State of Missouri
Department of Natural Resources

ALPD/HWP/FFS

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #05-08096-OR

September 14, 2005

EBERLINE SERVICES/OAK RIDGE LABORATORY
OAK RIDGE, TN

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Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST
MP-001-3

Eberline Services Work Order # 05-08096

The checklist items listed below are to be initialed by appropriate staff upon completion/verification.

Date for Partial	Initials	Date	Initials	Checklist Items
		8/19/05	KAB	Sample Log-In
		9/8/05	CSB	Data Compilation
		9-12-05	MLJ	Technical Data Review MAM 9/12/05
		9/13/05	[illegible]	Data Entry/Electronic Deliverable
		9/13/05	[illegible]	Case Narrative
		9/14/05	[illegible]	Electronic Deliverable Proof
		9/14/05	[illegible]	Samples Analyzed within Holding Time YES
		9/14/05	[illegible]	QA/QC Review
				Invoiced by Laboratory

Technical/Clerical Corrections, Signatures Needed, Problems,Etc	Date/Initials

Date package approved by: [illegible] 9/14/05

Laboratory Manager Date

SECTION I

CHAIN OF CUSTODY

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

RECEIVED
AUG 19 2005
FMA Section

05-08096

Collector's Name (Please Print): **Darrick Steen**

Affiliation (Division/Program/Section): **ALPD/HWP/FFS**

Description of Shipment

X Shipped Carrier: UPS

X Tape sealed and initialed

__ Hand Delivered

No. Of Containers: 40

Sample Number	Sample Collected	Analyses	Sample Type	For Lab Use Only: Matrix	Container	Preserved
VPSCR081705SL0E	Date: 08/17/05 Time: 9:07 AM	Iso Th, Iso U, Ra_{226} *For Lab Use Only*: pH, Temp., Spec. Cond., D.O., Flow, Other:	X Grab __ Composite __ Modified __ Other:	__ Water X Soil __ Organic __ Sludge __ Other:	__ 1L amber __ Cubitainer __ 2 oz glass __ 8 oz glass __ VOA vial __ Encore X Other:	__ H_2SO_4 __ HNO_3 __ NAOH __ HCL X None __ Disinfected
VPSCR081705SL0F	Date: 08/17/05 Time: 9:08 AM	Iso Th, Iso U, Ra_{226} *For Lab Use Only*: pH, Temp., Spec. Cond., D.O., Flow, Other:	X Grab __ Composite __ Modified __ Other:	__ Water X Soil __ Organic __ Sludge __ Other:	__ 1L amber __ Cubitainer __ 2 oz glass __ 8 oz glass __ VOA vial __ Encore X Other:	__ H_2SO_4 __ HNO_3 __ NAOH __ HCL X None __ Disinfected
VPSCR081705SL0G	Date: 08/17/05 Time: 9:09 AM	Iso Th, Iso U, Ra_{226} *For Lab Use Only*: pH, Temp., Spec. Cond., D.O., Flow, Other:	X Grab __ Composite __ Modified __ Other:	__ Water X Soil __ Organic __ Sludge __ Other:	__ 1L amber __ Cubitainer __ 2 oz glass __ 8 oz glass __ VOA vial __ Encore X Other:	__ H_2SO_4 __ HNO_3 __ NAOH __ HCL X None __ Disinfected
4 VPSCR081705SL0H	Date: 08/17/05 Time: 9:15 AM	Iso Th, Iso U, Ra_{226} *For Lab Use Only*: pH, Temp., Spec. Cond., D.O., Flow, Other:	X Grab __ Composite __ Modified __ Other:	__ Water X Soil __ Organic __ Sludge __ Other:	__ 1L amber __ Cubitainer __ 2 oz glass __ 8 oz glass __ VOA vial __ Encore X Other:	__ H_2SO_4 __ HNO_3 __ NAOH __ HCL X None __ Disinfected

Relinquished By: Darrick Steen	Received By: Erin Nibstrup MoDNR	Date: 8/18/05	Time: 2:00pm
Relinquished By: Erin Nibstrup	Received By: LC Bannister	Date: 8/19/05	Time: 0900
Relinquished By:	Received By:	Date:	Time:

8/5

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

RECEIVED
AUG 19 2005
MO DNR
JEFFERSON CITY

05-08096

Collector's Name (Please Print): **Darrick Steen**

Affiliation (Division/Program/Section): **ALPD/HWP/FFS**

Description of Shipment

X Shipped Carrier: UPS
X Tape sealed and initialed
Hand Delivered

No. Of Containers: 40

Sample Number	Sample Collected	Analyses	Sample Type	For Lab Use Only: Matrix	Container	Preserved
VPSCR081705SL0I	Date: 08/17/05	Iso Th, Iso U, Ra_{226}	X Grab	Water	1L amber	H_2SO_4
	Time:		Composite	X Soil	Cubitainer	HNO_3
For Lab Use Only	9:16 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	Modified	Organic	2 oz glass	NAOH
			Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	
VPSCR081705SL0J	Date: 08/17/05	Iso Th, Iso U, Ra_{226}	X Grab	Water	1L amber	H_2SO_4
	Time:		Composite	X Soil	Cubitainer	HNO_3
For Lab Use Only	9:19 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	Modified	Organic	2 oz glass	NAOH
			Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	
VPSCR081705SL0K	Date: 08/17/05	Iso Th, Iso U, Ra_{226}	X Grab	Water	1L amber	H_2SO_4
	Time:		Composite	X Soil	Cubitainer	HNO_3
For Lab Use Only	9:21 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	Modified	Organic	2 oz glass	NAOH
			Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	
VPSCR081705SL0L	Date: 08/17/05	Iso Th, Iso U, Ra_{226}	X Grab	Water	1L amber	H_2SO_4
	Time:		Composite	X Soil	Cubitainer	HNO_3
For Lab Use Only	9:29 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	Modified	Organic	2 oz glass	NAOH
			Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	

Relinquished By: Darrick Steen	Received By: Erin Nikolaus MoDNR	Date: 8/18/05	Time: 2:00 PM
Relinquished By: Erin Nikolaus	Received By: T Bannister	Date: 8/19/05	Time: 0900
Relinquished By:	Received By:	Date:	Time:

05-08096

RECEIVED AUG 19 2005 DMA/ Eberline SIDCLAB

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

Collector's Name (Please Print): **Darrick Steen**

Affiliation (Division/Program/Section): **ALPD/HWP/FFS**

Description of Shipment

X Shipped-Carrier: UPS
X Tape sealed and initialed
__ Hand Delivered

No. Of Containers: 40

Sample Number	Sample Collected	Analyses	Sample Type	For Lab Use Only: Matrix	Container	Preserved
VPSCR081705SL0M	Date: 08/17/05	Iso Th, Iso U, Ra_{226}	X Grab	Water	1L amber	H_2SO_4
			__ Composite	X Soil	Cubitainer	HNO_3
	Time:		__ Modified	Organic	2 oz glass	NAOH
For Lab Use Only	9:31 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	__ Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	
VPSCR081705SL0N	Date: 08/17/05	Iso Th, Iso U, Ra_{226}	X Grab	Water	1L amber	H_2SO_4
			__ Composite	X Soil	Cubitainer	HNO_3
	Time:		__ Modified	Organic	2 oz glass	NAOH
For Lab Use Only	9:33 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	__ Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	
VPSCR081705SL0O	Date: 08/17/05	Iso Th, Iso U, Ra_{226}	X Grab	Water	1L amber	H_2SO_4
			__ Composite	X Soil	Cubitainer	HNO_3
	Time:		__ Modified	Organic	2 oz glass	NAOH
For Lab Use Only	9:35 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	__ Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	
VPSCR081705SL0P	Date: 08/17/05	Iso Th, Iso U, Ra_{226}	X Grab	Water	1L amber	H_2SO_4
			__ Composite	X Soil	Cubitainer	HNO_3
	Time:		__ Modified	Organic	2 oz glass	NAOH
For Lab Use Only	9:40 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	__ Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	

Relinquished By:	Received By:	Date:	Time:
Darrick Steen	Eric Gilstrap	8/18/05	2:00 pm
Eric Gilstrap	K Bannister	8/19/05	0900

05-08096

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

RECEIVED AUG 19 2005 SMA Sherlyne

Collector's Name (Please Print): **Darrick Steen**

Affiliation (Division/Program/Section): **ALPD/HWP/FFS**

Description of Shipment

X Shipped Carrier: UPS
X Tape sealed and initialed
Hand Delivered

No. Of Containers: 40

Sample Number	Sample Collected	Analyses	Sample Type	For Lab Use Only: Matrix	Container	Preserved
VPSCR081705SL0Q	Date: 08/17/05	Iso Th, Iso U, Ra_{226}	X Grab	Water	1L amber	H_2SO_4
			Composite	X Soil	Cubitainer	HNO_3
	Time:		Modified	Organic	2 oz glass	NAOH
For Lab Use Only	9:50 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	
VPSCR081705SL0R	Date: 08/17/05	Iso Th, Iso U, Ra_{226}	X Grab	Water	1L amber	H_2SO_4
			Composite	X Soil	Cubitainer	HNO_3
	Time:		Modified	Organic	2 oz glass	NAOH
For Lab Use Only	9:55 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	
VPSCR081705SL0S	Date: 08/17/05	Iso Th, Iso U, Ra_{226}	X Grab	Water	1L amber	H_2SO_4
			Composite	X Soil	Cubitainer	HNO_3
	Time:		Modified	Organic	2 oz glass	NAOH
For Lab Use Only	9:58 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	
VPSCR081705SL0T	Date: 08/17/05	Iso Th, Iso U, Ra_{226}	X Grab	Water	1L amber	H_2SO_4
			Composite	X Soil	Cubitainer	HNO_3
	Time:		Modified	Organic	2 oz glass	NAOH
For Lab Use Only	10:00 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	

Relinquished By:	Received By:	Date:	Time:
Darrick Steen	Eric Gilstrap	8/18/05	2:00PM
Eric Gilstrap	K Bannister	8/19/05	0900

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EBERLINE SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #	05-08096
Lab Deadline	9/9/2005
Analysis	UUISO - Level 4
Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	42	K1.1
	05	41	K1.1
	06	45	K1.1
	07	40	K1.1
	08	38	K1.1
	09	26	K1.1
	10	37	K1.1
	11	37	K1.1
	12	48	K1.1
	13	50	K1.1
	14	36	K1.1
	15	35	K1.1
	16	34	K1.1

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1230	Kenny Sellers	8-22-05
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 0905	Kenny Sellers	8-24-05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/24/05 0905
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/30/05 0945
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8-30-05 0945
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	9-7-05 0900
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	9-7-05 0900
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	9-7-05 1435
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

EBERLINE SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #	05-08096
Lab Deadline	9/9/2005
Analysis	ThISO - Level 4
Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	42	K1.1
	05	41	K1.1
	06	45	K1.1
	07	40	K1.1
	08	38	K1.1
	09	26	K1.1
	10	37	K1.1
	11	37	K1.1
	12	48	K1.1
	13	50	K1.1
	14	36	K1.1
	15	35	K1.1
	16	34	K1.1

	Location (circle one)						Initials	Date
Received by	(Sample Storage)	(Rough Prep)	Prep	Separations	Count Room	1230	Kenny Sullivan	8-22-05
Relinquished by	Sample Storage	(Rough Prep)	Prep	Separations	Count Room	0905	Kenny Sullivan	8-24-05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		[illegible]	8/24/05 0905
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		[illegible]	8/31/05 0700
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		[illegible]	8-31-05 0700
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		[illegible]	9-6-05 0700
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		[illegible]	9-6-05 0700
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		[illegible]	9-6-05 1130
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room			
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room			
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room			
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room			
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room			
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room			

EBERLINE SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #	05-08096
Lab Deadline	9/9/2005
Analysis	Ra226 - Level 4
Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	42	K1.1
	05	41	K1.1
	06	45	K1.1
	07	40	K1.1
	08	38	K1.1
	09	26	K1.1
	10	37	K1.1
	11	37	K1.1
	12	48	K1.1
	13	50	K1.1
	14	36	K1.1
	15	35	K1.1
	16	34	K1.1

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1230	Kenny Sallings	8-22-05
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 0905	Kenny Sallings	8-24-05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	J Bernard	8/24/05 0905
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	J Bernard	8/24/05 1430
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		8-25-05 0923
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		8-31-05 1837
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

SECTION II

SAMPLE ACKNOWLEDGEMENT

Client Name	Contract/PO	Project Type	Date Received	Required Turnaround Days	Eberline Services Work Order
Missouri Dept. of Natural Resources	C302092001	Environmental	08/19/2005	28	05-08096
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
B3Z02092	ALPD/HWP/FFS	R	09/09/2005	09/15/2005	09/16/2005

Internal ID	Client ID	Sample Date	Matrix	Storage	Ra226	ThISO	UUISO																						Ttl
01	LCS	08/22/05	SO	K1.1	X	X	X																						3
02	BLANK	08/22/05	SO	K1.1	X	X	X																						3
03	DUP	08/22/05	SO	K1.1	X	X	X																						3
04	VPSCR081705SL0H	08/17/05 09:15	SO	K1.1	X	X	X																						3
05	VPSCR081705SL0I	08/17/05 09:16	SO	K1.1	X	X	X																						3
06	VPSCR081705SL0J	08/17/05 09:19	SO	K1.1	X	X	X																						3
07	VPSCR081705SL0K	08/17/05 09:21	SO	K1.1	X	X	X																						3
08	VPSCR081705SL0L	08/17/05 09:29	SO	K1.1	X	X	X																						3
09	VPSCR081705SL0M	08/17/05 09:31	SO	K1.1	X	X	X																						3
10	VPSCR081705SL0N	08/17/05 09:33	SO	K1.1	X	X	X																						3
11	VPSCR081705SL0O	08/17/05 09:35	SO	K1.1	X	X	X																						3
12	VPSCR081705SL0P	08/17/05 09:40	SO	K1.1	X	X	X																						3
13	VPSCR081705SL0Q	08/17/05 09:50	SO	K1.1	X	X	X																						3
14	VPSCR081705SL0R	08/17/05 09:55	SO	K1.1	X	X	X																						3
15	VPSCR081705SL0S	08/17/05 09:58	SO	K1.1	X	X	X																						3
16	VPSCR081705SL0T	08/17/05 10:00	SO	K1.1	X	X	X																						3
																													0
																													0
																													0
																													0
Totals Per Analysis (non QA samples)					13	13	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

EBERLINE SERVICES

Sample Log In Report

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830

Voice: (865) 481-0683
Fax: (865) 483-4621

Invoice	Accounts Payable Missouri Dept. of Natural Resources 917 Hwy 67 North #104 Florissant, MO 63031	**Report Data**	Steve Lang Missouri Dept. of Natural Resources 917 Hwy. 67 North #104 Florissant, MO 63031
Voice	314-877-3252	*Voice*	314-877-3252
Fax	314-877-3254	*Fax*	314-877-3254
Contact	Steve Lang	**eMail data file to Steve Lang**	
Voice	314-877-3252		
Fax	314-877-3254		

Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST

MP-001-2

WORK ORDER # 05-08096

SAMPLE MATRIX/MATRICES: (CIRCLE ONE OR BOTH)

AQUEOUS (NON-AQUEOUS)

(CIRCLE EITHER YES, NO, OR N/A)

WERE SAMPLES:

Received in good condition?	(Y)	OR	N	
If aqueous, properly preserved	Y	OR	N	(N/A)

WERE CHAIN OF CUSTODY SEALS:

Present on outside of package?	(Y)	OR	N
Unbroken on outside of package?	(Y)	OR	N
Present on samples?	(Y)	OR	N
Unbroken on samples?	(Y)	OR	N

Was chain of custody present upon sample receipt? yes

IF ANY OF THE ABOVE ARE CIRCLED, A DISCREPANT SAMPLE RECEIPT REPORT (DSR) HAS BEEN ISSUED.

REMARKS: _____

SIGNATURE: JC Bannister DATE: 8/19/05

SECTION III

CASE NARRATIVE

EBERLINE SERVICES

Oak Ridge Laboratory
601 Scarboro Road
Oak Ridge, TN 37830
Phone (865) 481-0683
Fax (865) 483-4621

EBS-OR-22951

September 14, 2005

Steve Lang
Missouri Dept. of Natural Resources
St. Louis Field Office
917 Hwy. 67 North, Suite 104
Florissant, MO 63031

CASE NARRATIVE
Work Order# 05-08096-OR

SAMPLE RECEIPT

This work order contains thirteen soil samples received 08/19/2005. These samples were analyzed for Isotopic Uranium, Isotopic Thorium and Radium-226.

CLIENT ID	LAB ID	CLIENT ID	LAB ID
VPSCR081705SL0H	05-08096-04	VPSCR081705SL0O	05-08096-11
VPSCR081705SL0I	05-08096-05	VPSCR081705SL0P	05-08096-12
VPSCR081705SL0J	05-08096-06	VPSCR081705SL0Q	05-08096-13
VPSCR081705SL0K	05-08096-07	VPSCR081705SL0R	05-08096-14
VPSCR081705SL0L	05-08096-08	VPSCR081705SL0S	05-08096-15
VPSCR081705SL0M	05-08096-09	VPSCR081705SL0T	05-08096-16
VPSCR081705SL0N	05-08096-10		

The file name for these samples is 0508096.XLS.

ANALYTICAL METHODS

Isotopic Uranium was analyzed using Method EML U-02 Modified. Isotopic Thorium was analyzed using Method EML Th-01 Modified. Radium-226 was analyzed using EPA Method 903.0 Modified.

ANALYTICAL RESULTS

ISOTOPIC URANIUM

Samples were prepared by removing a representative aliquot from each sample followed by mixed acid digestions as appropriate. Uranium was selectively extracted by ion exchange. Uranium was eluted, micro-precipitated and mounted on micro-porous filter media. Sample activities were then determined by alpha spectroscopy using energy specific regions of interest for Uranium-234, Uranium-235 and Uranium-238. Chemical recovery was determined by the use of a Uranium-232 tracer. Activity of the Uranium-232 tracer was determined by alpha spectroscopy using an energy specific region of interest.

ANALYTICAL RESULTS CONTINUED

ISOTOPIC URANIUM CONTINUED

Samples demonstrated background equivalent results for Uranium-234, Uranium-235 and Uranium-238 activity. Chemical recovery was acceptable for all samples. Results for the Uranium-234, Uranium-235 and Uranium-238 method blank demonstrated background equivalent activity. Results for the Uranium-234 and Uranium-238 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Uranium-235 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Uranium-234, Uranium-235 and Uranium-238 laboratory control sample demonstrated an acceptable percent recovery.

ISOTOPIC THORIUM

Samples were prepared by removing a representative aliquot from each sample followed by mixed acid digestions as appropriate. Thorium was selectively extracted by ion exchange. Thorium was eluted, micro-precipitated and mounted on micro-porous filter media. Sample activities were then determined by alpha spectroscopy using energy specific regions of interest for Thorium-228, Thorium-230 and Thorium-232. Chemical recovery was determined by the use of a Thorium-229 tracer. Activity of the Thorium-229 tracer was determined by alpha spectroscopy using an energy specific region of interest.

Samples demonstrated background equivalent results for Thorium-228 and Thorium-232 activity. Samples demonstrated background equivalent to only slightly positive results for Thorium-230 activity. Chemical recovery was acceptable for all samples. Results for the Thorium-228, Thorium-230 and Thorium-232 method blank demonstrated background equivalent activity. Results for the Thorium-228 replicate demonstrated a slightly high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Thorium-230 and Thorium-232 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Thorium-228, Thorium-230 and Thorium-232 laboratory control sample demonstrated an acceptable percent recovery.

RADIUM-226

Samples were prepared by drying, pulverizing and homogenizing. Representative aliquots were removed and samples were digested using mixed acids. Radium-226 was precipitated as Radium sulfate using elemental Barium and Lead as carriers. Sulfates were dissolved in alkaline EDTA. Radium-226 was selectively precipitated from slightly acidic EDTA. Precipitates were then mounted by semi-micro-precipitations onto micro-porous filters. Samples were counted by alpha spectroscopy using an energy specific region of interest for Radium-226. Chemical recovery was calculated by the use of a Barium-133 tracer, which was determined by HPGe gamma spectroscopy.

Samples demonstrated background equivalent results for Radium-226 activity. Chemical recovery was acceptable for all samples. Results for the Radium-226 method blank demonstrated background equivalent activity. Results for the Radium-226 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Radium-226 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

M.R. McDougall
Laboratory Manager

Date: 9/14/2005

SECTION IV

ANALYTICAL RESULTS SUMMARY

Steve Lang
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Florissant, MO 63031

Affiliation: ALPD/HWP/FFS
SDG: 0508096
Matrix: Soil

Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifer
KNOWN	0508096-01	08/31/05	Radium-226	EPA 903.0 Modified	10.38	0.48	0.17	pCi/g	
KNOWN	0508096-01	09/06/05	Thorium-228	EML Th-01 Modified	4.77	0.17	0.11	pCi/g	
KNOWN	0508096-01	09/06/05	Thorium-230	EML Th-01 Modified	5.33	0.14	0.12	pCi/g	
KNOWN	0508096-01	09/06/05	Thorium-232	EML Th-01 Modified	4.77	0.17	0.09	pCi/g	
KNOWN	0508096-01	09/07/05	Uranium-234	EML U-02 Modified	8.04	0.29	0.04	pCi/g	
KNOWN	0508096-01	09/07/05	Uranium-235	EML U-02 Modified	0.37	0.01	0.08	pCi/g	
KNOWN	0508096-01	09/07/05	Uranium-238	EML U-02 Modified	7.84	0.28	0.08	pCi/g	
SPIKE	0508096-01	08/31/05	Radium-226	EPA 903.0 Modified	8.68	1.21	0.17	pCi/g	
SPIKE	0508096-01	09/06/05	Thorium-228	EML Th-01 Modified	5.23	1.06	0.11	pCi/g	
SPIKE	0508096-01	09/06/05	Thorium-230	EML Th-01 Modified	5.77	1.16	0.12	pCi/g	
SPIKE	0508096-01	09/06/05	Thorium-232	EML Th-01 Modified	4.10	0.87	0.09	pCi/g	
SPIKE	0508096-01	09/07/05	Uranium-234	EML U-02 Modified	8.31	1.41	0.04	pCi/g	
SPIKE	0508096-01	09/07/05	Uranium-235	EML U-02 Modified	0.40	0.18	0.08	pCi/g	
SPIKE	0508096-01	09/07/05	Uranium-238	EML U-02 Modified	8.78	1.48	0.08	pCi/g	
BLANK	0508096-02	08/31/05	Radium-226	EPA 903.0 Modified	0.00	0.00	0.09	pCi/g	U
BLANK	0508096-02	09/06/05	Thorium-228	EML Th-01 Modified	0.09	0.11	0.18	pCi/g	U
BLANK	0508096-02	09/06/05	Thorium-230	EML Th-01 Modified	0.37	0.20	0.15	pCi/g	
BLANK	0508096-02	09/06/05	Thorium-232	EML Th-01 Modified	0.10	0.10	0.15	pCi/g	U
BLANK	0508096-02	09/07/05	Uranium-234	EML U-02 Modified	0.34	0.16	0.10	pCi/g	
BLANK	0508096-02	09/07/05	Uranium-235	EML U-02 Modified	0.07	0.08	0.10	pCi/g	U
BLANK	0508096-02	09/07/05	Uranium-238	EML U-02 Modified	0.09	0.08	0.08	pCi/g	J
VPSCR081705SL0H	0508096-03	08/31/05	Radium-226	EPA 903.0 Modified	0.74	0.28	0.17	pCi/g	
VPSCR081705SL0H	0508096-03	09/06/05	Thorium-228	EML Th-01 Modified	0.59	0.22	0.14	pCi/g	
VPSCR081705SL0H	0508096-03	09/06/05	Thorium-230	EML Th-01 Modified	1.42	0.37	0.10	pCi/g	
VPSCR081705SL0H	0508096-03	09/06/05	Thorium-232	EML Th-01 Modified	0.78	0.25	0.08	pCi/g	
VPSCR081705SL0H	0508096-03	09/07/05	Uranium-234	EML U-02 Modified	0.94	0.27	0.04	pCi/g	
VPSCR081705SL0H	0508096-03	09/07/05	Uranium-235	EML U-02 Modified	0.11	0.09	0.05	pCi/g	J
VPSCR081705SL0H	0508096-03	09/07/05	Uranium-238	EML U-02 Modified	0.78	0.24	0.04	pCi/g	

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Affiliation: ALPD/HWP/FFS
SDG: 0508096
Matrix: Soil

Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifer
VPSCR081705SL0H	0508096-04	08/31/05	Radium-226	EPA 903.0 Modified	1.11	0.35	0.12	pCi/g	
VPSCR081705SL0H	0508096-04	09/06/05	Thorium-228	EML Th-01 Modified	0.47	0.19	0.12	pCi/g	
VPSCR081705SL0H	0508096-04	09/06/05	Thorium-230	EML Th-01 Modified	1.49	0.39	0.09	pCi/g	
VPSCR081705SL0H	0508096-04	09/06/05	Thorium-232	EML Th-01 Modified	0.68	0.23	0.08	pCi/g	
VPSCR081705SL0H	0508096-04	09/07/05	Uranium-234	EML U-02 Modified	1.09	0.29	0.09	pCi/g	
VPSCR081705SL0H	0508096-04	09/07/05	Uranium-235	EML U-02 Modified	0.03	0.05	0.08	pCi/g	U
VPSCR081705SL0H	0508096-04	09/07/05	Uranium-238	EML U-02 Modified	0.95	0.27	0.07	pCi/g	
VPSCR081705SL0I	0508096-05	08/31/05	Radium-226	EPA 903.0 Modified	1.41	0.41	0.15	pCi/g	
VPSCR081705SL0I	0508096-05	09/06/05	Thorium-228	EML Th-01 Modified	0.97	0.28	0.10	pCi/g	
VPSCR081705SL0I	0508096-05	09/06/05	Thorium-230	EML Th-01 Modified	4.84	0.92	0.10	pCi/g	
VPSCR081705SL0I	0508096-05	09/06/05	Thorium-232	EML Th-01 Modified	1.33	0.34	0.08	pCi/g	
VPSCR081705SL0I	0508096-05	09/07/05	Uranium-234	EML U-02 Modified	1.21	0.31	0.07	pCi/g	
VPSCR081705SL0I	0508096-05	09/07/05	Uranium-235	EML U-02 Modified	0.08	0.08	0.05	pCi/g	U
VPSCR081705SL0I	0508096-05	09/07/05	Uranium-238	EML U-02 Modified	1.16	0.30	0.09	pCi/g	
VPSCR081705SL0J	0508096-06	08/31/05	Radium-226	EPA 903.0 Modified	0.76	0.27	0.15	pCi/g	
VPSCR081705SL0J	0508096-06	09/06/05	Thorium-228	EML Th-01 Modified	0.50	0.20	0.08	pCi/g	
VPSCR081705SL0J	0508096-06	09/06/05	Thorium-230	EML Th-01 Modified	2.42	0.56	0.04	pCi/g	
VPSCR081705SL0J	0508096-06	09/06/05	Thorium-232	EML Th-01 Modified	0.67	0.23	0.08	pCi/g	
VPSCR081705SL0J	0508096-06	09/07/05	Uranium-234	EML U-02 Modified	0.93	0.29	0.16	pCi/g	
VPSCR081705SL0J	0508096-06	09/07/05	Uranium-235	EML U-02 Modified	0.08	0.08	0.11	pCi/g	U
VPSCR081705SL0J	0508096-06	09/07/05	Uranium-238	EML U-02 Modified	0.84	0.27	0.09	pCi/g	
VPSCR081705SL0K	0508096-07	08/31/05	Radium-226	EPA 903.0 Modified	0.68	0.25	0.12	pCi/g	
VPSCR081705SL0K	0508096-07	09/06/05	Thorium-228	EML Th-01 Modified	0.72	0.25	0.09	pCi/g	
VPSCR081705SL0K	0508096-07	09/06/05	Thorium-230	EML Th-01 Modified	1.24	0.35	0.04	pCi/g	
VPSCR081705SL0K	0508096-07	09/06/05	Thorium-232	EML Th-01 Modified	0.81	0.26	0.04	pCi/g	
VPSCR081705SL0K	0508096-07	09/07/05	Uranium-234	EML U-02 Modified	0.72	0.21	0.03	pCi/g	
VPSCR081705SL0K	0508096-07	09/07/05	Uranium-235	EML U-02 Modified	0.07	0.07	0.07	pCi/g	U
VPSCR081705SL0K	0508096-07	09/07/05	Uranium-238	EML U-02 Modified	1.05	0.27	0.07	pCi/g	

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Affiliation: ALPD/HWP/FFS
SDG: 0508096
Matrix: Soil

Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifer
VPSCR081705SL0L	0508096-08	08/31/05	Radium-226	EPA 903.0 Modified	1.08	0.35	0.14	pCi/g	
VPSCR081705SL0L	0508096-08	09/06/05	Thorium-228	EML Th-01 Modified	0.56	0.20	0.12	pCi/g	
VPSCR081705SL0L	0508096-08	09/06/05	Thorium-230	EML Th-01 Modified	1.55	0.38	0.08	pCi/g	
VPSCR081705SL0L	0508096-08	09/06/05	Thorium-232	EML Th-01 Modified	0.62	0.21	0.06	pCi/g	
VPSCR081705SL0L	0508096-08	09/07/05	Uranium-234	EML U-02 Modified	0.93	0.26	0.06	pCi/g	
VPSCR081705SL0L	0508096-08	09/07/05	Uranium-235	EML U-02 Modified	0.05	0.06	0.04	pCi/g	U
VPSCR081705SL0L	0508096-08	09/07/05	Uranium-238	EML U-02 Modified	0.81	0.24	0.04	pCi/g	
VPSCR081705SL0M	0508096-09	08/31/05	Radium-226	EPA 903.0 Modified	1.06	0.37	0.17	pCi/g	
VPSCR081705SL0M	0508096-09	09/06/05	Thorium-228	EML Th-01 Modified	0.49	0.20	0.09	pCi/g	
VPSCR081705SL0M	0508096-09	09/06/05	Thorium-230	EML Th-01 Modified	1.39	0.39	0.11	pCi/g	
VPSCR081705SL0M	0508096-09	09/06/05	Thorium-232	EML Th-01 Modified	0.59	0.22	0.08	pCi/g	
VPSCR081705SL0M	0508096-09	09/07/05	Uranium-234	EML U-02 Modified	0.79	0.26	0.08	pCi/g	
VPSCR081705SL0M	0508096-09	09/07/05	Uranium-235	EML U-02 Modified	0.09	0.09	0.11	pCi/g	U
VPSCR081705SL0M	0508096-09	09/07/05	Uranium-238	EML U-02 Modified	0.73	0.25	0.11	pCi/g	
VPSCR081705SL0N	0508096-10	08/31/05	Radium-226	EPA 903.0 Modified	0.96	0.31	0.06	pCi/g	
VPSCR081705SL0N	0508096-10	09/06/05	Thorium-228	EML Th-01 Modified	0.74	0.24	0.08	pCi/g	
VPSCR081705SL0N	0508096-10	09/06/05	Thorium-230	EML Th-01 Modified	1.55	0.39	0.08	pCi/g	
VPSCR081705SL0N	0508096-10	09/06/05	Thorium-232	EML Th-01 Modified	0.85	0.25	0.06	pCi/g	
VPSCR081705SL0N	0508096-10	09/07/05	Uranium-234	EML U-02 Modified	0.94	0.25	0.06	pCi/g	
VPSCR081705SL0N	0508096-10	09/07/05	Uranium-235	EML U-02 Modified	0.07	0.07	0.04	pCi/g	U
VPSCR081705SL0N	0508096-10	09/07/05	Uranium-238	EML U-02 Modified	0.78	0.22	0.03	pCi/g	
VPSCR081705SL0O	0508096-11	08/31/05	Radium-226	EPA 903.0 Modified	0.98	0.31	0.11	pCi/g	
VPSCR081705SL0O	0508096-11	09/06/05	Thorium-228	EML Th-01 Modified	0.89	0.26	0.11	pCi/g	
VPSCR081705SL0O	0508096-11	09/06/05	Thorium-230	EML Th-01 Modified	2.19	0.48	0.07	pCi/g	
VPSCR081705SL0O	0508096-11	09/06/05	Thorium-232	EML Th-01 Modified	1.05	0.29	0.04	pCi/g	
VPSCR081705SL0O	0508096-11	09/07/05	Uranium-234	EML U-02 Modified	0.96	0.27	0.07	pCi/g	
VPSCR081705SL0O	0508096-11	09/07/05	Uranium-235	EML U-02 Modified	0.09	0.08	0.08	pCi/g	J
VPSCR081705SL0O	0508096-11	09/07/05	Uranium-238	EML U-02 Modified	0.96	0.27	0.04	pCi/g	

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Affiliation: ALPD/HWP/FFS
SDG: 0508096
Matrix: Soil

Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifer
VPSCR081705SL0P	0508096-12	08/31/05	Radium-226	EPA 903.0 Modified	1.19	0.39	0.20	pCi/g	
VPSCR081705SL0P	0508096-12	09/06/05	Thorium-228	EML Th-01 Modified	0.83	0.26	0.09	pCi/g	
VPSCR081705SL0P	0508096-12	09/06/05	Thorium-230	EML Th-01 Modified	3.57	0.74	0.07	pCi/g	
VPSCR081705SL0P	0508096-12	09/06/05	Thorium-232	EML Th-01 Modified	0.96	0.28	0.08	pCi/g	
VPSCR081705SL0P	0508096-12	09/07/05	Uranium-234	EML U-02 Modified	1.04	0.29	0.04	pCi/g	
VPSCR081705SL0P	0508096-12	09/07/05	Uranium-235	EML U-02 Modified	0.10	0.08	0.05	pCi/g	J
VPSCR081705SL0P	0508096-12	09/07/05	Uranium-238	EML U-02 Modified	0.84	0.25	0.06	pCi/g	
VPSCR081705SL0Q	0508096-13	08/31/05	Radium-226	EPA 903.0 Modified	1.13	0.34	0.16	pCi/g	
VPSCR081705SL0Q	0508096-13	09/06/05	Thorium-228	EML Th-01 Modified	1.07	0.29	0.12	pCi/g	
VPSCR081705SL0Q	0508096-13	09/06/05	Thorium-230	EML Th-01 Modified	1.75	0.41	0.08	pCi/g	
VPSCR081705SL0Q	0508096-13	09/06/05	Thorium-232	EML Th-01 Modified	1.14	0.30	0.08	pCi/g	
VPSCR081705SL0Q	0508096-13	09/07/05	Uranium-234	EML U-02 Modified	1.22	0.34	0.08	pCi/g	
VPSCR081705SL0Q	0508096-13	09/07/05	Uranium-235	EML U-02 Modified	0.06	0.07	0.06	pCi/g	U
VPSCR081705SL0Q	0508096-13	09/07/05	Uranium-238	EML U-02 Modified	0.93	0.29	0.09	pCi/g	
VPSCR081705SL0R	0508096-14	08/31/05	Radium-226	EPA 903.0 Modified	1.11	0.34	0.15	pCi/g	
VPSCR081705SL0R	0508096-14	09/06/05	Thorium-228	EML Th-01 Modified	0.69	0.23	0.10	pCi/g	
VPSCR081705SL0R	0508096-14	09/06/05	Thorium-230	EML Th-01 Modified	2.29	0.52	0.13	pCi/g	
VPSCR081705SL0R	0508096-14	09/06/05	Thorium-232	EML Th-01 Modified	0.78	0.25	0.09	pCi/g	
VPSCR081705SL0R	0508096-14	09/07/05	Uranium-234	EML U-02 Modified	0.92	0.30	0.05	pCi/g	
VPSCR081705SL0R	0508096-14	09/07/05	Uranium-235	EML U-02 Modified	0.07	0.08	0.06	pCi/g	U
VPSCR081705SL0R	0508096-14	09/07/05	Uranium-238	EML U-02 Modified	0.82	0.28	0.05	pCi/g	
VPSCR081705SL0S	0508096-15	08/31/05	Radium-226	EPA 903.0 Modified	1.29	0.36	0.14	pCi/g	
VPSCR081705SL0S	0508096-15	09/06/05	Thorium-228	EML Th-01 Modified	0.80	0.24	0.12	pCi/g	
VPSCR081705SL0S	0508096-15	09/06/05	Thorium-230	EML Th-01 Modified	1.45	0.35	0.09	pCi/g	
VPSCR081705SL0S	0508096-15	09/06/05	Thorium-232	EML Th-01 Modified	0.84	0.24	0.05	pCi/g	
VPSCR081705SL0S	0508096-15	09/07/05	Uranium-234	EML U-02 Modified	0.52	0.19	0.07	pCi/g	
VPSCR081705SL0S	0508096-15	09/07/05	Uranium-235	EML U-02 Modified	0.09	0.08	0.05	pCi/g	J
VPSCR081705SL0S	0508096-15	09/07/05	Uranium-238	EML U-02 Modified	0.69	0.22	0.07	pCi/g	

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Florissant, MO 63031

Affiliation: ALPD/HWP/FFS
SDG: 0508096
Matrix: Soil

Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifer
VPSCR081705SL0T	0508096-16	08/31/05	Radium-226	EPA 903.0 Modified	1.08	0.33	0.20	pCi/g	
VPSCR081705SL0T	0508096-16	09/06/05	Thorium-228	EML Th-01 Modified	0.64	0.25	0.15	pCi/g	
VPSCR081705SL0T	0508096-16	09/06/05	Thorium-230	EML Th-01 Modified	1.43	0.41	0.11	pCi/g	
VPSCR081705SL0T	0508096-16	09/06/05	Thorium-232	EML Th-01 Modified	0.59	0.24	0.15	pCi/g	
VPSCR081705SL0T	0508096-16	09/07/05	Uranium-234	EML U-02 Modified	0.88	0.26	0.08	pCi/g	
VPSCR081705SL0T	0508096-16	09/07/05	Uranium-235	EML U-02 Modified	0.10	0.09	0.10	pCi/g	J
VPSCR081705SL0T	0508096-16	09/07/05	Uranium-238	EML U-02 Modified	0.95	0.27	0.08	pCi/g	

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SECTION V

ANALYTICAL STANDARD

QA/QC REVIEWED
Date 1/16/95 Initials MK

U-8

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Radionuclide:	U-238NAT	Customer:	TMA EBERLINE
Half Life:	(4.468 ± 0.005) x 10^9 years	P.O.No.:	OR2778
Catalog No.:	7338	Reference Date:	January 1 1995 12:00 PST.
Source No.:	479-50	Contained Radioactivity:	(Total U) 8.016 μCi
		Contained Radioactivity:	(Total U) 297 kBq

Description of Solution

a. Mass of solution:	65.2896 g in a 50 ml flame sealed ampoule	
b. Chemical form:	Uranyl Nitrate in H2O	
c. Carrier content:	None	
d. Density:	Approximately 1.3202	g/ml @ 20°C.

Radioimpurities: Refer to attached technical data sheet

Radioactive Daughters: Refer to attached technical data sheet

Radionuclide Concentration

(Total U) 0.1228 μCi/g.

Method of Calibration

Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration:	±3.0%
b. Random uncertainty in assay:	±0.0%
c. Random uncertainty in weighing(s):	±2.0%
d. Total uncertainty at the 99% confidence level:	±3.6%

NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

Notes

1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).

ERIC ALLAS
QUALITY CONTROL

29 DECEMBER 1994
Date Signed

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EBERLINE

QUALITY CONTROL PROGRAM

MP-009

Rev.8; 11/01/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

CURRENT DATE: 1/4/2005 0:00

SOLUTION REFERENCE #: IPL 479-50 | SOLUTION #: U-8

Principal Radionuclide	Half Life, Years	Half Life, Days
$^{234, 235, 238}U$	4.468E+09	1.632E+12

Radionuclide: $^{234, 235, 238}U$
Reference Date: 1/1/1995 0:00
Certified Activity: 8.016E+00 µCi
Certified Concentration: µCi per gram

Ampoule /Solution Gross	97.6400	Weight, Grams
Empty Ampoule	32.5020	Weight, Grams
Solution Net	65.1380	Weight, Grams
Total Activity in Ampoule	8.0160	µCi

Chemical Composition of Standard Solution

Uranyl nitrate in dilute HNO_3

Dilution Instructions:

Dilution Solvent Used: 1M HNO_3

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 8.0160 µCi Which Equals 1.780E+07 dpm at the date listed above

And after dilution the activity of this solution is 1.77955E+04 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 4, 2006

Recertified By _____ Date: 1/18/2005 11:55

Verified & Approved By _____ Date: 1/18/2005 11:55

QC Approval _____ Date: 1/18/2005 11:55

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QUALITY CONTROL PROGRAM

MP-009

Rev.8; 11/01/03
Title: **Radioactive Reference Standards Solutions & Records**

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

	MP-009	Date	1/4/2005 0:00
Solution Reference #	IPL 479-50	Solution #	U-8a

Principal Radionuclide	Half Life, Years	Half Life, Days
$^{234, 235, 238}U$	4.468E+09	1.632E+12

Radionuclide of Interest $^{234, 235, 238}U$
Parent Solution Conc. 1.7796E+04 **dpm/ml**

Reference Date 1/1/1995 0:00

Chemical Composition of Standard Solution
Uranly Nitrate in 1M HNO_3

Dilution Instructions:

Dilution Solvent Used 1M HNO_3

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 4.0000 **ml**
Total Activity: 7.1182E+04 **dpm**
Final Volume: 1000.00 **ml**

Final Activity Concentration: 7.1182E+01 **dpm/ml**

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

NOTES:

Isotopic Distribution as:
U-238 Atom % = 48.239 U-238 = 71.182 dpm/ml X 0.48249 = 34.345 dpm/ml
U-235 Atom % = 2.25 U-235 = 71.182 dpm/ml X 0.0225 = 1.602 dpm/ml
U-234 Atom % = 49.501 U-238 = 71.182 dpm/ml X 0.49501 = 35.236 dpm/ml
All values +/- 3.6%

Isotopic ratios from manufacturer's data sheet

Expiration Date: January 4, 2006

Recertified By _____ Date: 1/18/2005 11:54

Verified & Approved By _____ Date: 1/18/2005 11:54

QC Approval _____ Date: 1/18/2005 11:54

RECORD COPY

Tracer Solution for Environmental Analysis & Disequilibrium Studies

Product Description & Measurement Certificate

Description	Principal radionuclide:	**uranium 232** (U-232)	Product code: **UDP10050**
	Daughter Nuclide:	Th-228	Batch Number: 92/232/67
Measurement	Reference date:		01 March 2000
	Radioactive concentration U-232		6.739E+03 becquerels per gram of solution
	which is equivalent to		1.821E-01 microcuries per gram of solution
	Mass of solution		5.356 grams
	Volume of solution		5.035 millilitres
	Total activity of U-232		3.61E+04 becquerels
	which is equivalent to		9.76E-01 microcuries

Accuracy

Method of measurement (see reverse of this certificate)
Random uncertainty is: ± 0.7% Systematic uncertainty: ± 0.5%
Overall uncertainty in the radioactive concentration quoted above: ± 1.7%
Overall uncertainty is defined on the reverse of this certificate.

Radionuclidic Purity

Any radioactive impurities measured are listed below, expressed as percentages of the activity of the principle radionuclide at the reference date .

Th-228 and daughter activity removed 2 Feb 2000
U-232 daughters activity will increase with time. By alpha 88% U-232, 12% daughters on 1/3/00

Isotopic Purity

The isotopic composition, expressed as atom per cent at the reference date .

Not measured

Chemical Composition

Calculated weight of U-232, 4.42E-08 grams, as 2M HNO3 solution in a flame sealed glass vial.
This Tracer solution has been produced 'carrier free'.

Physical Data

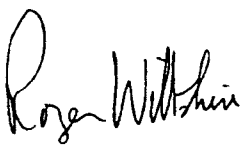
Recommended half life of uranium 232: 6.980E+01 years
Principle energies of alpha emissions (MeV): 5.263 31.7%, 5.320 68.0%
Branching ratio for alpha emission: 100%
Calculated specific activity of uranium 232: 8.167E+05 Bq per microgram U-232.

Remarks

For safety information and notes to ensure correct usage by all persons handling this radioactive Tracer solution please read the instructions accompanying the package.

AEA Technology operates a quality management system which has been independently audited and approved to ISO 9001.

