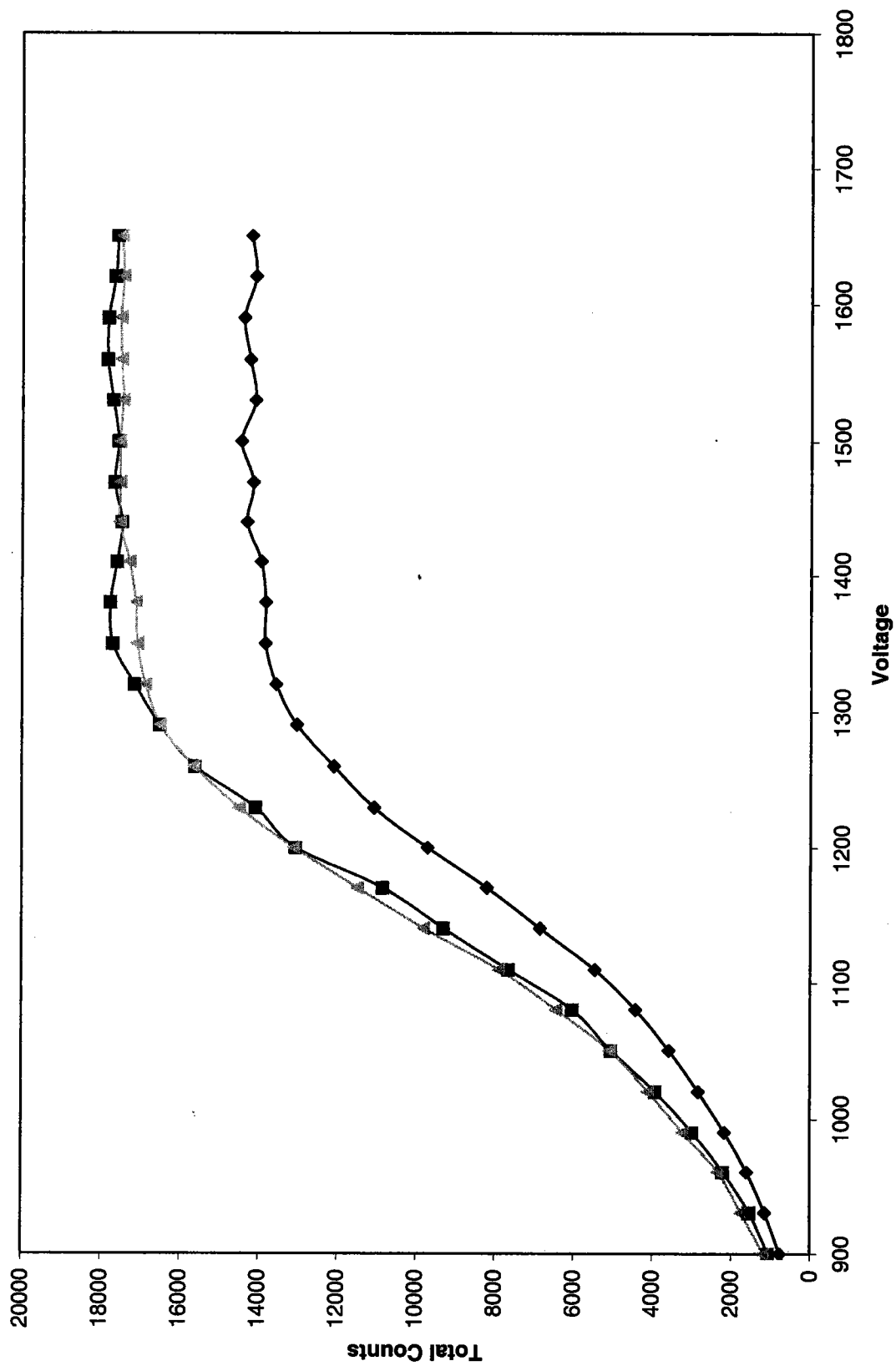
H4 Sr-90'  
H4 Sr-90'

0.5 16597 1620  
0.5 16414 1650

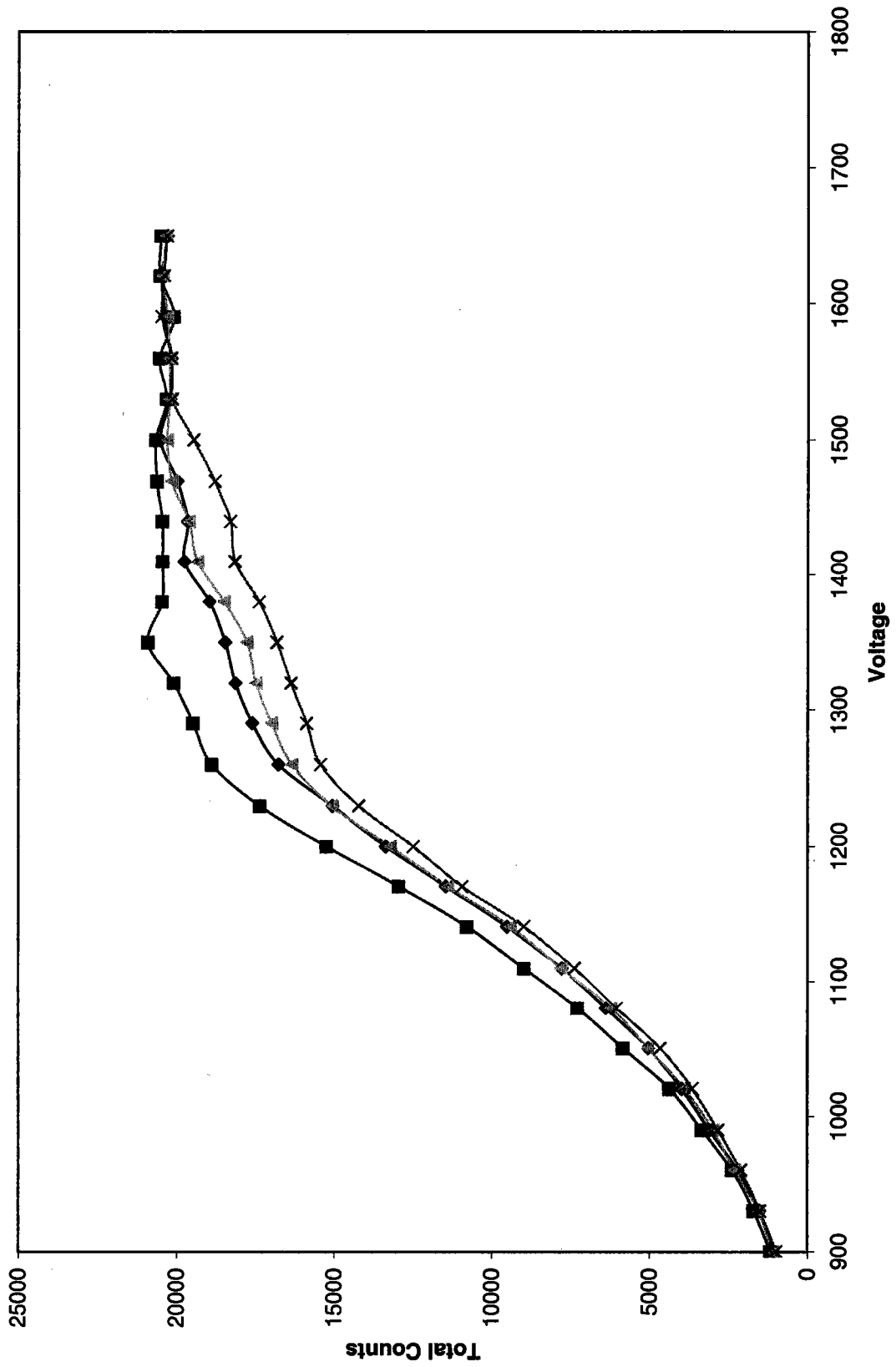
7/1/2009 17:11  
7/1/2009 17:11



# LB4100 Plateau - A Drawer

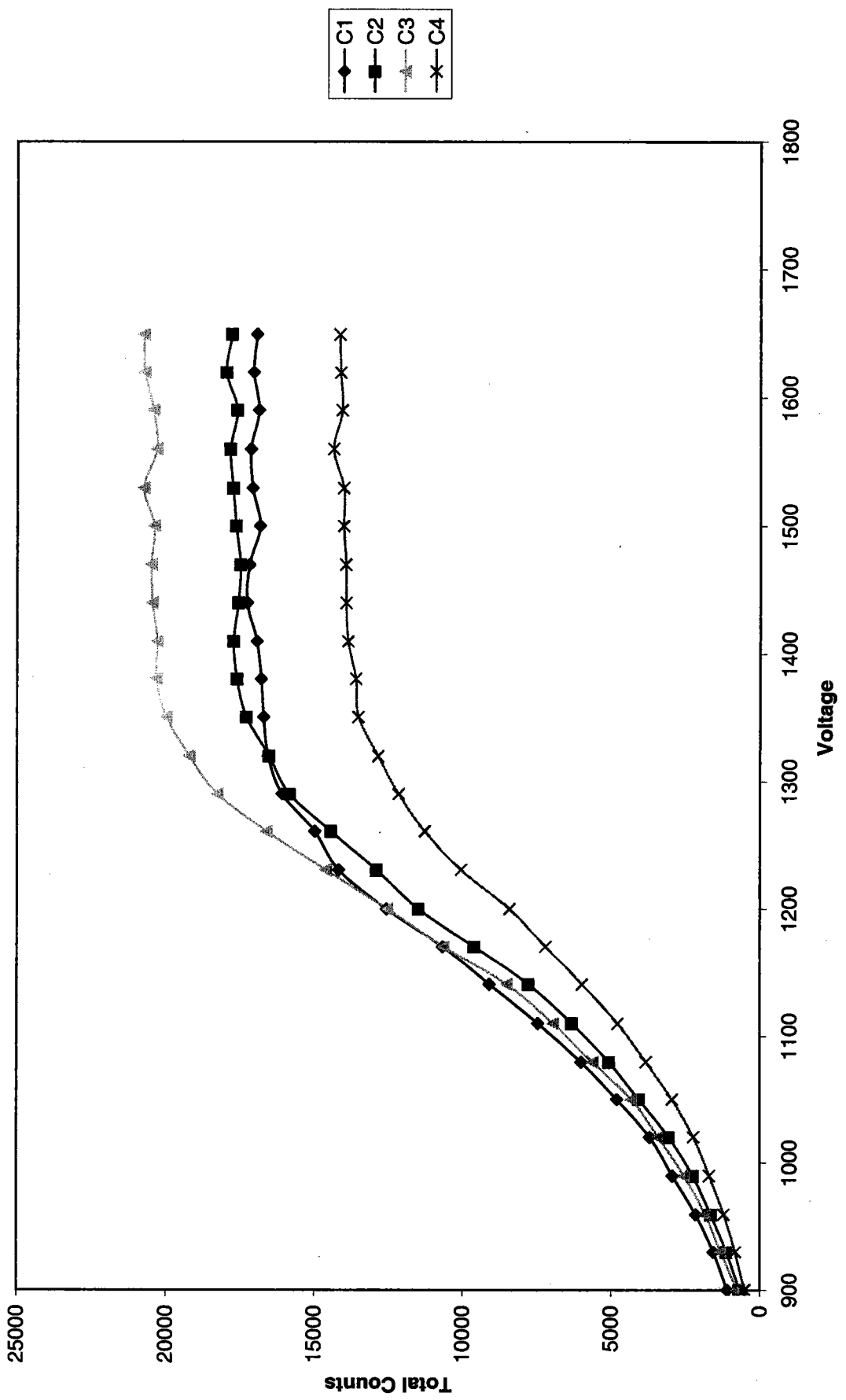


LB4100 Plateau - B Drawer



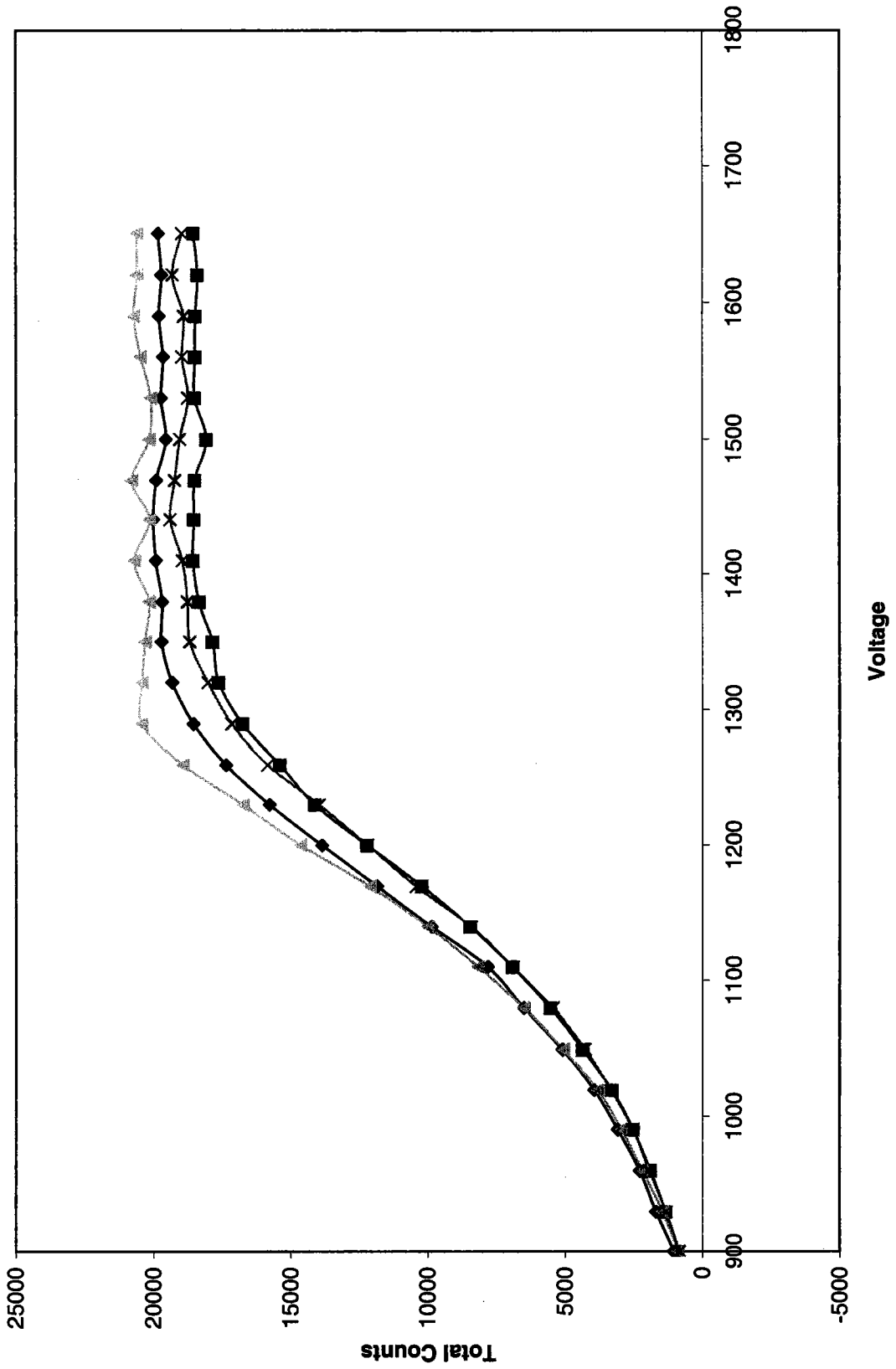
◆ B1  
■ B2  
▲ B3  
× B4

LB4100 Plateau - C Drawer



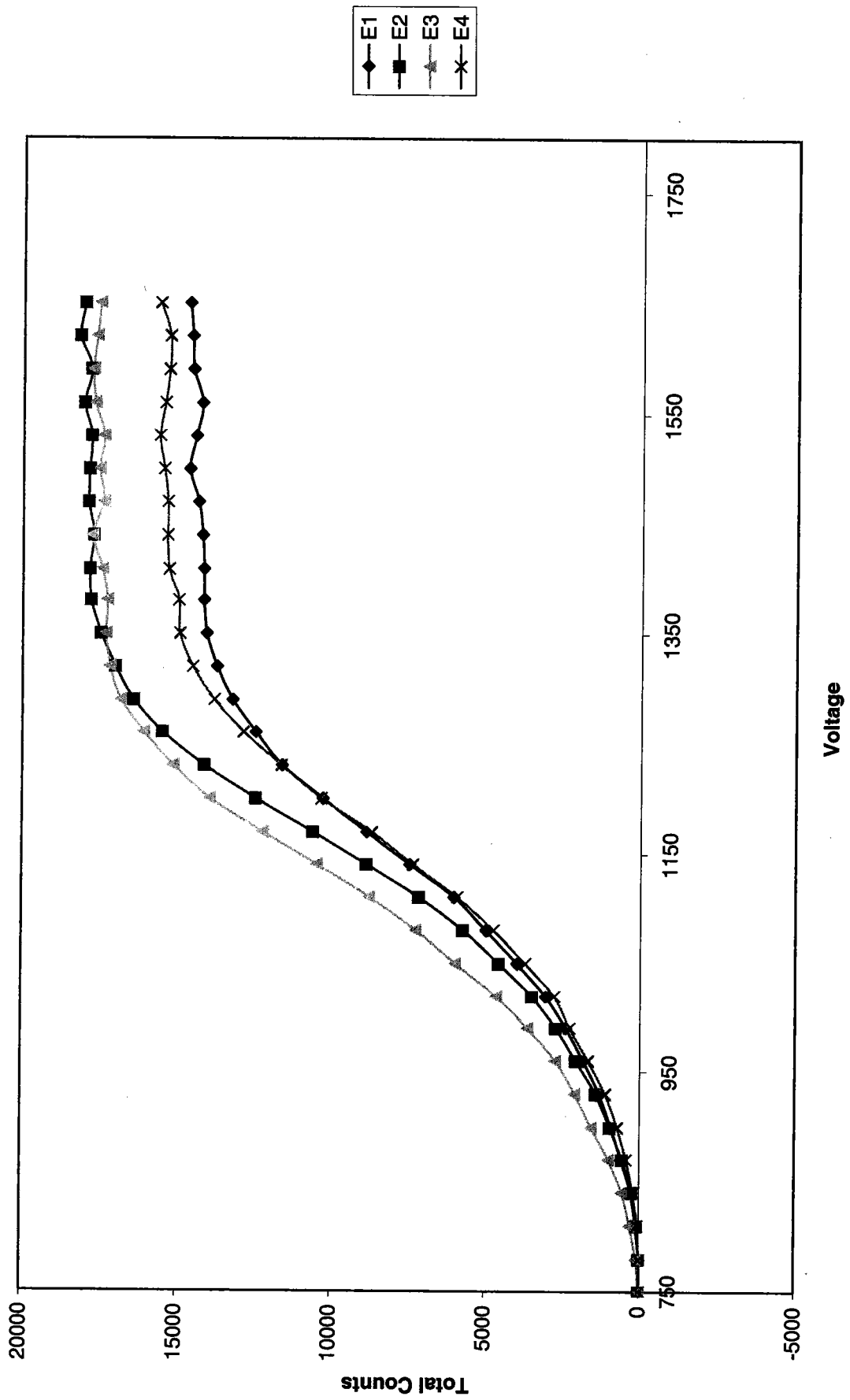
Legend:  
C1: Solid line with diamond markers  
C2: Solid line with square markers  
C3: Dashed line with triangle markers  
C4: Solid line with cross markers

LB4100 Plateau - D Drawer

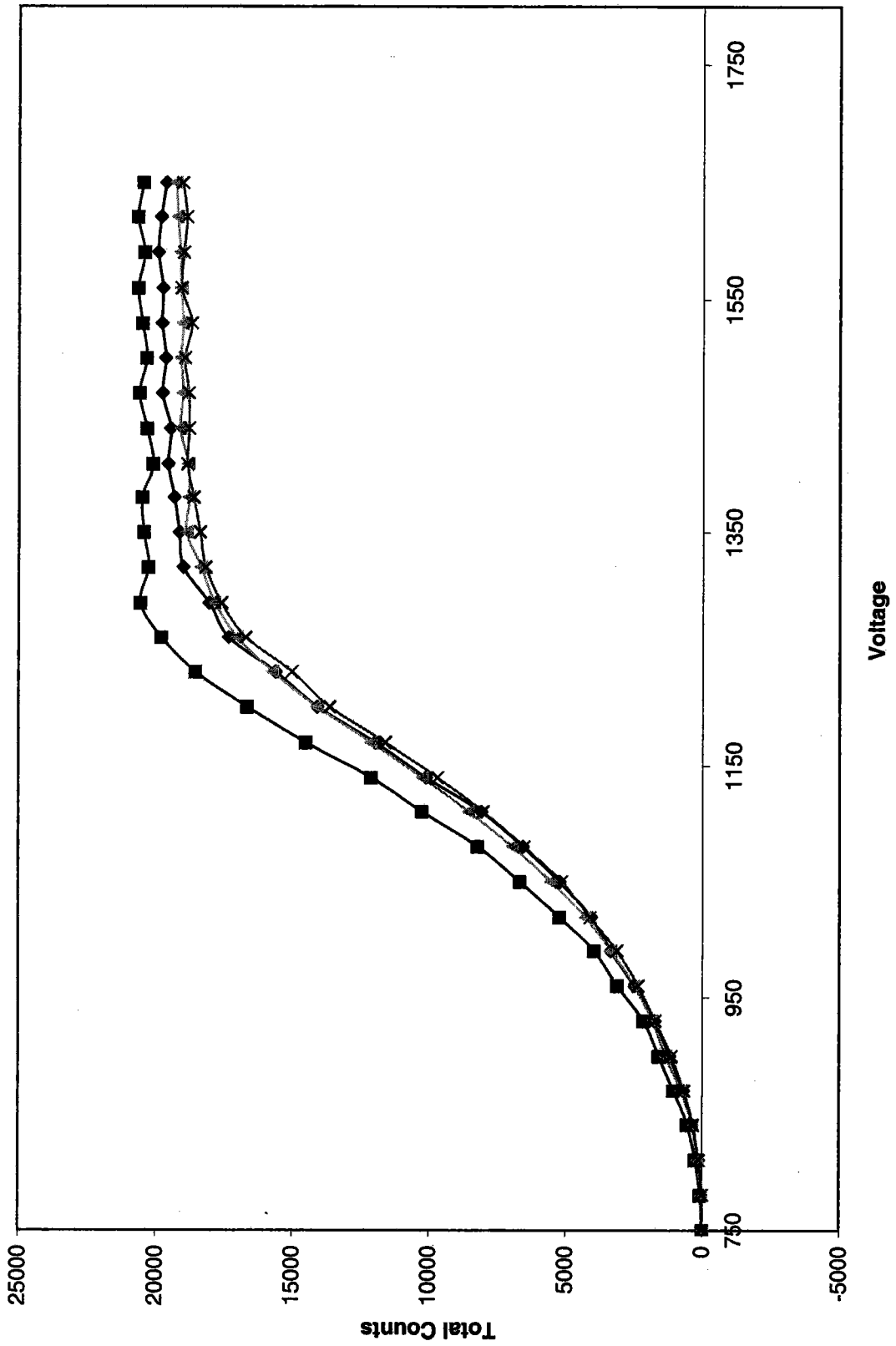


D1  
D2  
D3  
D4

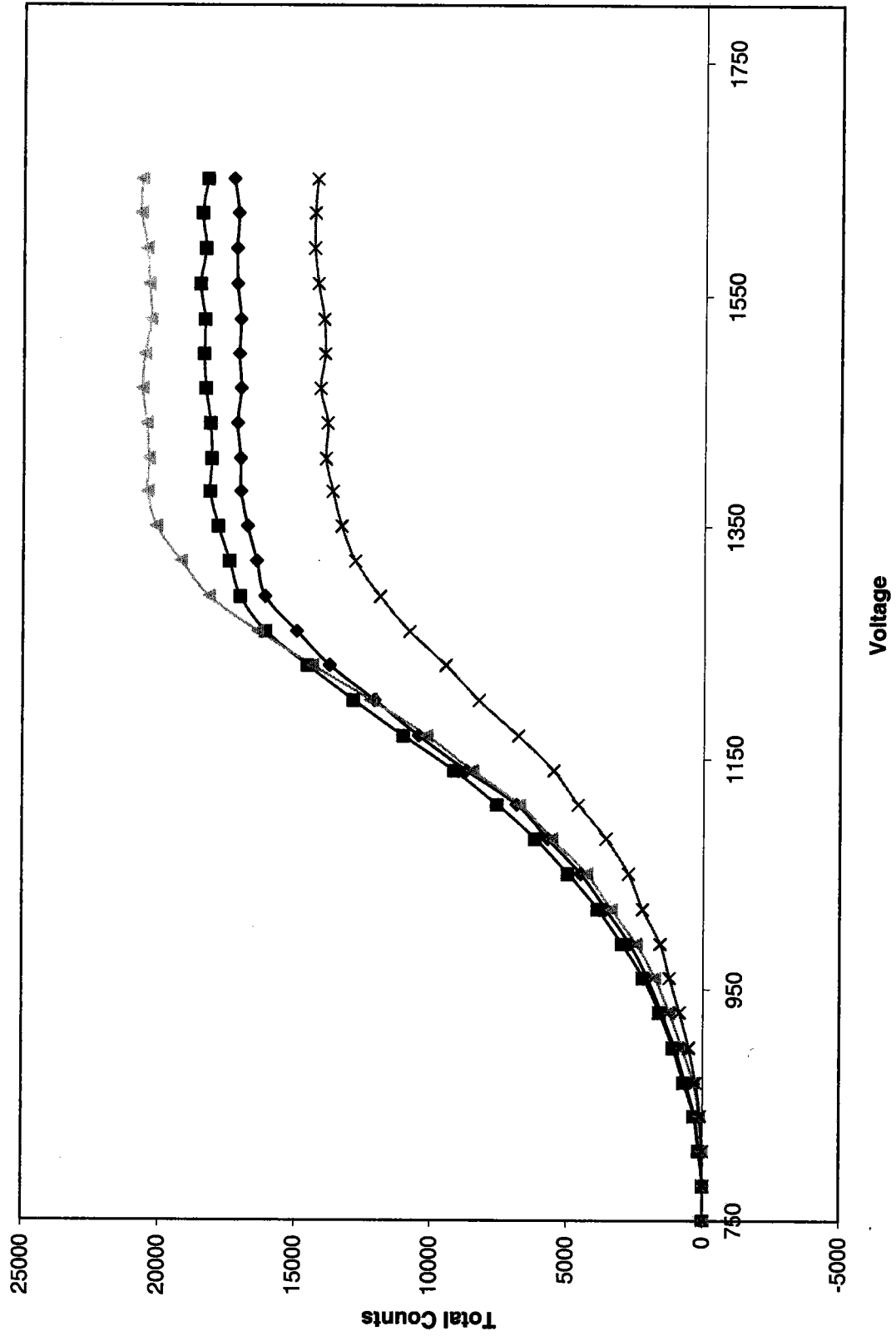
LB4100 Plateau - E Drawer



LB4100 Plateau - F Drawer

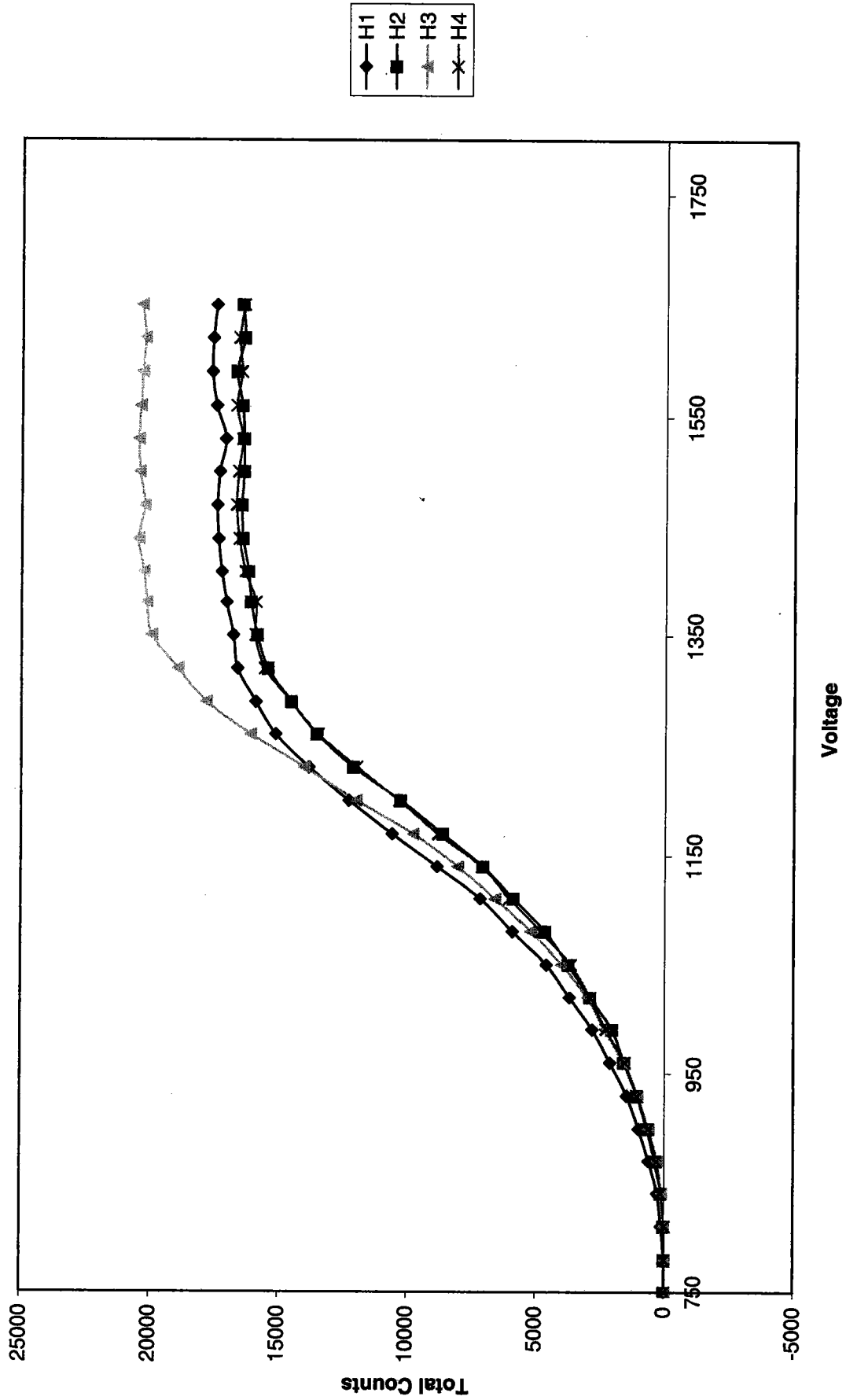


LB4100 Plateau - G Drawer



Legend:  
-◆- G1  
-■- G2  
-▲- G3  
-×- G4

# LB4100 Plateau - H Drawer





# 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:

LM. Monty 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

$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm/mL)}) * (\text{conversion dpm to dpm}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm/mL)}) * (\text{conversion dpm to dpm}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(30.535 \text{ g}) * (13419.8626 \text{ dpm/mL}) * (1 \text{ dpm/dpm}) / (1000 \text{ mL}) = 409.7755 \text{ dpm/mL}$
$(30.535 \text{ g}) * (13419.8626 \text{ dpm/mL}) * (1 \text{ dpm/dpm}) / (\text{g/mL}) / (1000 \text{ mL}) = \text{dpm/g}$

### 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  $\mu$ g/g Ba carrier.

P O NUMBER 3208RD, Item 2

SOURCE PREPARED BY:

M. Taskaeva  
M. Taskaeva, Radiochemist

Q A APPROVED:

M. M. Ty 10-2-02



# Standard Traceability Log Rad

Source Material Info	
Parent Code:	0503
Prepared By:	Angela Johnson
Carrier Conc:	0.1 M HCL
Reference Date:	10/01/2002
Ampoule Mass (g):	5.02617 g
Uncertainty:	+/- 3.6 %
LogBook No:	RC S 035 018

A Solution Material Info	
Isotope:	Radium-228
Prepared By:	Angela Johnson
Prep Date:	02/20/2003
Verification Date:	04/09/2004
Expiration Date:	04/09/2005
Primary Code:	0503-A
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	1963.2000	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 J. Roy 9/16/08*  
*Angela Johnson 9/17/08*

2011/6  
29

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  
28

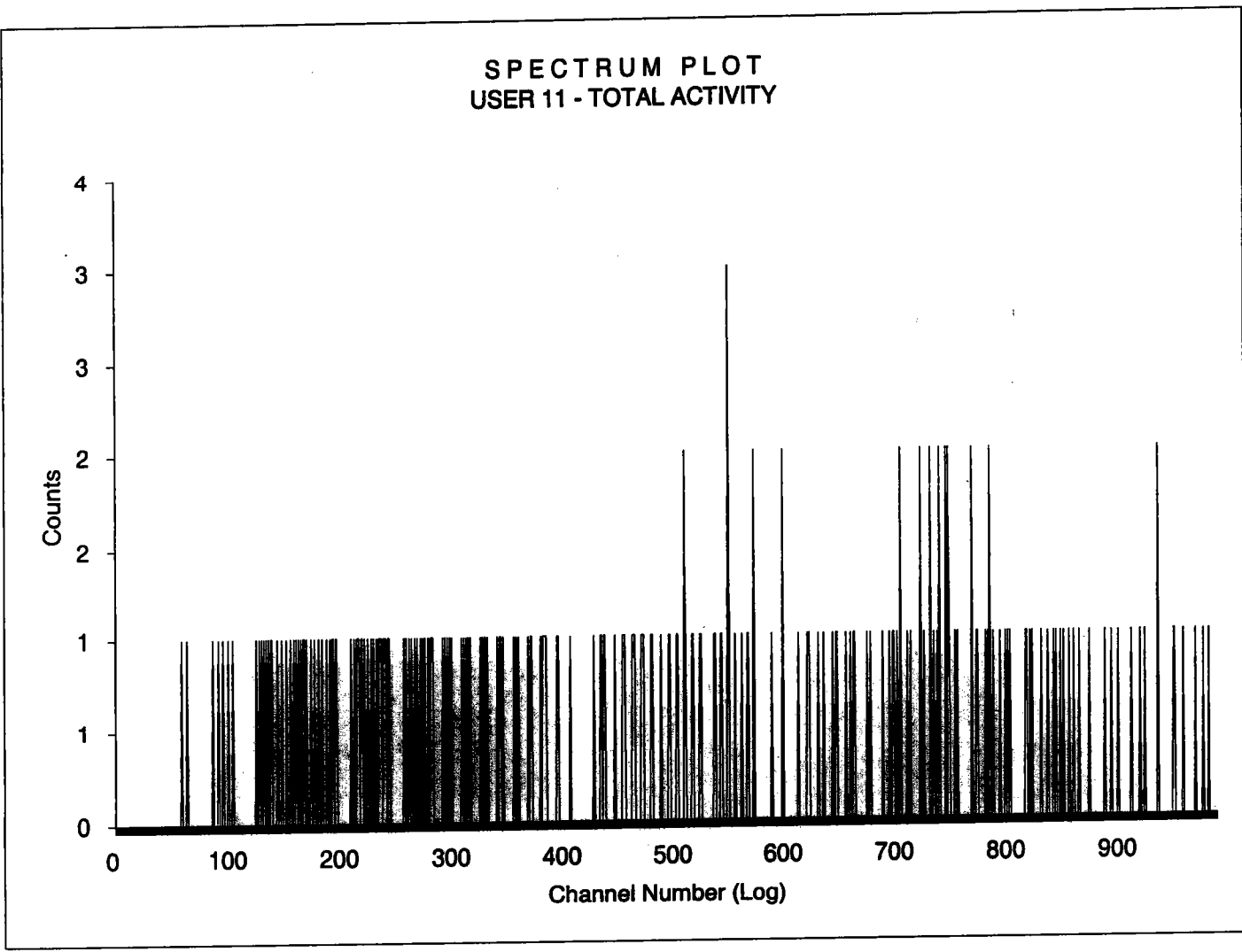
Sample Count Start Time:  
Data Capture Date:  
User Filename:

16 Sep 2008 16:46:59

9/16/2008 16:52:01  
S11091611-5A.WK1  
U11091611-1A.WK1

Spectrum Type  
User Number:  
User Id:  
User Comment:  
Isotope Name:  
Scintillator:  
Sample, Rack-Pos, Time:  
H#, Total Counts:  
Start, End, X-Axis:

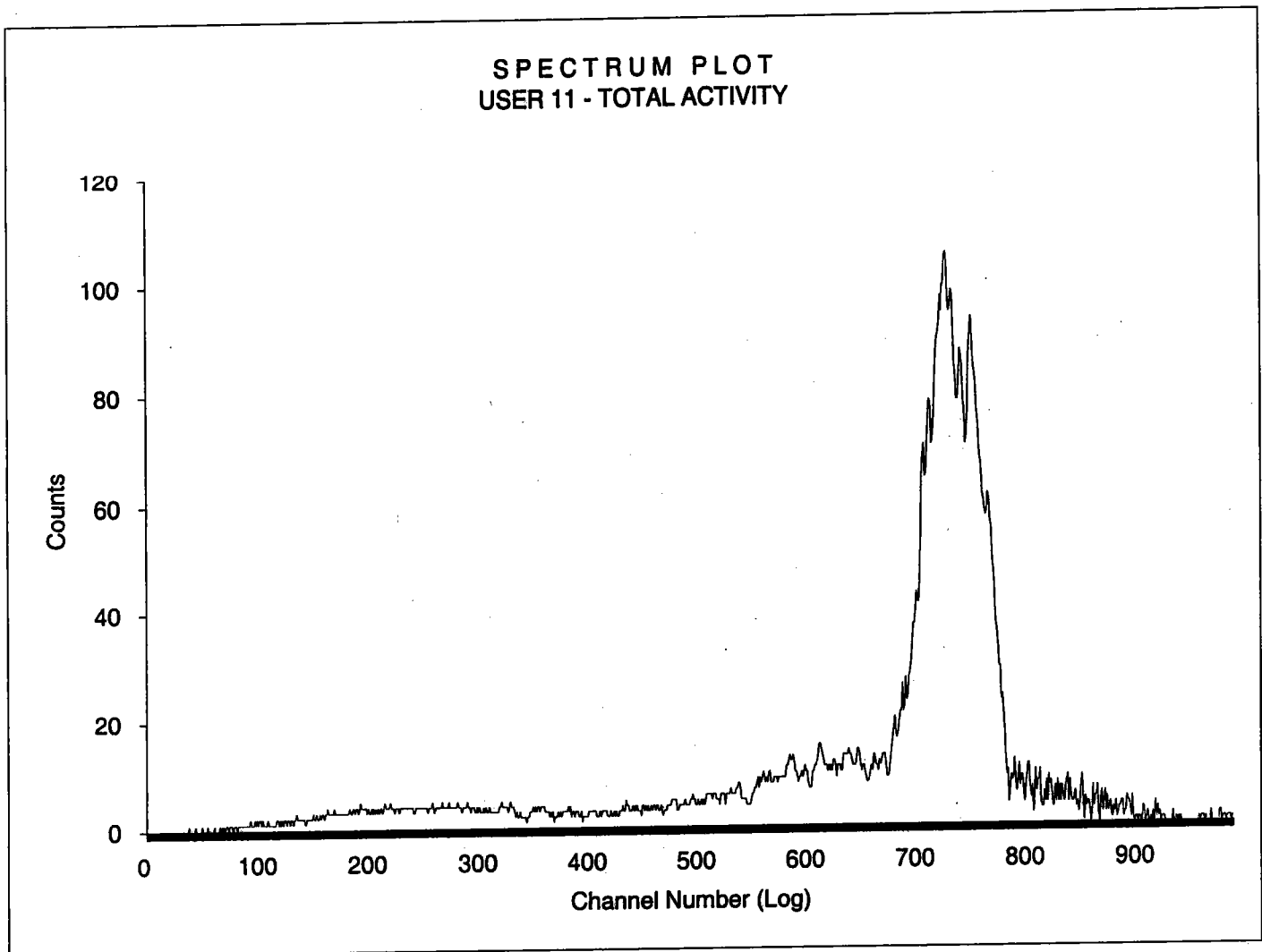
Log Counts  
11  
TOTAL ACTIVITY  
GOLD  
14C  
LIQUID  
5            11-5            5.00  
97.9        69  
0            990            Channel Number



9/16/08

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

SPECTRUM PLOT  
USER 11 - TOTAL ACTIVITY

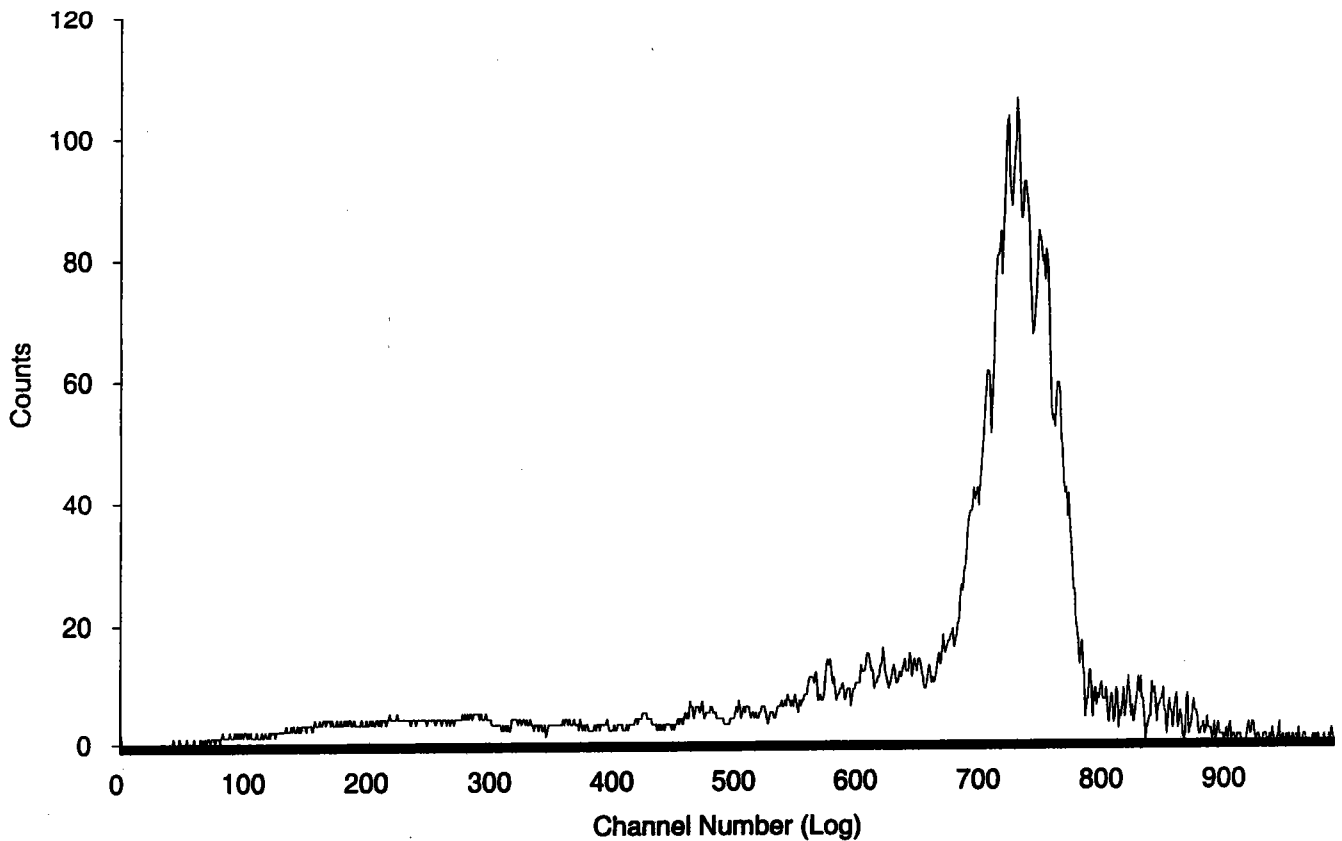




8/19/16  
LSD

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

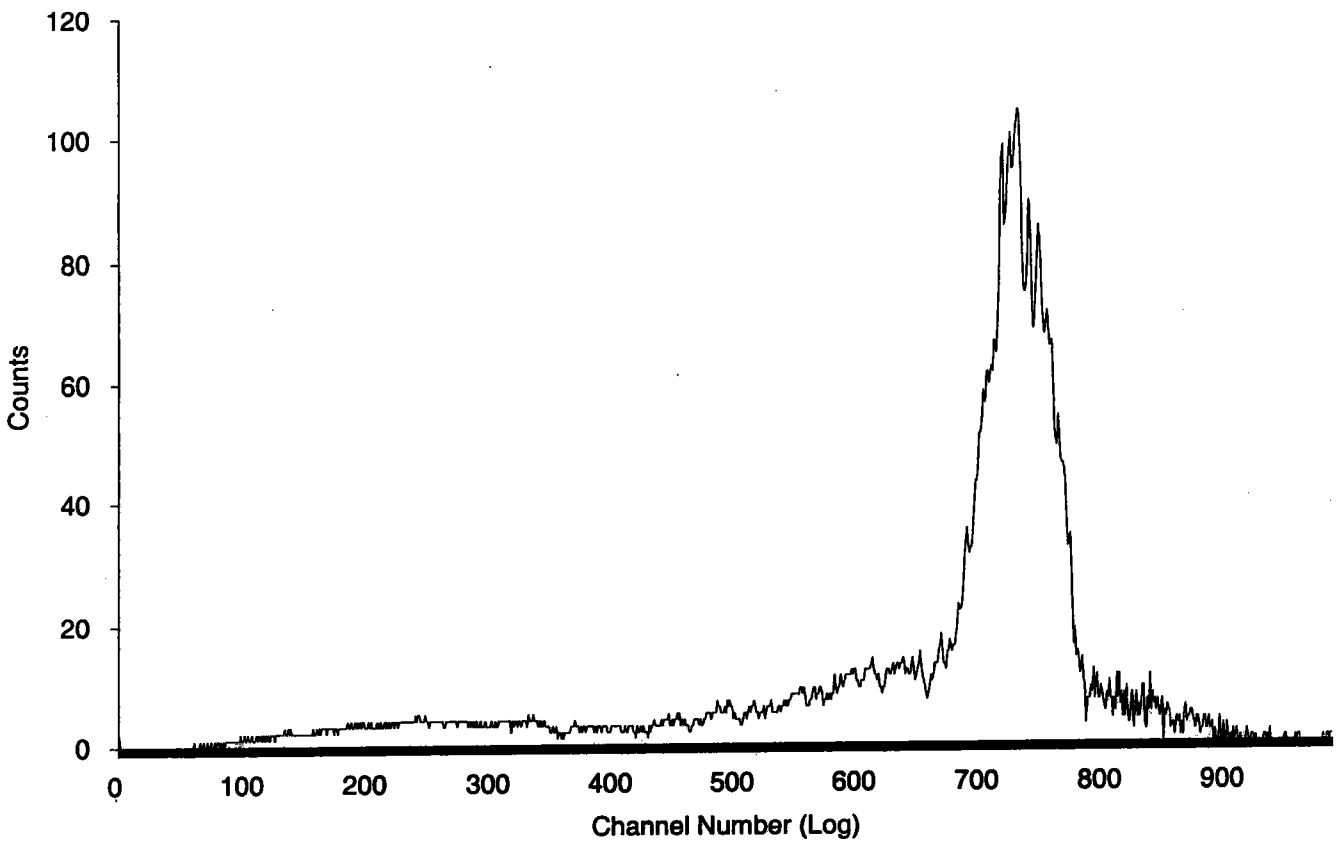
SPECTRUM PLOT  
USER 11 - TOTAL ACTIVITY



9/16/08  
S

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

SPECTRUM PLOT  
USER 11 - TOTAL ACTIVITY



# Radium-228 Que Sheet

SRS 6/30/09

Batch #: 881540  
 Analyst: DXM2  
 First Client Due Date: Internal Due Date: 07/03/2009  
 Spike Isotope: Radium-228  
 Spike Code: NA  
 Expiration Date: NA  
 LCS Isotope: Radium-228  
 LCS Code: DS03-B  
 Expiration Date: 9/13/09  
 Tracer Isotope: Barium-133  
 Tracer Code: 0112-J  
 Expiration Date: 2/17/10  
 Prep Date: 6/30/09  
 Initials: JRS  
 Pipet ID: 1734218  
 Balance ID: NA  
 Ac-228 Separation Date/Time: 7-2-09 0540  
 Witness: JRS 6/30/09

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collect Date & Time	Pos. #	Vol (mL)	Det #	Ba Yield (%)	Gamma Det. #
1201872112-1	LCS for batch 881540	LCS	3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	1	20			100.83	↑
1201872113-1	LCS for batch 881540	LCS	3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	2	20			108.20	
1201872114-1	LCS for batch 881540	LCS	3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	3	20			114.22	
1201872115-1	LCS for batch 881540	LCS	3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	4	20			120.58	WZAL
1201872116-1	LCS for batch 881540	LCS	3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	5	20			105.84	
1201872117-1	LCS for batch 881540	LCS	3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	6	20			102.70	
1201872118-1	LCS for batch 881540	LCS	3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	7	20			112.82	
1201872119-1	LCS for batch 881540	LCS	3 pCi/L	GROUND WATI	QC ACCOUNT	16-JUN-09 03:56 PM	8	20			111.91	↓

JRS 7/1/09

*[Handwritten Signature]* 7/2/09

Data Reviewed By: \_\_\_\_\_

Comments: \_\_\_\_\_

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]*  
6/2/09

# LUCAS CELL COUNTERS

# General Engineering Laboratories

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

## Lucas Cell Calibration Package

	YES	NO	Comments
1) Is all calibration standard information enclosed for: 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	Stddev	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	Stddev	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	Stddev	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	Stddev	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	Stddev	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	Stddev	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	Stddev	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	Stddev	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	Stddev	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	Stddev	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	Stddev	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	Stddev	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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Ra-226 Verification Sheet

Sample ID	Volume (mL)	End Degs Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
Ca114	500	9/25/08 1000	9/25/08 0015	9/25/08 1935	201	2	0	5361
<del>Ca113</del>	<del>500</del>	<del>9/25/08 1000</del>	<del>9/25/08 0050</del>	<del>9/25/08 2100</del>	<del>202</del>	<del>2</del>	<del>0</del>	<del>5845</del>
Ca143	500	9/22/08 1000	9/25/08 1015	9/25/08 2100	203	2	0	6298
Ca115	500	9/22/08 1000						
Ca144	500	9/22/08 1000						
Ca146	500	9/22/08 1000						
Ca136	500	9/22/08 1000						
Ca130	500	9/22/08 1000						
Ca119	500	9/22/08 1000						
Ca147	500	9/22/08 1000						
Ca137	500	9/22/08 1000						
Ca142	500	9/22/08 1000						

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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 14	500	9/12/08 1320	9/15/08 0905	9/15/08 1545	201	2	8	5596
Cal 13	500	9/12/08 1320	9/15/08 0935	9/15/08 1620	202	2	8	6779
Cal 43	500	9/12/08 1320	9/15/08 1000	9.15.08 1650	203	2	8	6300
Cal 15	500	9/12/08 1320	9/15/08 1030	9.15.08 1725	204	2	8	6132
<del>Cal 44</del>	<del>500</del>	<del>9/12/08 1320</del>	<del>9/15/08 1055</del>	<del>9.15.08 1805</del>	<del>205</del>	<del>2</del>	<del>5</del>	<del>6132</del>
Cal 46	500	9/12/08 1320	9/15/08 1115	9.15.08 2110	206	2	7	6216
Cal 36	500	9/12/08 1320	9/15/08 1150	9.15.08 2140	207	2	8	6094
<del>Cal 38</del>	<del>500</del>	<del>9/12/08 1320</del>	<del>9/15/08 1215</del>	<del>9.15.08 2215</del>	<del>208</del>	<del>2</del>	<del>8</del>	<del>6258</del>
Cal 19	500	9/12/08 1320	9/15/08 1350	9.15.08 2245	209	2	1	7073
Cal 47	500	9/12/08 1320	9/15/08 1415	9.15.08 2315	210	2	1	6665
Cal 37	500	9/12/08 1320	9/15/08 1430	9.15.08 2350	211	2	1	6150
Cal 42	500	9/12/08 1320	9/15/08 1450	9.16.08 0020	212	2	1	6926

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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
15	500	9/20/08 0945	9/20/08 0910	9/20/08 1405	204	2	4	7535
44	500	9/20/08 0945	9/20/08 0940	9/30/08 1445	205	2	5	7170
46	500	9/20/08 0945	9/30/08 1015	9/30/08 1520	206	2	8	8125
36	500	9/20/08 0945	9/30/08 1015	9/30/08 1410	207	2	7	7456
<del>30</del>	<del>500</del>	<del>9/20/08 0945</del>	<del>9/30/08 1110</del>	<del>9/30/08 1635</del>	<del>208</del>	<del>2</del>	<del>1</del>	<del>7681</del>
19	500	9/20/08 0945	9/30/08 1140	9.30.08 1725	209	2	3	8795
47	500	9/20/08 0945	9/30/08 1205	9.30.08 1800	210	2	1	8116
37	500	9/20/08 0945	9/30/08 1335	9.30.08 1830	211	2	3	7917
42	500	9/20/08 0945	9/30/08 1400	9.30.08 1950	212	2	8	8287

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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 14	500	9/15/08 0945	9/18/08 0810	9/18/08 1300	201	2	8	59449
Cal 13	500	9/15/08 0935	9/18/08 0845	9/18/08 1350	202	2	8	60425
Cal 43	500	9/15/08 1000	9/18/08 0915	9/18/08 1425	203	2	8	60113
Cal 15	500	9/15/08 1030	9/18/08 0935	9/18/08 1455	204	2	8	66771
Cal 44	500	9/15/08 1055	9/18/08 1005	9/18/08 1600	205	2	5	49999
Cal 46	500	9/15/08 1125	9/18/08 1025	9/18/08 1635	206	2	8	66021
Cal 36	500	9/15/08 1150	9/18/08 1040	9/18/08 1755	207	2	8	6105
<del>Cal 30</del>	<del>500</del>	<del>9/15/08 1215</del>	<del>9/18/08 1100</del>	<del>9/18/08 1830</del>	<del>208</del>	<del>2</del>	<del>4</del>	<del>6379</del>
Cal 19	500	9/15/08 1350	9/18/08 1115	9/18/08 1915	209	2	2	6170
Cal 47	500	9/15/08 1415	9/18/08 1130	9/18/08 1945	210	2	3	6142
Cal 37	500	9/15/08 1430	9/18/08 1235	9/18/08 2220	211	2	4	6207
Cal 42	500	9/15/08 1450	9/18/08 1250	9/18/08 2255	212	2	8	6405

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1000

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 14	500	10/18/08 1600	10/20/08 1345	10/21/08 1350 <del>10/20/08</del> <del>1350</del>	202	2	8	9748
13	500	10/15/08 1600	10/20/08 1405	10/21/08 1430	205	2	8	7584
43								
44								
15								
36								
46								
30								
19								
47								
37								
42								

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# Verification for Ra-226 Standard 0299-G

Standard	Source DPM/G
Mass. Used (G)	2562.667649
0.5057	2545.935781
0.5056	2565.677715
0.5042	2558.093715
Average =	

Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff	Mass. Used (G)	Source DPM/G
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
Mean Value (Counting) =	2558.093715	104.944421	2480.1000	1.917186	Average =	2558.093715
Stdev =	10.63610098	0.00415782	0.00415782	Pass	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.

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 11/11/08  
 Nancy E. Johnson 4/19/08  
 Daniel Dwyer 4/10/08



# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0299	Isotope:	Radium-226
Prepared By:	Angela Johnson	Prepared By:	Angela Johnson
Carrier Conc:	0.5 M HCL	Prep Date:	09/15/2000
Reference Date:	12/15/1999	Verification Date:	01/23/2008
Ampoule Mass (g):	5.0368 g	Expiration Date:	01/23/2009
Uncertainty:	+/- 2.5 %	Primary Code:	0299-A
LogBook No:	RC S 027 128	Dilution(mL):	100 mL
		Mass of Parent(g):	4.6634 g
		Density(g/mL):	1.0012
		Balance ID:	

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

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$$

$$(\text{Mass of parent(g)}) * (\text{Parm Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 122414.2500 \text{ dpm/mL}$$

$$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0012 \text{ g/mL}) / (100 \text{ mL}) = 122273.3377 \text{ dpm/g}$$

### Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
08/26/2003	Angela Johnson	1.9909	100	0299-E	2434.34 dpm/mL	11/04/2004	11/04/2005
08/26/2003	Angela Johnson	1.9872	100	0299-F	2429.82 dpm/mL	08/26/2004	08/26/2005
04/05/2005	Amanda Fehr	5.0018	250	0299-G	2446.3471 dpm/mL	04/02/2008	04/02/2009

GEL Laboratories LLC  
Version 1.0 9/18/2000

*all the 12/19/08*  
*len 12/19/08*

## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number <u>GLRAD A-008</u>	Isotope <u>Ra-226</u>
Date Standards Prepared <u>4/5/08</u>	Cocktail Type Used <u>NA</u>
Standard ID <u>0299-G</u>	Matrix of Vial/Planchett <u>NA</u>
Amount Used (g or ml) <u>0.1</u>	<u>NA</u>
Standard Activity (DPM/g or ml) <u>2446.347</u>	Type of Scintillation Vial <u>NA</u>
Reference Date <u>12/15/99</u>	Pipette ID Used <u>1429303</u>
Expiration Date <u>4/2/09</u>	Balance ID Used <u>36040216</u>
Residue/Carrier Agent <u>0.5 M HCl</u>	Quenching Agent <u>NA</u>

	Standard Number	Quenching Vol (uL) Residue Volume (mL)	Initial Wt. (g)	Final Wt. (g)	Net Wt. (mg)
14	Cal 14				
13	Cal 13				
43	Cal 43				
15	Cal 15				
44	Cal 44				
46	Cal 46				
36	Cal 36				
19	Cal 19				
47	Cal 47				
37	Cal 37				
42	Cal 42				

*See table*

Prepared By: <u>Kelli S. Deroso</u>	Date: <u>12/19/08</u>
Reviewed By: <u>M. G. Johnson</u>	Date: <u>12/19/08</u>

Rev 1 RLM 9/10/97

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  
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# Ra-226 WATER

Batch : LCSVER  
 Date : 10/31/2008  
 Analyst : KSD1

Procedure Code : LUC26RAL

Parname : Radium-226

MDA : 1 pCi/L

Instrument Used : LUCAS CELL DETECTOR

Bkg Count Time: 30 min

Sample ID	Sample Vol L	Count Time min	Gross counts cts	Cell # num	Cell Const. num	BKG cpm	Ra-226 MDA pCi/L	Ra-226 RESULT pCi/L	Ra-226 ERROR pCi/L	COUNT DATE/TIME
VER 1	0.500	30	1014	201	1.993	0.267	0.3504	22.1841	1.3817	11/17/2008 15:10
VER 2	0.500	30	1056	202	2.261	0.267	0.3089	20.3702	1.2427	11/17/2008 15:45
VER 3	0.500	30	726	203	2.254	0.267	0.5419	24.4866	1.8110	10/30/2008 16:05
VER 4	0.500	30	737	204	2.193	0.267	0.5519	25.3188	1.8580	10/30/2008 18:20
VER 5	0.500	30	937	205	1.799	0.267	0.3882	22.6936	1.4718	11/17/2008 16:20
VER 6	0.500	30	780	206	2.259	0.267	0.5373	26.1045	1.8604	10/30/2008 20:20
VER 7	0.500	30	711	207	2.146	0.267	0.5705	25.2245	1.8858	10/30/2008 22:00
VER 3	<del>0.500</del>	<del>30</del>	<del>593</del>	<del>208</del>	<del>2.283</del>	<del>0.267</del>	<del>0.5132</del>	<del>16.9552</del>	<del>1.4723</del>	<del>11/20/2008 16:40</del> <sup>12/19/08</sup>
VER 9	0.500	30	630	209	2.291	0.133	0.4042	21.0513	1.6596	10/30/2008 23:40
VER 10	0.500	30	691	210	2.253	0.033	0.2527	23.7356	1.7736	10/31/2008 1:15
VER 11	0.500	30	1067	211	2.171	0.267	0.3314	22.0840	1.3401	11/17/2008 21:55
VER 12	0.500	30	648	212	2.322	0.133	0.4223	22.6294	1.7586	10/31/2008 9:15

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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%

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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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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
NEW 1	500	<del>11/10/08 1535</del> 11/10/08 1535	11/10/08 1020	11/17/08 1510	201	2	8	1014
2	500	11/10/08 1535	11/10/08 1045	11/17/08 1545	202	2	8	1054
3	500	11/10/08 1535	11/11/08 1110	11/17/08 1020	205	2	8	937
4	500	11/10/08 1535	11/11/08 1135	11/17/08 2050	208	2	8	786
5	500	11/10/08 1535	11/11/08 1150	11/17/08 2120	209	2	8	1200
6	500	11/10/08 1535	11/11/08 1200	11/17/08 2155	211	2	8	1067
7	500	11/10/08 1535	11/11/08 1845	11/17/08 1330	701	1	8	982
8	500	11/10/08 1535	11/11/08 0900	11/17/08 1405	708	1	8	1191
9	500	11/10/08 1535	11/11/08 0930	11/17/08 1435	705	1	8	1191
10								
11								
12								
NEW 3	500	11/10/08 1110	11/10/08 1115	11/10/08 1040	208	2	8	533

12/18/08  
VO

12/18/08  
VO

12/19/08  
VO

12/18/08  
VO

12/18/08  
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12/18/08  
VO

12/18/08  
VO

12/18/08  
VO

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>8</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

# Verification for Ra-226 Standard 0638-F

D Roy  
12/27/2007

Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff Mass. Used (mL)	Source DPM/mL
0638-F N1	1239.9000	31.5000	1208.4000	4.624018	261.3311626
0638-F N2	1222.8000	31.5000	1191.3000	4.624018	257.6330801
0638-F N3	1219.4000	31.5000	1187.9000	4.624018	256.8977889
					Average = 258.6206772

Mean Value (Counting) = 258.6206772  
 Stdev = 2.375965421

Certificate Value = 267.1  
 Lower Limit = 253.8687464  
 Upper Limit = 263.3726081  
 Rule 1 Pass/Fail **Fail**  
 Two sigma = 4.751930843  
 10 % of Mean = 25.86206772  
 Rule 2 (Pass/Fail) **Pass**

\*exception taken due to full recovery of standard

96.8384646 **Pass**  
 0.00918707 **Rule 3 (Pass/Fail)**

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0638-F by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and 10 mL Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC YELLOW using source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 12/27/07 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 (0024-A). Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

Reference RAD SOP M-001

12/19/08

*Handwritten signature and date:*  
 1/4/07  
 Amanda L. Feher 1/4/07

## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GE-RIAD-A-008 Isotope RA-226

Date Standards Prepared 12/18/07 Cocktail Type Used NA

Standard ID 0638-F Matrix of Vial/Planchett NA  
NA  
NA

Amount Used (g or ml) 0.1 Type of Scintillation Vial NA

Standard Activity (DPM/g or mL) 147.519 Pipette ID Used 1429303

Reference Date 1/23/04 Balance ID Used 3604046

Expiration Date 12/20/08 Quenching Agent NA

Residue/Carrier Agent 0.1M HCl

	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				

*12/19/08*

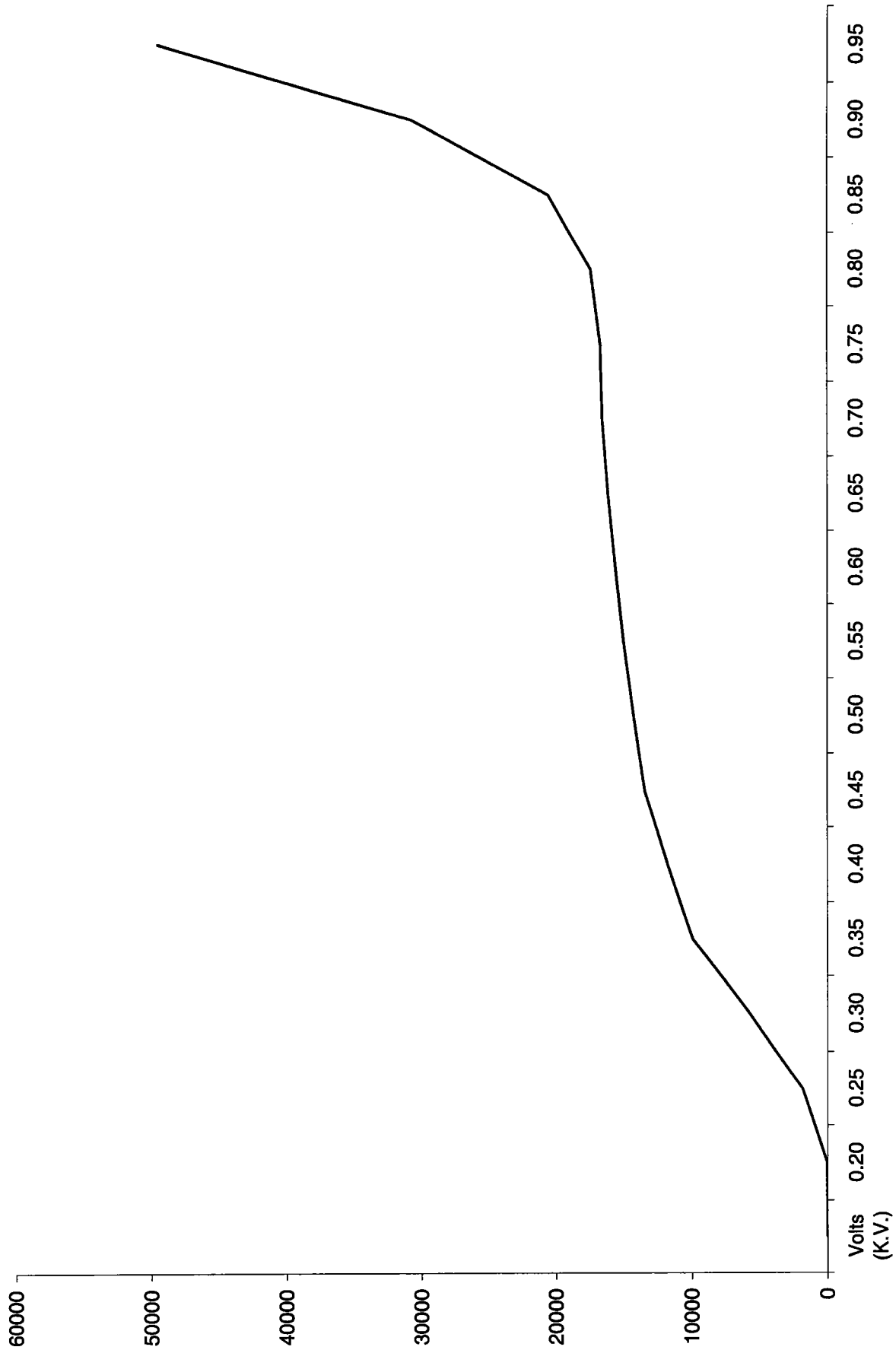
Prepared By: Kelli Dieriel Date: 12/19/08

Reviewed By: Mary Jo Adams Date: 12/19/08

Rev 1 RLM.9/10/97

Voltage Curve Ludlum # 2				
Volts (K.V.)	Counts	Date	Time	Detector
0.20	0	9/19/2008	10:00	2
0.25	0	9/19/2008	10:00	2
0.30	0	9/19/2008	10:00	2
0.35	0	9/19/2008	10:00	2
0.40	0	9/19/2008	10:00	2
0.45	36	9/19/2008	10:00	2
0.50	1860	9/19/2008	10:00	2
0.55	5751	9/19/2008	10:00	2
0.60	9916	9/19/2008	10:00	2
0.65	11761	9/19/2008	10:00	2
0.70	13431	9/19/2008	10:00	2
0.75	14254	9/19/2008	10:00	2
0.80	14984	9/19/2008	10:00	2
0.85	15598	9/19/2008	10:00	2
0.90	16129	9/19/2008	10:00	2
0.95	16562	9/19/2008	10:00	2
1.00	16711	9/19/2008	10:00	2
1.05	17428	9/19/2008	10:00	2
1.10	20558	9/19/2008	10:00	2
1.15	30722	9/19/2008	10:00	2
1.20	49527	9/19/2008	10:00	2
1.25	71509	9/19/2008	10:00	2
1.30	115018	9/19/2008	10:00	2

*W 12/19/08  
L 12/19/08*



mut 12/19/08  
VW 12/19/08



201	1.993	12/19/2008
202	2.261	12/19/2008
203	2.254	12/19/2008
204	2.193	12/19/2008
205	1.799	12/19/2008
206	2.259	12/19/2008
207	2.146	12/19/2008
209	2.291	12/19/2008
210	2.253	12/19/2008
211	2.171	12/19/2008
212	2.322	12/19/2008

*Next  
12/19/08*

# General Engineering Laboratories

2040 Savage Road, Charleston, SC 29414

(843)556-8171

## Lucas Cell Calibration Package

	YES	NO	Comments
1) Is all calibration standard information enclosed for: 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: Kellipanel

Date: 2/3/09

Reviewed By: W. 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	1/19/2009 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	1/28/2009 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	1/28/2009 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	1/28/2009 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	1/19/2009 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	1/19/2009 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	1/19/2009 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	1/28/2009 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	1/19/2009 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	1/28/2009 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	1/28/2009 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	1/19/2009 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	1/28/2009 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	1/19/2009 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	1/28/2009 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 2/3/09

Ra-226 Verification Sheet

#3

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
Cal 13	500	11/26/09 1300	11/20/09 0830	11/20/09 1130	302	3	8	7401
Cal 28	500	11/26/09 1300	11/20/09 0855	11/20/09 1200	304	3	8	7101
Cal 34	500	11/26/09 1300	11/20/09 0910	11/20/09 1255	307	3	8	7442

Cal 28 2/13/09

Cal 28 2/13/09

Cal 28 2/14/09  
Cal 28 2/13/09

Ra-226 Verification Sheet

#3

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
Ca1143	500	11/26/09 1300	11/26/09 0850	11/26/09 1150	301	3	8	6239
Ca1147	500	11/26/09 1300	11/26/09 0920	11/26/09 1330	302	3	7	6335
Ca1149	500	11/26/09 1300	11/26/09 0450	11/26/09 1450	304	3	2	6472
Ca1130	500	11/26/09 1300	11/26/09 1020	11/26/09 1430	306	3	7	4809
<del>Ca1142</del>	500	11/26/09 1300	11/26/09 1045	11/26/09 1515	307	3	3	<del>6668</del>
Ca1144	500	11/26/09 1300	11/26/09 1105	11/26/09 1550	308	3	4	6149
Ca1115	500	11/26/09 1300	11/26/09 1120	1/29/09 1640	311	3	8	6176
Ca1144	500	11/26/09 1300	11/26/09 1135	1/29/09 1710	312	3	5	5814
Ca1113	500	11/26/09 1300						
Ca1128	500	11/26/09 1300						
Ca1136	500	11/26/09 1300						
Ca1137	500	11/26/09 1300						

100  
2/3/09  
140 2/5/09

KAD  
2/3/09  
MVA  
2/11/09

MVA  
2/3/09

Ra-226 Verification Sheet

Sample ID	Volume (mL)	End Degas Date/Time	End De-emb Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
Cal 43	500	11/9/09 1545	11/9/09 1010	11/20/09 1105	301	3	8	9355
<del>Cal 44</del>	<del>500</del>	<del>11/9/09 1545</del>	<del>11/9/09 1040</del>	<del>11/20/09 1150</del>	<del>302</del>	<del>3</del>	<del>8</del>	<del>8433</del>
Cal 49	500	11/9/09 1545	11/9/09 1100	11/20/09 1340	303	3	8	9095
<del>Cal 50</del>	<del>500</del>	<del>11/9/09 1545</del>	<del>11/9/09 1140</del>	<del>11/20/09 1440</del>	<del>304</del>	<del>3</del>	<del>8</del>	<del>10650</del>
Cal 42	500	11/9/09 1545	11/9/09 1135	11/20/09 1450	305	3	5	9957
Cal 44	500	11/9/09 1545	11/9/09 1150	11/20/09 1520 <del>1440</del>	306	3	7	8521
Cal 15	500	11/9/09 1545	11/9/09 1205	11/20/09 1550	307	3	8	8944
<del>Cal 14</del>	<del>500</del>	<del>11/9/09 1545</del>	<del>11/9/09 1315</del>	<del>11/20/09 1645</del>	<del>308</del>	<del>3</del>	<del>3</del>	<del>6938</del>
Cal 13	500	11/9/09 1545	11/9/09 1325	11/20/09 1720	309	3	1	9149
<del>Cal 28</del>	<del>500</del>	<del>11/9/09 1545</del>	<del>11/9/09 1355</del>	<del>11/20/09 1840</del>	<del>311</del>	<del>3</del>	<del>8</del>	<del>8648</del>
Cal 36	500	11/9/09 1545	11/9/09 1410	11/20/09 1916	312	3	1	9135
<del>Cal 37</del>	<del>500</del>	<del>11/9/09 1545</del>						

K-20  
213109

K-20  
213109

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Ra-226 Verification Sheet

Cal for #3

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
<del>Cal 43</del>	<del>500</del>	<del>11/11/09 1500</del>	<del>11/21/09 0410</del>	<del>11/21/09 1525</del>	<del>301</del>	<del>3</del>	<del>8</del>	<del>6110</del>
<del>Cal 44</del>	<del>500</del>	<del>11/11/09 1500</del>	<del>11/21/09 0435</del>	<del>11/21/09 1605</del>	<del>302</del>	<del>3</del>	<del>8</del>	<del>6498</del>
Cal 119	500	11/11/09 1500	11/21/09 1005	11/21/09 2035	303	3	8	5938
Cal 130	500	11/11/09 1500	11/21/09 1035	11/21/09 2120	304	3	8	5240
Cal 142	500	11/11/09 1500	11/21/09 1105	11/21/09 2150	305	3	8	5921
<del>Cal 144</del>	<del>500</del>	<del>11/11/09 1500</del>	<del>11/21/09 1135</del>	<del>11/21/09 1840</del>	<del>306</del>	<del>3</del>	<del>8</del>	<del>5393</del>
<del>Cal 15</del>	<del>500</del>	<del>11/11/09 1500</del>	<del>11/21/09 1320</del>	<del>11/21/09 0960</del>	<del>307</del>	<del>3</del>	<del>8</del>	<del>5870</del>
Cal 114	500	11/11/09 1500	11/21/09 1345	11/21/09 0935	308	3	8	4824
Cal 13	500	11/11/09 1500	11/21/09 1405	11/21/09 1000	309	3	8	5100
Cal 18	500	11/11/09 1500	11/21/09 1425	11/21/09 1220	311	3	8	5698
<del>Cal 36</del>	<del>500</del>	<del>11/11/09 1500</del>	<del>11/21/09 1440</del>	<del>11/21/09 1345</del>	<del>312</del>	<del>3</del>	<del>8</del>	<del>5881</del>
<del>Cal 27</del>	<del>500</del>	<del>11/11/09 1500</del>	<del>11/21/09</del>	<del>11/21/09</del>	<del></del>	<del></del>	<del></del>	<del></del>

340

Cal 130  
21/3/09

Cal 213109  
Cal 213109

Cal 213109

Cal 213109

Cal 213109

Cal 213109

Cal 213109  
Cal 214159

Ra-226 Verification Sheet

Call for #3

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
Ca143	500	1122109 0910	1126109 0955	1126109 1455	301	3	8	7282
Ca147	500	1122109 0910	1126109 0955	1126109 1530	302	3	8	1555
Ca119	500	1122109 0910	1126109 1025	1126109 1600 1710	303	3	8	8028
<del>Ca130</del>	<del>500</del>	<del>1122109 0910</del>	<del>1126109 1050</del>	<del>1.26.09 1645</del>	<del>304</del>	<del>3</del>		<del>5162</del>
Ca142	500	1122109 0910	1126109 1100	1.26.09 2300	305	3	8	7280
Ca141	500	1122109 0910	1126109 1150	1.26.09 2330	306	3	8	6387
Ca115	500	1122109 0910	1126109 1210	1.27.09 0005	307	3	8	6598
Ca114	500	1122109 0910	1126109 1315	1127109 0859	308	3	8	6226
Ca113	500	1122109 0910	1126109 1330	1127109 0905	309	3	8	6046
Ca128	500	1122109 0910	1126109 1345	1127109 1015	311	3	8	6607
Ca136	500	1122109 1510	1126109 1400	1127109 1110	312	3	8	6446
<del>Ca137</del>								

LD 213109

LD 213109

LD 213109  
LD 214159



# Verification for Ra-226 Standard 0299-G

4/2/2008	Isotope	Detector CPM	BKG CPM	NET CPM	Detector Eff	Standard Mass. Used (G)	Source DPM/G
D. Roy	0299-G N1	2536.9600	52.4000	2484.5600	1.917186	0.5057	2562.667649
	0299-G N2	2520.2500	52.4000	2467.8500	1.917186	0.5056	2545.935781
	0299-G N3	2532.5000	52.4000	2480.1000	1.917186	0.5042	2565.677715
						Average =	2558.093715

Mean Value (Counting) = 2558.093715  
 Stdev = 10.63610098

104.944421 Pass  
 0.00415782 Rule 3 (Pass/Fail)

Certificate Value = 2437.6 dpm/mL  
 Lower Limit = 2536.821513 dpm/mL  
 Upper Limit = 2579.365917 dpm/mL  
 Rule 1 Pass/Fail Fail \*exception taken due to full recovery of standard  
 Two sigma = 21.27220197 dpm/mL  
 10 % of Mean = 255.8093715 dpm/mL  
 Rule 2 (Pass/Fail) Pass

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for Ra-226 source 0299-G by transferring portions of the standard into tared glass liquid scintillation vials. One mL of DI Water and ten mLs of Ready Gel liquid scintillation cocktail was added to each vial and the vials were shaken to mix. A Blank vial was prepared in a similar fashion using 1 mL of DI water and 10 mL of Ready Gel cocktail. The standard verification vials and Background source were dark adapted for two hours and counted on LSC Gold for Radium source standard verification. The Ra-226 efficiency calibration which was used for verification calculations was performed on 4/02/08 using source 0024-A (Ra-226). Calibration data is recorded in this logbook under Ra-226 0024. Each verification source calculation was performed as follows:

$$\text{Source dpm/g} = (A - B)/(C)(D)$$

where:

- A = Ver. source cpm,
- B = BKG cpm,
- C = System efficiency, (cpm/dpm), and
- D = mass used for standard verification.

IRAD-SOP-M-001

*Handwritten notes:*  
 5/10/08  
 M. N. 2310  
 1.5 ml water for 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

## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number <u>GL RAD-A 008</u>	Isotope <u>RA 226</u>
Date Standards Prepared <u>4/5/09</u>	Cocktail Type Used <u>NA</u>
Standard ID <u>02896</u>	Matrix of Vial/Planchett <u>NA</u> <u>NA</u> <u>NA</u>
Amount Used (g or ml) <u>0.1</u>	Type of Scintillation Vial <u>NA</u>
Standard Activity (DPM/g or mL) <u>2446.347</u>	Pipette ID Used <u>1429303</u>
Reference Date <u>12/15/99</u>	Balance ID Used <u>30040216</u>
Expiration Date <u>4/2/09</u>	Quenching Agent <u>NA</u>
Residue/Carrier Agent <u>0.5 M HCl</u>	

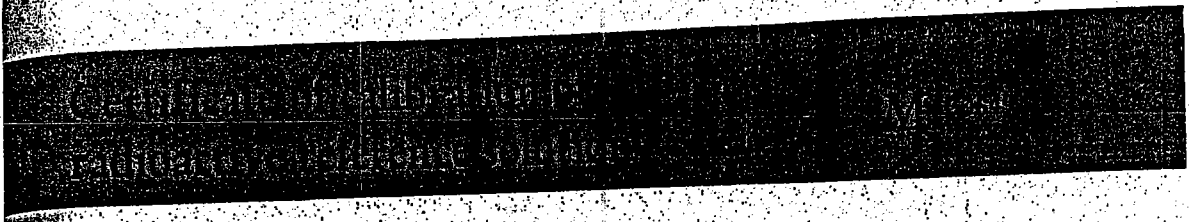
	Standard Number	Quenching Vol (uL) Residue Volume (mL)	Initial Wt. (g)	Final Wt. (g)	Net Wt. (mg)
43	Cal 43				
47	Cal 47				
19	Cal 19				
30	Cal 30				
42	Cal 42				
44	Cal 44				
15	Cal 15				
14	Cal 14				
13	Cal 13				
28	Cal 28				
36	Cal 36				

160  
2/3/09

Prepared By: Kelli Brown Date: 2/3/09

Reviewed By: Henry J. Jones Date: 2/4/09

0299



UKAS ACCREDITED CALIBRATION LABORATORY No. 0146

Reference time for solution number R4/131/89:	1200 GMT on 15 December 1999
Radioactive concentration of radium-226:	43.75 kilobecquerels per gram of solution
which is equivalent to:	1.183 microcuries per gram of solution
Mass of solution:	5.0368 grams
Total activity of radium-226:	220.4 kilobecquerels
which is equivalent to:	5.956 microcuries
Recommended half life:	1600 years

Method of measurement:  
The activity of the solution was measured using a high pressure re-entrant ionisation chamber calibrated with a large number of absolutely standardised solutions.

Calibration date: 15 December 1999

The calibration date is provided for added information only, and must not be confused with the reference date on pages 1 and 2 of the certificate. It is the reference date that must be used in all calculations relating to the values of activity.

Expanded uncertainty in the radioactive concentration quoted above:  $\pm 2.5\%$

Combined Type A uncertainty:  $\pm 0.2\%$

Combined Type B uncertainty:  $\pm 1.3\%$

Radiochemical 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

Ra-226 Verification Sheet

#3

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
VER 1	500	11/20/09 1605	11/20/09 1040	11/20/09 1505	301	3	8	656
VER 2	500	11/20/09 1605	11/20/09 1105	11/20/09 1540	303	3	8	914
VER 3	500	11/20/09 1605	11/20/09 1130	11/30/09 1705	305	3	8	791
VER 4	500	11/20/09 1605	11/20/09 1145	<del>11/20/09 1737</del> 1.31.09 1020	306	3	8	768
VER 5	500	11/20/09 1605	11/20/09 1200	<del>11/30/09 1905</del> 1.31.09 1020	308	3	8	730
VER 6	500	11/20/09 1605	11/20/09 1305	1.31.09 1020	309	3	8	764
VER 7	500	11/20/09 1605	11/20/09 1320	13/09 1720	311	3	8	594
VER 8	500	11/20/09 1605	11/20/09 1340	11/09 0805	312	3	8	542
<del>VER 9</del>	500	11/20/09 1605						
VER 10	500	11/20/09 1605						
VER 11	500	11/20/09 1605						
VER 12	500	11/20/09 1605						

VER 10  
11/20/09

11/20/09





## 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*

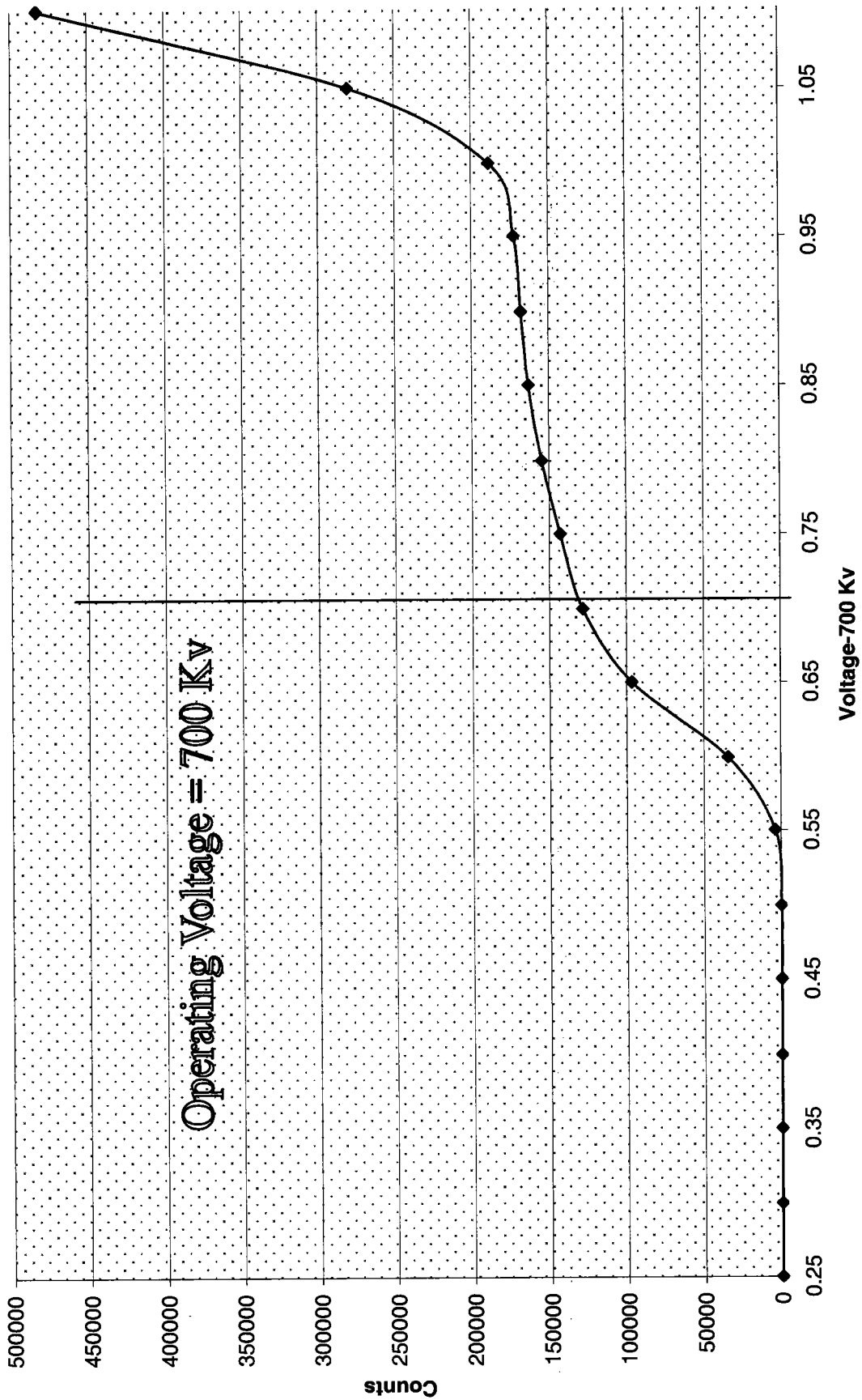
Prepared By: Kelli B. Nevel Date 2/13/09  
 Reviewed By: [Signature] Date 2/14/09

## 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



2/11/09  
MCA

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 Dorrel

Date: 2/28/09

Reviewed By: Angela Johnson

Date: 3/2/09

Effective Date: 3/2/09

# Ra-226 Cell Constants

Standard Reference date : 12/15/1999  
 standard ID : 0.299-G  
 Volume added (mL) : 0.1  
 Standard Reference Activity (DPM/mL) : 2446.35

Lucas cell #	Call constant	Standard Source	Date/Time of count	Date/Time flushed to cell	Date/Time end of degas	bkg cpm	total counts	count time min	cpm	Known activity dpm	11 (days) end-degas to flush	12 (days) end-flush to count	13 (days) Std Ref Date to count	Decay from Std Ref Date to count
401	1.689	Average	2/23/2009 16:15	2/23/2009 10:30	2/20/2009 17:25	0.267	4580	30	152.67	243.66	2.71181	0.23958	3359	0.9960
401	1.585	Stdev	2/27/2009 13:15	2/27/2009 9:00	2/23/2009 16:05	0.267	5474	30	182.47	243.66	3.70486	0.17708	3363	0.9960
401	1.448		2/25/2009 14:40	2/25/2009 7:55	2/20/2009 17:25	0.267	5677	30	189.23	243.66	4.60417	0.28125	3361	0.9960
402	2.133	Average	2/23/2009 16:55	2/23/2009 11:05	2/20/2009 17:25	0.267	5817	30	193.90	243.66	2.73611	0.24306	3359	0.9960
402	2.173	Stdev	2/27/2009 14:10	2/27/2009 9:30	2/23/2009 16:05	0.267	7507	30	250.23	243.66	3.72569	0.19444	3363	0.9960
402	2.048		2/25/2009 15:25	2/25/2009 8:15	2/20/2009 17:25	0.267	8017	30	267.23	243.66	4.61806	0.29861	3361	0.9960
403	1.475	Average	2/23/2009 18:30	2/23/2009 11:30	2/20/2009 17:25	0.267	4011	30	133.70	243.66	2.75347	0.29167	3359	0.9960
403	1.495	Stdev	2/27/2009 14:50	2/27/2009 10:00	2/23/2009 16:05	0.267	5182	30	172.73	243.66	3.74853	0.20139	3363	0.9960
403	1.419		2/25/2009 15:55	2/25/2009 8:35	2/20/2009 17:25	0.267	5582	30	185.40	243.66	4.63194	0.30556	3361	0.9960
404	1.792	Average	2/23/2009 19:05	2/23/2009 13:10	2/20/2009 17:25	0.267	5005	30	166.83	243.66	2.82292	0.24653	3359	0.9960
404	2.142	Stdev	2/27/2009 15:25	2/27/2009 10:30	2/23/2009 16:05	0.267	7443	30	248.10	243.66	3.76736	0.20486	3363	0.9960
404	1.859		2/25/2009 20:20	2/25/2009 8:55	2/20/2009 17:25	0.267	7075	30	235.83	243.66	4.64583	0.47569	3361	0.9960
405	2.066	Average	3/2/2009 13:40	3/2/2009 10:30	2/25/2009 14:00	0.267	8602	30	286.73	243.66	4.85417	0.13194	3366	0.9960
405	1.899	Stdev	2/27/2009 16:00	2/27/2009 10:55	2/23/2009 16:05	0.267	6612	30	220.40	243.66	3.78472	0.21181	3363	0.9960
405	1.745		2/25/2009 20:55	2/25/2009 10:10	2/20/2009 17:25	0.267	6721	30	224.03	243.66	4.69792	0.44792	3361	0.9960
409	1.805	Average	2/24/2009 0:30	2/23/2009 15:20	2/20/2009 17:25	0.267	5039	30	167.97	243.66	2.91319	0.38194	3359	0.9960
409	2.153	Stdev	2/3/2009 21:10	2/3/2009 15:00	1/30/2009 10:50	0.267	7949	30	264.97	243.67	4.17361	0.25694	3339	0.9960
409	2.149		2/27/2009 16:35	2/27/2009 11:30	2/23/2009 16:05	0.267	7516	30	250.53	243.66	3.80903	0.21181	3363	0.9960
410	1.869	Average	2/26/2009 8:50	2/25/2009 13:05	2/20/2009 17:25	0.267	6838	30	227.93	243.66	4.31944	0.82292	3361	0.9960
410	1.965	Stdev	2/4/2009 8:30	2/3/2009 15:30	1/30/2009 10:50	0.267	6708	30	223.60	243.67	4.19444	0.70853	3339	0.9960
410	1.824		2/24/2009 8:00	2/23/2009 15:40	2/20/2009 17:25	0.267	4840	30	161.33	243.66	2.92708	0.68056	3359	0.9960
411	1.824	Average	2/24/2009 8:40	2/23/2009 15:55	2/20/2009 17:25	0.267	4839	30	161.30	243.66	2.93750	0.69792	3359	0.9960
411	1.911	Stdev	2/27/2009 17:45	2/27/2009 12:20	2/23/2009 16:05	0.267	6357	30	211.90	243.66	3.84375	0.22569	3363	0.9960
411	1.836		2/26/2009 9:30	2/25/2009 13:40	2/20/2009 17:25	0.267	6734	30	224.47	243.66	4.84375	0.82639	3361	0.9960
412	1.947	Average	2/26/2009 10:15	2/25/2009 14:05	2/20/2009 17:25	0.267	7137	30	237.90	243.66	4.86111	0.84028	3361	0.9960
412	2.131	Stdev	2/27/2009 18:20	2/27/2009 12:45	2/23/2009 16:05	0.267	7495	30	249.83	243.66	3.86111	0.23264	3363	0.9960
412	1.822		2/24/2009 9:40	2/23/2009 16:10	2/20/2009 17:25	0.267	4818	30	160.60	243.66	2.94792	0.72917	3359	0.9960

EffErr 0.123705 <- Put in Machines.xls (Lucas Cell Tab)

*Angela J. ... 3/2/09*  
*Miki Dowell 3/2/09*

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401	1.574	3/2/2009
402	2.118	3/2/2009
403	1.463	3/2/2009
404	1.931	3/2/2009
405	1.903	3/2/2009
409	2.036	3/2/2009
410	1.886	3/2/2009
411	1.824	3/2/2009
412	1.967	3/2/2009



## General Engineering Laboratories Verification Source Preparation Sheet

Applicable SOP Number GLRAD-A-008 Isotope Pu-239  
 Date Standards Prepared 4/15/09 Cocktail Type Used NA  
 Standard ID 02996 Matrix of Vial/Planchett NA  
 Amount Used (g or ml) 0.1 Type of Scintillation Vial NA  
 Standard Activity (DPM/g or mL) 2446.347 Pipette ID Used 1429303  
 Reference Date 4/15/09 Balance ID Used 3604026  
 Expiration Date 4/15/09 Quenching Agent NA  
 Residue/Carrier Agent 0.5M HCl


	Standard Number	Quenching Vol (uL) 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

Rev 1 RLM 9/10/97





# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	0299	Isotope:	Radium-226
Prepared By:	Angela Johnson	Prepared By:	Angela Johnson
Carrier Conc:	0.5 M HCL	Prep Date:	09/15/2000
Reference Date:	12/15/1999	Verification Date:	01/23/2008
Ampoule Mass (g):	5.0368 g	Expiration Date:	01/23/2009
Uncertainty:	+/- 2.5 %	Primary Code:	0299-A
LogBook No:	RC S 027 128	Dilution(mL):	100 mL
		Mass of Parent(g):	4.6634 g
		Density(g/mL):	1.0012
		Balance ID:	

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

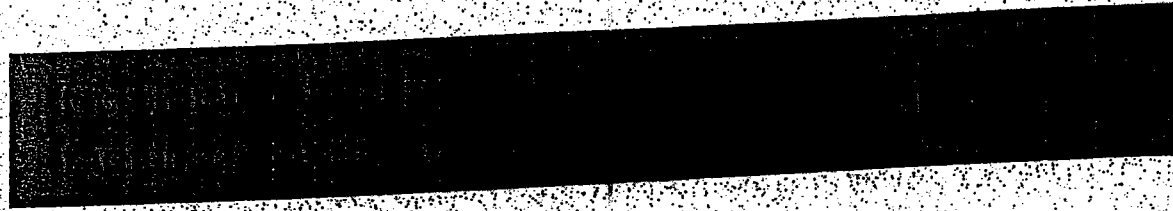
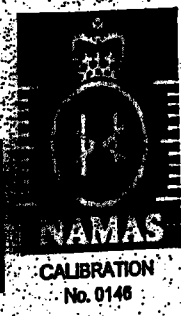
$(\text{Mass of parent(g)}) * (\text{Parent Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parent Activity (kBq/g)}) * (\text{conversion dpm to kBq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (100 \text{ mL}) = 122414.2500 \text{ dpm/mL}$
$(4.6634 \text{ g}) * (43.75 \text{ kBq/g}) * (60000 \text{ dpm/kBq}) / (1.0012 \text{ g/mL}) / (100 \text{ mL}) = 122273.3377 \text{ dpm/g}$

### 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 17<sup>th</sup> December 1999

Nycomed  
Amersham  
Via 31/10/99

# 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*







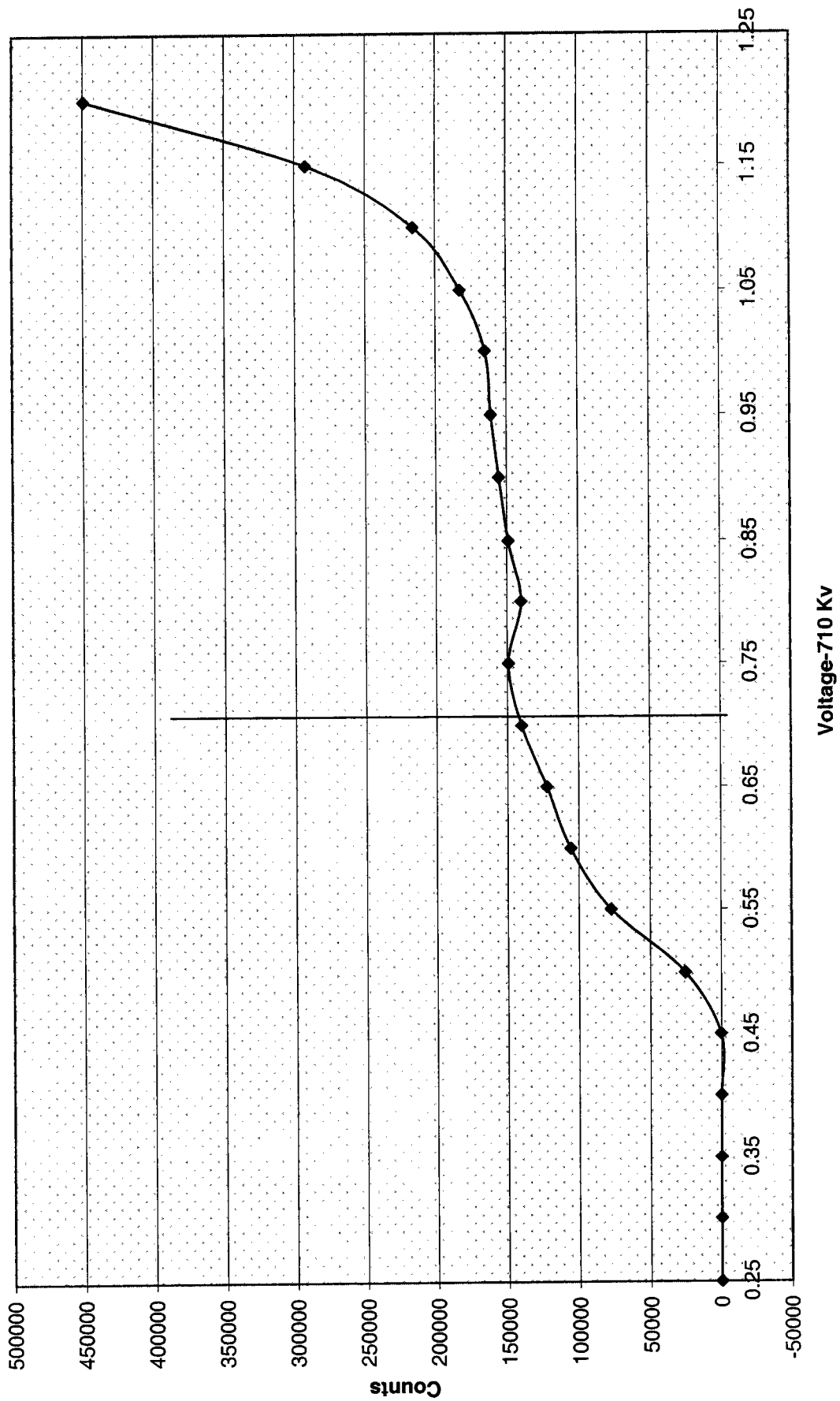








Ludlum 4 Voltage Curve



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?	✓		
	✓		
	✓		
	✓		
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 Brancee

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).

ERR 0.143768 <- Put in Machines.xls (Lucas Cell Tab)

Calibration  
Ra-226 Verification-Sheet  
3/14/09

Cal # 5

no 3124109  
3119109

3/19/09

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Background CPM	Total Counts
Cal 15	500	2/25/09 1400	3/3/09 0815	3/6/09 0750	501	5	8	5781
<del>Cal 14</del>	<del>500</del>	<del>2/25/09 1400</del>	<del>2/25/09 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>7942</del>

100 3124109

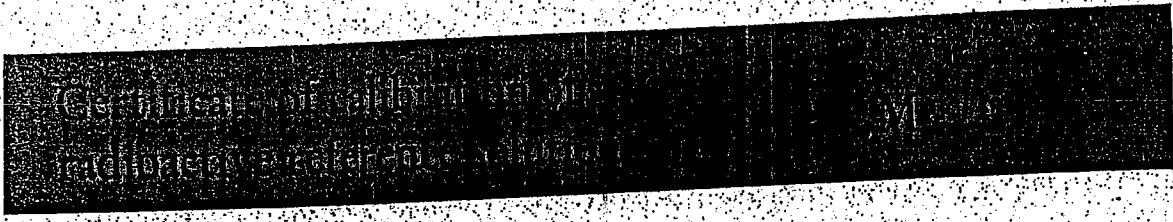
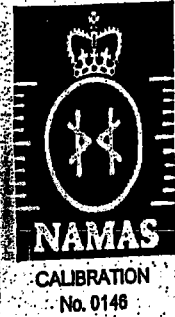
3/12/09  
CM

3/25/09  
3125109

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 377 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 Sporell*

# 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  
 David Roy 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				

Prepared By: Kelli D'Amico Date 3/24/09  
 Reviewed By: \_\_\_\_\_ Date \_\_\_\_\_

Rev 1 RLM 9/10/97



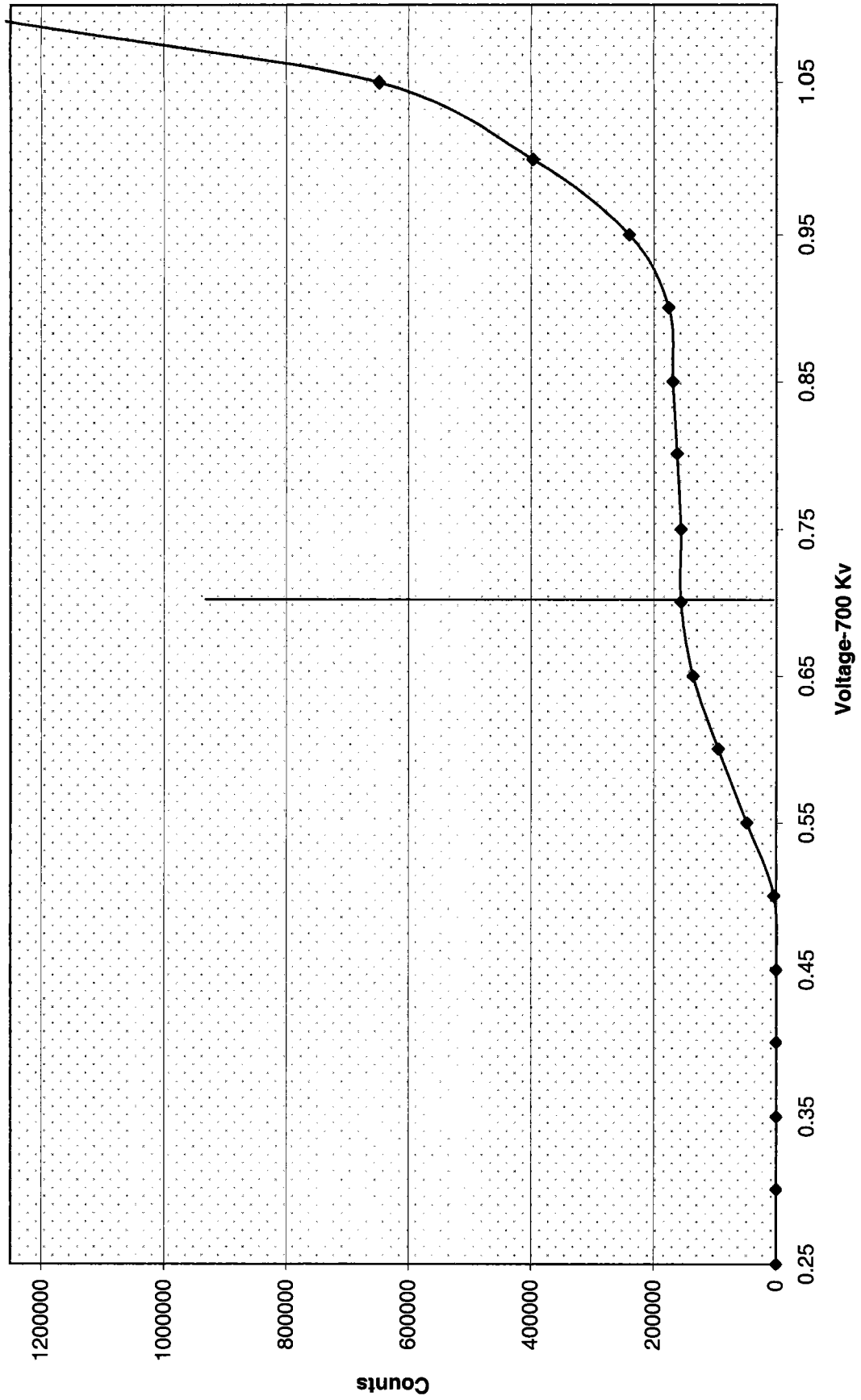


Voltage

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 0515</del> <del>3/17/09 0545</del>	<del>509</del>	<del>5</del>	<del>8</del>	<del>640</del>
NUN 10	500	3/13/09 1530	3/16/09 1415	3/17/09 0500	510	5	8 <del>140 3124109</del>	432
NUN 11	500	3/13/09 1530	3/16/09 1445	3/17/09 0535	511	5	8	577
NUN 12	500	3/13/09 1530	3/16/09 1500	3/17/09 0610	512	5	8	723

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3/17/09  
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# 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 2/2/2009	<b>Isotope</b>	<b>Value</b>	<b>Uncertainty</b>
	0638-F #1	24.629	1.7426
	0638-F #2	24.438	1.7557
	0638-F #3	22.791	1.6808
<b>Mean Value (Counting) =</b>	23.953	99.60	<b>Pass</b>
<b>Stdev =</b>	1.010781096		<b>Rule 3 (Pass/Fail)</b>
<b>Target =</b>	24.05		
<b>Lower Limit =</b>	21.93100448		
<b>Upper Limit =</b>	25.97412886		
<b>Rule 1 Pass/Fail</b>	<b>Pass</b>		
<b>Two sigma =</b>	2.021562191		
<b>10 % of Mean =</b>	2.395256667		
<b>Rule 2 (Pass/Fail)</b>	<b>Pass</b>		

**Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements**

**Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.**

**Rule 3 = The determined mean value shall be within 5% of the certificate value.**

The analyst prepared three standard verification sources for standard 0638-F using 0.1 mL for each source. Each source was counted using routine Lucas cell procedures. Calibration for 0299-G was used in this verification.

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# 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 8/14/09

Date: 8/14/09

Reviewed By: Angela D. Ghera

Date: 8/16/09

Effective Date: 8/14/09

KD 8/16/09

# Ra-226 Cell Constants

Standard Reference date: 12/15/1999  
 Standard ID: 0299-G  
 Volume added (mL): 0.1  
 Standard Reference Activity (DPM/mL): 2446.3471

Lucas cell #	Cell constant	Standard Source	Date/Time of count	Date/time flushed to cell	Date/time end of degas	total counts	count time min	Known activity dpm	t1 (days) end-degas to flush	t2 (days) end-flush to count	t3 (days) Std Ref Date to count	Decay from Std Ref Date to count
601	2.164	Average	5/26/2009 13:30	5/26/2009 9:30	5/19/2009 14:00	10883	30	362.77	6.81250	0.16667	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	2.80208	0.15278	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	6.96181	0.20486	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	6.97917	0.21181	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	6.82986	0.17361	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	4.06944	0.13542	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	4.08333	0.16667	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	6.94792	0.21528	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	6.84722	0.22569	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	6.86806	0.22569	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	2.86458	0.23611	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	6.92708	0.25694	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	3.15278	0.19097	3454	0.9959
606	2.202	Stdev	5/26/2009 16:45	5/26/2009 12:25	5/22/2009 12:00	8057	30	268.57	4.01736	0.18056	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	4.12847	0.22569	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	4.13889	0.24306	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	3.14583	0.23264	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	4.03472	0.18403	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	4.04861	0.25694	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	2.91667	0.30556	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	3.14236	0.24653	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	3.13194	0.26389	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	4.05903	0.35764	3451	0.9959
611	2.187		6/2/2009 19:50	6/2/2009 13:25	5/29/2009 9:50	8052	30	268.40	4.14931	0.26736	3458	0.9959

EffErr 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 by 8/16/09  
 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: ~~0299-6~~ 0299-6  
 Volume Added (mL): 0.1 19 816109  
 Expiration Date: ~~1126110~~ 1126110  
 19 814109

Sample ID	Volume (mL)	End Degas Date/Time	End De-em Date/Time	Start Count Date/Time	Cell #	Det #	Total Counts
Cal 1	500	5/19/09 1400	5/22/09 0915	5/20/09 1255	601	6	6318
<del>Cal 2</del>	<del>500</del>	<del>5/19/09 1400</del>	<del>5/22/09 0945</del>	<del>5/22/09 1325</del>	<del>602</del>	<del>6</del>	<del>6358</del>
<del>Cal 3</del>	<del>500</del>	<del>5/19/09 1400</del>	<del>5/22/09 1010</del>	<del>5/22/09 1420</del>	<del>604</del>	<del>6</del>	<del>4600</del>
Cal 4	500	5/19/09 1400	5/22/09 1045	5/22/09 1625	605	6	6318
<del>Cal 5</del>	<del>500</del>	<del>5/19/09 1400</del>	<del>5/22/09 1115</del>	<del>5/22/09 1700</del>	<del>606</del>	<del>6</del>	<del>6494</del>
<del>Cal 6</del>	<del>500</del>	<del>5/19/09 1400</del>	<del>5/22/09 1140</del>	<del>5/22/09 1735</del>	<del>607</del>	<del>6</del>	<del>6428</del>
Cal 7	500	5/19/09 1400	5/22/09 1200	5/22/09 1920	609	6	6473
<del>Cal 8</del>	<del>500</del>	<del>5/19/09 1400</del>	<del>5/22/09 1250</del>	<del>5/22/09 2035</del>	<del>611</del>	<del>6</del>	<del>6455</del>
Cal 9							
Cal 10							
Cal 11							
Cal 12							

100 814109  
 100 814109  
 100 814109  
 100 814109  
 100 814109  
 6162-100 814109

19 814109

19 814109  
 100 816109







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 0299-A*  
*August 9th 8/4/09*

# Ra-226 Cell Constants

Standard Reference date: 12/15/1999  
standard ID: 0299-G  
Volume added (mL): 0.1  
Standard Reference Activity (DPM/mL): 2446.35

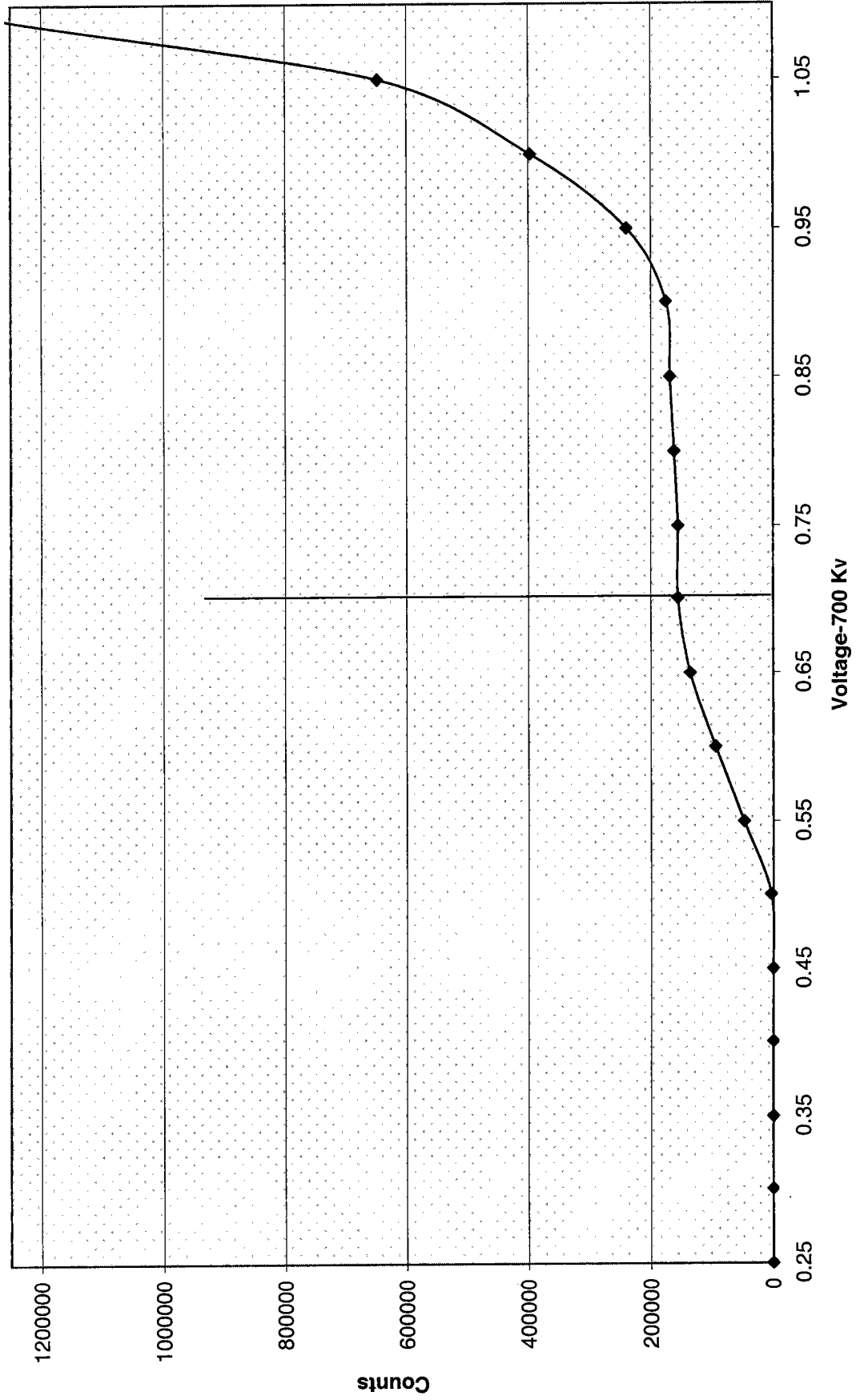
Lucas cell #	Cell constant	Standard Source	Date/Time of count	Date/Time flushed to cell	Date/Time end of degas	bkg cpm	total counts	count time min	cpm	Known activity dpm	t1 (days) end-degas to flush	t2 (days) end-flush to count	t3 (days) Std Ref Date to count	Decay from Std Ref Date to count
301	2.021	43	39839.60764	39839.39236	39835.38194	0.267	7282	30	242.73	243.6698	4.01041667	0.2152778	3330.607639	0.996055555
302	2.131	47	39839.64583	39839.41319	39835.38194	0.267	7555	30	251.83	243.6698	4.03125	0.2326389	3330.645833	0.996055551
303	2.136	19	39839.72222	39839.43403	39835.38194	0.267	8028	30	267.60	243.6697	4.05208333	0.2881944	3330.722222	0.996055419

VOLTAGE CURVE 3\_08

Voltage Curve Ludlum # 6				
Volts	Counts	Date	Time	Detector
0.00	0	5/20/2009	9:00	6
0.05	0	5/20/2009	9:01	6
0.10	0	5/20/2009	9:02	6
0.15	0	5/20/2009	9:03	6
0.20	0	5/20/2009	9:04	6
0.25	0	5/20/2009	9:05	6
0.30	0	5/20/2009	9:06	6
0.35	0	5/20/2009	9:07	6
0.40	0	5/20/2009	9:08	6
0.45	512	5/20/2009	9:09	6
0.50	3625	5/20/2009	9:10	6
0.55	47990	5/20/2009	9:11	6
0.60	94752	5/20/2009	9:12	6
0.65	135854	5/20/2009	9:13	6
0.70	155952	5/20/2009	9:14	6
0.75	155700	5/20/2009	9:15	6
0.80	161972	5/20/2009	9:16	6
0.85	168860	5/20/2009	9:17	6
0.90	175598	5/20/2009	9:18	6
0.95	239969	5/20/2009	9:19	6
1.00	397270	5/20/2009	9:20	6

*M 8/4/09*

Ludlum 6 Voltage Curve



WGS/105

# 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: 28/6/09 and 10/8/09



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-P

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	701
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 17:05	1/30/09 17:05	304	3	9	708
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	708

Comments: \_\_\_\_\_

Data Reviewed By: \_\_\_\_\_

Instrument ID #: \_\_\_\_\_  
 LUGAS: 5028, LUGAS: 13617, LUGAS: 90899, LUGAS: 162753, LUGAS: 132286, LFC6: 178055

*W. S. Lewis*



# Radium-226 Liquid

Filename : RA226.XLS  
 File type : Excel  
 Version # : 1.2.3

Spike S/N : N/A  
 Spike Exp Date : N/A  
 Spike Activity (dpm/ml): N/A  
 Spike Volume Added: N/A

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

Batch : 838839  
 Analyst : KSD1  
 Prep Date : 1/26/2009  
 Ra-226 Abundance : 1  
 Ra-226 Method Uncertainty : 0.0918

Procedure Code : LUC26RAL  
 Parmname : 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

LCS S/N : 0638-F  
 LCS Exp Date : 12/20/2008  
 LCS Activity (dpm/ml): 266.94  
 LCS Volume Added: 0.10

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  
04/21/09

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

Results Decision Level pCi/L	Critical Level pCi/L	MDA pCi/L	Sample Act.		Net Count Rate CPM	Net Count Rate Error CPM	2 SIGMA Counting Uncertainty pCi/L		2 SIGMA Total Prop. Uncertainty pCi/L		Sample QC	Sample Type	RPD	RER	Nominal pCi/L	Recovery
			Conc. pCi/L	Error pCi/L			2 SIGMA Counting Uncertainty pCi/L	2 SIGMA 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)

# ALPHA SPECTROSCOPY

## Alpha Spectroscopy Calibration Sources

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

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

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

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

Forty one weighted aliquots were then directly precipitated using Neodymium Flouride /HF system. The sources were then mounted on 0.1Poly-propylene filters and taped securely to 1 inch stainless steel planchettes for counting in an Alpha Spectroscopy system. The liquid fraction that passes through the filter is collected, traced with Am-241 and prepared for counting using the identical procedure. These samples are counted to ensure there is no more than 1% loss in the filtering processes. All sources pass this requirement. The DPM information for each source is listed in attachment II.

Certificate files were then created on the Alpha system used for acquisition and processing of data. Each source is assigned a name (AESS-001 through AESS-041). The information for the source activities is entered into the certificate files appropriate for the detector being used.

For example: If source AESS-001 is used for calibrating detector 25, the source data is entered into the certificate file name [env\_alpha.cer]U025.cer.

The computer software uses these certificate files to calculate an energy calibration and determine the efficiency of the detector after counting the source.

*Ante Hill*  
4/1/03

2002 Alpha Eff Source Stock Verification

Curium-244

Isotope	Value pCi/g
SSTOCK2002A2_AM	106.000
SSTOCK2002B2_AM	106.000
SSTOCK2002C2_AM	106.000

Mean Value (Counting) = 106.000 98.04%  
 Stdev = 0 pCi/g

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

*PASS*  
 ① Fair 3/2/03

Neptunium-237

Isotope	Value pCi/g
SSTOCK2002A2_AM	90.100
SSTOCK2002B2_AM	87.200
SSTOCK2002C2_AM	93.500

Mean Value (Counting) = 90.267 98.02%  
 Stdev = 3.153305144 pCi/g

Target = 92.0900  
 Lower Limit = 83.96005638  
 Upper Limit = 96.57327696  
 Rule 1 Pass/Fail Pass  
 Two sigma = 6.306610289  
 10 % of Mean = 9.026666667  
 Rule 2 (Pass/Fail) Pass

Gadolinium-148

Isotope	Value pCi/g
SSTOCK2002A2_AM	95.080
SSTOCK2002B2_AM	93.750
SSTOCK2002C2_AM	96.560

Mean Value (Counting) = 95.463 99.81%  
 Stdev = 1.503074627 pCi/g

Target = 95.6460  
 Lower Limit = 92.45718408  
 Upper Limit = 98.46948259  
 Rule 1 Pass/Fail Pass  
 Two sigma = 3.006148253  
 10 % of Mean = 9.546333333  
 Rule 2 (Pass/Fail) Pass

The analyst prepared three standard verification sources for the mixed alpha stock standard using 0.1030 g for source #1, 0.1035 g for source #2 and 0.1028 g for source #3. Each standard was combined with 1.0 mL of Am-243 standard 0454-A and 0.1 mL of Nd carrier in a disposable centrifuge tube. Four mL of 2 M HCl was added to each standard and then diluted with 4 mL of DI water. 5 mL of ascorbic acid was added to each sample then one mL of 48% HF was added to precipitate Nd (and Curium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. pCi/L values for the Mixed Alpha Stock were calculated and compared to Am-243 certified values.

① The rule failed because the 3 results from 3 sources were the same. Therefore, the stdev was zero. The intent of this rule is to ensure an appropriate amount of counts are achieved for proper determinations. ~~Surfaces~~ For each standard the # of counts achieved was

Just under 10000 which has a counting error of nearly 1%. Because the standard's bias is < 2% from the known value the standard is acceptable.

*Robert J. ... 02103*

Attachment II

Mixed alpha Reference date = 2/7/2003		Stock Dpm/g	Reference date	Half-life (years)	amount used for mixed	Dpm/g mixed	Decay corr dpm/g
Isotope	Source						
Gd-148	64445-278 (0502)	44354.59289	9/5/2002	74.60	0.2471	212.9974853	212.159287
Np-237	Srm 4341 (0493)	5820	3/1/1992	2.14E+06	1.8075	204.4393182	204.438594
Cm-244	SRM 4320a (0490)	2223.6	2/1/1996	18.1	7.2704	314.1796879	240.144737
Source	Amount of standard used	dpm Gd-148	dpm Np-237	dpm Cm-244	dps Gd-148	dps Np-237	dps Cm-244
AESS-001	1.0362	219.839	211.839	248.838	3.664	3.531	4.147
AESS-002	1.0344	219.458	211.471	248.406	3.658	3.525	4.140
AESS-003	1.034	219.373	211.390	248.310	3.656	3.523	4.138
AESS-004	1.0331	219.182	211.206	248.094	3.653	3.520	4.135
AESS-005	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-006	1.0331	219.182	211.206	248.094	3.653	3.520	4.135
AESS-007	1.0348	219.542	211.553	248.502	3.659	3.526	4.142
AESS-008	1.0363	219.861	211.860	248.862	3.664	3.531	4.148
AESS-009	1.0352	219.627	211.635	248.598	3.660	3.527	4.143
AESS-010	1.0346	219.500	211.512	248.454	3.658	3.525	4.141
AESS-011	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-012	1.0367	219.946	211.941	248.958	3.666	3.532	4.149
AESS-013	1.0396	220.561	212.534	249.654	3.676	3.542	4.161
AESS-014	1.0368	219.967	211.962	248.982	3.666	3.533	4.150
AESS-015	1.0363	219.861	211.860	248.862	3.664	3.531	4.148
AESS-016	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-017	1.0356	219.712	211.717	248.694	3.662	3.529	4.145
AESS-018	1.0359	219.776	211.778	248.766	3.663	3.530	4.146
AESS-019	1.0349	219.564	211.574	248.526	3.659	3.526	4.142
AESS-020	1.0361	219.818	211.819	248.814	3.664	3.530	4.147
AESS-021	1.0348	219.542	211.553	248.502	3.659	3.526	4.142
AESS-022	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-023	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-024	1.0343	219.436	211.451	248.382	3.657	3.524	4.140
AESS-025	1.0364	219.882	211.880	248.886	3.665	3.531	4.148
AESS-026	1.0336	219.288	211.308	248.214	3.655	3.522	4.137
AESS-027	1.0353	219.649	211.655	248.622	3.661	3.528	4.144
AESS-028	1.0366	219.924	211.921	248.934	3.665	3.532	4.149

Attachment II

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





0490  
0491

# National Institute of Standards & Technology

## Certificate

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

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

#### Radiological Hazard

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

#### Chemical Hazard

The SRM ampoule contains nitric acid ( $\text{HNO}_3$ ) 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		

37.06 x 2      2004

6

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

#### REFERENCES

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

# CERTIFICATE OF CALIBRATION

## Standard Radionuclide Source

64445-278

Gd-148 5 mL Liquid in Flame Sealed Vial

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

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

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

ISOTOPE:	Gd-148
ACTIVITY (dps):	<del>3.759-E3</del>
HALF-LIFE:	74.6 years
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

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 : 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 : 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 : 4-AUG-2009 07:05:22  
 Calibration Source Id : AESS-022  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2326.638  
 Energy Calibration Slope : 5.018264  
 Energy Calibration Quadratic : 2.3354402E-04  
 Energy Calibration Range : 7710.000

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 : 4-AUG-2009 07:05:44  
 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	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2350.369  
 Energy Calibration Slope : 4.968978  
 Energy Calibration Quadratic : 2.7712836E-04  
 Energy Calibration Range : 7729.000

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 : 23-JUL-2009 13:58:35  
 Calibration Source Id : AESS-001  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2371.155  
 Energy Calibration Slope : 4.901179  
 Energy Calibration Quadratic : 3.3258999E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 162  
 Detector : 70323  
 Calibration Date/Time : 4-AUG-2009 07:05:59  
 Calibration Source Id : AESS-007  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.666  
 Energy Calibration Slope : 4.932856  
 Energy Calibration Quadratic : 2.9126366E-04  
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 163  
 Detector : 70324  
 Calibration Date/Time : 23-JUL-2009 13:58:54  
 Calibration Source Id : AESS-002  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.440  
 Energy Calibration Slope : 4.923447  
 Energy Calibration Quadratic : 3.2373652E-04  
 Energy Calibration Range : 7760.000



Instrument : CHAMBER 164  
 Detector : 70325  
 Calibration Date/Time : 23-JUL-2009 13:59:02  
 Calibration Source Id : AESS-008  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2380.008  
 Energy Calibration Slope : 4.927452  
 Energy Calibration Quadratic : 3.2609751E-04  
 Energy Calibration Range : 7768.000

Instrument : CHAMBER 165  
 Detector : 72544  
 Calibration Date/Time : 23-JUL-2009 13:59:11  
 Calibration Source Id : AESS-003  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.218  
 Energy Calibration Slope : 4.942940  
 Energy Calibration Quadratic : 3.0943105E-04  
 Energy Calibration Range : 7773.000

Instrument : CHAMBER 166  
 Detector : 74545  
 Calibration Date/Time : 23-JUL-2009 13:59:23  
 Calibration Source Id : AESS-009  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2373.718  
 Energy Calibration Slope : 4.929422  
 Energy Calibration Quadratic : 3.2212323E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 167  
 Detector : 72546  
 Calibration Date/Time : 23-JUL-2009 13:59:32  
 Calibration Source Id : AESS-004  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2375.899  
 Energy Calibration Slope : 4.924172  
 Energy Calibration Quadratic : 3.2251154E-04  
 Energy Calibration Range : 7756.000

Instrument : CHAMBER 168  
 Detector : 72547  
 Calibration Date/Time : 23-JUL-2009 13:59:40  
 Calibration Source Id : AESS-010  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.301  
 Energy Calibration Slope : 4.935927  
 Energy Calibration Quadratic : 3.1537362E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 169  
 Detector : 72548  
 Calibration Date/Time : 4-AUG-2009 07:06:12  
 Calibration Source Id : AESS-005  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.366  
 Energy Calibration Slope : 4.930755  
 Energy Calibration Quadratic : 3.1649129E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 170  
 Detector : 72549  
 Calibration Date/Time : 23-JUL-2009 13:59:58  
 Calibration Source Id : AESS-011

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.389  
 Energy Calibration Slope : 4.912318  
 Energy Calibration Quadratic : 3.5837301E-04  
 Energy Calibration Range : 7787.000

Instrument : CHAMBER 171  
 Detector : 78260  
 Calibration Date/Time : 23-JUL-2009 14:00:07  
 Calibration Source Id : AESS-006

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.307  
 Energy Calibration Slope : 4.932293  
 Energy Calibration Quadratic : 3.2247280E-04  
 Energy Calibration Range : 7757.000

Instrument : CHAMBER 172  
 Detector : 78772  
 Calibration Date/Time : 23-JUL-2009 14:00:15  
 Calibration Source Id : AESS-012

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.785  
 Energy Calibration Slope : 4.920015  
 Energy Calibration Quadratic : 3.3008555E-04  
 Energy Calibration Range : 7750.000

Instrument : CHAMBER 173  
 Detector : 74431  
 Calibration Date/Time : 22-JUL-2009 14:12:56  
 Calibration Source Id : AESS-013  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.926  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.405  
 Energy Calibration Slope : 4.981549  
 Energy Calibration Quadratic : 2.6860670E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 174  
 Detector : 74432  
 Calibration Date/Time : 22-JUL-2009 14:13:10  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.379  
 Energy Calibration Slope : 5.035265  
 Energy Calibration Quadratic : 2.0271989E-04  
 Energy Calibration Range : 7727.000

Instrument : CHAMBER 175  
 Detector : 74433  
 Calibration Date/Time : 22-JUL-2009 14:13:33  
 Calibration Source Id : AESS-014  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.817  
 NP-237 4341 2/28/10 4768.800 4768.732  
 CM-244 4320A 2/28/10 5795.020 5794.897  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.060  
 Energy Calibration Slope : 4.980610  
 Energy Calibration Quadratic : 2.6701824E-04  
 Energy Calibration Range : 7741.000

Instrument : CHAMBER 176  
 Detector : 74434  
 Calibration Date/Time : 22-JUL-2009 14:13:51  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.546  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.097  
 Energy Calibration Slope : 5.018647  
 Energy Calibration Quadratic : 2.3654266E-04  
 Energy Calibration Range : 7744.000

Instrument : CHAMBER 177  
 Detector : 74435  
 Calibration Date/Time : 22-JUL-2009 14:14:02  
 Calibration Source Id : AESS-015  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2358.948  
 Energy Calibration Slope : 4.983318  
 Energy Calibration Quadratic : 2.6383059E-04  
 Energy Calibration Range : 7739.000

Instrument : CHAMBER 178  
 Detector : 74436  
 Calibration Date/Time : 22-JUL-2009 14:14:14  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.644  
 Energy Calibration Slope : 4.987851  
 Energy Calibration Quadratic : 2.6228666E-04  
 Energy Calibration Range : 7737.000

Instrument : CHAMBER 179  
 Detector : 74437  
 Calibration Date/Time : 22-JUL-2009 14:14:24  
 Calibration Source Id : AESS-016  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.260  
 NP-237 4341 2/28/10 4768.800 4768.966  
 CM-244 4320A 2/28/10 5795.020 5795.056  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2353.987  
 Energy Calibration Slope : 4.982908  
 Energy Calibration Quadratic : 2.6569929E-04  
 Energy Calibration Range : 7735.000

Instrument : CHAMBER 180  
 Detector : 74438  
 Calibration Date/Time : 22-JUL-2009 14:14:36  
 Calibration Source Id : AESS-022  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.167  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.144  
 Energy Calibration Slope : 5.023554  
 Energy Calibration Quadratic : 2.2043443E-04  
 Energy Calibration Range : 7727.000

Instrument : CHAMBER 181  
 Detector : 74439  
 Calibration Date/Time : 22-JUL-2009 14:14:47  
 Calibration Source Id : AESS-017  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.233  
 Energy Calibration Slope : 4.973598  
 Energy Calibration Quadratic : 2.7286567E-04  
 Energy Calibration Range : 7736.000

Instrument : CHAMBER 182  
 Detector : 74440  
 Calibration Date/Time : 22-JUL-2009 14:14:57  
 Calibration Source Id : AESS-023

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.653
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2348.571  
 Energy Calibration Slope : 4.995710  
 Energy Calibration Quadratic : 2.4269641E-04  
 Energy Calibration Range : 7719.000

Instrument : CHAMBER 183  
 Detector : 74441  
 Calibration Date/Time : 22-JUL-2009 14:15:07  
 Calibration Source Id : AESS-018

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.181  
 Energy Calibration Slope : 4.984746  
 Energy Calibration Quadratic : 2.6386807E-04  
 Energy Calibration Range : 7738.000

Instrument : CHAMBER 184  
 Detector : 74442  
 Calibration Date/Time : 22-JUL-2009 14:15:18  
 Calibration Source Id : AESS-024

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2352.411  
 Energy Calibration Slope : 5.026765  
 Energy Calibration Quadratic : 2.1738216E-04  
 Energy Calibration Range : 7728.000

Instrument : CHAMBER 185  
 Detector : 68615  
 Calibration Date/Time : 22-JUL-2009 14:15:30  
 Calibration Source Id : AESS-025

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.262
NP-237	4341	2/28/10	4768.800	4769.011
CM-244	4320A	2/28/10	5795.020	5795.113

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2354.510  
 Energy Calibration Slope : 4.938845  
 Energy Calibration Quadratic : 2.7730624E-04  
 Energy Calibration Range : 7703.000

Instrument : CHAMBER 186  
 Detector : 68616  
 Calibration Date/Time : 22-JUL-2009 14:15:43  
 Calibration Source Id : AESS-031

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.191
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.143

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.547  
 Energy Calibration Slope : 4.938616  
 Energy Calibration Quadratic : 2.9074642E-04  
 Energy Calibration Range : 7722.000

Instrument : CHAMBER 187  
 Detector : 68620  
 Calibration Date/Time : 22-JUL-2009 14:15:58  
 Calibration Source Id : AESS-026

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.775
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.921  
 Energy Calibration Slope : 4.980083  
 Energy Calibration Quadratic : 2.9012386E-04  
 Energy Calibration Range : 7772.000



Instrument : CHAMBER 188  
 Detector : 68621  
 Calibration Date/Time : 22-JUL-2009 14:16:10  
 Calibration Source Id : AESS-032

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.008
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.044

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.934  
 Energy Calibration Slope : 4.976158  
 Energy Calibration Quadratic : 2.7708741E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 189  
 Detector : 68622  
 Calibration Date/Time : 22-JUL-2009 14:16:25  
 Calibration Source Id : AESS-027

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.093

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2355.697  
 Energy Calibration Slope : 4.939315  
 Energy Calibration Quadratic : 2.8903113E-04  
 Energy Calibration Range : 7717.000

Instrument : CHAMBER 190  
 Detector : 68623  
 Calibration Date/Time : 22-JUL-2009 14:16:38  
 Calibration Source Id : AESS-033

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.298
NP-237	4341	2/28/10	4768.800	4768.799
CM-244	4320A	2/28/10	5795.020	5795.045

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2351.739  
 Energy Calibration Slope : 4.948914  
 Energy Calibration Quadratic : 2.8685224E-04  
 Energy Calibration Range : 7720.000

Instrument : CHAMBER 191  
 Detector : 68624  
 Calibration Date/Time : 22-JUL-2009 14:17:15  
 Calibration Source Id : AESS-028

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.925
CM-244	4320A	2/28/10	5795.020	5795.090

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.921  
 Energy Calibration Slope : 4.966295  
 Energy Calibration Quadratic : 3.1035815E-04  
 Energy Calibration Range : 7779.000

Instrument : CHAMBER 192  
 Detector : 74430  
 Calibration Date/Time : 22-JUL-2009 14:17:47  
 Calibration Source Id : AESS-034

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.903
CM-244	4320A	2/28/10	5795.020	5795.089

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2362.162  
 Energy Calibration Slope : 4.978550  
 Energy Calibration Quadratic : 2.9185213E-04  
 Energy Calibration Range : 7766.000

Instrument : CHAMBER 193  
 Detector : 68627  
 Calibration Date/Time : 22-JUL-2009 14:18:09  
 Calibration Source Id : AESS-029

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.786
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.042

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.145  
 Energy Calibration Slope : 4.920224  
 Energy Calibration Quadratic : 3.1340783E-04  
 Energy Calibration Range : 7730.000

Instrument : CHAMBER 194  
 Detector : 68635  
 Calibration Date/Time : 22-JUL-2009 14:18:45  
 Calibration Source Id : AESS-035

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2356.478  
 Energy Calibration Slope : 4.939730  
 Energy Calibration Quadratic : 2.9438961E-04  
 Energy Calibration Range : 7723.000

Instrument : CHAMBER 195  
 Detector : 68636  
 Calibration Date/Time : 22-JUL-2009 14:19:31  
 Calibration Source Id : AESS-030

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.800
CM-244	4320A	2/28/10	5795.020	5795.181

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.634  
 Energy Calibration Slope : 4.956642  
 Energy Calibration Quadratic : 2.8082752E-04  
 Energy Calibration Range : 7730.000

Instrument : CHAMBER 196  
 Detector : 68637  
 Calibration Date/Time : 22-JUL-2009 14:19:51  
 Calibration Source Id : AESS-036

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.156
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5795.019

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2357.884  
 Energy Calibration Slope : 4.943155  
 Energy Calibration Quadratic : 2.9007217E-04  
 Energy Calibration Range : 7724.000

Instrument : CHAMBER 197  
 Detector : 78894  
 Calibration Date/Time : 23-JUL-2009 14:00:24  
 Calibration Source Id : AESS-037

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2369.600  
 Energy Calibration Slope : 4.961125  
 Energy Calibration Quadratic : 2.9980636E-04  
 Energy Calibration Range : 7764.000

Instrument : CHAMBER 198  
 Detector : 78895  
 Calibration Date/Time : 23-JUL-2009 14:00:36  
 Calibration Source Id : AESS-043

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.985  
 Energy Calibration Slope : 4.958083  
 Energy Calibration Quadratic : 2.9077829E-04  
 Energy Calibration Range : 7747.000

Instrument : CHAMBER 199  
 Detector : 78896  
 Calibration Date/Time : 23-JUL-2009 14:00:47  
 Calibration Source Id : AESS-038

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2363.893  
 Energy Calibration Slope : 4.975142  
 Energy Calibration Quadratic : 2.8265564E-04  
 Energy Calibration Range : 7755.000

Instrument : CHAMBER 200  
 Detector : 78900  
 Calibration Date/Time : 23-JUL-2009 14:00:57  
 Calibration Source Id : AESS-044  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2366.560  
 Energy Calibration Slope : 4.944607  
 Energy Calibration Quadratic : 3.1754555E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 201  
 Detector : 78902  
 Calibration Date/Time : 23-JUL-2009 14:01:05  
 Calibration Source Id : AESS-039  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2365.274  
 Energy Calibration Slope : 4.952928  
 Energy Calibration Quadratic : 3.1035283E-04  
 Energy Calibration Range : 7763.000

Instrument : CHAMBER 202  
 Detector : 78903  
 Calibration Date/Time : 23-JUL-2009 14:01:14  
 Calibration Source Id : AESS-045  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2355.391  
 Energy Calibration Slope : 4.951035  
 Energy Calibration Quadratic : 2.9712555E-04  
 Energy Calibration Range : 7737.000

Instrument : CHAMBER 203  
 Detector : 78905  
 Calibration Date/Time : 23-JUL-2009 14:01:22  
 Calibration Source Id : AESS-040  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2359.621  
 Energy Calibration Slope : 4.976038  
 Energy Calibration Quadratic : 2.7450506E-04  
 Energy Calibration Range : 7743.000

Instrument : CHAMBER 204  
 Detector : 78907  
 Calibration Date/Time : 23-JUL-2009 14:01:31  
 Calibration Source Id : AESS-046  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2360.966  
 Energy Calibration Slope : 4.954226  
 Energy Calibration Quadratic : 2.9946532E-04  
 Energy Calibration Range : 7748.000

Instrument : CHAMBER 205  
 Detector : 78908  
 Calibration Date/Time : 23-JUL-2009 14:01:40  
 Calibration Source Id : AESS-041  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2367.589  
 Energy Calibration Slope : 4.954722  
 Energy Calibration Quadratic : 3.0296977E-04  
 Energy Calibration Range : 7759.000

Instrument : CHAMBER 206  
 Detector : 78909  
 Calibration Date/Time : 23-JUL-2009 14:01:49  
 Calibration Source Id : AESS-047

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2361.905  
 Energy Calibration Slope : 4.955875  
 Energy Calibration Quadratic : 2.9360279E-04  
 Energy Calibration Range : 7745.000

Instrument : CHAMBER 207  
 Detector : 78910  
 Calibration Date/Time : 23-JUL-2009 14:01:57  
 Calibration Source Id : AESS-042

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2368.030  
 Energy Calibration Slope : 4.964427  
 Energy Calibration Quadratic : 2.9426123E-04  
 Energy Calibration Range : 7760.000

Instrument : CHAMBER 208  
 Detector : 78911  
 Calibration Date/Time : 23-JUL-2009 14:02:06  
 Calibration Source Id : AESS-048

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2364.066  
 Energy Calibration Slope : 4.968146  
 Energy Calibration Quadratic : 2.8974371E-04  
 Energy Calibration Range : 7755.000

Instrument : CHAMBER 209  
 Detector : 79188  
 Calibration Date/Time : 28-JUL-2009 13:59:46  
 Calibration Source Id : AESS-001

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.309  
 Energy Calibration Slope : 4.907889  
 Energy Calibration Quadratic : 3.5155186E-04  
 Energy Calibration Range : 7785.000

Instrument : CHAMBER 210  
 Detector : 79189  
 Calibration Date/Time : 28-JUL-2009 13:59:55  
 Calibration Source Id : AESS-002

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.719  
 Energy Calibration Slope : 4.945560  
 Energy Calibration Quadratic : 3.0519743E-04  
 Energy Calibration Range : 7767.000

Instrument : CHAMBER 211  
 Detector : 79190  
 Calibration Date/Time : 28-JUL-2009 14:00:03  
 Calibration Source Id : AESS-003

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.786  
 Energy Calibration Slope : 4.957439  
 Energy Calibration Quadratic : 3.0850343E-04  
 Energy Calibration Range : 7789.000



Instrument : CHAMBER 212  
 Detector : 79191  
 Calibration Date/Time : 28-JUL-2009 14:00:11  
 Calibration Source Id : AESS-004

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.612  
 Energy Calibration Slope : 4.941330  
 Energy Calibration Quadratic : 3.1567214E-04  
 Energy Calibration Range : 7778.000

Instrument : CHAMBER 213  
 Detector : 79192  
 Calibration Date/Time : 28-JUL-2009 14:00:20  
 Calibration Source Id : AESS-005

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.102  
 Energy Calibration Slope : 4.949504  
 Energy Calibration Quadratic : 3.0747624E-04  
 Energy Calibration Range : 7783.000

Instrument : CHAMBER 214  
 Detector : 79193  
 Calibration Date/Time : 28-JUL-2009 14:00:29  
 Calibration Source Id : AESS-006

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.299  
 Energy Calibration Slope : 4.938057  
 Energy Calibration Quadratic : 3.2320846E-04  
 Energy Calibration Range : 7779.000

Instrument : CHAMBER 215  
 Detector : 79194  
 Calibration Date/Time : 28-JUL-2009 14:00:38  
 Calibration Source Id : AESS-007

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.097  
 Energy Calibration Slope : 4.946728  
 Energy Calibration Quadratic : 3.2361320E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 216  
 Detector : 79195  
 Calibration Date/Time : 28-JUL-2009 14:00:46  
 Calibration Source Id : AESS-008

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.001
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.871  
 Energy Calibration Slope : 4.924810  
 Energy Calibration Quadratic : 3.3861332E-04  
 Energy Calibration Range : 7788.000

Instrument : CHAMBER 217  
 Detector : 79410  
 Calibration Date/Time : 28-JUL-2009 14:00:55  
 Calibration Source Id : AESS-009

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.358  
 Energy Calibration Slope : 4.934552  
 Energy Calibration Quadratic : 3.3054961E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 218  
 Detector : 79411  
 Calibration Date/Time : 28-JUL-2009 14:01:03  
 Calibration Source Id : AESS-010  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.335  
 Energy Calibration Slope : 4.946022  
 Energy Calibration Quadratic : 3.1945287E-04  
 Energy Calibration Range : 7788.000

Instrument : CHAMBER 219  
 Detector : 79412  
 Calibration Date/Time : 28-JUL-2009 14:01:48  
 Calibration Source Id : AESS-011  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.188  
 Energy Calibration Slope : 4.929147  
 Energy Calibration Quadratic : 3.3767600E-04  
 Energy Calibration Range : 7792.000

Instrument : CHAMBER 220  
 Detector : 79413  
 Calibration Date/Time : 28-JUL-2009 14:02:00  
 Calibration Source Id : AESS-012  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.449  
 Energy Calibration Slope : 4.943600  
 Energy Calibration Quadratic : 3.1373679E-04  
 Energy Calibration Range : 7774.000

Instrument : CHAMBER 221  
 Detector : 79414  
 Calibration Date/Time : 28-JUL-2009 14:02:09  
 Calibration Source Id : AESS-013

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.174  
 Energy Calibration Slope : 4.970656  
 Energy Calibration Quadratic : 3.0409341E-04  
 Energy Calibration Range : 7796.000

Instrument : CHAMBER 222  
 Detector : 79415  
 Calibration Date/Time : 28-JUL-2009 14:02:19  
 Calibration Source Id : AESS-014

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.306  
 Energy Calibration Slope : 5.025091  
 Energy Calibration Quadratic : 2.4377843E-04  
 Energy Calibration Range : 7784.000

Instrument : CHAMBER 223  
 Detector : 79416  
 Calibration Date/Time : 28-JUL-2009 14:02:29  
 Calibration Source Id : AESS-015

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.067  
 Energy Calibration Slope : 4.958123  
 Energy Calibration Quadratic : 3.2477293E-04  
 Energy Calibration Range : 7807.000

Instrument : CHAMBER 224  
 Detector : 79417  
 Calibration Date/Time : 28-JUL-2009 14:02:37  
 Calibration Source Id : AESS-016  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.027  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.695  
 Energy Calibration Slope : 5.011842  
 Energy Calibration Quadratic : 2.6290418E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 225  
 Detector : 79418  
 Calibration Date/Time : 28-JUL-2009 14:02:46  
 Calibration Source Id : AESS-017  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.019  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.776  
 Energy Calibration Slope : 4.933724  
 Energy Calibration Quadratic : 3.3852886E-04  
 Energy Calibration Range : 7800.000

Instrument : CHAMBER 226  
 Detector : 79419  
 Calibration Date/Time : 28-JUL-2009 14:02:55  
 Calibration Source Id : AESS-018  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.150  
 Energy Calibration Slope : 4.973210  
 Energy Calibration Quadratic : 2.9508519E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 227  
 Detector : 79420  
 Calibration Date/Time : 28-JUL-2009 14:03:04  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.061  
 Energy Calibration Slope : 4.938961  
 Energy Calibration Quadratic : 3.3045741E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 228  
 Detector : 79421  
 Calibration Date/Time : 28-JUL-2009 14:03:13  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.005  
 Energy Calibration Slope : 4.959556  
 Energy Calibration Quadratic : 3.0744984E-04  
 Energy Calibration Range : 7787.000

Instrument : CHAMBER 229  
 Detector : 79422  
 Calibration Date/Time : 28-JUL-2009 14:03:22  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.995  
 Energy Calibration Slope : 4.940877  
 Energy Calibration Quadratic : 3.3899915E-04  
 Energy Calibration Range : 7803.000

Instrument : CHAMBER 230  
 Detector : 79423  
 Calibration Date/Time : 28-JUL-2009 14:03:31  
 Calibration Source Id : AESS-022

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.573  
 Energy Calibration Slope : 4.960246  
 Energy Calibration Quadratic : 3.1046796E-04  
 Energy Calibration Range : 7789.000

Instrument : CHAMBER 231  
 Detector : 79424  
 Calibration Date/Time : 28-JUL-2009 14:03:40  
 Calibration Source Id : AESS-023

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.425  
 Energy Calibration Slope : 4.946337  
 Energy Calibration Quadratic : 3.1792521E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 232  
 Detector : 79425  
 Calibration Date/Time : 28-JUL-2009 14:03:48  
 Calibration Source Id : AESS-024

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.962  
 Energy Calibration Slope : 5.004478  
 Energy Calibration Quadratic : 2.5898189E-04  
 Energy Calibration Range : 7781.000

Instrument : CHAMBER 233  
 Detector : 79426  
 Calibration Date/Time : 28-JUL-2009 14:03:57  
 Calibration Source Id : AESS-025

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.858  
 Energy Calibration Slope : 4.908395  
 Energy Calibration Quadratic : 3.6085595E-04  
 Energy Calibration Range : 7789.000

Instrument : CHAMBER 234  
 Detector : 79427  
 Calibration Date/Time : 28-JUL-2009 14:04:08  
 Calibration Source Id : AESS-026

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2378.557  
 Energy Calibration Slope : 4.936086  
 Energy Calibration Quadratic : 3.1737317E-04  
 Energy Calibration Range : 7766.000

Instrument : CHAMBER 235  
 Detector : 79428  
 Calibration Date/Time : 28-JUL-2009 14:04:17  
 Calibration Source Id : AESS-027

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.048  
 Energy Calibration Slope : 4.937345  
 Energy Calibration Quadratic : 3.3249237E-04  
 Energy Calibration Range : 7791.000



Instrument : CHAMBER 236  
 Detector : 79429  
 Calibration Date/Time : 28-JUL-2009 14:04:27  
 Calibration Source Id : AESS-028

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.810  
 Energy Calibration Slope : 4.906125  
 Energy Calibration Quadratic : 3.6270331E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 237  
 Detector : 79430  
 Calibration Date/Time : 28-JUL-2009 14:04:36  
 Calibration Source Id : AESS-029

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.128  
 Energy Calibration Slope : 4.944391  
 Energy Calibration Quadratic : 3.2767057E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 238  
 Detector : 79431  
 Calibration Date/Time : 28-JUL-2009 14:04:46  
 Calibration Source Id : AESS-030

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.338  
 Energy Calibration Slope : 4.929770  
 Energy Calibration Quadratic : 3.3144769E-04  
 Energy Calibration Range : 7777.000

Instrument : CHAMBER 239  
 Detector : 79432  
 Calibration Date/Time : 28-JUL-2009 14:04:55  
 Calibration Source Id : AESS-031

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.132  
 Energy Calibration Slope : 4.920120  
 Energy Calibration Quadratic : 3.5708508E-04  
 Energy Calibration Range : 7803.000

Instrument : CHAMBER 240  
 Detector : 79433  
 Calibration Date/Time : 28-JUL-2009 14:05:04  
 Calibration Source Id : AESS-032

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.205  
 Energy Calibration Slope : 4.918474  
 Energy Calibration Quadratic : 3.4866974E-04  
 Energy Calibration Range : 7787.000

Instrument : CHAMBER 241  
 Detector : 79434  
 Calibration Date/Time : 28-JUL-2009 14:05:13  
 Calibration Source Id : AESS-033

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.825  
 Energy Calibration Slope : 4.908836  
 Energy Calibration Quadratic : 3.6050563E-04  
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 242  
 Detector : 79435  
 Calibration Date/Time : 28-JUL-2009 14:05:21  
 Calibration Source Id : AESS-034

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.009  
 Energy Calibration Slope : 4.945025  
 Energy Calibration Quadratic : 3.1615721E-04  
 Energy Calibration Range : 7780.000

Instrument : CHAMBER 243  
 Detector : 79436  
 Calibration Date/Time : 28-JUL-2009 14:05:30  
 Calibration Source Id : AESS-035

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.770  
 Energy Calibration Slope : 4.934989  
 Energy Calibration Quadratic : 3.3655608E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 244  
 Detector : 79437  
 Calibration Date/Time : 28-JUL-2009 14:05:39  
 Calibration Source Id : AESS-036

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.069  
 Energy Calibration Slope : 4.911016  
 Energy Calibration Quadratic : 3.5919523E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 245  
 Detector : 79438  
 Calibration Date/Time : 28-JUL-2009 14:05:48  
 Calibration Source Id : AESS-037  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.800  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.602  
 Energy Calibration Slope : 4.941990  
 Energy Calibration Quadratic : 3.3874813E-04  
 Energy Calibration Range : 7808.000

Instrument : CHAMBER 246  
 Detector : 78912  
 Calibration Date/Time : 28-JUL-2009 14:05:57  
 Calibration Source Id : AESS-038  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.768  
 Energy Calibration Slope : 4.935872  
 Energy Calibration Quadratic : 3.3401168E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 247  
 Detector : 79440  
 Calibration Date/Time : 28-JUL-2009 14:06:06  
 Calibration Source Id : AESS-039  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.799  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.687  
 Energy Calibration Slope : 4.919972  
 Energy Calibration Quadratic : 3.6322643E-04  
 Energy Calibration Range : 7813.000

Instrument : CHAMBER 248  
 Detector : 79441  
 Calibration Date/Time : 28-JUL-2009 14:06:15  
 Calibration Source Id : AESS-040

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.829  
 Energy Calibration Slope : 4.935865  
 Energy Calibration Quadratic : 3.3986062E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 249  
 Detector : 79442  
 Calibration Date/Time : 28-JUL-2009 14:10:21  
 Calibration Source Id : AESS-041

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.737  
 Energy Calibration Slope : 4.913334  
 Energy Calibration Quadratic : 3.7958668E-04  
 Energy Calibration Range : 7821.000

Instrument : CHAMBER 250  
 Detector : 79443  
 Calibration Date/Time : 28-JUL-2009 14:07:02  
 Calibration Source Id : AESS-042

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.798
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.582  
 Energy Calibration Slope : 4.915850  
 Energy Calibration Quadratic : 3.5610356E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 251  
 Detector : 79444  
 Calibration Date/Time : 28-JUL-2009 14:07:11  
 Calibration Source Id : AESS-043

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.072  
 Energy Calibration Slope : 4.920268  
 Energy Calibration Quadratic : 3.7023224E-04  
 Energy Calibration Range : 7817.000

Instrument : CHAMBER 252  
 Detector : 79445  
 Calibration Date/Time : 28-JUL-2009 14:07:24  
 Calibration Source Id : AESS-044

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.797  
 Energy Calibration Slope : 4.906192  
 Energy Calibration Quadratic : 3.7361679E-04  
 Energy Calibration Range : 7808.000

Instrument : CHAMBER 253  
 Detector : 79446  
 Calibration Date/Time : 28-JUL-2009 14:07:35  
 Calibration Source Id : AESS-045

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.983  
 Energy Calibration Slope : 4.947714  
 Energy Calibration Quadratic : 3.5550338E-04  
 Energy Calibration Range : 7833.000

Instrument : CHAMBER 254  
 Detector : 79447  
 Calibration Date/Time : 28-JUL-2009 14:07:52  
 Calibration Source Id : AESS-046

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.038  
 Energy Calibration Slope : 4.937405  
 Energy Calibration Quadratic : 3.4224574E-04  
 Energy Calibration Range : 7804.000

Instrument : CHAMBER 255  
 Detector : 79448  
 Calibration Date/Time : 28-JUL-2009 14:08:10  
 Calibration Source Id : AESS-047

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.216  
 Energy Calibration Slope : 4.920984  
 Energy Calibration Quadratic : 3.7234218E-04  
 Energy Calibration Range : 7821.000

Instrument : CHAMBER 256  
 Detector : 79449  
 Calibration Date/Time : 28-JUL-2009 14:08:26  
 Calibration Source Id : AESS-048

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.279  
 Energy Calibration Slope : 4.932406  
 Energy Calibration Quadratic : 3.4164111E-04  
 Energy Calibration Range : 7796.000

## Subsection 2: Background Calibration

Instrument : CHAMBER 001  
 Detector : 78788  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts 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	10.00000	2.399998	31.62278	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	83.00000	19.92000	10.97643	95.00000
CM-244	5534.466	5887.335	9.000000	2.160000	33.33334	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	14.00000	3.359998	26.72612	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	6.000000	1.439999	40.82483	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	3.000000	0.7199995	57.73503	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 : 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 : 2-AUG-2009 17:13:22  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.038	3298.754	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.805	4904.661	7.000000	2.100000	37.79645	95.00000
CM-244	5533.044	5884.411	0.0000000E+00	0.0000000E+00	0.0000000E+00	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 : 2-AUG-2009 17:14:08  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.939	3299.406	12.00000	3.600000	28.86751	95.00000
NP-237	4434.236	4904.141	13.00000	3.900000	27.73501	95.00000
CM-244	5532.352	5884.155	9.000000	2.700000	33.33334	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 : 19-JUL-2009 13:08:31  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.000	3299.306	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.547	4904.892	11.00000	3.300000	30.15113	95.00000
CM-244	5532.420	5884.522	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 162  
 Detector : 70323  
 Background Analysis Date/Time : 2-AUG-2009 17:21:40  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.824	3300.295	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.927	4901.686	3.000000	0.9000000	57.73503	95.00000
CM-244	5532.705	5883.340	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 163  
 Detector : 70324  
 Background Analysis Date/Time : 19-JUL-2009 13:08:40  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.922	3300.358	1.000000	0.3000000	100.0000	95.00000
NP-237	4435.910	4905.359	19.00000	5.700000	22.94157	95.00000
CM-244	5534.127	5886.809	10.00000	3.000000	31.62278	95.00000

Instrument : CHAMBER 164  
 Detector : 70325  
 Background Analysis Date/Time : 19-JUL-2009 13:08:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.018	3297.699	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.306	4904.250	9.000000	2.700000	33.33334	95.00000
CM-244	5533.729	5886.834	9.000000	2.700000	33.33334	95.00000

Instrument : CHAMBER 165  
 Detector : 72544  
 Background Analysis Date/Time : 19-JUL-2009 13:08:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.844	3302.139	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.670	4904.543	11.00000	3.300000	30.15113	95.00000
CM-244	5533.515	5886.135	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 166  
 Detector : 74545  
 Background Analysis Date/Time : 19-JUL-2009 13:08:54  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.919	3301.734	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4433.352	4903.208	6.000000	1.800000	40.82483	95.00000
CM-244	5532.473	5885.411	10.00000	3.000000	31.62278	95.00000

Instrument : CHAMBER 167  
 Detector : 72546  
 Background Analysis Date/Time : 19-JUL-2009 13:08:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.456	3297.909	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.461	4902.876	7.000000	2.100000	37.79645	95.00000
CM-244	5531.568	5884.192	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 168  
 Detector : 72547  
 Background Analysis Date/Time : 19-JUL-2009 13:09:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.191	3302.241	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.272	4904.107	10.00000	3.000000	31.62278	95.00000
CM-244	5533.178	5885.925	7.000000	2.100000	37.79645	95.00000

Instrument : CHAMBER 169  
 Detector : 72548  
 Background Analysis Date/Time : 2-AUG-2009 17:22:11  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.637	3301.388	7.000000	2.100000	37.79645	95.00000
NP-237	4432.422	4901.883	25.000000	7.500000	20.00000	95.00000
CM-244	5530.486	5882.987	10.000000	3.000000	31.62278	95.00000

Instrument : CHAMBER 170  
 Detector : 72549  
 Background Analysis Date/Time : 19-JUL-2009 13:09:11  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.026	3302.433	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.863	4906.064	7.000000	2.100000	37.79645	95.00000
CM-244	5532.657	5887.477	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 171  
 Detector : 78260  
 Background Analysis Date/Time : 19-JUL-2009 13:09:16  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.883	3301.923	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.363	4904.564	11.000000	3.300000	30.15113	95.00000
CM-244	5534.294	5887.494	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 172  
 Detector : 78772  
 Background Analysis Date/Time : 19-JUL-2009 13:09:20  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.947	3302.414	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.288	4903.064	6.000000	1.800000	40.82483	95.00000
CM-244	5532.422	5885.508	5.000000	1.500000	44.72136	95.00000

Instrument : CHAMBER 173  
 Detector : 74431  
 Background Analysis Date/Time : 19-JUL-2009 13:09:25  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.296	3300.266	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.390	4906.583	5.000000	1.500000	44.72136	95.00000
CM-244	5534.964	5886.757	17.00000	5.100000	24.25356	95.00000

Instrument : CHAMBER 174  
 Detector : 74432  
 Background Analysis Date/Time : 19-JUL-2009 13:09:29  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.955	3301.951	3.000000	0.9000000	57.73503	95.00000
NP-237	4436.112	4905.743	7.000000	2.100000	37.79645	95.00000
CM-244	5531.741	5886.720	21.00000	6.300000	21.82179	95.00000

Instrument : CHAMBER 175  
 Detector : 74433  
 Background Analysis Date/Time : 19-JUL-2009 13:09:34  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.808	3301.771	2.000000	0.6000000	70.71068	95.00000
NP-237	4437.598	4902.379	3.000000	0.9000000	57.73503	95.00000
CM-244	5530.438	5887.378	15.00000	4.500000	25.81989	95.00000

Instrument : CHAMBER 176  
 Detector : 74434  
 Background Analysis Date/Time : 19-JUL-2009 13:09:39  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.124	3298.749	3.000000	0.9000000	57.73503	95.00000
NP-237	4433.658	4904.539	5.000000	1.500000	44.72136	95.00000
CM-244	5533.031	5884.495	15.00000	4.500000	25.81989	95.00000

Instrument : CHAMBER 177  
 Detector : 74435  
 Background Analysis Date/Time : 19-JUL-2009 13:09:43  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.035	3300.055	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.061	4906.072	4.000000	1.200000	50.00000	95.00000
CM-244	5534.094	5885.629	20.00000	6.000000	22.36068	95.00000

Instrument : CHAMBER 178  
 Detector : 74436  
 Background Analysis Date/Time : 19-JUL-2009 13:09:47  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.331	3301.630	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4433.348	4903.642	11.00000	3.300000	30.15113	95.00000
CM-244	5531.998	5883.700	21.00000	6.300000	21.82179	95.00000

Instrument : CHAMBER 179  
 Detector : 74437  
 Background Analysis Date/Time : 19-JUL-2009 13:09:52  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.102	3300.165	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.443	4906.617	6.000000	1.800000	40.82483	95.00000
CM-244	5534.901	5886.605	25.00000	7.500000	20.00000	95.00000

Instrument : CHAMBER 180  
 Detector : 74438  
 Background Analysis Date/Time : 19-JUL-2009 13:09:56  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.611	3299.257	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.245	4903.299	9.000000	2.700000	33.33334	95.00000
CM-244	5535.594	5886.061	21.00000	6.300000	21.82179	95.00000



Instrument : CHAMBER 181  
 Detector : 74439  
 Background Analysis Date/Time : 19-JUL-2009 13:10:01  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.239	3301.914	2.000000	0.6000000	70.71068	95.00000
NP-237	4437.080	4901.757	3.000000	0.9000000	57.73503	95.00000
CM-244	5535.131	5886.836	26.00000	7.800000	19.61161	95.00000

Instrument : CHAMBER 182  
 Detector : 74440  
 Background Analysis Date/Time : 19-JUL-2009 13:10:05  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.998	3301.429	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.415	4901.861	6.000000	1.800000	40.82483	95.00000
CM-244	5533.907	5884.511	30.00000	9.000000	18.25742	95.00000

Instrument : CHAMBER 183  
 Detector : 74441  
 Background Analysis Date/Time : 19-JUL-2009 13:10:09  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.448	3298.556	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4434.882	4905.025	5.000000	1.500000	44.72136	95.00000
CM-244	5533.221	5884.854	26.00000	7.800000	19.61161	95.00000

Instrument : CHAMBER 184  
 Detector : 74442  
 Background Analysis Date/Time : 19-JUL-2009 13:10:15  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.235	3300.018	3.000000	0.9000000	57.73503	95.00000
NP-237	4434.314	4904.409	4.000000	1.200000	50.00000	95.00000
CM-244	5531.386	5887.098	30.00000	9.000000	18.25742	95.00000

Instrument : CHAMBER 185  
 Detector : 68615  
 Background Analysis Date/Time : 19-JUL-2009 13:10:19  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.225	3297.857	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.385	4903.692	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.756	5883.696	28.00000	8.400001	18.89822	95.00000

Instrument : CHAMBER 186  
 Detector : 68616  
 Background Analysis Date/Time : 19-JUL-2009 13:10:23  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.440	3298.282	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.254	4901.541	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.251	5884.261	30.00000	9.000000	18.25742	95.00000

Instrument : CHAMBER 187  
 Detector : 68620  
 Background Analysis Date/Time : 19-JUL-2009 13:10:27  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.912	3299.166	3.000000	0.9000000	57.73503	95.00000
NP-237	4432.442	4904.149	11.00000	3.300000	30.15113	95.00000
CM-244	5535.067	5883.156	22.00000	6.600000	21.32007	95.00000

Instrument : CHAMBER 188  
 Detector : 68621  
 Background Analysis Date/Time : 19-JUL-2009 13:10:31  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.283	3302.165	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.129	4903.527	2.000000	0.6000000	70.71068	95.00000
CM-244	5532.390	5884.553	29.00000	8.700001	18.56953	95.00000

Instrument : CHAMBER 189  
 Detector : 68622  
 Background Analysis Date/Time : 19-JUL-2009 13:10:35  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.652	3299.552	2.000000	0.6000000	70.71068	95.00000
NP-237	4434.579	4902.841	6.000000	1.800000	40.82483	95.00000
CM-244	5534.475	5885.420	43.00000	12.90000	15.24986	95.00000

Instrument : CHAMBER 190  
 Detector : 68623  
 Background Analysis Date/Time : 19-JUL-2009 13:10:39  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.900	3302.388	5.000000	1.500000	44.72136	95.00000
NP-237	4434.198	4903.145	22.00000	6.600000	21.32007	95.00000
CM-244	5535.637	5887.028	30.00000	9.000000	18.25742	95.00000

Instrument : CHAMBER 191  
 Detector : 68624  
 Background Analysis Date/Time : 19-JUL-2009 13:10:43  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.514	3302.389	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.396	4902.283	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.230	5883.124	16.00000	4.800000	25.00000	95.00000

Instrument : CHAMBER 192  
 Detector : 74430  
 Background Analysis Date/Time : 19-JUL-2009 13:10:47  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.042	3298.270	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.778	4903.324	5.000000	1.500000	44.72136	95.00000
CM-244	5534.357	5882.529	21.00000	6.300000	21.82179	95.00000

Instrument : CHAMBER 193  
 Detector : 68627  
 Background Analysis Date/Time : 19-JUL-2009 13:10:51  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.069	3299.225	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.121	4901.609	5.000000	1.500000	44.72136	95.00000
CM-244	5534.158	5885.907	25.00000	7.500000	20.00000	95.00000

Instrument : CHAMBER 194  
 Detector : 68635  
 Background Analysis Date/Time : 19-JUL-2009 13:10:55  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.572	3300.603	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4436.435	4905.175	1.000000	0.3000000	100.0000	95.00000
CM-244	5532.274	5883.671	22.00000	6.600000	21.32007	95.00000

Instrument : CHAMBER 195  
 Detector : 68636  
 Background Analysis Date/Time : 19-JUL-2009 13:10:59  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.629	3301.408	5.000000	1.500000	44.72136	95.00000
NP-237	4433.877	4902.925	52.00000	15.60000	13.86751	95.00000
CM-244	5535.397	5886.705	43.00000	12.90000	15.24986	95.00000

Instrument : CHAMBER 196  
 Detector : 68637  
 Background Analysis Date/Time : 19-JUL-2009 13:11:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.343	3302.501	2.000000	0.6000000	70.71068	95.00000
NP-237	4433.338	4901.979	2.000000	0.6000000	70.71068	95.00000
CM-244	5534.144	5885.395	20.00000	6.000000	22.36068	95.00000

Instrument : CHAMBER 197  
 Detector : 78894  
 Background Analysis Date/Time : 19-JUL-2009 13:11:08  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.389	3297.669	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.236	4904.076	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.086	5887.165	19.00000	5.700000	22.94157	95.00000

Instrument : CHAMBER 198  
 Detector : 78895  
 Background Analysis Date/Time : 19-JUL-2009 13:11:12  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.288	3302.314	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4436.287	4906.224	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.818	5887.000	15.00000	4.500000	25.81989	95.00000

Instrument : CHAMBER 199  
 Detector : 78896  
 Background Analysis Date/Time : 19-JUL-2009 13:11:16  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.202	3299.048	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.598	4906.357	2.000000	0.6000000	70.71068	95.00000
CM-244	5530.513	5883.049	21.00000	6.300000	21.82179	95.00000

Instrument : CHAMBER 200  
 Detector : 78900  
 Background Analysis Date/Time : 19-JUL-2009 13:11:20  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.598	3302.306	3.000000	0.9000000	57.73503	95.00000
NP-237	4436.820	4902.466	15.00000	4.500000	25.81989	95.00000
CM-244	5532.933	5886.480	31.00000	9.300000	17.96053	95.00000

Instrument : CHAMBER 201  
 Detector : 78902  
 Background Analysis Date/Time : 19-JUL-2009 13:11:24  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.239	3302.324	1.000000	0.3000000	100.0000	95.00000
NP-237	4432.525	4903.539	4.000000	1.200000	50.00000	95.00000
CM-244	5534.042	5887.523	22.00000	6.600000	21.32007	95.00000

Instrument : CHAMBER 202  
 Detector : 78903  
 Background Analysis Date/Time : 19-JUL-2009 13:11:29  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.965	3301.750	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.262	4905.190	0.000000E+00	0.0000000E+00	0.000000E+00	95.00000
CM-244	5533.929	5886.269	31.00000	9.300000	17.96053	95.00000

Instrument : CHAMBER 203  
 Detector : 78905  
 Background Analysis Date/Time : 19-JUL-2009 13:11:32  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.960	3299.739	5.000000	1.500000	44.72136	95.00000
NP-237	4435.540	4905.766	9.000000	2.700000	33.33334	95.00000
CM-244	5534.337	5886.308	25.00000	7.500000	20.00000	95.00000

Instrument : CHAMBER 204  
 Detector : 78907  
 Background Analysis Date/Time : 19-JUL-2009 13:11:37  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.953	3297.878	13.00000	3.900000	27.73501	95.00000
NP-237	4437.339	4902.439	14.00000	4.200000	26.72612	95.00000
CM-244	5531.727	5884.400	31.00000	9.300000	17.96053	95.00000

Instrument : CHAMBER 205  
 Detector : 78908  
 Background Analysis Date/Time : 19-JUL-2009 13:11:41  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.664	3299.649	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.348	4904.923	3.000000	0.9000000	57.73503	95.00000
CM-244	5534.662	5887.628	18.00000	5.400000	23.57022	95.00000

Instrument : CHAMBER 206  
 Detector : 78909  
 Background Analysis Date/Time : 19-JUL-2009 13:11:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.007	3298.921	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.777	4902.746	2.000000	0.6000000	70.71068	95.00000
CM-244	5531.452	5883.730	22.00000	6.600000	21.32007	95.00000

Instrument : CHAMBER 207  
 Detector : 78910  
 Background Analysis Date/Time : 19-JUL-2009 13:11:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.143	3301.594	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.296	4902.779	2.000000	0.6000000	70.71068	95.00000
CM-244	5532.449	5885.271	25.00000	7.500000	20.00000	95.00000

Instrument : CHAMBER 208  
 Detector : 78911  
 Background Analysis Date/Time : 19-JUL-2009 13:11:53  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.612	3298.165	3.000000	0.9000000	57.73503	95.00000
NP-237	4434.097	4904.804	2.000000	0.6000000	70.71068	95.00000
CM-244	5534.389	5887.108	8.000000	2.400000	35.35534	95.00000

Instrument : CHAMBER 209  
 Detector : 79188  
 Background Analysis Date/Time : 26-JUL-2009 17:06:41  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2987.927	3299.401	15169.00	0.3069817	1.3193288E-02	58.42078
NP-237	171.0024	28-FEB-2010	4432.428	4902.923	12984.00	0.3163057	1.6057158E-02	73.48861
CM-244	158.1060	28-FEB-2010	5533.599	5883.327	11428.00	0.3183713	1.6194897E-02	56.66428

Instrument : CHAMBER 002  
 Detector : 78266  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:45:26  
 Average Efficiency : 0.3058862  
 Average Efficiency Error : 8.4242094E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2990.748	3297.924	14398.00	0.3038373	1.3070637E-02	49.74084
NP-237	200.4990	28-FEB-2010	4434.751	4902.555	14828.00	0.3081331	1.5613098E-02	65.75996
CM-244	196.5558	28-FEB-2010	5533.273	5884.668	13676.00	0.3065576	1.5550442E-02	56.66758

Instrument : CHAMBER 003  
 Detector : 67617  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:45:38  
 Average Efficiency : 0.3501697  
 Average Efficiency Error : 9.6245455E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2988.035	3300.027	16505.00	0.3434206	1.4738046E-02	69.44512
NP-237	203.2080	28-FEB-2010	4433.783	4901.623	17421.00	0.3571638	1.8062104E-02	78.56305
CM-244	197.2236	28-FEB-2010	5533.183	5887.889	15808.00	0.3532508	1.7884690E-02	60.67228

Instrument : CHAMBER 004  
 Detector : 64279  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:45:54  
 Average Efficiency : 0.3004026  
 Average Efficiency Error : 8.2737673E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2991.885	3302.347	14848.00	0.3042404	1.3080551E-02	53.10138
NP-237	204.2586	28-FEB-2010	4436.757	4905.540	14917.00	0.3042575	1.5415543E-02	64.73015
CM-244	198.8100	28-FEB-2010	5533.807	5887.698	13166.00	0.2919180	1.4816008E-02	57.85523

Instrument : CHAMBER 005  
 Detector : 67612  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:46:05  
 Average Efficiency : 0.2843162  
 Average Efficiency Error : 7.8336252E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2990.194	3301.639	14157.00	0.2837222	1.2209224E-02	51.06648
NP-237	209.5938	28-FEB-2010	4437.588	4901.889	14375.00	0.2857330	1.4484116E-02	69.27464
CM-244	202.7478	28-FEB-2010	5531.535	5887.236	13050.00	0.2837417	1.4402892E-02	60.22887

Instrument : CHAMBER 006  
 Detector : 67613  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 5-AUG-2009 09:23:09  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 5-AUG-2009 14:46:15  
 Average Efficiency : 0.3150931  
 Average Efficiency Error : 8.6723948E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2988.186	3302.064	15061.00	0.3123020	1.3423658E-02	54.65259
NP-237	204.7038	28-FEB-2010	4434.812	4901.476	15598.00	0.3174475	1.6074667E-02	62.21717
CM-244	195.0060	28-FEB-2010	5533.017	5887.020	14013.00	0.3167382	1.6061435E-02	59.32273

Instrument : CHAMBER 007  
 Detector : 67607  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:08:14  
 Average Efficiency : 0.3026176  
 Average Efficiency Error : 8.3323661E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2991.468	3299.148	14693.00	0.3001373	1.2906651E-02	48.67664
NP-237	205.0260	28-FEB-2010	4433.972	4903.766	14977.00	0.3043185	1.5417857E-02	59.64954
CM-244	199.6806	28-FEB-2010	5532.246	5885.701	13798.00	0.3044618	1.5442326E-02	51.23282