Approved Signatory



Project Ref. AE2315

Roger Wiltshire

Prepared and characterised in the UK, for world wide distribution by **Isotrak, AEA Technology, QSA.**

AEA Technology is the trading name of AEA Technology plc

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Rev.8; 11/01/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

		CURRENT DATE	1/4/2005 0:00
SOLUTION REFERENCE #	AEA/Amersham 92/232/67	SOLUTION #	U-10

Principal Radionuclide	Half Life, Years	Half Life, Days
^{232}U	7.200E+01	2.630E+04

Radionuclide	^{232}U		
Certified Activity	9.760E-01	µCi	
Certified Concentration		µCi per gram	
		Reference Date	3/1/2000 0:00

Ampoule /Solution Gross		Weight, Grams
Empty Ampoule		Weight, Grams
Solution Net		Weight, Grams
Total Activity in Ampoule	0.9760	µCi

Chemical Composition of Standard Solution

$^{232}U(NO_3)_6$ in 2M HNO_3

Dilution Instructions: **Dilution Solvent Used** 2M HNO_3

Dilute to a volume of 1000.00 **milliliters**

Certified Total Activity of 0.9760 µCi **Which Equals** 2.167E+06 **dpm at the date listed above**

And after dilution the activity of this solution is 2.167E+03 **dpm/ml**

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 4, 2006

Recertified By _____ Date: 1/18/2005 10:37

Verified & Approved By _____ Date: 1/18/2005 10:37

QC Approval _____ Date: 1/18/2005 10:37

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Rev.8; 11/01/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

	MP-009	Date	1/4/2005 0:00
Solution Reference #	AEA/Amersham 92/232/67	Solution #	U-10a

Principal Radionuclide	Half Life, Years	Half Life, Days
^{232}U	7.200E+01	2.630E+04

Radionuclide of Interest: ^{232}U
Parent Solution Conc.: 2.167E+03 dpm/ml

Reference Date: 3/1/2000 0:00

Chemical Composition of Standard Solution
$^{232}U(NO_3)_6$ in 2M HNO_3

Dilution Instructions:

Dilution Solvent Used: 2M HNO_3

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution:	10.0000	ml
Total Activity:	2.1670E+04	dpm
Final Volume:	1000.00	ml

Final Activity Concentration: 2.1670E+01 dpm/ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 4, 2006

Recertified By _____ Date: 1/18/2005 10:37

Verified & Approved By _____ Date: 1/18/2005 10:37

QC Approval _____ Date: 1/18/2005 10:37

Th-8

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Radionuclide:	Th-232	Customer:	TMA EBERLINE
Half Life:	(1.405± 0.006) x 10^10 years	P.O.No.:	VH1632
Catalog No.:	7232	Reference Date:	November 1 1993 12:00 PST.
Source No.:	435-104-2	Contained Radioactivity:	(Th-232) 0.0933 µCi.
		Contained Radioactivity:	(Th-232) 3.45 kBq.

Description of Solution

a. Mass of solution:	11.9712 g (in a 10 ml flame sealed ampoule)	
b. Chemical form:	Th(NO3)4 in water	
c. Carrier content:	None added	
d. Density:	Approx. 1.21	g/ml @ 20°C.

Radioimpurities: None detected (other than daughters).

Radioactive Daughters
Ra-228, Ac-228, Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Po-212, Tl-208

Radionuclide Concentration
(Th-232) 0.00779 µCi/g.

Method of Calibration
Activity calculations are based upon known specific activity and mass.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration:	±3.0%
b. Random uncertainty in assay:	±0.0%
c. Random uncertainty in weighing(s):	±2.0%
d. Total uncertainty at the 99% confidence level:	±3.6%

NIST Traceability
This calibration is implicitly traceable to the National Institute of Standards and Technology.

Leak Test(s)
See reverse side for Leak Test(s) applied to this source.

Notes
1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).

Anna U. Hua
QUALITY CONTROL

Nov. 8, 1993
Date Signed

ISOTOPE PRODUCTS LABORATORIES
1800 North Keystone Street
Burbank, California 91504
(818) 843 - 7000

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

MP-009

Rev.8; 1/10/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

CURRENT DATE: 1/13/2005 0:00

SOLUTION REFERENCE #: IPL 435-104-2

SOLUTION #: Th-8

Principal Radionuclide	Half Life, Years	Half Life, Days
^{232}Th, ^{228}Th	1.405E+10	5.132E+12

Radionuclide: $^{232\ \&\ 228}Th$

Reference Date: 11/1/1993 0:00

Certified Activity: 9.330E-02 µCi

Certified Concentration: µCi per gram

Ampoule /Solution Gross	18.8415	Weight, Grams
Empty Ampoule	6.9296	Weight, Grams
Solution Net	11.9119	Weight, Grams
Total Activity in Ampoule	0.0933	µCi

Chemical Composition of Standard Solution

$Th(NO_3)_4$ in H2O

Dilution Instructions:

Dilution Solvent Used: 1% Nitric Acid

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 0.0933 µCi Which Equals 2.071E+05 dpm at the date listed above

And after dilution the activity of this solution is 2.071E+02 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 13, 2006

Recertified By _____ Date: 1/13/2005 0:00

Verified & Approved By _____ Date: 1/~~13~~18/2005 0:00

QC Approval _____ Date: 1/13/2005 0:00

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

MP-009

Rev.8; 1/10/03
Title: **Radioactive Reference Standards Solutions & Records**

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

	MP-009	Date	1/13/2005 0:00
Solution Reference #	IPL 435-104-2	Solution #	Th-8b

Principal Radionuclide	Half Life, Years	Half Life, Days
$^{228\ \&\ 232}Th$	1.405E+10	5.132E+12

Radionuclide of Interest	$^{228\ \&\ 232}Th$	Reference Date	11/1/1993 0:00
Parent Solution Conc.	2.07E+02 dpm/ml		

Chemical Composition of Standard Solution
$Th(NO_3)_4$ in 1% HNO_3

Dilution Instructions: **Dilution Solvent Used** 1% Nitric Acid

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution:	500.0000 ml	Final Activity Concentration:	1.0355E+02 dpm/ml
Total Activity:	1.0355E+05 dpm		
Final Volume:	1000.00 ml		

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 13, 2006

Recertified By _____ Date: 1/13/2005 12:19

Verified & Approved By _____ Date: 1/18/05

QC Approval _____ Date: _____

QA/QC REVIEWED
Date 10/14/91 Initials MT 10/14/91 MT

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Received
OCT 14 1991
TMA/Eberline
Oak Ridge Lab

Radionuclide	Th-230	Customer:	TMA EBERLINE
Half Life:	(7.54 ± 0.03) x 10^4 years	P.O.No.:	TT4944
Catalog No.:	7230	Reference Date:	November 1 1991 12:00 PST.
Source No.:	388-116	Contained Radioactivity:	1.036 µCi.

Description of Solution

a. Mass of solution:	5.0042	grams.
b. Chemical form:	$Th(NO_3)_4$ in 0.1N HNO_3	
c. Carrier content:	None added	
d. Density:	1.0016	gram/ml @ 20°C.

Radioimpurities

See attached technical data sheet

Radioactive Daughters

See attached technical data sheet

Radionuclide Concentration

0.207 µCi/gram.

Method of Calibration

Weighed aliquots of the solution were assayed using a liquid scintillation counter.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration:	±2.0%
b. Random uncertainty in assay:	±0.5%
c. Random uncertainty in weighing(s):	±0.2%
d. Total uncertainty at the 99% confidence level:	±2.7%

NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

Notes

1. Nuclear data were taken from "Table of Isotopes", Seventh Edition, edited by Virginia S. Shirley.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay(and later NIST certification) of Standard Reference Materials. (As in NRC Regulatory Guide 4.15)

QUALITY CONTROL

ISOTOPE PRODUCTS LABORATORIES
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Rev.8; 11/01/03

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EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

CURRENT DATE: 1/5/2005 0:00

SOLUTION REFERENCE #: IPL 388-116

SOLUTION #: Th-1

Principal Radionuclide	Half Life, Years	Half Life, Days
^{230}Th	7.540E+04	2.754E+07

Radionuclide: ^{230}Thorium

Reference Date: 11/1/1991 0:00

Certified Activity: 1.036E+00 µCi

Certified Concentration: µCi per gram

Ampoule /Solution Gross	9.2660	Weight, Grams
Empty Ampoule	4.6218	Weight, Grams
Solution Net	4.6442	Weight, Grams
Total Activity in Ampoule	1.0360	µCi

Chemical Composition of Standard Solution

$^{230}Th(NO_3)_4$ in 0.1N HNO_3

Dilution Instructions:

Dilution Solvent Used: 0.1N HNO_3

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 1.0360 µCi Which Equals 2.300E+06 dpm at the date listed above

And after dilution the activity of this solution is 2.300E+03 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 5, 2006

Recertified By _____ Date: 1/18/2005 9:42

Verified & Approved By _____ Date: 1/19/05

QC Approval _____ Date: _____

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QUALITY CONTROL PROGRAM

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EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS

SECONDARY DILUTION RECERTIFICATION

MP-009

Solution Reference # IPL 388-116

Date 1/5/2005 0:00

Solution # Th-1b

Principal Radionuclide	Half Life, Years	Half Life, Days
^{230}Th	7.540E+04	2.754E+07

Radionuclide of Interest: ^{230}Thorium

Parent Solution Conc.: 2.30E+03 dpm/ml

Reference Date: 11/1/1991 0:00

Chemical Composition of Standard Solution

$^{230}Th(NO_3)_4$ in 0.1N HNO_3

Dilution Instructions:

Dilution Solvent Used: 0.1N HNO_3

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 10.0000 ml
Total Activity: 2.2999E+04 dpm
Final Volume: 1000.00 ml

Final Activity Concentration: 2.2999E+01 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

NOTES:

Expiration Date: January 5, 2006

Recertified By _____ Date: 1/18/2005 0:00

Verified & Approved By _____ Date: 1/19/05

QC Approval _____ Date: 1/19/05

Th-19

Isotope Products Laboratories
An Eckert & Ziegler Company

24937 Avenue Tibbitts
Valencia, California 91355

Tel 661•309•1010
Fax 661•257•8303

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Radionuclide:	Th-229	**Customer:**	EBERLINE SERVICES
Half-life:	7340 ± 160 years	**P.O. No.:**	00009633
Catalog No.:	7229	**Reference Date:**	15-Jan-02 12:00 PST
Source No.:	867-54	**Contained Radioactivity: (Th-229 only)**	1.013 µCi 37.48 kBq

Physical Description:

A. Mass of solution:	5.0147 g in 5 mL flame-sealed ampoule
B. Chemical form:	$Th(NO_3)_4$ in 0.1M HNO_3
C. Carrier content:	10µg Th/mL
D. Density:	1.0016 g/mL @ 20°C.

Radioimpurities:

None detected (daughters in equilibrium)

Radionuclide Concentration: 0.2020 µCi/g, 7.474 kBq/g

Method of Calibration:

This source was prepared from a weighed aliquot of solution whose activity in µCi/g was determined using gamma ray spectrometry.

Peak energy used for integration:	193.5 keV
Branching ratio used:	0.0441 gammas per decay

Uncertainty of Measurement:

A. Type A (random) uncertainty:	± 0.7 %
B. Type B (systematic) uncertainty:	± 3.0 %
C. Uncertainty in aliquot weighing:	± 0.0 %
D. Total uncertainty at the 99% confidence level:	± 3.1 %

Notes:

- See reverse side for leak test(s) performed on this source.
- IPL participates in a NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).
- Nuclear data was taken from IAEA Technical Report Series No. 261.
- This solution has a working life of 5 years.

[signature] — Quality Control

9-Jan-02 — Date Signed

IPL Ref. No.: 867-54

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

MP-009

Rev.8; 1/10/03

Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

CURRENT DATE: 1/12/2005 0:00

SOLUTION REFERENCE #: IPL 867-54 | SOLUTION #: Th-18

Principal Radionuclide	Half Life, Years	Half Life, Days
^{229}Th	7.340E+03	2.681E+06

Radionuclide: ^{229}Th

Reference Date: 1/15/2002 0:00

Certified Activity: 1.013E+00 µCi

Certified Concentration: µCi per gram

Ampoule /Solution Gross	8.7752	Weight, Grams
Empty Ampoule	3.7591	Weight, Grams
Solution Net	5.0161	Weight, Grams
Total Activity in Ampoule	1.0130	µCi

Chemical Composition of Standard Solution

$^{229}Th(NO_3)_4$ in 0.1M HNO_3

Dilution Instructions:

Dilution Solvent Used: 0.1 M HNO_3

Dilute to a volume of 1000.00 milliliters

Certified Total Activity of 1.0130 µCi Which Equals 2.249E+06 dpm at the date listed above

And after dilution the activity of this solution is 2.249E+03 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 12, 2006

Recertified By _____ Date: 1/12/2005 7:53

Verified & Approved By _____ Date: 1/19/05

QC Approval _____ Date: 1/19/05

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Rev.8; 1/10/03
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EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

	MP-009	Date	1/12/2005 0:00
Solution Reference #	IPL 867-54	Solution #	Th-18a

Principal Radionuclide	Half Life, Years	Half Life, Days
^{228}Th	7.340E+03	2.681E+06

Radionuclide of Interest: ^{229}Th
Parent Solution Conc.: 2.25E+03 dpm/ml

Reference Date: 1/15/2002 0:00

Chemical Composition of Standard Solution
$TH(NO_3)_4$ in 0.1M HNO_3

Dilution Instructions:

Dilution Solvent Used: 0.1M HNO_3

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 10.0000 ml
Total Activity: 2.2490E+04 dpm
Final Volume: 1000.00 ml

Final Activity Concentration: 2.2490E+01 dpm/ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 12, 2006

Recertified By _____ Date: 1/12/2005 7:53

Verified & Approved By _____ Date: 1/19/05

QC Approval _____ Date: 1/19/05

Ba-6
(#6a)

National Institute of Standards & Technology

Certificate

Standard Reference Material 4251C
Barium-133 Radioactivity Standard

This Standard Reference Material (SRM) consists of radioactive barium-133 chloride, non-radioactive barium chloride, and hydrochloric 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 ionization chambers and solid-state gamma-ray spectrometry systems.

Radiological Hazard

The SRM ampoule contains barium-133 with a total activity of approximately 2.5 MBq. Barium-133 decays by electron capture and during the decay process X-rays and gamma rays with energies from 4 to 400 keV are emitted. Most of these photons escape from the SRM ampoule and can represent a radiation hazard. Approximate unshielded dose rates at several distances (as of the reference time) are given in note [a]*. Appropriate shielding and/or distance should be used to minimize personnel exposure. The SRM should be used only by persons qualified to handle radioactive material.

Chemical Hazard

The SRM ampoule contains hydrochloric acid (HCl) 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 June 2004.

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 and D.B. Golas, Nuclear Energy Institute Research Associate.

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
October 1994

Thomas E. Gills, Chief
Standard Reference Materials Program

*Notes and references are on pages 5 and 6.

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

QCP-009

Rev.8; 11/10/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
QCP 009-1

		CURRENT DATE	11/6/2004 0:00
SOLUTION REFERENCE #	NIST SRM4251C	SOLUTION #	Ba-6

Principal Radionuclide	Half Life, Years	Half Life, Days
^{133}Barium	1.048E+01	3.828E+03

Radionuclide	^{133}Barium	Reference Date	9/1/1993 0:00
Certified Activity		µCi	
Certified Concentration	1.318E+01	µCi per gram	

Ampoule /Solution Gross	9.3081	Weight, Grams
Empty Ampoule	4.2582	Weight, Grams
Solution Net	5.0499	Weight, Grams
Total Activity in Ampoule	66.5577	µCi

Chemical Composition of Standard Solution

$^{133}BaCl_2$ in 1M HCl

Dilution Instructions: **Dilution Solvent Used** 1M HCl

Dilute to a volume of 1000.00 **milliliters**

Certified Total Activity of 66.5577 **µCi** **Which Equals** 1.478E+08 **dpm at the date listed above**

And after dilution the activity of this solution is 1.478E+05 **dpm/ml**

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: November 6, 2005

Diluted By _____ Date: 11/6/04

Verified & Approved By _____ Date: 11/6/04

QC Approval _____ Date: 11/6/04

EBERLINE

QUALITY CONTROL PROGRAM
QCP-009

Rev.8; 11/10/03
Title: **Radioactive Reference Standards Solutions & Records**

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

	QCP-009-1-A	Date	11/6/2004 0:00
Solution Reference #	NIST SRM4251C	Solution #	Ba-6a

Principal Radionuclide	Half Life, Years	Half Life, Days
^{133}Ba	1.048E+01	3.828E+03

Radionuclide of Interest: ^{133}Ba
Parent Solution Conc.: 1.48E+05 dpm/ml

Reference Date: 9/1/1993 0:00

Chemical Composition of Standard Solution
$^{133}BaCl_2$ in 1M HCl

Dilution Instructions:

Dilution Solvent Used: 1M HCl

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution: 25.0000 ml
Total Activity: 3.6950E+06 dpm
Final Volume: 1000.00 ml

Final Activity Concentration: 3.6950E+03 dpm/ml

NOTES:

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: November 6, 2005

Diluted By _____ Date: 11/6/04

Verified & Approved By _____ Date: 11/6/04

QC Approval _____ Date: 11/6/04

Ra-5

QA/QC REVIEWED
Date 2/8/94 Initials WT

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Radionuclide:	Ra-226	Customer:	TMA EBERLINE
Half Life:	1600 ± 7 years	P.O.No.:	VH1888
Catalog No.:	7226	Reference Date:	February 1 1994 12:00 PST.
Source No.:	453-26	Contained Radioactivity: (Ra-226)	1.001 μCi.
		Contained Radioactivity: (Ra-226)	37.0 kBq.

Description of Solution

a. Mass of solution:	5.1864 g (in a 5 ml Flame Sealed Ampoule)
b. Chemical form:	Ra(NO3)2 in 1 N HNO3
c. Carrier content:	None added
d. Density:	1.0318 g/ml @ 20°C.

Radioimpurities: None detected(other than daughters)

Radioactive Daughters
Rn-222, Po-218, At-218, Pb-214, Bi-214, Po-214, Tl-210, Pb-210, Bi-210, Po-210 and Tl-206.

Radionuclide Concentration

(Ra-226) 0.1929 μCi/g.

Method of Calibration

Weighed aliquots of the solution were assayed using gamma spectrometry:
Energy peak(s) integrated under: 186 keV.
Branching ratio(s) used: 0.0351 gamma rays per decay.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration:	±3.4%
b. Random uncertainty in assay:	±3.1%
c. Random uncertainty in weighing(s):	±0.2%
d. Total uncertainty at the 99% confidence level:	±4.6%

NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

Notes

1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).

Ann U. Kuen
QUALITY CONTROL

Feb. 3, 1994
Date Signed

ISOTOPE PRODUCTS LABORATORIES
1800 North Keystone Street
Burbank, California 91504
(818) 843 - 7000

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

MP 009

Rev.8; 11/01/03
Title: Radioactive Reference Standards Solutions & Records

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE SOLUTIONS
PRIMARY DILUTION RECERTIFICATION
MP 009

		CURRENT DATE	1/3/2005 0:00
SOLUTION REFERENCE #	IPL 453-26	SOLUTION #	Ra-5

Principal Radionuclide	Half Life, Years	Half Life, Days
^{226}Radium	1.600E+03	5.844E+05

Radionuclide	^{226}Radium	Reference Date	2/1/1994 0:00
Certified Activity	1.001E+00	µCi	
Certified Concentration		µCi per gram	

Ampoule /Solution Gross		Weight, Grams
Empty Ampoule		Weight, Grams
Solution Net		Weight, Grams
Total Activity in Ampoule	1.0010	µCi

Chemical Composition of Standard Solution

$^{226}Ra(NO_3)_2$ in 1M HNO_3

Dilution Instructions: **Dilution Solvent Used** 1M HNO_3

Dilute to a volume of 1000.00 **milliliters**

Certified Total Activity of 1.0010 µCi **Which Equals** 2.222E+06 **dpm at the date listed above**

And after dilution the activity of this solution is 2.222E+03 **dpm/ml**

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

Expiration Date: January 3, 2006

Diluted By _____ Date: 1/3/2005

Verified & Approved By _____ Date: 1/3/2005

QC Approval _____ Date: 1/3/2005

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

MP 009

Rev.8; 11/01/03
Title: **Radioactive Reference Standards Solutions & Records**

EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS
SECONDARY DILUTION RECERTIFICATION

	MP 009	Date	1/3/2005 0:00
Solution Reference #	IPL-453-26	Solution #	Ra-5b

Principal Radionuclide	Half Life, Years	Half Life, Days
^{226}Radium	1.600E+03	5.844E+05

Radionuclide of Interest	^{226}Radium	Reference Date	2/1/1994 0:00
Parent Solution Conc.	2.22E+03 dpm/ml		

Chemical Composition of Standard Solution
$^{226}Ra(NO_3)_2$ in 1M HNO_3

Dilution Instructions: **Dilution Solvent Used** 1M HNO_3

SECONDARY VOLUMETRIC DILUTION

Vol. Parent Solution:	20.0000	ml
Total Activity:	4.4440E+04	dpm
Final Volume:	1000.00	ml

Final Activity Concentration: 4.4440E+01 dpm/ml

This activity concentration is based on the original reference date listed above. All activities are corrected to the date and time of analysis by the laboratory data processing software.

NOTES:

Expiration Date: January 3, 2006

Diluted By _____ Date: 1/3/2005 0:00

Verified & Approved By _____ Date: 1/3/2005 0:00

QC Approval _____ Date: 1/24/05 38355

SECTION VI

QUALITY CONTROL SAMPLE RESULTS SUMMARY

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08096	UUISO	1	pCi	g	Missouri Dept. of Natural Resources

Laboratory Control Sample

Analyte	Normalized Difference	LCS Measured	TPU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	TPU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
U-234	0.34	103.33%	18.21%	100.00%	3.60%	8.04E+00	2.90E-01	8.31E+00	1.51E+00	U-8a	3.52E+01	3.60E+00	5.07E-01
U-235	0.33	108.27%	45.93%	100.00%	3.60%	3.65E-01	1.31E-02	3.95E-01	1.82E-01	U-8a	1.60E+00	3.60E+00	5.07E-01
U-238	1.15	112.01%	18.10%	100.00%	3.60%	7.84E+00	2.82E-01	8.78E+00	1.59E+00	U-8a	3.44E+01	3.60E+00	5.07E-01

Matrix Spike

Analyte	*Normalized Difference*	*MS Actual % Rec*	*Expected MS Result*	*Expected MS Uncert*	*Actual MS Result*	*Actual MS TPU*	*Sample Result*	*Sample TPU*	*Sample Aliquot*	*Standard ID*	*Standard ACT (dpm)*	*Standard Error %*	*Standard Added (g)*

Replicate Sample

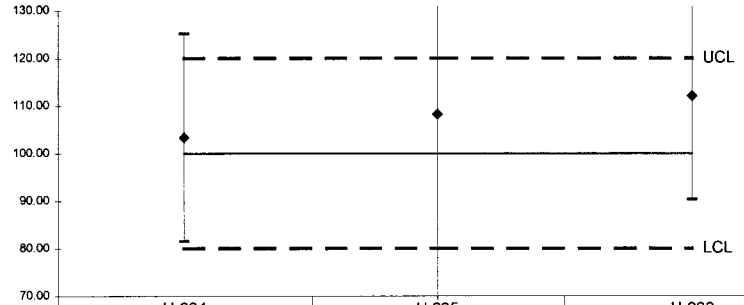
Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original TPU*	*Replicate Result*	*Replicate TPU*
U-234	0.67	13.92	1.09E+00	3.03E-01	9.44E-01	2.80E-01
U-235	1.46	109.82	3.13E-02	4.90E-02	1.08E-01	8.95E-02
U-238	0.88	19.29	9.47E-01	2.76E-01	7.81E-01	2.48E-01

QC Summary

LCS Relative Bias	*LCS % R*	*LCS ND*	*MS % R*	*MS ND*	*Rep RPD*	*Rep ND*
1.03	OK	OK			OK	OK
1.08	OK	OK			INV	OK
1.12	OK	OK			OK	OK

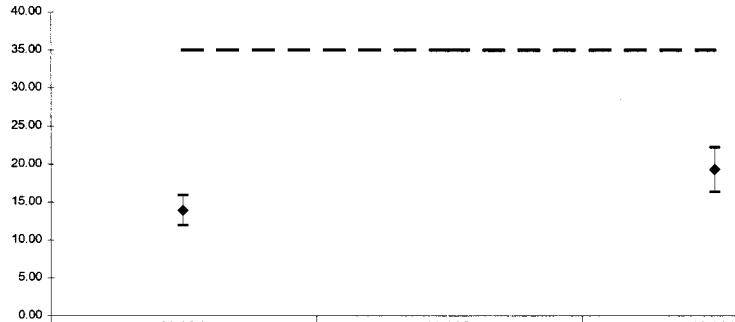
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08096	UUISO	1	pCi	g	Missouri Dept. of Natural Resources

LCS % Recovery



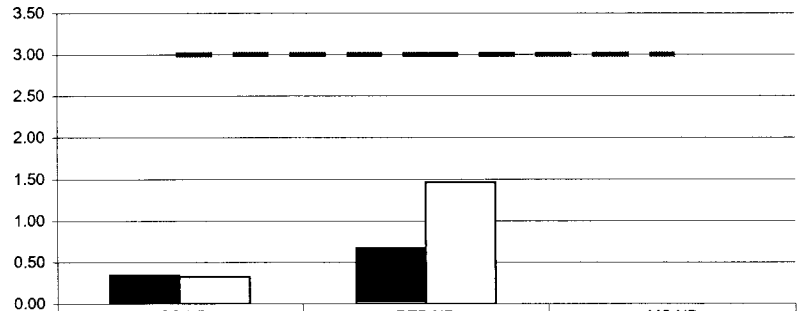
	U-234	U-235	U-238
Lower Error	81.52	58.74	90.31
Upper Error	125.14	157.81	133.71
%R	103.33	108.27	112.01
LCL	80	80	80
Mean	100	100	100
UCL	120	120	120

Replicate Sample RPD



	U-234	U-235	U-238
Lower Error	15.92	164.59	22.21
Upper Error	11.92	55.05	16.37
RPD	13.92	109.82	19.29
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.34	0.67	0.00
U-235	0.33	1.46	0.00
UCL	3	3	3

No Matrix Spike

Version

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08096	ThISO	1	pCi	g	Missouri Dept. of Natural Resources

Laboratory Control Sample

Analyte	Normalized Difference	LCS Measured	TPU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	TPU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
TH-228	0.82	109.64%	20.91%	100.00%	3.60%	4.77E+00	1.72E-01	5.23E+00	1.09E+00	Th-8b	1.04E+02	3.60E+00	1.02E-01
TH-230	0.71	108.06%	20.62%	100.00%	2.70%	5.33E+00	1.44E-01	5.77E+00	1.19E+00	Th-1b	2.35E+01	2.70E+00	5.03E-01
TH-232	1.46	85.98%	21.74%	100.00%	3.60%	4.77E+00	1.72E-01	4.10E+00	8.92E-01	Th-8b	1.04E+02	3.60E+00	1.02E-01

Matrix Spike

Analyte	*Normalized Difference*	*MS Actual % Rec*	*Expected MS Result*	*Expected MS Uncert*	*Actual MS Result*	*Actual MS TPU*	*Sample Result*	*Sample TPU*	*Sample Aliquot*	*Standard ID*	*Standard ACT (dpm)*	*Standard Error %*	*Standard Added (g)*

Replicate Sample

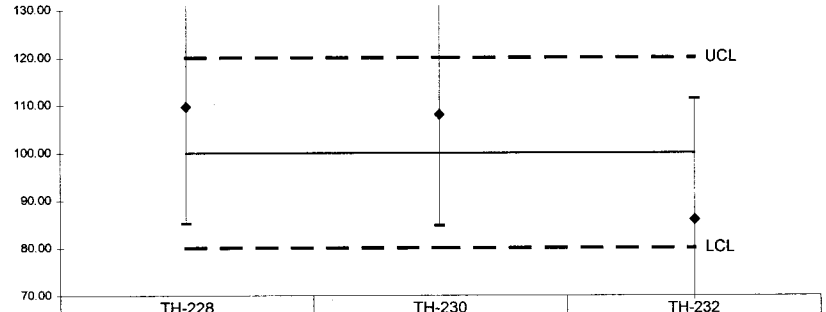
Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original TPU*	*Replicate Result*	*Replicate TPU*
TH-228	0.85	23.70	4.67E-01	1.91E-01	5.93E-01	2.18E-01
TH-230	0.26	4.89	1.49E+00	3.93E-01	1.42E+00	3.77E-01
TH-232	0.56	13.38	6.82E-01	2.34E-01	7.80E-01	2.52E-01

QC Summary

LCS Relative Bias	*LCS % R*	*LCS ND*	*MS % R*	*MS ND*	*Rep RPD*	*Rep ND*
1.10	OK	OK			INV	OK
1.08	OK	OK			OK	OK
0.86	OK	OK			OK	OK

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08096	ThISO	1	pCi	g	Missouri Dept. of Natural Resources

LCS % Recovery

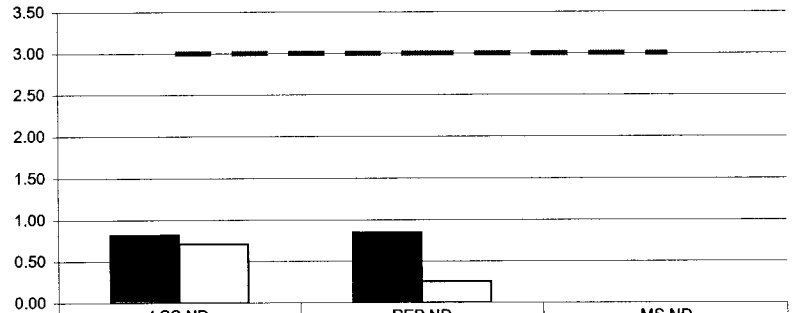


	TH-228	TH-230	TH-232
Lower Error	85.12	84.74	60.63
Upper Error	134.15	131.38	111.32
%R	109.64	108.06	85.98
LCL	80	80	80
Mean	100	100	100
UCL	120	120	120

Replicate Sample RPD

	TH-228	TH-230	TH-232
Lower Error	28.27	5.54	15.61
Upper Error	19.13	4.24	11.16
RPD	23.70	4.89	13.38
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.82	0.85	0.00
TH-230	0.71	0.26	0.00
UCL	3	3	3

No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08096	Ra226	1	pCi	g	Missouri Dept. of Natural Resources

Laboratory Control Sample

Analyte	Normalized Difference	LCS Measured	TPU Measured	LCS Expected	Uncert. Expected	Known	Known Error	Result	TPU	Standard ID	Standard ACT (dpm)	Standard Error	Standard Added (g)
RA-226	2.54	83.60%	14.72%	100.00%	4.60%	1.04E+01	4.78E-01	8.68E+00	1.28E+00	Ra-5b	4.42E+01	4.60E+00	5.21E-01

Matrix Spike

Analyte	*Normalized Difference*	*MS Actual % Rec*	*Expected MS Result*	*Expected MS Uncert*	*Actual MS Result*	*Actual MS TPU*	*Sample Result*	*Sample TPU*	*Sample Aliquot*	*Standard ID*	*Standard ACT (dpm)*	*Standard Error %*	*Standard Added (g)*

Replicate Sample

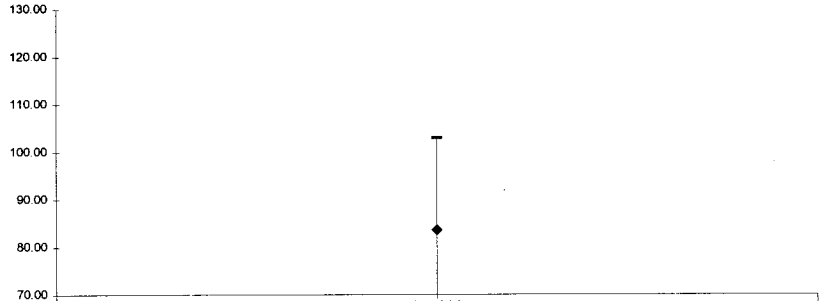
Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original TPU*	*Replicate Result*	*Replicate TPU*
RA-226	1.59	39.68	1.11E+00	3.53E-01	7.45E-01	2.87E-01

QC Summary

LCS Relative Bias	*LCS % R*	*LCS ND*	*MS % R*	*MS ND*	*Rep RPD*	*Rep ND*
0.84	OK	OK			INV	OK

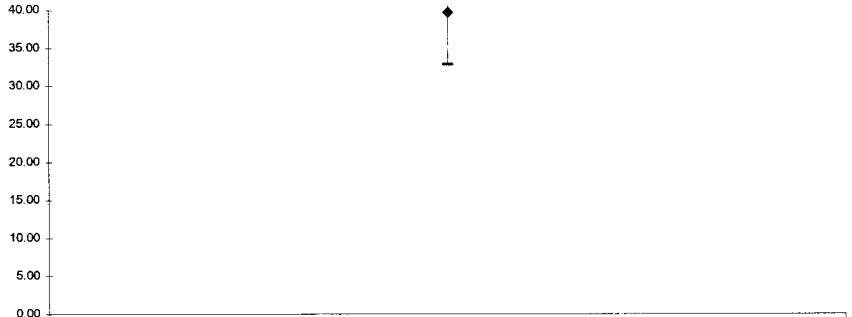
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08096	Ra226	1	pCi	g	Missouri Dept. of Natural Resources

LCS % Recovery



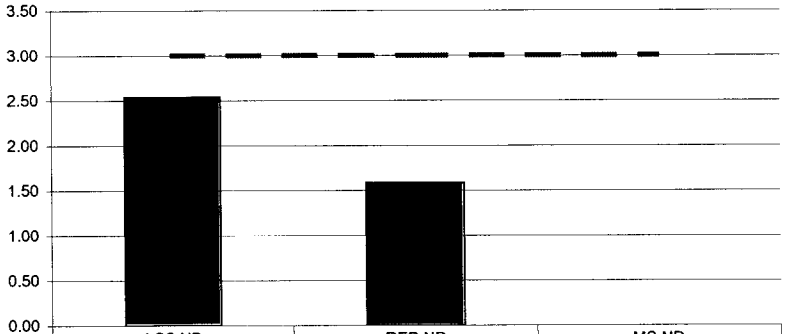
	RA-226
Lower Error	64.28
Upper Error	102.92
%R	83.60
LCL	80
Mean	100
UCL	120

Replicate Sample RPD



	RA-226
Lower Error	46.51
Upper Error	32.84
RPD	39.68
CL	35

Normalized Difference



	LCS ND	REP ND	MS ND
RA-226	2.54	1.59	0.00
UCL	3	3	3

No Matrix Spike

Version

SECTION VII

LABORATORY TECHNICIAN'S NOTES & RUN LOGS

ISO-U NOTES

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	05-08096
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/29/05 09:11	PREP	JBARNARD	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS

Barnard
8/29/05

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	05-08096
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/29/05 09:11	PREP	JBARNARD	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS
2	09/06/05 15:23	CHEM	BNEWTON	Used column separation technique to elute Uranium fraction (steps 12.2 to 12.2.7 in AP-005 Rev. 9)

Billy Newton 9/6/05

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	05-08096
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/29/05 09:11	PREP	JBARNARD	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS
2	09/06/05 15:23	CHEM	BNEWTON	Used column separation technique to elute Uranium fraction (steps 12.2 to 12.2.7 in AP-005 Rev. 9)
3	09/07/05 05:52	CHEM	TSMITH	Followed steps 12.2.7 to 12.5.5 in AP-005 rev. 9 . (Precipitated and filtered samples)

9-7-05

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
05-08096	
Analysis Code	Run
UUISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
003144P	Hydrofluoric Acid	Reagent Grade	JBARNARD	8/29/2005
003250P	Nitric Acid	Reagent Grade	JBARNARD	8/29/2005
002930P	Perchloric Acid	Reagent Grade	JBARNARD	8/29/2005
000059P	Sulfuric Acid	Reagent Grade	JBARNARD	8/29/2005
003271P	Anion Exchange Resin	Reagent Grade	BNEWTON	9/1/2005
003321S	HCl - NH4I	8N - 0.1M	BNEWTON	9/6/2005
003279D02	Hydrochloric Acid	0.5N	BNEWTON	9/6/2005
003210S	Hydrochloric Acid	6.5N	BNEWTON	9/6/2005
003318S	Hydrochloric Acid	8N	BNEWTON	9/6/2005
003327S	HCl - NH4I	8N - 0.1M	BNEWTON	9/6/2005
003335P	Hydrochloric Acid	Reagent Grade	BNEWTON	9/6/2005
003143P	Hydrofluoric Acid	Reagent Grade	TSMITH	9/7/2005
002954S	Neodymium Carrier	1 mg/ml	TSMITH	9/7/2005
002827P	Reagent Alcohol	Reagent Grade	TSMITH	9/7/2005
002985P	Titanous Chloride	Reagent Grade	TSMITH	9/7/2005
003317S	Carbon substrate	Solution	TSMITH	9/7/2005

ALPHA-3

DATE	SAMPLE #	CLIENT	LOAD TIME	CT. TIME	ANALYSIS	TECH
9-2-05	0508126A(1,2)	CAS	0950	2HR 50MIN.	UU	[illegible]
9-2-05	Weekly Bkgds	LAB	1505	16HR 40min	α-iso	[illegible]
9-6-05	DAMPULSER	LAB	0404	10min	NA	[illegible]
9-6-05	0508095A(1-16)	MDN	0718	2HR. 50MIN.	Th	[illegible]
9-7-05	DAMPULSER	LAB	0405	10MIN	NA	[illegible]
9-7-05	0508145A(1-5)	SHAW	0808	2HR. 50MIN.	Pu	[illegible]
9-7-05	0508145A(1-5)	SHAW	0808	2HR. 50MIN.	Th	[illegible]
9-7-05	0508096A (1-6)	MDN	0808	2HR. 50MIN.	UU	[illegible]

ALPHA-3

17

DATE	SAMPLE #	CLIENT	LOAD TIME	CT. TIME	ANALYSIS	TECH
9-2-05	0508126A(1,2)	CAS	0950	2HR 50MIN.	UU	JP
9-2-05	Weekly Bkgds	LAB	1505	16HR 40min	α-iso	[illegible]
9-6-05	DAMPULSER	LAB	0404	10min	NA	JP
9-6-05	0508095A(1-16)	MDN	0718	2HR. 50min.	Th	JP
9-7-05	DAMPULSER	LAB	0405	10min	NA	JP
9-7-05	0508145A(1-5)	SHAW	0808	2HR. 50min.	Pu	JP
9-7-05	0508145A(1-5)	SHAW	0808	2HR. 50min.	Th	JP
9-7-05	0508096A (1-6)	MDN	0808	2HR. 50min.	UU	JP
9-7-05	0508096A(7-16)	MDN	1119	2HR. 50min.	UU	JP
9-7-05	0509010A(1-4)	ASHLAND	1119	2HR. 50min.	Ra	JP
9-7-05	0508128A(14-15)	DURATEK	1119	5HR. 35min	Th	JP

ISO-TH NOTES

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	05-08096
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/29/05 09:12	PREP	JBARNARD	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- PRECIPITATED WITH POTASSIUM SULFATE AND BA CARRIER- DECANTED SAMPLES AND CENTRIFUGED- ADDED .25M EDTA TO PRECIP, VORTEXED AND PUT SAMPLES IN A HOT WATER BATH- ADDED 10M KOH AND TICL3 AND PUT SAMPLES BACK IN THE HOT WATER BATH- VORTEXED AND CENTRIFUGED- ADDED 30MLS OF 8N HNO3 TO THE THORIUM PRECIP, VORTEXED AND SUBMITTED TO SEPARATIONS

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	05-08096
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/29/05 09:12	PREP	JBARNARD	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- PRECIPITATED WITH POTASSIUM SULFATE AND BA CARRIER- DECANTED SAMPLES AND CENTRIFUGED- ADDED .25M EDTA TO PRECIP, VORTEXED AND PUT SAMPLES IN A HOT WATER BATH- ADDED 10M KOH AND TICL3 AND PUT SAMPLES BACK IN THE HOT WATER BATH- VORTEXED AND CENTRIFUGED- ADDED 30MLS OF 8N HNO3 TO THE THORIUM PRECIP, VORTEXED AND SUBMITTED TO SEPARATIONS
2	09/02/05 07:31	CHEM	BNEWTON	Used column separation technique to elute Thorium fraction (steps 12.3 to 12.3.4 in AP-005 Rev. 9)

Bobby Newton 9/2/05

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	05-08096
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/29/05 09:12	PREP	JBARNARD	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- PRECIPITATED WITH POTASSIUM SULFATE AND BA CARRIER- DECANTED SAMPLES AND CENTRIFUGED- ADDED .25M EDTA TO PRECIP, VORTEXED AND PUT SAMPLES IN A HOT WATER BATH- ADDED 10M KOH AND TICL3 AND PUT SAMPLES BACK IN THE HOT WATER BATH- VORTEXED AND CENTRIFUGED- ADDED 30MLS OF 8N HNO3 TO THE THORIUM PRECIP, VORTEXED AND SUBMITTED TO SEPARATIONS
2	09/02/05 07:31	CHEM	BNEWTON	Used column separation technique to elute Thorium fraction (steps 12.3 to 12.3.4 in AP-005 Rev. 9)
3	09/06/05 05:31	CHEM	TSMITH	Followed steps 12.3.4 to 12.5.5 in AP-005 rev. 9 . (Precipitated and filtered samples)

9-6-05

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
05-08096	
Analysis Code	Run
ThISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
003255D02	Barium Carrier	50 mg/ml	JBARNARD	8/29/2005
003272S	EDTA	0.25M	JBARNARD	8/29/2005
003144P	Hydrofluoric Acid	Reagent Grade	JBARNARD	8/29/2005
003250D01	Nitric Acid	8N	JBARNARD	8/29/2005
003250P	Nitric Acid	Reagent Grade	JBARNARD	8/29/2005
002930P	Perchloric Acid	Reagent Grade	JBARNARD	8/29/2005
001365D01	Potassium Hydroxide	10M	JBARNARD	8/29/2005
003136P	Potassium Sulfate	Reagent Grade	JBARNARD	8/29/2005
000059P	Sulfuric Acid	Reagent Grade	JBARNARD	8/29/2005
001010P	Titanous Chloride	Reagent Grade	JBARNARD	8/29/2005
003318S	Hydrochloric Acid	8N	BNEWTON	9/2/2005
003279P	Hydrochloric Acid	Reagent Grade	BNEWTON	9/2/2005
003319S	Nitric Acid	8N	BNEWTON	9/2/2005
003297S	Carbon substrate	Solution	TSMITH	9/6/2005
000051D07	Cerium Carrier (Alpha iso)	Solution	TSMITH	9/6/2005
003143P	Hydrofluoric Acid	Reagent Grade	TSMITH	9/6/2005
002827P	Reagent Alcohol	Reagent Grade	TSMITH	9/6/2005

ALPHA 1

DATE	SAMPLE#	CLIENT	LOAD TIME	CT. TIME	ANALYSIS	TECH
8-30-05	0508111A(1-3,5)	NFT	0715	5HR. 35min	NP	JP
8-30-05	0508111A(1-3,5)	NFT	0715	5HR. 35min.	Pu	JP
8-30-05	0508112A (1-7)	PARSONS	0715	5HR. 35min.	Th	JP
8-30-05	0508112A(10-12)	Parsons	1307	5HR 35min	Am	MR
8-31-05	Daily Pulser	LAB	0434	10min.	NA	JP
8-31-05	CALIBRATIONS	LAB	0452	2 1/2HR	α iso	JP
8-31-05	0508092A(10-20)	URS	0745	2HR 50min	Uu	JP
8-31-05	0508124A(1-4)	CAS	0745	2HR. 50min	Uu	JP
8-31-05	0508124A(3-5)	CAS	1101	2HR. 50min	Cm	JP
8-31-05	0508130A(1-4)	PARSONS	1101	5HR 35min	Th	JP
8-31-05	0508130A(1-4)	PARSONS	1101	5HR. 35min	Uu	JP
8-31-05	0508130A(1-4)	PARSONS	1101	5HR 35min	Am	JP
9-1-05	Daily Pulser	LAB	0415	10min.	NA	JP
9-1-05	0508129A(1-4,6,8)	Durator	0707	2HR. 50min.	NP	JP
9-1-05	0508092A(1-9)	URS	0707	2HR. 50min	Th	JP
9-1-05	0508095A(~~9~~-16)	MPN	1030	2HR 50min.	Uu	JP
9-1-05	0508129A(1-4,6,8)	Durator	1030	2HR. 50min	Am/Cm	JP
9-1-05	0508128A(17)	Durator	1654	5HR 35min	Ra	MR
9-2-05	Daily Pulser	LAB	0421	10min.	NA	JP
9-2-05	0508094A(1-15)	MDN	0812	2HR. 50min.	Th	JP
9-2-05	0508126A(3-10)	CAS	1109	2HR 50min.	Uu	JP
9-2-05	Weekly Bkgds	LAB	1505	16HR 40min	α-iso	MR
9-6-05	Daily Pulser	LAB	0404	10min.	NA	JP
9-6-05	0508096A(1-16)	MDN	0819	2HR. 50min.	Th	JP

RA-226 NOTES

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	05-08096
Analysis Code	Ra226
Run Number	1

#	Date	Dept	User	Notes
1	08/29/05 09:14	PREP	JBARNARD	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- PH'D SAMPLES TO 2.8-3.0- PRECIPITATED WITH POTASSIUM SULFATE AND BA AND PB CARRIERS- DECANTED SAMPLES AND CENTRIFUGED- ADDED .25M EDTA AND PHENOLPTHALIEN TO PRECIP, VORTEXED AND PUT SAMPLES IN A HOT WATER BATH- VORTEXED AND CHECKED PH- CENTRIFUGED AND TRANSFERRED SUPERNATE INTO CLEAN C-TUBES AND SUBMITTED TO SEPARATIONS

JBarnard 8/29/05

EBERLINE SERVICES

Work Order Analysis Notes

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830
Voice: 865.481.0683
www.eberlineservices.com

Internal Work Order	05-08096
Analysis Code	Ra226
Run Number	1

#	Date	Dept	User	Notes
1	08/29/05 09:14	PREP	JBARNARD	ALIQUOTED AND ADDED SPIKES AND TRACERS- ADDED HF AND DRIED SAMPLES DOWN UNTIL NEAR DRY- ADDED MIXED ACIDS AND TOOK SAMPLES TO DRYNESS- PH'D SAMPLES TO 2.8-3.0- PRECIPITATED WITH POTASSIUM SULFATE AND BA AND PB CARRIERS- DECANTED SAMPLES AND CENTRIFUGED- ADDED .25M EDTA AND PHENOLPTHALIEN TO PRECIP, VORTEXED AND PUT SAMPLES IN A HOT WATER BATH- VORTEXED AND CHECKED PH- CENTRIFUGED AND TRANSFERRED SUPERNATE INTO CLEAN C-TUBES AND SUBMITTED TO SEPARATIONS
2	08/31/05 09:22	CHEM	DJOHNSON	Received samples from prep lab in EDTA. Re-precipitated samples with glacial acetic acid and ammonium sulfate. Filtered samples on tarred filters.Rinsed c-tubes and funnels with diH2O and filtered. Dried and reweighed sample filters. Some filters were discolored with #3 and its dup #4 being slightly different colors. Submitted samples to the count room.