Instrument : CHAMBER 008  
 Detector : 78788  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:08:25  
 Average Efficiency : 0.3224154  
 Average Efficiency Error : 8.8692745E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2989.215	3298.713	15734.00	0.3225096	1.3851766E-02	44.71056
NP-237	209.2716	28-FEB-2010	4433.303	4905.744	15863.00	0.3158187	1.5988812E-02	63.33889
CM-244	199.6488	28-FEB-2010	5532.461	5886.606	14925.00	0.3294691	1.6692771E-02	51.66238

Instrument : CHAMBER 009  
 Detector : 72528  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:08:37  
 Average Efficiency : 0.3431641  
 Average Efficiency Error : 9.4328979E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2990.462	3298.900	16457.00	0.3417034	1.4665021E-02	47.76541
NP-237	204.0192	28-FEB-2010	4437.055	4904.570	16959.00	0.3463034	1.7518245E-02	66.91080
CM-244	197.2128	28-FEB-2010	5532.536	5882.399	15320.00	0.3421319	1.7328590E-02	53.20248

Instrument : CHAMBER 010  
 Detector : 72529  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:08:47  
 Average Efficiency : 0.3163380  
 Average Efficiency Error : 8.7065995E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2990.229	3298.607	15141.00	0.3165374	1.3604476E-02	54.57225
NP-237	202.9926	28-FEB-2010	4436.880	4905.484	15237.00	0.3127136	1.5839646E-02	70.41494
CM-244	196.2330	28-FEB-2010	5531.409	5886.990	14242.00	0.3198532	1.6215732E-02	59.36025

Instrument : CHAMBER 011  
 Detector : 72531  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:10:05  
 Average Efficiency : 0.2947833  
 Average Efficiency Error : 8.1152376E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2991.538	3301.988	14786.00	0.2934125	1.2615963E-02	51.15865
NP-237	214.4868	28-FEB-2010	4435.957	4905.467	15318.00	0.2975290	1.5069493E-02	57.97636
CM-244	208.4184	28-FEB-2010	5530.314	5886.614	13904.00	0.2940101	1.4910497E-02	52.04412

Instrument : CHAMBER 012  
 Detector : 67594  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:33  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:10:47  
 Average Efficiency : 0.2985670  
 Average Efficiency Error : 8.2218517E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2988.398	3300.615	14557.00	0.2981249	1.2822272E-02	47.31236
NP-237	205.8930	28-FEB-2010	4437.450	4901.503	14889.00	0.3012659	1.5264360E-02	60.85177
CM-244	203.1954	28-FEB-2010	5534.709	5886.652	13676.00	0.2965543	1.5043142E-02	54.26840

Instrument : CHAMBER 013  
 Detector : 78790  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:10:57  
 Average Efficiency : 0.3409691  
 Average Efficiency Error : 9.3713822E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2987.666	3298.441	16523.00	0.3426617	1.4705168E-02	49.16812
NP-237	210.2526	28-FEB-2010	4435.272	4902.524	17040.00	0.3376607	1.7080082E-02	61.60270
CM-244	201.9108	28-FEB-2010	5533.077	5883.559	15669.00	0.3420227	1.7318053E-02	54.98487

Instrument : CHAMBER 014  
 Detector : 67616  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:11:09  
 Average Efficiency : 0.3130623  
 Average Efficiency Error : 8.6121503E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2992.504	3300.484	15590.00	0.3066251	1.3171598E-02	52.69585
NP-237	211.7160	28-FEB-2010	4435.990	4902.000	16202.00	0.3188440	1.6137818E-02	68.36411
CM-244	207.3882	28-FEB-2010	5532.918	5886.701	14925.00	0.3169042	1.6056320E-02	53.58373

Instrument : CHAMBER 015  
 Detector : 61581  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:11:19  
 Average Efficiency : 0.3249588  
 Average Efficiency Error : 8.9409258E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2987.739	3297.575	15440.00	0.3196218	1.3732214E-02	68.63618
NP-237	200.6460	28-FEB-2010	4432.566	4904.976	15842.00	0.3289294	1.6652878E-02	78.34551
CM-244	195.9270	28-FEB-2010	5530.833	5887.242	14624.00	0.3288428	1.6665678E-02	73.03269



Instrument : CHAMBER 016  
 Detector : 78774  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:11:28  
 Average Efficiency : 0.3372796  
 Average Efficiency Error : 9.2755891E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2990.015	3299.769	15968.00	0.3304942	1.4191121E-02	47.63641
NP-237	199.3962	28-FEB-2010	4432.750	4903.568	16594.00	0.3467403	1.7544748E-02	65.62801
CM-244	198.6402	28-FEB-2010	5531.945	5886.508	15241.00	0.3381473	1.7127821E-02	51.73166

Instrument : CHAMBER 017  
 Detector : 78791  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:12:45  
 Average Efficiency : 0.2920910  
 Average Efficiency Error : 8.0447914E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2991.506	3301.266	14360.00	0.2887001	1.2420051E-02	46.05902
NP-237	208.5846	28-FEB-2010	4435.397	4901.753	14828.00	0.2961742	1.5007162E-02	55.70656
CM-244	205.5828	28-FEB-2010	5532.102	5885.058	13665.00	0.2929415	1.4859928E-02	50.18596

Instrument : CHAMBER 018  
 Detector : 78782  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:35  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:12:56  
 Average Efficiency : 0.3172097  
 Average Efficiency Error : 8.7289969E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2988.342	3302.274	15345.00	0.3205433	1.3773307E-02	42.03425
NP-237	208.8990	28-FEB-2010	4435.776	4902.996	15628.00	0.3116947	1.5782947E-02	59.98587
CM-244	198.1458	28-FEB-2010	5535.506	5884.764	14315.00	0.3183995	1.6140889E-02	46.41229

Instrument : CHAMBER 019  
 Detector : 78786  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:13:21  
 Average Efficiency : 0.2910323  
 Average Efficiency Error : 8.0228020E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2990.757	3299.102	13644.00	0.2815492	1.2124360E-02	48.88054
NP-237	202.9140	28-FEB-2010	4436.959	4904.938	14592.00	0.2996101	1.5184480E-02	53.45035
CM-244	199.3140	28-FEB-2010	5530.360	5882.637	13450.00	0.2972434	1.5081594E-02	50.55271

Instrument : CHAMBER 020  
 Detector : 78787  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:13:30  
 Average Efficiency : 0.3471871  
 Average Efficiency Error : 9.5441081E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2988.029	3302.537	16453.00	0.3380062	1.4506385E-02	51.08092
NP-237	203.4984	28-FEB-2010	4437.491	4905.035	17379.00	0.3557895	1.7993098E-02	61.84319
CM-244	197.1096	28-FEB-2010	5532.389	5886.993	15772.00	0.3526238	1.7853415E-02	51.51802

Instrument : CHAMBER 021  
 Detector : 67047  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:13:40  
 Average Efficiency : 0.3035440  
 Average Efficiency Error : 8.3565973E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2992.044	3301.105	14782.00	0.2995796	1.2881183E-02	58.16195
NP-237	210.1548	28-FEB-2010	4432.692	4903.261	15300.00	0.3033102	1.5362527E-02	64.83363
CM-244	200.7390	28-FEB-2010	5532.273	5884.483	14116.00	0.3096792	1.5701950E-02	51.57142

Instrument : CHAMBER 022  
 Detector : 72530  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:13:53  
 Average Efficiency : 0.3171063  
 Average Efficiency Error : 8.7253209E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2987.876	3301.717	15368.00	0.3095404	1.3300211E-02	46.46027
NP-237	206.8830	28-FEB-2010	4432.553	4902.907	16121.00	0.3246614	1.6433254E-02	59.61079
CM-244	203.0208	28-FEB-2010	5531.719	5883.858	14793.00	0.3210209	1.6266784E-02	54.93265

Instrument : CHAMBER 023  
 Detector : 78264  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:14:51  
 Average Efficiency : 0.3475247  
 Average Efficiency Error : 9.5510995E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2992.270	3297.465	16655.00	0.3390353	1.4547646E-02	44.65316
NP-237	207.4998	28-FEB-2010	4434.353	4902.238	17621.00	0.3537784	1.7888635E-02	67.17326
CM-244	199.8804	28-FEB-2010	5535.006	5884.098	16062.00	0.3541352	1.7925926E-02	50.59406

Instrument : CHAMBER 024  
 Detector : 76542  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:38  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:01  
 Average Efficiency : 0.3329758  
 Average Efficiency Error : 9.1575533E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2988.735	3301.963	15751.00	0.3268531	1.4038056E-02	48.09840
NP-237	205.6662	28-FEB-2010	4435.585	4904.900	16552.00	0.3352655	1.6964708E-02	62.82615
CM-244	198.3060	28-FEB-2010	5532.247	5883.527	15292.00	0.3398233	1.7212013E-02	54.96418

Instrument : CHAMBER 025  
 Detector : 45-149AA5  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:13  
 Average Efficiency : 0.3273577  
 Average Efficiency Error : 9.0229549E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2989.576	3302.009	15260.00	0.3295556	1.4161936E-02	65.60141
NP-237	167.9916	28-FEB-2010	4437.518	4905.500	13240.00	0.3283658	1.6664496E-02	71.67536
CM-244	157.2432	28-FEB-2010	5535.553	5882.966	11554.00	0.3234104	1.6448844E-02	64.13462

Instrument : CHAMBER 026  
 Detector : 78204  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:23  
 Average Efficiency : 0.3163501  
 Average Efficiency Error : 9.2731481E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2989.278	3302.066	15073.00	0.3190832	1.6165398E-02	47.54145
NP-237	168.0294	28-FEB-2010	4432.530	4904.245	12818.00	0.3178037	1.6136298E-02	64.89447
CM-244	160.5822	28-FEB-2010	5530.854	5885.357	11388.00	0.3123012	1.5887389E-02	53.07367

Instrument : CHAMBER 027  
 Detector : 42484  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:36  
 Average Efficiency : 0.3396688  
 Average Efficiency Error : 9.9549843E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2989.311	3298.574	15139.00	0.3305598	1.6745884E-02	45.75581
NP-237	161.6154	28-FEB-2010	4433.571	4901.458	13298.00	0.3428161	1.7396733E-02	58.91746
CM-244	148.1754	28-FEB-2010	5534.916	5884.719	11660.00	0.3465259	1.7621491E-02	49.89463

Instrument : CHAMBER 028  
 Detector : 78792  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:45  
 Average Efficiency : 0.3070537  
 Average Efficiency Error : 9.0059368E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2988.458	3301.428	14649.00	0.3098790	1.5704965E-02	43.03392
NP-237	168.1992	28-FEB-2010	4433.918	4901.793	12445.00	0.3082309	1.5657367E-02	57.16418
CM-244	156.7614	28-FEB-2010	5530.766	5886.861	10793.00	0.3031792	1.5437813E-02	42.94358

Instrument : CHAMBER 029  
 Detector : 33454  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:15:55  
 Average Efficiency : 0.3165512  
 Average Efficiency Error : 9.2795976E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2991.561	3299.264	14962.00	0.3134704	1.5882587E-02	59.06260
NP-237	169.7700	28-FEB-2010	4436.609	4905.813	12925.00	0.3171891	1.6103044E-02	65.57512
CM-244	154.8234	28-FEB-2010	5532.652	5886.650	11221.00	0.3191230	1.6238619E-02	58.94875

Instrument : CHAMBER 030  
 Detector : 33447  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:40  
 Calibration Count Time : 240.0000  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:05  
 Average Efficiency : 0.3195129  
 Average Efficiency Error : 9.3687959E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2992.462	3300.436	14496.00	0.3076674	1.5595090E-02	51.22312
NP-237	166.3758	28-FEB-2010	4435.706	4901.528	13016.00	0.3259090	1.6544048E-02	70.89224
CM-244	157.1856	28-FEB-2010	5532.111	5885.667	11657.00	0.3264974	1.6603231E-02	58.51925

Instrument : CHAMBER 031  
 Detector : 67042  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:16  
 Average Efficiency : 0.3333972  
 Average Efficiency Error : 9.1897855E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2990.816	3298.130	15264.00	0.3328327	1.4302717E-02	63.22559
NP-237	162.9186	28-FEB-2010	4432.666	4904.194	13199.00	0.3374993	1.7128870E-02	85.39982
CM-244	153.1968	28-FEB-2010	5530.750	5885.317	11495.00	0.3302312	1.6797049E-02	69.66753

Instrument : CHAMBER 032  
 Detector : 67041  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:28  
 Average Efficiency : 0.3079946  
 Average Efficiency Error : 8.4994007E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2990.681	3302.442	14237.00	0.3079492	1.3250315E-02	56.35440
NP-237	165.9822	28-FEB-2010	4436.943	4904.070	12286.00	0.3083688	1.5667509E-02	62.42379
CM-244	153.7938	28-FEB-2010	5532.476	5883.050	10756.00	0.3076837	1.5668528E-02	54.99291

Instrument : CHAMBER 033  
 Detector : 78785  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:44  
 Average Efficiency : 0.3159786  
 Average Efficiency Error : 8.7208869E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2988.750	3301.323	14152.00	0.3105978	1.3365801E-02	46.58186
NP-237	161.7816	28-FEB-2010	4437.327	4904.445	12331.00	0.3175407	1.6132571E-02	57.74305
CM-244	147.2670	28-FEB-2010	5532.298	5882.301	10791.00	0.3224820	1.6420925E-02	47.06204

Instrument : CHAMBER 034  
 Detector : 61586  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:16:57  
 Average Efficiency : 0.3186626  
 Average Efficiency Error : 8.7871859E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2990.405	3301.020	14898.00	0.3137061	1.3486663E-02	63.62747
NP-237	167.2962	28-FEB-2010	4436.289	4905.558	12847.00	0.3199310	1.6243735E-02	89.06429
CM-244	154.4388	28-FEB-2010	5534.591	5883.408	11387.00	0.3247890	1.6522311E-02	62.47897

Instrument : CHAMBER 035  
 Detector : 78202  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:07  
 Average Efficiency : 0.3066753  
 Average Efficiency Error : 8.4610144E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2988.026	3302.211	14579.00	0.3098971	1.3328200E-02	45.84651
NP-237	168.2934	28-FEB-2010	4437.360	4905.577	12421.00	0.3074051	1.5615990E-02	59.70762
CM-244	158.8128	28-FEB-2010	5534.350	5884.600	10890.00	0.3016905	1.5359893E-02	46.83206

Instrument : CHAMBER 036  
 Detector : 78203  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:41  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:19  
 Average Efficiency : 0.3238717  
 Average Efficiency Error : 8.9277234E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.3204	28-FEB-2010	2988.680	3301.073	15196.00	0.3187600	1.3699047E-02	53.56891
NP-237	167.4312	28-FEB-2010	4435.041	4905.984	13273.00	0.3302565	1.6759887E-02	68.47729
CM-244	156.4188	28-FEB-2010	5531.465	5885.278	11554.00	0.3251042	1.6534815E-02	54.91026

Instrument : CHAMBER 037  
 Detector : 45-149BB5  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:30  
 Average Efficiency : 0.3588454  
 Average Efficiency Error : 9.8783271E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2991.168	3302.212	16427.00	0.3508205	1.5056745E-02	64.60843
NP-237	167.1294	28-FEB-2010	4432.895	4904.029	14662.00	0.3654579	1.8520588E-02	77.87219
CM-244	154.7664	28-FEB-2010	5532.110	5886.157	12816.00	0.3643632	1.8501068E-02	65.29257

Instrument : CHAMBER 038  
 Detector : 72532  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:42  
 Average Efficiency : 0.3401872  
 Average Efficiency Error : 9.3690762E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2992.472	3300.031	15896.00	0.3353978	1.4402774E-02	52.10275
NP-237	170.0886	28-FEB-2010	4434.591	4905.742	14074.00	0.3446777	1.7477222E-02	66.10255
CM-244	157.7460	28-FEB-2010	5531.463	5885.396	12284.00	0.3427305	1.7413909E-02	59.13643

Instrument : CHAMBER 039  
 Detector : 45-149BB2  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:17:50  
 Average Efficiency : 0.3635030  
 Average Efficiency Error : 1.0010615E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2988.231	3297.932	16136.00	0.3544406	1.5216673E-02	64.96208
NP-237	159.1506	28-FEB-2010	4433.148	4905.972	14381.00	0.3764731	1.9083694E-02	79.22511
CM-244	151.7142	28-FEB-2010	5532.651	5884.312	12578.00	0.3647127	1.8524269E-02	60.58306



Instrument : CHAMBER 040  
 Detector : 78773  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:00  
 Average Efficiency : 0.3197618  
 Average Efficiency Error : 8.8180574E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2989.631	3299.278	14776.00	0.3208454	1.3795648E-02	47.91216
NP-237	166.8174	28-FEB-2010	4434.455	4902.104	12719.00	0.3176762	1.6131660E-02	62.00956
CM-244	155.0100	28-FEB-2010	5534.140	5885.901	11283.00	0.3203784	1.6300978E-02	46.47287

Instrument : CHAMBER 041  
 Detector : 78205  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:09  
 Average Efficiency : 0.3320726  
 Average Efficiency Error : 9.1476394E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2988.485	3301.427	15744.00	0.3260407	1.4003299E-02	48.05792
NP-237	171.2268	28-FEB-2010	4434.095	4902.163	13892.00	0.3380044	1.7141877E-02	64.23948
CM-244	159.5796	28-FEB-2010	5531.498	5882.427	12150.00	0.3351395	1.7031105E-02	52.60388

Instrument : CHAMBER 042  
 Detector : 78793  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:43  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:18  
 Average Efficiency : 0.3355130  
 Average Efficiency Error : 9.2503820E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2991.775	3302.182	14895.00	0.3333198	1.4329934E-02	45.19947
NP-237	159.6558	28-FEB-2010	4434.604	4903.031	12973.00	0.3384922	1.7183678E-02	58.44910
CM-244	150.5208	28-FEB-2010	5530.666	5882.826	11480.00	0.3356853	1.7074790E-02	51.00649

Instrument : CHAMBER 043  
 Detector : 76543  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:26  
 Average Efficiency : 0.3394984  
 Average Efficiency Error : 9.3512600E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2990.605	3297.721	15848.00	0.3383991	1.4532390E-02	52.98521
NP-237	168.7422	28-FEB-2010	4435.729	4906.163	13860.00	0.3421971	1.7355058E-02	63.69067
CM-244	156.3252	28-FEB-2010	5530.889	5884.237	12022.00	0.3383877	1.7199298E-02	58.34155

Instrument : CHAMBER 044  
 Detector : 79459  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:36  
 Average Efficiency : 0.3472623  
 Average Efficiency Error : 9.5641837E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2992.053	3299.650	16240.00	0.3526795	1.5139417E-02	46.60588
NP-237	166.6248	28-FEB-2010	4434.444	4905.733	13868.00	0.3467396	1.7585307E-02	67.40435
CM-244	155.8290	28-FEB-2010	5531.674	5885.749	12067.00	0.3406831	1.7315021E-02	50.52586

Instrument : CHAMBER 045  
 Detector : 78783  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:46  
 Average Efficiency : 0.3473964  
 Average Efficiency Error : 9.5752627E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2991.163	3297.674	15321.00	0.3460006	1.4867575E-02	42.89996
NP-237	160.8066	28-FEB-2010	4435.665	4901.796	13169.00	0.3411981	1.7317103E-02	61.13550
CM-244	145.8384	28-FEB-2010	5533.912	5883.468	11808.00	0.3562486	1.8112443E-02	45.70908

Instrument : CHAMBER 046  
 Detector : 76544  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:18:55  
 Average Efficiency : 0.3396656  
 Average Efficiency Error : 9.3595181E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2988.013	3297.754	15574.00	0.3376833	1.4506049E-02	53.28547
NP-237	164.6658	28-FEB-2010	4433.428	4906.578	13320.00	0.3369921	1.7100822E-02	64.03419
CM-244	151.3824	28-FEB-2010	5533.808	5885.833	11881.00	0.3453883	1.7558334E-02	49.95901

Instrument : CHAMBER 047  
 Detector : 46-089B1  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:19:03  
 Average Efficiency : 0.3416091  
 Average Efficiency Error : 9.4094146E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2989.788	3298.531	15812.00	0.3381371	1.4521689E-02	57.51329
NP-237	168.3948	28-FEB-2010	4436.493	4903.356	13857.00	0.3428169	1.7386565E-02	66.01371
CM-244	154.6032	28-FEB-2010	5535.296	5884.198	12141.00	0.3454518	1.7555740E-02	60.25008

Instrument : CHAMBER 048  
 Detector : 42483  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 3-AUG-2009 10:53:44  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 3-AUG-2009 15:19:12  
 Average Efficiency : 0.3123633  
 Average Efficiency Error : 8.6213006E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2991.838	3299.553	14065.00	0.3096292	1.3325672E-02	54.65192
NP-237	161.5530	28-FEB-2010	4437.268	4906.475	12285.00	0.3167912	1.6095465E-02	66.40394
CM-244	151.1856	28-FEB-2010	5533.930	5885.396	10717.00	0.3119354	1.5885884E-02	57.74399

Instrument : CHAMBER 065  
 Detector : 68551  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:32:36  
 Average Efficiency : 0.3083470  
 Average Efficiency Error : 8.5085379E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2991.020	3301.790	14596.00	0.2954247	1.2705522E-02	58.52770
NP-237	171.0024	28-FEB-2010	4435.576	4904.585	13191.00	0.3213498	1.6309390E-02	64.23100
CM-244	158.1060	28-FEB-2010	5533.015	5885.628	11352.00	0.3164231	1.6097672E-02	59.22498

Instrument : CHAMBER 066  
 Detector : 46-089C1  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:33:22  
 Average Efficiency : 0.3112474  
 Average Efficiency Error : 8.5695526E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2988.945	3298.217	14657.00	0.3093549	1.3303596E-02	55.37485
NP-237	200.4990	28-FEB-2010	4435.388	4905.987	14981.00	0.3113079	1.5771858E-02	67.81973
CM-244	196.5558	28-FEB-2010	5534.885	5886.957	13998.00	0.3138950	1.5917554E-02	57.19744

Instrument : CHAMBER 067  
 Detector : 46-089B4  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:33:34  
 Average Efficiency : 0.3251616  
 Average Efficiency Error : 8.9453170E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2990.195	3298.405	15523.00	0.3230599	1.3878663E-02	73.01379
NP-237	203.2080	28-FEB-2010	4432.996	4903.114	16006.00	0.3281700	1.6612297E-02	79.50097
CM-244	197.2236	28-FEB-2010	5531.881	5884.128	14543.00	0.3251645	1.6480407E-02	73.28760

Instrument : CHAMBER 068  
 Detector : 78794  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:38:02  
 Average Efficiency : 0.2988316  
 Average Efficiency Error : 8.2298918E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2989.058	3297.794	14610.00	0.2994183	1.2877054E-02	47.51308
NP-237	204.2586	28-FEB-2010	4436.694	4904.361	14617.00	0.2981576	1.5110506E-02	57.11169
CM-244	198.8100	28-FEB-2010	5532.395	5887.637	13466.00	0.2986969	1.5155178E-02	48.38633

Instrument : CHAMBER 069  
 Detector : 78795  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:38:36  
 Average Efficiency : 0.3175282  
 Average Efficiency Error : 8.7343659E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2991.230	3298.554	15670.00	0.3141076	1.3491860E-02	49.70101
NP-237	209.5938	28-FEB-2010	4432.770	4904.008	16141.00	0.3208218	1.6238715E-02	60.15531
CM-244	202.7478	28-FEB-2010	5535.390	5884.253	14673.00	0.3191766	1.6174993E-02	51.27451

Instrument : CHAMBER 070  
 Detector : 46-089B2  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:10  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:38:49  
 Average Efficiency : 0.3529845  
 Average Efficiency Error : 9.7008841E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2992.134	3299.079	16742.00	0.3471912	1.4896408E-02	63.07681
NP-237	204.7038	28-FEB-2010	4435.081	4904.079	17300.00	0.3520767	1.7806258E-02	82.77227
CM-244	195.0060	28-FEB-2010	5531.689	5883.454	16039.00	0.3627528	1.8362503E-02	70.00533

Instrument : CHAMBER 071  
 Detector : 64259  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 11-AUG-2009 07:20:11  
 Calibration Count Time : 239.9998  
 Efficiency Calibration Date/Time : 11-AUG-2009 11:39:05  
 Average Efficiency : 0.3208804  
 Average Efficiency Error : 8.8285562E-03  
 Confidence : 95.00000

Cal. 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 : 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 : 3-AUG-2009 15:01:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 4-AUG-2009 07:05:22  
 Average Efficiency : 0.2523917  
 Average Efficiency Error : 6.9445390E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2988.038	3298.754	15362.00	0.2475464	1.0636533E-02	49.38146
NP-237	206.8830	28-FEB-2010	4433.805	4904.661	15831.00	0.2550381	1.2912051E-02	62.38403
CM-244	203.0208	28-FEB-2010	5533.044	5884.411	14796.00	0.2569614	1.3020590E-02	52.60632

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. Isteps	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. Isteps	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. Isteps	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 : 3-AUG-2009 15:01:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 4-AUG-2009 07:05:44  
 Average Efficiency : 0.2446600  
 Average Efficiency Error : 7.1762474E-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	2990.939	3299.406	14312.00	0.2421445	1.2276043E-02	47.17155
NP-237	168.1992	28-FEB-2010	4434.236	4904.141	12518.00	0.2480016	1.2596779E-02	57.06334
CM-244	156.7614	28-FEB-2010	5532.352	5884.155	10851.00	0.2439863	1.2422267E-02	48.94917

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 : 23-JUL-2009 08:06:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:58:35  
 Average Efficiency : 0.3724494  
 Average Efficiency Error : 1.0217360E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2989.000	3299.306	22090.00	0.3575253	1.5279296E-02	62.61223
NP-237	171.0024	28-FEB-2010	4436.547	4904.892	19670.00	0.3833612	1.9362049E-02	79.92251
CM-244	158.1060	28-FEB-2010	5532.420	5884.522	17328.00	0.3856982	1.9506300E-02	61.01914

Instrument : CHAMBER 162  
 Detector : 70323  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 3-AUG-2009 15:03:36  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 4-AUG-2009 07:05:59  
 Average Efficiency : 0.3711236  
 Average Efficiency Error : 1.0165478E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2988.824	3300.295	22155.00	0.3620965	1.5474160E-02	57.26881
NP-237	205.0260	28-FEB-2010	4433.927	4901.686	23319.00	0.3791083	1.9117314E-02	71.55396
CM-244	199.6806	28-FEB-2010	5532.705	5883.340	21344.00	0.3768574	1.9018669E-02	56.37528

Instrument : CHAMBER 163  
 Detector : 70324  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:58:54  
 Average Efficiency : 0.3824499  
 Average Efficiency Error : 1.0474509E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2988.922	3300.358	22181.00	0.3743604	1.5997946E-02	60.90985
NP-237	200.4990	28-FEB-2010	4435.910	4905.359	23404.00	0.3890015	1.9615676E-02	79.84089
CM-244	196.5558	28-FEB-2010	5534.127	5886.809	21671.00	0.3880399	1.9580306E-02	54.00466

Instrument : CHAMBER 164  
 Detector : 70325  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:11  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:59:02  
 Average Efficiency : 0.3871453  
 Average Efficiency Error : 1.0598736E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2991.018	3297.699	23119.00	0.3790087	1.6188504E-02	60.82843
NP-237	209.2716	28-FEB-2010	4434.306	4904.250	24656.00	0.3926844	1.9792885E-02	74.00230
CM-244	199.6488	28-FEB-2010	5533.729	5886.834	22328.00	0.3938190	1.9866610E-02	56.32586

Instrument : CHAMBER 165  
 Detector : 72544  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:15  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:59:11  
 Average Efficiency : 0.3820039  
 Average Efficiency Error : 1.0462373E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2989.844	3302.139	22390.00	0.3726058	1.5921146E-02	65.20252
NP-237	203.2080	28-FEB-2010	4434.670	4904.543	24014.00	0.3938612	1.9856445E-02	91.19821
CM-244	197.2236	28-FEB-2010	5533.515	5886.135	21543.00	0.3846419	1.9409848E-02	65.46077

Instrument : CHAMBER 166  
 Detector : 74545  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:59:23  
 Average Efficiency : 0.3925092  
 Average Efficiency Error : 1.0746423E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2989.919	3301.734	23062.00	0.3829970	1.6359299E-02	52.59587
NP-237	204.0192	28-FEB-2010	4433.352	4903.208	24416.00	0.3988877	2.0107118E-02	75.96468
CM-244	197.2128	28-FEB-2010	5532.473	5885.411	22446.00	0.4005800	2.0206742E-02	58.40631

Instrument : CHAMBER 167  
 Detector : 72546  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:23  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:59:32  
 Average Efficiency : 0.3888160  
 Average Efficiency Error : 1.0646137E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2991.456	3297.909	23075.00	0.3781414	1.6151825E-02	58.07474
NP-237	204.2586	28-FEB-2010	4433.461	4902.876	24396.00	0.3980886	2.0066978E-02	77.66827
CM-244	198.8100	28-FEB-2010	5531.568	5884.192	22354.00	0.3959535	1.9974077E-02	59.99561

Instrument : CHAMBER 168  
 Detector : 72547  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:28  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:59:40  
 Average Efficiency : 0.3899174  
 Average Efficiency Error : 1.0677175E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2990.191	3302.241	22715.00	0.3798450	1.6227633E-02	58.81176
NP-237	202.9926	28-FEB-2010	4434.272	4904.107	24151.00	0.3965338	1.9990249E-02	77.71660
CM-244	196.2330	28-FEB-2010	5533.178	5885.925	22217.00	0.3986928	2.0113347E-02	60.84048

Instrument : CHAMBER 169  
 Detector : 72548  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 3-AUG-2009 15:03:40  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 4-AUG-2009 07:06:12  
 Average Efficiency : 0.3776897  
 Average Efficiency Error : 1.0342728E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2989.637	3301.388	22865.00	0.3665610	1.5658973E-02	55.40712
NP-237	209.5938	28-FEB-2010	4432.422	4901.883	24233.00	0.3852773	1.9422315E-02	82.01970
CM-244	202.7478	28-FEB-2010	5530.486	5882.987	22275.00	0.3873385	1.9540109E-02	60.16400

Instrument : CHAMBER 170  
 Detector : 72549  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:36  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 13:59:58  
 Average Efficiency : 0.3678014  
 Average Efficiency Error : 1.0071305E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2991.026	3302.433	22648.00	0.3594523	1.5356976E-02	58.76050
NP-237	214.4868	28-FEB-2010	4434.863	4906.064	24165.00	0.3755153	1.8930556E-02	77.34428
CM-244	208.4184	28-FEB-2010	5532.657	5887.477	22059.00	0.3727079	1.8803651E-02	57.81808

Instrument : CHAMBER 171  
 Detector : 78260  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:41  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:00:07  
 Average Efficiency : 0.3837917  
 Average Efficiency Error : 1.0510301E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2989.883	3301.923	22631.00	0.3752889	1.6033715E-02	57.49370
NP-237	204.7038	28-FEB-2010	4434.363	4904.564	23668.00	0.3853487	1.9429620E-02	72.93391
CM-244	195.0060	28-FEB-2010	5534.294	5887.494	21890.00	0.3953083	1.9945232E-02	55.35253

Instrument : CHAMBER 172  
 Detector : 78772  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 23-JUL-2009 08:07:46  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:00:15  
 Average Efficiency : 0.3822835  
 Average Efficiency Error : 1.0466998E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2990.947	3302.414	22849.00	0.3742635	1.5988056E-02	52.36660
NP-237	205.8930	28-FEB-2010	4433.288	4903.064	24169.00	0.3912586	1.9724179E-02	72.41768
CM-244	203.1954	28-FEB-2010	5532.422	5885.508	22239.00	0.3854235	1.9443754E-02	56.46907

Instrument : CHAMBER 173  
 Detector : 74431  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUL-2009 08:09:49  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:12:56  
 Average Efficiency : 0.2623188  
 Average Efficiency Error : 7.2139227E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2991.296	3300.266	16061.00	0.2663769	1.1436811E-02	50.38961
NP-237	210.2526	28-FEB-2010	4436.390	4906.583	16403.00	0.2600285	1.3159030E-02	60.88579
CM-244	201.9108	28-FEB-2010	5534.964	5886.757	14870.00	0.2592480	1.3135729E-02	54.15428

Instrument : CHAMBER 174  
 Detector : 74432  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 22-JUL-2009 08:09:54  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:13:10  
 Average Efficiency : 0.2553943  
 Average Efficiency Error : 7.0305546E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2990.955	3301.951	14943.00	0.2465975	1.0600956E-02	50.10695
NP-237	202.9140	28-FEB-2010	4436.112	4905.743	16012.00	0.2629998	1.3313278E-02	60.55487
CM-244	199.3140	28-FEB-2010	5531.741	5886.720	14821.00	0.2616092	1.3255978E-02	55.35811

Instrument : CHAMBER 175  
 Detector : 74433  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 22-JUL-2009 08:09:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:13:33  
 Average Efficiency : 0.2539235  
 Average Efficiency Error : 6.9827326E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2987.808	3301.771	16022.00	0.2520186	1.0820774E-02	50.17014
NP-237	211.7160	28-FEB-2010	4437.598	4902.379	16148.00	0.2542258	1.2867783E-02	58.39753
CM-244	207.3882	28-FEB-2010	5530.438	5887.378	15110.00	0.2563593	1.2986641E-02	52.37697



Instrument : CHAMBER 176  
 Detector : 74434  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:13:51  
 Average Efficiency : 0.2596514  
 Average Efficiency Error : 7.1437038E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2988.124	3298.749	15474.00	0.2542223	1.0921958E-02	48.05445
NP-237	203.4984	28-FEB-2010	4433.658	4904.539	16076.00	0.2633027	1.3327949E-02	56.64418
CM-244	197.1096	28-FEB-2010	5533.031	5884.495	14789.00	0.2641215	1.3383611E-02	51.45706

Instrument : CHAMBER 177  
 Detector : 74435  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:07  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:14:02  
 Average Efficiency : 0.2685861  
 Average Efficiency Error : 7.3855612E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2991.035	3300.055	16129.00	0.2670162	1.1463443E-02	46.17820
NP-237	200.6460	28-FEB-2010	4436.061	4906.072	16230.00	0.2696093	1.3645601E-02	58.26474
CM-244	195.9270	28-FEB-2010	5534.094	5885.629	15017.00	0.2697915	1.3668223E-02	52.64664

Instrument : CHAMBER 178  
 Detector : 74436  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:12  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:14:14  
 Average Efficiency : 0.2563734  
 Average Efficiency Error : 7.0544411E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2992.331	3301.630	15324.00	0.2483911	1.0673227E-02	46.26046
NP-237	210.1548	28-FEB-2010	4433.348	4903.642	16496.00	0.2615961	1.3237508E-02	57.60064
CM-244	200.7390	28-FEB-2010	5531.998	5883.700	15038.00	0.2635517	1.3351870E-02	53.76401

Instrument : CHAMBER 179  
 Detector : 74437  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:14:24  
 Average Efficiency : 0.2654315  
 Average Efficiency Error : 7.3000593E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2991.102	3300.165	15895.00	0.2631131	1.1298665E-02	48.51485
NP-237	199.3962	28-FEB-2010	4436.443	4906.617	16075.00	0.2687030	1.3601316E-02	57.52364
CM-244	198.6402	28-FEB-2010	5534.901	5886.605	14985.00	0.2655179	1.3452120E-02	51.10583

Instrument : CHAMBER 180  
 Detector : 74438  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:21  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:14:36  
 Average Efficiency : 0.2505249  
 Average Efficiency Error : 6.8937857E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2988.611	3299.257	15266.00	0.2459229	1.0567908E-02	47.44321
NP-237	206.8830	28-FEB-2010	4433.245	4903.299	15791.00	0.2543839	1.2879343E-02	51.57590
CM-244	203.0208	28-FEB-2010	5535.594	5886.061	14621.00	0.2534862	1.2846692E-02	51.76523

Instrument : CHAMBER 181  
 Detector : 74439  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:26  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:14:47  
 Average Efficiency : 0.2548543  
 Average Efficiency Error : 7.0099598E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2988.239	3301.914	15878.00	0.2552872	1.0962813E-02	48.35796
NP-237	208.5846	28-FEB-2010	4437.080	4901.757	16198.00	0.2588415	1.3100917E-02	57.35833
CM-244	205.5828	28-FEB-2010	5535.131	5886.836	14634.00	0.2505288	1.2696699E-02	51.18034

Instrument : CHAMBER 182  
 Detector : 74440  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:14:57  
 Average Efficiency : 0.2578707  
 Average Efficiency Error : 7.0930445E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2991.998	3301.429	15699.00	0.2555752	1.0977317E-02	46.97070
NP-237	207.4998	28-FEB-2010	4432.415	4901.861	16221.00	0.2605498	1.3187178E-02	56.46945
CM-244	199.8804	28-FEB-2010	5533.907	5884.511	14682.00	0.2584959	1.3099929E-02	47.10158

Instrument : CHAMBER 183  
 Detector : 74441  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:35  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:15:07  
 Average Efficiency : 0.2636590  
 Average Efficiency Error : 7.2516296E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2989.448	3298.556	16019.00	0.2676203	1.1490691E-02	47.36681
NP-237	208.8990	28-FEB-2010	4434.882	4905.025	16143.00	0.2575647	1.3036844E-02	61.28753
CM-244	198.1458	28-FEB-2010	5533.221	5884.854	14903.00	0.2647125	1.3412292E-02	54.17869

Instrument : CHAMBER 184  
 Detector : 74442  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:15:18  
 Average Efficiency : 0.2589915  
 Average Efficiency Error : 7.1259094E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2989.235	3300.018	15286.00	0.2536818	1.0901084E-02	45.69374
NP-237	205.6662	28-FEB-2010	4434.314	4904.409	16135.00	0.2614885	1.3235523E-02	58.78146
CM-244	198.3060	28-FEB-2010	5531.386	5887.098	14902.00	0.2644547	1.3399277E-02	53.47013

Instrument : CHAMBER 185  
 Detector : 68615  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:15:30  
 Average Efficiency : 0.2565642  
 Average Efficiency Error : 7.0740697E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2991.225	3297.857	15033.00	0.2596380	1.1160337E-02	55.72531
NP-237	167.9916	28-FEB-2010	4436.385	4903.692	12852.00	0.2550071	1.2947261E-02	59.11316
CM-244	157.2432	28-FEB-2010	5533.756	5883.696	11351.00	0.2539946	1.2921941E-02	56.16187

Instrument : CHAMBER 186  
 Detector : 68616  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:48  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:15:43  
 Average Efficiency : 0.2530972  
 Average Efficiency Error : 6.9825449E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2991.440	3298.282	14435.00	0.2517332	1.0828621E-02	55.45393
NP-237	162.9186	28-FEB-2010	4433.254	4901.541	12537.00	0.2565026	1.3028130E-02	59.45676
CM-244	153.1968	28-FEB-2010	5533.251	5884.261	10964.00	0.2517129	1.2813604E-02	55.46026

Instrument : CHAMBER 187  
 Detector : 68620  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:52  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:15:58  
 Average Efficiency : 0.2501889  
 Average Efficiency Error : 7.3357723E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2989.912	3299.166	15000.00	0.2539414	1.2865975E-02	52.23053
NP-237	168.0294	28-FEB-2010	4432.442	4904.149	12738.00	0.2526287	1.2828344E-02	58.21870
CM-244	160.5822	28-FEB-2010	5535.067	5883.156	11152.00	0.2443892	1.2436978E-02	54.57392

Instrument : CHAMBER 188  
 Detector : 68621  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUL-2009 08:10:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:16:10  
 Average Efficiency : 0.2601093  
 Average Efficiency Error : 7.1711414E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2988.283	3302.165	15025.00	0.2599137	1.1172294E-02	51.37601
NP-237	165.9822	28-FEB-2010	4433.129	4903.527	12962.00	0.2602972	1.3214173E-02	62.37115
CM-244	153.7938	28-FEB-2010	5532.390	5884.553	11377.00	0.2601953	1.3236898E-02	52.05467

Instrument : CHAMBER 189  
 Detector : 68622  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:16:25  
 Average Efficiency : 0.2590416  
 Average Efficiency Error : 7.5966278E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2987.652	3299.552	14591.00	0.2547911	1.2913714E-02	51.68600
NP-237	161.6154	28-FEB-2010	4434.579	4902.841	12573.00	0.2592825	1.3168799E-02	58.17202
CM-244	148.1754	28-FEB-2010	5534.475	5885.420	11096.00	0.2633716	1.3404469E-02	50.36570

Instrument : CHAMBER 190  
 Detector : 68623  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:16:38  
 Average Efficiency : 0.2606415  
 Average Efficiency Error : 7.1893386E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2989.900	3302.388	14653.00	0.2571782	1.1059794E-02	51.45757
NP-237	161.7816	28-FEB-2010	4434.198	4903.145	12826.00	0.2641300	1.3411093E-02	58.05247
CM-244	147.2670	28-FEB-2010	5535.637	5887.028	10980.00	0.2622307	1.3348678E-02	51.95362

Instrument : CHAMBER 191  
 Detector : 68624  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:17:15  
 Average Efficiency : 0.2621158  
 Average Efficiency Error : 7.6803956E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2988.514	3302.389	15421.00	0.2608921	1.3213424E-02	48.76201
NP-237	168.1992	28-FEB-2010	4435.396	4902.283	13449.00	0.2665235	1.3522904E-02	61.15327
CM-244	156.7614	28-FEB-2010	5534.230	5883.124	11542.00	0.2591464	1.3180151E-02	50.76146

Instrument : CHAMBER 192  
 Detector : 74430  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:15  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:17:47  
 Average Efficiency : 0.2610474  
 Average Efficiency Error : 7.1950918E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2989.042	3298.270	15338.00	0.2583001	1.1098851E-02	47.63512
NP-237	167.2962	28-FEB-2010	4436.778	4903.324	13156.00	0.2621002	1.3302793E-02	56.66595
CM-244	154.4388	28-FEB-2010	5534.357	5882.529	11589.00	0.2639953	1.3425920E-02	46.57637

Instrument : CHAMBER 193  
 Detector : 68627  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:18:09  
 Average Efficiency : 0.2640715  
 Average Efficiency Error : 7.7369036E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2988.069	3299.225	15508.00	0.2598549	1.3159974E-02	52.58962
NP-237	169.7700	28-FEB-2010	4433.121	4901.609	13394.00	0.2629541	1.3342631E-02	58.77226
CM-244	154.8234	28-FEB-2010	5534.158	5885.907	11872.00	0.2698340	1.3717437E-02	53.66179

Instrument : CHAMBER 194  
 Detector : 68635  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:18:45  
 Average Efficiency : 0.2549567  
 Average Efficiency Error : 7.0293345E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2988.572	3300.603	15135.00	0.2573063	1.1058749E-02	49.25695
NP-237	168.2934	28-FEB-2010	4436.435	4905.175	12918.00	0.2558570	1.2989412E-02	62.01285
CM-244	158.8128	28-FEB-2010	5532.274	5883.671	11329.00	0.2509550	1.2767645E-02	52.44061

Instrument : CHAMBER 195  
 Detector : 68636  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:19:31  
 Average Efficiency : 0.2573034  
 Average Efficiency Error : 7.5419121E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2988.629	3301.408	14891.00	0.2527547	1.2807086E-02	48.20201
NP-237	166.3758	28-FEB-2010	4433.877	4902.925	13025.00	0.2606431	1.3231294E-02	57.67042
CM-244	157.1856	28-FEB-2010	5535.397	5886.705	11566.00	0.2588032	1.3162592E-02	51.27964

Instrument : CHAMBER 196  
 Detector : 68637  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 22-JUL-2009 08:11:34  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 22-JUL-2009 14:19:51  
 Average Efficiency : 0.2566788  
 Average Efficiency Error : 7.0757568E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.3204	28-FEB-2010	2990.343	3302.501	15220.00	0.2553304	1.0972751E-02	52.52193
NP-237	167.4312	28-FEB-2010	4433.338	4901.979	12956.00	0.2579251	1.3093841E-02	56.52662
CM-244	156.4188	28-FEB-2010	5534.144	5885.395	11442.00	0.2573523	1.3090876E-02	54.16713

Instrument : CHAMBER 197  
 Detector : 78894  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUL-2009 07:57:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:00:24  
 Average Efficiency : 0.2568228  
 Average Efficiency Error : 7.0815496E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2989.389	3297.669	14834.00	0.2533745	1.0893730E-02	54.12946
NP-237	167.1294	28-FEB-2010	4433.236	4904.076	13081.00	0.2608898	1.3242440E-02	59.82949
CM-244	154.7664	28-FEB-2010	5534.086	5887.165	11341.00	0.2578318	1.3117233E-02	57.39178

Instrument : CHAMBER 198  
 Detector : 78895  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 23-JUL-2009 07:57:47  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:00:36  
 Average Efficiency : 0.2554221  
 Average Efficiency Error : 7.0427968E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2989.288	3302.314	14813.00	0.2529756	1.0876846E-02	54.48853
NP-237	168.7422	28-FEB-2010	4436.287	4906.224	13147.00	0.2597000	1.3181067E-02	56.83169
CM-244	156.3252	28-FEB-2010	5534.818	5887.000	11318.00	0.2547599	1.2961345E-02	56.23568

Instrument : CHAMBER 199  
 Detector : 78896  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUL-2009 07:57:56  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:00:47  
 Average Efficiency : 0.2512973  
 Average Efficiency Error : 6.9297734E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2990.202	3299.048	14855.00	0.2506810	1.0777651E-02	51.46595
NP-237	170.0886	28-FEB-2010	4435.598	4906.357	12647.00	0.2478395	1.2586436E-02	58.09747
CM-244	157.7460	28-FEB-2010	5530.513	5883.049	11473.00	0.2558941	1.3016121E-02	53.79463



Instrument : CHAMBER 200  
 Detector : 78900  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:00:57  
 Average Efficiency : 0.2672527  
 Average Efficiency Error : 7.3646023E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2989.598	3302.306	15546.00	0.2700108	1.1599314E-02	51.74545
NP-237	166.6248	28-FEB-2010	4436.820	4902.466	13287.00	0.2657169	1.3484498E-02	57.34525
CM-244	155.8290	28-FEB-2010	5532.933	5886.480	11743.00	0.2650634	1.3477416E-02	51.61598

Instrument : CHAMBER 201  
 Detector : 78902  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:05  
 Average Efficiency : 0.2606938  
 Average Efficiency Error : 7.1896687E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2989.239	3302.324	14811.00	0.2602134	1.1188080E-02	47.14003
NP-237	159.1506	28-FEB-2010	4432.525	4903.539	12448.00	0.2606924	1.3242436E-02	55.19216
CM-244	151.7142	28-FEB-2010	5534.042	5887.523	11271.00	0.2613738	1.3298883E-02	50.86152

Instrument : CHAMBER 202  
 Detector : 78903  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:17  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:14  
 Average Efficiency : 0.2637661  
 Average Efficiency Error : 7.2755860E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2988.965	3301.750	14586.00	0.2634446	1.1330210E-02	45.61659
NP-237	160.8066	28-FEB-2010	4435.262	4905.190	12706.00	0.2633806	1.3374711E-02	55.61831
CM-244	145.8384	28-FEB-2010	5533.929	5886.269	10972.00	0.2646115	1.3470060E-02	49.12627

Instrument : CHAMBER 203  
 Detector : 78905  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:22  
 Average Efficiency : 0.2569410  
 Average Efficiency Error : 7.0852954E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2990.960	3299.739	14972.00	0.2599902	1.1176325E-02	44.74440
NP-237	166.8174	28-FEB-2010	4435.540	4905.766	12710.00	0.2539164	1.2894144E-02	57.74120
CM-244	155.0100	28-FEB-2010	5534.337	5886.308	11275.00	0.2558869	1.3019669E-02	47.66172

Instrument : CHAMBER 204  
 Detector : 78907  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:28  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:31  
 Average Efficiency : 0.2506487  
 Average Efficiency Error : 6.9159763E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2989.953	3297.878	14336.00	0.2485577	1.0693511E-02	50.84674
NP-237	164.6658	28-FEB-2010	4437.339	4902.439	12528.00	0.2535195	1.2876903E-02	55.89592
CM-244	151.3824	28-FEB-2010	5531.727	5884.400	10796.00	0.2508073	1.2771029E-02	51.62991

Instrument : CHAMBER 205  
 Detector : 78908  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:33  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:40  
 Average Efficiency : 0.2503343  
 Average Efficiency Error : 6.9021145E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2991.664	3299.649	14924.00	0.2472031	1.0627222E-02	48.93098
NP-237	171.2268	28-FEB-2010	4434.348	4904.923	13015.00	0.2533501	1.2860725E-02	61.87793
CM-244	159.5796	28-FEB-2010	5534.662	5887.628	11424.00	0.2518927	1.2813480E-02	52.59251

Instrument : CHAMBER 206  
 Detector : 78909  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:49  
 Average Efficiency : 0.2562930  
 Average Efficiency Error : 7.0664333E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2991.007	3298.921	15006.00	0.2566382	1.1031752E-02	49.35140
NP-237	168.3948	28-FEB-2010	4432.777	4902.746	12926.00	0.2558552	1.2989211E-02	55.62066
CM-244	154.6032	28-FEB-2010	5531.452	5883.730	11261.00	0.2562518	1.3038474E-02	55.87610

Instrument : CHAMBER 207  
 Detector : 78910  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:42  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:01:57  
 Average Efficiency : 0.2558556  
 Average Efficiency Error : 7.0599136E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2988.143	3301.594	14367.00	0.2571380	1.1062090E-02	47.38946
NP-237	159.6558	28-FEB-2010	4437.296	4902.779	12320.00	0.2572077	1.3067513E-02	57.42012
CM-244	150.5208	28-FEB-2010	5532.449	5885.271	10817.00	0.2528071	1.2872322E-02	52.11042

Instrument : CHAMBER 208  
 Detector : 78911  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 23-JUL-2009 07:58:46  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 23-JUL-2009 14:02:06  
 Average Efficiency : 0.2527668  
 Average Efficiency Error : 6.9748992E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2989.612	3298.165	14243.00	0.2507517	1.0789137E-02	50.79447
NP-237	161.5530	28-FEB-2010	4434.097	4904.804	12430.00	0.2564567	1.3027546E-02	58.53157
CM-244	151.1856	28-FEB-2010	5534.389	5887.108	10827.00	0.2520371	1.2832657E-02	54.35335

Instrument : CHAMBER 209  
 Detector : 79188  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:13  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 13:59:46  
 Average Efficiency : 0.3720503  
 Average Efficiency Error : 1.0203380E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2989.310	3300.226	22310.00	0.3611241	1.5431225E-02	61.07782
NP-237	171.0024	28-FEB-2010	4435.667	4905.853	19559.00	0.3812561	1.9256754E-02	78.47396
CM-244	158.1060	28-FEB-2010	5530.947	5884.845	17057.00	0.3798239	1.9212671E-02	62.16251

Instrument : CHAMBER 210  
 Detector : 79189  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 13:59:55  
 Average Efficiency : 0.3939427  
 Average Efficiency Error : 1.0785731E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2990.620	3297.977	22918.00	0.3868399	1.6524704E-02	56.73992
NP-237	200.4990	28-FEB-2010	4435.731	4905.552	24207.00	0.4024462	2.0287881E-02	74.58759
CM-244	196.5558	28-FEB-2010	5534.352	5886.824	22110.00	0.3960794	1.9982373E-02	58.11366

Instrument : CHAMBER 211  
 Detector : 79190  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:25  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:03  
 Average Efficiency : 0.3799735  
 Average Efficiency Error : 1.0408110E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2988.121	3301.259	22155.00	0.3687188	1.5757136E-02	56.93997
NP-237	203.2080	28-FEB-2010	4436.737	4902.524	23738.00	0.3893826	1.9632483E-02	71.62598
CM-244	197.2236	28-FEB-2010	5532.952	5886.368	21725.00	0.3879907	1.9577414E-02	62.12684

Instrument : CHAMBER 212  
 Detector : 79191  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:11  
 Average Efficiency : 0.3809828  
 Average Efficiency Error : 1.0432592E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2989.135	3301.447	22739.00	0.3726791	1.5921319E-02	60.42460
NP-237	204.2586	28-FEB-2010	4434.433	4904.665	23808.00	0.3885271	1.9588865E-02	78.17927
CM-244	198.8100	28-FEB-2010	5534.267	5887.313	21781.00	0.3859496	1.9473951E-02	58.94521

Instrument : CHAMBER 213  
 Detector : 79192  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:20  
 Average Efficiency : 0.3632684  
 Average Efficiency Error : 9.9503463E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2990.470	3298.036	22131.00	0.3547624	1.5160903E-02	63.50857
NP-237	209.5938	28-FEB-2010	4436.689	4901.687	23169.00	0.3684698	1.8581852E-02	80.13203
CM-244	202.7478	28-FEB-2010	5531.037	5883.842	21347.00	0.3709584	1.8720919E-02	62.77599

Instrument : CHAMBER 214  
 Detector : 79193  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:45  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:29  
 Average Efficiency : 0.3836091  
 Average Efficiency Error : 1.0504629E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2990.553	3297.788	22693.00	0.3763517	1.6078612E-02	56.27348
NP-237	204.7038	28-FEB-2010	4436.227	4901.574	23647.00	0.3850555	1.9414932E-02	74.54285
CM-244	195.0060	28-FEB-2010	5531.780	5885.252	21759.00	0.3931459	1.9837169E-02	56.86452

Instrument : CHAMBER 215  
 Detector : 79194  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:38  
 Average Efficiency : 0.3803512  
 Average Efficiency Error : 1.0415906E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2989.364	3302.121	22674.00	0.3705170	1.5829490E-02	58.59007
NP-237	205.0260	28-FEB-2010	4437.186	4903.222	23893.00	0.3884499	1.9584402E-02	72.67680
CM-244	199.6806	28-FEB-2010	5534.359	5882.968	21950.00	0.3872738	1.9539375E-02	61.41080

Instrument : CHAMBER 216  
 Detector : 79195  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:47:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:46  
 Average Efficiency : 0.3731616  
 Average Efficiency Error : 1.0220583E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2990.730	3302.451	22182.00	0.3636904	1.5542008E-02	60.14384
NP-237	209.2716	28-FEB-2010	4434.761	4905.361	23781.00	0.3787806	1.9097654E-02	75.39853
CM-244	199.6488	28-FEB-2010	5530.680	5884.547	21648.00	0.3820059	1.9275997E-02	60.78160

Instrument : CHAMBER 217  
 Detector : 79410  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:00:55  
 Average Efficiency : 0.3778184  
 Average Efficiency Error : 1.0346431E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2988.264	3300.395	22447.00	0.3728177	1.5929710E-02	59.20551
NP-237	204.0192	28-FEB-2010	4433.666	4904.432	23270.00	0.3801880	1.9172091E-02	76.02460
CM-244	197.2128	28-FEB-2010	5535.108	5883.550	21438.00	0.3827657	1.9316062E-02	61.20031

Instrument : CHAMBER 218  
 Detector : 79411  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:01:03  
 Average Efficiency : 0.3940997  
 Average Efficiency Error : 1.0791861E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2991.480	3299.092	22843.00	0.3820206	1.6319500E-02	60.57081
NP-237	202.9926	28-FEB-2010	4433.463	4904.366	24456.00	0.4015617	2.0241646E-02	78.79704
CM-244	196.2330	28-FEB-2010	5534.949	5883.207	22582.00	0.4054522	2.0451389E-02	60.53443

Instrument : CHAMBER 219  
 Detector : 79412  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:01:48  
 Average Efficiency : 0.3662424  
 Average Efficiency Error : 1.0028155E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2991.558	3298.478	22686.00	0.3600933	1.5384067E-02	58.88719
NP-237	214.4868	28-FEB-2010	4436.677	4902.329	24003.00	0.3730206	1.8805804E-02	79.43044
CM-244	208.4184	28-FEB-2010	5533.300	5887.374	21804.00	0.3685999	1.8598294E-02	60.23553

Instrument : CHAMBER 220  
 Detector : 79413  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:23  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:00  
 Average Efficiency : 0.3800345  
 Average Efficiency Error : 1.0404716E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2990.238	3297.635	22946.00	0.3758968	1.6057028E-02	61.95944
NP-237	205.8930	28-FEB-2010	4436.067	4906.404	23867.00	0.3863981	1.9481128E-02	76.81815
CM-244	203.1954	28-FEB-2010	5530.768	5883.799	21903.00	0.3797704	1.9161157E-02	61.74461

Instrument : CHAMBER 221  
 Detector : 79414  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:09  
 Average Efficiency : 0.3757081  
 Average Efficiency Error : 1.0287202E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2988.031	3301.906	22489.00	0.3730499	1.5939282E-02	52.97857
NP-237	210.2526	28-FEB-2010	4434.520	4906.347	23758.00	0.3766535	1.8990556E-02	73.94412
CM-244	201.9108	28-FEB-2010	5532.427	5886.301	21697.00	0.3785694	1.9102205E-02	60.49401

Instrument : CHAMBER 222  
 Detector : 79415  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:19  
 Average Efficiency : 0.3486046  
 Average Efficiency Error : 9.5541952E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2988.828	3299.834	21348.00	0.3358505	1.4359185E-02	53.28439
NP-237	211.7160	28-FEB-2010	4436.567	4903.132	22784.00	0.3587198	1.8092748E-02	75.86924
CM-244	207.3882	28-FEB-2010	5532.999	5885.314	21129.00	0.3587538	1.8106727E-02	62.25880

Instrument : CHAMBER 223  
 Detector : 79416  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:43  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:29  
 Average Efficiency : 0.3842350  
 Average Efficiency Error : 1.0522764E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2988.719	3302.203	22642.00	0.3749019	1.6017098E-02	52.37010
NP-237	200.6460	28-FEB-2010	4434.717	4901.802	23720.00	0.3940558	1.9868227E-02	70.08206
CM-244	195.9270	28-FEB-2010	5534.370	5883.775	21616.00	0.3886585	1.9611971E-02	55.34917



Instrument : CHAMBER 224  
 Detector : 79417  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:37  
 Average Efficiency : 0.3844876  
 Average Efficiency Error : 1.0532029E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2991.902	3302.451	22483.00	0.3722161	1.5903715E-02	55.77303
NP-237	199.3962	28-FEB-2010	4433.496	4905.621	23986.00	0.4009725	2.0215105E-02	74.29817
CM-244	198.6402	28-FEB-2010	5531.081	5884.107	21855.00	0.3876156	1.9557375E-02	62.08027

Instrument : CHAMBER 225  
 Detector : 79418  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:48:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:46  
 Average Efficiency : 0.3784786  
 Average Efficiency Error : 1.0361850E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2989.698	3301.928	23097.00	0.3714026	1.5863828E-02	56.57831
NP-237	208.5846	28-FEB-2010	4436.047	4902.115	24170.00	0.3862496	1.9471634E-02	72.01178
CM-244	205.5828	28-FEB-2010	5533.662	5882.674	22249.00	0.3812986	1.9235564E-02	61.39241

Instrument : CHAMBER 226  
 Detector : 79419  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:02:55  
 Average Efficiency : 0.3808596  
 Average Efficiency Error : 1.0428368E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2990.229	3299.048	22549.00	0.3767624	1.6097387E-02	54.38462
NP-237	208.8990	28-FEB-2010	4436.278	4902.399	23852.00	0.3805940	1.9188609E-02	81.14477
CM-244	198.1458	28-FEB-2010	5532.943	5886.259	21774.00	0.3871692	1.9535474E-02	57.36676

Instrument : CHAMBER 227  
 Detector : 79420  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:04  
 Average Efficiency : 0.3843335  
 Average Efficiency Error : 1.0524626E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2988.495	3300.898	22690.00	0.3745091	1.5999891E-02	56.91222
NP-237	202.9140	28-FEB-2010	4435.132	4906.286	23781.00	0.3906433	1.9695761E-02	72.78109
CM-244	199.3140	28-FEB-2010	5532.133	5886.196	22245.00	0.3930259	1.9827209E-02	61.27127

Instrument : CHAMBER 228  
 Detector : 79421  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:16  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:13  
 Average Efficiency : 0.3819269  
 Average Efficiency Error : 1.0460673E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2990.613	3298.829	22551.00	0.3705553	1.5832171E-02	51.70354
NP-237	203.4984	28-FEB-2010	4434.639	4905.792	23625.00	0.3869812	1.9512173E-02	70.48917
CM-244	197.1096	28-FEB-2010	5531.072	5884.538	22079.00	0.3946491	1.9910410E-02	54.39862

Instrument : CHAMBER 229  
 Detector : 79422  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:22  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:22  
 Average Efficiency : 0.3798401  
 Average Efficiency Error : 1.0399979E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2990.805	3298.464	23010.00	0.3730097	1.5933167E-02	54.32673
NP-237	210.1548	28-FEB-2010	4434.226	4906.242	23918.00	0.3793714	1.9126525E-02	69.91097
CM-244	200.7390	28-FEB-2010	5533.427	5882.943	22277.00	0.3907950	1.9714409E-02	60.50524

Instrument : CHAMBER 230  
 Detector : 79423  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 27-JUL-2009 11:49:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-JUL-2009 14:03:31  
 Average Efficiency : 0.3762562  
 Average Efficiency Error : 1.0304146E-02  
 Confidence : 95.00000

Cal. 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

## 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-AUG-2009 13:24:07  
 Calibration Source Id : AESS-001

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.335
CM-244	4320A	2/28/10	5795.020	5794.881

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.838  
 Energy Calibration Slope : 4.927811  
 Energy Calibration Quadratic : 3.3034658E-04  
 Energy Calibration Range : 7783.000

Instrument : CHAMBER 210  
 Detector : 79189  
 Calibration Date/Time : 28-AUG-2009 13:25:35  
 Calibration Source Id : AESS-002

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.411
NP-237	4341	2/28/10	4768.800	4768.113
CM-244	4320A	2/28/10	5795.020	5794.645

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.667  
 Energy Calibration Slope : 4.959684  
 Energy Calibration Quadratic : 2.9263049E-04  
 Energy Calibration Range : 7769.000

Instrument : CHAMBER 211  
 Detector : 79190  
 Calibration Date/Time : 28-AUG-2009 13:25:47  
 Calibration Source Id : AESS-003

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.995
NP-237	4341	2/28/10	4768.800	4768.326
CM-244	4320A	2/28/10	5795.020	5794.748

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.783  
 Energy Calibration Slope : 4.948876  
 Energy Calibration Quadratic : 3.2176418E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 212  
 Detector : 79191  
 Calibration Date/Time : 28-AUG-2009 13:26:50  
 Calibration Source Id : AESS-004

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.995
NP-237	4341	2/28/10	4768.800	4768.536
CM-244	4320A	2/28/10	5795.020	5794.696

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.425  
 Energy Calibration Slope : 4.930474  
 Energy Calibration Quadratic : 3.3508314E-04  
 Energy Calibration Range : 7791.000

Instrument : CHAMBER 213  
 Detector : 79192  
 Calibration Date/Time : 28-AUG-2009 13:27:02  
 Calibration Source Id : AESS-005

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.585
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.388  
 Energy Calibration Slope : 4.965888  
 Energy Calibration Quadratic : 2.9186261E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 214  
 Detector : 79193  
 Calibration Date/Time : 28-AUG-2009 13:27:13  
 Calibration Source Id : AESS-006

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.617
NP-237	4341	2/28/10	4768.800	4768.269
CM-244	4320A	2/28/10	5795.020	5794.897

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.729  
 Energy Calibration Slope : 4.939622  
 Energy Calibration Quadratic : 3.2170661E-04  
 Energy Calibration Range : 7784.000

Instrument : CHAMBER 215  
 Detector : 79194  
 Calibration Date/Time : 28-AUG-2009 13:27:24  
 Calibration Source Id : AESS-007

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.687
CM-244	4320A	2/28/10	5795.020	5794.826

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2394.311  
 Energy Calibration Slope : 4.937372  
 Energy Calibration Quadratic : 3.3629968E-04  
 Energy Calibration Range : 7803.000

Instrument : CHAMBER 216  
 Detector : 79195  
 Calibration Date/Time : 28-AUG-2009 13:27:35  
 Calibration Source Id : AESS-008

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.995
NP-237	4341	2/28/10	4768.800	4768.219
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.139  
 Energy Calibration Slope : 4.935822  
 Energy Calibration Quadratic : 3.2837162E-04  
 Energy Calibration Range : 7789.000

Instrument : CHAMBER 217  
 Detector : 79410  
 Calibration Date/Time : 28-AUG-2009 13:27:45  
 Calibration Source Id : AESS-009

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.999
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5794.882

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.370  
 Energy Calibration Slope : 4.932100  
 Energy Calibration Quadratic : 3.3393077E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 218  
 Detector : 79411  
 Calibration Date/Time : 28-AUG-2009 13:27:55  
 Calibration Source Id : AESS-010  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.358  
 NP-237 4341 2/28/10 4768.800 4768.423  
 CM-244 4320A 2/28/10 5795.020 5794.546  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.502  
 Energy Calibration Slope : 4.945263  
 Energy Calibration Quadratic : 3.2289582E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 219  
 Detector : 79412  
 Calibration Date/Time : 28-AUG-2009 13:28:06  
 Calibration Source Id : AESS-011  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.507  
 CM-244 4320A 2/28/10 5795.020 5794.730  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.417  
 Energy Calibration Slope : 4.951864  
 Energy Calibration Quadratic : 3.1518008E-04  
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 220  
 Detector : 79413  
 Calibration Date/Time : 28-AUG-2009 13:28:15  
 Calibration Source Id : AESS-012  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.604  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.931  
 Energy Calibration Slope : 4.925590  
 Energy Calibration Quadratic : 3.4113281E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 221  
 Detector : 79414  
 Calibration Date/Time : 28-AUG-2009 13:28:26  
 Calibration Source Id : AESS-013  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.994  
 NP-237 4341 2/28/10 4768.800 4768.508  
 CM-244 4320A 2/28/10 5795.020 5795.021  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.873  
 Energy Calibration Slope : 4.963081  
 Energy Calibration Quadratic : 3.1328213E-04  
 Energy Calibration Range : 7801.000

Instrument : CHAMBER 222  
 Detector : 79415  
 Calibration Date/Time : 28-AUG-2009 13:28:40  
 Calibration Source Id : AESS-014  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.242  
 CM-244 4320A 2/28/10 5795.020 5795.020  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2383.161  
 Energy Calibration Slope : 5.032124  
 Energy Calibration Quadratic : 2.3446424E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 223  
 Detector : 79416  
 Calibration Date/Time : 28-AUG-2009 13:28:50  
 Calibration Source Id : AESS-015  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.591  
 CM-244 4320A 2/28/10 5795.020 5794.816  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.471  
 Energy Calibration Slope : 4.966544  
 Energy Calibration Quadratic : 3.1951332E-04  
 Energy Calibration Range : 7810.000



Instrument : CHAMBER 224  
 Detector : 79417  
 Calibration Date/Time : 28-AUG-2009 13:29:01  
 Calibration Source Id : AESS-016  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3182.496  
   NP-237        4341          2/28/10            4768.800        4768.799  
   CM-244        4320A        2/28/10            5795.020        5795.021  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.014  
 Energy Calibration Slope : 4.986970  
 Energy Calibration Quadratic : 2.9468181E-04  
 Energy Calibration Range : 7807.000

Instrument : CHAMBER 225  
 Detector : 79418  
 Calibration Date/Time : 28-AUG-2009 13:29:13  
 Calibration Source Id : AESS-017  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3182.995  
   NP-237        4341          2/28/10            4768.800        4768.482  
   CM-244        4320A        2/28/10            5795.020        5794.771  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.520  
 Energy Calibration Slope : 4.953336  
 Energy Calibration Quadratic : 3.1543931E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 226  
 Detector : 79419  
 Calibration Date/Time : 28-AUG-2009 13:29:24  
 Calibration Source Id : AESS-018  
 Cal. Isotopes    Source Id    Expiration Date    Standard Energy    Actual Energy  
   GD-148        6445-278      2/28/10            3183.000        3183.000  
   NP-237        4341          2/28/10            4768.800        4768.533  
   CM-244        4320A        2/28/10            5795.020        5794.638  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2385.990  
 Energy Calibration Slope : 4.969761  
 Energy Calibration Quadratic : 3.0473244E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 227  
 Detector : 79420  
 Calibration Date/Time : 28-AUG-2009 13:29:35  
 Calibration Source Id : AESS-019  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.989  
 NP-237 4341 2/28/10 4768.800 4768.396  
 CM-244 4320A 2/28/10 5795.020 5795.019  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.018  
 Energy Calibration Slope : 4.958102  
 Energy Calibration Quadratic : 3.1095589E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 228  
 Detector : 79421  
 Calibration Date/Time : 28-AUG-2009 13:30:03  
 Calibration Source Id : AESS-020  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.001  
 NP-237 4341 2/28/10 4768.800 4768.080  
 CM-244 4320A 2/28/10 5795.020 5794.730  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.553  
 Energy Calibration Slope : 4.991631  
 Energy Calibration Quadratic : 2.7237524E-04  
 Energy Calibration Range : 7782.000

Instrument : CHAMBER 229  
 Detector : 79422  
 Calibration Date/Time : 28-AUG-2009 13:30:14  
 Calibration Source Id : AESS-021  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.535  
 NP-237 4341 2/28/10 4768.800 4768.314  
 CM-244 4320A 2/28/10 5795.020 5794.771  
  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2391.623  
 Energy Calibration Slope : 4.946116  
 Energy Calibration Quadratic : 3.3402635E-04  
 Energy Calibration Range : 7807.000

Instrument : CHAMBER 230  
 Detector : 79423  
 Calibration Date/Time : 28-AUG-2009 13:31:10  
 Calibration Source Id : AESS-022

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.295
CM-244	4320A	2/28/10	5795.020	5794.755

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.924  
 Energy Calibration Slope : 4.965939  
 Energy Calibration Quadratic : 3.0765639E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 231  
 Detector : 79424  
 Calibration Date/Time : 28-AUG-2009 13:31:59  
 Calibration Source Id : AESS-023

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.555
NP-237	4341	2/28/10	4768.800	4768.511
CM-244	4320A	2/28/10	5795.020	5794.833

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.970  
 Energy Calibration Slope : 4.957988  
 Energy Calibration Quadratic : 3.0450191E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 232  
 Detector : 79425  
 Calibration Date/Time : 28-AUG-2009 13:32:18  
 Calibration Source Id : AESS-024

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.305
CM-244	4320A	2/28/10	5795.020	5794.704

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.107  
 Energy Calibration Slope : 5.009925  
 Energy Calibration Quadratic : 2.5456178E-04  
 Energy Calibration Range : 7783.000

Instrument : CHAMBER 233  
 Detector : 79426  
 Calibration Date/Time : 28-AUG-2009 13:32:35  
 Calibration Source Id : AESS-025

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.576
CM-244	4320A	2/28/10	5795.020	5794.737

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.864  
 Energy Calibration Slope : 4.921108  
 Energy Calibration Quadratic : 3.4491287E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 234  
 Detector : 79427  
 Calibration Date/Time : 28-AUG-2009 13:32:51  
 Calibration Source Id : AESS-026

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.551
NP-237	4341	2/28/10	4768.800	4768.513
CM-244	4320A	2/28/10	5795.020	5794.778

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2381.948  
 Energy Calibration Slope : 4.930495  
 Energy Calibration Quadratic : 3.2252993E-04  
 Energy Calibration Range : 7769.000

Instrument : CHAMBER 235  
 Detector : 79428  
 Calibration Date/Time : 28-AUG-2009 13:33:07  
 Calibration Source Id : AESS-027

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.848  
 Energy Calibration Slope : 4.916008  
 Energy Calibration Quadratic : 3.6057594E-04  
 Energy Calibration Range : 7802.000

Instrument : CHAMBER 236  
 Detector : 79429  
 Calibration Date/Time : 28-AUG-2009 13:33:24  
 Calibration Source Id : AESS-028

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.403
CM-244	4320A	2/28/10	5795.020	5795.021

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.679  
 Energy Calibration Slope : 4.915041  
 Energy Calibration Quadratic : 3.5203501E-04  
 Energy Calibration Range : 7792.000

Instrument : CHAMBER 237  
 Detector : 79430  
 Calibration Date/Time : 28-AUG-2009 13:33:41  
 Calibration Source Id : AESS-029

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.371  
 Energy Calibration Slope : 4.953910  
 Energy Calibration Quadratic : 3.1539882E-04  
 Energy Calibration Range : 7790.000

Instrument : CHAMBER 238  
 Detector : 79431  
 Calibration Date/Time : 28-AUG-2009 13:33:59  
 Calibration Source Id : AESS-030

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.662
CM-244	4320A	2/28/10	5795.020	5795.015

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.061  
 Energy Calibration Slope : 4.932787  
 Energy Calibration Quadratic : 3.2764973E-04  
 Energy Calibration Range : 7777.000

Instrument : CHAMBER 239  
 Detector : 79432  
 Calibration Date/Time : 28-AUG-2009 13:34:23  
 Calibration Source Id : AESS-031

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.464  
 Energy Calibration Slope : 4.922751  
 Energy Calibration Quadratic : 3.5207078E-04  
 Energy Calibration Range : 7801.000

Instrument : CHAMBER 240  
 Detector : 79433  
 Calibration Date/Time : 28-AUG-2009 13:34:40  
 Calibration Source Id : AESS-032

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3182.994
NP-237	4341	2/28/10	4768.800	4768.676
CM-244	4320A	2/28/10	5795.020	5795.020

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2384.323  
 Energy Calibration Slope : 4.929180  
 Energy Calibration Quadratic : 3.3816224E-04  
 Energy Calibration Range : 7786.000

Instrument : CHAMBER 241  
 Detector : 79434  
 Calibration Date/Time : 28-AUG-2009 13:34:57  
 Calibration Source Id : AESS-033

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2388.207  
 Energy Calibration Slope : 4.903821  
 Energy Calibration Quadratic : 3.6748822E-04  
 Energy Calibration Range : 7795.000

Instrument : CHAMBER 242  
 Detector : 79435  
 Calibration Date/Time : 28-AUG-2009 13:35:16  
 Calibration Source Id : AESS-034  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.000  
 NP-237 4341 2/28/10 4768.800 4768.542  
 CM-244 4320A 2/28/10 5795.020 5794.775  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.032  
 Energy Calibration Slope : 4.921538  
 Energy Calibration Quadratic : 3.5085063E-04  
 Energy Calibration Range : 7798.000

Instrument : CHAMBER 243  
 Detector : 79436  
 Calibration Date/Time : 28-AUG-2009 13:35:39  
 Calibration Source Id : AESS-035  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.988  
 NP-237 4341 2/28/10 4768.800 4768.486  
 CM-244 4320A 2/28/10 5795.020 5794.752  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2386.548  
 Energy Calibration Slope : 4.951634  
 Energy Calibration Quadratic : 3.2005890E-04  
 Energy Calibration Range : 7793.000

Instrument : CHAMBER 244  
 Detector : 79437  
 Calibration Date/Time : 28-AUG-2009 13:36:07  
 Calibration Source Id : AESS-036  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.497  
 NP-237 4341 2/28/10 4768.800 4768.339  
 CM-244 4320A 2/28/10 5795.020 5794.813  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.547  
 Energy Calibration Slope : 4.935142  
 Energy Calibration Quadratic : 3.3349055E-04  
 Energy Calibration Range : 7794.000

Instrument : CHAMBER 245  
 Detector : 79438  
 Calibration Date/Time : 28-AUG-2009 13:36:53  
 Calibration Source Id : AESS-037  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.392  
 NP-237 4341 2/28/10 4768.800 4768.244  
 CM-244 4320A 2/28/10 5795.020 5794.789  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.397  
 Energy Calibration Slope : 4.967153  
 Energy Calibration Quadratic : 3.0749093E-04  
 Energy Calibration Range : 7802.000

Instrument : CHAMBER 246  
 Detector : 78912  
 Calibration Date/Time : 28-AUG-2009 13:37:05  
 Calibration Source Id : AESS-038  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.994  
 NP-237 4341 2/28/10 4768.800 4768.559  
 CM-244 4320A 2/28/10 5795.020 5794.661  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2393.972  
 Energy Calibration Slope : 4.938848  
 Energy Calibration Quadratic : 3.3234741E-04  
 Energy Calibration Range : 7800.000

Instrument : CHAMBER 247  
 Detector : 79440  
 Calibration Date/Time : 28-AUG-2009 13:37:16  
 Calibration Source Id : AESS-039  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3183.001  
 NP-237 4341 2/28/10 4768.800 4768.340  
 CM-244 4320A 2/28/10 5795.020 5794.822  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.511  
 Energy Calibration Slope : 4.947969  
 Energy Calibration Quadratic : 3.3144341E-04  
 Energy Calibration Range : 7807.000



Instrument : CHAMBER 248  
 Detector : 79441  
 Calibration Date/Time : 28-AUG-2009 13:37:28  
 Calibration Source Id : AESS-040

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5794.763

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.425  
 Energy Calibration Slope : 4.938920  
 Energy Calibration Quadratic : 3.3573247E-04  
 Energy Calibration Range : 7797.000

Instrument : CHAMBER 249  
 Detector : 79442  
 Calibration Date/Time : 28-AUG-2009 13:37:39  
 Calibration Source Id : AESS-041

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.655
CM-244	4320A	2/28/10	5795.020	5794.817

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2387.492  
 Energy Calibration Slope : 4.950956  
 Energy Calibration Quadratic : 3.3470633E-04  
 Energy Calibration Range : 7808.000

Instrument : CHAMBER 250  
 Detector : 79443  
 Calibration Date/Time : 28-AUG-2009 13:37:51  
 Calibration Source Id : AESS-042

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

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2382.437  
 Energy Calibration Slope : 4.924478  
 Energy Calibration Quadratic : 3.4610991E-04  
 Energy Calibration Range : 7788.000

Instrument : CHAMBER 251  
 Detector : 79444  
 Calibration Date/Time : 28-AUG-2009 13:38:01  
 Calibration Source Id : AESS-043

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.630
CM-244	4320A	2/28/10	5795.020	5794.883

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.000  
 Energy Calibration Slope : 4.933837  
 Energy Calibration Quadratic : 3.5430092E-04  
 Energy Calibration Range : 7814.000

Instrument : CHAMBER 252  
 Detector : 79445  
 Calibration Date/Time : 28-AUG-2009 13:38:11  
 Calibration Source Id : AESS-044

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.618
CM-244	4320A	2/28/10	5795.020	5794.764

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.483  
 Energy Calibration Slope : 4.925191  
 Energy Calibration Quadratic : 3.5263240E-04  
 Energy Calibration Range : 7803.000

Instrument : CHAMBER 253  
 Detector : 79446  
 Calibration Date/Time : 28-AUG-2009 13:38:20  
 Calibration Source Id : AESS-045

Cal. Isotopes	Source Id	Expiration Date	Standard Energy	Actual Energy
GD-148	6445-278	2/28/10	3183.000	3183.000
NP-237	4341	2/28/10	4768.800	4768.801
CM-244	4320A	2/28/10	5795.020	5794.899

Energy/Channel Equation : see above  
 Energy Calibration Zero : 2397.089  
 Energy Calibration Slope : 4.939593  
 Energy Calibration Quadratic : 3.6825475E-04  
 Energy Calibration Range : 7841.000

Instrument : CHAMBER 254  
 Detector : 79447  
 Calibration Date/Time : 28-AUG-2009 13:38:31  
 Calibration Source Id : AESS-046  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.420  
 NP-237 4341 2/28/10 4768.800 4768.432  
 CM-244 4320A 2/28/10 5795.020 5794.736  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2392.513  
 Energy Calibration Slope : 4.939602  
 Energy Calibration Quadratic : 3.3955529E-04  
 Energy Calibration Range : 7807.000

Instrument : CHAMBER 255  
 Detector : 79448  
 Calibration Date/Time : 28-AUG-2009 13:38:42  
 Calibration Source Id : AESS-047  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.573  
 NP-237 4341 2/28/10 4768.800 4768.801  
 CM-244 4320A 2/28/10 5795.020 5795.019  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2389.962  
 Energy Calibration Slope : 4.937794  
 Energy Calibration Quadratic : 3.5419688E-04  
 Energy Calibration Range : 7818.000

Instrument : CHAMBER 256  
 Detector : 79449  
 Calibration Date/Time : 28-AUG-2009 13:38:54  
 Calibration Source Id : AESS-048  
 Cal. Isotopes Source Id Expiration Date Standard Energy Actual Energy  
 GD-148 6445-278 2/28/10 3183.000 3182.994  
 NP-237 4341 2/28/10 4768.800 4768.603  
 CM-244 4320A 2/28/10 5795.020 5794.763  
 Energy/Channel Equation : see above  
 Energy Calibration Zero : 2390.038  
 Energy Calibration Slope : 4.925209  
 Energy Calibration Quadratic : 3.5748276E-04  
 Energy Calibration Range : 7808.000

## Subsection 2: Background Calibration

Instrument : CHAMBER 001  
 Detector : 78788  
 Background Analysis Date/Time : 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	11.000000	2.640001	30.15113	95.00000
CM-244	5533.599	5883.327	10.000000	2.400001	31.62278	95.00000

Instrument : CHAMBER 002  
 Detector : 78266  
 Background Analysis Date/Time : 2-AUG-2009 17:38:31  
 Background Count Time : 59999.99

Cal. Isotopes	Start Energy	End Energy	Counts 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	0.900000	57.73503	95.00000
NP-237	4434.984	4905.949	4.000000	1.200000	50.00000	95.00000
CM-244	5531.069	5884.490	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 146  
 Detector : 72527  
 Background Analysis Date/Time : 16-AUG-2009 16:37:08  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.460	3301.164	2.000000	0.600000	70.71068	95.00000
NP-237	4435.288	4903.095	2.000000	0.600000	70.71068	95.00000
CM-244	5534.042	5884.573	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 147  
 Detector : 75550  
 Background Analysis Date/Time : 16-AUG-2009 16:37:11  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	12.00000	3.600000	28.86751	95.00000
CM-244	5531.940	5884.576	10.00000	3.000000	31.62278	95.00000

Instrument : CHAMBER 168  
 Detector : 72547  
 Background Analysis Date/Time : 23-AUG-2009 11:54:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	16.00000	4.800000	25.00000	95.00000
CM-244	5531.663	5884.741	9.000000	2.700000	33.33334	95.00000

Instrument : CHAMBER 169  
 Detector : 72548  
 Background Analysis Date/Time : 23-AUG-2009 11:54:49  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	33.00000	9.900001	17.40777	95.00000

Instrument : CHAMBER 174  
 Detector : 74432  
 Background Analysis Date/Time : 23-AUG-2009 11:55:12  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	24.00000	7.200000	20.41241	95.00000

Instrument : CHAMBER 181  
 Detector : 74439  
 Background Analysis Date/Time : 23-AUG-2009 11:55:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4435.824	4905.707	3.000000	0.900000	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	0.900000	57.73503	95.00000
NP-237	4434.099	4904.342	5.000000	1.500000	44.72136	95.00000
CM-244	5532.826	5884.696	34.00000	10.20000	17.14986	95.00000

Instrument : CHAMBER 184  
 Detector : 74442  
 Background Analysis Date/Time : 23-AUG-2009 11:55:58  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.045	3299.169	1.000000	0.300000	100.0000	95.00000
NP-237	4437.505	4902.470	5.000000	1.500000	44.72136	95.00000
CM-244	5535.333	5886.318	24.00000	7.200000	20.41241	95.00000

Instrument : CHAMBER 185  
 Detector : 68615  
 Background Analysis Date/Time : 23-AUG-2009 11:56:04  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	24.00000	7.200000	20.41241	95.00000

Instrument : CHAMBER 187  
 Detector : 68620  
 Background Analysis Date/Time : 23-AUG-2009 11:56:12  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	19.00000	5.700000	22.94157	95.00000

Instrument : CHAMBER 188  
 Detector : 68621  
 Background Analysis Date/Time : 23-AUG-2009 11:56:16  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	3.000000	0.9000000	57.73503	95.00000
CM-244	5532.776	5884.354	29.00000	8.700001	18.56953	95.00000

Instrument : CHAMBER 190  
 Detector : 68623  
 Background Analysis Date/Time : 23-AUG-2009 11:56:25  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	24.00000	7.200000	20.41241	95.00000
CM-244	5532.170	5883.736	36.00000	10.80000	16.66667	95.00000

Instrument : CHAMBER 191  
 Detector : 68624  
 Background Analysis Date/Time : 23-AUG-2009 11:56:29  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	12.00000	3.600000	28.86751	95.00000

Instrument : CHAMBER 195  
 Detector : 68636  
 Background Analysis Date/Time : 23-AUG-2009 11:56:45  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.011	5885.087	30.00000	9.000000	18.25742	95.00000

Instrument : CHAMBER 199  
 Detector : 78896  
 Background Analysis Date/Time : 23-AUG-2009 11:57:02  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	14.00000	4.200000	26.72612	95.00000

Instrument : CHAMBER 203  
 Detector : 78905  
 Background Analysis Date/Time : 23-AUG-2009 11:57:19  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts 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	6.000000	1.800000	40.82483	95.00000
CM-244	5533.327	5886.561	13.00000	3.900000	27.73501	95.00000

Instrument : CHAMBER 209  
 Detector : 79188  
 Background Analysis Date/Time : 23-AUG-2009 11:57:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.940	3298.642	2.000000	0.6000000	70.71068	95.00000
NP-237	4435.592	4905.793	3.000000	0.9000000	57.73503	95.00000
CM-244	5530.388	5883.749	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 210  
 Detector : 79189  
 Background Analysis Date/Time : 23-AUG-2009 11:57:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.073	3301.089	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.142	4905.164	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.916	5886.208	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 211  
 Detector : 79190  
 Background Analysis Date/Time : 23-AUG-2009 11:57:52  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.282	3299.071	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4434.230	4900.253	2.000000	0.6000000	70.71068	95.00000
CM-244	5531.327	5885.262	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 212  
 Detector : 79191  
 Background Analysis Date/Time : 23-AUG-2009 11:57:56  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.918	3298.870	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4437.027	4902.590	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.378	5887.318	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 213  
 Detector : 79192  
 Background Analysis Date/Time : 23-AUG-2009 11:58:01  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.497	3299.775	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.841	4905.254	1.000000	0.3000000	100.0000	95.00000
CM-244	5534.504	5887.063	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 214  
 Detector : 79193  
 Background Analysis Date/Time : 23-AUG-2009 11:58:05  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.133	3298.396	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4436.844	4902.153	4.000000	1.200000	50.00000	95.00000
CM-244	5532.271	5885.676	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 215  
 Detector : 79194  
 Background Analysis Date/Time : 23-AUG-2009 11:58:09  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.638	3298.993	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4433.482	4904.904	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.246	5885.655	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 216  
 Detector : 79195  
 Background Analysis Date/Time : 23-AUG-2009 11:58:13  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.181	3299.336	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4432.606	4903.311	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.853	5887.574	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 217  
 Detector : 79410  
 Background Analysis Date/Time : 23-AUG-2009 11:58:18  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.031	3301.074	1.000000	0.3000000	100.0000	95.00000
NP-237	4434.240	4905.058	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5530.547	5884.453	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 218  
 Detector : 79411  
 Background Analysis Date/Time : 23-AUG-2009 11:58:23  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.583	3301.235	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.884	4901.733	9.000000	2.700000	33.33334	95.00000
CM-244	5532.602	5886.438	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 219  
 Detector : 79412  
 Background Analysis Date/Time : 23-AUG-2009 11:58:27  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.207	3300.096	1.000000	0.3000000	100.0000	95.00000
NP-237	4435.206	4906.290	4.000000	1.200000	50.00000	95.00000
CM-244	5531.669	5885.285	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 220  
 Detector : 79413  
 Background Analysis Date/Time : 23-AUG-2009 11:58:31  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.930	3297.738	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.749	4901.420	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
CM-244	5532.504	5886.683	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 221  
 Detector : 79414  
 Background Analysis Date/Time : 23-AUG-2009 11:58:35  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.954	3298.454	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4435.659	4902.272	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
CM-244	5533.925	5882.692	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 222  
 Detector : 79415  
 Background Analysis Date/Time : 23-AUG-2009 11:58:40  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.392	3301.657	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4433.525	4905.197	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
CM-244	5534.683	5886.672	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 223  
 Detector : 79416  
 Background Analysis Date/Time : 23-AUG-2009 11:58:47  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.058	3298.884	2.000000	0.6000000	70.71068	95.00000
NP-237	4432.434	4905.074	2.000000	0.6000000	70.71068	95.00000
CM-244	5532.599	5887.467	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 224  
 Detector : 79417  
 Background Analysis Date/Time : 23-AUG-2009 11:58:53  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.636	3298.216	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4432.951	4905.382	3.000000	0.9000000	57.73503	95.00000
CM-244	5532.025	5886.099	4.000000	1.200000	50.00000	95.00000

Instrument : CHAMBER 225  
 Detector : 79418  
 Background Analysis Date/Time : 23-AUG-2009 11:58:59  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.462	3299.408	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.737	4905.917	1.000000	0.3000000	100.0000	95.00000
CM-244	5531.430	5885.124	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 226  
 Detector : 79419  
 Background Analysis Date/Time : 23-AUG-2009 11:59:05  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.793	3300.581	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.080	4904.877	2.000000	0.6000000	70.71068	95.00000
CM-244	5530.936	5884.804	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 227  
 Detector : 79420  
 Background Analysis Date/Time : 23-AUG-2009 11:59:10  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.468	3297.622	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.427	4904.675	1.000000	0.3000000	100.0000	95.00000
CM-244	5535.505	5883.794	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 228  
 Detector : 79421  
 Background Analysis Date/Time : 23-AUG-2009 11:59:16  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.529	3302.052	1.000000	0.3000000	100.0000	95.00000
NP-237	4435.206	4906.368	1.000000	0.3000000	100.0000	95.00000
CM-244	5530.800	5883.365	1.000000	0.3000000	100.0000	95.00000



Instrument : CHAMBER 229  
 Detector : 79422  
 Background Analysis Date/Time : 23-AUG-2009 11:59:21  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.967	3297.813	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.942	4905.968	2.000000	0.6000000	70.71068	95.00000
CM-244	5533.045	5882.442	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 230  
 Detector : 79423  
 Background Analysis Date/Time : 23-AUG-2009 11:59:28  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.307	3300.916	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4432.950	4904.639	2.000000	0.6000000	70.71068	95.00000
CM-244	5530.626	5884.491	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 231  
 Detector : 79424  
 Background Analysis Date/Time : 23-AUG-2009 11:59:34  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.314	3302.411	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4437.493	4903.010	4.000000	1.200000	50.00000	95.00000
CM-244	5532.978	5886.091	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 232  
 Detector : 79425  
 Background Analysis Date/Time : 23-AUG-2009 11:59:39  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.963	3301.243	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.020	4902.090	4.000000	1.200000	50.00000	95.00000
CM-244	5531.563	5883.791	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 233  
 Detector : 79426  
 Background Analysis Date/Time : 23-AUG-2009 11:59:46  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.373	3302.025	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.487	4905.324	2.000000	0.6000000	70.71068	95.00000
CM-244	5531.110	5885.315	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 234  
 Detector : 79427  
 Background Analysis Date/Time : 23-AUG-2009 11:59:51  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.269	3300.079	1.000000	0.3000000	100.0000	95.00000
NP-237	4436.893	4901.571	1.000000	0.3000000	100.0000	95.00000
CM-244	5530.864	5883.822	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 235  
 Detector : 79428  
 Background Analysis Date/Time : 23-AUG-2009 11:59:57  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.964	3301.553	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.767	4906.350	1.000000	0.3000000	100.0000	95.00000
CM-244	5533.497	5883.248	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 236  
 Detector : 79429  
 Background Analysis Date/Time : 23-AUG-2009 12:00:03  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.553	3300.921	3.000000	0.9000000	57.73503	95.00000
NP-237	4432.813	4903.618	11.00000	3.300000	30.15113	95.00000
CM-244	5534.883	5883.901	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 237  
 Detector : 79430  
 Background Analysis Date/Time : 23-AUG-2009 12:00:08  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.412	3298.430	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.021	4905.306	1.000000	0.3000000	100.0000	95.00000
CM-244	5530.956	5884.725	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 238  
 Detector : 79431  
 Background Analysis Date/Time : 23-AUG-2009 12:00:14  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.738	3300.787	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4433.583	4904.073	4.000000	1.200000	50.00000	95.00000
CM-244	5534.315	5882.484	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 239  
 Detector : 79432  
 Background Analysis Date/Time : 23-AUG-2009 12:00:20  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.271	3298.066	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.718	4902.950	8.000000	2.400000	35.35534	95.00000
CM-244	5535.054	5884.530	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 240  
 Detector : 79433  
 Background Analysis Date/Time : 23-AUG-2009 12:00:26  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.716	3297.687	2.000000	0.6000000	70.71068	95.00000
NP-237	4436.108	4901.861	3.000000	0.9000000	57.73503	95.00000
CM-244	5532.981	5887.143	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 241  
 Detector : 79434  
 Background Analysis Date/Time : 23-AUG-2009 12:00:31  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.942	3297.913	4.000000	1.200000	50.00000	95.00000
NP-237	4434.531	4905.642	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
CM-244	5532.339	5887.328	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 242  
 Detector : 79435  
 Background Analysis Date/Time : 23-AUG-2009 12:00:38  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.675	3302.424	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4435.599	4901.625	2.000000	0.6000000	70.71068	95.00000
CM-244	5533.423	5882.719	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 243  
 Detector : 79436  
 Background Analysis Date/Time : 23-AUG-2009 12:00:44  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.382	3298.347	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.037	4905.494	2.000000	0.6000000	70.71068	95.00000
CM-244	5531.482	5885.497	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 244  
 Detector : 79437  
 Background Analysis Date/Time : 23-AUG-2009 12:00:50  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.566	3299.789	5.000000	1.500000	44.72136	95.00000
NP-237	4433.571	4904.626	2.000000	0.6000000	70.71068	95.00000
CM-244	5530.417	5884.486	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 245  
 Detector : 79438  
 Background Analysis Date/Time : 23-AUG-2009 12:00:56  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.843	3302.525	0.000000E+00	0.000000E+00	0.000000E+00	95.00000
NP-237	4434.670	4906.399	2.000000	0.6000000	70.71068	95.00000
CM-244	5532.436	5886.326	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 246  
 Detector : 78912  
 Background Analysis Date/Time : 23-AUG-2009 12:01:02  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.420	3298.792	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.098	4904.335	4.000000	1.200000	50.00000	95.00000
CM-244	5530.336	5884.508	0.000000E+00	0.000000E+00	0.000000E+00	95.00000

Instrument : CHAMBER 247  
 Detector : 79440  
 Background Analysis Date/Time : 23-AUG-2009 12:01:07  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.040	3298.952	5.000000	1.500000	44.72136	95.00000
NP-237	4435.157	4901.869	5.000000	1.500000	44.72136	95.00000
CM-244	5534.103	5883.404	6.000000	1.800000	40.82483	95.00000

Instrument : CHAMBER 248  
 Detector : 79441  
 Background Analysis Date/Time : 23-AUG-2009 12:01:13  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2989.950	3302.491	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.546	4903.912	6.000000	1.800000	40.82483	95.00000
CM-244	5530.441	5884.950	3.000000	0.9000000	57.73503	95.00000

Instrument : CHAMBER 249  
 Detector : 79442  
 Background Analysis Date/Time : 23-AUG-2009 12:01:19  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.458	3299.653	2.000000	0.6000000	70.71068	95.00000
NP-237	4437.087	4904.383	6.000000	1.800000	40.82483	95.00000
CM-244	5532.120	5887.291	2.000000	0.6000000	70.71068	95.00000

Instrument : CHAMBER 250  
 Detector : 79443  
 Background Analysis Date/Time : 23-AUG-2009 12:01:25  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2988.375	3300.259	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4433.621	4904.859	3.000000	0.9000000	57.73503	95.00000
CM-244	5531.200	5885.729	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 251  
 Detector : 79444  
 Background Analysis Date/Time : 23-AUG-2009 12:01:31  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2992.181	3299.694	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4435.877	4903.211	9.000000	2.700000	33.33334	95.00000
CM-244	5531.476	5887.181	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 252  
 Detector : 79445  
 Background Analysis Date/Time : 23-AUG-2009 12:01:36  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.594	3297.549	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000
NP-237	4436.816	4903.310	2.000000	0.6000000	70.71068	95.00000
CM-244	5530.420	5885.459	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 253  
 Detector : 79446  
 Background Analysis Date/Time : 23-AUG-2009 12:01:42  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.116	3298.147	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.082	4905.908	11.00000	3.300000	30.15113	95.00000
CM-244	5531.106	5882.794	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 254  
 Detector : 79447  
 Background Analysis Date/Time : 23-AUG-2009 12:01:48  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2990.155	3297.706	1.000000	0.3000000	100.0000	95.00000
NP-237	4433.107	4904.992	6.000000	1.800000	40.82483	95.00000
CM-244	5532.020	5886.853	0.0000000E+00	0.0000000E+00	0.0000000E+00	95.00000

Instrument : CHAMBER 255  
 Detector : 79448  
 Background Analysis Date/Time : 23-AUG-2009 12:02:23  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2987.598	3300.373	1.000000	0.3000000	100.0000	95.00000
NP-237	4437.418	4905.095	9.000000	2.700000	33.33334	95.00000
CM-244	5533.813	5884.354	1.000000	0.3000000	100.0000	95.00000

Instrument : CHAMBER 256  
 Detector : 79449  
 Background Analysis Date/Time : 23-AUG-2009 12:02:28  
 Background Count Time : 60000.00

Cal. Isotopes	Start Energy	End Energy	Counts in 1000 min	Counts during Cal	% Error	Confidence
GD-148	2991.222	3298.267	1.000000	0.3000000	100.0000	95.00000
NP-237	4432.956	4905.052	4.000000	1.200000	50.00000	95.00000
CM-244	5532.797	5882.840	2.000000	0.6000000	70.71068	95.00000

### Subsection 3: Efficiency Calibration

Instrument : CHAMBER 001  
 Detector : 78788  
 Standard ID : AESS-001  
 Standard Reference Date : 20-FEB-2008 09:54:53  
 Calibration Analysis Date/Time : 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. Istds	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. Istds	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. Istds	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. Isteps	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. Isteps	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. Isteps	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. Isteps	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. Isteps	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. Isteps	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 : 28-AUG-2009 07:06:29  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:24:07  
 Average Efficiency : 0.3688648  
 Average Efficiency Error : 1.0119580E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.6698	28-FEB-2010	2991.940	3298.642	21909.00	0.3549186	1.5169610E-02	67.58371
NP-237	171.0024	28-FEB-2010	4435.592	4905.793	19508.00	0.3802500	1.9206451E-02	83.29742
CM-244	158.1060	28-FEB-2010	5530.388	5883.749	17000.00	0.3798451	1.9214446E-02	66.10979

Instrument : CHAMBER 210  
 Detector : 79189  
 Standard ID : AESS-002  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:35  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:25:35  
 Average Efficiency : 0.3925964  
 Average Efficiency Error : 1.0751541E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1144	28-FEB-2010	2988.073	3301.089	22564.00	0.3811763	1.6285976E-02	59.50077
NP-237	200.4990	28-FEB-2010	4435.142	4905.164	24168.00	0.4017925	2.0255197E-02	72.98598
CM-244	196.5558	28-FEB-2010	5533.916	5886.208	22310.00	0.4010454	2.0231251E-02	59.60097

Instrument : CHAMBER 211  
 Detector : 79190  
 Standard ID : AESS-003  
 Standard Reference Date : 15-FEB-2008 13:12:27  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:39  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:25:47  
 Average Efficiency : 0.3783190  
 Average Efficiency Error : 1.0361547E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.9740	28-FEB-2010	2991.282	3299.071	22252.00	0.3706464	1.5838793E-02	59.43069
NP-237	203.2080	28-FEB-2010	4434.230	4900.253	23526.00	0.3867531	1.9501008E-02	83.71527
CM-244	197.2236	28-FEB-2010	5531.327	5885.262	21283.00	0.3814342	1.9250123E-02	60.34041



Instrument : CHAMBER 212  
 Detector : 79191  
 Standard ID : AESS-004  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:45  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:26:50  
 Average Efficiency : 0.3842054  
 Average Efficiency Error : 1.0521159E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.1222	28-FEB-2010	2991.918	3298.870	22817.00	0.3742636	1.5988497E-02	61.37182
NP-237	204.2586	28-FEB-2010	4437.027	4902.590	24211.00	0.3950988	1.9917466E-02	76.39180
CM-244	198.8100	28-FEB-2010	5533.378	5887.318	21854.00	0.3886002	1.9607035E-02	60.73505

Instrument : CHAMBER 213  
 Detector : 79192  
 Standard ID : AESS-005  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:27:02  
 Average Efficiency : 0.3626718  
 Average Efficiency Error : 9.9363821E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.7452	28-FEB-2010	2991.497	3299.775	21877.00	0.3509731	1.5001265E-02	65.21502
NP-237	209.5938	28-FEB-2010	4434.841	4905.254	23395.00	0.3720641	1.8761570E-02	80.31606
CM-244	202.7478	28-FEB-2010	5534.504	5887.063	21311.00	0.3715691	1.8752033E-02	64.10100

Instrument : CHAMBER 214  
 Detector : 79193  
 Standard ID : AESS-006  
 Standard Reference Date : 14-FEB-2008 09:35:18  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:27:13  
 Average Efficiency : 0.3838671  
 Average Efficiency Error : 1.0511074E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6952	28-FEB-2010	2991.133	3298.396	22762.00	0.3778099	1.6140467E-02	58.86099
NP-237	204.7038	28-FEB-2010	4436.844	4902.153	23748.00	0.3866856	1.9496445E-02	74.56451
CM-244	195.0060	28-FEB-2010	5532.271	5885.676	21514.00	0.3900006	1.9680507E-02	59.70840

Instrument : CHAMBER 215  
 Detector : 79194  
 Standard ID : AESS-007  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 28-AUG-2009 07:06:59  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:27:24  
 Average Efficiency : 0.3806459  
 Average Efficiency Error : 1.0423170E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.7342	28-FEB-2010	2991.638	3298.993	22783.00	0.3725980	1.5917629E-02	61.31356
NP-237	205.0260	28-FEB-2010	4433.482	4904.904	23893.00	0.3884499	1.9584404E-02	80.36595
CM-244	199.6806	28-FEB-2010	5531.246	5885.655	21745.00	0.3849533	1.9423924E-02	60.77392

Instrument : CHAMBER 216  
 Detector : 79195  
 Standard ID : AESS-008  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:04  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:27:35  
 Average Efficiency : 0.3745080  
 Average Efficiency Error : 1.0257245E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.0418	28-FEB-2010	2992.181	3299.336	22346.00	0.3666793	1.5668461E-02	61.23994
NP-237	209.2716	28-FEB-2010	4432.606	4903.311	23466.00	0.3737679	1.8847005E-02	82.70575
CM-244	199.6488	28-FEB-2010	5533.853	5887.574	21885.00	0.3874936	1.9550970E-02	61.73182

Instrument : CHAMBER 217  
 Detector : 79410  
 Standard ID : AESS-009  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:27:45  
 Average Efficiency : 0.3777330  
 Average Efficiency Error : 1.0345438E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.3736	28-FEB-2010	2989.031	3301.074	22245.00	0.3697601	1.5800970E-02	58.22815
NP-237	204.0192	28-FEB-2010	4434.240	4905.058	23534.00	0.3845063	1.9388009E-02	79.31593
CM-244	197.2128	28-FEB-2010	5530.547	5884.453	21374.00	0.3829291	1.9324809E-02	62.42009

Instrument : CHAMBER 218  
 Detector : 79411  
 Standard ID : AESS-010  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:14  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:27:55  
 Average Efficiency : 0.3930598  
 Average Efficiency Error : 1.0761084E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.0008	28-FEB-2010	2988.583	3301.235	23052.00	0.3858313	1.6480651E-02	58.44905
NP-237	202.9926	28-FEB-2010	4435.884	4901.733	24227.00	0.3977866	2.0052891E-02	78.90448
CM-244	196.2330	28-FEB-2010	5532.602	5886.438	22153.00	0.3990829	2.0133503E-02	64.39376

Instrument : CHAMBER 219  
 Detector : 79412  
 Standard ID : AESS-011  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:18  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:28:06  
 Average Efficiency : 0.3681216  
 Average Efficiency Error : 1.0080670E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	212.8284	28-FEB-2010	2992.207	3300.096	22591.00	0.3588740	1.5332905E-02	58.48974
NP-237	214.4868	28-FEB-2010	4435.206	4906.290	24021.00	0.3732913	1.8819345E-02	78.80820
CM-244	208.4184	28-FEB-2010	5531.669	5885.285	22231.00	0.3770731	1.9022530E-02	63.56152

Instrument : CHAMBER 220  
 Detector : 79413  
 Standard ID : AESS-012  
 Standard Reference Date : 14-FEB-2008 13:39:25  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:23  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:28:15  
 Average Efficiency : 0.3790617  
 Average Efficiency Error : 1.0378873E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	206.2200	28-FEB-2010	2990.930	3297.738	22806.00	0.3739041	1.5973235E-02	57.23833
NP-237	205.8930	28-FEB-2010	4435.749	4901.420	23881.00	0.3866248	1.9492462E-02	76.47005
CM-244	203.1954	28-FEB-2010	5532.504	5886.683	21795.00	0.3791749	1.9131947E-02	59.12632

Instrument : CHAMBER 221  
 Detector : 79414  
 Standard ID : AESS-013  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:27  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:28:26  
 Average Efficiency : 0.3760977  
 Average Efficiency Error : 1.0297902E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.6544	28-FEB-2010	2989.954	3298.454	22543.00	0.3742467	1.5990108E-02	51.83245
NP-237	210.2526	28-FEB-2010	4435.659	4902.272	23655.00	0.3750251	1.8909130E-02	73.29375
CM-244	201.9108	28-FEB-2010	5533.925	5882.692	21697.00	0.3798594	1.9167274E-02	59.34735

Instrument : CHAMBER 222  
 Detector : 79415  
 Standard ID : AESS-014  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:28:40  
 Average Efficiency : 0.3479734  
 Average Efficiency Error : 9.5388982E-03  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	214.7088	28-FEB-2010	2990.392	3301.657	21181.00	0.3334915	1.4259904E-02	57.45364
NP-237	211.7160	28-FEB-2010	4433.525	4905.197	22862.00	0.3599479	1.8154154E-02	71.83906
CM-244	207.3882	28-FEB-2010	5534.683	5886.672	21099.00	0.3594557	1.8142378E-02	61.07040

Instrument : CHAMBER 223  
 Detector : 79416  
 Standard ID : AESS-015  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:38  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:28:50  
 Average Efficiency : 0.3915000  
 Average Efficiency Error : 1.0720647E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0270	28-FEB-2010	2990.058	3298.884	22991.00	0.3809772	1.6273832E-02	50.91898
NP-237	200.6460	28-FEB-2010	4432.434	4905.074	24293.00	0.4035698	2.0343946E-02	76.26361
CM-244	195.9270	28-FEB-2010	5532.599	5887.467	21933.00	0.3957134	1.9965306E-02	59.83861

Instrument : CHAMBER 224  
 Detector : 79417  
 Standard ID : AESS-016  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:29:01  
 Average Efficiency : 0.3813685  
 Average Efficiency Error : 1.0448295E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.0534	28-FEB-2010	2988.636	3298.216	22249.00	0.3686436	1.5753238E-02	55.61435
NP-237	199.3962	28-FEB-2010	4432.951	4905.382	23877.00	0.3991403	2.0123499E-02	76.52156
CM-244	198.6402	28-FEB-2010	5532.025	5886.099	21587.00	0.3841456	1.9384453E-02	60.82283

Instrument : CHAMBER 225  
 Detector : 79418  
 Standard ID : AESS-017  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:29:13  
 Average Efficiency : 0.3798896  
 Average Efficiency Error : 1.0400972E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	210.0798	28-FEB-2010	2991.462	3299.408	23067.00	0.3712333	1.5856978E-02	56.54003
NP-237	208.5846	28-FEB-2010	4434.737	4905.917	24322.00	0.3886784	1.9593079E-02	73.79168
CM-244	205.5828	28-FEB-2010	5531.430	5885.124	22345.00	0.3842223	1.9382324E-02	56.97727

Instrument : CHAMBER 226  
 Detector : 79419  
 Standard ID : AESS-018  
 Standard Reference Date : 14-FEB-2008 17:45:04  
 Calibration Analysis Date/Time : 28-AUG-2009 07:07:57  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:29:24  
 Average Efficiency : 0.3827937  
 Average Efficiency Error : 1.0482643E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	202.1856	28-FEB-2010	2991.793	3300.581	22481.00	0.3759236	1.6062303E-02	52.26083
NP-237	208.8990	28-FEB-2010	4433.080	4904.877	23880.00	0.3810358	1.9210700E-02	71.56741
CM-244	198.1458	28-FEB-2010	5530.936	5884.804	22156.00	0.3952768	1.9941466E-02	57.91118

Instrument : CHAMBER 227  
 Detector : 79420  
 Standard ID : AESS-019  
 Standard Reference Date : 19-FEB-2008 11:05:22  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:03  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:29:35  
 Average Efficiency : 0.3801799  
 Average Efficiency Error : 1.0412521E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	204.6468	28-FEB-2010	2989.468	3297.622	22414.00	0.3702514	1.5820496E-02	54.09752
NP-237	202.9140	28-FEB-2010	4433.427	4904.675	23804.00	0.3910310	1.9715140E-02	71.53796
CM-244	199.3140	28-FEB-2010	5535.505	5883.794	21696.00	0.3846057	1.9406769E-02	56.80846

Instrument : CHAMBER 228  
 Detector : 79421  
 Standard ID : AESS-020  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:10  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:30:03  
 Average Efficiency : 0.3820991  
 Average Efficiency Error : 1.0465804E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	205.5870	28-FEB-2010	2992.529	3302.052	22496.00	0.3699491	1.5806897E-02	57.79967
NP-237	203.4984	28-FEB-2010	4435.206	4906.368	23880.00	0.3911529	1.9720770E-02	74.62083
CM-244	197.1096	28-FEB-2010	5530.800	5883.365	21859.00	0.3920157	1.9779330E-02	58.42591

Instrument : CHAMBER 229  
 Detector : 79422  
 Standard ID : AESS-021  
 Standard Reference Date : 19-FEB-2008 15:31:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:15  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:30:14  
 Average Efficiency : 0.3792264  
 Average Efficiency Error : 1.0383990E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	208.3608	28-FEB-2010	2989.967	3297.813	22847.00	0.3706752	1.5834933E-02	56.62864
NP-237	210.1548	28-FEB-2010	4433.942	4905.968	24067.00	0.3817250	1.9244215E-02	74.03220
CM-244	200.7390	28-FEB-2010	5533.045	5882.442	22147.00	0.3898062	1.9665552E-02	61.11129

Instrument : CHAMBER 230  
 Detector : 79423  
 Standard ID : AESS-022  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:19  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:31:10  
 Average Efficiency : 0.3733873  
 Average Efficiency Error : 1.0229134E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	209.6724	28-FEB-2010	2992.307	3300.916	22287.00	0.3593755	1.5356863E-02	52.42038
NP-237	206.8830	28-FEB-2010	4432.950	4904.639	23944.00	0.3857800	1.9449461E-02	68.40366
CM-244	203.0208	28-FEB-2010	5530.626	5884.491	22017.00	0.3833580	1.9341249E-02	56.79975

Instrument : CHAMBER 231  
 Detector : 79424  
 Standard ID : AESS-023  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:24  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:31:59  
 Average Efficiency : 0.3850142  
 Average Efficiency Error : 1.0541392E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	207.4764	28-FEB-2010	2989.314	3302.411	23101.00	0.3764438	1.6079262E-02	62.44617
NP-237	207.4998	28-FEB-2010	4437.493	4903.010	24175.00	0.3883348	1.9576734E-02	78.49866
CM-244	199.8804	28-FEB-2010	5532.978	5886.091	22319.00	0.3947221	1.9912189E-02	60.41550

Instrument : CHAMBER 232  
 Detector : 79425  
 Standard ID : AESS-024  
 Standard Reference Date : 14-FEB-2008 21:55:55  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:30  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:32:18  
 Average Efficiency : 0.3742643  
 Average Efficiency Error : 1.0255569E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.5218	28-FEB-2010	2990.963	3301.243	21662.00	0.3598436	1.5382325E-02	53.98000
NP-237	205.6662	28-FEB-2010	4436.020	4902.090	23797.00	0.3856703	1.9444924E-02	72.96513
CM-244	198.3060	28-FEB-2010	5531.563	5883.791	21651.00	0.3859375	1.9474341E-02	56.32160

Instrument : CHAMBER 233  
 Detector : 79426  
 Standard ID : AESS-025  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:35  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:32:35  
 Average Efficiency : 0.3806617  
 Average Efficiency Error : 1.0437921E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.5670	28-FEB-2010	2990.373	3302.025	21917.00	0.3788947	1.6194314E-02	59.57938
NP-237	167.9916	28-FEB-2010	4434.487	4905.324	19388.00	0.3846898	1.9431910E-02	80.68842
CM-244	157.2432	28-FEB-2010	5531.110	5885.315	16870.00	0.3792152	1.9184273E-02	59.70237

Instrument : CHAMBER 234  
 Detector : 79427  
 Standard ID : AESS-026  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:41  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:32:51  
 Average Efficiency : 0.3701842  
 Average Efficiency Error : 1.0801505E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.5072	28-FEB-2010	2988.269	3300.079	21287.00	0.3607304	1.8206345E-02	60.36027
NP-237	168.0294	28-FEB-2010	4436.893	4901.571	19195.00	0.3807805	1.9236386E-02	87.24484
CM-244	160.5822	28-FEB-2010	5530.864	5883.822	16817.00	0.3701437	1.8726060E-02	61.15481

Instrument : CHAMBER 235  
 Detector : 79428  
 Standard ID : AESS-027  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:45  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:33:07  
 Average Efficiency : 0.3924418  
 Average Efficiency Error : 1.1451972E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.4238	28-FEB-2010	2989.964	3301.553	21591.00	0.3773947	1.9044928E-02	59.06186
NP-237	161.6154	28-FEB-2010	4434.767	4906.350	19376.00	0.3996259	2.0186499E-02	69.60875
CM-244	148.1754	28-FEB-2010	5533.497	5883.248	16865.00	0.4023240	2.0353375E-02	59.46798



Instrument : CHAMBER 236  
 Detector : 79429  
 Standard ID : AESS-028  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:51  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:33:24  
 Average Efficiency : 0.3822154  
 Average Efficiency Error : 1.1149851E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	199.6542	28-FEB-2010	2989.553	3300.921	21911.00	0.3710214	1.8720830E-02	59.63935
NP-237	168.1992	28-FEB-2010	4432.813	4903.618	19461.00	0.3856082	1.9477623E-02	76.00614
CM-244	156.7614	28-FEB-2010	5534.883	5883.901	17350.00	0.3912177	1.9785114E-02	63.22596

Instrument : CHAMBER 237  
 Detector : 79430  
 Standard ID : AESS-029  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:08:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:33:41  
 Average Efficiency : 0.3836243  
 Average Efficiency Error : 1.1190724E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.5742	28-FEB-2010	2990.412	3298.430	22171.00	0.3718633	1.8761324E-02	57.93632
NP-237	169.7700	28-FEB-2010	4434.021	4905.306	19694.00	0.3866741	1.9529065E-02	74.67754
CM-244	154.8234	28-FEB-2010	5530.956	5884.725	17244.00	0.3937016	1.9912098E-02	63.18201

Instrument : CHAMBER 238  
 Detector : 79431  
 Standard ID : AESS-030  
 Standard Reference Date : 15-FEB-2008 09:06:52  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:00  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:33:59  
 Average Efficiency : 0.3827302  
 Average Efficiency Error : 1.1164652E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.9792	28-FEB-2010	2988.738	3300.787	21962.00	0.3731618	1.8828424E-02	57.84193
NP-237	166.3758	28-FEB-2010	4433.583	4904.073	19552.00	0.3916996	1.9784329E-02	69.05827
CM-244	157.1856	28-FEB-2010	5534.315	5882.484	17088.00	0.3842701	1.9437104E-02	55.46104

Instrument : CHAMBER 239  
 Detector : 79432  
 Standard ID : AESS-031  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:05  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:34:23  
 Average Efficiency : 0.3877645  
 Average Efficiency Error : 1.0634423E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	193.6650	28-FEB-2010	2991.271	3298.066	21814.00	0.3807774	1.6275739E-02	53.01001
NP-237	162.9186	28-FEB-2010	4436.718	4902.950	19446.00	0.3978185	2.0094519E-02	75.58379
CM-244	153.1968	28-FEB-2010	5535.054	5884.530	16836.00	0.3883347	1.9646063E-02	61.05005

Instrument : CHAMBER 240  
 Detector : 79433  
 Standard ID : AESS-032  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:09  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:34:40  
 Average Efficiency : 0.3763680  
 Average Efficiency Error : 1.0324174E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	195.2364	28-FEB-2010	2990.716	3297.687	21305.00	0.3688990	1.5772741E-02	54.18781
NP-237	165.9822	28-FEB-2010	4436.108	4901.861	19099.00	0.3835373	1.9376662E-02	70.26006
CM-244	153.7938	28-FEB-2010	5532.981	5887.143	16557.00	0.3804168	1.9249255E-02	59.34691

Instrument : CHAMBER 241  
 Detector : 79434  
 Standard ID : AESS-033  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:15  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:34:57  
 Average Efficiency : 0.3975072  
 Average Efficiency Error : 1.0901848E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.4158	28-FEB-2010	2991.942	3297.913	22027.00	0.3869813	1.6538920E-02	56.90702
NP-237	161.7816	28-FEB-2010	4434.531	4905.642	19524.00	0.4022706	2.0318527E-02	70.70508
CM-244	147.2670	28-FEB-2010	5532.339	5887.328	17047.00	0.4090414	2.0690644E-02	61.22742

Instrument : CHAMBER 242  
 Detector : 79435  
 Standard ID : AESS-034  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:21  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:35:16  
 Average Efficiency : 0.3864579  
 Average Efficiency Error : 1.0596083E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.5488	28-FEB-2010	2990.675	3302.424	22431.00	0.3781182	1.6156483E-02	57.80299
NP-237	167.2962	28-FEB-2010	4435.599	4901.625	19682.00	0.3921467	1.9805590E-02	79.14774
CM-244	154.4388	28-FEB-2010	5533.423	5882.719	17192.00	0.3933641	1.9895712E-02	58.04135

Instrument : CHAMBER 243  
 Detector : 79436  
 Standard ID : AESS-035  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:26  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:35:39  
 Average Efficiency : 0.3714339  
 Average Efficiency Error : 1.0188053E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	198.6666	28-FEB-2010	2990.382	3298.347	21390.00	0.3639862	1.5561880E-02	52.11441
NP-237	168.2934	28-FEB-2010	4434.037	4905.494	19170.00	0.3796824	1.9181171E-02	79.79841
CM-244	158.8128	28-FEB-2010	5531.482	5885.497	16828.00	0.3744243	1.8942432E-02	60.93315

Instrument : CHAMBER 244  
 Detector : 79437  
 Standard ID : AESS-036  
 Standard Reference Date : 18-FEB-2008 11:28:15  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:36:07  
 Average Efficiency : 0.3715149  
 Average Efficiency Error : 1.0192083E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	201.3204	28-FEB-2010	2987.566	3299.789	21504.00	0.3610823	1.5436707E-02	66.23463
NP-237	167.4312	28-FEB-2010	4433.571	4904.626	19293.00	0.3840864	1.9402392E-02	76.43731
CM-244	156.4188	28-FEB-2010	5530.417	5884.486	16611.00	0.3752594	1.8987549E-02	63.78664

Instrument : CHAMBER 245  
 Detector : 79438  
 Standard ID : AESS-037  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:36:53  
 Average Efficiency : 0.3848314  
 Average Efficiency Error : 1.0552316E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7372	28-FEB-2010	2988.843	3302.525	22076.00	0.3774236	1.6129972E-02	66.05534
NP-237	167.1294	28-FEB-2010	4434.670	4906.399	19600.00	0.3909029	1.9743593E-02	75.47243
CM-244	154.7664	28-FEB-2010	5532.436	5886.326	17075.00	0.3898463	1.9719332E-02	65.09534

Instrument : CHAMBER 246  
 Detector : 78912  
 Standard ID : AESS-038  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:44  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:37:05  
 Average Efficiency : 0.3738058  
 Average Efficiency Error : 1.0253170E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	200.1408	28-FEB-2010	2991.420	3298.792	21522.00	0.3635281	1.5541083E-02	66.60865
NP-237	170.0886	28-FEB-2010	4433.098	4904.335	19515.00	0.3824243	1.9316213E-02	81.32760
CM-244	157.7460	28-FEB-2010	5530.336	5884.508	17010.00	0.3810334	1.9274388E-02	64.73948

Instrument : CHAMBER 247  
 Detector : 79440  
 Standard ID : AESS-039  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:50  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:37:16  
 Average Efficiency : 0.3955781  
 Average Efficiency Error : 1.0848942E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	192.2418	28-FEB-2010	2991.040	3298.952	21948.00	0.3859353	1.6494961E-02	55.97421
NP-237	159.1506	28-FEB-2010	4435.157	4901.869	19486.00	0.4080938	2.0613093E-02	75.98156
CM-244	151.7142	28-FEB-2010	5534.103	5883.404	17090.00	0.3980037	2.0131798E-02	63.42304

Instrument : CHAMBER 248  
 Detector : 79441  
 Standard ID : AESS-040  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 28-AUG-2009 07:09:55  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:37:28  
 Average Efficiency : 0.3941916  
 Average Efficiency Error : 1.0806664E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4828	28-FEB-2010	2989.950	3302.491	22290.00	0.3874540	1.6556673E-02	56.03559
NP-237	166.8174	28-FEB-2010	4437.546	4903.912	19884.00	0.3972850	2.0063095E-02	79.90582
CM-244	155.0100	28-FEB-2010	5530.441	5884.950	17598.00	0.4011423	2.0283826E-02	58.96740

Instrument : CHAMBER 249  
 Detector : 79442  
 Standard ID : AESS-041  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:01  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:37:39  
 Average Efficiency : 0.3691496  
 Average Efficiency Error : 1.0125251E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	203.9034	28-FEB-2010	2991.458	3299.653	21709.00	0.3599154	1.5384958E-02	54.07297
NP-237	171.2268	28-FEB-2010	4437.087	4904.383	19560.00	0.3807467	1.9231046E-02	72.35228
CM-244	159.5796	28-FEB-2010	5532.120	5887.291	16794.00	0.3718590	1.8813105E-02	57.81293

Instrument : CHAMBER 250  
 Detector : 79443  
 Standard ID : AESS-042  
 Standard Reference Date : 18-FEB-2008 15:31:47  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:06  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:37:51  
 Average Efficiency : 0.3921595  
 Average Efficiency Error : 1.0755106E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	188.7090	28-FEB-2010	2988.375	3300.259	21703.00	0.3887982	1.6619630E-02	48.88448
NP-237	159.6558	28-FEB-2010	4433.621	4904.859	19099.00	0.3987351	2.0144468E-02	67.77724
CM-244	150.5208	28-FEB-2010	5531.200	5885.729	16638.00	0.3905834	1.9762557E-02	55.02527

Instrument : CHAMBER 251  
 Detector : 79444  
 Standard ID : AESS-043  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:12  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:38:01  
 Average Efficiency : 0.3860320  
 Average Efficiency Error : 1.0584467E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.7708	28-FEB-2010	2992.181	3299.694	22112.00	0.3779713	1.6153051E-02	53.81643
NP-237	168.7422	28-FEB-2010	4435.877	4903.211	19812.00	0.3913130	1.9762235E-02	75.40137
CM-244	156.3252	28-FEB-2010	5531.476	5887.181	17382.00	0.3928898	1.9869251E-02	59.21478

Instrument : CHAMBER 252  
 Detector : 79445  
 Standard ID : AESS-044  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:17  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:38:11  
 Average Efficiency : 0.3746736  
 Average Efficiency Error : 1.0277720E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.4510	28-FEB-2010	2990.594	3297.549	21166.00	0.3679778	1.5734663E-02	58.89096
NP-237	166.6248	28-FEB-2010	4436.816	4903.310	19132.00	0.3827184	1.9334946E-02	82.92307
CM-244	155.8290	28-FEB-2010	5530.420	5885.459	16612.00	0.3766809	1.9059464E-02	58.52933

Instrument : CHAMBER 253  
 Detector : 79446  
 Standard ID : AESS-045  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:22  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:38:20  
 Average Efficiency : 0.4166903  
 Average Efficiency Error : 1.1423565E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	186.9936	28-FEB-2010	2990.116	3298.147	22479.00	0.4063848	1.7363828E-02	54.86803
NP-237	160.8066	28-FEB-2010	4437.082	4905.908	20384.00	0.4224682	2.1329734E-02	78.85169
CM-244	145.8384	28-FEB-2010	5531.106	5882.794	17611.00	0.4266897	2.1575425E-02	60.09909

Instrument : CHAMBER 254  
 Detector : 79447  
 Standard ID : AESS-046  
 Standard Reference Date : 19-FEB-2008 19:35:48  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:27  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:38:31  
 Average Efficiency : 0.3994595  
 Average Efficiency Error : 1.0953108E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	194.7474	28-FEB-2010	2990.155	3297.706	22342.00	0.3878187	1.6571781E-02	57.29897
NP-237	164.6658	28-FEB-2010	4433.107	4904.992	20059.00	0.4060186	2.0502383E-02	81.53826
CM-244	151.3824	28-FEB-2010	5532.020	5886.853	17611.00	0.4110290	2.0783551E-02	57.98274

Instrument : CHAMBER 255  
 Detector : 79448  
 Standard ID : AESS-047  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:32  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:38:42  
 Average Efficiency : 0.3673038  
 Average Efficiency Error : 1.0076646E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	197.4804	28-FEB-2010	2987.598	3300.373	21106.00	0.3613006	1.5449724E-02	54.03281
NP-237	168.3948	28-FEB-2010	4437.418	4905.095	18737.00	0.3708411	1.8738993E-02	71.81757
CM-244	154.6032	28-FEB-2010	5533.813	5884.354	16306.00	0.3726670	1.8860538E-02	60.74806

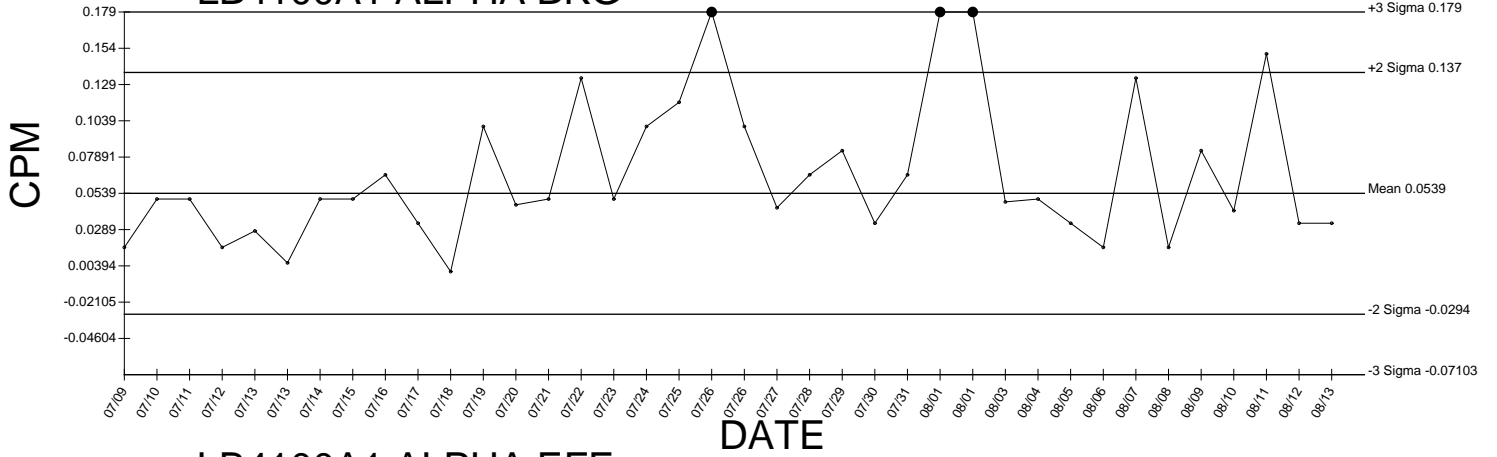
Instrument : CHAMBER 256  
 Detector : 79449  
 Standard ID : AESS-048  
 Standard Reference Date : 19-FEB-2008 00:32:27  
 Calibration Analysis Date/Time : 28-AUG-2009 07:10:37  
 Calibration Count Time : 300.0000  
 Efficiency Calibration Date/Time : 28-AUG-2009 13:38:54  
 Average Efficiency : 0.3796731  
 Average Efficiency Error : 1.0416142E-02  
 Confidence : 95.00000

Cal. Istps	DPM	Exp. Date	Start Engy	End Engy	Counts	EFF.	EFF Err	Resolution
GD-148	191.8350	28-FEB-2010	2991.222	3298.267	21126.00	0.3722856	1.5919263E-02	56.71911
NP-237	161.5530	28-FEB-2010	4432.956	4905.052	18745.00	0.3867485	1.9542677E-02	77.89369
CM-244	151.1856	28-FEB-2010	5532.797	5882.840	16417.00	0.3836786	1.9416265E-02	61.63605

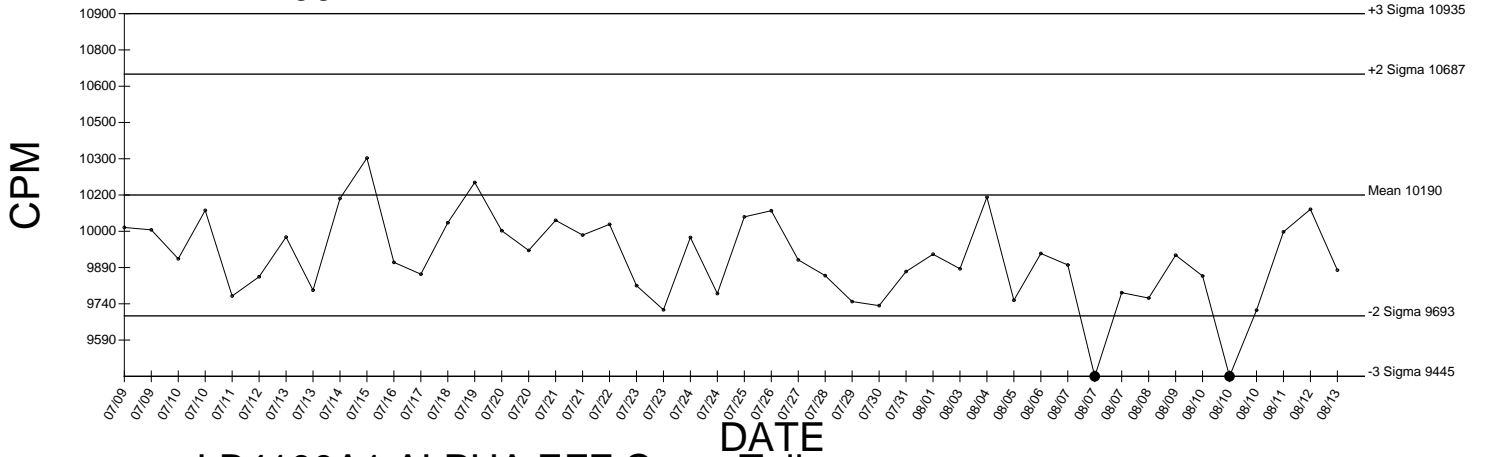
# BACKGROUND AND EFFICIENCY DATA



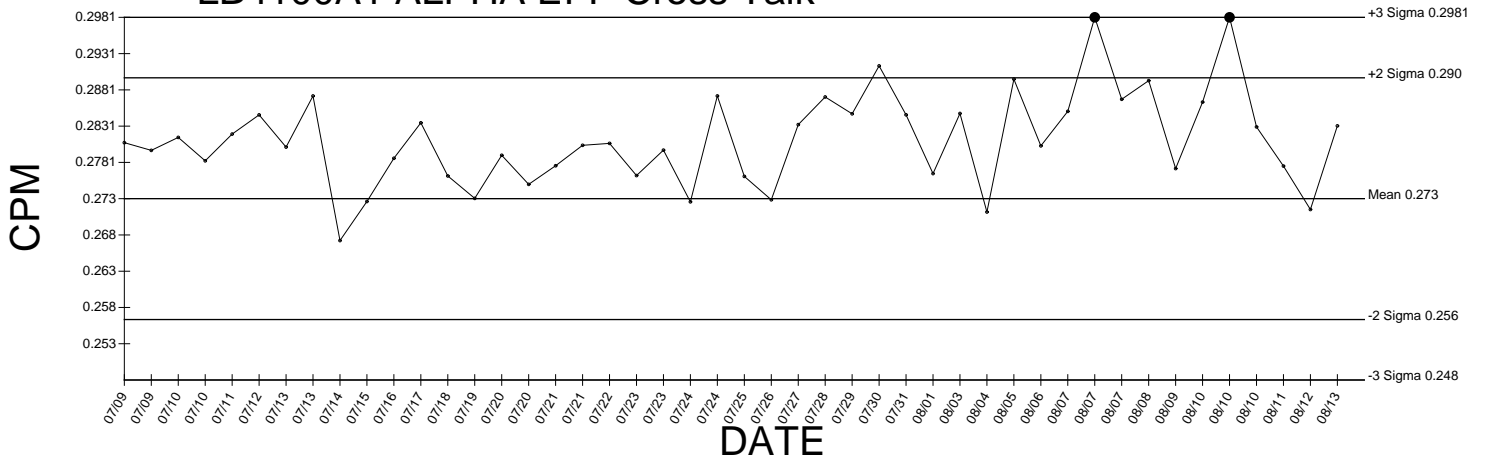
### LB4100A1 ALPHA BKG



### LB4100A1 ALPHA EFF

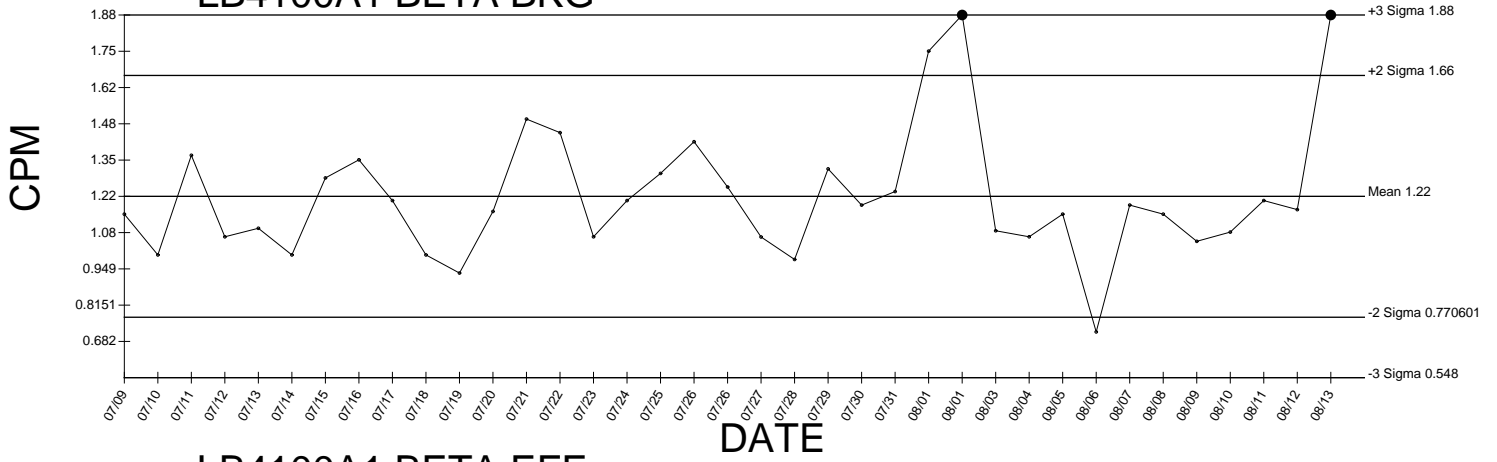


### LB4100A1 ALPHA EFF Cross Talk

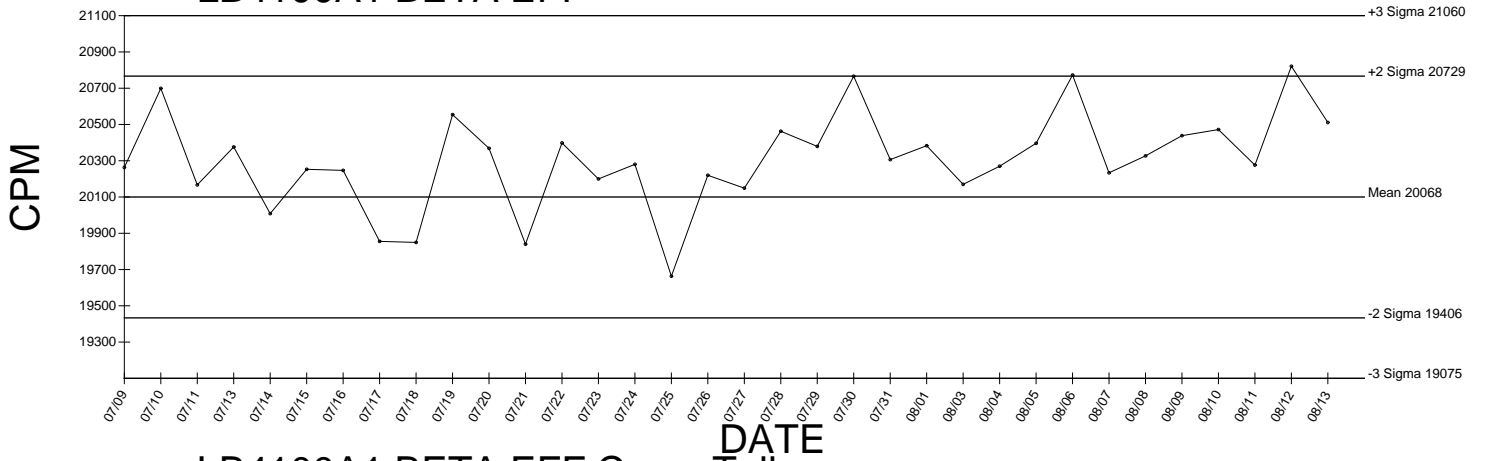


● Denotes Outlier

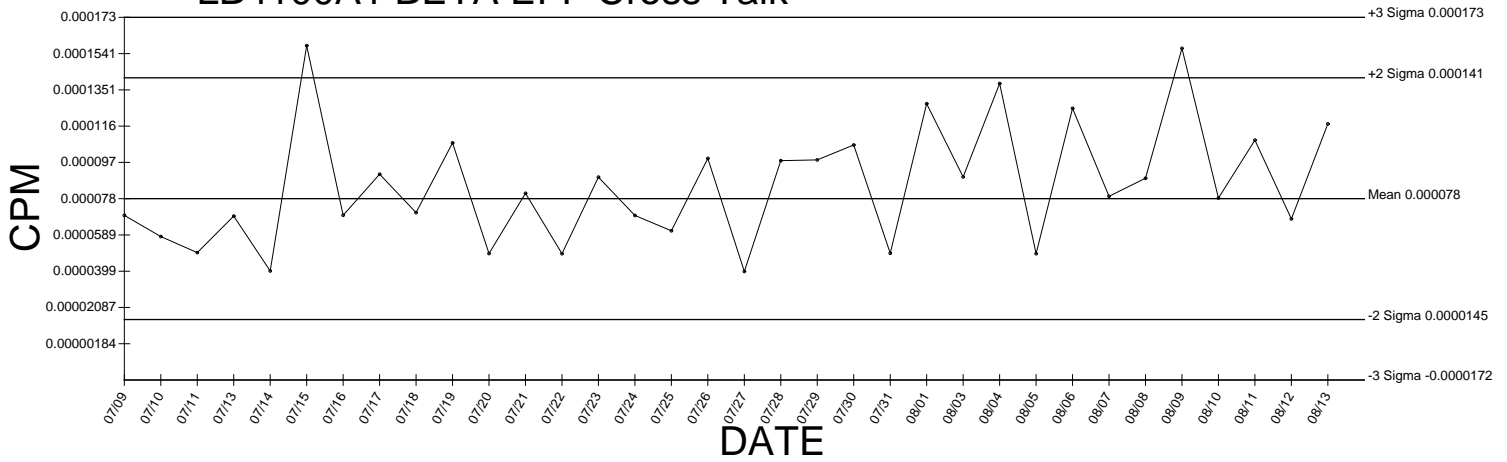
### LB4100A1 BETA BKG



### LB4100A1 BETA EFF

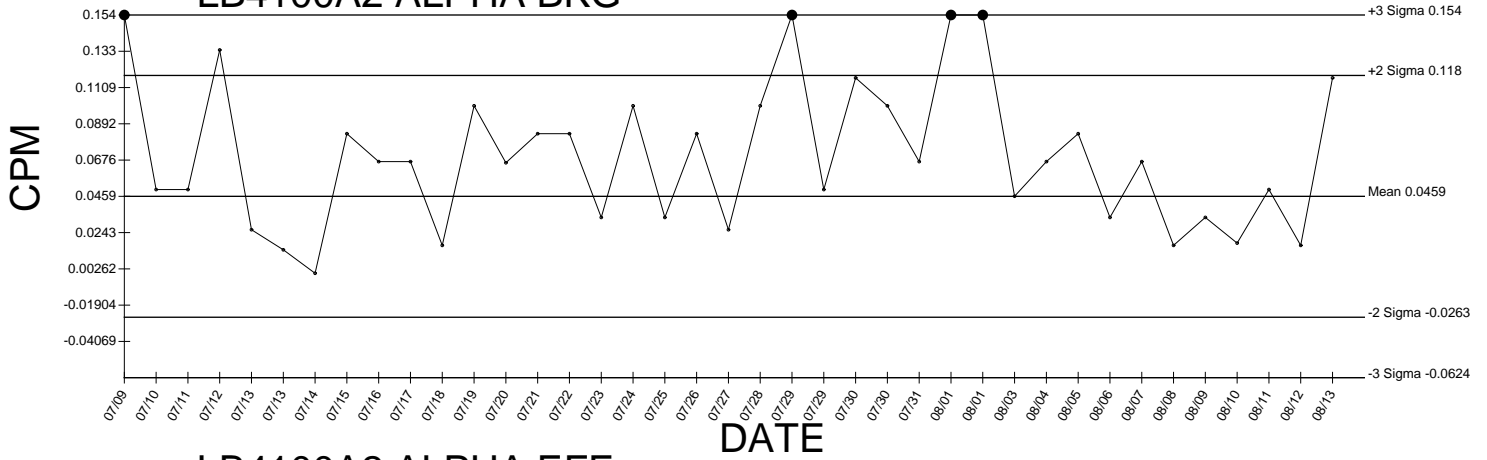


### LB4100A1 BETA EFF Cross Talk

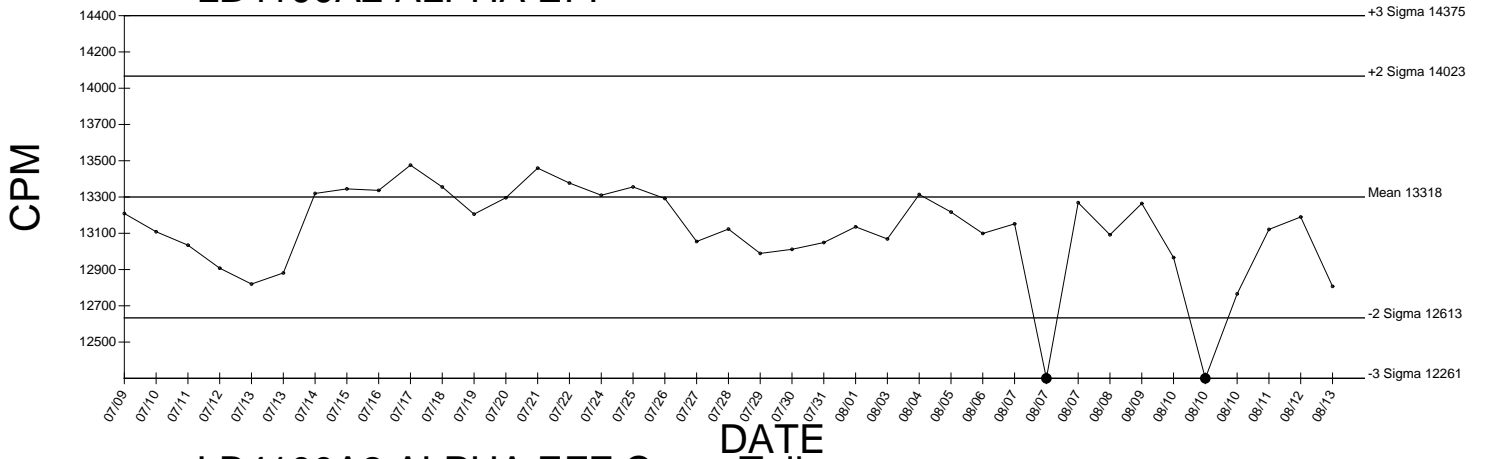


● Denotes Outlier

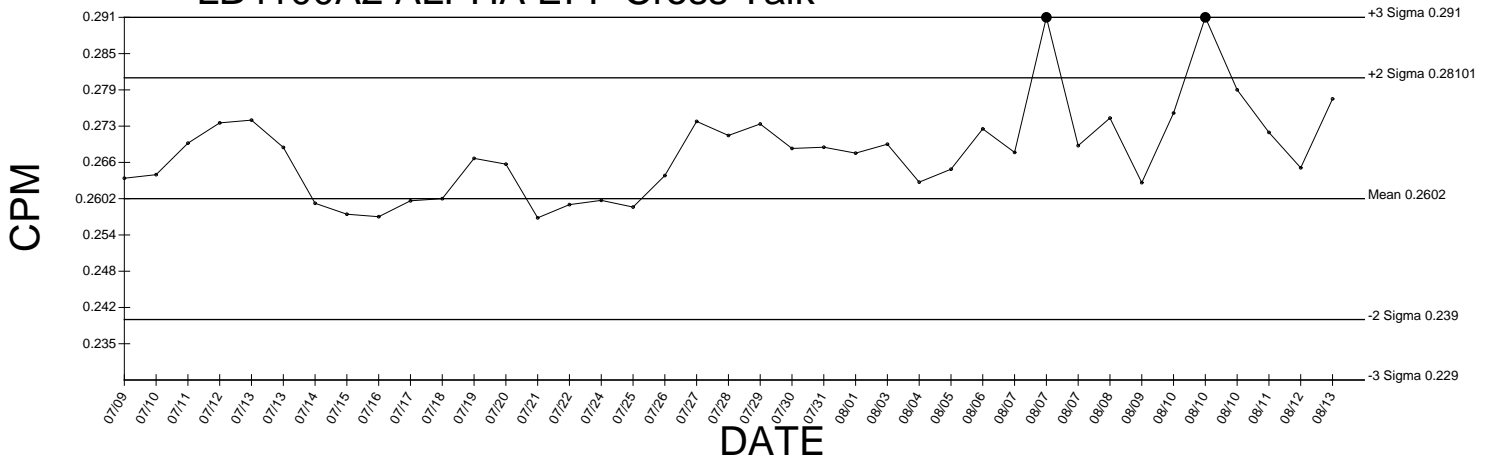
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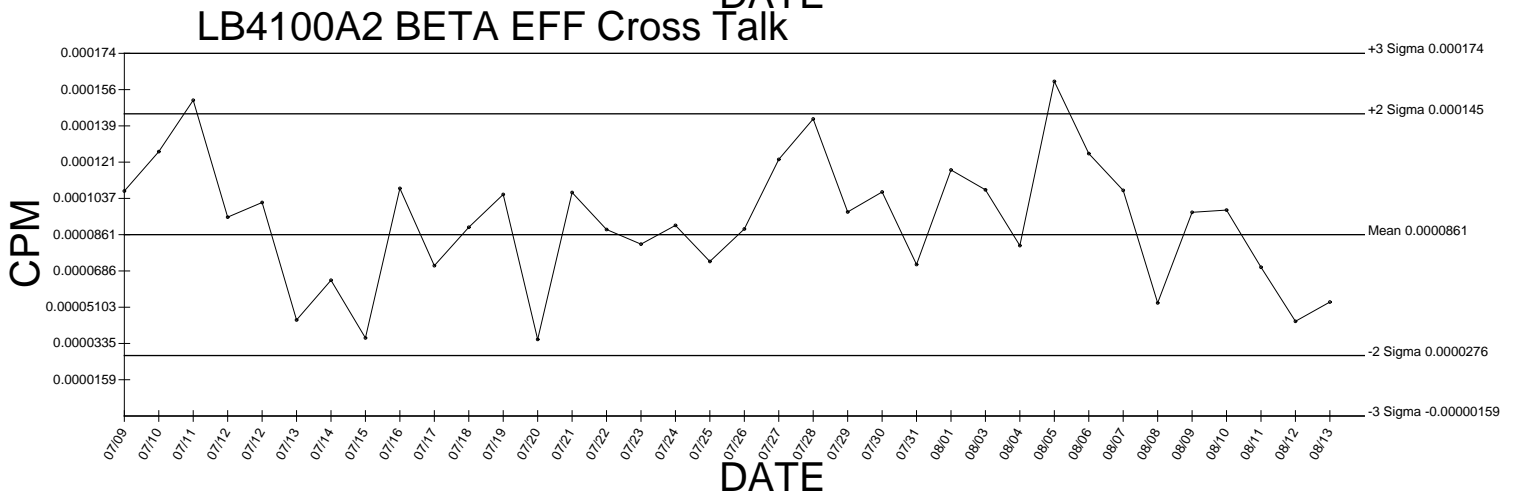
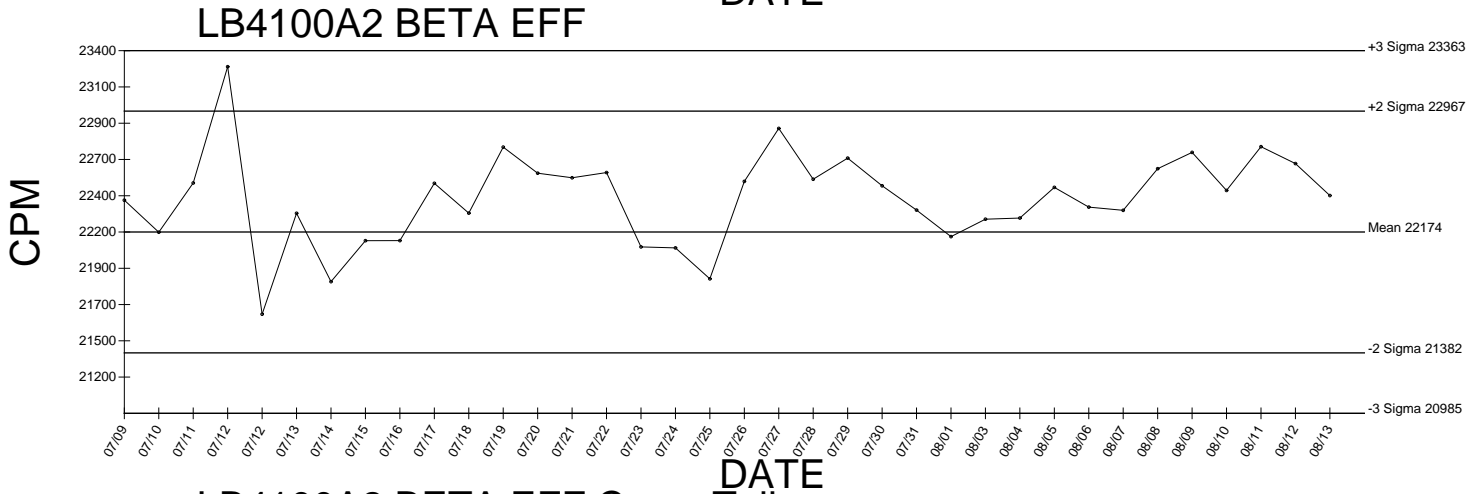
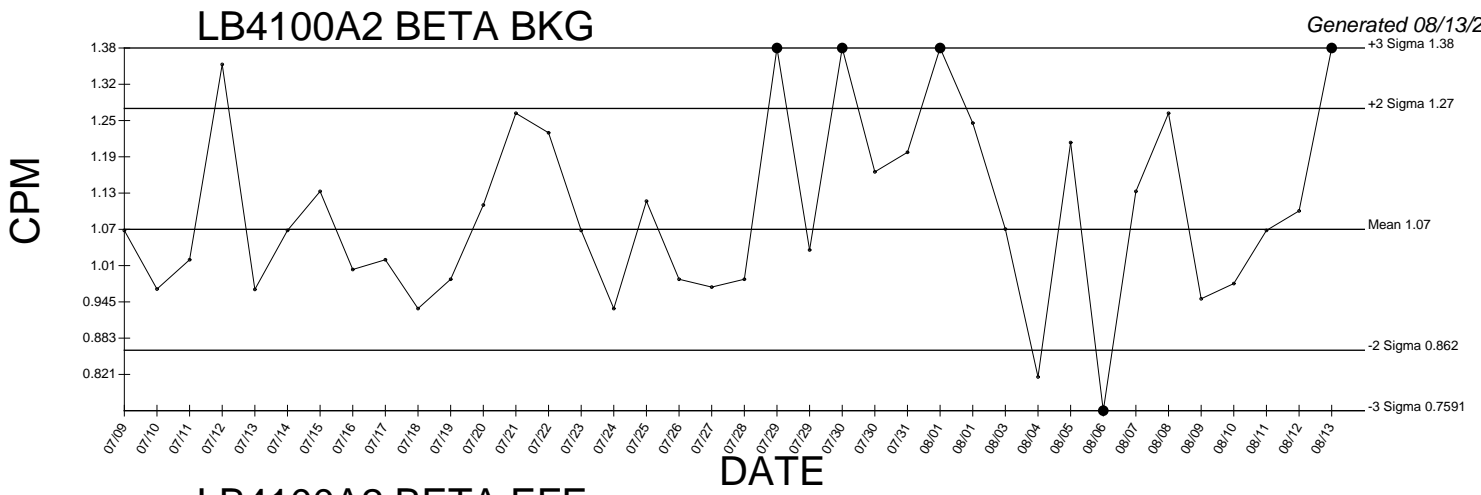
### LB4100A2 ALPHA EFF



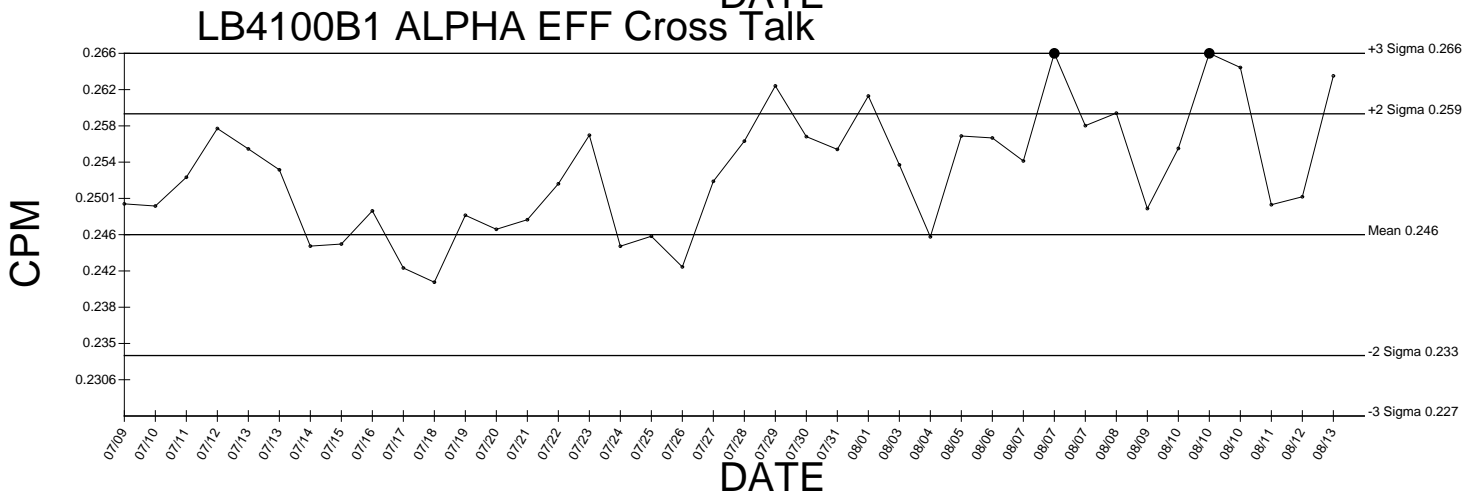
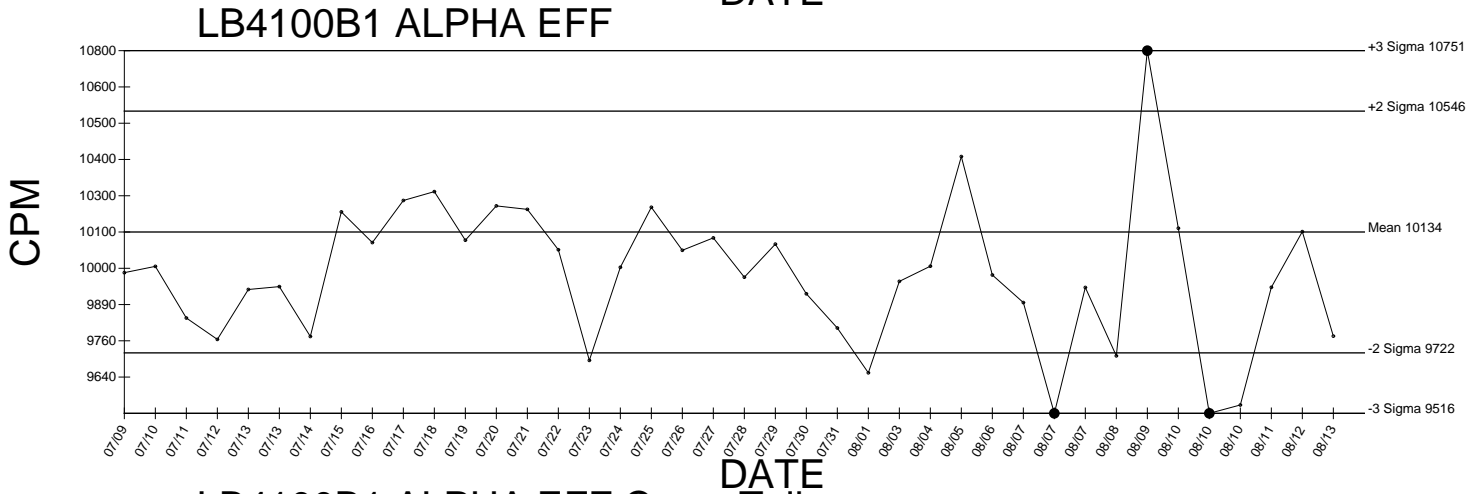
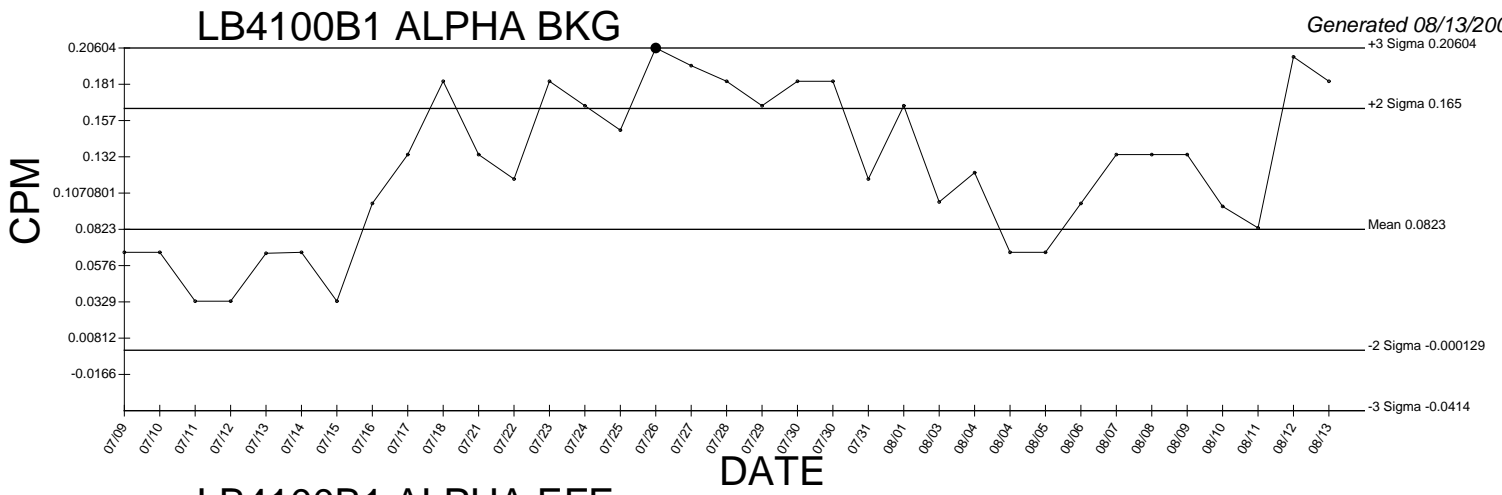
### LB4100A2 ALPHA EFF Cross Talk



● Denotes Outlier

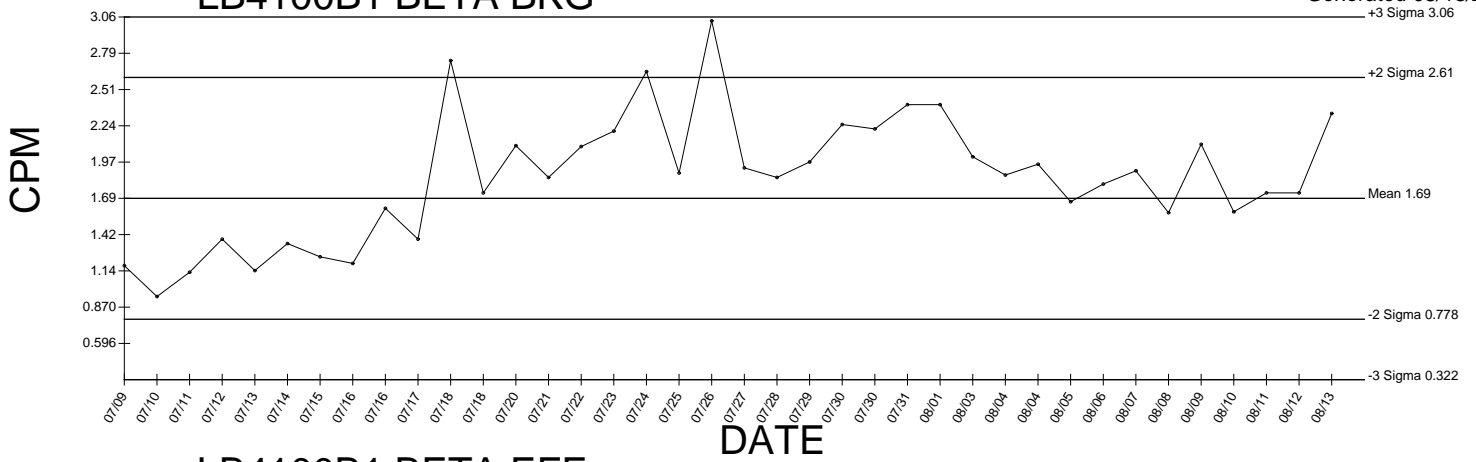


● Denotes Outlier

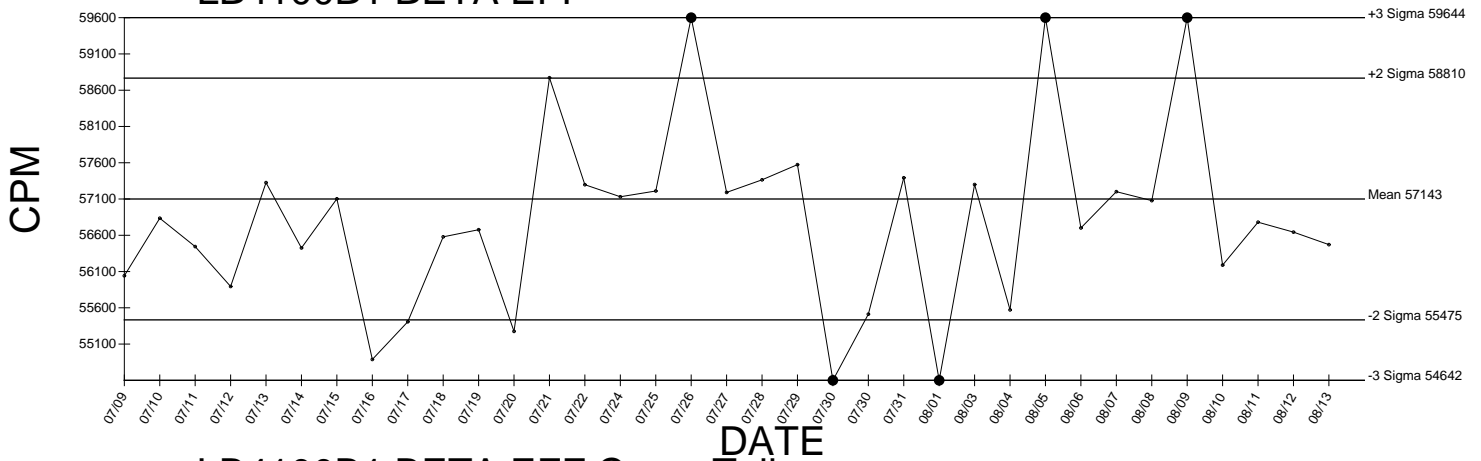


● Denotes Outlier

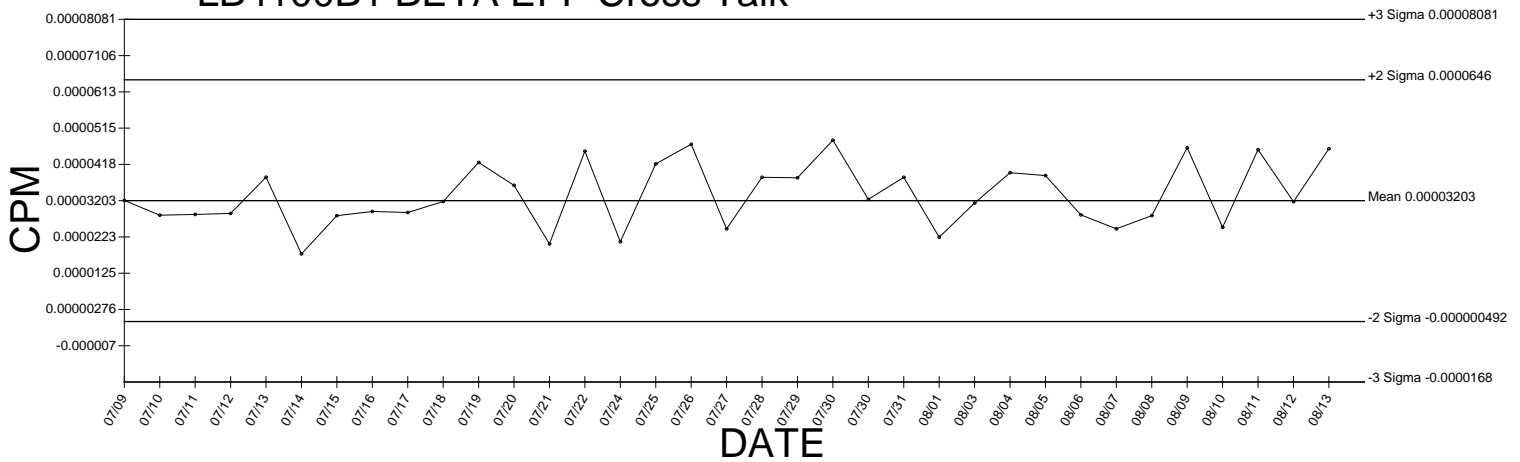
### LB4100B1 BETA BKG



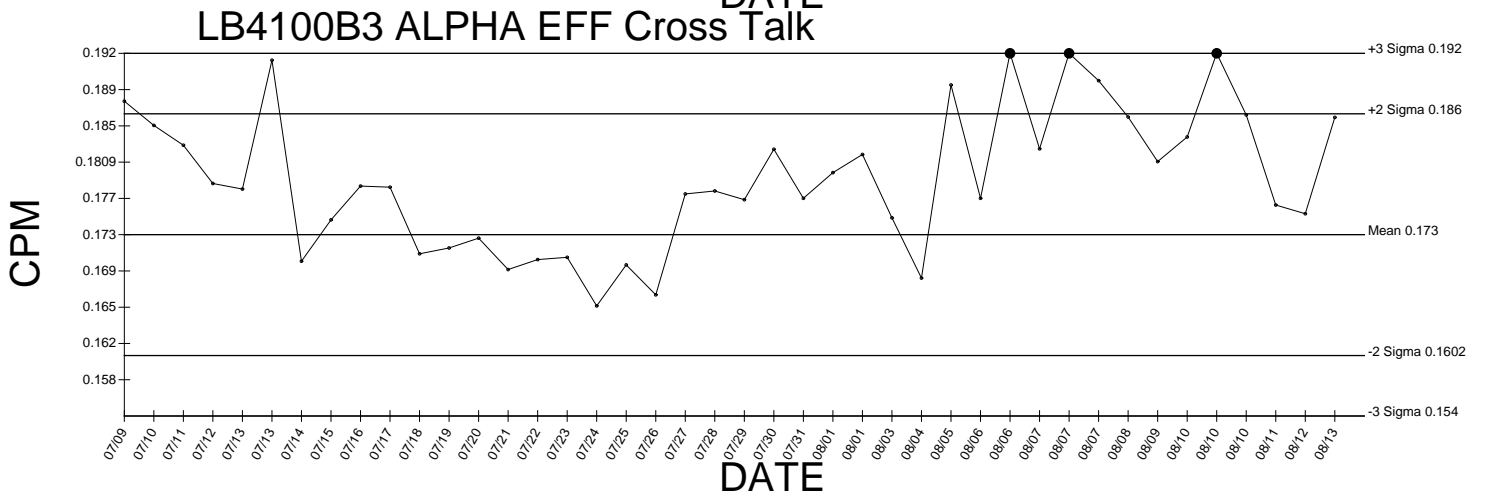
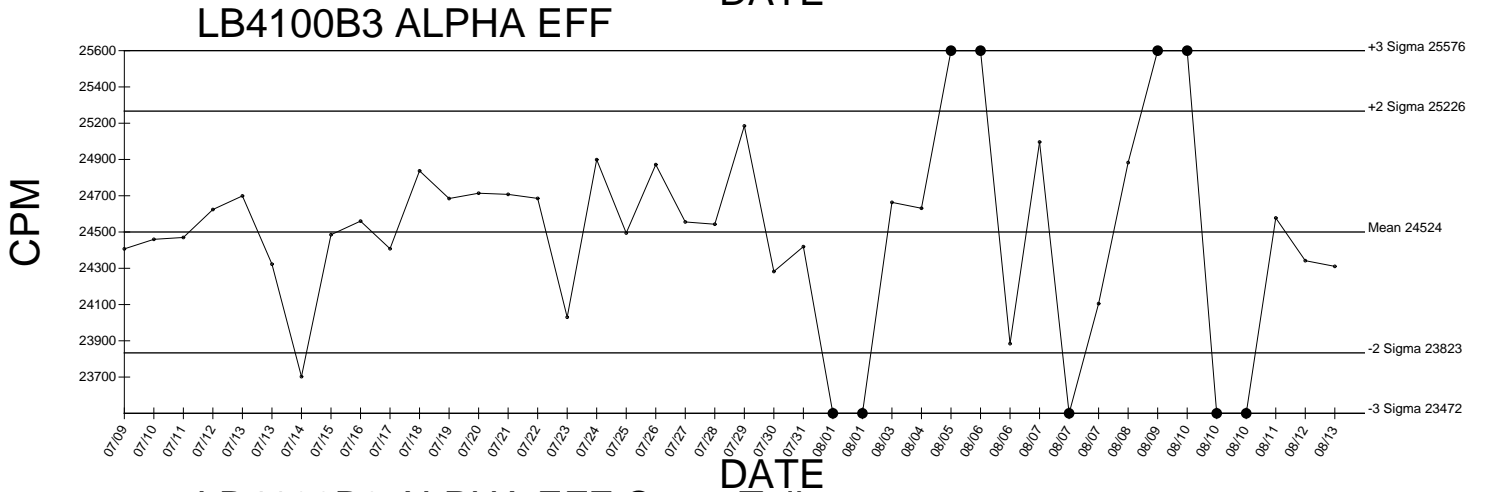
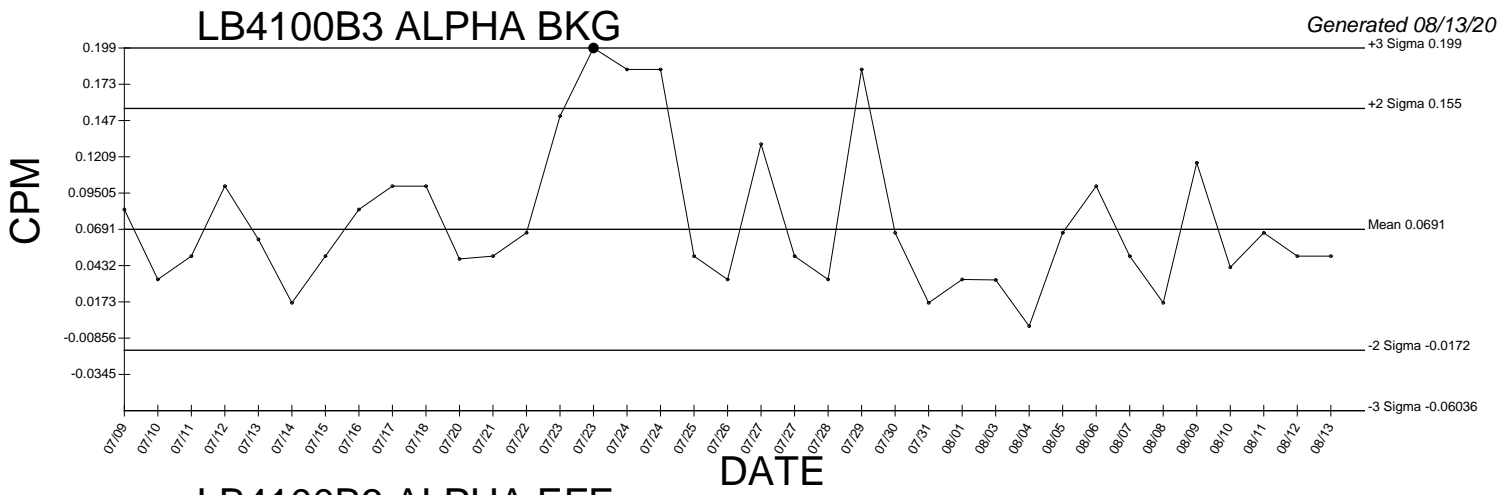
### LB4100B1 BETA EFF



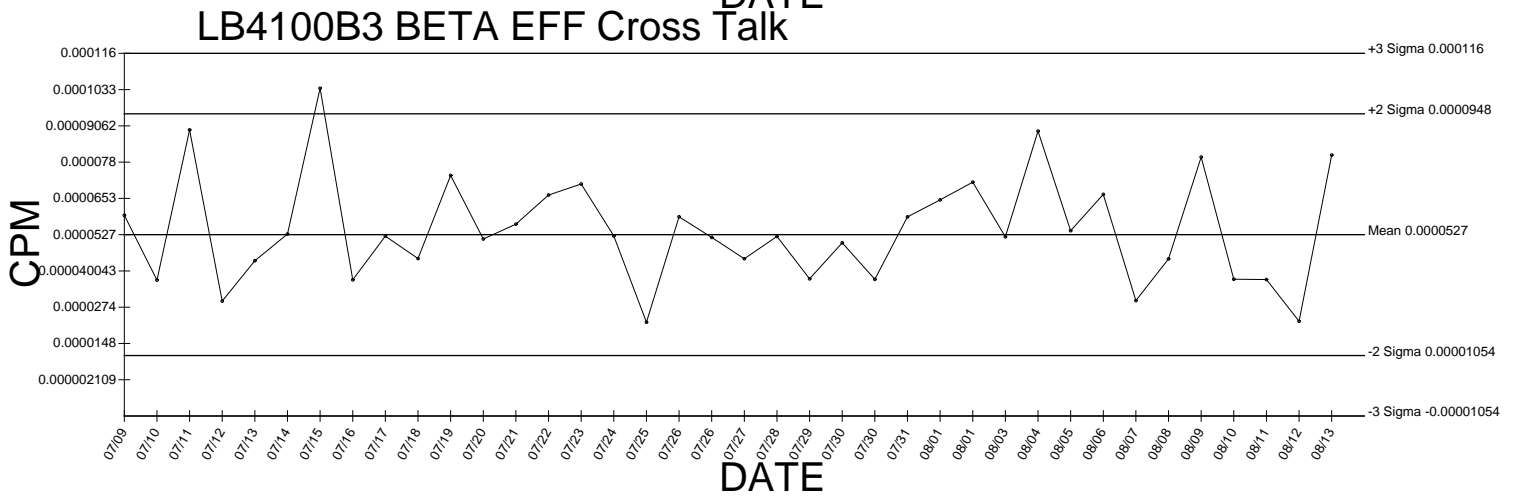
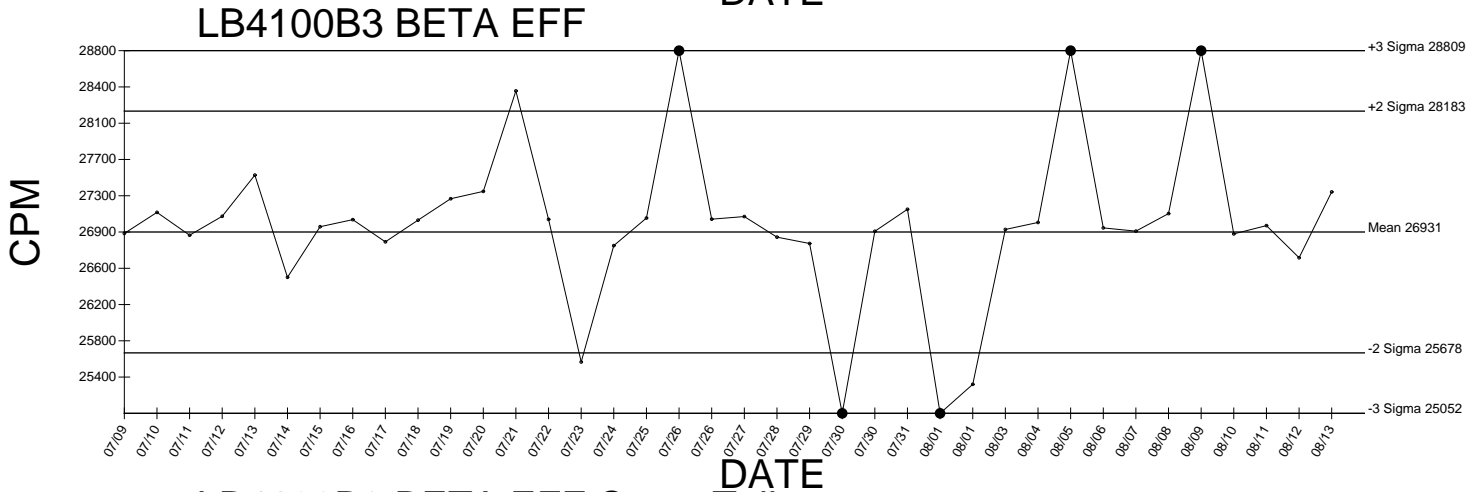
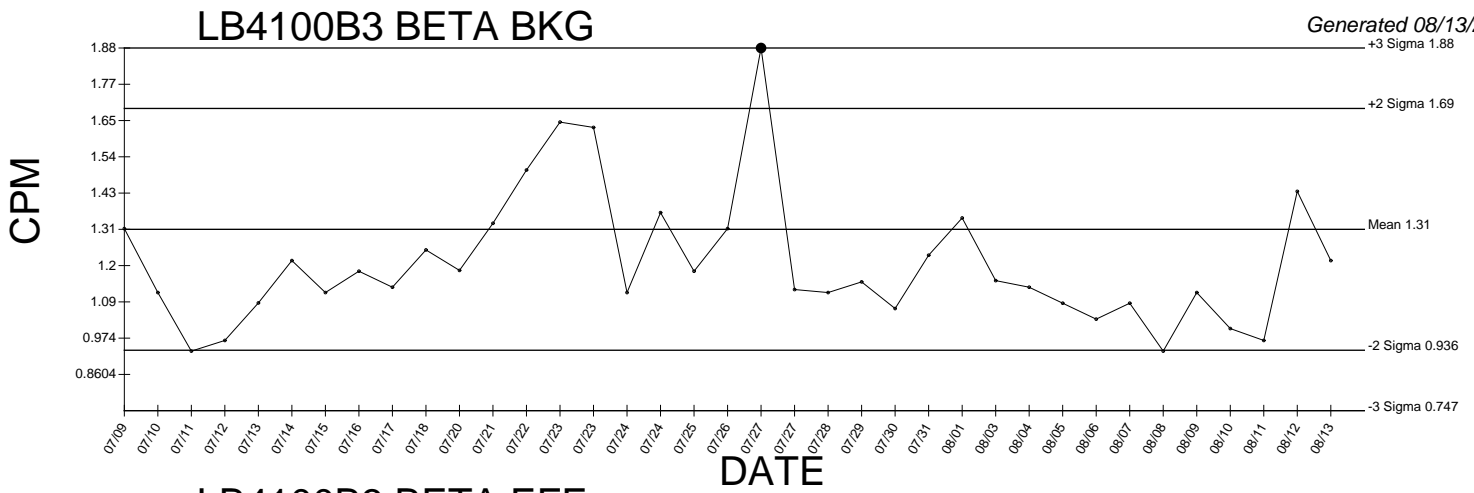
### LB4100B1 BETA EFF Cross Talk



● Denotes Outlier



● Denotes Outlier

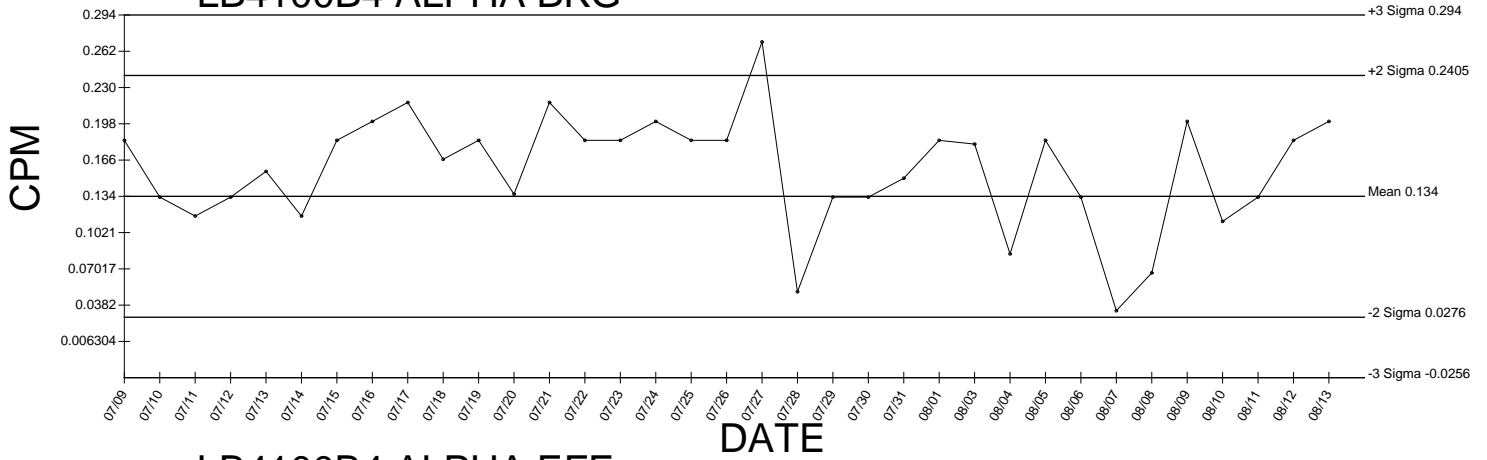


● Denotes Outlier

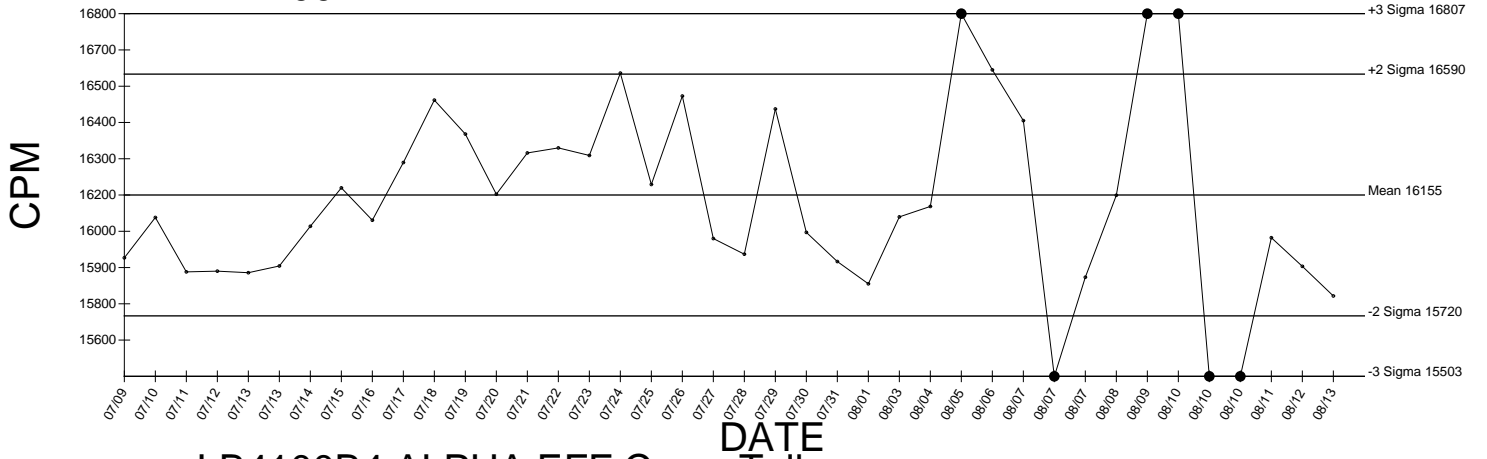


# LB4100B4 ALPHA BKG

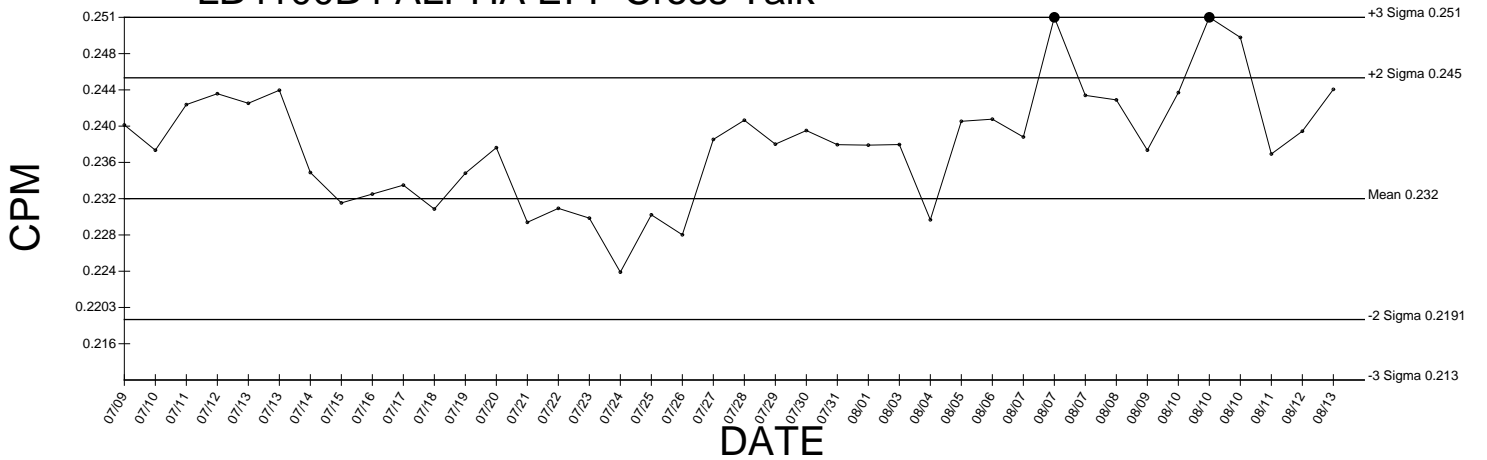
Generated 08/13/2009



# LB4100B4 ALPHA EFF

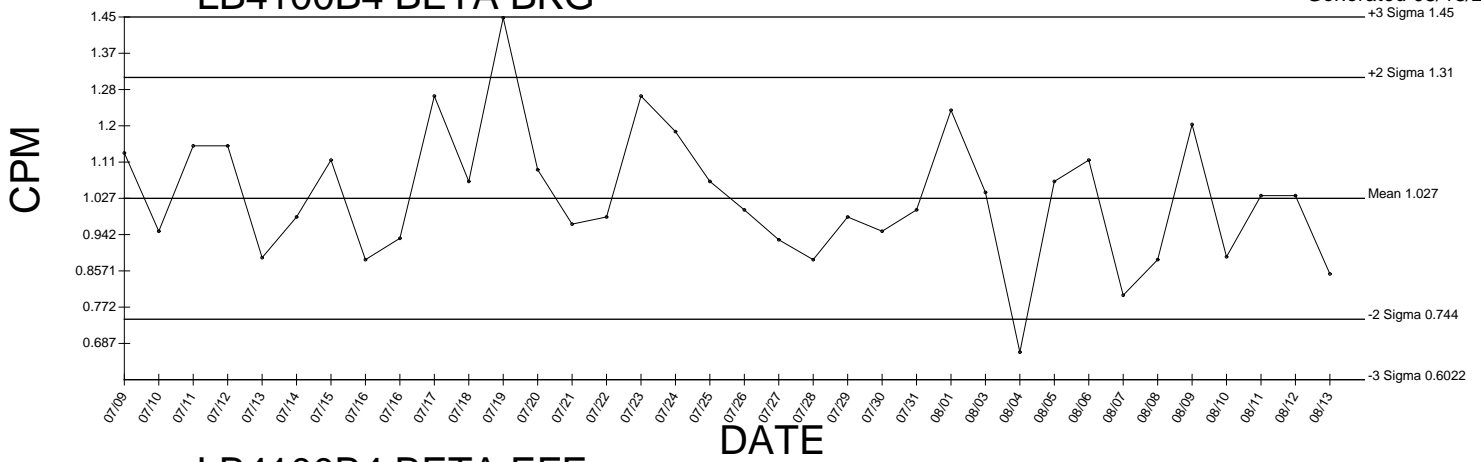


# LB4100B4 ALPHA EFF Cross Talk

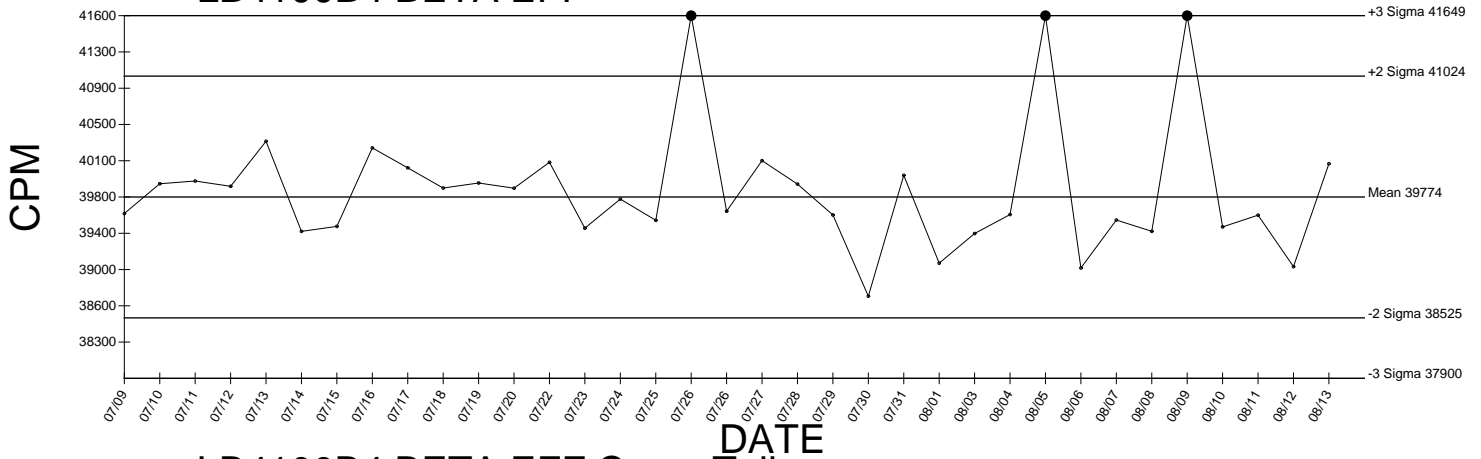


● Denotes Outlier

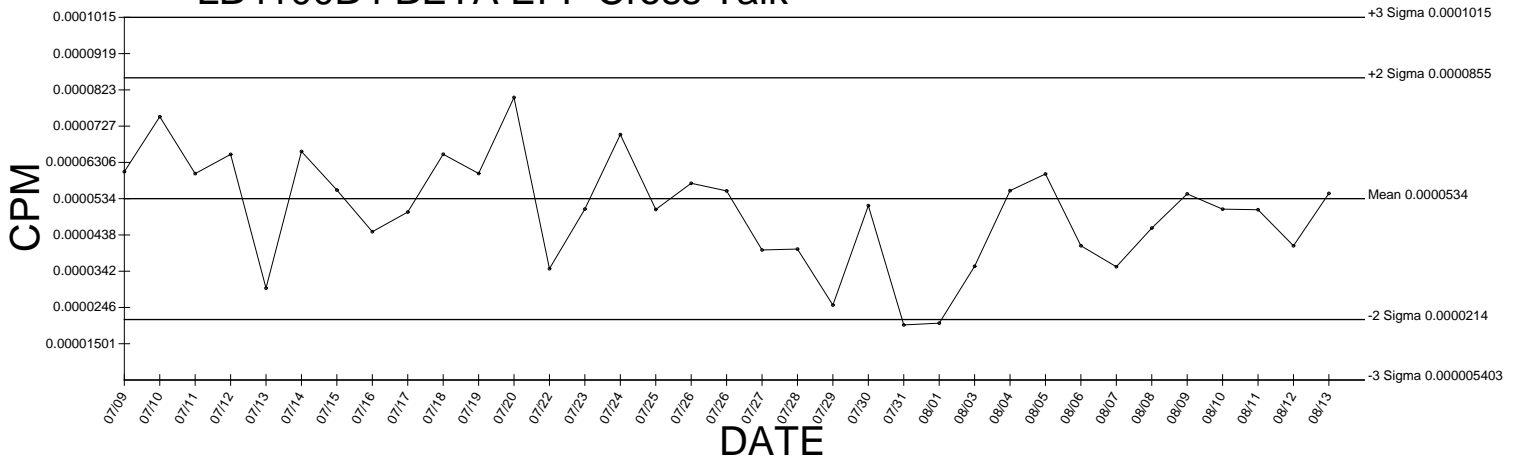
### LB4100B4 BETA BKG



### LB4100B4 BETA EFF

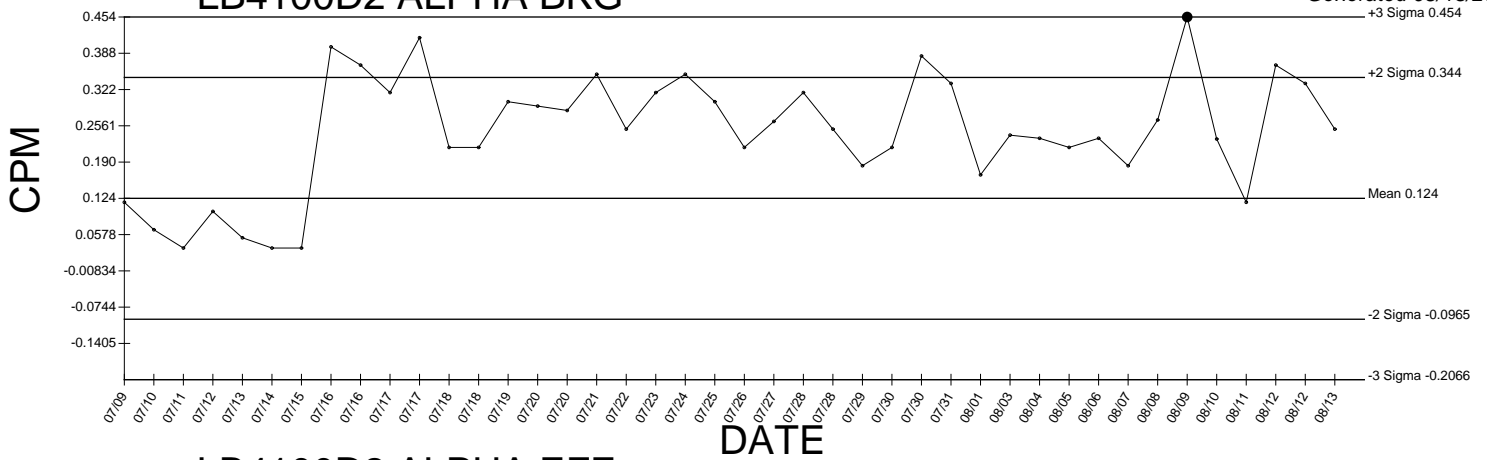


### LB4100B4 BETA EFF Cross Talk

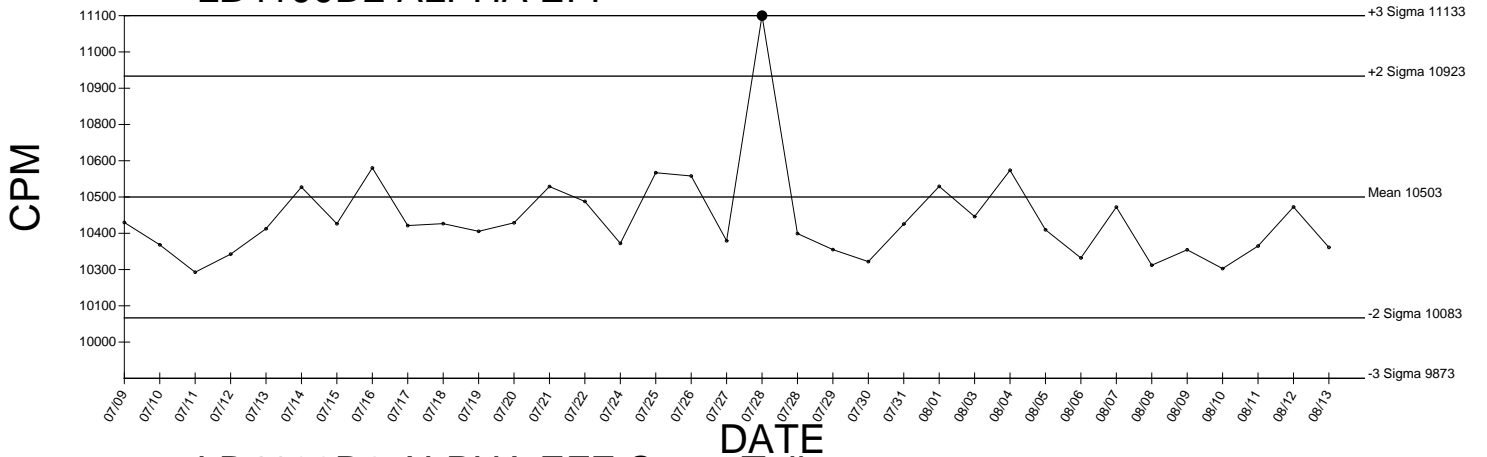


● Denotes Outlier

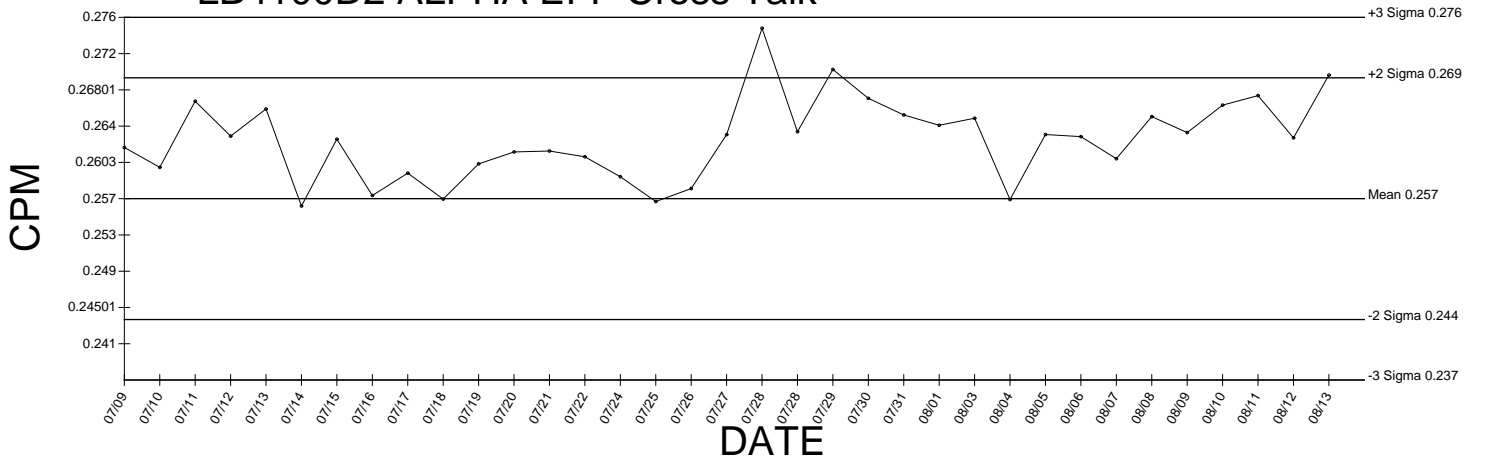
### LB4100D2 ALPHA BKG



### LB4100D2 ALPHA EFF

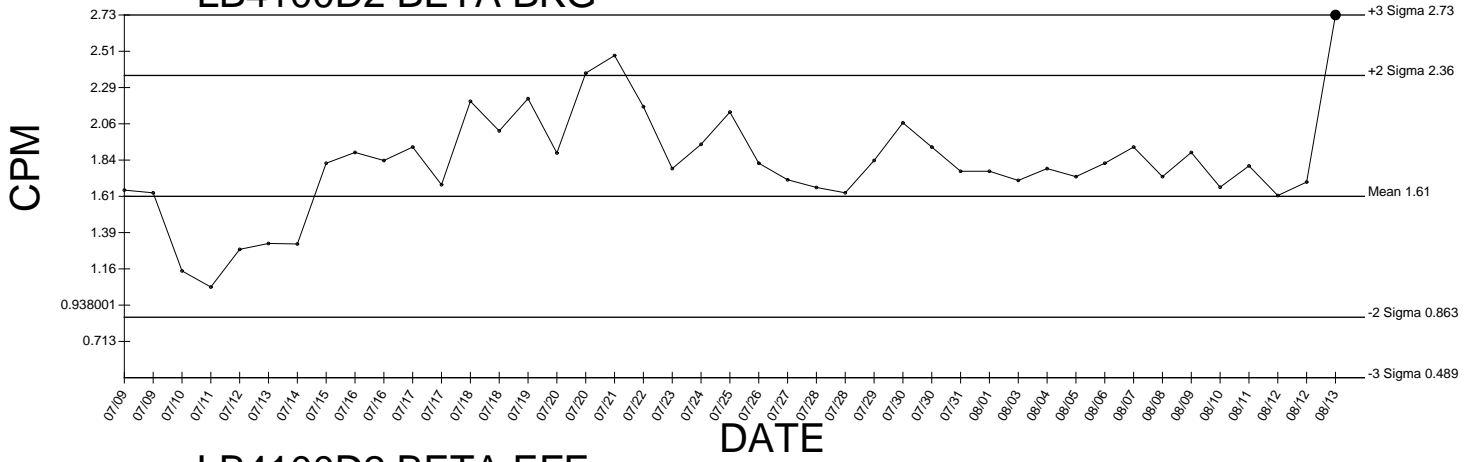


### LB4100D2 ALPHA EFF Cross Talk

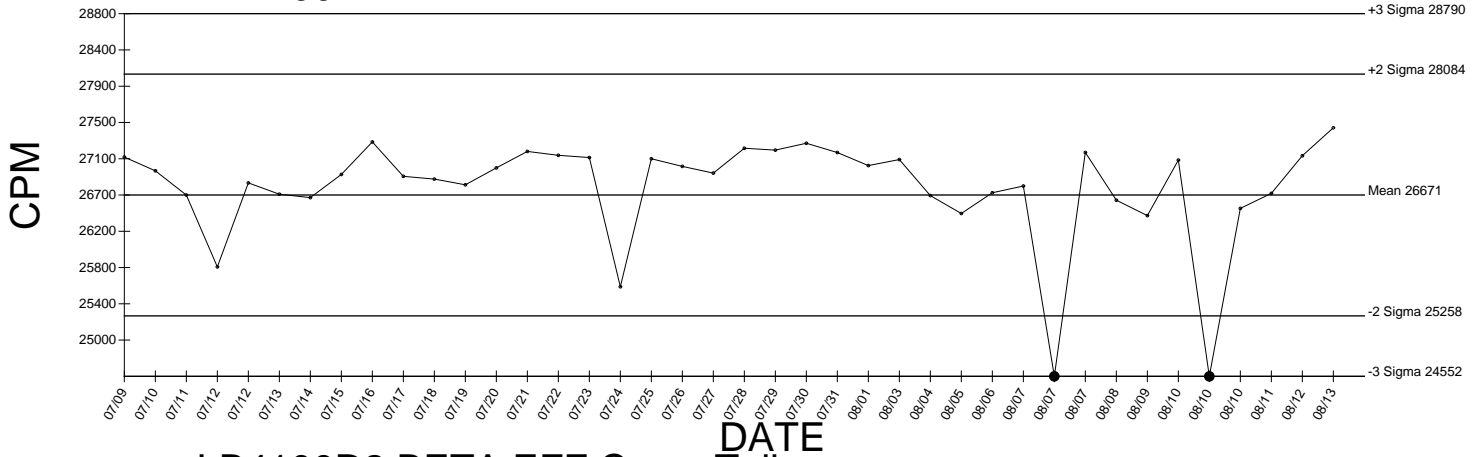


● Denotes Outlier

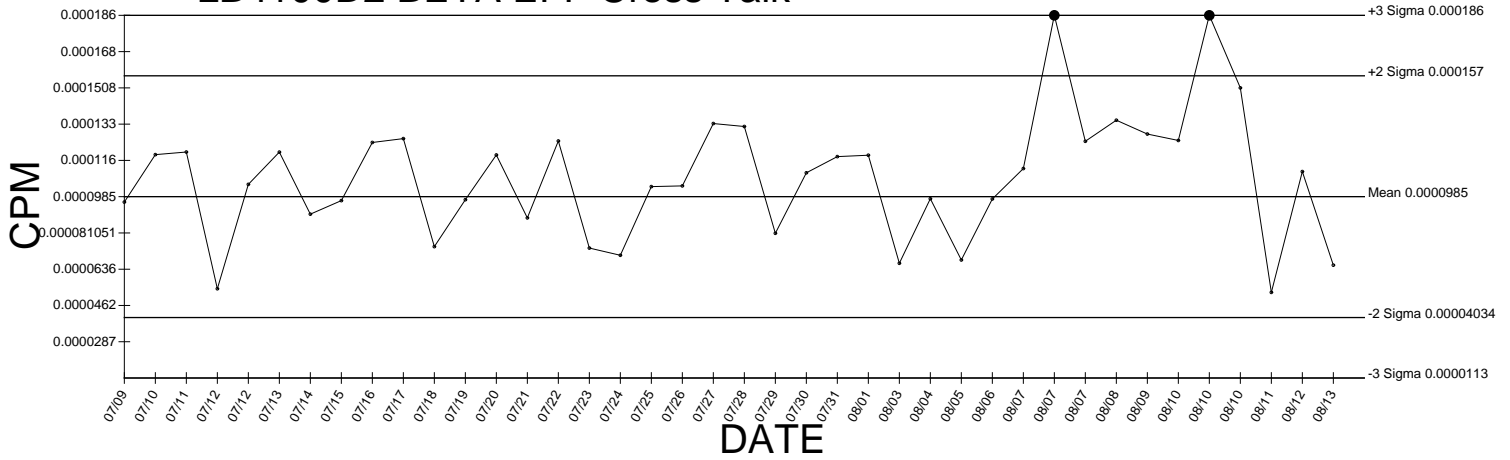
### LB4100D2 BETA BKG



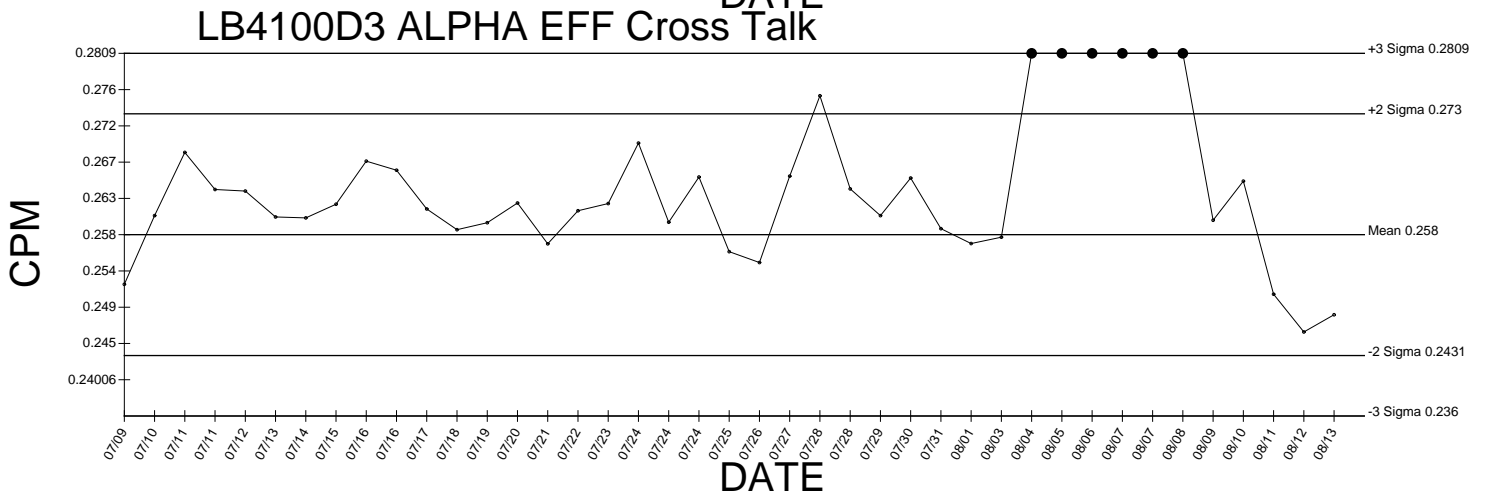
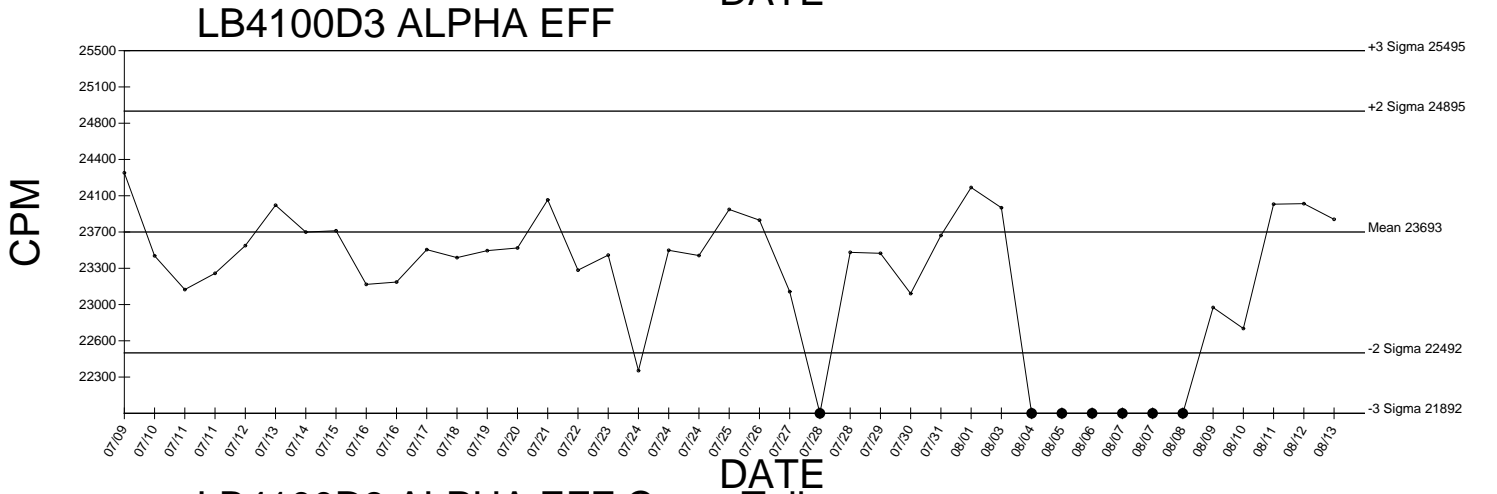
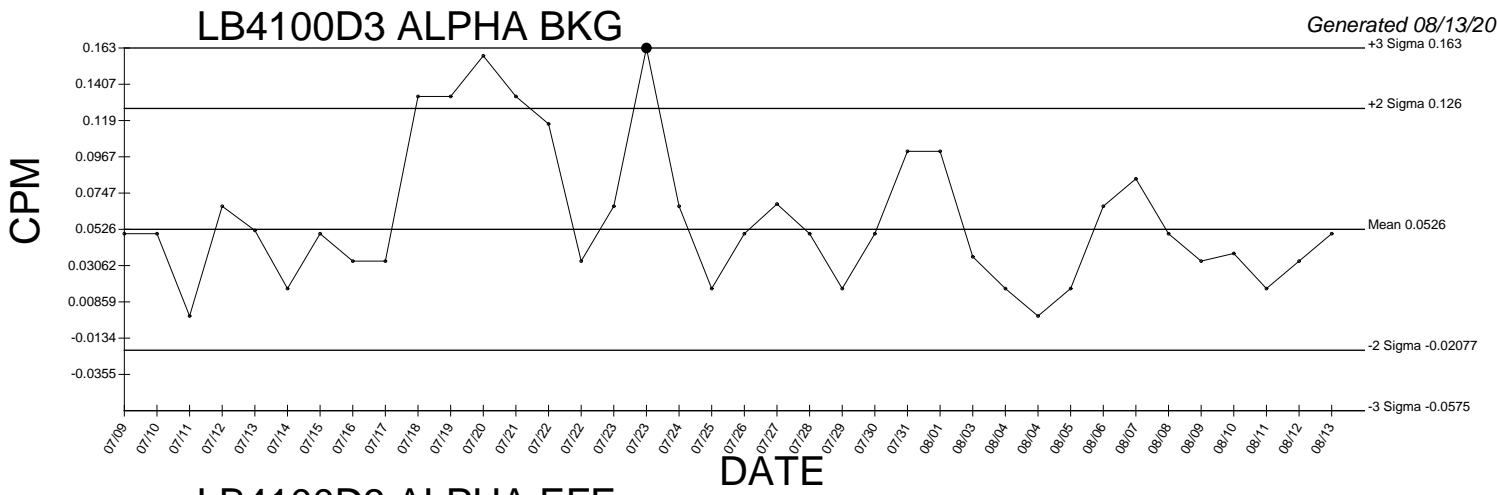
### LB4100D2 BETA EFF



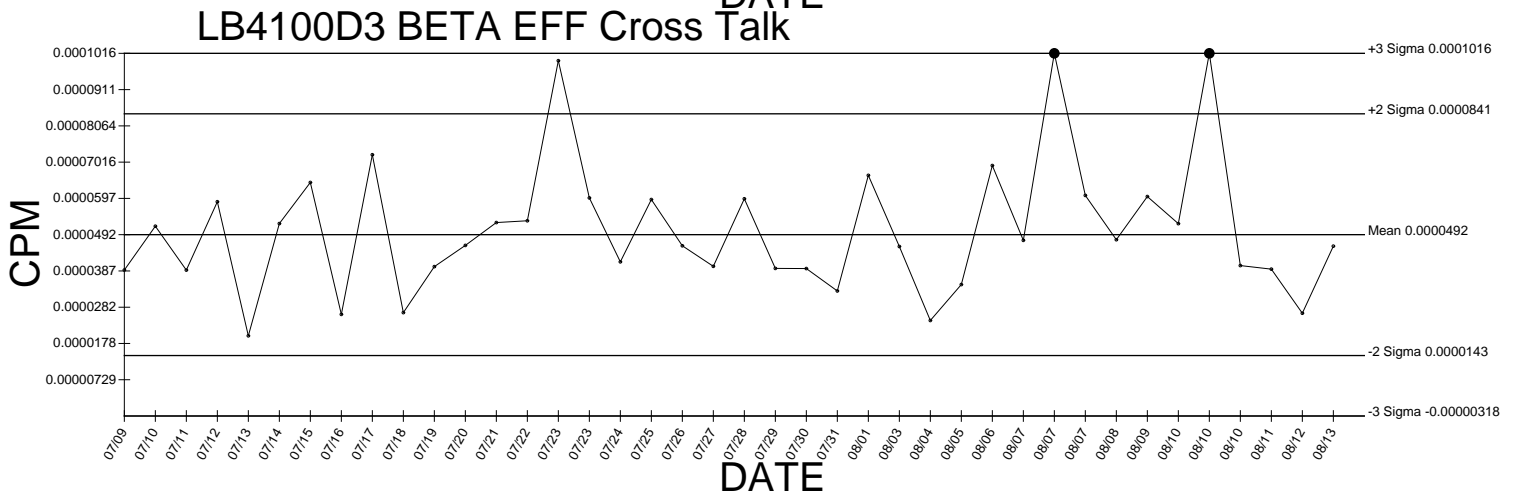
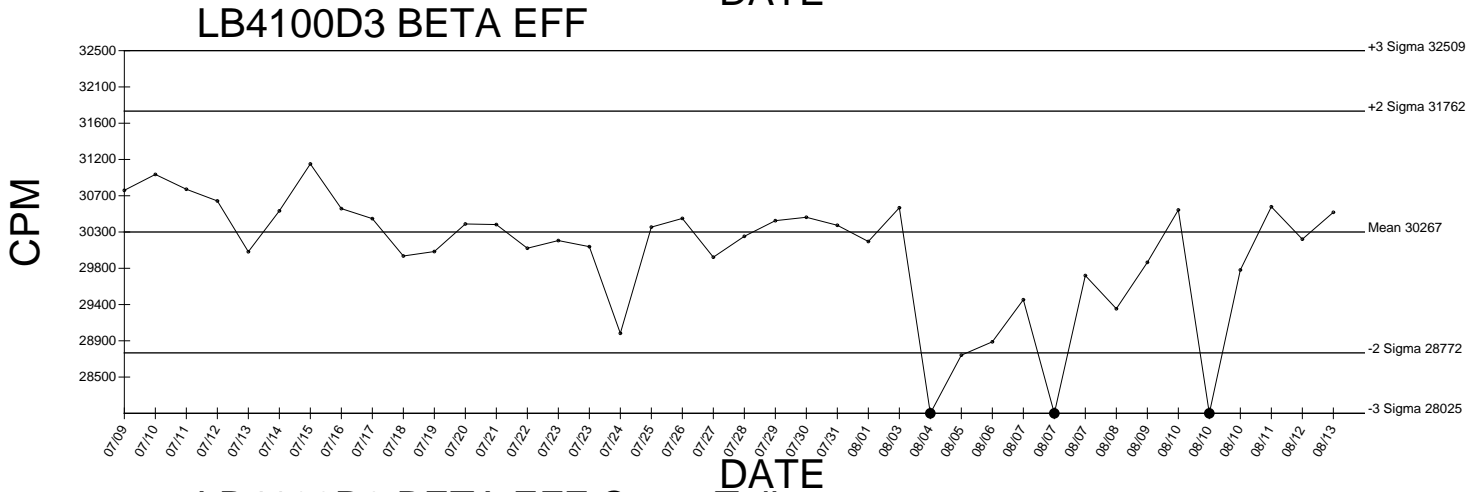
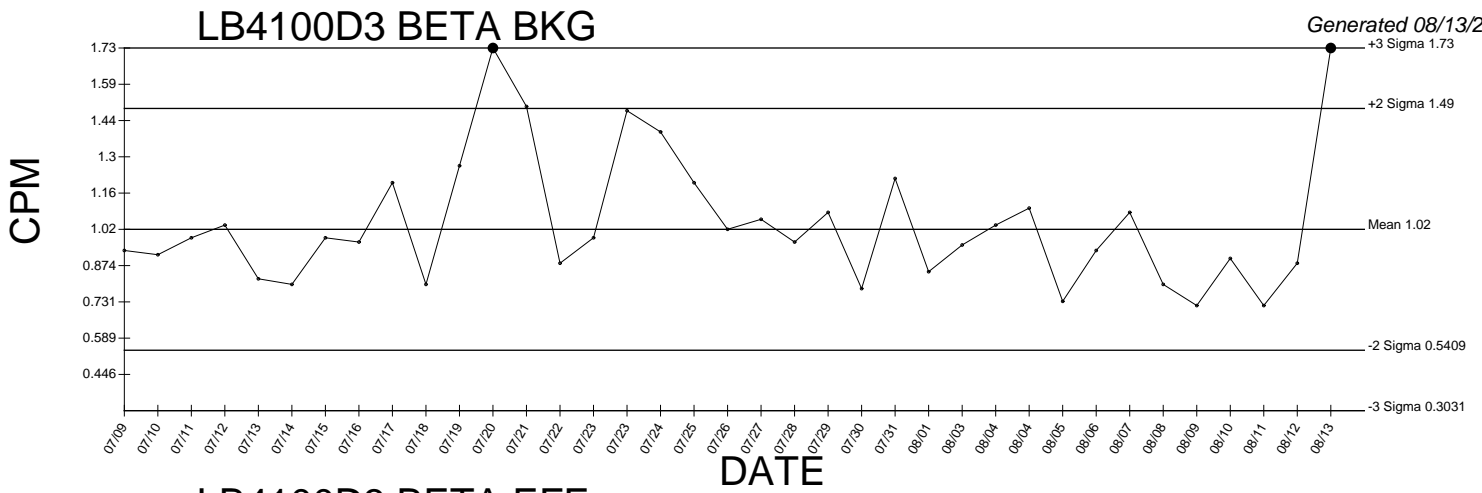
### LB4100D2 BETA EFF Cross Talk



● Denotes Outlier

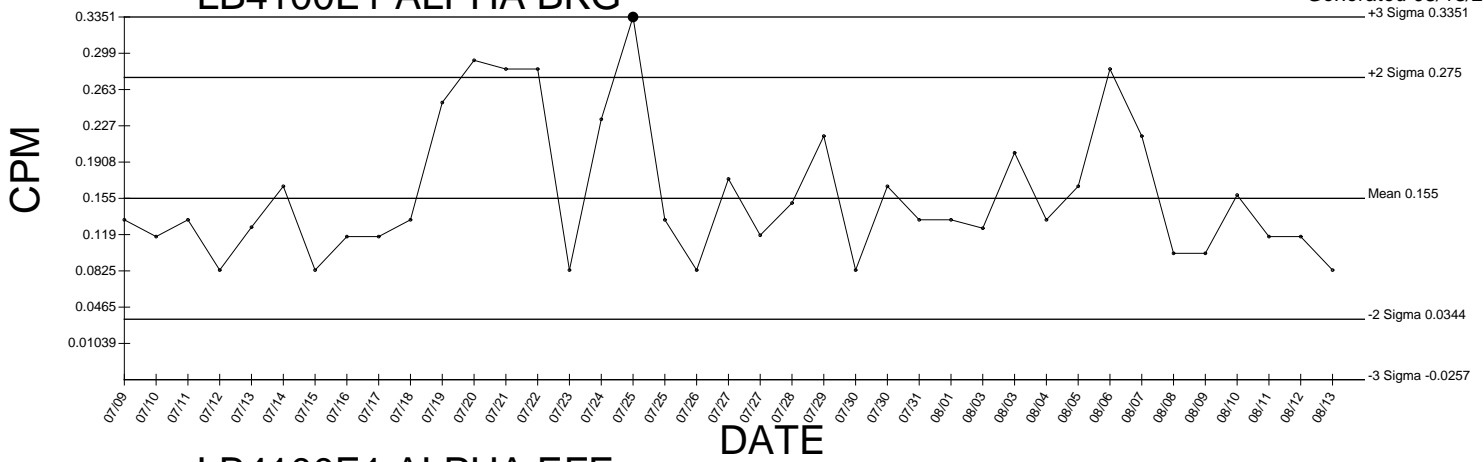


● Denotes Outlier

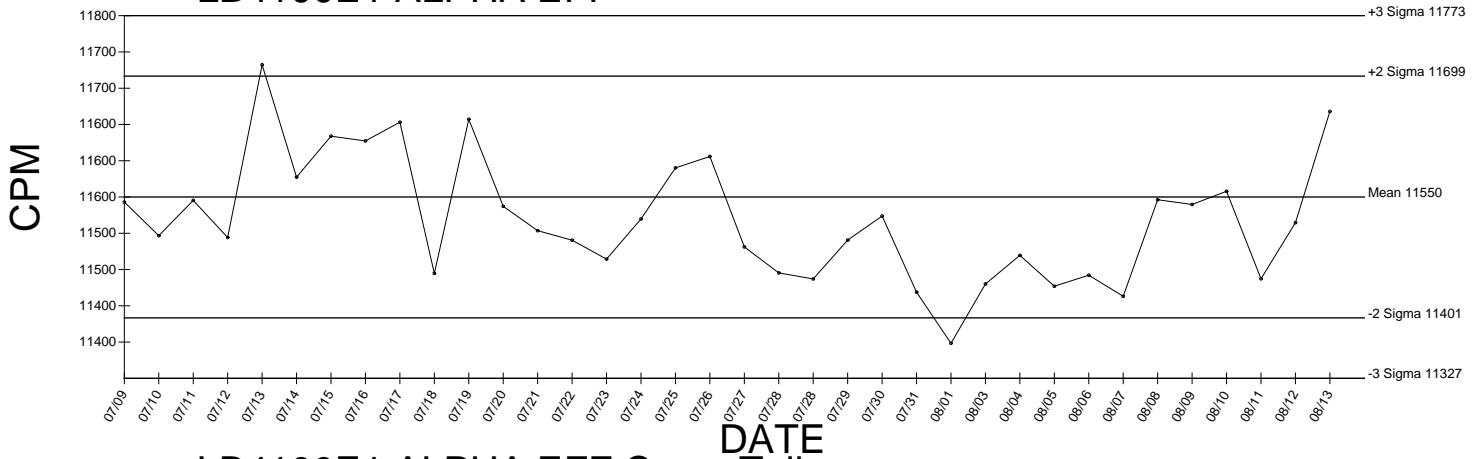


● Denotes Outlier

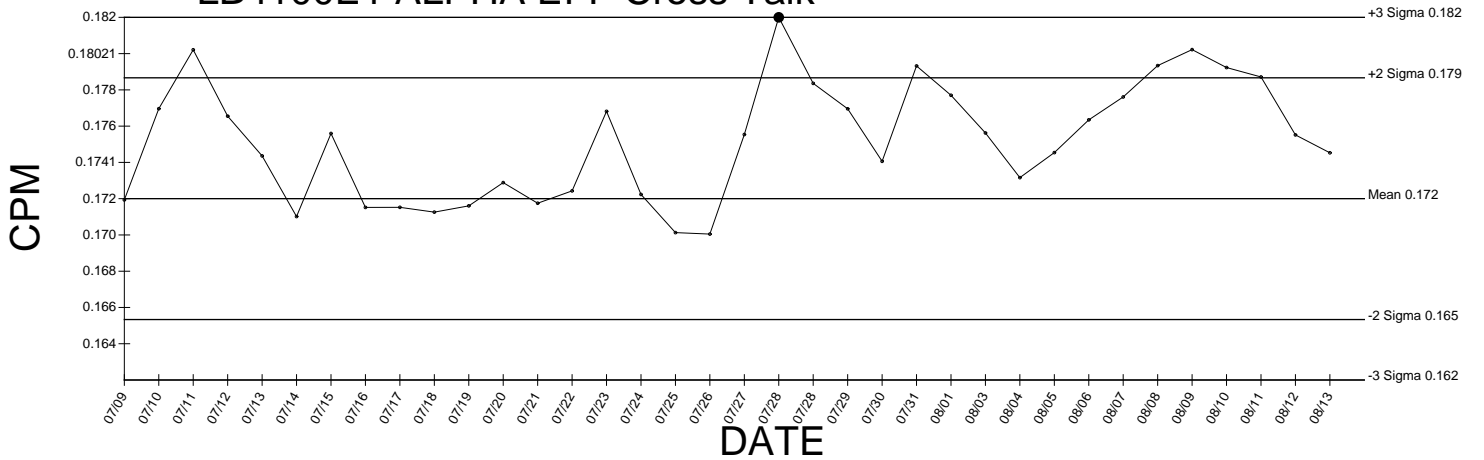
### LB4100E1 ALPHA BKG



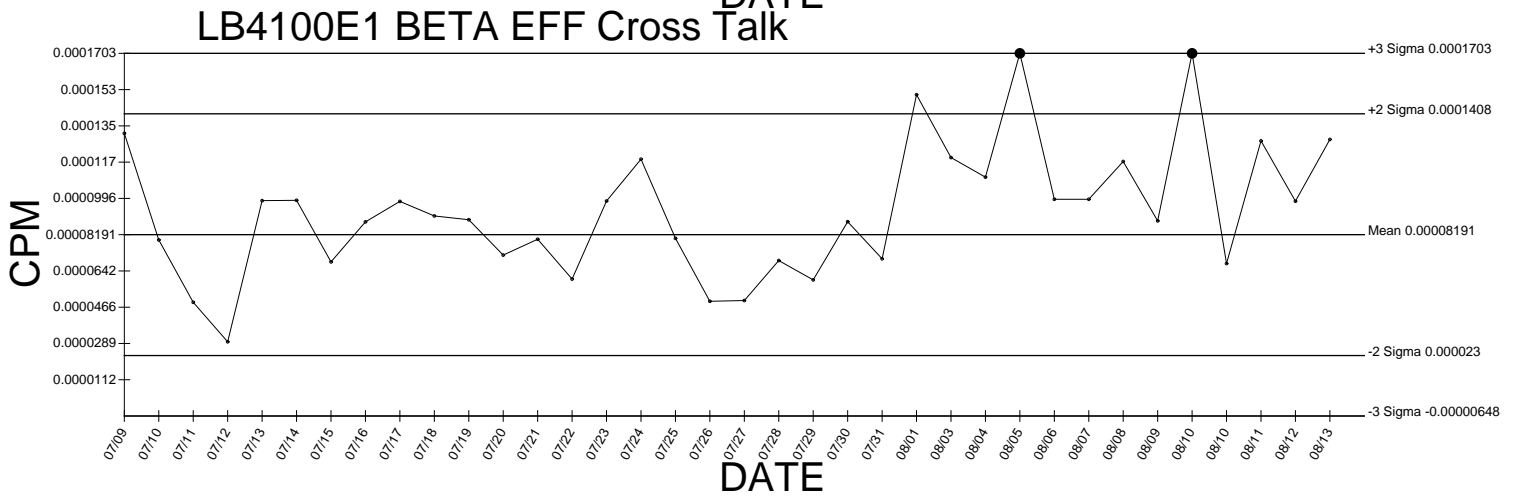
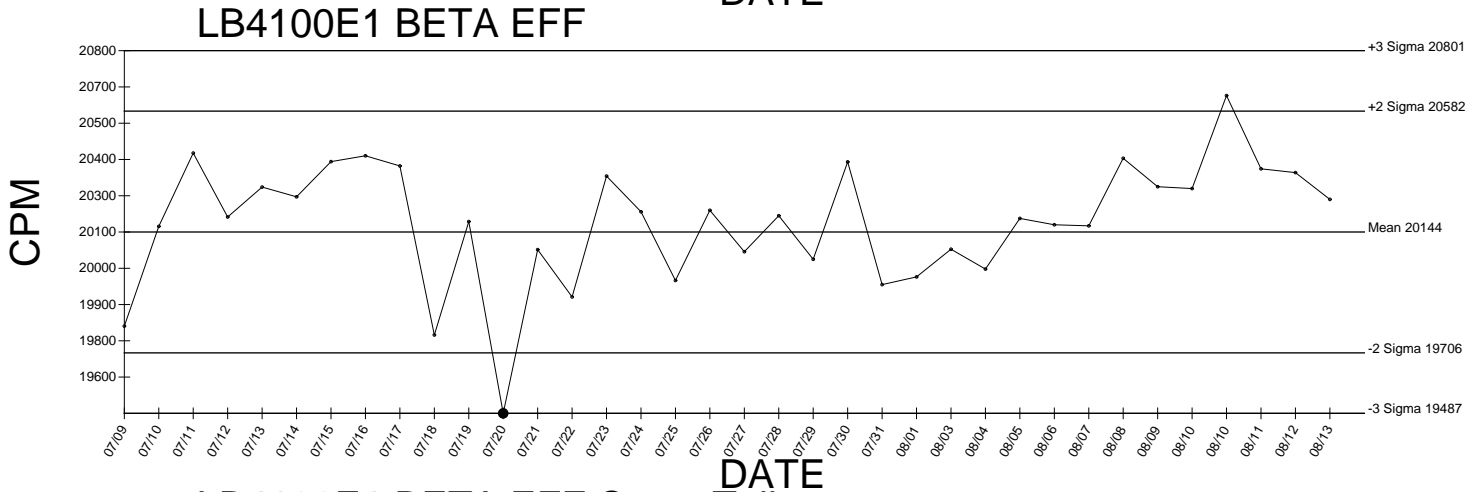
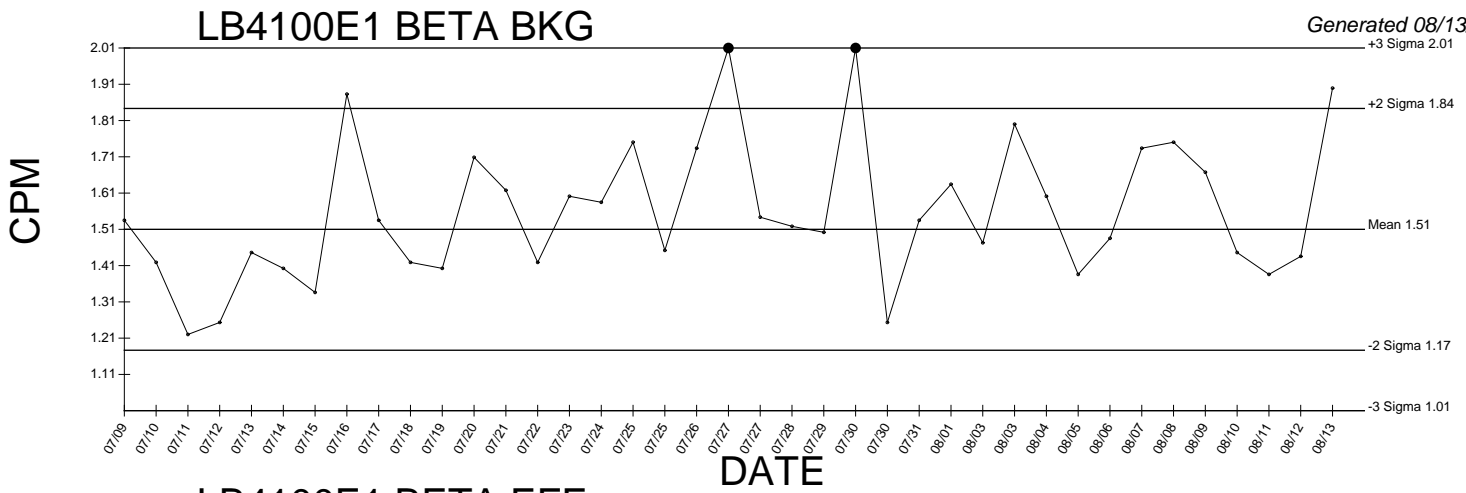
### LB4100E1 ALPHA EFF



### LB4100E1 ALPHA EFF Cross Talk

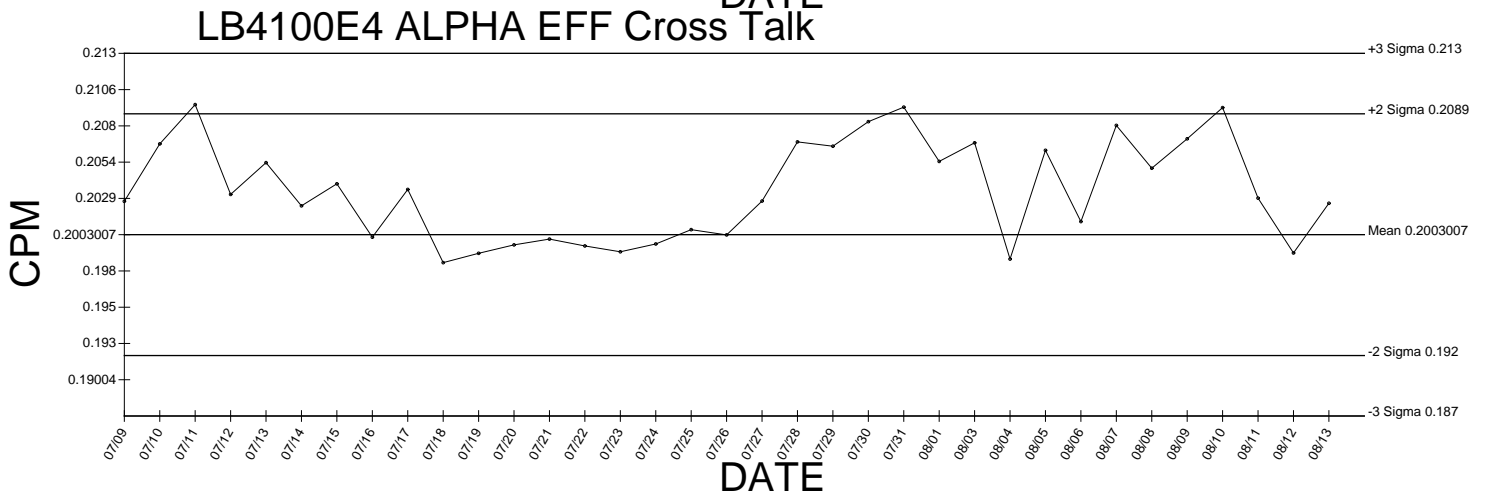
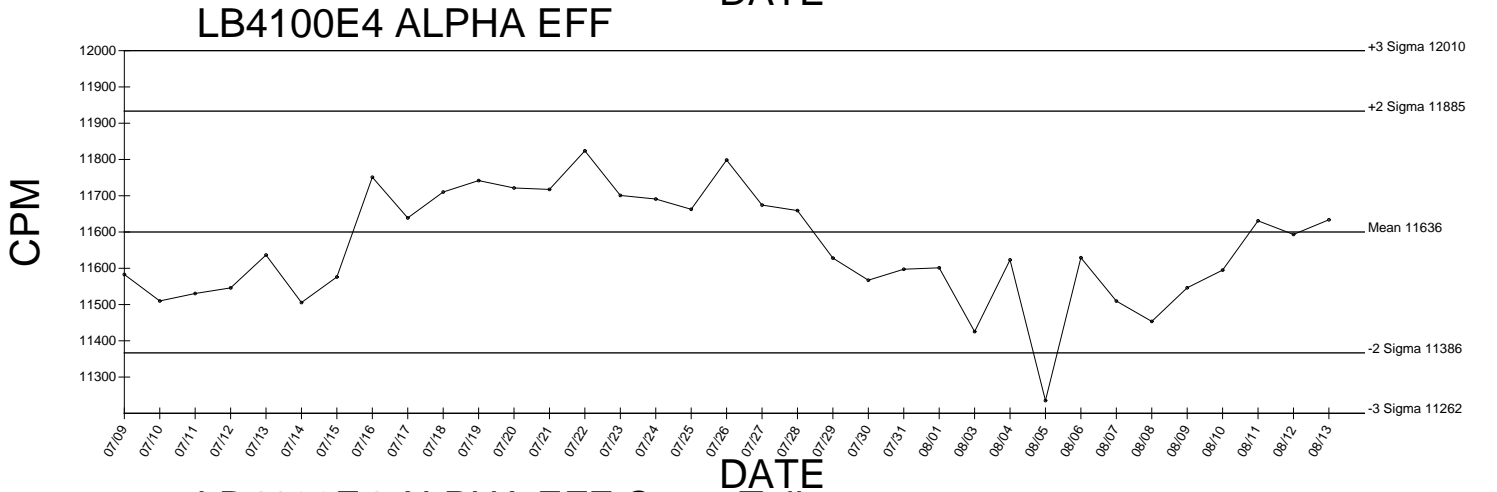
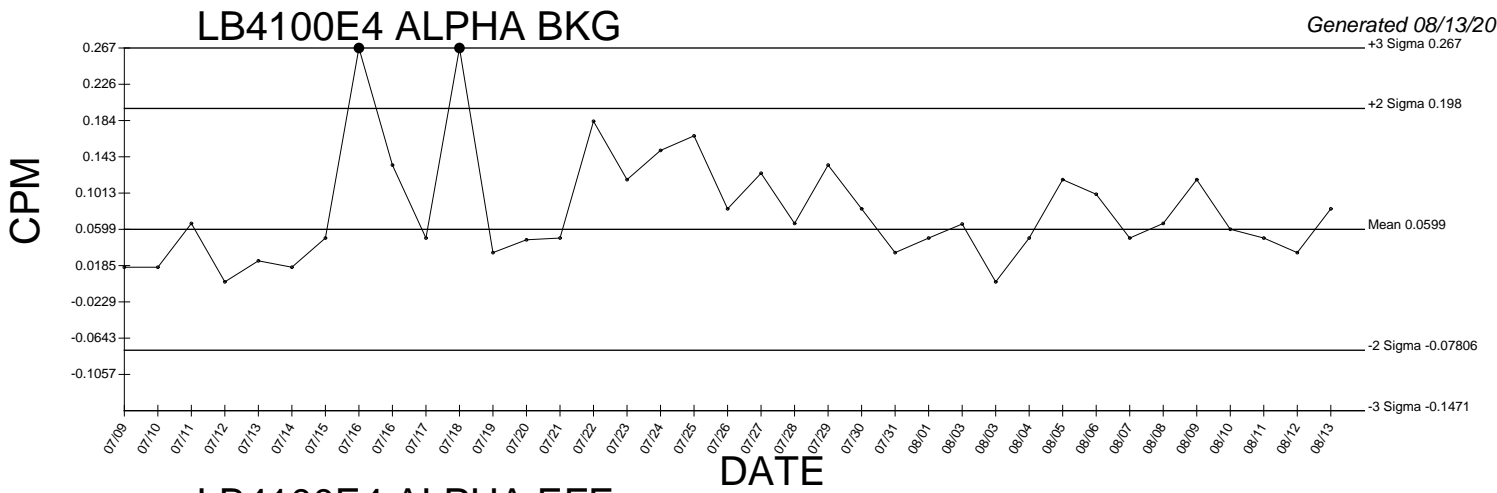


● Denotes Outlier



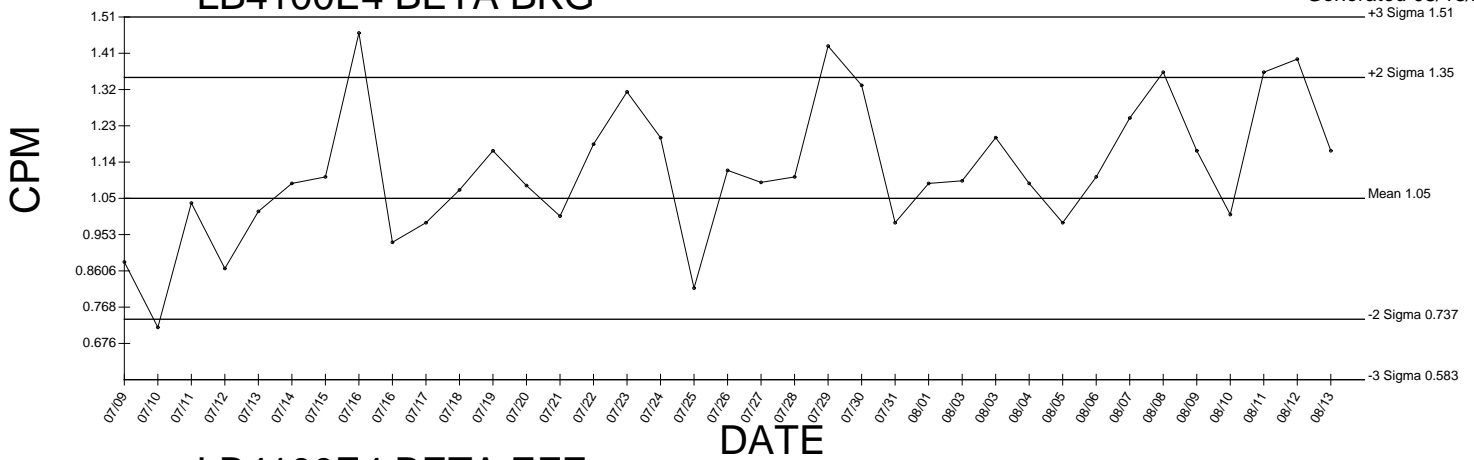
● Denotes Outlier



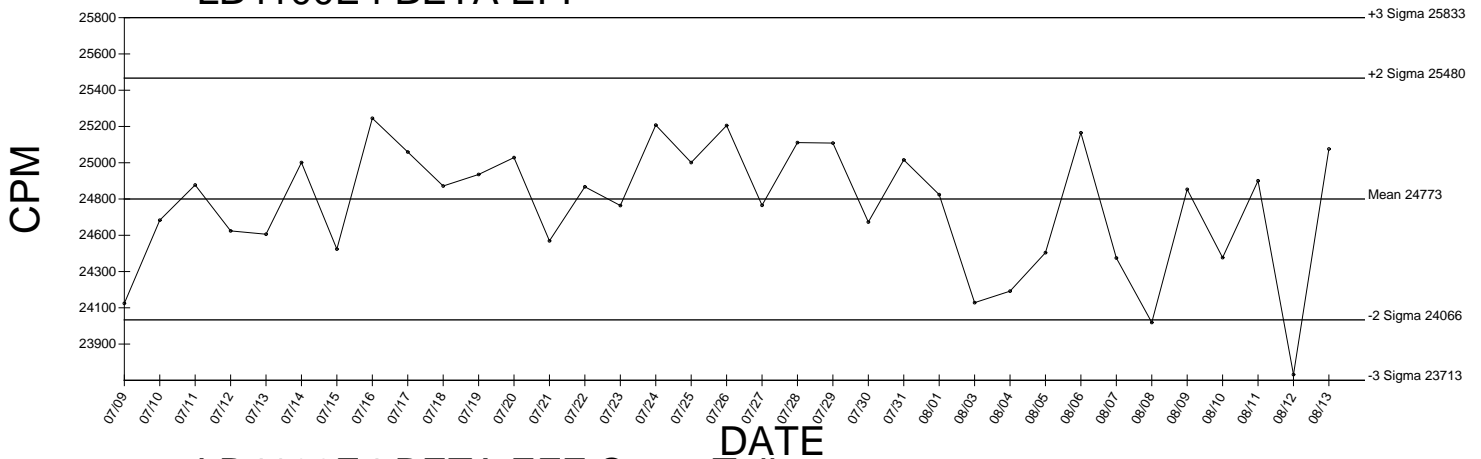


● Denotes Outlier

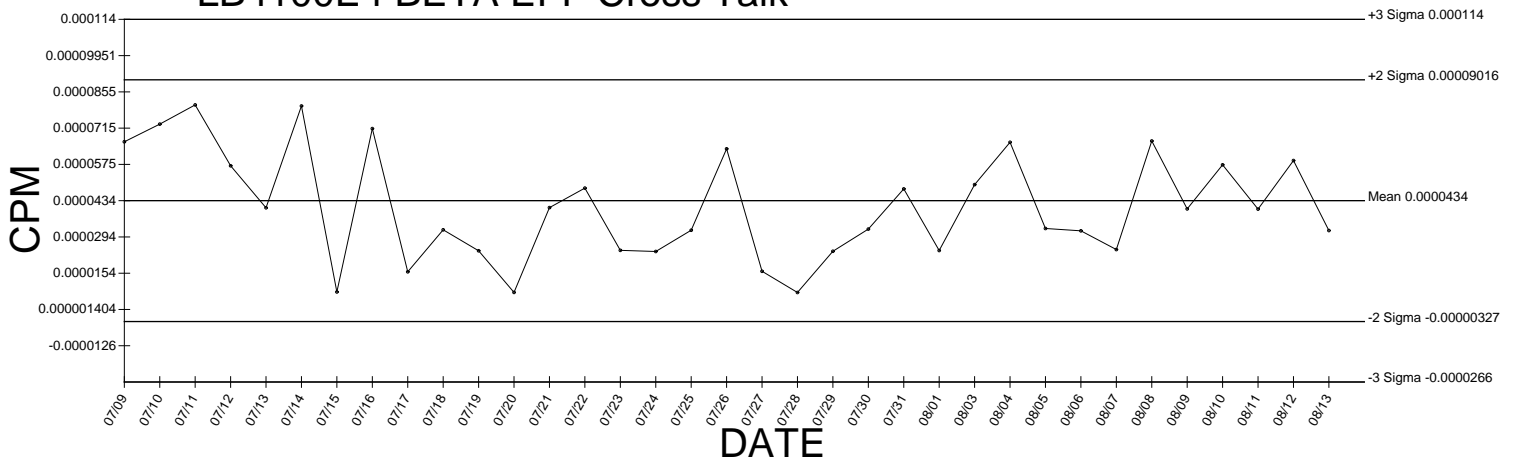
### LB4100E4 BETA BKG



### LB4100E4 BETA EFF



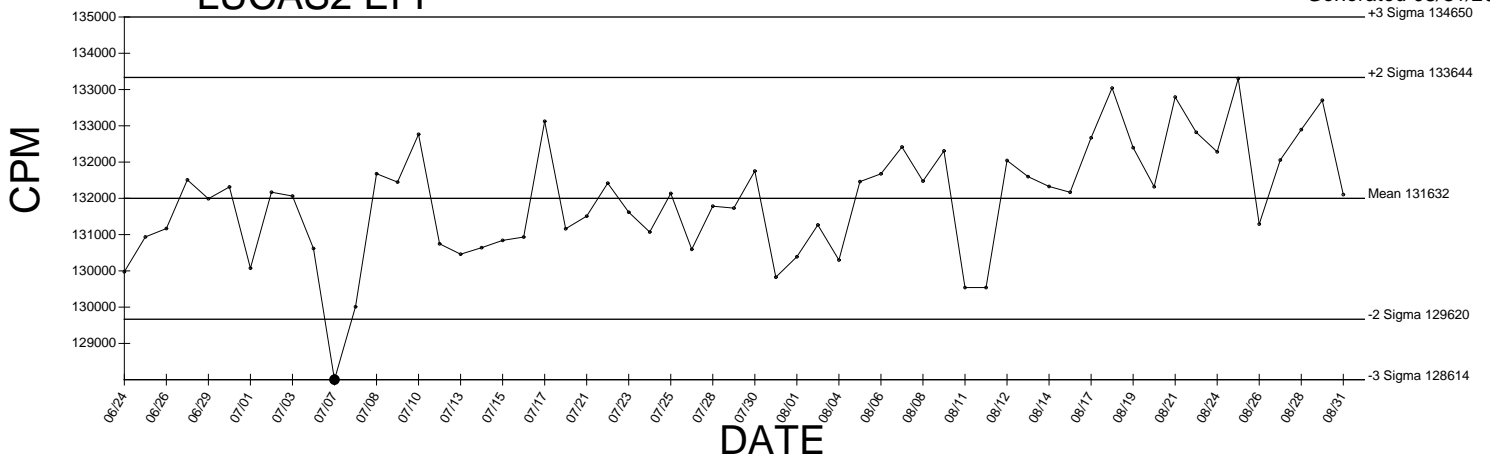
### LB4100E4 BETA EFF Cross Talk



● Denotes Outlier

# LUCAS2 EFF

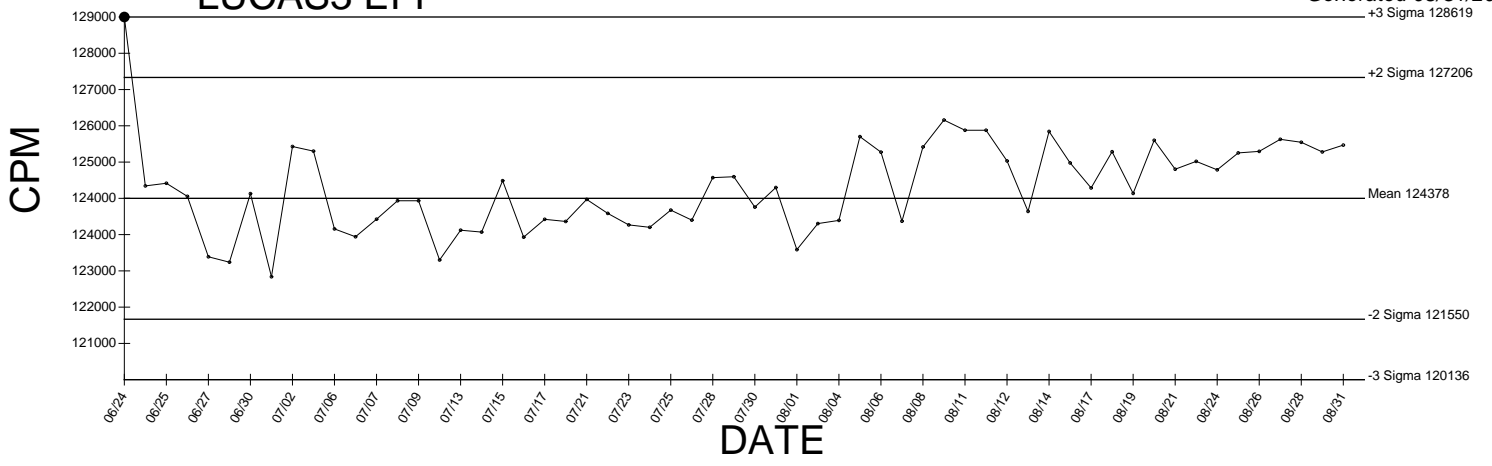
Generated 08/31/2009



● Denotes Outlier

# LUCAS3 EFF

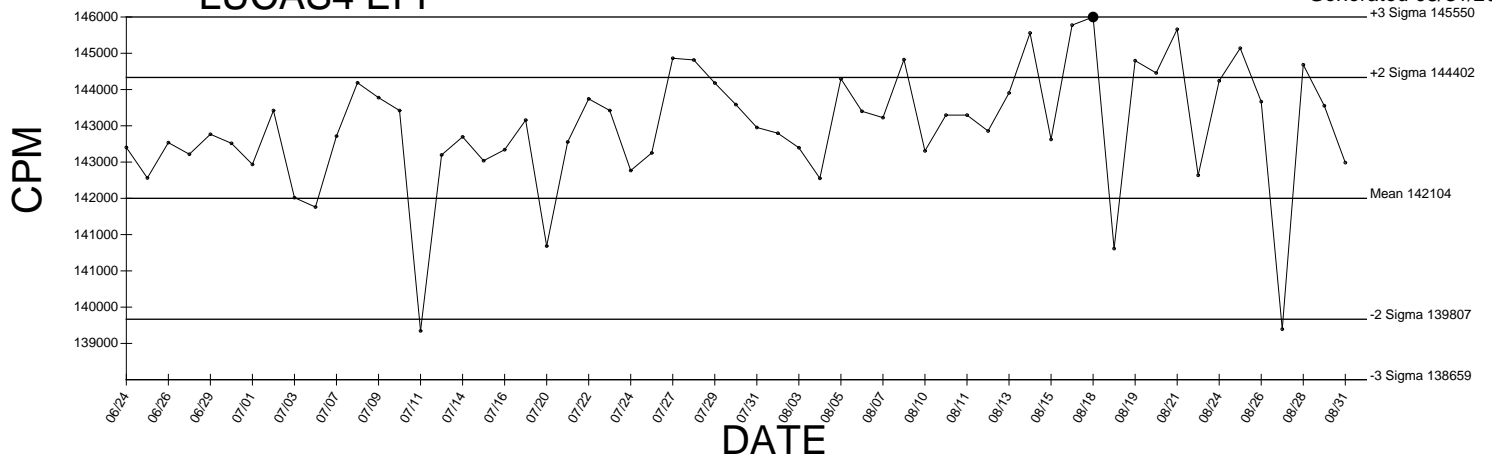
Generated 08/31/2009



● Denotes Outlier

# LUCAS4 EFF

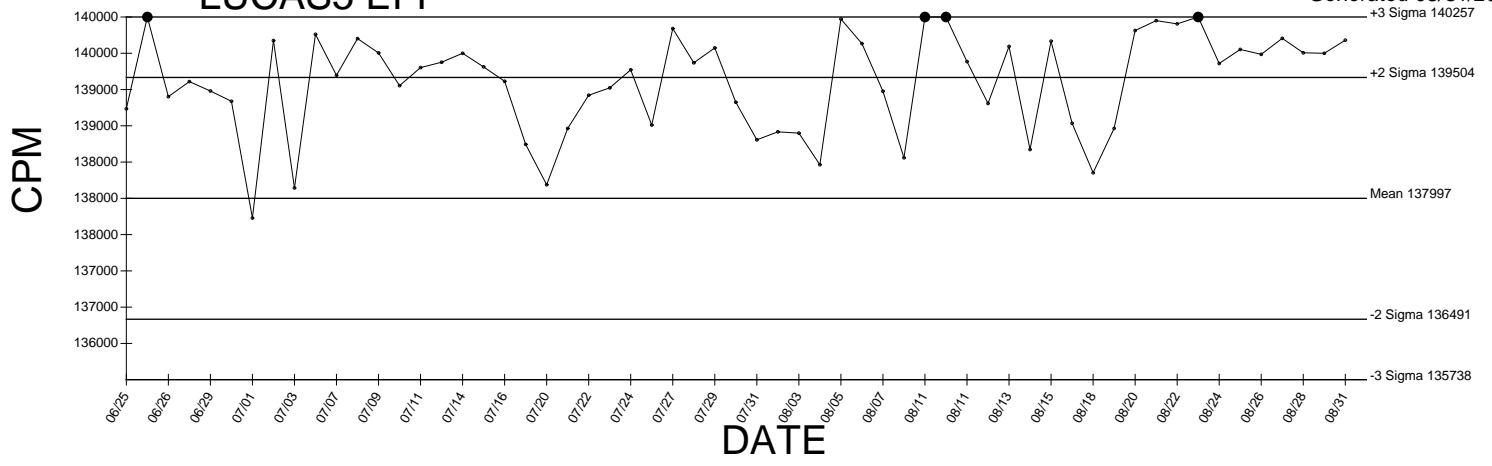
Generated 08/31/2009



● Denotes Outlier

# LUCAS5 EFF

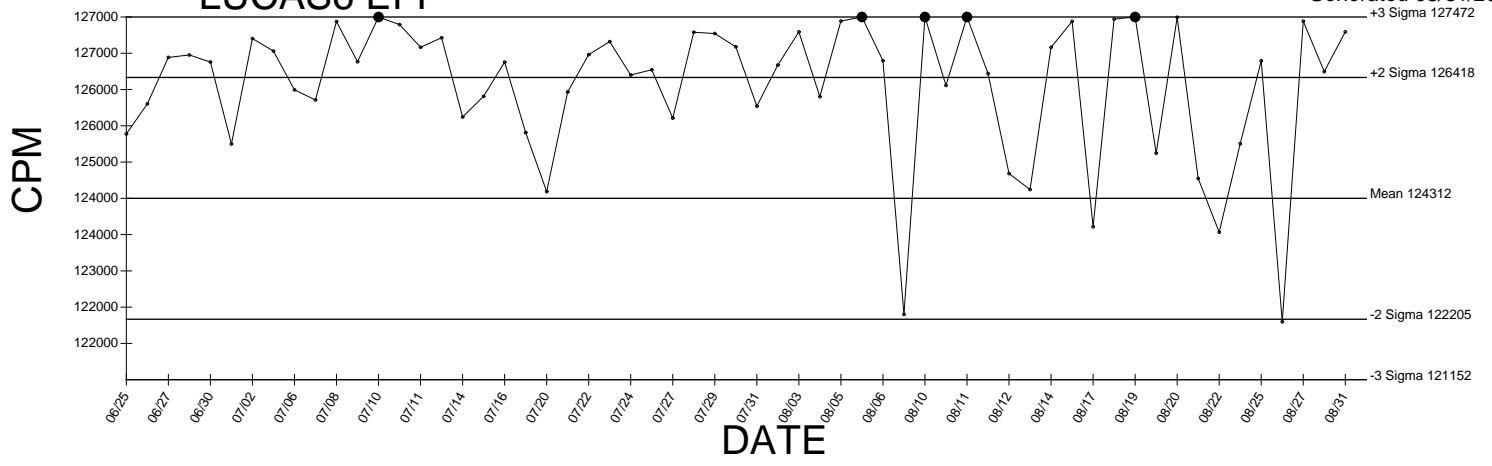
Generated 08/31/2009



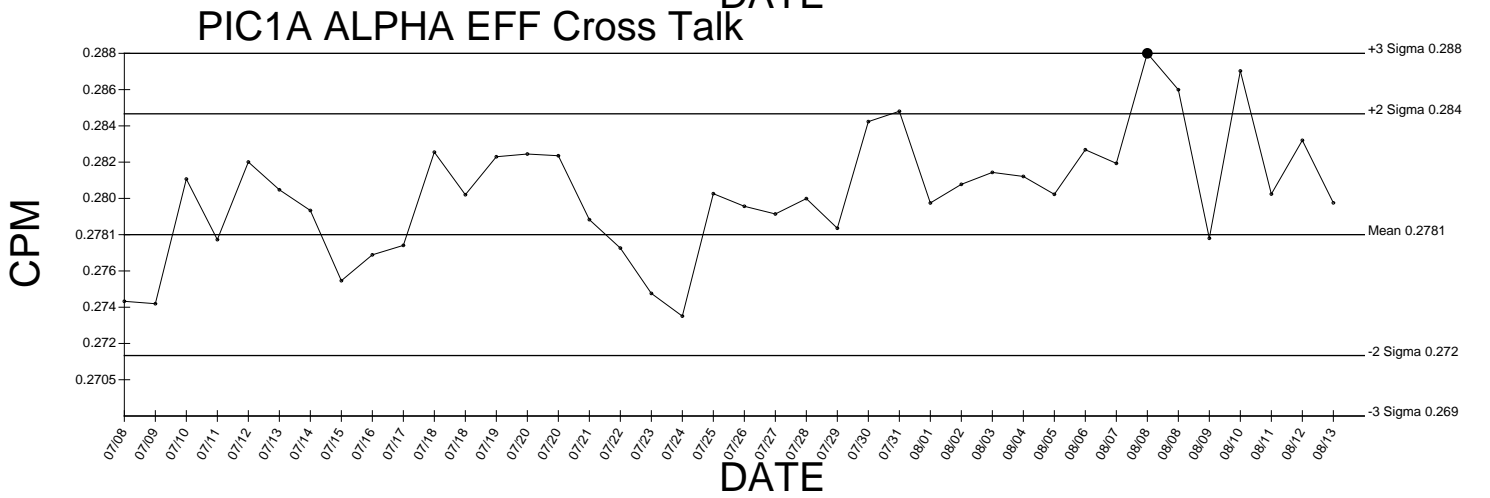
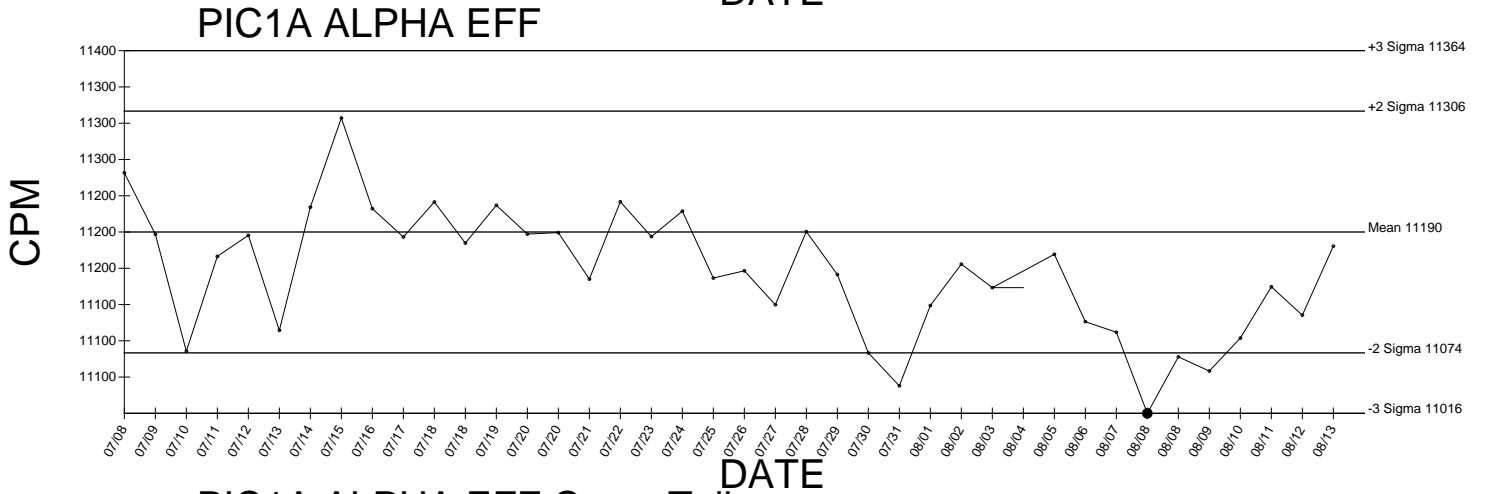
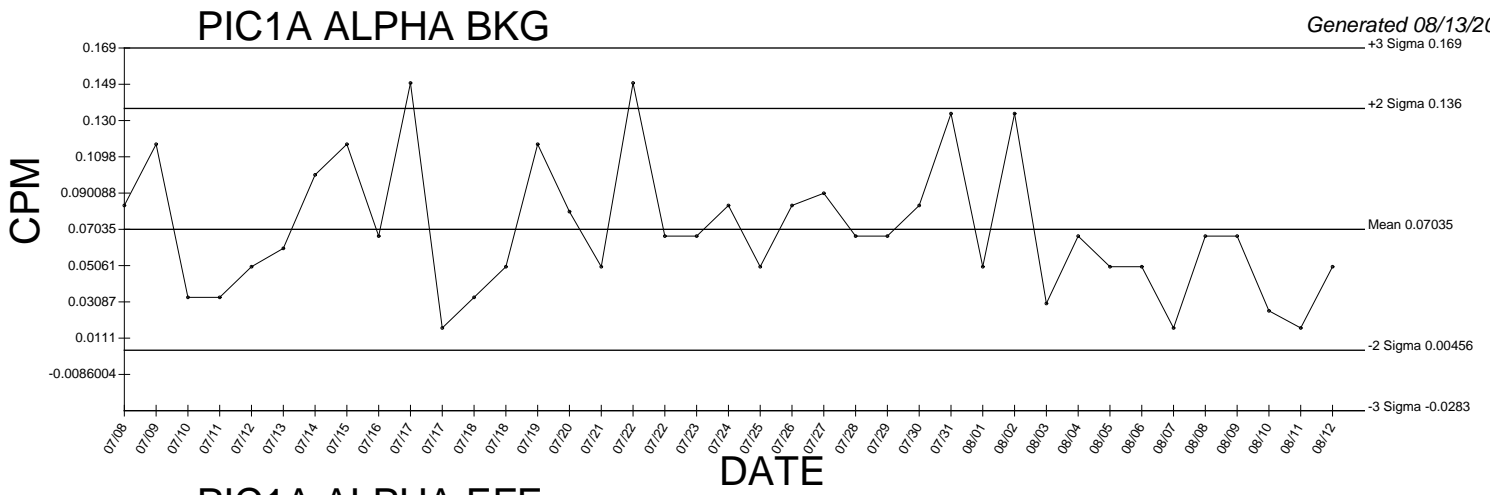
● Denotes Outlier

# LUCAS6 EFF

Generated 08/31/2009

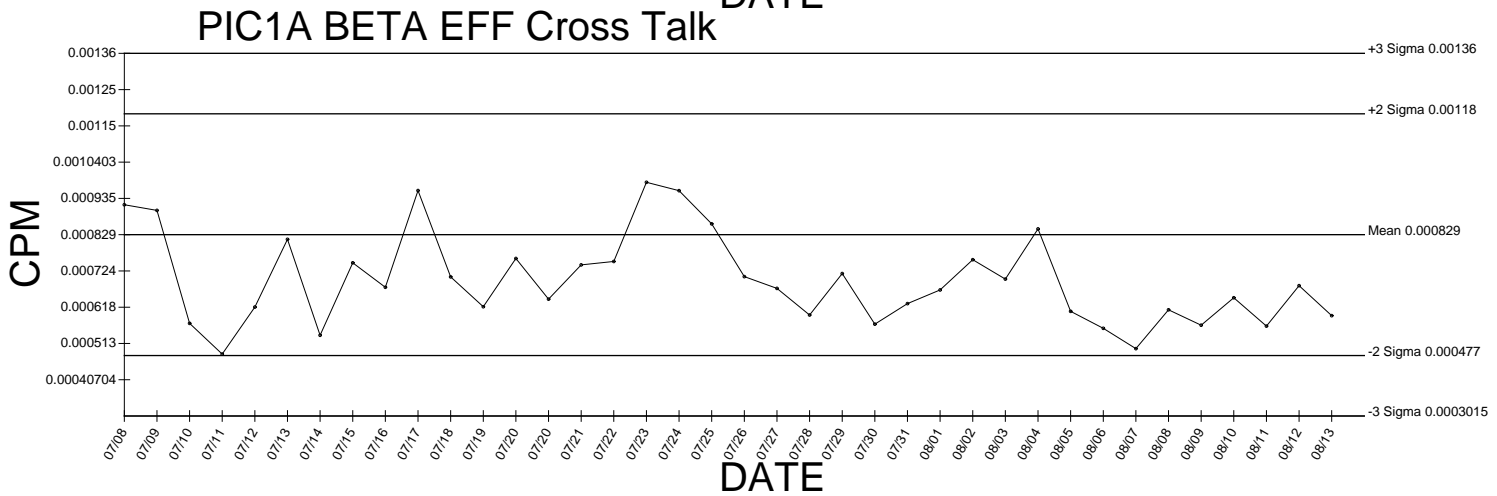
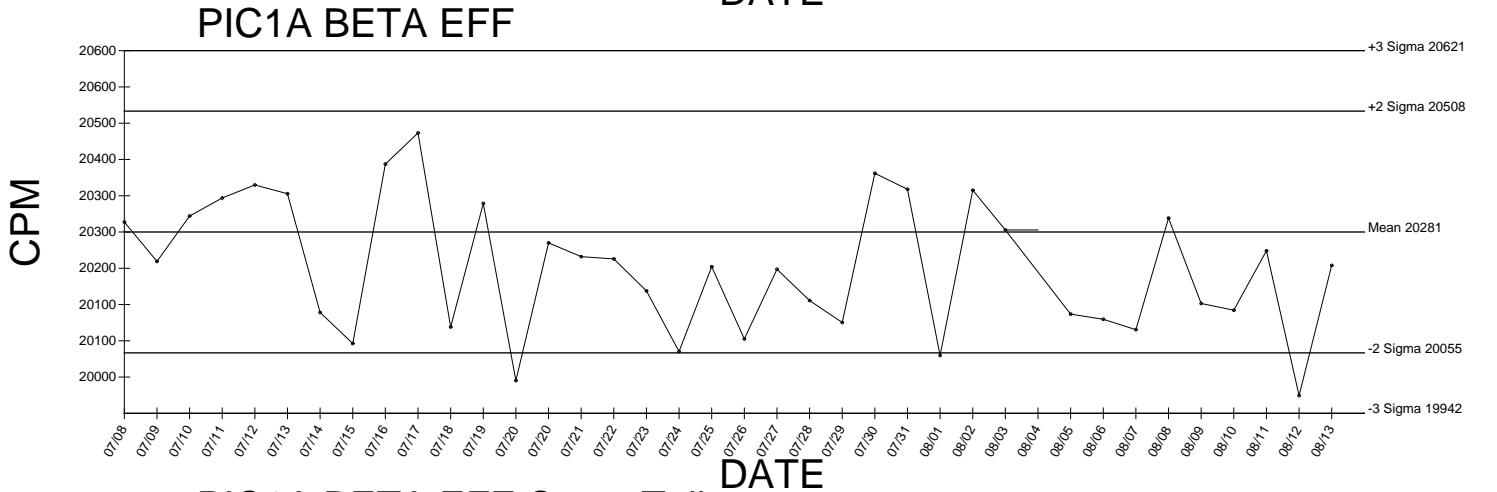
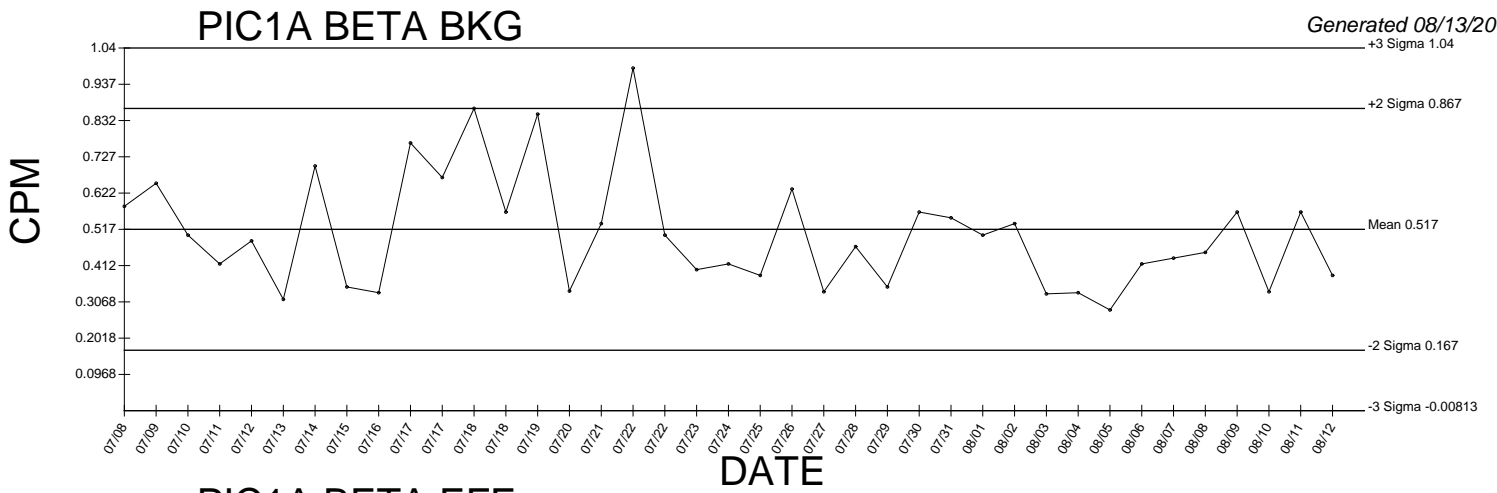


● Denotes Outlier

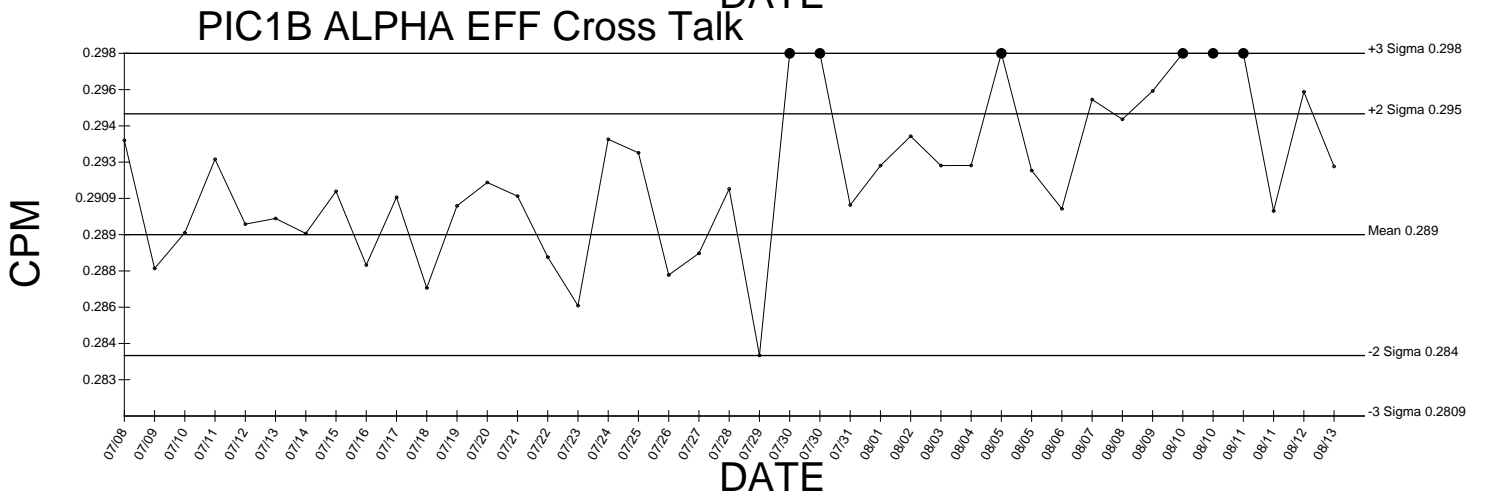
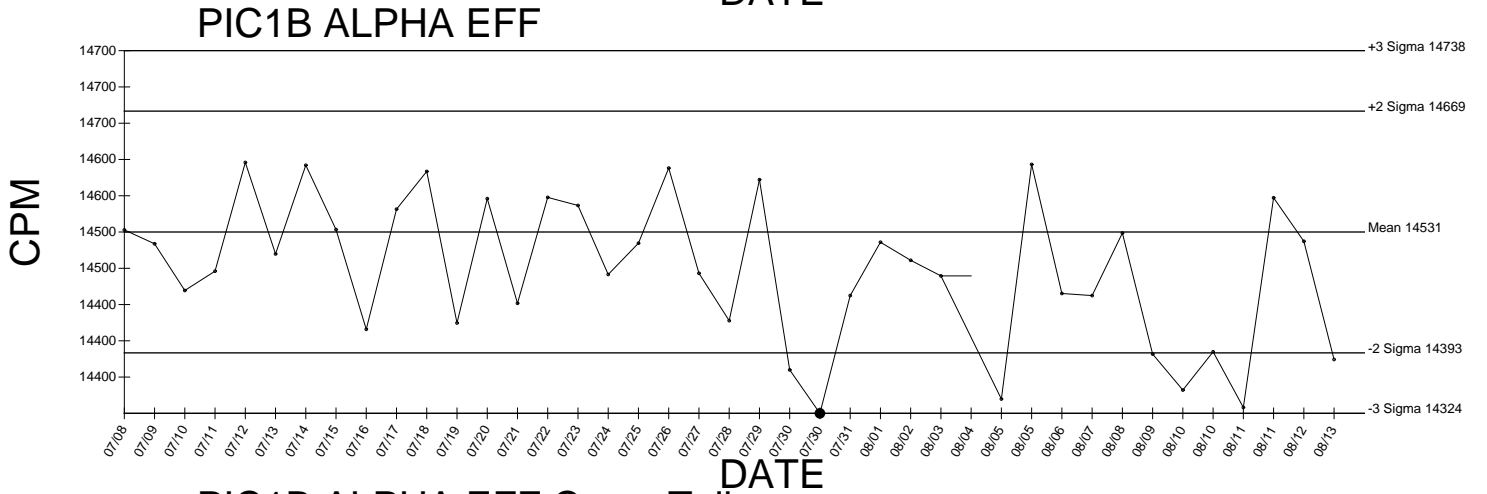
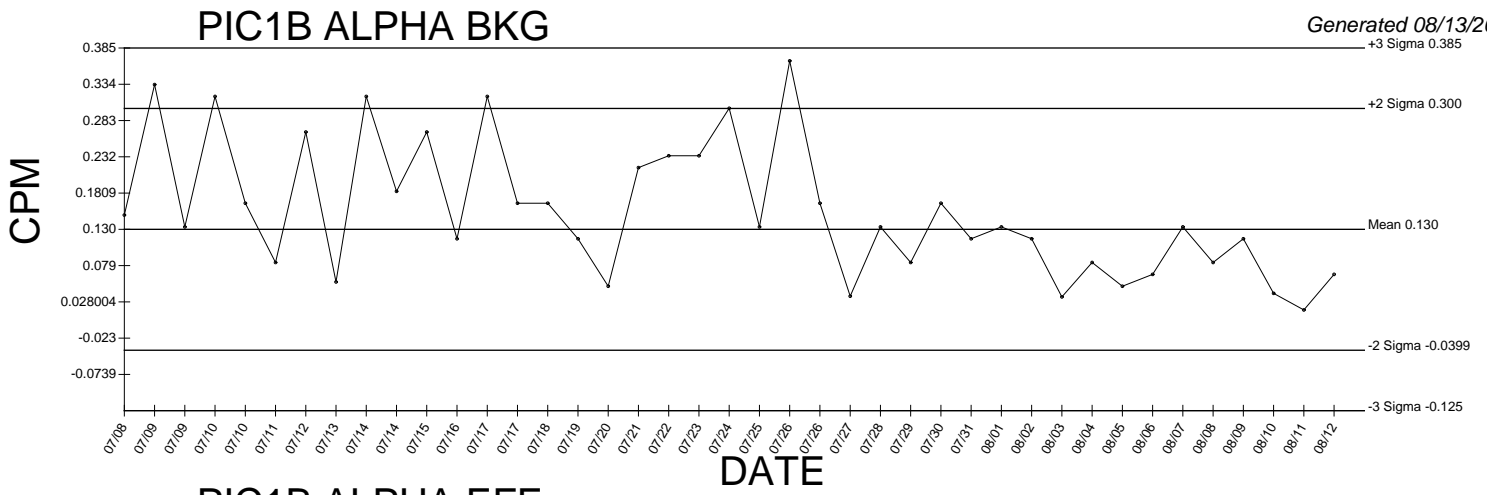


● Denotes Outlier

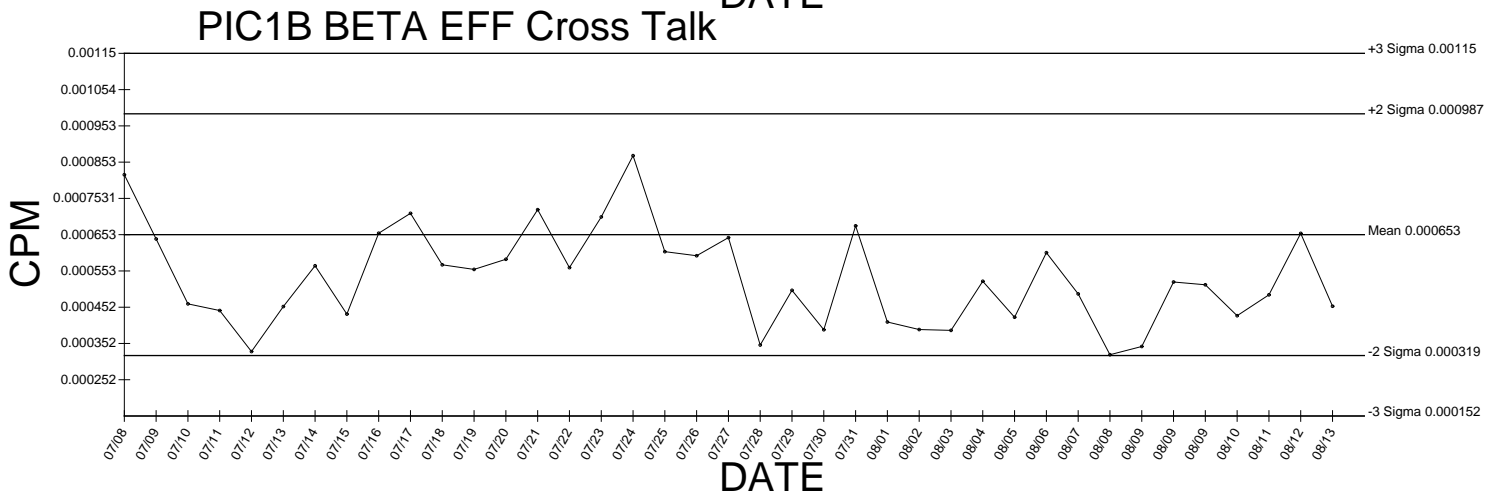
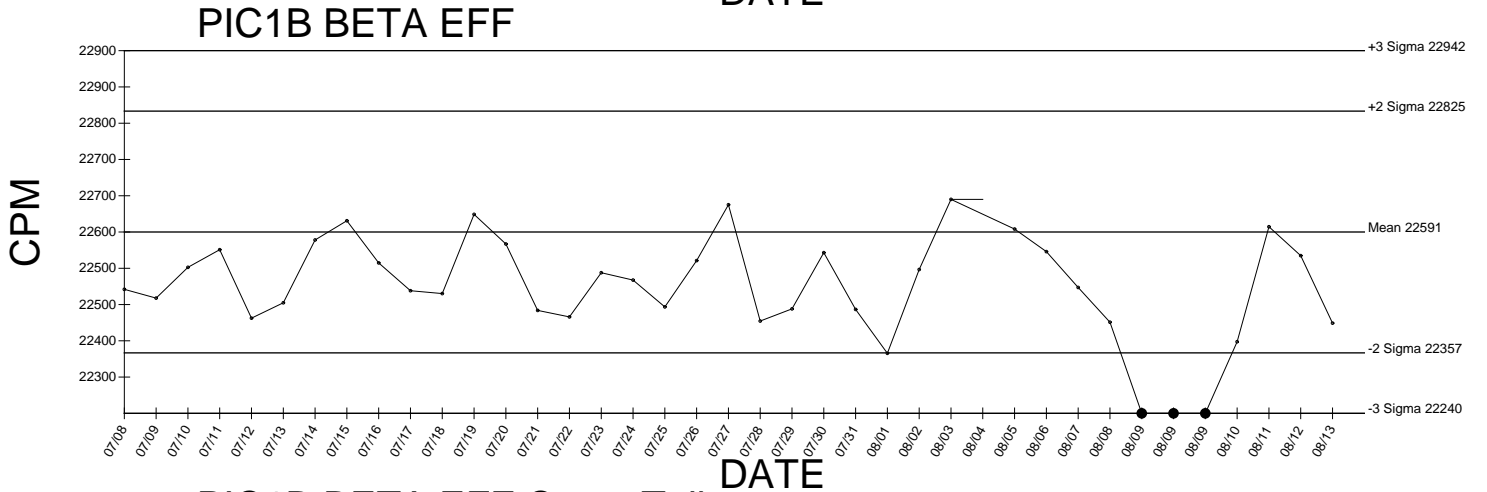
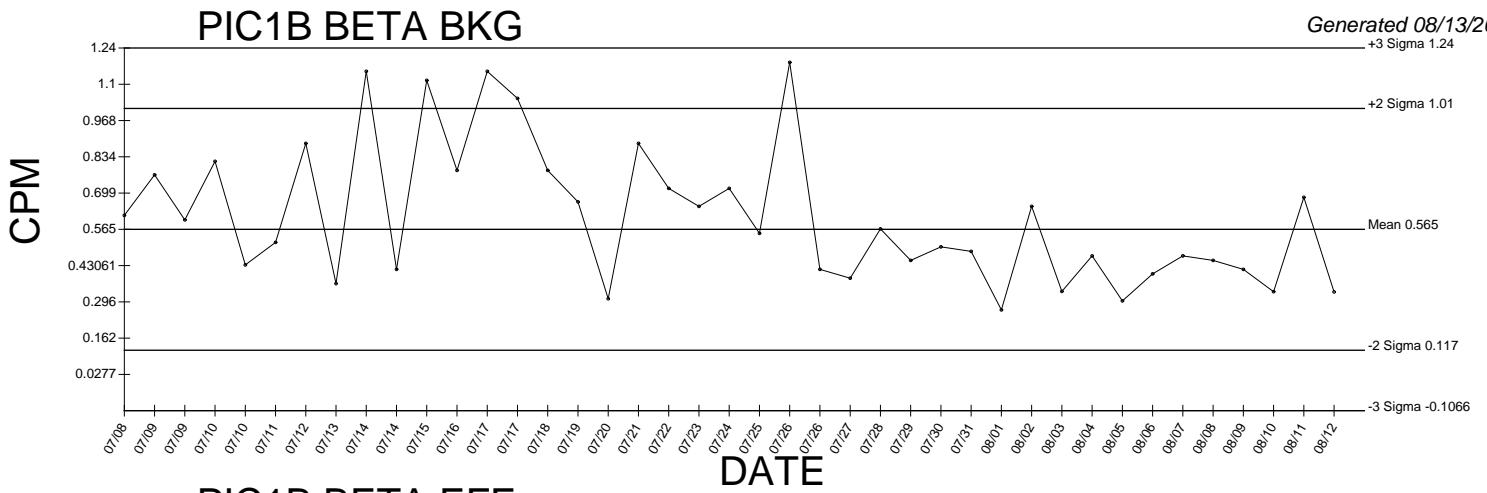




● Denotes Outlier



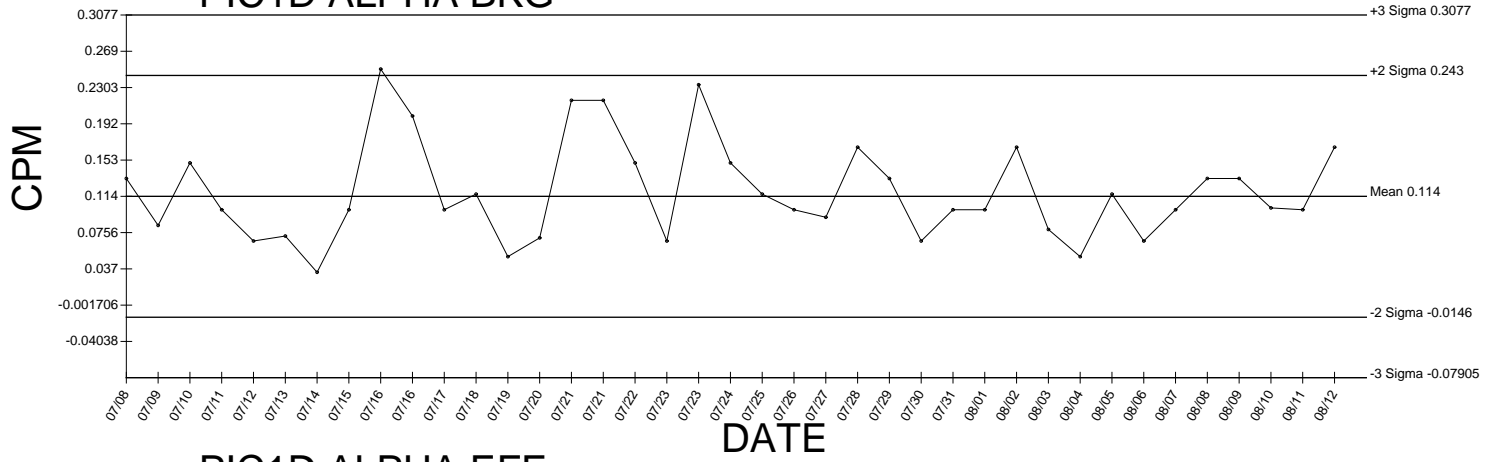
● Denotes Outlier



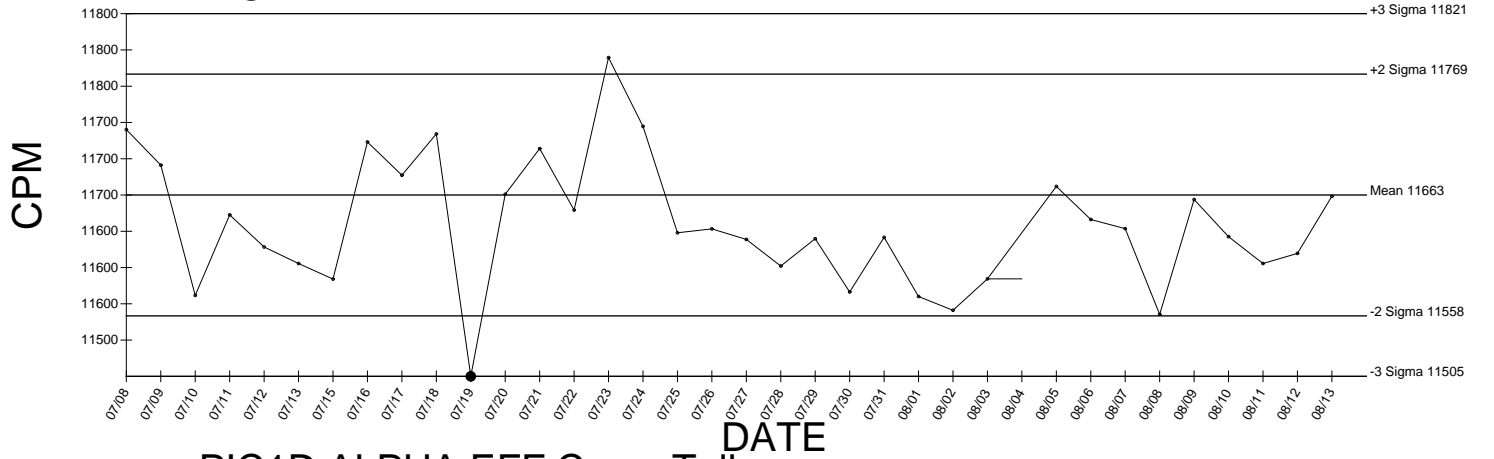
● Denotes Outlier

# PIC1D ALPHA BKG

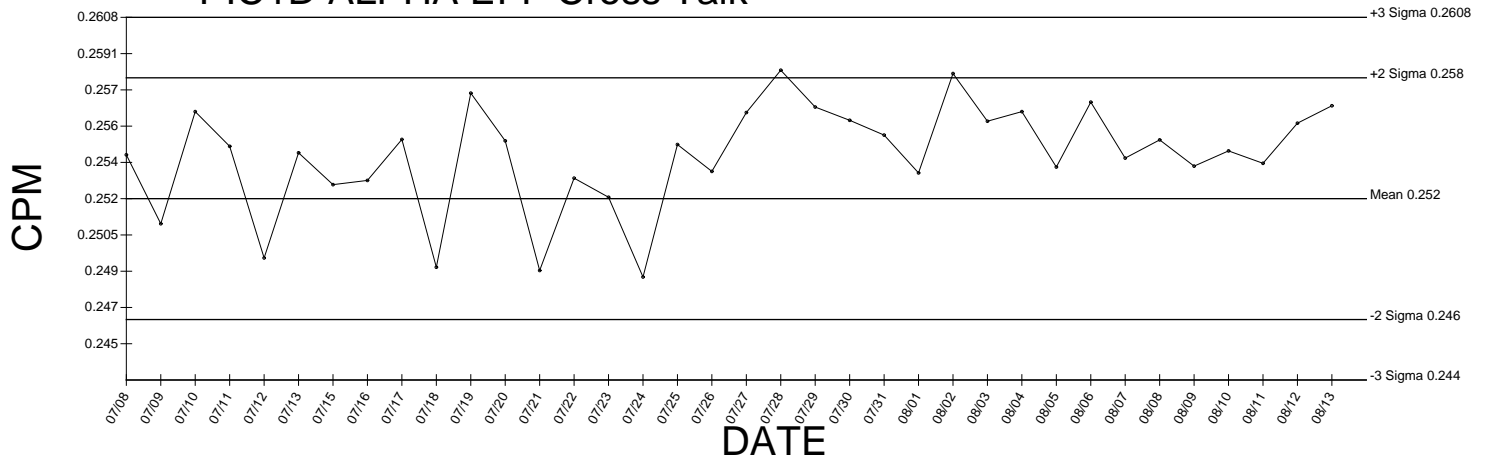
Generated 08/13/2009



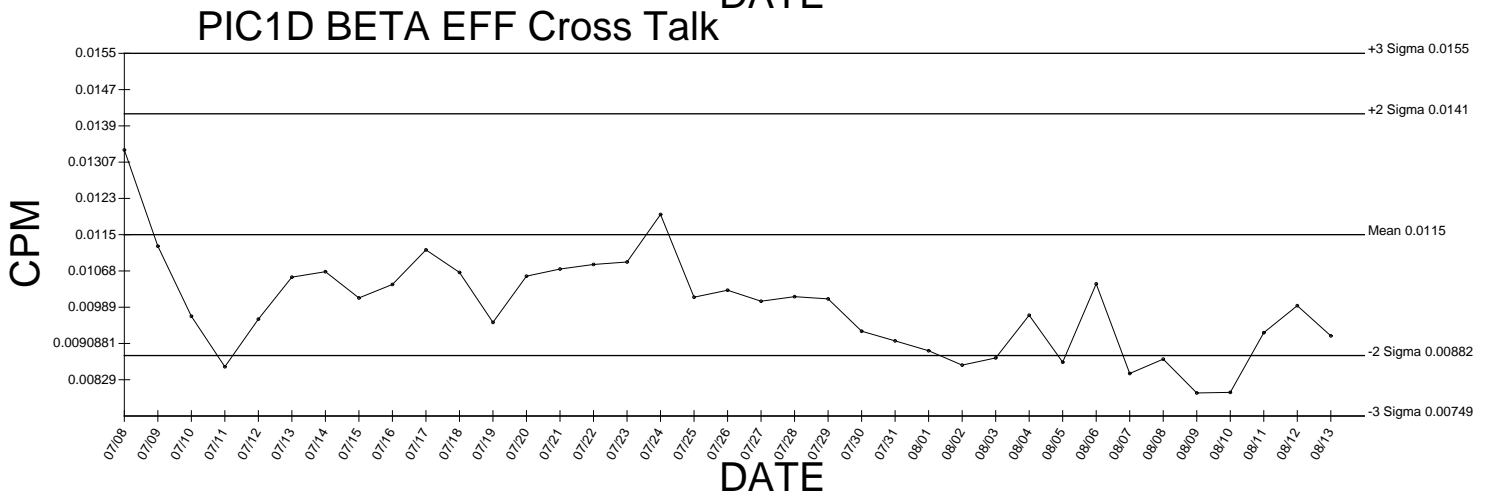
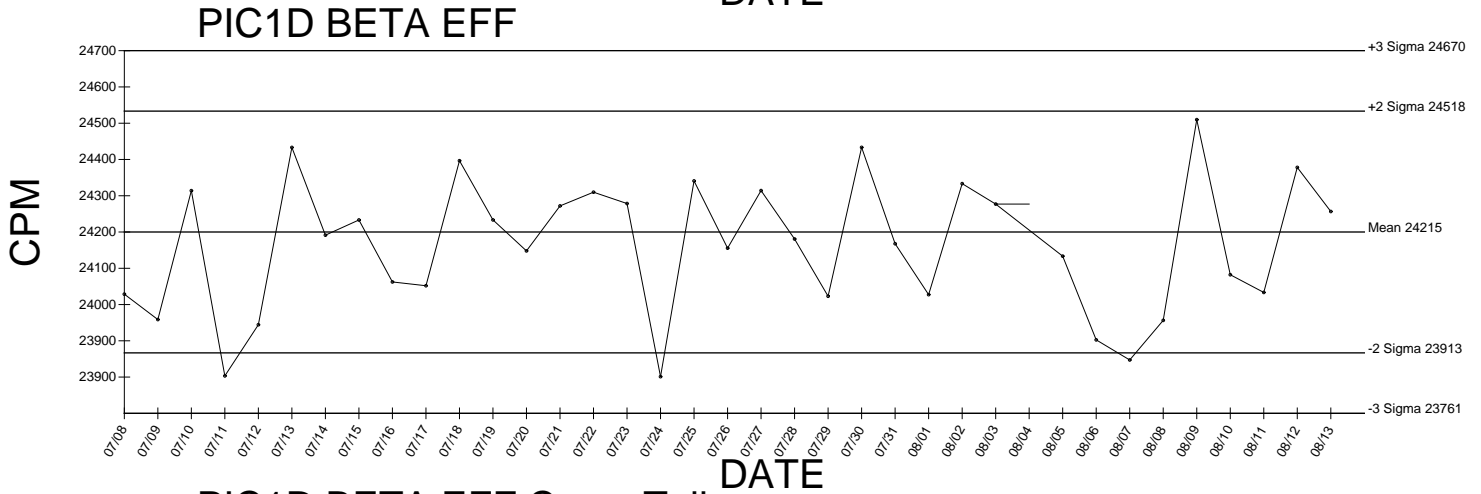
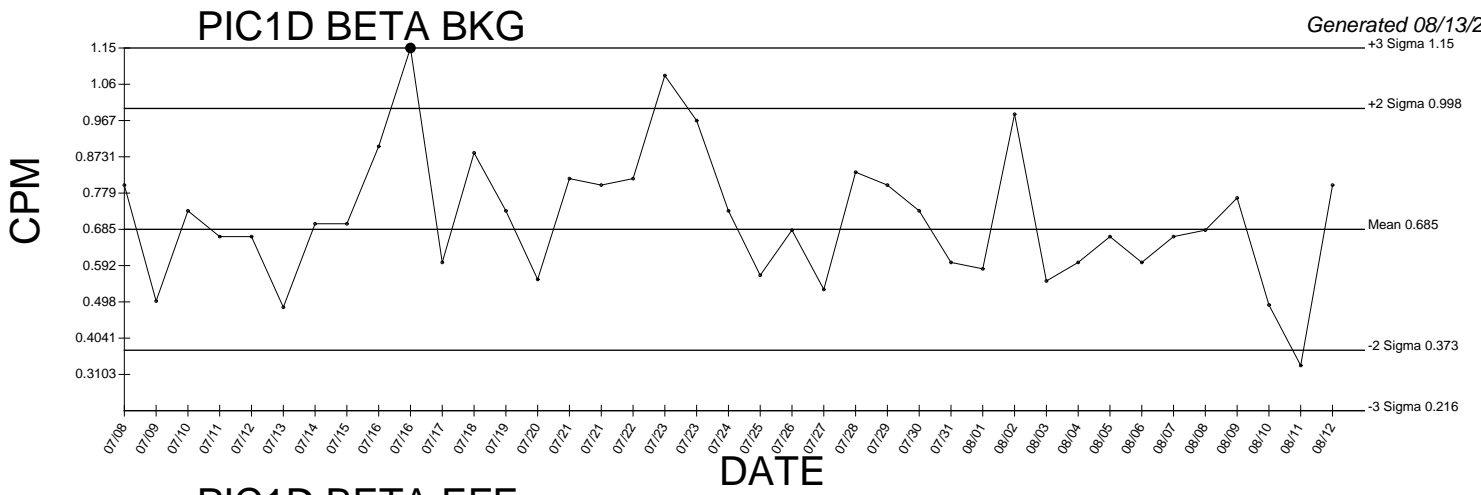
# PIC1D ALPHA EFF



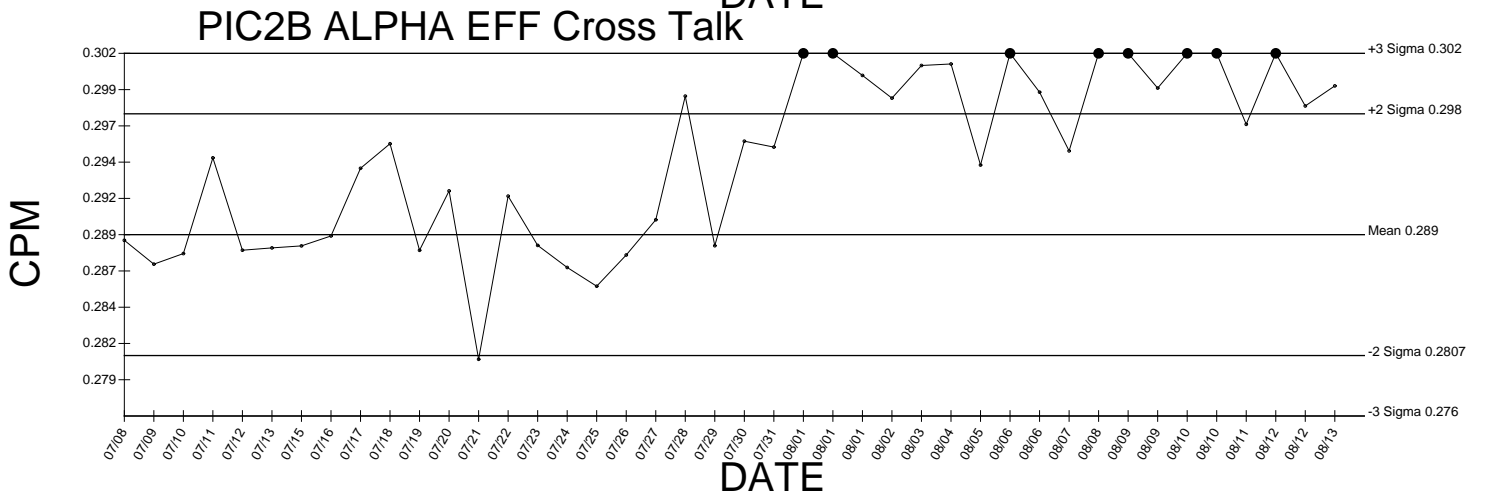
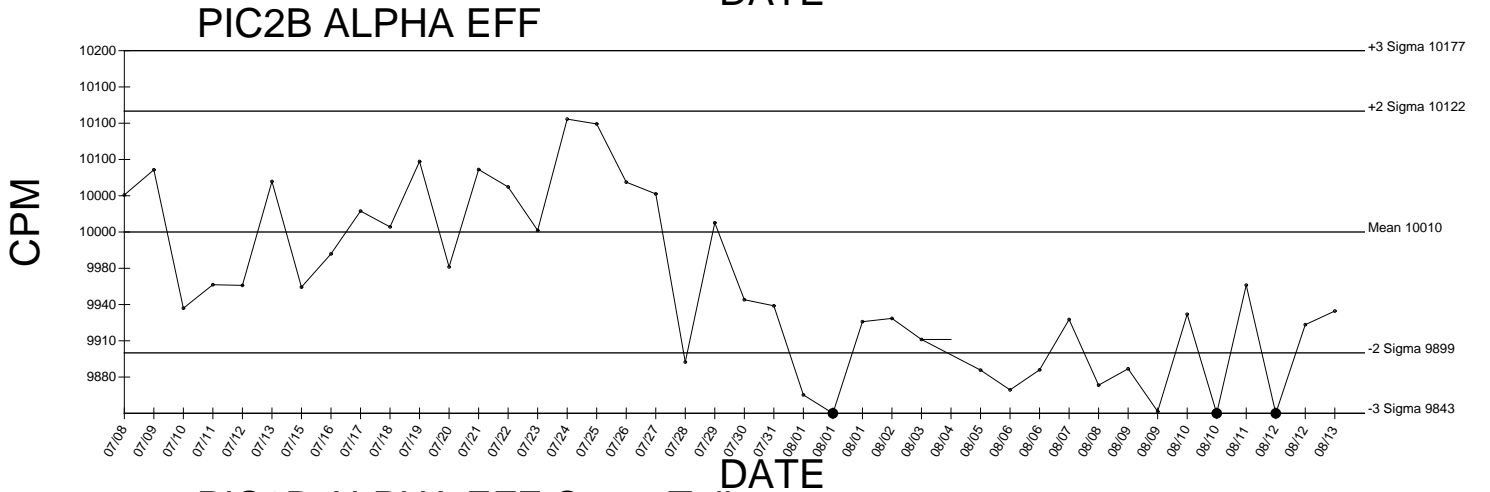
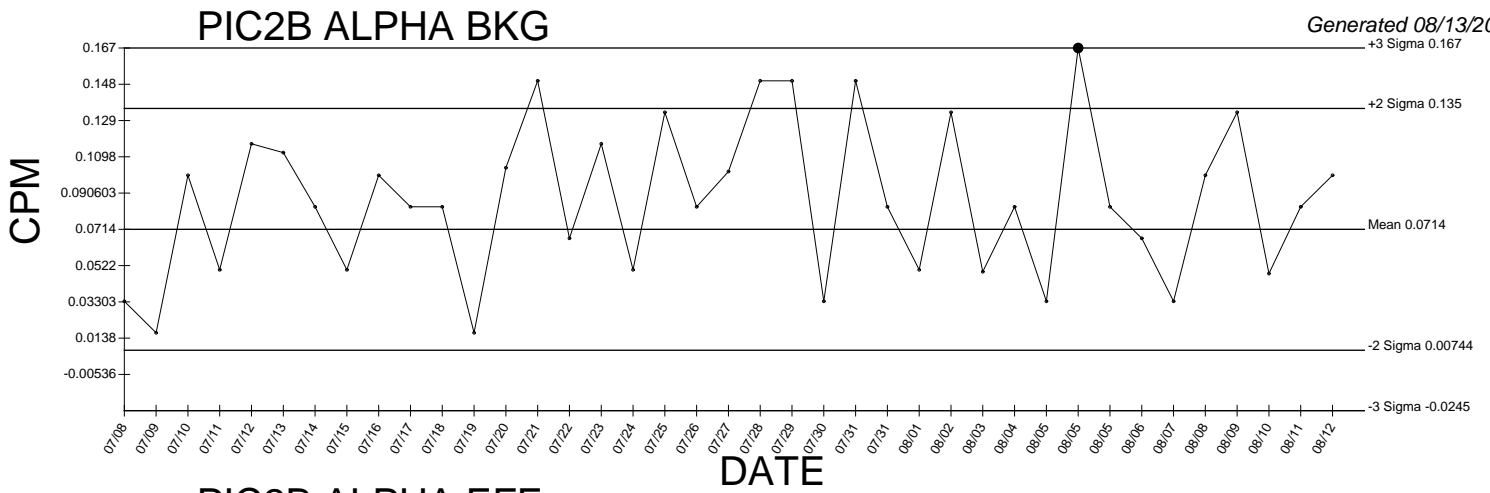
# PIC1D ALPHA EFF Cross Talk



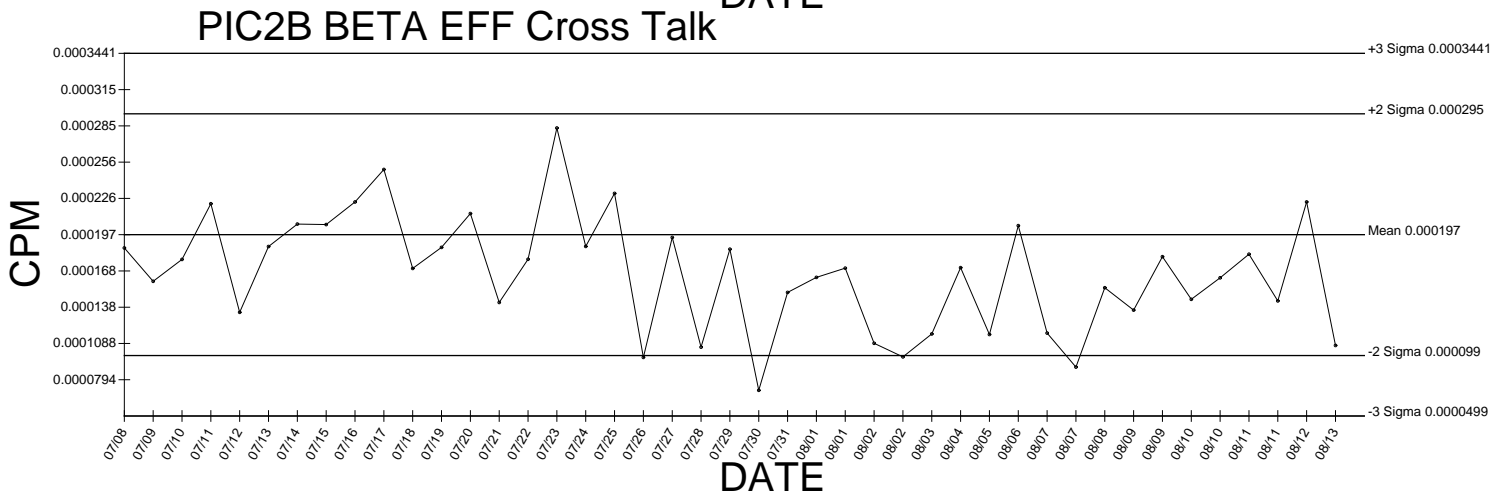
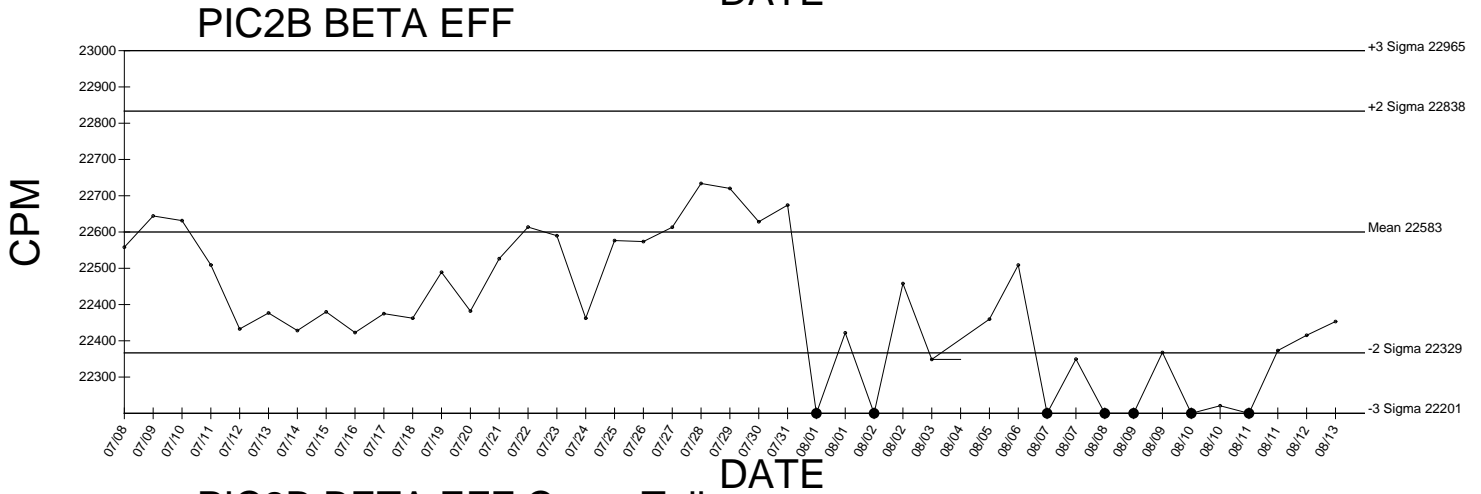
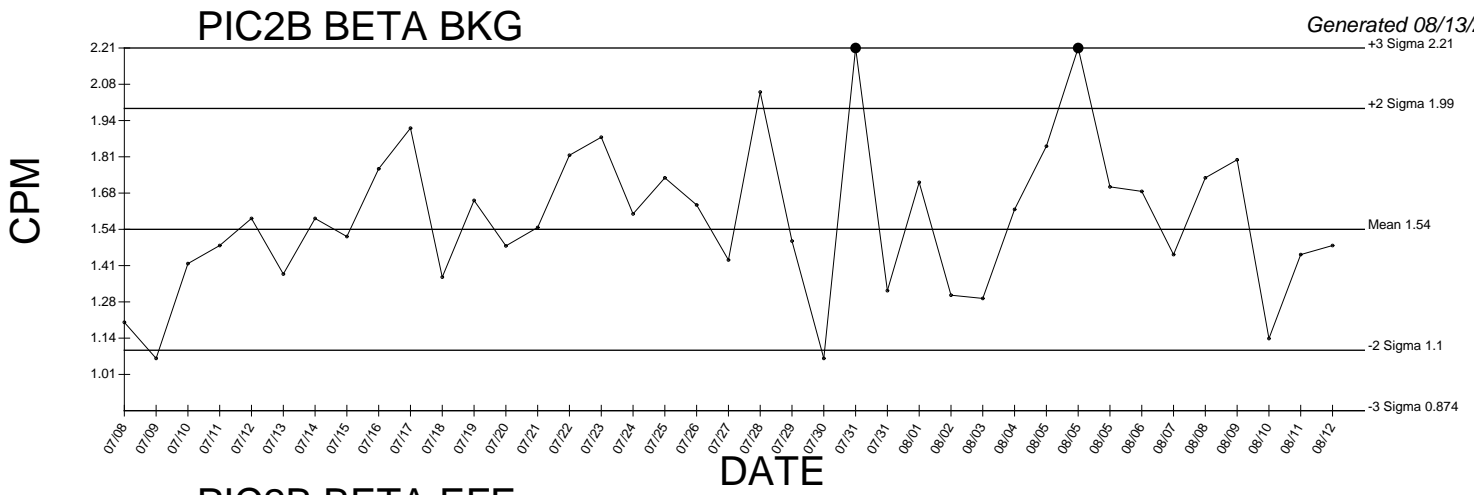
● Denotes Outlier



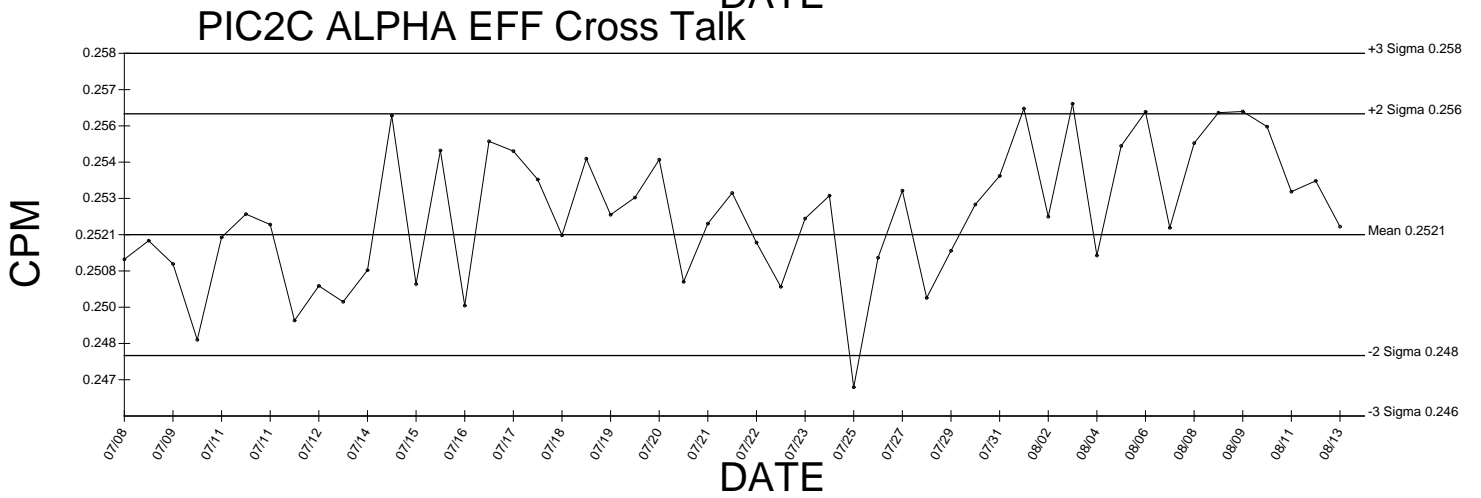
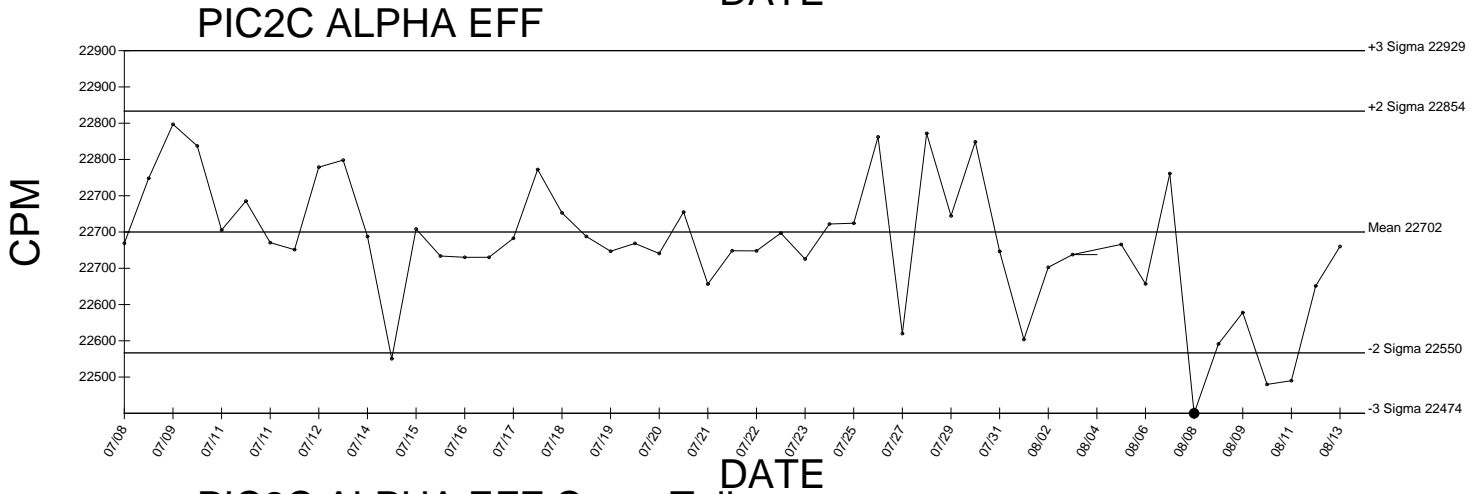
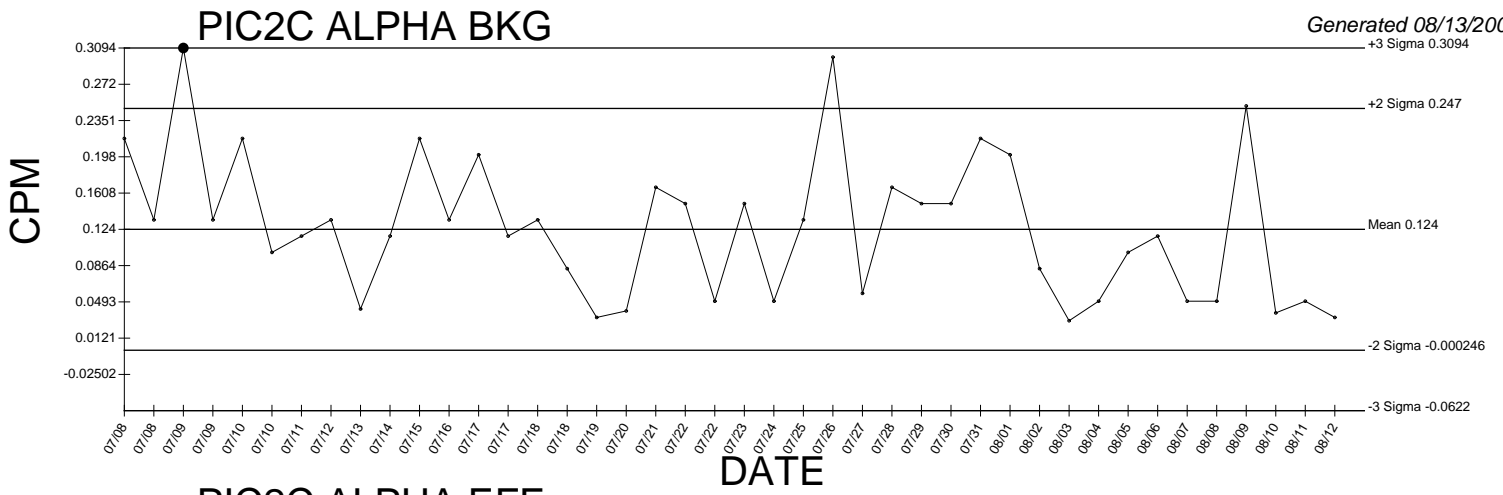
● Denotes Outlier



● Denotes Outlier

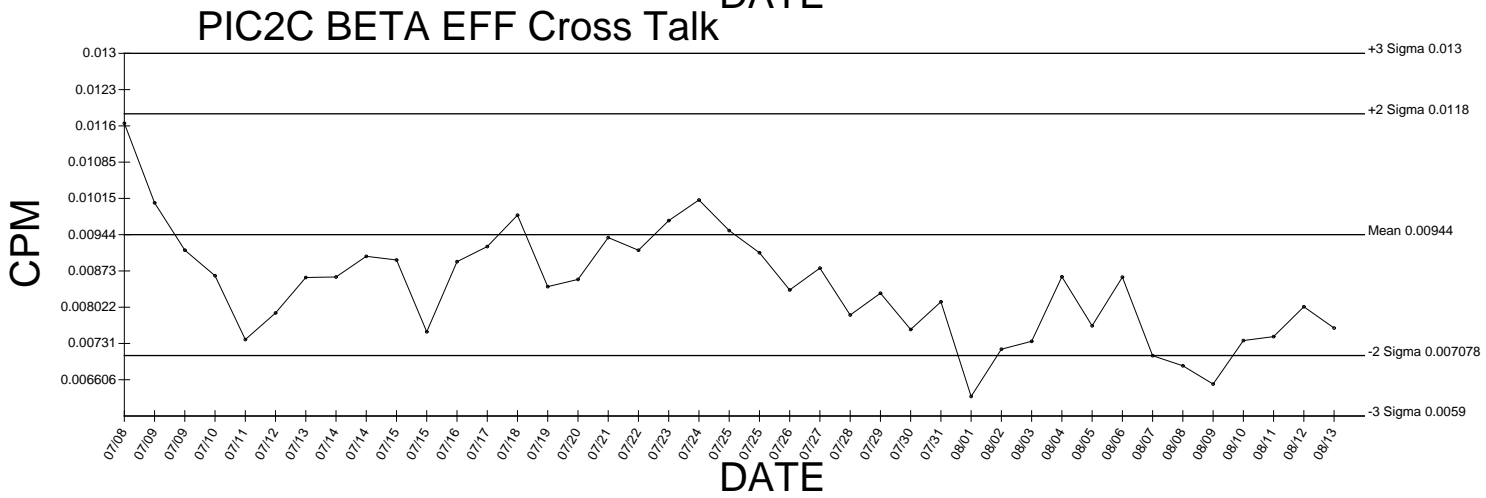
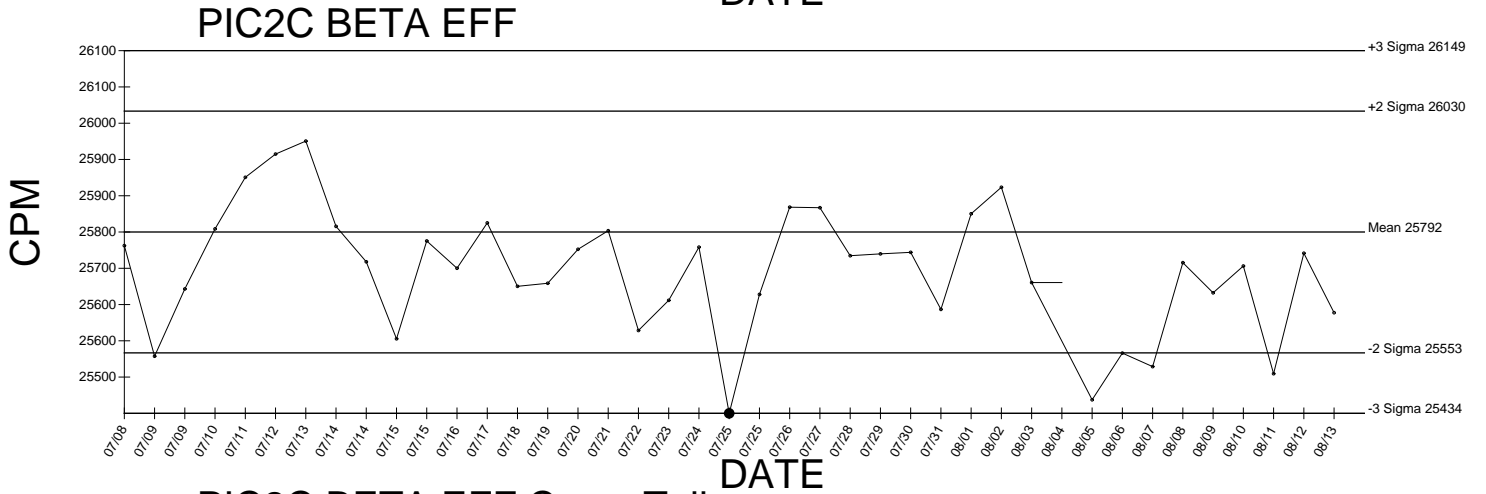
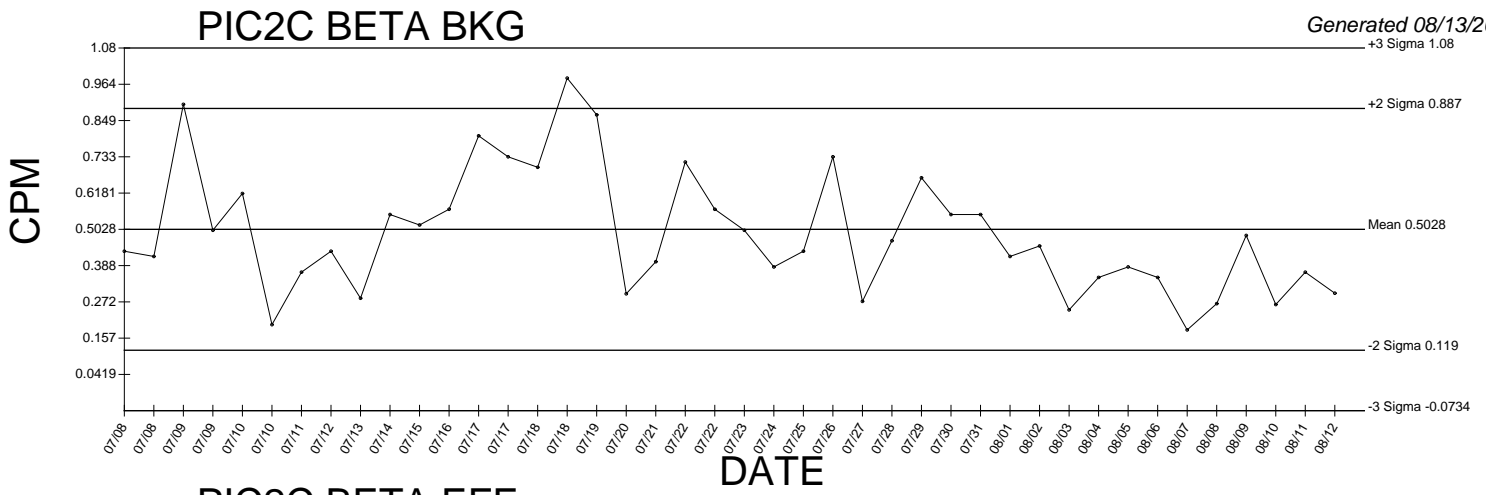


● Denotes Outlier

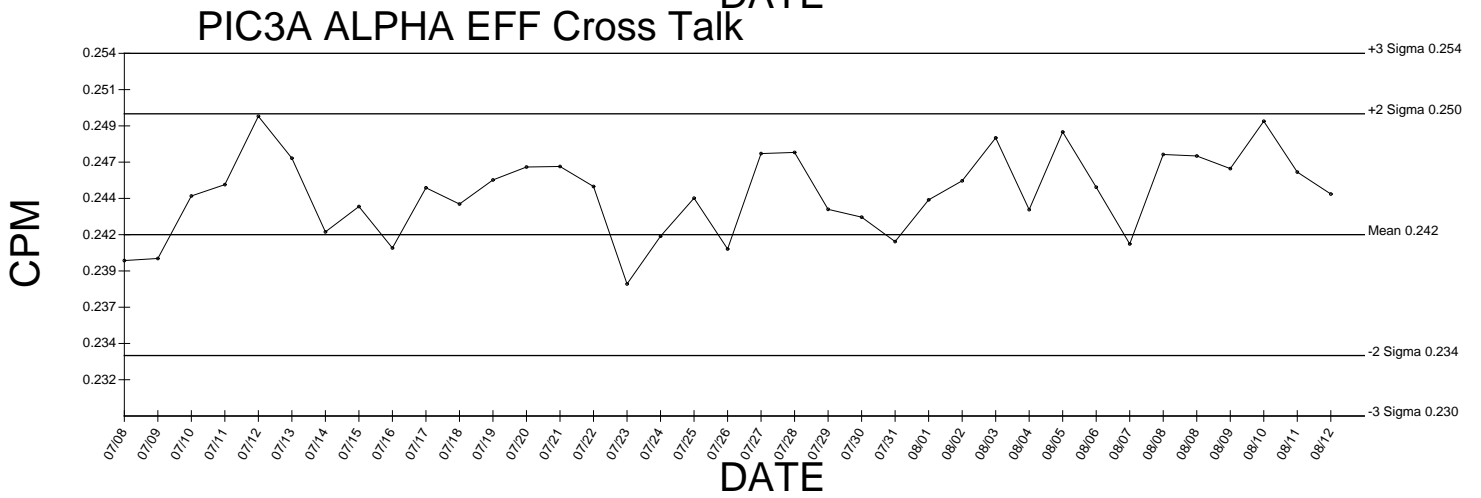
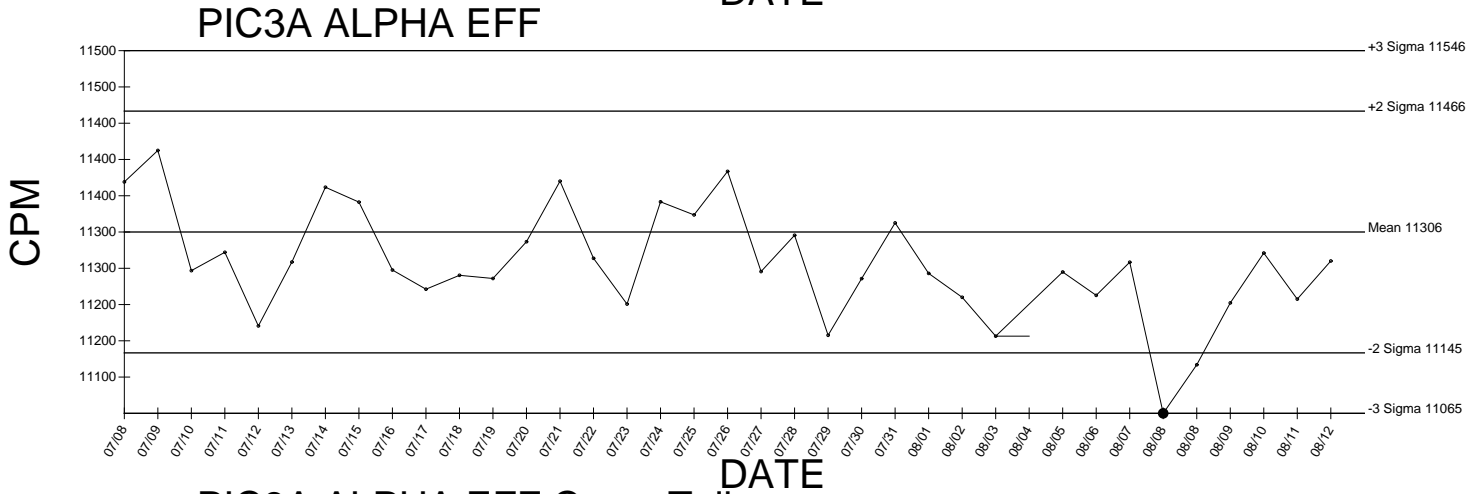
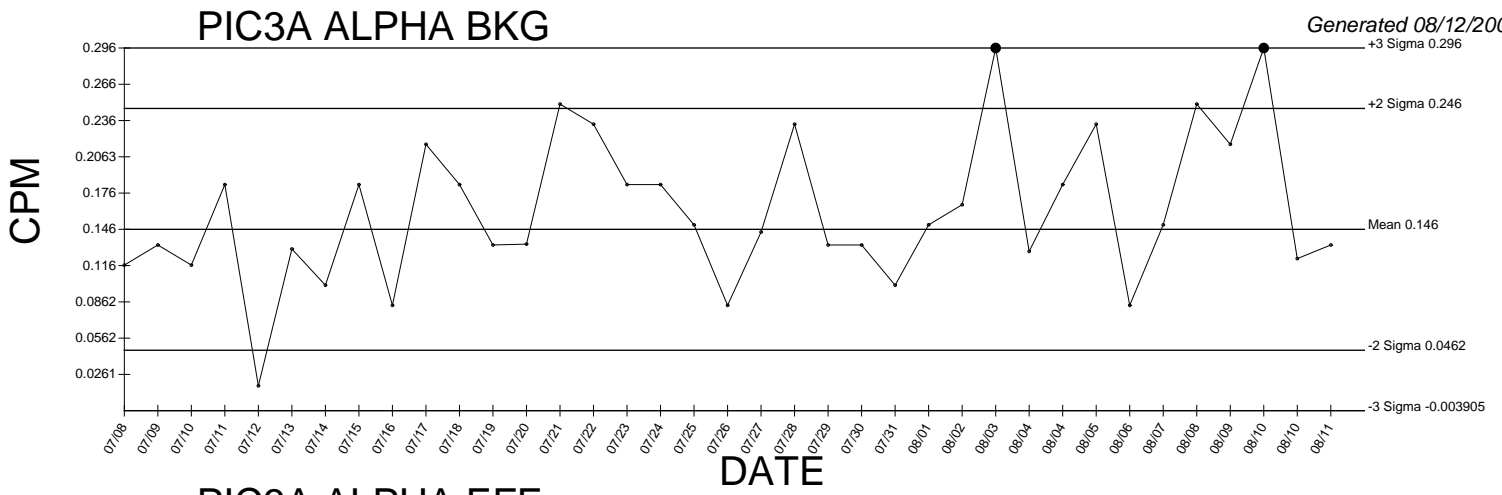


● Denotes Outlier

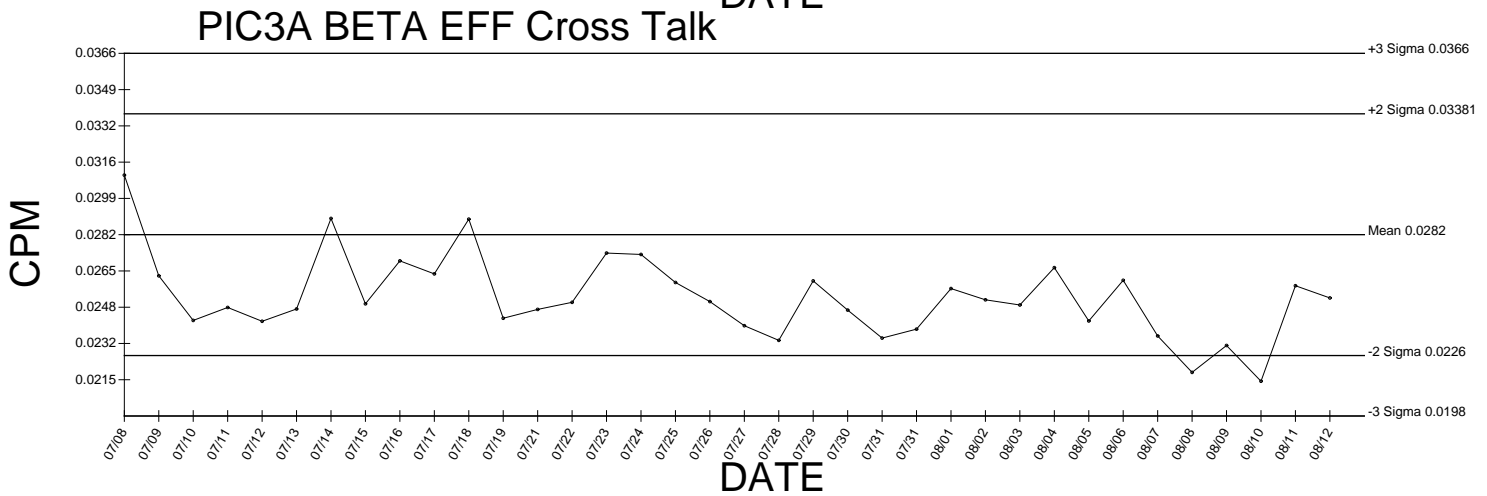
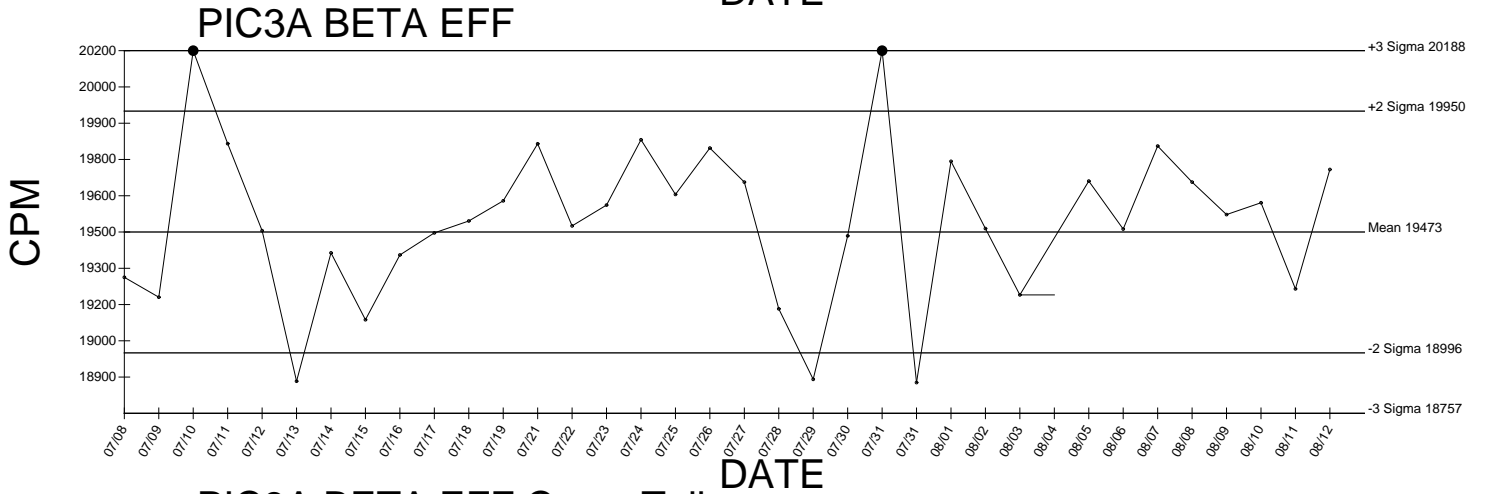
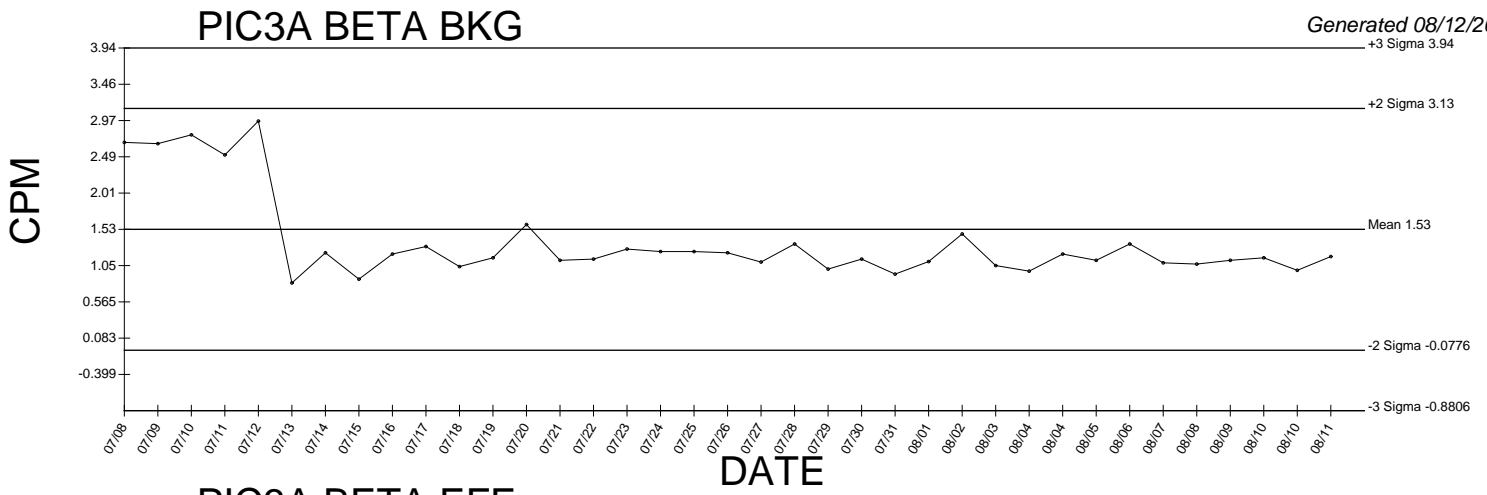