8/31/05

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
05-08096	
Analysis Code	Run
Ra226	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
001772P	Ammonium Hydroxide	Reagent Grade	JBARNARD	8/29/2005
003255D01	Barium Carrier	1 mg/ml	JBARNARD	8/29/2005
003272S	EDTA	0.25M	JBARNARD	8/29/2005
003144P	Hydrofluoric Acid	Reagent Grade	JBARNARD	8/29/2005
003250P	Nitric Acid	Reagent Grade	JBARNARD	8/29/2005
002930P	Perchloric Acid	Reagent Grade	JBARNARD	8/29/2005
001755S	Phenolphthalein Indicator	0.1%	JBARNARD	8/29/2005
003136P	Potassium Sulfate	Reagent Grade	JBARNARD	8/29/2005
000059P	Sulfuric Acid	Reagent Grade	JBARNARD	8/29/2005
001848D10	Lead Carrier	40 mg/ml	JBARNARD	8/29/2005
000868P	Acetic Acid	Reagent Grade	DJOHNSON	8/31/2005
002851D02	Ammonium Sulfate	200 mg/ml	DJOHNSON	8/31/2005

ALPHA-3

DATE	SAMPLE #	CLIENT	LOAD TIME	C. TIME	ANALYSIS	TECH
8-26-05	0508104A(1-4)	CAS	0623	5HR. 35mn	UU	[illegible]
8-26-05	0508110A (8-11,13)	CAS	0806	2HR. 50mn.	Pu	[illegible]
8-26-05	0508110A (1-7)	CAS	0806	2HR. 50mn	Am/Cm	[illegible]
8-26-05	Weekly Bkgd	LAB	1200	16HR 40mi	α-ISO	MR
8-27-05	Dany Pulser	LAB	0808	10mn.	NA	[illegible]
8-27-05	0508094A(1-17)	MDN	0854	2HR 50mn	Ra	[illegible]
8-29-05	Dany Pulser	LAB	0404	10mn.	NA	[illegible]
8-29-05	0508110A(9-11)	CAS	0816	2HR. 50mn	Am 243	[illegible]
8-29-05	0508104A(1-4)	CAS	0816	5HR. 35mn.	Pu	[illegible]
8-29-05	0508104A(1-4)	CAS	0816	5HR. 35mn.	Th	[illegible]
8-29-05	0508063C(1-4)	PARSON	0816	5HR. 35mn	Am	[illegible]
8-29-05	0508111A(1)	NFT	0816	2HR. 50mn.	Am	[illegible]
8-29-05	0508130A(1-4)	Parsons	1831	5HR 35mi	Ra	MR
8-30-05	Dany Pulser	LAB	0419	10mn.	NA	[illegible]
8-30-05	0508114A(1-3,6)	DOFH	0823	2HR. 50mn.	UU	[illegible]
8-30-05	0508120A(1-7)	LIONVILLE	0823	2HR. 50mn.	UU	[illegible]
8-30-05	0508112A(8-12)	PARSONS	0823	5HR. 35mn.	Th	[illegible]
8-30-05	0508104B(4)	CAS	1117	5HR. 35mn	Am	[illegible]
8-30-05	0508112A(1-9)	PARSONS	1117	5HR. 35mn	Am	[illegible]
8-30-05	0508129A(1-4,6,8)	Duratek	1829	2HR 50mi	Ra	MR
8-30-05	0508095A(1-10)	Mizzou	1829	2HR 50mi	Ra	MR
8-31-05	Dany Pulser	LAB	0434	10mn.	NA	[illegible]
8-31-05	0508112A(1-12)	PARSONS	0632	5HR 35mn.	Pu	[illegible]
8-31-05	0508081B(1-4)	DURATEK	0632	5HR 35mn	Pu	[illegible]
8-31-05	0508096A (1-16)	MDN	1339	2HR 50mi	Ra	MR

SECTION VIII

ANALYTICAL DATA (ISOTOPIC URANIUM)

Work Order	05-08096
Analysis Code	UUISO
Run	1
Date Received	8/19/2005
Lab Deadline	9/9/2005
Client	Missouri Dept. of Natural Resources
Project	B3Z02092
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EML U-02 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	U-232
Radiometric Sol#	U-10a
Tracer Act (dpm/g)	20.752
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		08/22/05 00:00	1.0000E+00
02	MBL	BLANK		08/22/05 00:00	1.0000E+00
03	DUP	VPSCR081705SL0H	42	08/17/05 09:15	1.0375E+00
04	DO	VPSCR081705SL0H	42	08/17/05 09:15	1.0322E+00
05	TRG	VPSCR081705SL0I	41	08/17/05 09:16	1.0622E+00
06	TRG	VPSCR081705SL0J	45	08/17/05 09:19	1.0600E+00
07	TRG	VPSCR081705SL0K	40	08/17/05 09:21	1.1671E+00
08	TRG	VPSCR081705SL0L	38	08/17/05 09:29	1.1100E+00
09	TRG	VPSCR081705SL0M	26	08/17/05 09:31	1.0100E+00
10	TRG	VPSCR081705SL0N	37	08/17/05 09:33	1.1605E+00
11	TRG	VPSCR081705SL0O	37	08/17/05 09:35	1.0528E+00
12	TRG	VPSCR081705SL0P	48	08/17/05 09:40	1.0763E+00
13	TRG	VPSCR081705SL0Q	50	08/17/05 09:50	1.0102E+00
14	TRG	VPSCR081705SL0R	36	08/17/05 09:55	1.1664E+00
15	TRG	VPSCR081705SL0S	35	08/17/05 09:58	1.0224E+00
16	TRG	VPSCR081705SL0T	34	08/17/05 10:00	1.0333E+00

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS	0.6214	12.9										
02	MBL	0.6148	12.8										
03	DUP	0.6074	12.6										
04	DO	0.6074	12.6										
05	TRG	0.6040	12.5										
06	TRG	0.6087	12.6										
07	TRG	0.6069	12.6										
08	TRG	0.6081	12.6										
09	TRG	0.6052	12.6										
10	TRG	0.6071	12.6										
11	TRG	0.6079	12.6										
12	TRG	0.6054	12.6										
13	TRG	0.6055	12.6										
14	TRG	0.6031	12.5										
15	TRG	0.6036	12.5										
16	TRG	0.6051	12.6										

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
02	MBL			08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
03	DUP			08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
04	DO	08/24/05 08:00	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
05	TRG	08/24/05 08:00	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
06	TRG	08/24/05 08:00	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
07	TRG	08/24/05 08:00	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
08	TRG	08/24/05 08:00	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
09	TRG	08/24/05 08:00	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
10	TRG	08/24/05 08:00	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
11	TRG	08/24/05 08:01	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
12	TRG	08/24/05 08:01	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
13	TRG	08/24/05 08:01	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
14	TRG	08/24/05 08:01	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
15	TRG	08/24/05 08:01	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		
16	TRG	08/24/05 08:01	KSALLINGS	08/30/05 07:12	JBARNARD	09/07/05 05:59	TSMITH		

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Eberline Services
Oak Ridge Laboratory

Preliminary Data Report & Analytical Calculations

Work Order: 05-08096-UUISO-1

Client: Missouri Dept. of Natural Resources
Eberline Services Work Order: 05-08096
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-234	LCS	LCS	pCi/g	8.31E+00	1.41E+00	3.98E-02	8.04E+00	103.33	OK		OK	
02	U-234	MBL	BLANK	pCi/g	3.44E-01	1.57E-01	1.01E-01					OK	OK
03	U-234	DUP	VPSCR081705SL0H	pCi/g	9.44E-01	2.73E-01	3.94E-02				OK	OK	
04	U-234	DO	VPSCR081705SL0H	pCi/g	1.09E+00	2.94E-01	9.07E-02					OK	
05	U-234	TRG	VPSCR081705SL0I	pCi/g	1.21E+00	3.14E-01	7.39E-02					OK	
06	U-234	TRG	VPSCR081705SL0J	pCi/g	9.34E-01	2.94E-01	1.56E-01					OK	
07	U-234	TRG	VPSCR081705SL0K	pCi/g	7.21E-01	2.14E-01	3.26E-02					OK	
08	U-234	TRG	VPSCR081705SL0L	pCi/g	9.28E-01	2.60E-01	6.06E-02					OK	
09	U-234	TRG	VPSCR081705SL0M	pCi/g	7.86E-01	2.58E-01	7.60E-02					OK	
10	U-234	TRG	VPSCR081705SL0N	pCi/g	9.41E-01	2.52E-01	6.40E-02					OK	
11	U-234	TRG	VPSCR081705SL0O	pCi/g	9.59E-01	2.66E-01	7.15E-02					OK	
12	U-234	TRG	VPSCR081705SL0P	pCi/g	1.04E+00	2.85E-01	3.75E-02					OK	
13	U-234	TRG	VPSCR081705SL0Q	pCi/g	1.22E+00	3.42E-01	7.74E-02					OK	
14	U-234	TRG	VPSCR081705SL0R	pCi/g	9.18E-01	2.98E-01	4.88E-02					OK	
15	U-234	TRG	VPSCR081705SL0S	pCi/g	5.16E-01	1.89E-01	6.67E-02					OK	
16	U-234	TRG	VPSCR081705SL0T	pCi/g	8.82E-01	2.59E-01	7.63E-02					OK	

Work Order: 05-08096-UUISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	UUISO	05-08096	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-234	LCS	08/22/05 00:00	1.00E+00	83.30				9/7/2005 5:59	
02	U-234	MBL	08/22/05 00:00	1.00E+00	85.18				9/7/2005 5:59	
03	U-234	DUP	08/17/05 09:15	1.04E+00	84.20				9/7/2005 5:59	
04	U-234	DO	08/17/05 09:15	1.03E+00	88.12				9/7/2005 5:59	
05	U-234	TRG	08/17/05 09:16	1.06E+00	85.67				9/7/2005 5:59	
06	U-234	TRG	08/17/05 09:19	1.06E+00	74.75				9/7/2005 5:59	
07	U-234	TRG	08/17/05 09:21	1.17E+00	87.02				9/7/2005 5:59	
08	U-234	TRG	08/17/05 09:29	1.11E+00	89.25				9/7/2005 5:59	
09	U-234	TRG	08/17/05 09:31	1.01E+00	78.03				9/7/2005 5:59	
10	U-234	TRG	08/17/05 09:33	1.16E+00	91.74				9/7/2005 5:59	
11	U-234	TRG	08/17/05 09:35	1.05E+00	90.21				9/7/2005 5:59	
12	U-234	TRG	08/17/05 09:40	1.08E+00	88.25				9/7/2005 5:59	
13	U-234	TRG	08/17/05 09:50	1.01E+00	75.61				9/7/2005 5:59	
14	U-234	TRG	08/17/05 09:55	1.17E+00	60.02				9/7/2005 5:59	
15	U-234	TRG	08/17/05 09:58	1.02E+00	87.69				9/7/2005 5:59	
16	U-234	TRG	08/17/05 10:00	1.03E+00	83.21				9/7/2005 5:59	

Run	Analysis Code	Eberline Services Work Order	Client
1	UUISO	05-08096	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-234	LCS	09/07/05 08:06		A_Spec	43	170	5.66 E+02	0.00 E+00	21.7
02	U-234	MBL	09/07/05 08:06		A_Spec	44	170	2.23 E+01	4.00 E-03	20.2
03	U-234	DUP	09/07/05 08:07		A_Spec	45	170	6.50 E+01	0.00 E+00	20.9
04	U-234	DO	09/07/05 08:07		A_Spec	46	170	7.83 E+01	4.00 E-03	21.1
05	U-234	TRG	09/07/05 08:07		A_Spec	47	170	8.87 E+01	2.00 E-03	21.4
06	U-234	TRG	09/07/05 08:08		A_Spec	48	170	5.60 E+01	1.20 E-02	20.1
07	U-234	TRG	09/07/05 11:13		A_Spec	33	170	6.00 E+01	0.00 E+00	21.8
08	U-234	TRG	09/07/05 11:13		A_Spec	34	170	7.08 E+01	1.00 E-03	20.5
09	U-234	TRG	09/07/05 11:14		A_Spec	35	170	4.78 E+01	1.00 E-03	20.5
10	U-234	TRG	09/07/05 11:14		A_Spec	36	170	7.97 E+01	2.00 E-03	21.1
11	U-234	TRG	09/07/05 11:14		A_Spec	37	170	7.27 E+01	2.00 E-03	21.2
12	U-234	TRG	09/07/05 11:15		A_Spec	38	170	7.50 E+01	0.00 E+00	20.2
13	U-234	TRG	09/07/05 11:15		A_Spec	39	170	7.28 E+01	1.00 E-03	20.8
14	U-234	TRG	09/07/05 11:15		A_Spec	40	170	5.10 E+01	0.00 E+00	21.1
15	U-234	TRG	09/07/05 11:16		A_Spec	41	170	3.58 E+01	1.00 E-03	20.6
16	U-234	TRG	09/07/05 11:16		A_Spec	42	170	6.27 E+01	2.00 E-03	21.9

Preliminary Data Report & Analytical Calculations

Work Order: 05-08096-UUISO-1

Client: Missouri Dept. of Natural Resources
Eberline Services Work Order: 05-08096
Analysis Code: UUISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-235	LCS	LCS	pCi/g	3.95E-01	1.80E-01	8.38E-02	3.65E-01	108.27	OK		OK	
02	U-235	MBL	BLANK	pCi/g	6.96E-02	7.74E-02	1.03E-01					OK	OK
03	U-235	DUP	VPSCR081705SL0H	pCi/g	1.08E-01	8.92E-02	4.85E-02				INV	OK	
04	U-235	DO	VPSCR081705SL0H	pCi/g	3.13E-02	4.89E-02	7.91E-02					OK	
05	U-235	TRG	VPSCR081705SL0I	pCi/g	8.41E-02	7.62E-02	4.56E-02					OK	
06	U-235	TRG	VPSCR081705SL0J	pCi/g	7.54E-02	8.38E-02	1.12E-01					OK	
07	U-235	TRG	VPSCR081705SL0K	pCi/g	7.16E-02	6.73E-02	6.86E-02					OK	
08	U-235	TRG	VPSCR081705SL0L	pCi/g	4.85E-02	5.65E-02	4.38E-02					OK	
09	U-235	TRG	VPSCR081705SL0M	pCi/g	9.45E-02	9.23E-02	1.10E-01					OK	
10	U-235	TRG	VPSCR081705SL0N	pCi/g	7.28E-02	6.60E-02	3.95E-02					OK	
11	U-235	TRG	VPSCR081705SL0O	pCi/g	9.49E-02	8.11E-02	7.53E-02					OK	
12	U-235	TRG	VPSCR081705SL0P	pCi/g	1.02E-01	8.50E-02	4.63E-02					OK	
13	U-235	TRG	VPSCR081705SL0Q	pCi/g	6.19E-02	7.21E-02	5.59E-02					OK	
14	U-235	TRG	VPSCR081705SL0R	pCi/g	6.66E-02	7.77E-02	6.02E-02					OK	
15	U-235	TRG	VPSCR081705SL0S	pCi/g	8.89E-02	8.06E-02	4.82E-02					OK	
16	U-235	TRG	VPSCR081705SL0T	pCi/g	9.53E-02	8.68E-02	1.05E-01					OK	

Work Order: 05-08096-UUISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	UUISO	05-08096	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-235	LCS	08/22/05 00:00	1.00E+00	83.30				9/7/2005 5:59	
02	U-235	MBL	08/22/05 00:00	1.00E+00	85.18				9/7/2005 5:59	
03	U-235	DUP	08/17/05 09:15	1.04E+00	84.20				9/7/2005 5:59	
04	U-235	DO	08/17/05 09:15	1.03E+00	88.12				9/7/2005 5:59	
05	U-235	TRG	08/17/05 09:16	1.06E+00	85.67				9/7/2005 5:59	
06	U-235	TRG	08/17/05 09:19	1.06E+00	74.75				9/7/2005 5:59	
07	U-235	TRG	08/17/05 09:21	1.17E+00	87.02				9/7/2005 5:59	
08	U-235	TRG	08/17/05 09:29	1.11E+00	89.25				9/7/2005 5:59	
09	U-235	TRG	08/17/05 09:31	1.01E+00	78.03				9/7/2005 5:59	
10	U-235	TRG	08/17/05 09:33	1.16E+00	91.74				9/7/2005 5:59	
11	U-235	TRG	08/17/05 09:35	1.05E+00	90.21				9/7/2005 5:59	
12	U-235	TRG	08/17/05 09:40	1.08E+00	88.25				9/7/2005 5:59	
13	U-235	TRG	08/17/05 09:50	1.01E+00	75.61				9/7/2005 5:59	
14	U-235	TRG	08/17/05 09:55	1.17E+00	60.02				9/7/2005 5:59	
15	U-235	TRG	08/17/05 09:58	1.02E+00	87.69				9/7/2005 5:59	
16	U-235	TRG	08/17/05 10:00	1.03E+00	83.21				9/7/2005 5:59	

Run: 1
Analysis Code: UUISO
Eberline Services Work Order: 05-08096
Client: Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-235	LCS	09/07/05 08:06		A_Spec	43	170	2.18 E+01	1.00 E-03	21.7
02	U-235	MBL	09/07/05 08:06		A_Spec	44	170	3.66 E+00	2.00 E-03	20.2
03	U-235	DUP	09/07/05 08:07		A_Spec	45	170	6.00 E+00	0.00 E+00	20.9
04	U-235	DO	09/07/05 08:07		A_Spec	46	170	1.83 E+00	1.00 E-03	21.1
05	U-235	TRG	09/07/05 08:07		A_Spec	47	170	5.00 E+00	0.00 E+00	21.4
06	U-235	TRG	09/07/05 08:08		A_Spec	48	170	3.66 E+00	2.00 E-03	20.1
07	U-235	TRG	09/07/05 11:13		A_Spec	33	170	4.83 E+00	1.00 E-03	21.8
08	U-235	TRG	09/07/05 11:13		A_Spec	34	170	3.00 E+00	0.00 E+00	20.5
09	U-235	TRG	09/07/05 11:14		A_Spec	35	170	4.66 E+00	2.00 E-03	20.5
10	U-235	TRG	09/07/05 11:14		A_Spec	36	170	5.00 E+00	0.00 E+00	21.1
11	U-235	TRG	09/07/05 11:14		A_Spec	37	170	5.83 E+00	1.00 E-03	21.2
12	U-235	TRG	09/07/05 11:15		A_Spec	38	170	6.00 E+00	0.00 E+00	20.2
13	U-235	TRG	09/07/05 11:15		A_Spec	39	170	3.00 E+00	0.00 E+00	20.8
14	U-235	TRG	09/07/05 11:15		A_Spec	40	170	3.00 E+00	0.00 E+00	21.1
15	U-235	TRG	09/07/05 11:16		A_Spec	41	170	5.00 E+00	0.00 E+00	20.6
16	U-235	TRG	09/07/05 11:16		A_Spec	42	170	5.49 E+00	3.00 E-03	21.9

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Preliminary Data Report & Analytical Calculations

Work Order: 05-08096-UUISO-1

Client	Eberline Services Work Order	Analysis Code	Run
Missouri Dept. of Natural Resources	05-08096	UUISO	1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	U-238	LCS	LCS	pCi/g	8.78E+00	1.48E+00	7.93E-02	7.84E+00	112.01	OK		OK	
02	U-238	MBL	BLANK	pCi/g	8.69E-02	7.67E-02	8.33E-02					OK	OK
03	U-238	DUP	VPSCR081705SL0H	pCi/g	7.81E-01	2.43E-01	3.92E-02				OK	OK	
04	U-238	DO	VPSCR081705SL0H	pCi/g	9.47E-01	2.69E-01	7.48E-02					OK	
05	U-238	TRG	VPSCR081705SL0I	pCi/g	1.16E+00	3.05E-01	9.50E-02					OK	
06	U-238	TRG	VPSCR081705SL0J	pCi/g	8.42E-01	2.71E-01	9.01E-02					OK	
07	U-238	TRG	VPSCR081705SL0K	pCi/g	1.05E+00	2.72E-01	7.21E-02					OK	
08	U-238	TRG	VPSCR081705SL0L	pCi/g	8.09E-01	2.38E-01	3.54E-02					OK	
09	U-238	TRG	VPSCR081705SL0M	pCi/g	7.25E-01	2.46E-01	1.07E-01					OK	
10	U-238	TRG	VPSCR081705SL0N	pCi/g	7.76E-01	2.22E-01	3.19E-02					OK	
11	U-238	TRG	VPSCR081705SL0O	pCi/g	9.59E-01	2.65E-01	3.56E-02					OK	
12	U-238	TRG	VPSCR081705SL0P	pCi/g	8.38E-01	2.49E-01	6.37E-02					OK	
13	U-238	TRG	VPSCR081705SL0Q	pCi/g	9.27E-01	2.88E-01	9.03E-02					OK	
14	U-238	TRG	VPSCR081705SL0R	pCi/g	8.24E-01	2.78E-01	4.86E-02					OK	
15	U-238	TRG	VPSCR081705SL0S	pCi/g	6.86E-01	2.24E-01	6.64E-02					OK	
16	U-238	TRG	VPSCR081705SL0T	pCi/g	9.48E-01	2.71E-01	7.59E-02					OK	

Run	1
Analysis Code	UUISO
Eberline Services Work Order	05-08096
Client	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	U-238	LCS	08/22/05 00:00	1.00E+00	83.30				9/7/2005 5:59	
02	U-238	MBL	08/22/05 00:00	1.00E+00	85.18				9/7/2005 5:59	
03	U-238	DUP	08/17/05 09:15	1.04E+00	84.20				9/7/2005 5:59	
04	U-238	DO	08/17/05 09:15	1.03E+00	88.12				9/7/2005 5:59	
05	U-238	TRG	08/17/05 09:16	1.06E+00	85.67				9/7/2005 5:59	
06	U-238	TRG	08/17/05 09:19	1.06E+00	74.75				9/7/2005 5:59	
07	U-238	TRG	08/17/05 09:21	1.17E+00	87.02				9/7/2005 5:59	
08	U-238	TRG	08/17/05 09:29	1.11E+00	89.25				9/7/2005 5:59	
09	U-238	TRG	08/17/05 09:31	1.01E+00	78.03				9/7/2005 5:59	
10	U-238	TRG	08/17/05 09:33	1.16E+00	91.74				9/7/2005 5:59	
11	U-238	TRG	08/17/05 09:35	1.05E+00	90.21				9/7/2005 5:59	
12	U-238	TRG	08/17/05 09:40	1.08E+00	88.25				9/7/2005 5:59	
13	U-238	TRG	08/17/05 09:50	1.01E+00	75.61				9/7/2005 5:59	
14	U-238	TRG	08/17/05 09:55	1.17E+00	60.02				9/7/2005 5:59	
15	U-238	TRG	08/17/05 09:58	1.02E+00	87.69				9/7/2005 5:59	
16	U-238	TRG	08/17/05 10:00	1.03E+00	83.21				9/7/2005 5:59	

Preliminary Data Report & Analytical Calculations

Work Order: 05-08096-UUISO-1

Client	Eberline Services Work Order	Analysis Code	Run
Missouri Dept. of Natural Resources	05-08096	UUISO	1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	U-238	LCS	09/07/05 08:06		A_Spec	43	170	6.01 E+02	2.00 E-03	21.7
02	U-238	MBL	09/07/05 08:06		A_Spec	44	170	5.66 E+00	2.00 E-03	20.2
03	U-238	DUP	09/07/05 08:07		A_Spec	45	170	5.40 E+01	0.00 E+00	20.9
04	U-238	DO	09/07/05 08:07		A_Spec	46	170	6.87 E+01	2.00 E-03	21.1
05	U-238	TRG	09/07/05 08:07		A_Spec	47	170	8.52 E+01	5.00 E-03	21.4
06	U-238	TRG	09/07/05 08:08		A_Spec	48	170	5.07 E+01	2.00 E-03	20.1
07	U-238	TRG	09/07/05 11:13		A_Spec	33	170	8.75 E+01	3.00 E-03	21.8
08	U-238	TRG	09/07/05 11:13		A_Spec	34	170	6.20 E+01	0.00 E+00	20.5
09	U-238	TRG	09/07/05 11:14		A_Spec	35	170	4.43 E+01	4.00 E-03	20.5
10	U-238	TRG	09/07/05 11:14		A_Spec	36	170	6.60 E+01	0.00 E+00	21.1
11	U-238	TRG	09/07/05 11:14		A_Spec	37	170	7.30 E+01	0.00 E+00	21.2
12	U-238	TRG	09/07/05 11:15		A_Spec	38	170	6.08 E+01	1.00 E-03	20.2
13	U-238	TRG	09/07/05 11:15		A_Spec	39	170	5.57 E+01	2.00 E-03	20.8
14	U-238	TRG	09/07/05 11:15		A_Spec	40	170	4.60 E+01	0.00 E+00	21.1
15	U-238	TRG	09/07/05 11:16		A_Spec	41	170	4.78 E+01	1.00 E-03	20.6
16	U-238	TRG	09/07/05 11:16		A_Spec	42	170	6.77 E+01	2.00 E-03	21.9

Preliminary Data Report & Analytical Calculations

Work Order: 05-08096-UUISO-1

Client	Missouri Dept. of Natural Resources
Eberline Services Work Order	05-08096
Analysis Code	UUISO
Run	1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
02	U-236	MBL	BLANK	pCi/g	5.13E-02	5.97E-02	4.63E-02					OK	OK
03	U-236	DUP	VPSCR081705SL0H	pCi/g	1.61E-02	3.23E-02	4.36E-02				INV	OK	
04	U-236	DO	VPSCR081705SL0H	pCi/g	5.88E-02	6.22E-02	7.10E-02					OK	
05	U-236	TRG	VPSCR081705SL0I	pCi/g	7.55E-02	6.85E-02	4.09E-02					OK	
06	U-236	TRG	VPSCR081705SL0J	pCi/g	3.07E-02	5.33E-02	1.00E-01					OK	
07	U-236	TRG	VPSCR081705SL0K	pCi/g	2.43E-02	3.81E-02	6.16E-02					OK	
08	U-236	TRG	VPSCR081705SL0L	pCi/g	5.81E-02	5.87E-02	3.93E-02					OK	
09	U-236	TRG	VPSCR081705SL0M	pCi/g	7.28E-02	7.37E-02	4.93E-02					OK	
10	U-236	TRG	VPSCR081705SL0N	pCi/g	0.00E+00	0.00E+00	3.55E-02					OK	
11	U-236	TRG	VPSCR081705SL0O	pCi/g	0.00E+00	0.00E+00	3.96E-02					OK	
12	U-236	TRG	VPSCR081705SL0P	pCi/g	3.07E-02	4.36E-02	4.15E-02					OK	
13	U-236	TRG	VPSCR081705SL0Q	pCi/g	3.71E-02	5.27E-02	5.02E-02					OK	
14	U-236	TRG	VPSCR081705SL0R	pCi/g	9.97E-02	9.06E-02	5.40E-02					OK	
15	U-236	TRG	VPSCR081705SL0S	pCi/g	-8.14E-03	9.48E-03	9.62E-02					OK	
16	U-236	TRG	VPSCR081705SL0T	pCi/g	0.00E+00	0.00E+00	4.22E-02					OK	

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Preliminary Data Report & Analytical Calculations

Work Order: 05-08096-UUISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	UUISO	05-08096	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
02	U-236	MBL	08/22/05 00:00	1.00E+00	85.18				9/7/2005 5:59	
03	U-236	DUP	08/17/05 09:15	1.04E+00	84.20				9/7/2005 5:59	
04	U-236	DO	08/17/05 09:15	1.03E+00	88.12				9/7/2005 5:59	
05	U-236	TRG	08/17/05 09:16	1.06E+00	85.67				9/7/2005 5:59	
06	U-236	TRG	08/17/05 09:19	1.06E+00	74.75				9/7/2005 5:59	
07	U-236	TRG	08/17/05 09:21	1.17E+00	87.02				9/7/2005 5:59	
08	U-236	TRG	08/17/05 09:29	1.11E+00	89.25				9/7/2005 5:59	
09	U-236	TRG	08/17/05 09:31	1.01E+00	78.03				9/7/2005 5:59	
10	U-236	TRG	08/17/05 09:33	1.16E+00	91.74				9/7/2005 5:59	
11	U-236	TRG	08/17/05 09:35	1.05E+00	90.21				9/7/2005 5:59	
12	U-236	TRG	08/17/05 09:40	1.08E+00	88.25				9/7/2005 5:59	
13	U-236	TRG	08/17/05 09:50	1.01E+00	75.61				9/7/2005 5:59	
14	U-236	TRG	08/17/05 09:55	1.17E+00	60.02				9/7/2005 5:59	
15	U-236	TRG	08/17/05 09:58	1.02E+00	87.69				9/7/2005 5:59	
16	U-236	TRG	08/17/05 10:00	1.03E+00	83.21				9/7/2005 5:59	

Work Order: 05-08096-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Services Work Order: 05-08096
Client: Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
02	U-236	MBL	09/07/05 08:06		A_Spec	44	170	3.00 E+00	0.00 E+00	20.2
03	U-236	DUP	09/07/05 08:07		A_Spec	45	170	1.00 E+00	0.00 E+00	20.9
04	U-236	DO	09/07/05 08:07		A_Spec	46	170	3.83 E+00	1.00 E-03	21.1
05	U-236	TRG	09/07/05 08:07		A_Spec	47	170	5.00 E+00	0.00 E+00	21.4
06	U-236	TRG	09/07/05 08:08		A_Spec	48	170	1.66 E+00	2.00 E-03	20.1
07	U-236	TRG	09/07/05 11:13		A_Spec	33	170	1.83 E+00	1.00 E-03	21.8
08	U-236	TRG	09/07/05 11:13		A_Spec	34	170	4.00 E+00	0.00 E+00	20.5
09	U-236	TRG	09/07/05 11:14		A_Spec	35	170	4.00 E+00	0.00 E+00	20.5
10	U-236	TRG	09/07/05 11:14		A_Spec	36	170	0.00 E+00	0.00 E+00	21.1
11	U-236	TRG	09/07/05 11:14		A_Spec	37	170	0.00 E+00	0.00 E+00	21.2
12	U-236	TRG	09/07/05 11:15		A_Spec	38	170	2.00 E+00	0.00 E+00	20.2
13	U-236	TRG	09/07/05 11:15		A_Spec	39	170	2.00 E+00	0.00 E+00	20.8
14	U-236	TRG	09/07/05 11:15		A_Spec	40	170	5.00 E+00	0.00 E+00	21.1
15	U-236	TRG	09/07/05 11:16		A_Spec	41	170	-5.10 E-01	3.00 E-03	20.6
16	U-236	TRG	09/07/05 11:16		A_Spec	42	170	0.00 E+00	0.00 E+00	21.9

Count Room Report
Client: Missouri Dept. of Natural

05-08096-UUISO-1 (pCi/g) in SO
Tracer ID: U-10a

43-48, 33-42

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	08/22/05 00:00	1.0000	0.6214	12.8953				
02	MBL	BLANK	08/22/05 00:00	1.0000	0.6148	12.7583				
03	DUP	VPSCR081705SL0H	08/17/05 09:15	1.0375	0.6074	12.6048				
04	DO	VPSCR081705SL0H	08/17/05 09:15	1.0322	0.6074	12.6048				
05	TRG	VPSCR081705SL0I	08/17/05 09:16	1.0622	0.6040	12.5342				
06	TRG	VPSCR081705SL0J	08/17/05 09:19	1.0600	0.6087	12.6317				
07	TRG	VPSCR081705SL0K	08/17/05 09:21	1.1671	0.6069	12.5944				
08	TRG	VPSCR081705SL0L	08/17/05 09:29	1.1100	0.6081	12.6193				
09	TRG	VPSCR081705SL0M	08/17/05 09:31	1.0100	0.6052	12.5591				
10	TRG	VPSCR081705SL0N	08/17/05 09:33	1.1605	0.6071	12.5985				
11	TRG	VPSCR081705SL0O	08/17/05 09:35	1.0528	0.6079	12.6151				
12	TRG	VPSCR081705SL0P	08/17/05 09:40	1.0763	0.6054	12.5633				
13	TRG	VPSCR081705SL0Q	08/17/05 09:50	1.0102	0.6055	12.5653				
14	TRG	VPSCR081705SL0R	08/17/05 09:55	1.1664	0.6031	12.5155				
15	TRG	VPSCR081705SL0S	08/17/05 09:58	1.0224	0.6036	12.5259				
16	TRG	VPSCR081705SL0T	08/17/05 10:00	1.0333	0.6051	12.5570				

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Eberline Services
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/30/2005 7:12 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
05-08096	1	UUISO	8/30/2005 6:58	JBARNARD		

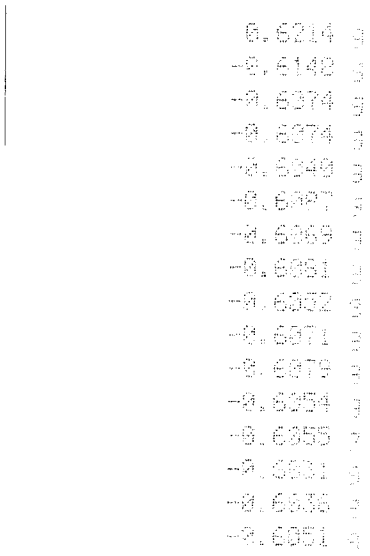
LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	*Sol #*	*Activity dpm/g*	*Solution Date*	*Approx Addition*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*
U-234	U-8a	35.240	8/30/2005	**0.500**	**0.5067**				8.04	0.290	0.00	0.000	0.00	0.000	0.00	0.000
U-235	U-8a	1.600	8/30/2005	**0.500**	**0.5067**				0.37	0.013	0.00	0.000	0.00	0.000	0.00	0.000
U-238	U-8a	34.350	8/30/2005	**0.500**	**0.5067**				7.84	0.282	0.00	0.000	0.00	0.000	0.00	0.000

Tracers

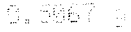
fraction	*Isotope*	*Sol #*	*Activity dpm/g*	*Solution Date*	*Volume Used (g)*	*Approx Addition*
01	**U-232**	U-10a	20.752	8/30/2005	**0.6214**	**0.5800**
02	**U-232**	U-10a	20.752	8/30/2005	**0.6148**	**0.5800**
03	**U-232**	U-10a	20.752	8/30/2005	**0.6074**	**0.5800**
04	**U-232**	U-10a	20.752	8/30/2005	**0.6074**	**0.5800**
05	**U-232**	U-10a	20.752	8/30/2005	**0.6040**	**0.5800**
06	**U-232**	U-10a	20.752	8/30/2005	**0.6087**	**0.5800**
07	**U-232**	U-10a	20.752	8/30/2005	**0.6069**	**0.5800**
08	**U-232**	U-10a	20.752	8/30/2005	**0.6081**	**0.5800**
09	**U-232**	U-10a	20.752	8/30/2005	**0.6052**	**0.5800**
10	**U-232**	U-10a	20.752	8/30/2005	**0.6071**	**0.5800**
11	**U-232**	U-10a	20.752	8/30/2005	**0.6079**	**0.5800**
12	**U-232**	U-10a	20.752	8/30/2005	**0.6054**	**0.5800**
13	**U-232**	U-10a	20.752	8/30/2005	**0.6055**	**0.5800**
14	**U-232**	U-10a	20.752	8/30/2005	**0.6031**	**0.5800**
15	**U-232**	U-10a	20.752	8/30/2005	**0.6036**	**0.5800**
16	**U-232**	U-10a	20.752	8/30/2005	**0.6051**	**0.5800**

Balance Printer Tapes

Tracer



LCS



Matrix Spike

Version 2.0 08/99

Eberline Services - Oak Ridge
Version 2.0 8/1999

Aliquot Worksheet

Printed: 8/29/2005 9:51 AM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
05-08096	1	UUISO	grams	9/9/2005	JBARNARD

Lab Fraction	Missouri Dept. of Natural Resources Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	VPSCR081705SL0H	DUP					1.0375E+00	1.0375E+00				
04	VPSCR081705SL0H	DO					1.0322E+00	1.0322E+00				
05	VPSCR081705SL0I	TRG					1.0622E+00	1.0622E+00				
06	VPSCR081705SL0J	TRG					1.0600E+00	1.0600E+00				
07	VPSCR081705SL0K	TRG					1.1671E+00	1.1671E+00				
08	VPSCR081705SL0L	TRG					1.1100E+00	1.1100E+00				
09	VPSCR081705SL0M	TRG					1.0100E+00	1.0100E+00				
10	VPSCR081705SL0N	TRG					1.1605E+00	1.1605E+00				
11	VPSCR081705SL0O	TRG					1.0528E+00	1.0528E+00				
12	VPSCR081705SL0P	TRG					1.0763E+00	1.0763E+00				
13	VPSCR081705SL0Q	TRG					1.0102E+00	1.0102E+00				
14	VPSCR081705SL0R	TRG					1.1664E+00	1.1664E+00				
15	VPSCR081705SL0S	TRG					1.0224E+00	1.0224E+00				
16	VPSCR081705SL0T	TRG					1.0333E+00	1.0333E+00				

Comments	

Technician: JBarnard Date: 8/29/05

Eberline Services - Oak Ridge
Prep Logbook
Version 2.0 8/1999

Rough Sample Preparation Log Book

Printed: 8/24/2005 8:01 AM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
05-08096	9/9/2005	8/23/2005	8/24/2005	8/25/2005	KSALLINGS

Eberline	Missouri Dept. of Natural Resources	Tare (g)	Gross (g)		Net (g)		Percent		Gamma		Special
Fraction	Client ID	Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	Info
04	VPSCR081705SL0H	13.9000	566.5000	482.3100	552.6000	468.4100	15.24%	84.76%			
05	VPSCR081705SL0I	13.8700	572.4000	454.1400	558.5300	440.2700	21.17%	78.83%			
06	VPSCR081705SL0J	13.8200	558.6600	466.7700	544.8400	452.9500	16.87%	83.13%			
07	VPSCR081705SL0K	13.8800	586.4300	499.4100	572.5500	485.5300	15.20%	84.80%			
08	VPSCR081705SL0L	13.8700	511.0600	438.4300	497.1900	424.5600	14.61%	85.39%			
09	VPSCR081705SL0M	13.8900	333.5200	215.9100	319.6300	202.0200	36.80%	63.20%			
10	VPSCR081705SL0N	14.0800	539.4800	444.2100	525.4000	430.1300	18.13%	81.87%			
11	VPSCR081705SL0O	14.0400	479.6500	395.9200	465.6100	381.8800	17.98%	82.02%			
12	VPSCR081705SL0P	13.8300	466.8600	366.5700	453.0300	352.7400	22.14%	77.86%			
13	VPSCR081705SL0Q	13.9300	518.5200	365.4100	504.5900	351.4800	30.34%	69.66%			
14	VPSCR081705SL0R	14.0500	604.2100	466.5400	590.1600	452.4900	23.33%	76.67%			
15	VPSCR081705SL0S	13.9600	563.2300	453.8000	549.2700	439.8400	19.92%	80.08%			
16	VPSCR081705SL0T	13.8700	475.0400	386.5100	461.1700	372.6400	19.20%	80.80%			

Comments	
Special Codes	**H: Hot, O: Organic Hazard, P: PCB Hazard, R: Rush, T: Other (see comments)**

Technician: Kenny Sallings Date: **Analysis: Rough Prep Logbook**

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:30:31

Spectral File: ND_AMS_ARCHIVE_C:C_0508096A-UU$01_UU.CNF

BATCH ID:	0508096A-UU	SAMPLE ID:	01
SAMPLE DATE:	7-SEP-2005 00:00	ALIQUOT: 1.000E+00	gram
SAMPLE TITLE:	SPIKE	DETECTOR NUMBER:	043
ACQ DATE:	7-SEP-2005 08:06	AVERAGE EFFICIENCY:	21.70%
ELAPSED LIVE TIME:	10200.	RECOVERY:	83.30%
TRACER ID:	UU-10A	TRACER FWHM (kev):	116.52
LAMBDA VALUE:	621.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.892	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:47	EFF CAL DATE: 2-SEP-2005	04:47
BKG FILENAME:	B_043_2SEP05	BKG ELAPSED TIME:	60000.