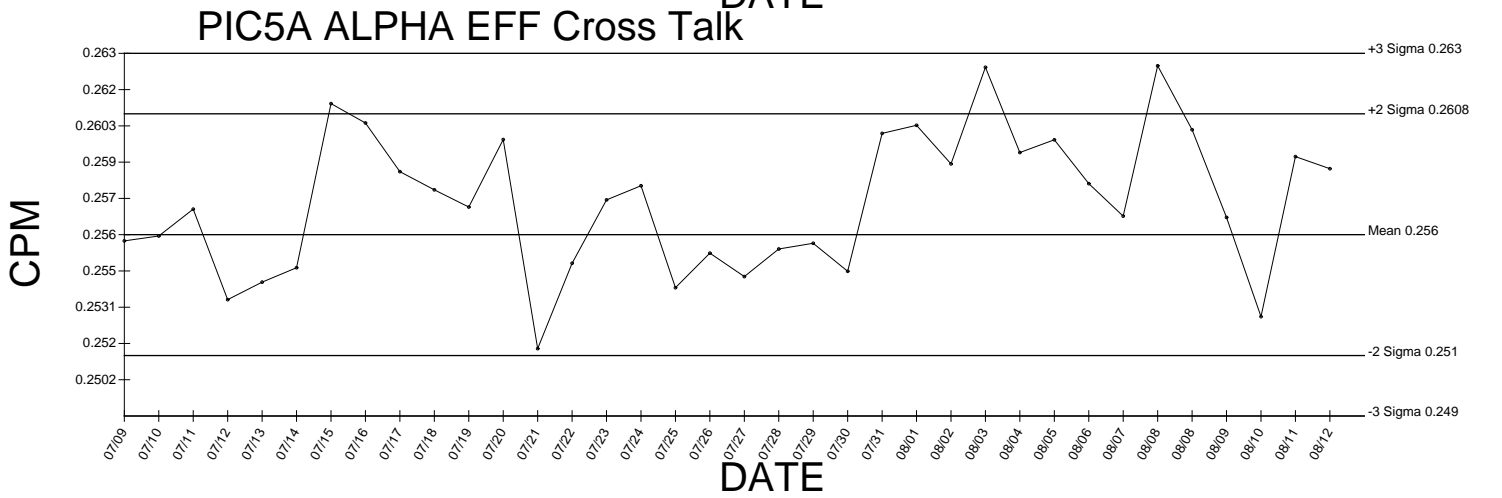
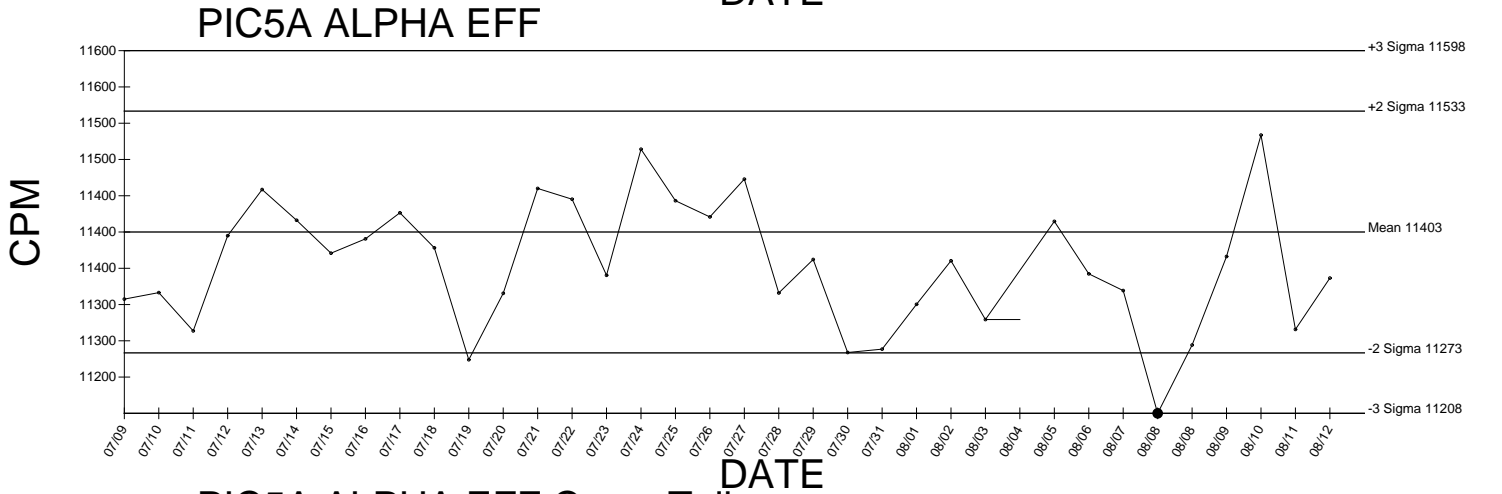
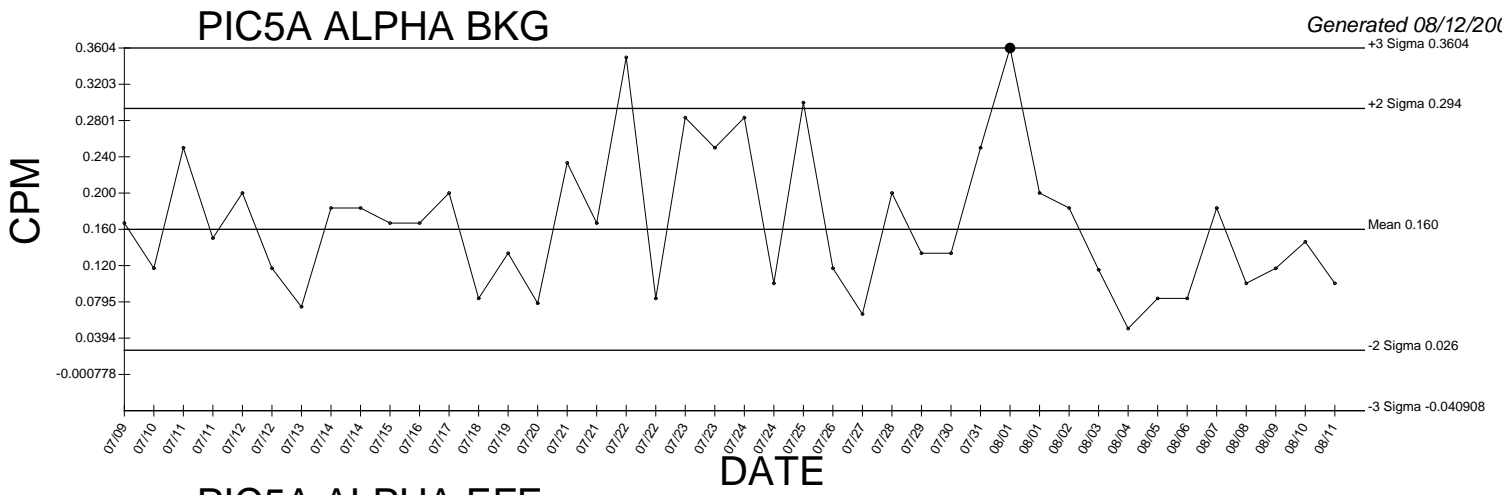
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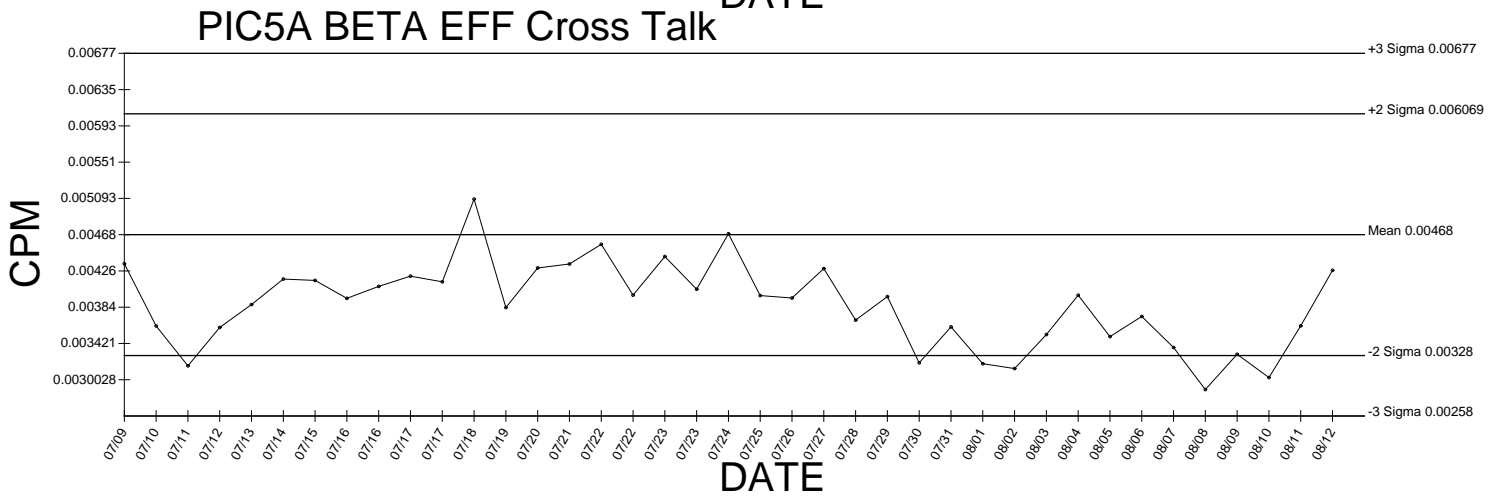
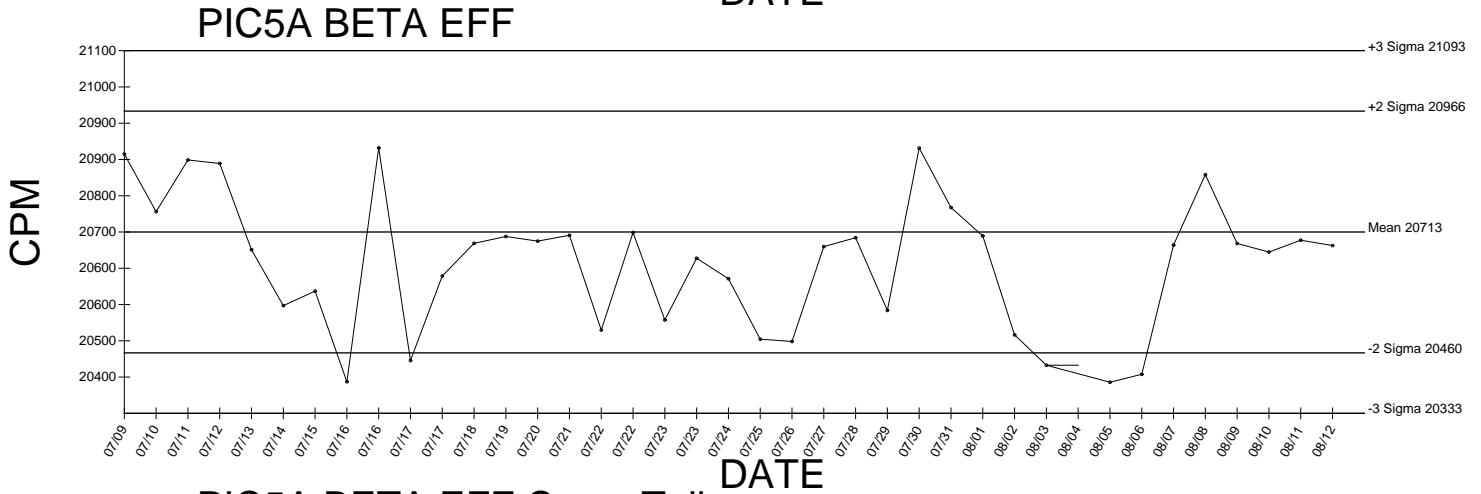
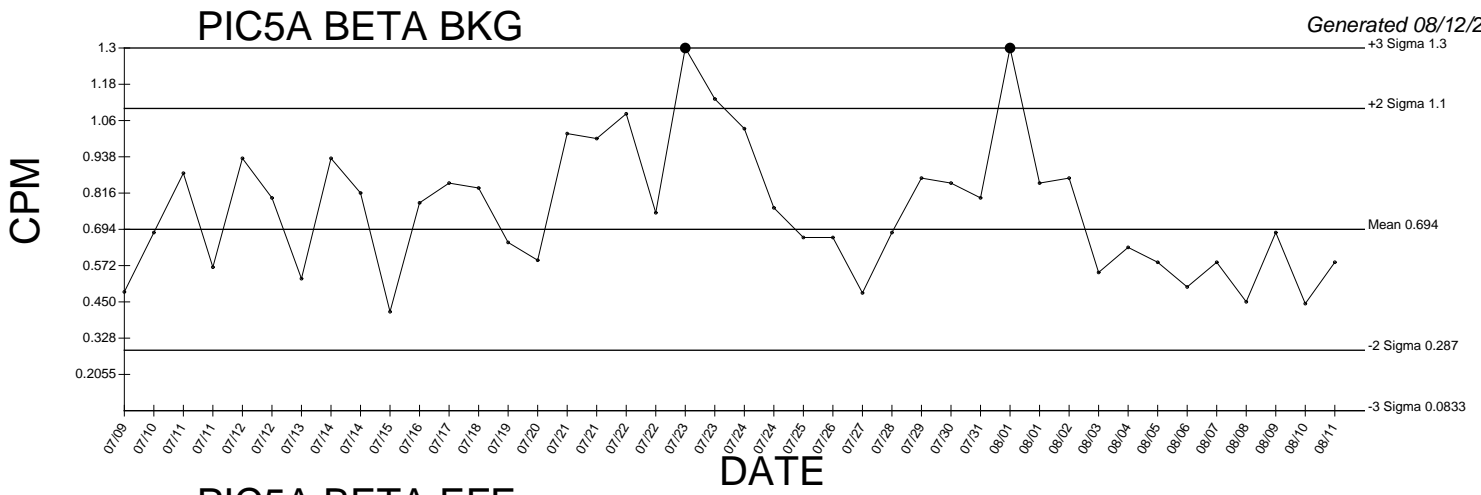
● Denotes Outlier



● Denotes Outlier

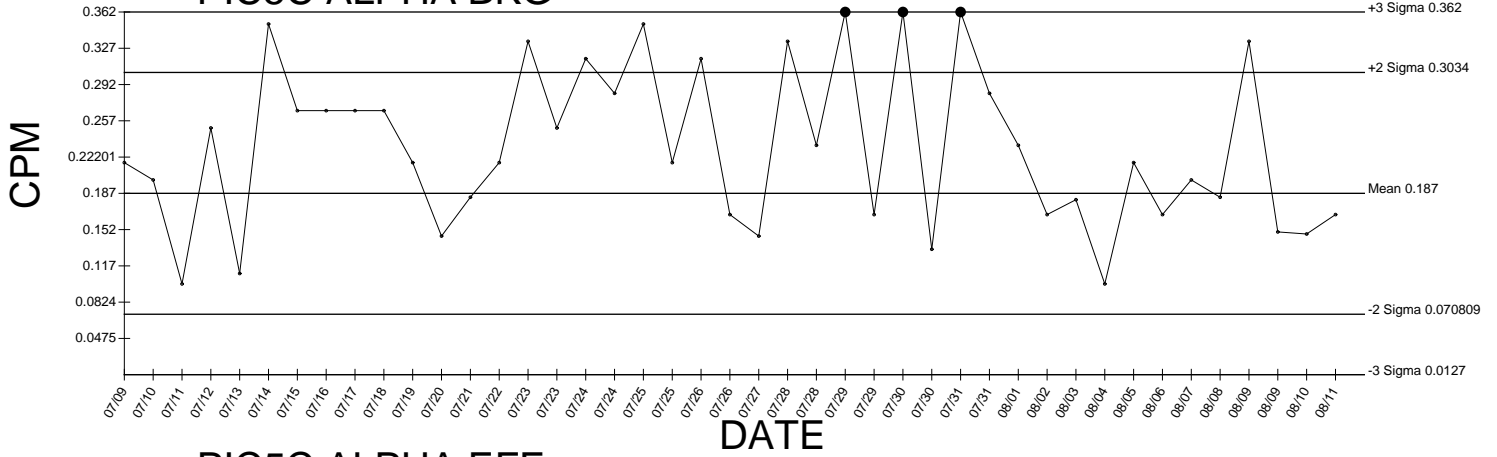


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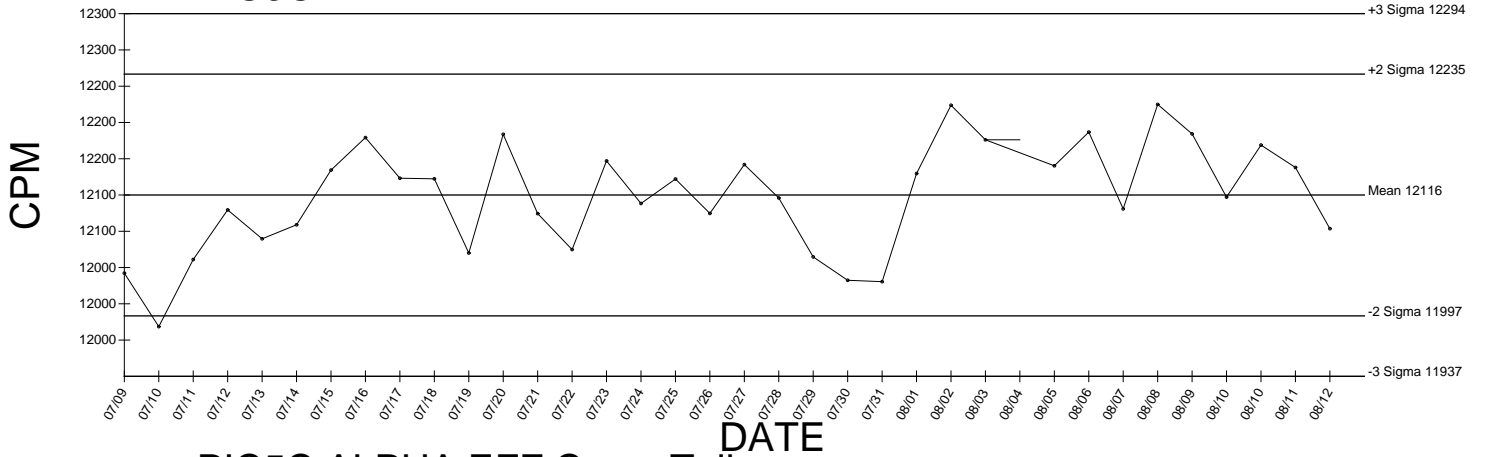


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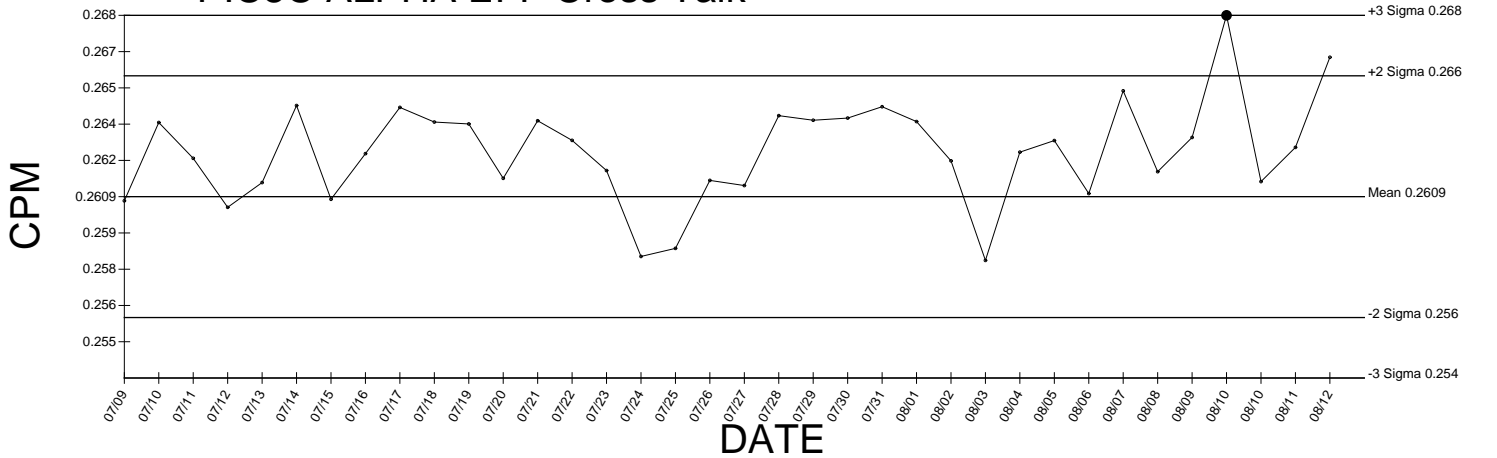
### PIC5C ALPHA BKG



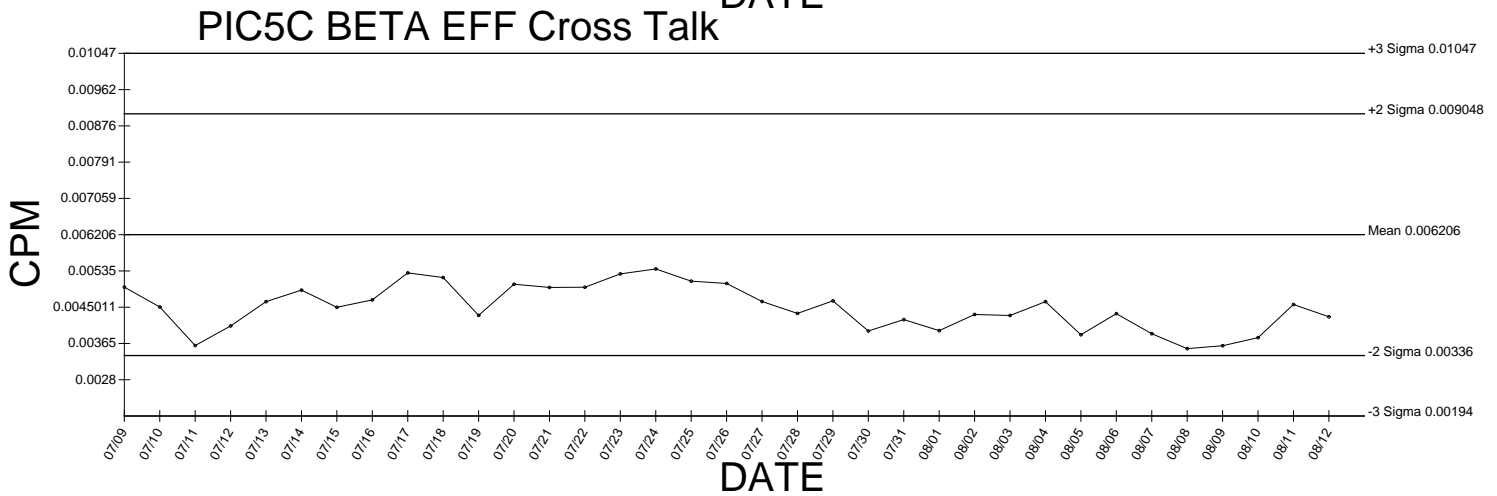
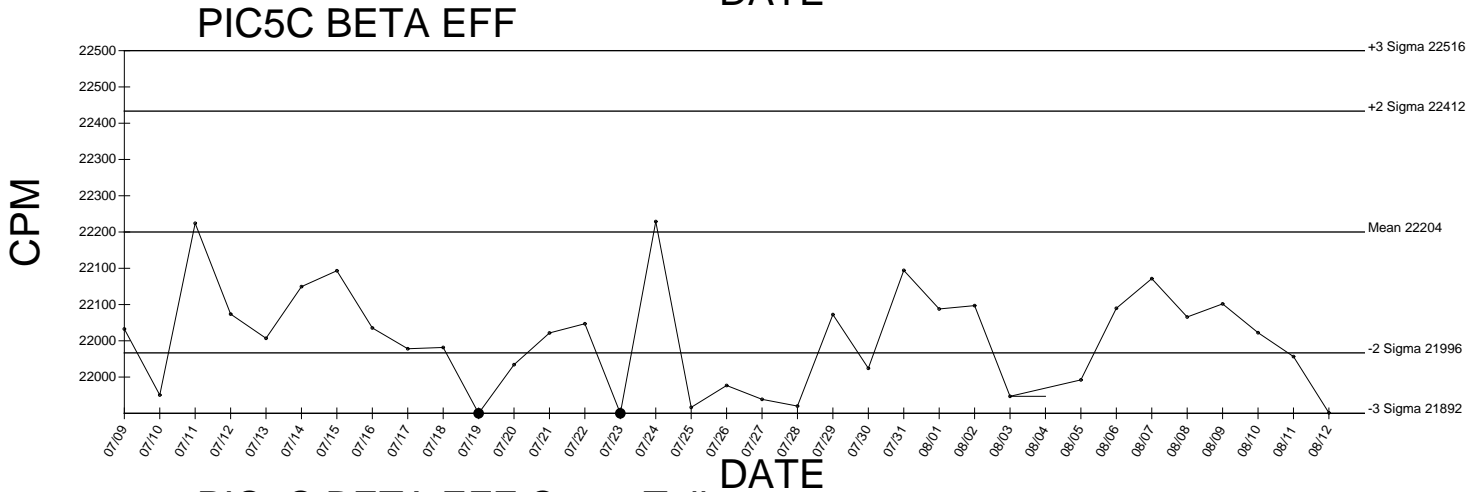
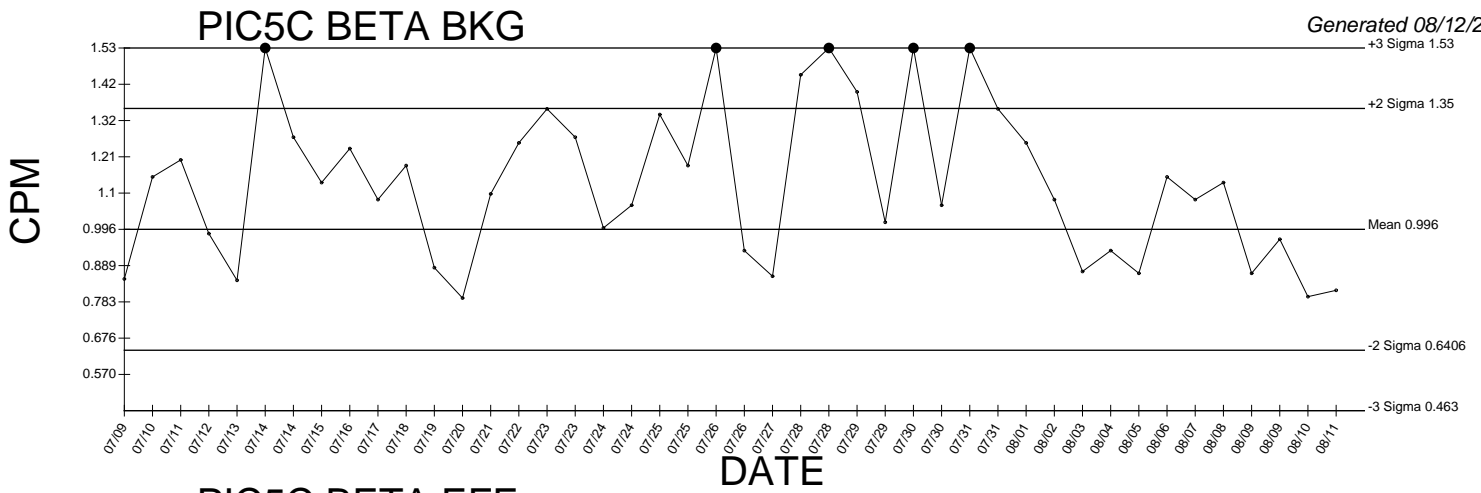
### PIC5C ALPHA EFF



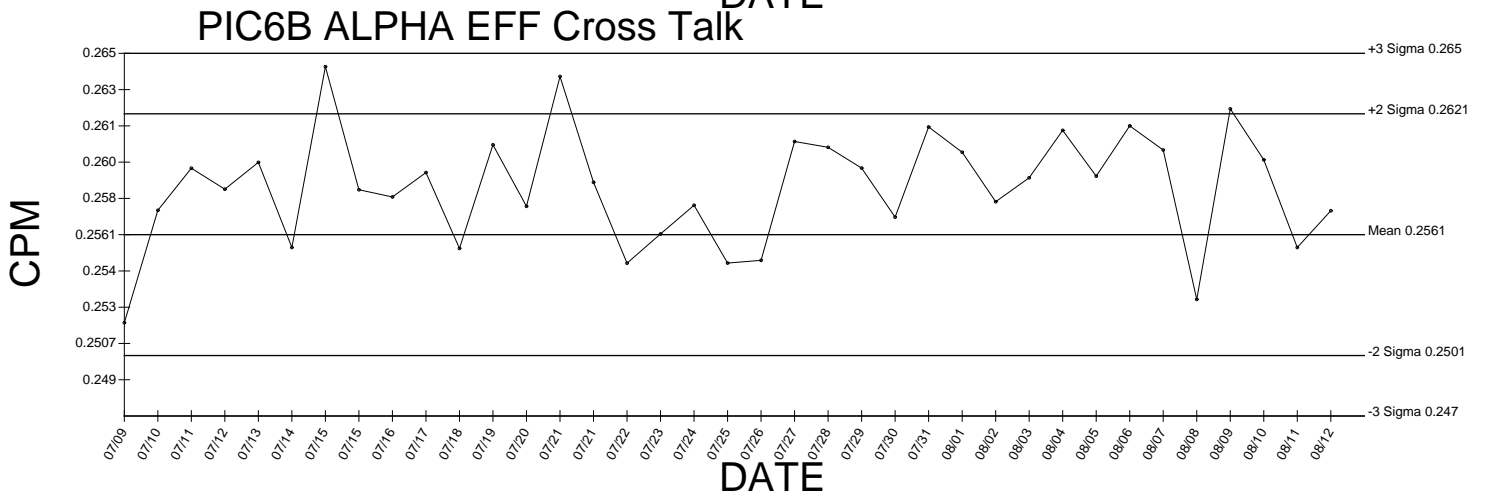
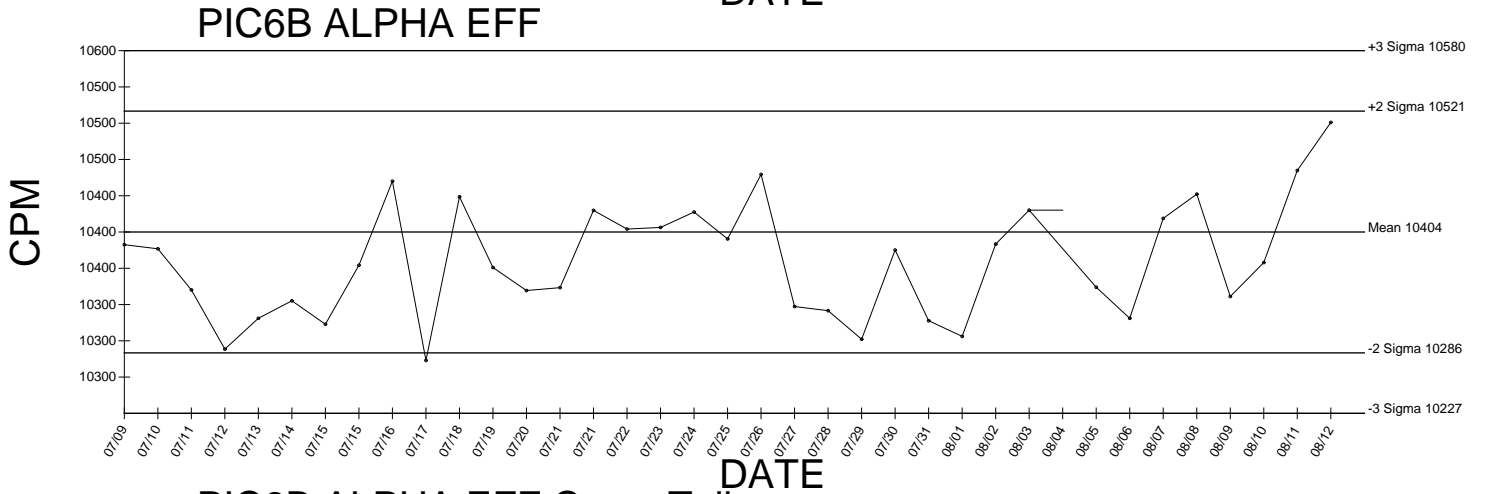
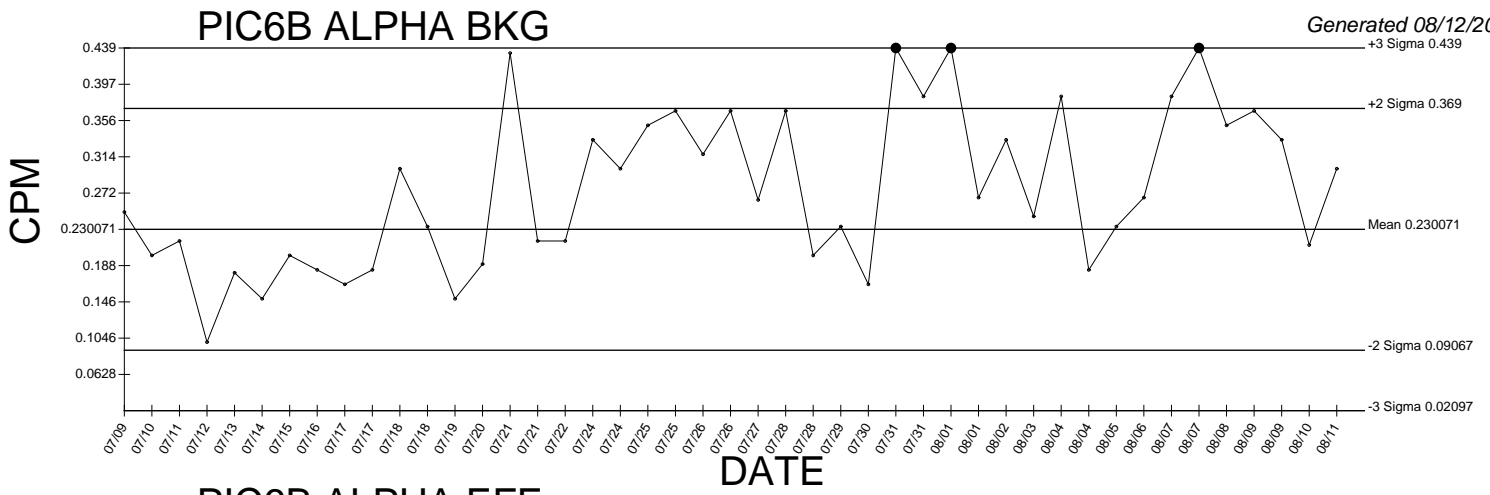
### PIC5C ALPHA EFF Cross Talk



● Denotes Outlier

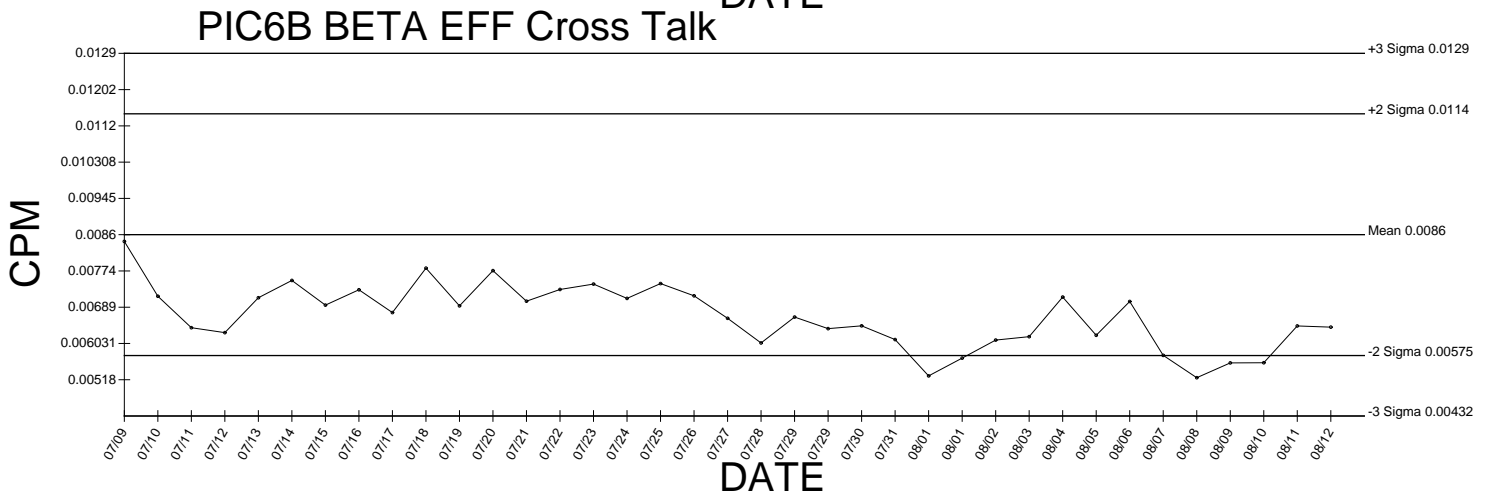
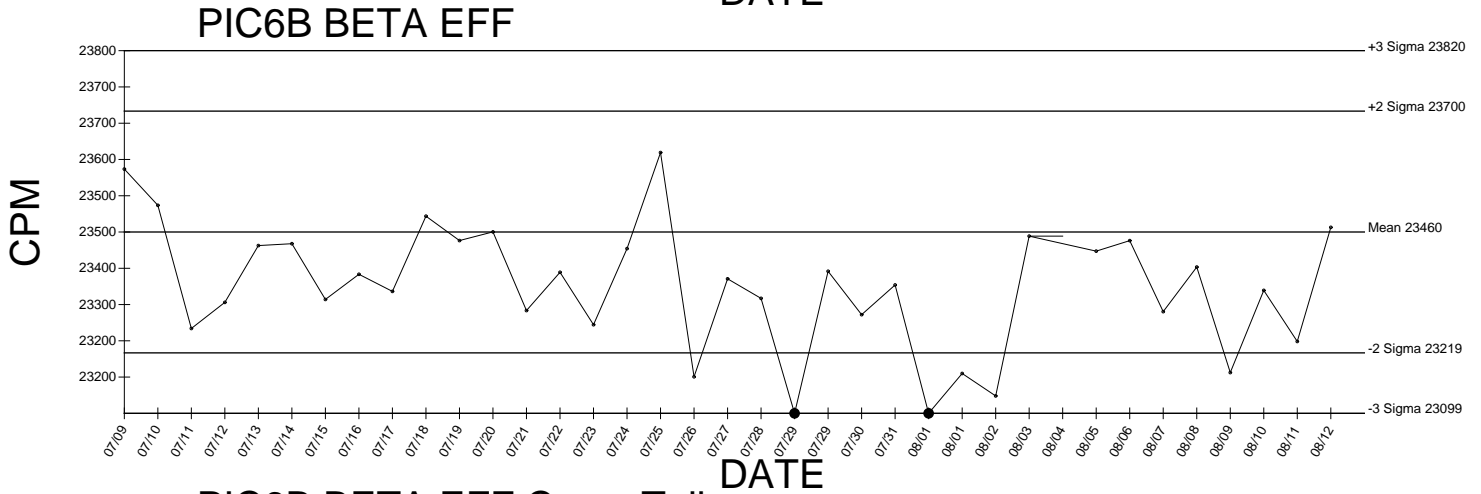
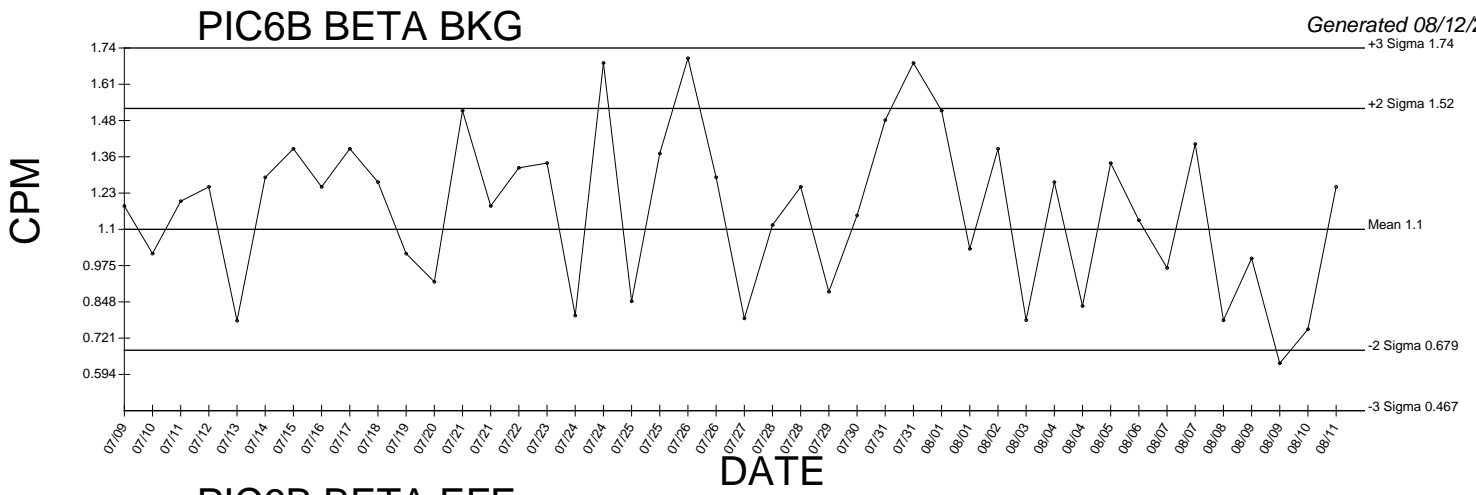


● Denotes Outlier

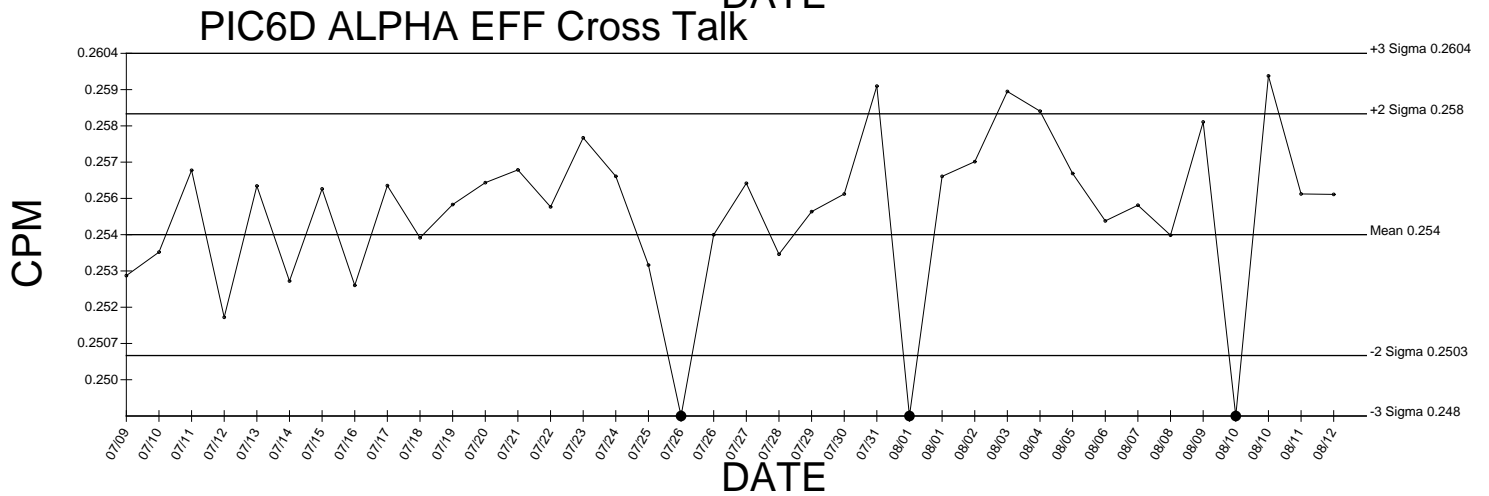
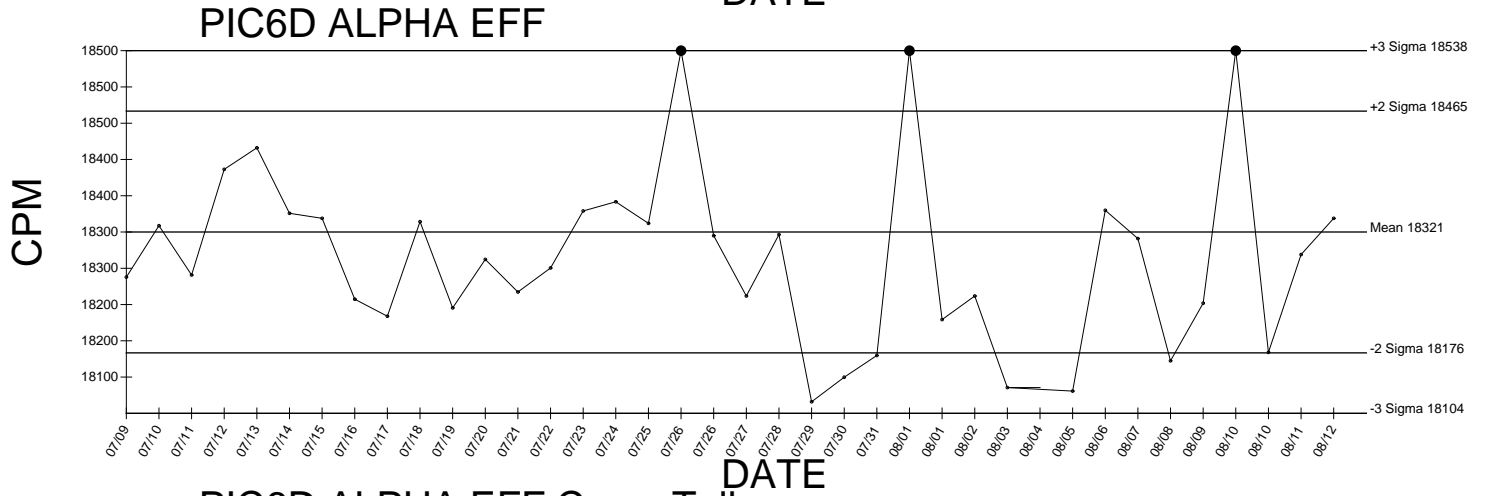
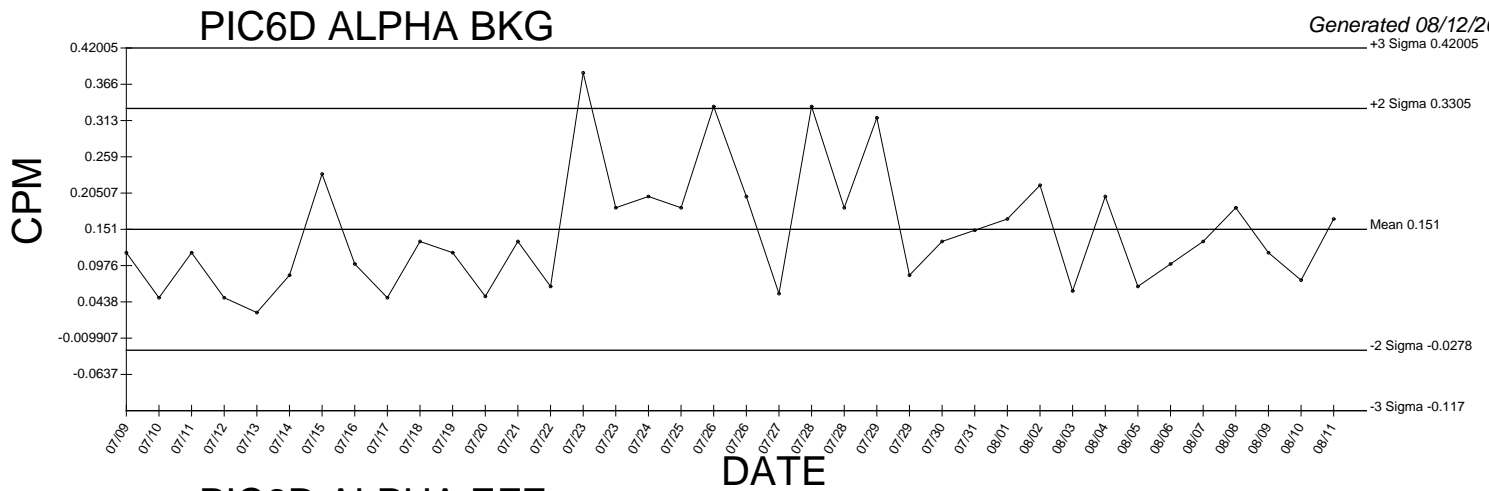


● Denotes Outlier

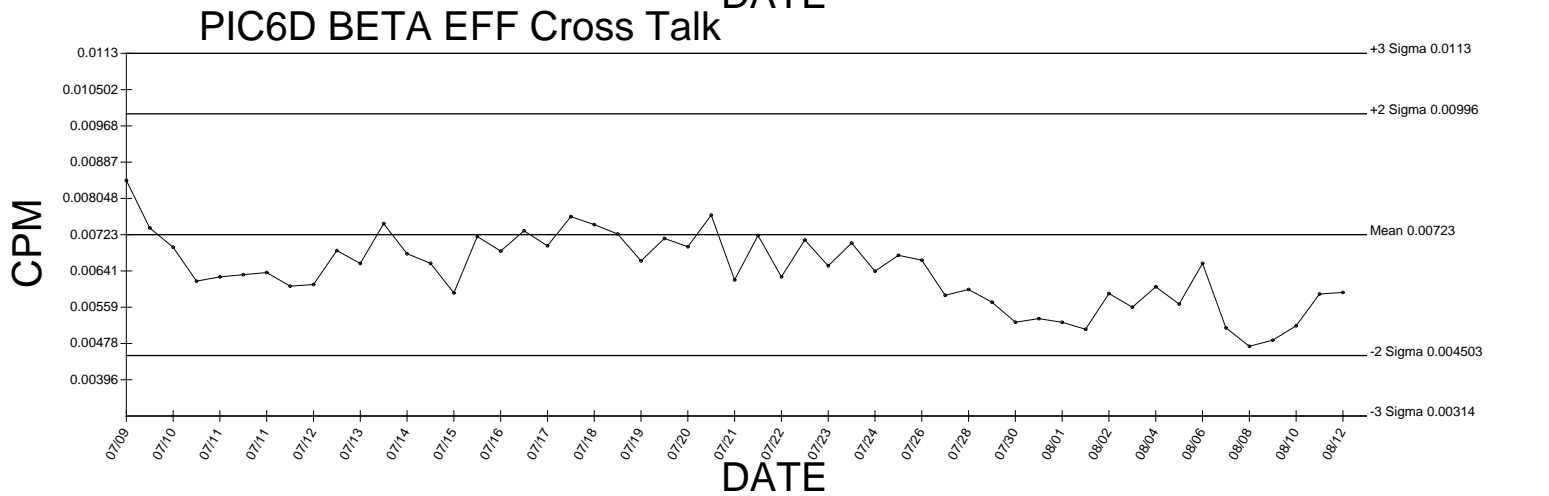
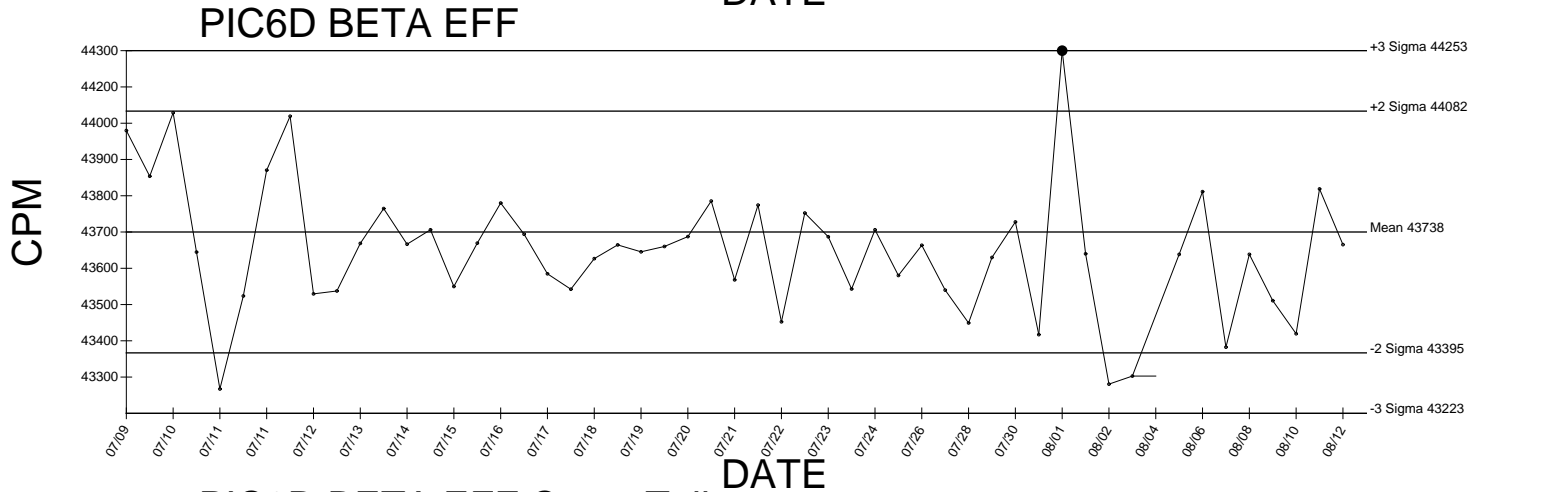
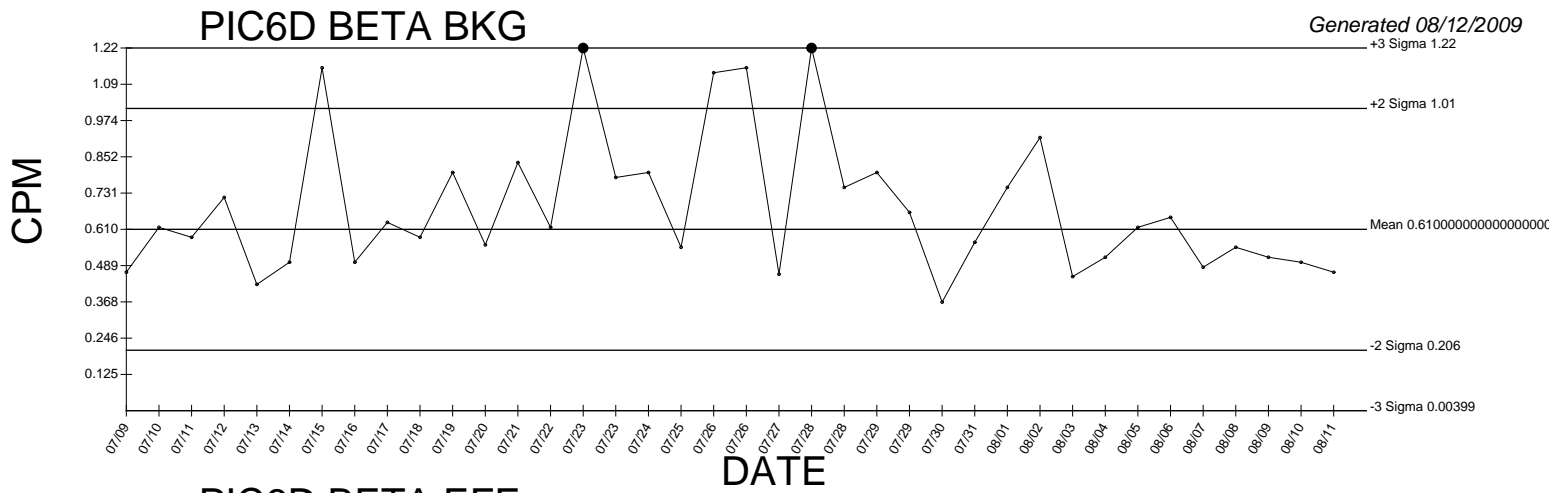




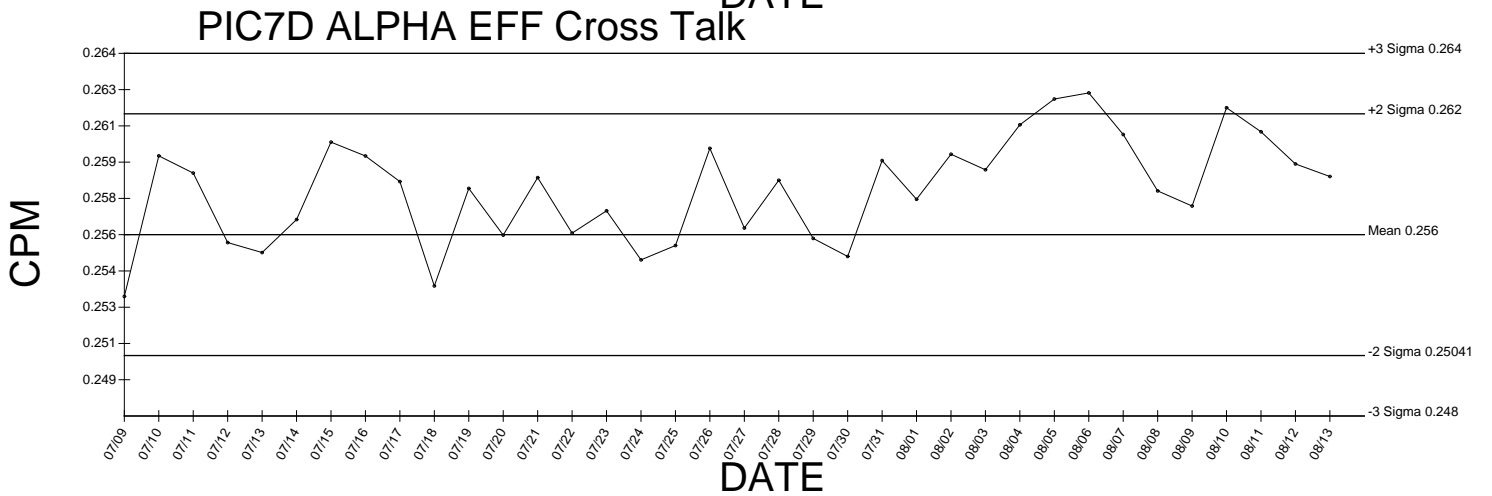
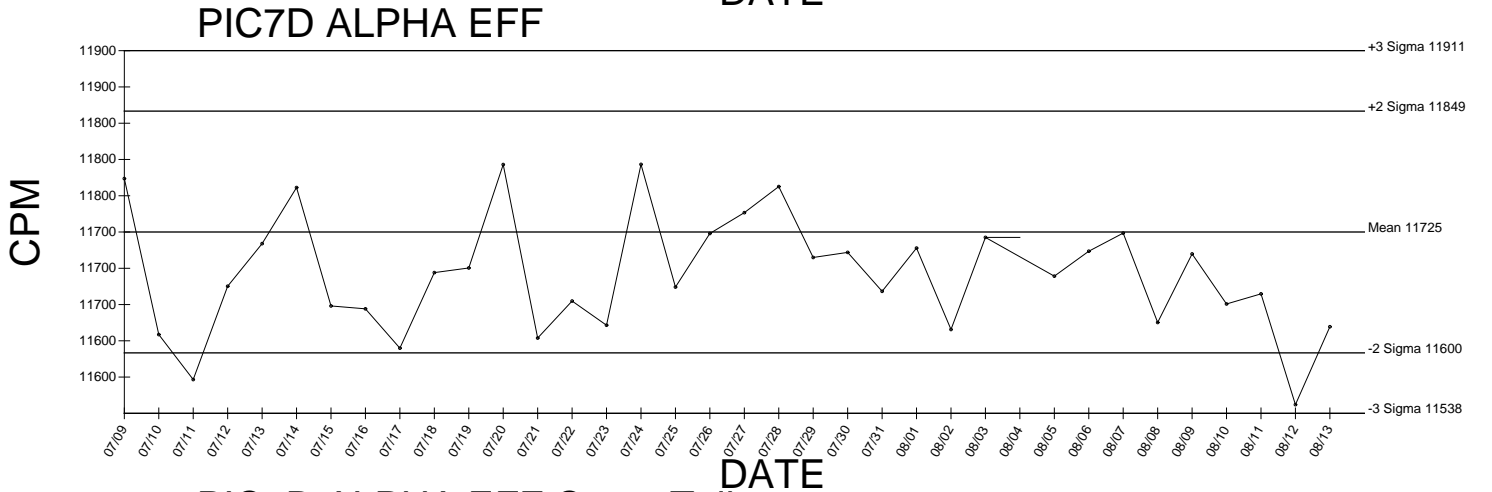
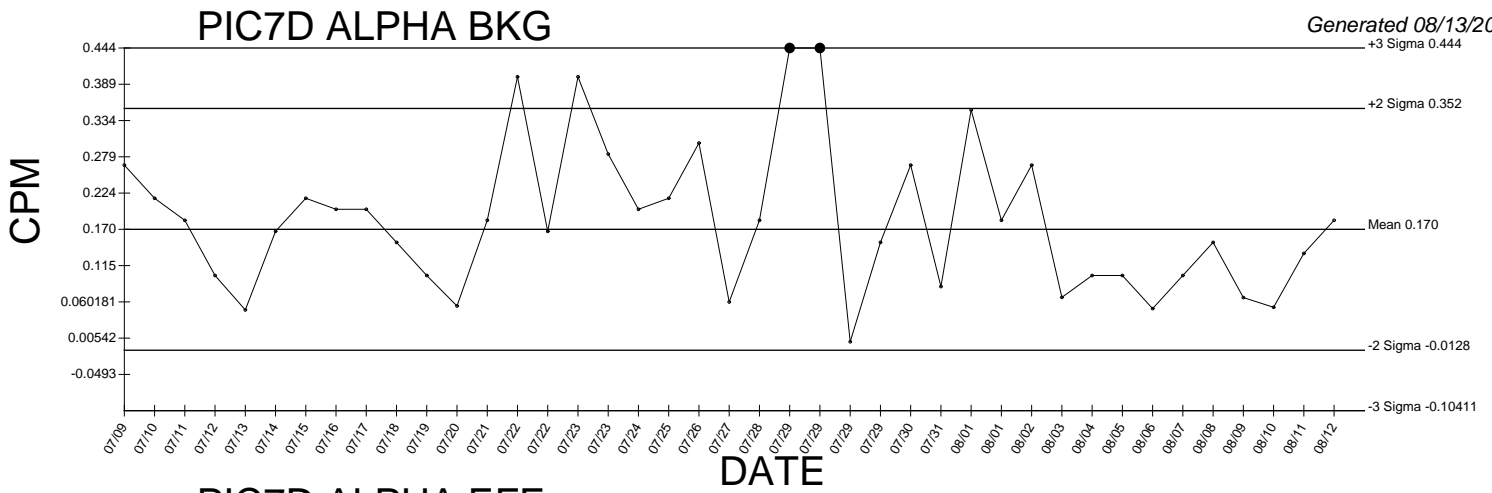
● Denotes Outlier



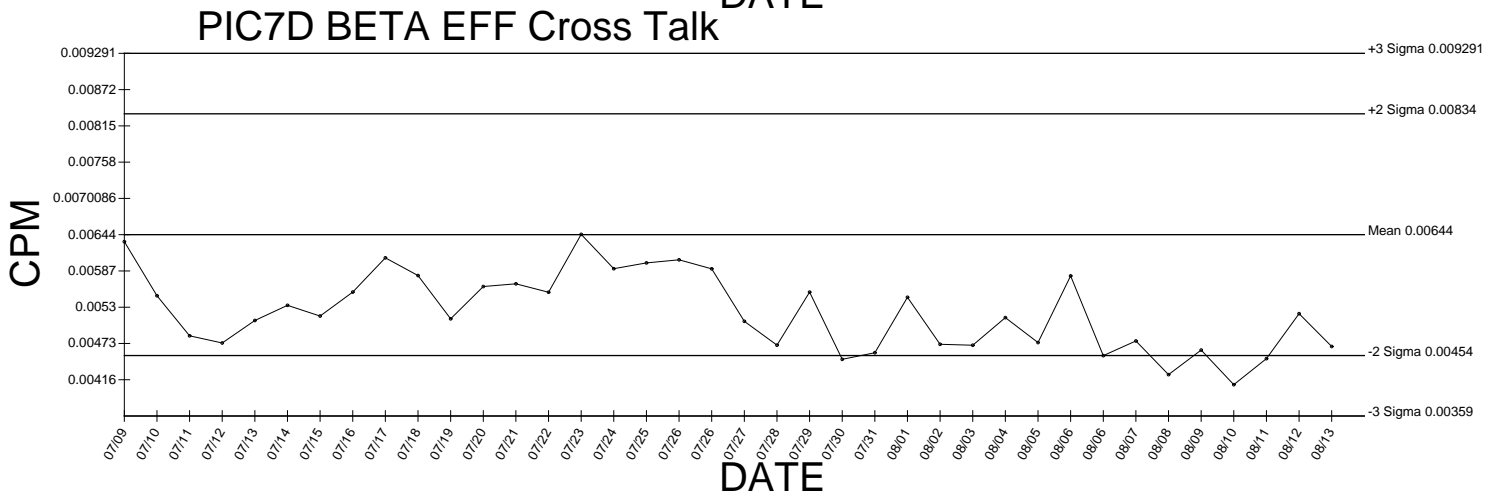
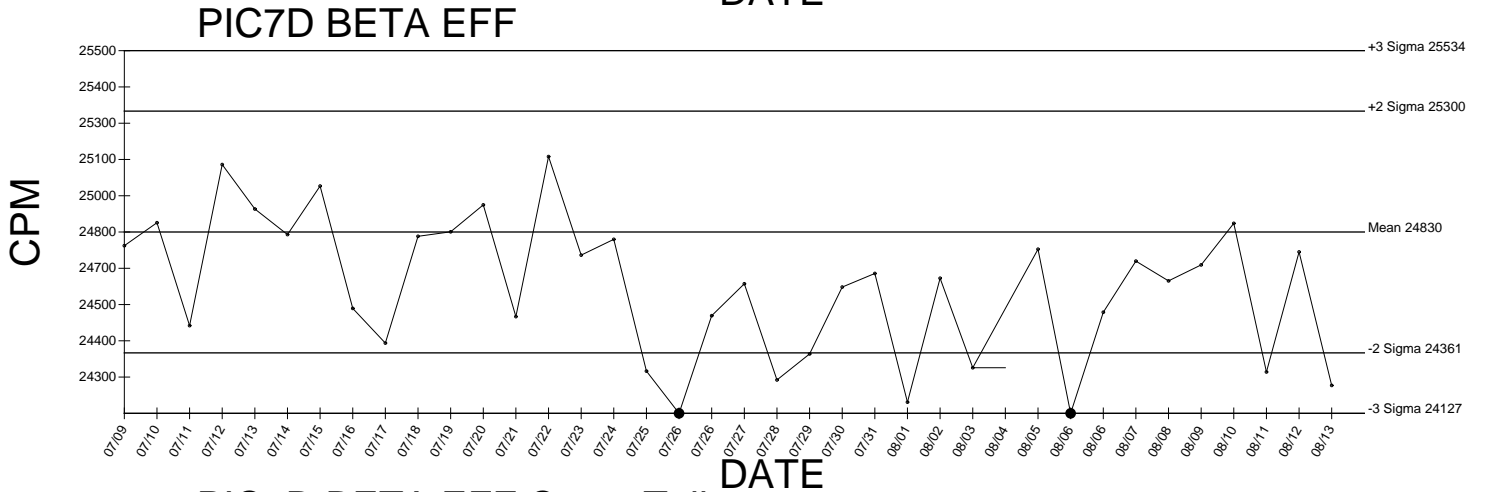
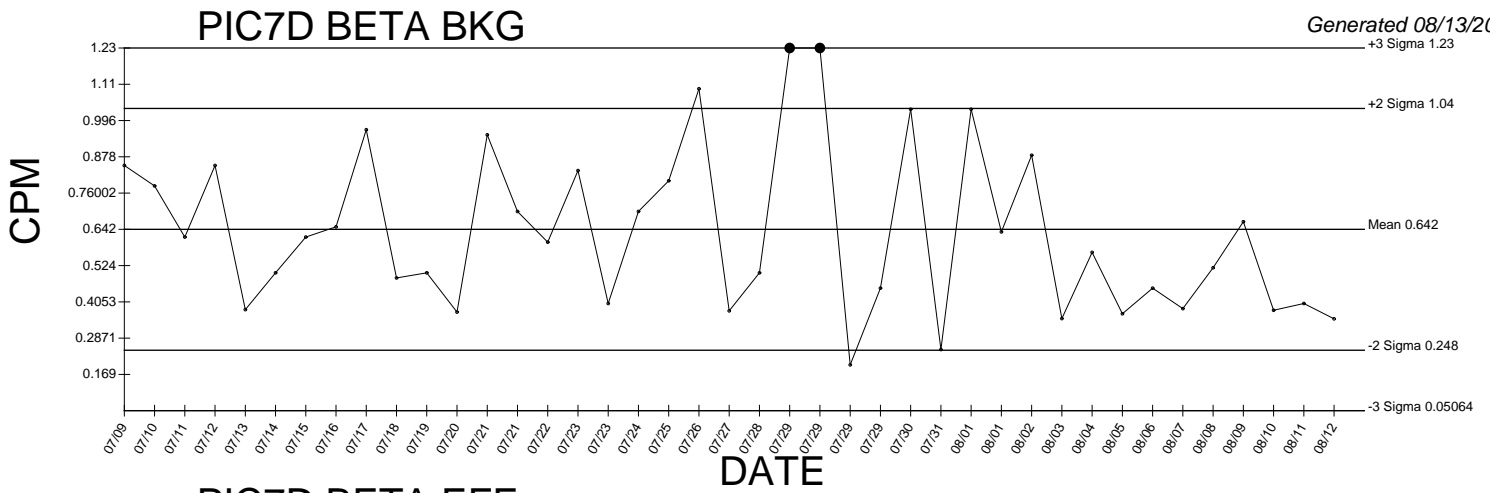
● Denotes Outlier



● Denotes Outlier



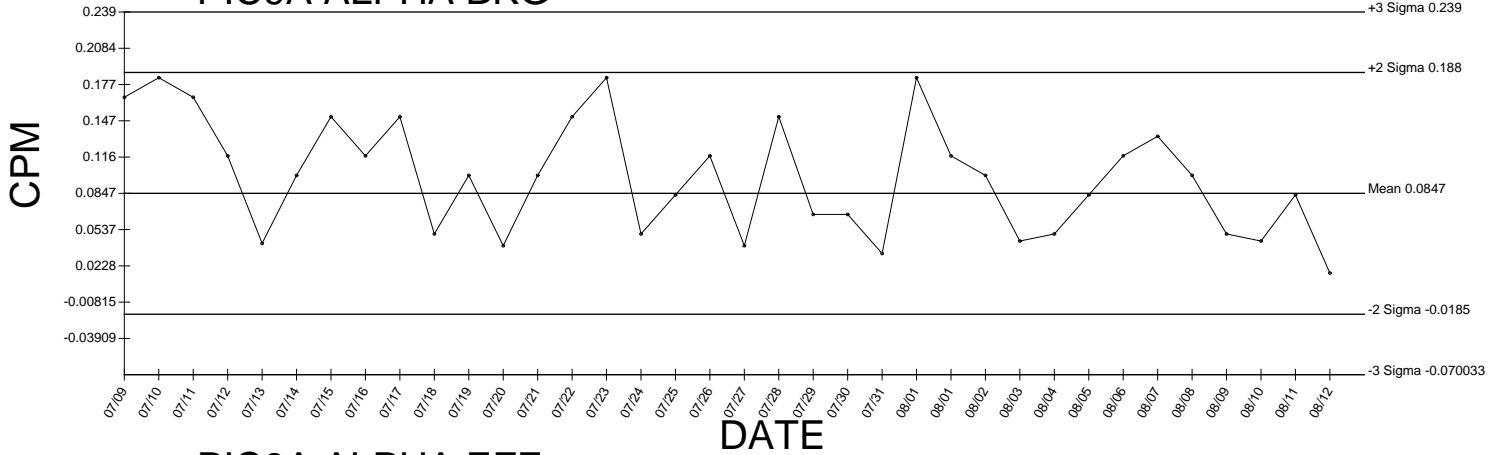
● Denotes Outlier



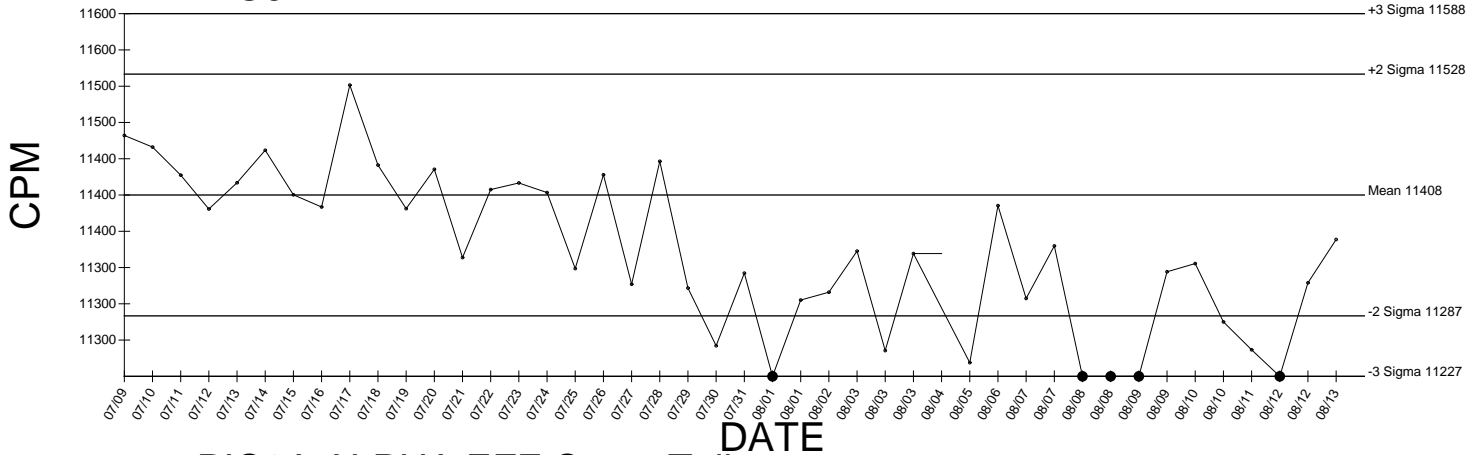
● Denotes Outlier

# PIC9A ALPHA BKG

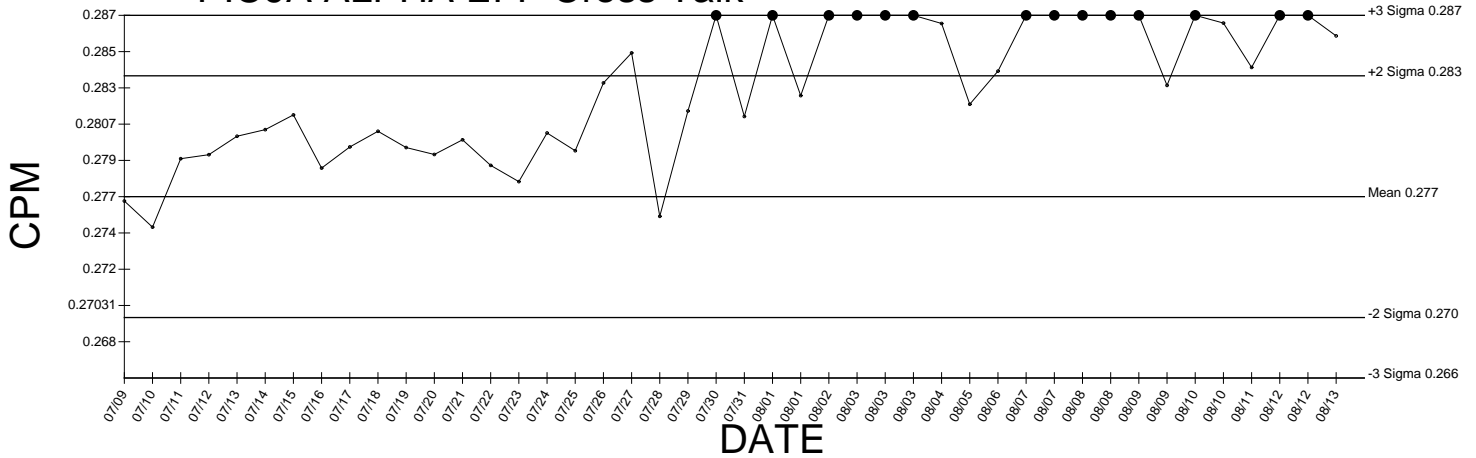
Generated 08/13/2009



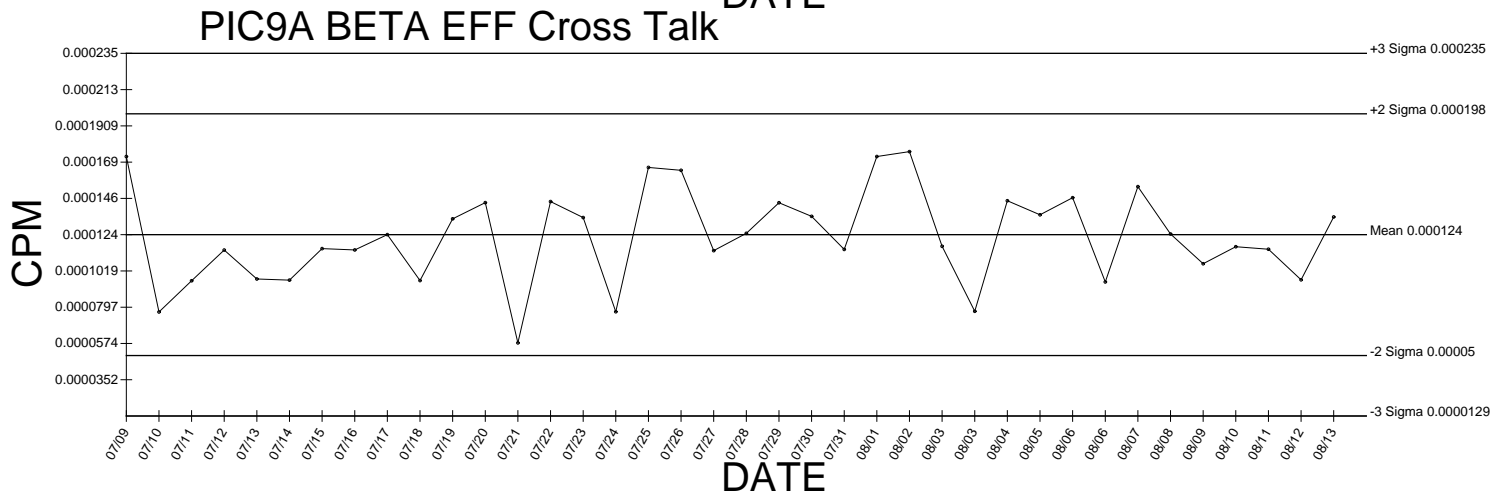
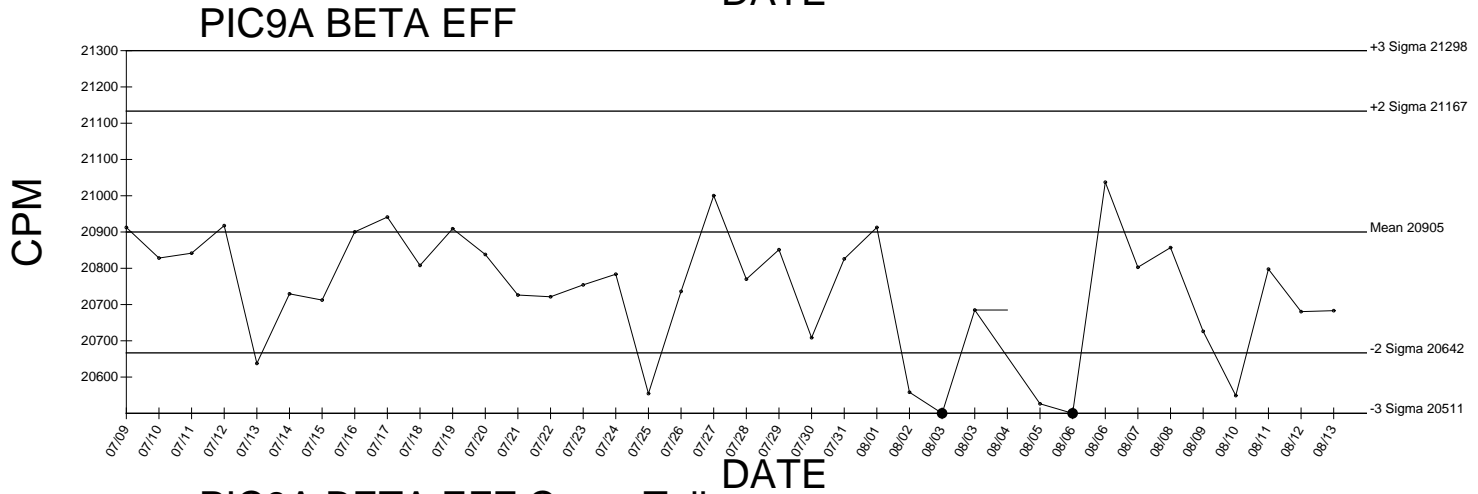
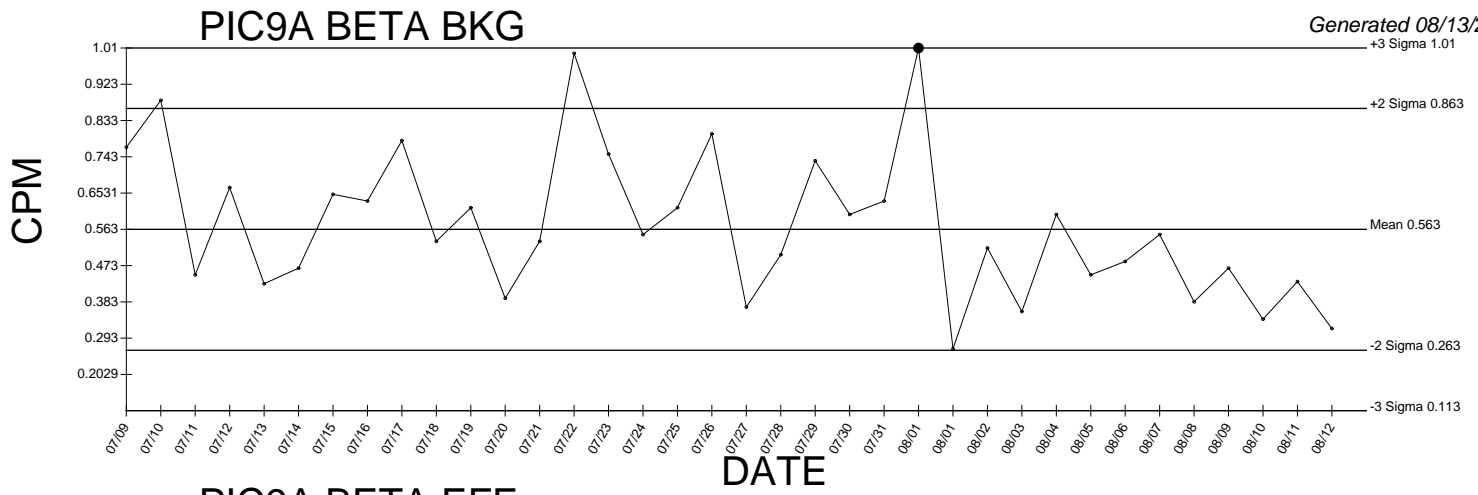
# PIC9A ALPHA EFF



# PIC9A ALPHA EFF Cross Talk

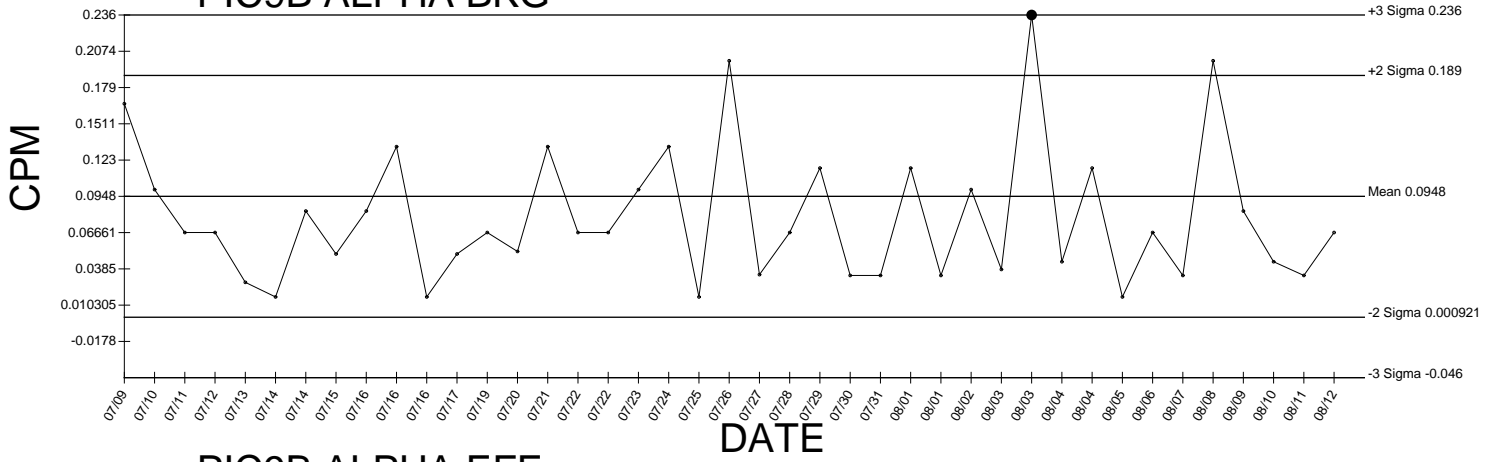


● Denotes Outlier

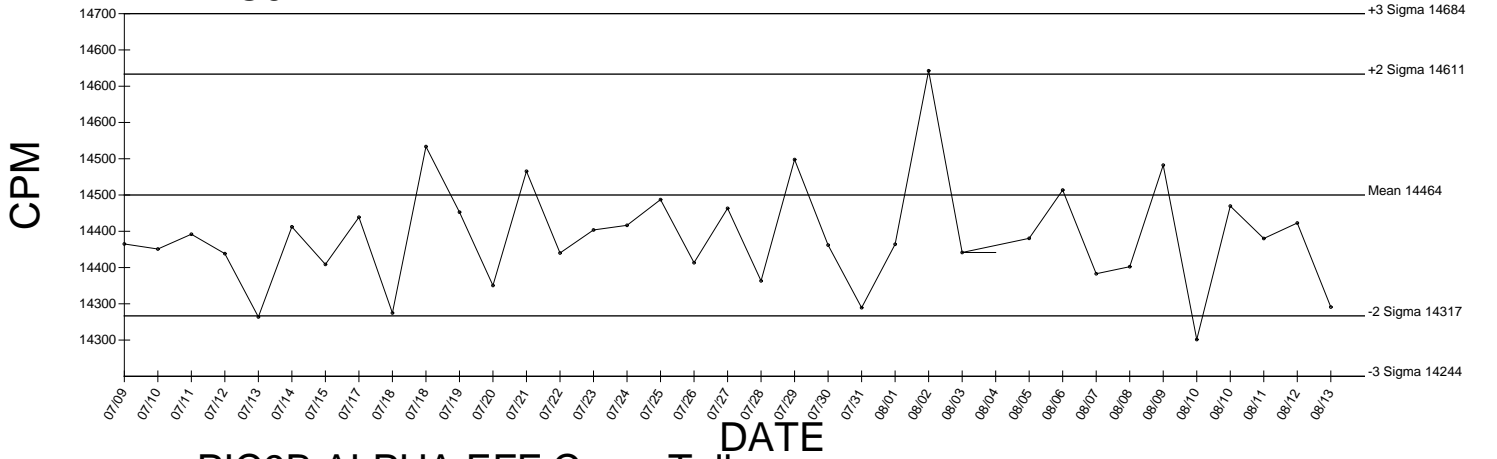


● Denotes Outlier

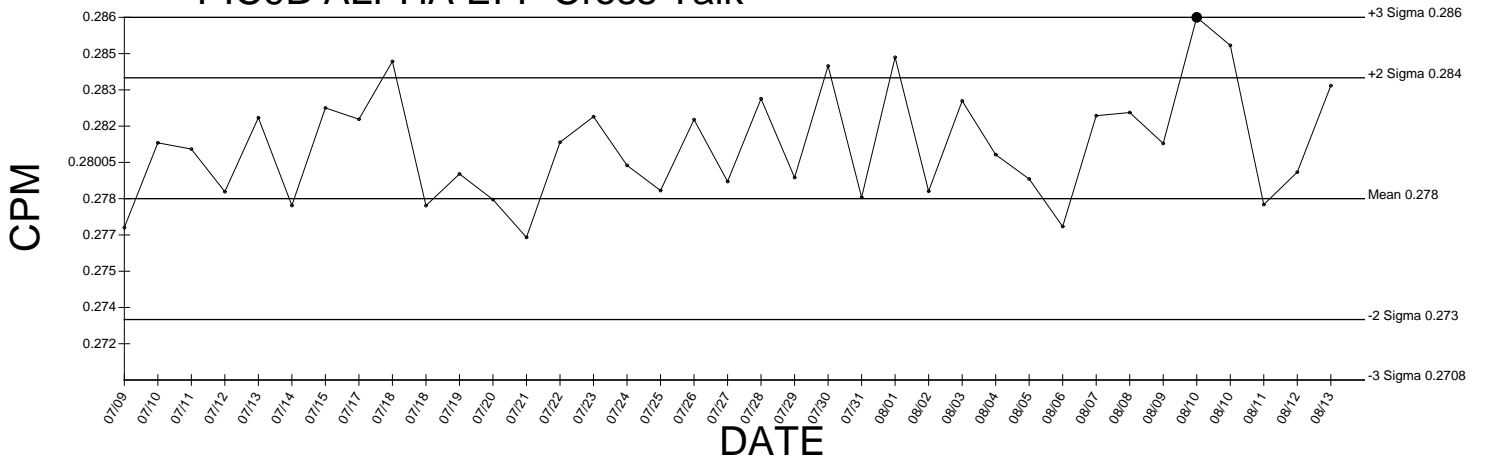
### PIC9B ALPHA BKG



### PIC9B ALPHA EFF

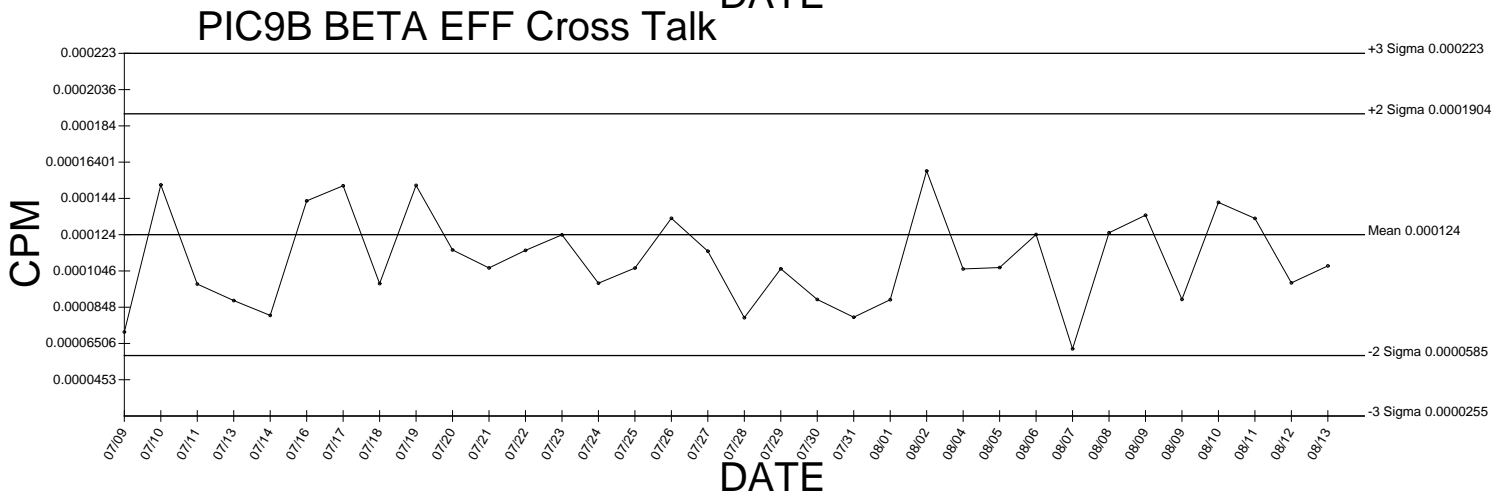
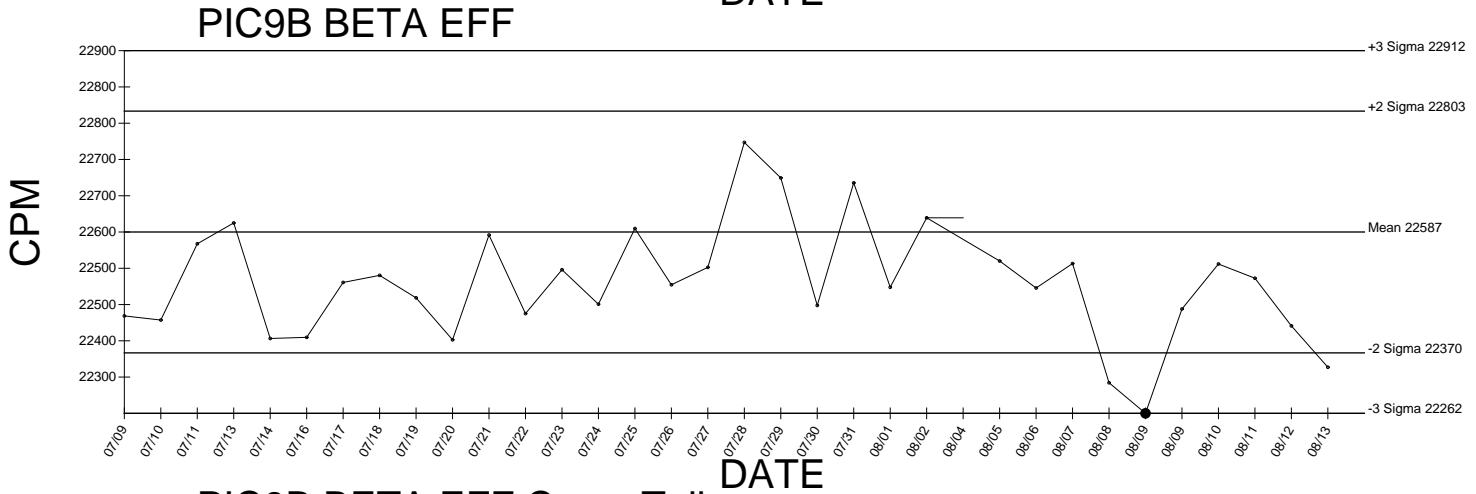
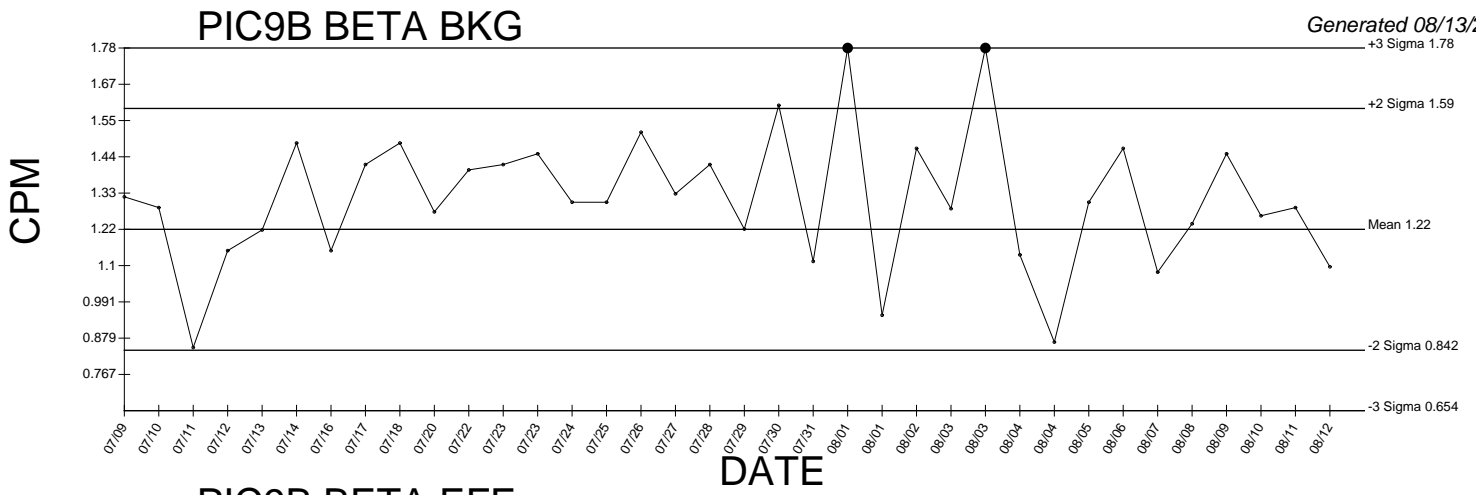


### PIC9B ALPHA EFF Cross Talk

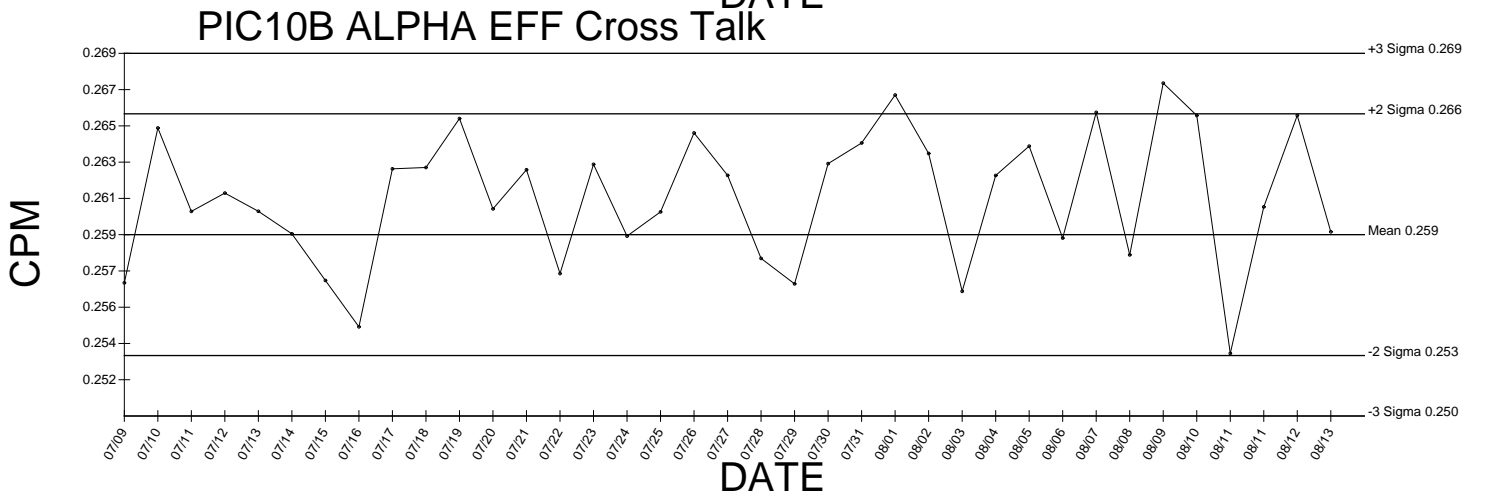
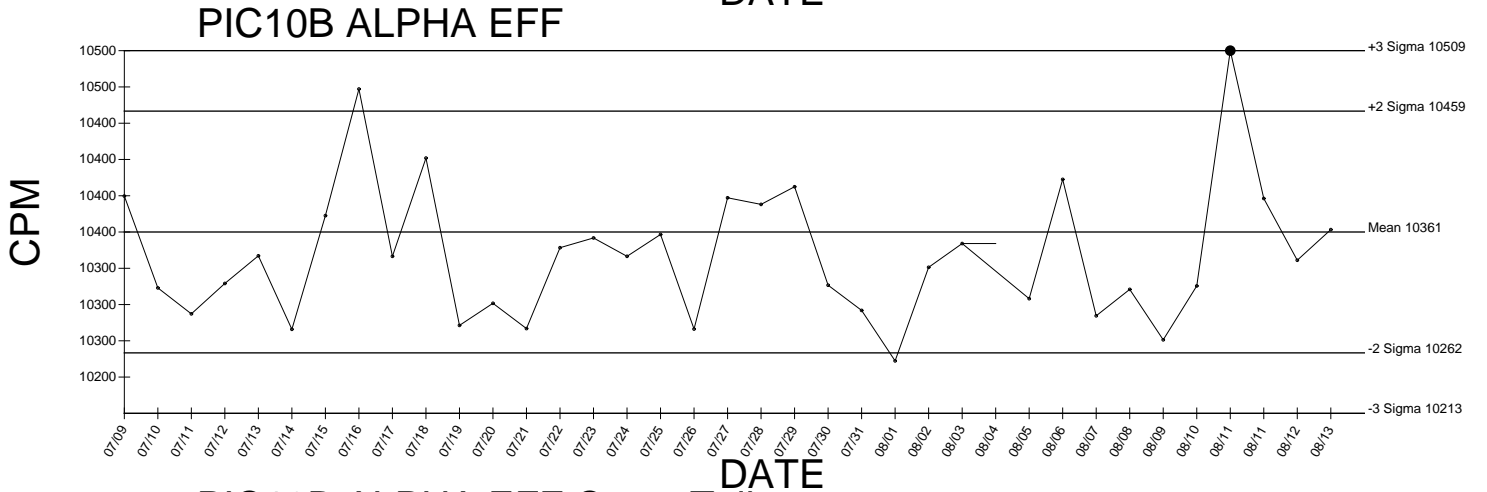
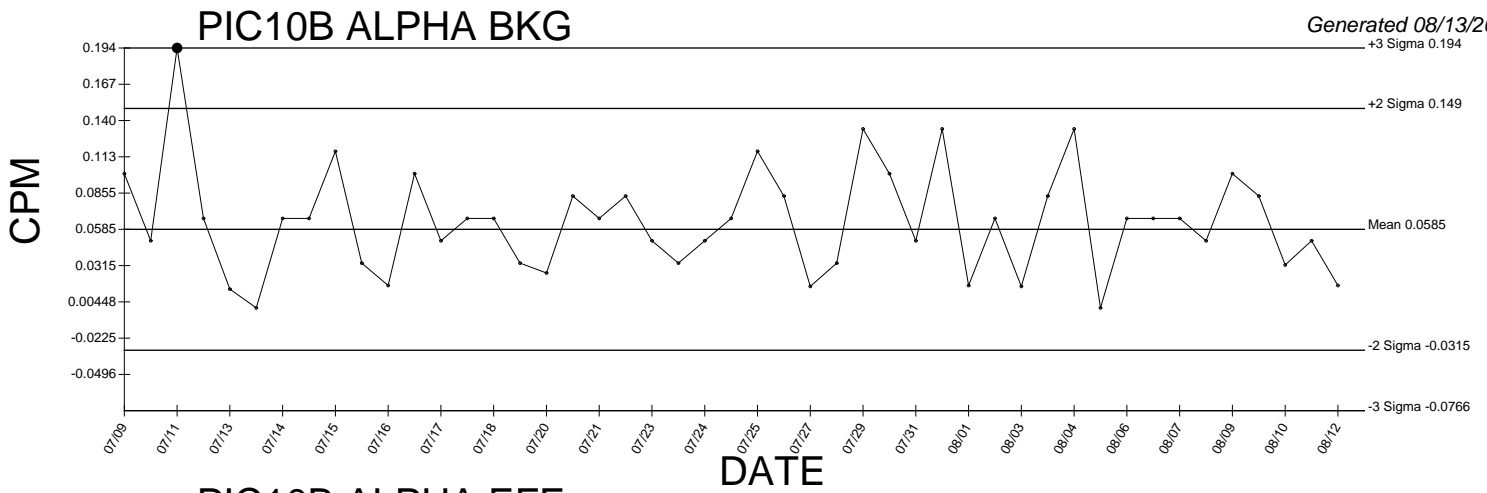


● Denotes Outlier





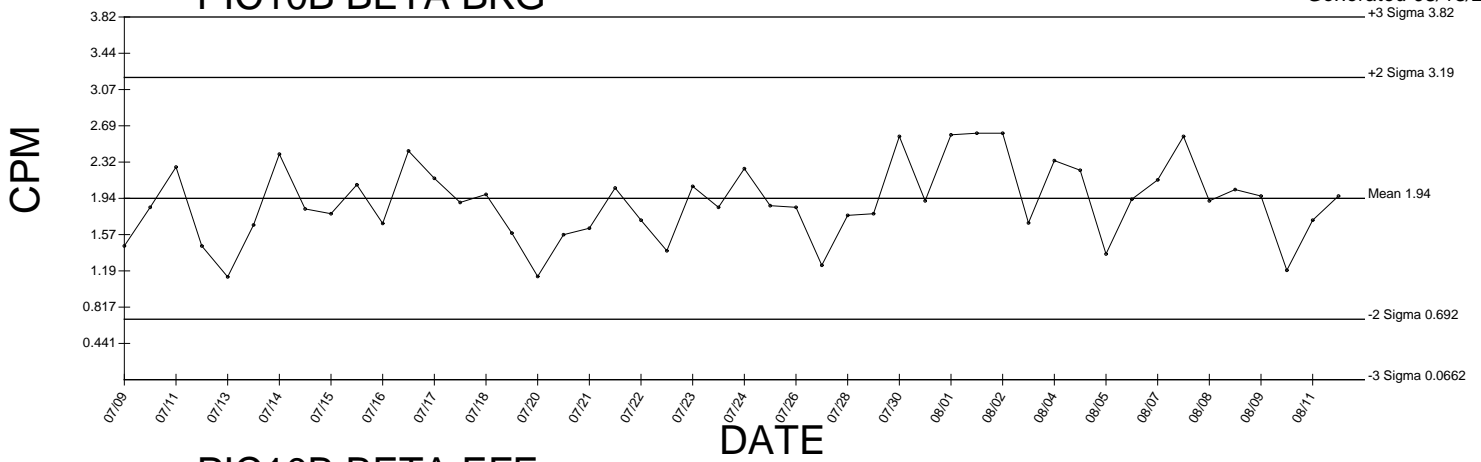
● Denotes Outlier



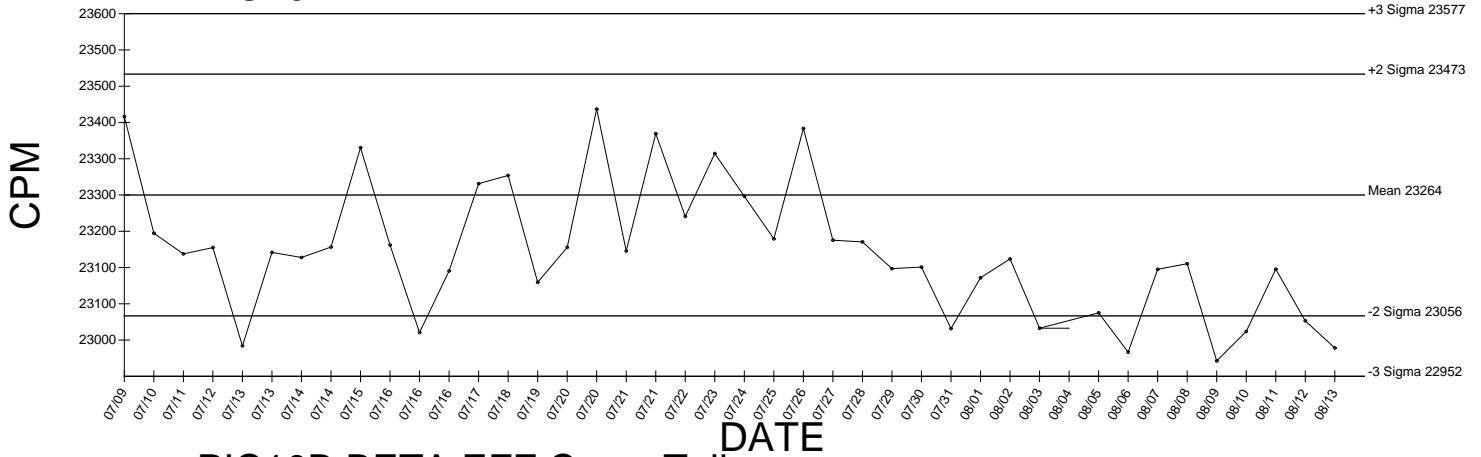
● Denotes Outlier

# PIC10B BETA BKG

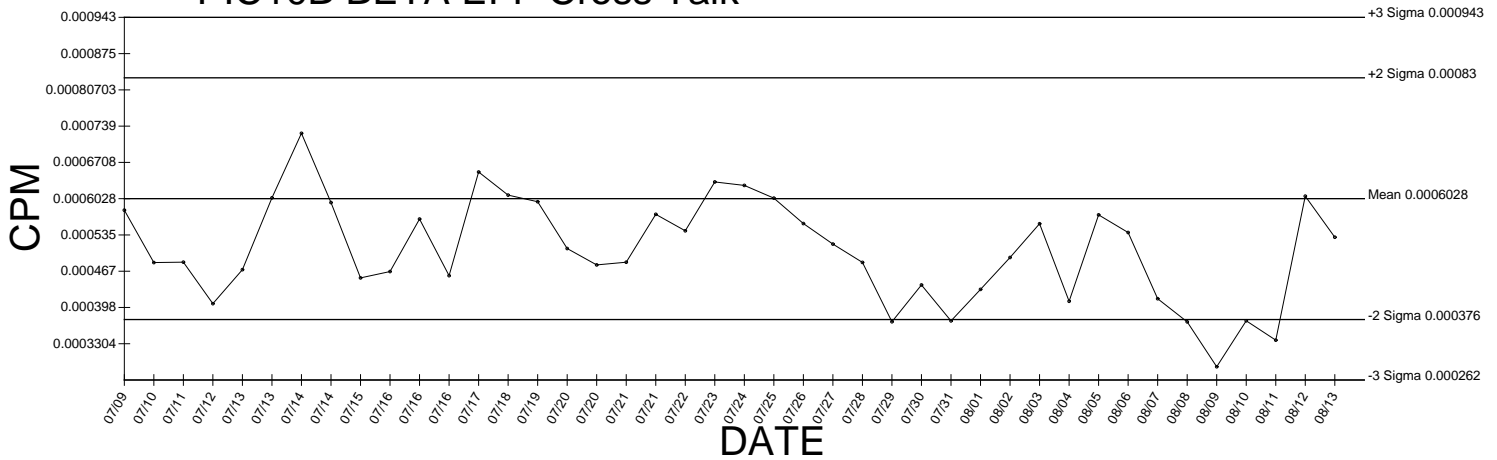
Generated 08/13/2009



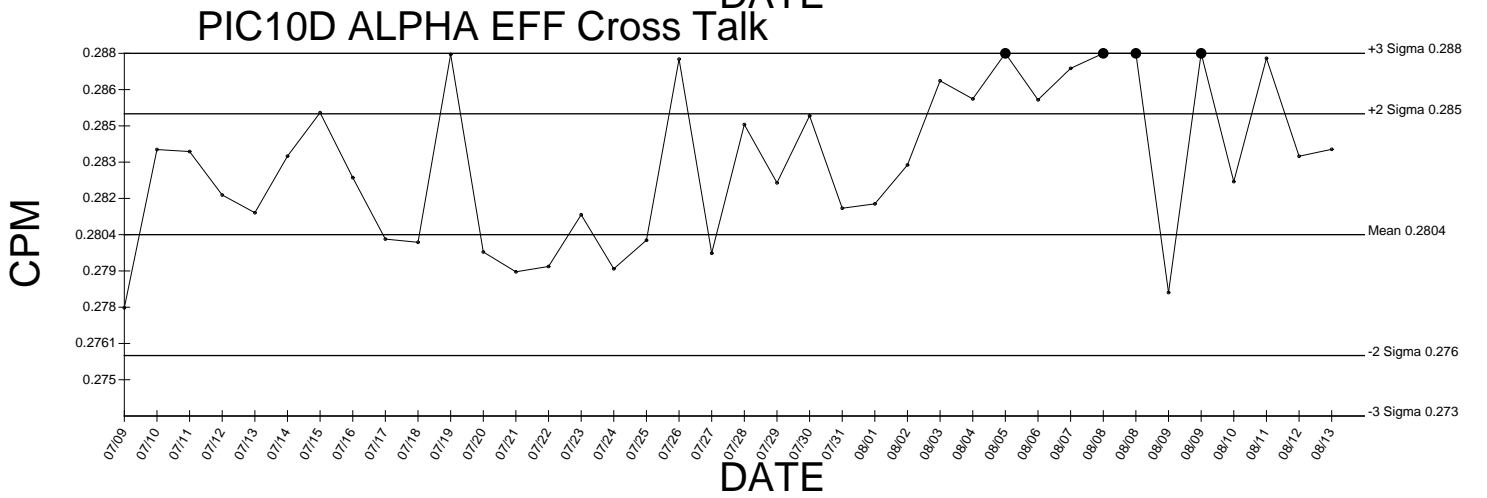
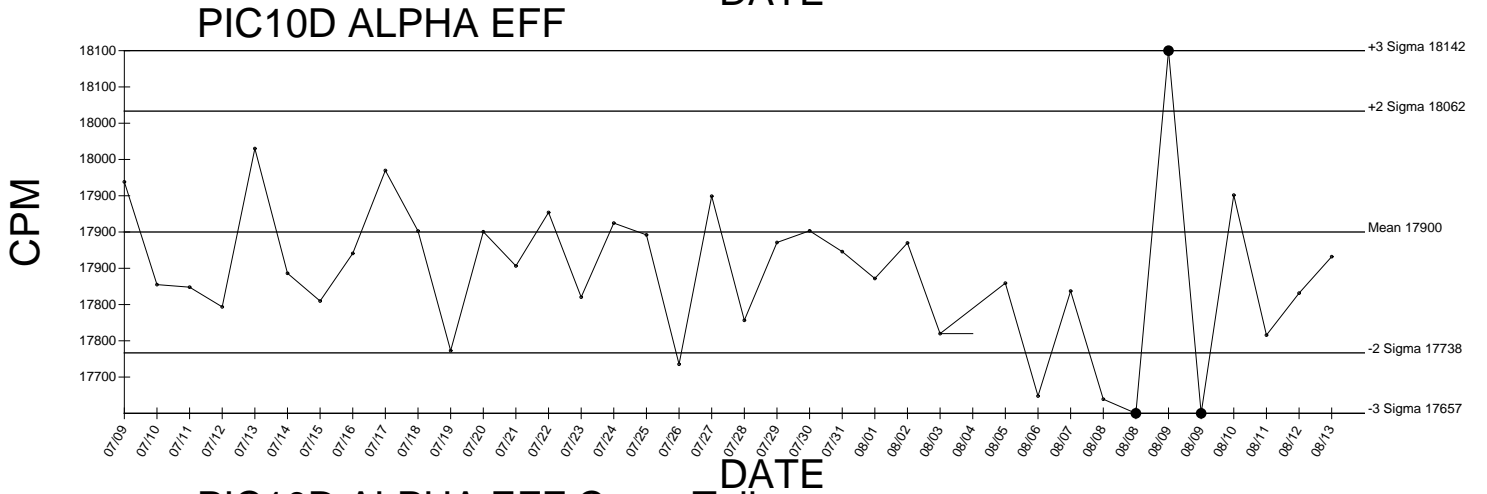
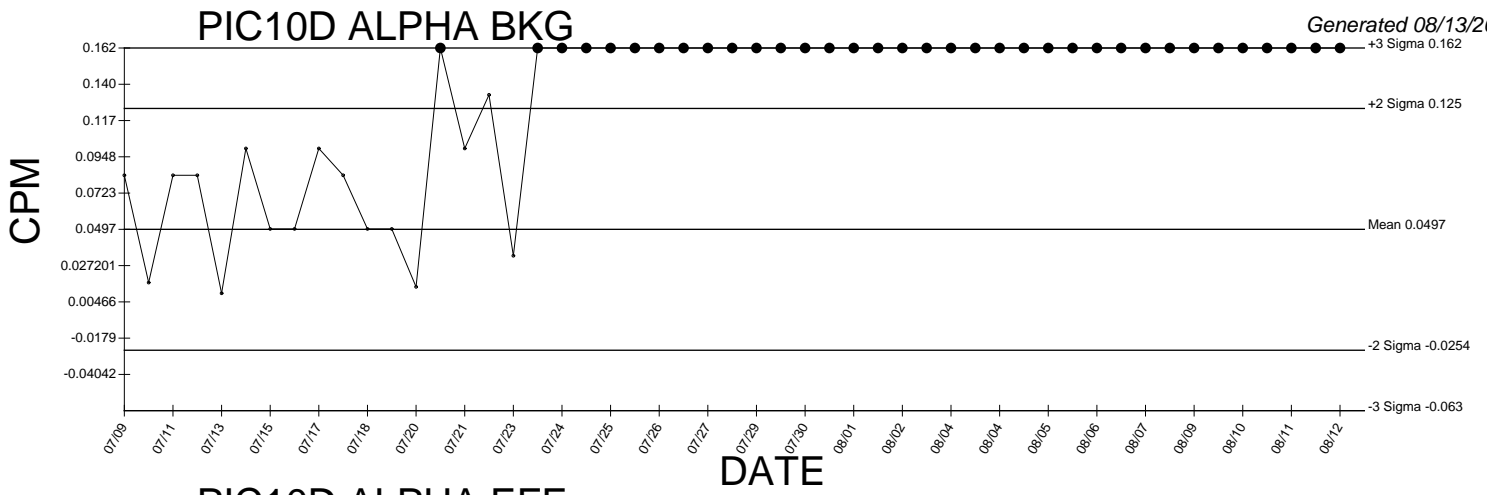
# PIC10B BETA EFF



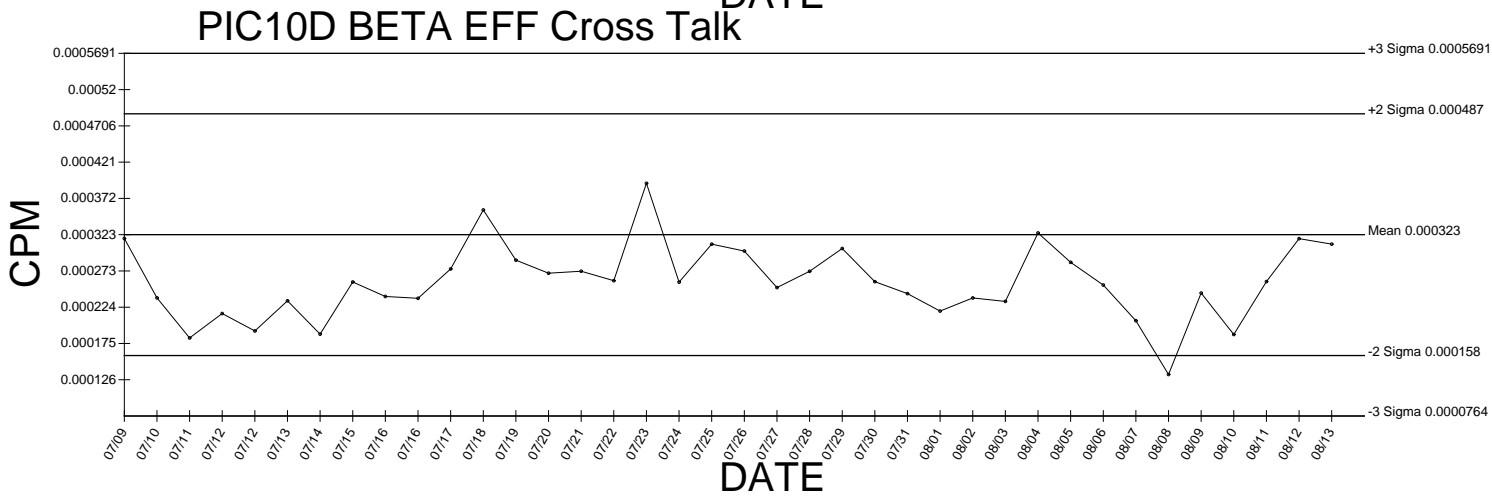
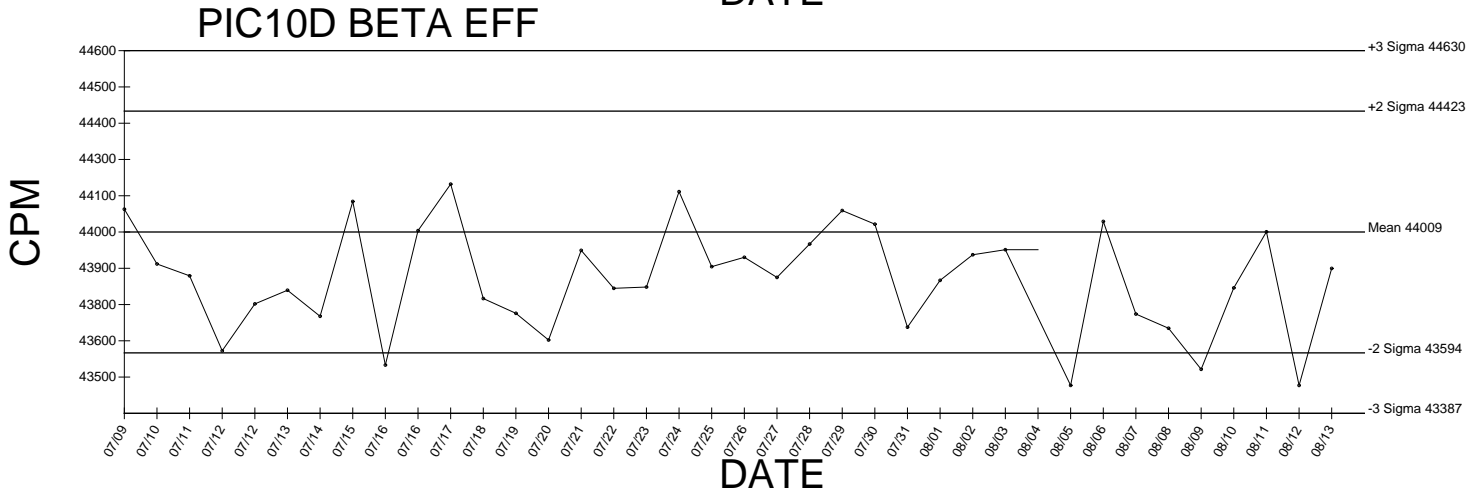
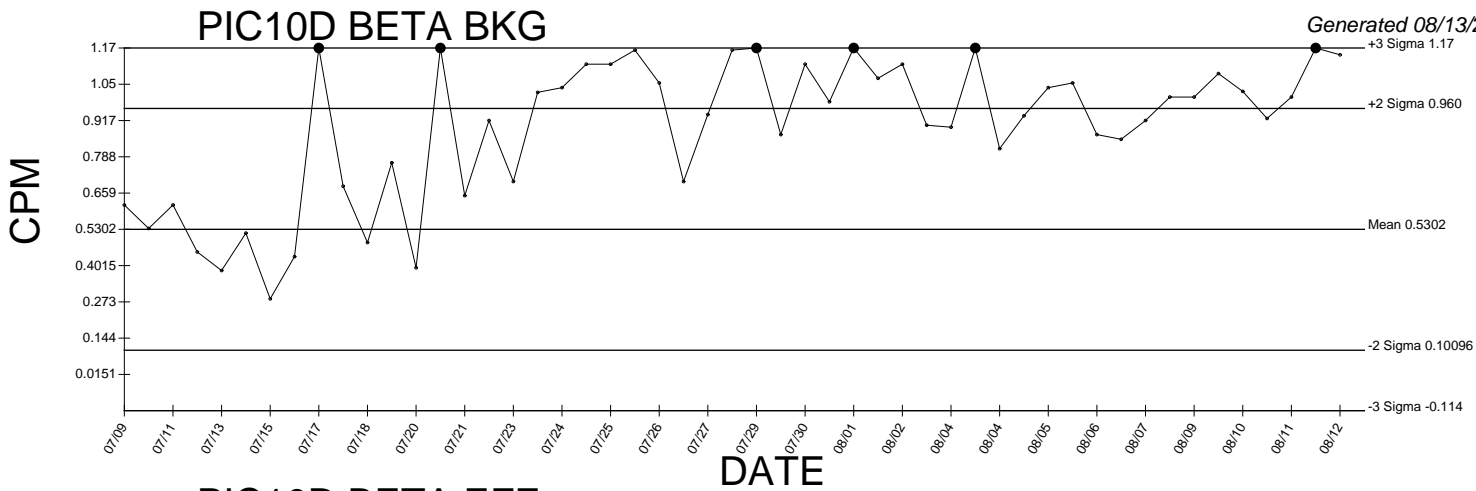
# PIC10B BETA EFF Cross Talk



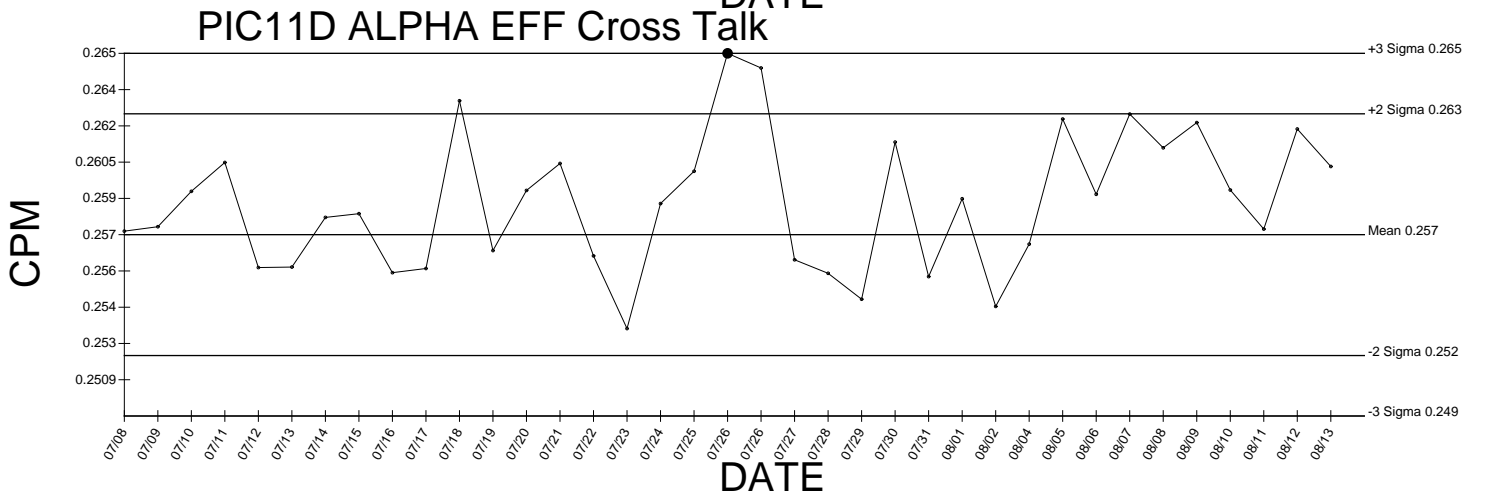
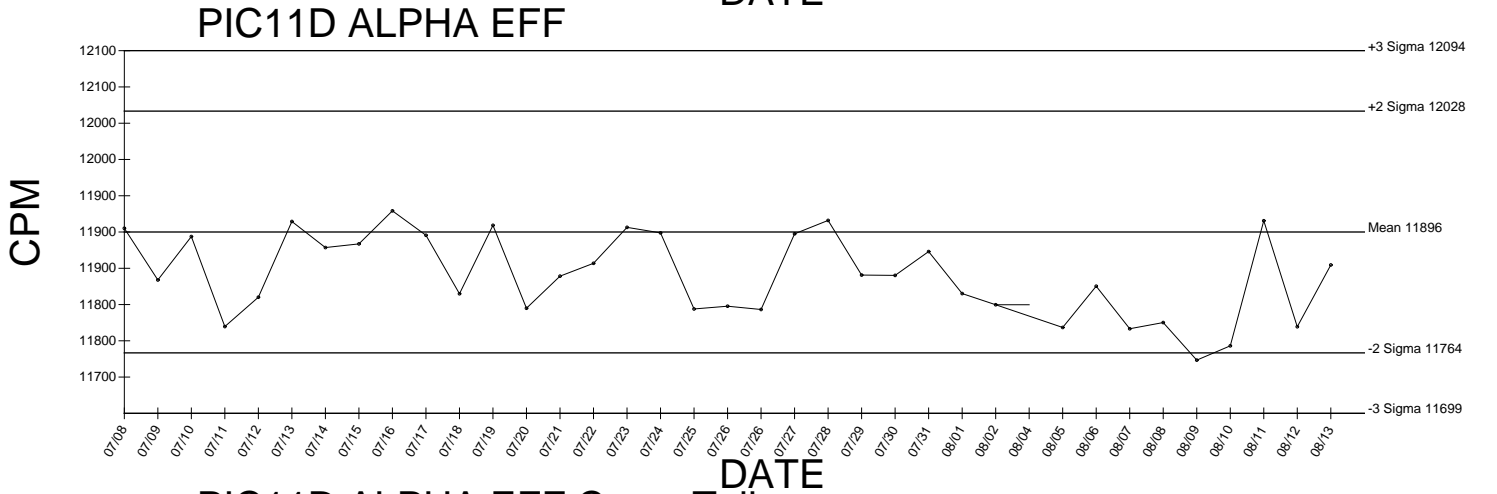
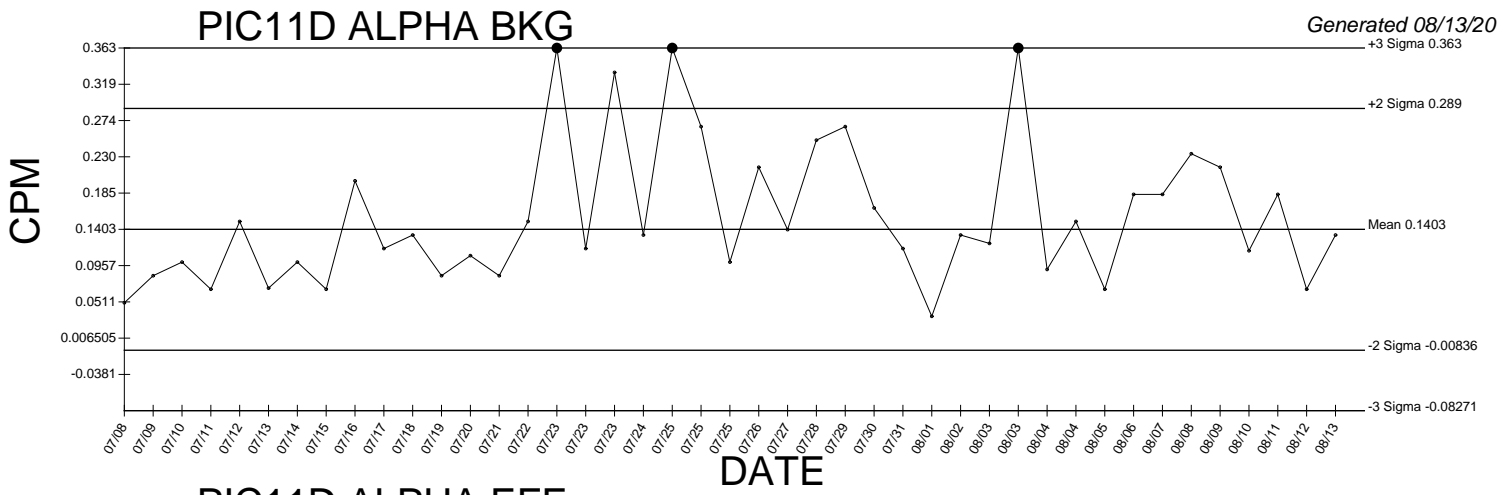
● Denotes Outlier



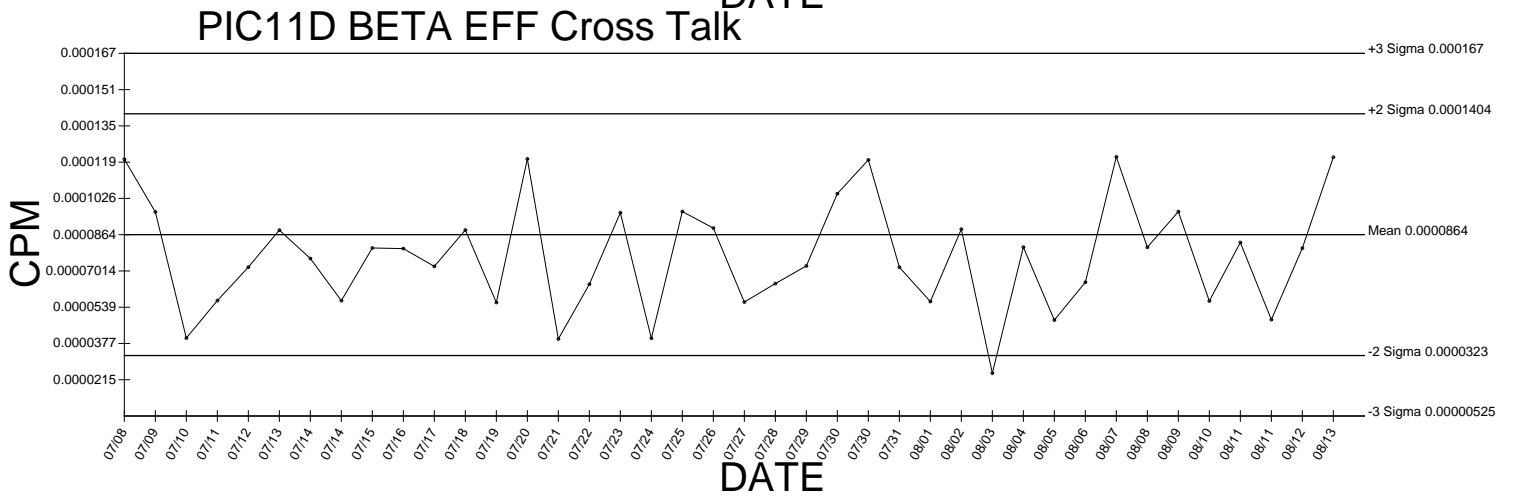
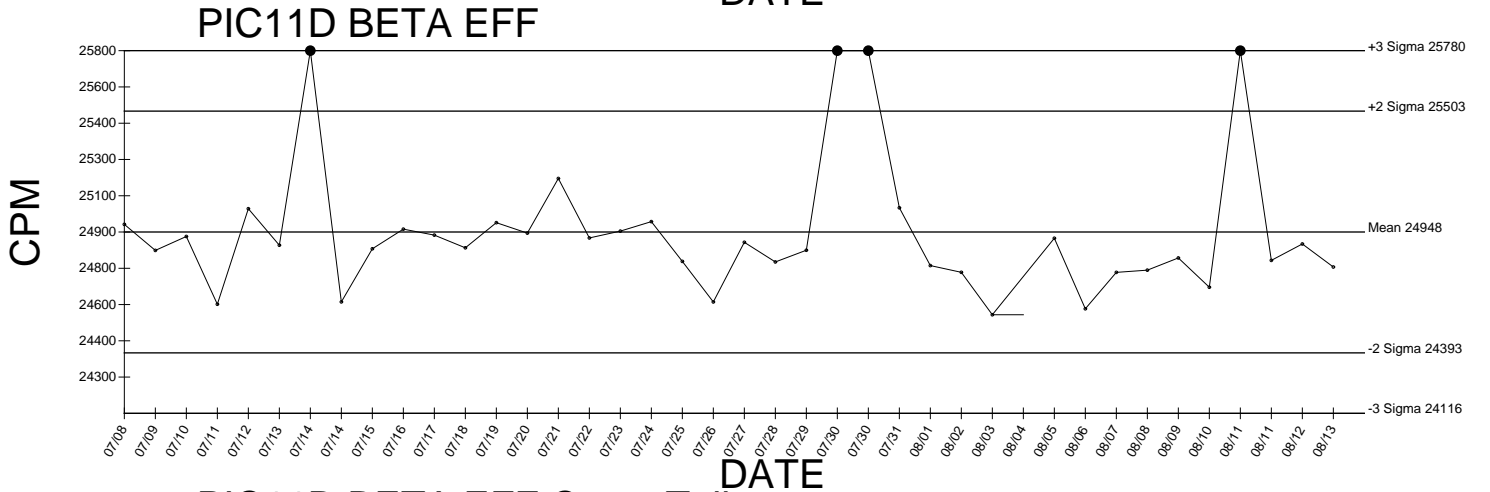
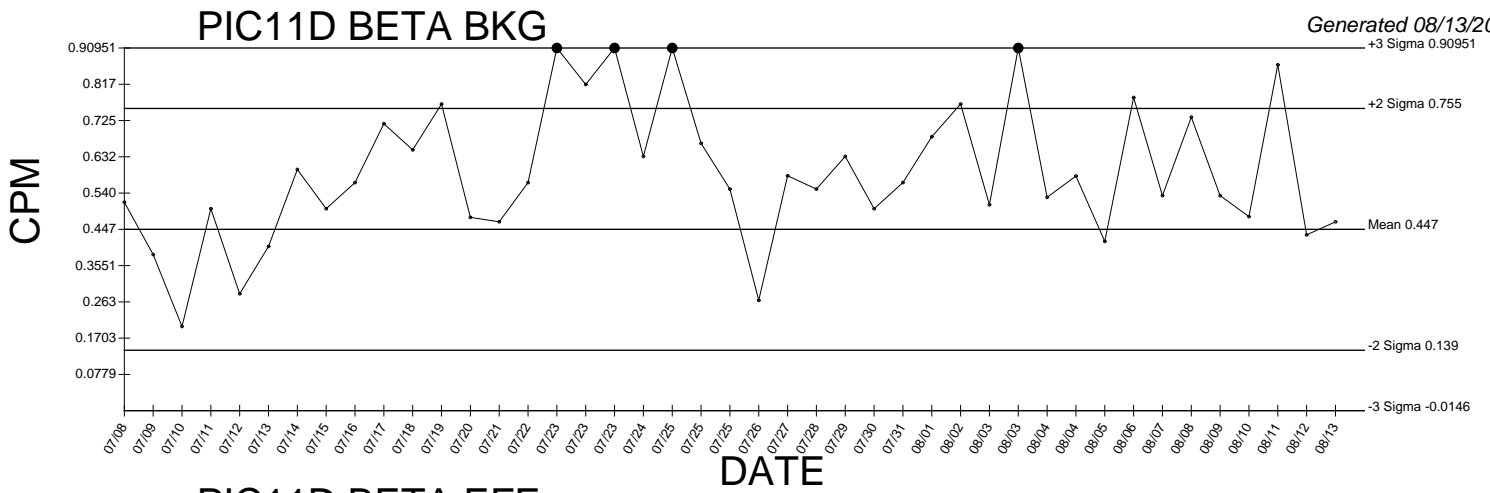
● Denotes Outlier



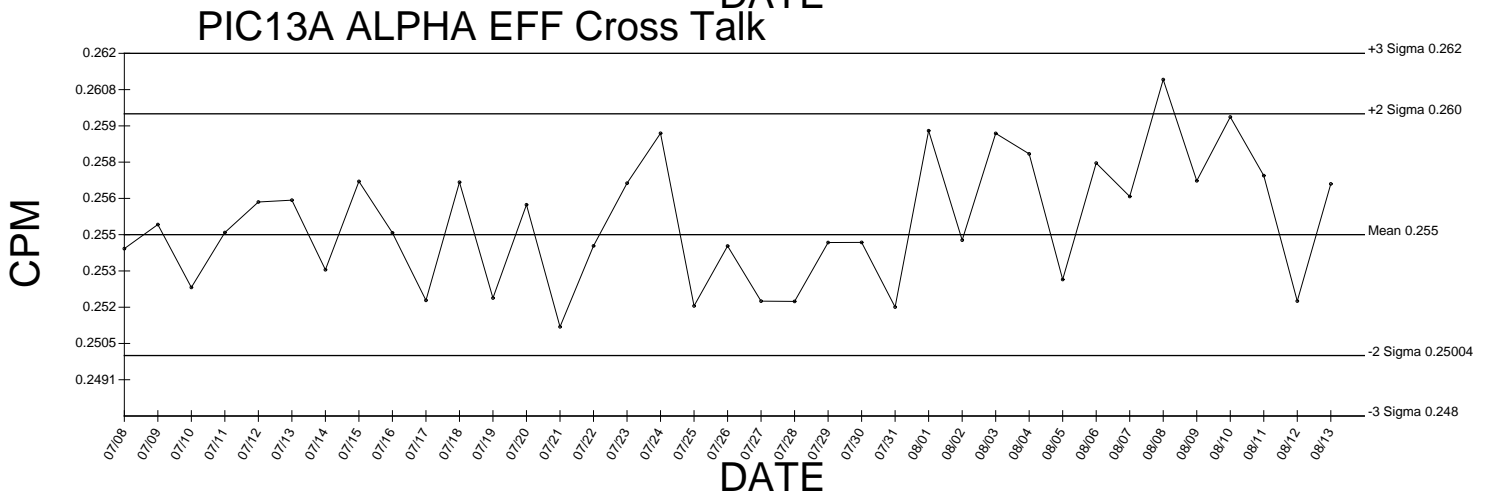
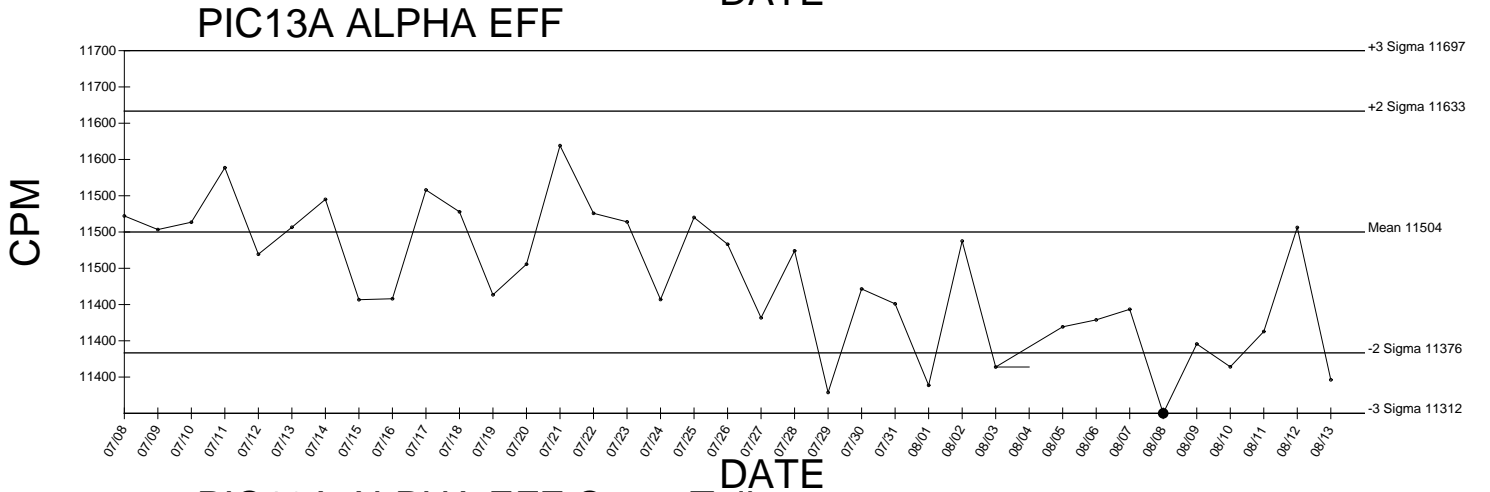
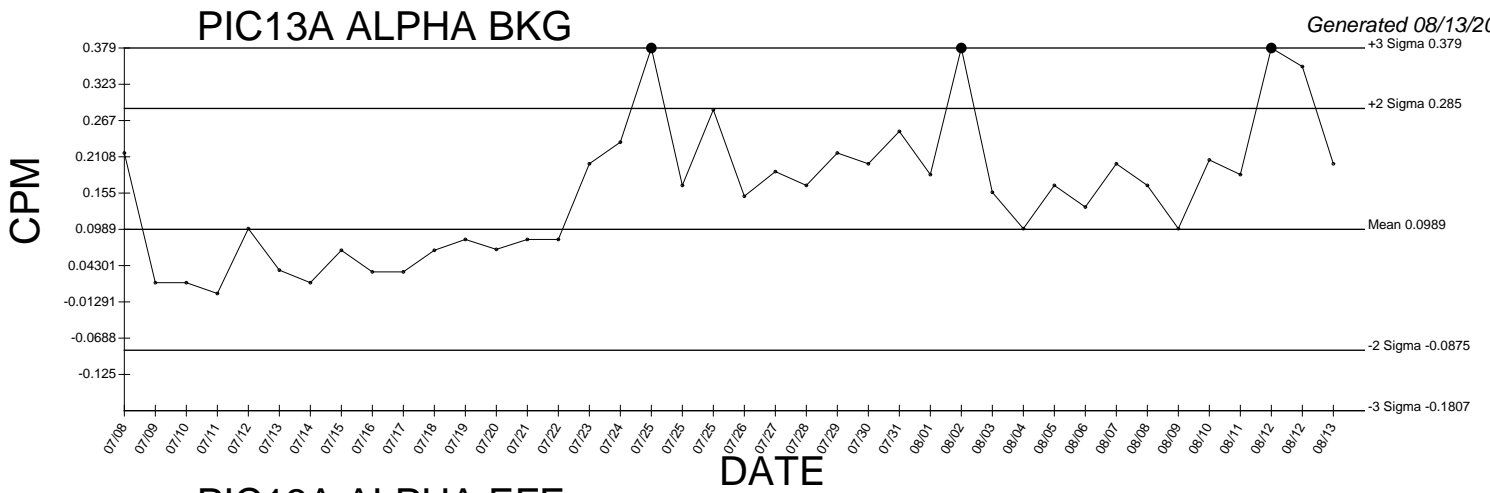
● Denotes Outlier



● Denotes Outlier

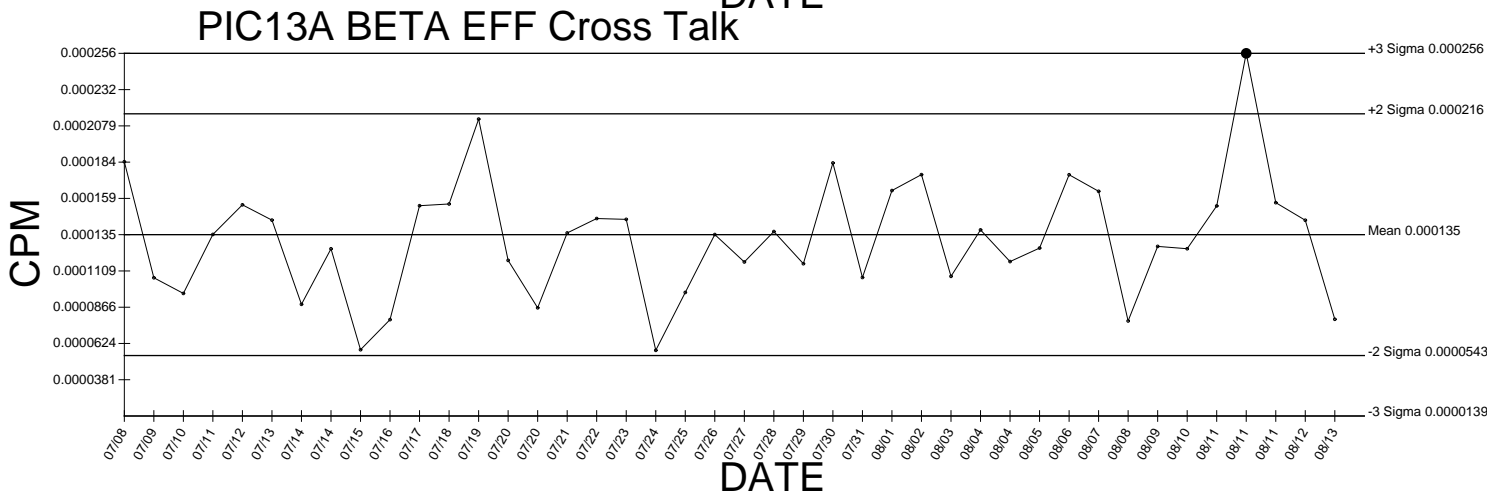
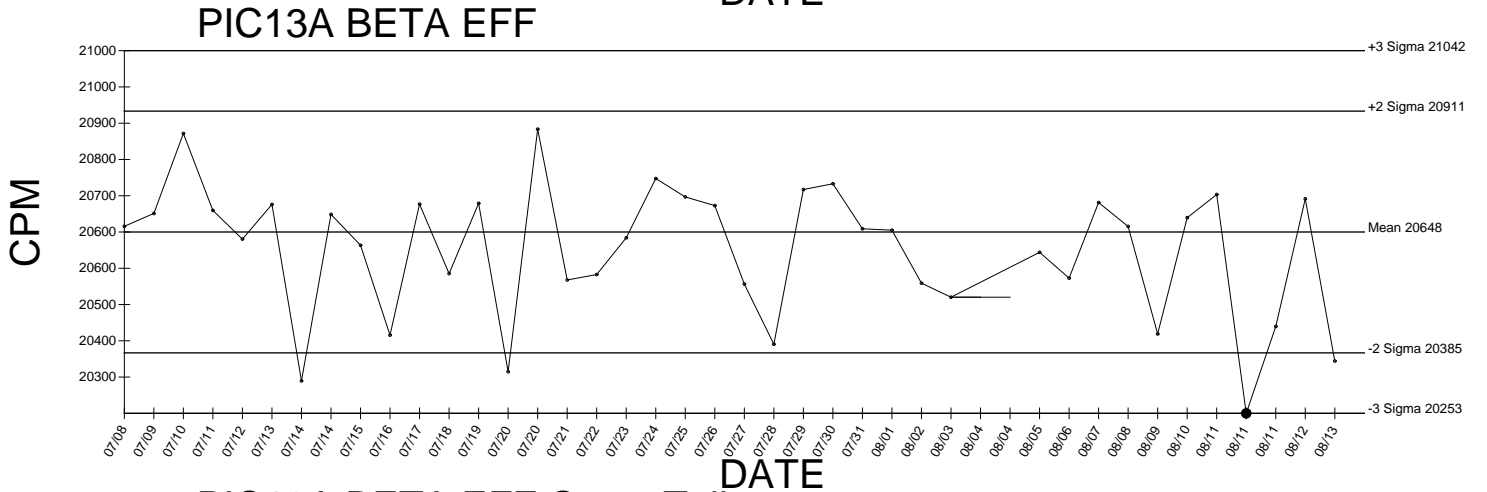
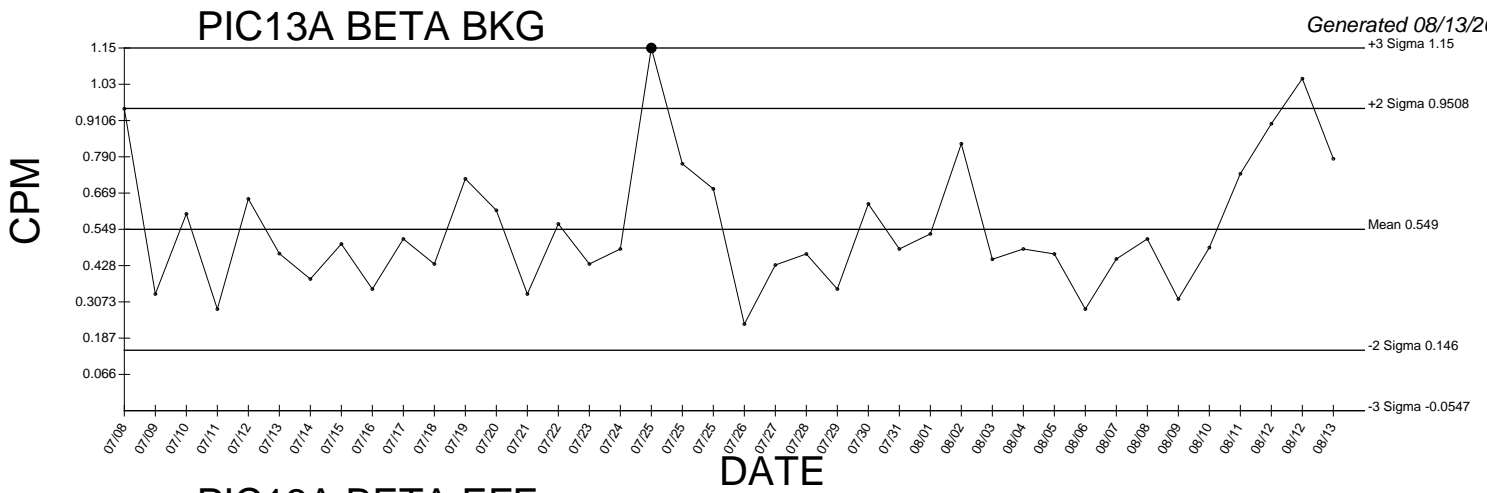


● Denotes Outlier



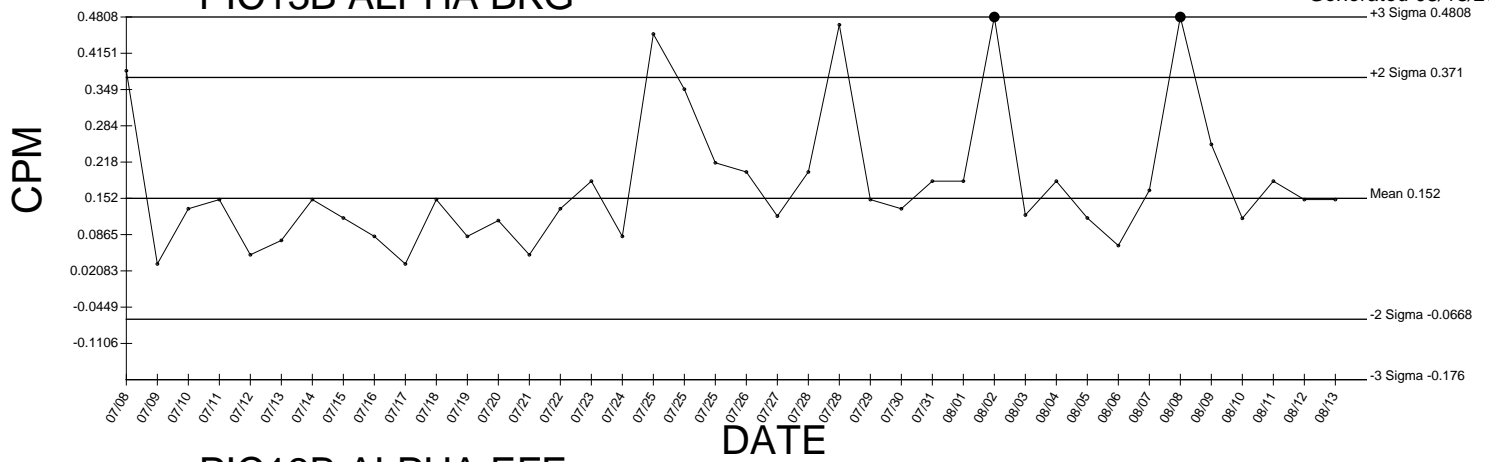
● Denotes Outlier



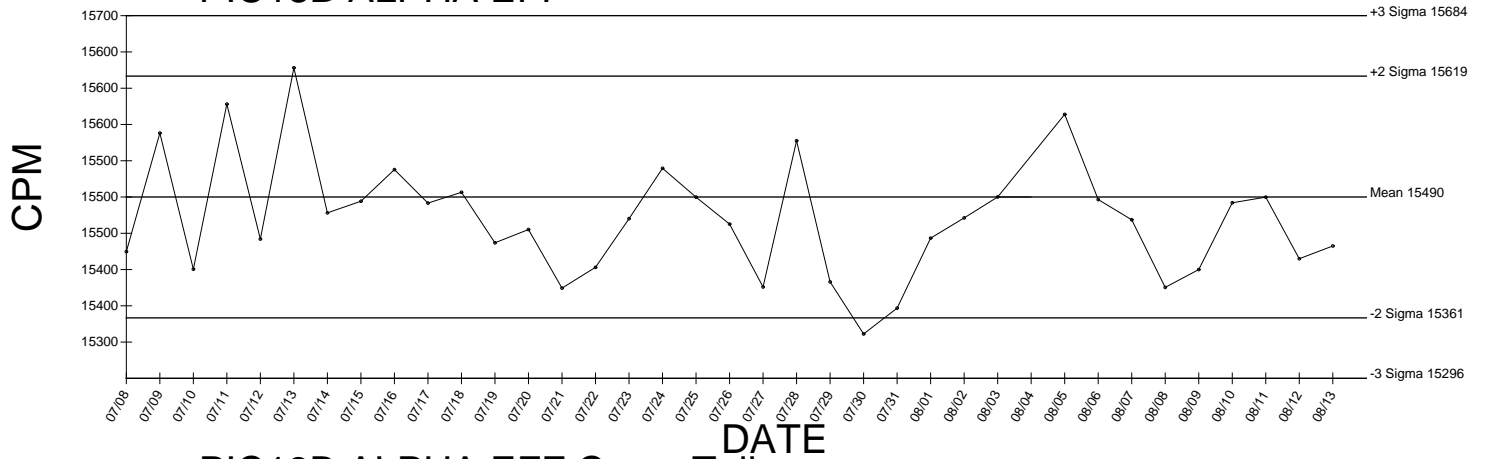


● Denotes Outlier

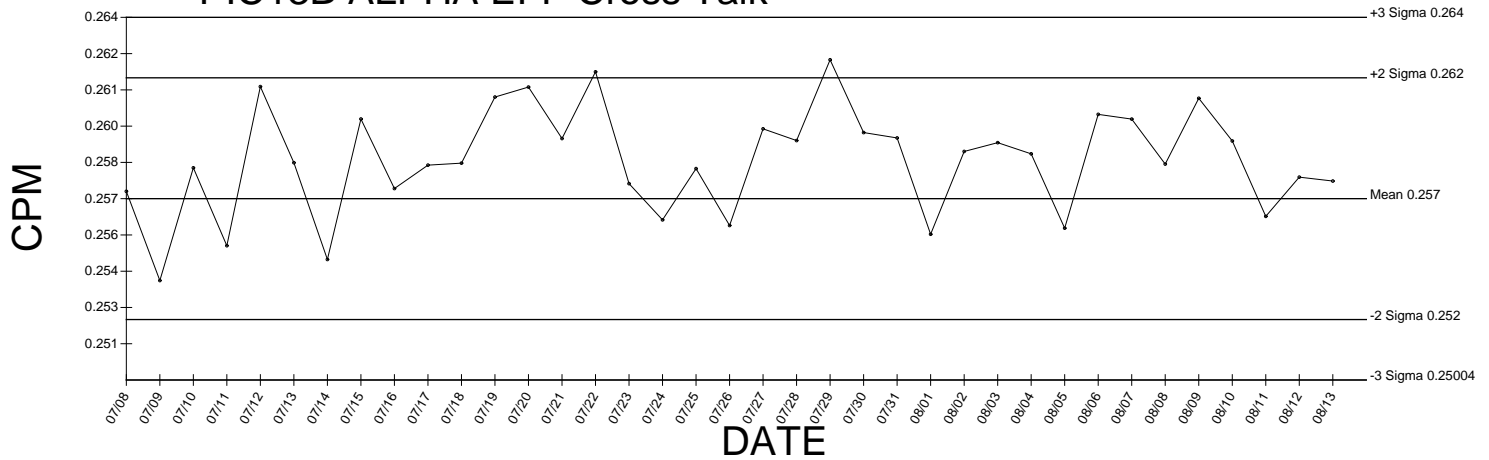
### PIC13B ALPHA BKG



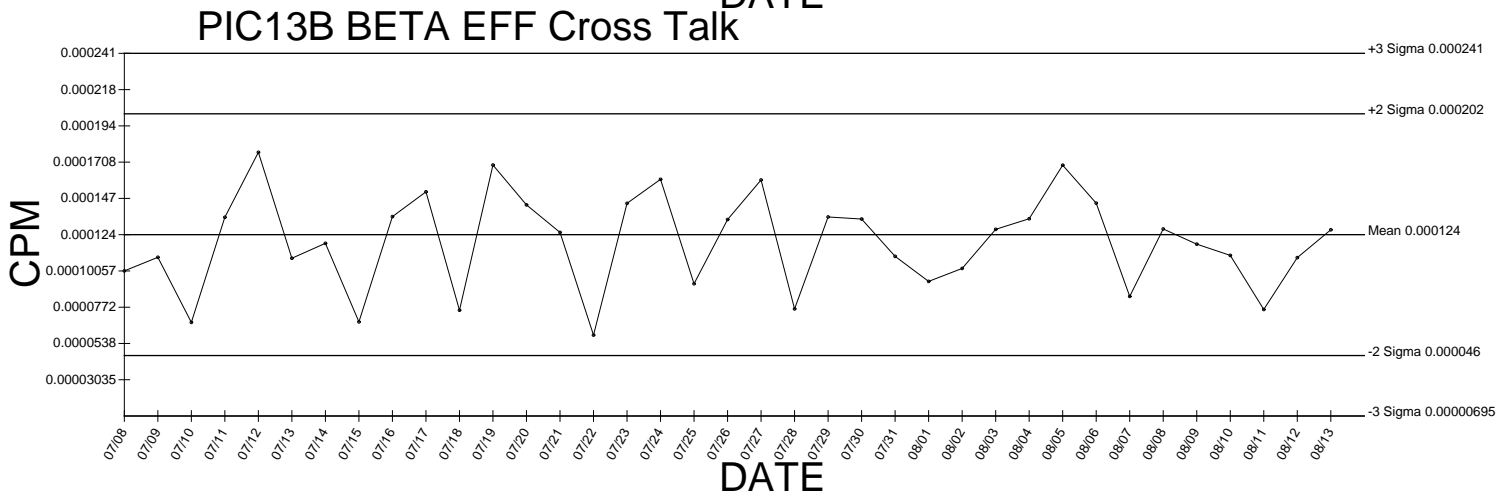
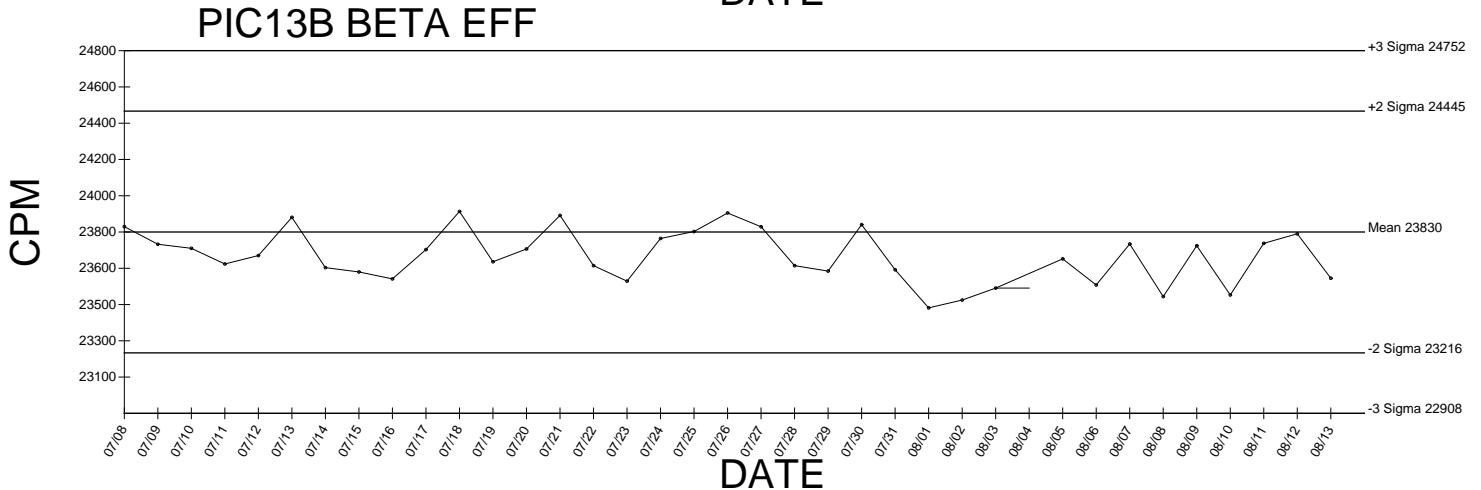
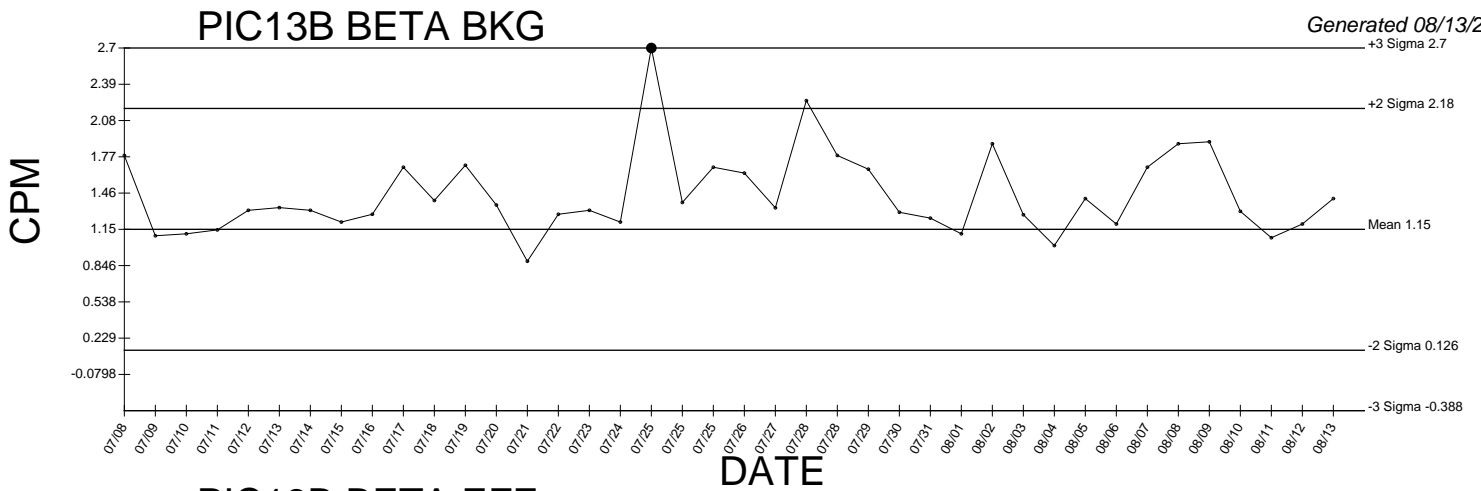
### PIC13B ALPHA EFF



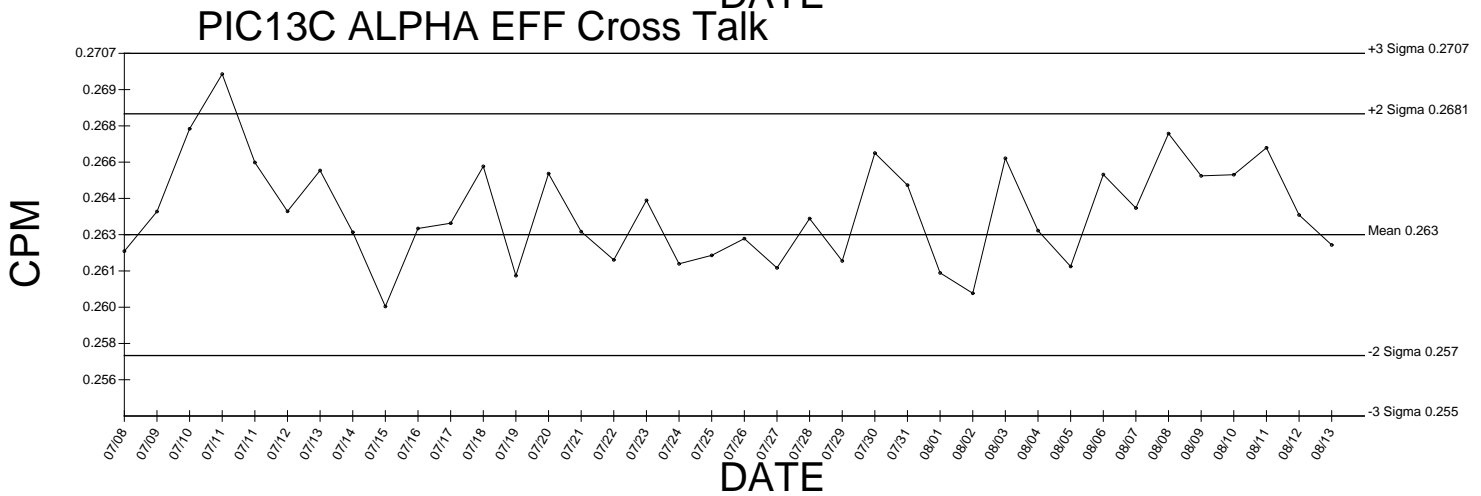
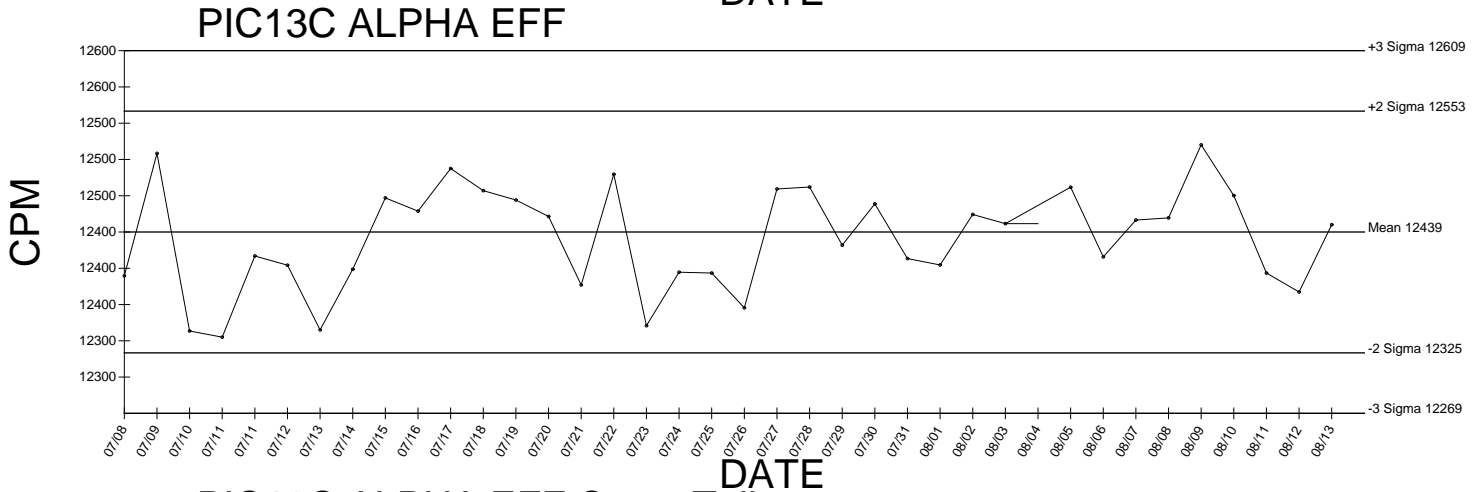
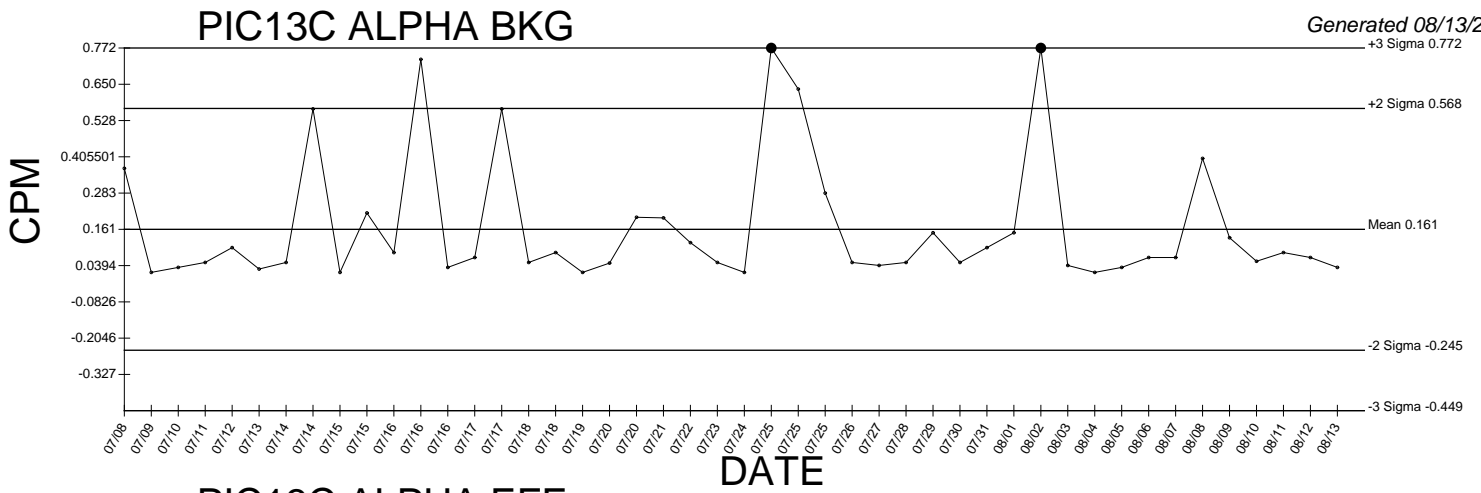
### PIC13B ALPHA EFF Cross Talk



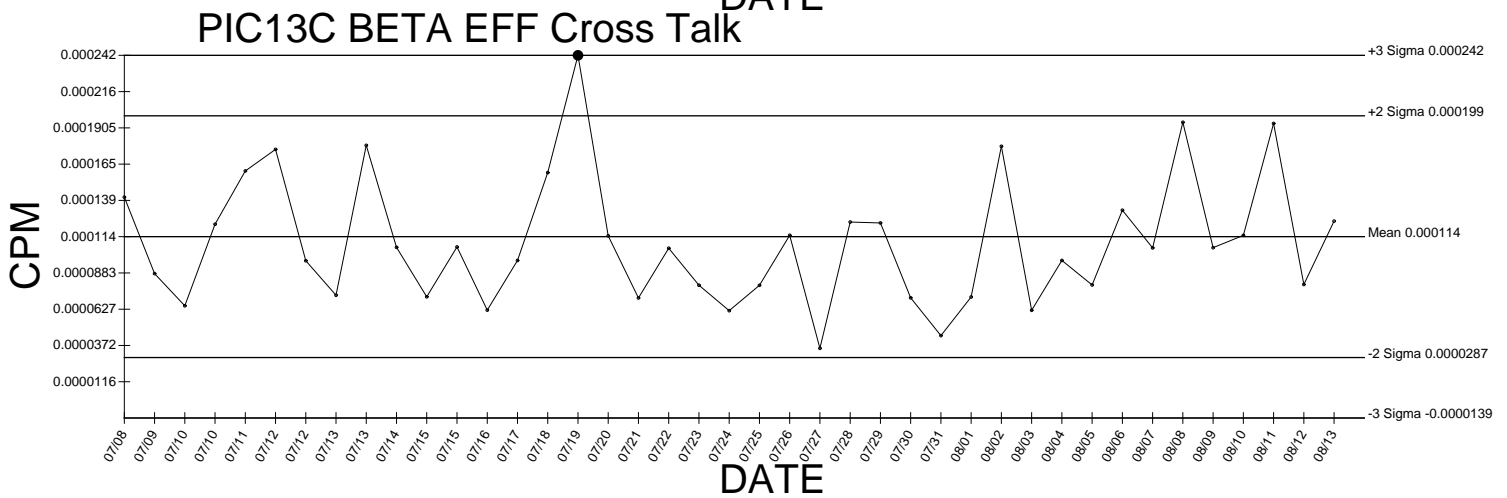
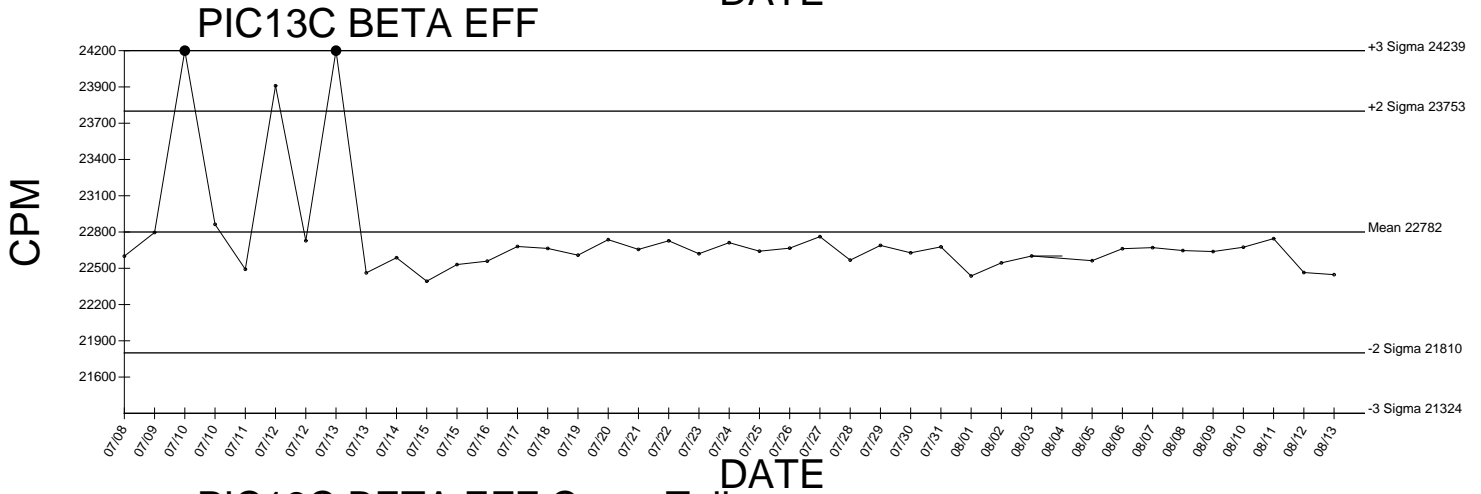
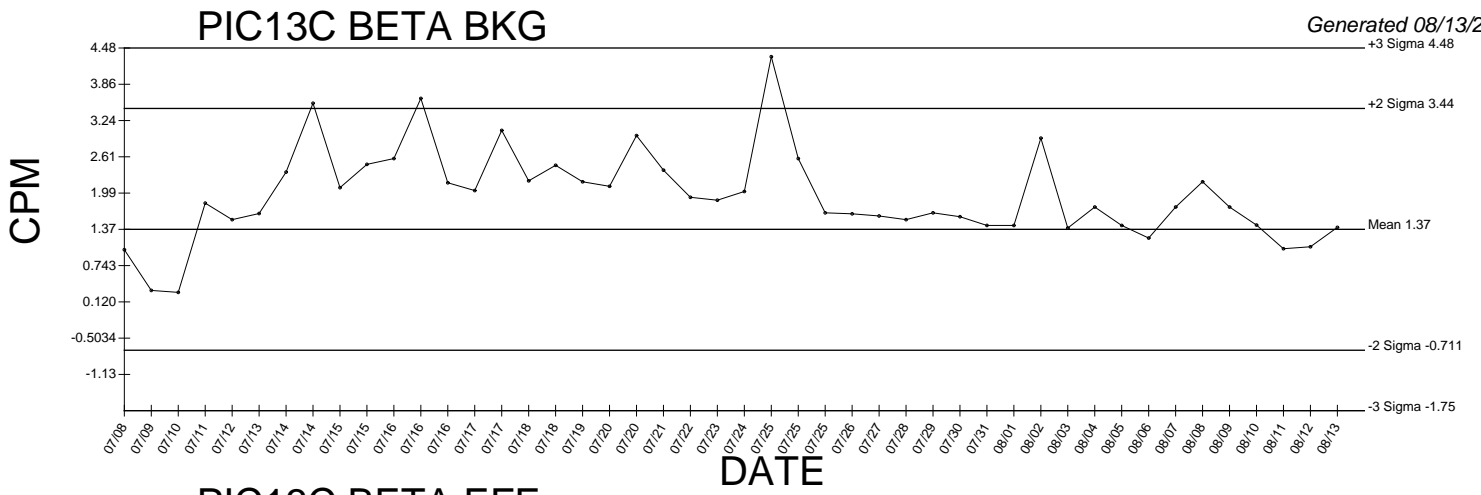
● Denotes Outlier



● Denotes Outlier



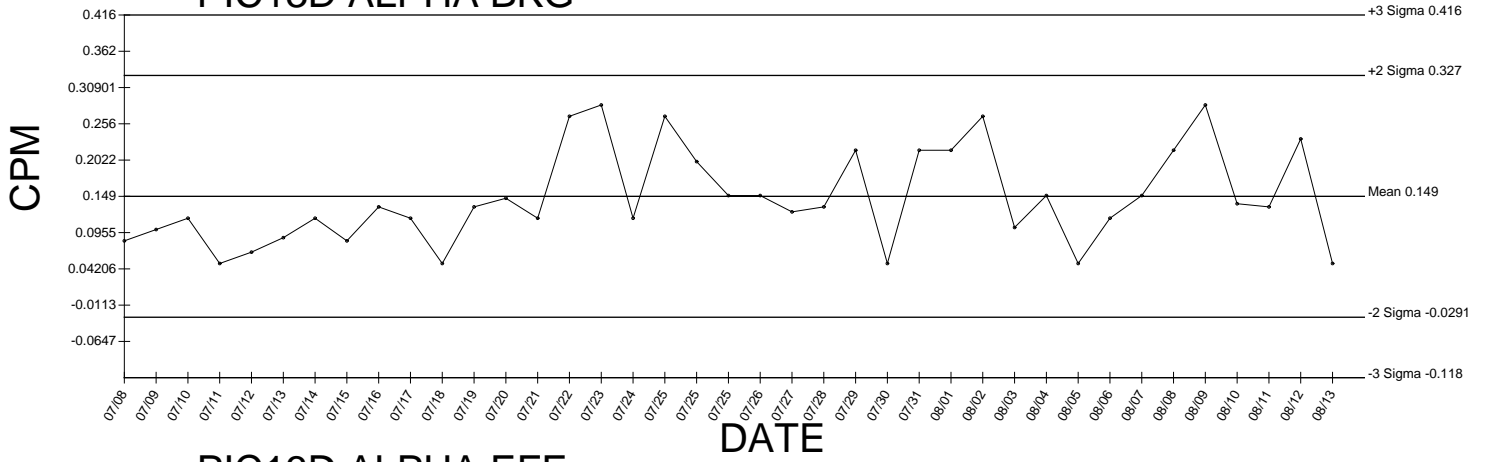
● Denotes Outlier



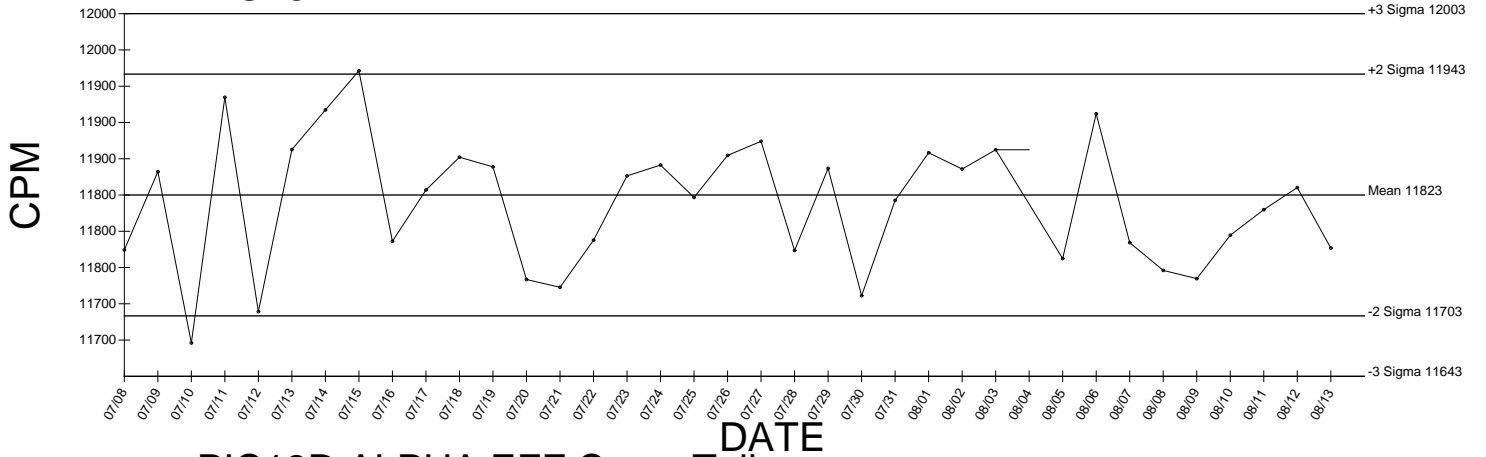
● Denotes Outlier

# PIC13D ALPHA BKG

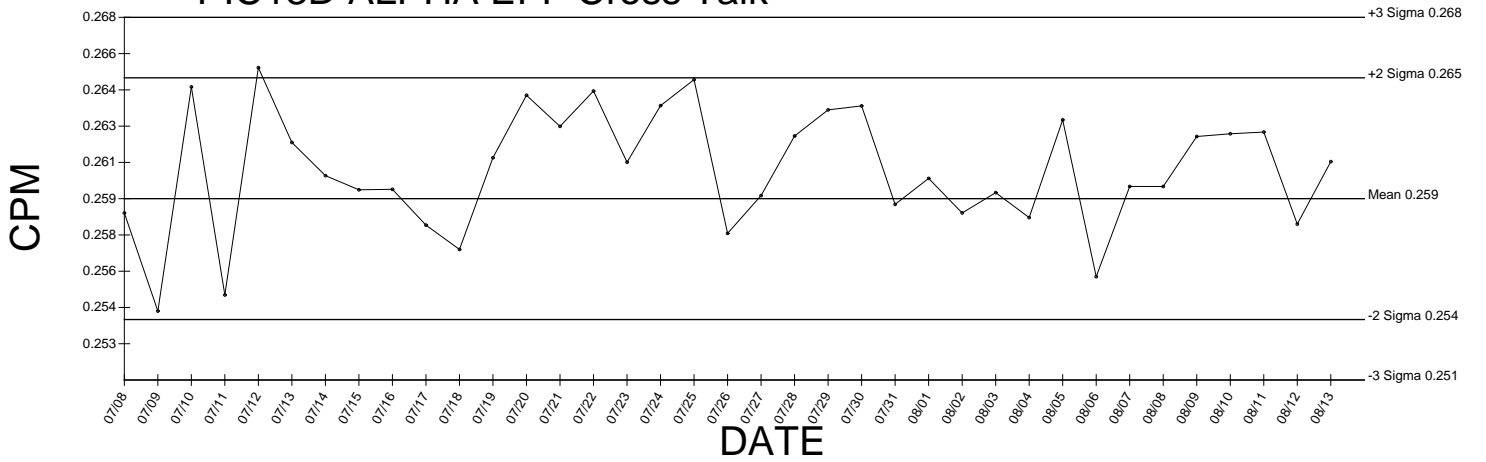
Generated 08/13/2009



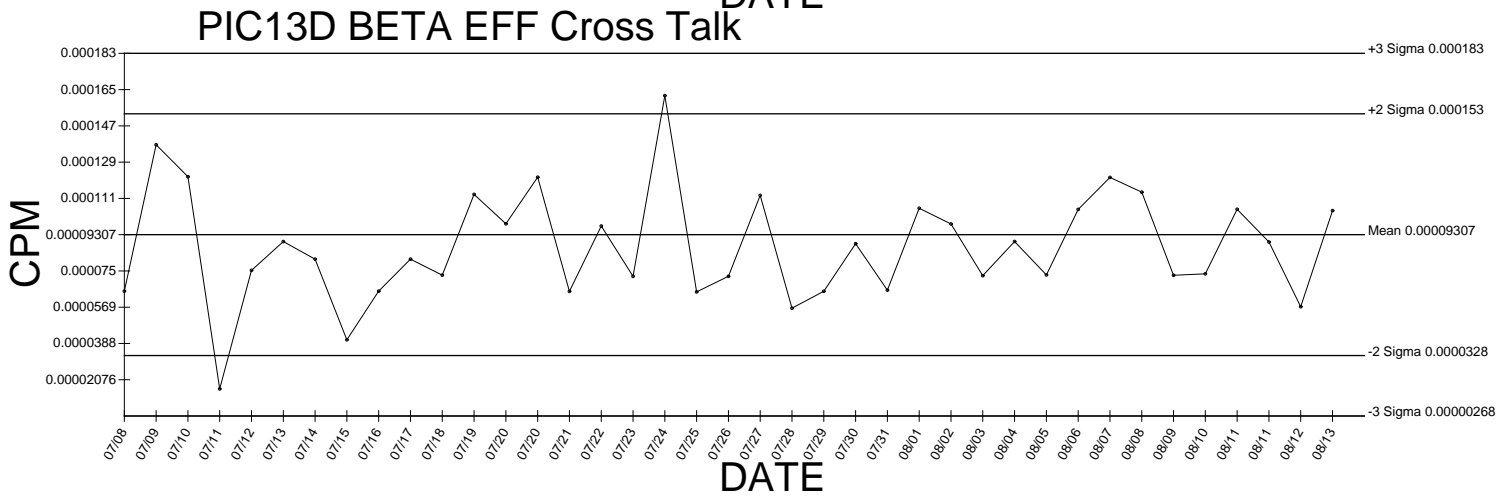
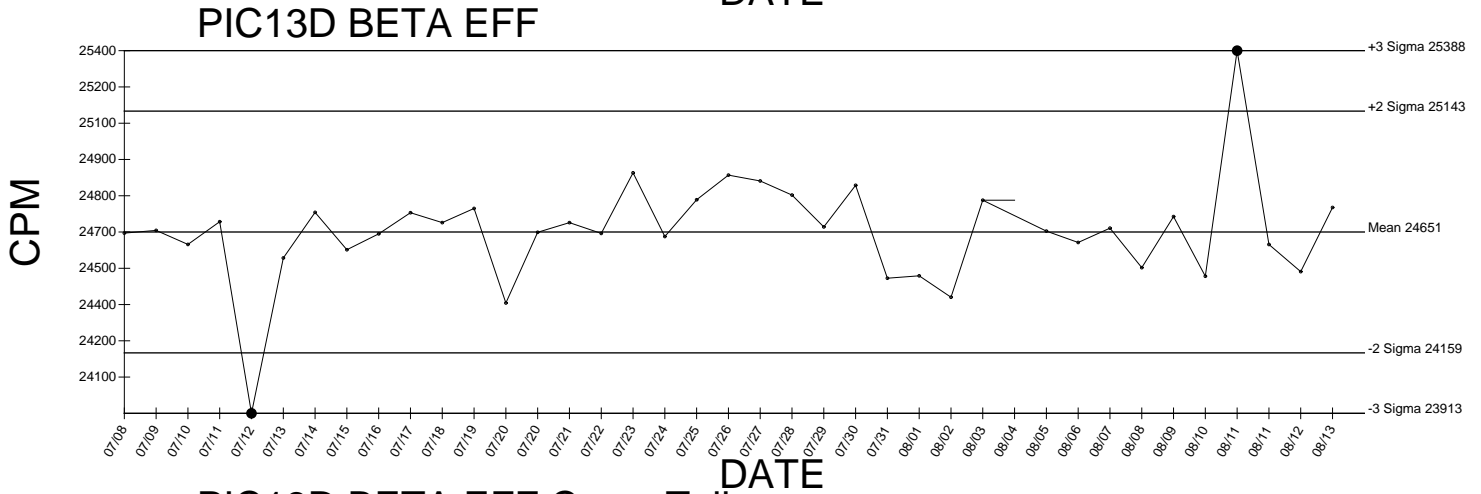
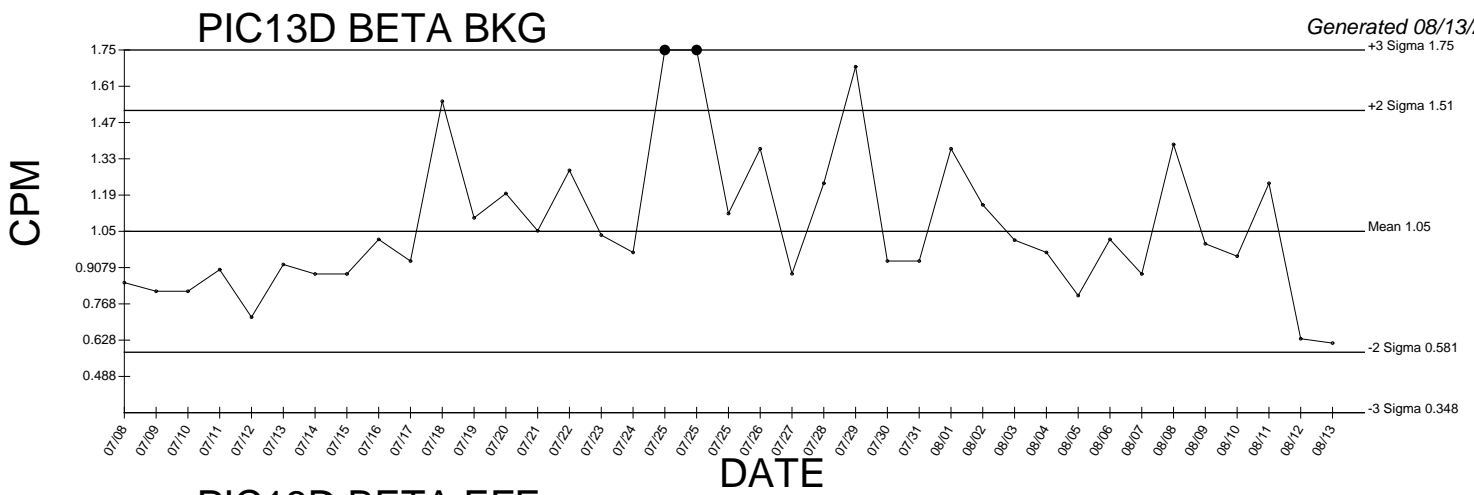
# PIC13D ALPHA EFF



# PIC13D ALPHA EFF Cross Talk

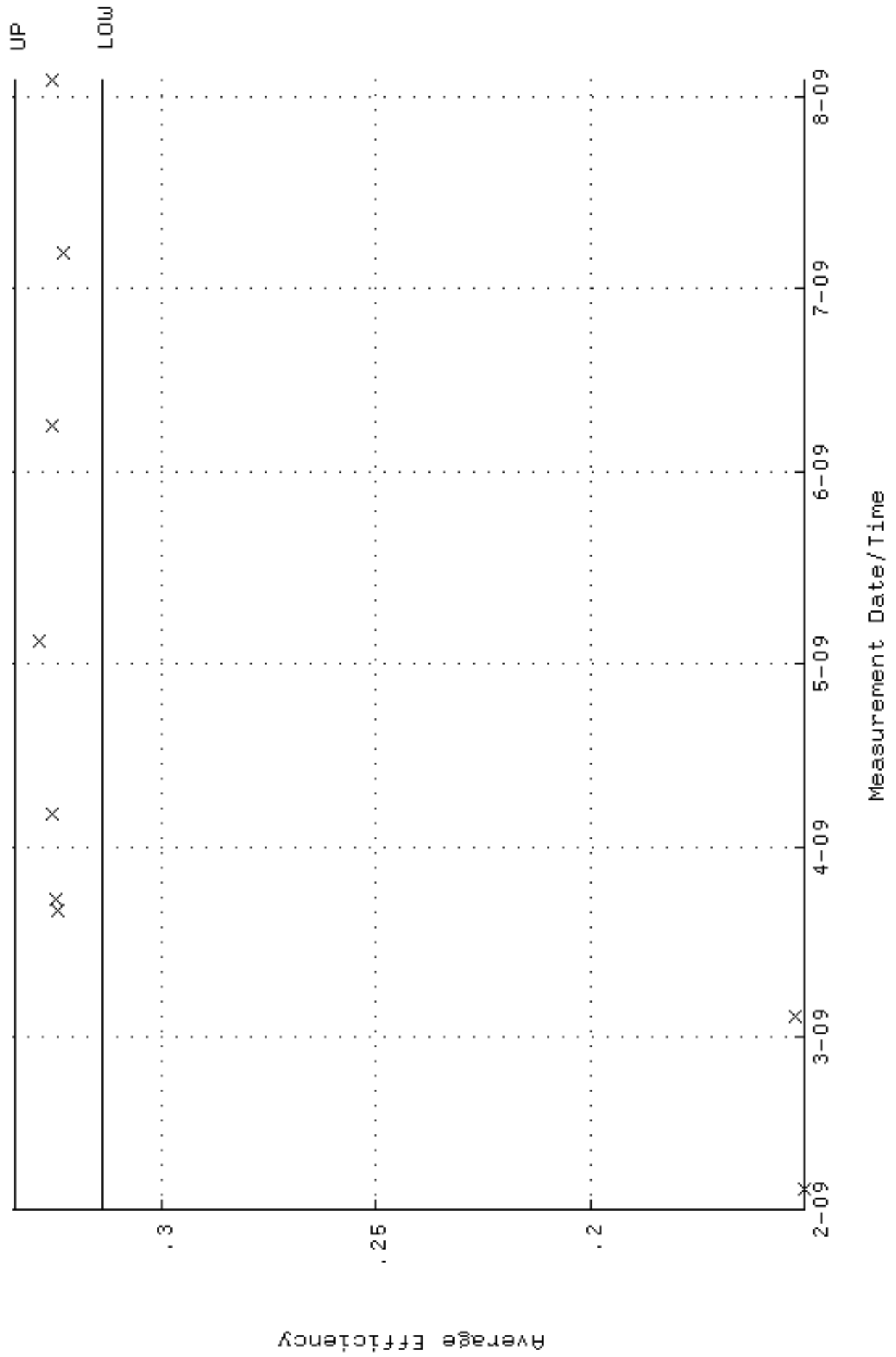


● Denotes Outlier



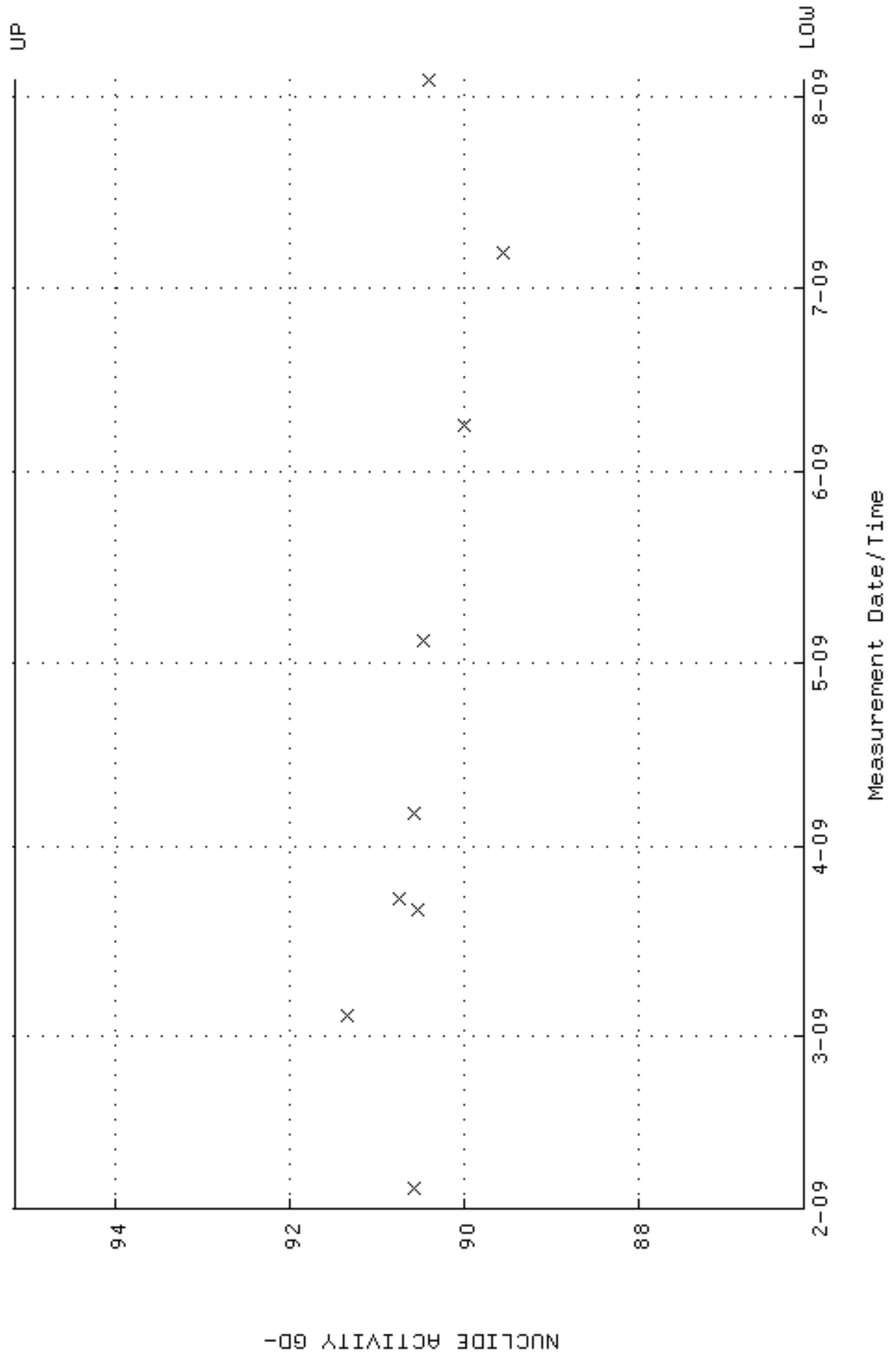
● Denotes Outlier

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

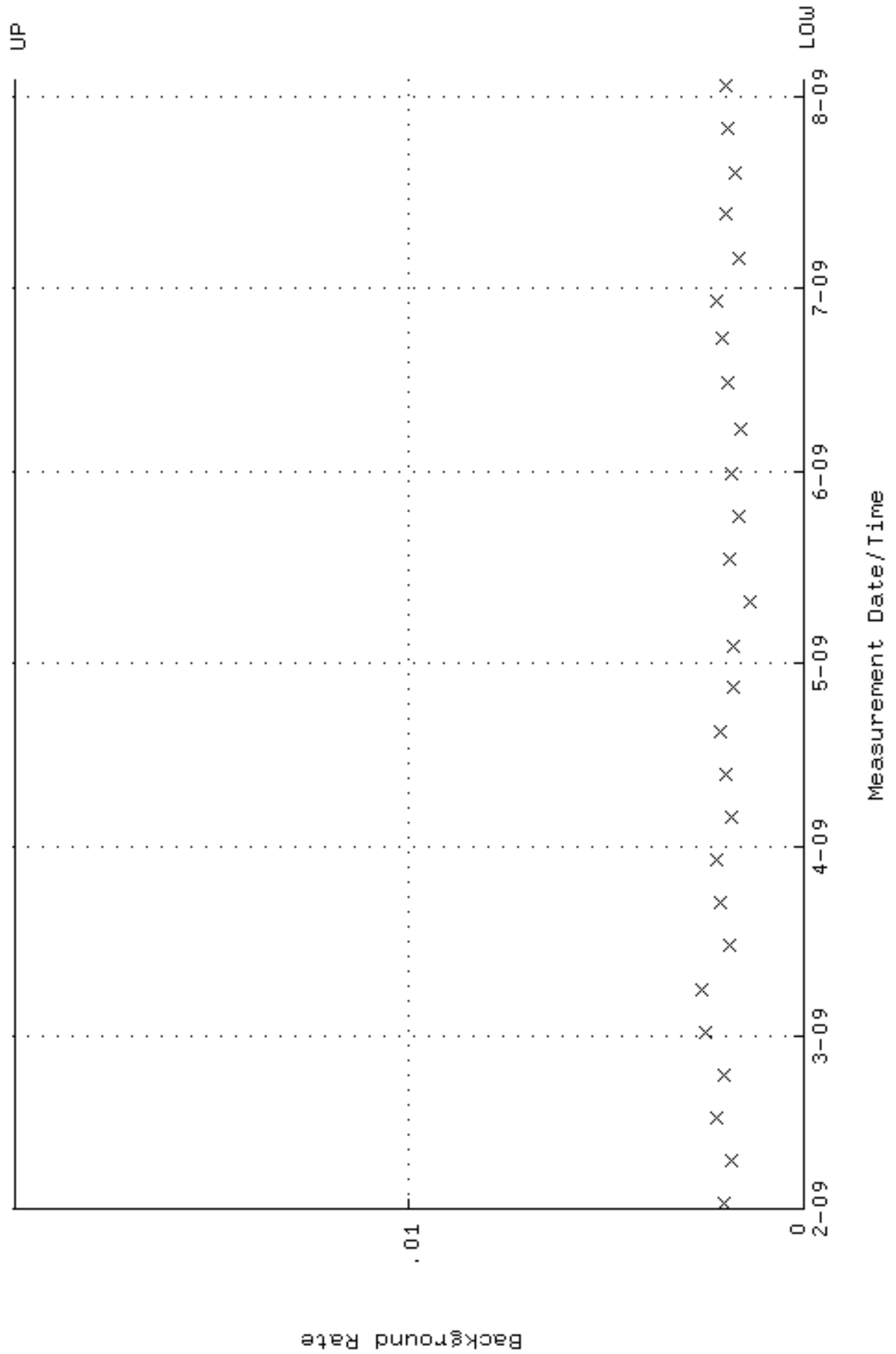




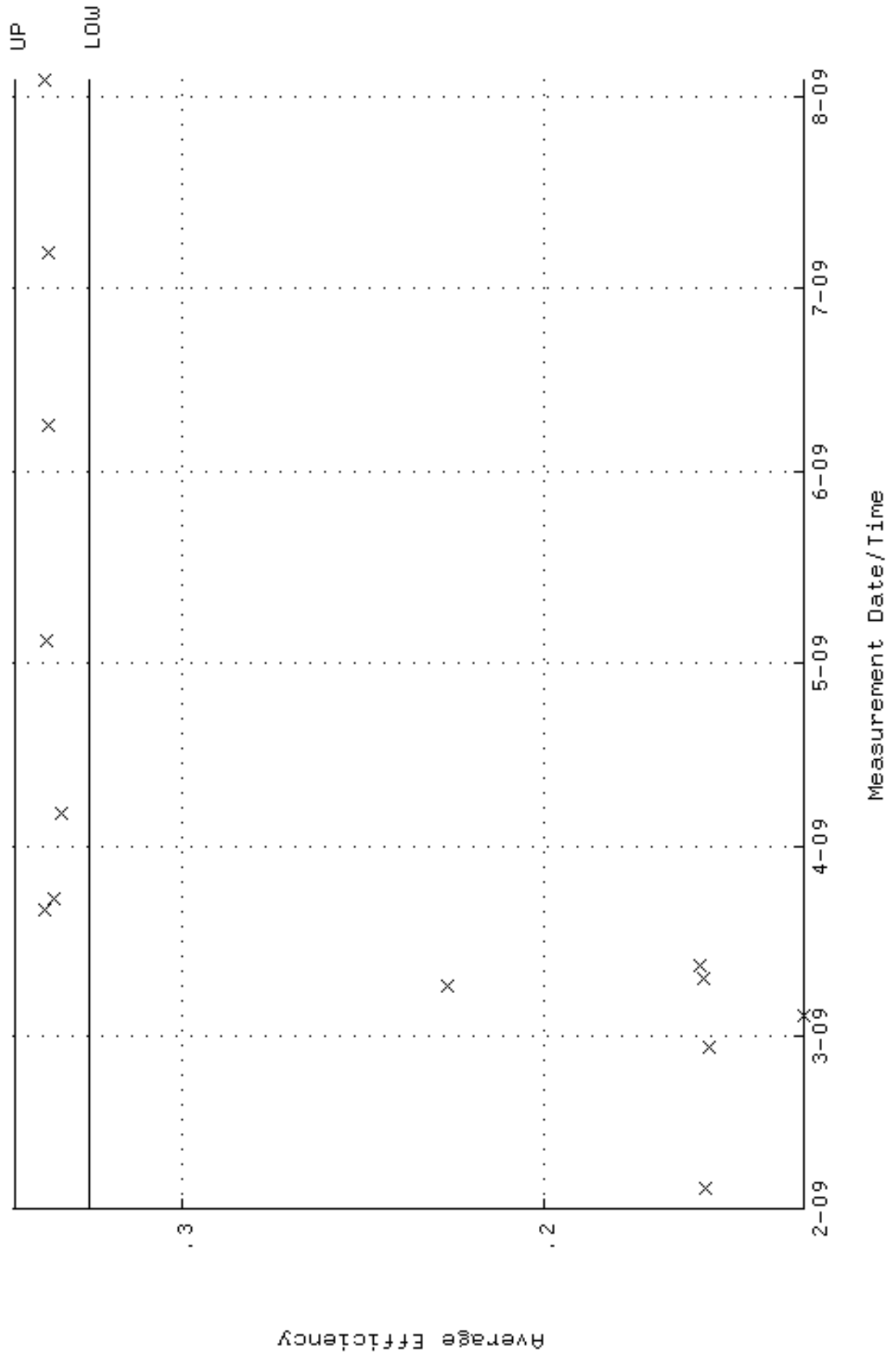
QA filename : DKA100:[ENV\_ALPHA.QA.W]w015.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 86.0931 through 95.1555



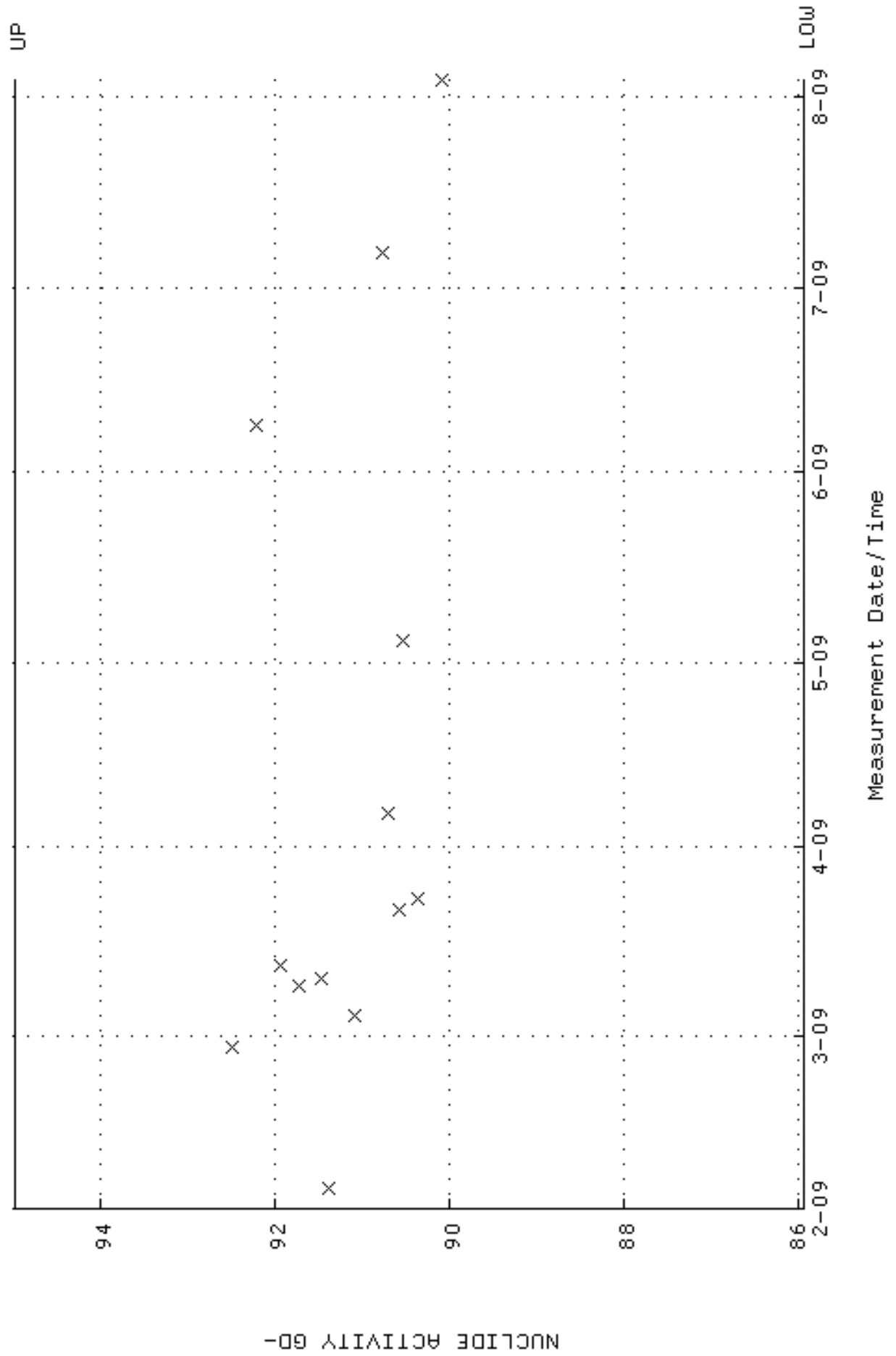
QA filename : DKA100:[ENV\_ALPHA.QA.B]B015.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:04:48 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



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

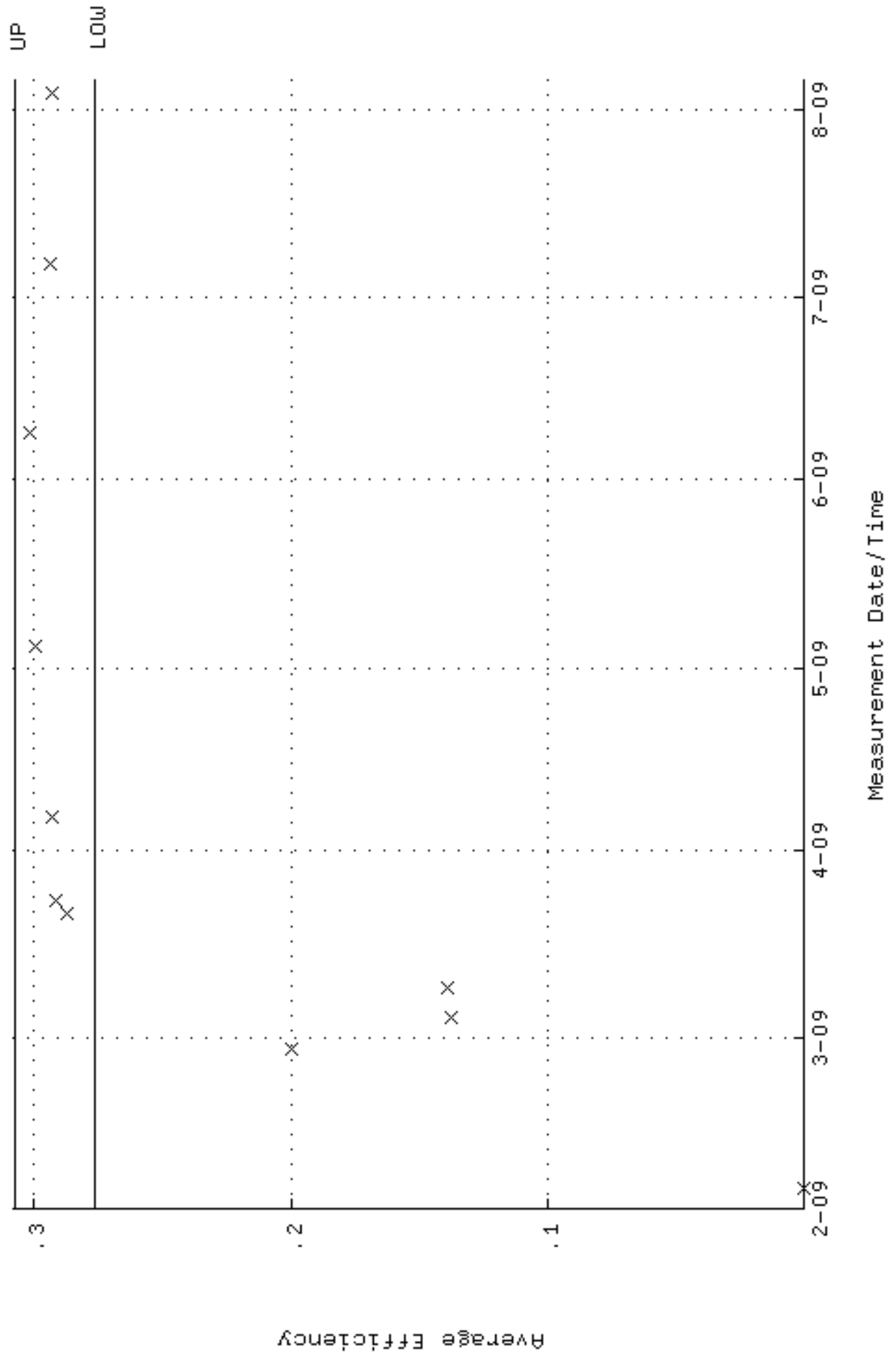


QA filename : DKA100:[ENV\_ALPHA.QA.W]w016.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.9280 through 94.9730

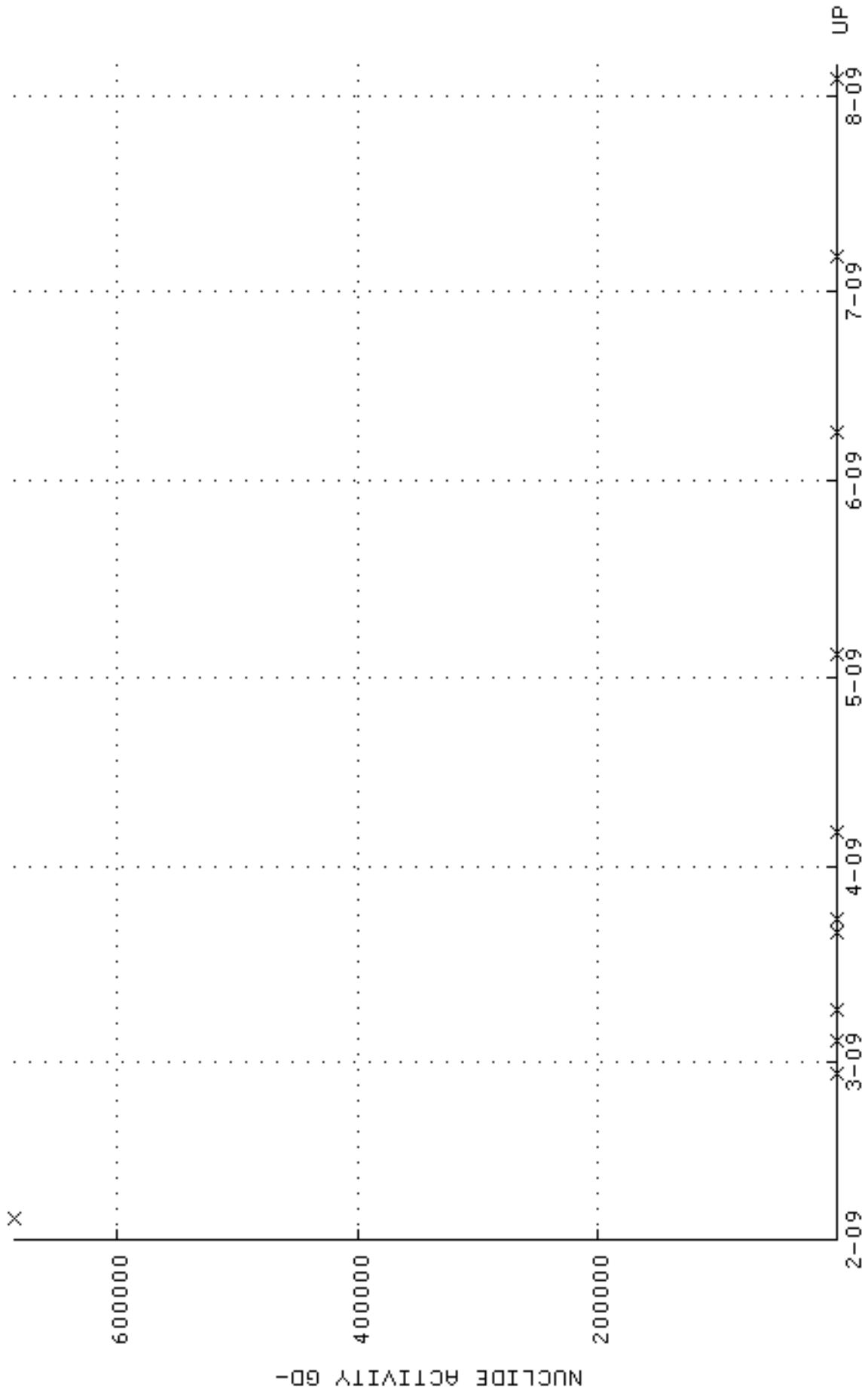




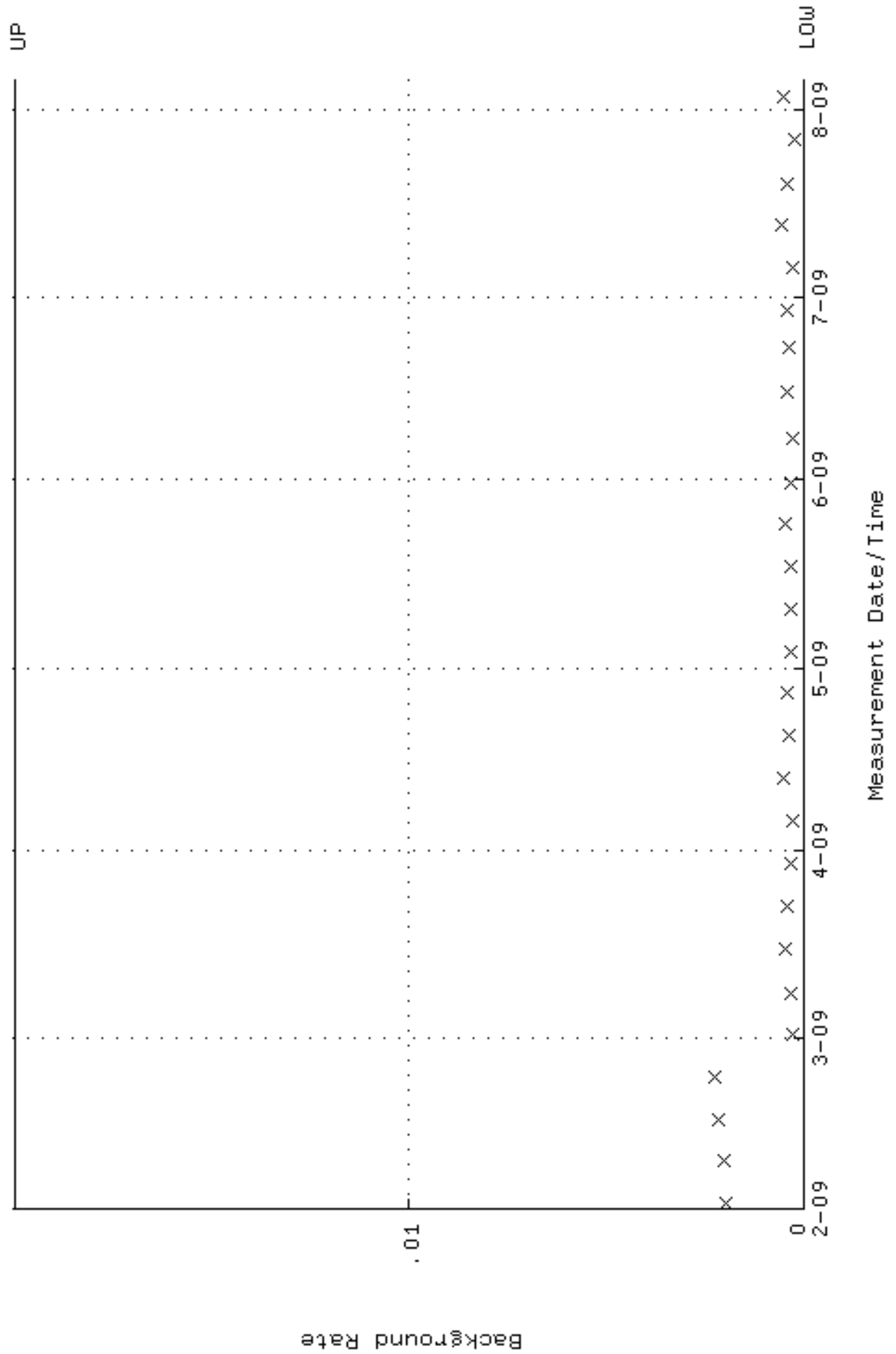
QA filename : DKA100:[ENV\_ALPHA.QA.W]W017.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 5-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.276771 through 0.307557



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

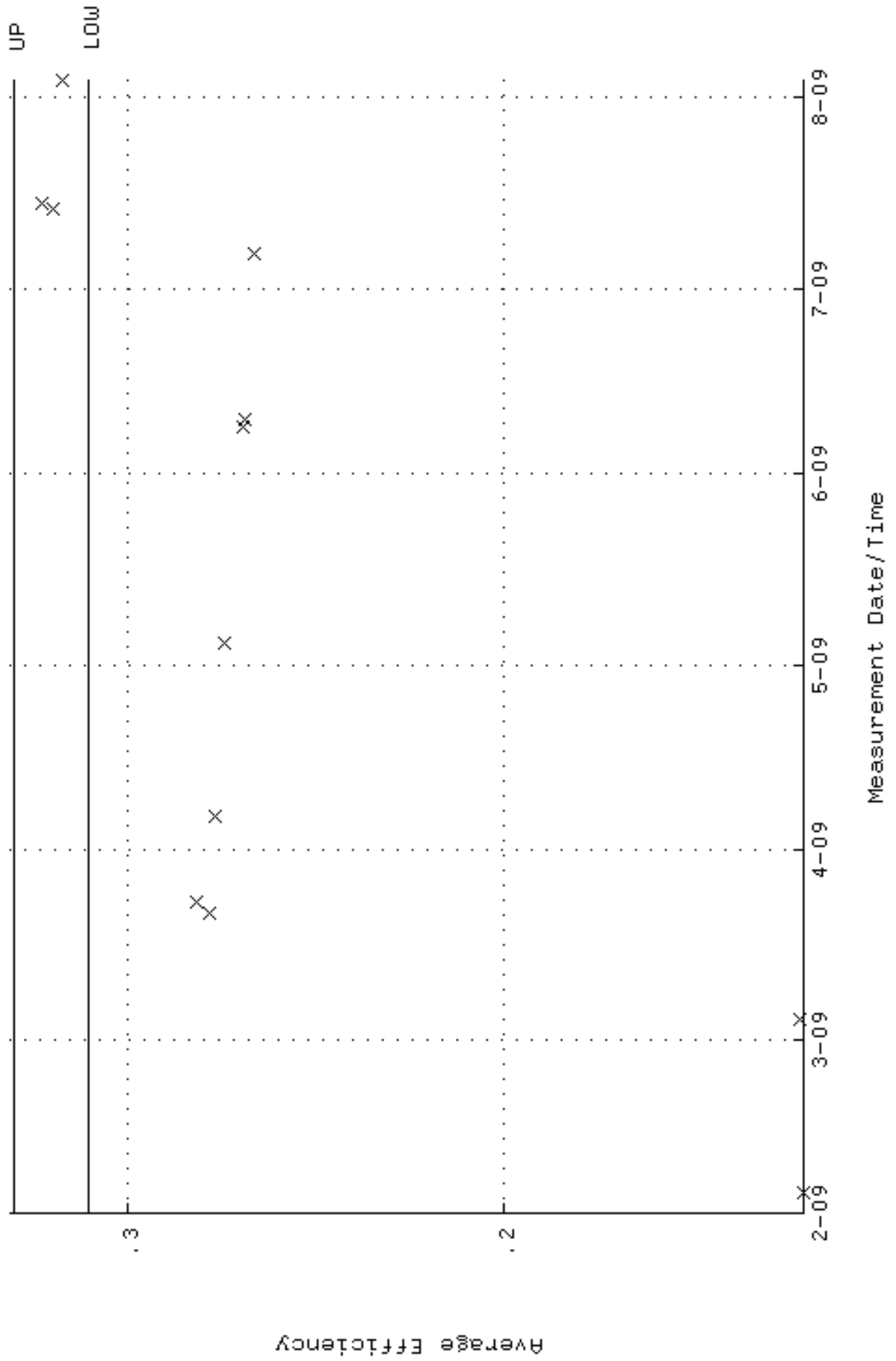


QA filename : DKA100:[ENV\_ALPHA.QA.B]B017.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:04:48 through 5-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

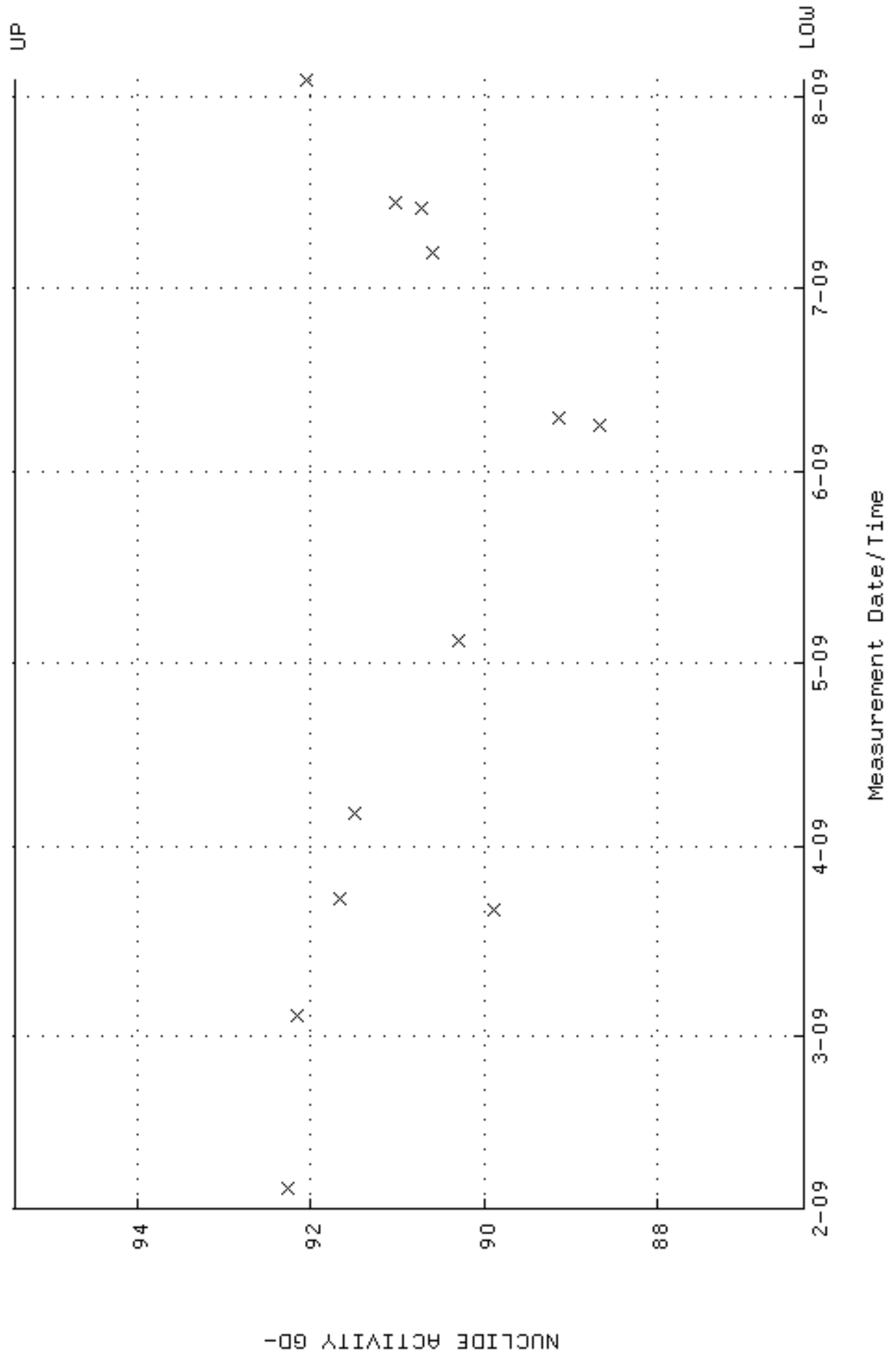




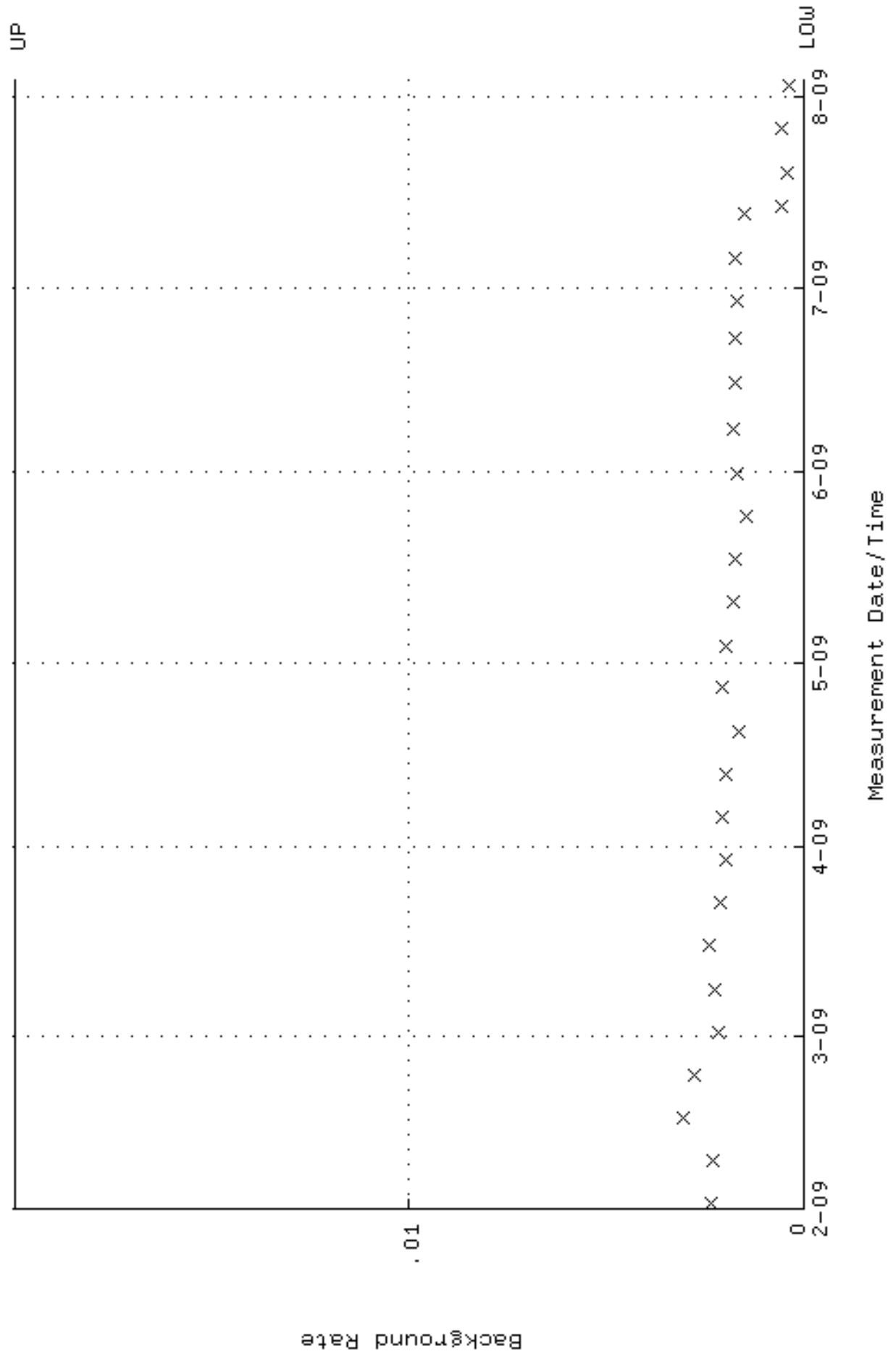
QA filename : DKA100:[ENV\_ALPHA.QA.W]W018.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.310950 through 0.330950



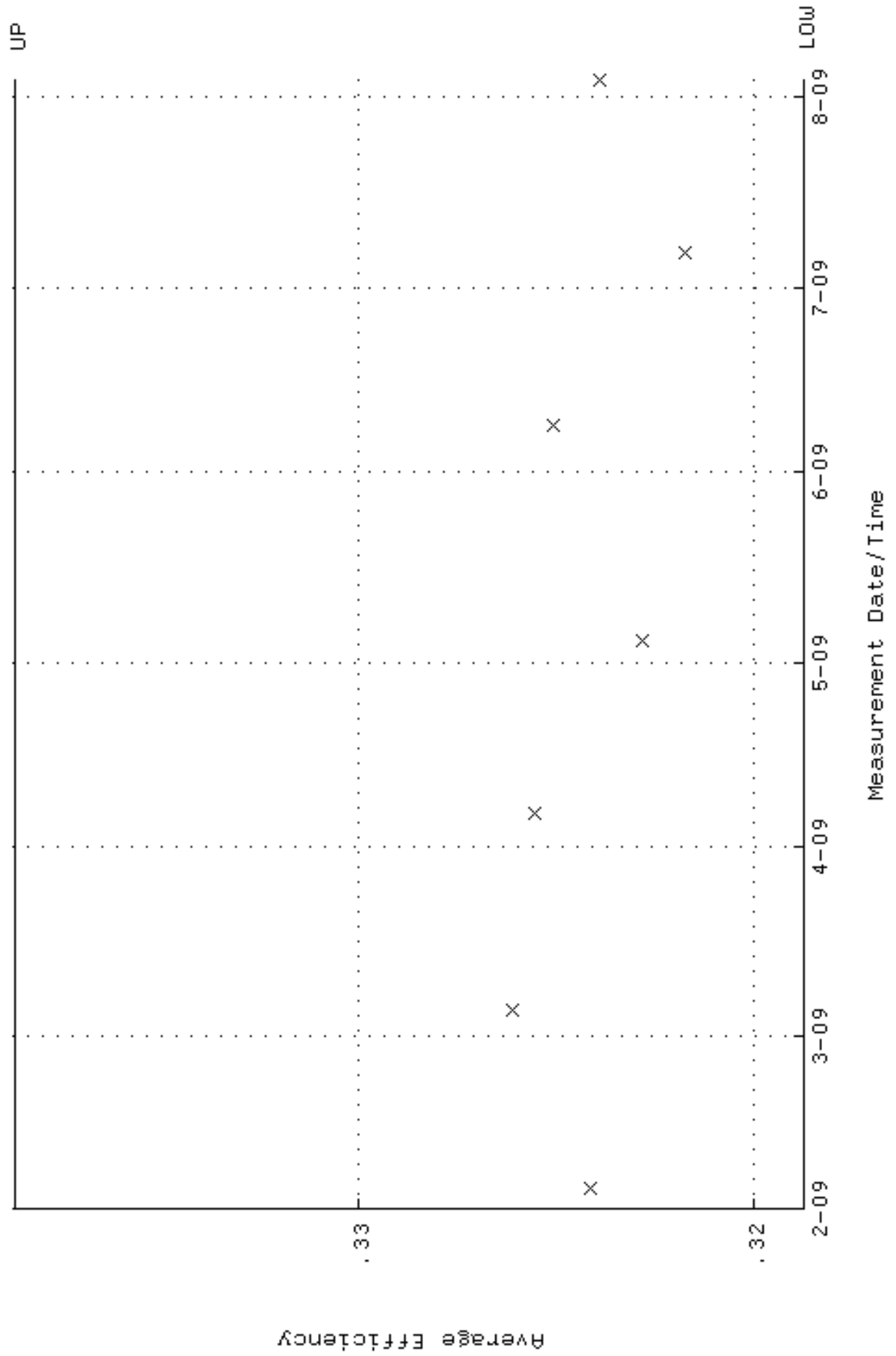
QA filename : DKA100:[ENV\_ALPHA.QA.W]W018.QAF;3  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 4-FEB-2009 07:05:54 through 3-AUG-2009 12:00:00  
Lower/Upper Lmts: 86.3167 through 95.4027



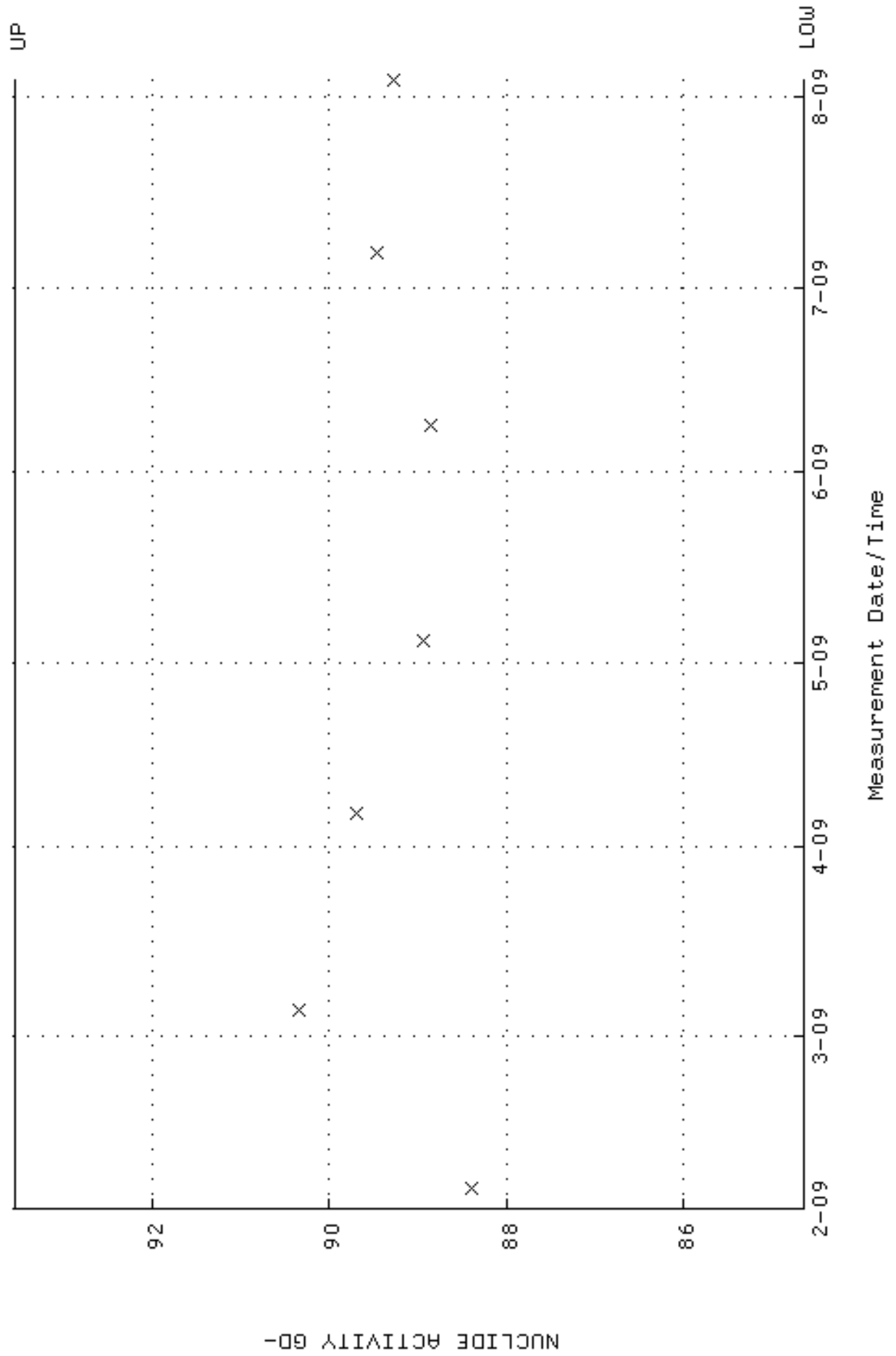
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 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:04:48 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



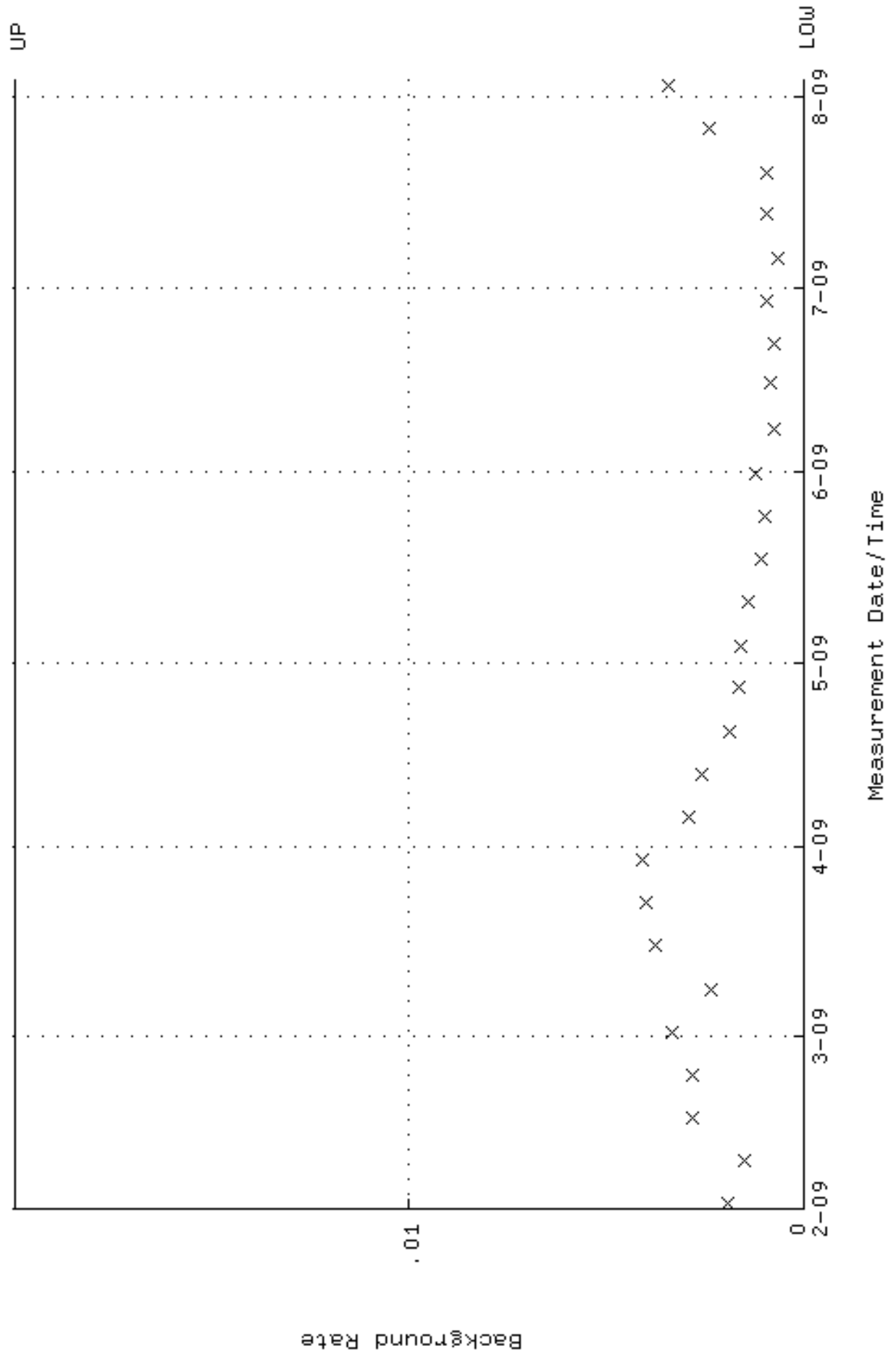
QA filename : DKA100:[ENV\_ALPHA.QA.W]W036.QAF;2  
Parameter Name : AVRGEFF (Average Efficiency)  
Start/End Dates : 4-FEB-2009 07:05:57 through 3-AUG-2009 12:00:00  
Lower/Upper Lmts: 0.318717 through 0.338717



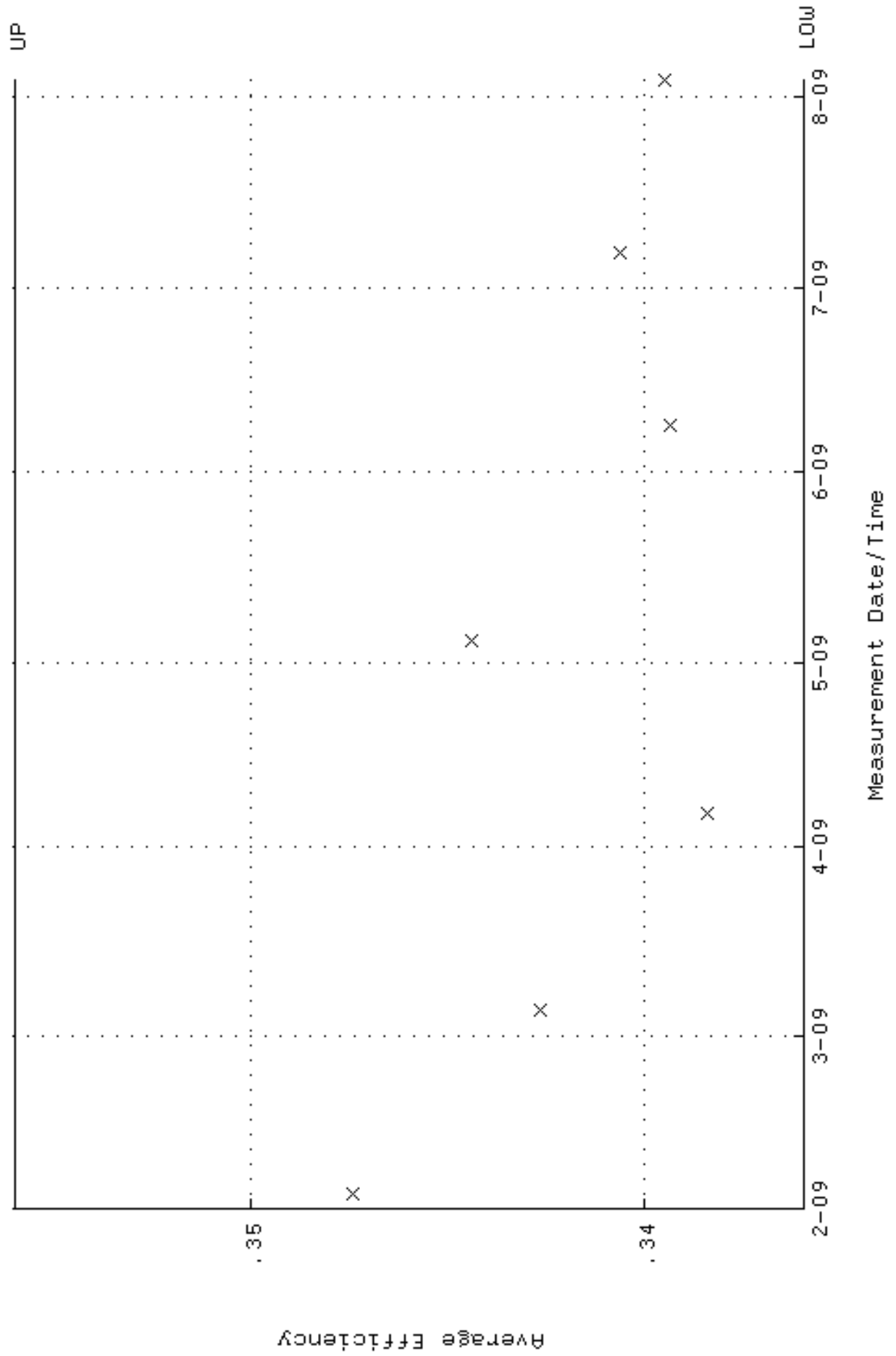
QA filename : DKA100:[ENV\_ALPHA.QA.W]w036.QAF;2  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 4-FEB-2009 07:05:57 through 3-AUG-2009 12:00:00  
Lower/Upper Lmts: 84.6422 through 93.5518



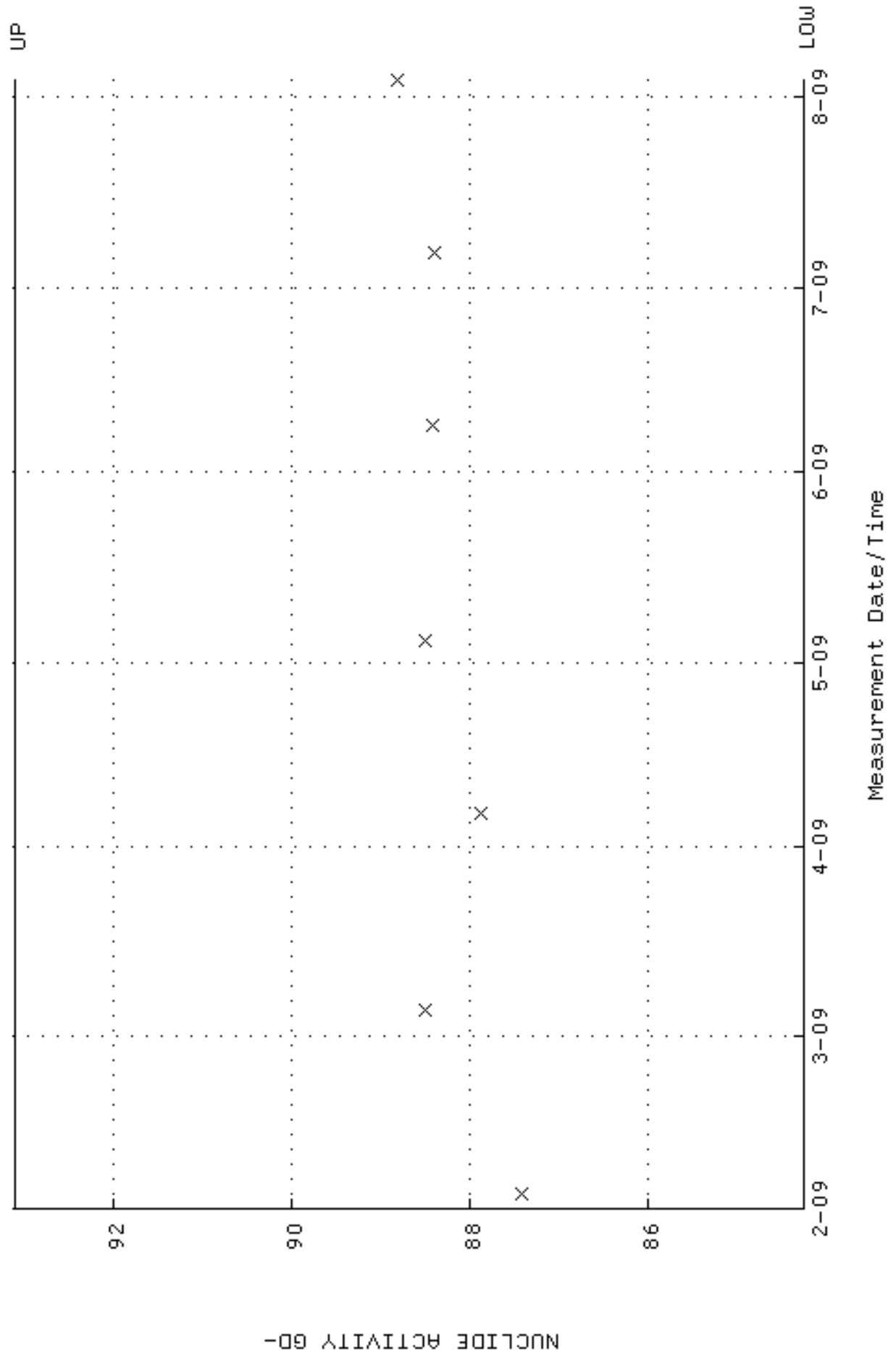
QA filename : DKA100:[ENV\_ALPHA.QA.B]B036.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:00 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]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

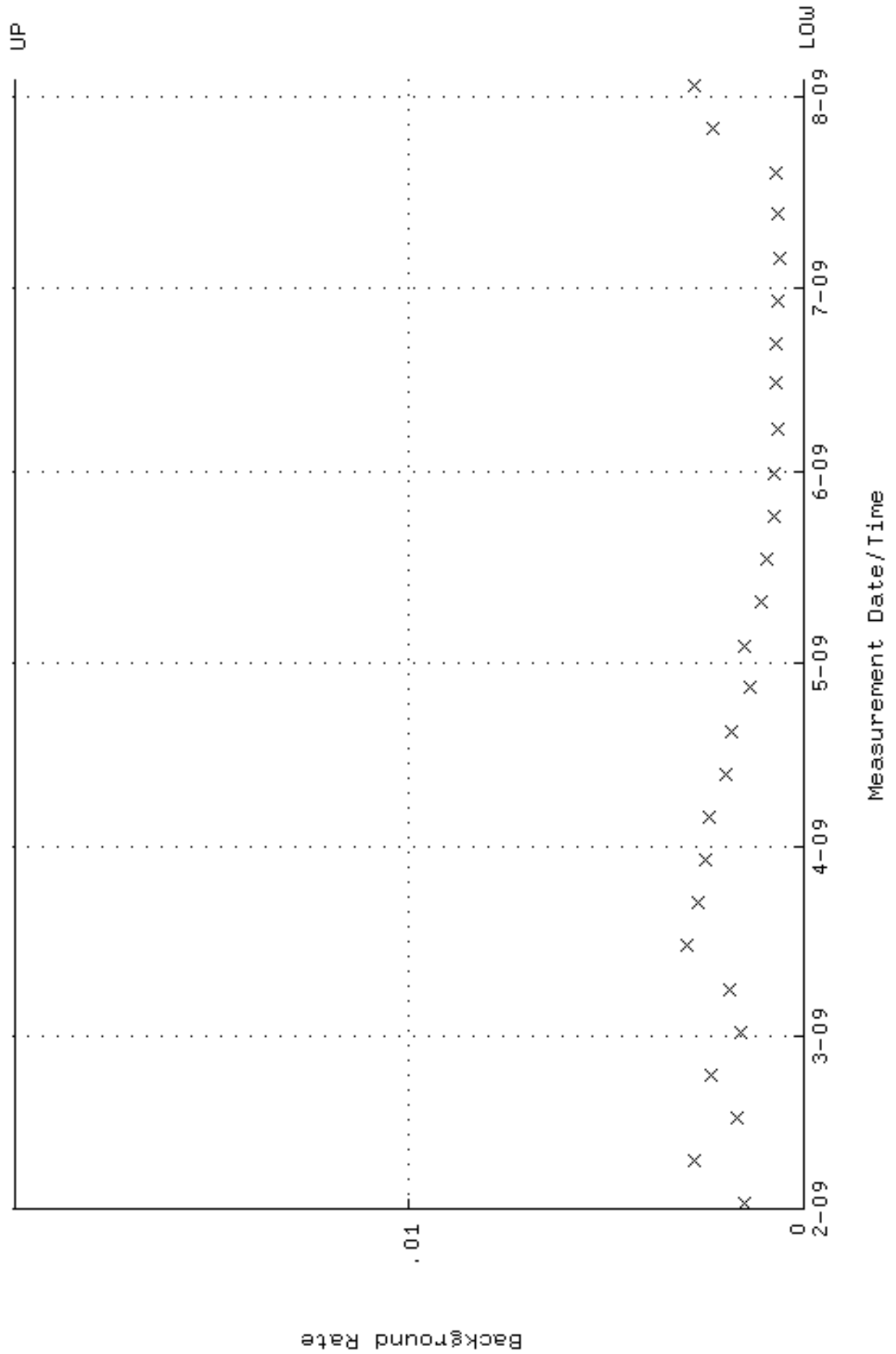


QA filename : DKA100:[ENV\_ALPHA.QA.W]W043.QAF;102  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:12:05 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.2440 through 93.1118

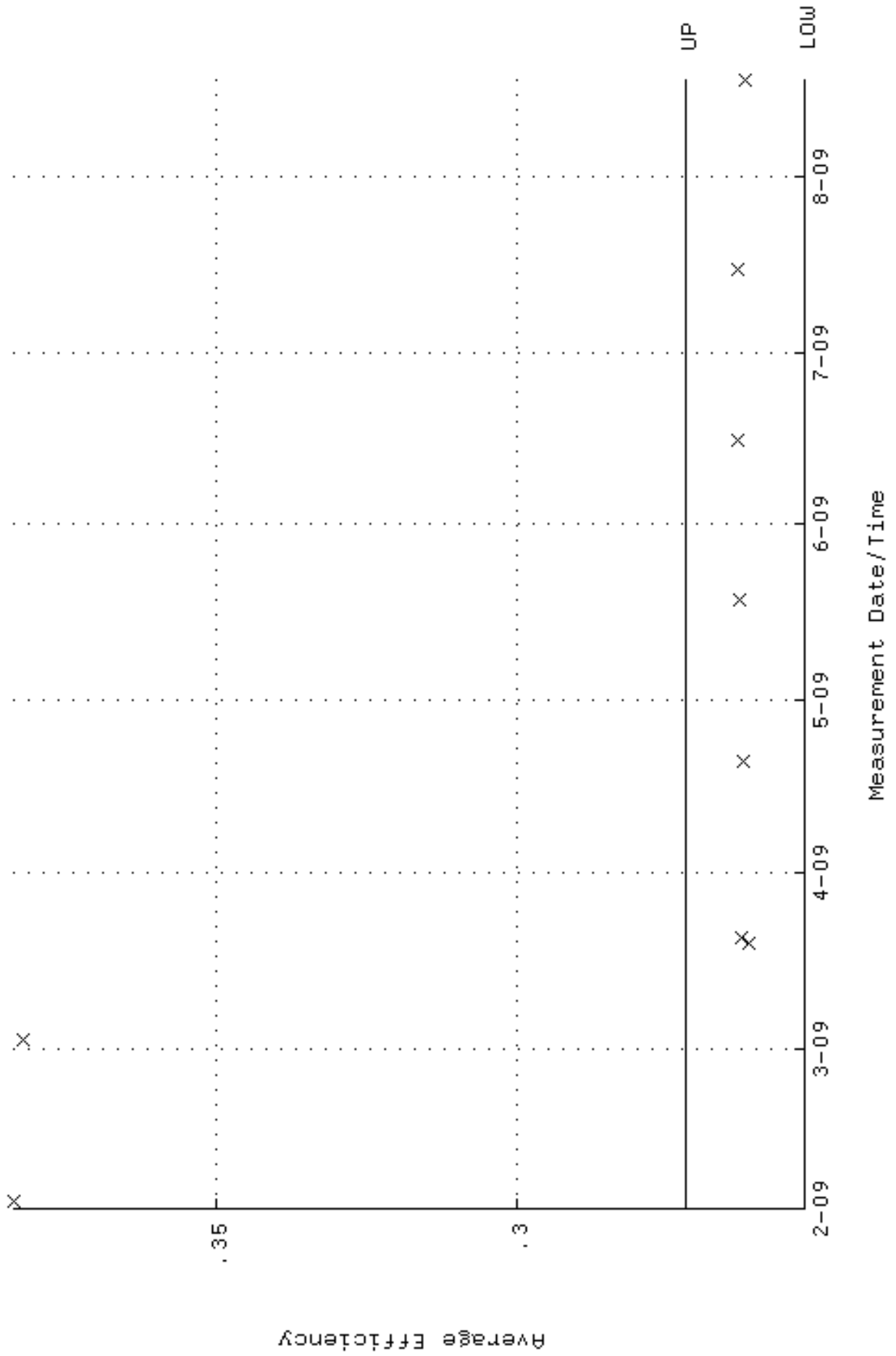




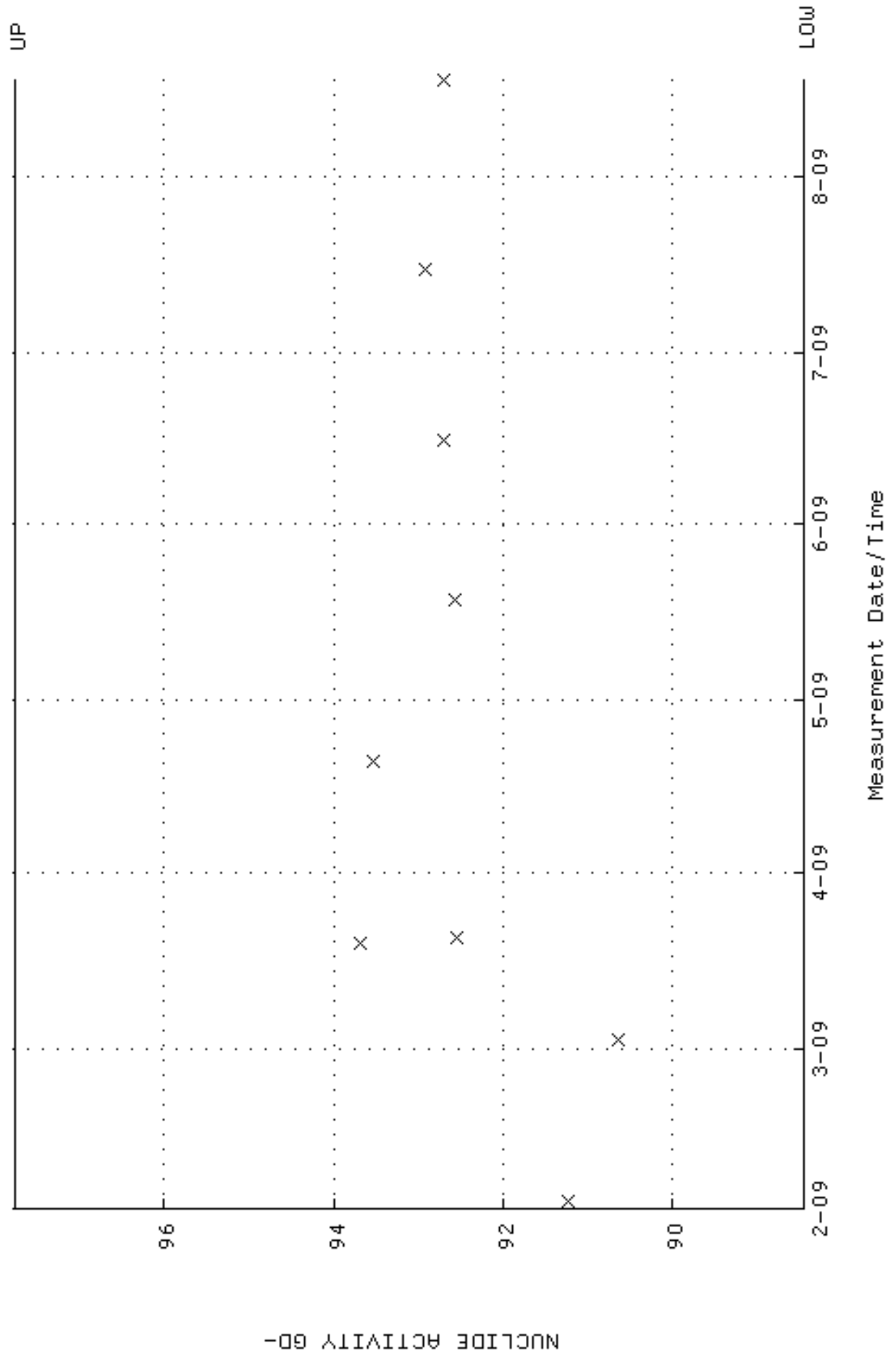
QA filename : DKA100:[ENV\_ALPHA.QA.B]B043.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 20:05:04 through 3-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



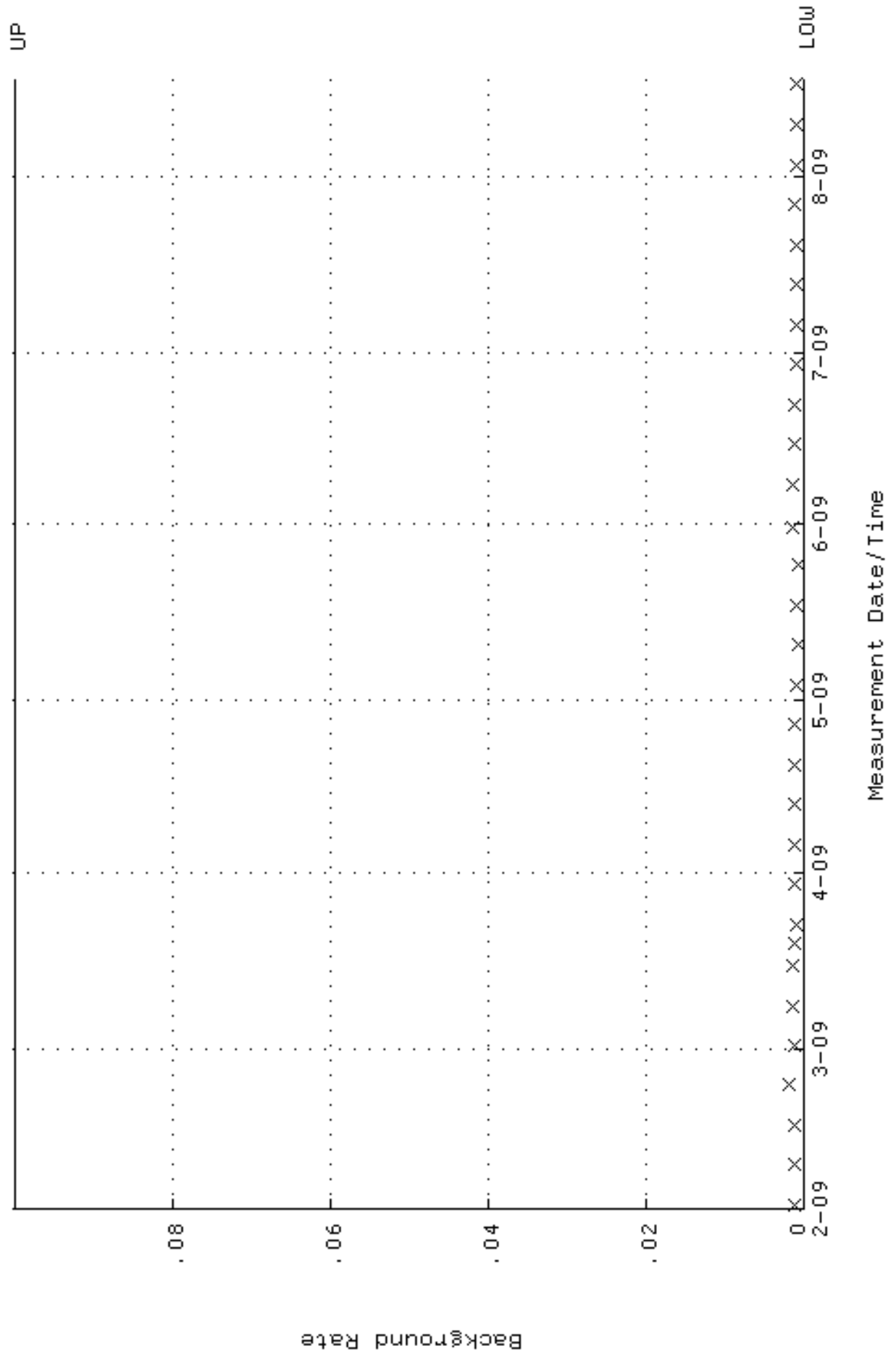
QA filename : DKA100:[ENV\_ALPHA.QA.W]W116.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:31:25 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.251950 through 0.271950



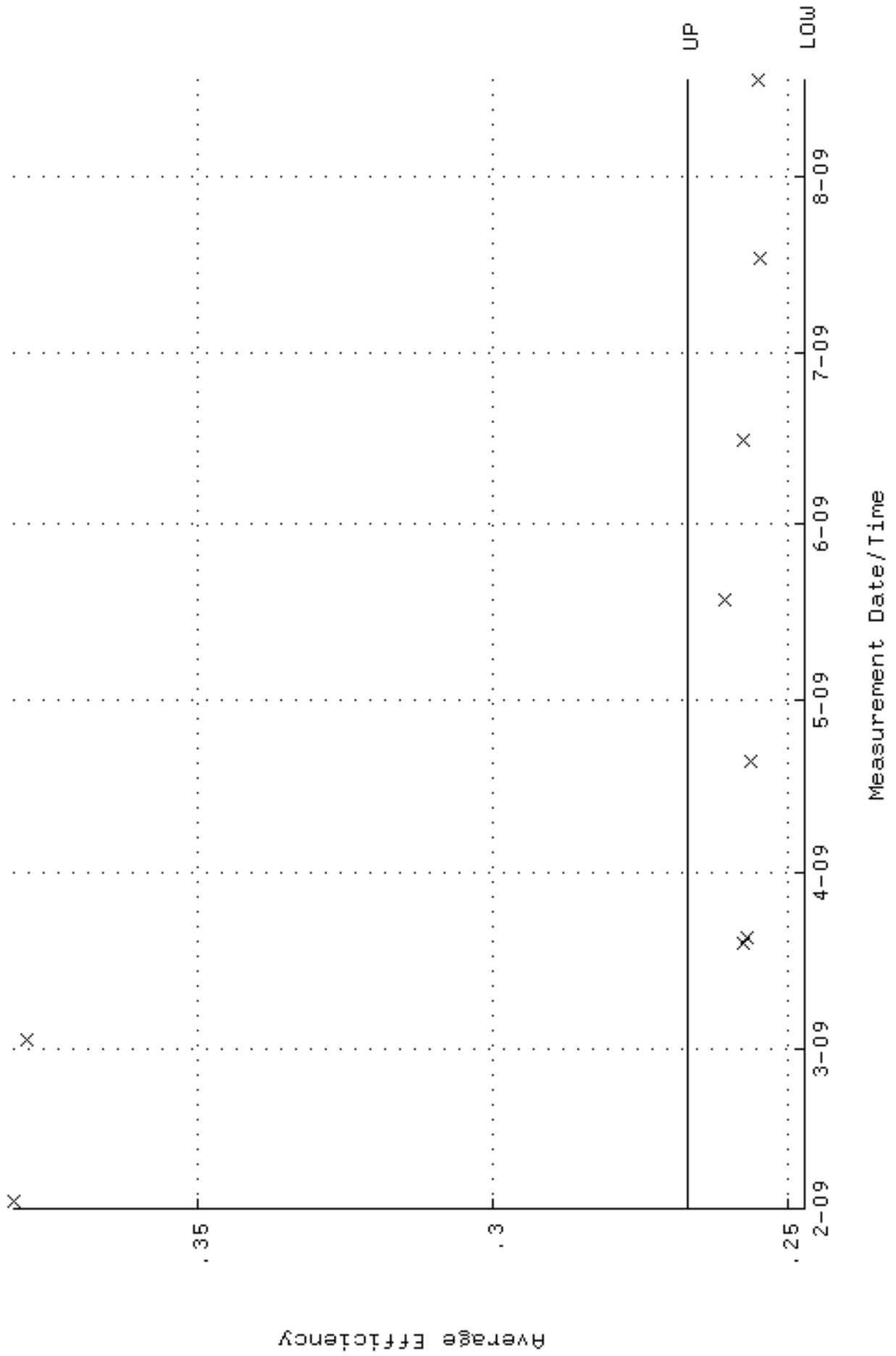
QA filename : DKA100:[ENV\_ALPHA.QA.W]w116.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:31:25 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 88.4515 through 97.7621



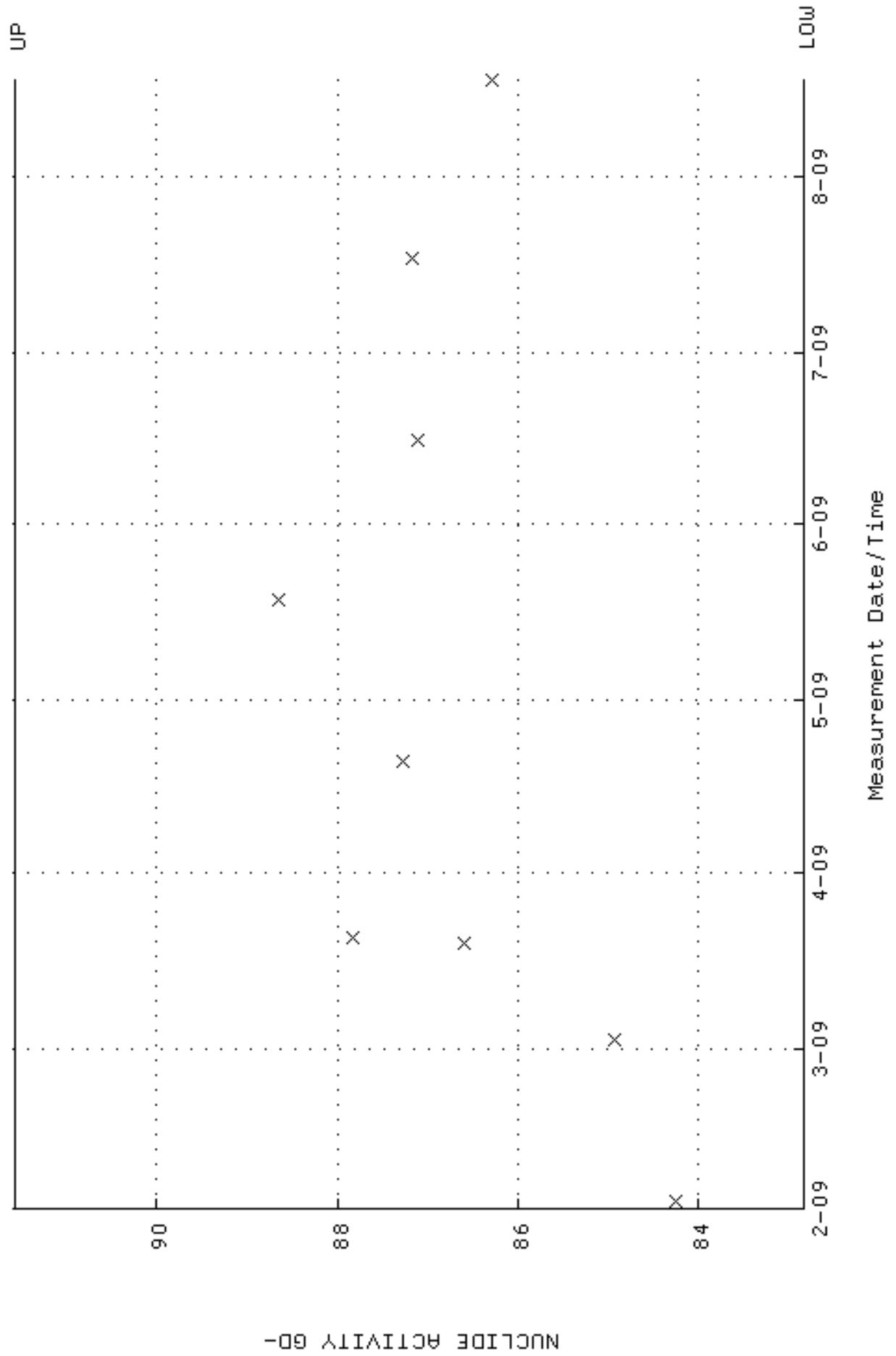
QA filename : DKA100:[ENV\_ALPHA.QA.B]B116.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:01:01 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



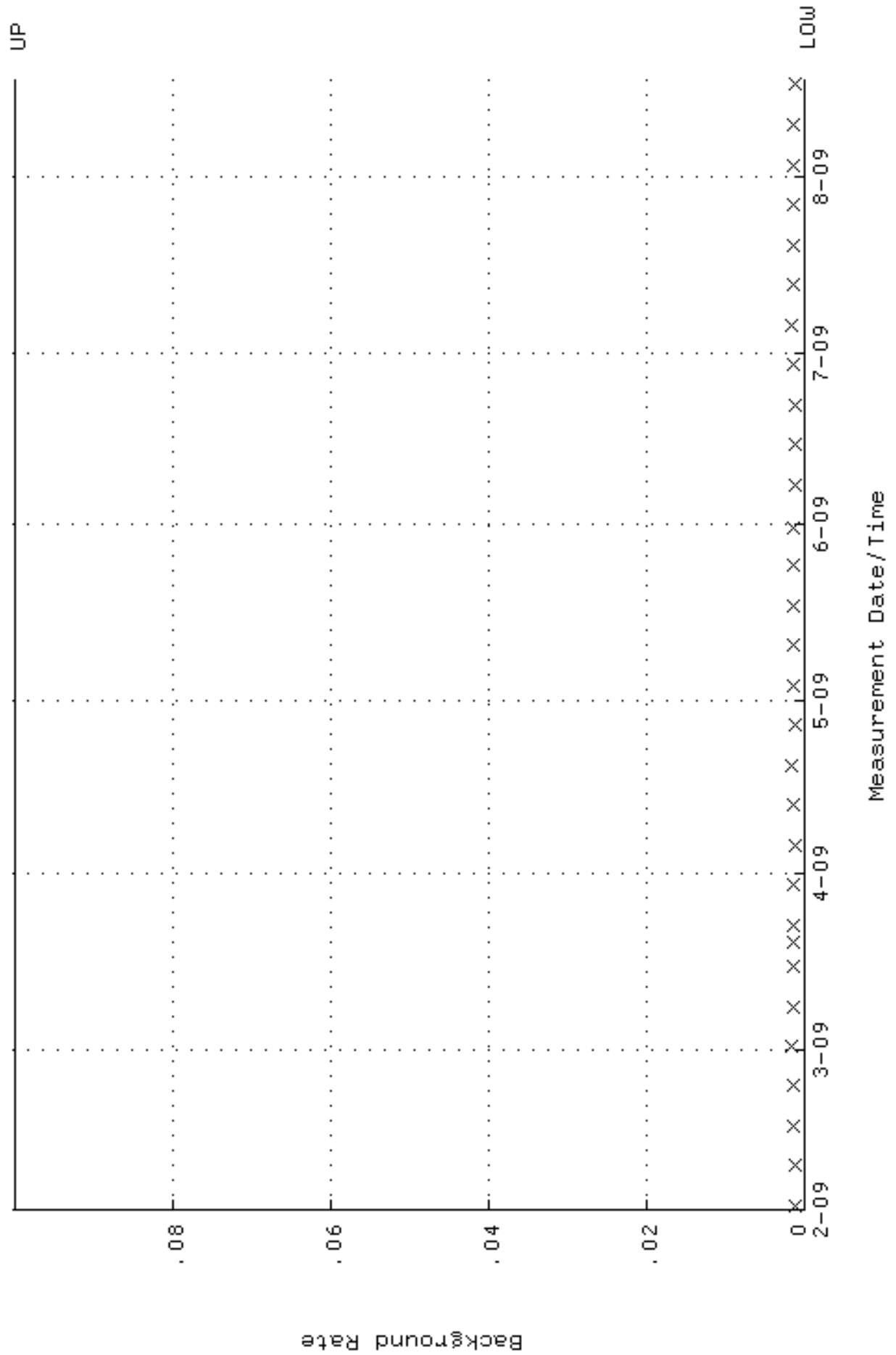
QA filename : DKA100:[ENV\_ALPHA.QA.W]W138.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:34:01 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.247085 through 0.267085



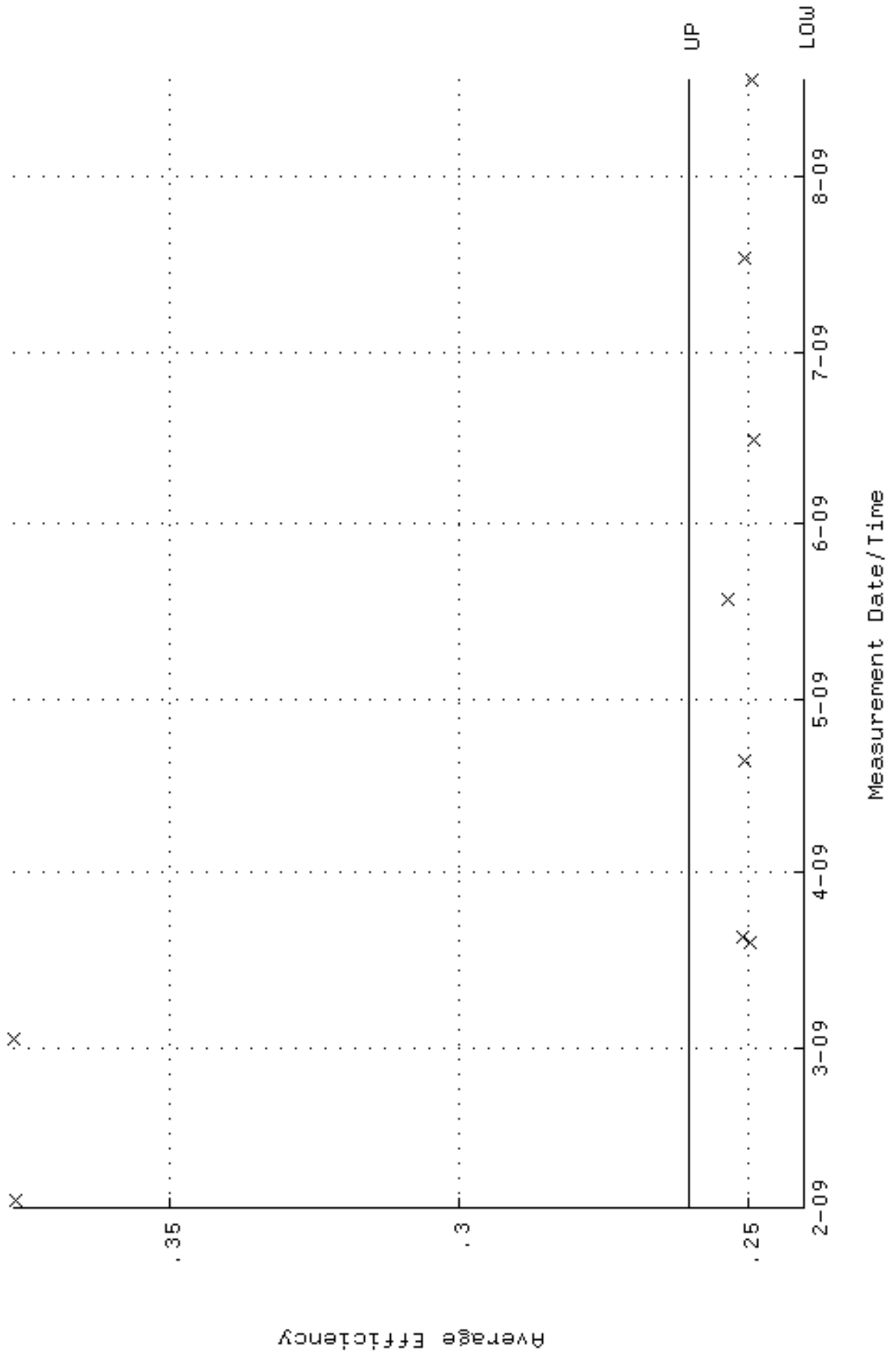
QA filename : DKA100:[ENV\_ALPHA.QA.W]W138.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:34:01 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 82.8399 through 91.5599



QA filename : DKA100:[ENV\_ALPHA.QA.B]B138.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:06:20 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

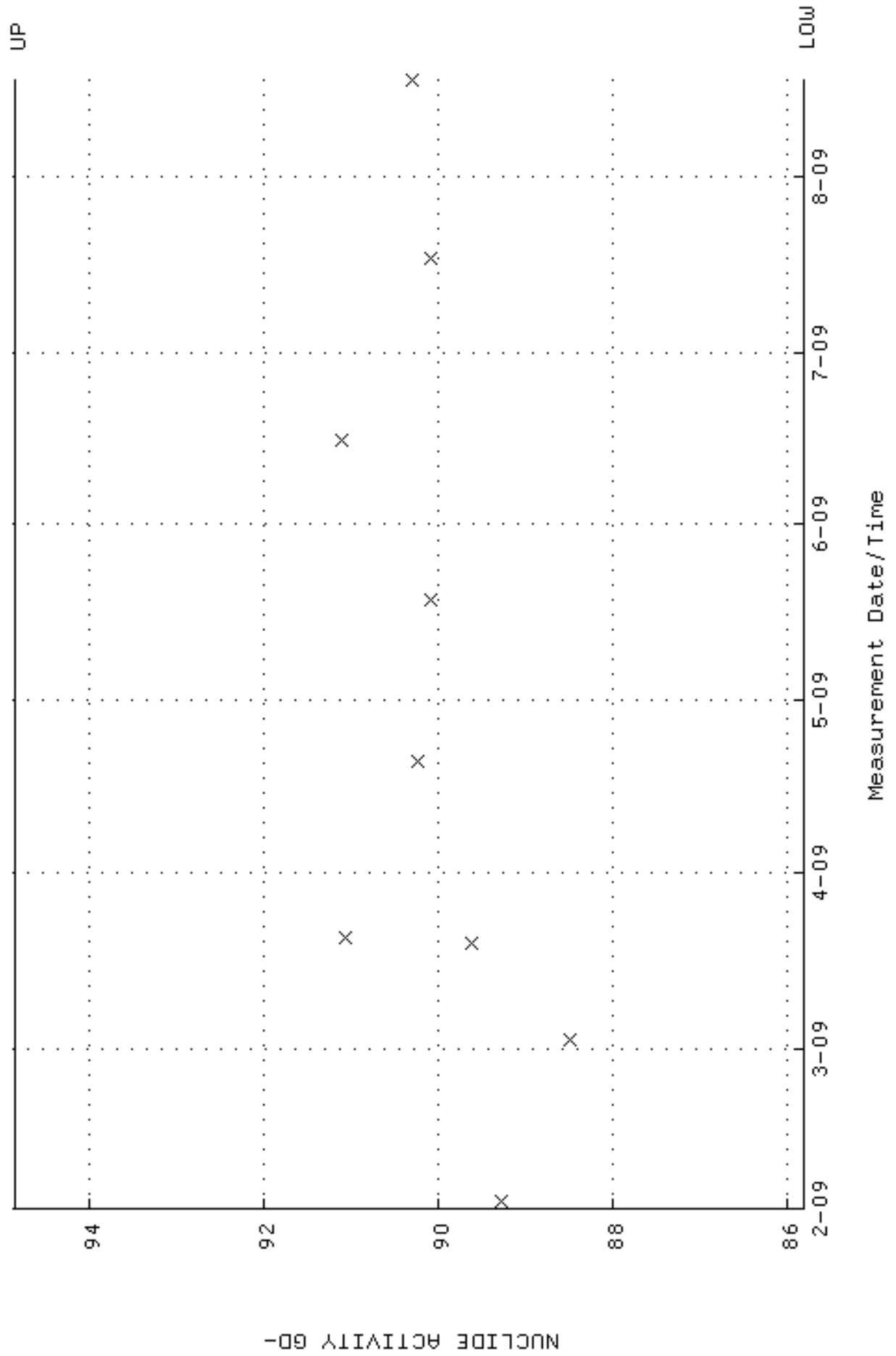


QA filename : DKA100:[ENV\_ALPHA.QA.W]W139.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:34:08 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.240299 through 0.260299

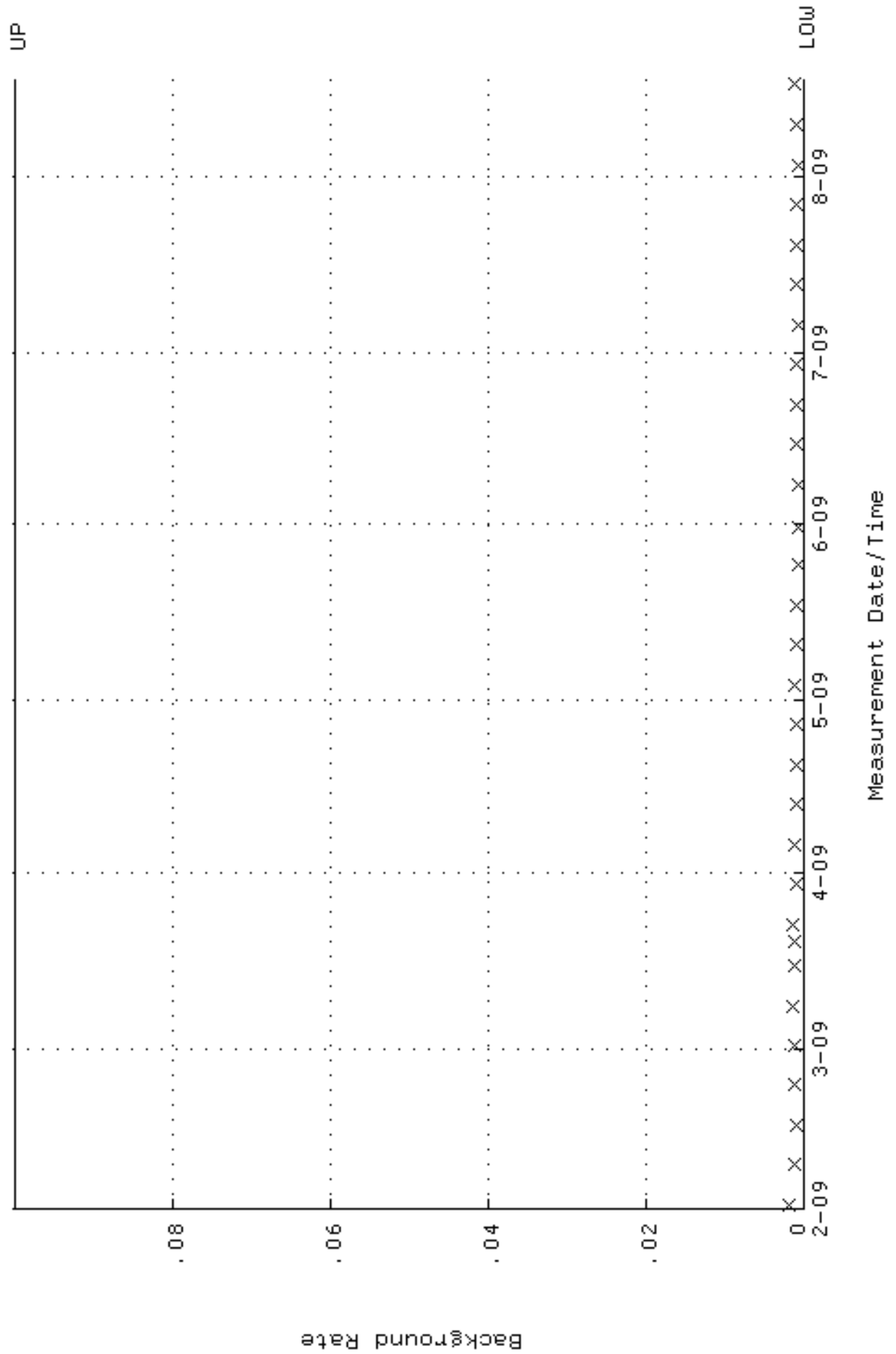




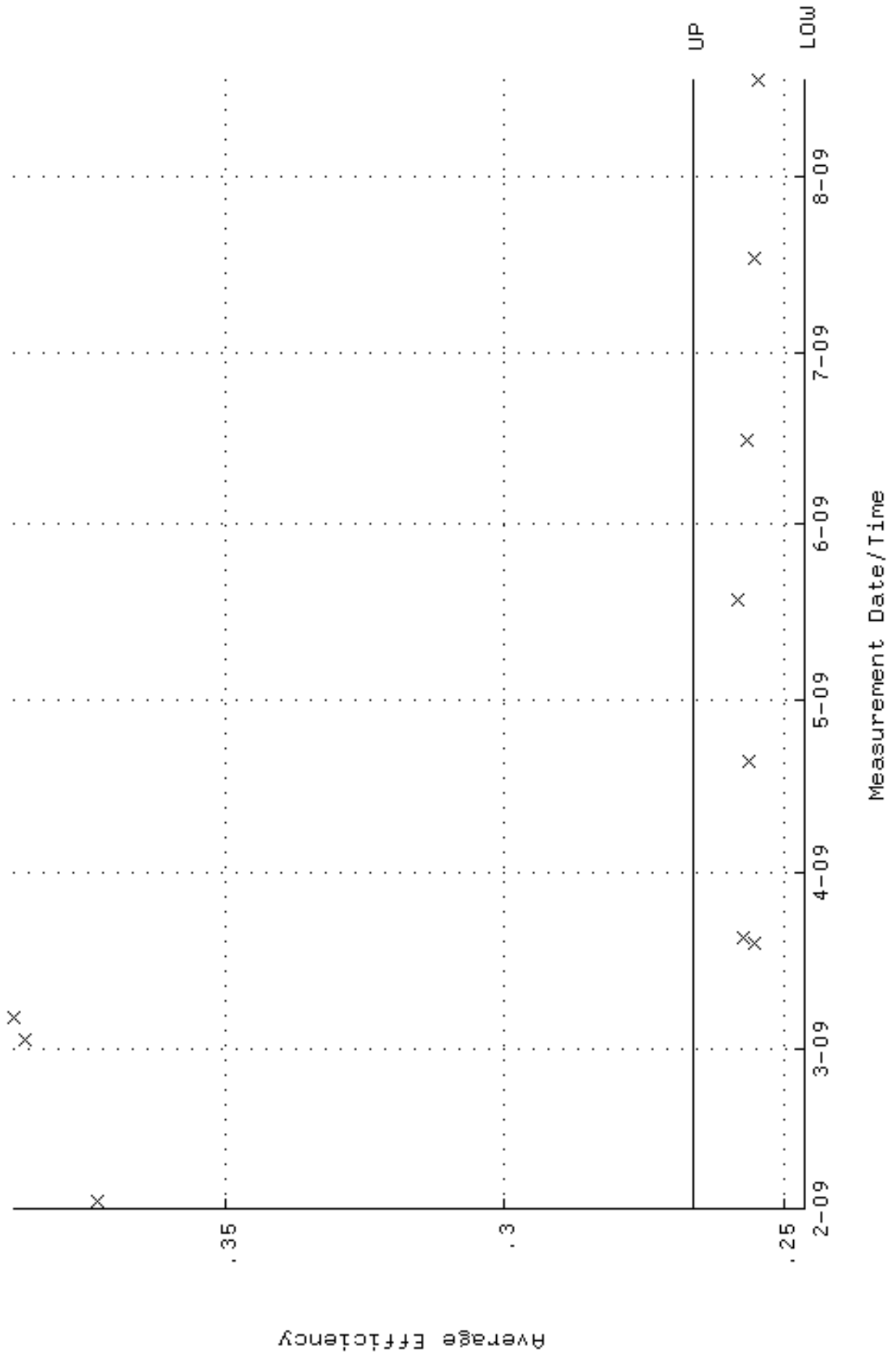
QA filename : DKA100:[ENV\_ALPHA.QA.W]W139.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:34:08 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.8145 through 94.8477



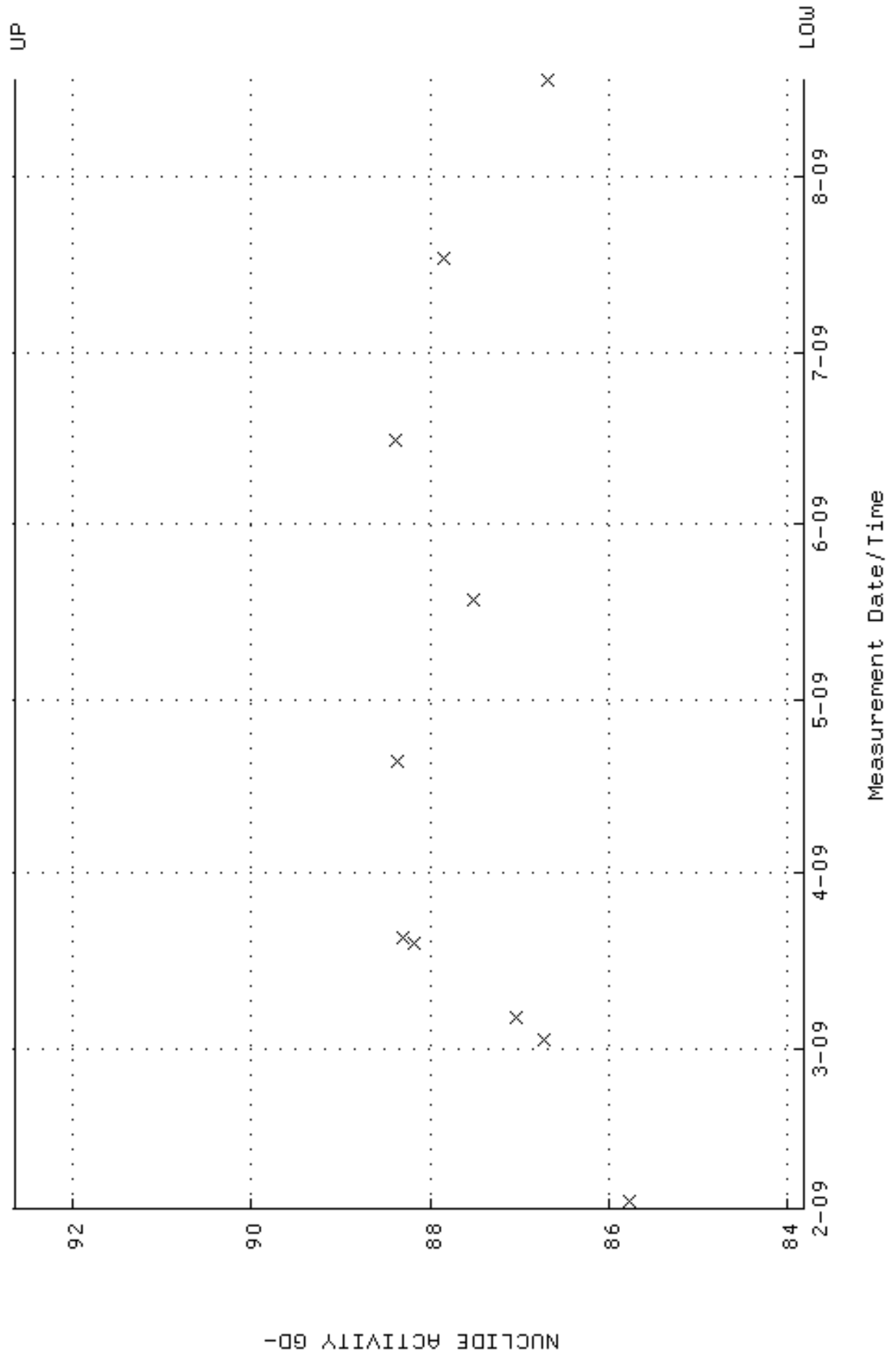
QA filename : DKA100:[ENV\_ALPHA.QA.B]B139.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:06:33 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



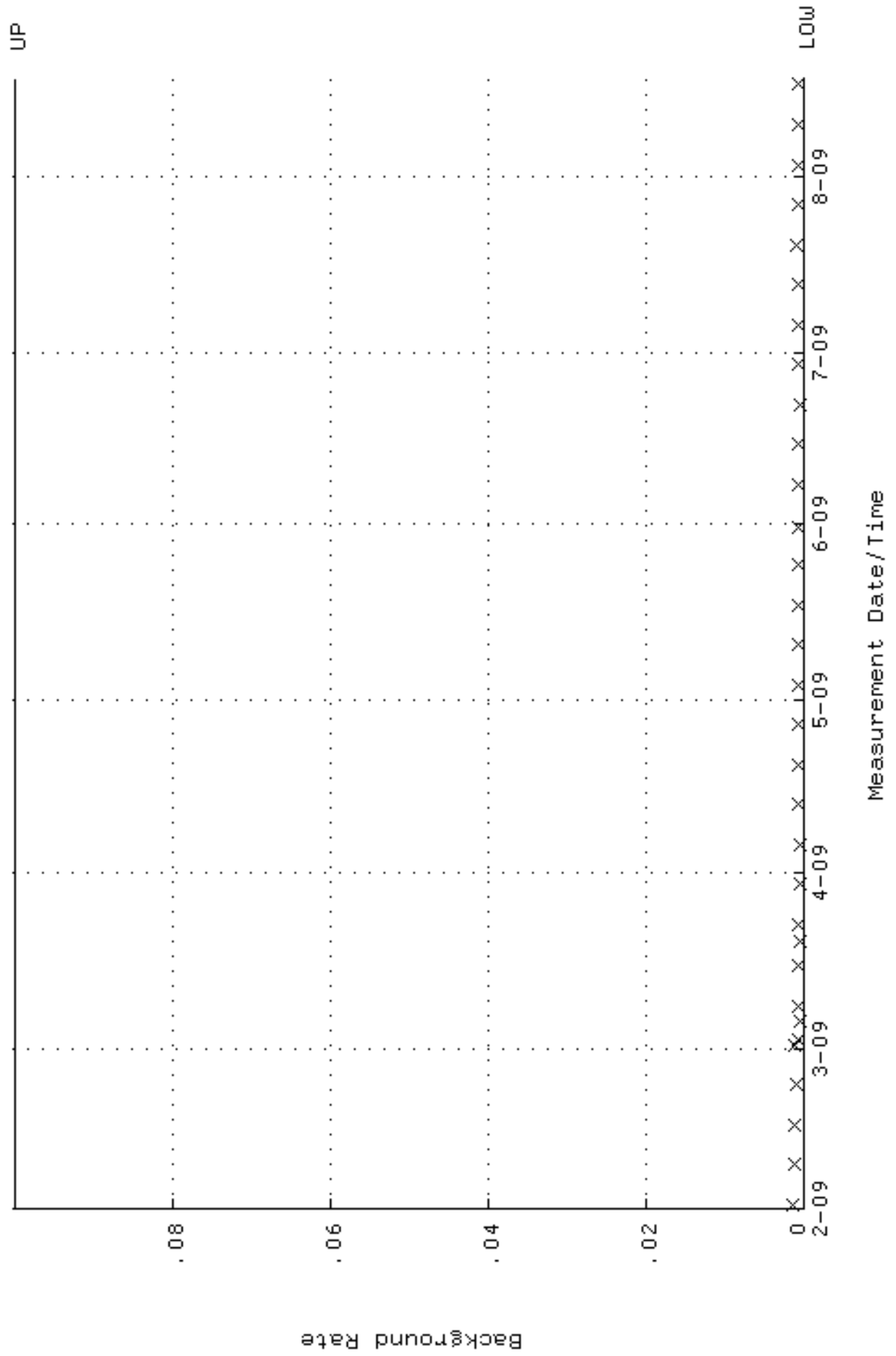
QA filename : DKA100:[ENV\_ALPHA.QA.W]W140.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:34:15 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.246178 through 0.266178



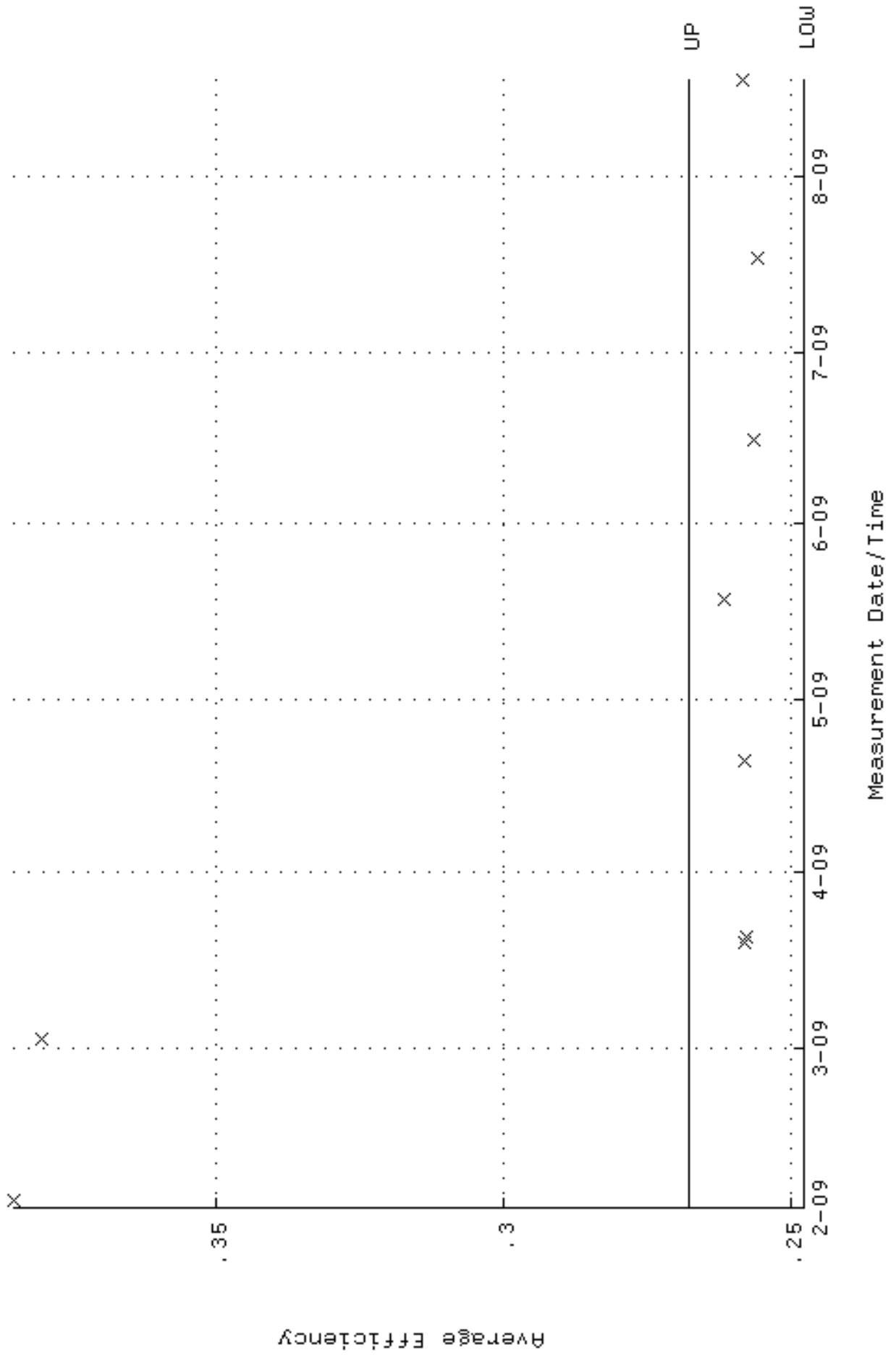
QA filename : DKA100:[ENV\_ALPHA.QA.W]W140.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:34:15 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 83.8171 through 92.6399



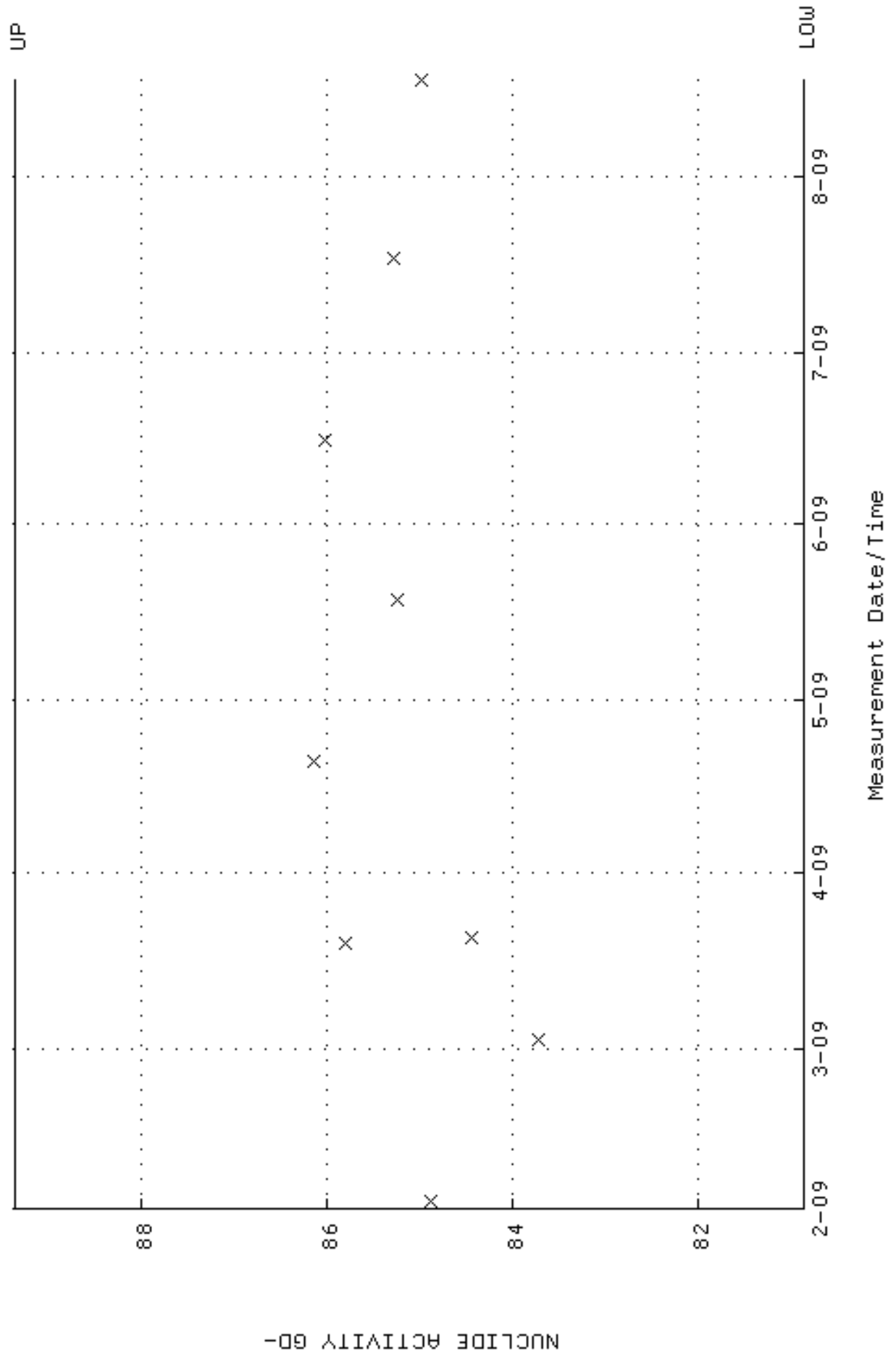
QA filename : DKA100:[ENV\_ALPHA.QA.B]B140.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:06:49 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



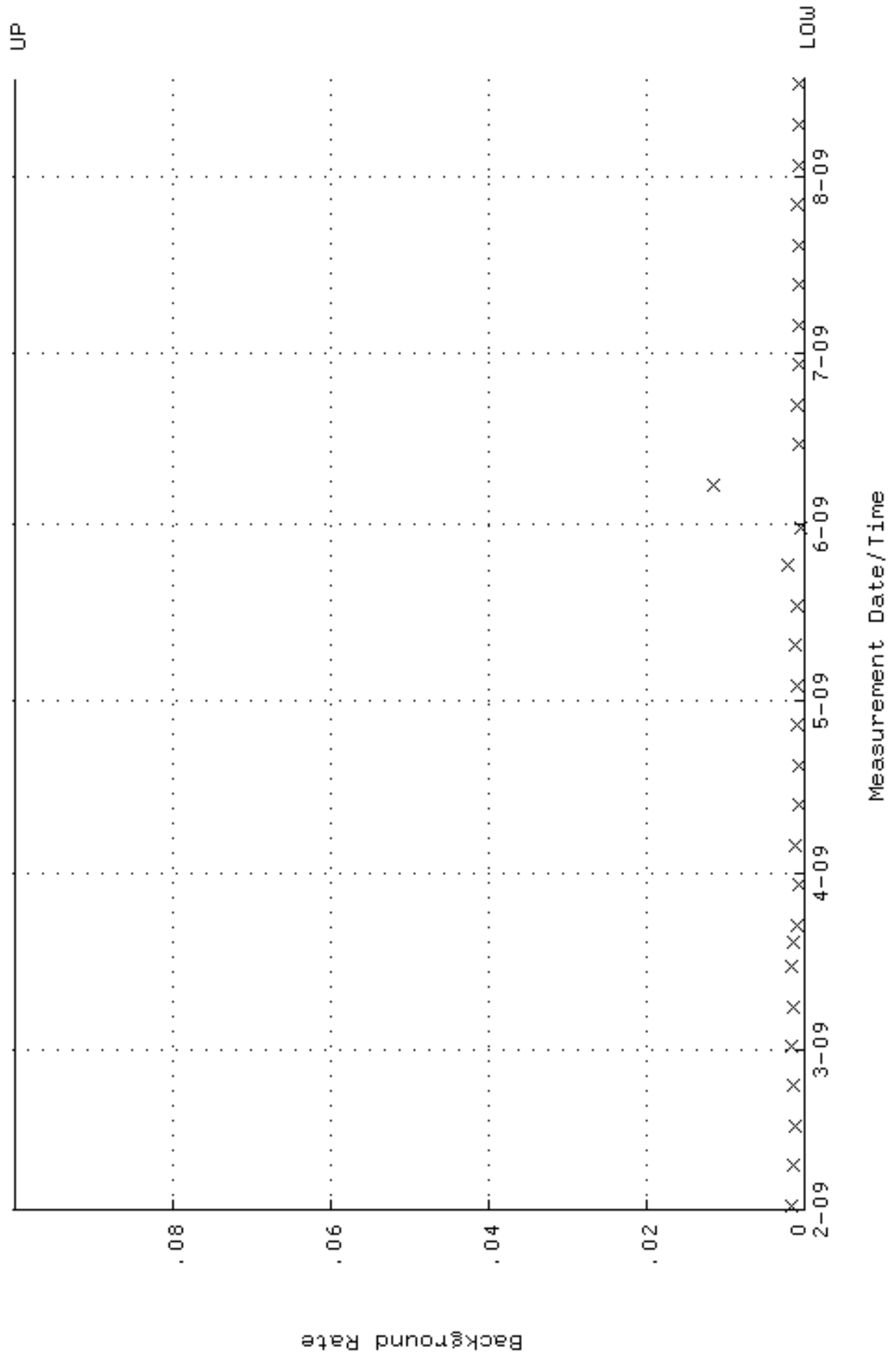
QA filename : DKA100:[ENV\_ALPHA.QA.W]W141.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:34:22 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.247845 through 0.267845



QA filename : DKA100:[ENV\_ALPHA.QA.W]w141.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:34:22 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 80.8595 through 89.3711

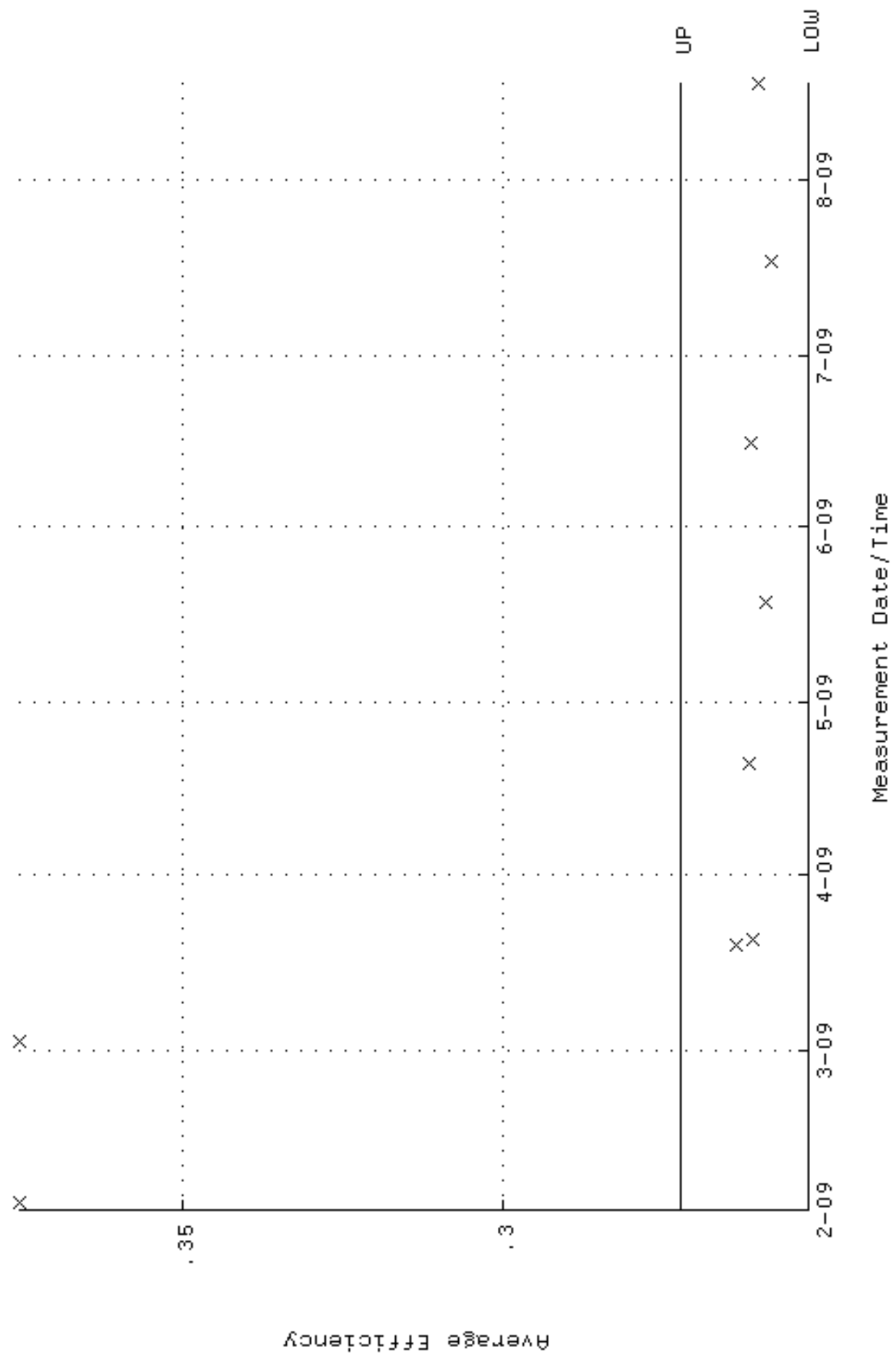


QA filename : DKA100:[ENV\_ALPHA.QA.B]B141.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:07:06 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

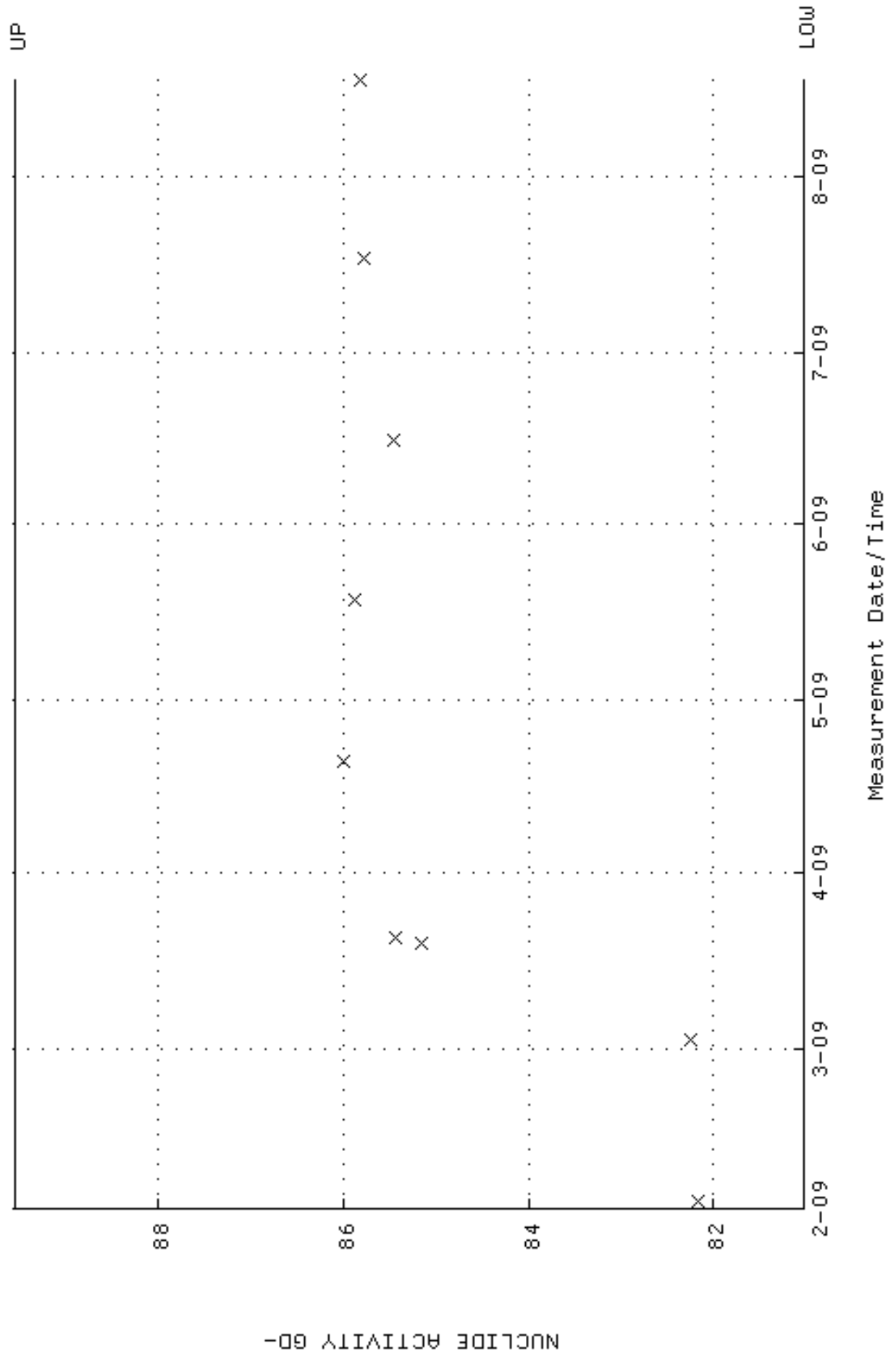




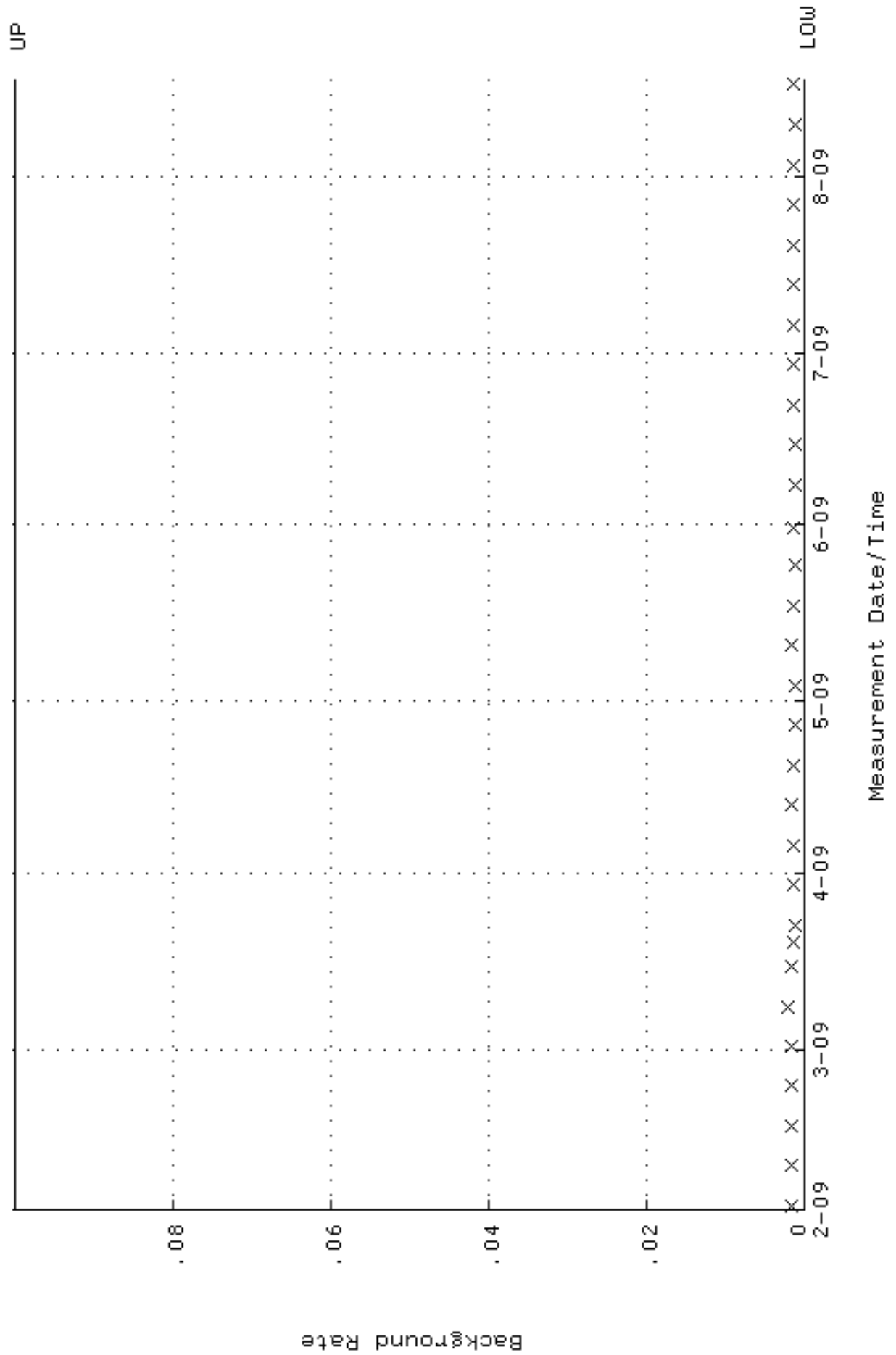
QA filename : DKA100:[ENV\_ALPHA.QA.W]W142.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:34:29 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.252182 through 0.272182



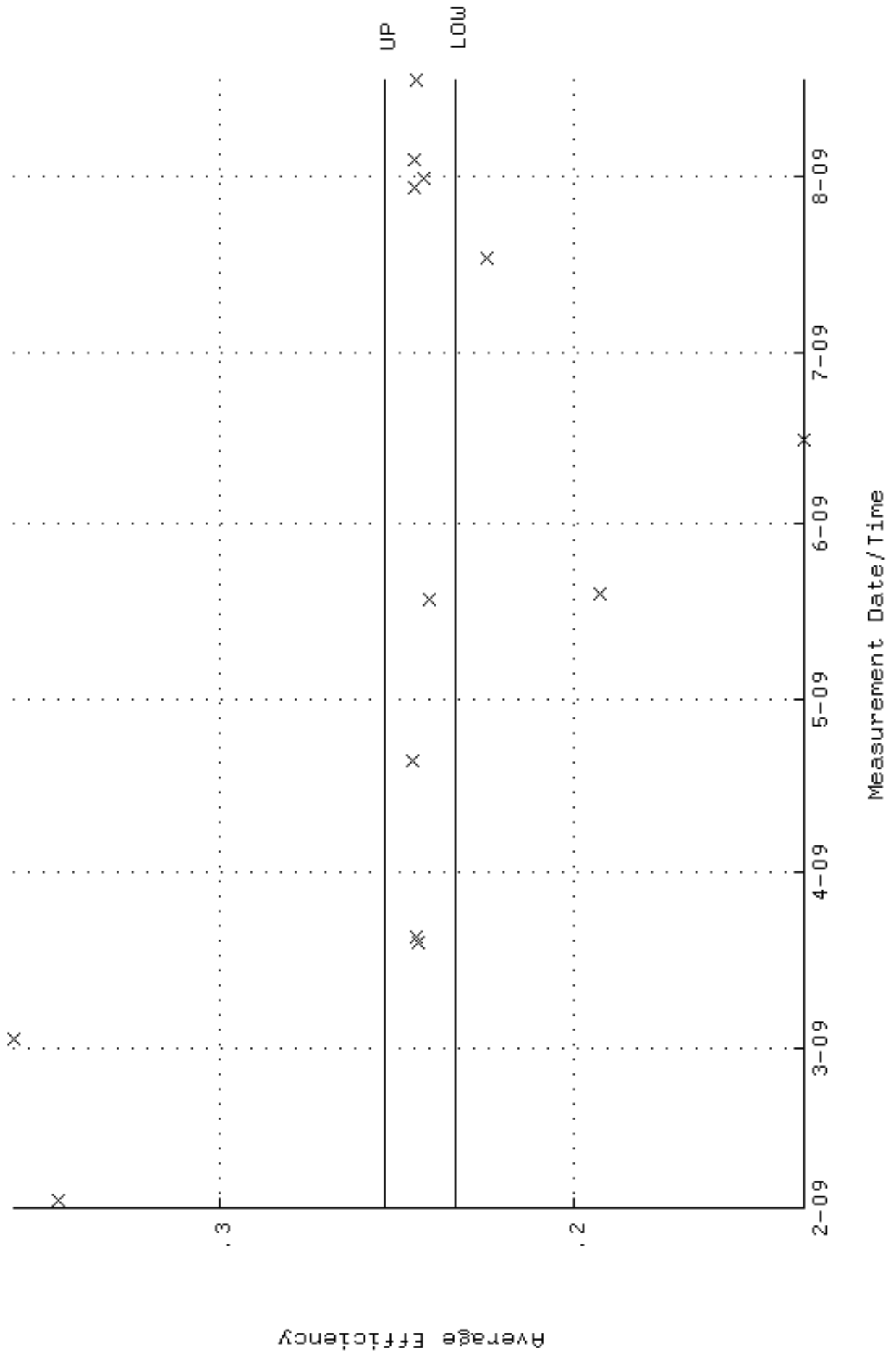
QA filename : DKA100:[ENV\_ALPHA.QA.W]W142.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:34:29 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 81.0245 through 89.5533



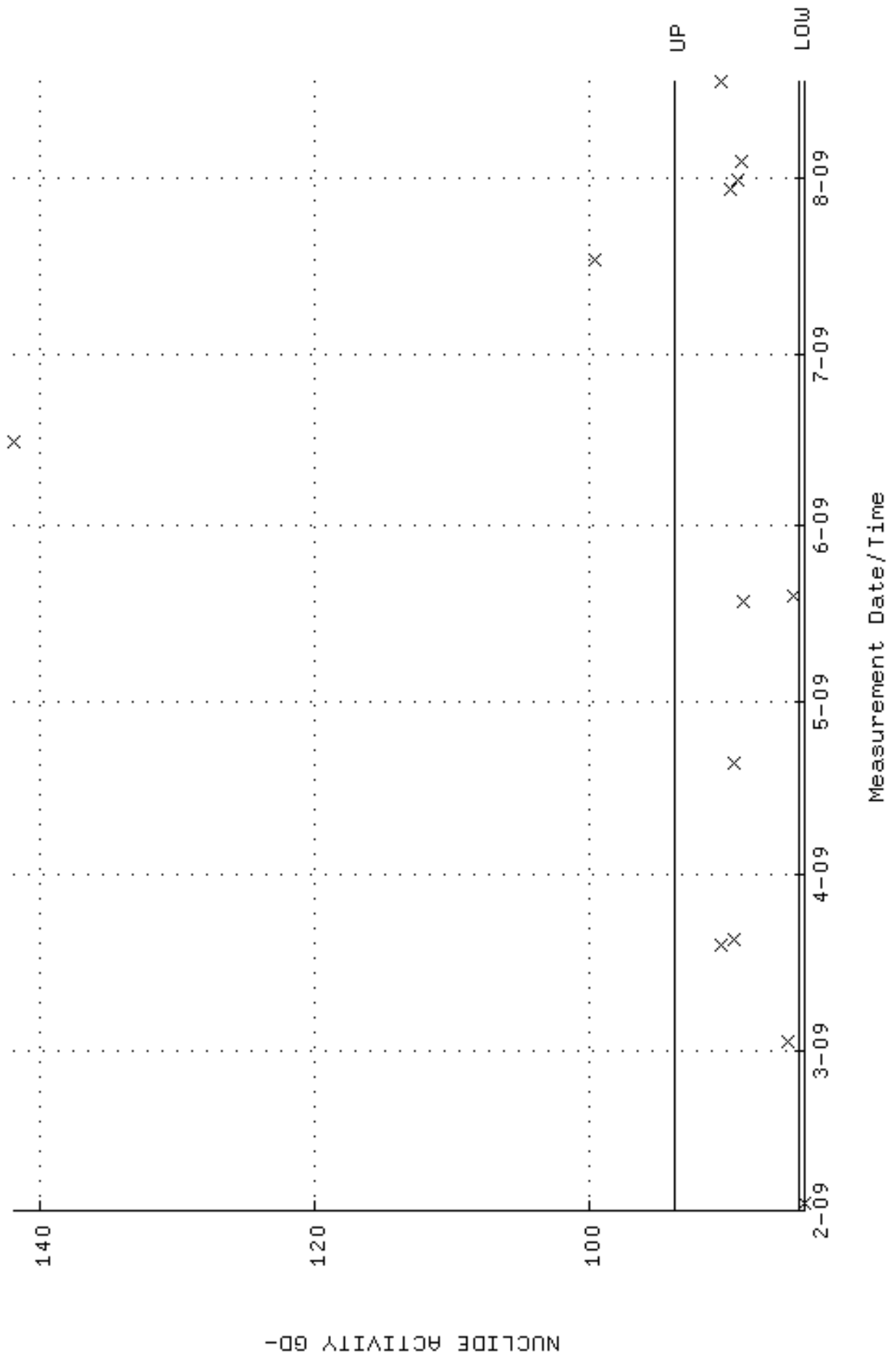
QA filename : DKA100:[ENV\_ALPHA.QA.B]B142.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:07:16 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



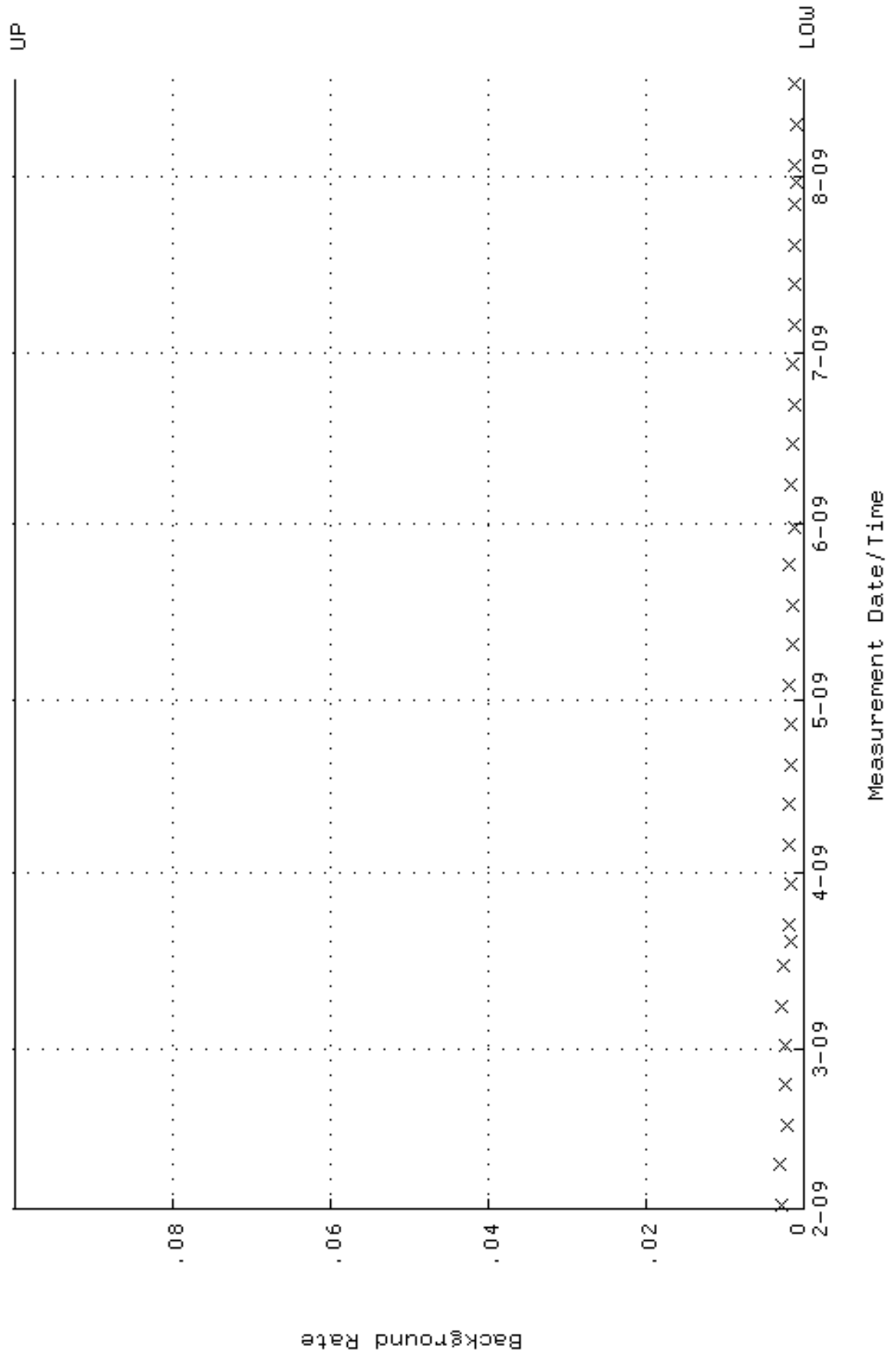
QA filename : DKA100:[ENV\_ALPHA.QA.W]W143.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:34:35 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.233879 through 0.253879



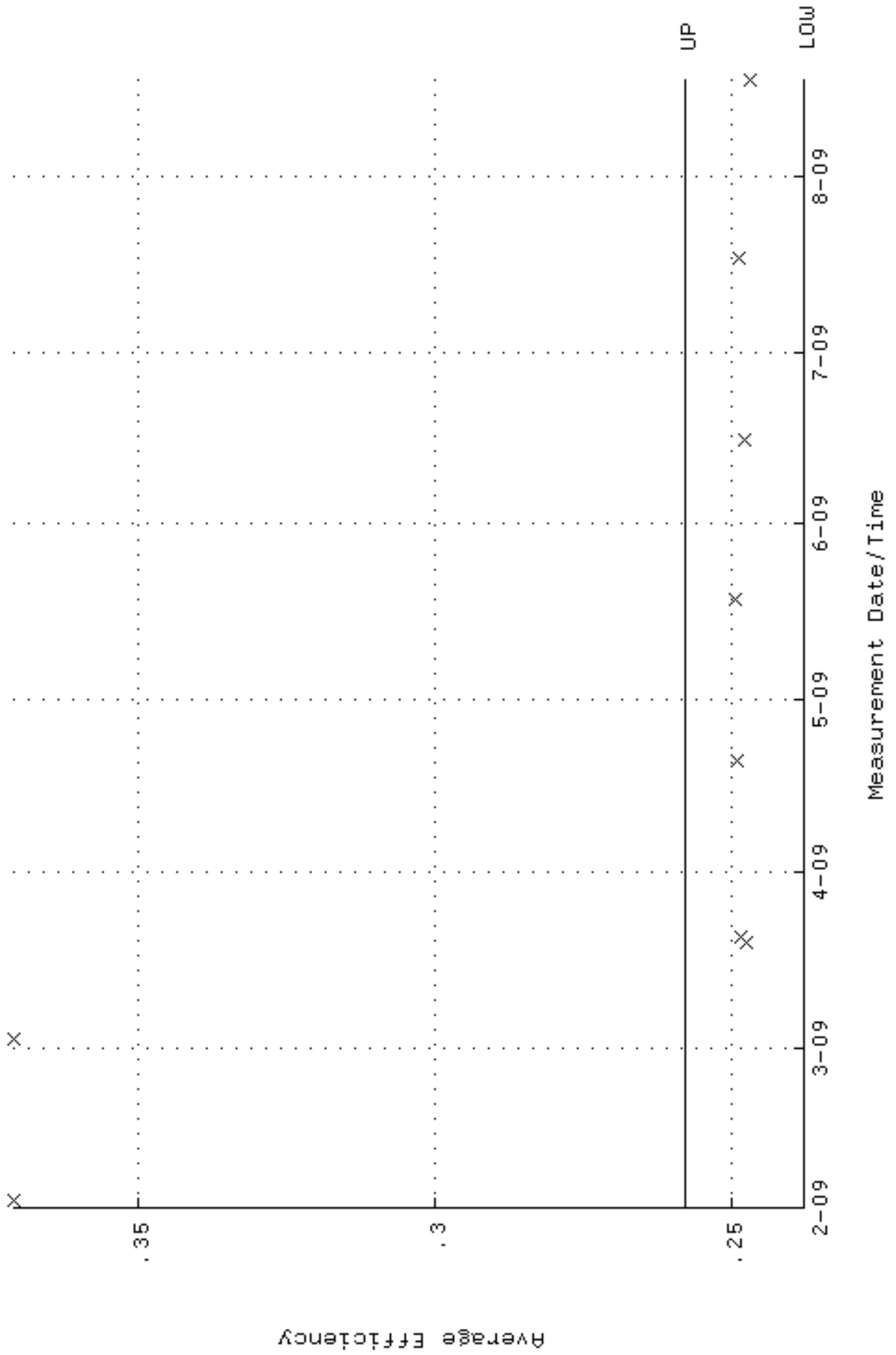
QA filename : DKA100:[ENV\_ALPHA.QA.W]W143.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:34:35 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.9200 through 93.8590



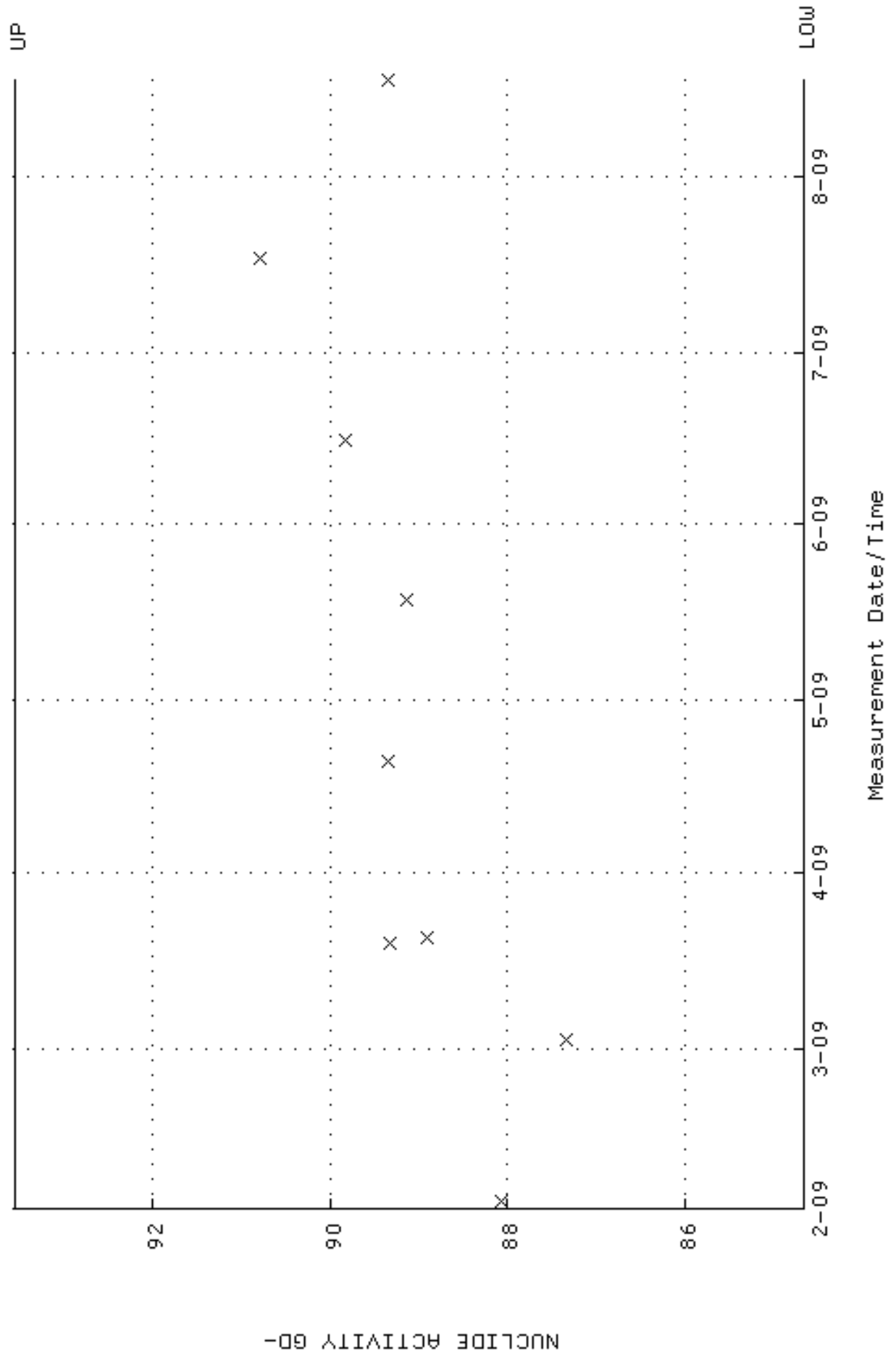
QA filename : DKA100:[ENV\_ALPHA.QA.B]B143.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:07:31 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W144.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:34:43 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.237963 through 0.257963

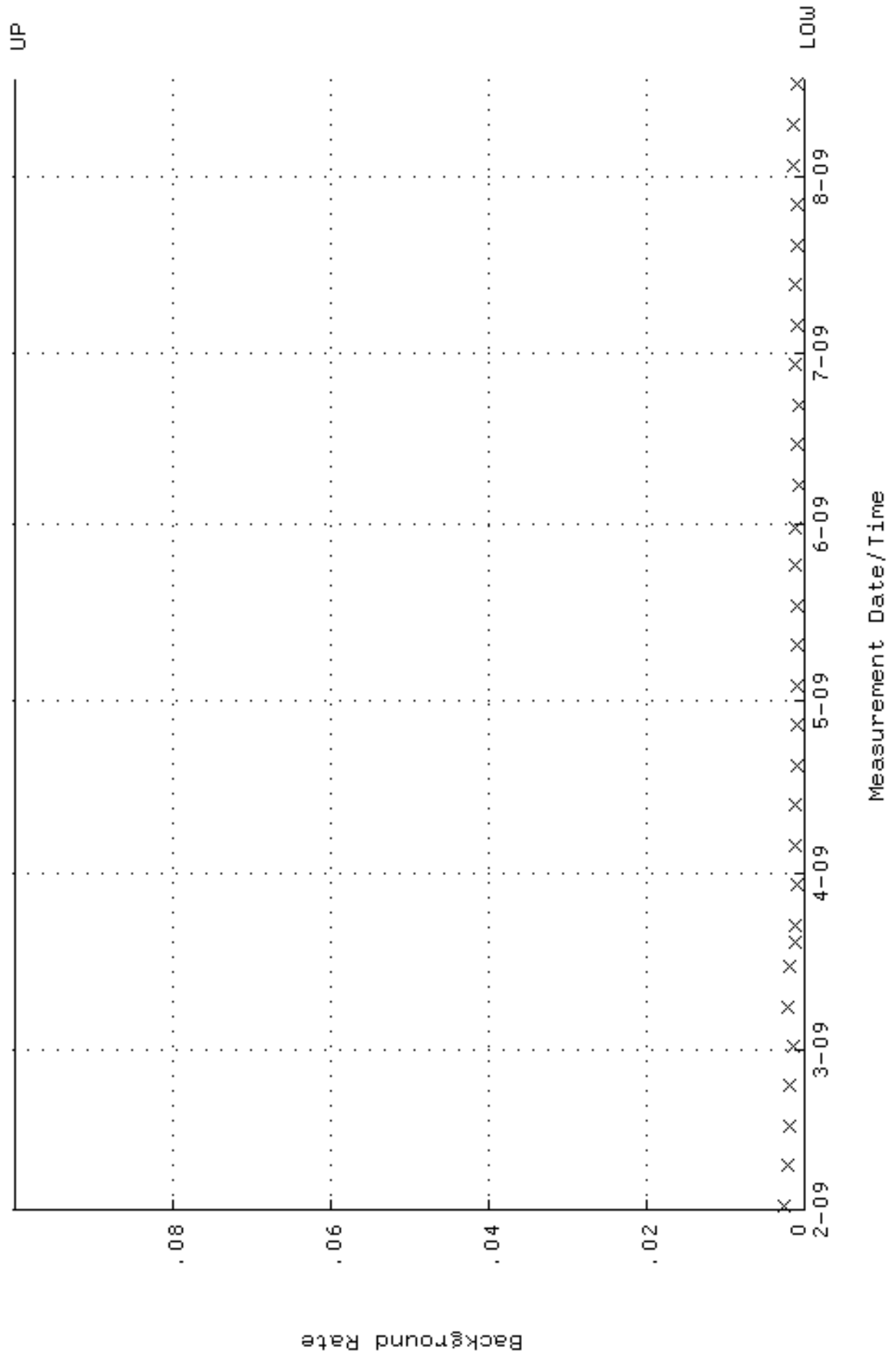


QA filename : DKA100:[ENV\_ALPHA.QA.W]W144.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:34:43 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.6507 through 93.5613