NUCLIDE ACTIVITY SUMMARY

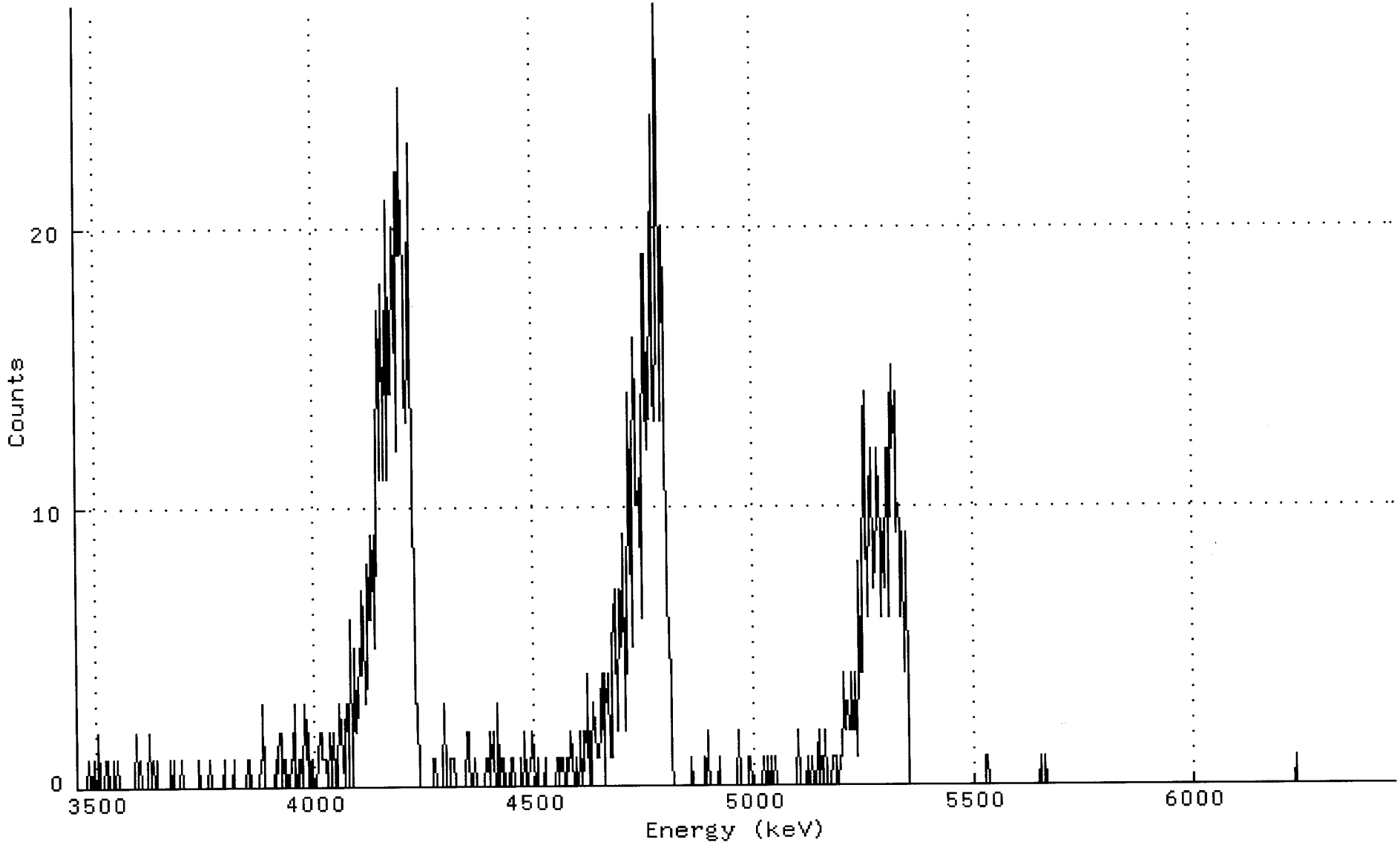
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	395.49	0.51	99.8	5.807E+00	7.587E-01	8.856E-02
U-234	4761.5	566.00	0.00	99.8	8.311E+00	1.414E+00	3.979E-02
U-235	4385.5	21.83	0.17	80.9	3.954E-01	1.798E-01	8.382E-02
U-236	4485.2	11.83	0.17	90.1	1.924E-01	1.164E-01	7.526E-02
U-238	4184.4	600.66	0.34	100.2	8.782E+00	1.484E+00	7.927E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst 9.7.05
Date

Reviewer 9/8/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.C]C_0508096A-UU$01_UU.CNF;1
Title : 043
Sample Title: SPIKE
Start Time: 7-SEP-2005 08:06: Sample Time: 7-SEP-2005 00:00: Energy Offset: 3.44612E+03
Real Time : 0 02:50:00.70 Sample ID : 01 Energy Slope : 3.11752E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.75406E-04



Channel Contents for ND_AMS_ARCHIVE_C:C_0508096A-UU$01_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
15:	1	0	0	0	2	0	0	0	0	1	0	1	0	0
29:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	2	0	0	1	0	0	0	0	0	0	2
57:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
71:	0	1	0	1	0	0	0	0	0	1	0	0	0	0
85:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
99:	0	0	1	0	0	0	0	0	0	0	0	0	0	1
113:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
127:	0	0	1	0	1	0	0	0	0	0	0	0	1	1
141:	3	0	0	0	0	0	0	0	0	1	0	1	2	2
155:	0	1	0	1	0	0	0	1	1	3	0	0	1	0
169:	1	1	0	3	2	0	2	0	1	0	0	0	1	1
183:	2	2	1	1	1	1	0	2	1	0	2	0	1	0
197:	3	3	2	1	0	2	3	1	0	6	0	4	5	2
211:	3	3	5	4	7	6	3	4	8	6	9	6	8	9
225:	5	10	17	15	11	18	12	11	17	11	21	14	14	20
239:	18	19	12	22	19	25	19	21	17	14	13	16	23	14
253:	13	4	3	3	0	0	0	0	0	0	0	0	0	0
267:	0	1	1	0	0	0	0	0	0	3	0	0	0	0
281:	1	1	1	0	0	0	0	0	0	0	0	0	2	2
295:	1	0	0	0	1	0	0	0	0	0	0	0	1	1
309:	1	0	2	1	2	1	0	0	3	0	1	0	1	0
323:	0	0	0	1	0	1	0	0	0	0	0	1	0	1
337:	2	0	0	0	1	1	2	1	0	1	0	0	0	0
351:	0	1	0	0	0	0	0	0	0	0	1	1	0	1
365:	1	1	0	1	0	1	1	2	1	0	1	0	0	1
379:	2	0	1	2	2	1	4	0	0	1	3	2	1	1
393:	1	2	3	4	0	4	3	4	4	1	1	5	6	7
407:	6	2	7	6	5	9	2	6	4	13	14	10	5	10
421:	16	13	10	10	11	6	9	19	13	19	12	14	15	17
435:	24	14	13	17	28	24	16	13	20	17	14	7	5	4
449:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
463:	0	1	0	0	0	0	0	0	0	0	0	1	0	2
477:	1	0	0	0	0	0	0	0	1	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	2	0	0	0	0
505:	0	0	0	1	1	0	0	0	0	0	0	0	0	0
519:	1	1	0	0	1	0	0	1	0	1	0	0	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	2
547:	0	0	0	0	0	0	1	0	0	1	1	0	0	0
561:	1	2	0	1	1	0	2	0	0	0	0	0	1	1
575:	1	0	0	1	1	1	3	4	2	3	3	2	2	4
589:	2	2	4	1	5	8	4	4	6	13	14	10	6	11
603:	9	12	7	7	8	10	12	10	9	6	9	8	7	12
617:	12	6	13	15	12	13	14	9	10	9	6	9	4	4
631:	9	2	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	1	1	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	1	0	0	0	1	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:30:26.87

Detector ID: 43 Acquisition Start: 7-SEP-2005 08:06:26.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.70
Batch Id: 0508096A-UU Sample Id: 01
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4166.17	601	0	83.23	234.05	179	90	5.89E-02	4.1	
2	0	4376.81	22	0	77.16	303.73	278	43	2.16E-03	21.3	
3	0	4480.05	12	0	24.81	338.08	323	29	1.18E-03	28.9	
4	0	4744.17	566	0	75.54	426.61	378	82	5.55E-02	4.2	
5	0	5280.88	396	0	116.52	609.43	564	76	3.88E-02	5.0	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:30:29.01

Acquisition Start: 2-SEP-2005 15:07:44.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.20

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4134.33	2	0	137.87	223.50	179	90	3.33E-05	70.7	
2	0	4363.44	1	0	3.13	299.00	278	43	1.67E-05	100.0	
3	0	4477.94	1	0	3.13	337.00	323	29	1.67E-05	100.0	
4	0	4721.68	0	0	0.00	418.50	378	82	0.00E+00	0.0	
5	0	5259.80	3	0	134.74	601.50	564	76	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:30:29.33

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4166.17*	601	0	83.23	234.05	179	90	5.89E-02	4.1	
2	0	4376.81*	22	0	77.16	303.73	278	43	2.14E-03	21.5	
3	0	4480.05*	12	0	24.81	338.08	323	29	1.16E-03	29.3	
4	0	4744.17*	566	0	75.54	426.61	378	82	5.55E-02	4.2	
5	0	5280.88*	395	0	116.52	609.43	564	76	3.88E-02	5.0	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:30:30

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: SPIKE		
Sample date	: 7-SEP-2005 00:00:00	Acquisition date	: 7-SEP-2005 08:06:26
Sample ID	: 01	Sample quantity	: 1.0000 gram
Sample type	: UU	Sample geometry	:
Detector name	: 043	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.70 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4166.17*	601	83.23	234.05	179	90	8.2		U-238	7.32
0	4376.81*	22	77.16	303.73	278	43	43.0		U-235	0.329
0	4480.05*	12	24.81	338.08	323	29	58.6		U-236	0.160
0	4744.17*	566	75.54	426.61	378	82	8.4		U-234	6.92
0	5280.88*	395	116.52	609.43	564	76	10.1		U232	4.84

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:30:48

****

Spectral File: ND_AMS_ARCHIVE_R:R_0508096A-UU$02_UU.CNF

****

BATCH ID:	0508096A-UU	SAMPLE ID:	02
SAMPLE DATE:	7-SEP-2005 00:00	ALIQUOT:	1.000E+00 gram
SAMPLE TITLE:	BLANK	DETECTOR NUMBER:	044
ACQ DATE:	7-SEP-2005 08:06	AVERAGE EFFICIENCY:	20.21%
ELAPSED LIVE TIME:	10200.	RECOVERY:	85.18%
TRACER ID:	UU-10A	TRACER FWHM (kev):	67.66
LAMBDA VALUE:	615.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.755	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:47	EFF CAL DATE:	2-SEP-2005 04:47
BKG FILENAME:	B_044_2SEP05	BKG ELAPSED TIME:	60000.

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NUCLIDE ACTIVITY SUMMARY

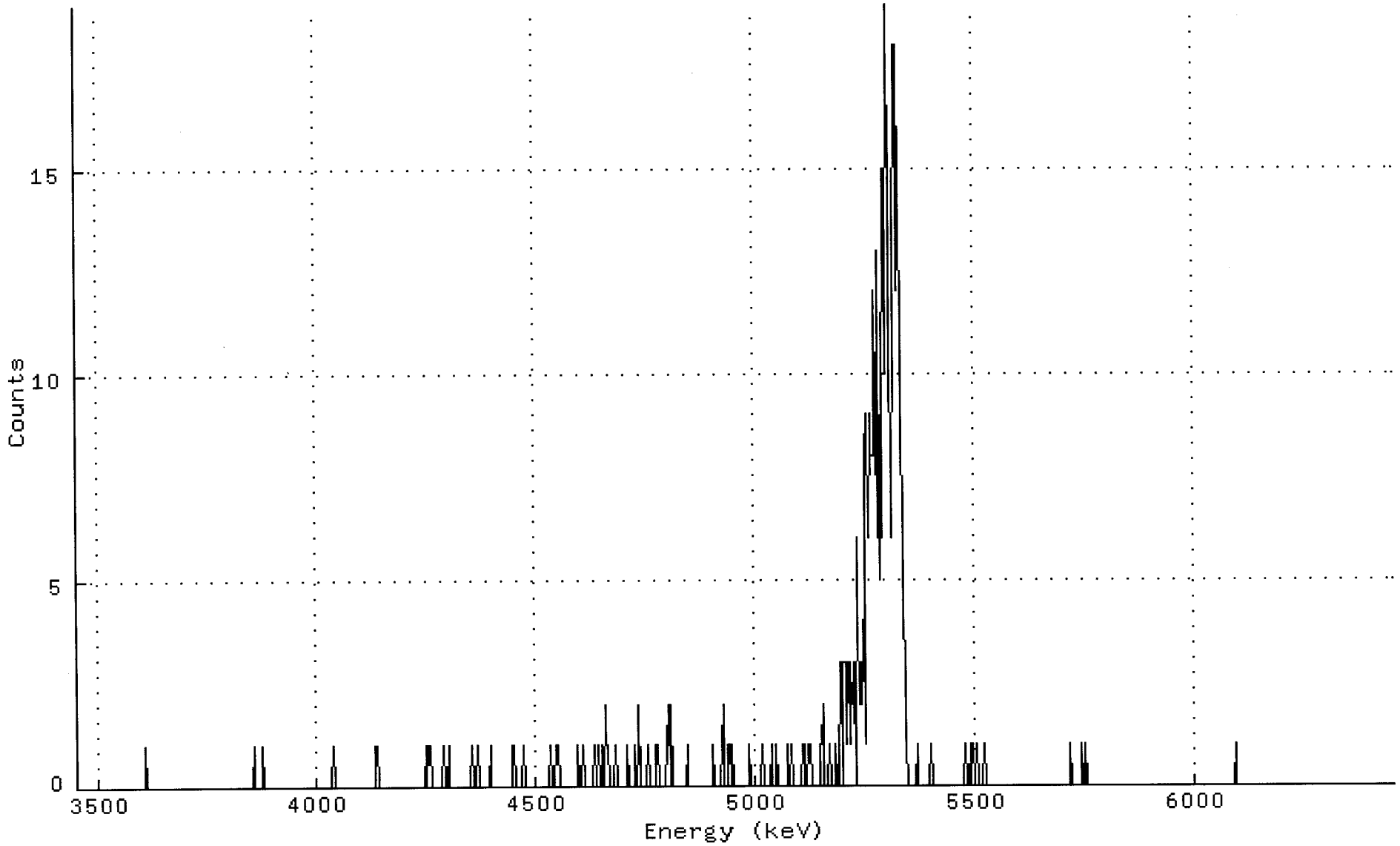
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	372.49	0.51	99.8	5.746E+00	7.648E-01	9.302E-02
U-234	4761.5	22.32	0.68	99.8	3.443E-01	1.571E-01	1.009E-01
U-235	4385.5	3.66	0.34	80.9	6.964E-02	7.737E-02	1.032E-01
U-236	4485.2	3.00	0.00	90.1	5.126E-02	5.969E-02	4.630E-02
U-238	4184.4	5.66	0.34	100.2	8.693E-02	7.672E-02	8.327E-02

****

Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.R]R_0508096A-UU$02_UU.CNF;1
Title : 044
Sample Title: BLANK
Start Time: 7-SEP-2005 08:06: Sample Time: 7-SEP-2005 00:00: Energy Offset: 3.44245E+03
Real Time : 0 02:50:00.60 Sample ID : 02 Energy Slope : 3.10035E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.56371E-04



Channel Contents for ND_AMS_ARCHIVE_R:R_0508096A-UU$02_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
141:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225:	0	1	1	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	1	0	1
267:	1	0	0	0	0	0	0	0	0	0	1	0	0	0
281:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
309:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
337:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	1	1	0	0	1	1	1
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	1	0	0	0	1	0	0	0	0	0	0	0	0	1
393:	0	0	1	0	1	0	0	2	1	1	0	0	0	0
407:	0	1	0	0	0	0	0	0	0	0	1	0	0	0
421:	0	0	1	0	1	2	0	0	0	0	0	0	1	0
435:	0	0	0	0	1	1	0	0	0	0	0	0	1	1
449:	2	0	2	0	0	0	0	0	0	0	0	0	0	0
463:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
491:	2	0	0	0	1	1	0	1	0	0	0	0	0	0
505:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
519:	0	0	1	0	0	0	0	0	0	1	0	0	0	1
533:	0	0	0	0	0	0	0	0	1	0	1	1	0	0
547:	0	0	0	0	0	1	1	0	0	1	1	1	0	0
561:	0	0	0	0	0	1	1	2	0	0	0	0	1	0
575:	0	0	0	1	0	0	0	3	0	3	3	3	1	3
589:	1	3	2	2	3	0	6	4	2	2	2	4	1	8
603:	9	6	9	8	8	8	12	9	6	13	5	7	8	15
617:	10	11	19	14	12	6	12	12	18	18	12	16	9	11
631:	4	3	1	0	0	0	0	0	0	0	1	0	0	0
645:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	1	0	0	0	1	0	1	0
687:	0	1	0	0	0	0	0	1	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
771:	0	1	0	0	1	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:30:39.62

Detector ID: 44 Acquisition Start: 7-SEP-2005 08:06:39.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.60
Batch Id: 0508096A-UU Sample Id: 02
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4179.55	6	0229.43	240.67	181	91	5.88E-04	40.8	
2	0	4355.48	4	0 0.00	299.00	281	42	3.92E-04	50.0	
3	0	4457.53	3	0 27.52	333.00	325	30	2.94E-04	57.7	
4	0	4722.44	23	0161.15	421.83	381	82	2.25E-03	20.9	
5	0	5287.08	373	0 67.66	613.99	567	76	3.66E-02	5.2	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:30:46.75

Acquisition Start: 2-SEP-2005 15:07:47.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.76	2	0224.10	226.00	181	91	3.33E-05	70.7	
2	0	4363.94	2	0 21.79	301.50	281	42	3.33E-05	70.7	
3	0	4478.04	0	0 0.00	339.50	325	30	0.00E+00	0.0	
4	0	4722.58	4	0 68.48	421.50	381	82	6.67E-05	50.0	
5	0	5260.01	3	0 18.68	604.50	567	76	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:30:47.04

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4179.55*	6	0229.43	240.67	181	91	5.55E-04	43.5	
2	0	4355.48*	4	0 0.00	299.00	281	42	3.59E-04	55.0	
3	0	4457.53*	3	0 27.52	333.00	325	30	2.94E-04	57.7	
4	0	4722.44*	22	0161.15	421.83	381	82	2.19E-03	21.5	
5	0	5287.08*	372	0 67.66	613.99	567	76	3.65E-02	5.2	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:30:47

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BLANK
Sample date : 7-SEP-2005 00:00:00 Acquisition date : 7-SEP-2005 08:06:39
Sample ID : 02 Sample quantity : 1.0000 gram
Sample type : UU Sample geometry :
Detector name : 044 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.60 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4179.55*	6229.43	240.67	181	91	87.0			U-238	7.405E-02
0	4355.48*	4	0.00	299.00	281	42	110.1		U-235	5.933E-02
0	4457.53*	3	27.52	333.00	325	30	115.5		U-236	4.366E-02
0	4722.44*	22161.15		421.83	381	82	43.1		U-234	0.293
0	5287.08*	372	67.66	613.99	567	76	10.4		U232	4.89

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:30:57

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Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$03_UU.CNF

****

BATCH ID:	0508096A-UU	SAMPLE ID:	03
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.038E+00 gram
SAMPLE TITLE:	VPSCR081705SL0H	DETECTOR NUMBER:	045
ACQ DATE:	7-SEP-2005 08:07	AVERAGE EFFICIENCY:	20.93%
ELAPSED LIVE TIME:	10200.	RECOVERY:	84.20%
TRACER ID:	UU-10A	TRACER FWHM (kev):	76.64
LAMBDA VALUE:	607.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.609	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:47	EFF CAL DATE:	2-SEP-2005 04:47
BKG FILENAME:	B_045_2SEP05	BKG ELAPSED TIME:	60000.

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NUCLIDE ACTIVITY SUMMARY

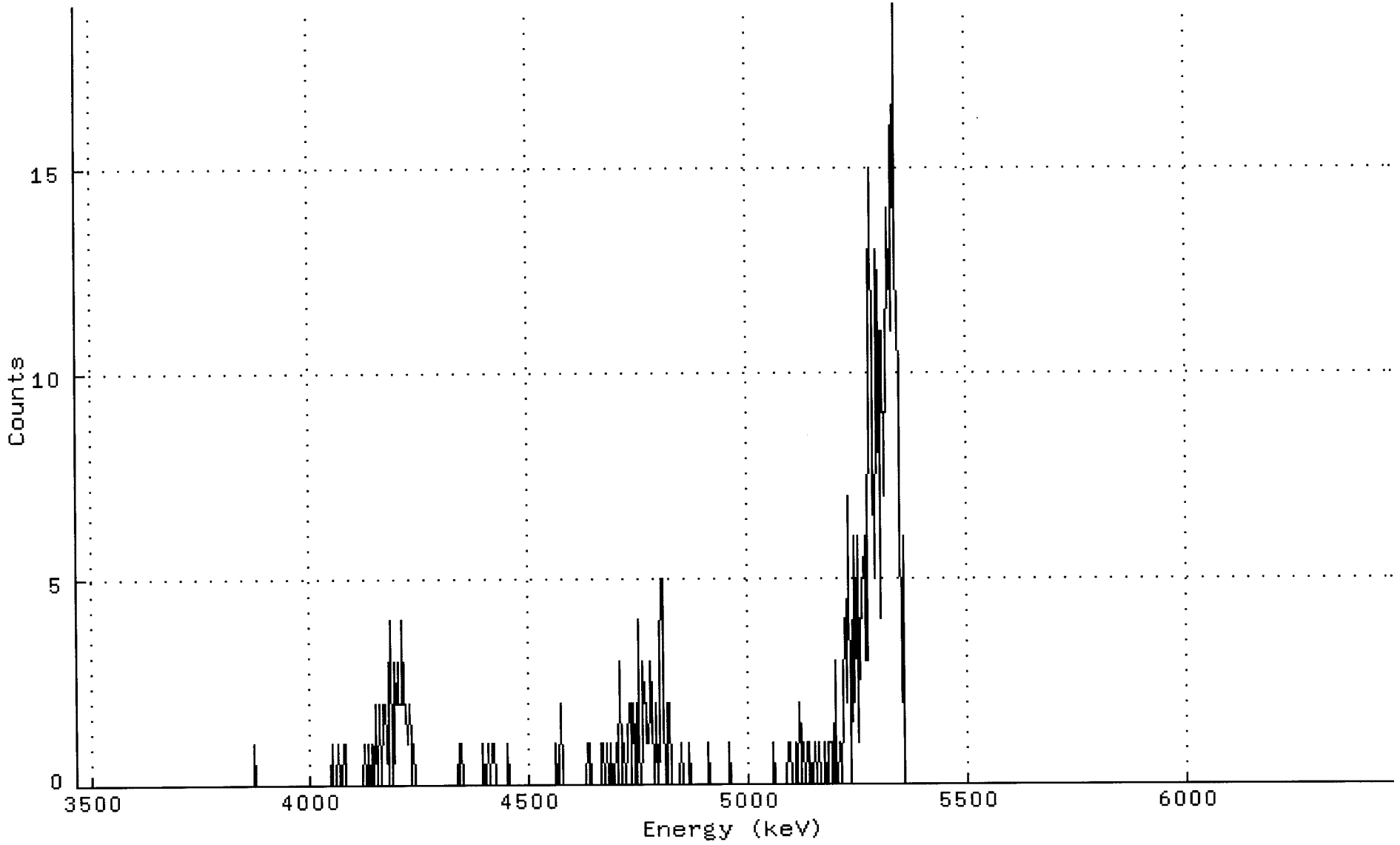
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	376.83	0.17	99.8	5.474E+00	7.257E-01	6.718E-02
U-234	4761.5	65.00	0.00	99.8	9.438E-01	2.734E-01	3.935E-02
U-235	4385.5	6.00	0.00	80.9	1.075E-01	8.921E-02	4.854E-02
U-236	4485.2	1.00	0.00	90.1	1.608E-02	3.225E-02	4.358E-02
U-238	4184.4	54.00	0.00	100.2	7.807E-01	2.425E-01	3.918E-02

****

Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$03_UU.CNF;1
Title : 045
Sample Title: VPSCR081705SL0H
Start Time: 7-SEP-2005 08:07: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45559E+03
Real Time : 0 02:50:00.10 Sample ID : 03 Energy Slope : 3.12488E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.83707E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$03_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
197:	1	0	0	0	1	1	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	1	0	1	0	0	1	0	0
225:	2	1	0	2	0	0	2	2	2	1	0	2	4	0
239:	1	3	2	3	2	2	2	4	2	2	1	1	2	1
253:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	1	0	1	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
309:	0	1	0	0	1	1	0	0	0	0	0	0	0	0
323:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
365:	2	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	0	1	0	1	0	0	0	0	0
393:	0	0	0	1	1	0	0	1	0	0	1	0	0	0
407:	1	0	0	3	0	1	1	0	0	1	2	2	0	2
421:	1	0	0	4	1	0	1	3	2	2	1	1	2	3
435:	2	0	1	2	0	1	3	5	5	2	0	2	0	2
449:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
463:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
533:	0	0	0	0	0	0	1	1	1	0	0	0	0	1
547:	0	2	1	0	1	0	0	1	0	1	0	0	0	1
561:	0	0	1	0	0	0	0	1	0	0	1	1	1	0
575:	0	3	0	0	1	1	0	2	2	4	3	2	7	0
589:	1	2	6	2	4	6	1	4	4	5	5	6	3	3
603:	12	11	15	9	8	5	10	13	12	4	11	11	7	9
617:	9	14	12	13	11	16	14	19	13	11	10	8	2	6
631:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:30:54.16

Detector ID: 45 Acquisition Start: 7-SEP-2005 08:07:00.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508096A-UU Sample Id: 03
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4182.61	54	0	34.24	235.93	176	90	5.29E-03	13.6	
2	0	4387.07	6	0	84.37	303.50	275	42	5.88E-04	40.8	
3	0	4451.77	1	0	3.12	325.00	319	30	9.80E-05	100.0	
4	0	4758.70	65	0	105.99	427.77	374	82	6.37E-03	12.4	
5	0	5295.79	377	0	76.64	610.82	561	76	3.70E-02	5.2	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:30:55.52

Acquisition Start: 2-SEP-2005 15:07:50.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4136.22	0	0	0.00	220.50	176	90	0.00E+00	0.0	
2	0	4363.62	0	0	0.00	295.50	275	42	0.00E+00	0.0	
3	0	4478.04	0	0	0.00	333.50	319	30	0.00E+00	0.0	
4	0	4720.19	0	0	0.00	414.50	374	82	0.00E+00	0.0	
5	0	5261.33	1	0	3.13	598.50	561	76	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:30:55.79

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4182.61*	54	0	34.24	235.93	176	90	5.29E-03	13.6	
2	0	4387.07*	6	0	84.37	303.50	275	42	5.88E-04	40.8	
3	0	4451.77*	1	0	3.12	325.00	319	30	9.80E-05	100.0	
4	0	4758.70*	65	0	105.99	427.77	374	82	6.37E-03	12.4	
5	0	5295.79*	377	0	76.64	610.82	561	76	3.69E-02	5.2	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:30:56

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0H
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 7-SEP-2005 08:07:00
Sample ID : 03 Sample quantity : 1.0375 gram
Sample type : UU Sample geometry :
Detector name : 045 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.10 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4182.61*	54	34.24	235.93	176	90	27.2		U-238	0.657
0	4387.07*	6	84.37	303.50	275	42	81.6		U-235	9.048E-02
0	4451.77*	1	3.12	325.00	319	30	200.0		U-236	1.354E-02
0	4758.70*	65	105.99	427.77	374	82	24.8		U-234	0.795
0	5295.79*	377	76.64	610.82	561	76	10.3		U232	4.61

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:31:08

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Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$04_UU.CNF

****

BATCH ID:	0508096A-UU	SAMPLE ID:	04
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.032E+00	gram
SAMPLE TITLE:	VPSCR081705SL0H	DETECTOR NUMBER:	046
ACQ DATE:	7-SEP-2005 08:07	AVERAGE EFFICIENCY:	21.06%
ELAPSED LIVE TIME:	10200.	RECOVERY:	88.12%
TRACER ID:	UU-10A	TRACER FWHM (kev):	96.43
LAMBDA VALUE:	607.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.609	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:47	EFF CAL DATE: 2-SEP-2005	04:47
BKG FILENAME:	B_046_2SEP05	BKG ELAPSED TIME:	60000.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	396.83	0.17	99.8	5.503E+00	7.181E-01	6.413E-02
U-234	4761.5	78.32	0.68	99.8	1.085E+00	2.942E-01	9.070E-02
U-235	4385.5	1.83	0.17	80.9	3.129E-02	4.892E-02	7.911E-02
U-236	4485.2	3.83	0.17	90.1	5.879E-02	6.223E-02	7.103E-02
U-238	4184.4	68.66	0.34	100.2	9.474E-01	2.687E-01	7.481E-02

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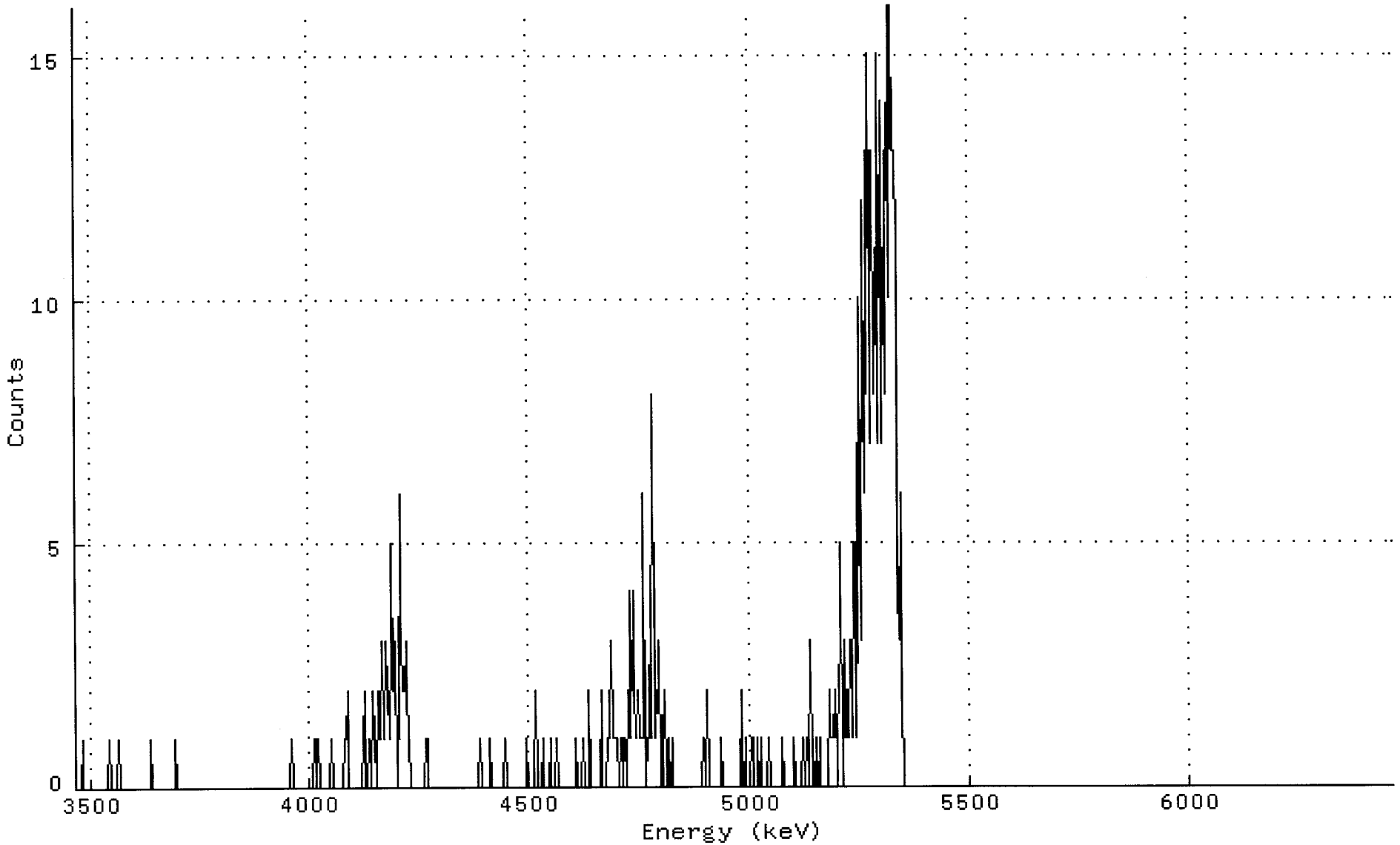
*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$04_UU.CNF;1
Title : 046
Sample Title: VPSCR081705SL0H
Start Time: 7-SEP-2005 08:07: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45583E+03
Real Time : 0 02:50:00.10 Sample ID : 04 Energy Slope : 3.13546E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.97992E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$04_UU

Channel

1:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
29:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	1	0	1	1
183:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
197:	0	0	0	0	0	1	1	2	0	0	0	0	0	0
211:	0	0	0	0	0	1	2	0	0	1	0	0	2	1
225:	1	0	2	1	1	3	1	1	3	2	2	1	3	5
239:	2	3	0	1	1	6	3	2	2	3	2	1	0	0
253:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
309:	0	0	1	0	0	0	0	0	0	0	0	0	0	1
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	1	0	0	0	0	0	0	2	0	0	0	0	1
351:	0	0	0	0	0	1	0	0	0	0	1	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
379:	0	0	1	0	0	0	0	2	0	0	0	0	0	0
393:	0	0	2	0	0	0	0	1	1	1	3	1	1	1
407:	1	0	0	1	1	0	1	0	0	2	1	4	2	4
421:	2	1	2	2	1	1	1	6	0	1	1	1	4	1
435:	8	2	1	2	2	3	0	0	1	2	0	1	0	0
449:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	1	0	0	2
477:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
505:	1	0	0	0	0	1	1	0	0	0	1	0	1	0
519:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
533:	0	1	0	0	0	0	0	0	0	0	1	0	0	0
547:	0	0	0	1	0	0	1	1	0	3	0	1	0	0
561:	1	0	1	0	0	0	0	0	0	2	1	1	1	1
575:	2	0	1	2	3	5	0	2	3	1	1	1	3	3
589:	1	5	5	1	4	10	6	3	12	8	6	13	8	15
603:	7	13	13	8	9	11	7	15	10	14	7	11	8	13
617:	12	16	10	16	13	13	13	11	4	3	6	2	0	0
631:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

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Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:31:01.57

Detector ID: 46 Acquisition Start: 7-SEP-2005 08:07:24.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508096A-UU Sample Id: 04
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4173.88	69	0	25.00	232.42	175	90	6.76E-03	12.0	
2	0	4399.75	2	0	28.22	307.00	274	42	1.96E-04	70.7	
3	0	4491.49	4	0	3.14	337.50	319	29	3.92E-04	50.0	
4	0	4745.24	79	0	25.29	422.51	374	82	7.75E-03	11.3	
5	0	5287.16	397	0	96.43	607.37	560	76	3.89E-02	5.0	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:31:06.67

Acquisition Start: 2-SEP-2005 15:07:53.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4134.01	2	0	125.49	219.50	175	90	3.33E-05	70.7	
2	0	4361.72	1	0	3.14	294.50	274	42	1.67E-05	100.0	
3	0	4477.76	1	0	3.14	333.00	319	29	1.67E-05	100.0	
4	0	4721.46	4	0	225.88	414.50	374	82	6.67E-05	50.0	
5	0	5259.15	1	0	3.14	597.50	560	76	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:31:06.94

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4173.88*	69	0	25.00	232.42	175	90	6.73E-03	12.1	
2	0	4399.75*	2	0	28.22	307.00	274	42	1.79E-04	77.8	
3	0	4491.49*	4	0	3.14	337.50	319	29	3.75E-04	52.4	
4	0	4745.24*	78	0	25.29	422.51	374	82	7.68E-03	11.4	
5	0	5287.16*	397	0	96.43	607.37	560	76	3.89E-02	5.0	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:31:07

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0H
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 7-SEP-2005 08:07:24
Sample ID : 04 Sample quantity : 1.0322 gram
Sample type : UU Sample geometry :
Detector name : 046 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.10 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4173.88*	69	25.00	232.42	175	90	24.2		U-238	0.835
0	4399.75*	2	28.22	307.00	274	42155	7.7		U-235	2.757E-02
0	4491.49*	4	3.14	337.50	319	29104	8.8		U-236	5.181E-02
0	4745.24*	78	25.29	422.51	374	82	22.7		U-234	0.956
0	5287.16*	397	96.43	607.37	560	76	10.0		U232	4.85

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ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:31:18

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$05_UU.CNF

****

BATCH ID:	0508096A-UU	SAMPLE ID:	05
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.062E+00	gram
SAMPLE TITLE:	VPSCR081705SL0I	DETECTOR NUMBER:	047
ACQ DATE:	7-SEP-2005 08:07	AVERAGE EFFICIENCY:	21.40%
ELAPSED LIVE TIME:	10200.	RECOVERY:	85.67%
TRACER ID:	UU-10A	TRACER FWHM (kev):	74.35
LAMBDA VALUE:	604.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.538	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:47	EFF CAL DATE: 2-SEP-2005	04:47
BKG FILENAME:	B_047_2SEP05	BKG ELAPSED TIME:	60000.

****

NUCLIDE ACTIVITY SUMMARY

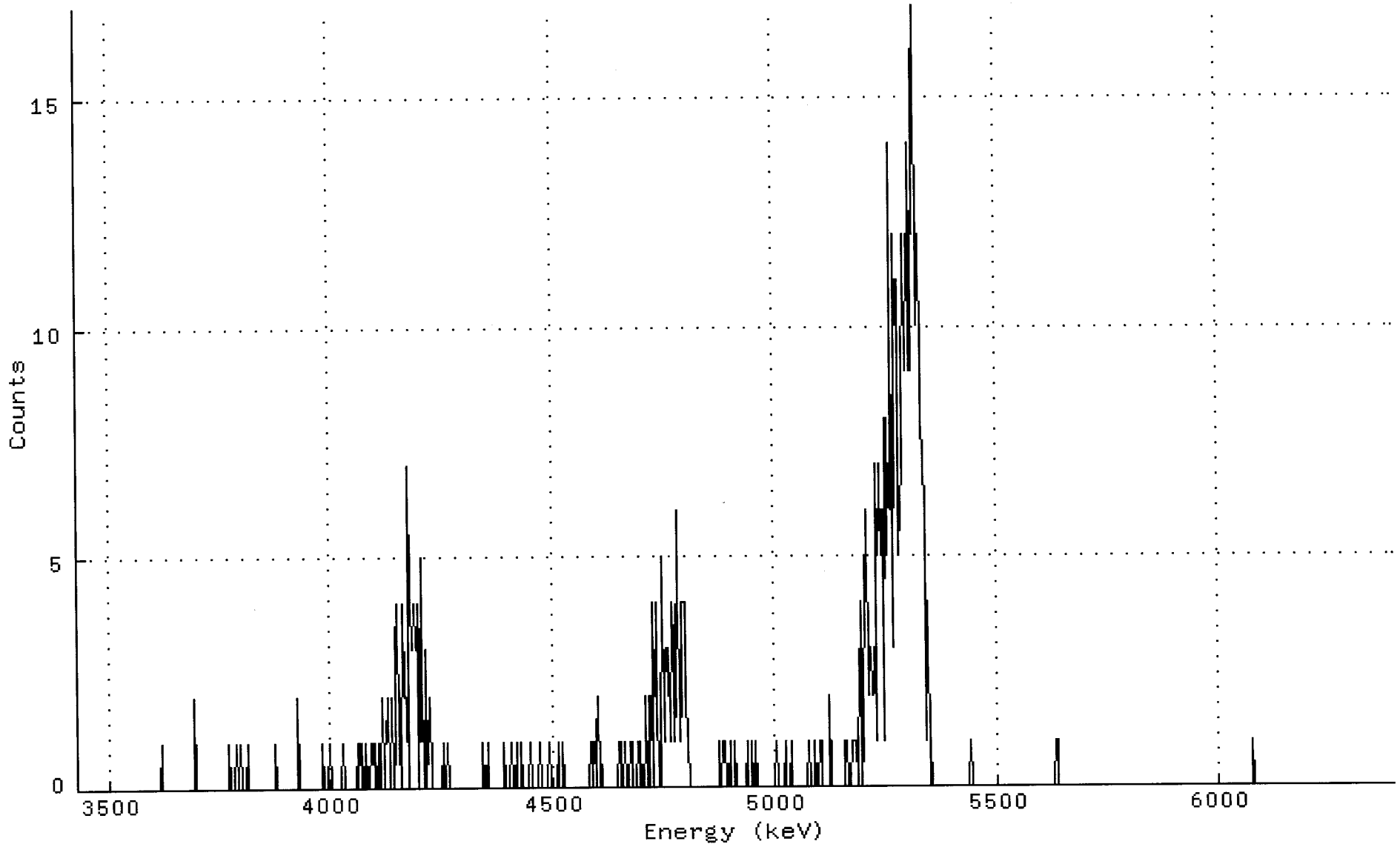
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	389.83	0.17	99.8	5.317E+00	6.976E-01	6.308E-02
U-234	4761.5	88.66	0.34	99.8	1.209E+00	3.137E-01	7.390E-02
U-235	4385.5	5.00	0.00	80.9	8.408E-02	7.624E-02	4.557E-02
U-236	4485.2	5.00	0.00	90.1	7.550E-02	6.845E-02	4.092E-02
U-238	4184.4	85.15	0.85	100.2	1.156E+00	3.048E-01	9.498E-02

****

Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$05_UU.CNF;1
Title : 047
Sample Title: VPSCR081705SL0I
Start Time: 7-SEP-2005 08:07: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.41850E+03
Real Time : 0 02:50:00.10 Sample ID : 05 Energy Slope : 3.04405E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.38313E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$05_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	2	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	1	0	0	0	0	1	0	0	1	0
127:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	2
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
197:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
211:	0	0	1	0	1	0	1	0	0	1	0	0	1	1
225:	1	0	1	0	1	0	0	2	0	1	1	2	2	0
239:	2	2	0	1	3	4	1	0	0	4	2	2	2	0
253:	7	4	3	3	4	3	4	0	2	5	2	0	3	0
267:	1	2	0	0	0	0	0	0	0	0	0	1	0	0
281:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
309:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
323:	0	1	0	0	0	0	1	0	0	0	1	0	0	0
337:	1	0	0	0	0	0	1	1	0	0	0	0	0	0
351:	1	0	0	0	0	0	0	1	0	0	0	0	0	0
365:	1	0	0	0	1	0	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	0	0	0	0	0	0	1	0	1
393:	1	0	1	2	0	1	0	0	0	0	0	0	0	0
407:	0	0	0	0	0	1	0	1	0	1	1	0	0	0
421:	1	1	0	0	0	0	1	0	1	0	0	1	2	0
435:	0	2	2	0	4	2	4	2	0	2	0	5	1	2
449:	3	2	3	1	4	3	1	2	6	5	1	2	4	4
463:	4	2	1	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
491:	1	1	1	0	0	0	1	0	0	0	1	0	0	0
505:	0	0	0	0	0	1	0	0	0	1	0	0	1	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
533:	1	0	0	0	0	0	0	1	0	0	0	1	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
561:	0	0	1	0	0	0	1	1	0	0	0	0	0	0
575:	2	0	0	0	0	0	0	0	0	0	0	0	1	1
589:	0	0	0	1	1	1	1	0	1	2	4	0	1	5
603:	3	6	2	3	3	2	2	3	1	7	5	6	7	5
617:	6	1	8	8	5	7	6	14	3	9	12	10	11	5
631:	6	7	8	12	9	9	12	9	14	9	16	12	17	10
645:	13	11	10	8	7	6	1	4	0	1	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:31:12.90

Detector ID: 47 Acquisition Start: 7-SEP-2005 08:07:42.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508096A-UU Sample Id: 05
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4167.03	86	0	57.43	248.71	193	91	8.43E-03	10.8	
2	0	4381.39	5	0	79.15	321.00	293	44	4.90E-04	44.7	
3	0	4473.46	5	0	69.63	352.20	339	30	4.90E-04	44.7	
4	0	4747.94	89	0	75.08	445.76	395	83	8.73E-03	10.6	
5	0	5281.47	390	0	74.35	630.04	584	77	3.82E-02	5.1	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:31:16.69

Acquisition Start: 2-SEP-2005 15:07:56.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.25	5	0	147.94	238.00	193	91	8.33E-05	44.7	
2	0	4363.30	0	0	0.00	314.50	293	44	0.00E+00	0.0	
3	0	4478.74	0	0	0.00	353.50	339	30	0.00E+00	0.0	
4	0	4721.10	2	0	197.26	436.00	395	83	3.33E-05	70.7	
5	0	5258.38	1	0	3.08	622.00	584	77	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:31:16.97

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4167.03*	85	0	57.43	248.71	193	91	8.35E-03	10.9	
2	0	4381.39*	5	0	79.15	321.00	293	44	4.90E-04	44.7	
3	0	4473.46*	5	0	69.63	352.20	339	30	4.90E-04	44.7	
4	0	4747.94*	89	0	75.08	445.76	395	83	8.69E-03	10.6	
5	0	5281.47*	390	0	74.35	630.04	584	77	3.82E-02	5.1	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:31:17

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0I		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 7-SEP-2005 08:07:42
Sample ID	: 05	Sample quantity	: 1.0622 gram
Sample type	: UU	Sample geometry	:
Detector name	: 047	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.10 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4167.03*	85	57.43	248.71	193	91	21.8		U-238	0.990
0	4381.39*	5	79.15	321.00	293	44	89.4		U-235	7.204E-02
0	4473.46*	5	69.63	352.20	339	30	89.4		U-236	6.468E-02
0	4747.94*	89	75.08	445.76	395	83	21.3		U-234	1.04
0	5281.47*	390	74.35	630.04	584	77	10.1		U232	4.56

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:31:28

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$06_UU.CNF

BATCH ID:	0508096A-UU	SAMPLE ID:	06
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.060E+00 gram
SAMPLE TITLE:	VPSCR081705SL0J	DETECTOR NUMBER:	048
ACQ DATE:	7-SEP-2005 08:08	AVERAGE EFFICIENCY:	20.07%
ELAPSED LIVE TIME:	10200.	RECOVERY:	74.75%
TRACER ID:	UU-10A	TRACER FWHM (kev):	75.26
LAMBDA VALUE:	609.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.636	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:47	EFF CAL DATE:	2-SEP-2005 04:47
BKG FILENAME:	B_048_2SEP05	BKG ELAPSED TIME:	60000.