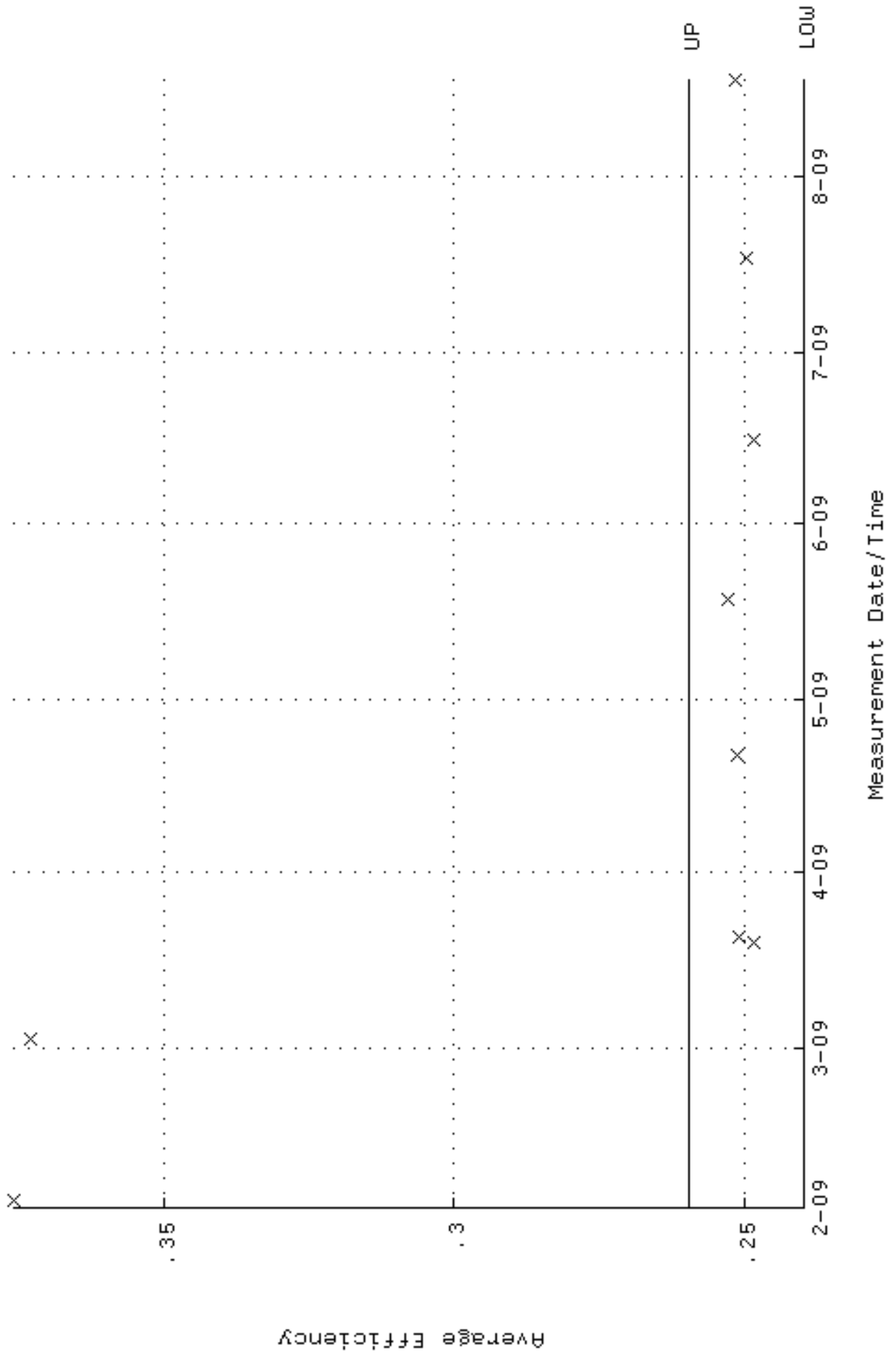




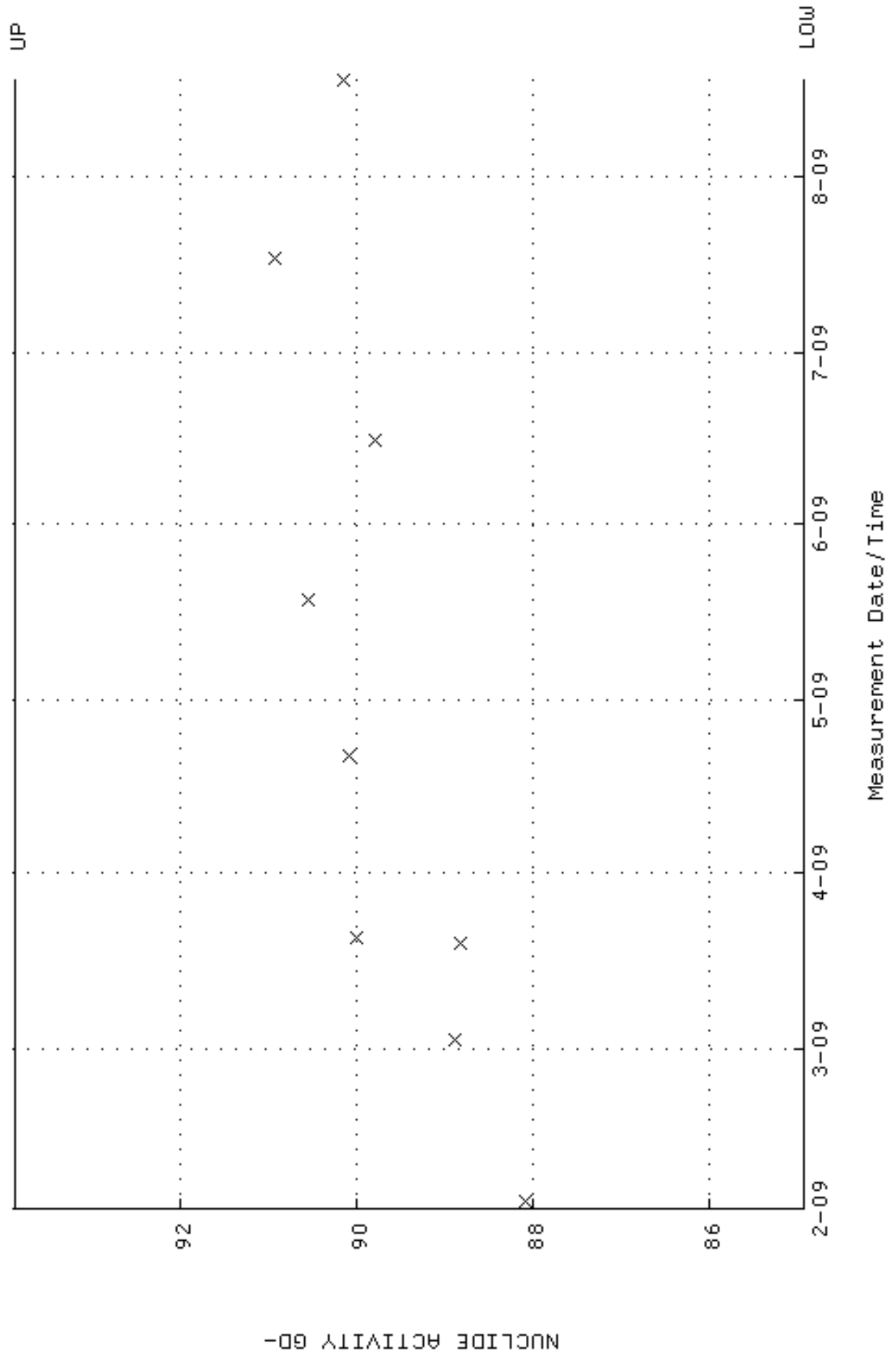
QA filename : DKA100:[ENV\_ALPHA.QA.B]B144.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:07:46 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



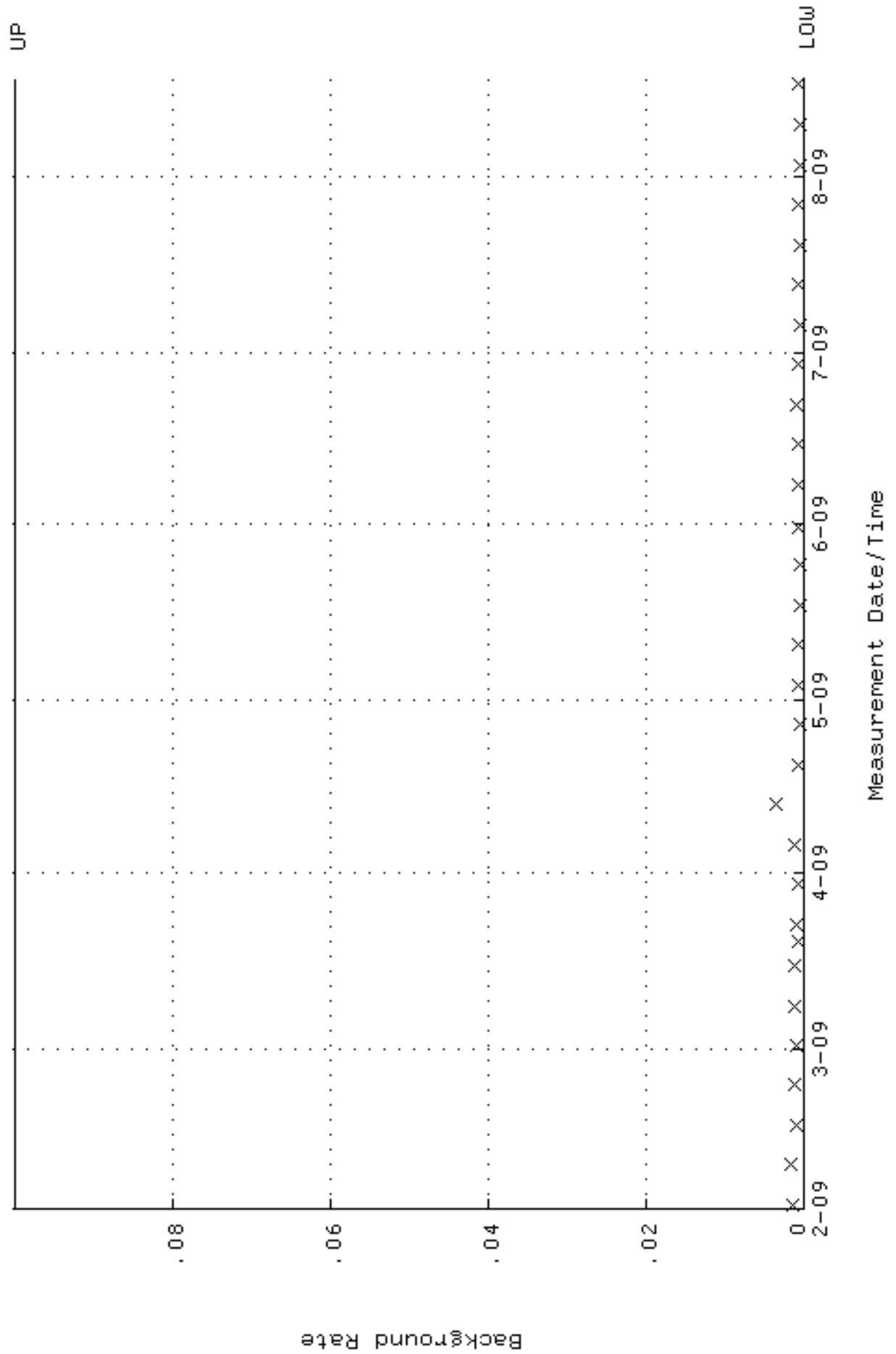
QA filename : DKA100:[ENV\_ALPHA.QA.W]W145.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:34:48 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.239850 through 0.259850



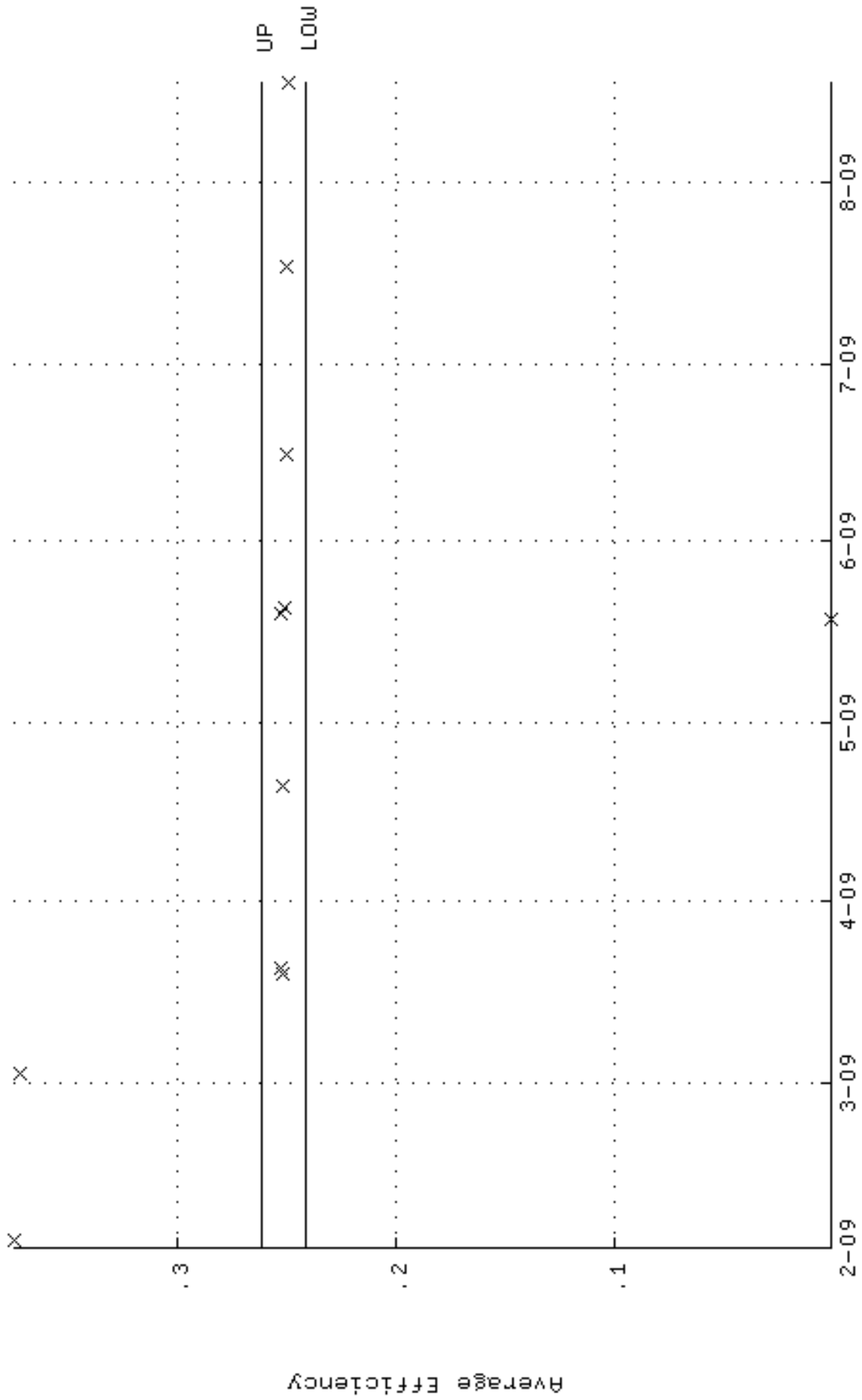
QA filename : DKA100:[ENV\_ALPHA.QA.W]W145.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:34:48 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.9354 through 93.8760



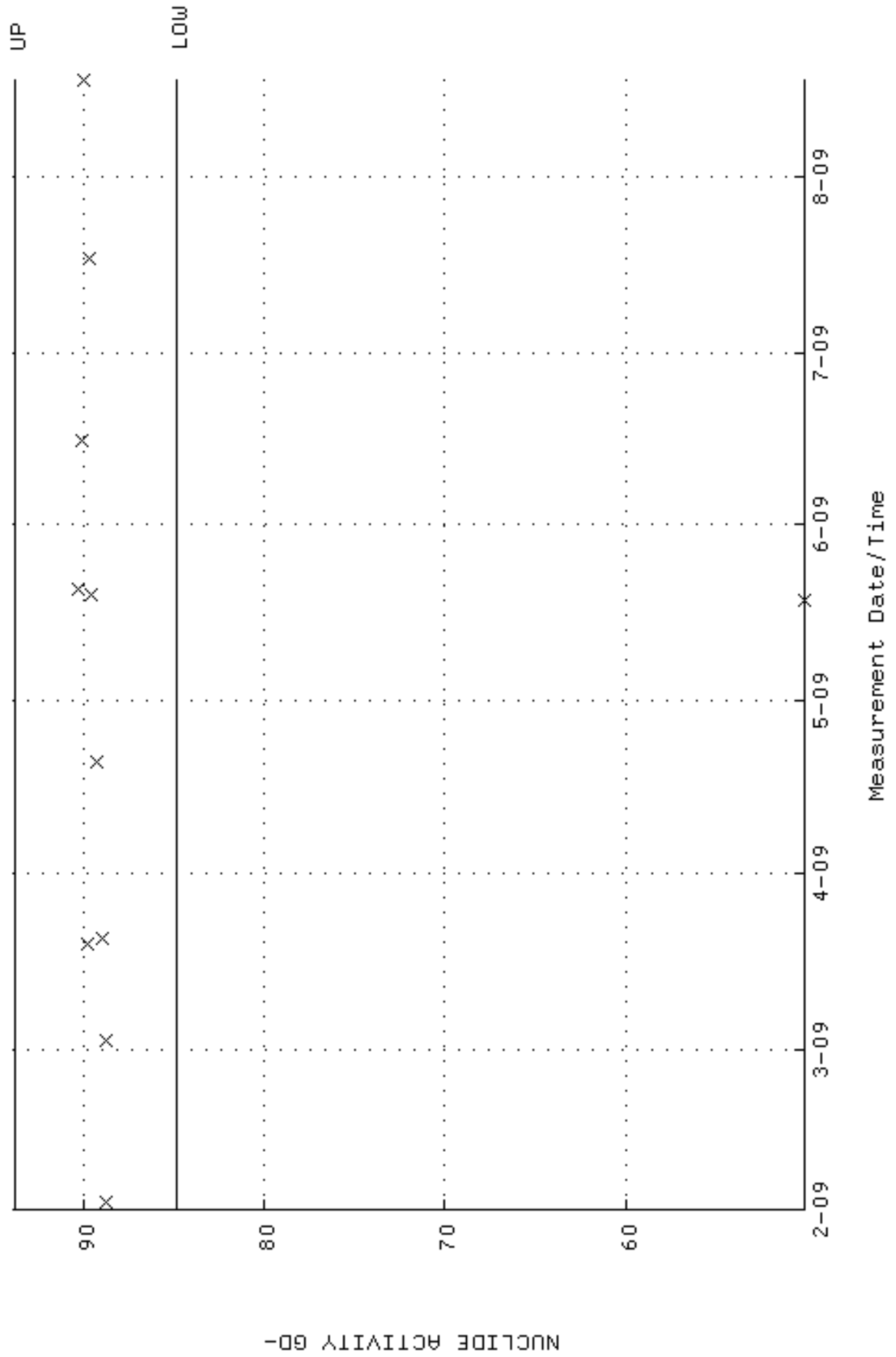
QA filename : DKA100:[ENV\_ALPHA.QA.B]B145.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:08:01 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



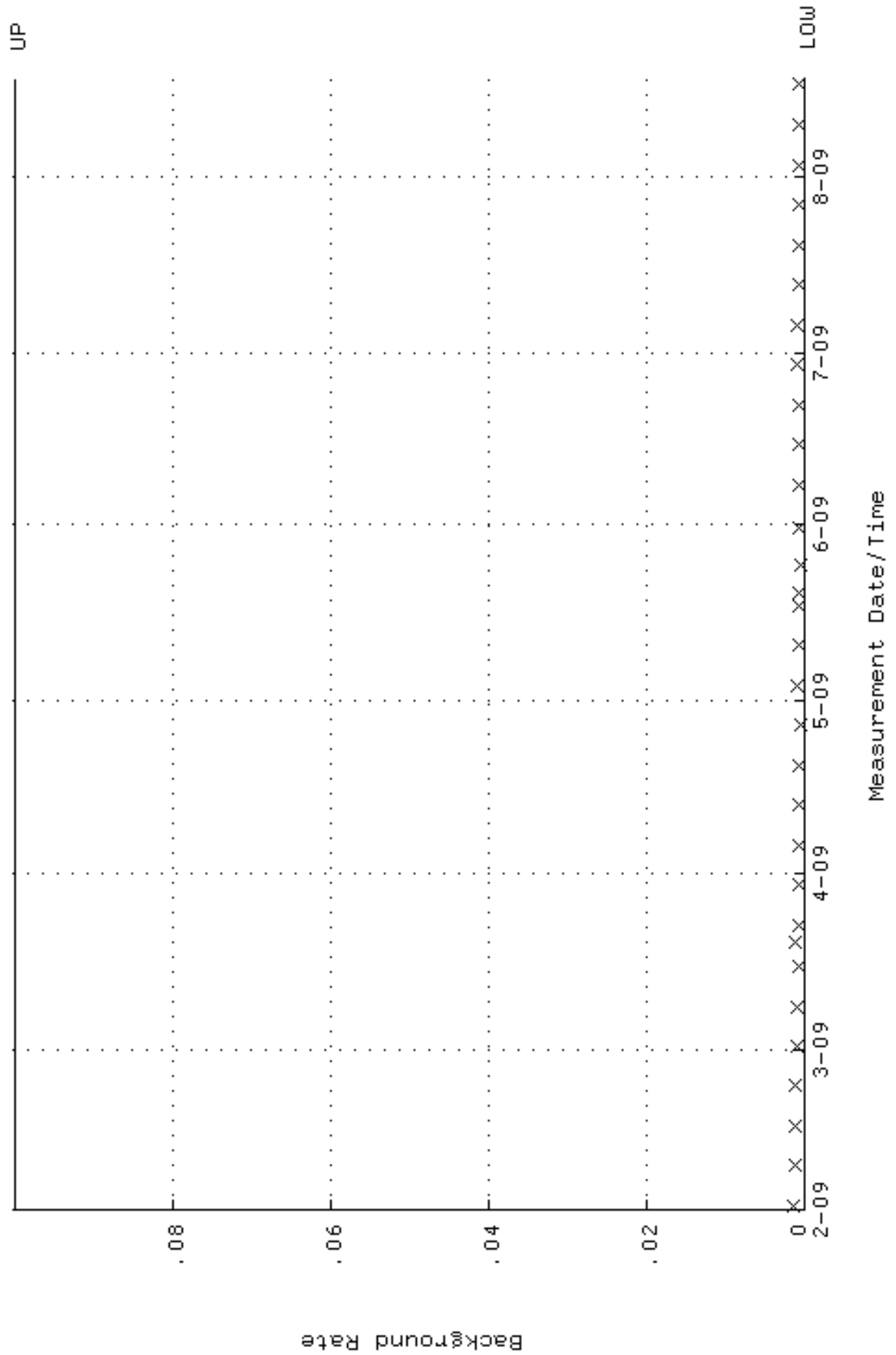
QA filename : DKA100:[ENV\_ALPHA.QA.W]W146.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:34:56 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.241831 through 0.261831



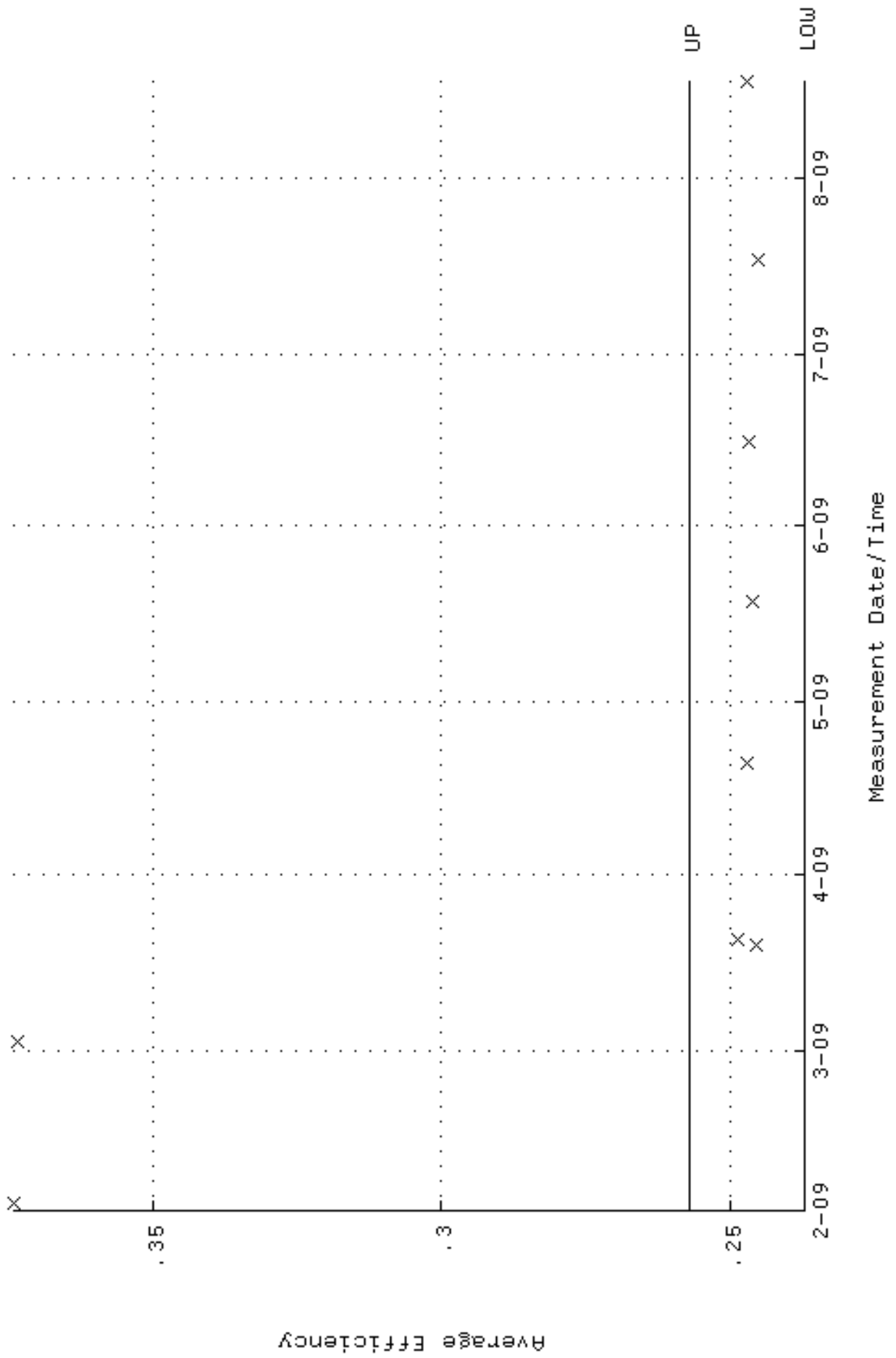
QA filename : DKA100:[ENV\_ALPHA.QA.W]W146.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:34:56 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.8578 through 93.7902



QA filename : DKA100:[ENV\_ALPHA.QA.B]B146.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:08:18 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

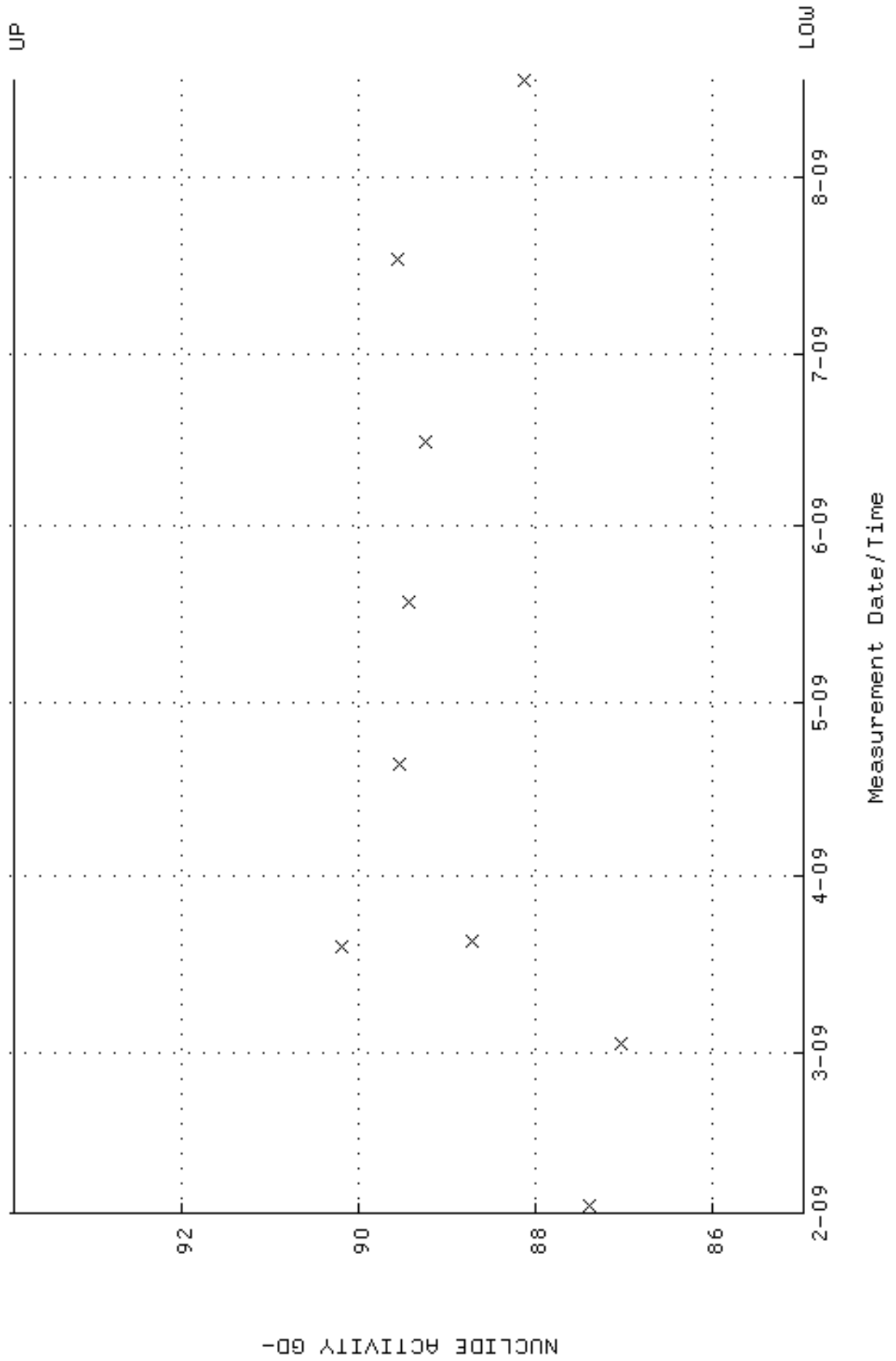


QA filename : DKA100:[ENV\_ALPHA.QA.W]W147.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:35:03 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.237046 through 0.257046

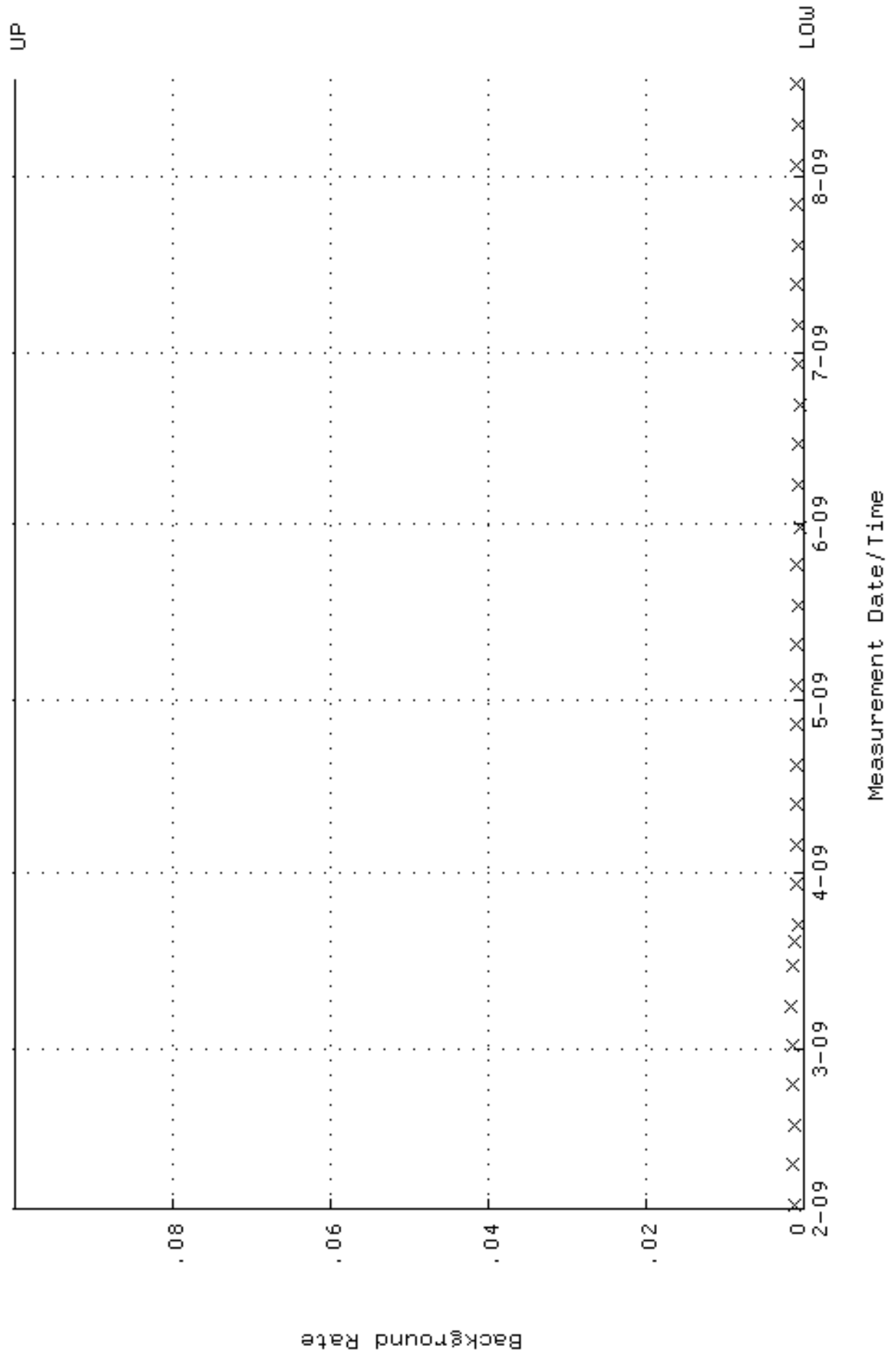




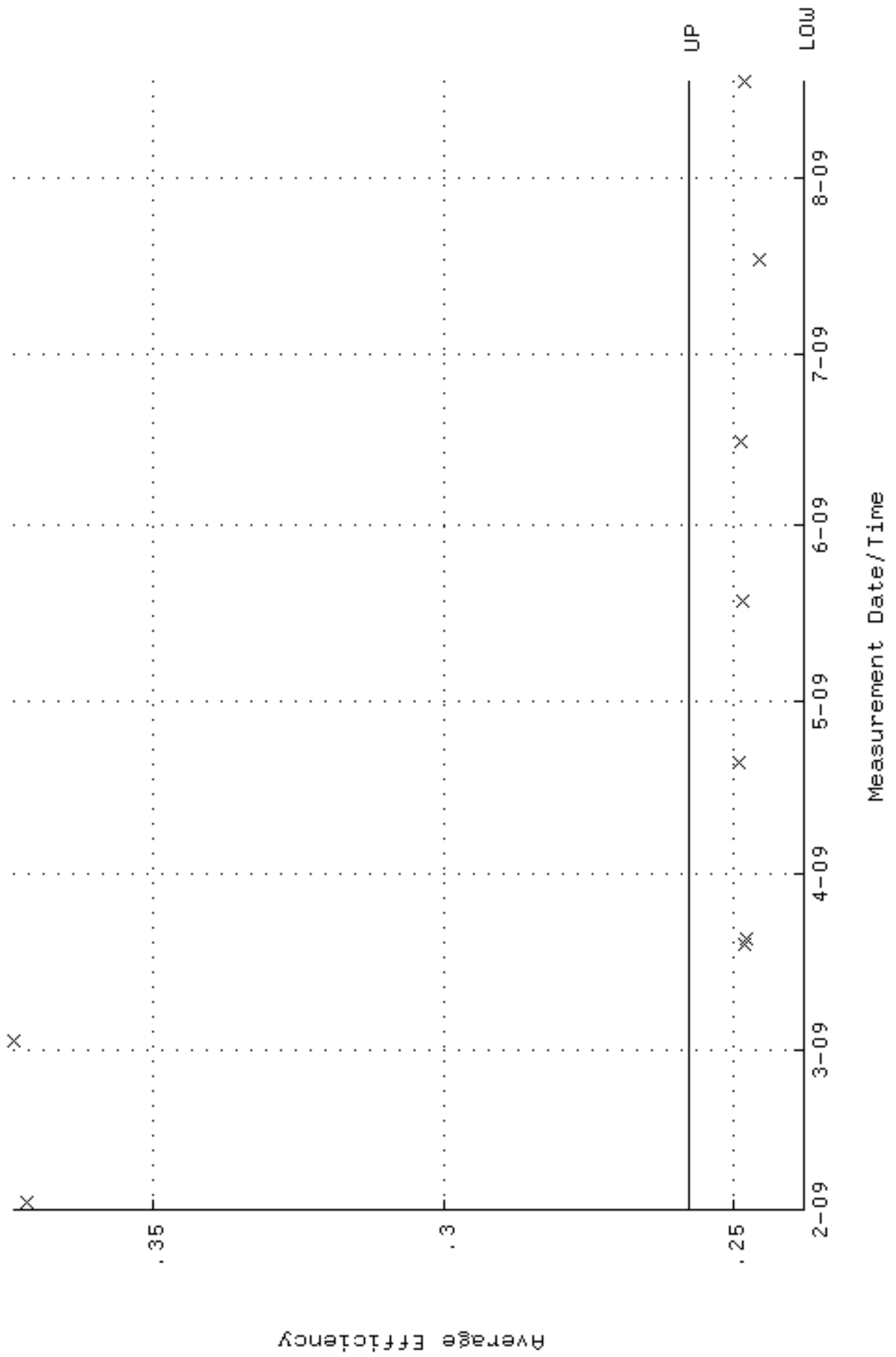
QA filename : DKA100:[ENV\_ALPHA.QA.W]W147.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 2-FEB-2009 10:35:03 through 17-AUG-2009 12:00:00  
Lower/Upper Lmts: 84.9777 through 93.9227



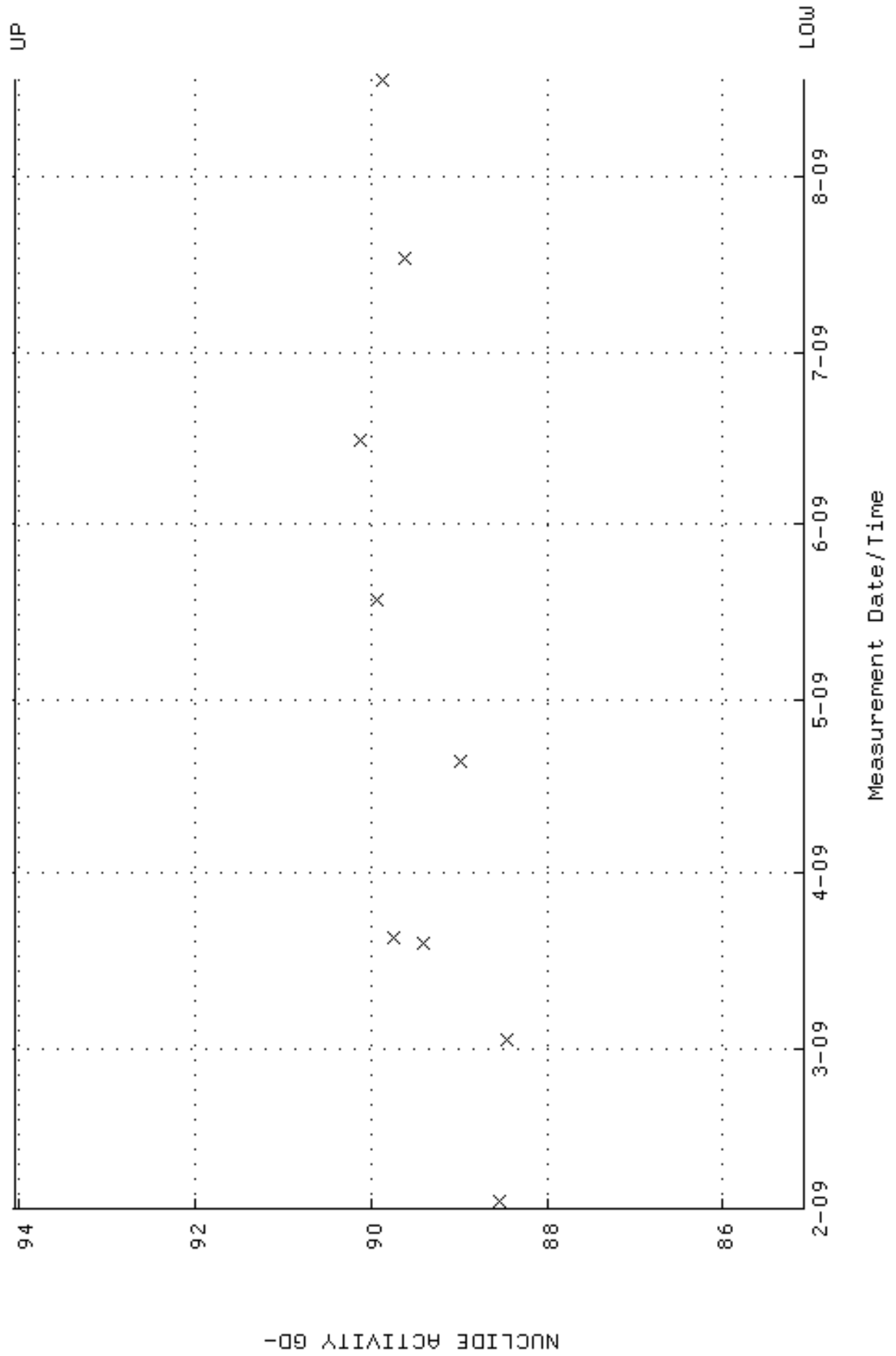
QA filename : DKA100:[ENV\_ALPHA.QA.B]B147.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:08:31 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



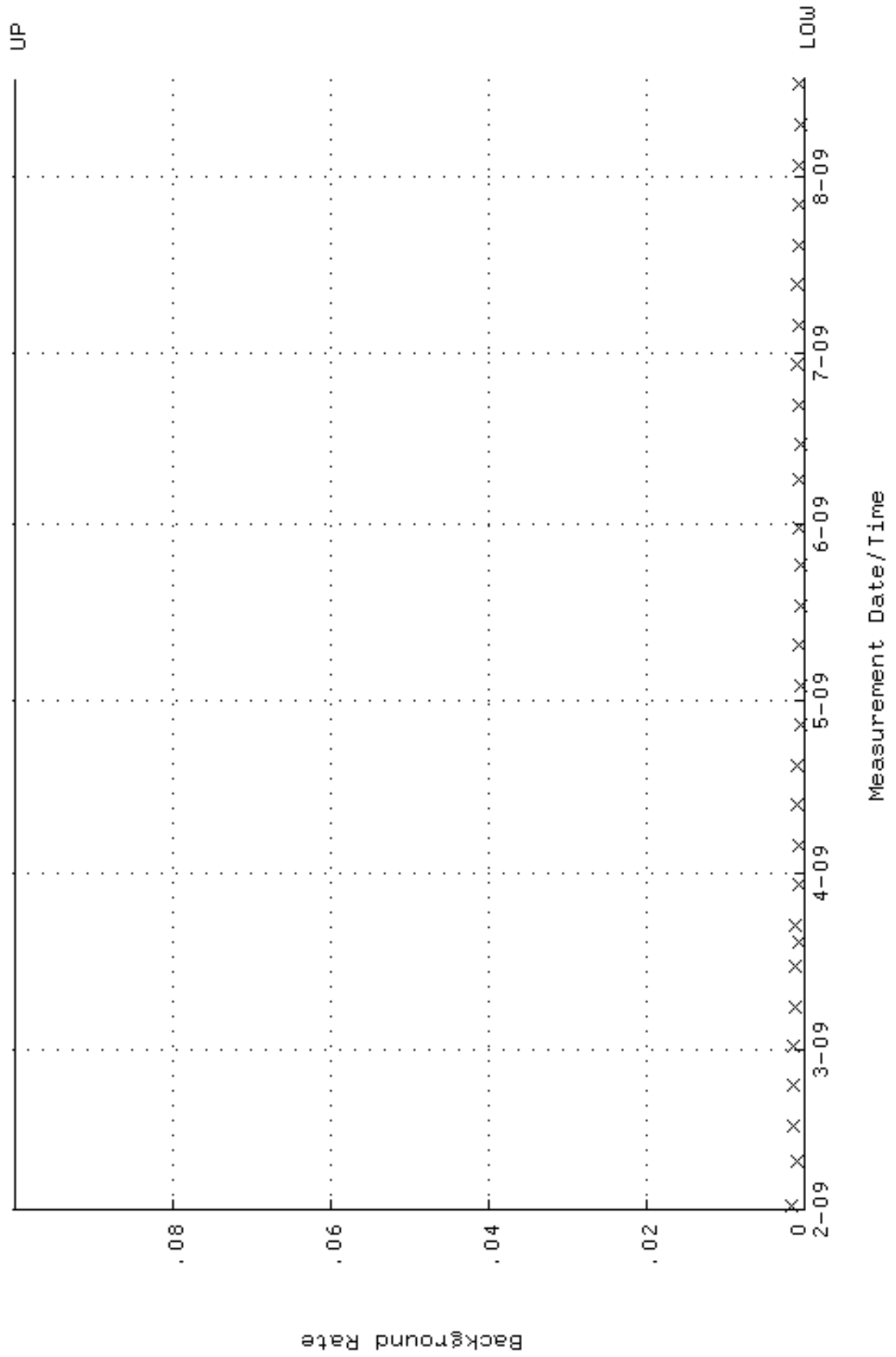
QA filename : DKA100:[ENV\_ALPHA.QA.W]W148.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:35:10 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.237934 through 0.257934



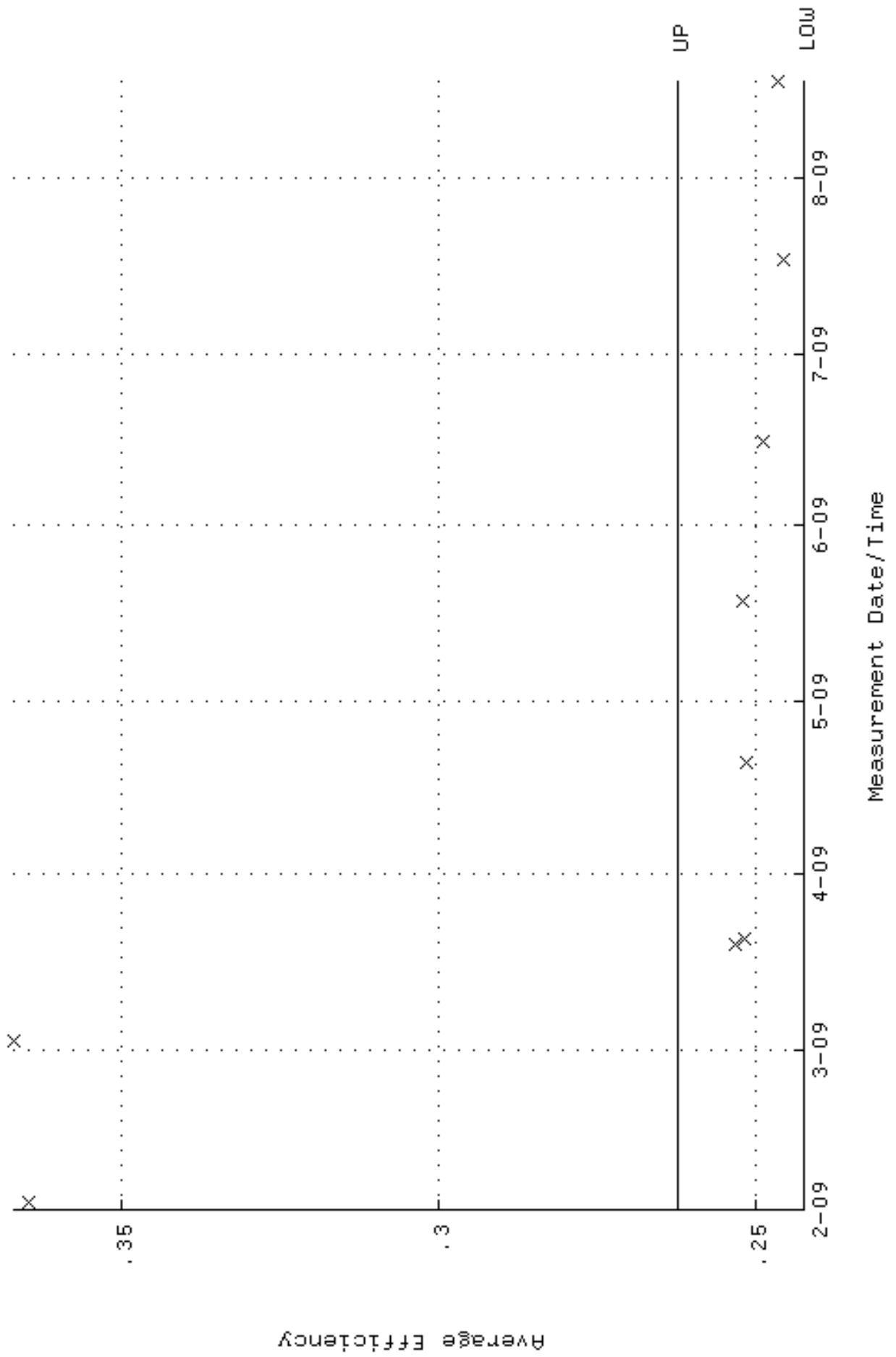
QA filename : DKA100:[ENV\_ALPHA.QA.W]W148.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:35:10 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.0831 through 94.0393



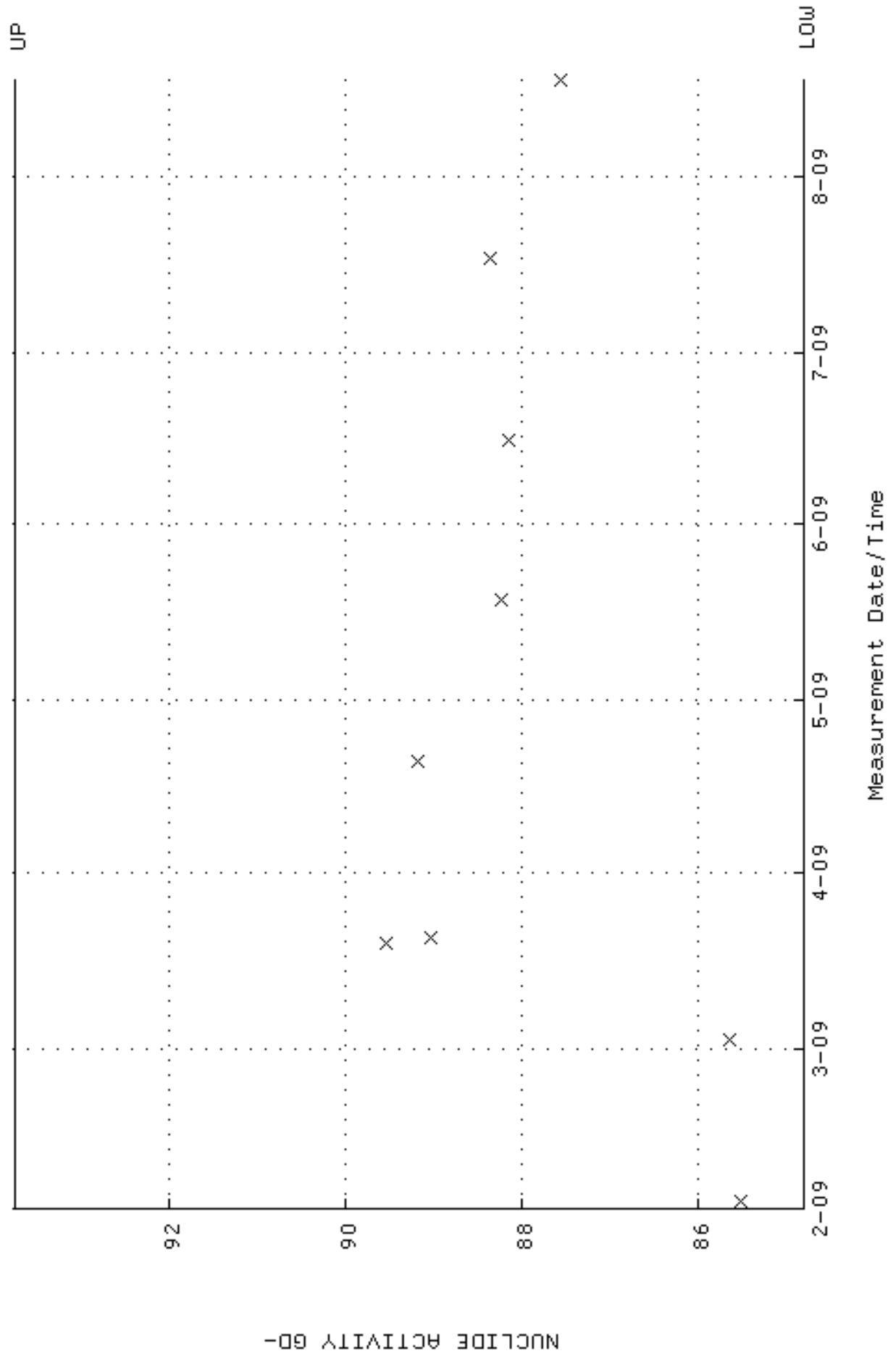
QA filename : DKA100:[ENV\_ALPHA.QA.B]B148.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:08:48 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



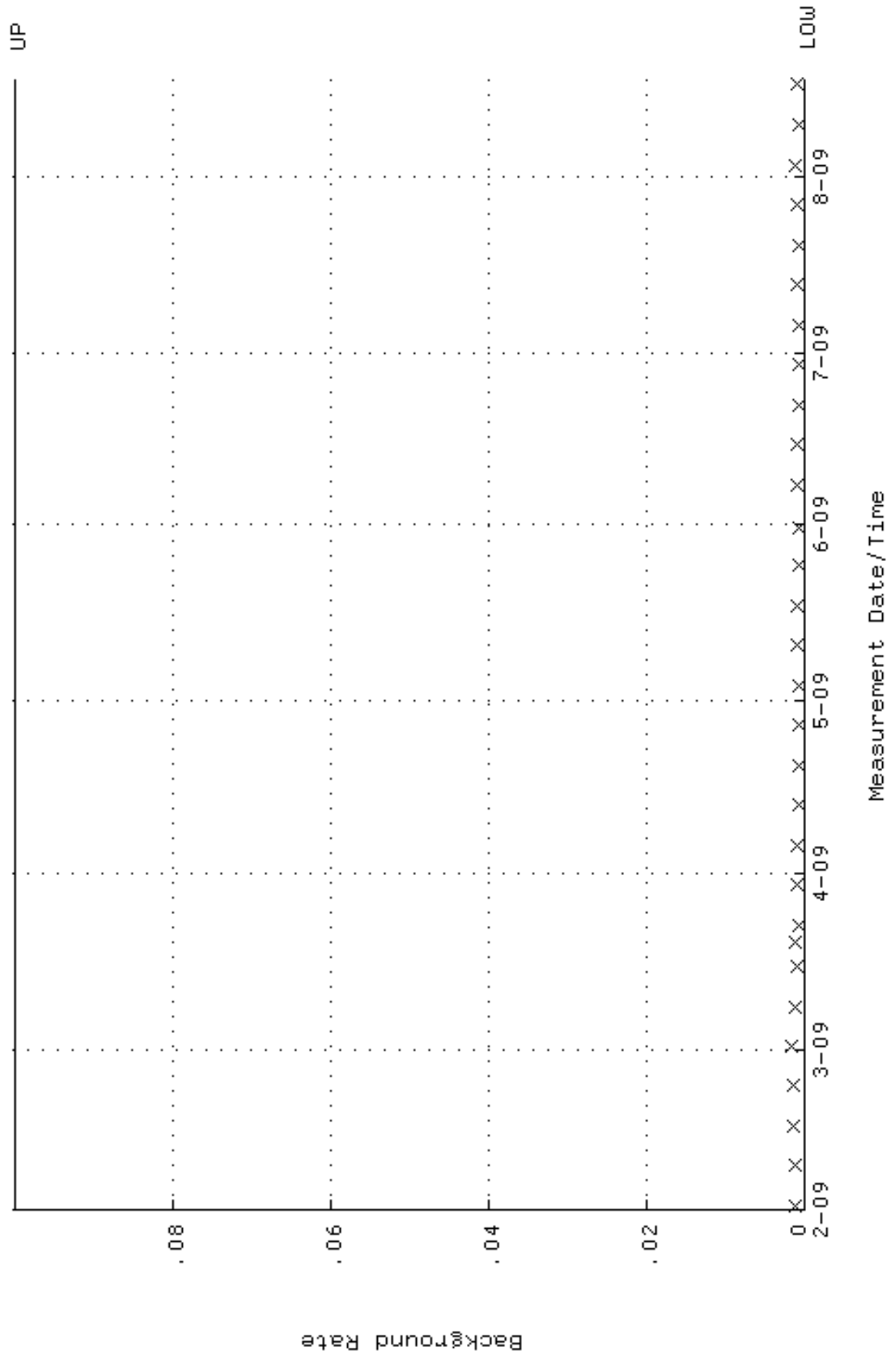
QA filename : DKA100:[ENV\_ALPHA.QA.W]W149.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:35:17 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.242495 through 0.262495



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

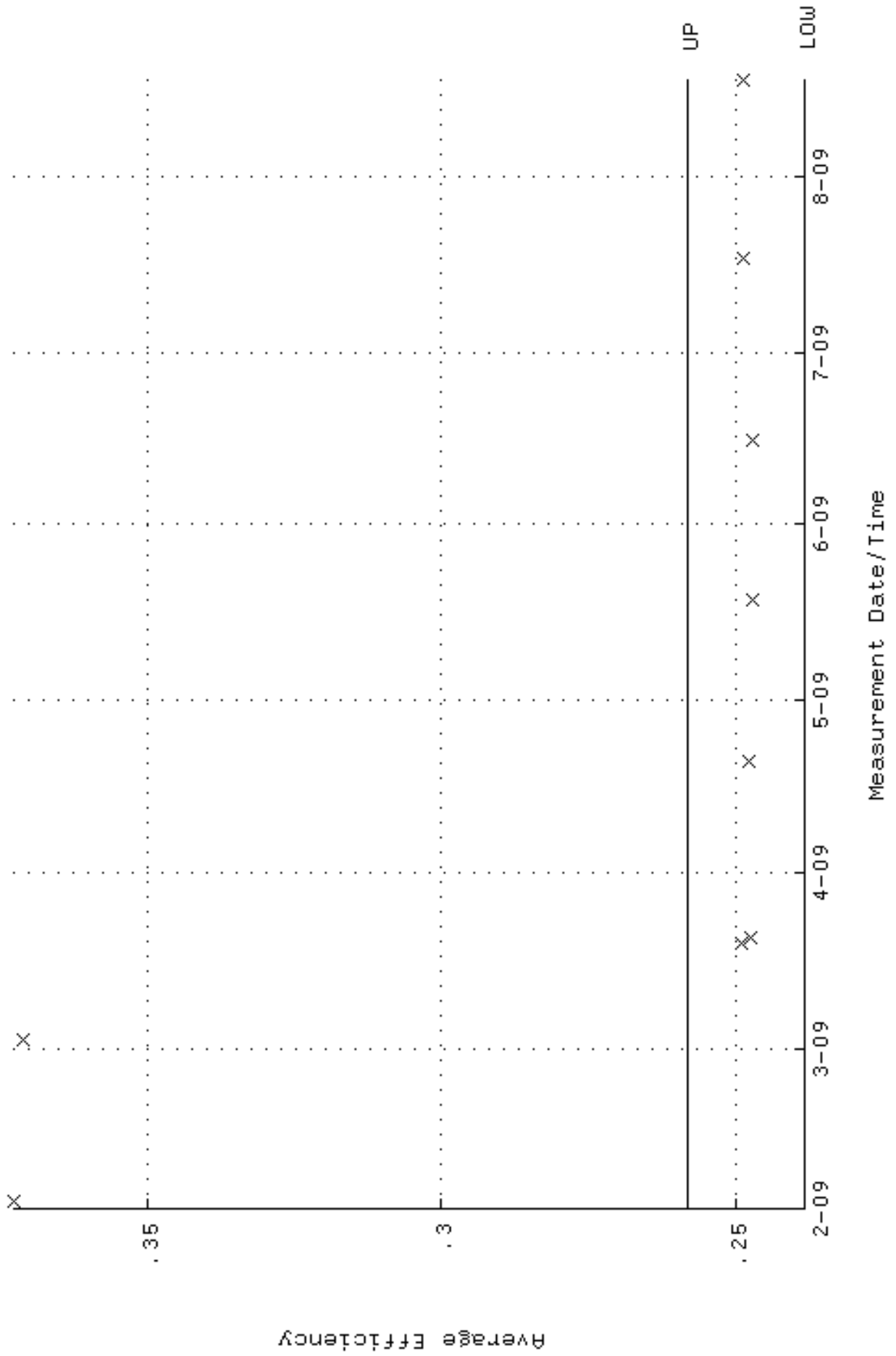


QA filename : DKA100:[ENV\_ALPHA.QA.B]B149.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:09:07 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

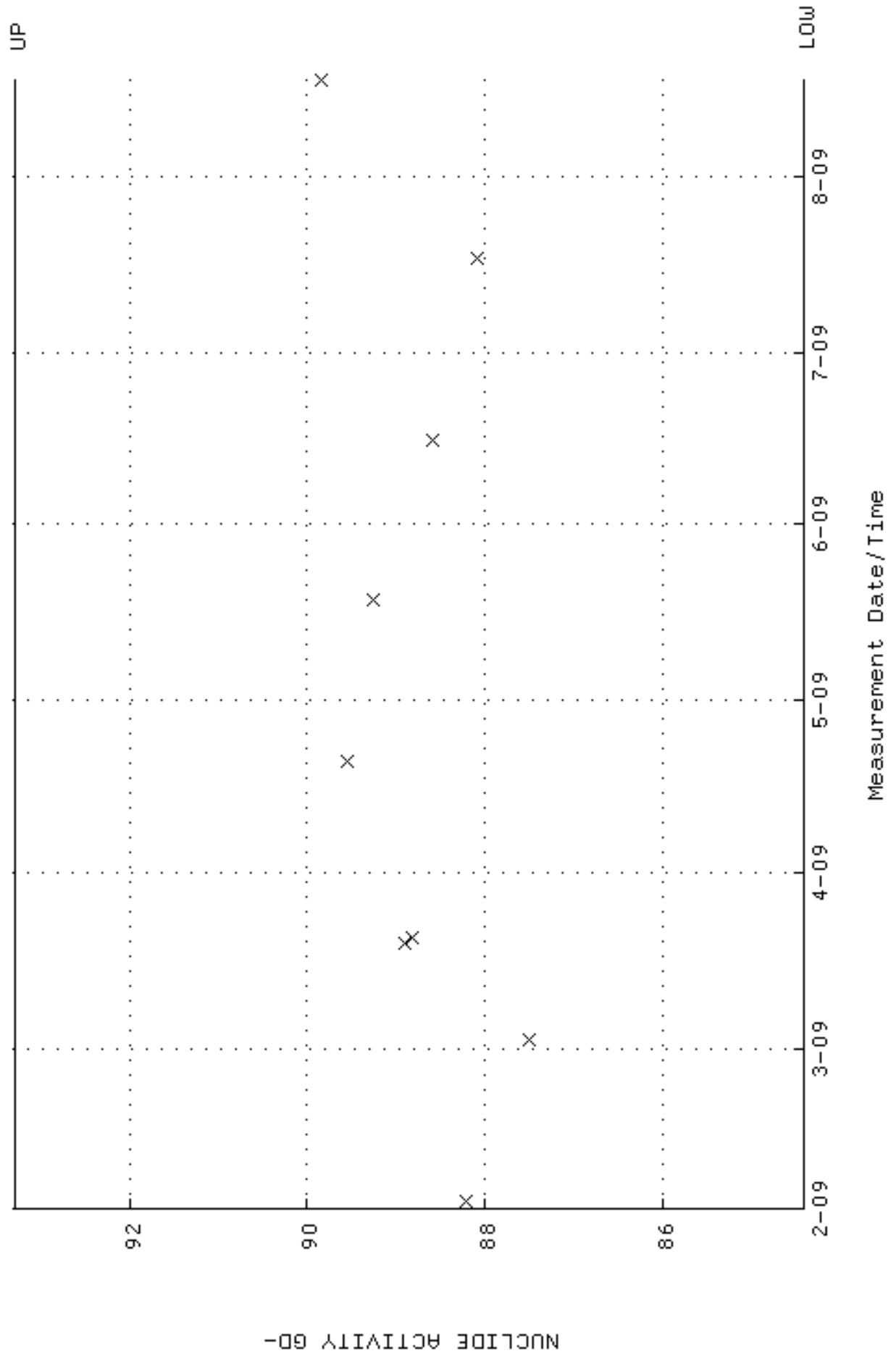




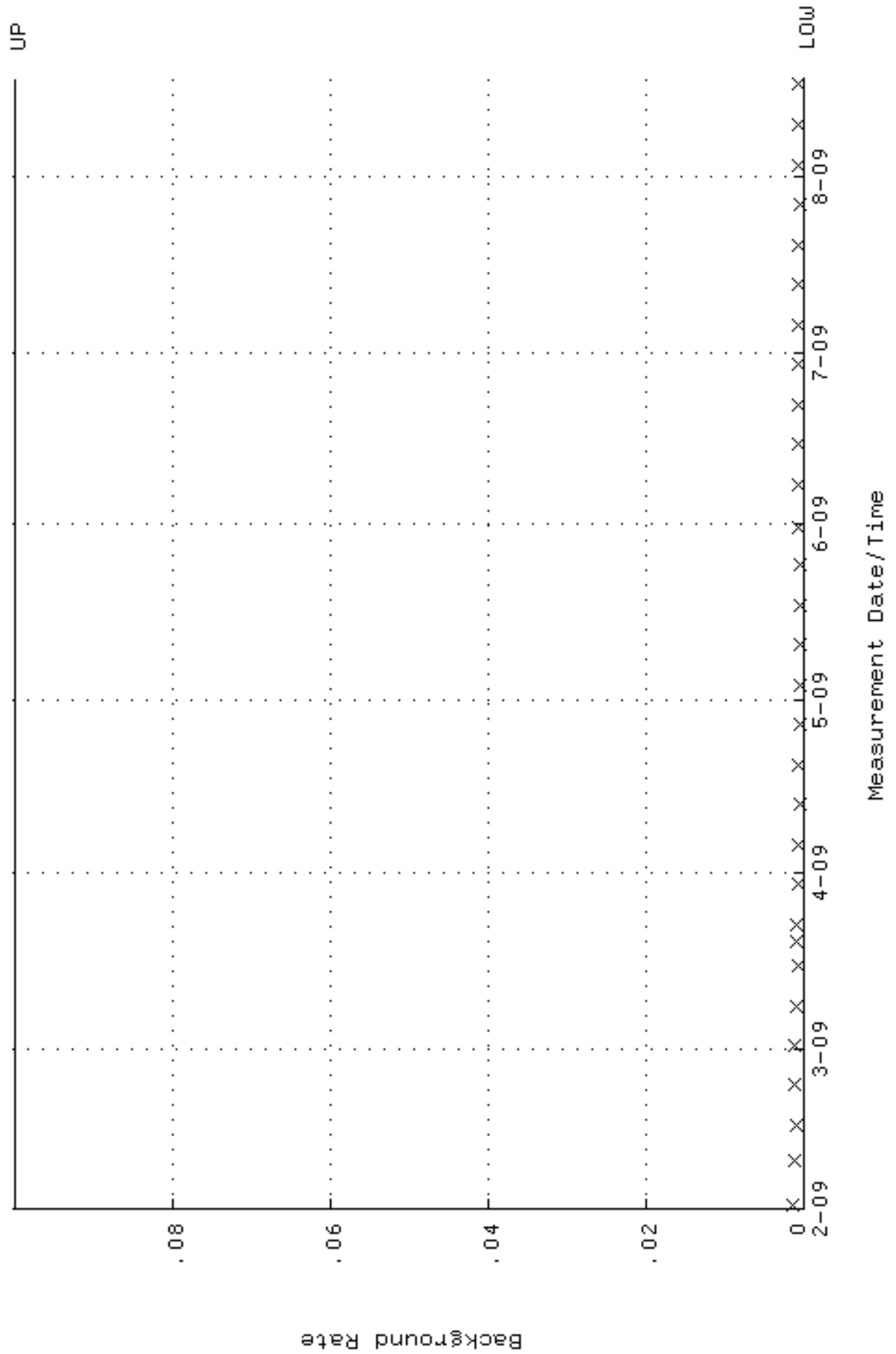
QA filename : DKA100:[ENV\_ALPHA.QA.W]W150.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:35:24 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.238314 through 0.258314



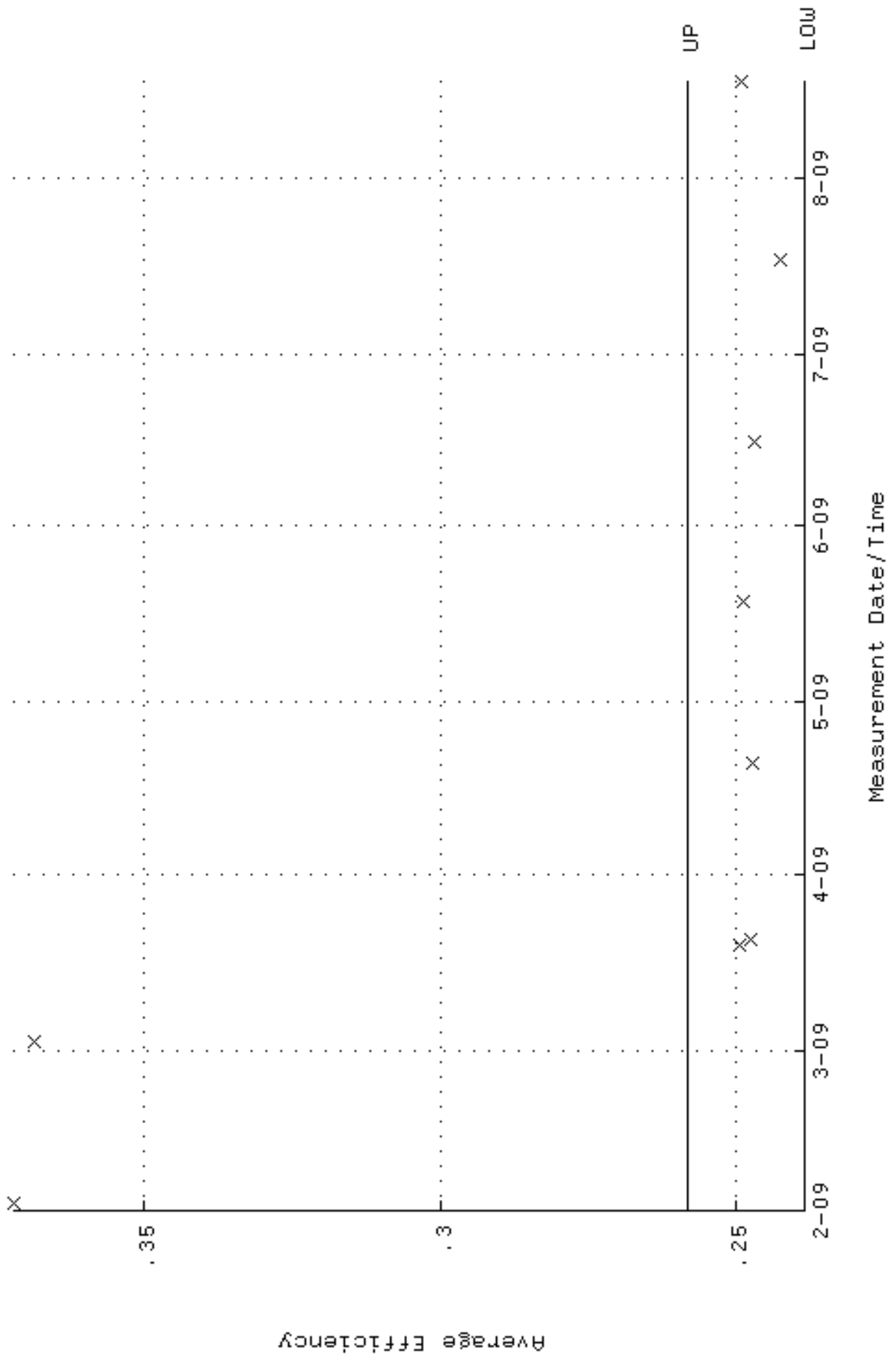
QA filename : DKA100:[ENV\_ALPHA.QA.W]W150.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:35:24 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.4039 through 93.2885



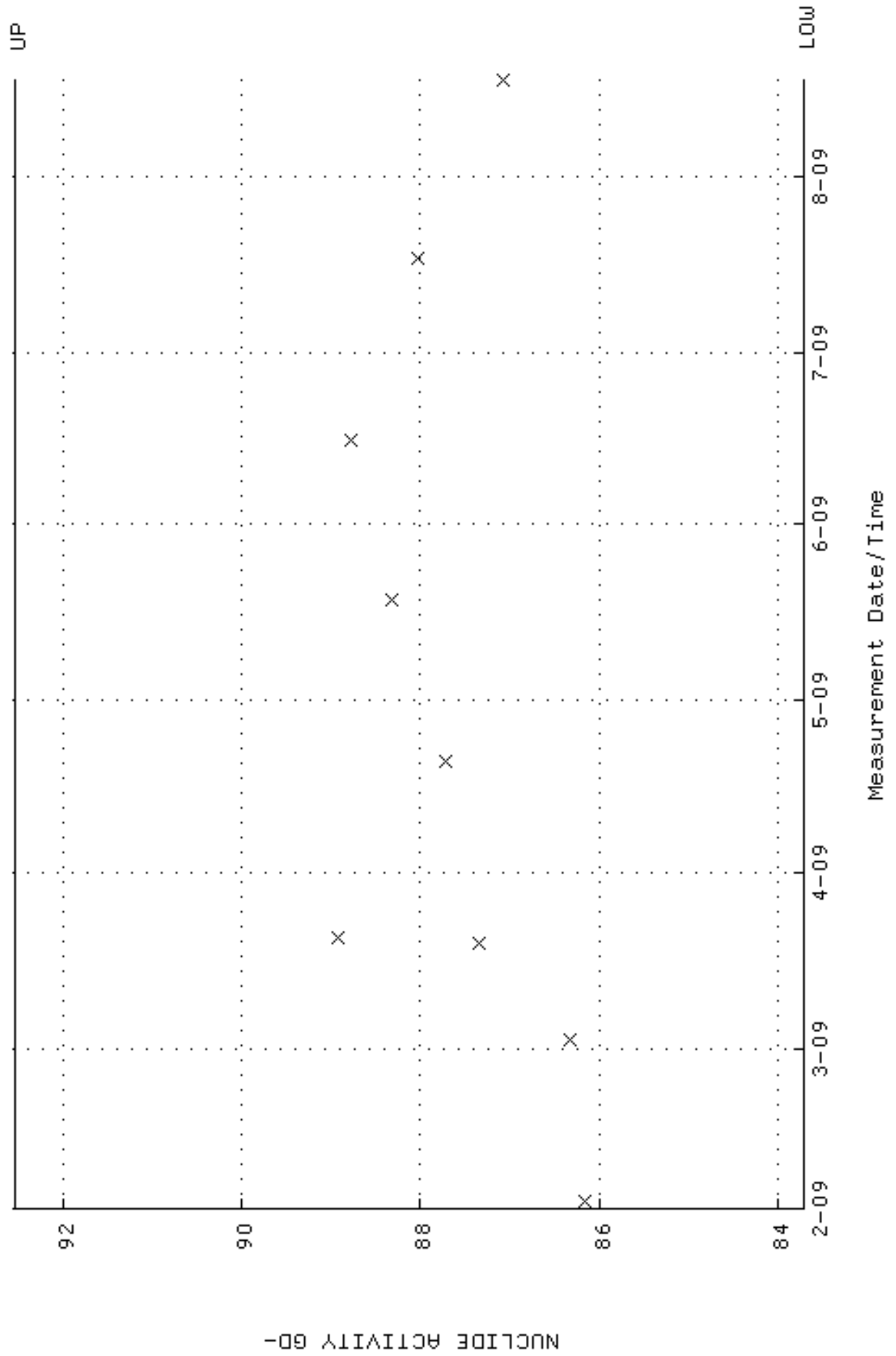
QA filename : DKA100:[ENV\_ALPHA.QA.B]B150.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:09:19 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



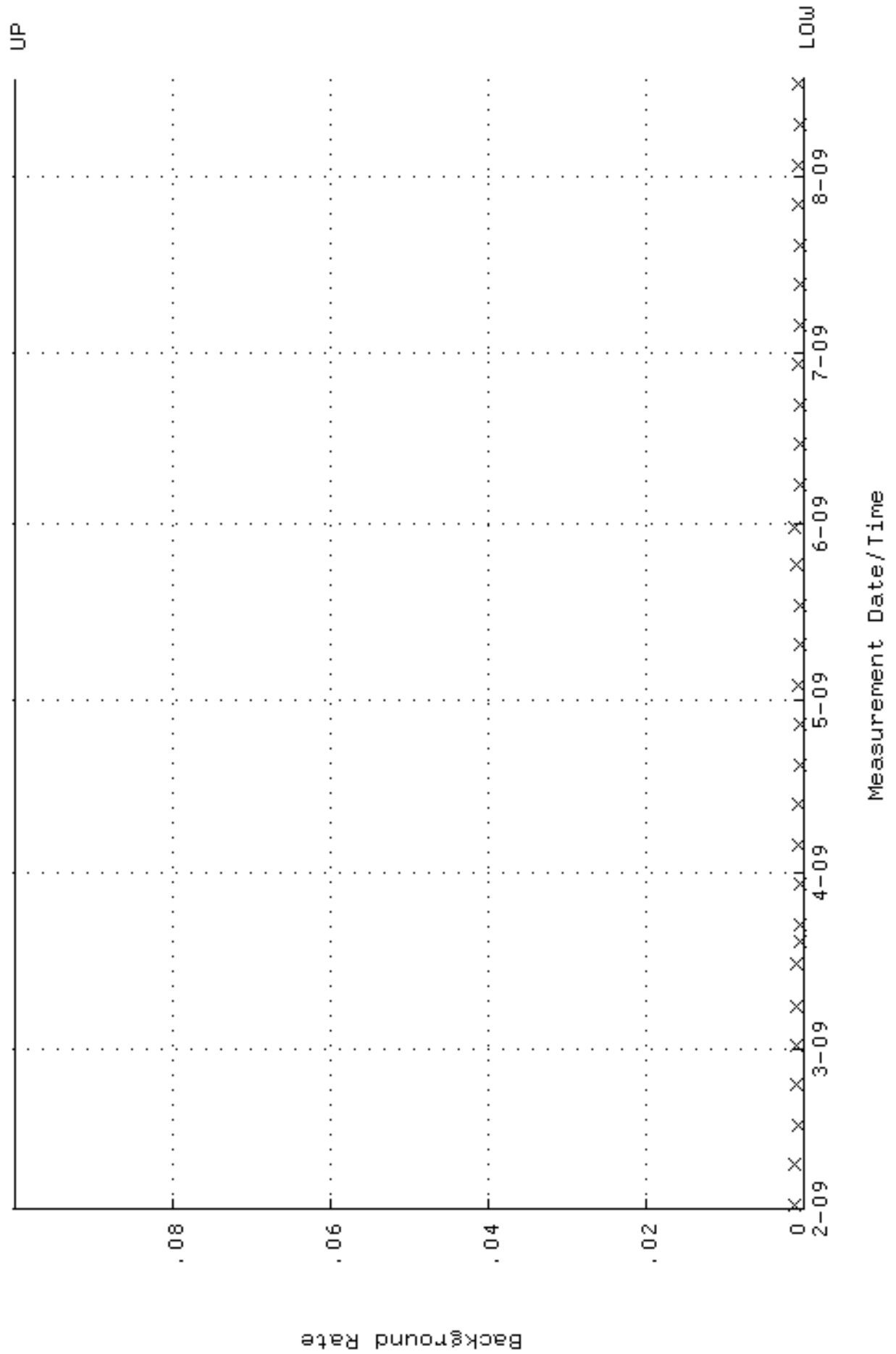
QA filename : DKA100:[ENV\_ALPHA.QA.W]W152.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:35:38 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.238479 through 0.258479



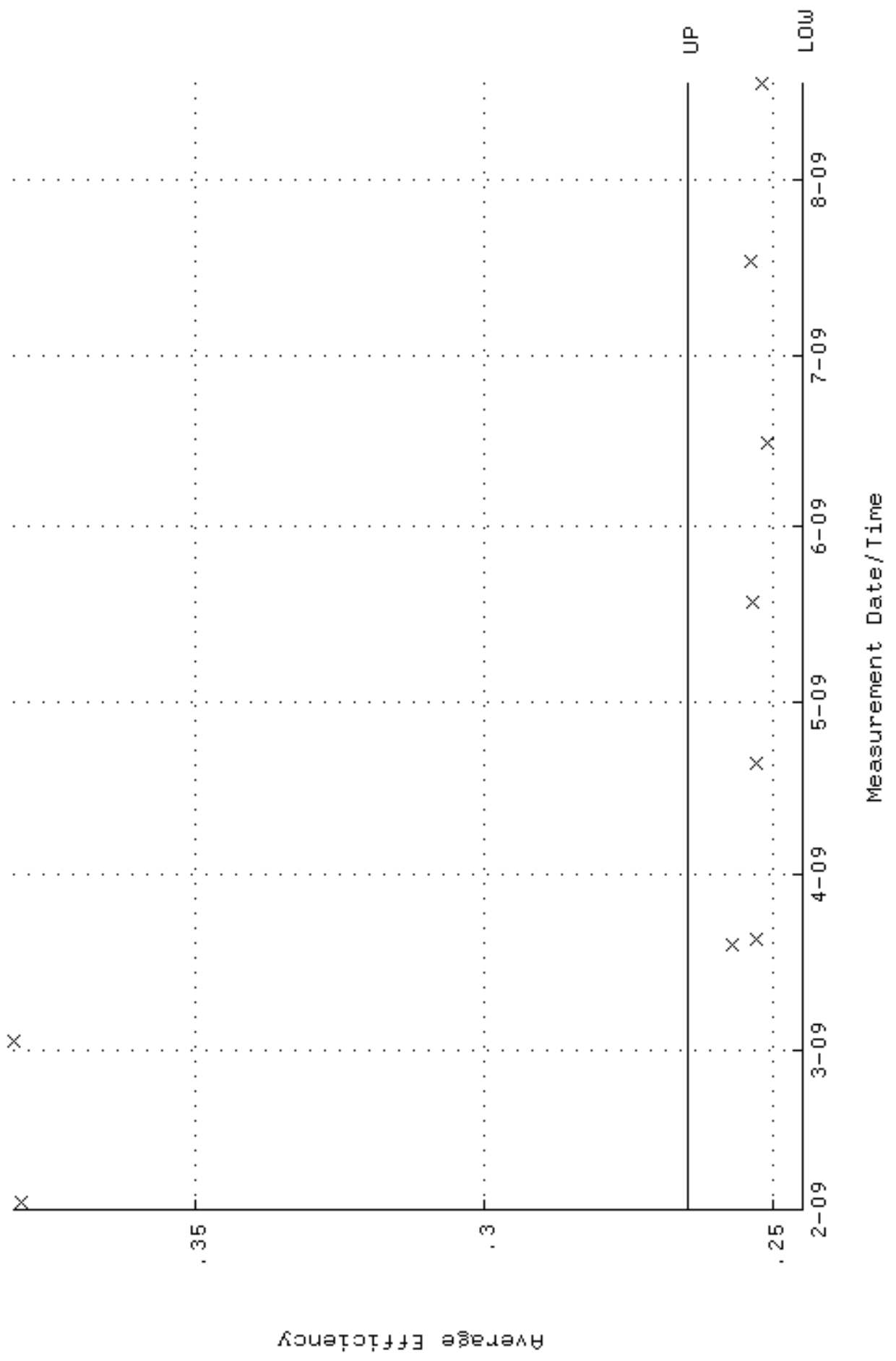
QA filename : DKA100:[ENV\_ALPHA.QA.W]w152.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:35:38 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 83.7180 through 92.5304



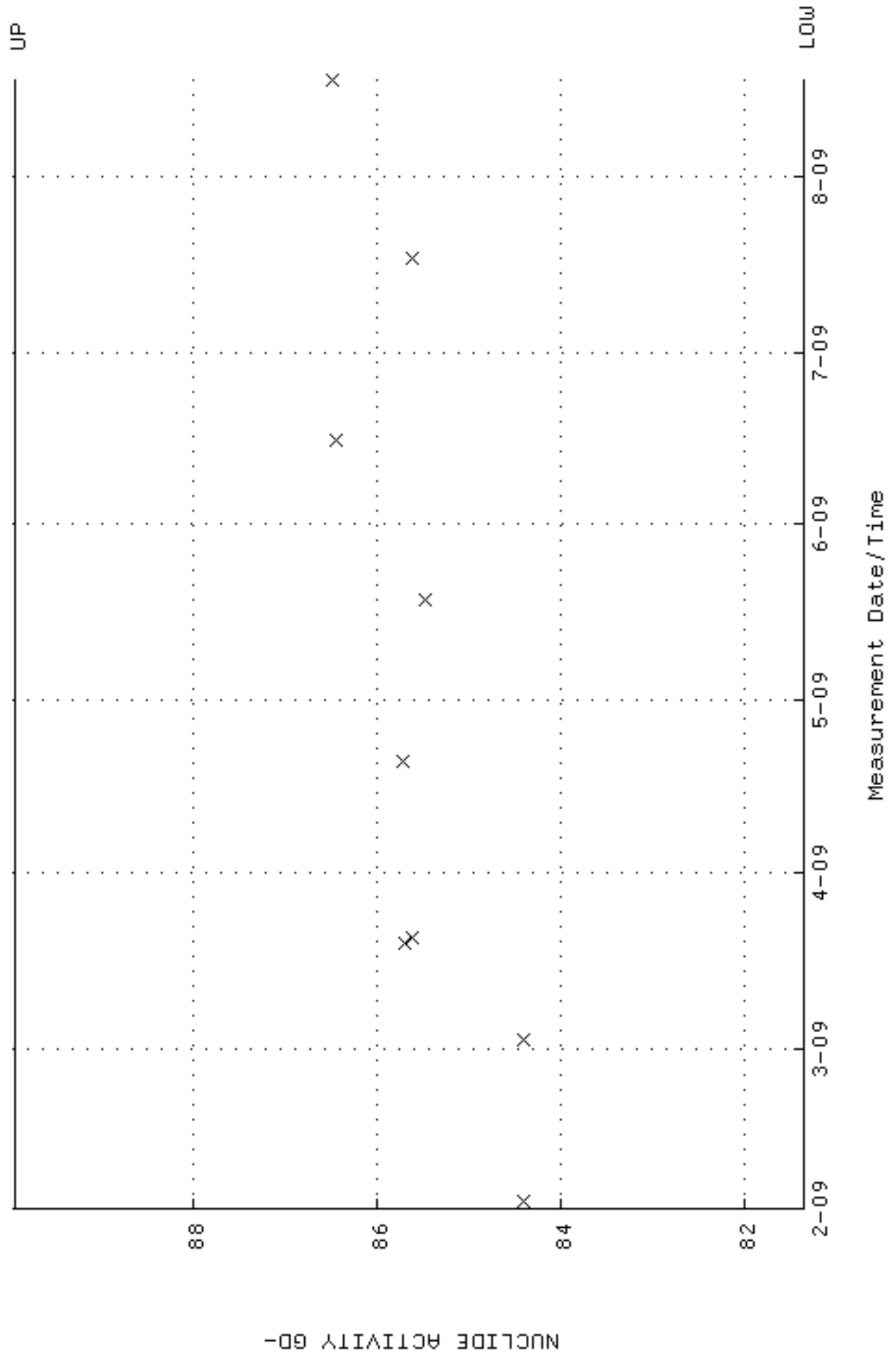
QA filename : DKA100:[ENV\_ALPHA.QA.B]B152.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:09:52 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W153.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:35:44 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.244738 through 0.264738

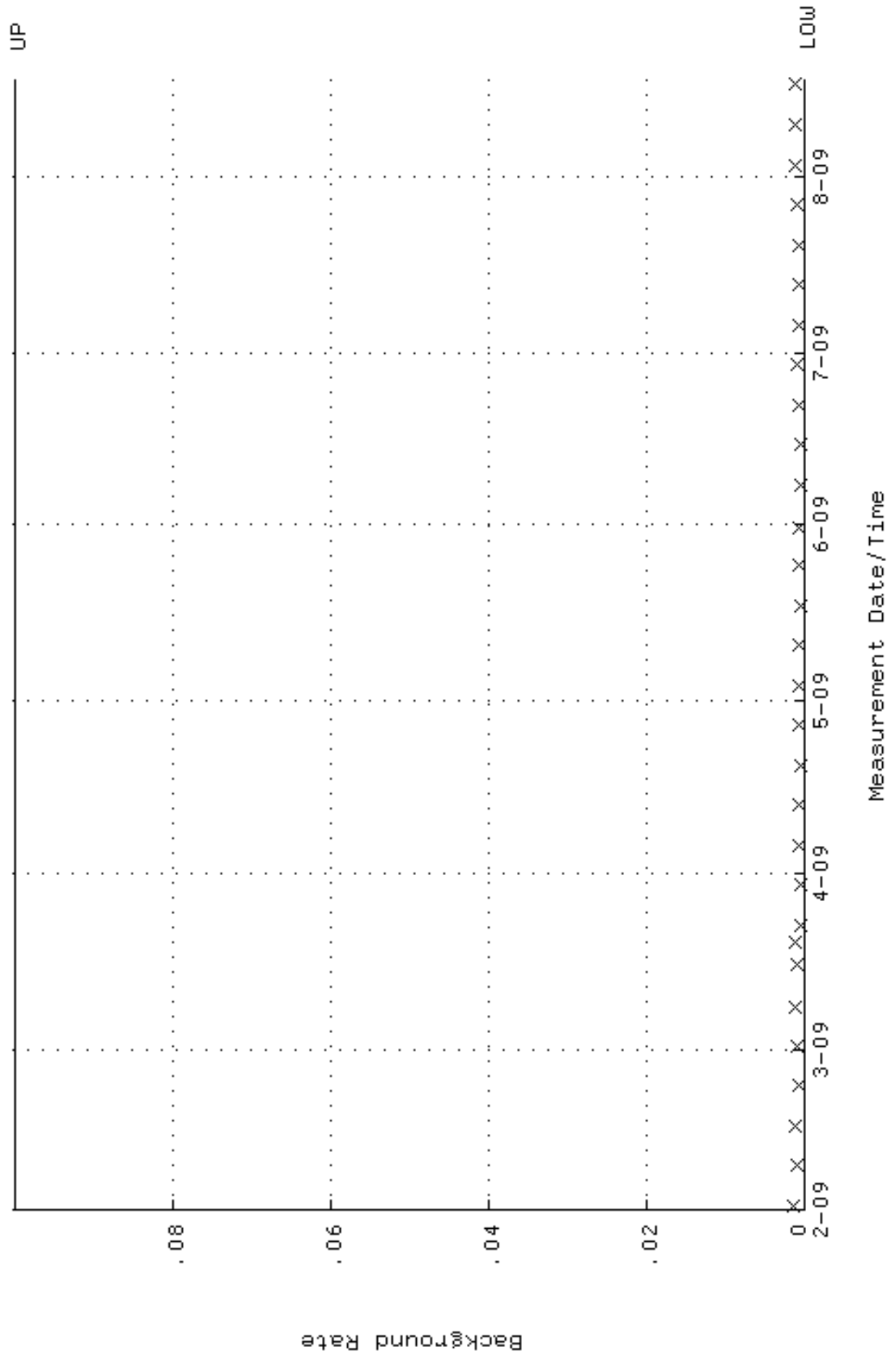


QA filename : DKA100:[ENV\_ALPHA.QA.W]W153.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:35:44 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 81.3634 through 89.9280

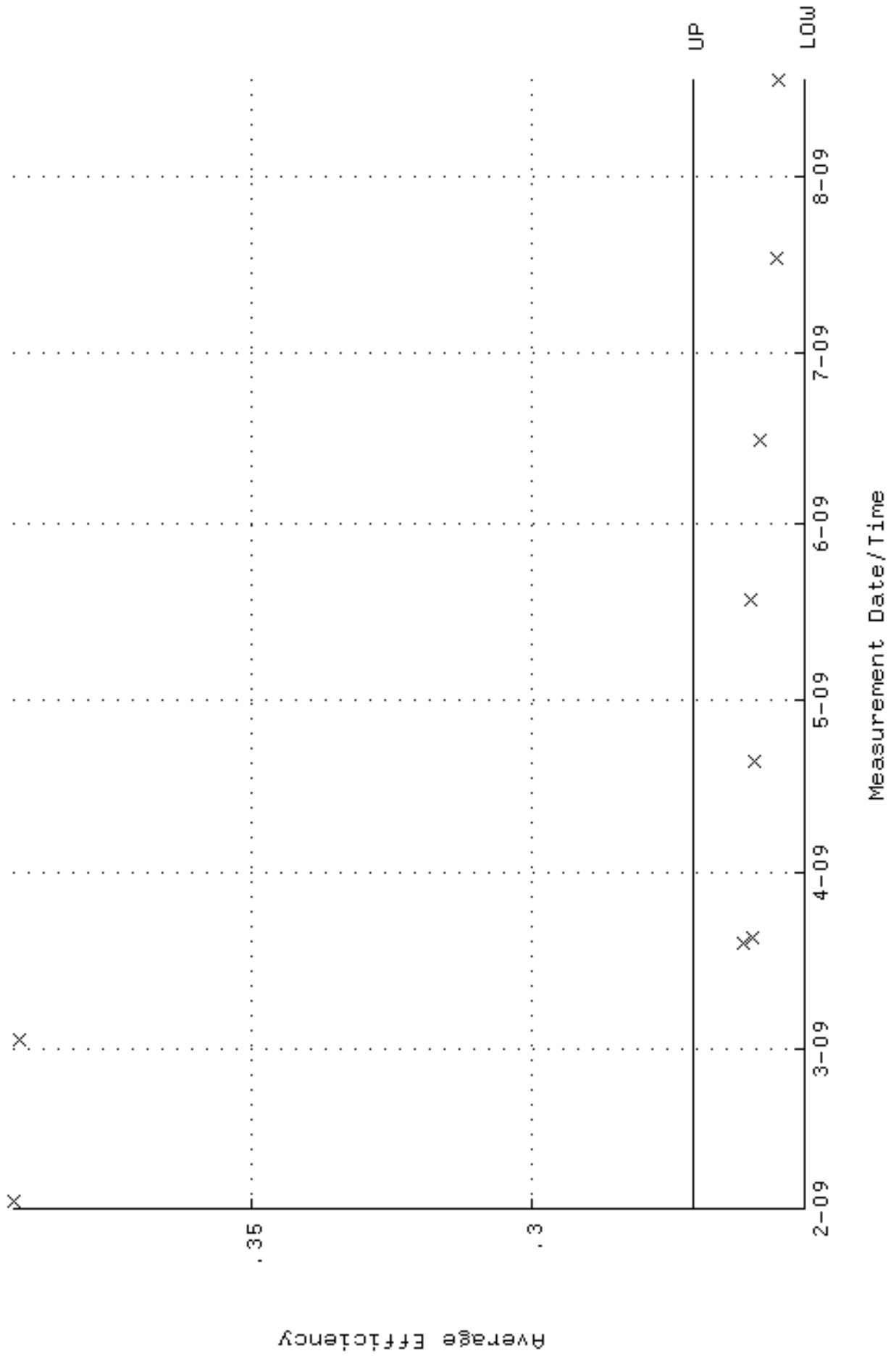




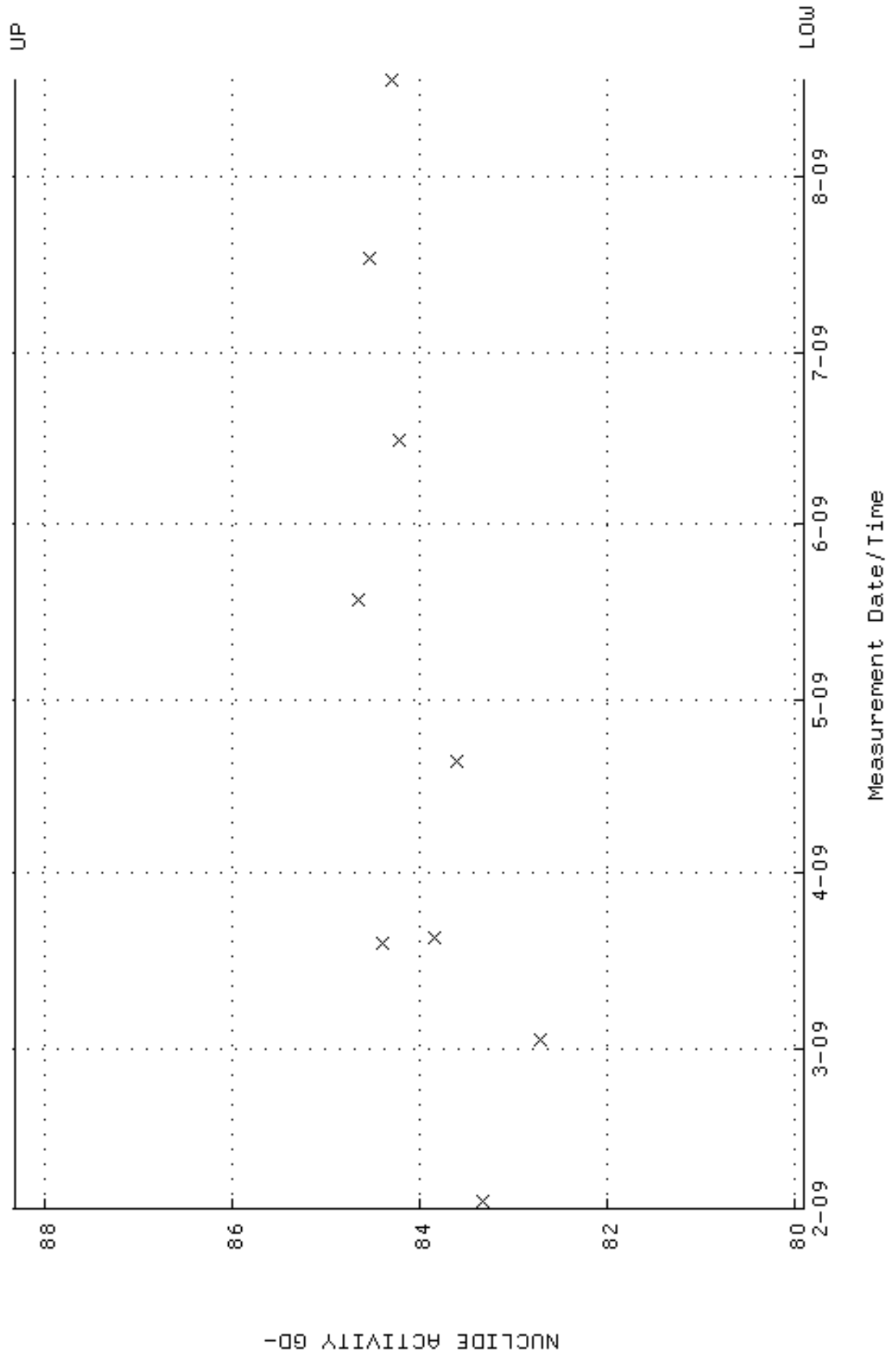
QA filename : DKA100:[ENV\_ALPHA.QA.B]B153.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:10:07 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



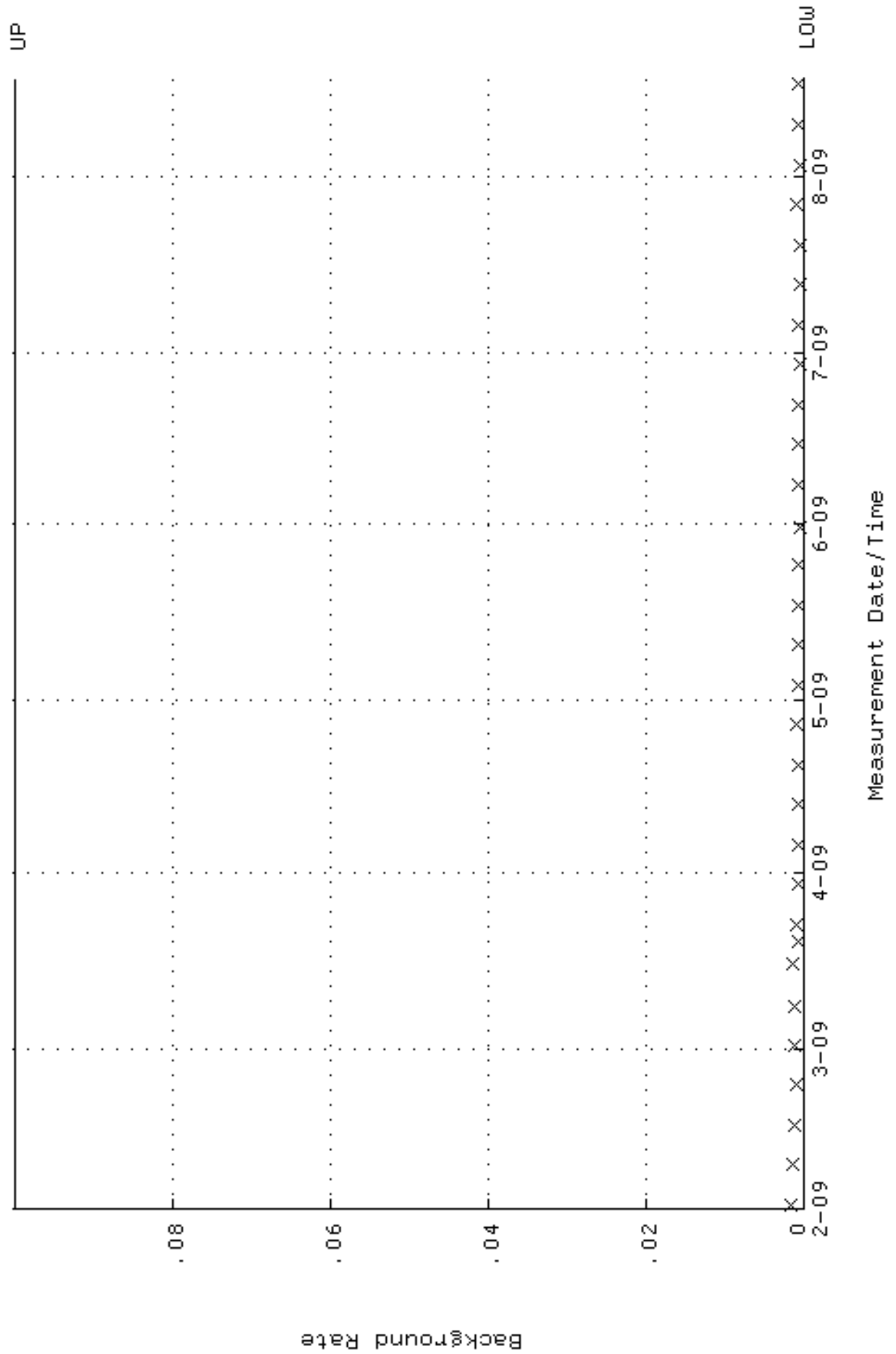
QA filename : DKA100:[ENV\_ALPHA.QA.W]W154.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:35:49 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.251386 through 0.271386



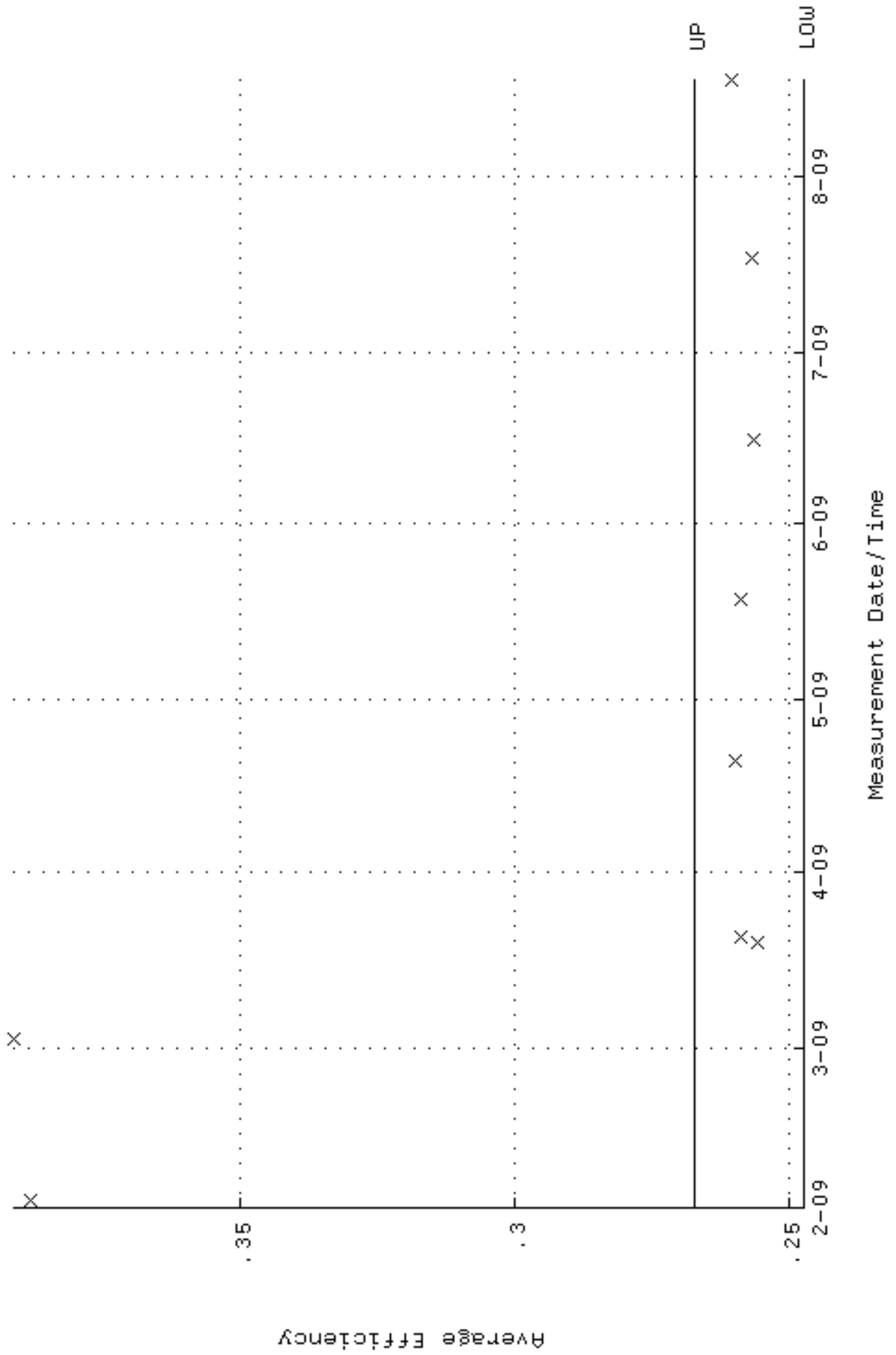
QA filename : DKA100:[ENV\_ALPHA.QA.W]w154.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 2-FEB-2009 10:35:49 through 17-AUG-2009 12:00:00  
Lower/Upper Lmts: 79.9003 through 88.3109



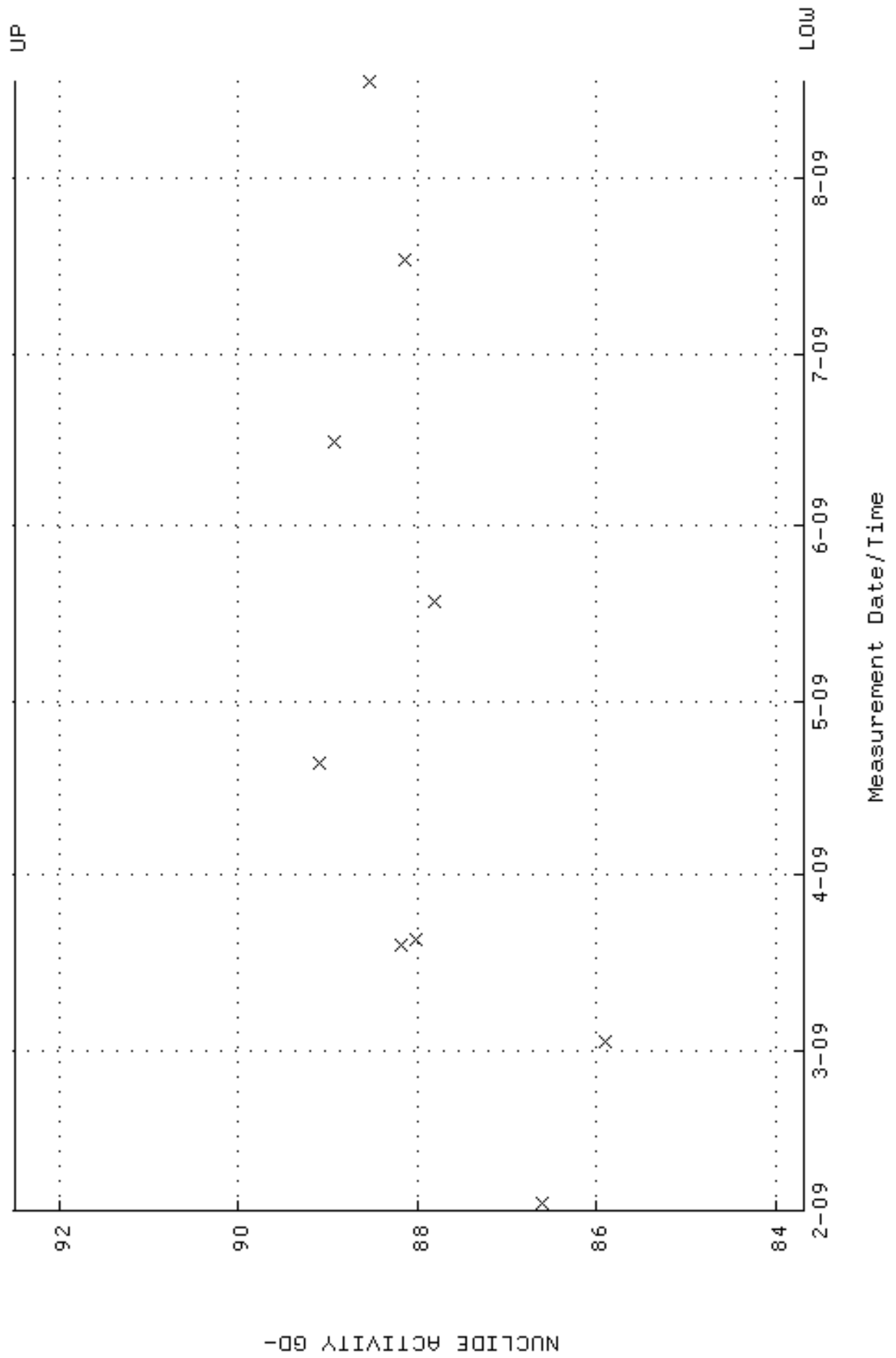
QA filename : DKA100:[ENV\_ALPHA.QA.B]B154.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:10:23 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



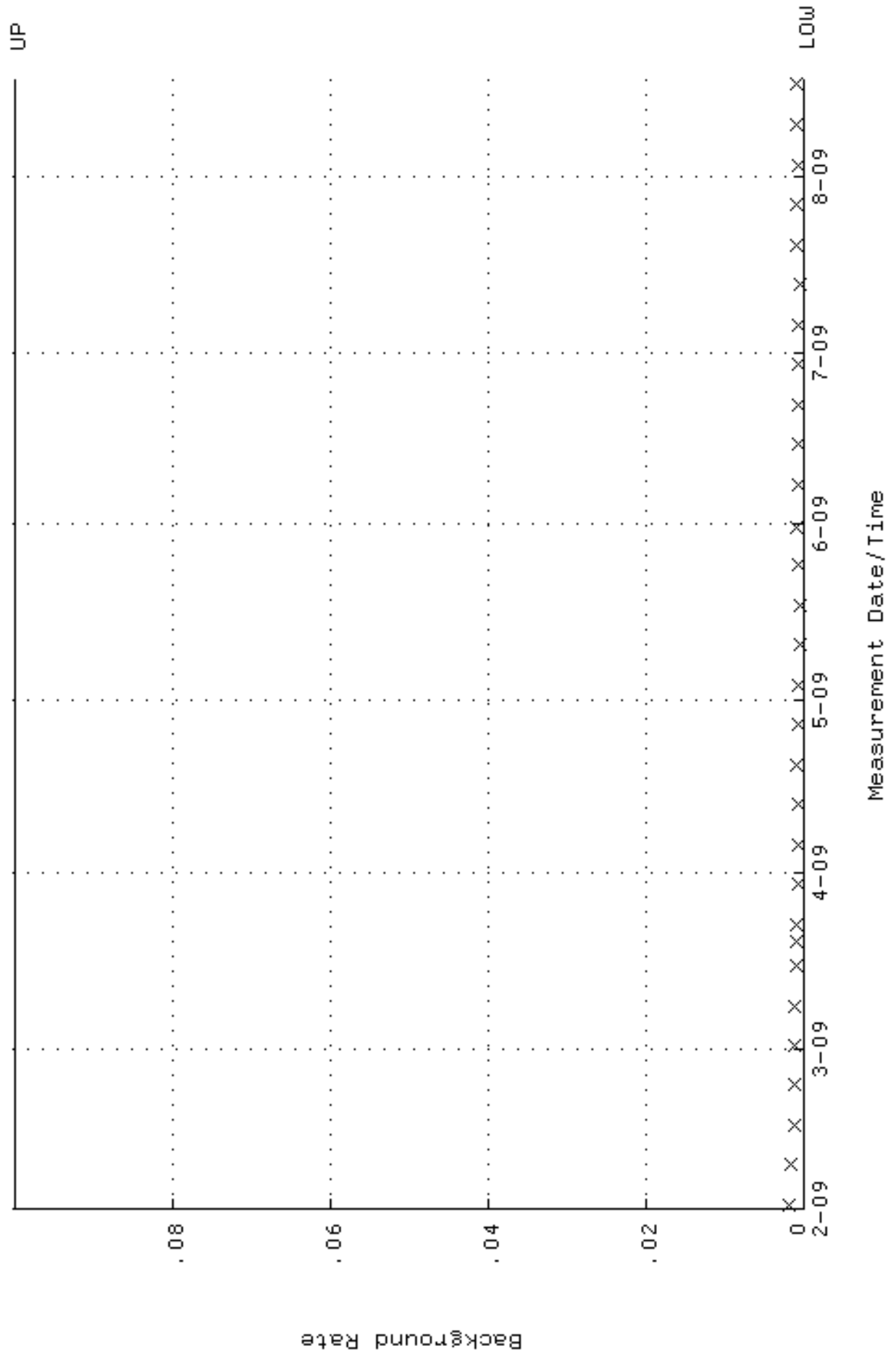
QA filename : DKA100:[ENV\_ALPHA.QA.W]W155.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:35:54 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.247241 through 0.267241



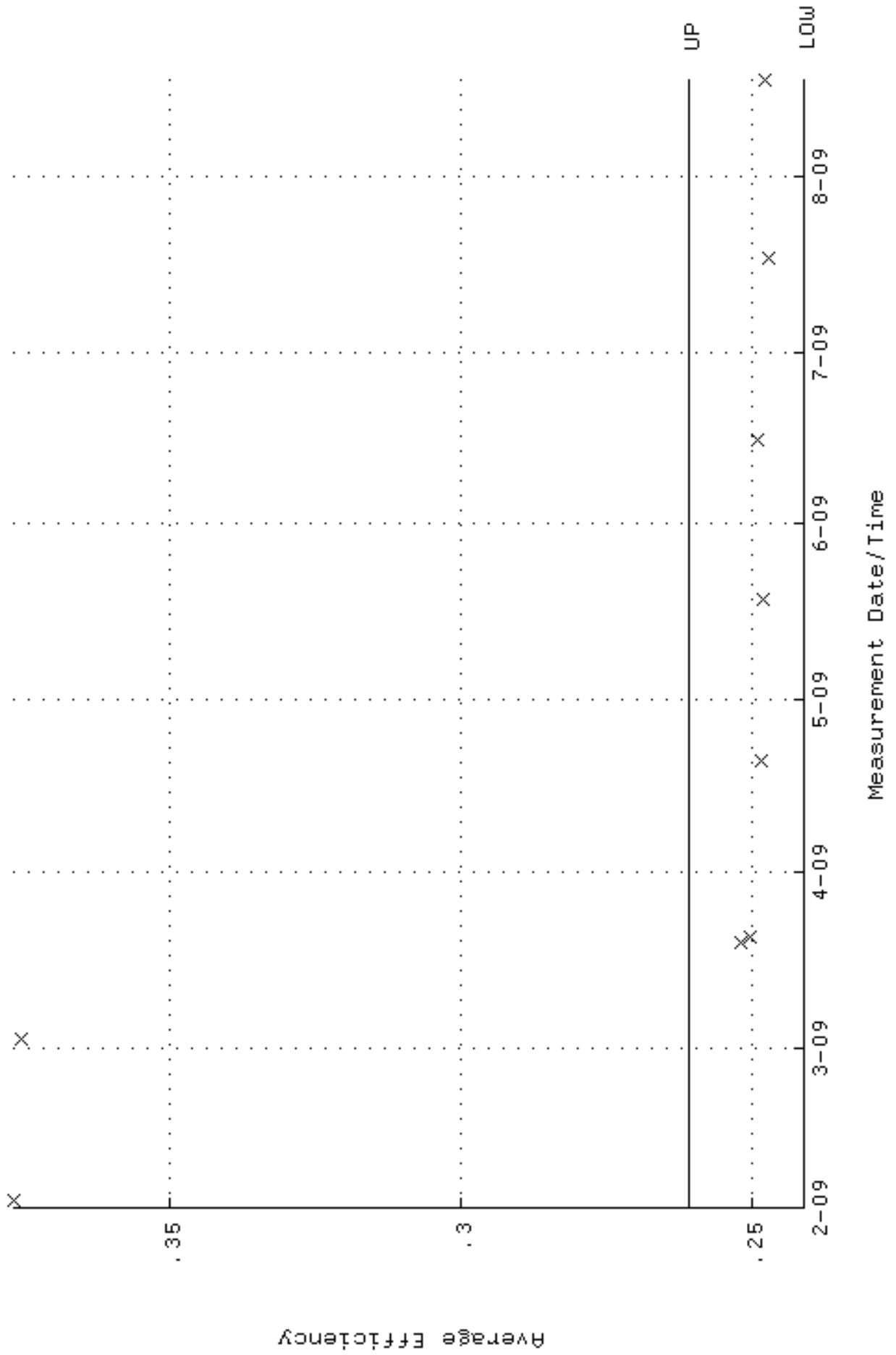
QA filename : DKA100:[ENV\_ALPHA.QA.W]W155.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:35:54 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 83.6873 through 92.4965



QA filename : DKA100:[ENV\_ALPHA.QA.B]B155.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:10:33 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

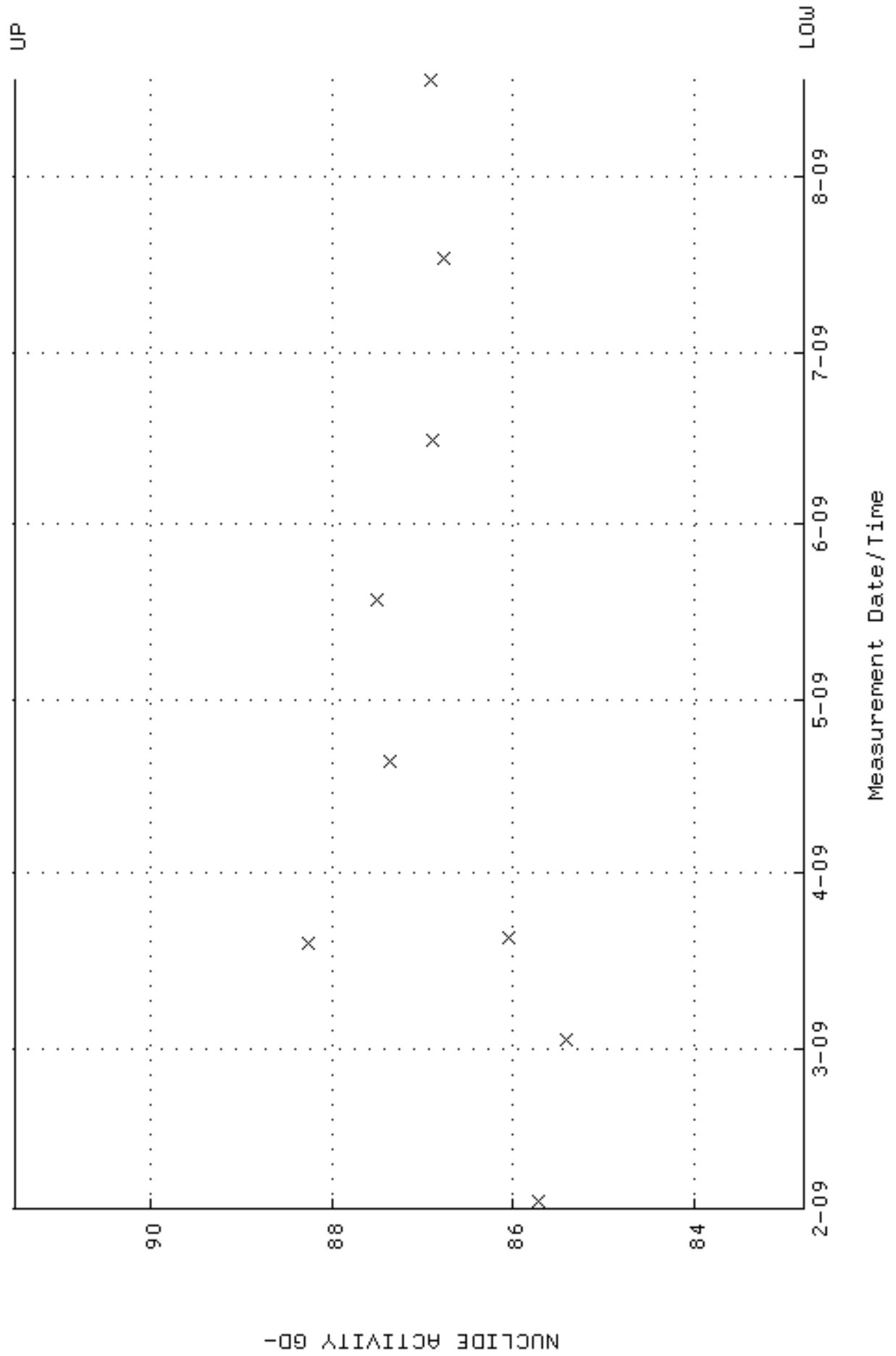


QA filename : DKA100:[ENV\_ALPHA.QA.W]W156.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:36:02 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.241250 through 0.261250

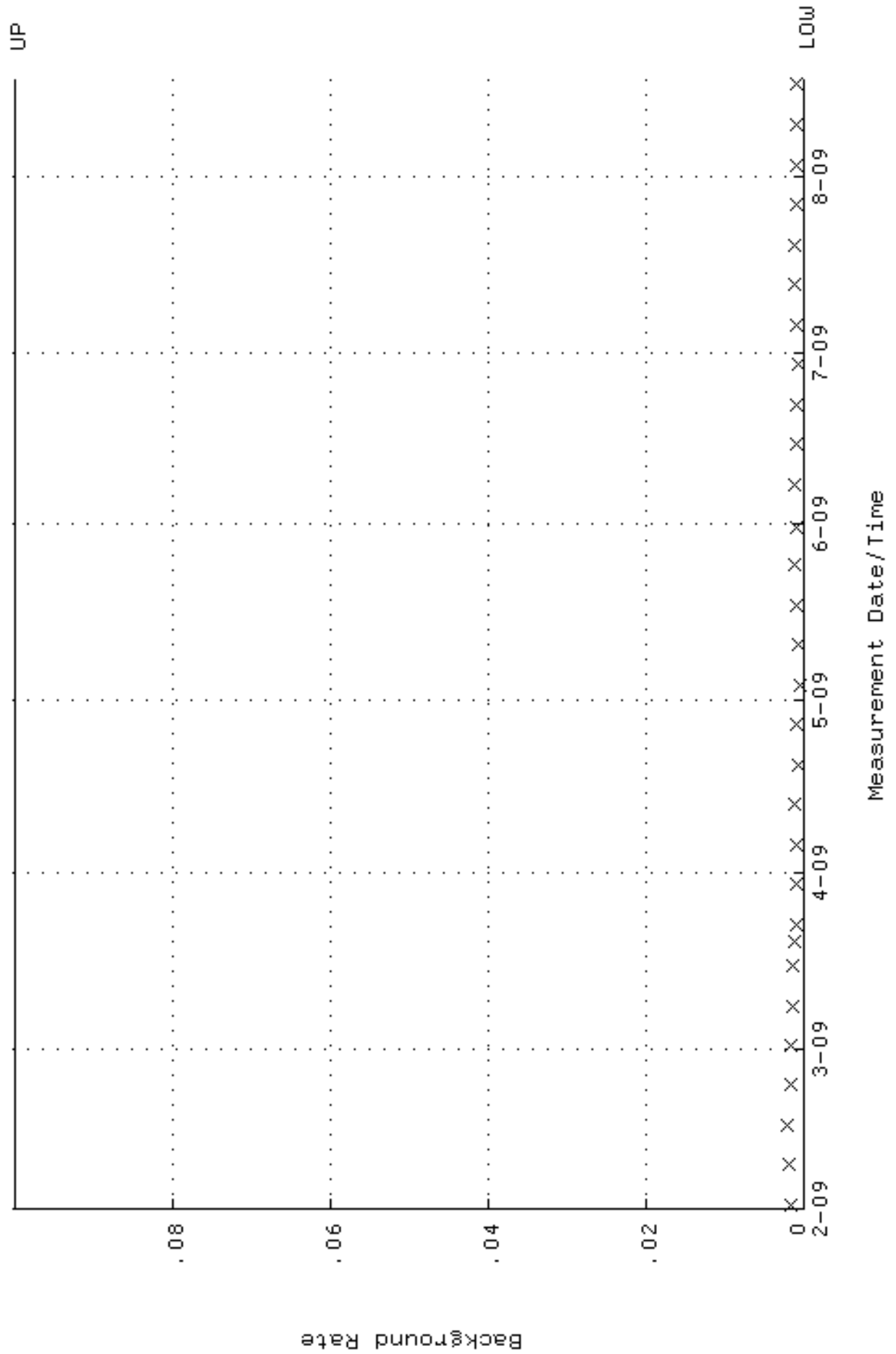




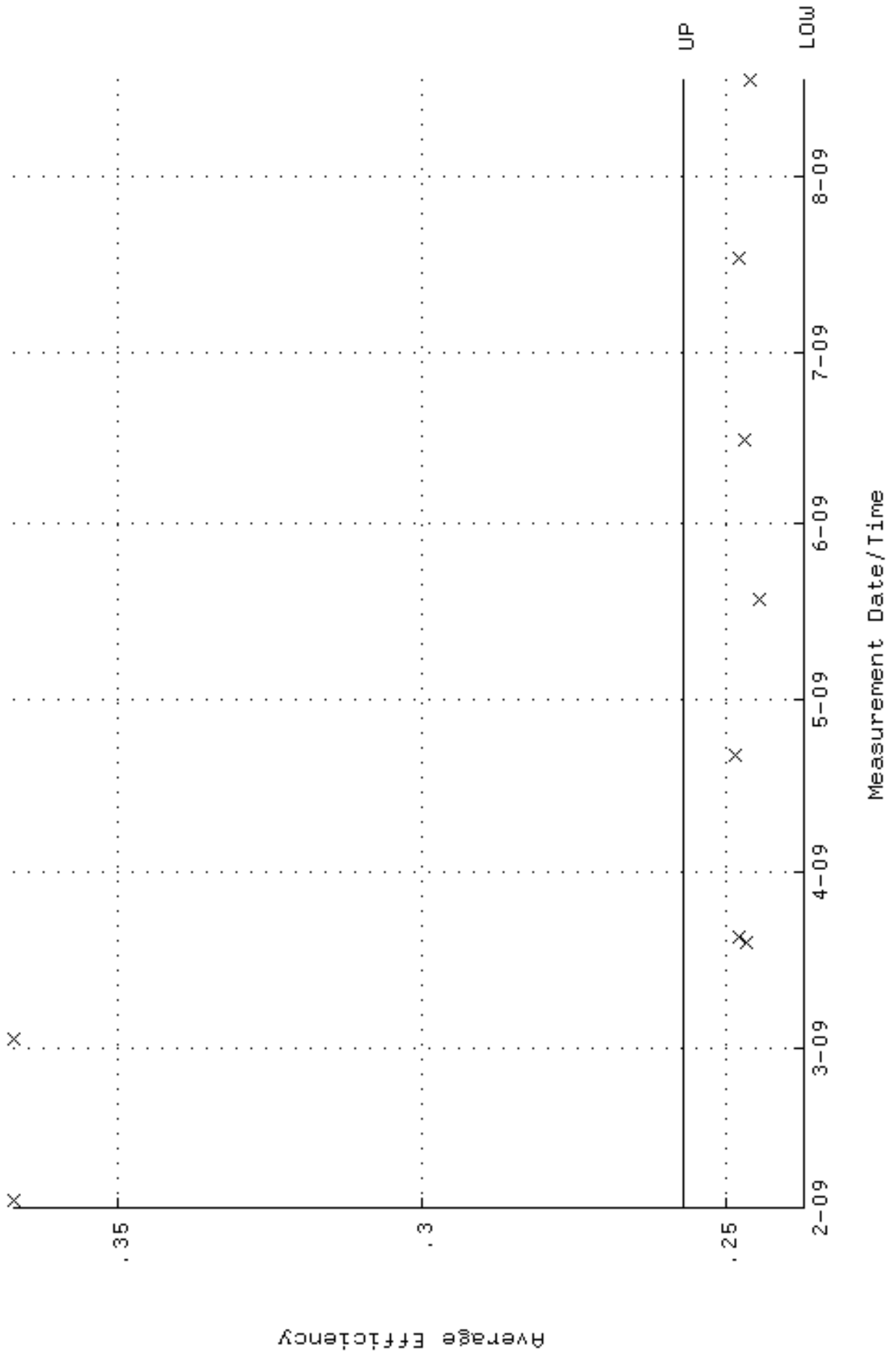
QA filename : DKA100:[ENV\_ALPHA.QA.W]w156.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 2-FEB-2009 10:36:02 through 17-AUG-2009 12:00:00  
Lower/Upper Lmts: 82.7847 through 91.4989



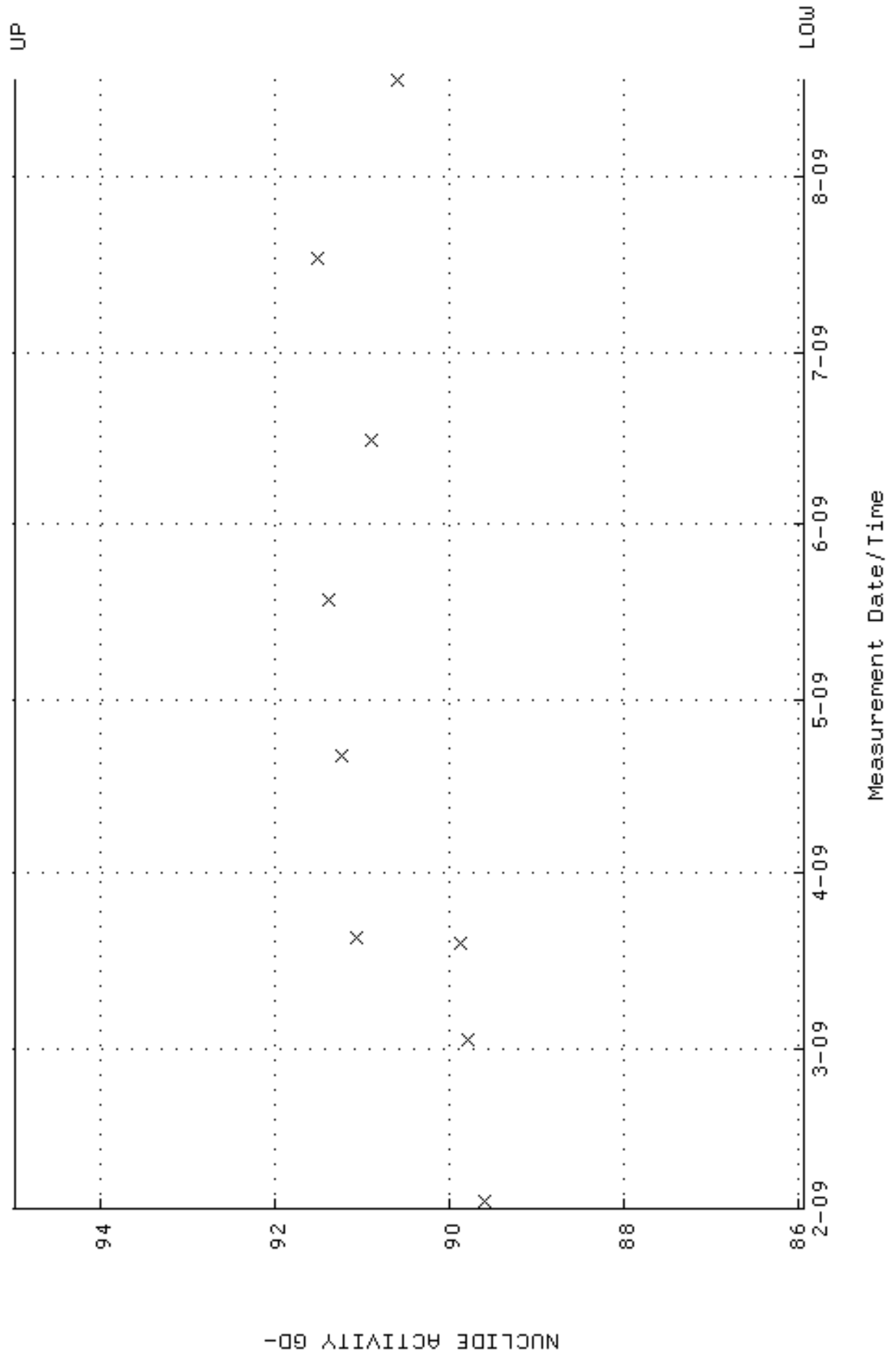
QA filename : DKA100:[ENV\_ALPHA.QA.B]B156.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:10:49 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



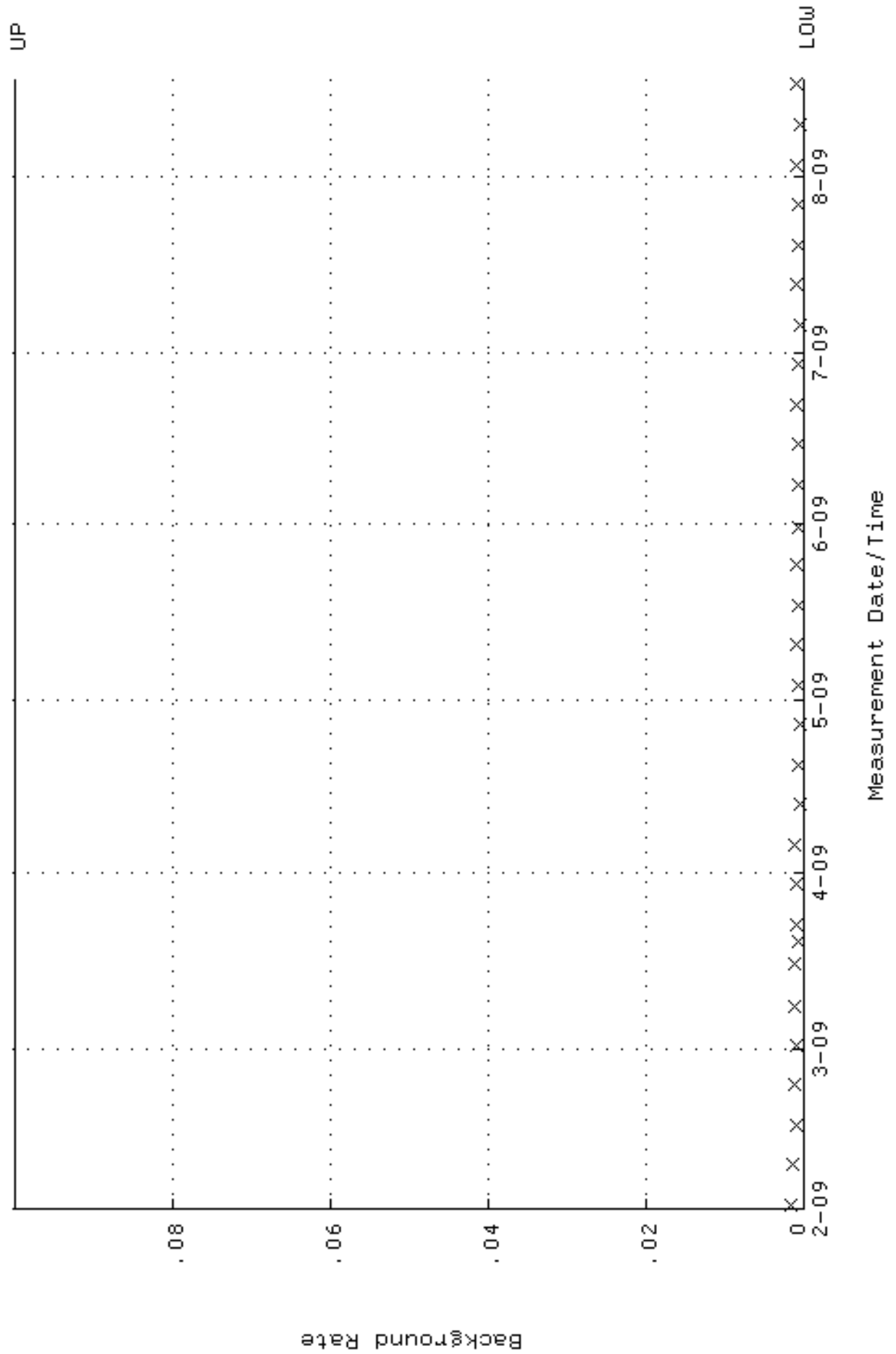
QA filename : DKA100:[ENV\_ALPHA.QA.W]W157.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:36:08 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.237137 through 0.257137



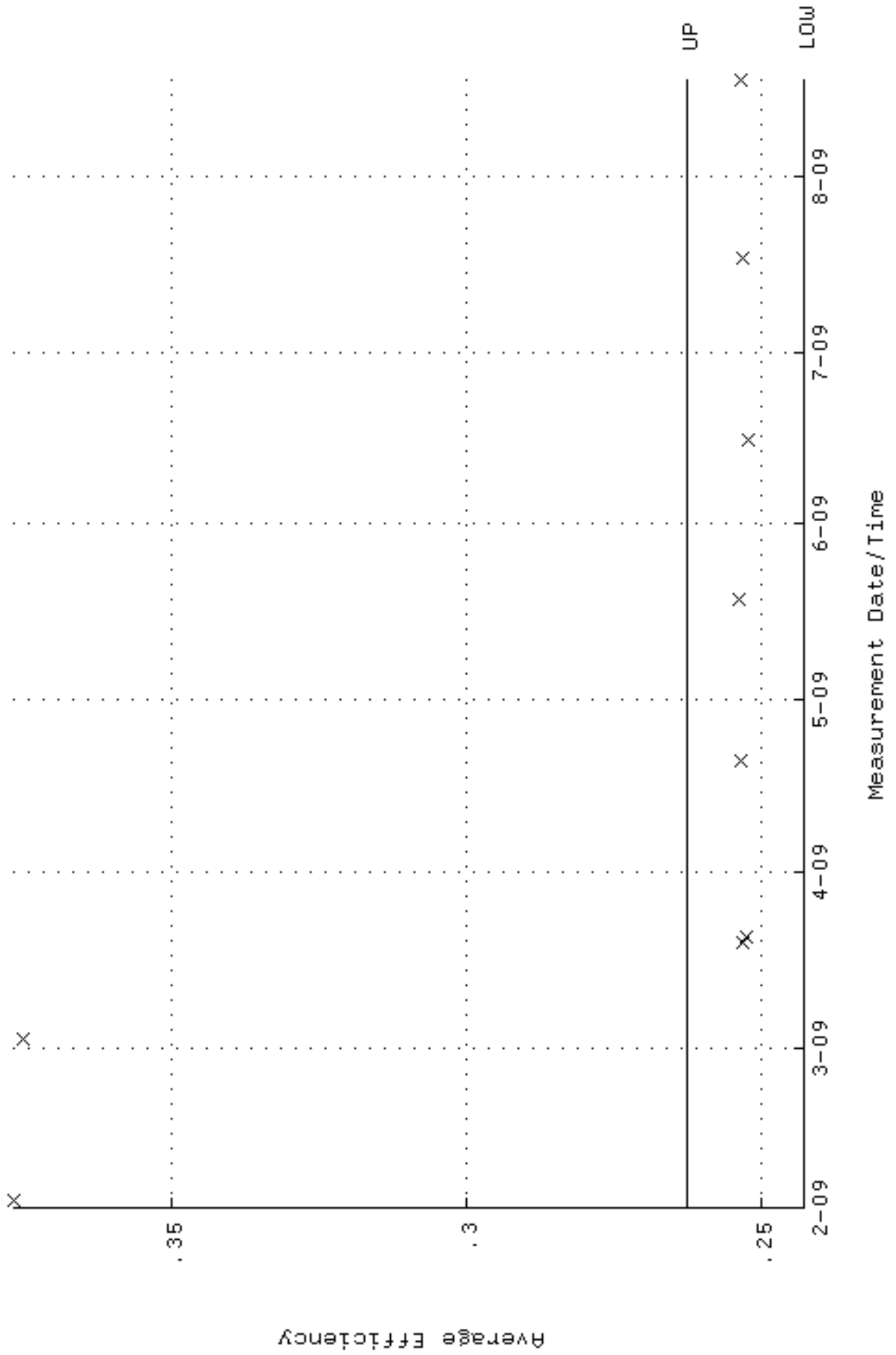
QA filename : DKA100:[ENV\_ALPHA.QA.W]w157.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 2-FEB-2009 10:36:08 through 17-AUG-2009 12:00:00  
Lower/Upper Lmts: 85.9292 through 94.9744



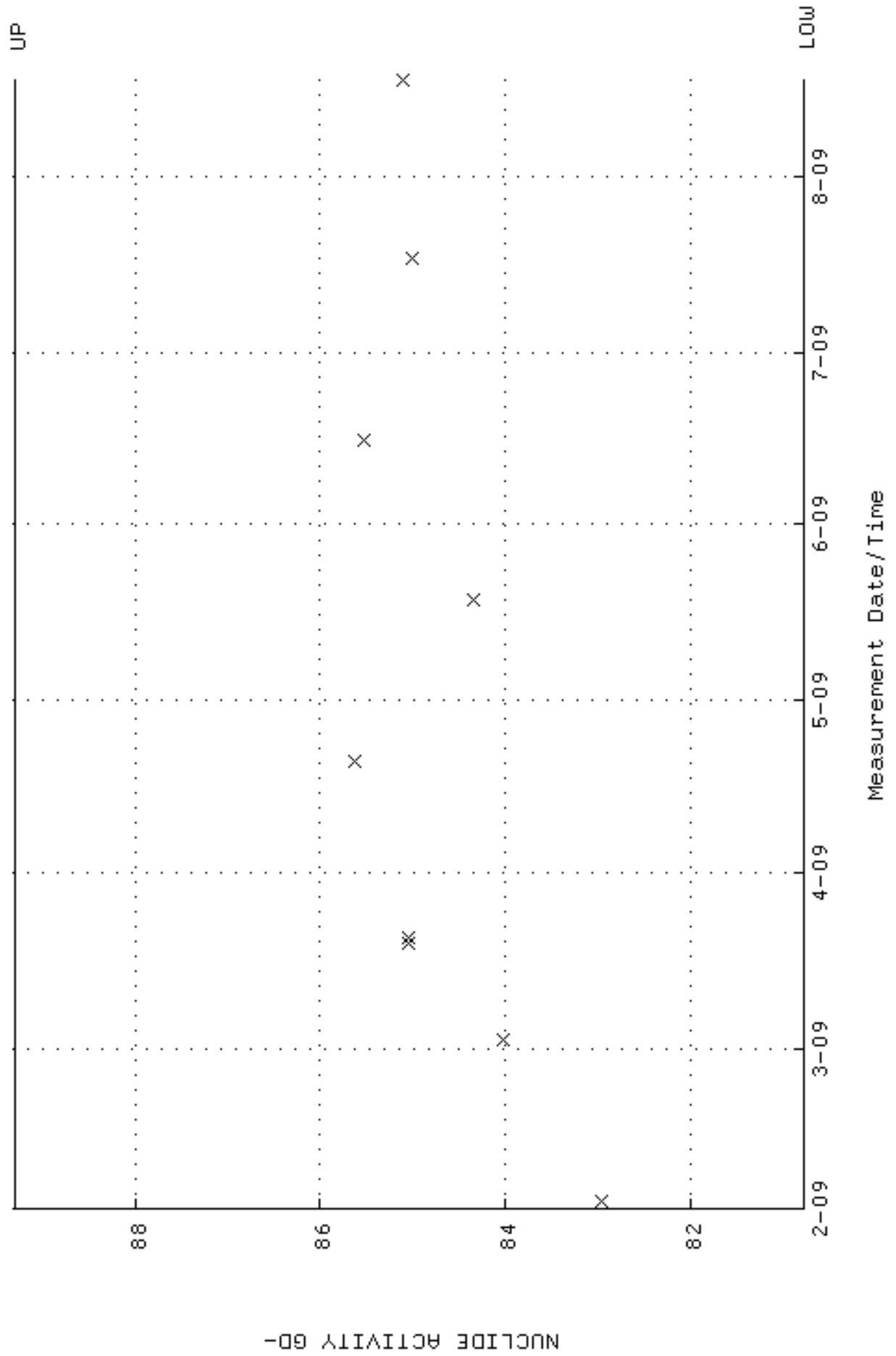
QA filename : DKA100:[ENV\_ALPHA.QA.B]B157.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:11:05 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



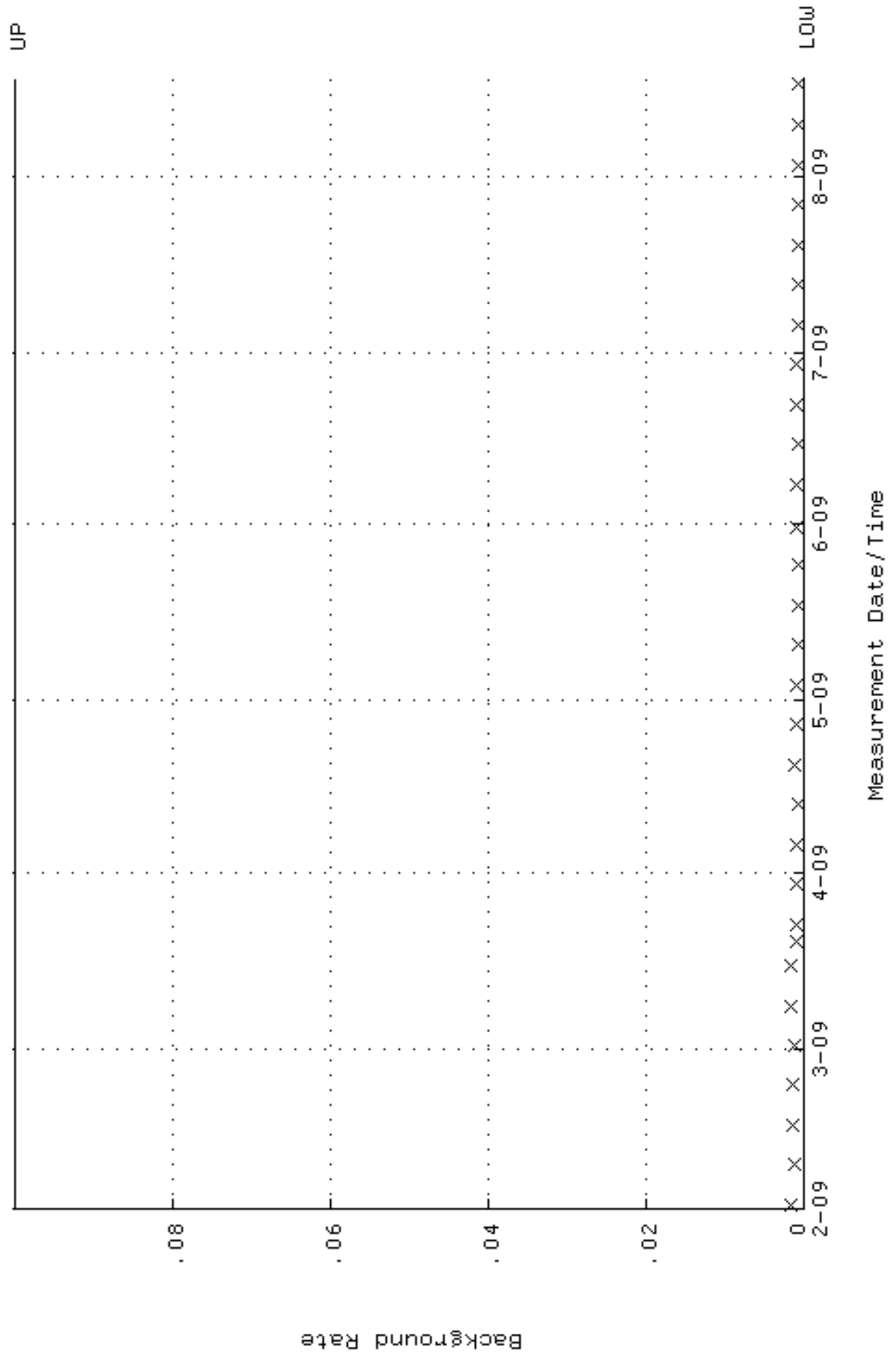
QA filename : DKA100:[ENV\_ALPHA.QA.W]W159.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:36:22 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.242851 through 0.262851



QA filename : DKA100:[ENV\_ALPHA.QA.W]w159.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-FEB-2009 10:36:22 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 80.7870 through 89.2909

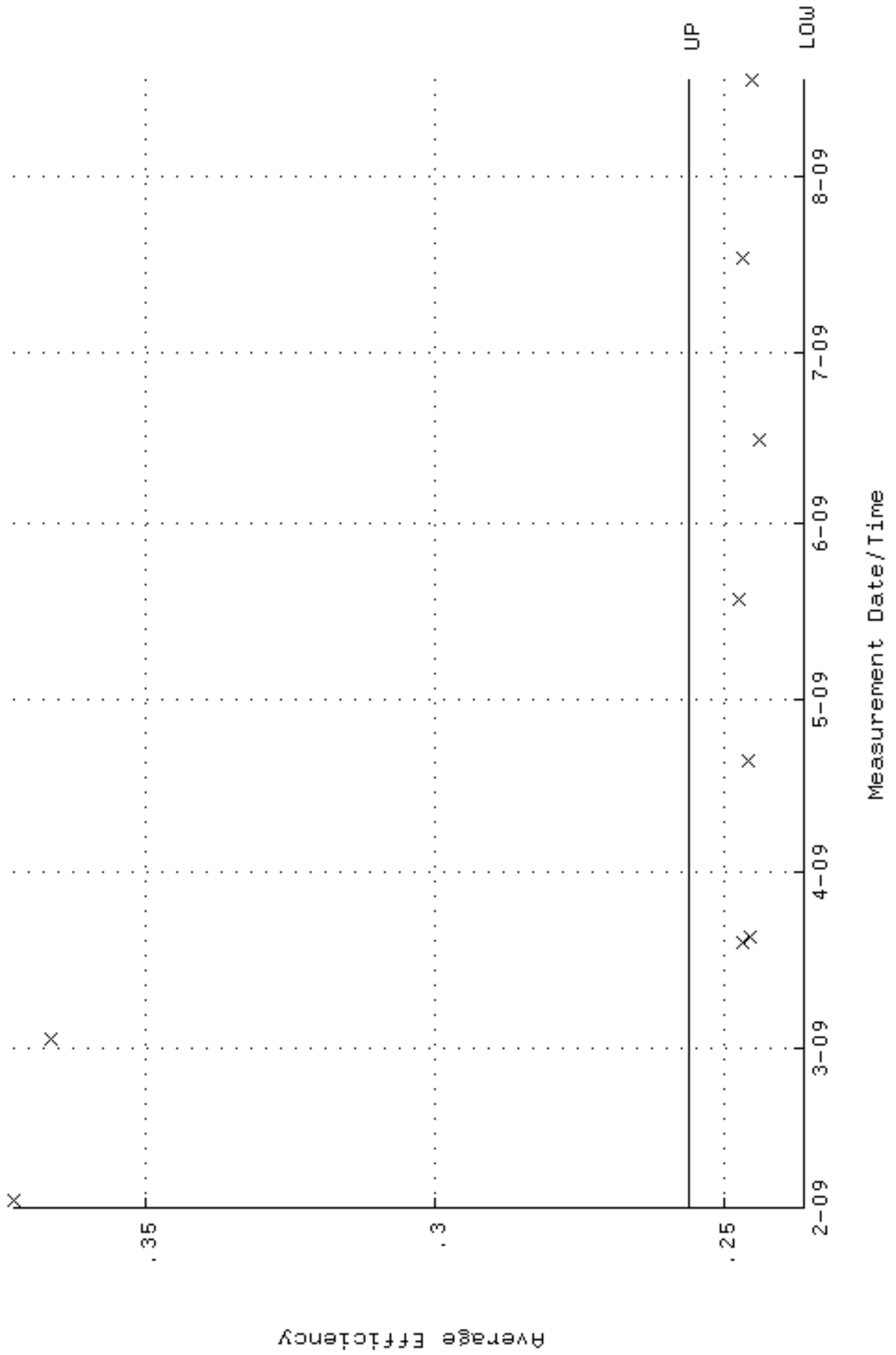


QA filename : DKA100:[ENV\_ALPHA.QA.B]B159.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:11:35 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

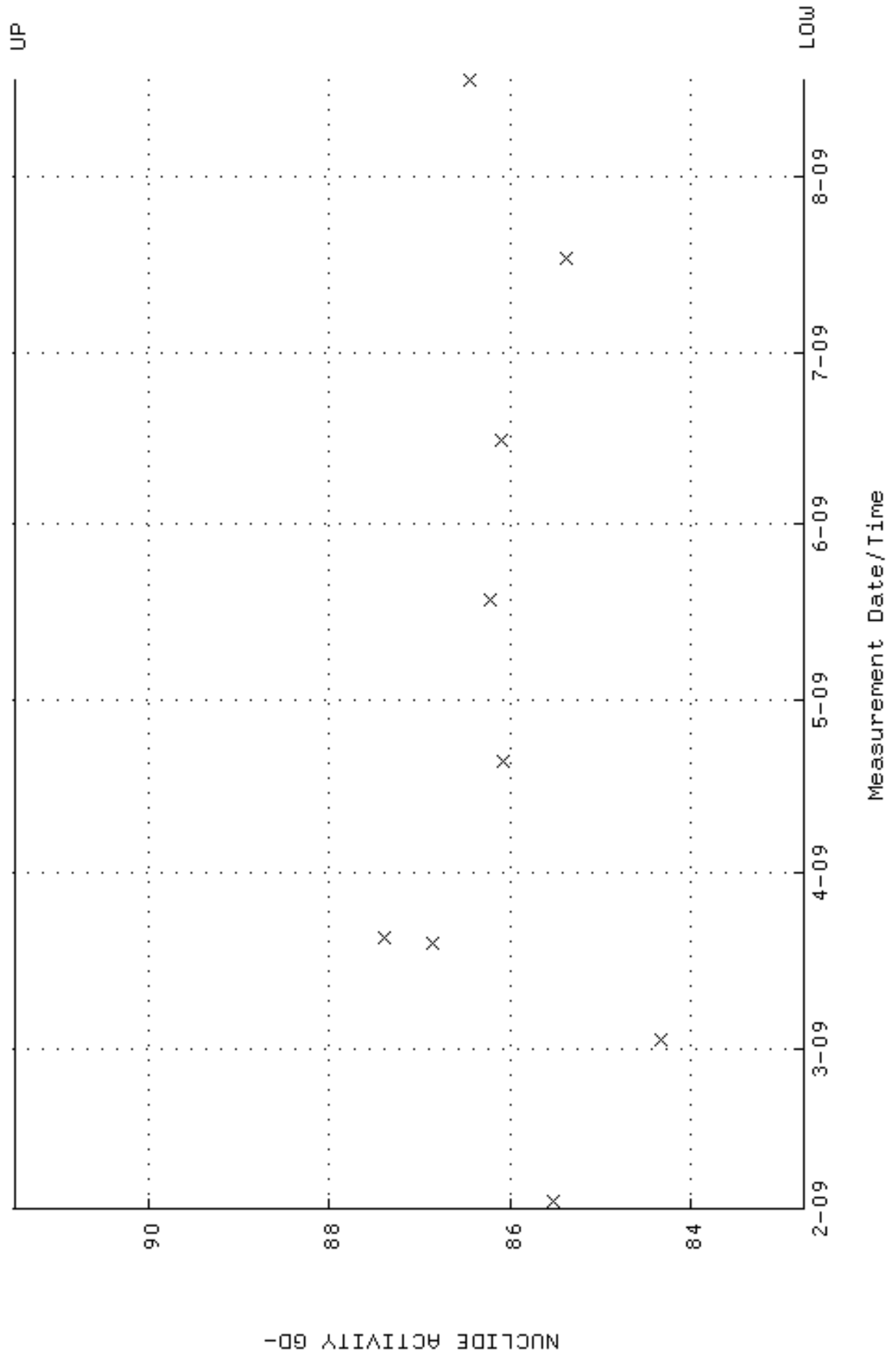




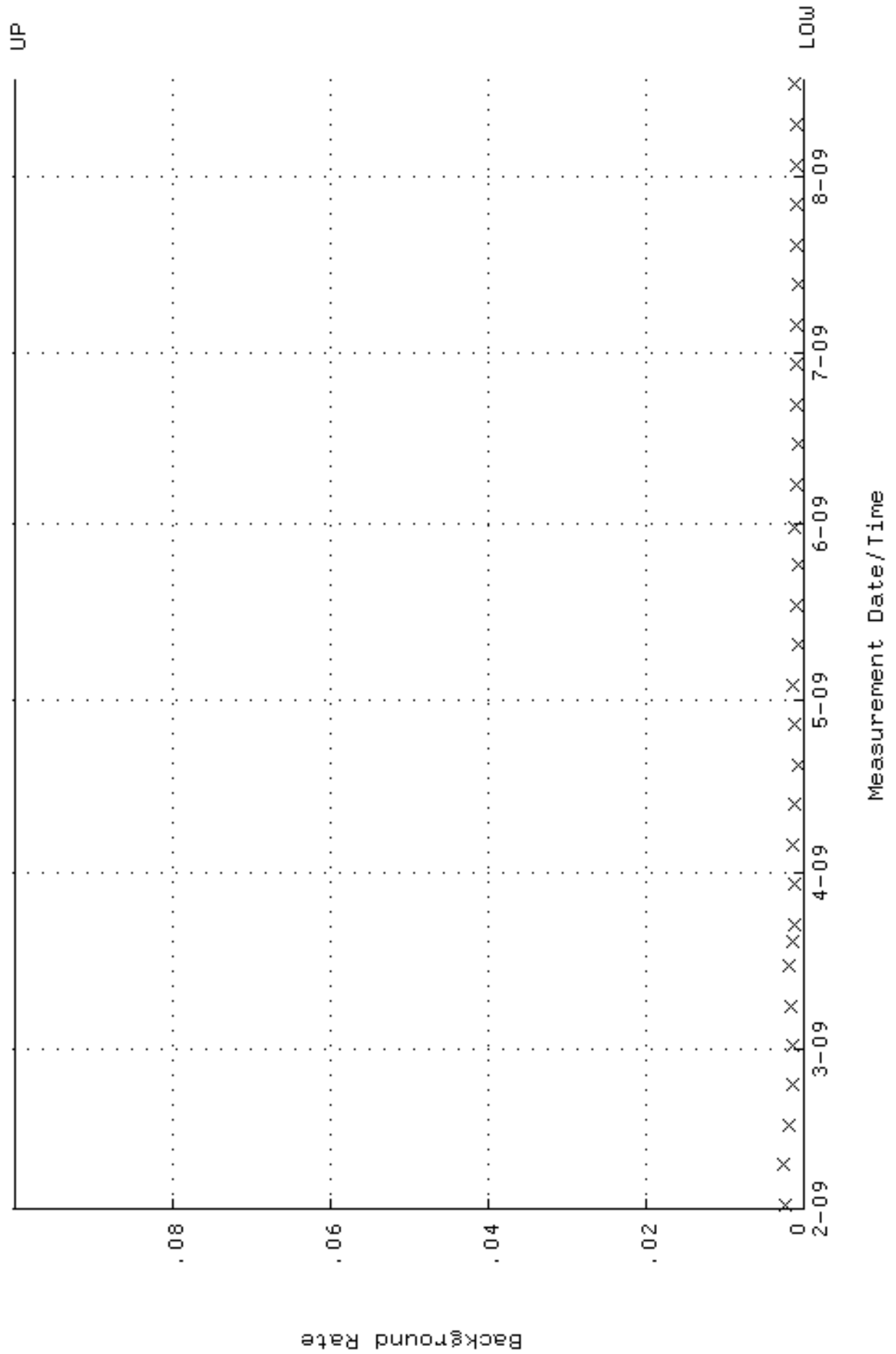
QA filename : DKA100:[ENV\_ALPHA.QA.W]W160.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-FEB-2009 10:36:28 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.236284 through 0.256284



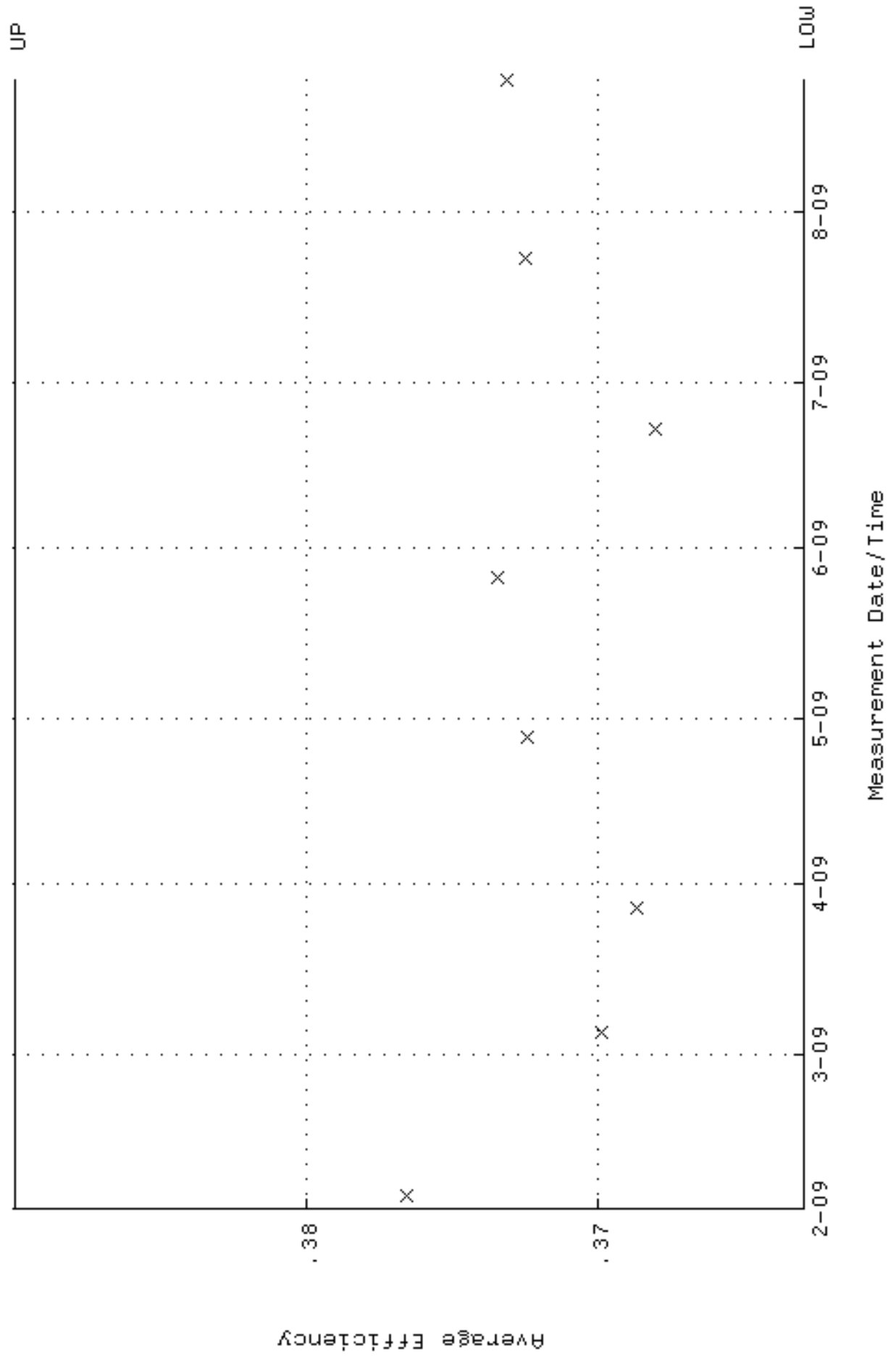
QA filename : DKA100:[ENV\_ALPHA.QA.W]w160.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 2-FEB-2009 10:36:28 through 17-AUG-2009 12:00:00  
Lower/Upper Lmts: 82.7554 through 91.4664



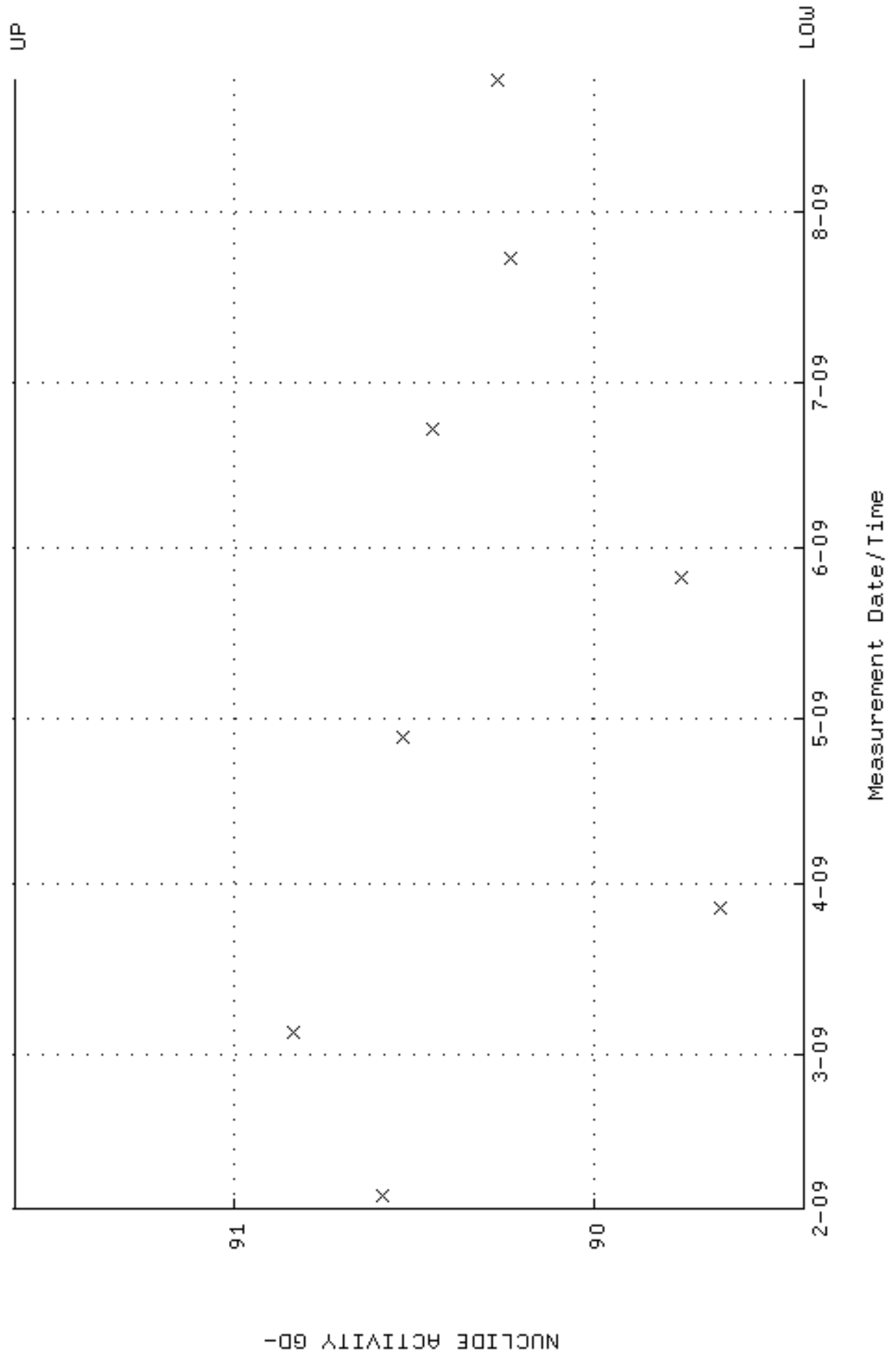
QA filename : DKA100:[ENV\_ALPHA.QA.B]B160.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:11:51 through 17-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



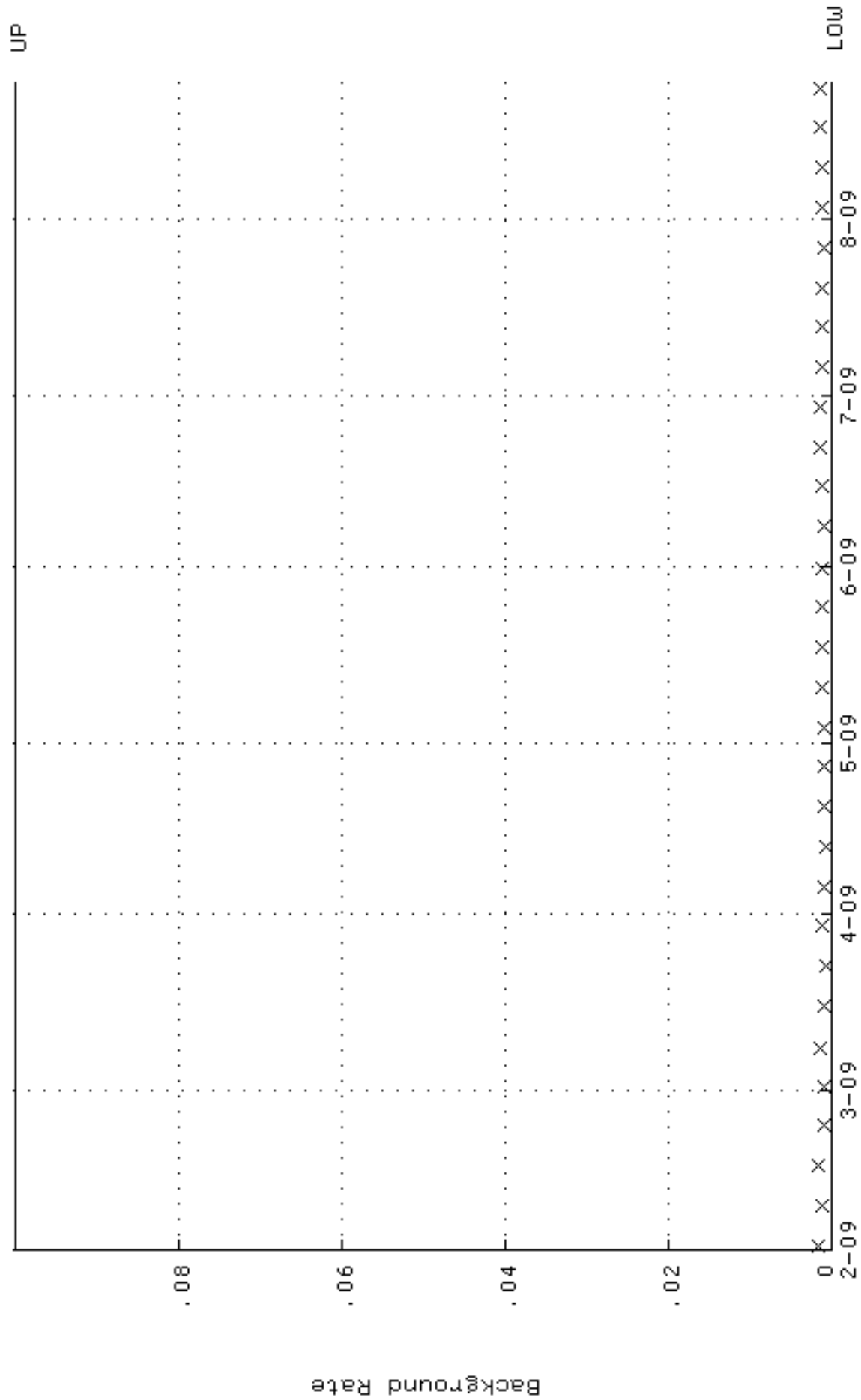
QA filename : DKA100:[ENV\_ALPHA.QA.W]W161.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 07:29:38 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.362982 through 0.389932



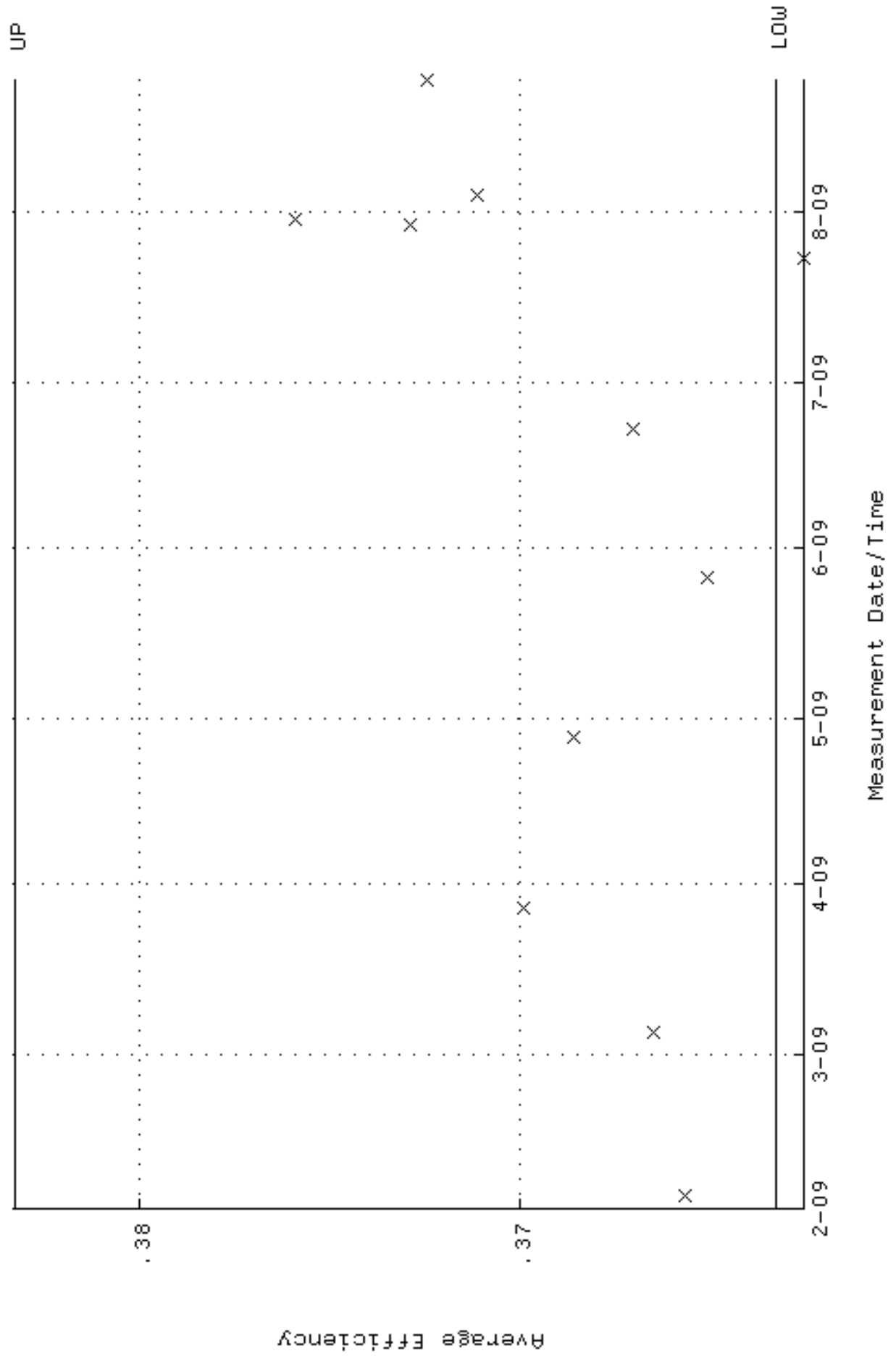
QA filename : DKA100:[ENV\_ALPHA.QA.W]W161.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 07:29:38 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 89.4216 through 91.6054



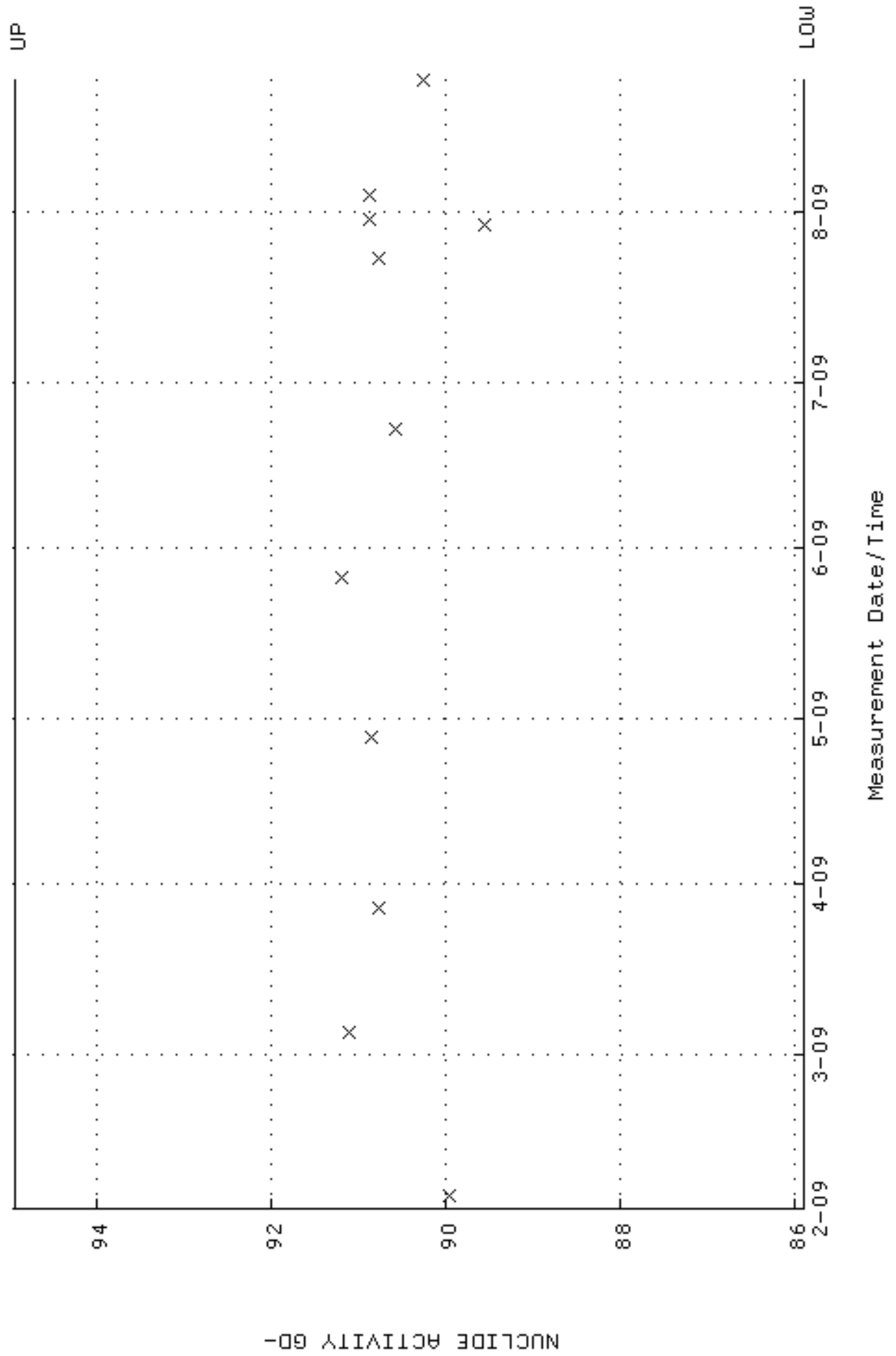
QA filename : DKA100:[ENV\_ALPHA.QA.B]B161.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:12:04 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W162.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 07:29:45 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.363287 through 0.383287

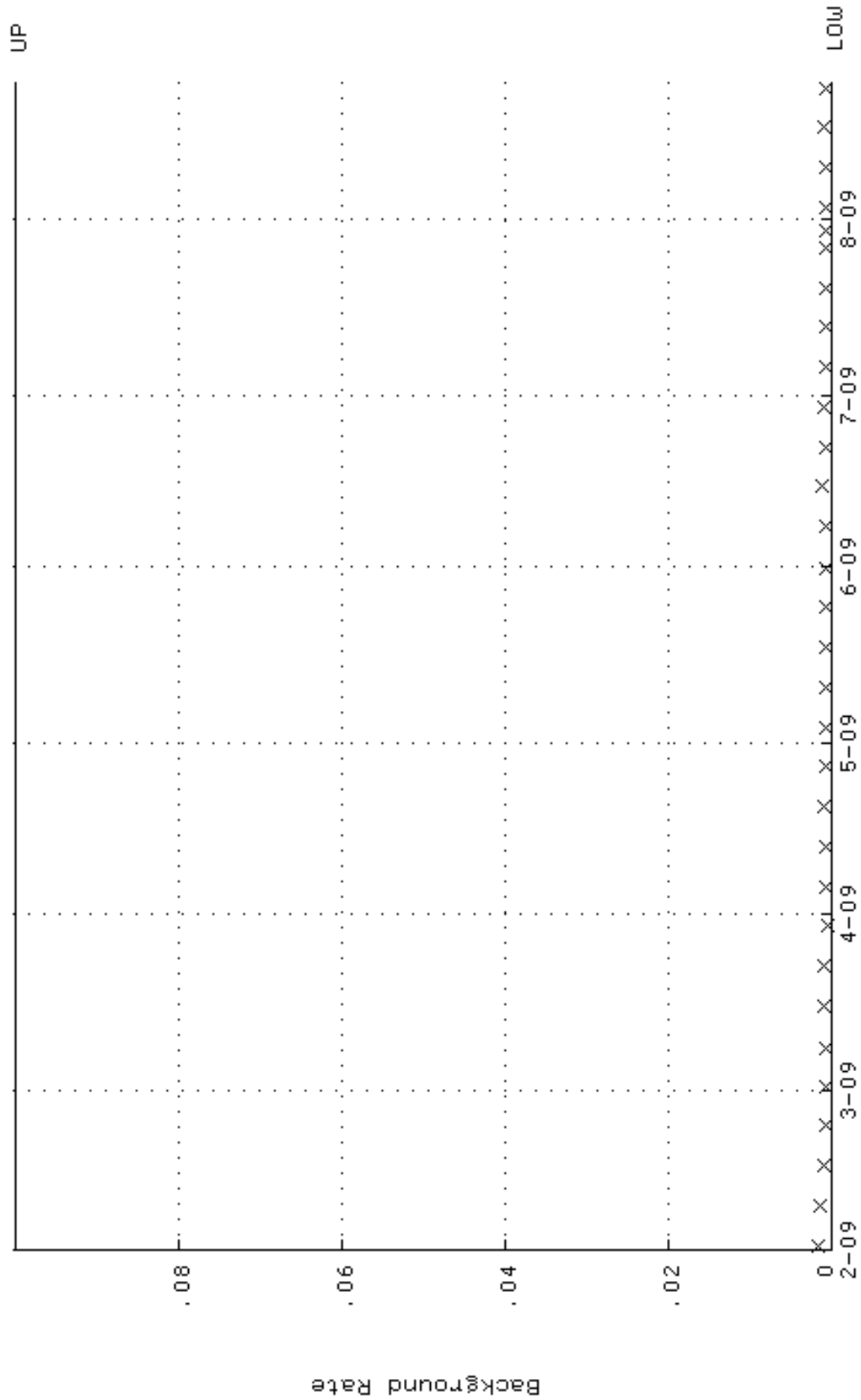


QA filename : DKA100:[ENV\_ALPHA.QA.W]W162.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 07:29:45 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.8969 through 94.9387

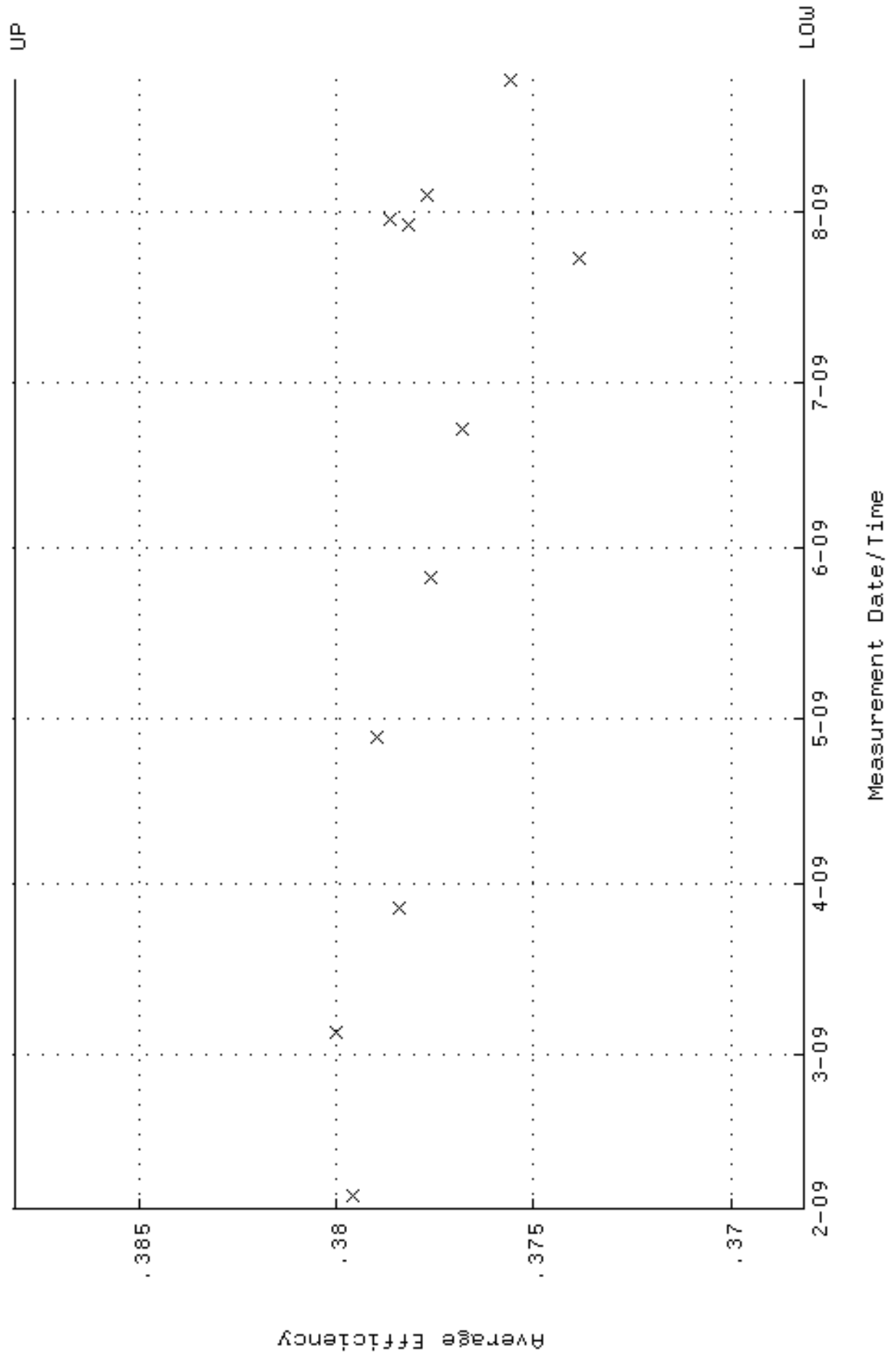




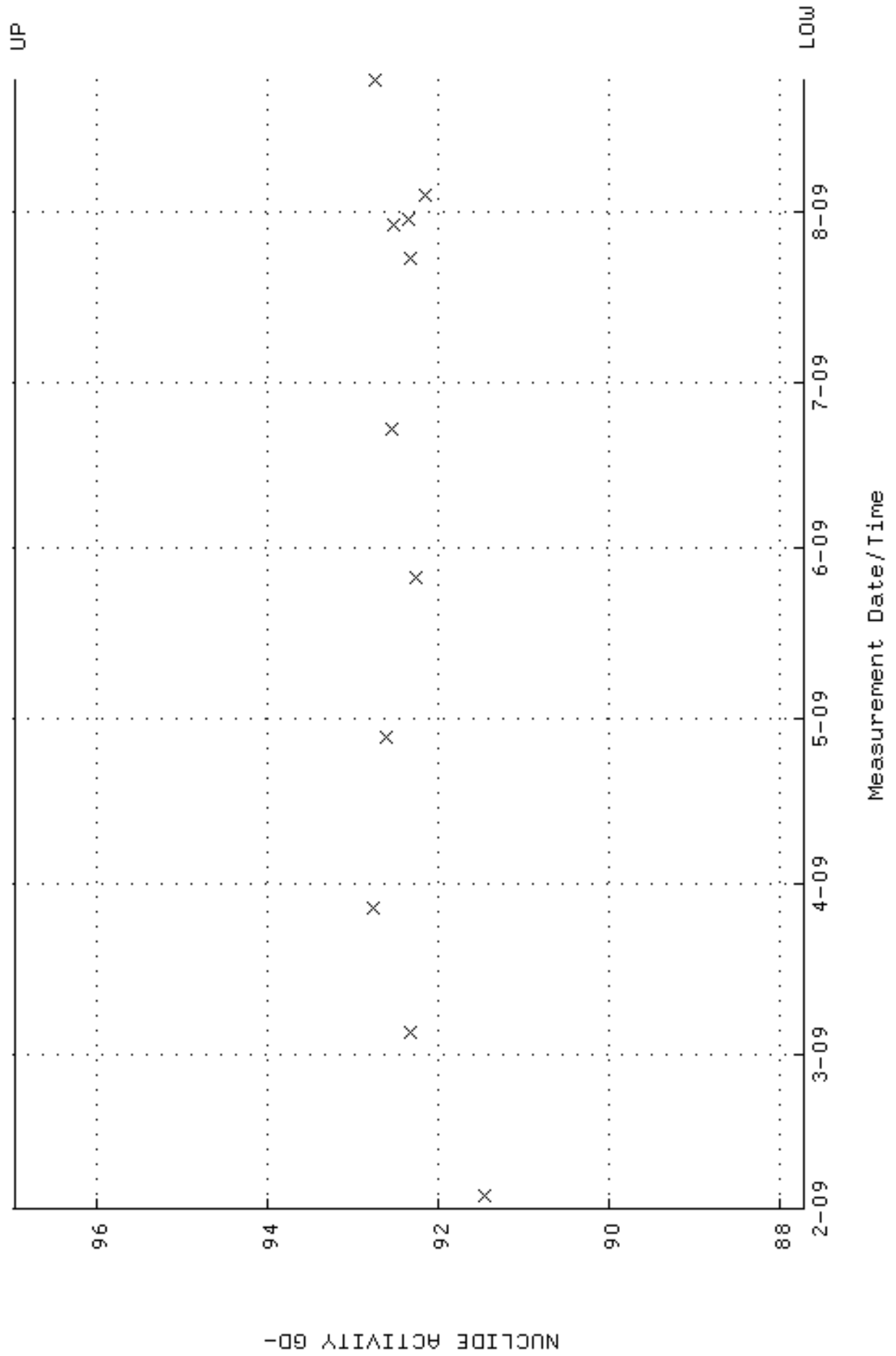
QA filename : DKA100:[ENV\_ALPHA.QA.B]B162.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:12:19 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



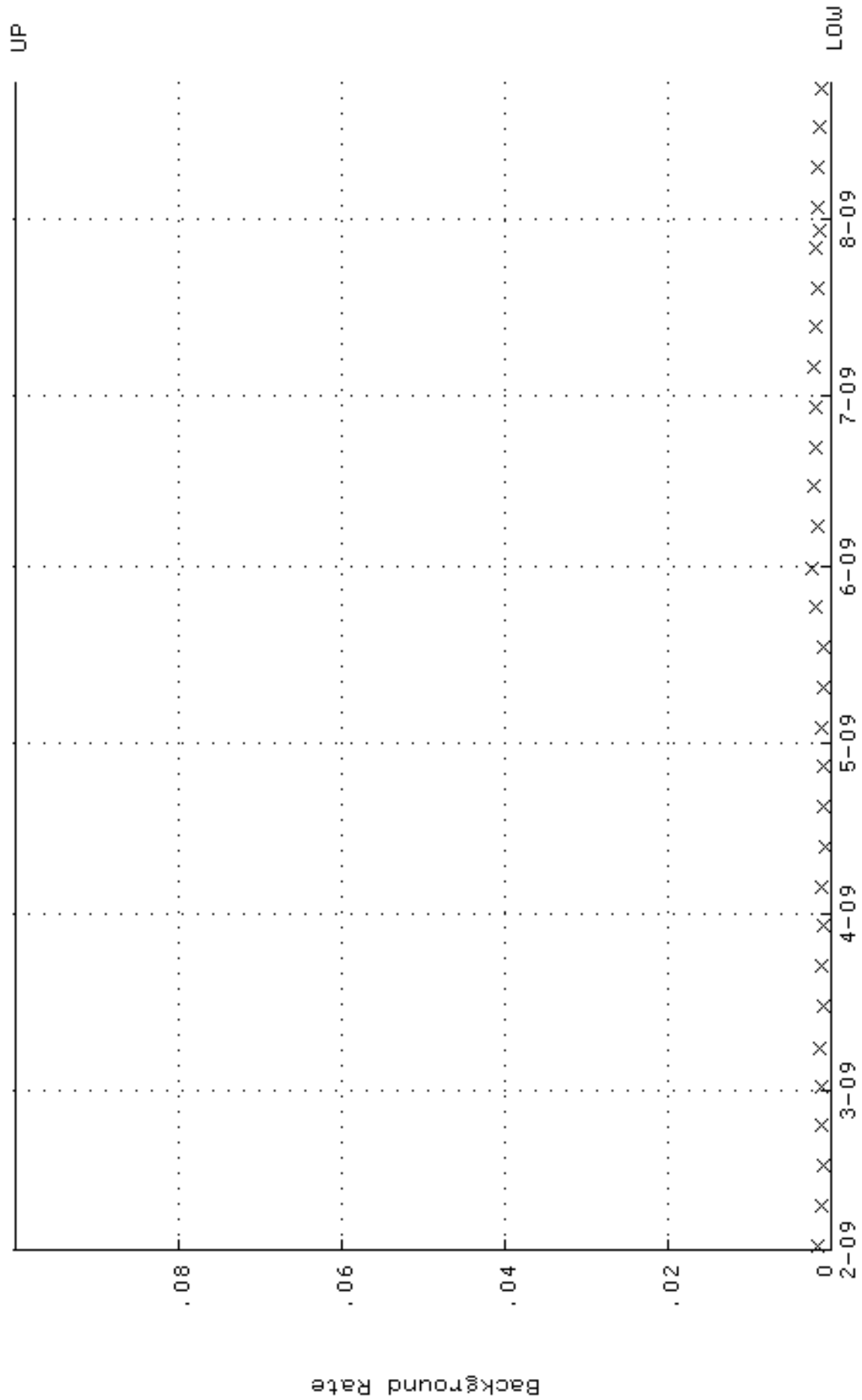
QA filename : DKA100:[ENV\_ALPHA.QA.W]W169.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 07:30:32 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.368144 through 0.388144



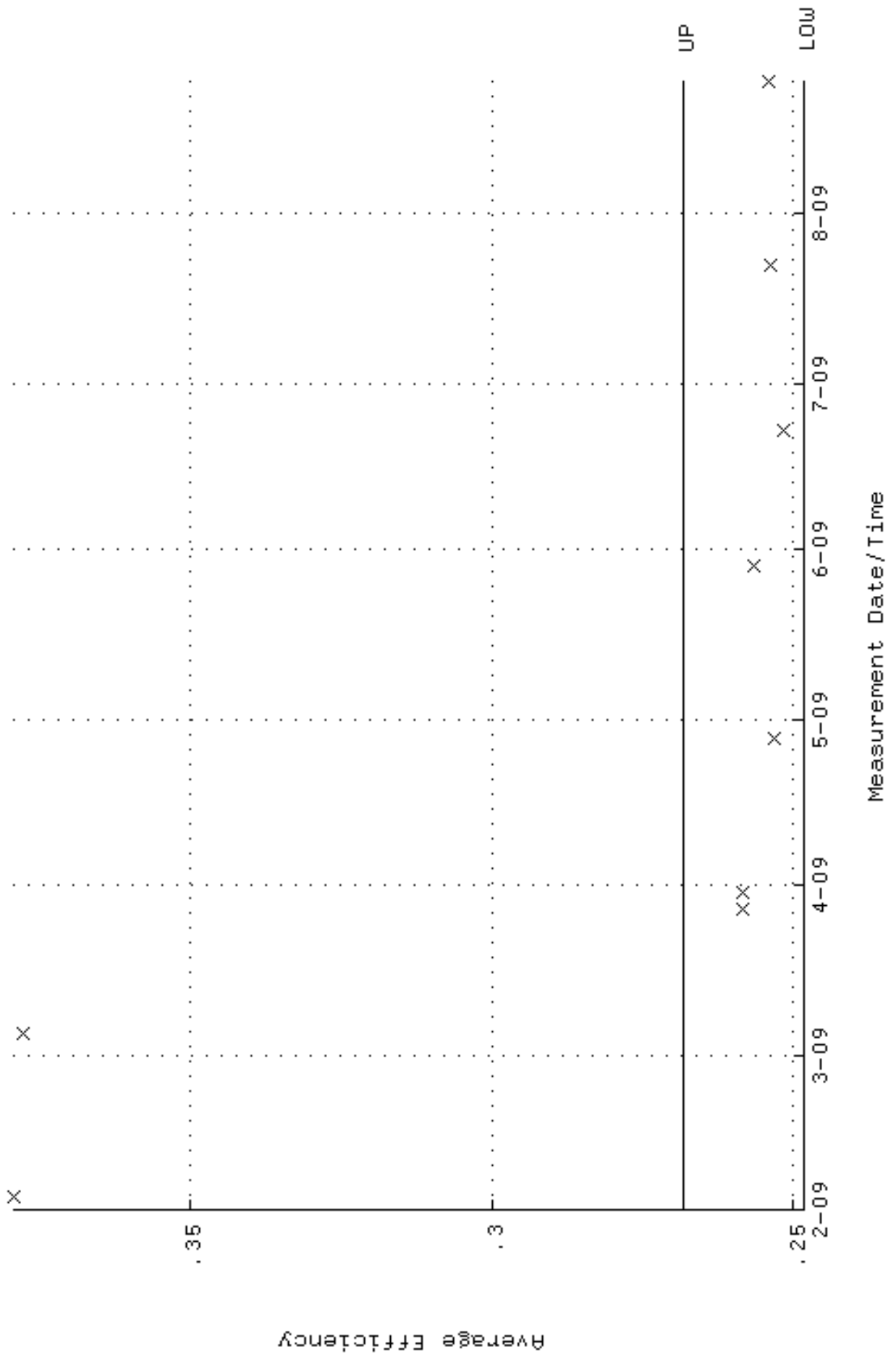
QA filename : DKA100:[ENV\_ALPHA.QA.W]W169.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 07:30:32 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 87.7141 through 96.9471



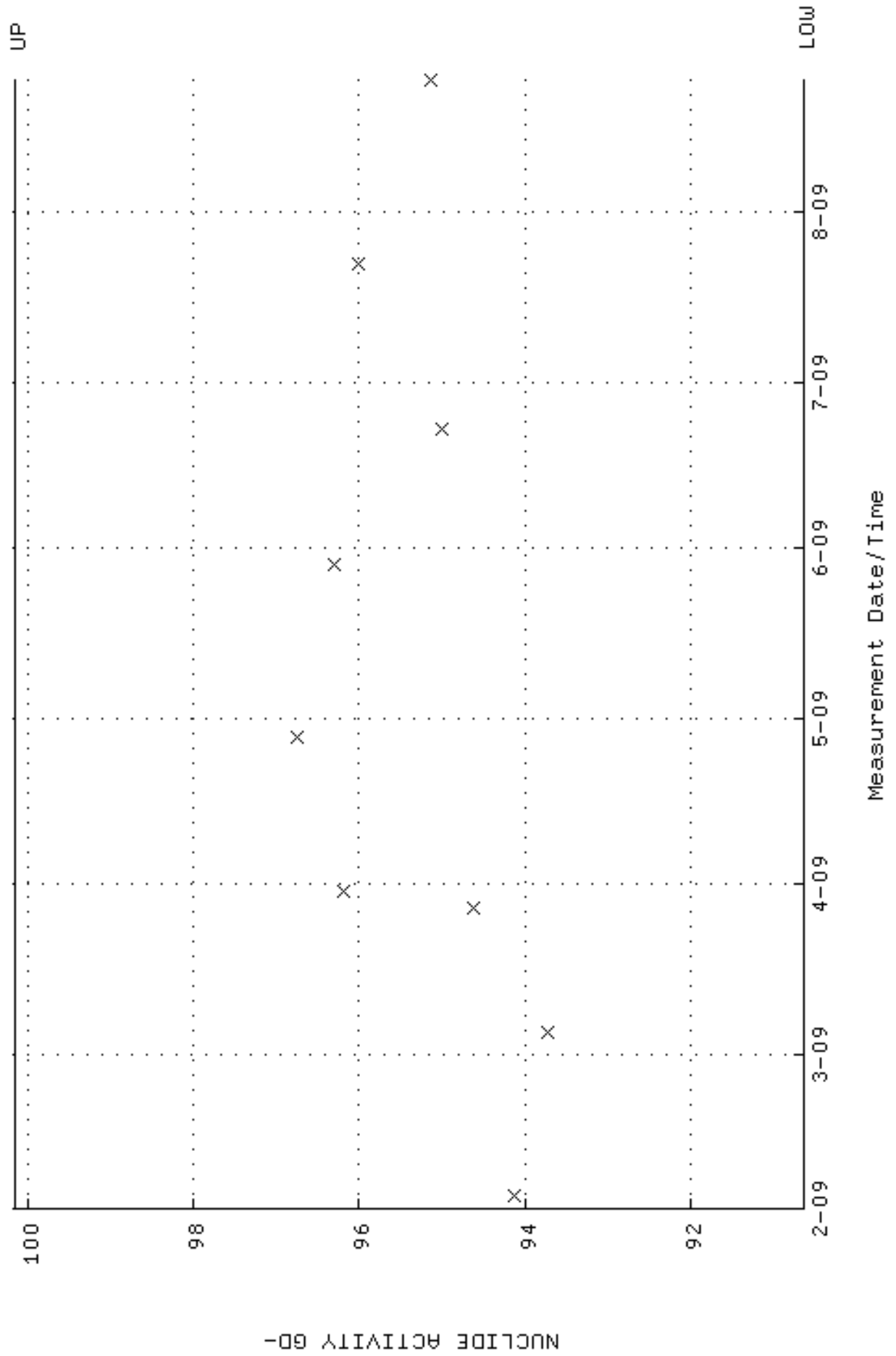
QA filename : DKA100:[ENV\_ALPHA.QA.B]B169.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:13:46 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



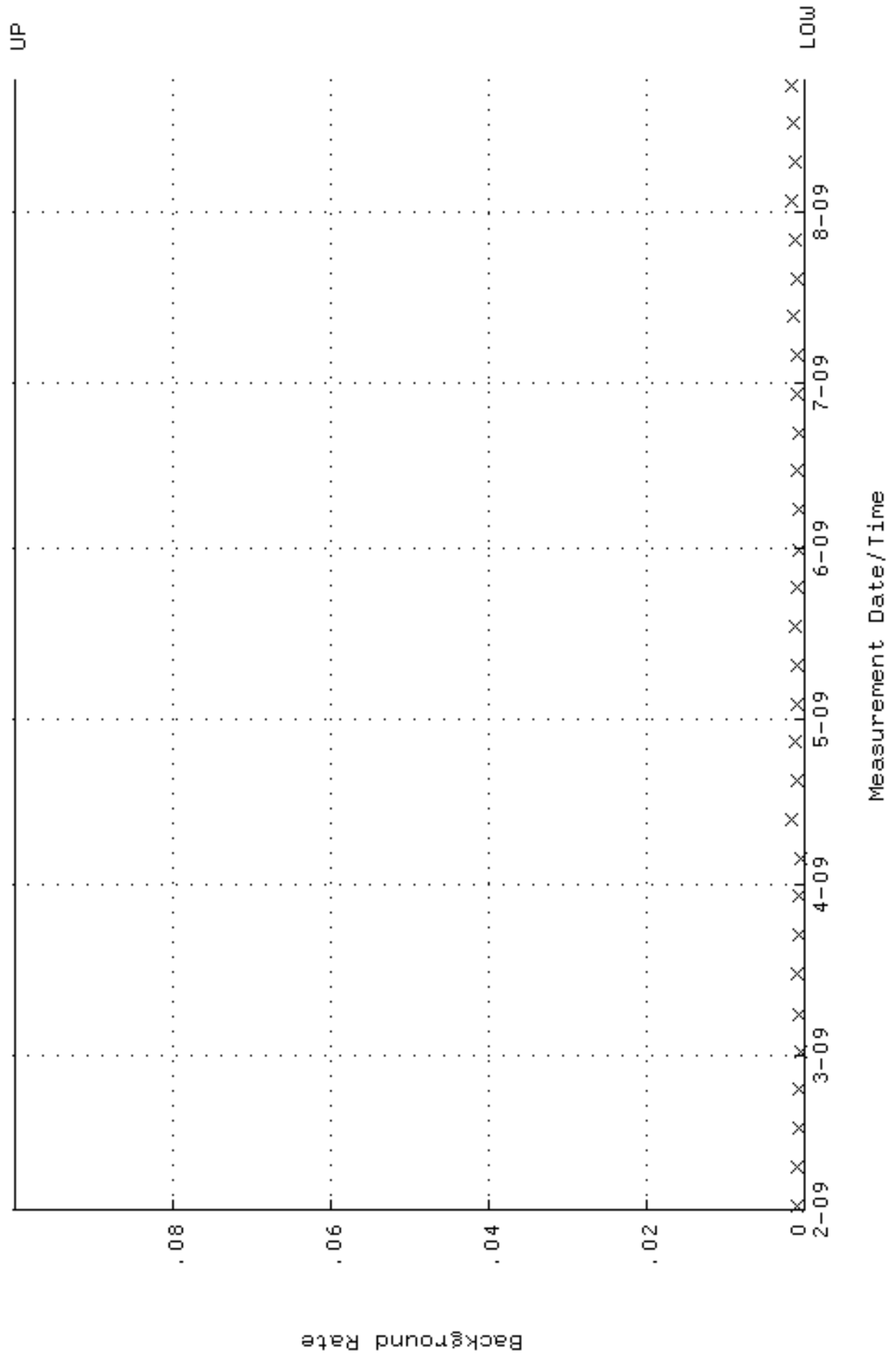
QA filename : DKA100:[ENV\_ALPHA.QA.W]W175.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:06:46 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.248296 through 0.268296



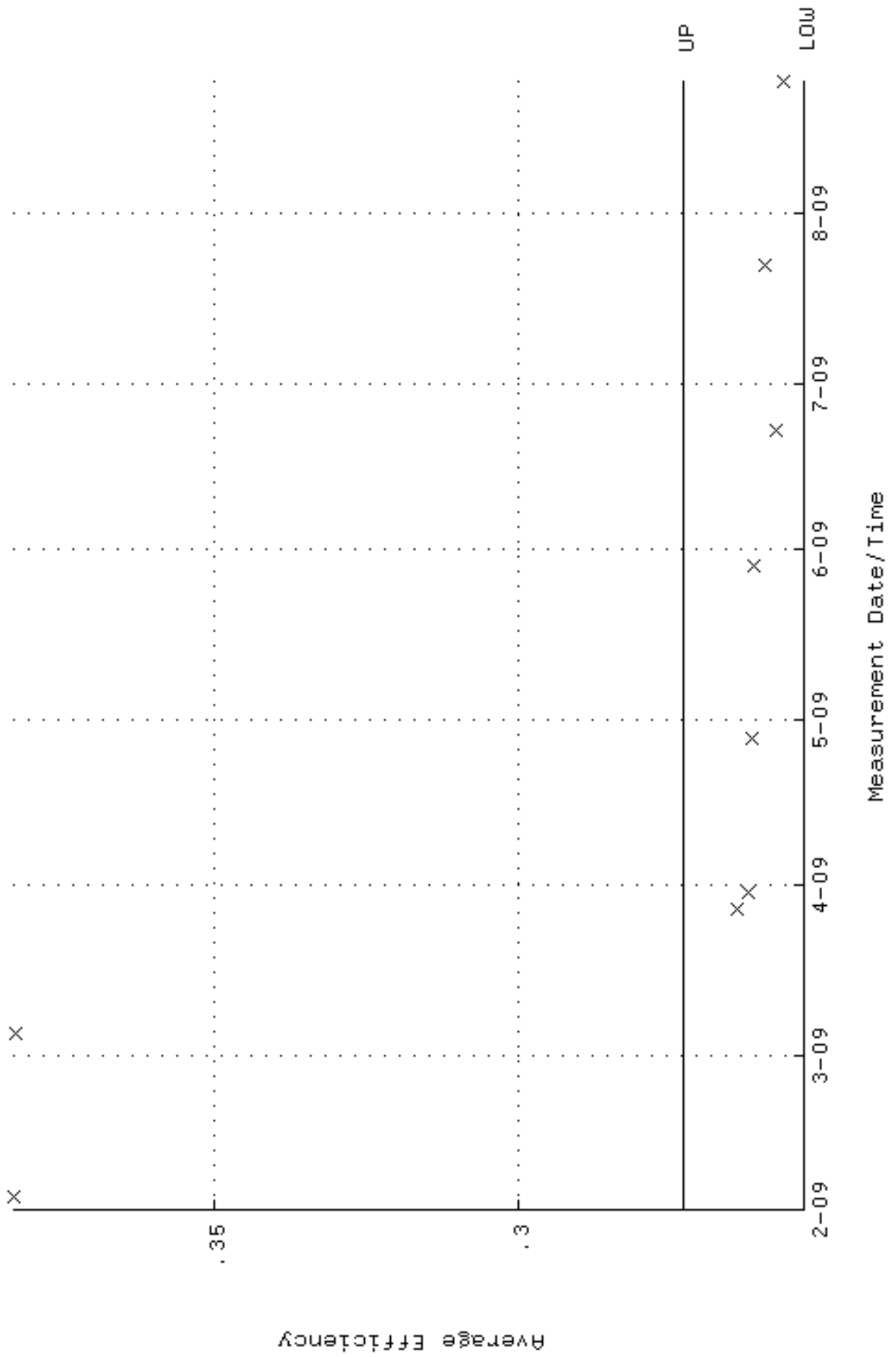
QA filename : DKA100:[ENV\_ALPHA.QA.W]W175.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:06:46 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 90.6224 through 100.162



QA filename : DKA100:[ENV\_ALPHA.QA.B]B175.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:15:19 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

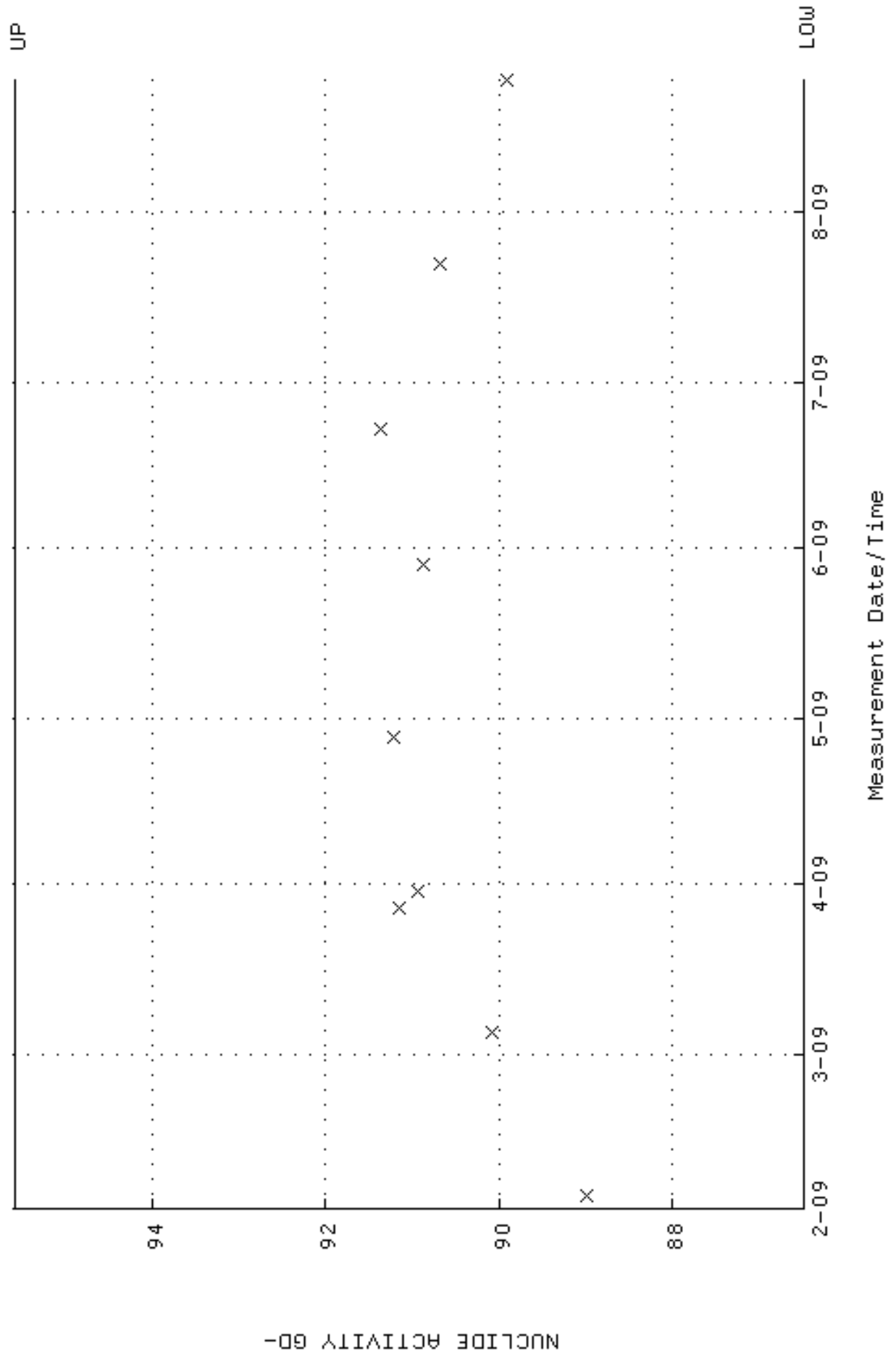


QA filename : DKA100:[ENV\_ALPHA.QA.W]W176.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:07:37 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.253285 through 0.273285

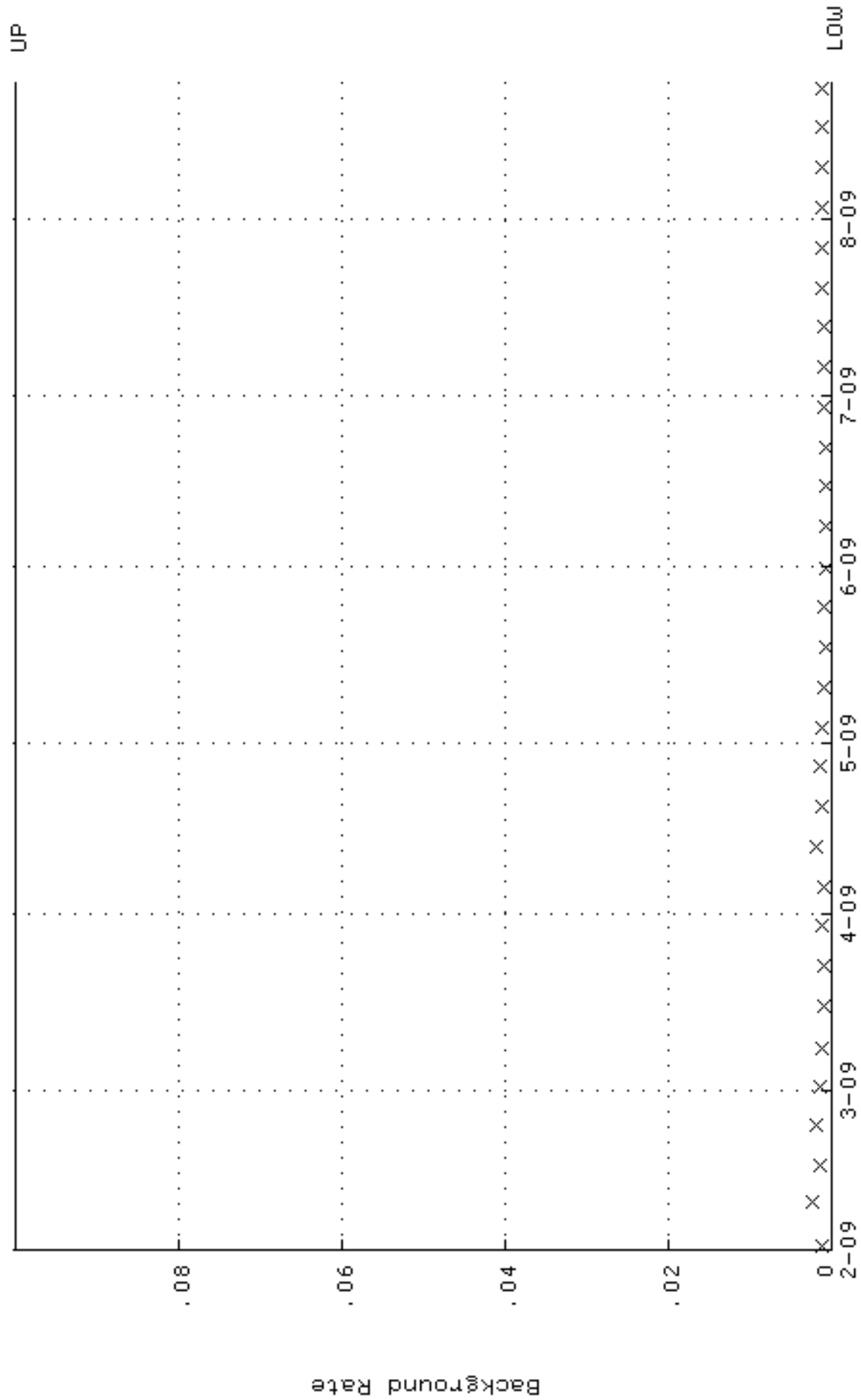




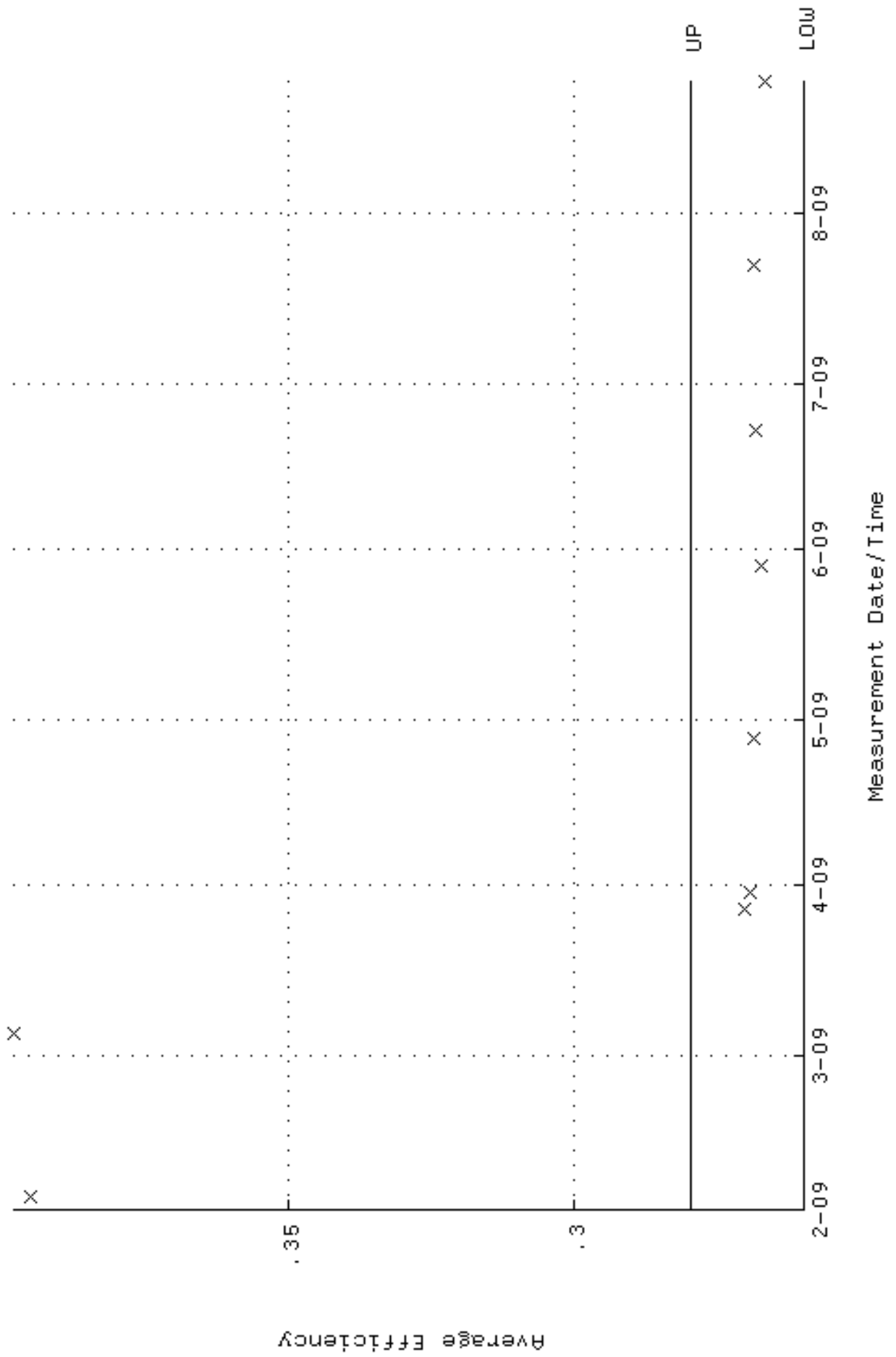
QA filename : DKA100:[ENV\_ALPHA.QA.W]W176.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 3-FEB-2009 12:07:37 through 24-AUG-2009 12:00:00  
Lower/Upper Lmts: 86.4817 through 95.5851



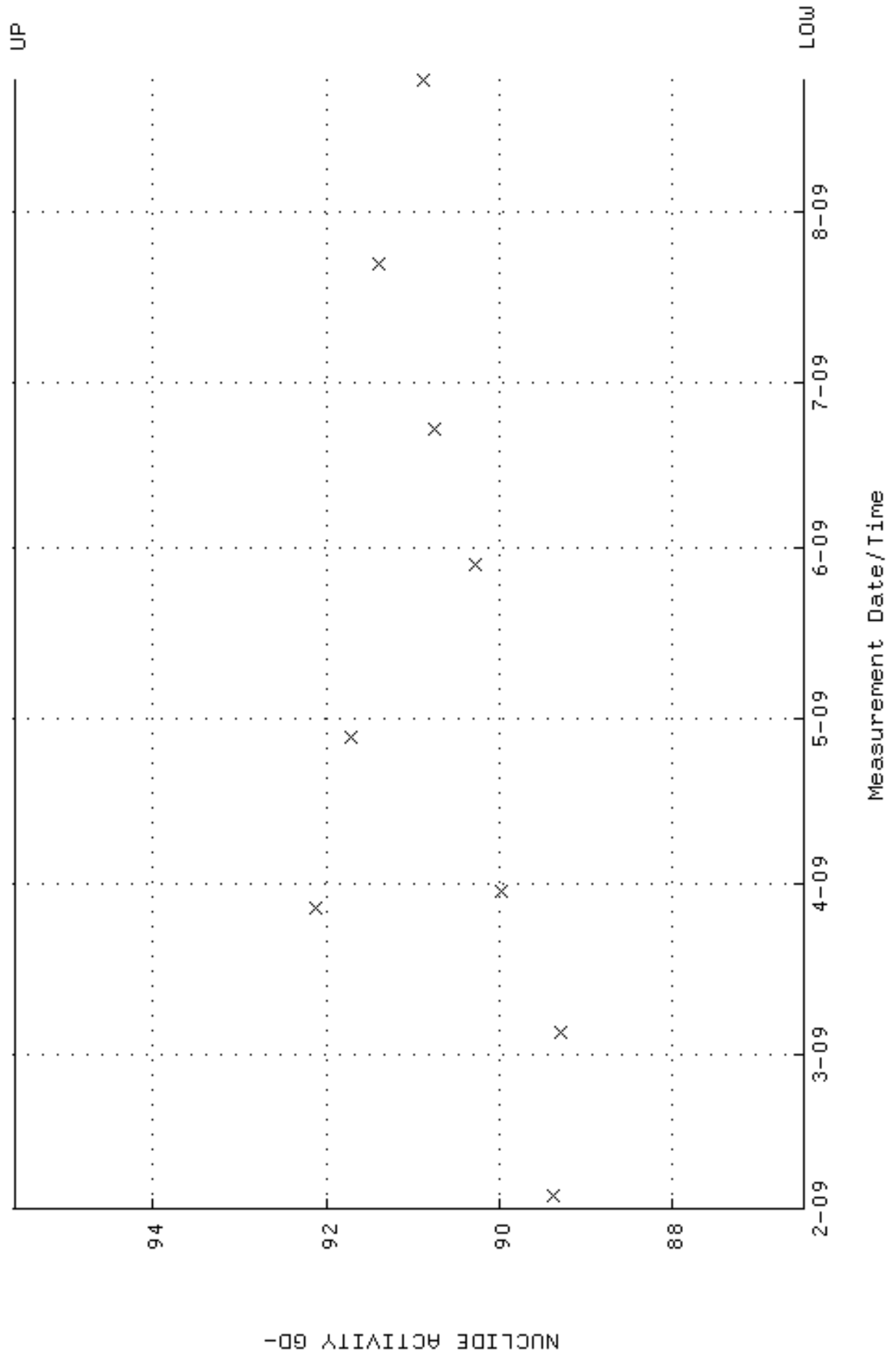
QA filename : DKA100:[ENV\_ALPHA.QA.B]B176.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:15:34 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



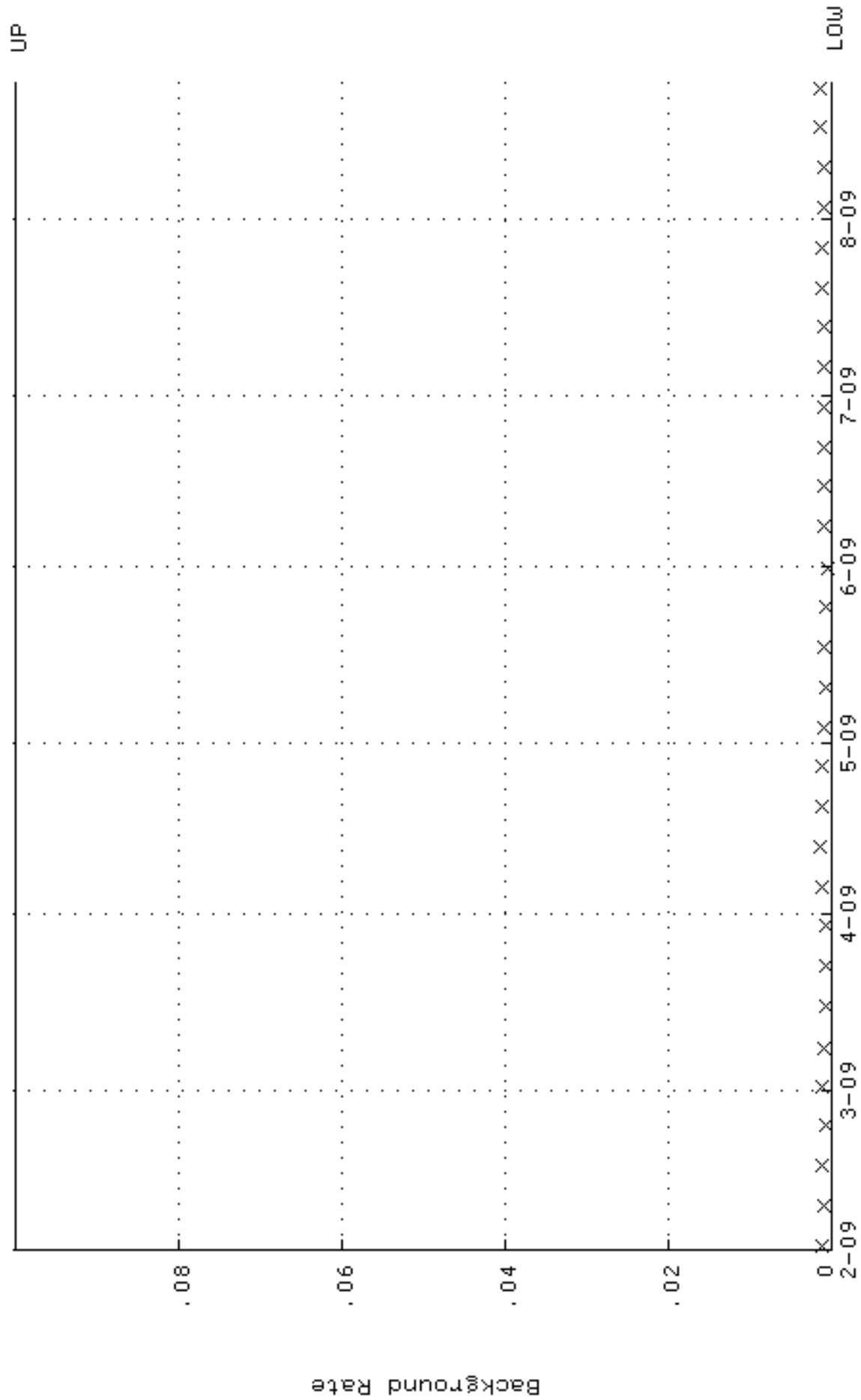
QA filename : DKA100:[ENV\_ALPHA.QA.W]W177.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:08:31 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.259935 through 0.279935



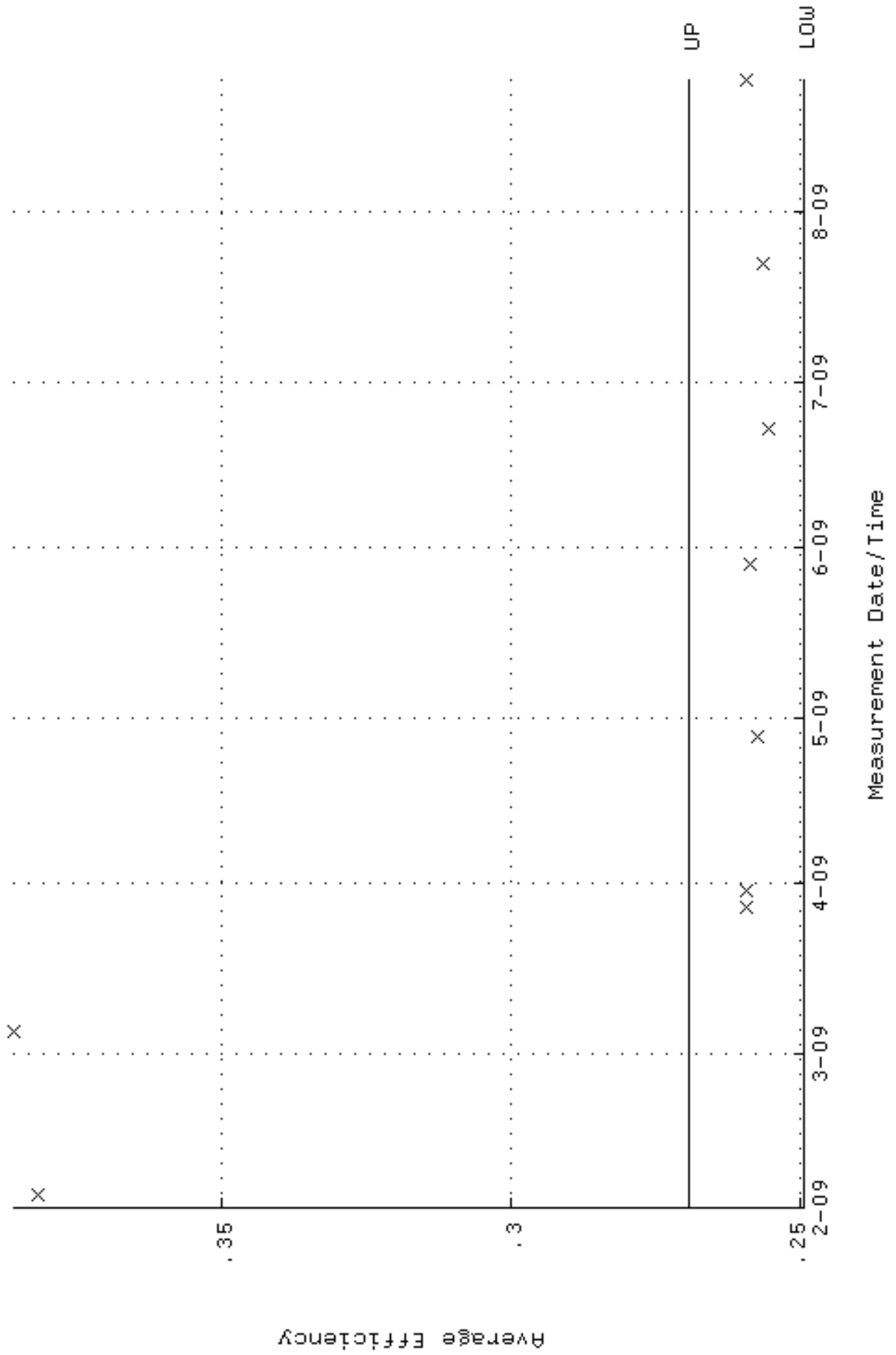
QA filename : DKA100:[ENV\_ALPHA.QA.W]W177.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:08:31 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 86.4857 through 95.5895



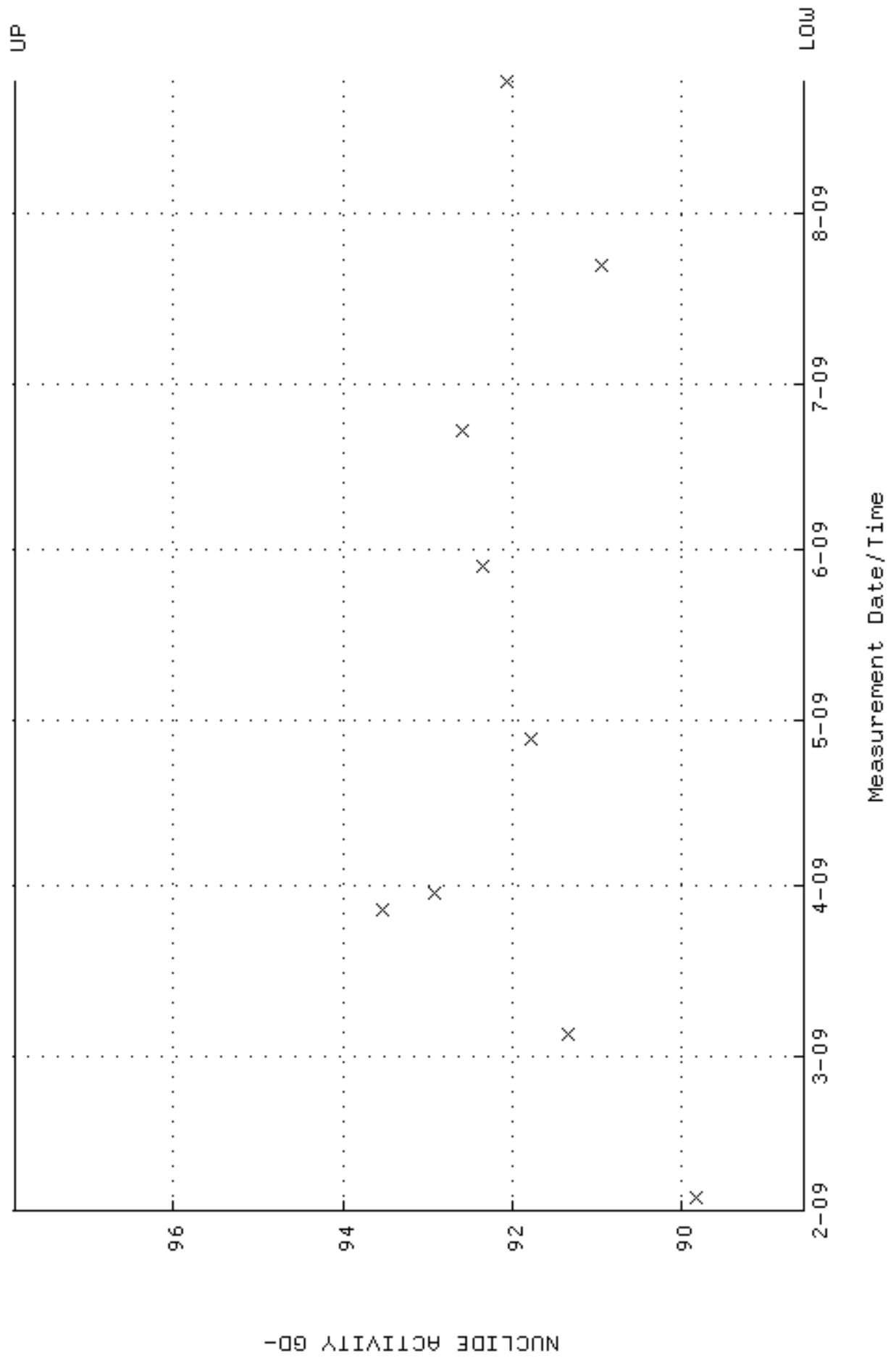
QA filename : DKA100:[ENV\_ALPHA.QA.B]B177.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:15:46 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



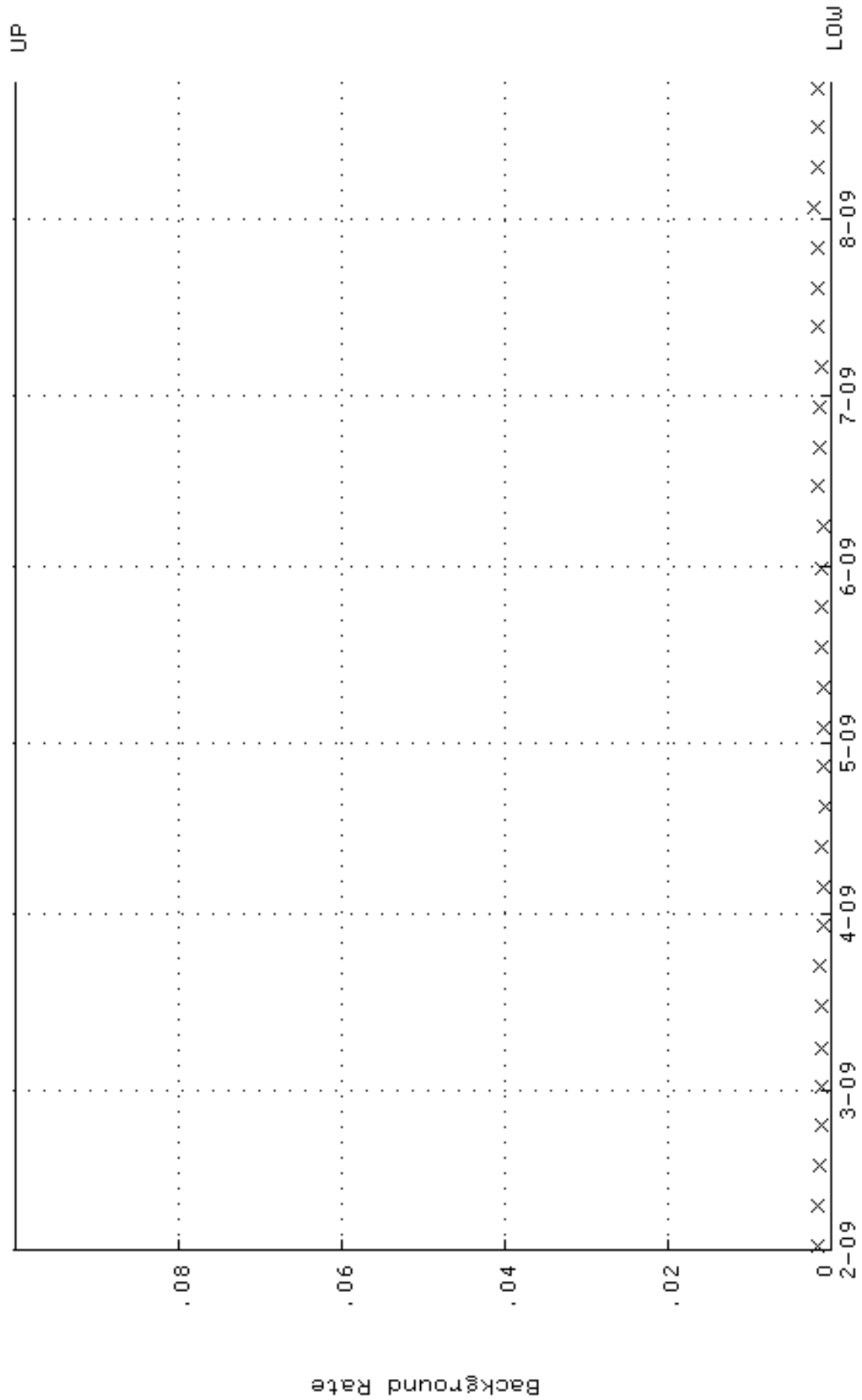
QA filename : DKA100:[ENV\_ALPHA.QA.W]W178.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:08:38 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.249490 through 0.269490



QA filename : DKA100:[ENV\_ALPHA.QA.W]W178.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:08:38 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 88.5525 through 97.8739

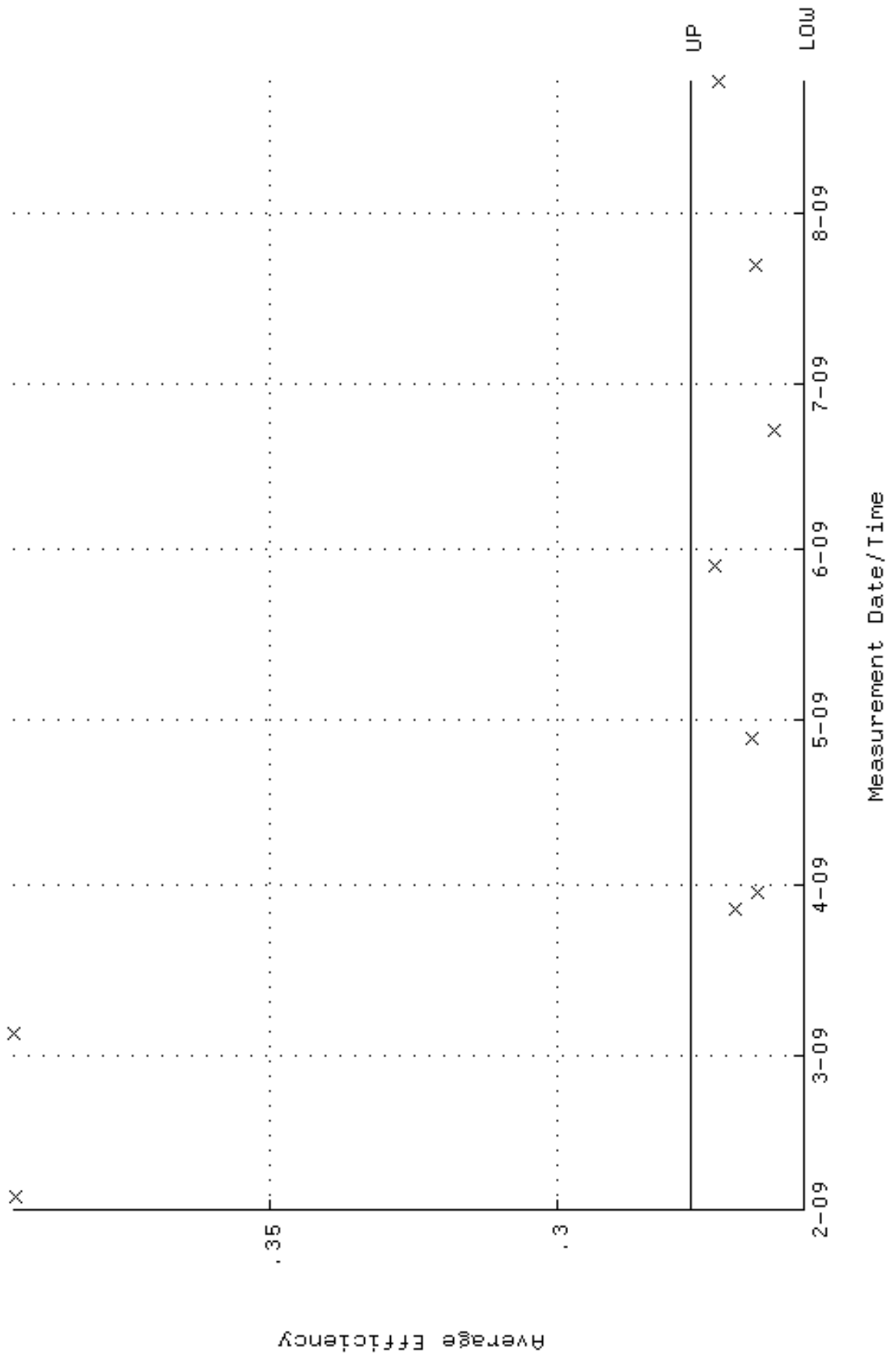


QA filename : DKA100:[ENV\_ALPHA.QA.B]B178.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:16:01 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

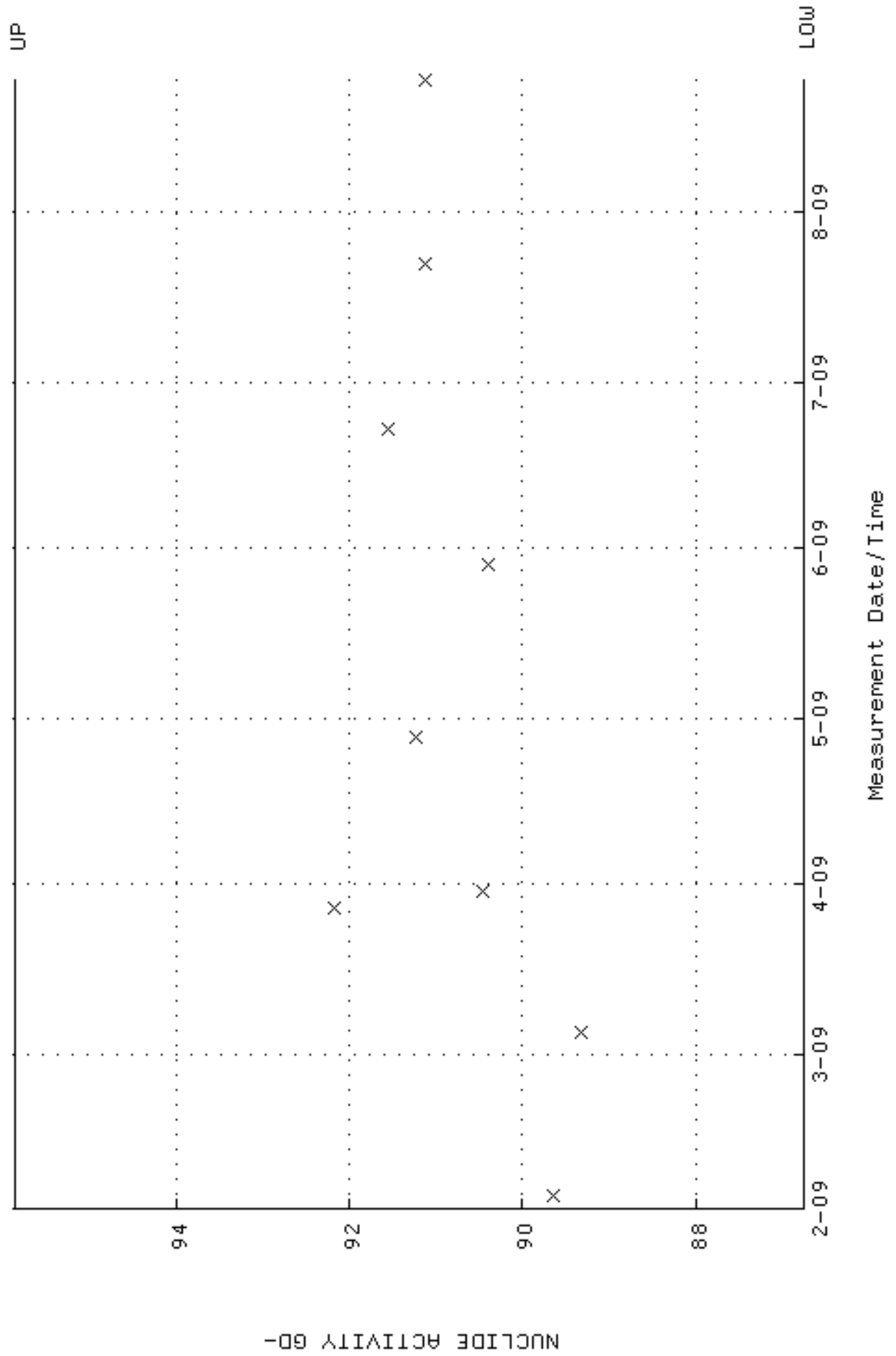




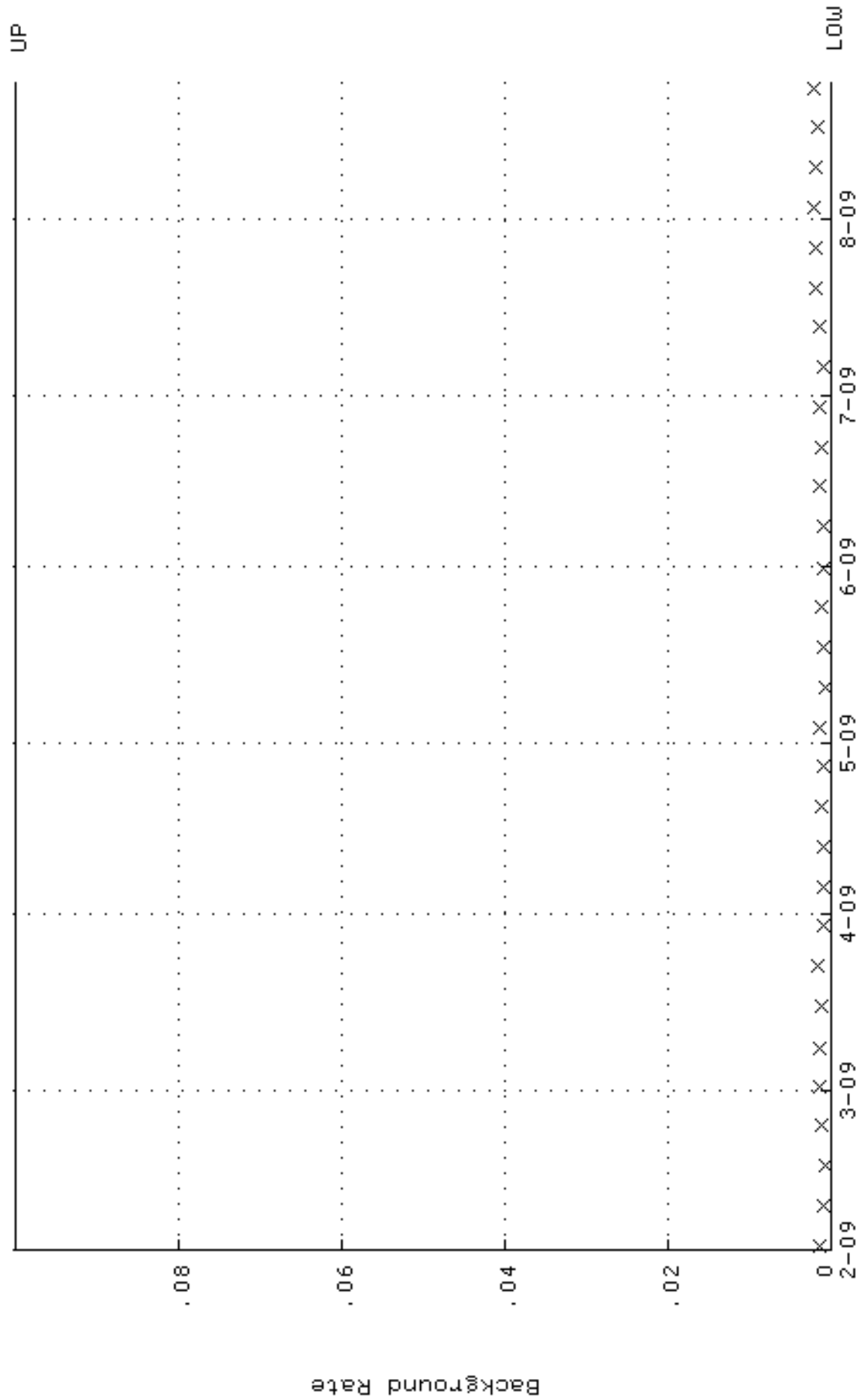
QA filename : DKA100:[ENV\_ALPHA.QA.W]W179.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:08:44 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.256911 through 0.276911



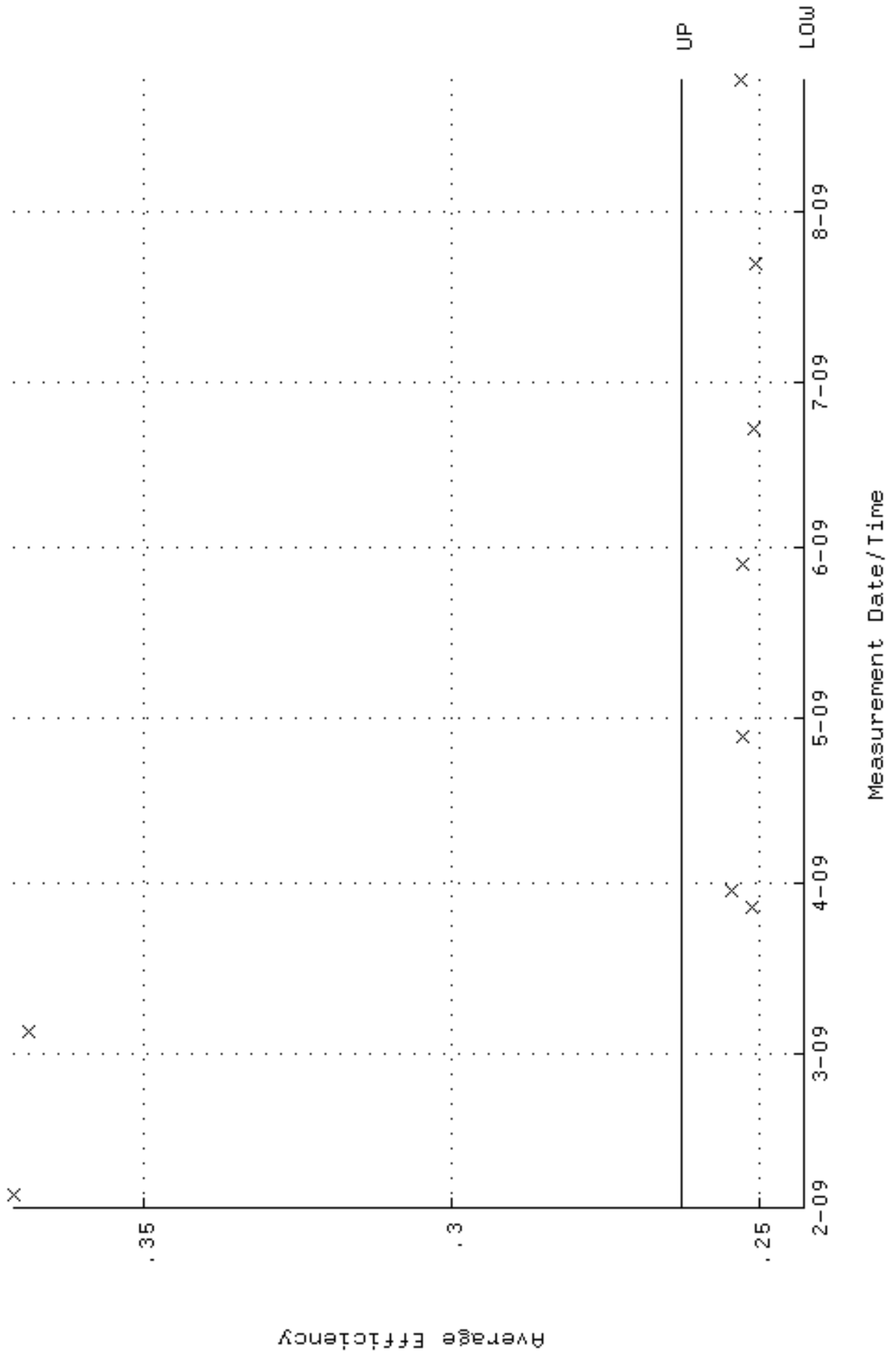
QA filename : DKA100:[ENV\_ALPHA.QA.W]W179.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:08:44 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 86.7434 through 95.8742



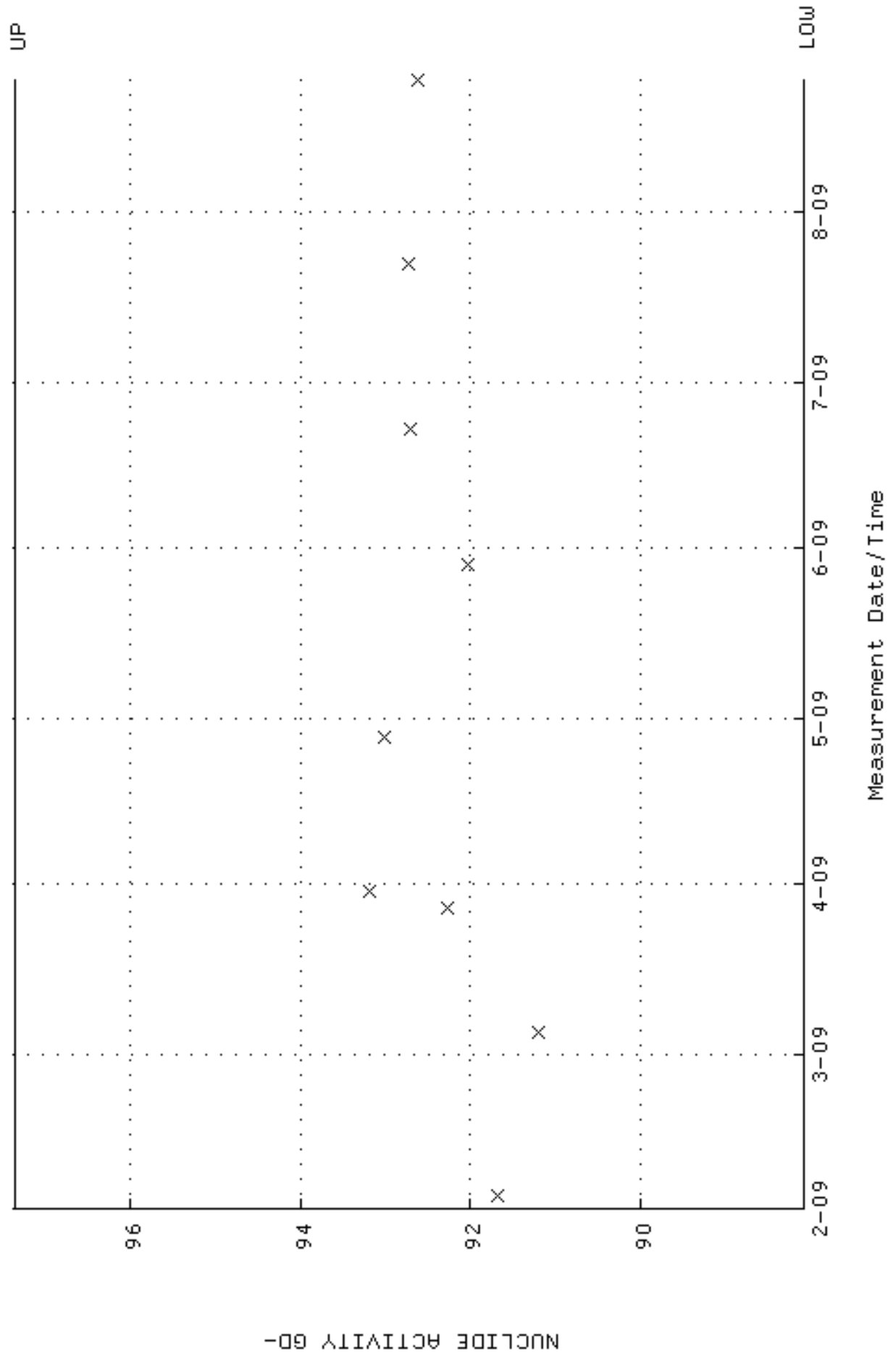
QA filename : DKA100:[ENV\_ALPHA.QA.B]B179.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:16:16 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



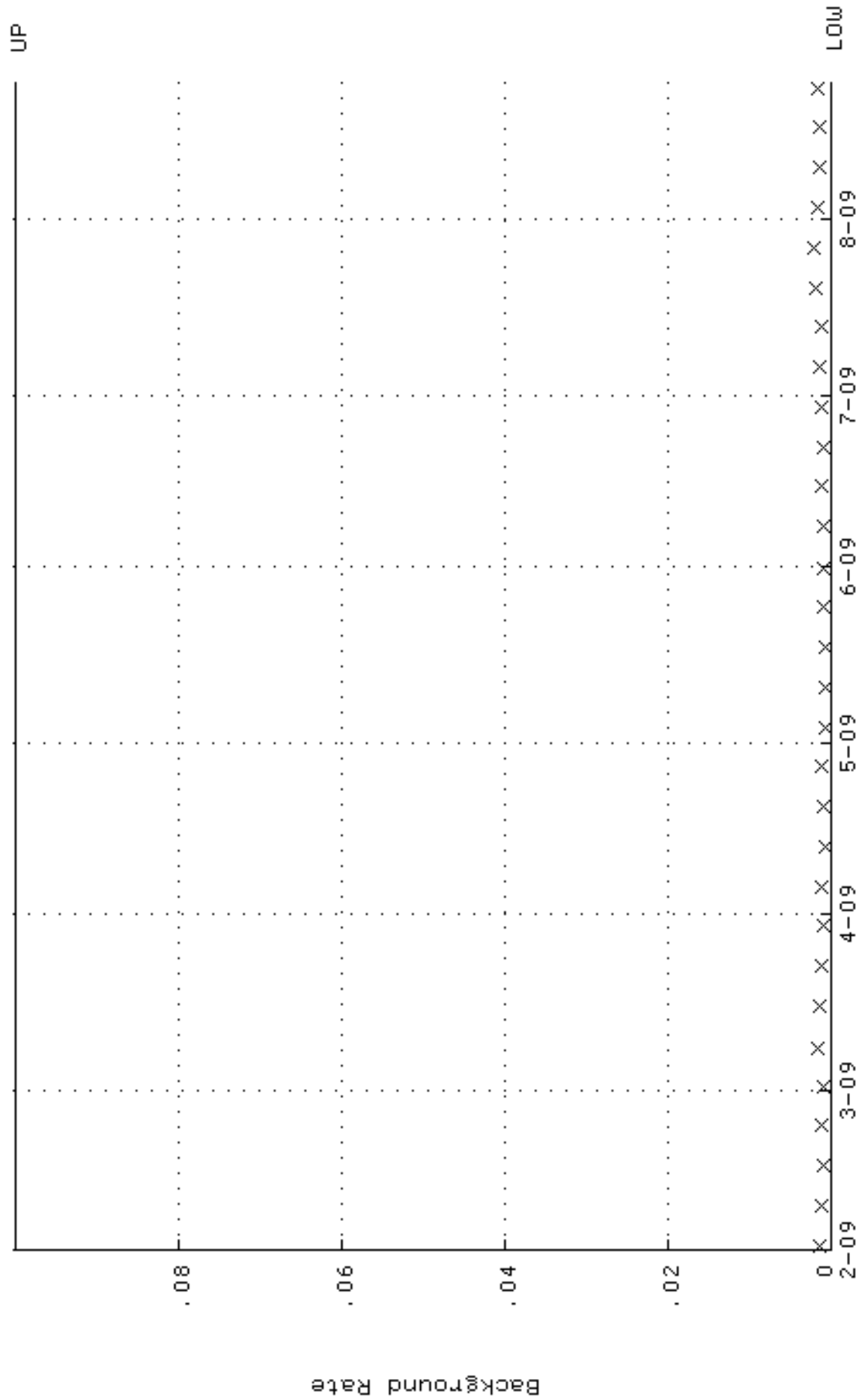
QA filename : DKA100:[ENV\_ALPHA.QA.W]W180.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:08:50 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.242633 through 0.262633



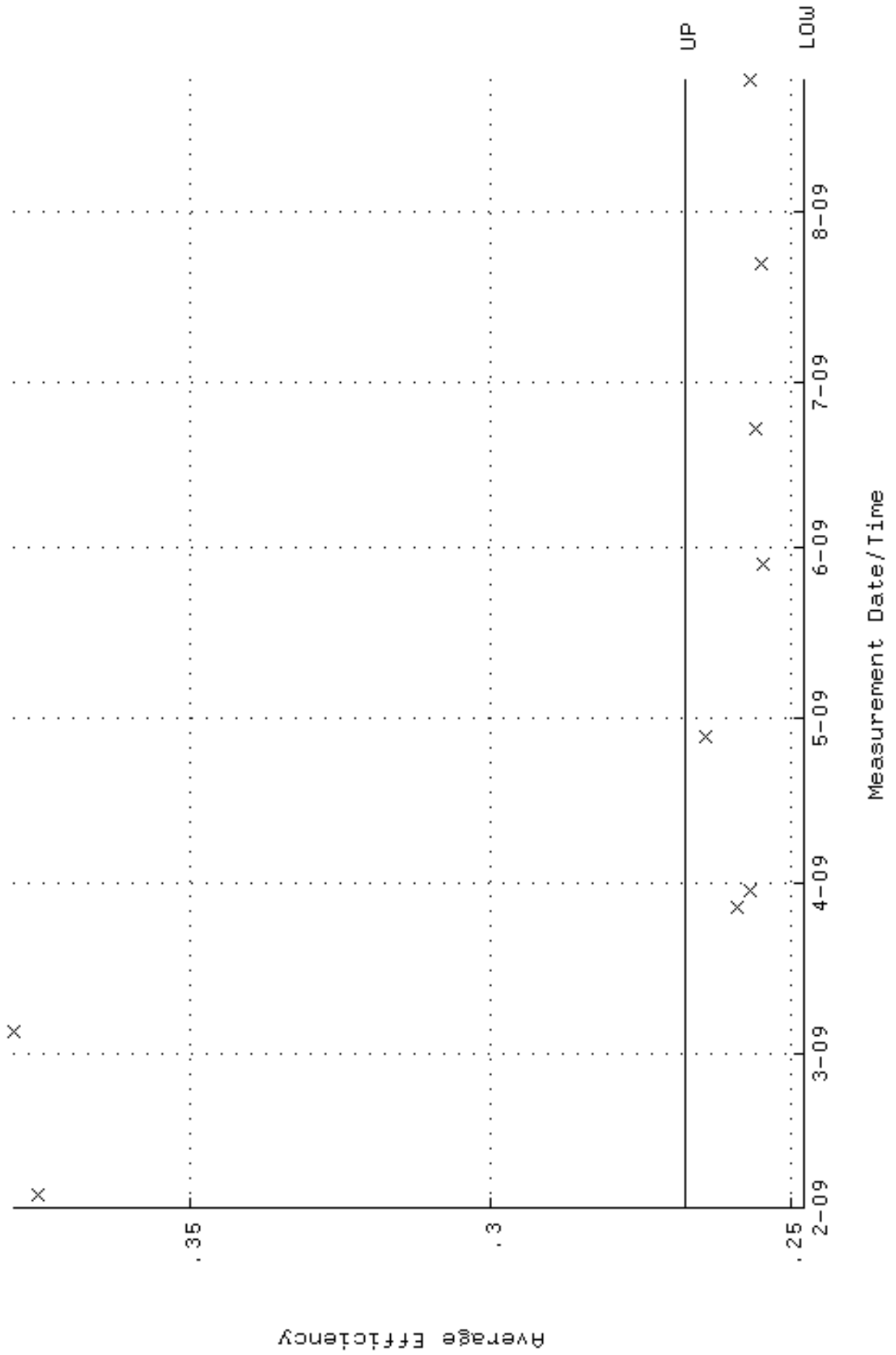
QA filename : DKA100:[ENV\_ALPHA.QA.W]W180.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:08:50 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 88.0803 through 97.3519



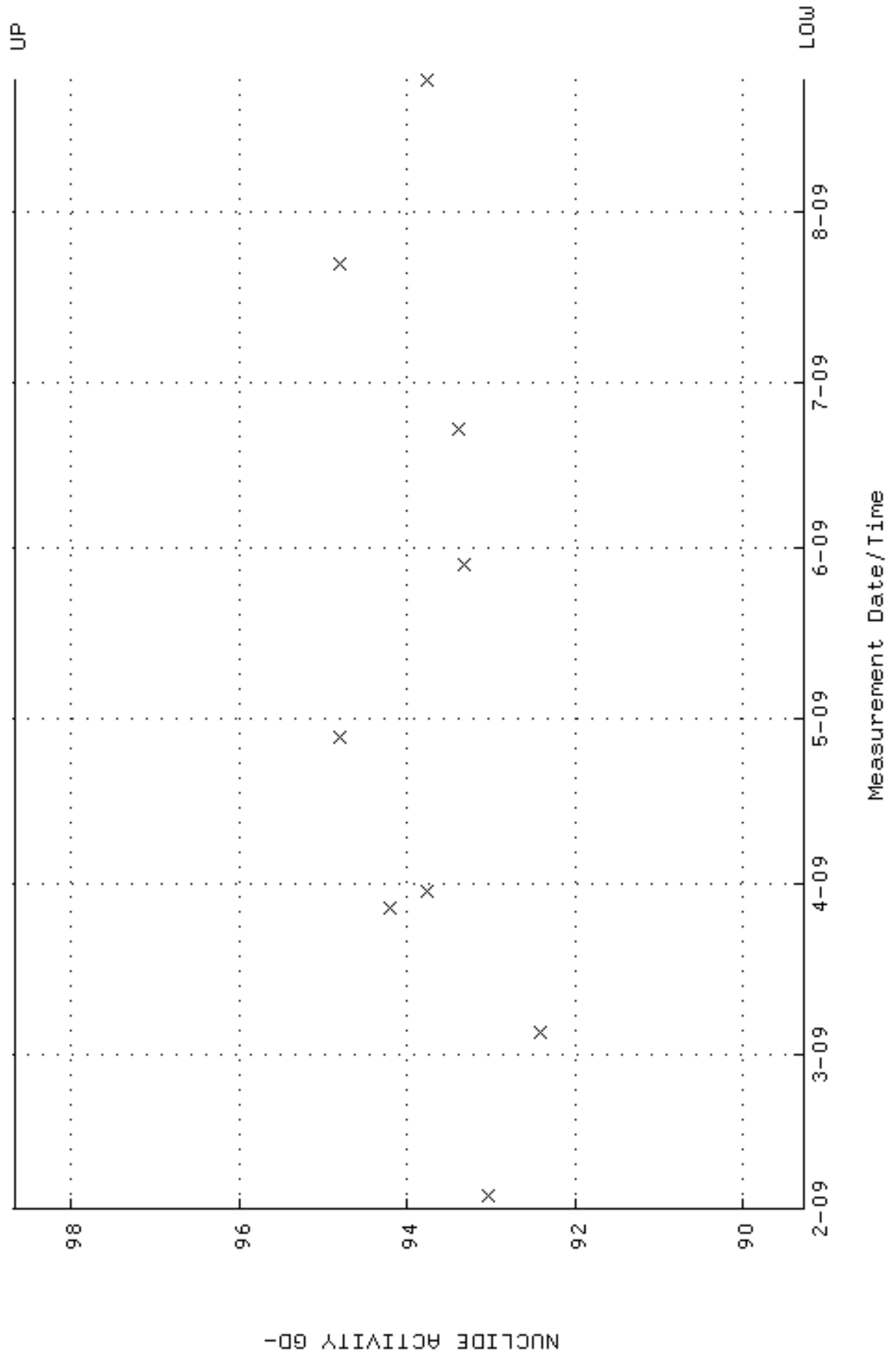
QA filename : DKA100:[ENV\_ALPHA.QA.B]B180.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:16:32 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W181.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:08:56 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.247722 through 0.267722

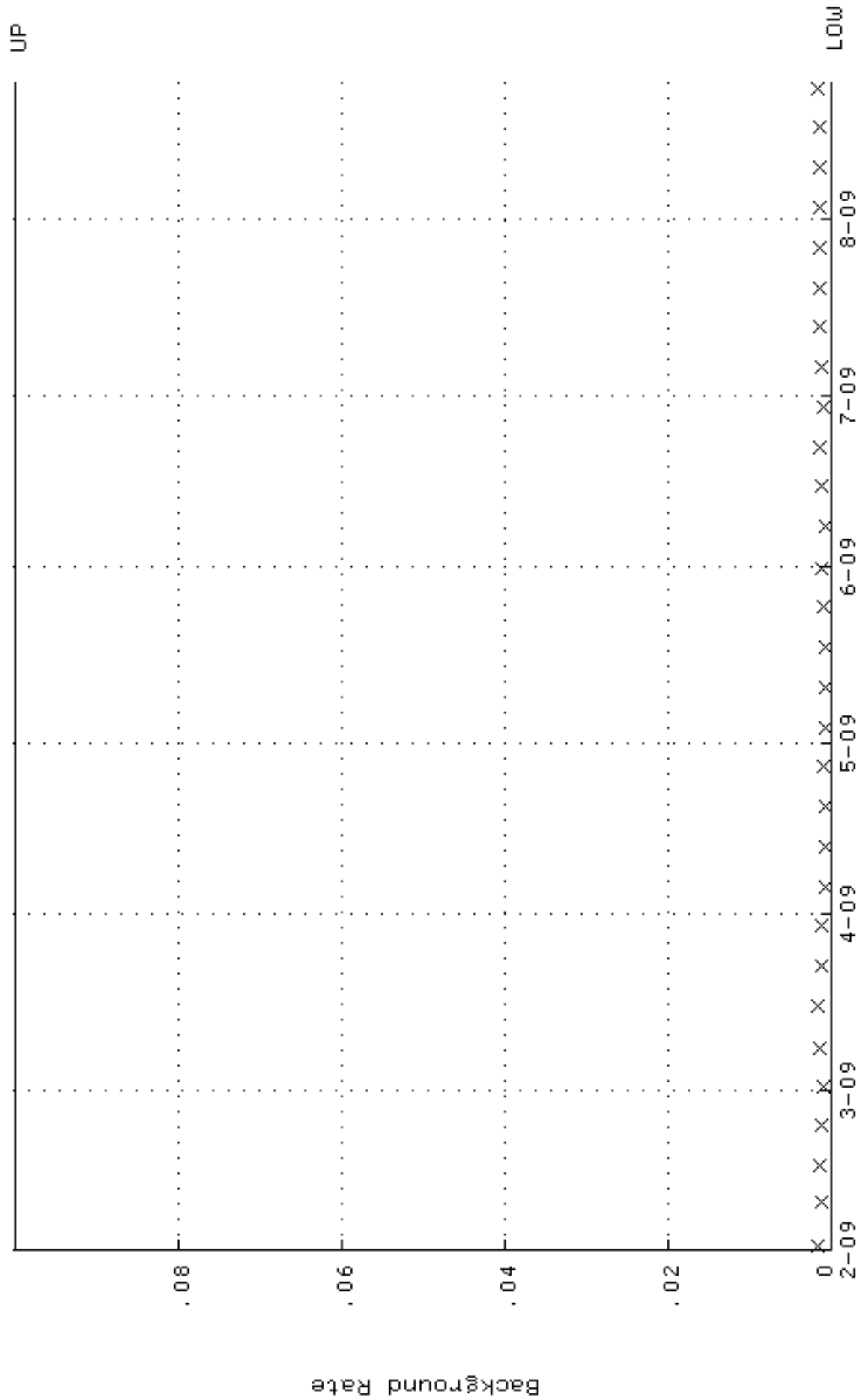


QA filename : DKA100:[ENV\_ALPHA.QA.W]w181.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 3-FEB-2009 12:08:56 through 24-AUG-2009 12:00:00  
Lower/Upper Lmts: 89.2737 through 98.6709

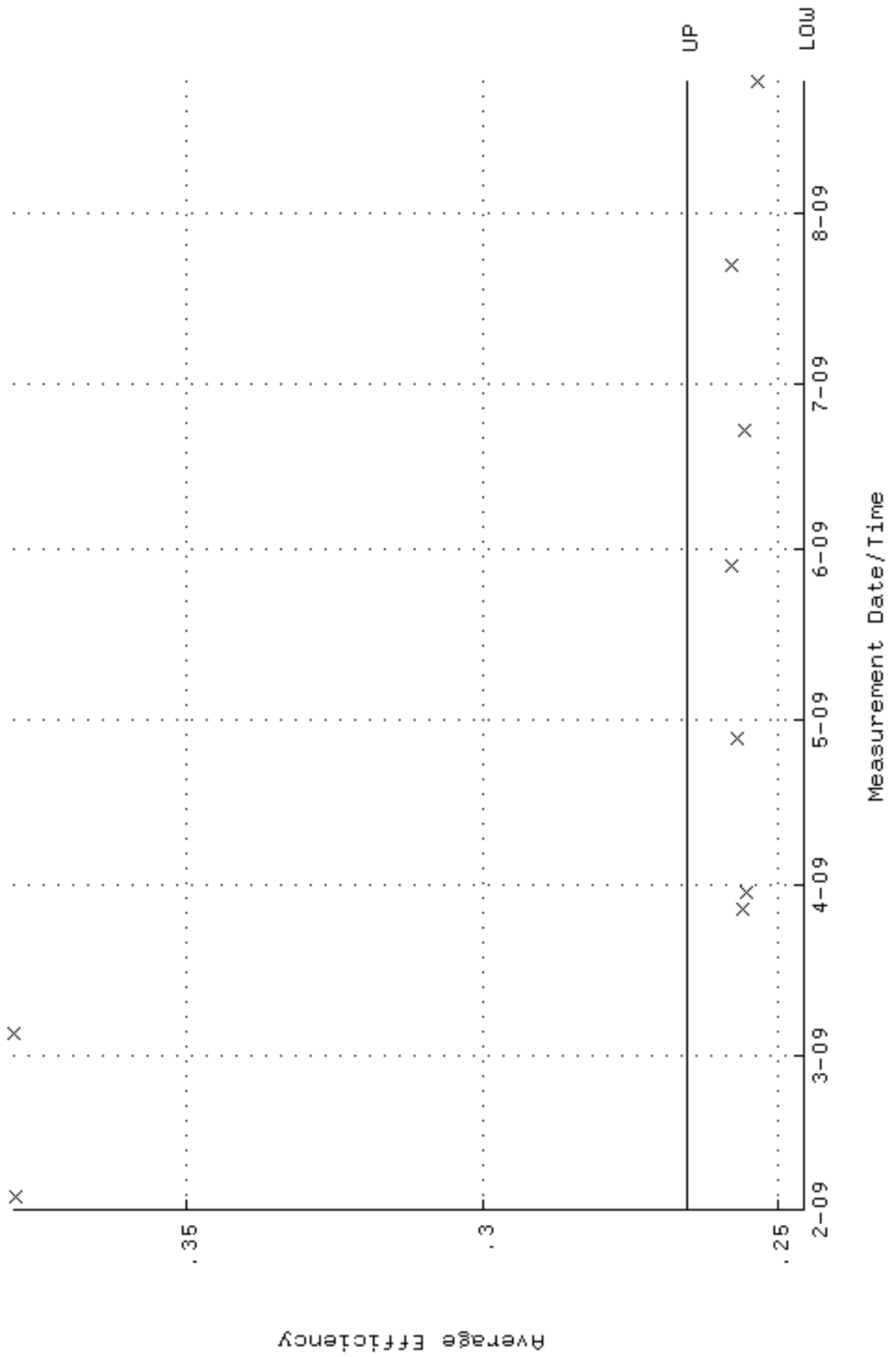




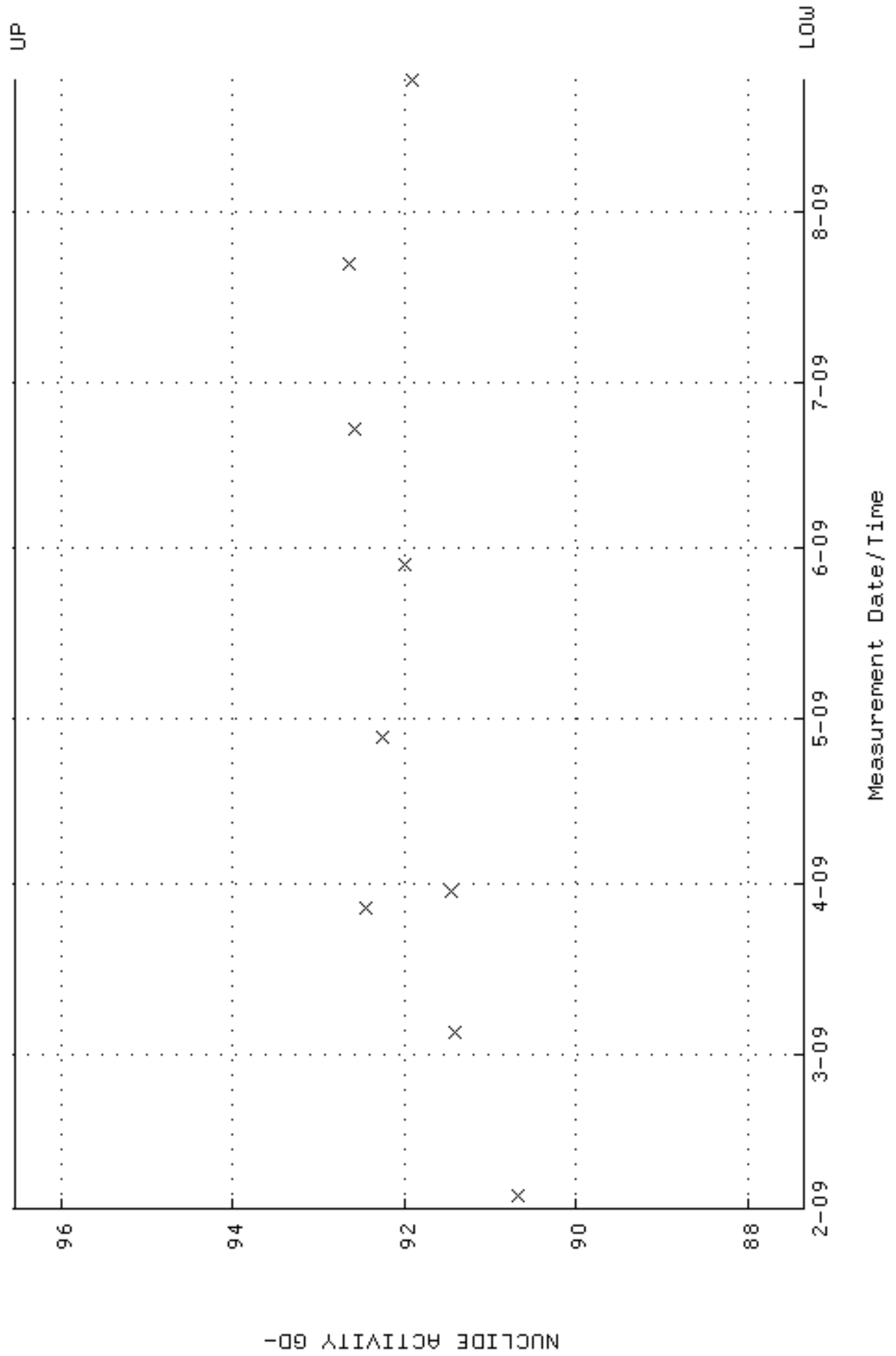
QA filename : DKA100:[ENV\_ALPHA.QA.B]B181.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:16:47 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



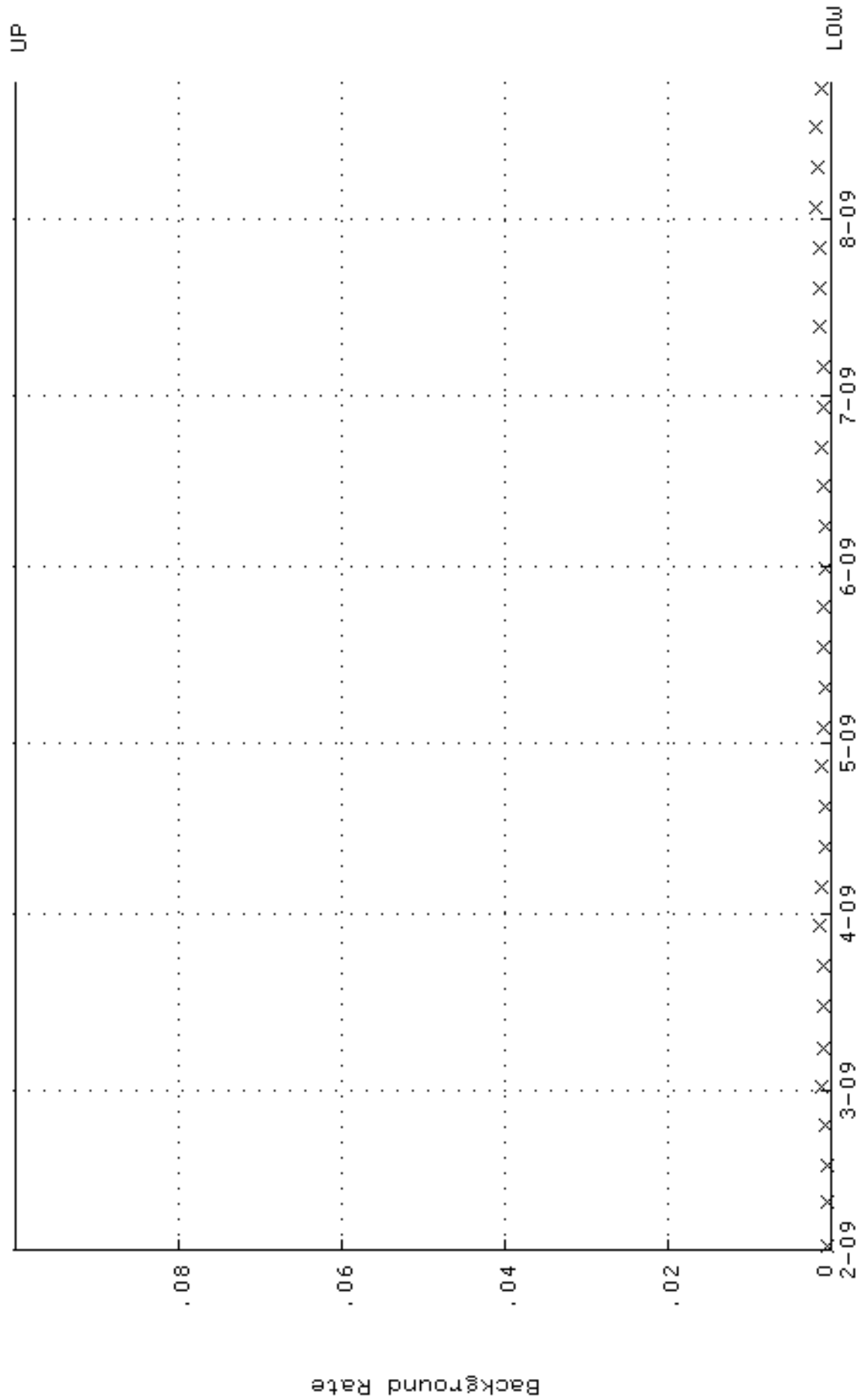
QA filename : DKA100:[ENV\_ALPHA.QA.W]W182.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:03 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.245707 through 0.265707



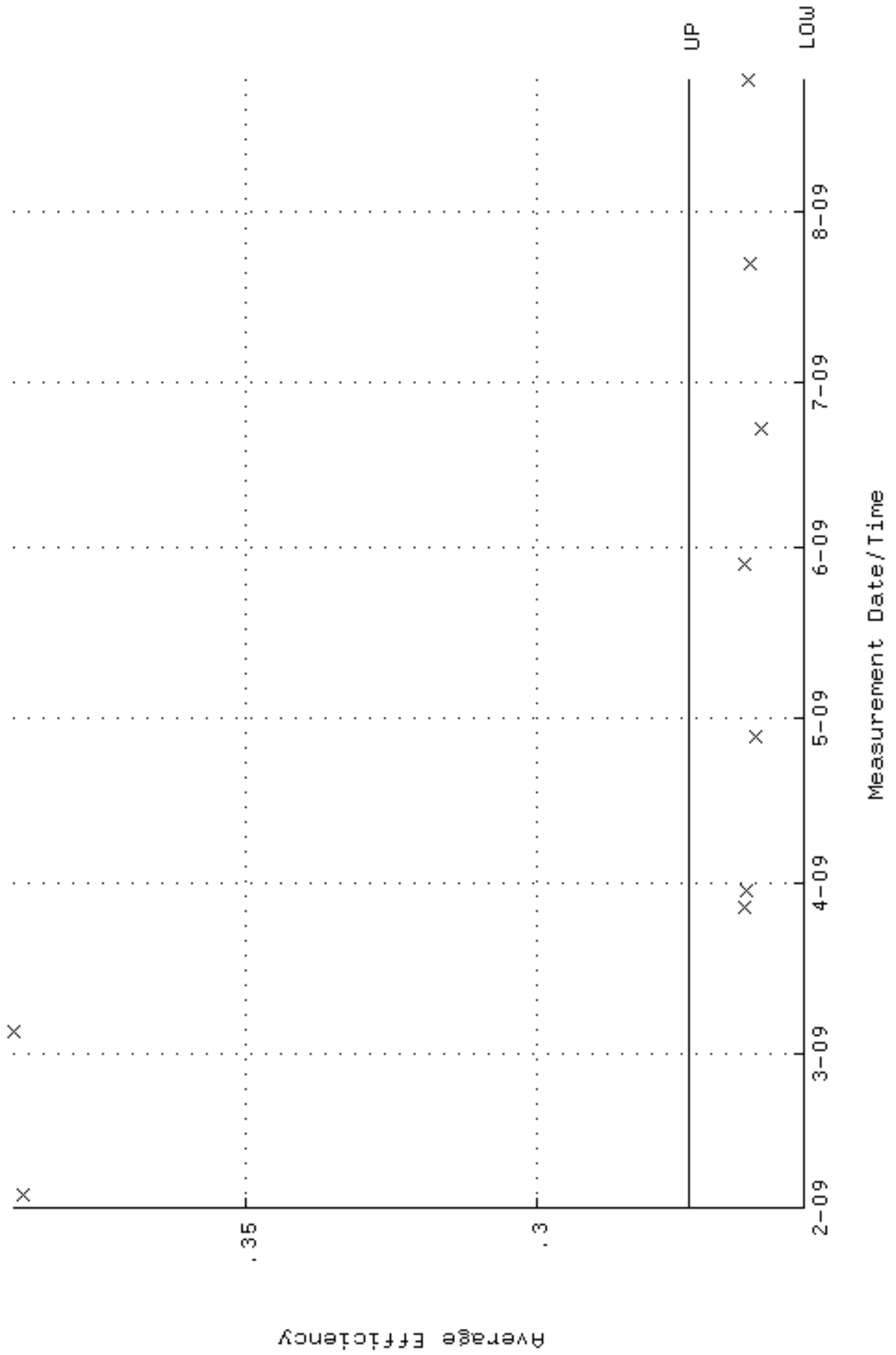
QA filename : DKA100:[ENV\_ALPHA.QA.W]W182.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:09:03 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 87.3454 through 96.5396



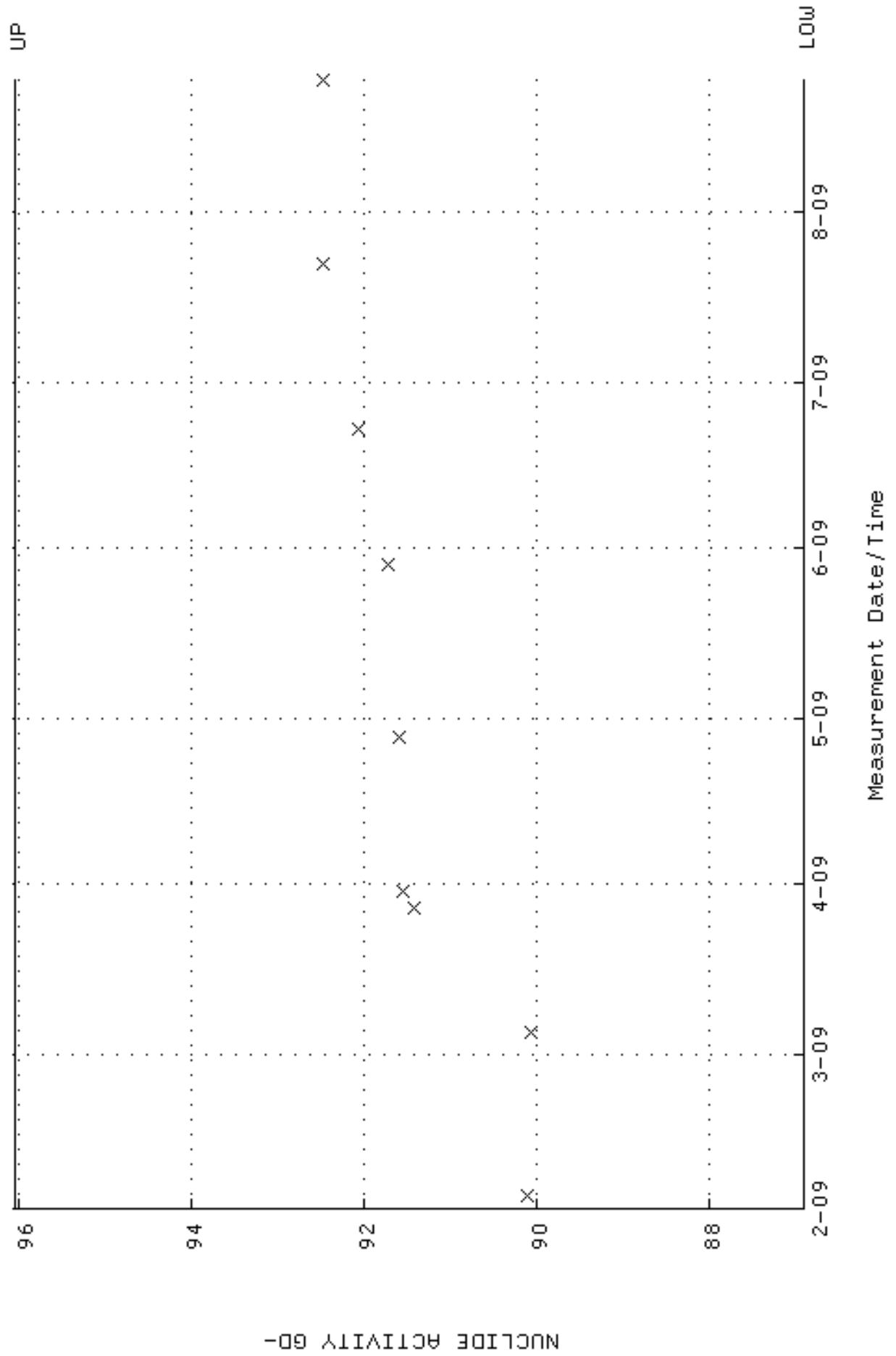
QA filename : DKA100:[ENV\_ALPHA.QA.B]B182.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:17:02 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



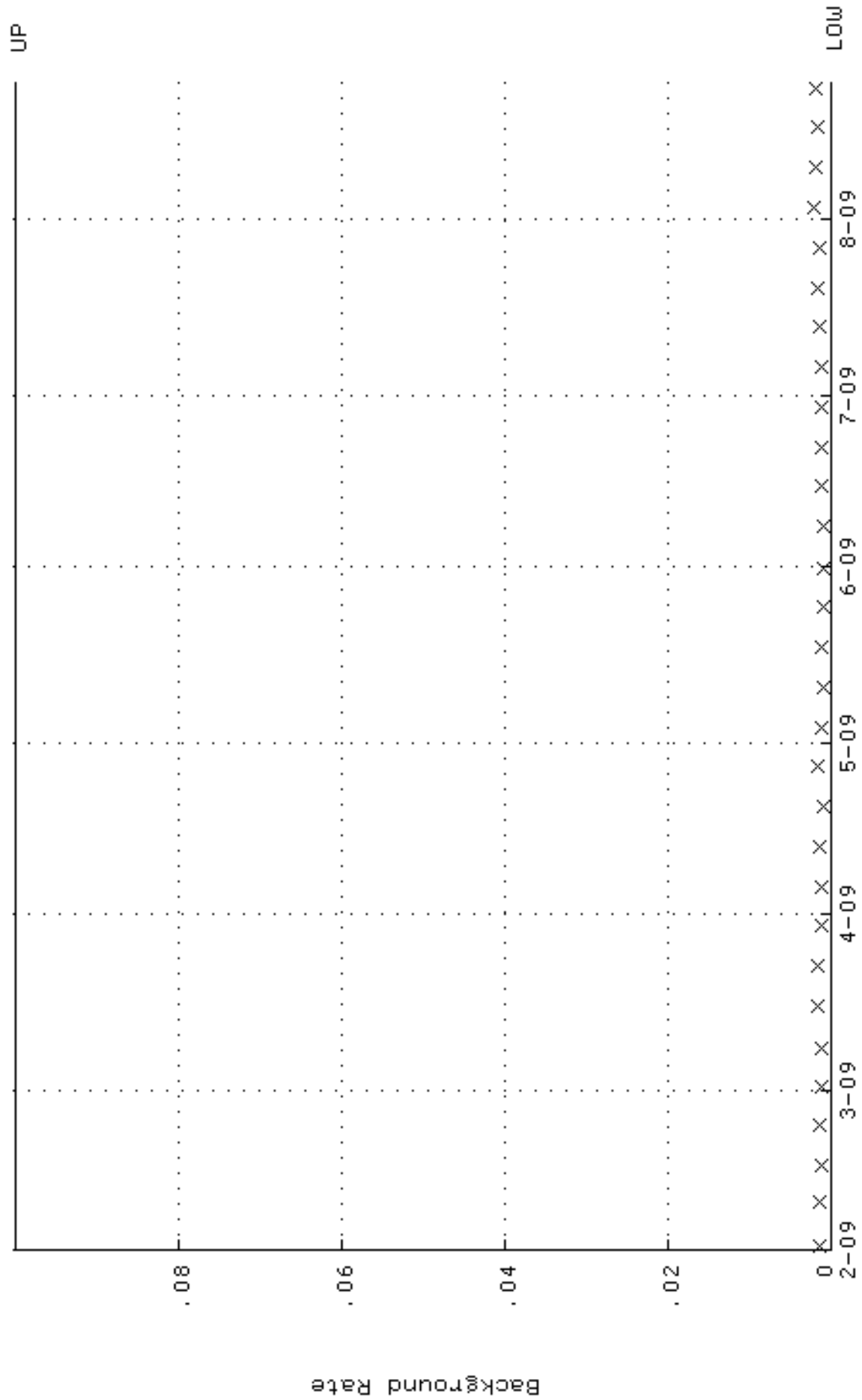
QA filename : DKA100:[ENV\_ALPHA.QA.W]W183.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:10 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.254364 through 0.274364



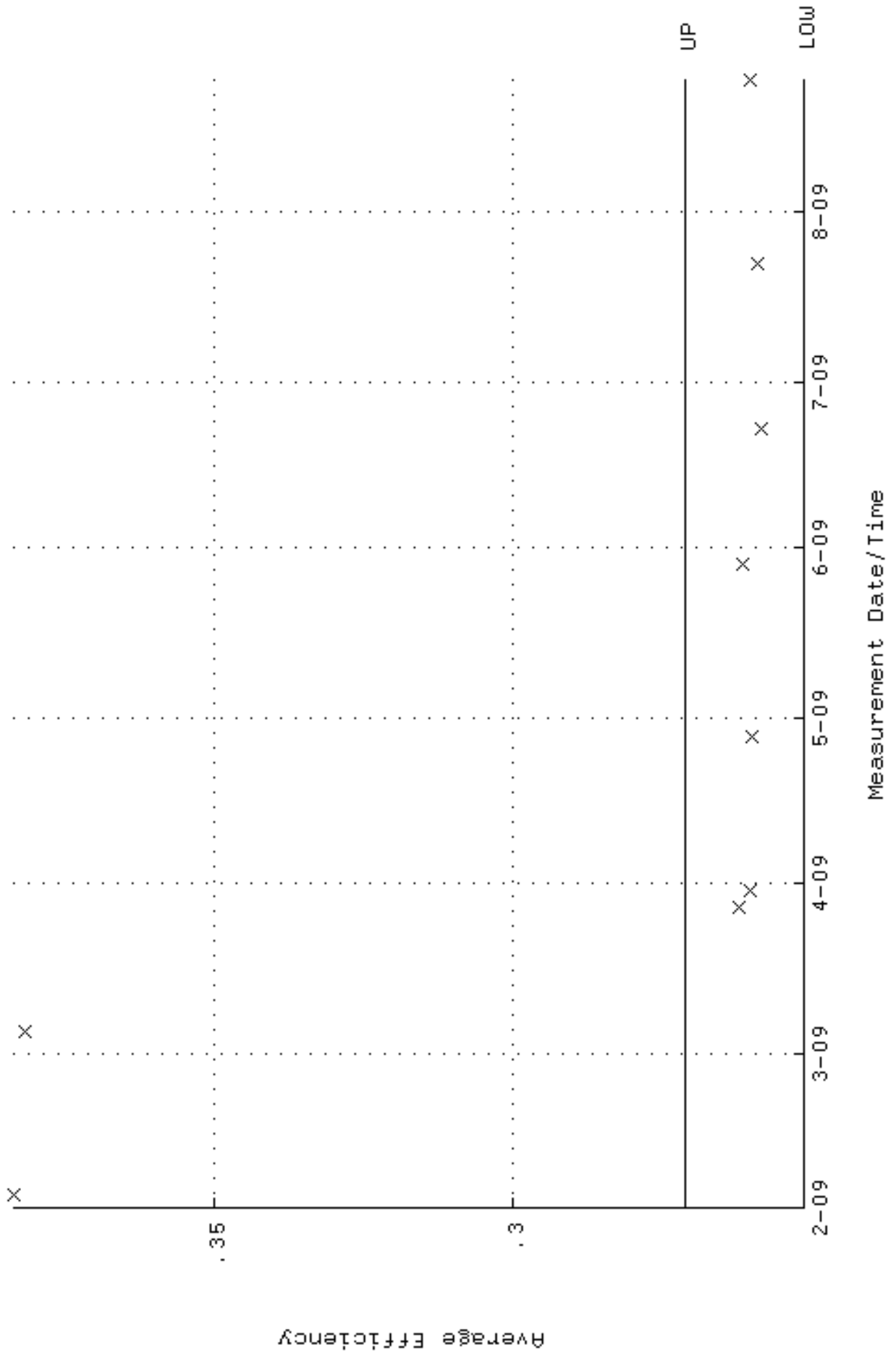
QA filename : DKA100:[ENV\_ALPHA.QA.W]W183.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 3-FEB-2009 12:09:10 through 24-AUG-2009 12:00:00  
Lower/Upper Lmts: 86.8927 through 96.0393



QA filename : DKA100:[ENV\_ALPHA.QA.B]B183.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:17:17 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

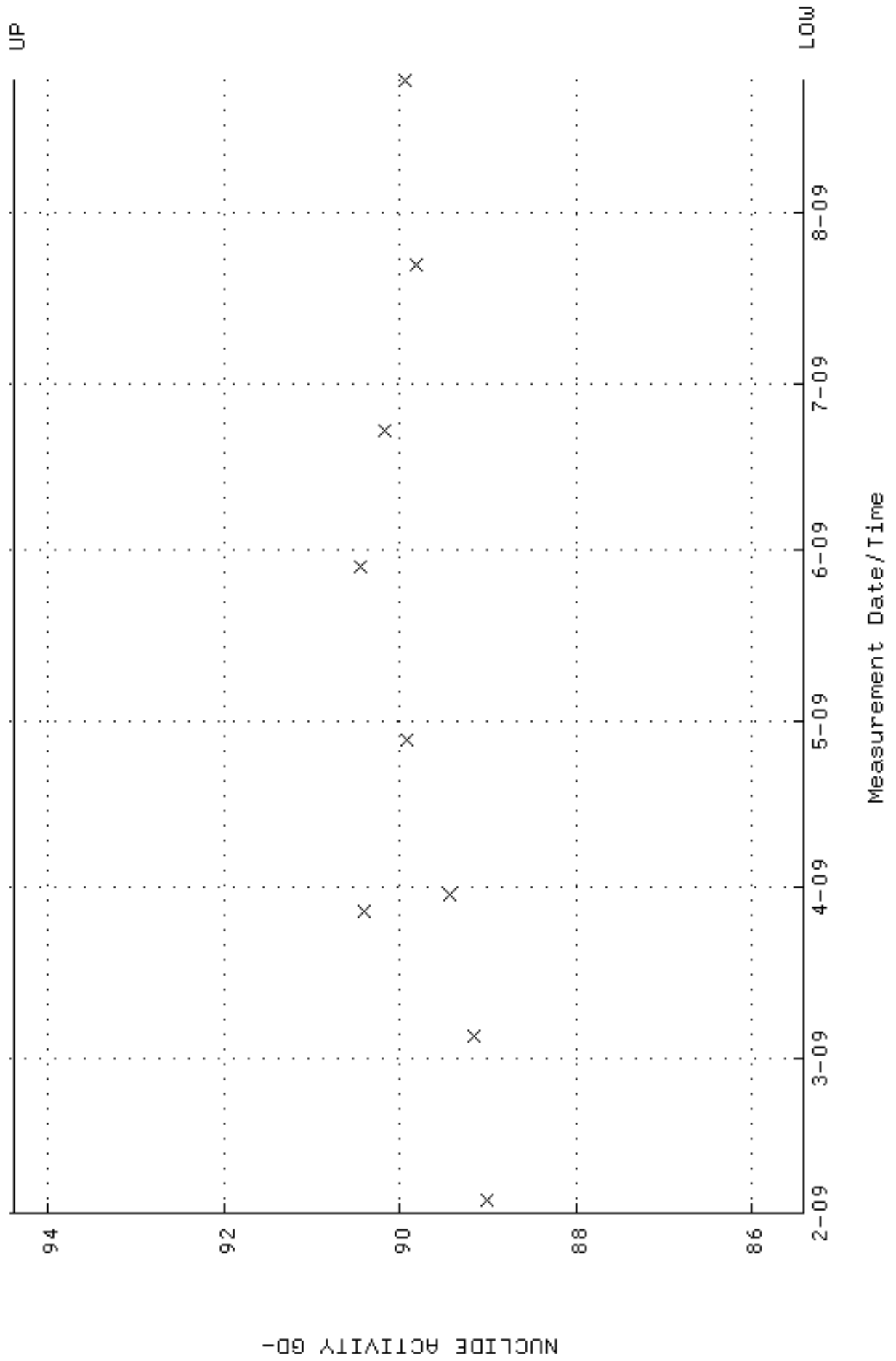


QA filename : DKA100:[ENV\_ALPHA.QA.W]W184.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:17 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.251367 through 0.271367

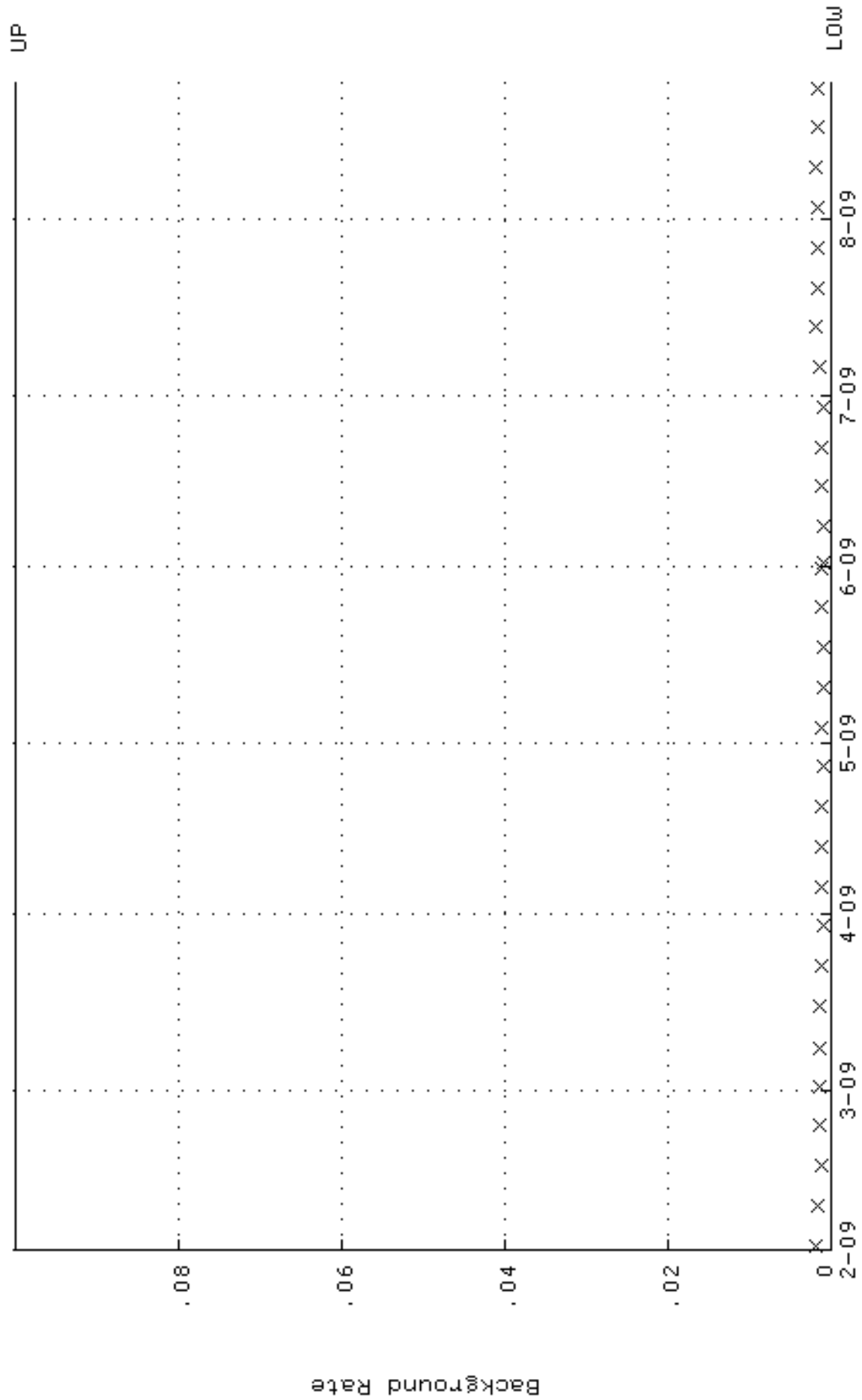




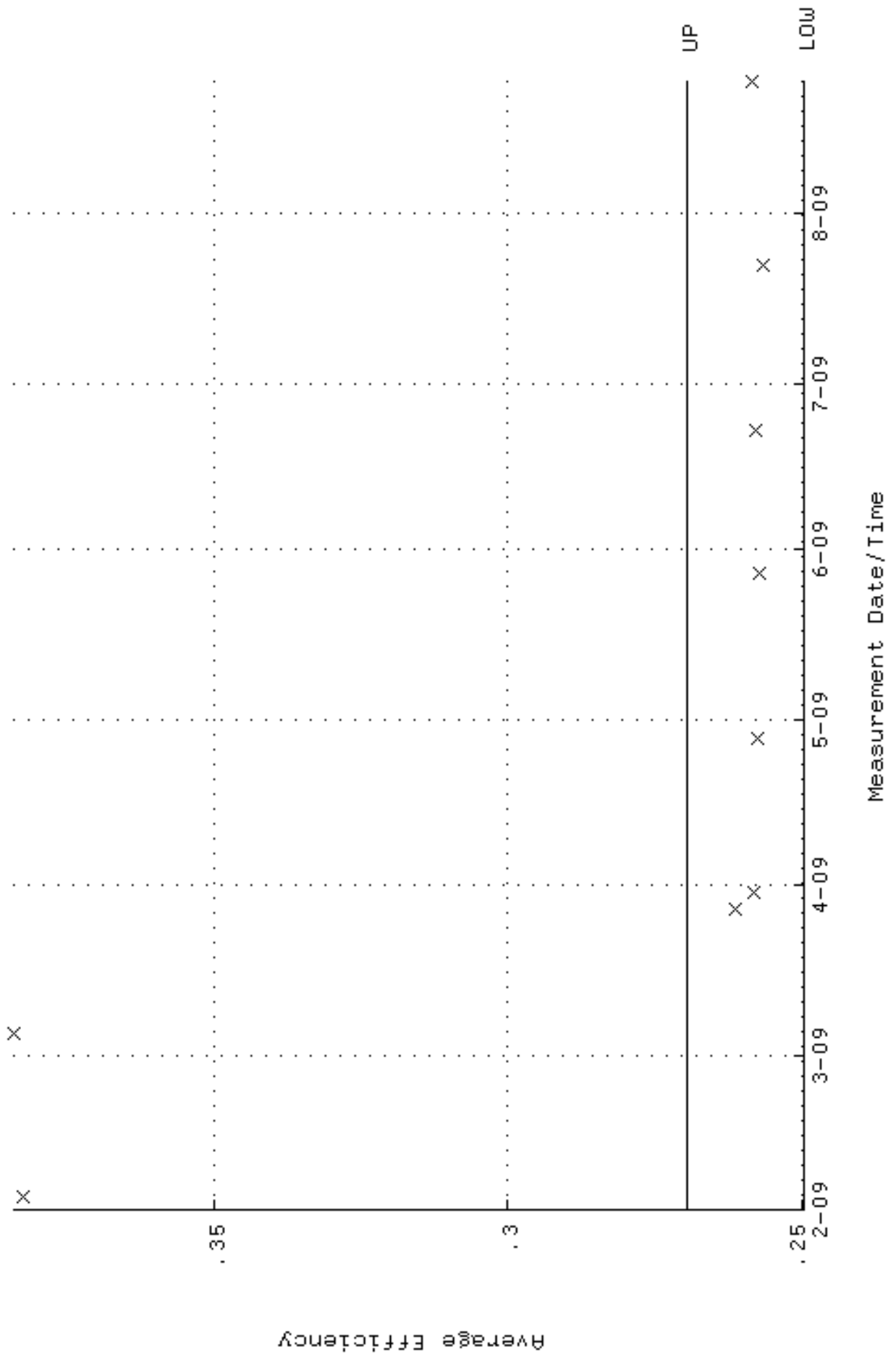
QA filename : DKA100:[ENV\_ALPHA.QA.W]W184.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:09:17 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.4139 through 94.4049



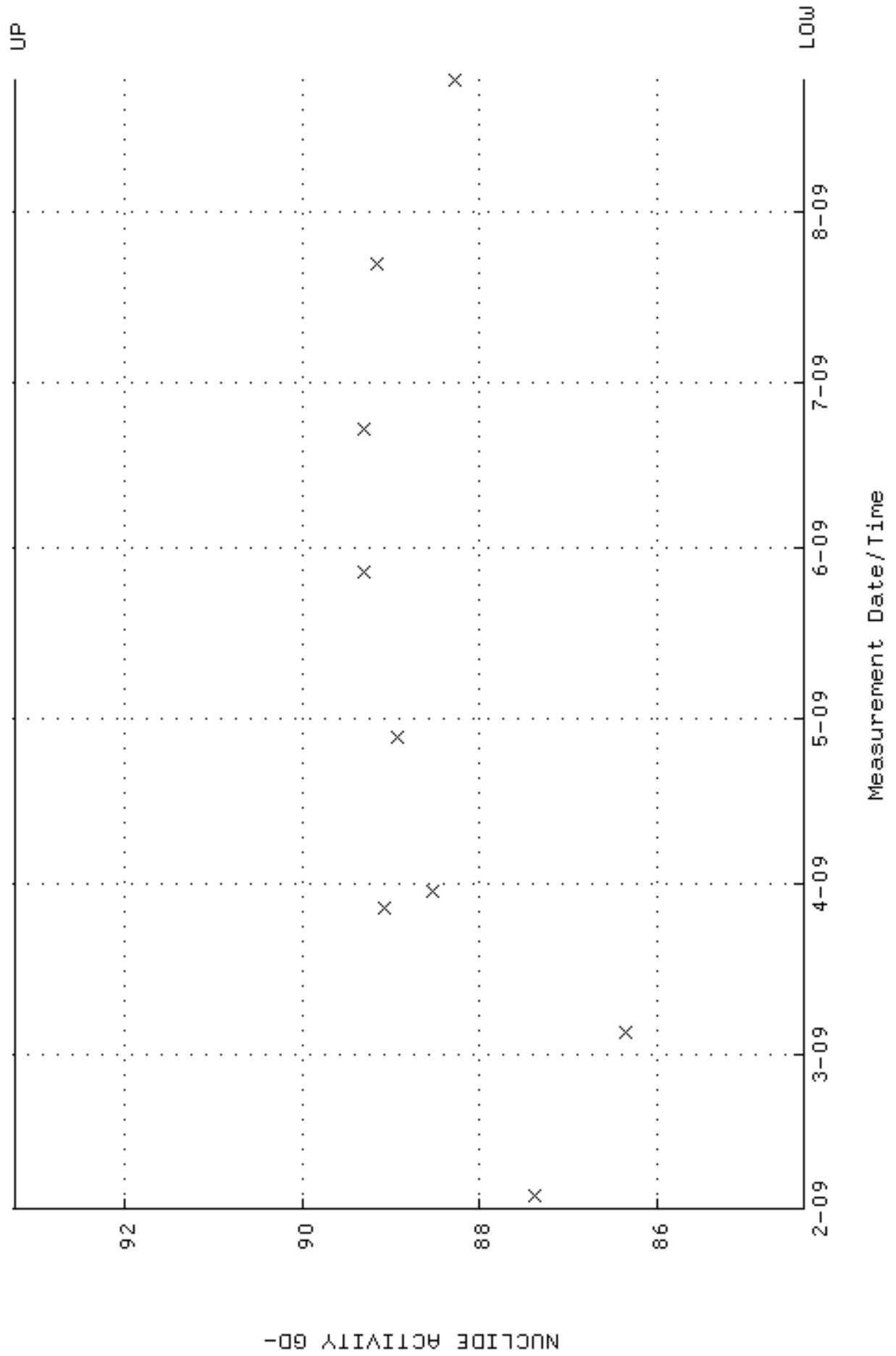
QA filename : DKA100:[ENV\_ALPHA.QA.B]B184.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:17:31 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



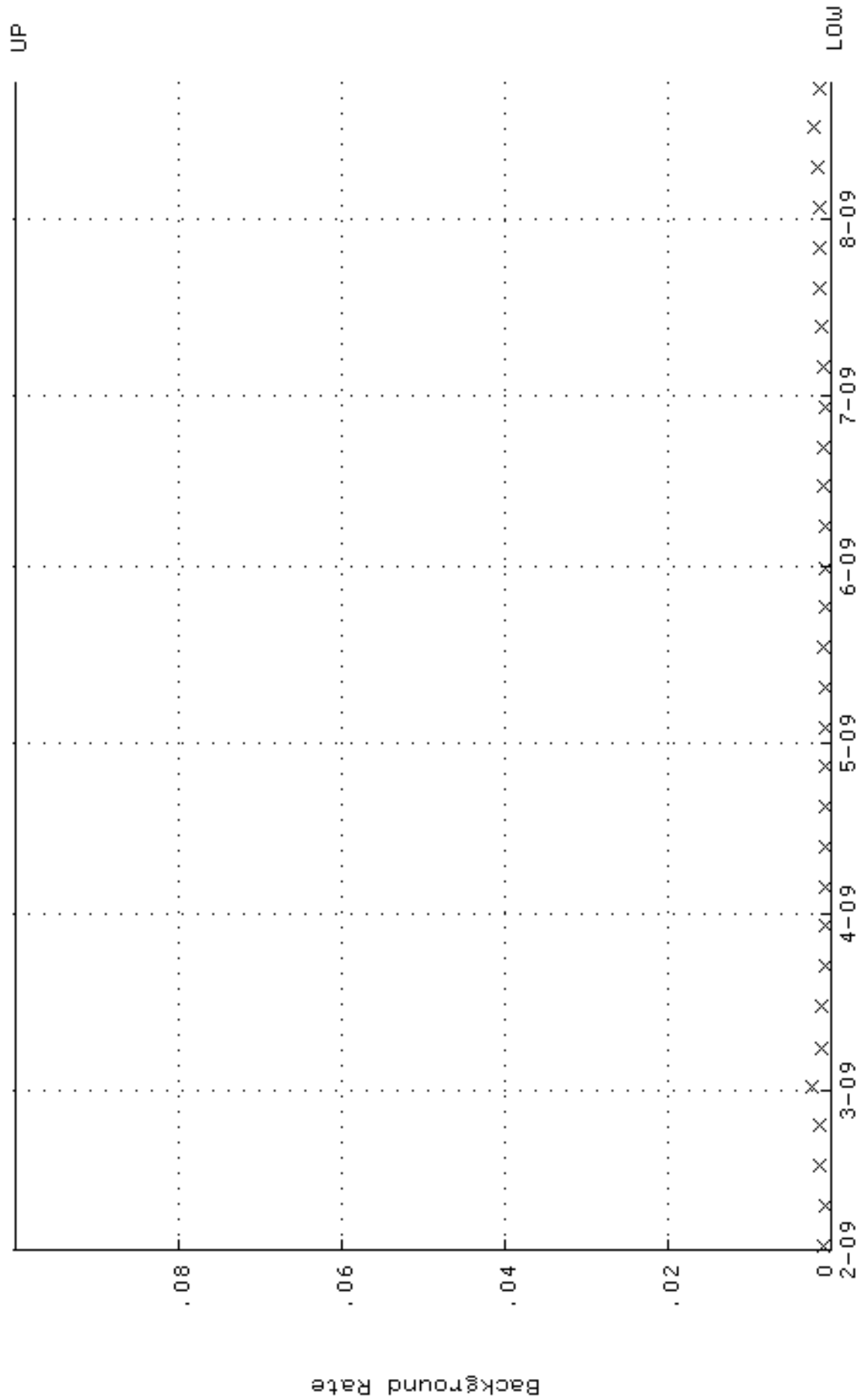
QA filename : DKA100:[ENV\_ALPHA.QA.W]W185.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:23 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.249628 through 0.269628



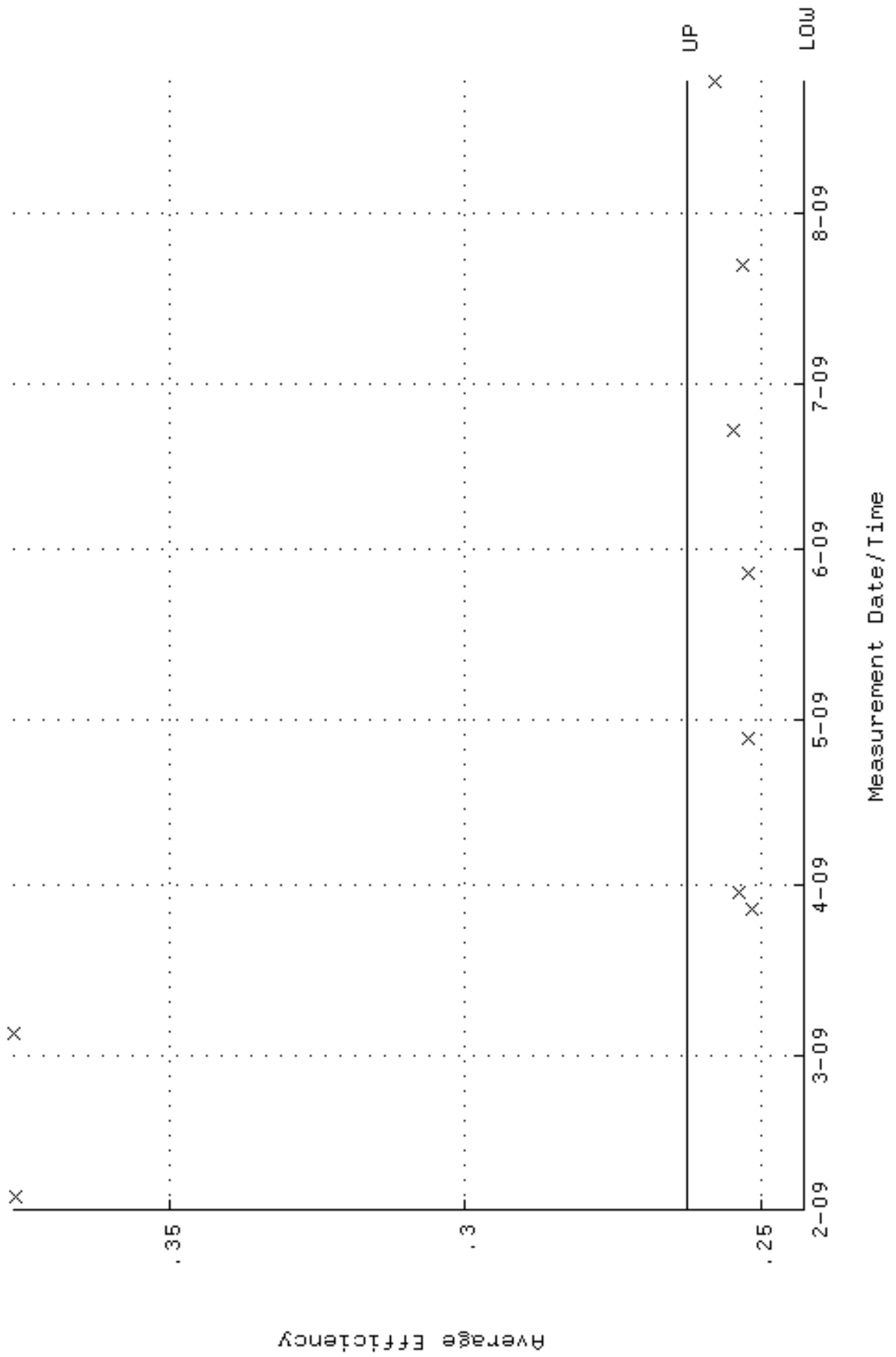
QA filename : DKA100:[ENV\_ALPHA.QA.W]W185.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:09:23 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.3502 through 93.2292



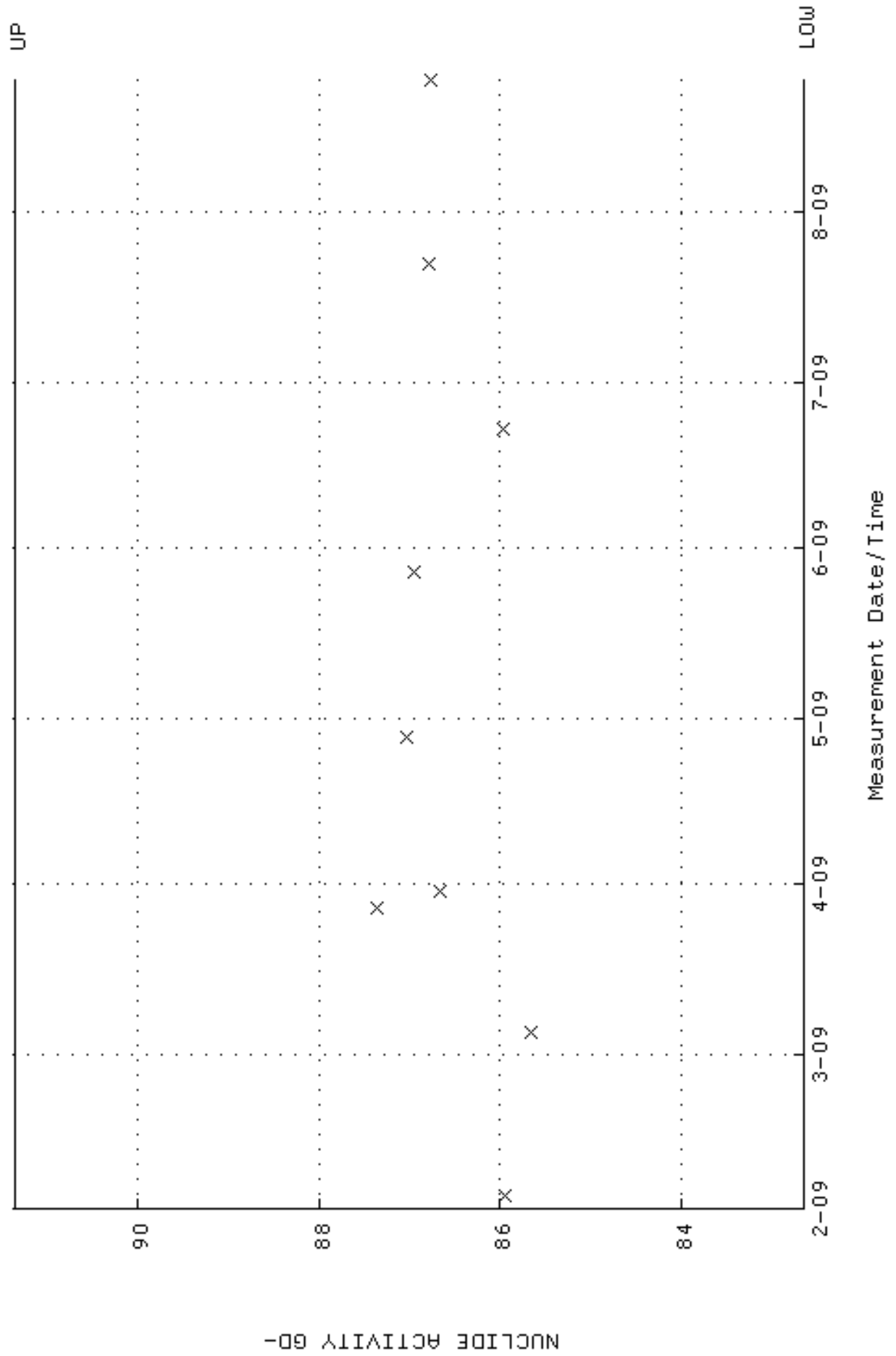
QA filename : DKA100:[ENV\_ALPHA.QA.B]B185.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:17:47 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



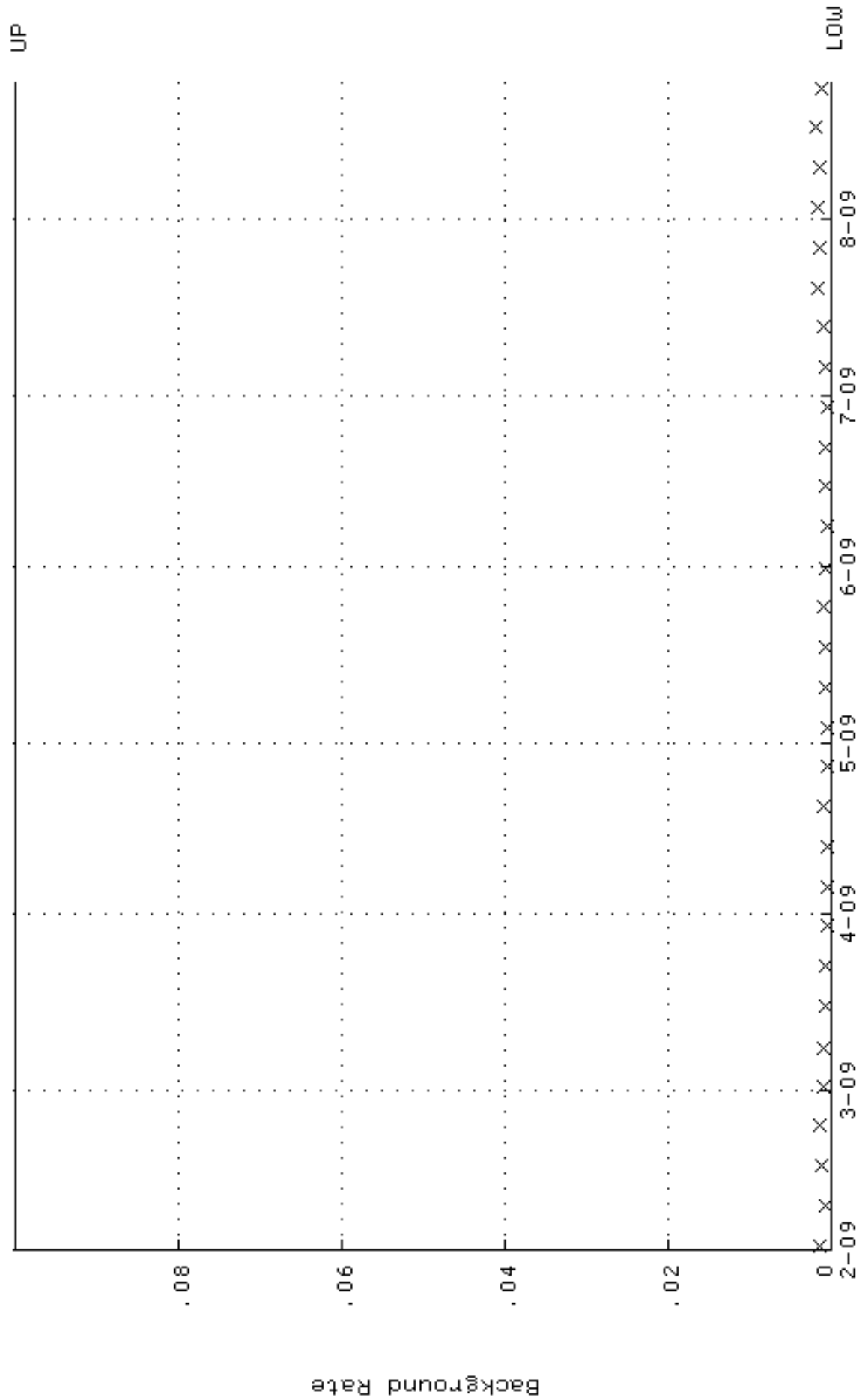
QA filename : DKA100:[ENV\_ALPHA.QA.W]W186.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:29 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.242649 through 0.262649



QA filename : DKA100:[ENV\_ALPHA.QA.W]W186.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:09:29 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 82.6495 through 91.3495

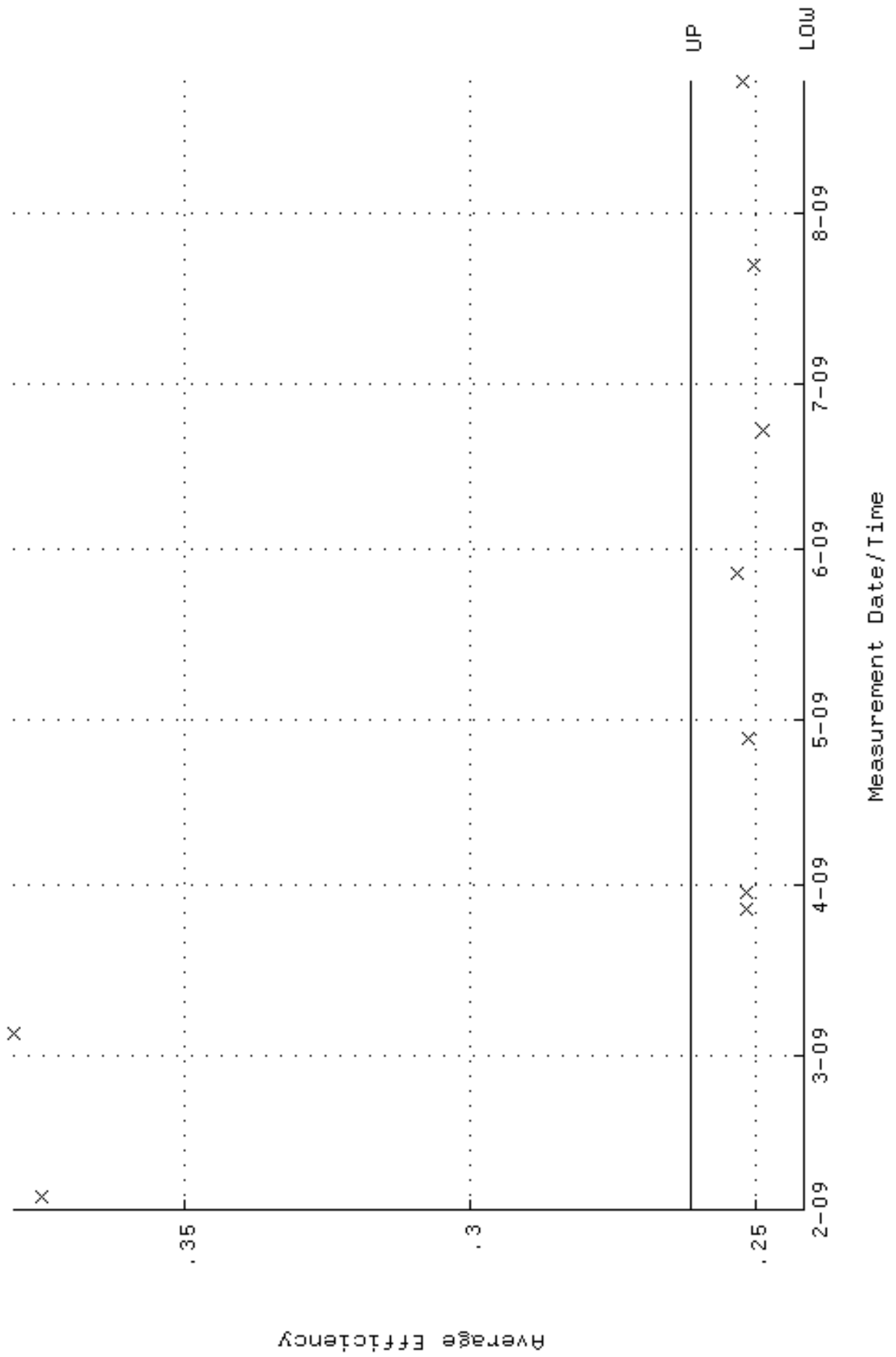


QA filename : DKA100:[ENV\_ALPHA.QA.B]B186.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:18:02 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

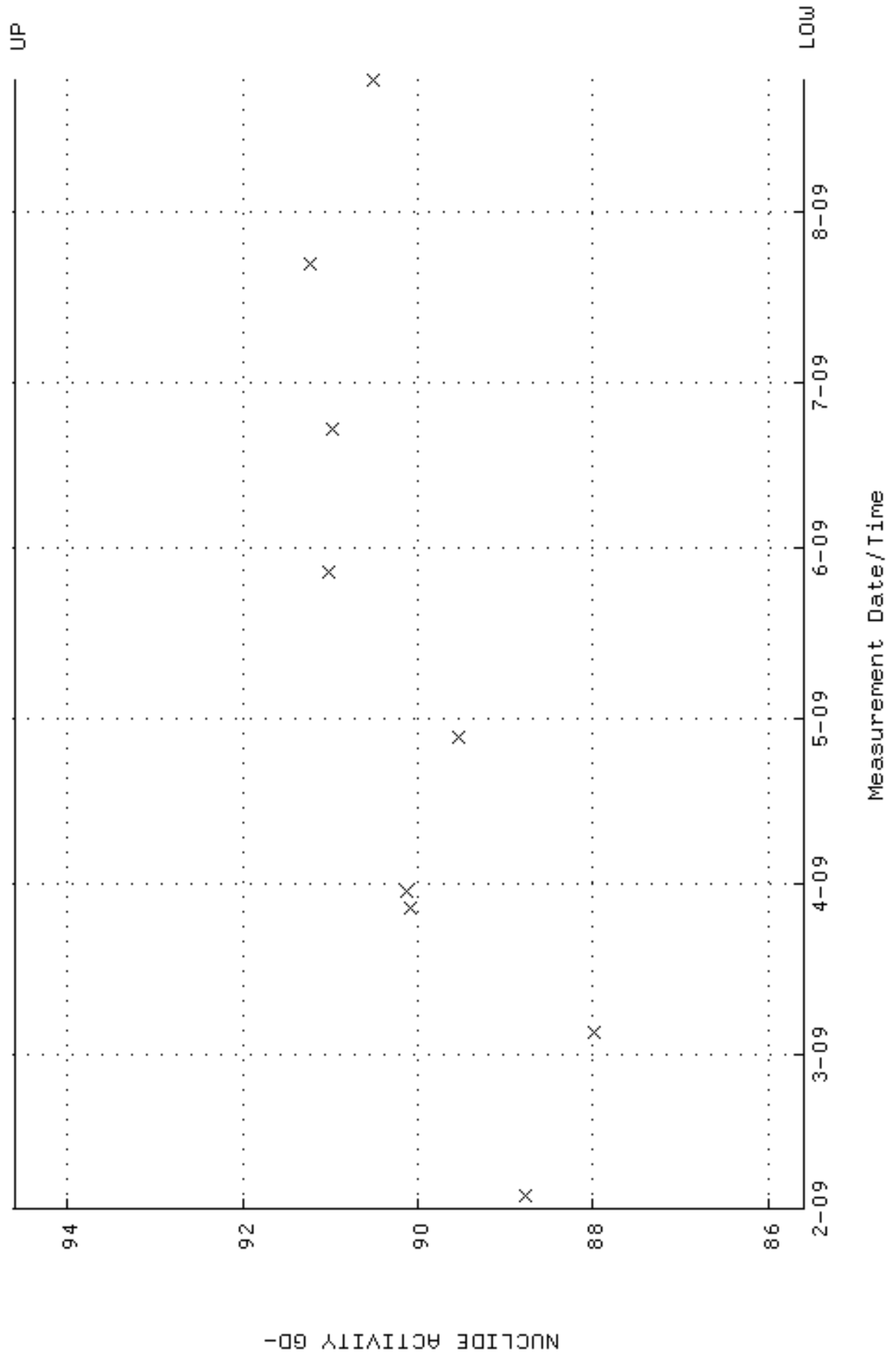




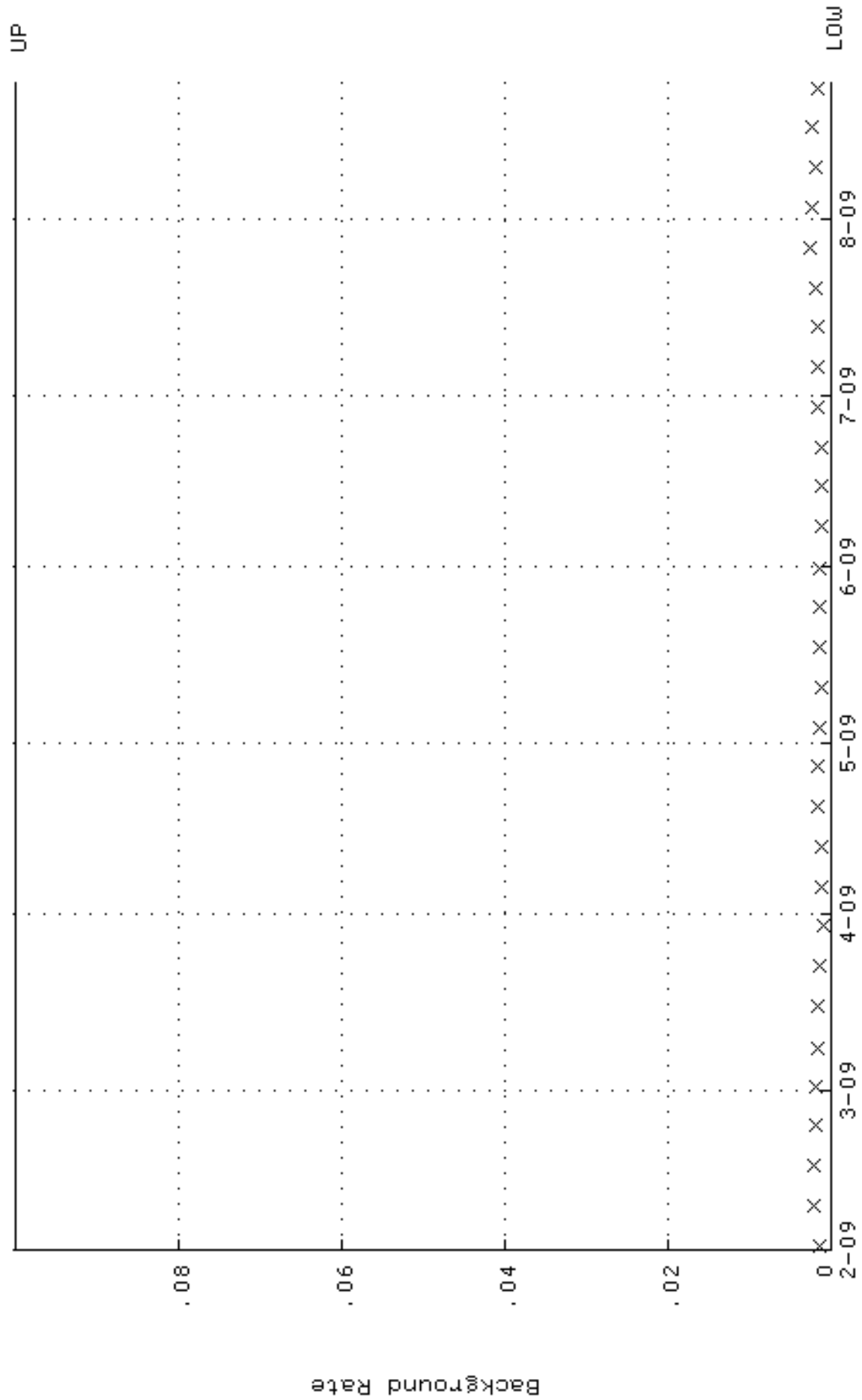
QA filename : DKA100:[ENV\_ALPHA.QA.W]W187.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:35 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.241464 through 0.261464