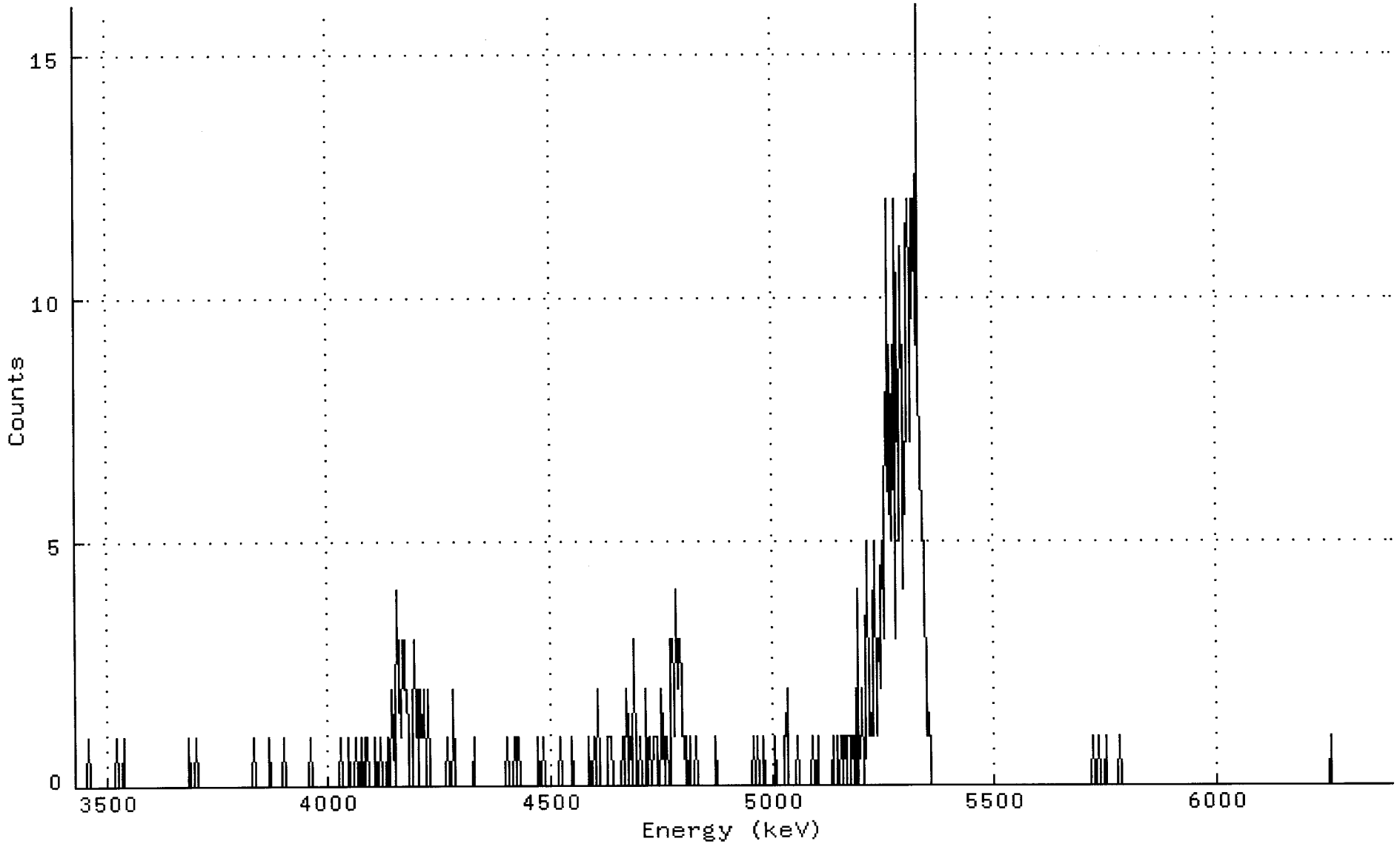
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	321.47	1.53	99.8	5.370E+00	7.494E-01	1.413E-01
U-234	4761.5	55.96	2.04	99.8	9.342E-01	2.937E-01	1.561E-01
U-235	4385.5	3.66	0.34	80.9	7.537E-02	8.380E-02	1.116E-01
U-236	4485.2	1.66	0.34	90.1	3.070E-02	5.327E-02	1.002E-01
U-238	4184.4	50.66	0.34	100.2	8.421E-01	2.714E-01	9.012E-02

Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$06_UU.CNF;1
Title : 048
Sample Title: VPSCR081705SL0J
Start Time: 7-SEP-2005 08:08: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.41833E+03
Real Time : 0 02:50:00.20 Sample ID : 06 Energy Slope : 3.05138E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.44547E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$06_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	1	0	0	0	0	1	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	1	0	0	0	0	1	1	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
141:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
155:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	1	0	0	0	0	0	1	0	0
211:	0	0	1	0	0	0	1	0	0	1	0	1	0	0
225:	0	0	0	1	0	0	0	1	0	0	0	0	1	0
239:	0	2	2	1	0	1	4	2	1	1	3	3	2	2
253:	1	0	0	0	1	3	1	2	0	2	1	1	2	0
267:	0	2	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	1	1	0	0	1	2	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	1	0	0	0	0	0	1	0	1	1
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	1	0	0	0	1	0	0	0	0	0	0	0	0	0
365:	0	0	0	1	0	0	0	0	0	0	0	0	1	0
379:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
393:	0	1	0	0	2	0	0	0	0	0	0	0	1	1
407:	1	0	0	0	0	0	0	0	0	1	1	0	2	1
421:	0	1	1	0	3	0	1	0	1	0	0	0	0	2
435:	0	1	1	0	1	1	1	1	0	0	1	2	1	0
449:	1	1	0	0	3	3	2	1	4	2	2	3	2	1
463:	1	0	1	0	1	0	0	0	0	1	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
519:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
533:	1	0	0	0	0	0	0	1	1	2	0	0	0	0
547:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
561:	0	1	0	0	0	1	0	0	0	0	0	0	0	0
575:	0	0	0	1	0	0	0	1	0	1	1	0	1	0
589:	1	1	1	0	1	1	0	0	4	0	1	1	2	0
603:	1	2	5	1	2	1	1	3	5	1	3	3	2	4
617:	5	3	5	8	6	12	6	5	7	9	3	12	9	5
631:	6	11	7	4	7	7	11	12	10	7	12	12	12	9
645:	16	8	7	5	5	5	1	2	1	1	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	1	1	0
785:	0	0	1	0	0	0	0	0	1	0	0	0	0	0
799:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:31:22.73

Detector ID: 48 Acquisition Start: 7-SEP-2005 08:08:01.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.20
Batch Id: 0508096A-UU Sample Id: 06
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4165.83	51	0	43.20	247.88	192	92	5.00E-03	14.0	
2	0	4392.54	4	0	0.00	324.25	293	43	3.92E-04	50.0	
3	0	4477.45	2	0	15.26	353.00	339	29	1.96E-04	70.7	
4	0	4739.25	58	0	110.82	442.16	395	83	5.69E-03	13.1	
5	0	5284.15	323	0	75.26	630.29	584	77	3.17E-02	5.6	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:31:26.91

Acquisition Start: 2-SEP-2005 15:07:59.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4136.57	2	0	136.91	237.50	192	92	3.33E-05	70.7	
2	0	4363.55	2	0	51.72	314.00	293	43	3.33E-05	70.7	
3	0	4478.64	2	0	30.42	353.00	339	29	3.33E-05	70.7	
4	0	4722.20	12	0	185.59	436.00	395	83	2.00E-04	28.9	
5	0	5261.16	9	0	219.06	622.00	584	77	1.50E-04	33.3	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:31:27.19

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4165.83*	51	0	43.20	247.88	192	92	4.97E-03	14.1	
2	0	4392.54*	4	0	0.00	324.25	293	43	3.59E-04	55.0	
3	0	4477.45*	2	0	15.26	353.00	339	29	1.63E-04	86.4	
4	0	4739.25*	56	0	110.82	442.16	395	83	5.49E-03	13.6	
5	0	5284.15*	321	0	75.26	630.29	584	77	3.15E-02	5.6	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:31:28

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0J
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 7-SEP-2005 08:08:01
Sample ID : 06 Sample quantity : 1.0600 gram
Sample type : UU Sample geometry :
Detector name : 048 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.20 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4165.83*	51	43.20	247.88	192	92	28.2		U-238	0.629
0	4392.54*	4	0.00	324.25	293	43	110.1		U-235	5.634E-02
0	4477.45*	2	15.26	353.00	339	29	172.8		U-236	2.294E-02
0	4739.25*	56	110.82	442.16	395	83	27.3		U-234	0.698
0	5284.15*	321	75.26	630.29	584	77	11.2		U232	4.01

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:31:39

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$07_UU.CNF

BATCH ID:	0508096A-UU	SAMPLE ID:	07
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.167E+00 gram
SAMPLE TITLE:	VPSCR081705SL0K	DETECTOR NUMBER:	033
ACQ DATE:	7-SEP-2005 11:13	AVERAGE EFFICIENCY:	21.77%
ELAPSED LIVE TIME:	10200.	RECOVERY:	87.02%
TRACER ID:	UU-10A	TRACER FWHM (kev):	96.26
LAMBDA VALUE:	607.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.599	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:46	EFF CAL DATE:	2-SEP-2005 04:46
BKG FILENAME:	B_033_2SEP05	BKG ELAPSED TIME:	60000.

NUCLIDE ACTIVITY SUMMARY

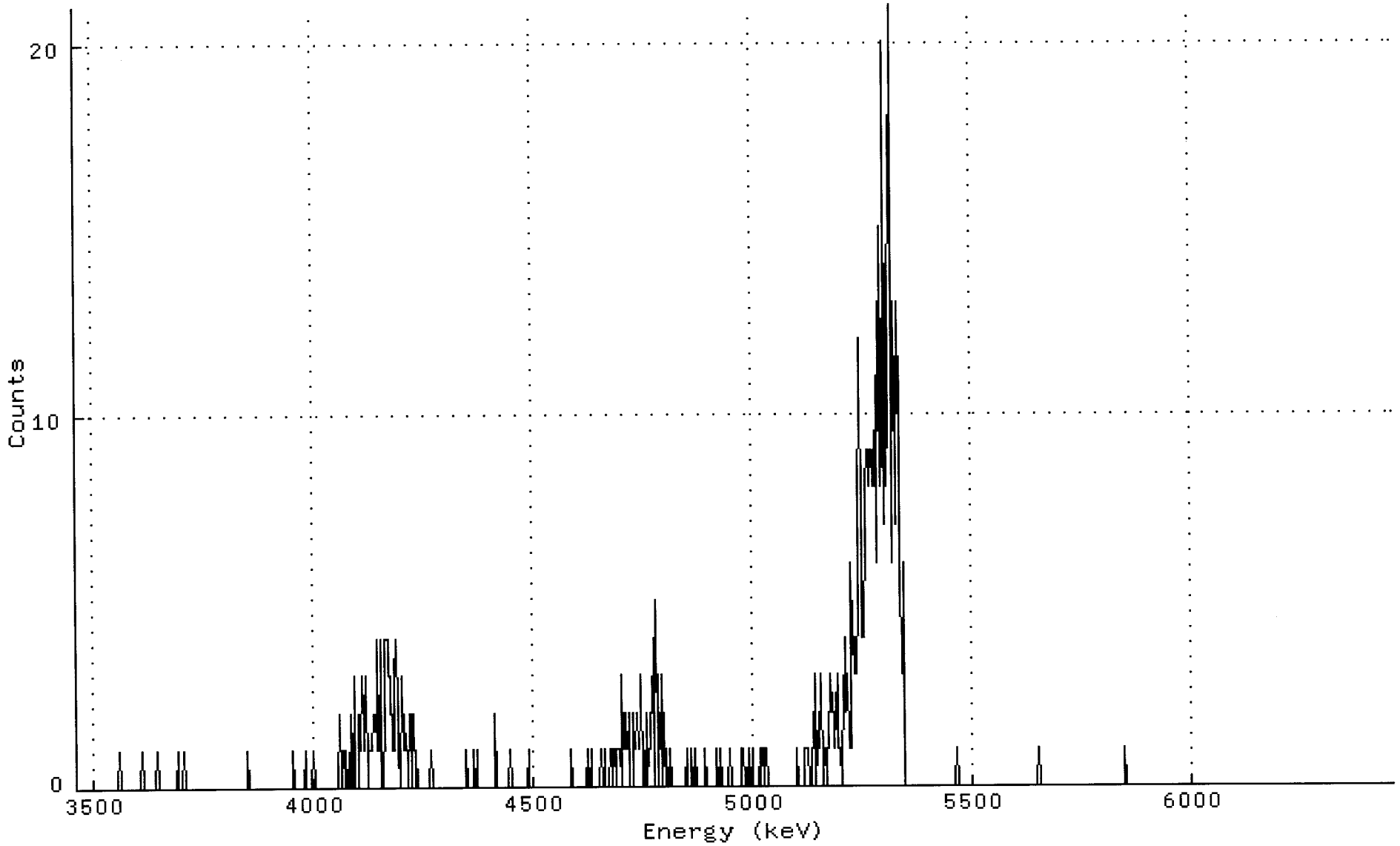
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	404.66	0.34	99.8	4.862E+00	6.308E-01	6.511E-02
U-234	4761.5	60.00	0.00	99.8	7.206E-01	2.141E-01	3.255E-02
U-235	4385.5	4.83	0.17	80.9	7.156E-02	6.728E-02	6.855E-02
U-236	4485.2	1.83	0.17	90.1	2.434E-02	3.806E-02	6.155E-02
U-238	4184.4	87.49	0.51	100.2	1.046E+00	2.722E-01	7.212E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-7-05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$07_UU.CNF;1
Title : 033
Sample Title: VPSCR081705SL0K
Start Time: 7-SEP-2005 11:13: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44982E+03
Real Time : 0 02:50:00.60 Sample ID : 07 Energy Slope : 3.10876E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.68614E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$07_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
57:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
169:	0	0	0	0	1	0	0	0	0	0	1	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	2	0	1	1	0	1	0	0	2	0	0	3
211:	0	0	0	2	1	3	2	1	3	0	1	1	1	1
225:	2	2	1	4	1	4	0	0	2	4	4	4	2	3
239:	1	1	3	4	2	1	0	3	1	2	1	1	0	2
253:	2	0	2	0	1	0	0	0	0	0	0	0	0	0
267:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
295:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	2	0	0	0	0	0	0
323:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
379:	0	0	0	0	0	0	0	1	0	0	1	0	0	0
393:	0	0	0	1	1	0	1	0	0	0	0	1	0	1
407:	1	0	1	1	1	0	3	1	2	1	1	2	0	0
421:	0	2	1	2	2	1	2	3	0	0	2	0	1	1
435:	2	2	4	0	5	1	0	2	0	3	1	0	1	0
449:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
463:	0	0	0	1	0	0	1	0	0	0	0	0	0	1
477:	0	0	0	0	0	0	0	0	1	0	0	1	0	0
491:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
505:	1	0	0	0	1	0	0	1	0	0	0	0	0	1
519:	0	1	0	1	1	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	1	0	0	0	0	0	1	1	1	1	0	0	1	1
561:	3	0	1	2	1	3	0	0	1	1	0	2	2	3
575:	2	2	1	2	3	1	1	0	1	2	4	2	3	1
589:	1	6	4	3	4	3	5	6	12	6	4	4	7	8
603:	9	8	9	9	8	9	8	11	6	13	8	15	10	7
617:	20	8	10	14	15	21	6	13	10	7	13	10	6	3
631:	6	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:31:32.49

Detector ID: 33 Acquisition Start: 7-SEP-2005 11:13:28.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.60
Batch Id: 0508096A-UU Sample Id: 07
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4158.23	88	0	114.51	230.76	179	90	8.63E-03	10.7	
2	0	4384.11	5	0	3.11	305.60	278	42	4.90E-04	44.7	
3	0	4469.34	2	0	46.63	334.00	323	29	1.96E-04	70.7	
4	0	4740.94	60	0	97.65	425.12	378	82	5.88E-03	12.9	
5	0	5281.58	405	0	96.26	609.36	564	76	3.97E-02	5.0	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:31:37.05

Acquisition Start: 2-SEP-2005 15:07:15.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.21	3	0	206.60	223.50	179	90	5.00E-05	57.7	
2	0	4362.41	1	0	3.13	298.50	278	42	1.67E-05	100.0	
3	0	4478.19	1	0	3.13	337.00	323	29	1.67E-05	100.0	
4	0	4721.39	0	0	0.00	418.50	378	82	0.00E+00	0.0	
5	0	5258.11	2	0	50.08	601.50	564	76	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:31:37.33

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4158.23*	87	0	114.51	230.76	179	90	8.58E-03	10.7	
2	0	4384.11*	5	0	3.11	305.60	278	42	4.74E-04	46.4	
3	0	4469.34*	2	0	46.63	334.00	323	29	1.79E-04	77.8	
4	0	4740.94*	60	0	97.65	425.12	378	82	5.88E-03	12.9	
5	0	5281.58*	405	0	96.26	609.36	564	76	3.97E-02	5.0	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:31:38

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0K
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 7-SEP-2005 11:13:28
Sample ID : 07 Sample quantity : 1.1671 gram
Sample type : UU Sample geometry :
Detector name : 033 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.60 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4158.23*	87	114.51	230.76	179	90	21.5		U-238	0.910
0	4384.11*	5	3.11	305.60	278	42	92.9		U-235	6.227E-02
0	4469.34*	2	46.63	334.00	323	29	155.7		U-236	2.118E-02
0	4740.94*	60	97.65	425.12	378	82	25.8		U-234	0.627
0	5281.58*	405	96.26	609.36	564	76	9.9		U232	4.23

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:31:51

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$08_UU.CNF

BATCH ID:	0508096A-UU	SAMPLE ID:	08
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.110E+00	gram
SAMPLE TITLE:	VPSCR081705SL0L	DETECTOR NUMBER:	034
ACQ DATE:	7-SEP-2005 11:13	AVERAGE EFFICIENCY:	20.45%
ELAPSED LIVE TIME:	10200.	RECOVERY:	89.25%
TRACER ID:	UU-10A	TRACER FWHM (kev):	74.01
LAMBDA VALUE:	608.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.623	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:46	EFF CAL DATE: 2-SEP-2005	04:46
BKG FILENAME:	B_034_2SEP05	BKG ELAPSED TIME:	60000.

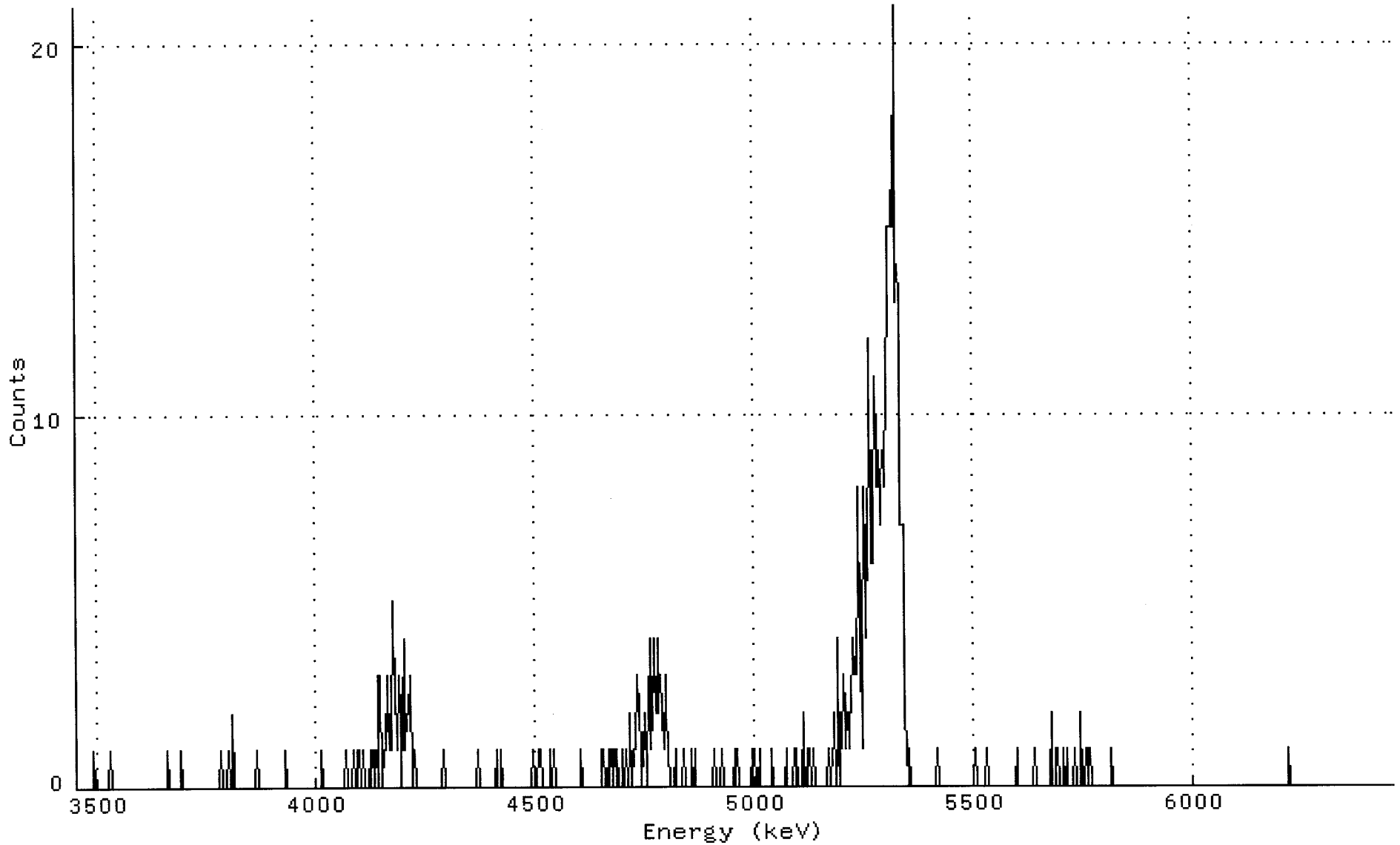
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	390.66	0.34	99.8	5.123E+00	6.719E-01	7.105E-02
U-234	4761.5	70.83	0.17	99.8	9.283E-01	2.604E-01	6.064E-02
U-235	4385.5	3.00	0.00	80.9	4.850E-02	5.647E-02	4.381E-02
U-236	4485.2	4.00	0.00	90.1	5.807E-02	5.870E-02	3.934E-02
U-238	4184.4	62.00	0.00	100.2	8.091E-01	2.380E-01	3.536E-02

Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$08_UU.CNF;1
Title : 034
Sample Title: VPSCR081705SL0L
Start Time: 7-SEP-2005 11:13: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44384E+03
Real Time : 0 02:50:00.70 Sample ID : 08 Energy Slope : 3.09557E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.56613E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$08_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	1	0	0	0	0	0	0	0	0	0	1	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
113:	0	0	0	1	0	0	2	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	1	0	0	0	0	0	1
211:	0	1	0	1	0	0	1	0	0	0	0	1	0	1
225:	0	1	1	0	3	3	0	1	1	1	3	2	1	3
239:	1	5	2	2	1	3	2	0	2	4	1	2	2	2
253:	3	0	1	1	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	1	0	0	0	1	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	1	0	0	0	1	1
351:	1	0	0	0	0	0	0	0	1	0	1	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	1	1	0	0	0	1	0	1	0
407:	1	1	0	1	0	0	0	1	0	1	1	0	1	2
421:	0	1	1	1	3	3	2	1	0	1	2	0	1	2
435:	4	1	2	4	3	2	4	2	3	2	2	1	3	2
449:	1	0	0	0	0	1	0	0	0	0	0	1	1	0
463:	0	0	0	0	1	0	1	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	1	0	0	0	0	0	1
491:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
505:	0	0	0	0	0	0	0	0	1	0	1	0	0	0
519:	1	0	0	0	0	0	0	0	0	0	1	0	0	0
533:	0	0	0	0	0	0	0	1	0	0	0	0	0	1
547:	0	1	0	0	0	0	2	0	0	1	0	1	0	0
561:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
575:	0	1	1	2	0	1	4	0	2	1	3	2	1	2
589:	1	2	2	4	4	3	3	6	8	4	1	3	8	6
603:	4	7	9	12	6	6	7	11	9	8	9	7	8	9
617:	8	9	10	14	15	15	15	16	15	21	13	14	13	7
631:	7	7	2	1	0	1	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	1	0	0	0	0	0	0	0	0	1	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
743:	0	0	0	0	0	2	0	0	0	1	1	0	0	0
757:	0	1	0	1	0	0	0	0	0	0	1	0	0	0
771:	0	2	0	0	0	1	0	1	1	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:31:42.52

Detector ID: 34 Acquisition Start: 7-SEP-2005 11:13:48.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.70
Batch Id: 0508096A-UU Sample Id: 08
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4170.30	62	0	75.31	237.53	181	91	6.08E-03	12.7	
2	0	4399.41	3	0	58.82	313.67	281	42	2.94E-04	57.7	
3	0	4504.37	4	0	21.67	348.75	326	29	3.92E-04	50.0	
4	0	4752.07	71	0	72.69	432.06	381	82	6.96E-03	11.9	
5	0	5285.75	391	0	74.01	614.09	567	76	3.83E-02	5.1	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:31:49.52

Acquisition Start: 2-SEP-2005 15:07:17.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.20

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.35	0	0	0.00	226.00	181	91	0.00E+00	0.0	
2	0	4362.72	0	0	0.00	301.50	281	42	0.00E+00	0.0	
3	0	4478.01	0	0	0.00	340.00	326	29	0.00E+00	0.0	
4	0	4720.62	1	0	3.09	421.50	381	82	1.67E-05	100.0	
5	0	5258.21	2	0	157.57	604.50	567	76	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:31:49.81

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4170.30*	62	0	75.31	237.53	181	91	6.08E-03	12.7	
2	0	4399.41*	3	0	58.82	313.67	281	42	2.94E-04	57.7	
3	0	4504.37*	4	0	21.67	348.75	326	29	3.92E-04	50.0	
4	0	4752.07*	71	0	72.69	432.06	381	82	6.94E-03	11.9	
5	0	5285.75*	391	0	74.01	614.09	567	76	3.83E-02	5.1	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:31:50

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0L
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 7-SEP-2005 11:13:48
Sample ID : 08 Sample quantity : 1.1100 gram
Sample type : UU Sample geometry :
Detector name : 034 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.70 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4170.30*	62	75.31	237.53	181	91	25.4		U-238	0.722
0	4399.41*	3	58.82	313.67	281	42	115.5		U-235	4.329E-02
0	4504.37*	4	21.67	348.75	326	29	100.0		U-236	5.182E-02
0	4752.07*	71	72.69	432.06	381	82	23.8		U-234	0.828
0	5285.75*	391	74.01	614.09	567	76	10.1		U232	4.57

Eberline Services
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ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:32:06

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$09_UU.CNF

BATCH ID:	0508096A-UU	SAMPLE ID:	09
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.010E+00 gram
SAMPLE TITLE:	VPSCR081705SL0M	DETECTOR NUMBER:	035
ACQ DATE:	7-SEP-2005 11:14	AVERAGE EFFICIENCY:	20.50%
ELAPSED LIVE TIME:	10200.	RECOVERY:	78.03%
TRACER ID:	UU-10A	TRACER FWHM (kev):	61.72
LAMBDA VALUE:	605.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.563	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:46	EFF CAL DATE:	2-SEP-2005 04:46
BKG FILENAME:	B_035_2SEP05	BKG ELAPSED TIME:	60000.

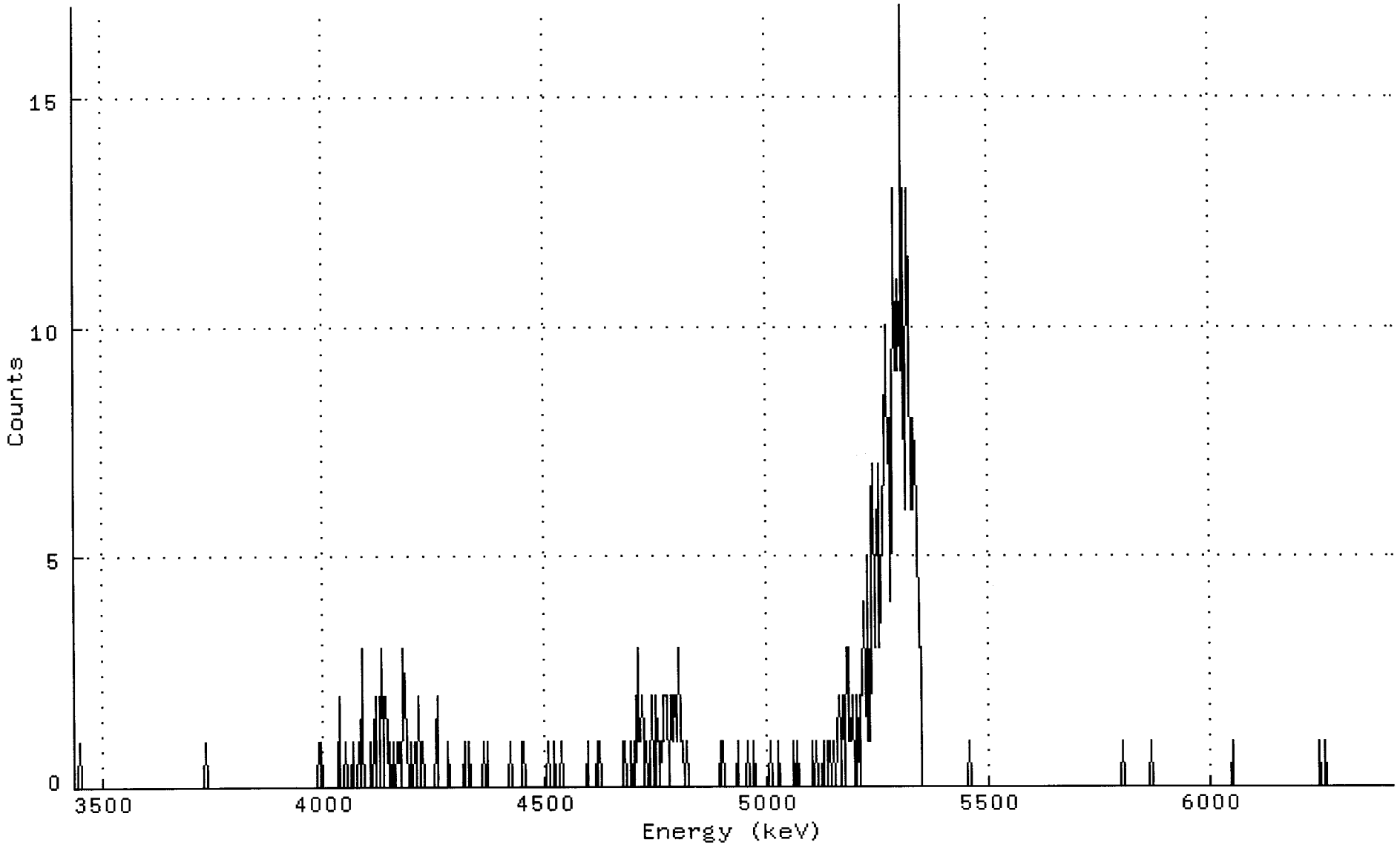
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	340.83	0.17	99.8	5.603E+00	7.661E-01	7.603E-02
U-234	4761.5	47.83	0.17	99.8	7.859E-01	2.577E-01	7.603E-02
U-235	4385.5	4.66	0.34	80.9	9.445E-02	9.231E-02	1.099E-01
U-236	4485.2	4.00	0.00	90.1	7.280E-02	7.365E-02	4.932E-02
U-238	4184.4	44.32	0.68	100.2	7.251E-01	2.463E-01	1.071E-01

Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$09_UU.CNF;1
Title : 035
Sample Title: VPSCR081705SL0M
Start Time: 7-SEP-2005 11:14: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42452E+03
Real Time : 0 02:50:00.50 Sample ID : 09 Energy Slope : 3.10538E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.85187E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$09_UU

Channel

1:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
197:	0	0	2	0	0	0	0	1	0	0	0	0	1	0
211:	0	0	0	1	0	3	1	0	0	0	0	0	1	0
225:	1	2	0	0	0	1	3	0	2	2	1	0	1	0
239:	0	1	0	1	1	1	0	2	3	2	1	1	0	1
253:	0	0	1	1	0	2	0	0	1	0	0	0	0	0
267:	0	0	0	0	1	2	0	0	0	0	0	0	0	1
281:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
295:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
309:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
337:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	1	0	0	0	0	1	0	0	0
365:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
393:	1	0	1	0	0	0	0	0	0	0	0	0	0	0
407:	0	0	0	0	0	0	1	1	0	0	0	0	1	0
421:	1	0	1	3	1	1	2	1	0	1	0	0	0	2
435:	2	0	0	2	1	1	0	1	1	2	2	2	0	0
449:	2	2	1	2	1	1	3	1	1	1	0	0	1	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	1	0	1	0
491:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
505:	0	0	0	1	0	0	0	0	1	0	0	0	0	0
519:	0	0	0	0	0	0	0	1	0	0	0	0	0	1
533:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
547:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
561:	1	1	0	0	0	0	1	0	0	0	1	1	0	0
575:	1	0	1	1	2	1	0	2	0	1	3	3	1	1
589:	2	2	0	0	2	1	0	2	2	4	4	2	1	5
603:	1	3	6	7	3	5	5	7	3	4	6	6	7	10
617:	9	7	8	4	6	13	12	9	9	11	10	9	17	9
631:	6	7	13	10	10	6	6	8	7	6	6	3	3	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
967:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
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Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:31:55.92

Detector ID: 35 Acquisition Start: 7-SEP-2005 11:14:06.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.50
Batch Id: 0508096A-UU Sample Id: 09
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4150.50	45	0	228.21	237.13	187	91	4.41E-03	14.9	
2	0	4358.03	5	0	111.79	306.20	287	43	4.90E-04	44.7	
3	0	4481.28	4	0	0.00	347.50	332	30	3.92E-04	50.0	
4	0	4748.78	48	0	100.92	437.87	387	83	4.71E-03	14.4	
5	0	5279.30	341	0	61.72	620.22	575	77	3.34E-02	5.4	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:32:04.31

Acquisition Start: 2-SEP-2005 15:07:20.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.20

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4136.91	4	0	124.08	232.00	187	91	6.67E-05	50.0	
2	0	4365.24	2	0	0.00	308.00	287	43	3.33E-05	70.7	
3	0	4480.12	0	0	0.00	346.50	332	30	0.00E+00	0.0	
4	0	4721.53	1	0	3.10	428.00	387	83	1.67E-05	100.0	
5	0	5260.62	1	0	3.10	613.00	575	77	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:32:04.59

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4150.50*	44	0	228.21	237.13	187	91	4.35E-03	15.2	
2	0	4358.03*	5	0	111.79	306.20	287	43	4.57E-04	48.3	
3	0	4481.28*	4	0	0.00	347.50	332	30	3.92E-04	50.0	
4	0	4748.78*	48	0	100.92	437.87	387	83	4.69E-03	14.5	
5	0	5279.30*	341	0	61.72	620.22	575	77	3.34E-02	5.4	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:32:05

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0M		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 7-SEP-2005 11:14:06
Sample ID	: 09	Sample quantity	: 1.0100 gram
Sample type	: UU	Sample geometry	:
Detector name	: 035	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.50 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4150.50*	44228.21	237.13	187	91	30.3			U-238	0.566
0	4358.03*	5111.79	306.20	287	43	96.5			U-235	7.370E-02
0	4481.28*	4	0.00	347.50	332	30	100.0		U-236	5.681E-02
0	4748.78*	48100.92	437.87	387	83	29.0			U-234	0.613
0	5279.30*	341	61.72	620.22	575	77	10.8		U232	4.37

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:32:14

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$10_UU.CNF

BATCH ID:	0508096A-UU	SAMPLE ID:	10
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.161E+00	gram
SAMPLE TITLE:	VPSCR081705SL0N	DETECTOR NUMBER:	036
ACQ DATE:	7-SEP-2005 11:14	AVERAGE EFFICIENCY:	21.12%
ELAPSED LIVE TIME:	10200.	RECOVERY:	91.74%
TRACER ID:	UU-10A	TRACER FWHM (kev):	76.23
LAMBDA VALUE:	607.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.603	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:46	EFF CAL DATE: 2-SEP-2005	04:46
BKG FILENAME:	B_036_2SEP05	BKG ELAPSED TIME:	60000.

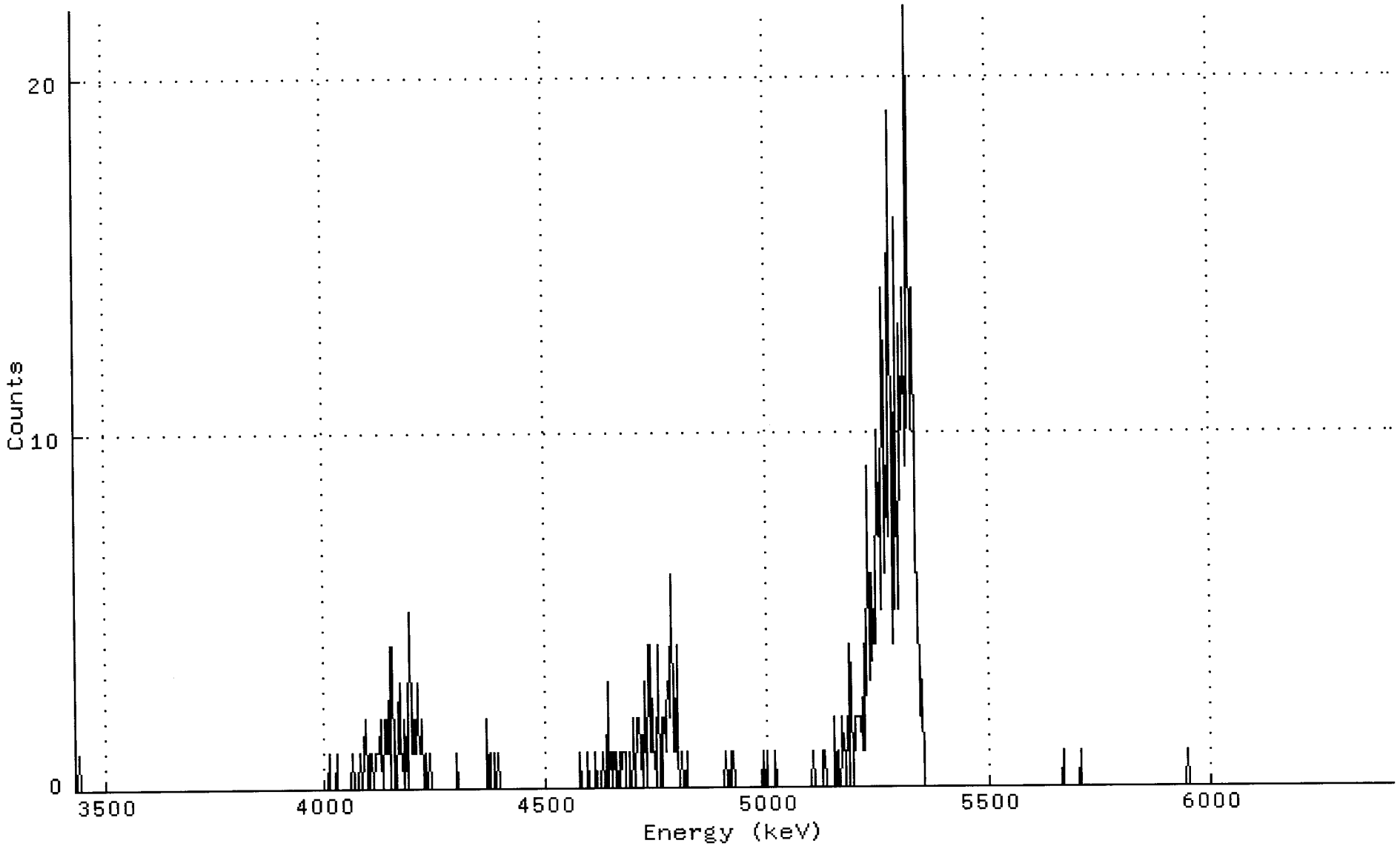
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	414.00	0.00	99.8	4.892E+00	6.305E-01	3.200E-02
U-234	4761.5	79.66	0.34	99.8	9.407E-01	2.523E-01	6.402E-02
U-235	4385.5	5.00	0.00	80.9	7.284E-02	6.602E-02	3.948E-02
U-236	4485.2	0.00	0.00	90.1	0.000E+00	0.000E+00	3.545E-02
U-238	4184.4	66.00	0.00	100.2	7.761E-01	2.223E-01	3.187E-02

Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$10_UU.CNF;1
Title : 036
Sample Title: VPSCR081705SLON
Start Time: 7-SEP-2005 11:14: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42383E+03
Real Time : 0 02:50:00.60 Sample ID : 10 Energy Slope : 3.07663E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.54719E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$10_UU

Channel

1:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
197:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
211:	0	0	0	0	1	1	0	1	1	2	0	0	1	1
225:	0	0	1	1	1	1	2	1	0	2	1	2	1	4
239:	0	4	0	2	0	2	3	1	1	0	2	1	0	1
253:	5	1	2	1	1	3	2	1	1	2	0	1	0	0
267:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	2	0	1	0	0	0	1	0	1	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	0	0	1	0	0	0	0	0	1	0	0	0	0
393:	0	1	0	0	0	0	1	0	0	0	3	0	1	0
407:	1	1	0	1	0	1	0	1	1	1	0	0	0	1
421:	0	1	2	0	2	1	2	1	1	0	3	2	0	4
435:	1	4	1	1	1	0	4	3	0	0	2	2	1	2
449:	3	3	2	6	1	2	1	4	1	0	1	0	0	0
463:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	1	0	0	0	1	0	1	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	1	0	0	1	0	0	0	0	0	0	1
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	1	0	0	0	0	0	0	0	1	1	0	0	0	0
575:	0	0	0	2	0	1	0	0	1	2	1	1	0	2
589:	0	4	3	0	0	2	2	2	2	2	2	1	4	1
603:	4	6	9	3	4	6	4	4	4	10	7	9	5	14
617:	11	6	9	7	11	19	4	7	5	16	9	5	11	13
631:	10	12	14	9	11	22	18	10	10	14	8	6	6	2
645:	2	3	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:32:09.86

Detector ID: 36 Acquisition Start: 7-SEP-2005 11:14:27.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.60
Batch Id: 0508096A-UU Sample Id: 10
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4155.90	66	0	64.61	240.86	189	91	6.47E-03	12.3	
2	0	4375.23	5	0	3.08	314.20	289	43	4.90E-04	44.7	
3	0	4477.24	0	0	0.00	348.50	334	30	0.00E+00	0.0	
4	0	4736.38	80	0	69.47	436.19	390	82	7.84E-03	11.2	
5	0	5281.05	414	0	76.23	623.19	578	76	4.06E-02	4.9	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:32:12.85

Acquisition Start: 2-SEP-2005 15:07:23.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.20

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.75	0	0	0.00	234.00	189	91	0.00E+00	0.0	
2	0	4363.44	0	0	0.00	310.00	289	43	0.00E+00	0.0	
3	0	4478.09	0	0	0.00	348.50	334	30	0.00E+00	0.0	
4	0	4720.69	2	0	21.58	430.50	390	82	3.33E-05	70.7	
5	0	5260.17	0	0	0.00	615.50	578	76	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:32:13.13

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4155.90*	66	0	64.61	240.86	189	91	6.47E-03	12.3	
2	0	4375.23*	5	0	3.08	314.20	289	43	4.90E-04	44.7	
3	0	4477.24*	0	0	0.00	348.50	334	30	0.00E+00	0.0	
4	0	4736.38*	80	0	69.47	436.19	390	82	7.81E-03	11.2	
5	0	5281.05*	414	0	76.23	623.19	578	76	4.06E-02	4.9	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:32:13

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0N		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 7-SEP-2005 11:14:27
Sample ID	: 10	Sample quantity	: 1.1605 gram
Sample type	: UU	Sample geometry	:
Detector name	: 036	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.60 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4155.90*	66	64.61	240.86	189	91	24.6		U-238	0.712
0	4375.23*	5	3.08	314.20	289	43	89.4		U-235	6.682E-02
0	4477.24*	0	0.00	348.50	334	30	0.0		U-236	0.000E+00
0	4736.38*	80	69.47	436.19	390	82	22.5		U-234	0.863
0	5281.05*	414	76.23	623.19	578	76	9.8		U232	4.49

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:32:26

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$11_UU.CNF

BATCH ID:	0508096A-UU	SAMPLE ID:	11
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.053E+00	gram
SAMPLE TITLE:	VPSCR081705SL0O	DETECTOR NUMBER:	037
ACQ DATE:	7-SEP-2005 11:14	AVERAGE EFFICIENCY:	21.19%
ELAPSED LIVE TIME:	10200.	RECOVERY:	90.21%
TRACER ID:	UU-10A	TRACER FWHM (kev):	45.48
LAMBDA VALUE:	608.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.619	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:46	EFF CAL DATE: 2-SEP-2005	04:46
BKG FILENAME:	B_037_2SEP05	BKG ELAPSED TIME:	60000.