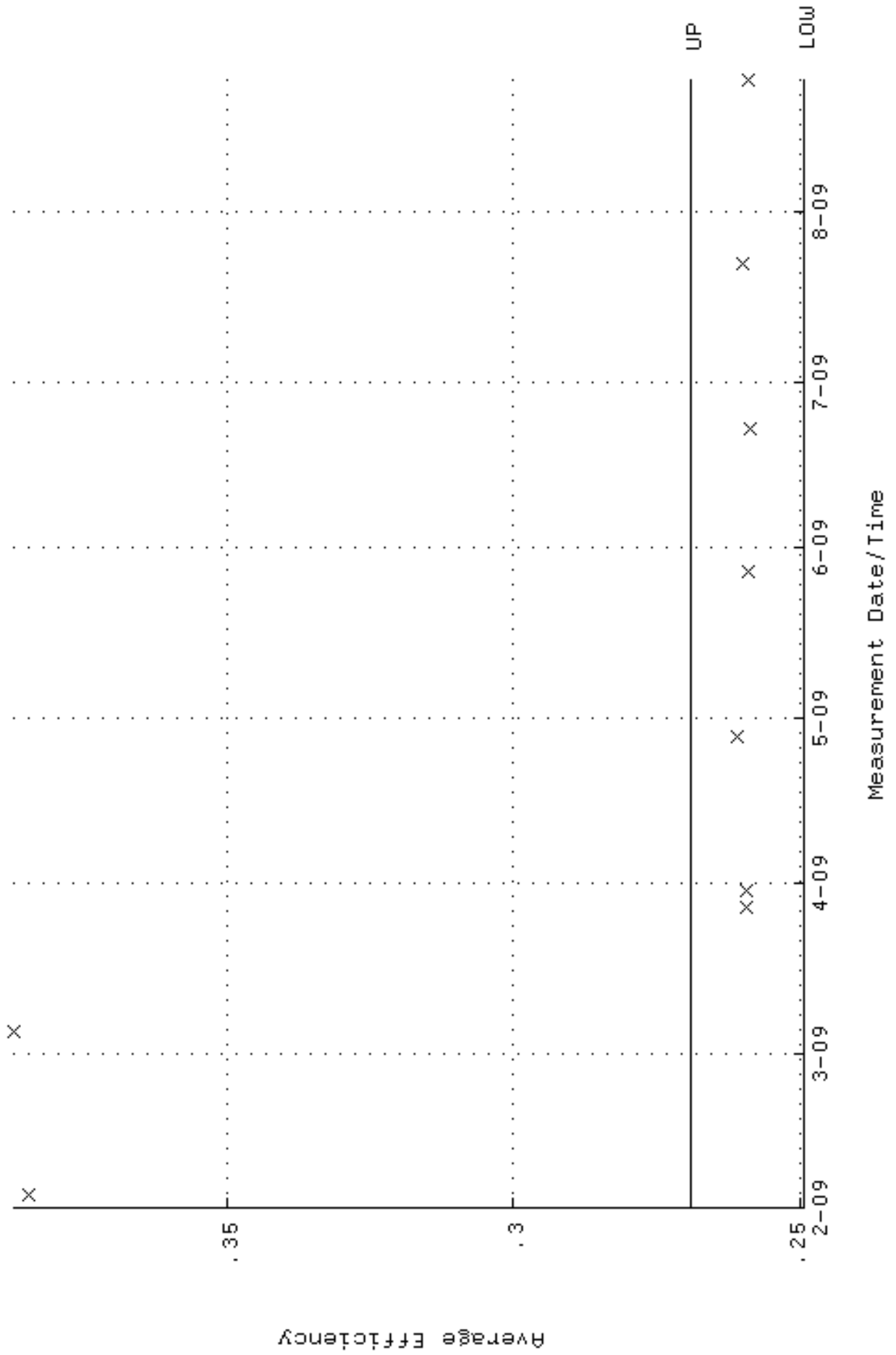
QA filename : DKA100:[ENV\_ALPHA.QA.W]w187.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:09:35 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.5888 through 94.5982



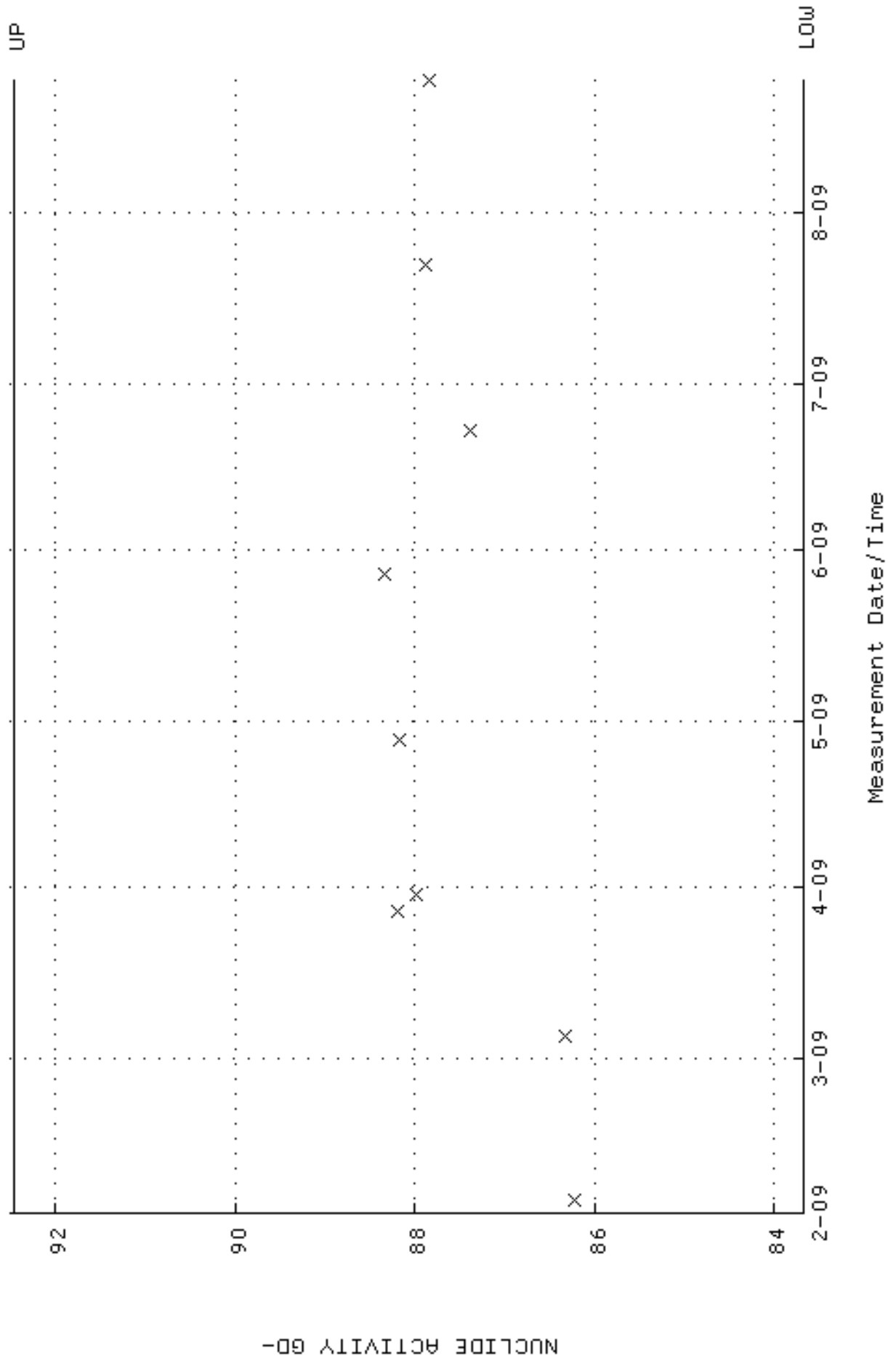
QA filename : DKA100:[ENV\_ALPHA.QA.B]B187.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:18:17 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



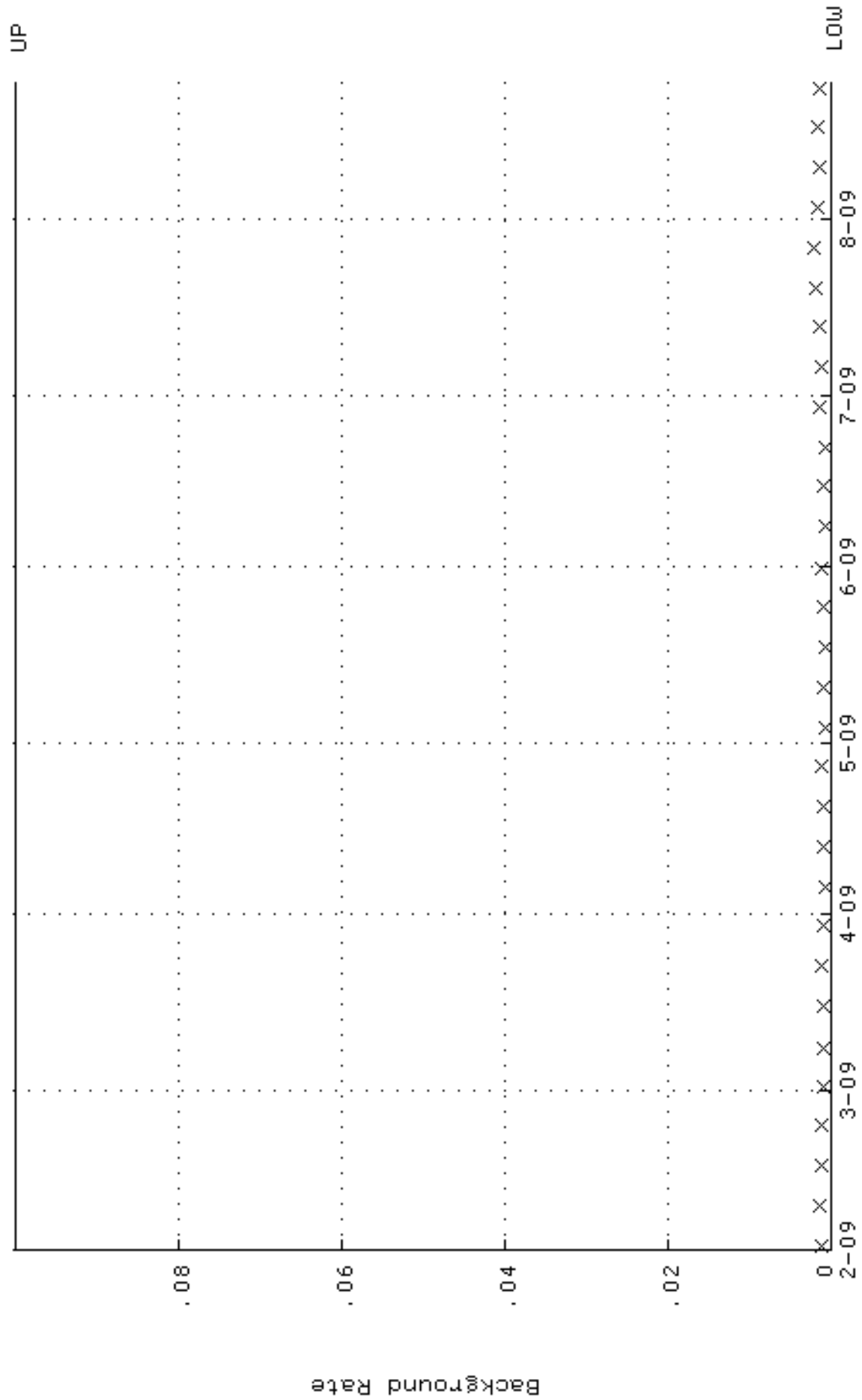
QA filename : DKA100:[ENV\_ALPHA.QA.W]W188.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:43 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.249341 through 0.269341



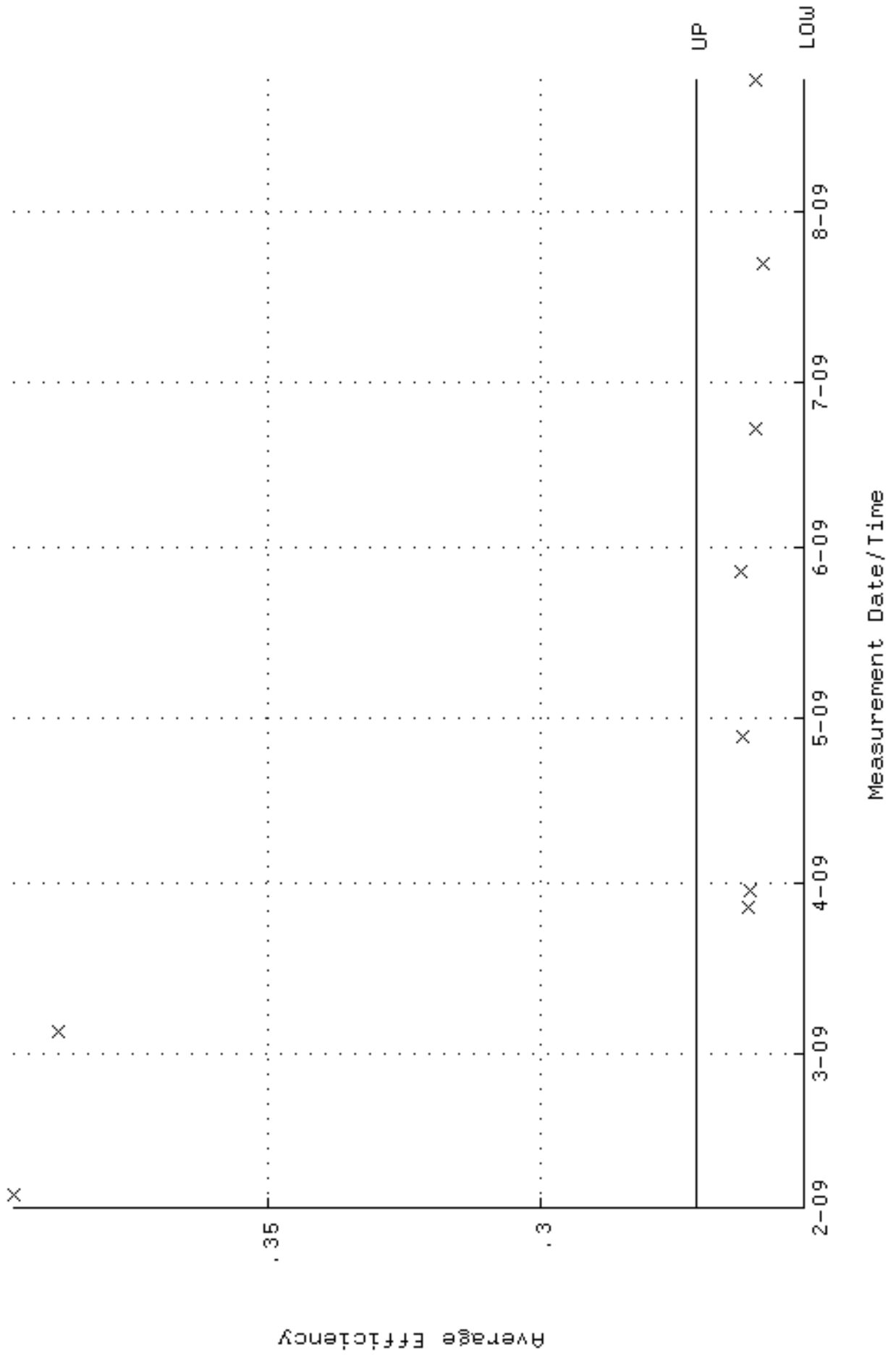
QA filename : DKA100:[ENV\_ALPHA.QA.W]W188.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:09:43 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 83.6747 through 92.4825



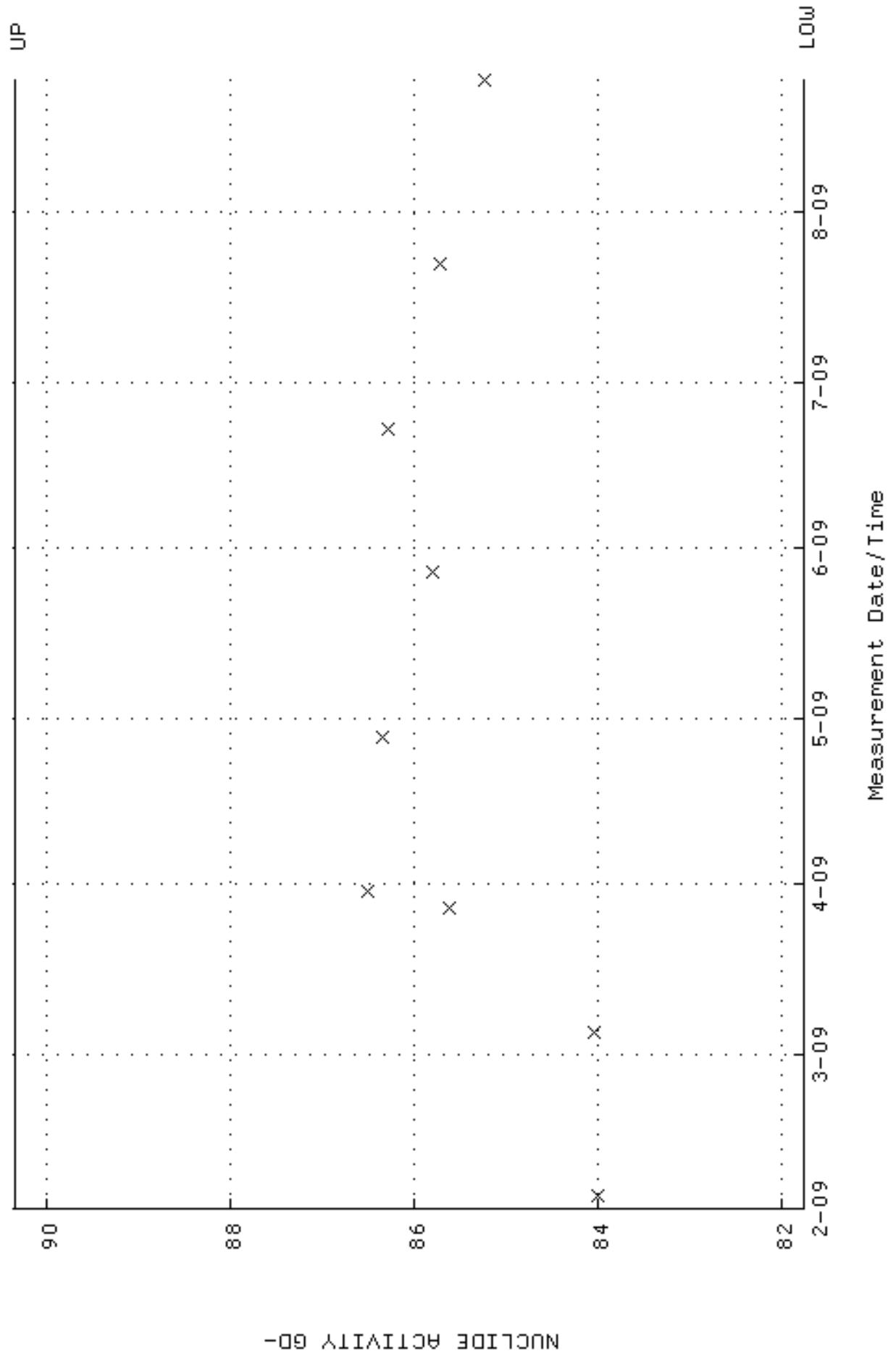
QA filename : DKA100:[ENV\_ALPHA.QA.B]B188.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:18:33 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W189.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:47 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.251590 through 0.271590

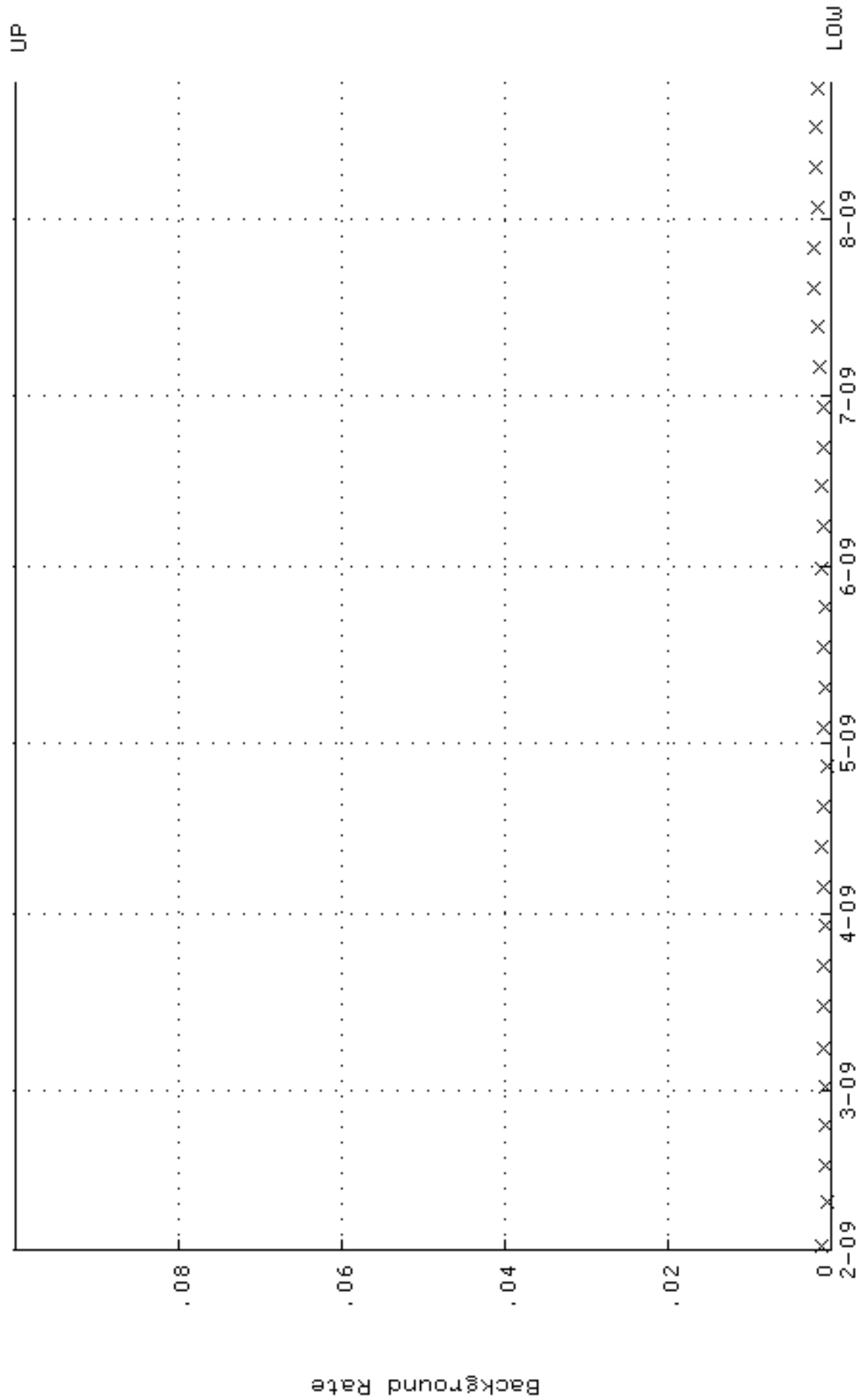


QA filename : DKA100:[ENV\_ALPHA.QA.W]w189.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 3-FEB-2009 12:09:47 through 24-AUG-2009 12:00:00  
Lower/Upper Lmts: 81.7473 through 90.3523

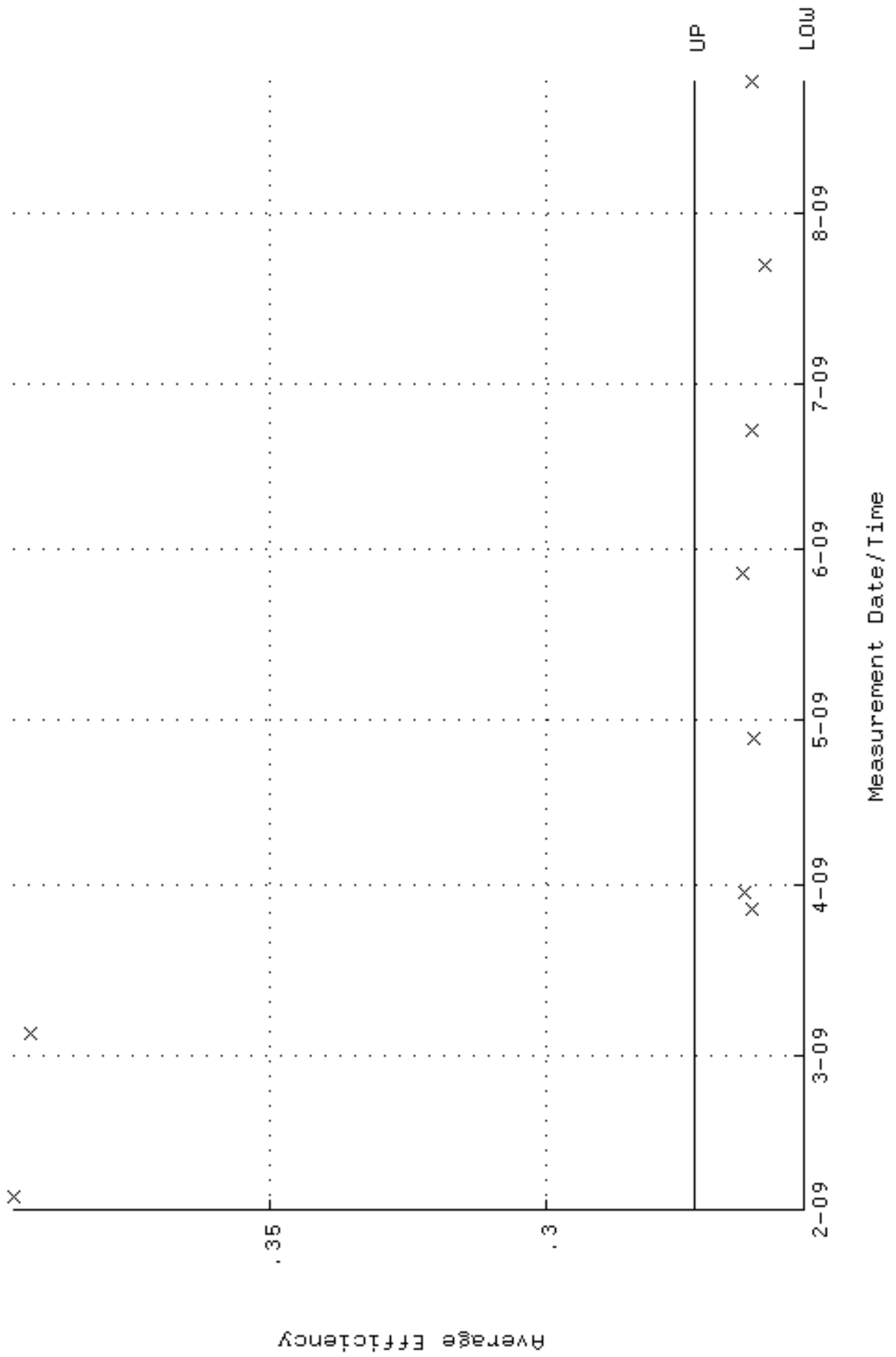




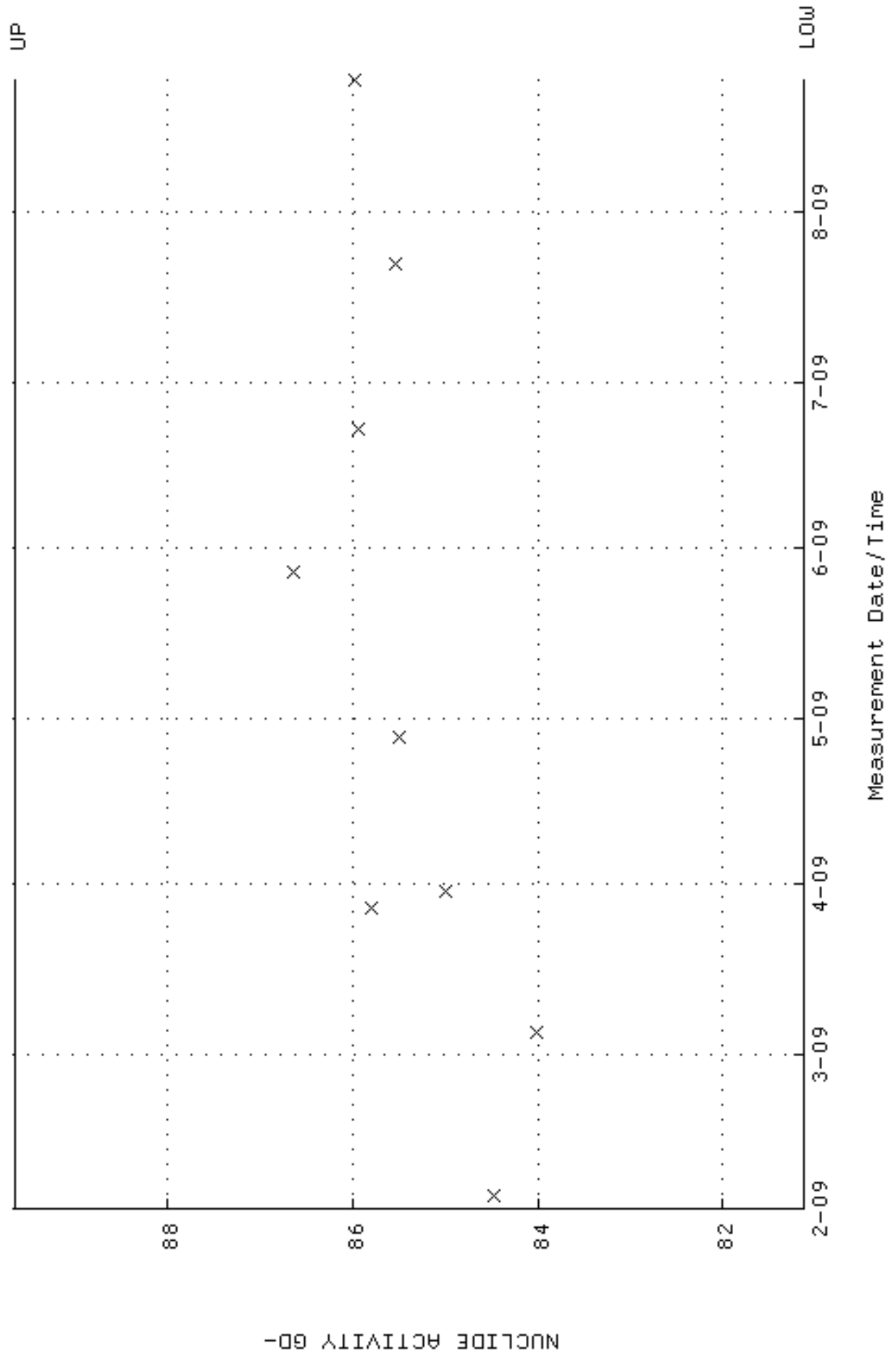
QA filename : DKA100:[ENV\_ALPHA.QA.B]B189.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:18:49 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



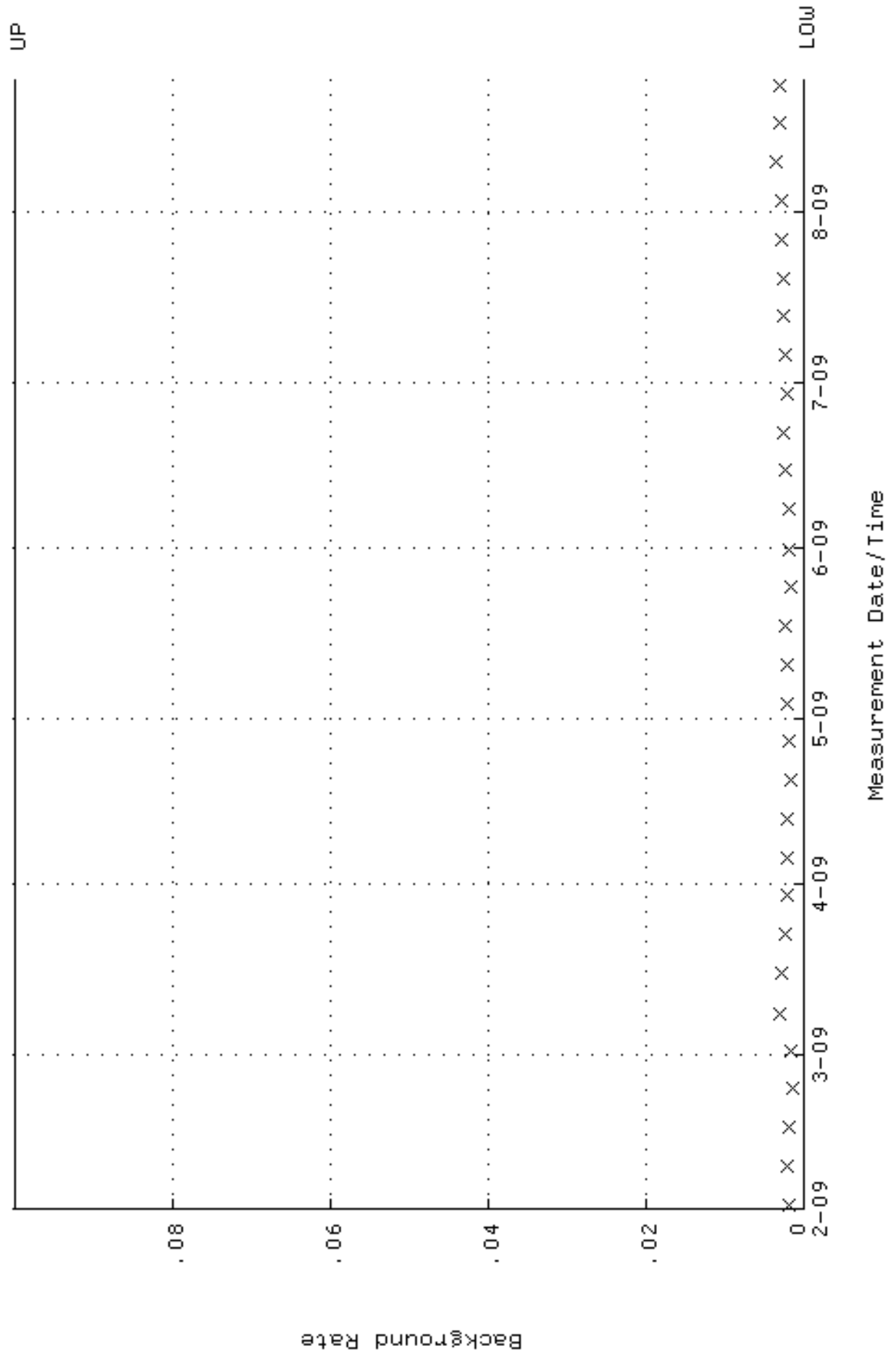
QA filename : DKA100:[ENV\_ALPHA.QA.W]W190.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:52 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.253504 through 0.273504



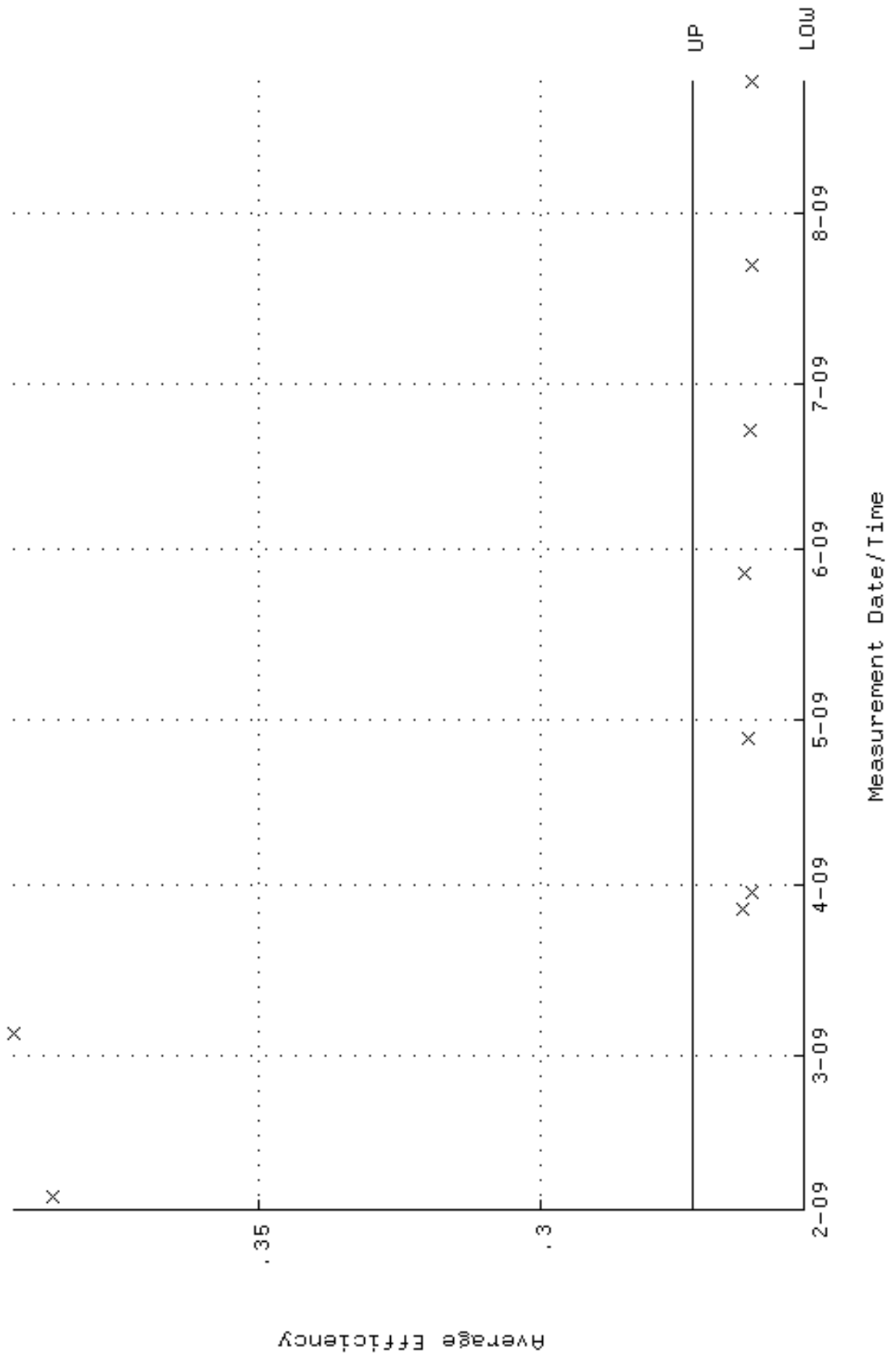
QA filename : DKA100:[ENV\_ALPHA.QA.W]W190.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:09:52 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 81.1176 through 89.6562



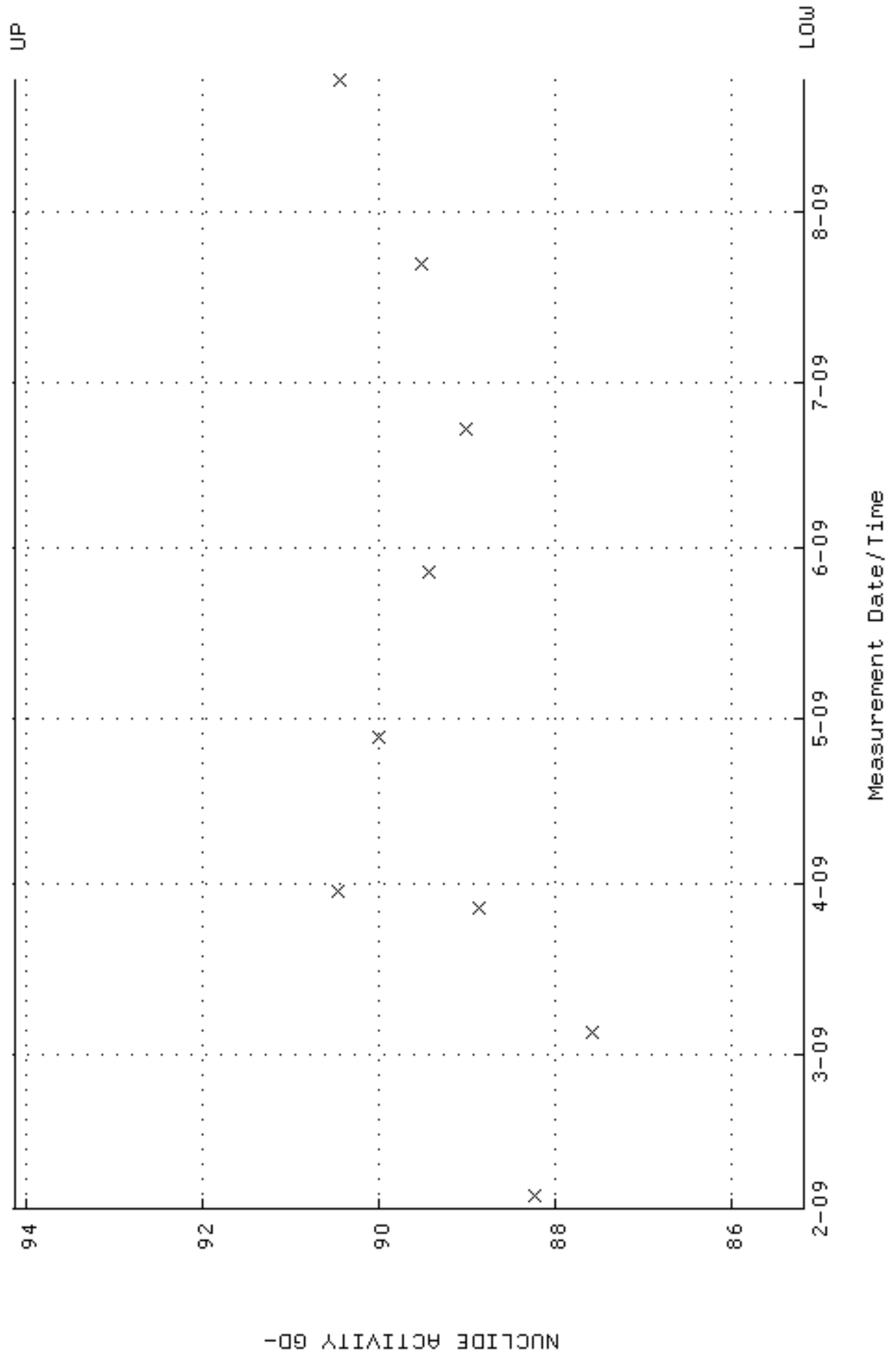
QA filename : DKA100:[ENV\_ALPHA.QA.B]B190.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:19:03 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



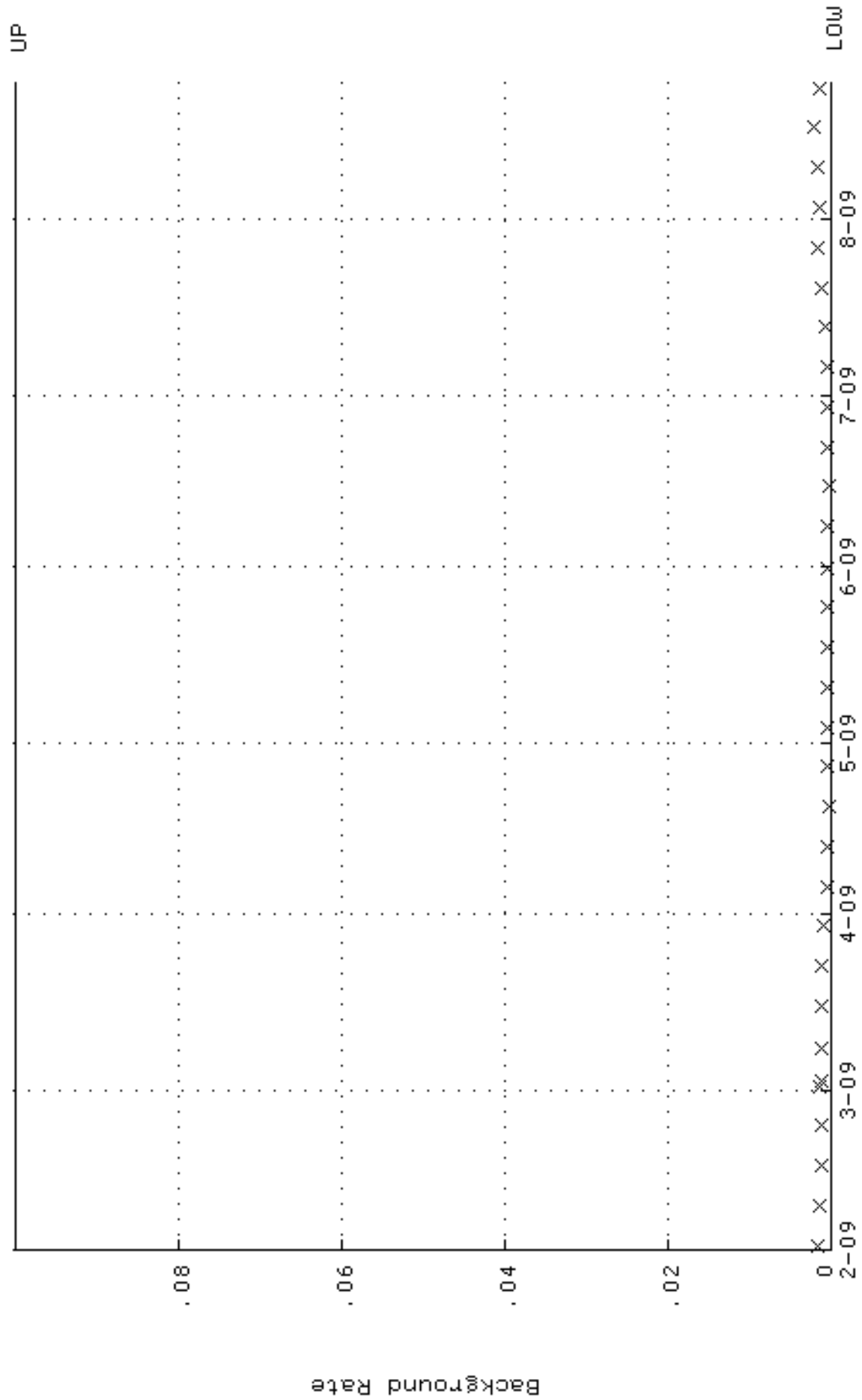
QA filename : DKA100:[ENV\_ALPHA.QA.W]W191.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:09:56 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.252993 through 0.272993



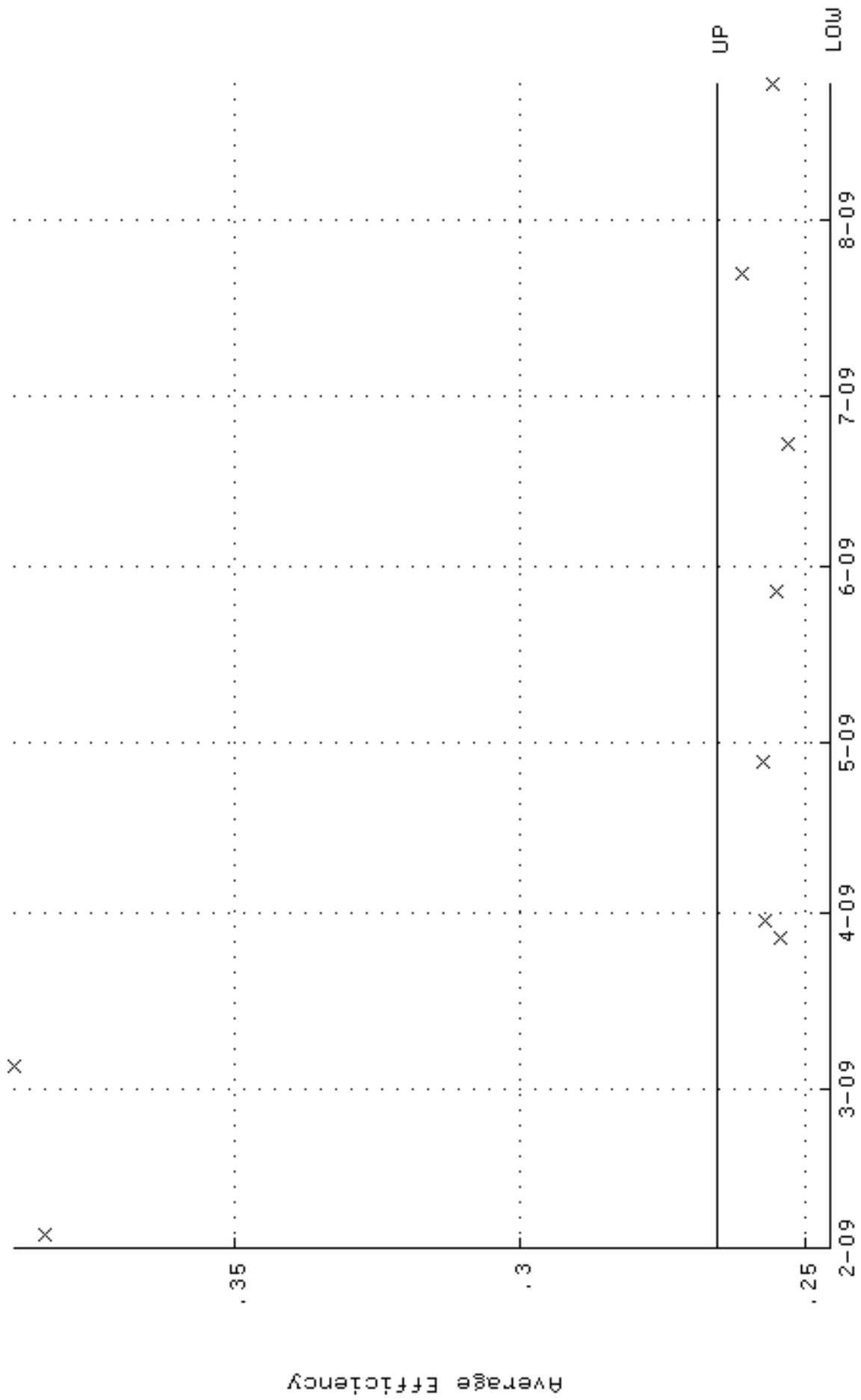
QA filename : DKA100:[ENV\_ALPHA.QA.W]W191.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:09:56 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.1712 through 94.1366



QA filename : DKA100:[ENV\_ALPHA.QA.B]B191.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:19:22 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

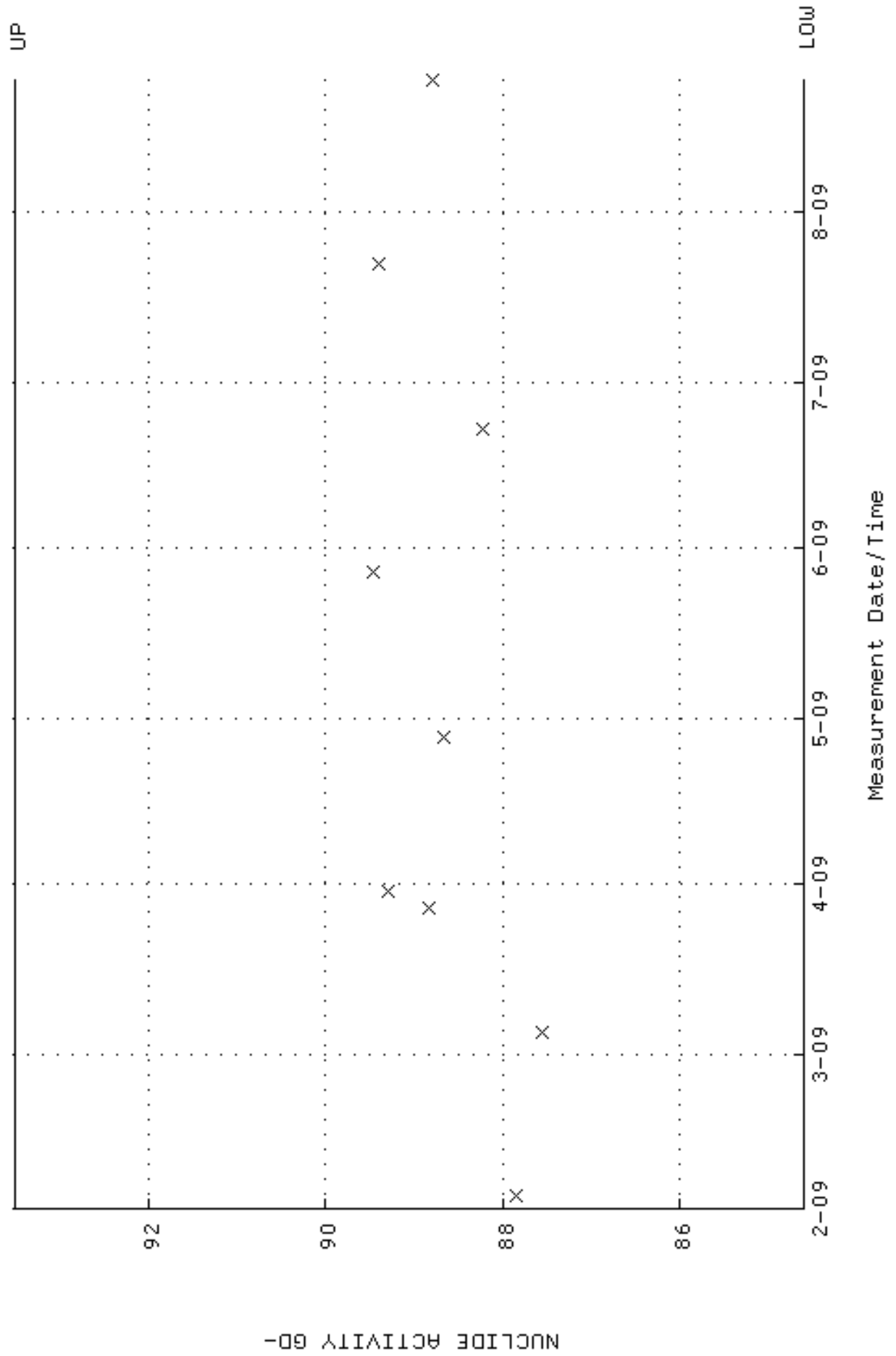


QA filename : DKA100:[ENV\_ALPHA.QA.W]W192.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:10:03 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.245663 through 0.265663

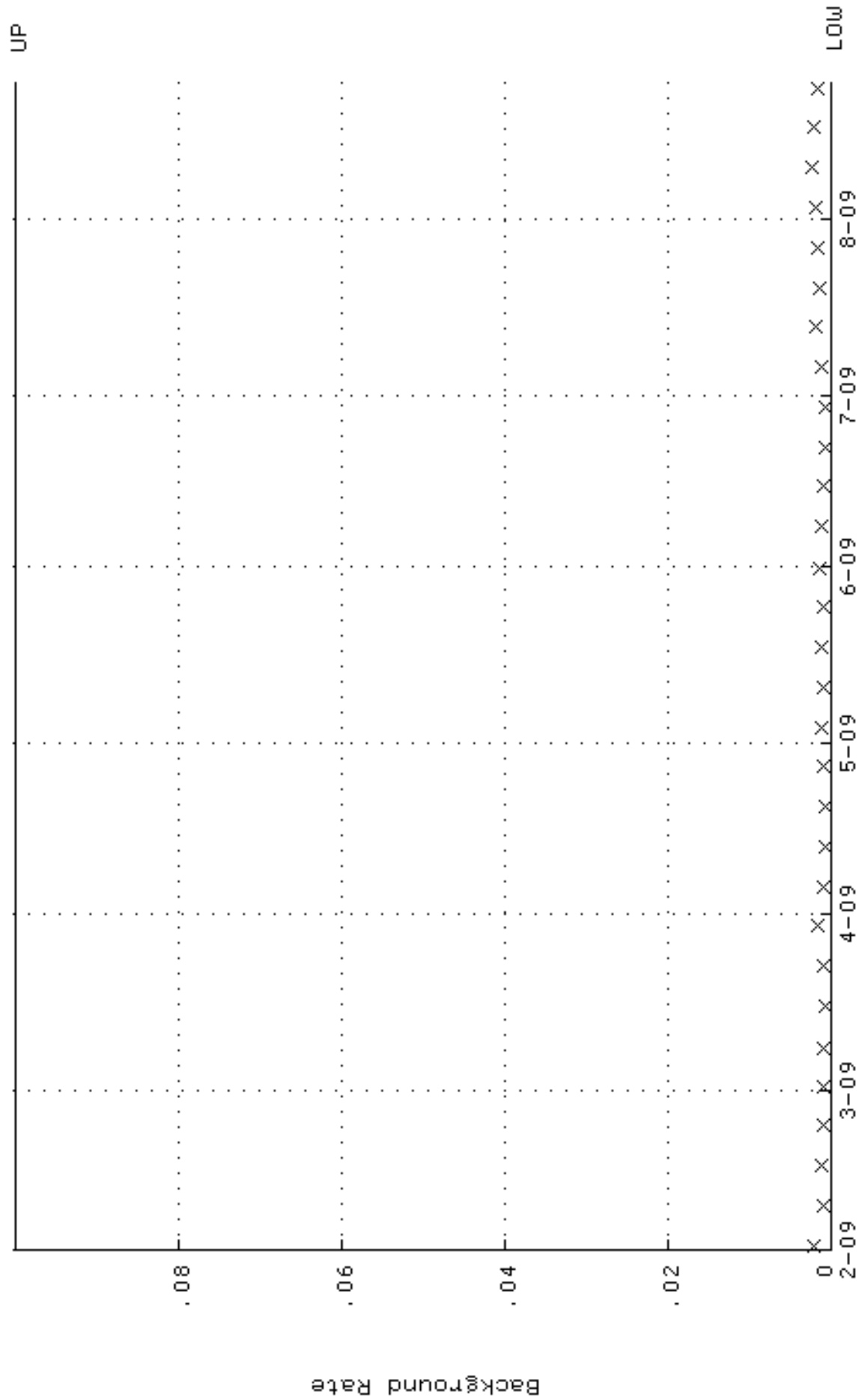




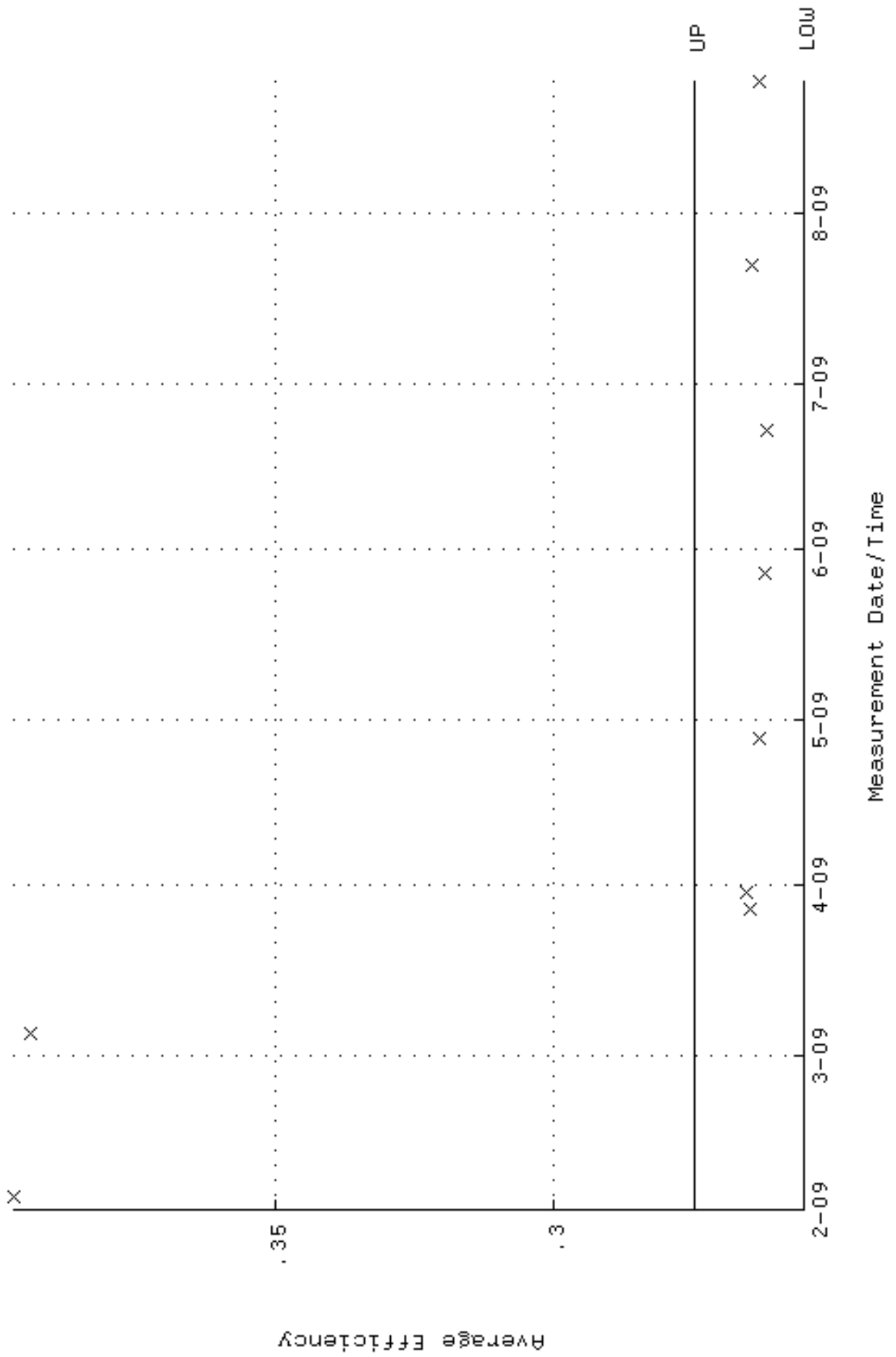
QA filename : DKA100:[ENV\_ALPHA.QA.W]W192.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:10:03 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.6037 through 93.5093



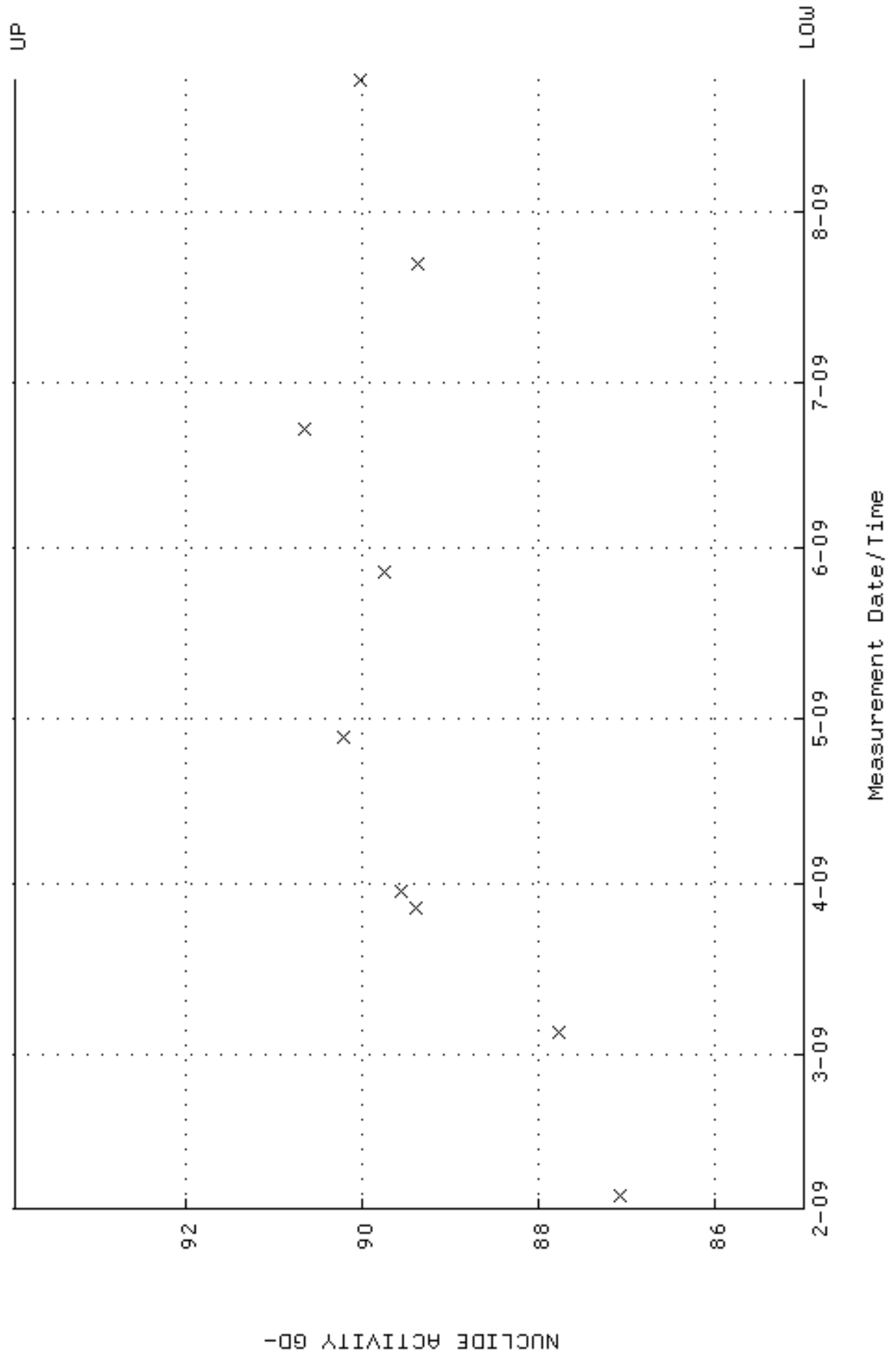
QA filename : DKA100:[ENV\_ALPHA.QA.B]B192.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:19:37 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W193.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:10:07 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.254861 through 0.274861

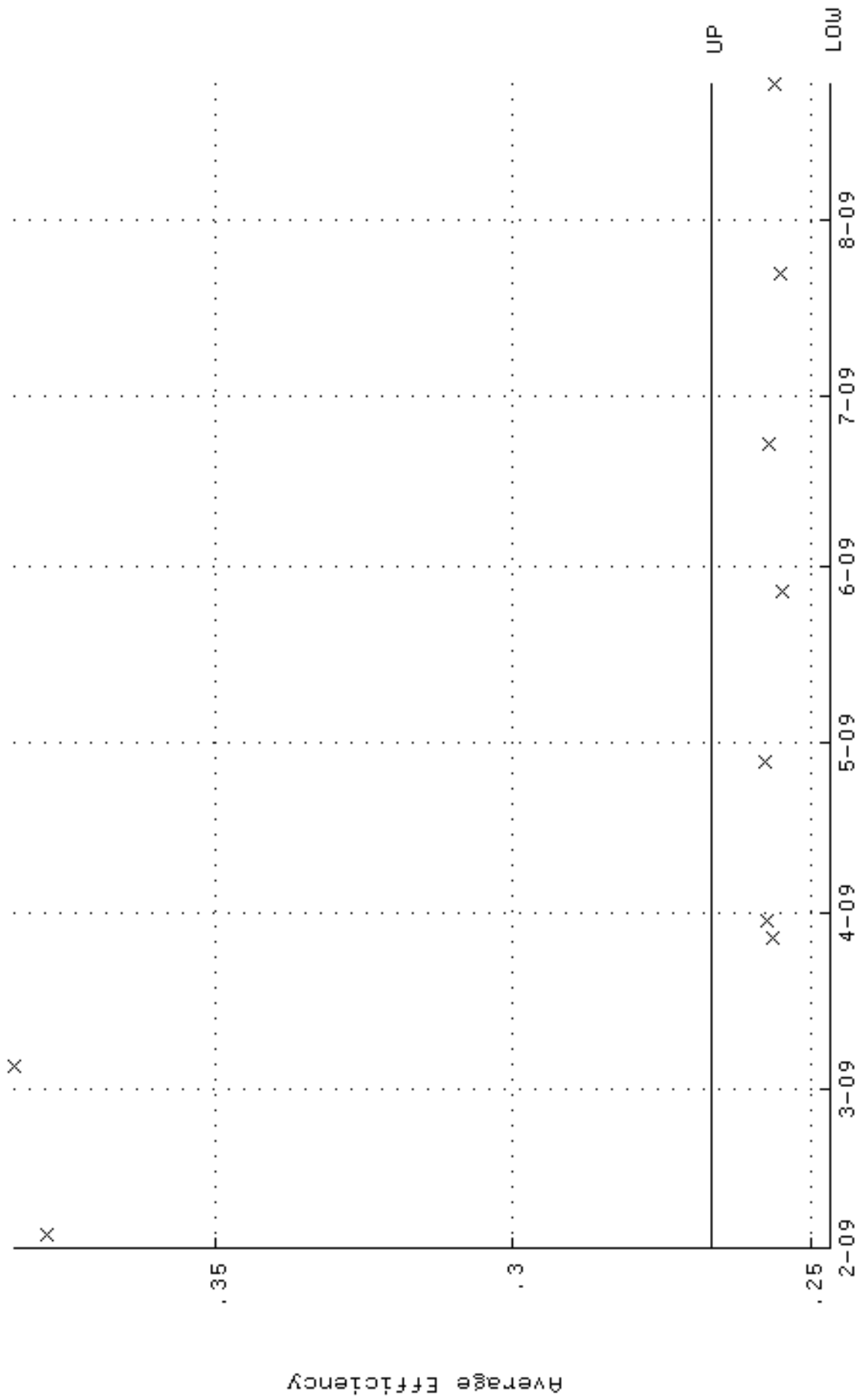


QA filename : DKA100:[ENV\_ALPHA.QA.W]W193.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:10:07 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 84.9815 through 93.9269

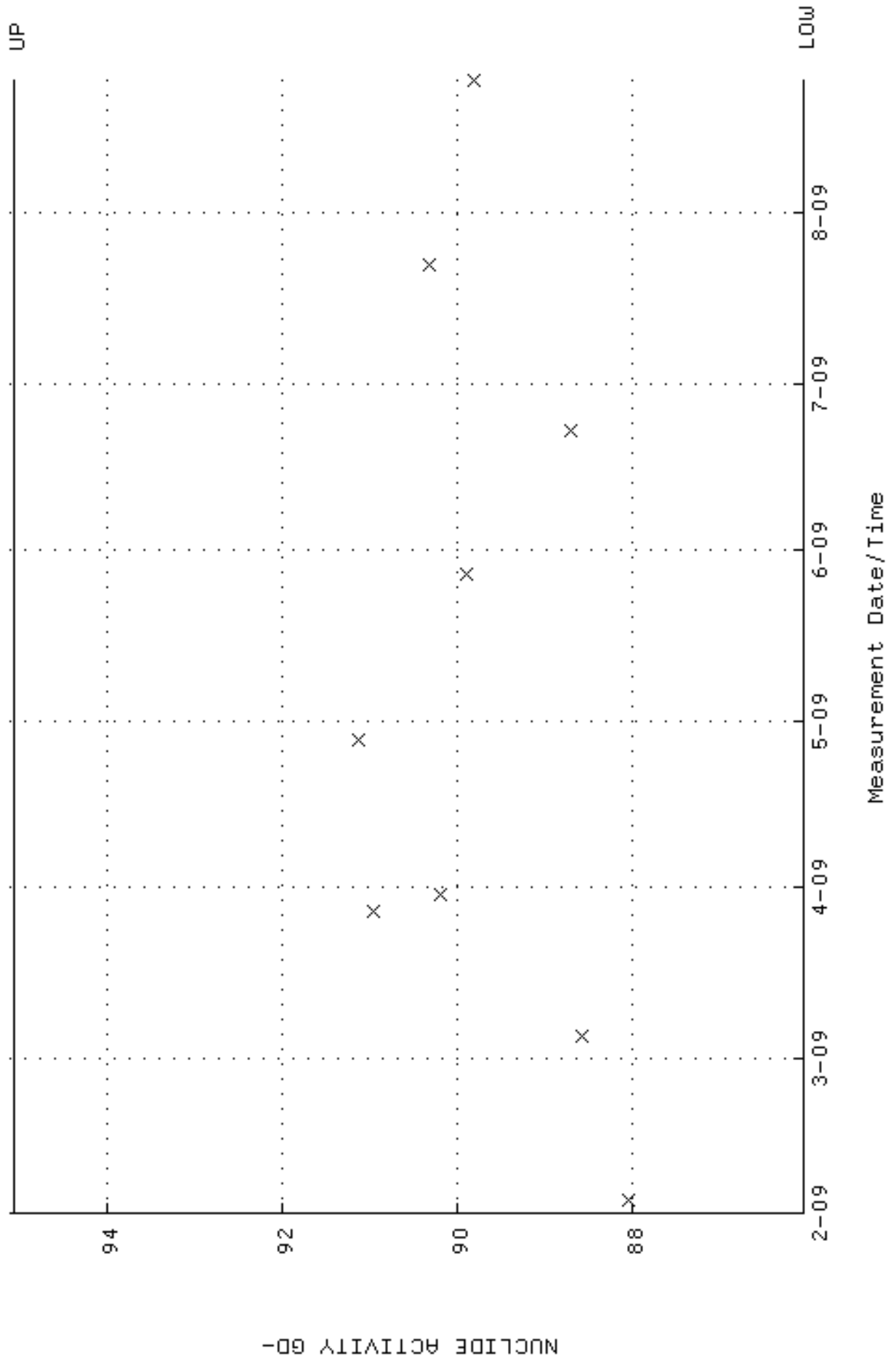




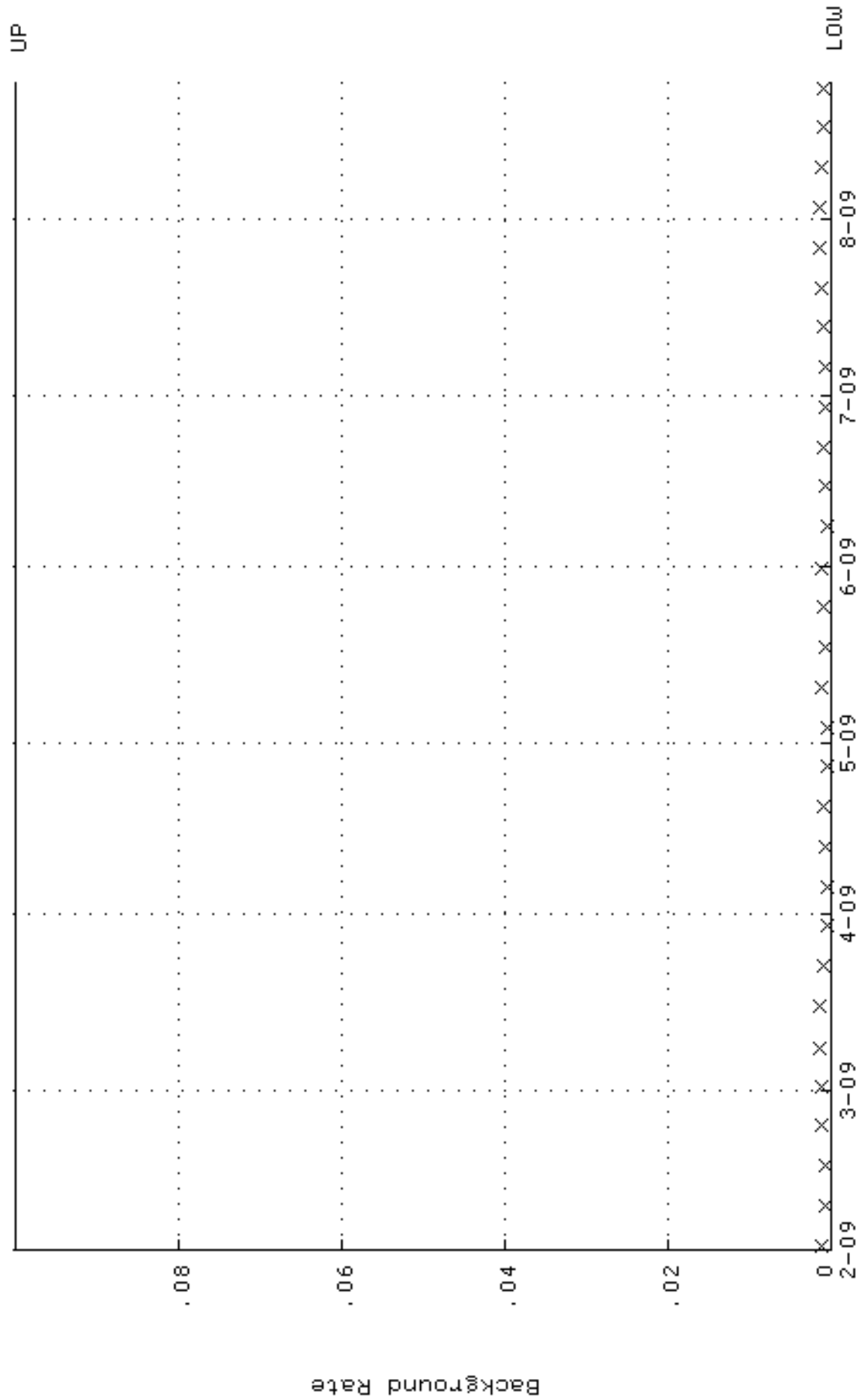
QA filename : DKA100:[ENV\_ALPHA.QA.W]W194.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:10:12 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.246760 through 0.266760



QA filename : DKA100:[ENV\_ALPHA.QA.W]W194.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:10:12 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 86.0376 through 95.0942

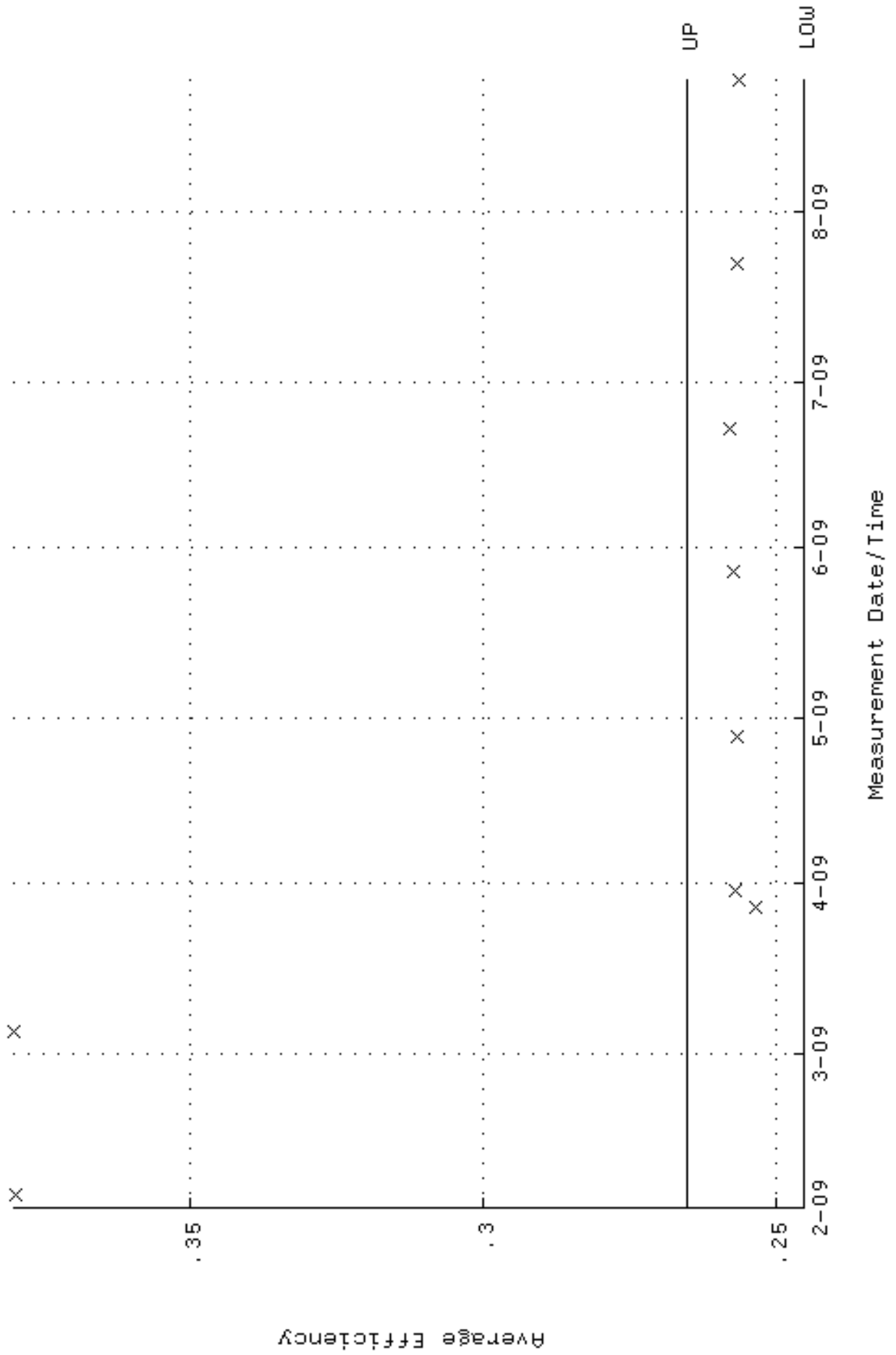


QA filename : DKA100:[ENV\_ALPHA.QA.B]B194.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:20:07 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

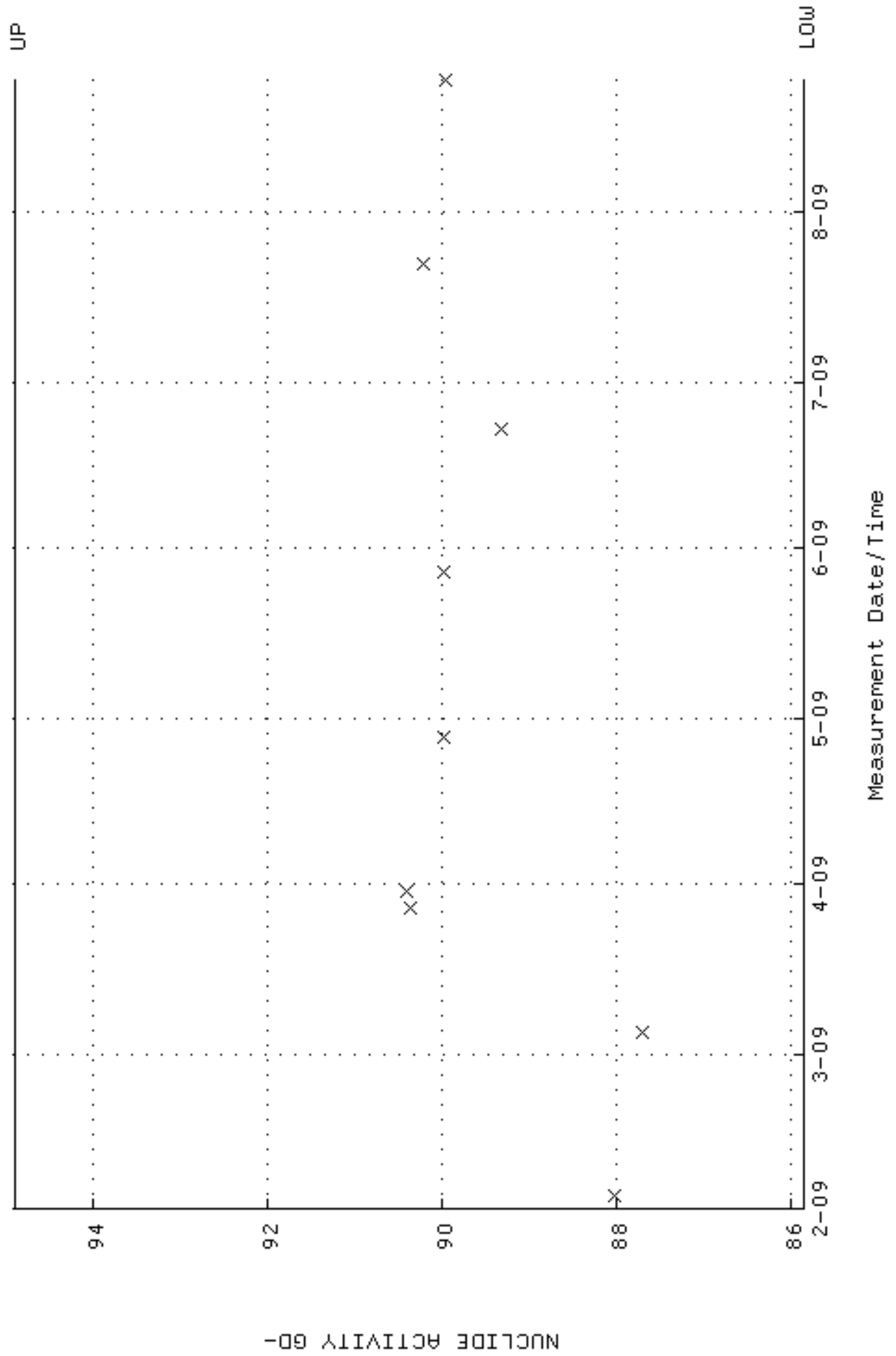




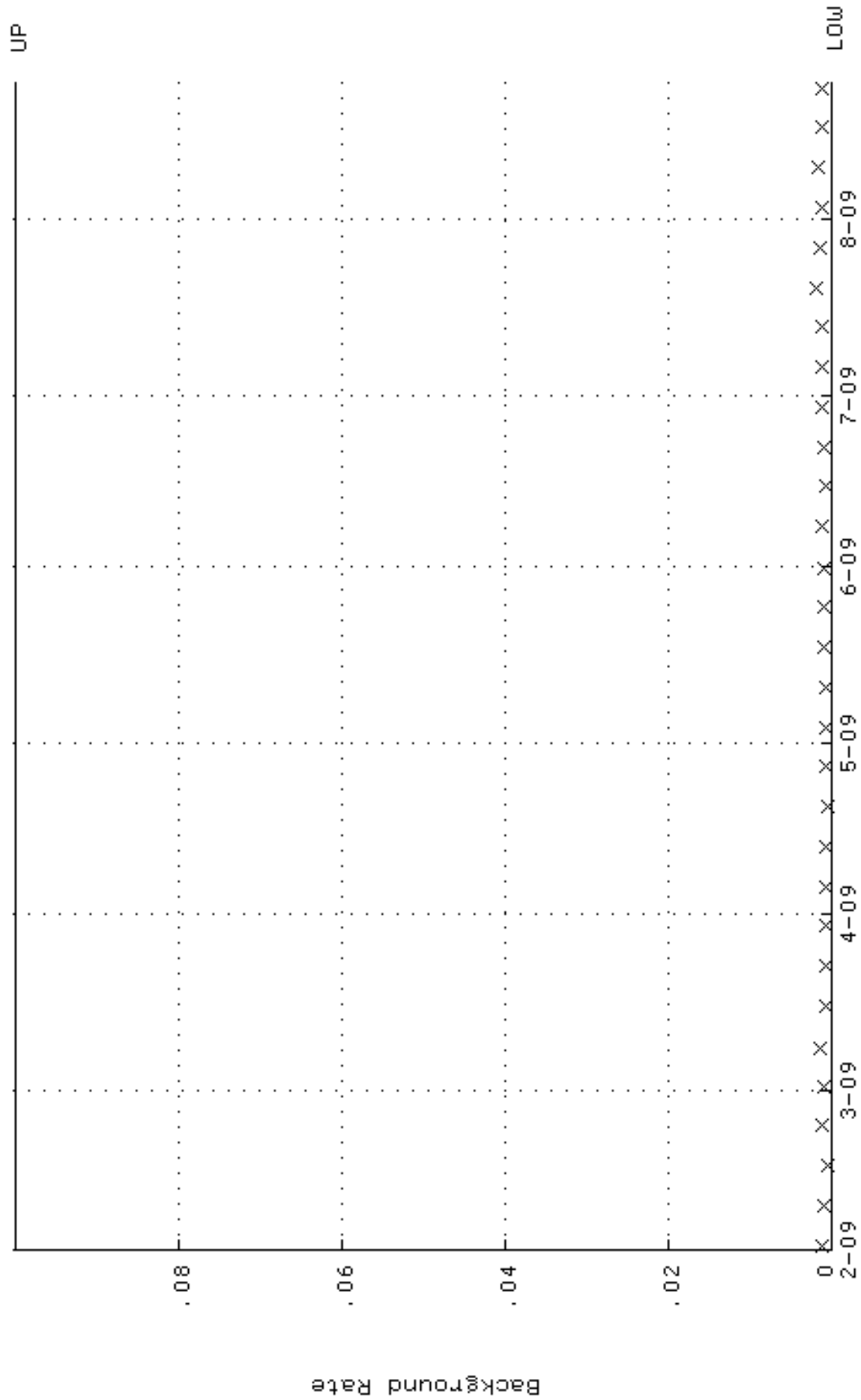
QA filename : DKA100:[ENV\_ALPHA.QA.W]W196.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 3-FEB-2009 12:10:22 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.245168 through 0.265168



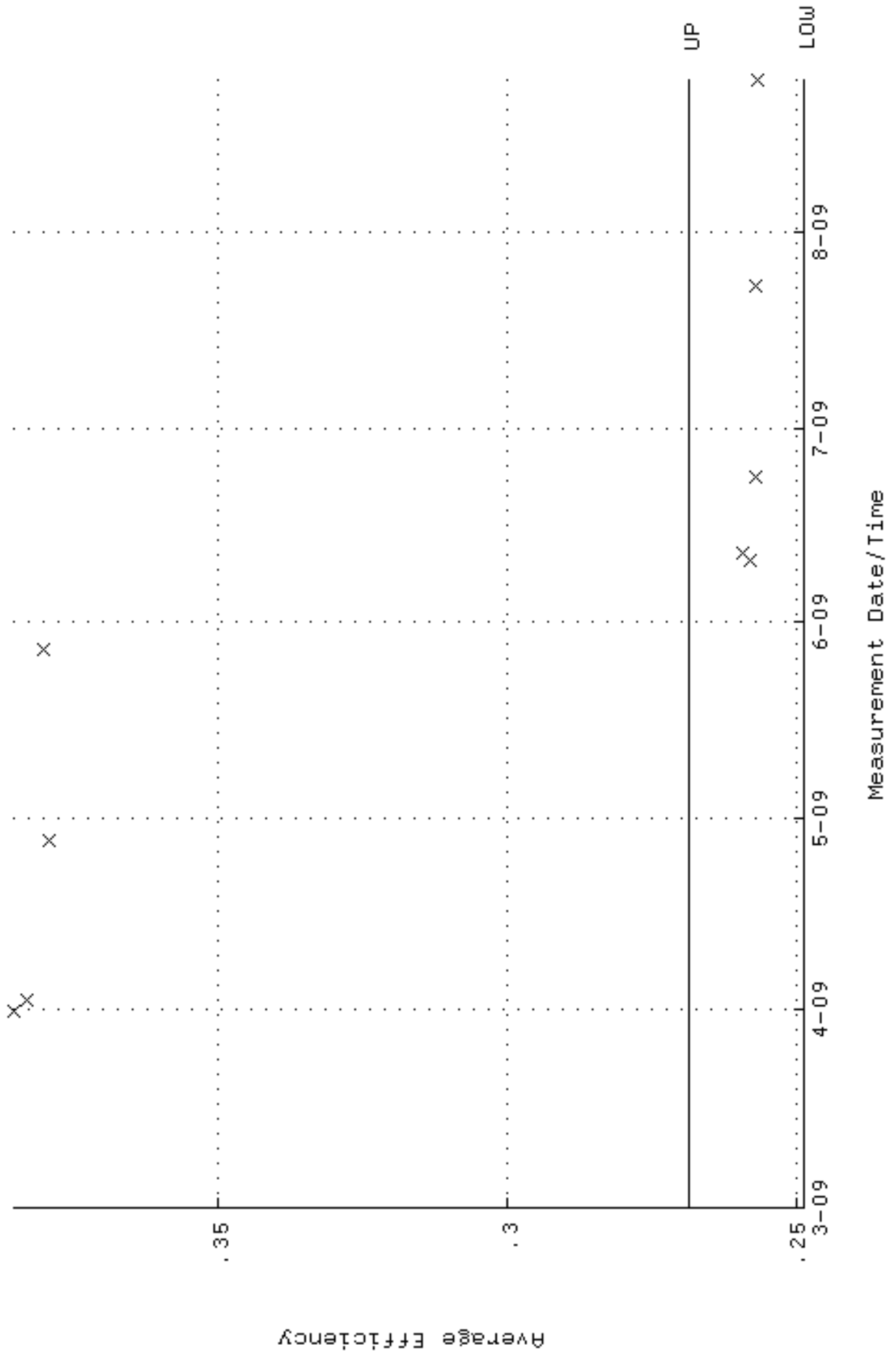
QA filename : DKA100:[ENV\_ALPHA.QA.W]W196.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 3-FEB-2009 12:10:22 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.8592 through 94.8970



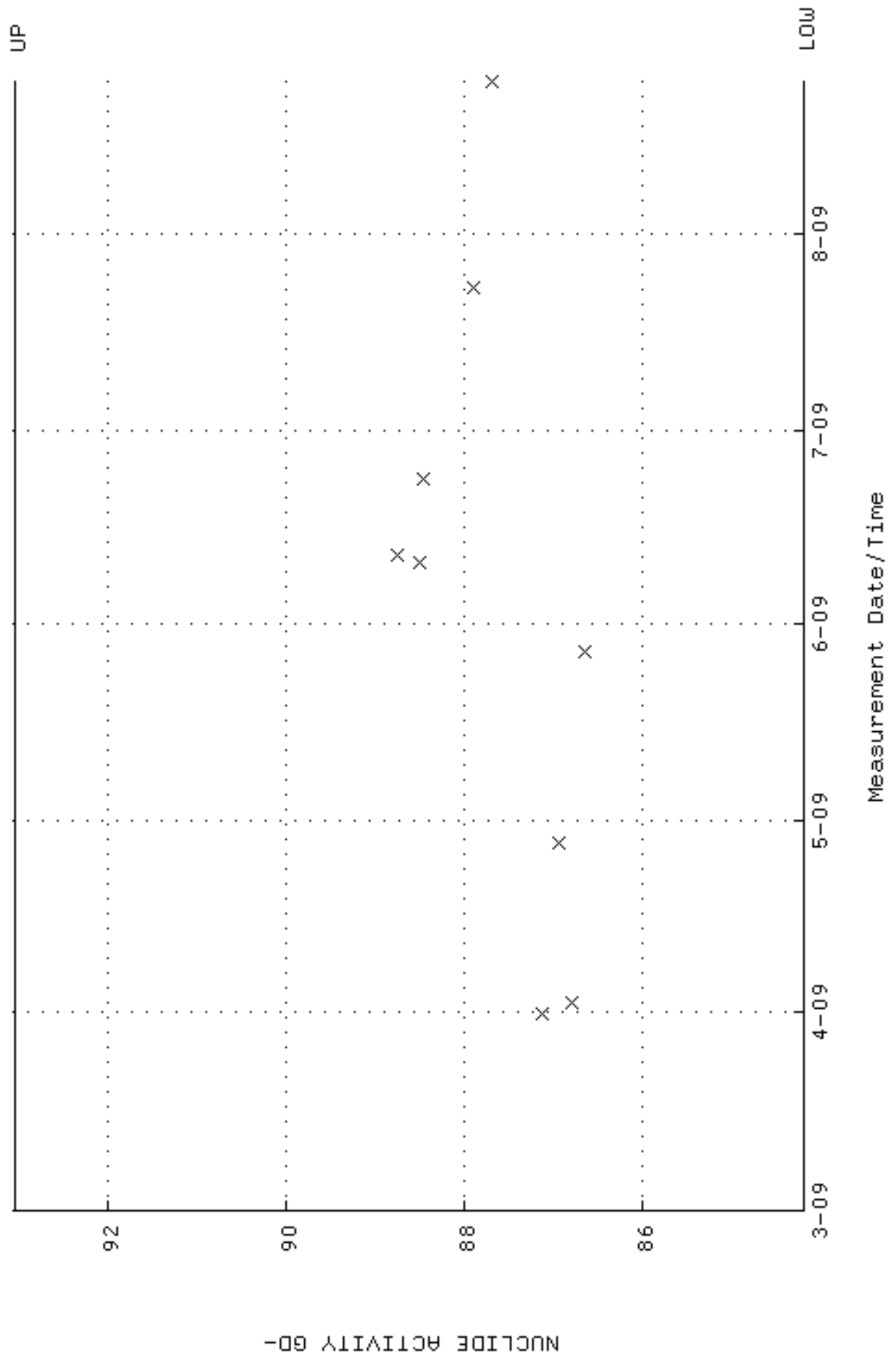
QA filename : DKA100:[ENV\_ALPHA.QA.B]B196.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-FEB-2009 17:20:38 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



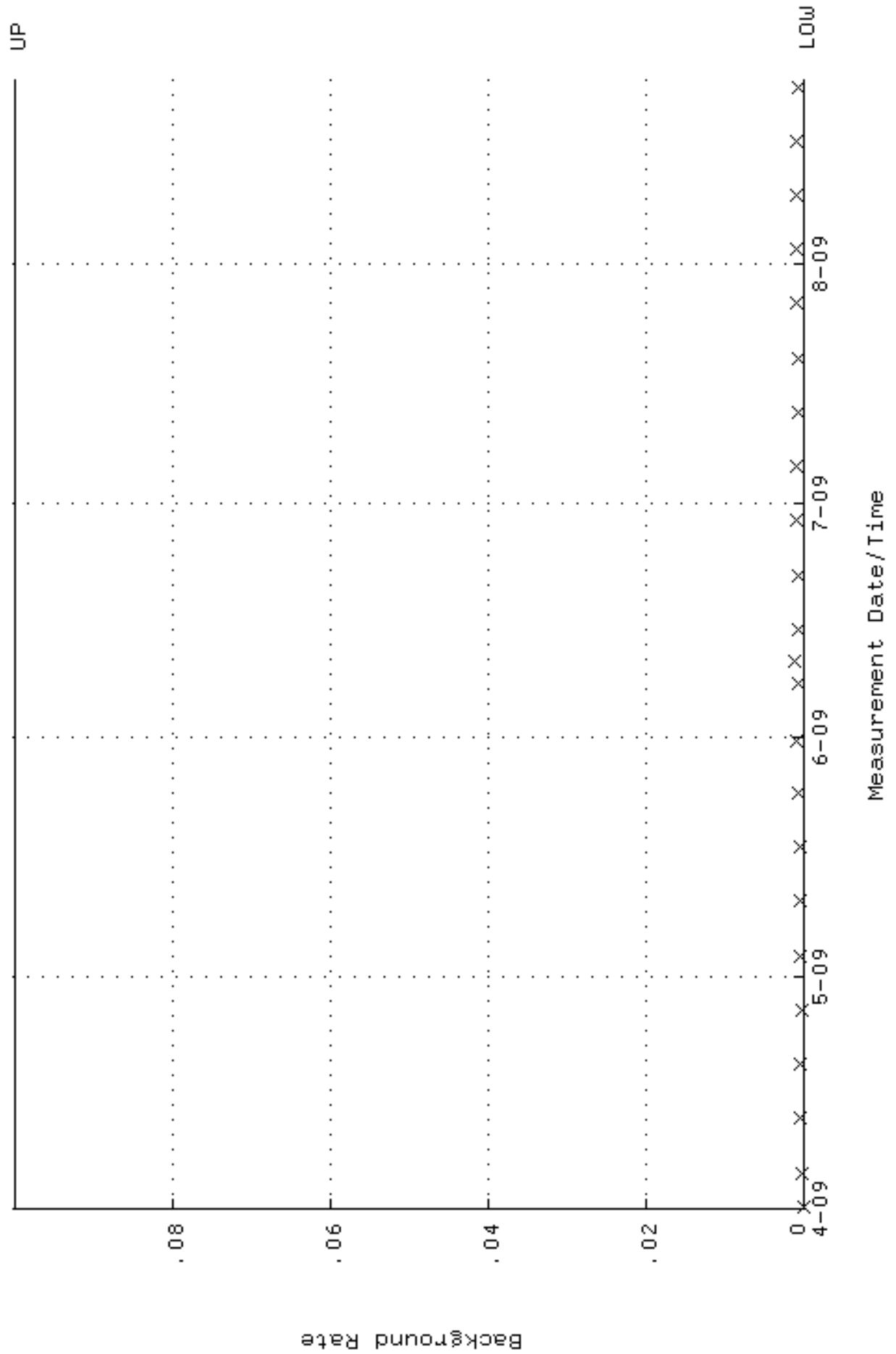
QA filename : DKA100:[ENV\_ALPHA.QA.W]W197.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:03:56 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.248572 through 0.268572



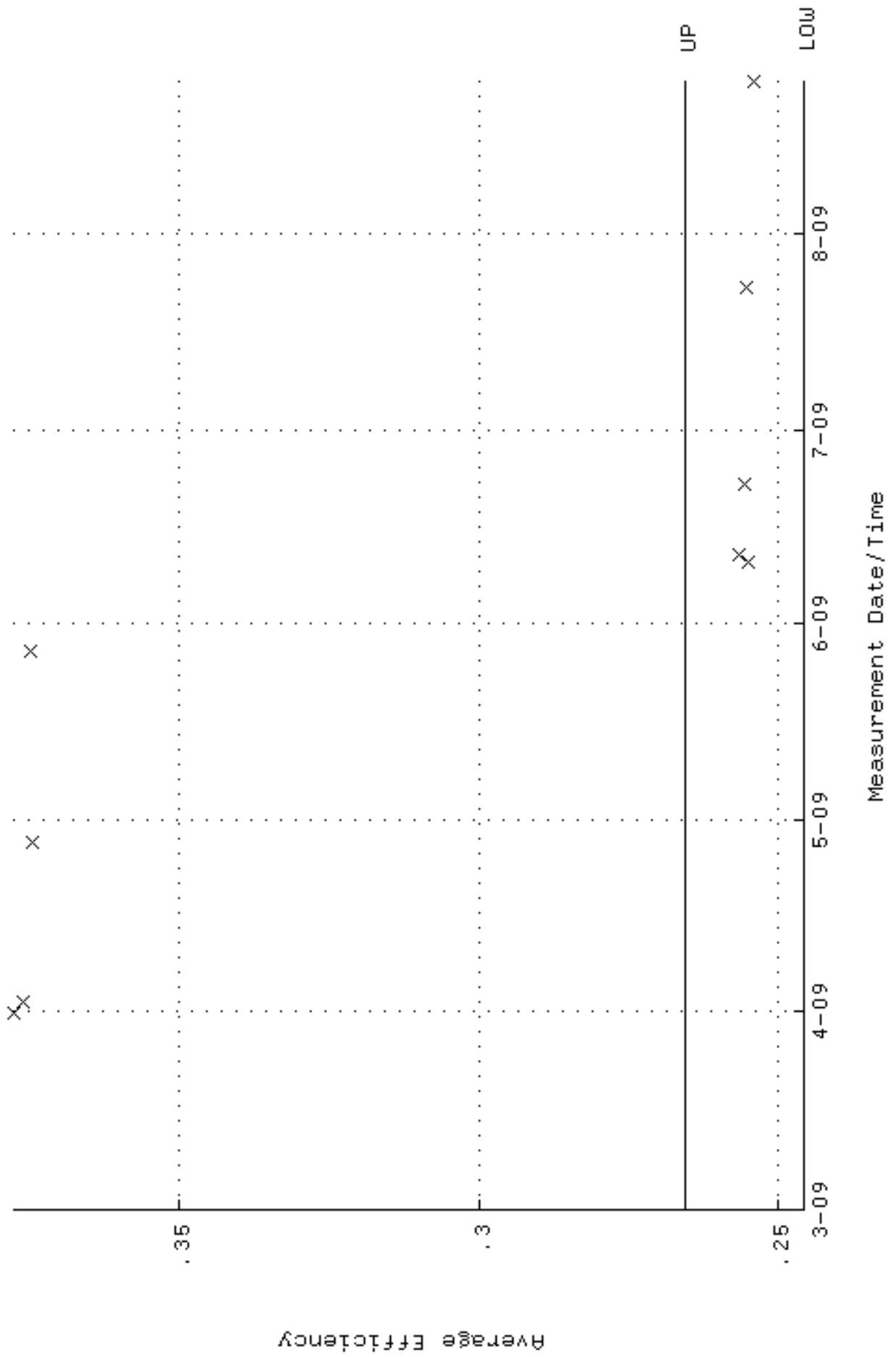
QA filename : DKA100:[ENV\_ALPHA.QA.W]w197.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 31-MAR-2009 15:03:56 through 24-AUG-2009 12:00:00  
Lower/Upper Lmts: 84.1772 through 93.0380



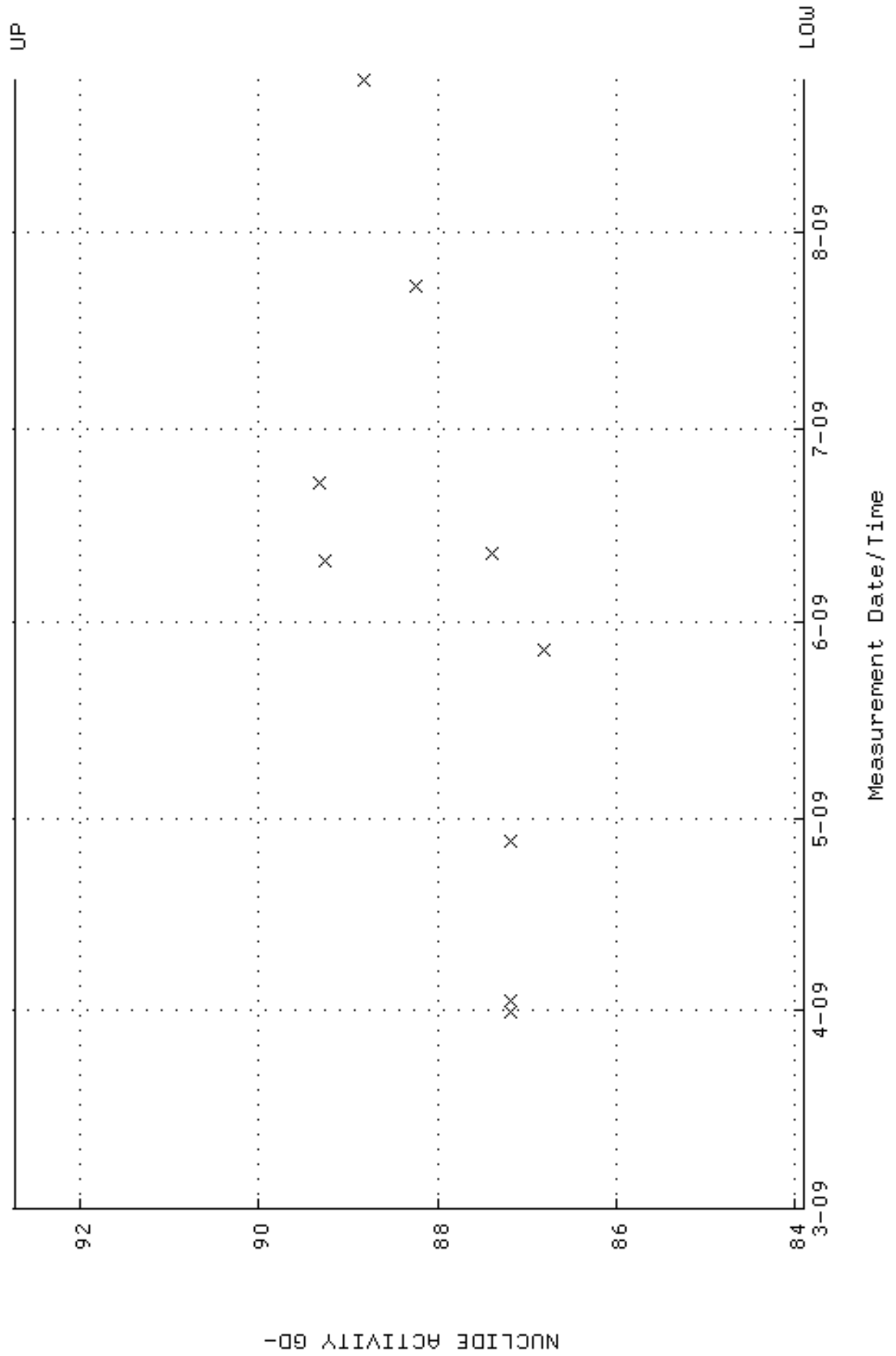
QA filename : DKA100:[ENV\_ALPHA.QA.B]B197.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-APR-2009 08:02:18 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



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



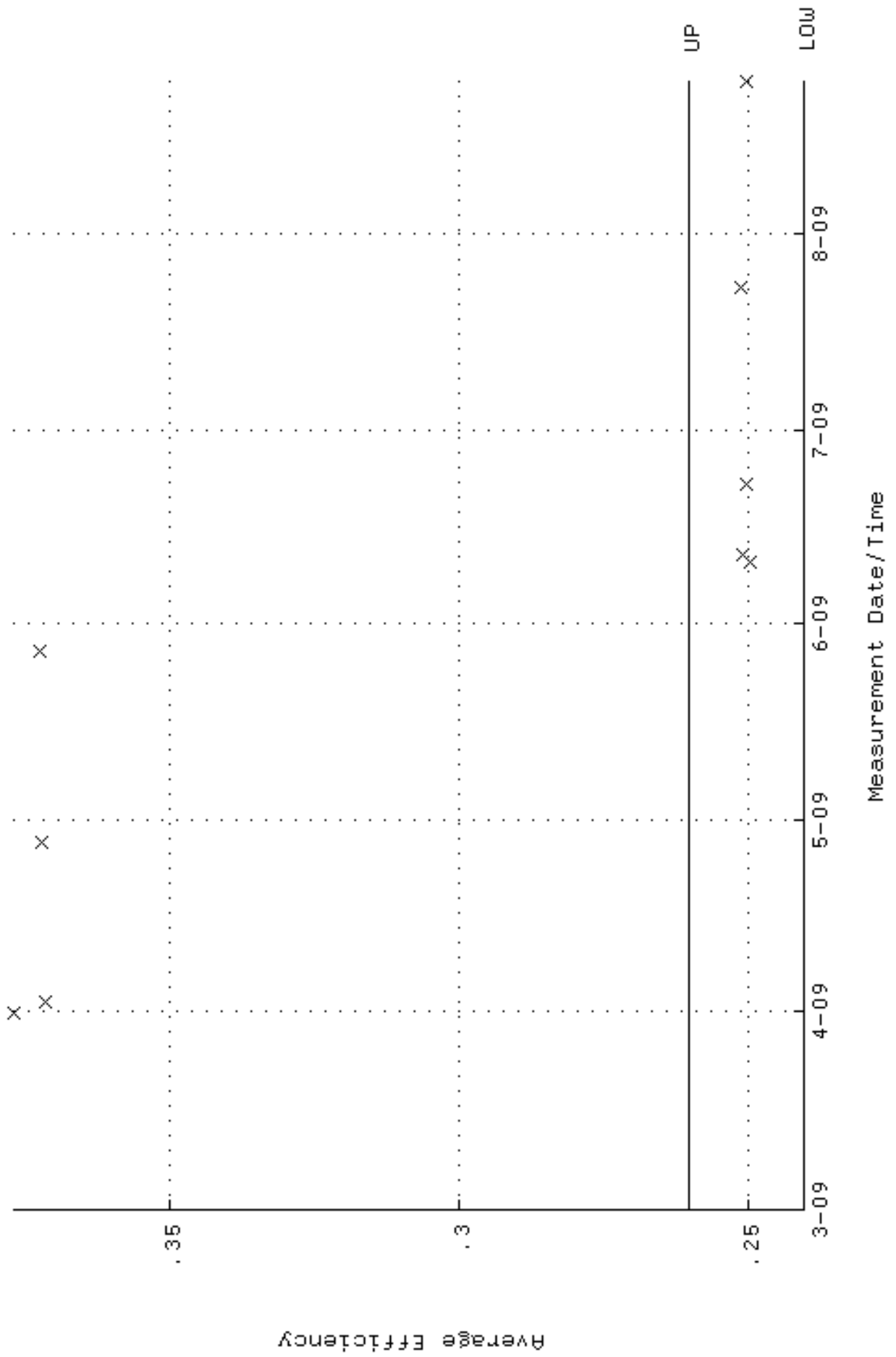
QA filename : DKA100:[ENV\_ALPHA.QA.W]W198.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:06:01 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 83.8978 through 92.7292



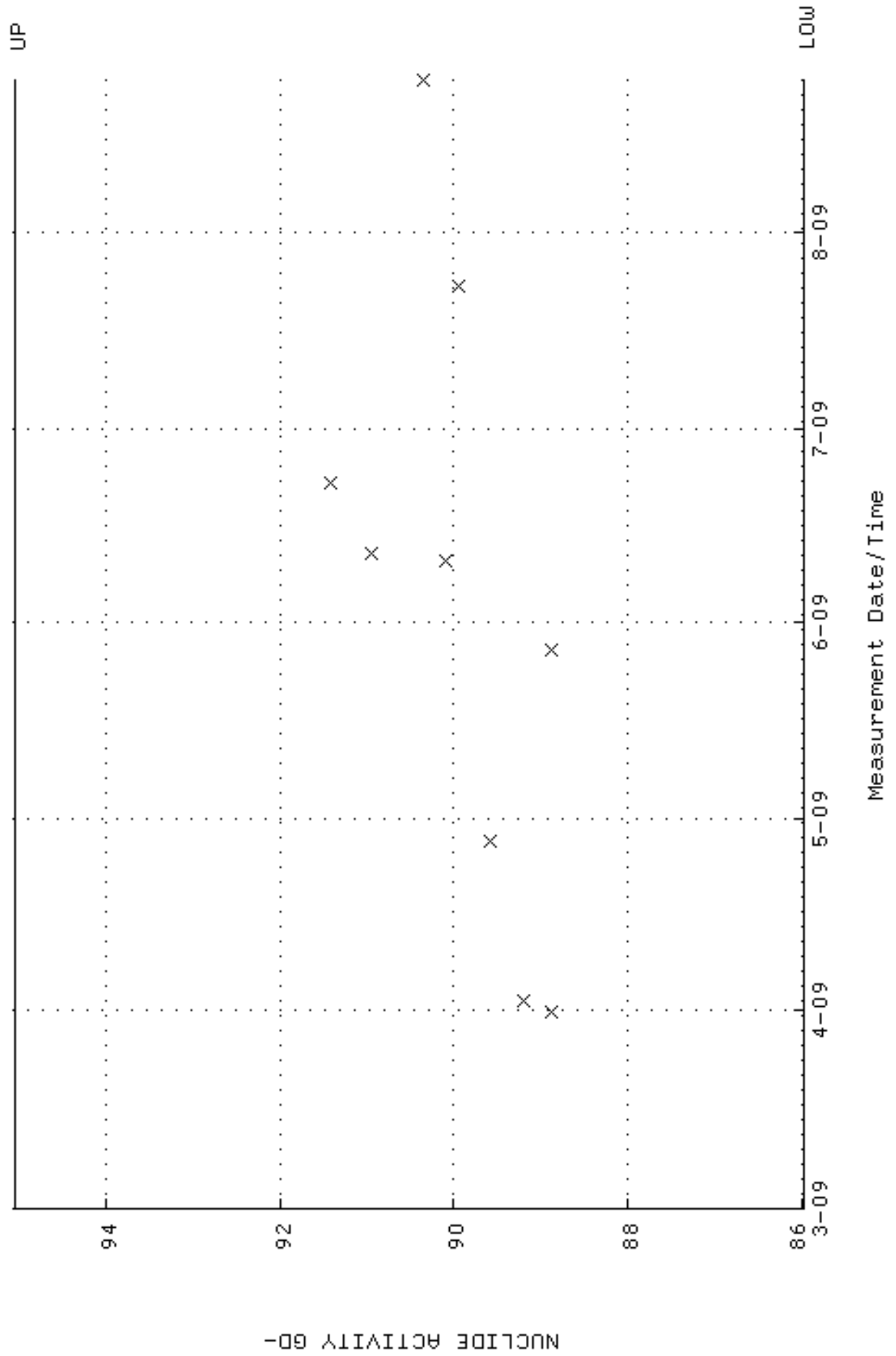




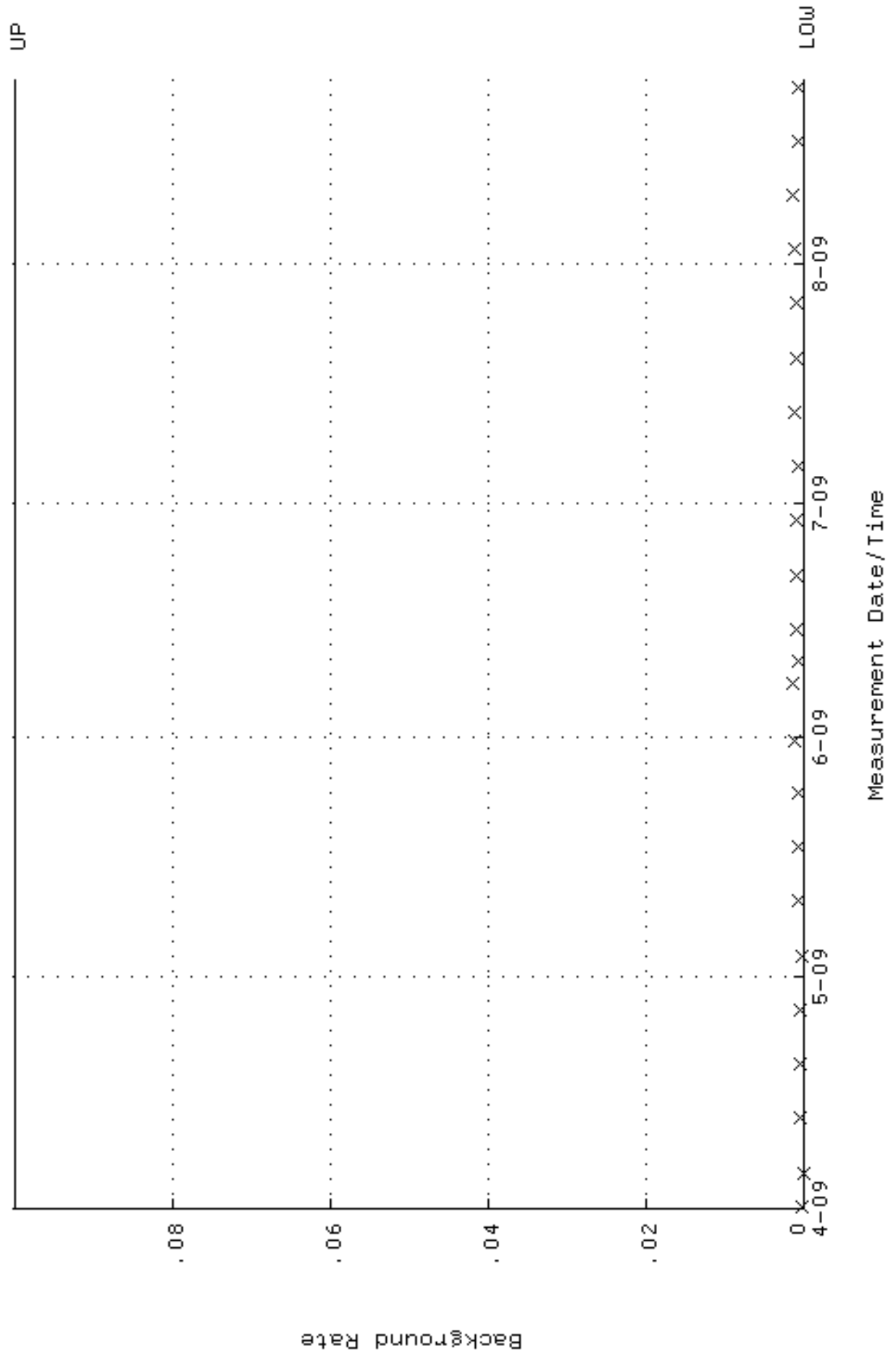
QA filename : DKA100:[ENV\_ALPHA.QA.W]W199.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:10:22 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.240278 through 0.260278



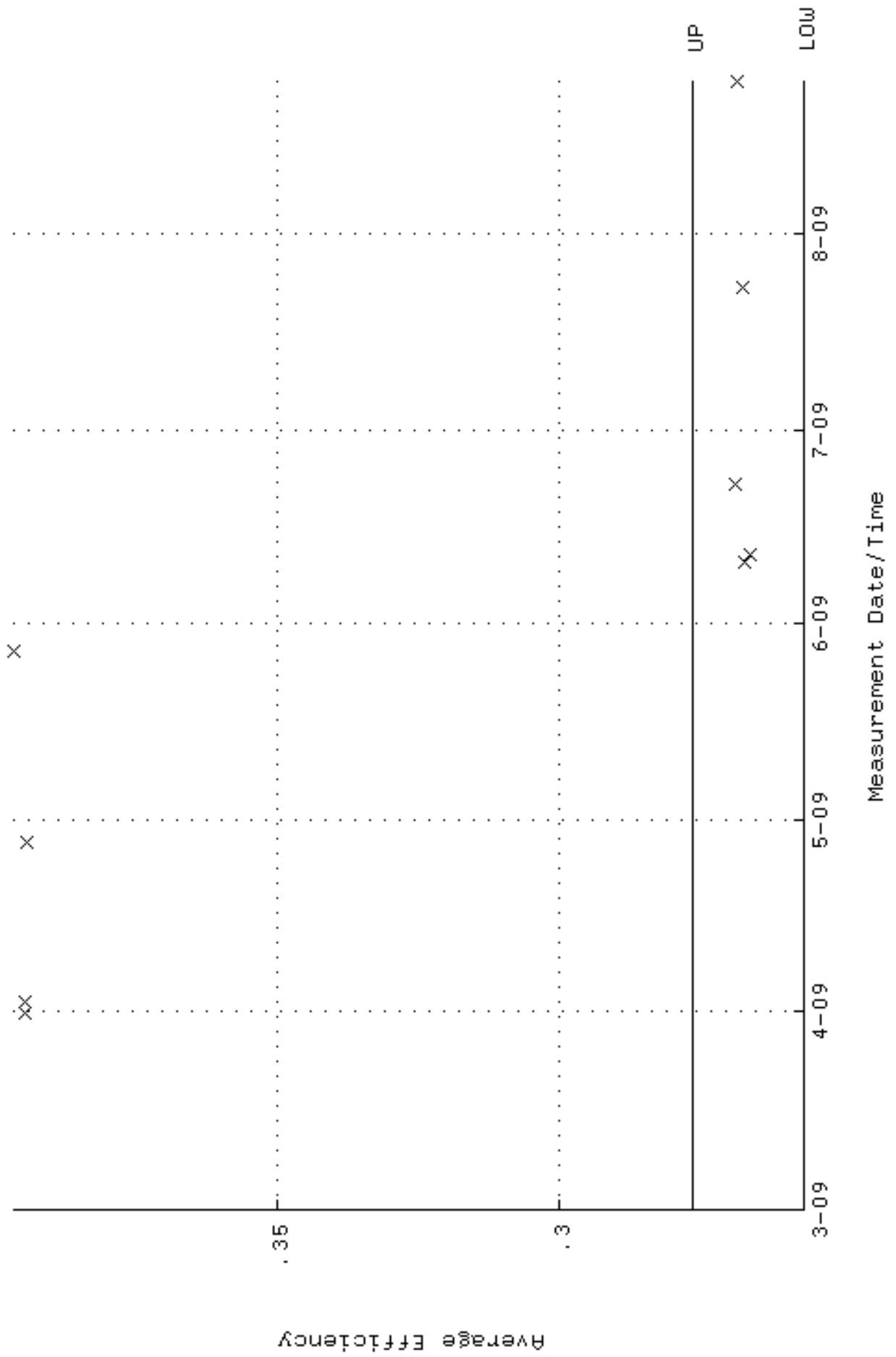
QA filename : DKA100:[ENV\_ALPHA.QA.W]w199.QAF;1  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 31-MAR-2009 15:10:22 through 24-AUG-2009 12:00:00  
Lower/Upper Lmts: 85.9853 through 95.0363



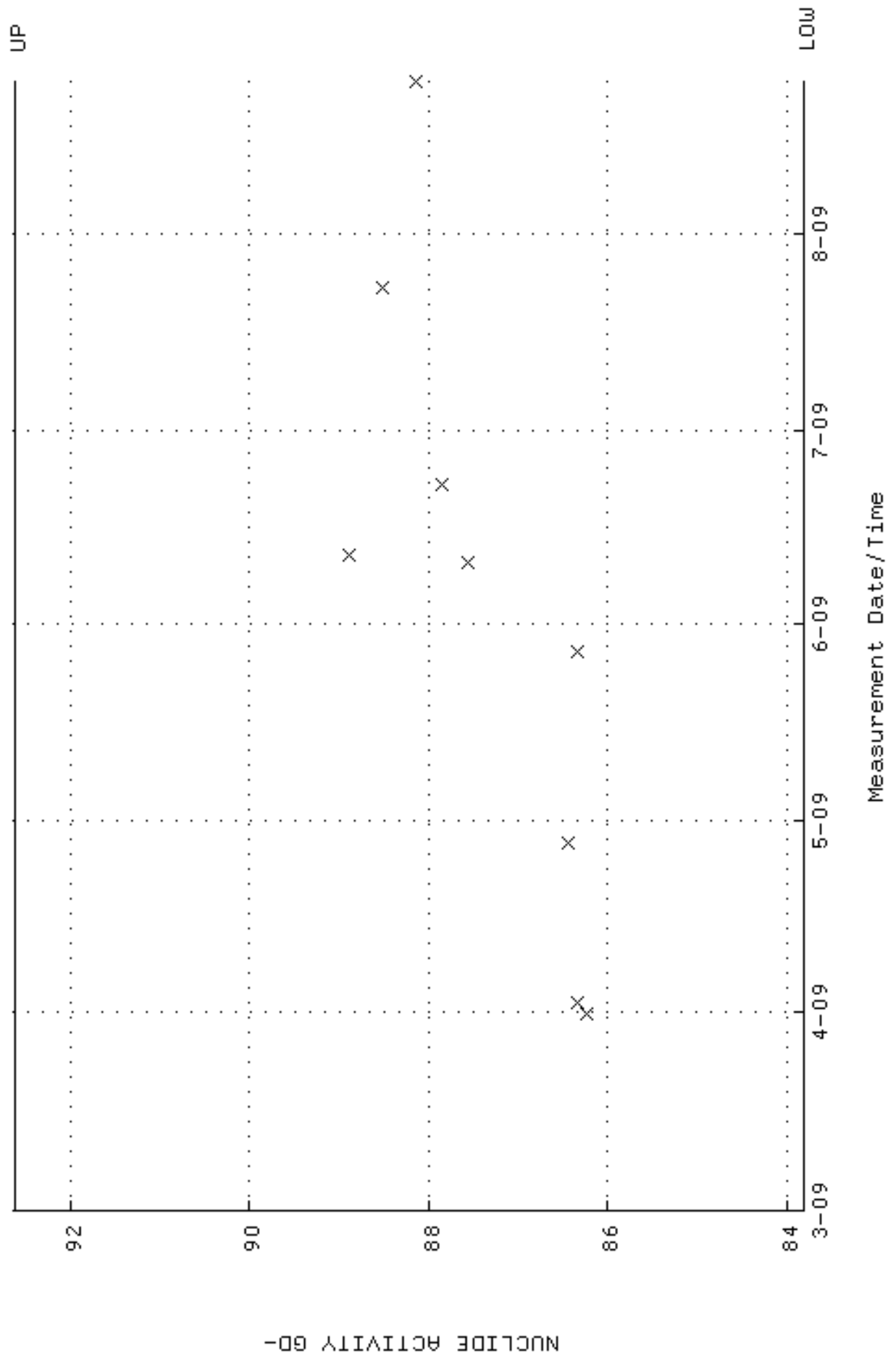
QA filename : DKA100:[ENV\_ALPHA.QA.B]B199.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-APR-2009 08:02:28 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



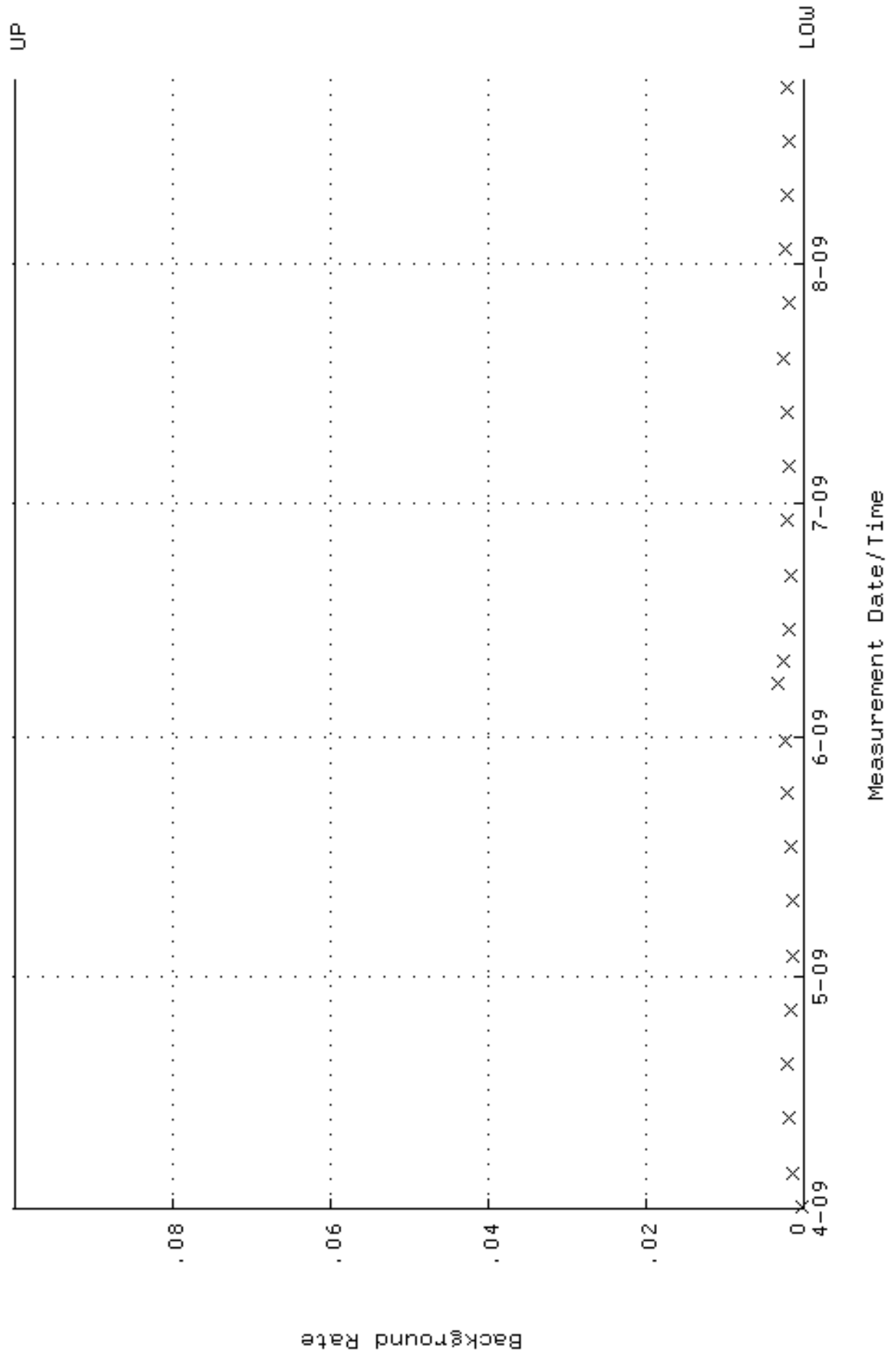
QA filename : DKA100:[ENV\_ALPHA.QA.W]W200.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:10:24 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.256586 through 0.276586



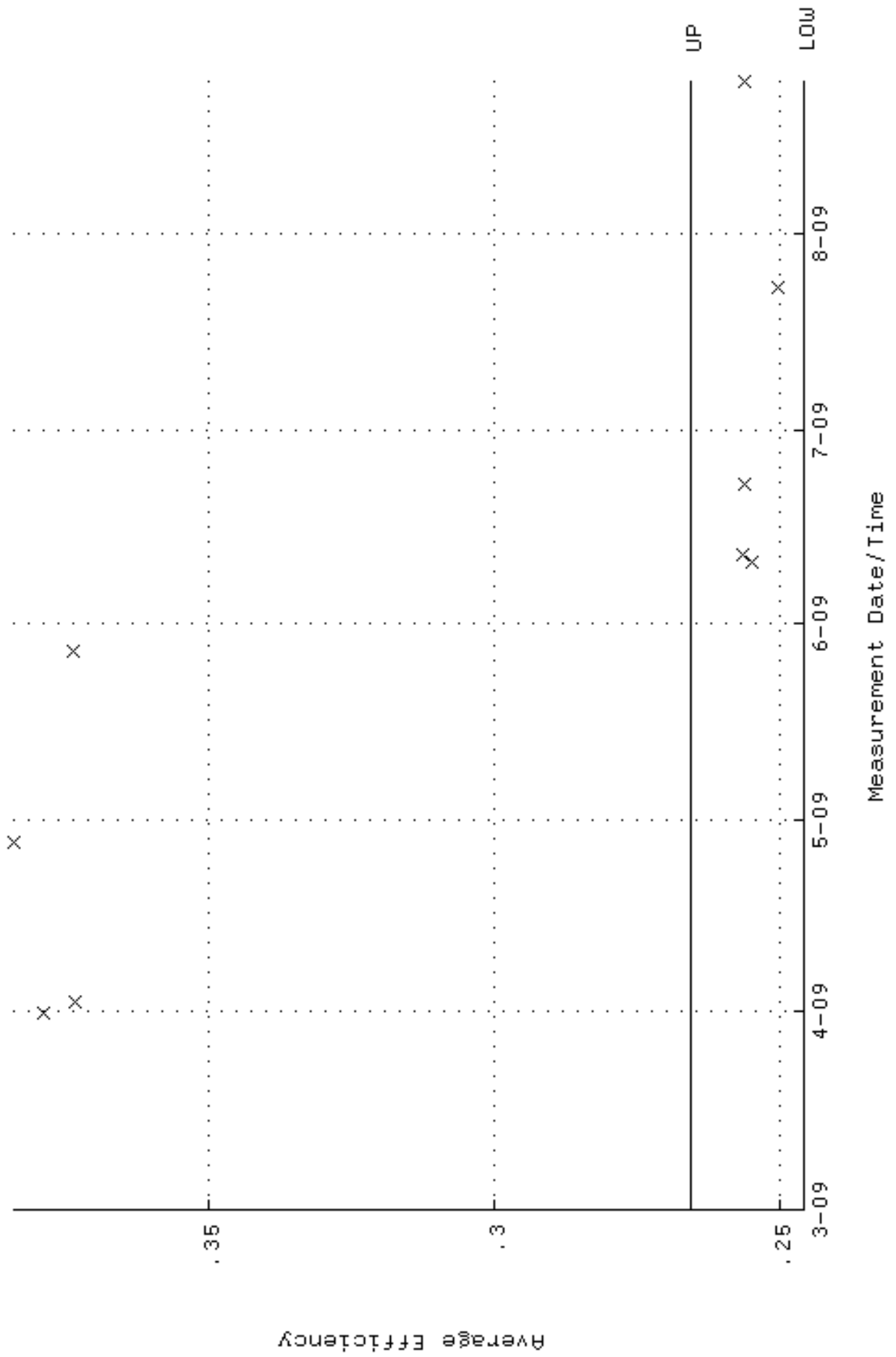
QA filename : DKA100:[ENV\_ALPHA.QA.W]W200.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:10:24 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 83.8028 through 92.6242



QA filename : DKA100:[ENV\_ALPHA.QA.B]B200.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-APR-2009 08:02:33 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

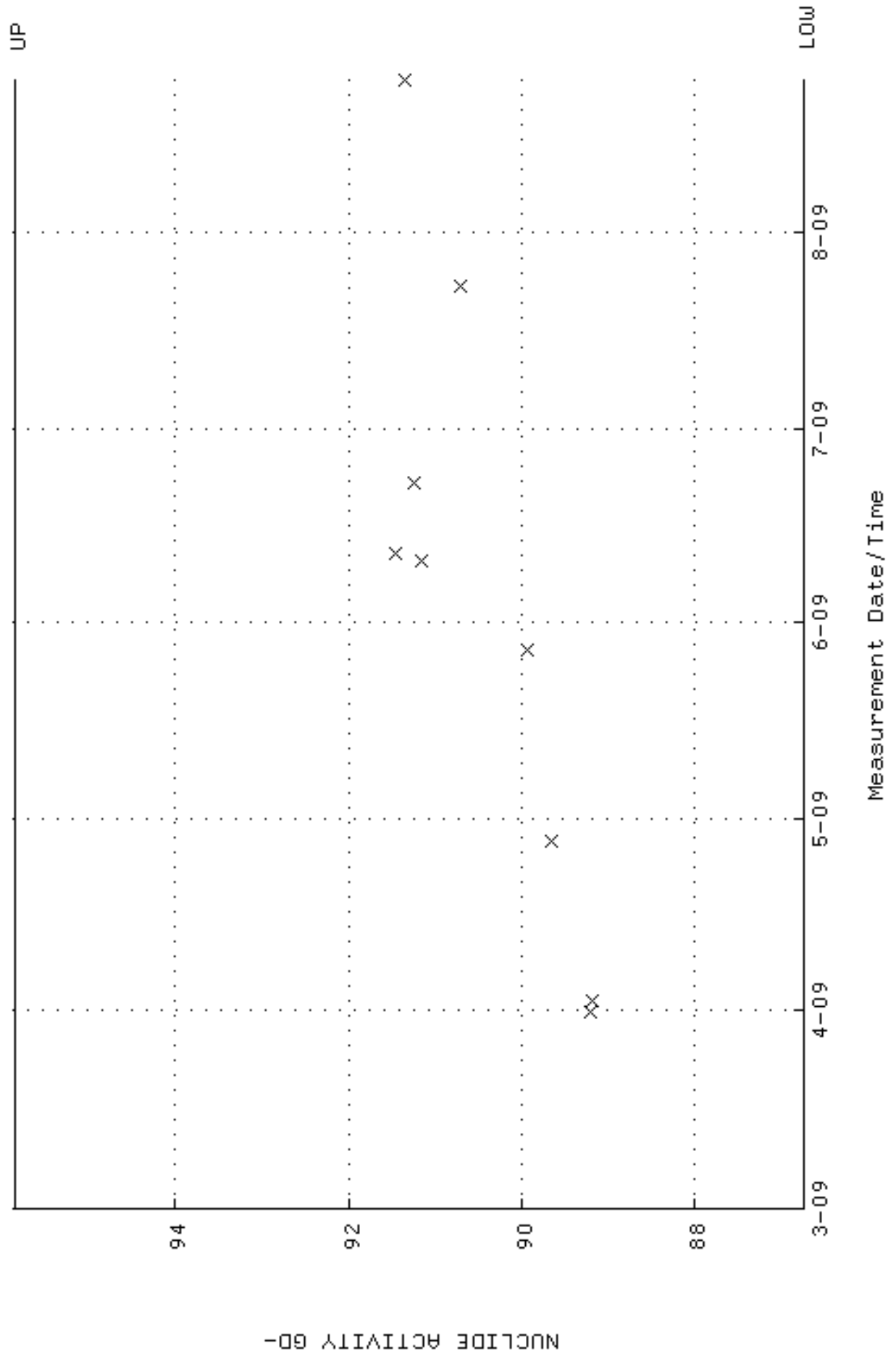


QA filename : DKA100:[ENV\_ALPHA.QA.W]W205.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:10:33 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.245702 through 0.265702

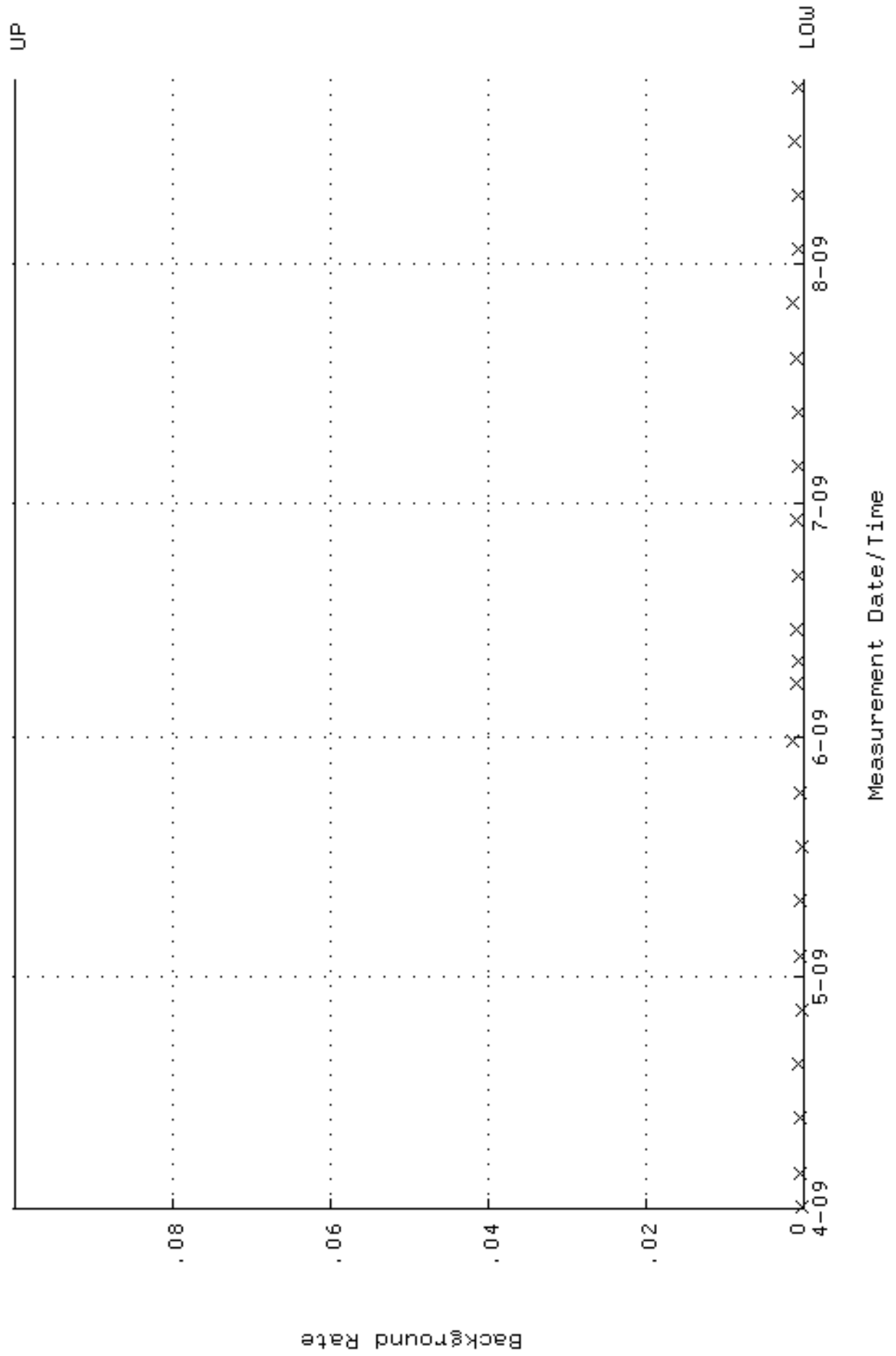




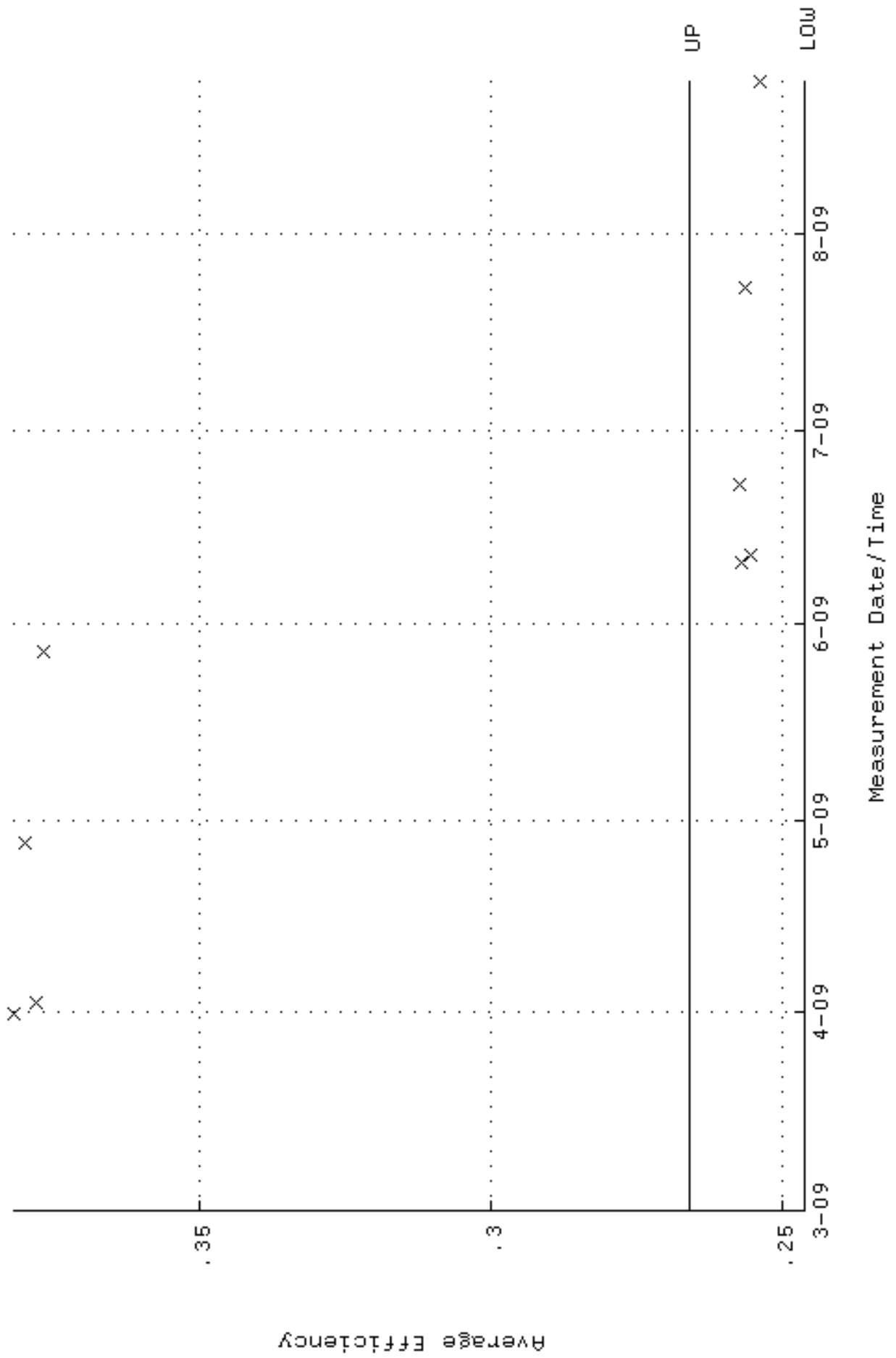
QA filename : DKA100:[ENV\_ALPHA.QA.W]W205.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:10:33 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 86.7285 through 95.8579



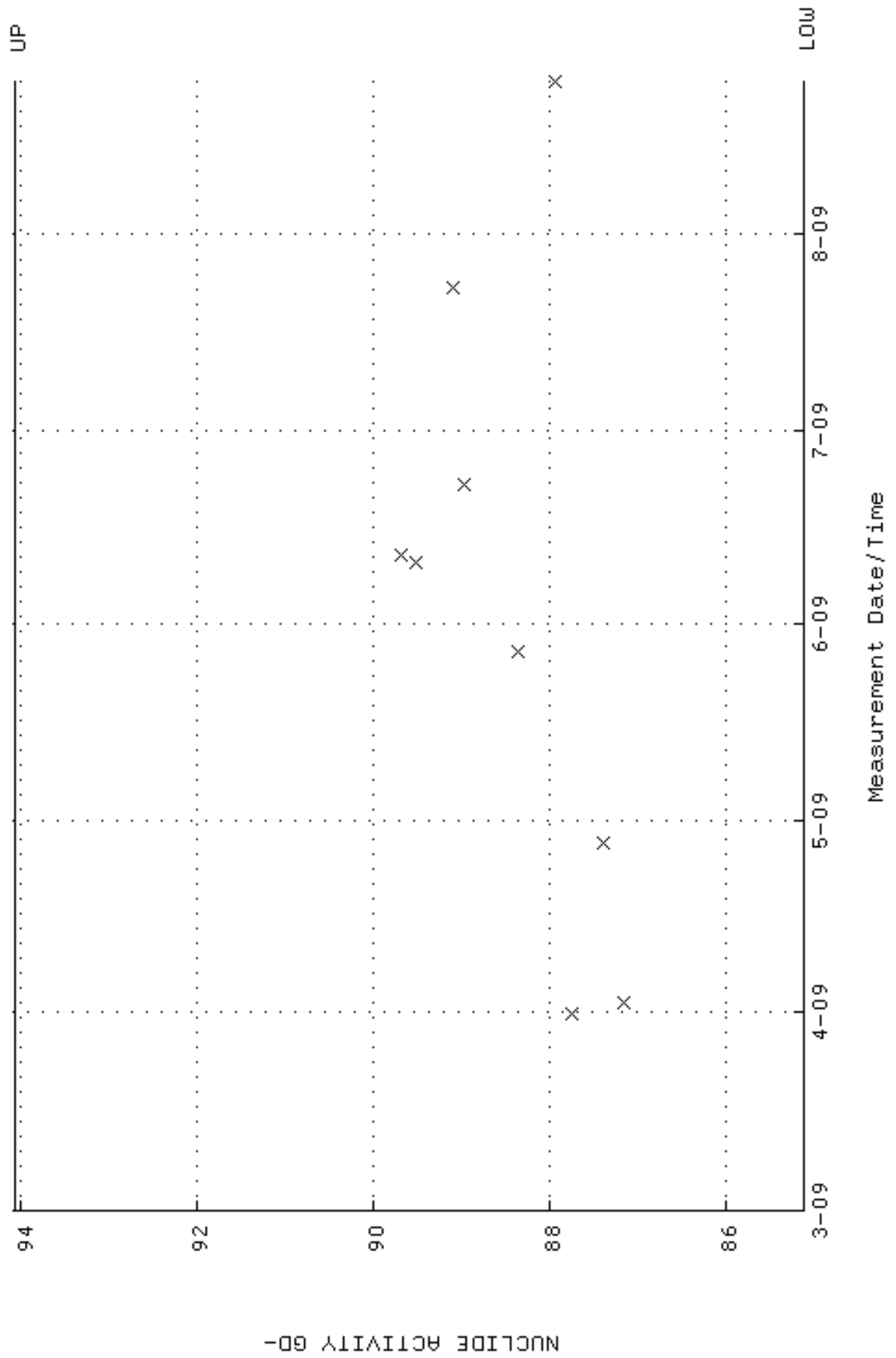
QA filename : DKA100:[ENV\_ALPHA.QA.B]B205.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-APR-2009 08:03:01 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



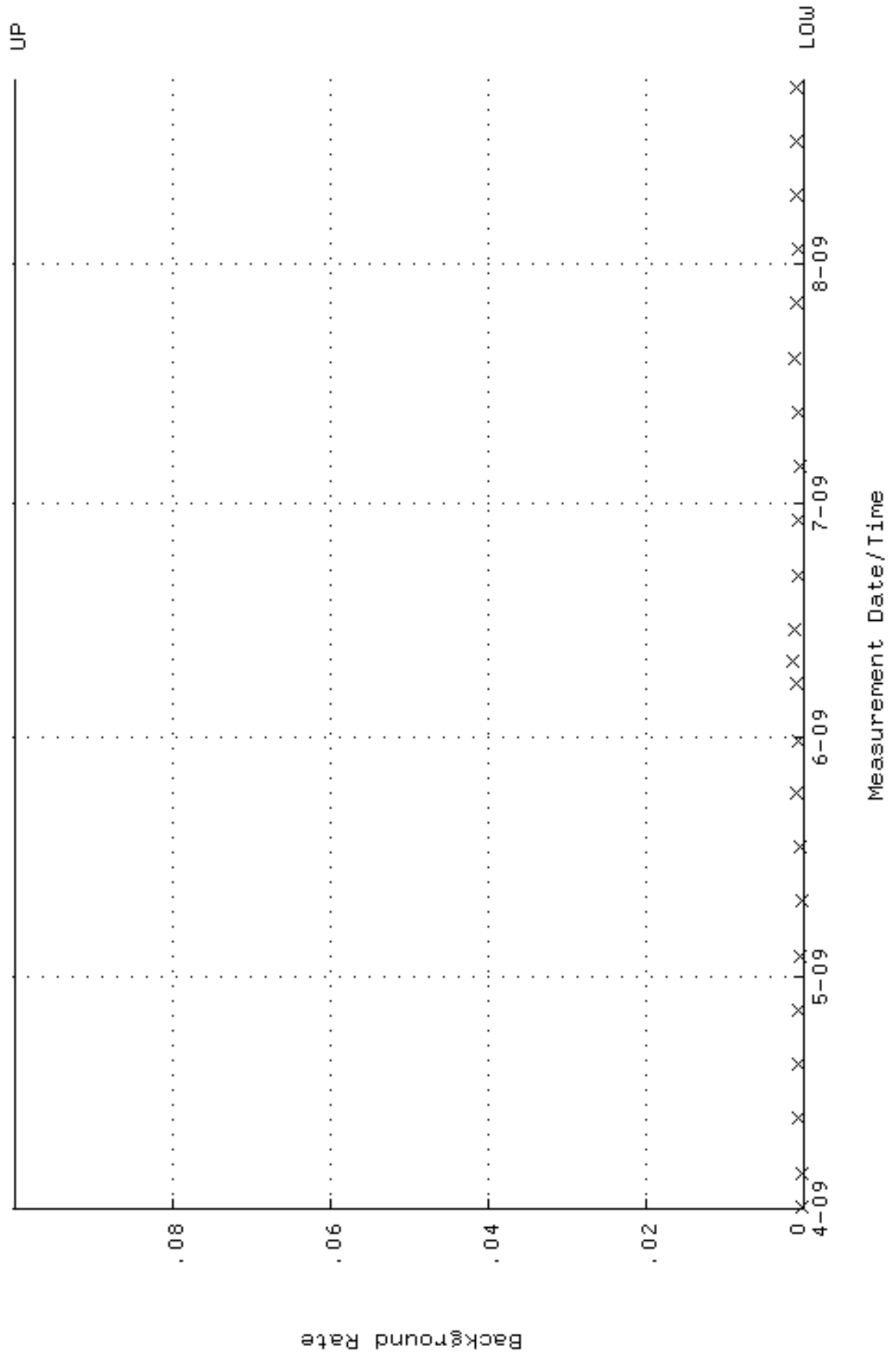
QA filename : DKA100:[ENV\_ALPHA.QA.W]W206.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 31-MAR-2009 15:10:35 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.246228 through 0.266228



QA filename : DKA100:[ENV\_ALPHA.QA.W]w206.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 31-MAR-2009 15:10:35 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 85.1104 through 94.0694



QA filename : DKA100:[ENV\_ALPHA.QA.B]B206.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-APR-2009 08:03:06 through 24-AUG-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



# RUNLOGS

# Instrument Run Log

Instrument Type: GFPC

Batch ID: 891157

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
234414013	SAMPLE	JXC5	PIC11D	13-AUG-09 07:52	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414014	SAMPLE	JXC5	PIC13A	13-AUG-09 07:52	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414015	SAMPLE	JXC5	PIC13B	13-AUG-09 07:52	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414016	SAMPLE	JXC5	PIC13C	13-AUG-09 07:53	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414017	SAMPLE	JXC5	PIC13D	13-AUG-09 07:53	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414003	SAMPLE	JXC5	PIC7D	13-AUG-09 07:55	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414006	SAMPLE	JXC5	PIC9A	13-AUG-09 07:56	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414007	SAMPLE	JXC5	PIC9B	13-AUG-09 07:56	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414010	SAMPLE	JXC5	PIC10B	13-AUG-09 07:56	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414012	SAMPLE	JXC5	PIC10D	13-AUG-09 07:56	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414018	SAMPLE	JXC5	PIC1A	13-AUG-09 08:03	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414022	SAMPLE	JXC5	PIC1B	13-AUG-09 08:03	DONE	CeF on 25mm Filter	02-JUL-09 00:00
1201895459	MB	JXC5	PIC1D	13-AUG-09 08:04	DONE	CeF on 25mm Filter	02-JUL-09 00:00
1201895461	MS	JXC5	PIC2B	13-AUG-09 08:04	DONE	CeF on 25mm Filter	02-JUL-09 00:00
1201895462	LCS	JXC5	PIC2C	13-AUG-09 08:04	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414001	SAMPLE	JXC5	LB4100B1	13-AUG-09 11:04	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414002	SAMPLE	JXC5	LB4100B3	13-AUG-09 11:04	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414004	SAMPLE	JXC5	LB4100B4	13-AUG-09 11:04	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414005	SAMPLE	JXC5	LB4100E1	13-AUG-09 11:05	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414008	SAMPLE	JXC5	LB4100E4	13-AUG-09 11:05	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414009	SAMPLE	JXC5	LB4100A1	13-AUG-09 12:57	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414011	SAMPLE	JXC5	LB4100A2	13-AUG-09 12:57	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414023	SAMPLE	JXC5	LB4100D2	13-AUG-09 14:58	DONE	CeF on 25mm Filter	02-JUL-09 00:00
1201895460	DUP	JXC5	LB4100D3	13-AUG-09 14:58	DONE	CeF on 25mm Filter	02-JUL-09 00:00

# Instrument Run Log

Instrument Type: GFPC

Batch ID: 891394

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
234120018	SAMPLE	MXS2	PIC2A	12-AUG-09 10:07	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234267018	SAMPLE	MXS2	PIC2D	12-AUG-09 10:07	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414019	SAMPLE	MXS2	PIC5A	12-AUG-09 10:08	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414020	SAMPLE	MXS2	PIC5C	12-AUG-09 10:08	DONE	CeF on 25mm Filter	02-JUL-09 00:00
234414021	SAMPLE	MXS2	PIC6B	12-AUG-09 10:08	DONE	CeF on 25mm Filter	02-JUL-09 00:00
1201896008	MB	MXS2	PIC6D	12-AUG-09 10:08	DONE	CeF on 25mm Filter	02-JUL-09 00:00
1201896009	LCS	MXS2	PIC2B	12-AUG-09 10:08	DONE	CeF on 25mm Filter	02-JUL-09 00:00
1201896010	LCSD	MXS2	PIC3A	12-AUG-09 10:08	DONE	CeF on 25mm Filter	02-JUL-09 00:00



# Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR

Batch ID: 892760

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
234267018	SAMPLE	KSD1	LUCAS4	22-AUG-09 13:30	DONE	Lucas Cell	02-MAR-09 00:00
234414021	SAMPLE	KSD1	LUCAS2	22-AUG-09 14:05	DONE	Lucas Cell	19-DEC-08 00:00
234120018	SAMPLE	KSD1	LUCAS3	22-AUG-09 14:05	DONE	Lucas Cell	04-FEB-09 00:00
1201899207	LCS	KSD1	LUCAS4	22-AUG-09 14:05	DONE	Lucas Cell	02-MAR-09 00:00
234414019	SAMPLE	KSD1	LUCAS5	22-AUG-09 14:05	DONE	Lucas Cell	25-MAR-09 00:00
234414020	SAMPLE	KSD1	LUCAS6	22-AUG-09 14:05	DONE	Lucas Cell	04-AUG-09 00:00
1201899206	MB	KSD1	LUCAS3	22-AUG-09 15:05	DONE	Lucas Cell	04-FEB-09 00:00
1201899208	LCSD	KSD1	LUCAS5	22-AUG-09 15:05	DONE	Lucas Cell	25-MAR-09 00:00

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 892925

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
234267018	SAMPLE	JXD2	1013	15-AUG-09 17:48	DONE		
234414019	SAMPLE	JXD2	1015	15-AUG-09 17:48	DONE		
234414020	SAMPLE	JXD2	1016	15-AUG-09 17:48	DONE		
1201899629	LCS	JXD2	1017	15-AUG-09 17:48	DONE		
1201899630	LCSD	JXD2	1018	15-AUG-09 17:48	DONE		
234120018	SAMPLE	JXD2	1009	15-AUG-09 17:52	DONE		
234414021	SAMPLE	JXD2	1161	15-AUG-09 18:00	DONE		
1201899628	MB	JXD2	1162	15-AUG-09 18:00	DONE		

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 893411

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
234414001	SAMPLE	KXM4	1025	20-AUG-09 21:38	DUSE		
234414002	SAMPLE	KXM4	1026	20-AUG-09 21:38	DUSE		
234414003	SAMPLE	KXM4	1027	20-AUG-09 21:38	DUSE		
234414004	SAMPLE	KXM4	1028	20-AUG-09 21:38	DUSE		
234414005	SAMPLE	KXM4	1029	20-AUG-09 21:38	DUSE		
234414006	SAMPLE	KXM4	1030	20-AUG-09 21:38	DUSE		
234414007	SAMPLE	KXM4	1037	20-AUG-09 21:38	DUSE		
234414008	SAMPLE	KXM4	1038	20-AUG-09 21:38	DUSE		
234414009	SAMPLE	KXM4	1039	20-AUG-09 21:38	DUSE		
234414010	SAMPLE	KXM4	1040	20-AUG-09 21:38	DUSE		
234414011	SAMPLE	KXM4	1041	20-AUG-09 21:38	DUSE		
234414012	SAMPLE	KXM4	1042	20-AUG-09 21:38	DUSE		
234414013	SAMPLE	KXM4	1043	20-AUG-09 21:38	DUSE		
234414014	SAMPLE	KXM4	1044	20-AUG-09 21:38	DUSE		
234414015	SAMPLE	KXM4	1045	20-AUG-09 21:38	DUSE		
234414016	SAMPLE	KXM4	1046	20-AUG-09 21:38	DUSE		
234414017	SAMPLE	KXM4	1047	20-AUG-09 21:38	DUSE		
234414018	SAMPLE	KXM4	1048	20-AUG-09 21:38	DUSE		
1201900830	DUP	KXM4	1189	21-AUG-09 11:42	DUSE		
1201900831	MS	KXM4	1190	21-AUG-09 11:42	DUSE		
234414022	SAMPLE	KXM4	1185	21-AUG-09 13:43	DUSE		
234414023	SAMPLE	KXM4	1186	21-AUG-09 13:43	DUSE		
1201900832	LCS	KXM4	1196	21-AUG-09 14:36	DUSE		
1201900829	MB	KXM4	1188	21-AUG-09 20:40	DUSE		
234414009	SAMPLE	KXM4	1025	27-AUG-09 08:05	DUSE		
234414010	SAMPLE	KXM4	1026	27-AUG-09 08:05	DUSE		
234414011	SAMPLE	KXM4	1028	27-AUG-09 08:05	DUSE		
234414012	SAMPLE	KXM4	1029	27-AUG-09 08:05	DUSE		
234414013	SAMPLE	KXM4	1030	27-AUG-09 08:05	DUSE		
234414014	SAMPLE	KXM4	1031	27-AUG-09 08:05	DUSE		
234414015	SAMPLE	KXM4	1033	27-AUG-09 08:05	DUSE		
234414016	SAMPLE	KXM4	1035	27-AUG-09 08:05	DUSE		
234414017	SAMPLE	KXM4	1037	27-AUG-09 08:05	DUSE		
234414018	SAMPLE	KXM4	1038	27-AUG-09 08:05	DUSE		
234414022	SAMPLE	KXM4	1039	27-AUG-09 08:05	DUSE		
234414023	SAMPLE	KXM4	1040	27-AUG-09 08:05	DUSE		
1201900829	MB	KXM4	1041	27-AUG-09 08:05	DUSE		
1201900830	DUP	KXM4	1042	27-AUG-09 08:05	DUSE		
1201900831	MS	KXM4	1044	27-AUG-09 08:05	DUSE		
1201900832	LCS	KXM4	1045	27-AUG-09 08:05	DUSE		
234414001	SAMPLE	KXM4	1199	27-AUG-09 08:08	DUSE		
234414002	SAMPLE	KXM4	1200	27-AUG-09 08:08	DUSE		
234414003	SAMPLE	KXM4	1201	27-AUG-09 08:08	DUSE		
234414004	SAMPLE	KXM4	1202	27-AUG-09 08:08	DUSE		

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
234414005	SAMPLE	KXM4	1203	27-AUG-09 08:08	DUSE		
234414006	SAMPLE	KXM4	1204	27-AUG-09 08:08	DUSE		
234414007	SAMPLE	KXM4	1207	27-AUG-09 08:09	DUSE		
234414008	SAMPLE	KXM4	1208	27-AUG-09 08:09	DUSE		
234414001	SAMPLE	KXM4	1175	28-AUG-09 20:51	DONE		
234414002	SAMPLE	KXM4	1176	28-AUG-09 20:51	DONE		
234414003	SAMPLE	KXM4	1177	28-AUG-09 20:51	DONE		
234414004	SAMPLE	KXM4	1178	28-AUG-09 20:51	DONE		
234414005	SAMPLE	KXM4	1179	28-AUG-09 20:51	DONE		
234414006	SAMPLE	KXM4	1180	28-AUG-09 20:51	DONE		
234414007	SAMPLE	KXM4	1181	28-AUG-09 20:51	DONE		
234414008	SAMPLE	KXM4	1182	28-AUG-09 20:51	DONE		
234414009	SAMPLE	KXM4	1183	28-AUG-09 20:51	DONE		
234414010	SAMPLE	KXM4	1184	28-AUG-09 20:52	DONE		
234414011	SAMPLE	KXM4	1185	28-AUG-09 20:52	DONE		
234414012	SAMPLE	KXM4	1186	28-AUG-09 20:52	DONE		
234414013	SAMPLE	KXM4	1187	28-AUG-09 20:52	DONE		
234414014	SAMPLE	KXM4	1188	28-AUG-09 20:52	DONE		
234414015	SAMPLE	KXM4	1189	28-AUG-09 20:52	DONE		
234414016	SAMPLE	KXM4	1190	28-AUG-09 20:52	DONE		
234414017	SAMPLE	KXM4	1191	28-AUG-09 20:52	DONE		
234414018	SAMPLE	KXM4	1192	28-AUG-09 20:52	DONE		
234414022	SAMPLE	KXM4	1193	28-AUG-09 20:52	DONE		
234414023	SAMPLE	KXM4	1194	28-AUG-09 20:52	DONE		
1201900830	DUP	KXM4	1196	28-AUG-09 20:52	DONE		
1201900831	MS	KXM4	1199	28-AUG-09 20:52	DONE		
1201900832	LCS	KXM4	1200	28-AUG-09 20:52	DONE		
1201900829	MB	KXM4	1188	29-AUG-09 17:50	DONE		

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 893412

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
234414001	SAMPLE	KXM4	1138	20-AUG-09 21:33	DONE		
234414002	SAMPLE	KXM4	1139	20-AUG-09 21:33	DONE		
234414003	SAMPLE	KXM4	1140	20-AUG-09 21:33	DONE		
234414004	SAMPLE	KXM4	1141	20-AUG-09 21:33	DONE		
234414005	SAMPLE	KXM4	1142	20-AUG-09 21:33	DONE		
234414006	SAMPLE	KXM4	1143	20-AUG-09 21:33	DONE		
234414007	SAMPLE	KXM4	1144	20-AUG-09 21:33	DONE		
234414008	SAMPLE	KXM4	1145	20-AUG-09 21:33	DONE		
234414009	SAMPLE	KXM4	1146	20-AUG-09 21:33	DONE		
234414010	SAMPLE	KXM4	1147	20-AUG-09 21:33	DONE		
234414011	SAMPLE	KXM4	1148	20-AUG-09 21:33	DONE		
234414012	SAMPLE	KXM4	1149	20-AUG-09 21:33	DONE		
234414013	SAMPLE	KXM4	1150	20-AUG-09 21:33	DONE		
234414014	SAMPLE	KXM4	1151	20-AUG-09 21:33	DUSE		
234414015	SAMPLE	KXM4	1152	20-AUG-09 21:33	DONE		
234414016	SAMPLE	KXM4	1153	20-AUG-09 21:33	DONE		
234414017	SAMPLE	KXM4	1154	20-AUG-09 21:33	DONE		
234414018	SAMPLE	KXM4	1155	20-AUG-09 21:34	DONE		
234414022	SAMPLE	KXM4	1156	20-AUG-09 21:34	DONE		
234414023	SAMPLE	KXM4	1157	20-AUG-09 21:34	DONE		
1201900833	MB	KXM4	1158	20-AUG-09 21:34	DUSE		
1201900834	DUP	KXM4	1159	20-AUG-09 21:34	DONE		
1201900835	MS	KXM4	1160	20-AUG-09 21:34	DONE		
1201900836	LCS	KXM4	1169	20-AUG-09 21:34	DONE		
1201900833	MB	KXM4	1140	25-AUG-09 23:46	DONE		
234414014	SAMPLE	KXM4	1116	27-AUG-09 18:01	DONE		

# Instrument Run Log

Instrument Type: LUCAS CELL DETECTOR

Batch ID: 893452

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
234414001	SAMPLE	KSD1	LUCAS2	30-AUG-09 15:00	DONE	Lucas Cell	19-DEC-08 00:00
234414002	SAMPLE	KSD1	LUCAS3	30-AUG-09 15:00	DONE	Lucas Cell	04-FEB-09 00:00
234414003	SAMPLE	KSD1	LUCAS4	30-AUG-09 15:00	DONE	Lucas Cell	02-MAR-09 00:00
234414004	SAMPLE	KSD1	LUCAS5	30-AUG-09 15:00	DONE	Lucas Cell	25-MAR-09 00:00
234414005	SAMPLE	KSD1	LUCAS6	30-AUG-09 15:00	DONE	Lucas Cell	04-AUG-09 00:00
234414006	SAMPLE	KSD1	LUCAS2	30-AUG-09 15:30	DONE	Lucas Cell	19-DEC-08 00:00
234414007	SAMPLE	KSD1	LUCAS3	30-AUG-09 15:30	DONE	Lucas Cell	04-FEB-09 00:00
234414008	SAMPLE	KSD1	LUCAS4	30-AUG-09 15:30	DONE	Lucas Cell	02-MAR-09 00:00
234414009	SAMPLE	KSD1	LUCAS5	30-AUG-09 15:30	DONE	Lucas Cell	25-MAR-09 00:00
234414010	SAMPLE	KSD1	LUCAS6	30-AUG-09 15:30	DONE	Lucas Cell	04-AUG-09 00:00
234414011	SAMPLE	KSD1	LUCAS2	30-AUG-09 16:05	DONE	Lucas Cell	19-DEC-08 00:00
234414012	SAMPLE	KSD1	LUCAS3	30-AUG-09 16:05	DONE	Lucas Cell	04-FEB-09 00:00
234414013	SAMPLE	KSD1	LUCAS4	30-AUG-09 16:05	DONE	Lucas Cell	02-MAR-09 00:00
234414014	SAMPLE	KSD1	LUCAS5	30-AUG-09 16:05	DONE	Lucas Cell	25-MAR-09 00:00
234414015	SAMPLE	KSD1	LUCAS6	30-AUG-09 16:05	DONE	Lucas Cell	04-AUG-09 00:00
234414016	SAMPLE	KSD1	LUCAS2	30-AUG-09 16:35	DONE	Lucas Cell	19-DEC-08 00:00
234414017	SAMPLE	KSD1	LUCAS3	30-AUG-09 16:35	DONE	Lucas Cell	04-FEB-09 00:00
234414018	SAMPLE	KSD1	LUCAS4	30-AUG-09 16:35	DONE	Lucas Cell	02-MAR-09 00:00
234414022	SAMPLE	KSD1	LUCAS5	30-AUG-09 16:35	DONE	Lucas Cell	25-MAR-09 00:00
234414023	SAMPLE	KSD1	LUCAS6	30-AUG-09 16:35	DONE	Lucas Cell	04-AUG-09 00:00
1201900982	MB	KSD1	LUCAS2	30-AUG-09 17:05	DONE	Lucas Cell	19-DEC-08 00:00
1201900983	DUP	KSD1	LUCAS3	30-AUG-09 17:05	DONE	Lucas Cell	04-FEB-09 00:00
1201900984	MS	KSD1	LUCAS4	30-AUG-09 17:05	DONE	Lucas Cell	02-MAR-09 00:00
1201900985	LCS	KSD1	LUCAS5	30-AUG-09 17:05	DONE	Lucas Cell	25-MAR-09 00:00

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 897494

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
234267018	SAMPLE	JXD2	1027	27-AUG-09 08:05	DONE		
234414019	SAMPLE	JXD2	1036	27-AUG-09 08:05	DONE		
234414020	SAMPLE	JXD2	1043	27-AUG-09 08:05	DONE		
234414021	SAMPLE	JXD2	1197	27-AUG-09 08:08	DONE		
1201911149	MB	JXD2	1198	27-AUG-09 08:08	DONE		
1201911150	LCS	JXD2	1205	27-AUG-09 08:08	DONE		
1201911151	LCSD	JXD2	1206	27-AUG-09 08:08	DONE		