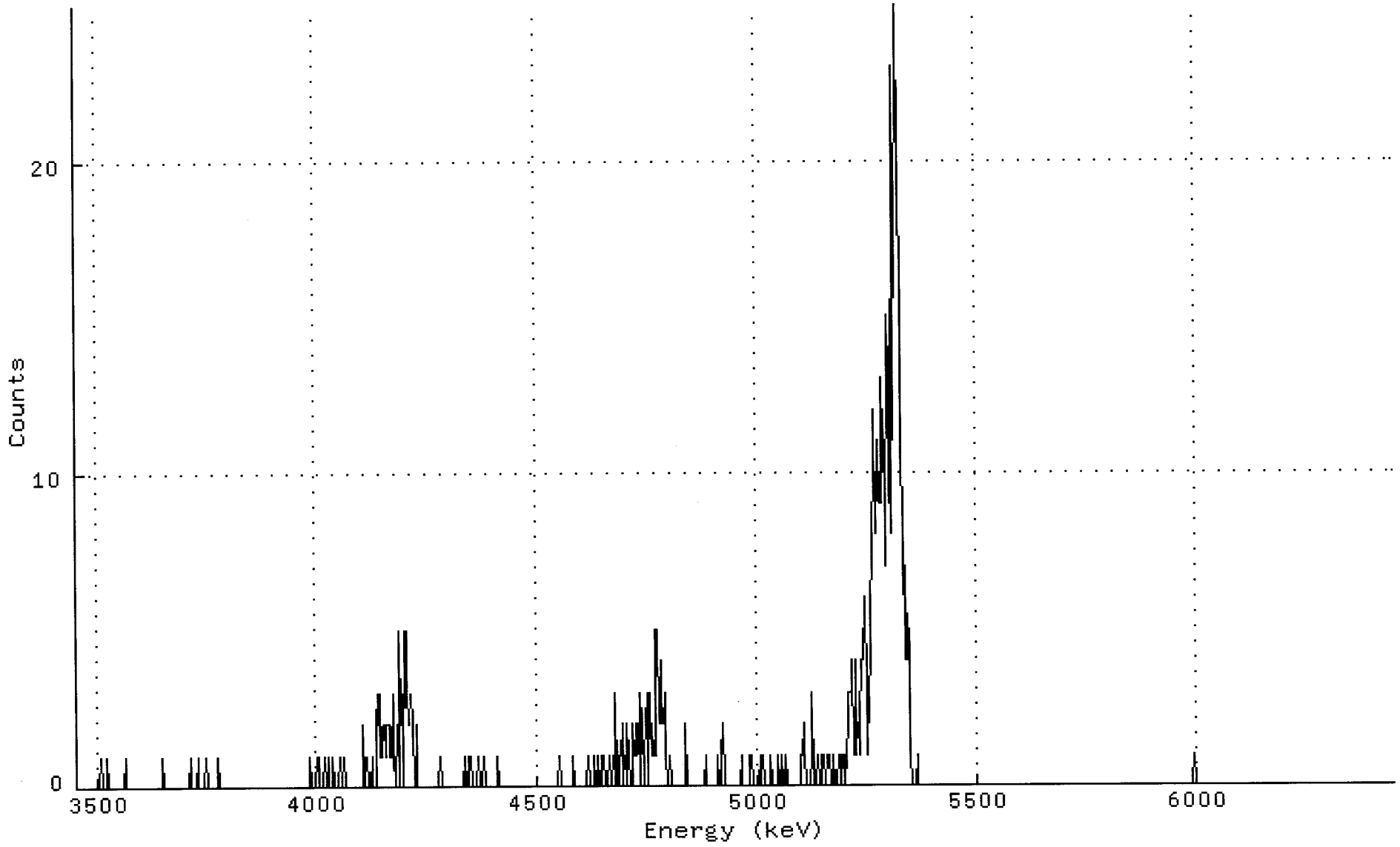
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	409.00	0.00	99.8	5.399E+00	6.982E-01	3.575E-02
U-234	4761.5	72.66	0.34	99.8	9.587E-01	2.658E-01	7.153E-02
U-235	4385.5	5.83	0.17	80.9	9.489E-02	8.113E-02	7.531E-02
U-236	4485.2	0.00	0.00	90.1	0.000E+00	0.000E+00	3.960E-02
U-238	4184.4	73.00	0.00	100.2	9.590E-01	2.650E-01	3.560E-02

Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$11_UU.CNF;1
Title : 037
Sample Title: VPSCR081705SL00
Start Time: 7-SEP-2005 11:14: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44278E+03
Real Time : 0 02:50:00.60 Sample ID : 11 Energy Slope : 3.08429E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.47964E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$11_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
29:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	1	0	0	0	0	0	1	0	0	0	0	0
99:	1	0	0	0	0	0	0	0	0	1	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
183:	1	1	0	0	0	0	1	0	1	0	0	0	1	0
197:	0	0	0	1	0	0	1	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	2	0	1	0	0	0	1
225:	0	0	0	2	3	1	3	1	2	1	2	2	2	1
239:	1	3	1	0	2	0	5	2	3	0	5	5	3	2
253:	3	3	2	0	2	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
295:	0	1	0	1	0	0	0	0	0	1	0	0	0	1
309:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
379:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
393:	1	0	0	1	0	1	0	1	0	0	0	1	0	0
407:	1	0	3	0	0	1	1	2	0	1	0	2	1	0
421:	0	2	1	1	2	2	0	3	2	0	1	2	3	0
435:	3	1	2	1	1	5	5	2	4	2	2	3	1	0
449:	1	1	0	0	0	0	0	0	0	0	0	0	0	2
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	1	0	0	0	0	0	0	0	0	0	1	0	0	1
491:	2	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	1	0	0	0	0	0	0	1	1	0	0	0	0	0
519:	0	1	0	1	0	0	0	0	0	1	0	0	0	0
533:	0	1	0	0	1	0	0	1	0	0	0	0	0	0
547:	0	0	0	0	0	1	1	2	1	0	0	0	0	1
561:	3	0	0	0	1	0	1	0	1	0	0	1	1	1
575:	0	0	1	0	0	0	1	1	0	1	1	0	1	2
589:	3	3	3	4	1	4	1	2	1	2	4	4	4	6
603:	3	1	3	4	5	8	10	12	8	10	11	9	9	13
617:	11	9	7	15	9	14	8	23	11	20	21	25	20	15
631:	11	8	4	7	4	5	1	0	0	0	0	1	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:32:18.58

Detector ID: 37 Acquisition Start: 7-SEP-2005 11:14:46.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.60
Batch Id: 0508096A-UU Sample Id: 11
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4166.14	73	0	80.00	237.23	182	91	7.16E-03	11.7	
2	0	4363.73	6	0	83.28	303.00	282	42	5.88E-04	40.8	
3	0	4477.31	0	0	0.00	341.00	327	29	0.00E+00	0.0	
4	0	4742.27	73	0	114.76	430.21	382	82	7.16E-03	11.7	
5	0	5291.58	409	0	45.48	617.73	569	76	4.01E-02	4.9	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:32:24.66

Acquisition Start: 2-SEP-2005 15:07:26.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4134.70	0	0	0.00	227.00	182	91	0.00E+00	0.0	
2	0	4362.31	1	0	3.11	302.50	282	42	1.67E-05	100.0	
3	0	4477.58	0	0	0.00	341.00	327	29	0.00E+00	0.0	
4	0	4719.84	2	0	52.88	422.50	382	82	3.33E-05	70.7	
5	0	5257.94	0	0	0.00	606.50	569	76	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:32:24.95

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4166.14*	73	0	80.00	237.23	182	91	7.16E-03	11.7	
2	0	4363.73*	6	0	83.28	303.00	282	42	5.72E-04	42.1	
3	0	4477.31*	0	0	0.00	341.00	327	29	0.00E+00	0.0	
4	0	4742.27*	73	0	114.76	430.21	382	82	7.12E-03	11.8	
5	0	5291.58*	409	0	45.48	617.73	569	76	4.01E-02	4.9	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:32:25

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0O		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 7-SEP-2005 11:14:46
Sample ID	: 11	Sample quantity	: 1.0528 gram
Sample type	: UU	Sample geometry	:
Detector name	: 037	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.60 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4166.14*	73	80.00	237.23	182	91	23.4		U-238	0.865
0	4363.73*	6	83.28	303.00	282	42	84.2		U-235	8.560E-02
0	4477.31*	0	0.00	341.00	327	29	0.0		U-236	0.000E+00
0	4742.27*	73	114.76	430.21	382	82	23.5		U-234	0.865
0	5291.58*	409	45.48	617.73	569	76	9.9		U232	4.87

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:32:38

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$12_UU.CNF

BATCH ID:	0508096A-UU	SAMPLE ID:	12
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.076E+00 gram
SAMPLE TITLE:	VPSCR081705SL0P	DETECTOR NUMBER:	038
ACQ DATE:	7-SEP-2005 11:15	AVERAGE EFFICIENCY:	20.21%
ELAPSED LIVE TIME:	10200.	RECOVERY:	88.25%
TRACER ID:	UU-10A	TRACER FWHM (kev):	72.82
LAMBDA VALUE:	605.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.567	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:46	EFF CAL DATE:	2-SEP-2005 04:46
BKG FILENAME:	B_038_2SEP05	BKG ELAPSED TIME:	60000.

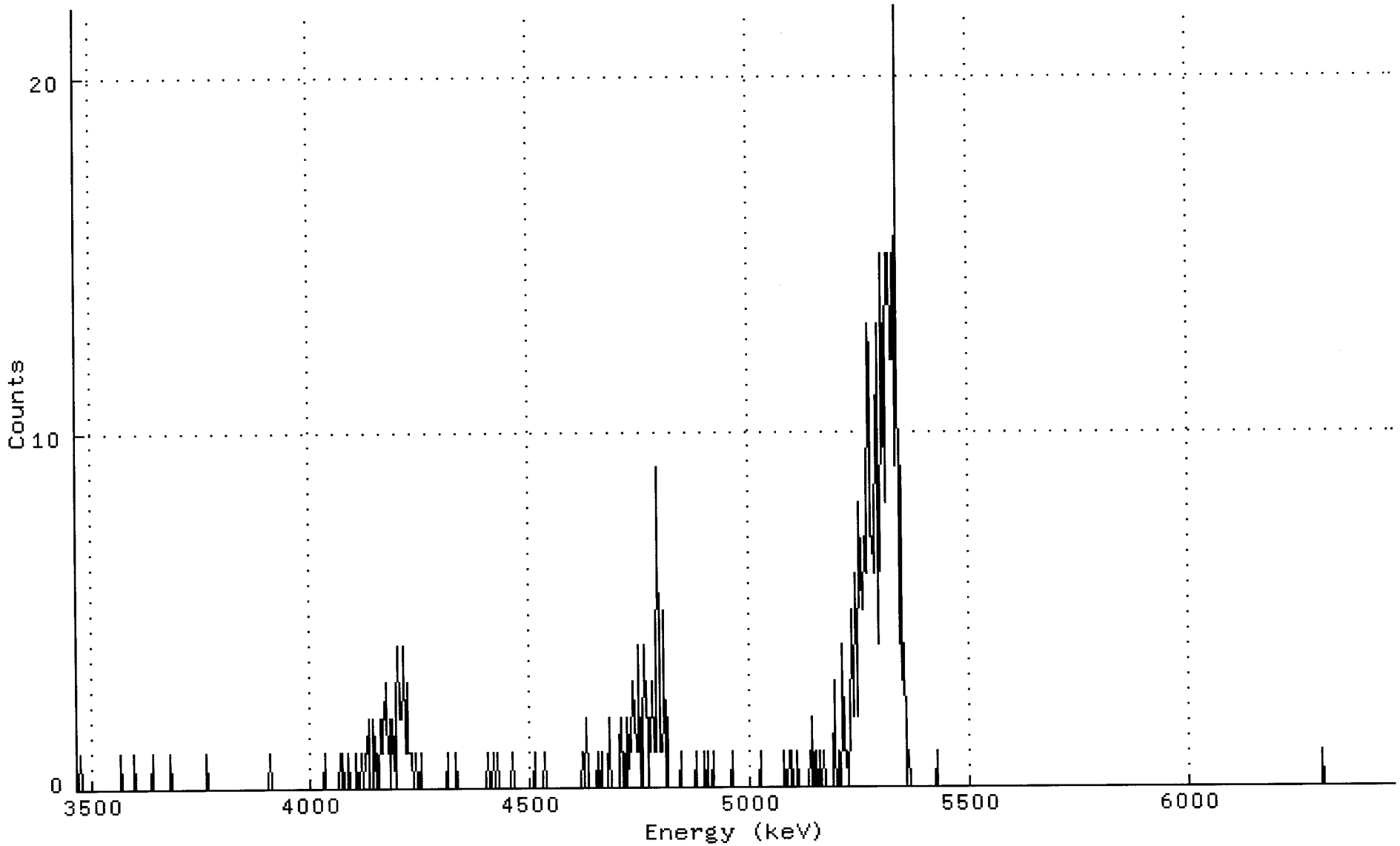
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	380.00	0.00	99.8	5.260E+00	6.954E-01	3.749E-02
U-234	4761.5	75.00	0.00	99.8	1.038E+00	2.854E-01	3.749E-02
U-235	4385.5	6.00	0.00	80.9	1.024E-01	8.499E-02	4.625E-02
U-236	4485.2	2.00	0.00	90.1	3.065E-02	4.358E-02	4.152E-02
U-238	4184.4	60.83	0.17	100.2	8.379E-01	2.490E-01	6.374E-02

Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$12_UU.CNF;1
Title : 038
Sample Title: VPSCR081705SLOP
Start Time: 7-SEP-2005 11:15: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45550E+03
Real Time : 0 02:50:00.50 Sample ID : 12 Energy Slope : 3.07720E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.33734E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$12_UU

Channel

1:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
43:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
57:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
197:	0	0	0	0	1	0	1	0	0	0	1	0	0	0
211:	0	0	1	0	0	0	1	0	1	1	1	2	0	0
225:	0	2	1	0	1	0	2	1	2	2	3	2	1	2
239:	0	2	1	0	2	4	2	2	2	3	4	1	3	1
253:	1	1	0	0	1	0	0	0	1	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	1	0	0	0	0	0	0	1	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	1	0	0	0	1	1	0	1	1	0	0
323:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
351:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	0	1	0	0	2	0	0	0	0
393:	0	0	0	1	0	0	1	0	0	0	0	0	2	1
407:	0	0	0	0	0	0	1	2	0	1	0	2	0	1
421:	2	1	3	2	2	1	1	4	0	0	1	4	2	2
435:	0	2	2	3	1	3	1	9	2	1	1	2	5	0
449:	2	0	0	0	0	0	0	0	0	0	1	0	0	0
463:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
477:	0	1	0	1	0	0	0	1	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	0	1	0	0	0	1	0	1
547:	0	0	0	1	0	0	0	0	0	0	0	0	0	1
561:	0	2	0	0	1	0	0	1	0	1	1	0	0	0
575:	0	0	0	0	3	1	0	0	1	0	2	4	1	1
589:	1	0	2	1	5	3	2	6	2	2	8	6	5	5
603:	7	7	6	13	12	7	7	6	8	9	13	4	8	10
617:	15	11	8	12	15	14	15	12	12	15	9	22	16	4
631:	9	3	4	1	0	1	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:32:30.70

Detector ID: 38 Acquisition Start: 7-SEP-2005 11:15:06.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.50
Batch Id: 0508096A-UU Sample Id: 12
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4176.39	61	0	53.85	236.70	178	91	5.98E-03	12.8	
2	0	4383.10	6	0	0.00	305.50	278	42	5.88E-04	40.8	
3	0	4484.79	2	0	55.39	339.50	323	29	1.96E-04	70.7	
4	0	4754.80	75	0	17.42	430.28	378	82	7.35E-03	11.5	
5	0	5295.62	380	0	72.82	614.39	565	75	3.73E-02	5.1	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:32:36.43

Acquisition Start: 2-SEP-2005 15:07:29.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.20

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.99	1	0	3.09	223.00	178	91	1.67E-05	100.0	
2	0	4363.47	0	0	0.00	298.50	278	42	0.00E+00	0.0	
3	0	4478.82	0	0	0.00	337.00	323	29	0.00E+00	0.0	
4	0	4721.59	0	0	0.00	418.50	378	82	0.00E+00	0.0	
5	0	5261.06	0	0	0.00	602.00	565	75	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:32:36.72

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4176.39*	61	0	53.85	236.70	178	91	5.96E-03	12.8	
2	0	4383.10*	6	0	0.00	305.50	278	42	5.88E-04	40.8	
3	0	4484.79*	2	0	55.39	339.50	323	29	1.96E-04	70.7	
4	0	4754.80*	75	0	17.42	430.28	378	82	7.35E-03	11.5	
5	0	5295.62*	380	0	72.82	614.39	565	75	3.73E-02	5.1	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:32:37

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0P		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 7-SEP-2005 11:15:06
Sample ID	: 12	Sample quantity	: 1.0763 gram
Sample type	: UU	Sample geometry	:
Detector name	: 038	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.50 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4176.39*	61	53.85	236.70	178	91	25.7		U-238	0.739
0	4383.10*	6	0.00	305.50	278	42	81.6		U-235	9.036E-02
0	4484.79*	2	55.39	339.50	323	29	141.4		U-236	2.704E-02
0	4754.80*	75	17.42	430.28	378	82	23.1		U-234	0.916
0	5295.62*	380	72.82	614.39	565	75	10.3		U232	4.64

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:32:46

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Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$13_UU.CNF

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BATCH ID:	0508096A-UU	SAMPLE ID:	13
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.010E+00	gram
SAMPLE TITLE:	VPSCR081705SL0Q	DETECTOR NUMBER:	039
ACQ DATE:	7-SEP-2005 11:15	AVERAGE EFFICIENCY:	20.78%
ELAPSED LIVE TIME:	10200.	RECOVERY:	75.61%
TRACER ID:	UU-10A	TRACER FWHM (kev):	57.16
LAMBDA VALUE:	605.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.569	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:47	EFF CAL DATE: 2-SEP-2005	04:47
BKG FILENAME:	B_039_2SEP05	BKG ELAPSED TIME:	60000.

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NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	334.83	0.17	99.8	5.605E+00	7.707E-01	7.741E-02
U-234	4761.5	72.83	0.17	99.8	1.218E+00	3.421E-01	7.741E-02
U-235	4385.5	3.00	0.00	80.9	6.191E-02	7.213E-02	5.593E-02
U-236	4485.2	2.00	0.00	90.1	3.706E-02	5.272E-02	5.022E-02
U-238	4184.4	55.66	0.34	100.2	9.272E-01	2.875E-01	9.031E-02

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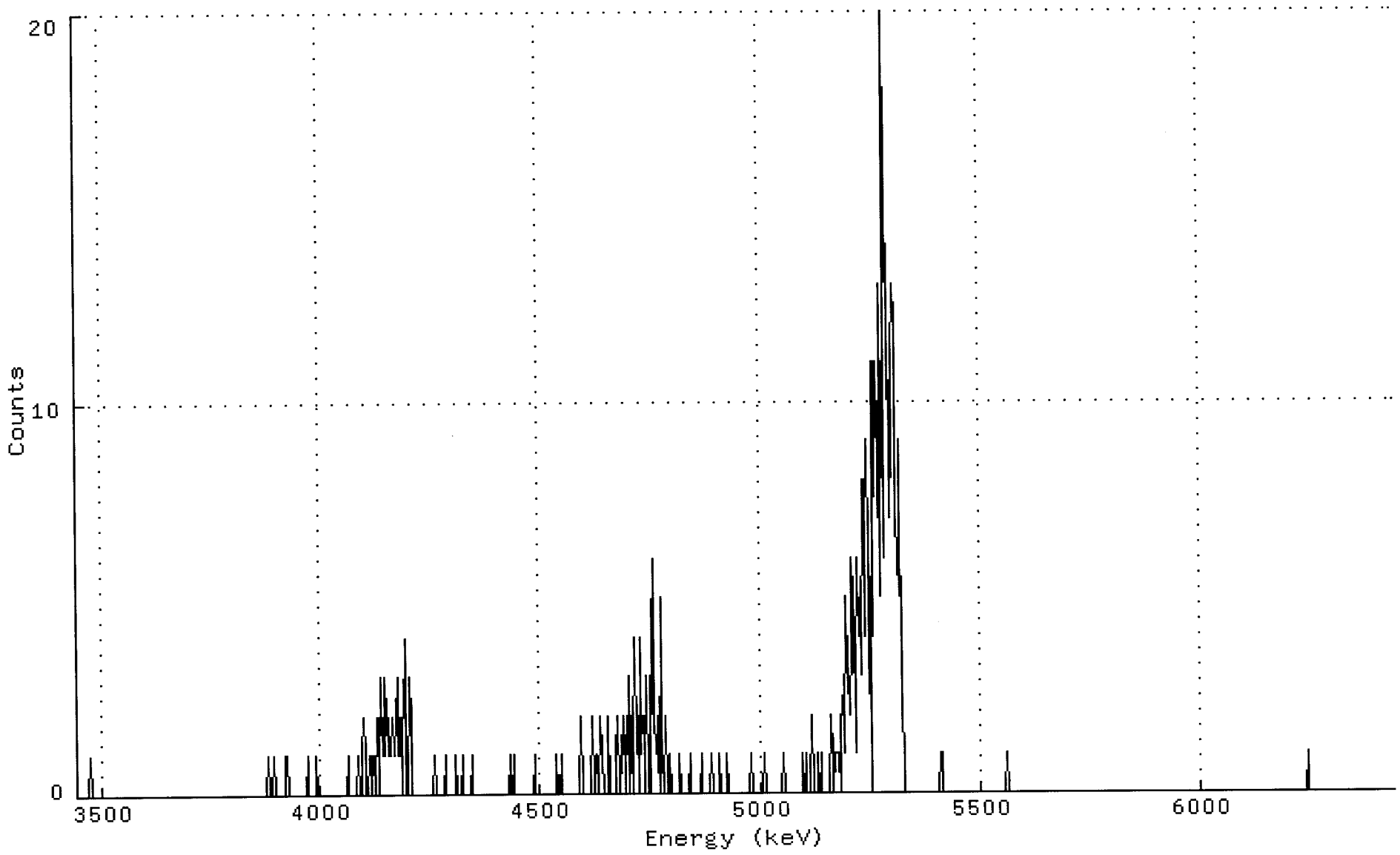
Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$13_UU.CNF;1
Title : 039
Sample Title: VPSCR081705SL0Q
Start Time: 7-SEP-2005 11:15: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.43564E+03
Real Time : 0 02:50:00.50 Sample ID : 13 Energy Slope : 3.10814E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.73477E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$13_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
155:	0	0	0	1	1	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	1	0	0	0	0	0	0	1	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
211:	1	1	0	0	1	2	1	0	0	1	1	0	1	1
225:	0	2	2	0	3	1	1	3	2	1	2	1	2	2
239:	1	2	3	1	2	0	2	2	4	0	0	3	2	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
281:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
295:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	1	0	0	1	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
365:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	2	0	0	0	0	0	0	0	0	2	0	0	1
393:	0	0	2	1	0	0	0	0	2	0	0	0	0	1
407:	1	2	0	0	1	2	0	1	2	0	3	1	0	1
421:	4	1	2	0	4	1	2	2	0	3	0	3	0	4
435:	6	2	1	2	1	0	5	1	0	2	2	0	0	1
449:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
463:	1	0	0	0	0	0	0	0	0	1	0	0	0	0
477:	0	0	1	1	0	0	0	0	0	1	0	0	0	0
491:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
519:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	1	0	1	0	0	0	0	2	0	0
561:	0	0	1	0	1	0	0	0	0	0	0	2	1	0
575:	0	1	1	1	1	0	2	2	3	1	5	3	3	2
589:	4	6	5	1	3	6	4	5	3	8	4	7	9	6
603:	5	0	11	4	11	10	11	7	13	5	11	6	20	16
617:	10	14	7	9	11	13	12	7	6	5	9	2	1	0
631:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
659:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:32:42.18

Detector ID: 39 Acquisition Start: 7-SEP-2005 11:15:24.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.50
Batch Id: 0508096A-UU Sample Id: 13
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4155.72	56	0	69.24	234.75	183	91	5.49E-03	13.4	
2	0	4324.42	3	0	40.41	290.67	283	42	2.94E-04	57.7	
3	0	4463.39	2	0	52.84	337.00	328	29	1.96E-04	70.7	
4	0	4727.66	73	0	64.68	425.81	383	82	7.16E-03	11.7	
5	0	5263.66	335	0	57.16	608.83	570	76	3.28E-02	5.5	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:32:44.31

Acquisition Start: 2-SEP-2005 15:07:32.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.20

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4136.87	2	0	92.82	228.00	183	91	3.33E-05	70.7	
2	0	4364.16	0	0	0.00	303.50	283	42	0.00E+00	0.0	
3	0	4479.38	0	0	0.00	342.00	328	29	0.00E+00	0.0	
4	0	4721.74	1	0	3.09	423.50	383	82	1.67E-05	100.0	
5	0	5261.25	1	0	3.09	607.50	570	76	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:32:44.60

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4155.72*	56	0	69.24	234.75	183	91	5.46E-03	13.5	
2	0	4324.42*	3	0	40.41	290.67	283	42	2.94E-04	57.7	
3	0	4463.39*	2	0	52.84	337.00	328	29	1.96E-04	70.7	
4	0	4727.66*	73	0	64.68	425.81	383	82	7.14E-03	11.7	
5	0	5263.66*	335	0	57.16	608.83	570	76	3.28E-02	5.5	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:32:45

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0Q		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 7-SEP-2005 11:15:24
Sample ID	: 13	Sample quantity	: 1.0102 gram
Sample type	: UU	Sample geometry	:
Detector name	: 039	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.50 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4155.72*	56	69.24	234.75	183	91	26.9		U-238	0.701
0	4324.42*	3	40.41	290.67	283	42115.5			U-235	4.681E-02
0	4463.39*	2	52.84	337.00	328	29141.4			U-236	2.802E-02
0	4727.66*	73	64.68	425.81	383	82	23.5		U-234	0.921
0	5263.66*	335	57.16	608.83	570	76	10.9		U232	4.24

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:32:56

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Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$14_UU.CNF

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BATCH ID:	0508096A-UU	SAMPLE ID:	14
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.166E+00	gram
SAMPLE TITLE:	VPSCR081705SL0R	DETECTOR NUMBER:	040
ACQ DATE:	7-SEP-2005 11:15	AVERAGE EFFICIENCY:	21.07%
ELAPSED LIVE TIME:	10200.	RECOVERY:	60.02%
TRACER ID:	UU-10A	TRACER FWHM (kev):	76.92
LAMBDA VALUE:	603.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.520	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:47	EFF CAL DATE: 2-SEP-2005	04:47
BKG FILENAME:	B_040_2SEP05	BKG ELAPSED TIME:	60000.

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NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	268.49	0.51	99.8	4.835E+00	7.151E-01	1.085E-01
U-234	4761.5	51.00	0.00	99.8	9.179E-01	2.976E-01	4.877E-02
U-235	4385.5	3.00	0.00	80.9	6.661E-02	7.768E-02	6.017E-02
U-236	4485.2	5.00	0.00	90.1	9.968E-02	9.063E-02	5.402E-02
U-238	4184.4	46.00	0.00	100.2	8.243E-01	2.779E-01	4.856E-02

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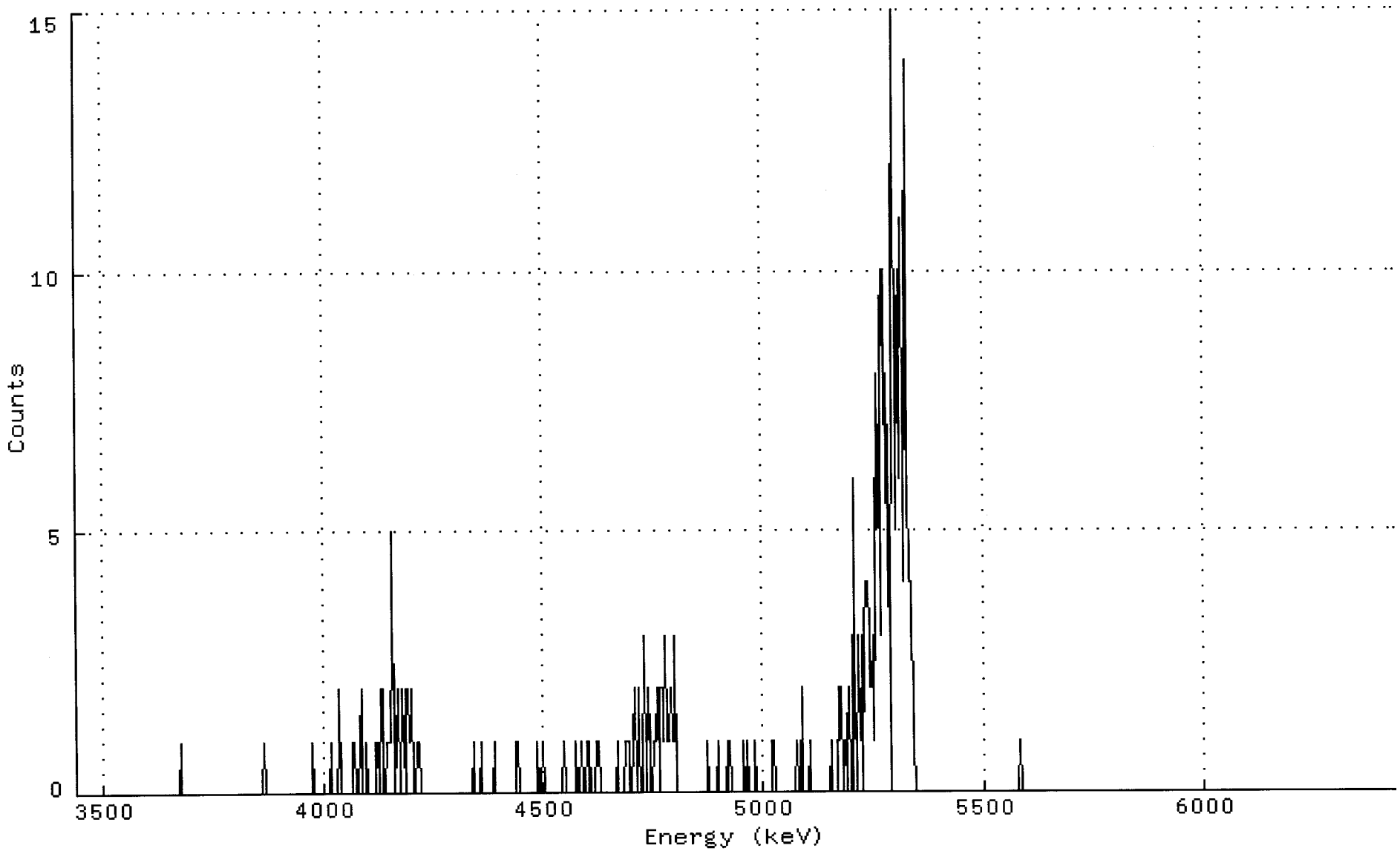
Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$14_UU.CNF;1
Title : 040
Sample Title: VPSCR081705SL0R
Start Time: 7-SEP-2005 11:15: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42923E+03
Real Time : 0 02:50:00.60 Sample ID : 14 Energy Slope : 3.08734E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.53973E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$14_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
183:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
197:	0	1	2	0	0	0	0	0	0	0	0	0	1	1
211:	0	0	0	1	2	0	0	0	1	0	0	0	0	0
225:	0	1	1	0	0	2	2	0	0	1	1	1	1	3
239:	5	0	1	1	2	0	0	2	1	0	2	2	1	1
253:	2	0	0	0	1	1	1	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	1	0	0	0	0	0	1	0	0
309:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
351:	0	1	1	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	1	1	0	0	0	0	0	0	0	0	1
379:	0	0	0	1	0	0	0	1	0	1	0	0	0	0
393:	1	1	1	0	0	0	0	0	0	0	0	0	0	0
407:	0	0	1	0	0	0	0	0	1	1	1	1	0	0
421:	1	2	2	0	2	1	0	1	0	3	0	0	2	1
435:	0	0	1	1	1	2	0	2	2	2	1	3	1	1
449:	1	2	2	1	1	3	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
491:	0	0	0	1	0	1	0	0	0	0	0	0	0	0
505:	0	0	1	0	0	1	0	0	0	0	0	1	0	0
519:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	1	0	0	0	2	0	0	0	0	0	1	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
575:	0	0	0	0	0	2	1	2	0	1	1	0	1	2
589:	0	0	0	6	2	0	3	3	1	3	0	3	4	4
603:	4	3	2	2	3	1	4	8	5	7	3	9	10	7
617:	10	6	5	7	0	11	9	15	5	5	9	10	6	11
631:	6	4	9	14	6	4	4	4	1	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:32:50.35

Detector ID: 40 Acquisition Start: 7-SEP-2005 11:15:42.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.60
Batch Id: 0508096A-UU Sample Id: 14
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4144.62	46	0	5.23	234.46	187	90	4.51E-03	14.7	
2	0	4363.53	3	0	52.48	307.33	286	43	2.94E-04	57.7	
3	0	4473.66	5	0	64.45	344.20	331	30	4.90E-04	44.7	
4	0	4738.05	51	0	101.88	433.29	387	82	5.00E-03	14.0	
5	0	5278.66	269	0	76.92	618.09	574	76	2.64E-02	6.1	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:32:54.43

Acquisition Start: 2-SEP-2005 15:07:35.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4140.83	0	0	0.00	231.50	187	90	0.00E+00	0.0	
2	0	4368.11	0	0	0.00	307.00	286	43	0.00E+00	0.0	
3	0	4483.29	0	0	0.00	345.50	331	30	0.00E+00	0.0	
4	0	4726.96	0	0	0.00	427.50	387	82	0.00E+00	0.0	
5	0	5265.64	3	0	189.07	611.50	574	76	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:32:54.71

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4144.62*	46	0	5.23	234.46	187	90	4.51E-03	14.7	
2	0	4363.53*	3	0	52.48	307.33	286	43	2.94E-04	57.7	
3	0	4473.66*	5	0	64.45	344.20	331	30	4.90E-04	44.7	
4	0	4738.05*	51	0	101.88	433.29	387	82	5.00E-03	14.0	
5	0	5278.66*	268	0	76.92	618.09	574	76	2.63E-02	6.1	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:32:55

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0R
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 7-SEP-2005 11:15:42
Sample ID : 14 Sample quantity : 1.1664 gram
Sample type : UU Sample geometry :
Detector name : 040 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.60 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4144.62*	46	5.23	234.46	187	90	29.5		U-238	0.495
0	4363.53*	3	52.48	307.33	286	43	115.5		U-235	3.998E-02
0	4473.66*	5	64.45	344.20	331	30	89.4		U-236	5.983E-02
0	4738.05*	51	101.88	433.29	387	82	28.0		U-234	0.551
0	5278.66*	268	76.92	618.09	574	76	12.2		U232	2.90

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:33:05

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$15_UU.CNF

****

BATCH ID:	0508096A-UU	SAMPLE ID:	15
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.022E+00	gram
SAMPLE TITLE:	VPSCR081705SL0S	DETECTOR NUMBER:	041
ACQ DATE:	7-SEP-2005 11:16	AVERAGE EFFICIENCY:	20.56%
ELAPSED LIVE TIME:	10200.	RECOVERY:	87.69%
TRACER ID:	UU-10A	TRACER FWHM (kev):	61.40
LAMBDA VALUE:	604.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.530	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:47	EFF CAL DATE: 2-SEP-2005	04:47
BKG FILENAME:	B_041_2SEP05	BKG ELAPSED TIME:	60000.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	383.00	0.00	99.8	5.520E+00	7.281E-01	3.904E-02
U-234	4761.5	35.83	0.17	99.8	5.162E-01	1.893E-01	6.666E-02
U-235	4385.5	5.00	0.00	80.9	8.886E-02	8.057E-02	4.816E-02
U-236	4485.2	-0.51	0.51	90.1	-8.138E-03	9.475E-03	9.623E-02
U-238	4184.4	47.83	0.17	100.2	6.861E-01	2.236E-01	6.637E-02

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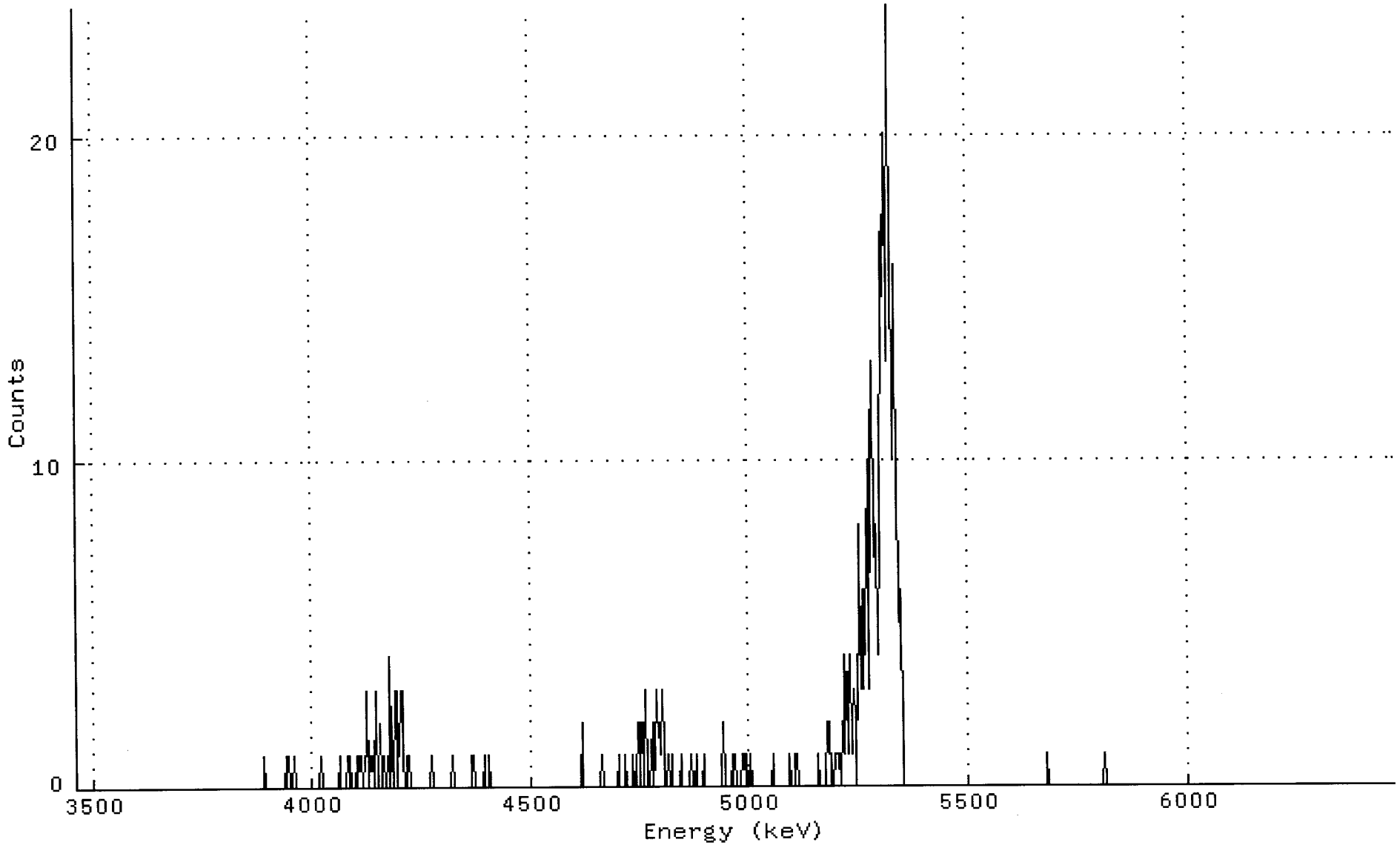
Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$15_UU.CNF;1
Title : 041
Sample Title: VPSCR081705SL0S
Start Time: 7-SEP-2005 11:16: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45081E+03
Real Time : 0 02:50:00.50 Sample ID : 15 Energy Slope : 3.11139E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.62528E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$15_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	1	0	1	0	0	0	1	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	1	0	0	0	0	0	1	0	1	0	0	0
211:	0	1	0	1	1	0	0	1	1	3	0	1	1	1
225:	0	3	2	0	2	2	0	1	1	0	1	0	4	1
239:	0	0	3	0	3	1	3	3	1	0	0	1	1	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	1	1	0	0	0	0	0	0	0	1
309:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	0	0	2	0	0	0	0	0	0	0	0	0	0
393:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
407:	0	0	0	1	0	0	0	0	1	0	0	0	0	0
421:	1	0	0	0	2	2	0	2	0	1	3	0	0	0
435:	1	2	0	1	3	2	2	1	1	3	1	0	0	1
449:	1	0	1	0	0	0	0	0	0	1	0	0	0	0
463:	0	0	0	1	0	0	0	1	0	0	0	0	0	1
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	2	0	0	0	0	0	0	1	0	1	0	0	0	0
505:	0	1	1	0	1	0	0	1	0	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
533:	0	0	0	0	0	0	0	0	0	1	0	0	0	1
547:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	1	0	0	0	0	0	0	2	1	2	0
575:	0	0	1	1	1	1	0	0	2	1	4	3	1	3
589:	4	1	2	3	2	0	4	4	8	3	6	3	5	7
603:	10	3	10	13	13	7	7	8	4	8	7	17	15	15
617:	20	13	14	24	14	18	10	16	14	9	6	5	6	1
631:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:33:00.06

Detector ID: 41 Acquisition Start: 7-SEP-2005 11:16:05.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.50
Batch Id: 0508096A-UU Sample Id: 15
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4158.85	48	0	83.98	230.33	178	90	4.71E-03	14.4	
2	0	4371.41	5	0	90.23	300.60	277	42	4.90E-04	44.7	
3	0	4477.89	0	0	0.00	336.00	322	29	0.00E+00	0.0	
4	0	4762.13	36	0	195.98	431.17	377	81	3.53E-03	16.7	
5	0	5293.24	383	0	61.40	611.70	563	75	3.75E-02	5.1	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:33:02.57

Acquisition Start: 2-SEP-2005 15:07:38.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4136.59	1	0	3.12	222.50	178	90	1.67E-05	100.0	
2	0	4363.79	0	0	0.00	297.50	277	42	0.00E+00	0.0	
3	0	4479.68	3	0	24.54	336.00	322	29	5.00E-05	57.7	
4	0	4721.88	1	0	3.12	417.00	377	81	1.67E-05	100.0	
5	0	5260.95	0	0	0.00	600.00	563	75	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:33:02.86

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4158.85*	48	0	83.98	230.33	178	90	4.69E-03	14.5	
2	0	4371.41*	5	0	90.23	300.60	277	42	4.90E-04	44.7	
3	0	4477.89*	-1	0	0.00	336.00	322	29	-5.00E-05	57.7	
4	0	4762.13*	36	0	195.98	431.17	377	81	3.51E-03	16.8	
5	0	5293.24*	383	0	61.40	611.70	563	75	3.75E-02	5.1	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:33:03

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0S
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 7-SEP-2005 11:16:05
Sample ID : 15 Sample quantity : 1.0224 gram
Sample type : UU Sample geometry :
Detector name : 041 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.50 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4158.85*	48	83.98	230.33	178	90	29.0		U-238	0.602
0	4371.41*	5	90.23	300.60	277	42	89.4		U-235	7.792E-02
0	4477.89*	-1	0.00	336.00	322	29	115.5		U-236	-7.136E-03
0	4762.13*	36	195.98	431.17	377	81	33.5		U-234	0.453
0	5293.24*	383	61.40	611.70	563	75	10.2		U232	4.84

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
7-SEP-2005 14:33:18

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-UU$16_UU.CNF

BATCH ID:	0508096A-UU	SAMPLE ID:	16
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.033E+00 gram
SAMPLE TITLE:	VPSCR081705SL0T	DETECTOR NUMBER:	042
ACQ DATE:	7-SEP-2005 11:16	AVERAGE EFFICIENCY:	21.95%
ELAPSED LIVE TIME:	10200.	RECOVERY:	83.21%
TRACER ID:	UU-10A	TRACER FWHM (kev):	109.44
LAMBDA VALUE:	605.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.561	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	2-SEP-2005 04:47	EFF CAL DATE:	2-SEP-2005 04:47
BKG FILENAME:	B_042_2SEP05	BKG ELAPSED TIME:	60000.

NUCLIDE ACTIVITY SUMMARY

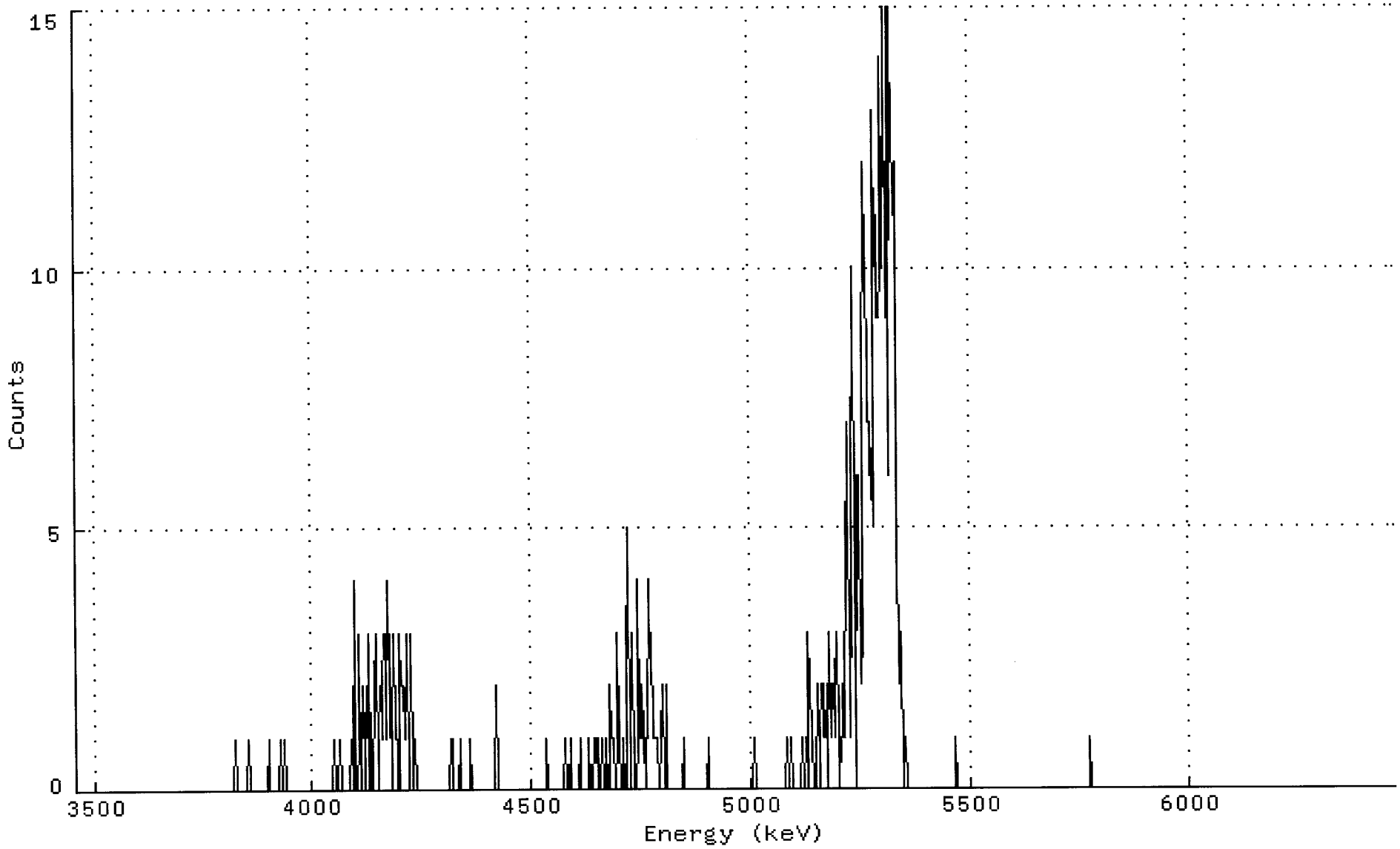
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	389.00	0.00	99.8	5.476E+00	7.185E-01	3.813E-02
U-234	4761.5	62.66	0.34	99.8	8.815E-01	2.589E-01	7.627E-02
U-235	4385.5	5.49	0.51	80.9	9.528E-02	8.680E-02	1.047E-01
U-236	4485.2	0.00	0.00	90.1	0.000E+00	0.000E+00	4.223E-02
U-238	4184.4	67.66	0.34	100.2	9.478E-01	2.706E-01	7.594E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.7.05

Reviewer _____ Date 9/8/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-UU$16_UU.CNF;1
Title : 042
Sample Title: VPSCR081705SLOT
Start Time: 7-SEP-2005 11:16: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44836E+03
Real Time : 0 02:50:00.60 Sample ID : 16 Energy Slope : 3.11933E+00
Live Time : 0 02:50:00.00 Sample Type: UU Energy Quad : -1.69445E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-UU$16_UU

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
127:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
155:	1	0	0	1	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
197:	0	0	1	0	0	0	0	0	0	0	1	1	0	4
211:	0	0	1	3	0	2	0	1	2	0	3	0	1	0
225:	2	3	0	1	2	1	2	3	3	1	4	2	0	1
239:	3	1	2	0	0	3	2	2	1	1	3	0	0	3
253:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	1	1	0	0	0	0	0	1	0	0	0	0	0
295:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	2	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
379:	0	1	0	0	0	0	0	0	1	0	0	0	1	1
393:	0	1	0	1	1	0	0	1	0	0	2	1	1	1
407:	0	1	3	1	0	0	1	0	0	2	5	0	0	3
421:	0	1	0	1	4	1	1	2	1	0	2	1	4	2
435:	3	1	1	1	1	0	0	1	2	2	0	2	0	0
449:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	1	0	0	1	0	0	0	0
547:	0	0	0	0	1	0	0	1	0	3	2	1	1	0
561:	0	0	2	0	1	2	1	2	1	2	0	3	1	2
575:	2	1	2	3	1	0	1	1	2	1	5	6	7	1
589:	4	5	10	4	0	6	5	6	2	3	7	12	10	10
603:	8	6	7	6	5	13	10	11	9	9	10	14	10	15
617:	14	9	15	6	15	12	13	11	12	5	2	3	3	0
631:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:33:08.95

Detector ID: 42 Acquisition Start: 7-SEP-2005 11:16:22.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.60
Batch Id: 0508096A-UU Sample Id: 16
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4158.14	68	0	133.61	230.43	179	89	6.67E-03	12.1	
2	0	4361.37	6	0	3.12	297.50	277	43	5.88E-04	40.8	
3	0	4477.33	0	0	0.00	336.00	322	29	0.00E+00	0.0	
4	0	4732.09	63	0	82.56	421.17	377	82	6.18E-03	12.6	
5	0	5278.98	389	0	109.44	606.87	563	75	3.81E-02	5.1	

Background Counts Within Peak Regions Generated: 7-SEP-2005 14:33:16.43

Acquisition Start: 2-SEP-2005 15:07:41.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4137.50	2	0	21.91	223.00	179	89	3.33E-05	70.7	
2	0	4364.96	3	0	78.25	298.00	277	43	5.00E-05	57.7	
3	0	4479.41	0	0	0.00	336.00	322	29	0.00E+00	0.0	
4	0	4723.06	2	0	100.16	417.50	377	82	3.33E-05	70.7	
5	0	5259.67	0	0	0.00	600.00	563	75	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 7-SEP-2005 14:33:16.70

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4158.14*	68	0	133.61	230.43	179	89	6.63E-03	12.2	
2	0	4361.37*	5	0	3.12	297.50	277	43	5.38E-04	44.9	
3	0	4477.33*	0	0	0.00	336.00	322	29	0.00E+00	0.0	
4	0	4732.09*	63	0	82.56	421.17	377	82	6.14E-03	12.7	
5	0	5278.98*	389	0	109.44	606.87	563	75	3.81E-02	5.1	

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

VMS Nuclide Identification Report V3.0 Generated 7-SEP-2005 14:33:17

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0T
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 7-SEP-2005 11:16:22
Sample ID : 16 Sample quantity : 1.0333 gram
Sample type : UU Sample geometry :
Detector name : 042 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.60 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4158.14*	68	133.61	230.43	179	89	24.4		U-238	0.789
0	4361.37*	5	3.12	297.50	277	43	89.9		U-235	7.928E-02
0	4477.33*	0	0.00	336.00	322	29	0.0		U-236	0.000E+00
0	4732.09*	63	82.56	421.17	377	82	25.3		U-234	0.733
0	5278.98*	389	109.44	606.87	563	75	10.1		U232	4.56

SECTION IX

ANALYTICAL DATA (ISOTOPIC THORIUM)

Work Order	05-08096
Analysis Code	ThISO
Run	1
Date Received	8/19/2005
Lab Deadline	9/9/2005
Client	Missouri Dept. of Natural Resources
Project	B3Z02092
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EML Th-01 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	Th-229
Radiometric Sol#	Th-18a
Tracer Act (dpm/g)	22.482
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		08/22/05 00:00	1.0000E+00
02	MBL	BLANK		08/22/05 00:00	1.0000E+00
03	DUP	VPSCR081705SL0H	42	08/17/05 09:15	1.0636E+00
04	DO	VPSCR081705SL0H	42	08/17/05 09:15	1.0122E+00
05	TRG	VPSCR081705SL0I	41	08/17/05 09:16	1.0170E+00
06	TRG	VPSCR081705SL0J	45	08/17/05 09:19	1.0885E+00
07	TRG	VPSCR081705SL0K	40	08/17/05 09:21	1.0366E+00
08	TRG	VPSCR081705SL0L	38	08/17/05 09:29	9.9730E-01
09	TRG	VPSCR081705SL0M	26	08/17/05 09:31	1.0045E+00
10	TRG	VPSCR081705SL0N	37	08/17/05 09:33	1.1647E+00
11	TRG	VPSCR081705SL0O	37	08/17/05 09:35	1.0441E+00
12	TRG	VPSCR081705SL0P	48	08/17/05 09:40	1.0285E+00
13	TRG	VPSCR081705SL0Q	50	08/17/05 09:50	1.0441E+00
14	TRG	VPSCR081705SL0R	36	08/17/05 09:55	1.0679E+00
15	TRG	VPSCR081705SL0S	35	08/17/05 09:58	1.1972E+00
16	TRG	VPSCR081705SL0T	34	08/17/05 10:00	1.0488E+00

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS	0.4648	10.4										
02	MBL	0.4603	10.3										
03	DUP	0.4503	10.1										
04	DO	0.4547	10.2										
05	TRG	0.4540	10.2										
06	TRG	0.4561	10.3										
07	TRG	0.4571	10.3										
08	TRG	0.4499	10.1										
09	TRG	0.4554	10.2										
10	TRG	0.4549	10.2										
11	TRG	0.4555	10.2										
12	TRG	0.4639	10.4										
13	TRG	0.4569	10.3										
14	TRG	0.4510	10.1										
15	TRG	0.4544	10.2										
16	TRG	0.4447	10.0										

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

05-08096
ThISO
Run 1

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
02	MBL			08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
03	DUP			08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
04	DO	08/24/05 08:00	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
05	TRG	08/24/05 08:00	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
06	TRG	08/24/05 08:00	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
07	TRG	08/24/05 08:00	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
08	TRG	08/24/05 08:00	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
09	TRG	08/24/05 08:00	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
10	TRG	08/24/05 08:00	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
11	TRG	08/24/05 08:01	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
12	TRG	08/24/05 08:01	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
13	TRG	08/24/05 08:01	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
14	TRG	08/24/05 08:01	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
15	TRG	08/24/05 08:01	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		
16	TRG	08/24/05 08:01	KSALLINGS	08/30/05 06:57	JBARNARD	09/06/05 05:40	TSMITH		

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Preliminary Data Report & Analytical Calculations

Work Order: 05-08096-ThISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	ThISO	05-08096	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-228	LCS	LCS	pCi/g	5.23E+00	1.06E+00	1.12E-01	4.77E+00	109.64	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	8.69E-02	1.05E-01	1.77E-01					OK	OK
03	TH-228	DUP	VPSCR081705SL0H	pCi/g	5.93E-01	2.16E-01	1.36E-01				INV	OK	
04	TH-228	DO	VPSCR081705SL0H	pCi/g	4.67E-01	1.89E-01	1.22E-01					OK	
05	TH-228	TRG	VPSCR081705SL0I	pCi/g	9.74E-01	2.78E-01	1.02E-01					OK	
06	TH-228	TRG	VPSCR081705SL0J	pCi/g	4.97E-01	1.96E-01	8.34E-02					OK	
07	TH-228	TRG	VPSCR081705SL0K	pCi/g	7.25E-01	2.48E-01	9.42E-02					OK	
08	TH-228	TRG	VPSCR081705SL0L	pCi/g	5.58E-01	1.99E-01	1.21E-01					OK	
09	TH-228	TRG	VPSCR081705SL0M	pCi/g	4.93E-01	2.03E-01	9.15E-02					OK	
10	TH-228	TRG	VPSCR081705SL0N	pCi/g	7.40E-01	2.36E-01	8.03E-02					OK	
11	TH-228	TRG	VPSCR081705SL0O	pCi/g	8.94E-01	2.62E-01	1.05E-01					OK	
12	TH-228	TRG	VPSCR081705SL0P	pCi/g	8.30E-01	2.60E-01	8.69E-02					OK	
13	TH-228	TRG	VPSCR081705SL0Q	pCi/g	1.07E+00	2.94E-01	1.21E-01					OK	
14	TH-228	TRG	VPSCR081705SL0R	pCi/g	6.95E-01	2.32E-01	9.89E-02					OK	
15	TH-228	TRG	VPSCR081705SL0S	pCi/g	7.95E-01	2.36E-01	1.16E-01					OK	
16	TH-228	TRG	VPSCR081705SL0T	pCi/g	6.39E-01	2.50E-01	1.54E-01					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 05-08096-ThISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	ThISO	05-08096	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-228	LCS	08/22/05 00:00	1.00E+00	72.05				9/6/2005 5:40	
02	TH-228	MBL	08/22/05 00:00	1.00E+00	56.79				9/6/2005 5:40	
03	TH-228	DUP	08/17/05 09:15	1.06E+00	85.29				9/6/2005 5:40	
04	TH-228	DO	08/17/05 09:15	1.01E+00	83.22				9/6/2005 5:40	
05	TH-228	TRG	08/17/05 09:16	1.02E+00	92.61				9/6/2005 5:40	
06	TH-228	TRG	08/17/05 09:19	1.09E+00	78.26				9/6/2005 5:40	
07	TH-228	TRG	08/17/05 09:21	1.04E+00	87.59				9/6/2005 5:40	
08	TH-228	TRG	08/17/05 09:29	9.97E-01	98.30				9/6/2005 5:40	
09	TH-228	TRG	08/17/05 09:31	1.00E+00	74.04				9/6/2005 5:40	
10	TH-228	TRG	08/17/05 09:33	1.16E+00	79.46				9/6/2005 5:40	
11	TH-228	TRG	08/17/05 09:35	1.04E+00	92.04				9/6/2005 5:40	
12	TH-228	TRG	08/17/05 09:40	1.03E+00	85.46				9/6/2005 5:40	
13	TH-228	TRG	08/17/05 09:50	1.04E+00	93.41				9/6/2005 5:40	
14	TH-228	TRG	08/17/05 09:55	1.07E+00	83.16				9/6/2005 5:40	
15	TH-228	TRG	08/17/05 09:58	1.20E+00	90.98				9/6/2005 5:40	
16	TH-228	TRG	08/17/05 10:00	1.05E+00	69.06				9/6/2005 5:40	

Run	Analysis Code	Eberline Services Work Order	Client
1	ThISO	05-08096	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-228	LCS	09/06/05 08:14		A_Spec	1	170.05	3.05 E+02	4.00 E-03	21.5
02	TH-228	MBL	09/06/05 08:14		A_Spec	2	170.12	3.81 E+00	7.00 E-03	20.5
03	TH-228	DUP	09/06/05 08:14		A_Spec	3	170.02	4.00 E+01	1.20 E-02	20.1
04	TH-228	DO	09/06/05 08:15		A_Spec	5	170.1	3.06 E+01	8.00 E-03	21.1
05	TH-228	TRG	09/06/05 08:15		A_Spec	6	170.05	7.28 E+01	7.00 E-03	21.5
06	TH-228	TRG	09/06/05 08:15		A_Spec	7	170.03	3.17 E+01	2.00 E-03	20.2
07	TH-228	TRG	09/06/05 08:16		A_Spec	8	170.02	4.55 E+01	3.00 E-03	18.7
08	TH-228	TRG	09/06/05 08:16		A_Spec	9	170.08	4.11 E+01	1.10 E-02	20.4
09	TH-228	TRG	09/06/05 08:16		A_Spec	10	170.08	2.87 E+01	2.00 E-03	21.1
10	TH-228	TRG	09/06/05 08:17		A_Spec	11	170.02	5.45 E+01	3.00 E-03	21.5
11	TH-228	TRG	09/06/05 08:17		A_Spec	12	170.08	6.76 E+01	8.00 E-03	21.3
12	TH-228	TRG	09/06/05 08:17		A_Spec	13	170.05	5.65 E+01	3.00 E-03	20.9
13	TH-228	TRG	09/06/05 08:18		A_Spec	14	170.08	8.10 E+01	1.20 E-02	21
14	TH-228	TRG	09/06/05 08:18		A_Spec	15	170.07	4.82 E+01	5.00 E-03	21.1
15	TH-228	TRG	09/06/05 08:18		A_Spec	16	170.03	6.66 E+01	1.40 E-02	20.8
16	TH-228	TRG	09/06/05 08:19		A_Spec	17	170.02	3.45 E+01	9.00 E-03	20.1

Preliminary Data Report & Analytical Calculations

Work Order: 05-08096-ThISO-1

Client: Missouri Dept. of Natural Resources
Eberline Services Work Order: 05-08096
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-230	LCS	LCS	pCi/g	5.77E+00	1.16E+00	1.20E-01	5.33E+00	108.06	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	3.72E-01	2.01E-01	1.49E-01					OK	OK
03	TH-230	DUP	VPSCR081705SL0H	pCi/g	1.42E+00	3.71E-01	9.53E-02				OK	OK	
04	TH-230	DO	VPSCR081705SL0H	pCi/g	1.49E+00	3.86E-01	9.02E-02					OK	
05	TH-230	TRG	VPSCR081705SL0I	pCi/g	4.84E+00	9.19E-01	1.02E-01					OK	
06	TH-230	TRG	VPSCR081705SL0J	pCi/g	2.42E+00	5.60E-01	4.17E-02					OK	
07	TH-230	TRG	VPSCR081705SL0K	pCi/g	1.24E+00	3.45E-01	4.24E-02					OK	
08	TH-230	TRG	VPSCR081705SL0L	pCi/g	1.55E+00	3.79E-01	8.02E-02					OK	
09	TH-230	TRG	VPSCR081705SL0M	pCi/g	1.39E+00	3.87E-01	1.11E-01					OK	
10	TH-230	TRG	VPSCR081705SL0N	pCi/g	1.55E+00	3.85E-01	8.04E-02					OK	
11	TH-230	TRG	VPSCR081705SL0O	pCi/g	2.19E+00	4.85E-01	7.03E-02					OK	
12	TH-230	TRG	VPSCR081705SL0P	pCi/g	3.57E+00	7.35E-01	6.67E-02					OK	
13	TH-230	TRG	VPSCR081705SL0Q	pCi/g	1.75E+00	4.10E-01	7.80E-02					OK	
14	TH-230	TRG	VPSCR081705SL0R	pCi/g	2.29E+00	5.23E-01	1.28E-01					OK	
15	TH-230	TRG	VPSCR081705SL0S	pCi/g	1.45E+00	3.51E-01	8.68E-02					OK	
16	TH-230	TRG	VPSCR081705SL0T	pCi/g	1.43E+00	4.09E-01	1.10E-01					OK	

Client: Missouri Dept. of Natural Resources
Eberline Services Work Order: 05-08096
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-230	LCS	08/22/05 00:00	1.00E+00	72.05				9/6/2005 5:40	
02	TH-230	MBL	08/22/05 00:00	1.00E+00	56.79				9/6/2005 5:40	
03	TH-230	DUP	08/17/05 09:15	1.06E+00	85.29				9/6/2005 5:40	
04	TH-230	DO	08/17/05 09:15	1.01E+00	83.22				9/6/2005 5:40	
05	TH-230	TRG	08/17/05 09:16	1.02E+00	92.61				9/6/2005 5:40	
06	TH-230	TRG	08/17/05 09:19	1.09E+00	78.26				9/6/2005 5:40	
07	TH-230	TRG	08/17/05 09:21	1.04E+00	87.59				9/6/2005 5:40	
08	TH-230	TRG	08/17/05 09:29	9.97E-01	98.30				9/6/2005 5:40	
09	TH-230	TRG	08/17/05 09:31	1.00E+00	74.04				9/6/2005 5:40	
10	TH-230	TRG	08/17/05 09:33	1.16E+00	79.46				9/6/2005 5:40	
11	TH-230	TRG	08/17/05 09:35	1.04E+00	92.04				9/6/2005 5:40	
12	TH-230	TRG	08/17/05 09:40	1.03E+00	85.46				9/6/2005 5:40	
13	TH-230	TRG	08/17/05 09:50	1.04E+00	93.41				9/6/2005 5:40	
14	TH-230	TRG	08/17/05 09:55	1.07E+00	83.16				9/6/2005 5:40	
15	TH-230	TRG	08/17/05 09:58	1.20E+00	90.98				9/6/2005 5:40	
16	TH-230	TRG	08/17/05 10:00	1.05E+00	69.06				9/6/2005 5:40	

Client: Missouri Dept. of Natural Resources
Eberline Services Work Order: 05-08096
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-230	LCS	09/06/05 08:14		A_Spec	1	170.05	3.36 E+02	5.00 E-03	21.5
02	TH-230	MBL	09/06/05 08:14		A_Spec	2	170.12	1.63 E+01	4.00 E-03	20.5
03	TH-230	DUP	09/06/05 08:14		A_Spec	3	170.02	9.73 E+01	4.00 E-03	20.1
04	TH-230	DO	09/06/05 08:15		A_Spec	5	170.1	9.95 E+01	3.00 E-03	21.1
05	TH-230	TRG	09/06/05 08:15		A_Spec	6	170.05	3.69 E+02	7.00 E-03	21.5
06	TH-230	TRG	09/06/05 08:15		A_Spec	7	170.03	1.57 E+02	0.00 E+00	20.2
07	TH-230	TRG	09/06/05 08:16		A_Spec	8	170.02	7.90 E+01	0.00 E+00	18.7
08	TH-230	TRG	09/06/05 08:16		A_Spec	9	170.08	1.17 E+02	3.00 E-03	20.4
09	TH-230	TRG	09/06/05 08:16		A_Spec	10	170.08	8.23 E+01	4.00 E-03	21.1
10	TH-230	TRG	09/06/05 08:17		A_Spec	11	170.02	1.17 E+02	3.00 E-03	21.5
11	TH-230	TRG	09/06/05 08:17		A_Spec	12	170.08	1.69 E+02	2.00 E-03	21.3
12	TH-230	TRG	09/06/05 08:17		A_Spec	13	170.05	2.48 E+02	1.00 E-03	20.9
13	TH-230	TRG	09/06/05 08:18		A_Spec	14	170.08	1.36 E+02	3.00 E-03	21
14	TH-230	TRG	09/06/05 08:18		A_Spec	15	170.07	1.62 E+02	1.10 E-02	21.1
15	TH-230	TRG	09/06/05 08:18		A_Spec	16	170.03	1.24 E+02	6.00 E-03	20.8
16	TH-230	TRG	09/06/05 08:19		A_Spec	17	170.02	7.85 E+01	3.00 E-03	20.1

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Work Order: 05-08096-ThISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	ThISO	05-08096	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	TH-232	LCS	LCS	pCi/g	4.10E+00	8.70E-01	9.28E-02	4.77E+00	85.98	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	9.84E-02	1.05E-01	1.49E-01					OK	OK
03	TH-232	DUP	VPSCR081705SL0H	pCi/g	7.80E-01	2.49E-01	7.88E-02				OK	OK	
04	TH-232	DO	VPSCR081705SL0H	pCi/g	6.82E-01	2.31E-01	8.10E-02					OK	
05	TH-232	TRG	VPSCR081705SL0I	pCi/g	1.33E+00	3.39E-01	7.90E-02					OK	
06	TH-232	TRG	VPSCR081705SL0J	pCi/g	6.71E-01	2.33E-01	8.34E-02					OK	
07	TH-232	TRG	VPSCR081705SL0K	pCi/g	8.11E-01	2.62E-01	4.23E-02					OK	
08	TH-232	TRG	VPSCR081705SL0L	pCi/g	6.22E-01	2.07E-01	6.14E-02					OK	
09	TH-232	TRG	VPSCR081705SL0M	pCi/g	5.87E-01	2.23E-01	7.80E-02					OK	
10	TH-232	TRG	VPSCR081705SL0N	pCi/g	8.49E-01	2.55E-01	6.16E-02					OK	
11	TH-232	TRG	VPSCR081705SL0O	pCi/g	1.05E+00	2.87E-01	3.51E-02					OK	
12	TH-232	TRG	VPSCR081705SL0P	pCi/g	9.59E-01	2.82E-01	7.80E-02					OK	
13	TH-232	TRG	VPSCR081705SL0Q	pCi/g	1.14E+00	3.04E-01	7.79E-02					OK	
14	TH-232	TRG	VPSCR081705SL0R	pCi/g	7.82E-01	2.47E-01	9.25E-02					OK	
15	TH-232	TRG	VPSCR081705SL0S	pCi/g	8.40E-01	2.40E-01	5.41E-02					OK	
16	TH-232	TRG	VPSCR081705SL0T	pCi/g	5.93E-01	2.36E-01	1.48E-01					OK	

Work Order: 05-08096-ThISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	ThISO	05-08096	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	TH-232	LCS	08/22/05 00:00	1.00E+00	72.05				9/6/2005 5:40	
02	TH-232	MBL	08/22/05 00:00	1.00E+00	56.79				9/6/2005 5:40	
03	TH-232	DUP	08/17/05 09:15	1.06E+00	85.29				9/6/2005 5:40	
04	TH-232	DO	08/17/05 09:15	1.01E+00	83.22				9/6/2005 5:40	
05	TH-232	TRG	08/17/05 09:16	1.02E+00	92.61				9/6/2005 5:40	
06	TH-232	TRG	08/17/05 09:19	1.09E+00	78.26				9/6/2005 5:40	
07	TH-232	TRG	08/17/05 09:21	1.04E+00	87.59				9/6/2005 5:40	
08	TH-232	TRG	08/17/05 09:29	9.97E-01	98.30				9/6/2005 5:40	
09	TH-232	TRG	08/17/05 09:31	1.00E+00	74.04				9/6/2005 5:40	
10	TH-232	TRG	08/17/05 09:33	1.16E+00	79.46				9/6/2005 5:40	
11	TH-232	TRG	08/17/05 09:35	1.04E+00	92.04				9/6/2005 5:40	
12	TH-232	TRG	08/17/05 09:40	1.03E+00	85.46				9/6/2005 5:40	
13	TH-232	TRG	08/17/05 09:50	1.04E+00	93.41				9/6/2005 5:40	
14	TH-232	TRG	08/17/05 09:55	1.07E+00	83.16				9/6/2005 5:40	
15	TH-232	TRG	08/17/05 09:58	1.20E+00	90.98				9/6/2005 5:40	
16	TH-232	TRG	08/17/05 10:00	1.05E+00	69.06				9/6/2005 5:40	

Client: Missouri Dept. of Natural Resources
Eberline Services Work Order: 05-08096
Analysis Code: ThISO
Run: 1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	TH-232	LCS	09/06/05 08:14		A_Spec	1	170.05	2.40 E+02	2.00 E-03	21.5
02	TH-232	MBL	09/06/05 08:14		A_Spec	2	170.12	4.32 E+00	4.00 E-03	20.5
03	TH-232	DUP	09/06/05 08:14		A_Spec	3	170.02	5.37 E+01	2.00 E-03	20.1
04	TH-232	DO	09/06/05 08:15		A_Spec	5	170.1	4.57 E+01	2.00 E-03	21.1
05	TH-232	TRG	09/06/05 08:15		A_Spec	6	170.05	1.02 E+02	3.00 E-03	21.5
06	TH-232	TRG	09/06/05 08:15		A_Spec	7	170.03	4.37 E+01	2.00 E-03	20.2
07	TH-232	TRG	09/06/05 08:16		A_Spec	8	170.02	5.20 E+01	0.00 E+00	18.7
08	TH-232	TRG	09/06/05 08:16		A_Spec	9	170.08	4.68 E+01	1.00 E-03	20.4
09	TH-232	TRG	09/06/05 08:16		A_Spec	10	170.08	3.48 E+01	1.00 E-03	21.1
10	TH-232	TRG	09/06/05 08:17		A_Spec	11	170.02	6.38 E+01	1.00 E-03	21.5
11	TH-232	TRG	09/06/05 08:17		A_Spec	12	170.08	8.10 E+01	0.00 E+00	21.3
12	TH-232	TRG	09/06/05 08:17		A_Spec	13	170.05	6.67 E+01	2.00 E-03	20.9
13	TH-232	TRG	09/06/05 08:18		A_Spec	14	170.08	8.85 E+01	3.00 E-03	21
14	TH-232	TRG	09/06/05 08:18		A_Spec	15	170.07	5.53 E+01	4.00 E-03	21.1
15	TH-232	TRG	09/06/05 08:18		A_Spec	16	170.03	7.18 E+01	1.00 E-03	20.8
16	TH-232	TRG	09/06/05 08:19		A_Spec	17	170.02	3.26 E+01	8.00 E-03	20.1

Count Room Report
Client: Missouri Dept. of Natural

05-08096-ThISO-1 (pCi/g) in SO
Tracer ID: Th-18a

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Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	08/22/05 00:00	1.0000	0.4648	10.4496				
02	MBL	BLANK	08/22/05 00:00	1.0000	0.4603	10.3485				
03	DUP	VPSCR081705SL0H	08/17/05 09:15	1.0636	0.4503	10.1236				
04	DO	VPSCR081705SL0H	08/17/05 09:15	1.0122	0.4547	10.2226				
05	TRG	VPSCR081705SL0I	08/17/05 09:16	1.0170	0.4540	10.2068				
06	TRG	VPSCR081705SL0J	08/17/05 09:19	1.0885	0.4561	10.2540				
07	TRG	VPSCR081705SL0K	08/17/05 09:21	1.0366	0.4571	10.2765				
08	TRG	VPSCR081705SL0L	08/17/05 09:29	0.9973	0.4499	10.1147				
09	TRG	VPSCR081705SL0M	08/17/05 09:31	1.0045	0.4554	10.2383				
10	TRG	VPSCR081705SL0N	08/17/05 09:33	1.1647	0.4549	10.2271				
11	TRG	VPSCR081705SL0O	08/17/05 09:35	1.0441	0.4555	10.2406				
12	TRG	VPSCR081705SL0P	08/17/05 09:40	1.0285	0.4639	10.4294				
13	TRG	VPSCR081705SL0Q	08/17/05 09:50	1.0441	0.4569	10.2720				
14	TRG	VPSCR081705SL0R	08/17/05 09:55	1.0679	0.4510	10.1394				
15	TRG	VPSCR081705SL0S	08/17/05 09:58	1.1972	0.4544	10.2158				
16	TRG	VPSCR081705SL0T	08/17/05 10:00	1.0488	0.4447	9.9977				

Spike and Tracer Worksheet

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
05-08096	1	ThISO	8/30/2005 6:45	JBARNARD		

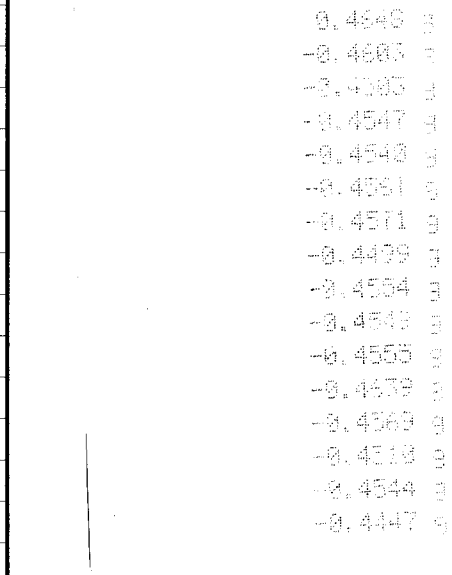
LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	*Sol #*	*Activity dpm/g*	*Solution Date*	*Approx Addition*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*
Th-228	Th-8b	103.560	8/30/2005	**0.100**	**0.1023**				4.77	0.172	0.00	0.000	0.00	0.000	0.00	0.000
Th-230	Th-1b	23.527	8/30/2005	**0.500**	**0.5034**				5.33	0.144	0.00	0.000	0.00	0.000	0.00	0.000
Th-232	Th-8b	103.560	8/30/2005	**0.100**	**0.1023**				4.77	0.172	0.00	0.000	0.00	0.000	0.00	0.000

Tracers

fraction	*Isotope*	*Sol #*	*Activity dpm/g*	*Solution Date*	*Volume Used (g)*	*Approx Addition*
01	**Th-229**	Th-18a	22.482	8/30/2005	**0.4648**	**0.4600**
02	**Th-229**	Th-18a	22.482	8/30/2005	**0.4603**	**0.4600**
03	**Th-229**	Th-18a	22.482	8/30/2005	**0.4503**	**0.4600**
04	**Th-229**	Th-18a	22.482	8/30/2005	**0.4547**	**0.4600**
05	**Th-229**	Th-18a	22.482	8/30/2005	**0.4540**	**0.4600**
06	**Th-229**	Th-18a	22.482	8/30/2005	**0.4561**	**0.4600**
07	**Th-229**	Th-18a	22.482	8/30/2005	**0.4571**	**0.4600**
08	**Th-229**	Th-18a	22.482	8/30/2005	**0.4499**	**0.4600**
09	**Th-229**	Th-18a	22.482	8/30/2005	**0.4554**	**0.4600**
10	**Th-229**	Th-18a	22.482	8/30/2005	**0.4549**	**0.4600**
11	**Th-229**	Th-18a	22.482	8/30/2005	**0.4555**	**0.4600**
12	**Th-229**	Th-18a	22.482	8/30/2005	**0.4639**	**0.4600**
13	**Th-229**	Th-18a	22.482	8/30/2005	**0.4569**	**0.4600**
14	**Th-229**	Th-18a	22.482	8/30/2005	**0.4510**	**0.4600**
15	**Th-229**	Th-18a	22.482	8/30/2005	**0.4544**	**0.4600**
16	**Th-229**	Th-18a	22.482	8/30/2005	**0.4447**	**0.4600**

Balance Printer Tapes

Tracer



LCS

Matrix Spike

Eberline Services - Oak Ridge
Version 2.0 8/1999

Aliquot Worksheet

Printed: 8/29/2005 9:37 AM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
05-08096	1	ThISO	grams	9/9/2005	JBARNARD

Lab Fraction	Missouri Dept. of Natural Resources Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	VPSCR081705SL0H	DUP					1.0636E+00	1.0636E+00				
04	VPSCR081705SL0H	DO					1.0122E+00	1.0122E+00				
05	VPSCR081705SL0I	TRG					1.0170E+00	1.0170E+00				
06	VPSCR081705SL0J	TRG					1.0885E+00	1.0885E+00				
07	VPSCR081705SL0K	TRG					1.0366E+00	1.0366E+00				
08	VPSCR081705SL0L	TRG					9.9730E-01	9.9730E-01				
09	VPSCR081705SL0M	TRG					1.0045E+00	1.0045E+00				
10	VPSCR081705SL0N	TRG					1.1647E+00	1.1647E+00				
11	VPSCR081705SL0O	TRG					1.0441E+00	1.0441E+00				
12	VPSCR081705SL0P	TRG					1.0285E+00	1.0285E+00				
13	VPSCR081705SL0Q	TRG					1.0441E+00	1.0441E+00				
14	VPSCR081705SL0R	TRG					1.0679E+00	1.0679E+00				
15	VPSCR081705SL0S	TRG					1.1972E+00	1.1972E+00				
16	VPSCR081705SL0T	TRG					1.0488E+00	1.0488E+00				

1.0636 g
1.0122 g
1.0170 g
1.0885 g
1.0366 g
0.9973 g
1.0045 g
1.1647 g
1.0441 g
1.0285 g
1.0441 g
1.0679 g
1.1972 g
1.0488 g

Comments	

Technician: JBarnard Date: 8/29/05

Eberline Services - Oak Ridge
Prep Logbook
Version 2.0 8/1999

Rough Sample Preparation Log Book

Printed: 8/24/2005 8:01 AM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
05-08096	9/9/2005	8/23/2005	8/24/2005	8/25/2005	KSALLINGS

Eberline	Missouri Dept. of Natural Resources	Tare (g)	Gross (g)		Net (g)		Percent		Gamma		Special
Fraction	Client ID	Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	Info
04	VPSCR081705SL0H	13.9000	566.5000	482.3100	552.6000	468.4100	15.24%	84.76%			
05	VPSCR081705SL0I	13.8700	572.4000	454.1400	558.5300	440.2700	21.17%	78.83%			
06	VPSCR081705SL0J	13.8200	558.6600	466.7700	544.8400	452.9500	16.87%	83.13%			
07	VPSCR081705SL0K	13.8800	586.4300	499.4100	572.5500	485.5300	15.20%	84.80%			
08	VPSCR081705SL0L	13.8700	511.0600	438.4300	497.1900	424.5600	14.61%	85.39%			
09	VPSCR081705SL0M	13.8900	333.5200	215.9100	319.6300	202.0200	36.80%	63.20%			
10	VPSCR081705SL0N	14.0800	539.4800	444.2100	525.4000	430.1300	18.13%	81.87%			
11	VPSCR081705SL0O	14.0400	479.6500	395.9200	465.6100	381.8800	17.98%	82.02%			
12	VPSCR081705SL0P	13.8300	466.8600	366.5700	453.0300	352.7400	22.14%	77.86%			
13	VPSCR081705SL0Q	13.9300	518.5200	365.4100	504.5900	351.4800	30.34%	69.66%			
14	VPSCR081705SL0R	14.0500	604.2100	466.5400	590.1600	452.4900	23.33%	76.67%			
15	VPSCR081705SL0S	13.9600	563.2300	453.8000	549.2700	439.8400	19.92%	80.08%			
16	VPSCR081705SL0T	13.8700	475.0400	386.5100	461.1700	372.6400	19.20%	80.80%			

Comments	
Special Codes	**H: Hot, O: Organic Hazard, P: PCB Hazard, R: Rush, T: Other (see comments)**

Technician: Kenny Sallings

Date:

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:16:28

Spectral File: ND_AMS_ARCHIVE_C:C_0508096A-TH$01_TH.CNF

BATCH ID:	0508096A-TH	SAMPLE ID:	01
SAMPLE DATE:	6-SEP-2005 00:00	ALIQUOT: 1.000E+00	gram
SAMPLE TITLE:	SPIKE	DETECTOR NUMBER:	001
ACQ DATE:	6-SEP-2005 08:14	AVERAGE EFFICIENCY:	21.48%
ELAPSED LIVE TIME:	10203.	RECOVERY:	72.05%
TRACER ID:	TH-18A	TRACER FWHM (kev):	134.37
LAMBDA VALUE:	465.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.449	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE:	31-AUG-2005 04:52
BKG FILENAME:	B_001_2SEP05	BKG ELAPSED TIME:	60007.

NUCLIDE ACTIVITY SUMMARY

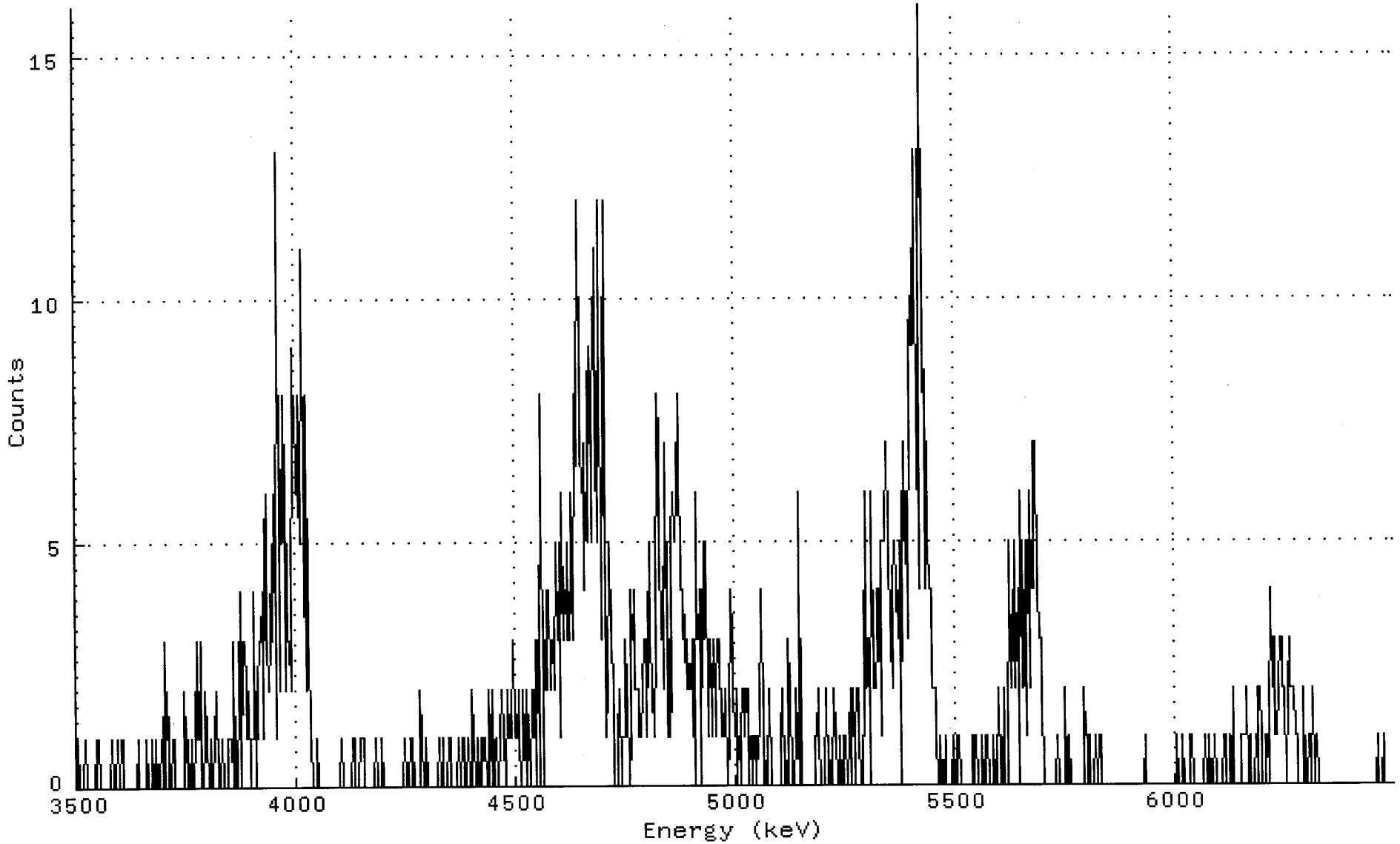
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	18.13	1.87	97.5	3.183E-01	1.671E-01	1.592E-01
TH-228	5400.0	305.32	0.68	99.9	5.232E+00	1.064E+00	1.121E-01
TH229	4872.0	273.64	1.36	99.5	4.707E+00	7.196E-01	1.399E-01
TH-230	4672.0	336.15	0.85	99.8	5.765E+00	1.155E+00	1.200E-01
TH-232	3997.0	239.66	0.34	100.0	4.103E+00	8.695E-01	9.281E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.C]C_0508096A-TH$01_TH.CNF;1
Title : 001
Sample Title: SPIKE
Start Time: 6-SEP-2005 08:14: Sample Time: 6-SEP-2005 00:00: Energy Offset: 3.48698E+03
Real Time : 0 02:50:03.00 Sample ID : 01 Energy Slope : 3.08009E+00
Live Time : 0 02:50:03.00 Sample Type: TH Energy Quad : -1.36503E-04



Channel Contents for ND_AMS_ARCHIVE_C:C_0508096A-TH$01_TH

Channel

1:	10203	10203	0	0	1	0	0	0	0	1	0	0	0	0
15:	0	0	0	1	0	1	0	0	0	0	0	0	0	0
29:	0	1	0	0	0	1	0	0	1	1	0	0	0	0
43:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
57:	0	0	0	1	0	0	1	0	0	1	1	0	3	0
71:	2	1	0	0	1	1	0	0	0	0	0	0	0	2
85:	1	0	1	0	0	1	0	1	3	1	1	3	0	0
99:	1	2	1	0	0	1	0	1	1	2	0	1	0	1
113:	0	0	0	0	1	1	1	0	3	0	0	0	2	4
127:	0	3	3	2	1	2	0	1	1	1	4	0	2	3
141:	3	3	4	1	5	6	3	2	3	5	3	5	7	1
155:	13	2	8	5	8	2	7	3	3	3	2	9	7	8
169:	6	8	6	5	10	11	5	2	8	3	1	1	0	0
183:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
211:	1	1	0	0	0	1	1	1	1	0	0	0	0	0
225:	0	0	0	1	0	0	0	0	1	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
253:	0	1	0	1	0	0	0	0	0	2	1	0	0	1
267:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
281:	0	0	1	1	0	0	0	0	0	1	0	0	1	1
295:	0	0	1	1	0	0	2	1	0	1	0	0	1	0
309:	1	1	1	0	0	2	1	0	2	0	1	0	0	1
323:	2	2	1	0	0	2	1	1	1	3	1	1	1	2
337:	1	0	1	2	1	0	2	1	0	0	2	1	3	0
351:	3	0	1	8	0	4	2	4	2	4	2	2	3	3
365:	2	5	3	5	1	6	3	4	4	3	5	3	4	6
379:	3	8	6	7	12	8	7	6	7	4	6	5	8	9
393:	5	8	9	11	7	5	12	10	3	8	12	1	2	5
407:	4	4	1	0	0	0	1	2	0	1	1	1	3	2
421:	0	1	4	3	4	2	2	2	1	1	2	2	3	3
435:	1	3	5	3	2	1	1	3	8	7	5	3	4	2
449:	7	1	5	1	2	5	6	5	5	6	8	6	5	3
463:	4	3	2	3	2	2	3	2	0	6	3	3	4	0
477:	4	3	5	5	1	1	3	2	1	3	1	2	3	2
491:	3	1	1	1	2	0	1	1	4	3	2	1	2	0
505:	1	0	1	2	2	1	2	2	0	1	1	0	1	1
519:	0	1	1	1	4	1	0	0	1	0	2	0	0	0
533:	0	0	0	0	0	1	2	0	1	0	0	3	2	0
547:	0	0	1	2	1	0	6	0	0	0	0	0	0	0
561:	0	0	0	0	1	1	2	1	0	0	0	0	2	0
575:	1	0	0	0	2	1	1	0	0	1	0	1	0	1
589:	0	0	1	2	0	2	0	1	2	2	1	0	1	0
603:	2	6	2	3	1	0	6	2	2	2	3	4	4	1
617:	5	5	5	5	7	5	5	3	2	4	5	4	4	3
631:	5	0	5	7	5	6	3	3	9	10	9	9	13	10
645:	8	4	10	16	8	13	4	7	5	4	4	2	2	2
659:	1	0	0	1	0	0	1	0	0	0	0	0	1	0
673:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
687:	1	1	0	1	0	0	0	0	1	0	1	0	1	0
701:	0	0	0	1	0	1	0	2	0	1	0	2	0	0
715:	0	0	5	2	2	3	5	2	3	4	0	6	2	5
729:	3	1	5	5	2	6	4	4	7	7	4	4	3	3
743:	2	0	0	0	0	0	0	0	0	0	0	1	1	0
757:	0	0	0	0	2	0	0	1	0	0	0	0	0	0
771:	0	0	0	0	0	2	1	1	0	1	0	0	0	0
785:	1	0	0	1	1	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	1	0	0	0	0	1
855:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
869:	0	0	1	1	0	0	1	0	0	0	1	0	0	0
883:	0	0	0	0	1	1	0	0	0	1	0	2	0	0
897:	0	0	0	0	1	1	1	1	1	2	0	1	0	0
911:	0	0	1	0	2	2	1	0	0	0	1	1	0	1
925:	4	2	3	3	1	1	2	2	3	3	2	2	0	0
939:	2	3	2	2	2	2	1	1	0	0	0	0	0	2
953:	0	0	0	1	1	0	2	0	0	1	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	1	0	0	0	0	1	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:16:23.53

Detector ID: 1 Acquisition Start: 6-SEP-2005 08:14:08.01
Live Time: 0 02:50:03.00 Real Time: 0 02:50:03.00
Batch Id: 0508096A-TH Sample Id: 01
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3963.16	240	0	75.61	155.67	102	100	2.35E-02	6.5	
2	0	4631.40	337	0	153.48	377.88	309	101	3.30E-02	5.4	
3	0	4884.57	275	0	134.37	463.26	410	127	2.70E-02	6.0	
4	0	5373.77	306	0	36.09	630.17	554	103	3.00E-02	5.7	
5	0	5831.91	20	0	0.00	788.90	743	123	1.96E-03	22.4	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:16:26.37

Acquisition Start: 2-SEP-2005 15:05:49.01
Live Time: 0 16:40:07.00 Real Time: 0 16:40:07.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3954.48	2	0	134.79	151.50	102	100	3.33E-05	70.7	
2	0	4577.10	5	0	180.75	359.00	309	101	8.33E-05	44.7	
3	0	4914.65	8	0	284.91	473.00	410	127	1.33E-04	35.4	
4	0	5301.49	4	0	113.35	605.00	554	103	6.67E-05	50.0	
5	0	5876.57	11	0	5.74	804.00	743	123	1.83E-04	30.2	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:16:26.68

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3963.16*	240	0	75.61	155.67	102	100	2.35E-02	6.5	
2	0	4631.40*	336	0	153.48	377.88	309	101	3.29E-02	5.5	
3	0	4884.57*	274	0	134.37	463.26	410	127	2.68E-02	6.1	
4	0	5373.77*	305	0	36.09	630.17	554	103	2.99E-02	5.7	
5	0	5831.91*	18	0	0.00	788.90	743	123	1.78E-03	24.9	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:16:27

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: SPIKE		
Sample date	: 6-SEP-2005 00:00:00	Acquisition date	: 6-SEP-2005 08:14:08
Sample ID	: 01	Sample quantity	: 1.0000 gram
Sample type	: TH	Sample geometry	:
Detector name	: 001	Detector geometry	:
Elapsed live time	: 0 02:50:03.00	Elapsed real time	: 0 02:50:03.00 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3963.16*	240	75.61	155.67	102	100	12.9		TH-232	2.96
0	4631.40*	336	153.48	377.88	309	101	10.9		TH-230	4.15
0	4884.57*	274	134.37	463.26	410	127	12.1		TH229	3.39
0	5373.77*	305	36.09	630.17	554	103	11.5		TH-228	3.77
0	5831.91*	18	0.00	788.90	743	123	49.7		TH-227	0.229

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:16:38

****

Spectral File: ND_AMS_ARCHIVE_R:R_0508096A-TH$02_TH.CNF

****

BATCH ID:	0508096A-TH	SAMPLE ID:	02
SAMPLE DATE:	6-SEP-2005 00:00	ALIQUOT:	1.000E+00 gram
SAMPLE TITLE:	BLANK	DETECTOR NUMBER:	002
ACQ DATE:	6-SEP-2005 08:14	AVERAGE EFFICIENCY:	20.47%
ELAPSED LIVE TIME:	10207.	RECOVERY:	56.79%
TRACER ID:	TH-18A	TRACER FWHM (kev):	40.30
LAMBDA VALUE:	460.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.348	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE:	31-AUG-2005 04:52
BKG FILENAME:	B_002_2SEP05	BKG ELAPSED TIME:	60004.

****

NUCLIDE ACTIVITY SUMMARY

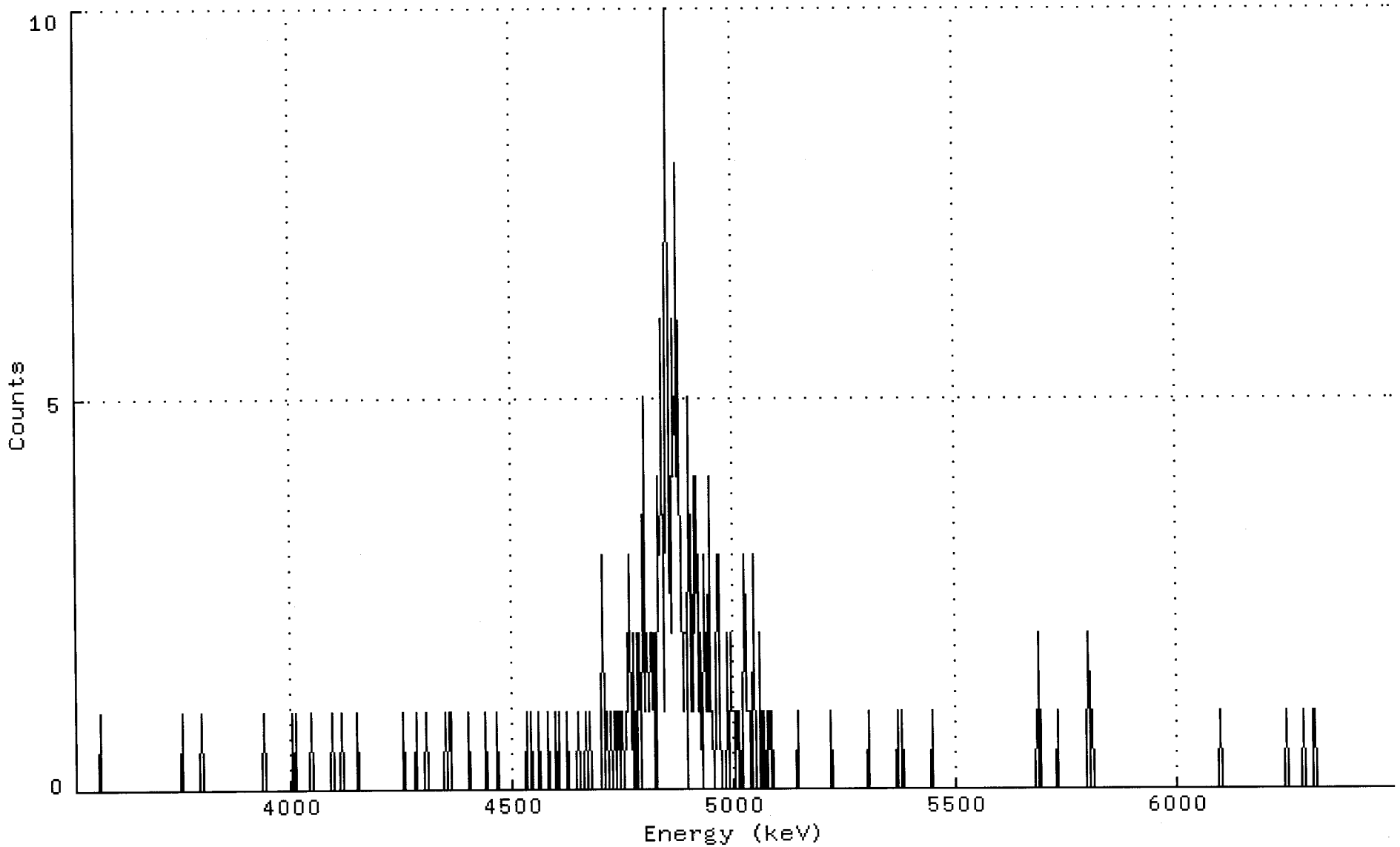
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	3.64	1.36	97.5	8.502E-02	1.080E-01	1.900E-01
TH-228	5400.0	3.81	1.19	99.9	8.685E-02	1.052E-01	1.774E-01
TH229	4872.0	203.66	0.34	99.5	4.661E+00	7.850E-01	1.241E-01
TH-230	4672.0	16.32	0.68	99.8	3.724E-01	2.006E-01	1.494E-01
TH-232	3997.0	4.32	0.68	100.0	9.839E-02	1.046E-01	1.491E-01

****

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.R]R_0508096A-TH$02_TH.CNF;1
Title : 002
Sample Title: BLANK
Start Time: 6-SEP-2005 08:14: Sample Time: 6-SEP-2005 00:00: Energy Offset: 3.50135E+03
Real Time : 0 02:50:07.00 Sample ID : 02 Energy Slope : 3.04129E+00
Live Time : 0 02:50:07.00 Sample Type: TH Energy Quad : -1.19940E-04



Channel Contents for ND_AMS_ARCHIVE_R:R_0508096A-TH$02_TH

Channel

1:	10207	10207	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	1	0	1
169:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
197:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
211:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
253:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
267:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	1	0	0	1	1	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
309:	0	0	0	1	0	0	0	0	0	0	0	0	1	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
351:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
365:	0	1	0	1	0	0	0	0	0	0	1	0	0	0
379:	0	0	0	0	1	0	0	0	0	0	1	0	0	1
393:	0	0	0	0	0	0	0	0	0	3	0	0	1	0
407:	0	1	0	0	1	0	1	1	0	1	1	0	1	1
421:	1	3	2	1	0	2	0	0	2	2	0	1	2	5
435:	1	2	1	1	2	2	0	2	0	4	4	3	4	6
449:	1	5	4	10	4	3	2	6	4	5	4	8	4	3
463:	1	2	2	2	0	5	2	1	1	4	2	4	1	3
477:	1	0	0	3	1	1	1	4	1	1	0	0	1	3
491:	3	1	0	0	0	0	1	2	0	2	1	1	1	0
505:	1	1	0	0	1	0	3	2	1	1	1	0	0	3
519:	2	0	0	0	2	0	1	0	0	1	0	1	0	1
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
631:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	1	0	2	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	2	1	0	1	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	1	1	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
939:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
953:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:16:34.80

Detector ID: 2 Acquisition Start: 6-SEP-2005 08:14:21.01
Live Time: 0 02:50:07.00 Real Time: 0 02:50:07.00
Batch Id: 0508096A-TH Sample Id: 02
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4017.30	5	0	161.19	170.80	99	100	4.90E-04	44.7	
2	0	4616.80	17	0	3.04	372.24	307	103	1.67E-03	24.3	
3	0	4884.10	204	0	40.30	463.12	409	129	2.00E-02	7.0	
4	0	5342.58	5	0	240.26	620.60	554	105	4.90E-04	44.7	
5	0	5788.60	5	0	4.47	775.80	745	124	4.90E-04	44.7	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:16:36.31

Acquisition Start: 2-SEP-2005 15:05:52.01
Live Time: 0 16:40:04.00 Real Time: 0 16:40:04.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3949.66	4	0	192.61	148.50	99	100	6.67E-05	50.0	
2	0	4575.73	4	0	275.16	358.00	307	103	6.67E-05	50.0	
3	0	4914.32	2	0	27.52	473.00	409	129	3.33E-05	70.7	
4	0	5301.41	7	0	3.06	606.00	554	105	1.17E-04	37.8	
5	0	5875.85	8	0	3.06	806.50	745	124	1.33E-04	35.4	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:16:36.58

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4017.30*	4	0	161.19	170.80	99	100	4.23E-04	52.4	
2	0	4616.80*	16	0	3.04	372.24	307	103	1.60E-03	25.4	
3	0	4884.10*	204	0	40.30	463.12	409	129	2.00E-02	7.0	
4	0	5342.58*	4	0	240.26	620.60	554	105	3.73E-04	59.9	
5	0	5788.60*	4	0	4.47	775.80	745	124	3.57E-04	62.9	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:16:37

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: BLANK		
Sample date	: 6-SEP-2005 00:00:00	Acquisition date	: 6-SEP-2005 08:14:21
Sample ID	: 02	Sample quantity	: 1.0000 gram
Sample type	: TH	Sample geometry	:
Detector name	: 002	Detector geometry	:
Elapsed live time	: 0 02:50:07.00	Elapsed real time	: 0 02:50:07.00 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4017.30*	4161.19	170.80	99	100	104.7			TH-232	5.587E-02
0	4616.80*	16	3.04	372.24	307	103	50.7		TH-230	0.211
0	4884.10*	204	40.30	463.12	409	129	14.0		TH229	2.65
0	5342.58*	4240.26		620.60	554	105	119.8		TH-228	4.932E-02
0	5788.60*	4	4.47	775.80	745	124	125.7		TH-227	4.828E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:16:48

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$03_TH.CNF

****

BATCH ID:	0508096A-TH	SAMPLE ID:	03
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.064E+00	gram
SAMPLE TITLE:	VPSCR081705SL0H	DETECTOR NUMBER:	003
ACQ DATE:	6-SEP-2005 08:14	AVERAGE EFFICIENCY:	20.10%
ELAPSED LIVE TIME:	10201.	RECOVERY:	85.29%
TRACER ID:	TH-18A	TRACER FWHM (kev):	167.32
LAMBDA VALUE:	450.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.123	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE: 31-AUG-2005	04:52
BKG FILENAME:	B_003_2SEP05	BKG ELAPSED TIME:	60001.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	9.98	1.02	97.5	1.490E-01	1.028E-01	1.104E-01
TH-228	5400.0	39.96	2.04	99.9	5.928E-01	2.164E-01	1.360E-01
TH229	4872.0	293.66	0.34	99.5	4.287E+00	6.406E-01	7.915E-02
TH-230	4672.0	97.32	0.68	99.8	1.417E+00	3.710E-01	9.526E-02
TH-232	3997.0	53.66	0.34	100.0	7.797E-01	2.493E-01	7.877E-02

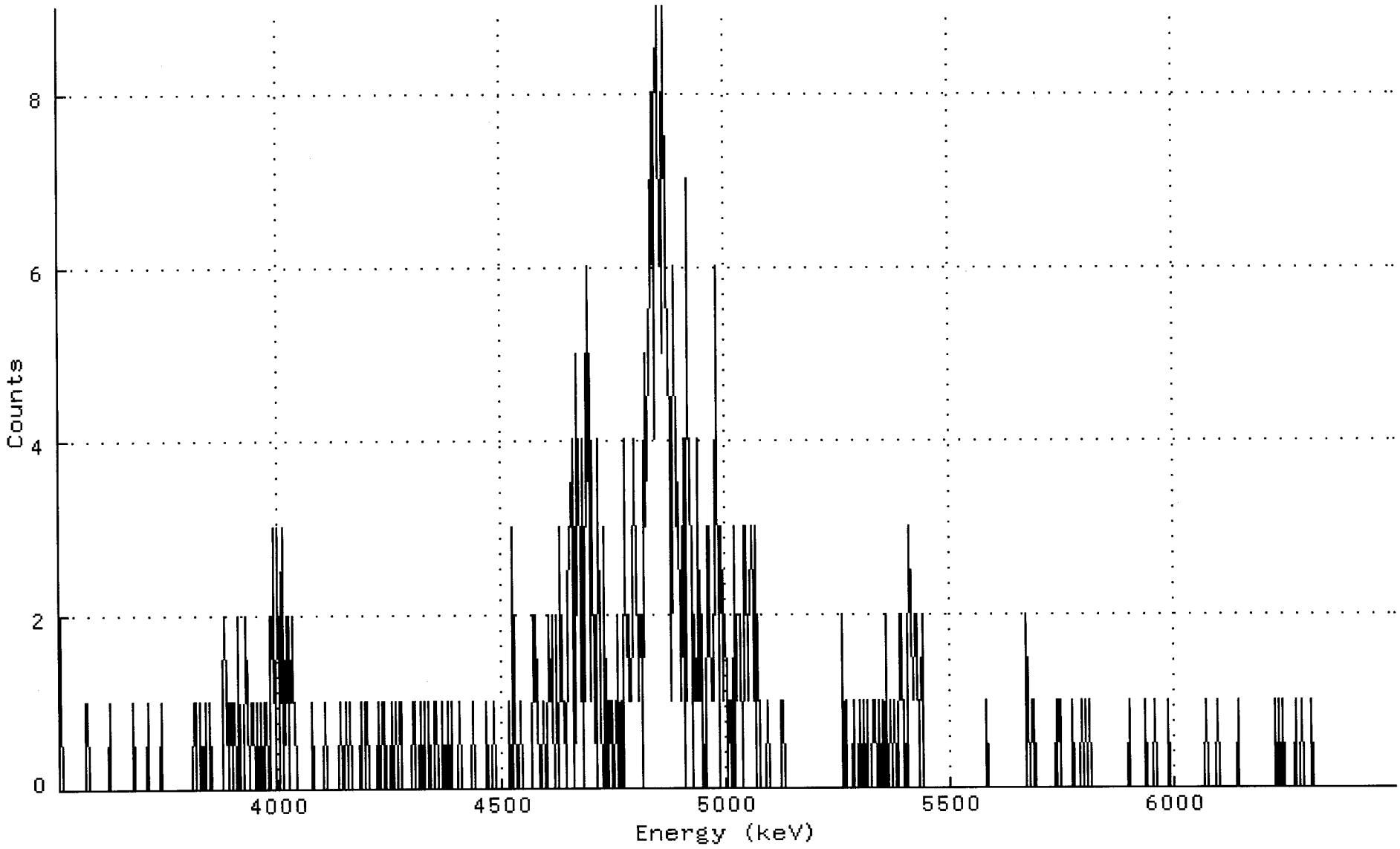
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$03_TH.CNF;1
Title : 003
Sample Title: VPSCR081705SL0H
Start Time: 6-SEP-2005 08:14: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.49830E+03
Real Time : 0 02:50:01.00 Sample ID : 03 Energy Slope : 3.07013E+00
Live Time : 0 02:50:01.00 Sample Type: TH Energy Quad : -1.42691E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$03_TH

Channel

1:	10201	10201	0	2	1	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	1	1	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	1	0	0	0	0	0	0	0	0	0	1	0	0
71:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	1	1	0	0	0	1	0	0	1	0	0
113:	0	1	0	0	0	0	0	0	0	0	0	1	2	1
127:	0	1	1	0	1	1	0	0	2	0	0	0	0	2
141:	1	1	0	1	1	1	0	0	1	0	1	0	0	1
155:	0	1	0	0	2	2	1	3	0	3	1	0	2	3
169:	0	1	2	0	2	1	2	1	1	0	0	0	0	0
183:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
197:	0	0	1	1	0	0	0	0	0	0	0	0	0	0
211:	1	0	0	0	1	0	0	1	0	0	0	0	0	0
225:	0	1	0	0	0	1	1	0	0	0	0	0	0	0
239:	1	0	0	1	0	1	0	0	0	0	1	0	0	1
253:	0	0	1	1	0	0	0	0	0	0	0	0	1	1
267:	0	0	0	1	0	0	1	0	0	0	1	0	0	0
281:	1	1	0	0	0	0	1	0	0	1	0	0	1	0
295:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
309:	1	0	0	0	0	0	0	0	0	0	0	1	0	0
323:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
337:	1	0	0	3	1	0	0	0	1	0	0	0	0	0
351:	0	0	0	0	2	1	2	1	0	0	0	1	1	0
365:	0	0	2	1	2	1	0	1	2	0	2	3	1	1
379:	0	0	2	3	3	3	4	0	1	5	2	4	2	0
393:	4	1	5	3	6	1	5	3	1	1	0	4	1	1
407:	0	0	3	0	1	0	1	0	1	0	1	0	2	0
421:	1	0	0	4	2	2	1	2	1	2	2	4	2	2
435:	1	2	2	0	3	5	3	4	5	5	6	8	4	8
449:	8	9	8	6	8	5	9	6	6	5	4	1	3	6
463:	3	4	3	2	1	3	0	4	1	7	4	4	2	0
477:	2	1	1	4	1	2	0	0	1	0	3	3	2	1
491:	1	2	2	6	0	1	3	2	1	2	1	0	1	1
505:	0	0	3	0	2	2	2	2	0	2	3	3	1	2
519:	2	3	3	2	0	3	1	1	0	0	0	0	0	1
533:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	2	0	1	0	0	0	0	0	1	0	0	0	1
603:	0	0	1	0	0	1	0	0	0	0	1	1	1	0
617:	0	1	0	0	1	0	2	0	0	1	1	0	1	0
631:	0	0	2	1	2	0	1	0	0	1	3	2	2	1
645:	2	2	2	0	1	1	2	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	2	1	0	0	1	0	1	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
757:	1	1	0	0	0	0	0	0	0	0	0	1	0	0
771:	0	0	0	0	1	0	0	1	0	0	1	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
813:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
827:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
841:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	1	0	0	1	0	0	1	0	0	0	0
939:	0	0	0	0	0	1	0	0	0	0	1	0	0	0
953:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:16:43.39

Detector ID: 3 Acquisition Start: 6-SEP-2005 08:14:43.01
Live Time: 0 02:50:01.00 Real Time: 0 02:50:01.00
Batch Id: 0508096A-TH Sample Id: 03
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3957.80	54	0156.50	150.72	99	100	5.29E-03	13.6	
2	0	4647.70	98	0 62.30	381.13	306	102	9.61E-03	10.1	
3	0	4892.80	294	0167.32	464.23	408	128	2.88E-02	5.8	
4	0	5375.51	42	0188.75	629.88	552	105	4.12E-03	15.4	
5	0	5833.10	11	0273.24	789.45	743	124	1.08E-03	30.2	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:16:46.52

Acquisition Start: 2-SEP-2005 15:05:55.01
Live Time: 0 16:40:01.00 Real Time: 0 16:40:01.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.36	2	0272.94	148.50	99	100	3.33E-05	70.7	
2	0	4573.80	4	0269.88	356.50	306	102	6.67E-05	50.0	
3	0	4913.38	2	0 46.00	471.50	408	128	3.33E-05	70.7	
4	0	5300.12	12	0 0.00	604.00	552	105	2.00E-04	28.9	
5	0	5876.15	6	0300.16	804.50	743	124	1.00E-04	40.8	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:16:46.80

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3957.80*	54	0156.50	150.72	99	100	5.26E-03	13.7	
2	0	4647.70*	97	0 62.30	381.13	306	102	9.54E-03	10.2	
3	0	4892.80*	294	0167.32	464.23	408	128	2.88E-02	5.8	
4	0	5375.51*	40	0188.75	629.88	552	105	3.92E-03	16.3	
5	0	5833.10*	10	0273.24	789.45	743	124	9.78E-04	33.5	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:16:47

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0H		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 08:14:43
Sample ID	: 03	Sample quantity	: 1.0636 gram
Sample type	: TH	Sample geometry	:
Detector name	: 003	Detector geometry	:
Elapsed live time	: 0 02:50:01.00	Elapsed real time	: 0 02:50:01.00 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3957.80*	54156.50	150.72	99	100	27.4			TH-232	0.665
0	4647.70*	97 62.30	381.13	306	102	20.4			TH-230	1.21
0	4892.80*	294167.32	464.23	408	128	11.7			TH229	3.66
0	5375.51*	40188.75	629.88	552	105	32.6			TH-228	0.506
0	5833.10*	10273.24	789.45	743	124	67.0			TH-227	0.127

Eberline Services
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ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:16:56

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$04_TH.CNF

****

BATCH ID:	0508096A-TH	SAMPLE ID:	04
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.012E+00	gram
SAMPLE TITLE:	VPSCR081705SL0H	DETECTOR NUMBER:	005
ACQ DATE:	6-SEP-2005 08:15	AVERAGE EFFICIENCY:	21.05%
ELAPSED LIVE TIME:	10206.	RECOVERY:	83.22%
TRACER ID:	TH-18A	TRACER FWHM (kev):	139.40
LAMBDA VALUE:	455.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.222	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE: 31-AUG-2005	04:52
BKG FILENAME:	B_005_2SEP05	BKG ELAPSED TIME:	60008.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	15.13	1.87	97.5	2.321E-01	1.332E-01	1.389E-01
TH-228	5400.0	30.64	1.36	99.9	4.672E-01	1.892E-01	1.215E-01
TH229	4872.0	303.15	0.85	99.5	4.549E+00	6.734E-01	1.050E-01
TH-230	4672.0	99.49	0.51	99.8	1.488E+00	3.858E-01	9.024E-02
TH-232	3997.0	45.66	0.34	100.0	6.819E-01	2.313E-01	8.097E-02

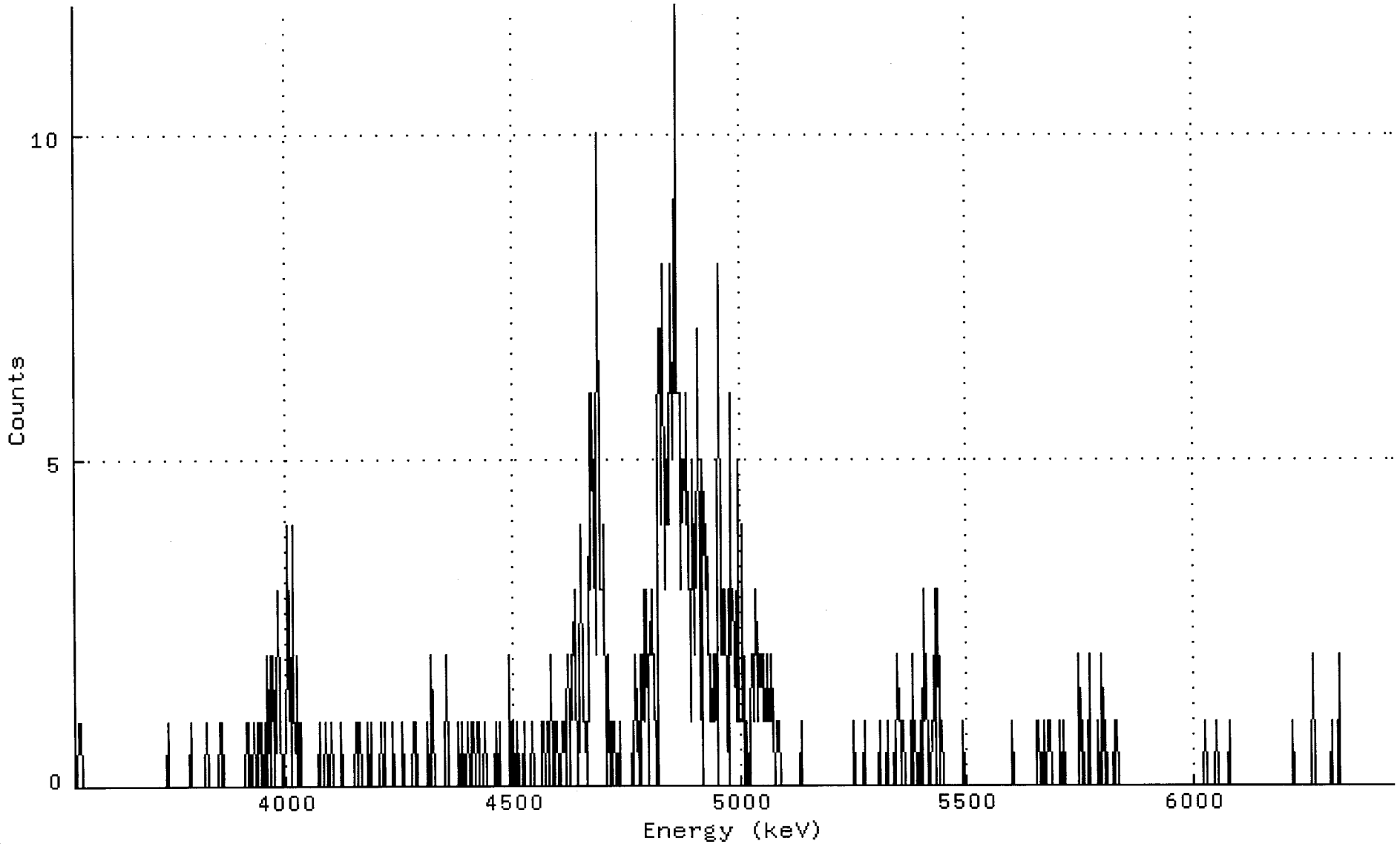
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$04_TH.CNF;1
Title : 005
Sample Title: VPSCR081705SL0H
Start Time: 6-SEP-2005 08:15: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.52274E+03
Real Time : 0 02:50:06.00 Sample ID : 04 Energy Slope : 2.97649E+00
Live Time : 0 02:50:06.00 Sample Type: TH Energy Quad : -1.27520E-04



2966

Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$04_TH

Channel

1:	10206	10206	0	0	0	1	1	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
99:	0	0	1	0	0	0	0	0	0	0	0	0	1	0
113:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	1	0	1	0	0	1	1	0	1	0
141:	1	0	1	0	0	2	0	1	2	0	2	1	0	1
155:	3	1	1	0	0	0	1	2	4	2	0	4	1	1
169:	0	2	0	1	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	1	0	0	0	0	1	0	0	0	1	1
197:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
211:	0	0	0	1	1	0	1	0	0	0	0	0	1	0
225:	1	0	0	0	0	0	0	0	1	0	1	0	0	0
239:	0	0	0	1	0	0	0	0	0	0	1	0	0	0
253:	0	0	0	0	1	0	1	0	0	0	0	0	0	0
267:	0	1	0	0	2	1	0	0	0	0	0	0	0	0
281:	0	2	0	0	0	0	0	0	0	0	1	0	0	1
295:	0	0	0	1	0	0	1	1	0	0	1	1	0	0
309:	0	0	1	0	0	0	0	0	0	0	1	0	0	1
323:	0	0	0	0	0	0	0	2	0	0	1	0	0	1
337:	0	0	0	0	1	0	0	0	0	0	1	0	0	0
351:	0	0	0	0	1	1	0	0	1	1	0	2	0	0
365:	1	1	0	0	0	1	1	1	0	1	2	1	0	2
379:	2	3	2	0	1	1	4	1	1	1	0	1	1	6
393:	3	6	4	4	2	10	3	3	3	3	4	0	1	2
407:	0	0	1	1	0	0	0	1	0	0	0	0	0	0
421:	0	0	0	1	0	2	1	1	0	2	0	2	1	3
435:	3	0	2	2	3	2	2	0	0	5	7	7	4	8
449:	3	5	4	6	4	8	5	6	6	12	6	6	6	3
463:	5	5	4	6	3	3	1	5	3	2	4	5	7	2
477:	0	5	4	3	4	3	1	2	1	2	1	2	0	2
491:	8	2	3	2	3	1	1	0	6	2	3	2	2	1
505:	5	1	1	1	4	0	0	1	0	0	1	2	2	1
519:	3	2	1	2	2	1	2	1	1	2	1	1	2	1
533:	0	0	1	1	1	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
603:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
617:	0	0	0	0	1	0	0	0	0	0	1	0	2	1
631:	1	0	1	0	0	0	0	0	0	2	0	1	0	0
645:	0	1	0	0	3	1	2	0	1	0	1	1	1	3
659:	0	3	1	0	1	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
743:	0	1	0	0	1	1	1	0	0	0	0	0	0	0
757:	1	0	0	1	0	0	0	0	0	0	0	0	0	0
771:	0	2	1	0	1	0	0	0	0	2	0	0	0	0
785:	0	0	1	0	0	2	1	0	1	0	0	0	0	0
799:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	1	0	0	0	0	0	0	0	0	1	0
883:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	2	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	1	0	0	0	0	0	2
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:16:52.77

Detector ID: 5 Acquisition Start: 6-SEP-2005 08:15:03.01
Live Time: 0 02:50:06.00 Real Time: 0 02:50:06.00
Batch Id: 0508096A-TH Sample Id: 04
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3982.50	46	0	36.21	155.50	94	103	4.51E-03	14.7	
2	0	4647.46	100	0	20.58	384.19	307	105	9.80E-03	10.0	
3	0	4898.69	304	0	139.40	471.81	412	132	2.98E-02	5.7	
4	0	5384.17	32	0	95.21	643.09	560	108	3.14E-03	17.7	
5	0	5801.93	17	0	57.95	792.65	756	127	1.67E-03	24.3	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:16:54.94

Acquisition Start: 2-SEP-2005 15:05:57.01
Live Time: 0 16:40:08.00 Real Time: 0 16:40:08.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.77	2	0	230.15	145.00	94	103	3.33E-05	70.7	
2	0	4575.24	3	0	257.06	359.00	307	105	5.00E-05	57.7	
3	0	4915.50	5	0	316.84	477.50	412	132	8.33E-05	44.7	
4	0	5301.13	8	0	2.99	613.50	560	108	1.33E-04	35.4	
5	0	5873.96	11	0	0.00	819.00	756	127	1.83E-04	30.2	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:16:55.21

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3982.50*	46	0	36.21	155.50	94	103	4.47E-03	14.9	
2	0	4647.46*	99	0	20.58	384.19	307	105	9.75E-03	10.1	
3	0	4898.69*	303	0	139.40	471.81	412	132	2.97E-02	5.8	
4	0	5384.17*	31	0	95.21	643.09	560	108	3.00E-03	18.5	
5	0	5801.93*	15	0	57.95	792.65	756	127	1.48E-03	27.5	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:16:55

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0H		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 08:15:03
Sample ID	: 04	Sample quantity	: 1.0122 gram
Sample type	: TH	Sample geometry	:
Detector name	: 005	Detector geometry	:
Elapsed live time	: 0 02:50:06.00	Elapsed real time	: 0 02:50:06.00 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3982.50*	46	36.21	155.50	94	103	29.7		TH-232	0.567
0	4647.46*	99	20.58	384.19	307	105	20.1		TH-230	1.24
0	4898.69*	303	139.40	471.81	412	132	11.5		TH229	3.79
0	5384.17*	31	95.21	643.09	560	108	37.1		TH-228	0.389
0	5801.93*	15	57.95	792.65	756	127	55.0		TH-227	0.193

Eberline Services
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ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:17:05

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$05_TH.CNF

BATCH ID:	0508096A-TH	SAMPLE ID:	05
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.017E+00 gram
SAMPLE TITLE:	VPSCR081705SL0I	DETECTOR NUMBER:	006
ACQ DATE:	6-SEP-2005 08:15	AVERAGE EFFICIENCY:	21.46%
ELAPSED LIVE TIME:	10203.	RECOVERY:	92.61%
TRACER ID:	TH-18A	TRACER FWHM (kev):	162.93
LAMBDA VALUE:	454.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.207	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE:	31-AUG-2005 04:52
BKG FILENAME:	B_006_2SEP05	BKG ELAPSED TIME:	60006.

NUCLIDE ACTIVITY SUMMARY

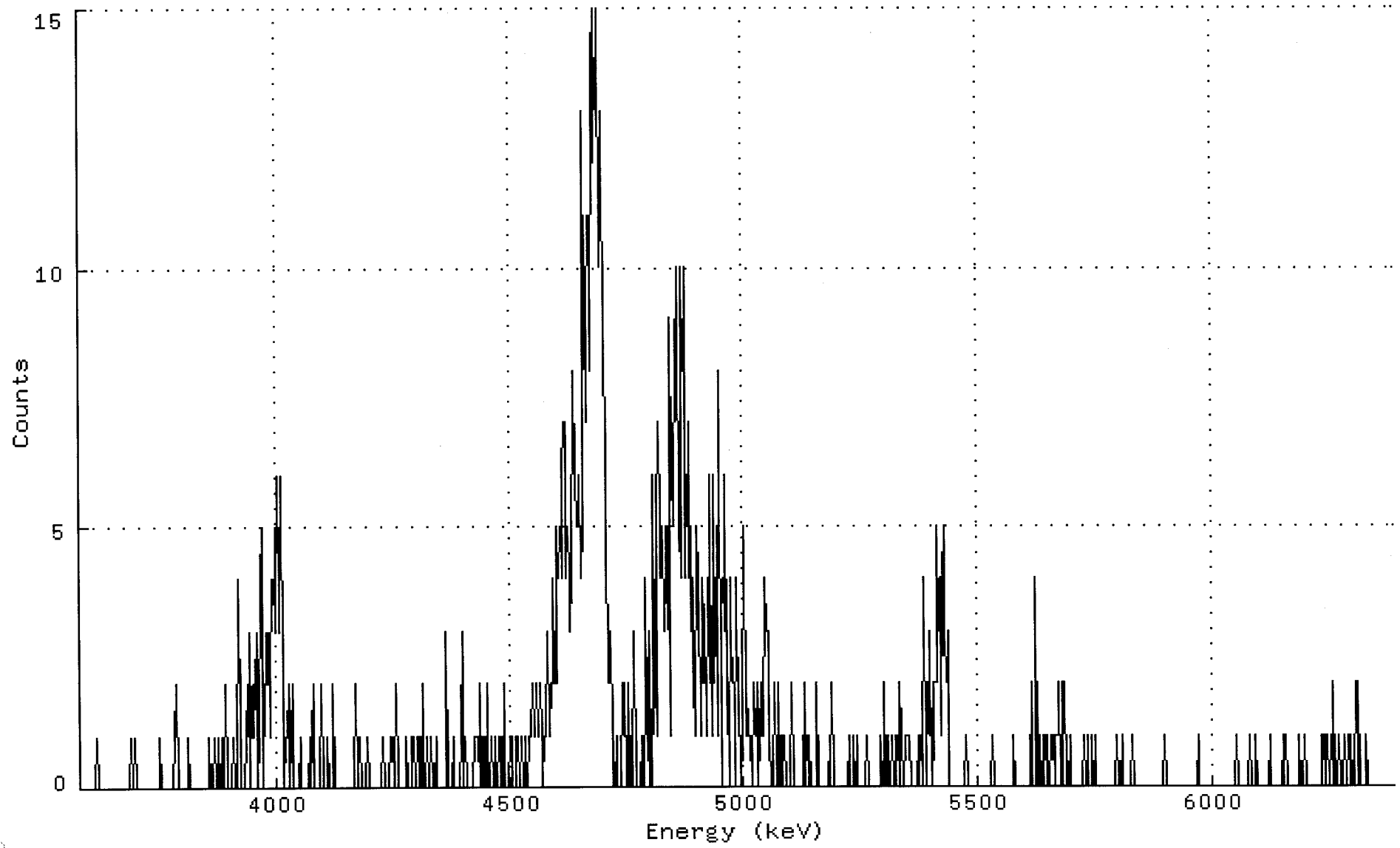
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	8.30	1.70	97.5	1.117E-01	8.818E-02	1.179E-01
TH-228	5400.0	72.81	1.19	99.9	9.742E-01	2.775E-01	1.021E-01
TH229	4872.0	343.32	0.68	99.5	4.521E+00	6.448E-01	8.618E-02
TH-230	4672.0	368.81	1.19	99.8	4.842E+00	9.193E-01	1.022E-01
TH-232	3997.0	101.49	0.51	100.0	1.330E+00	3.386E-01	7.903E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$05_TH.CNF;1
Title : 006
Sample Title: VPSCR081705SL0I
Start Time: 6-SEP-2005 08:15: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.56783E+03
Real Time : 0 02:50:03.00 Sample ID : 05 Energy Slope : 2.88431E+00
Live Time : 0 02:50:03.00 Sample Type: TH Energy Quad : -1.27673E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$05_TH

Channel

1:	10203	10203	0	0	0	0	0	0	0	0	0	0	0	0
15:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
43:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
71:	0	0	0	1	2	0	0	0	0	0	0	0	0	1
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	1	0	0	1	1	0	1	0	0	1	0	0	2
113:	0	0	0	0	0	1	0	0	0	4	1	0	0	0
127:	0	1	2	0	3	1	2	1	2	3	0	1	4	5
141:	0	2	2	3	3	1	2	4	4	3	4	6	3	4
155:	6	2	0	1	1	2	0	1	2	0	0	0	0	0
169:	1	0	0	0	0	0	0	1	0	1	2	0	0	0
183:	0	0	2	0	0	0	0	1	0	0	0	2	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	2	0	0	1	0	0	0	0	1	1	0	0	0	0
225:	0	0	0	0	0	0	1	0	0	0	0	0	1	1
239:	0	0	2	0	0	0	0	0	0	0	1	0	0	0
253:	1	1	0	0	1	0	1	0	2	0	0	1	0	0
267:	1	0	0	0	1	0	0	0	0	0	0	0	3	0
281:	0	0	0	1	0	0	0	0	0	1	3	0	1	0
295:	0	0	0	0	0	1	1	1	1	0	2	0	1	0
309:	0	2	0	0	1	1	0	1	0	0	1	1	0	0
323:	2	0	0	0	0	1	1	0	0	0	1	1	0	1
337:	1	0	1	0	0	1	1	1	2	2	1	2	2	1
351:	2	1	0	1	1	1	3	1	1	2	2	4	2	2
365:	5	4	5	4	6	7	7	4	5	4	3	4	8	8
379:	6	5	5	6	4	5	13	9	7	9	11	9	8	14
393:	15	12	14	13	15	10	13	11	10	5	2	2	3	1
407:	0	0	1	0	0	0	0	2	1	2	0	0	2	0
421:	0	0	3	0	0	0	0	1	0	0	2	4	1	0
435:	3	0	2	6	2	1	5	7	5	4	5	3	4	5
449:	5	1	9	6	5	6	8	10	9	5	4	10	8	10
463:	4	6	4	7	3	4	2	1	5	4	4	1	3	4
477:	3	1	1	4	2	6	1	6	2	4	1	2	8	0
491:	3	4	3	6	2	0	4	3	2	2	0	4	1	2
505:	0	1	1	5	1	2	1	1	1	0	2	2	1	2
519:	0	1	2	1	1	4	4	3	3	1	0	0	2	2
533:	0	0	2	0	1	0	1	0	0	0	0	0	2	0
547:	0	0	0	0	0	0	0	0	2	0	1	0	1	0
561:	0	0	0	0	2	0	0	0	0	0	0	0	0	1
575:	0	2	0	0	0	0	0	0	0	0	0	0	0	0
589:	1	0	0	0	1	0	1	0	0	0	0	0	0	0
603:	1	0	0	0	0	0	0	0	0	0	0	1	0	0
617:	2	0	0	1	0	1	1	0	1	0	1	0	2	1
631:	0	0	1	1	1	1	0	0	0	0	0	0	1	0
645:	1	1	0	4	0	0	2	1	3	0	1	2	2	2
659:	5	3	4	1	4	5	3	2	3	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	2	0	0	0	4	0	1	0	0	1
743:	0	1	1	0	0	1	1	1	0	1	1	1	2	0
757:	0	2	2	0	0	0	1	0	0	0	0	0	0	0
771:	0	0	0	1	0	0	1	0	0	0	1	0	1	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	1	0	0	0	1	0	0	0	0	0	0	0	1
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
897:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
911:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
925:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
939:	0	0	0	0	0	0	0	0	1	0	0	0	1	1
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
967:	1	0	1	1	0	0	1	0	2	0	0	0	1	0
981:	0	0	1	1	0	0	1	0	1	0	1	0	2	0
995:	2	0	0	0	0	0	1	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:17:00.93

Detector ID: 6 Acquisition Start: 6-SEP-2005 08:15:24.01
Live Time: 0 02:50:03.00 Real Time: 0 02:50:03.00
Batch Id: 0508096A-TH Sample Id: 05
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3979.91	102	0	98.05	143.78	81	106	1.00E-02	9.9	
2	0	4645.95	370	0	70.94	380.19	301	109	3.63E-02	5.2	
3	0	4897.28	344	0	162.93	470.74	409	136	3.37E-02	5.4	
4	0	5368.25	74	0	56.34	642.49	563	111	7.25E-03	11.6	
5	0	5828.38	10	0	0.00	813.00	765	132	9.80E-04	31.6	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:17:04.06

Acquisition Start: 2-SEP-2005 15:06:00.01
Live Time: 0 16:40:06.00 Real Time: 0 16:40:06.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.29	3	0	69.22	133.50	81	106	5.00E-05	57.7	
2	0	4575.59	7	0	4.24	355.00	301	109	1.17E-04	37.8	
3	0	4913.36	4	0	259.59	476.50	409	136	6.67E-05	50.0	
4	0	5302.06	7	0	302.85	618.00	563	111	1.17E-04	37.8	
5	0	5876.36	10	0	360.54	830.50	765	132	1.67E-04	31.6	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:17:04.31

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3979.91*	101	0	98.05	143.78	81	106	9.95E-03	10.0	
2	0	4645.95*	369	0	70.94	380.19	301	109	3.61E-02	5.2	
3	0	4897.28*	343	0	162.93	470.74	409	136	3.36E-02	5.4	
4	0	5368.25*	73	0	56.34	642.49	563	111	7.14E-03	11.8	
5	0	5828.38*	8	0	0.00	813.00	765	132	8.13E-04	38.6	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:17:05

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0I		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 08:15:24
Sample ID	: 05	Sample quantity	: 1.0170 gram
Sample type	: TH	Sample geometry	:
Detector name	: 006	Detector geometry	:
Elapsed live time	: 0 02:50:03.00	Elapsed real time	: 0 02:50:03.00 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3979.91*	101	98.05	143.78	81	106	19.9		TH-232	1.23
0	4645.95*	369	70.94	380.19	301	109	10.4		TH-230	4.48
0	4897.28*	343	162.93	470.74	409	136	10.8		TH229	4.19
0	5368.25*	73	56.34	642.49	563	111	23.7		TH-228	0.902
0	5828.38*	8	0.00	813.00	765	132	77.3		TH-227	0.103

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:17:20

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$06_TH.CNF

BATCH ID:	0508096A-TH	SAMPLE ID:	06
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.089E+00 gram
SAMPLE TITLE:	VPSCR081705SL0J	DETECTOR NUMBER:	007
ACQ DATE:	6-SEP-2005 08:15	AVERAGE EFFICIENCY:	20.23%
ELAPSED LIVE TIME:	10202.	RECOVERY:	78.26%
TRACER ID:	TH-18A	TRACER FWHM (kev):	104.45
LAMBDA VALUE:	456.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.254	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE:	31-AUG-2005 04:52
BKG FILENAME:	B_007_2SEP05	BKG ELAPSED TIME:	60003.

NUCLIDE ACTIVITY SUMMARY

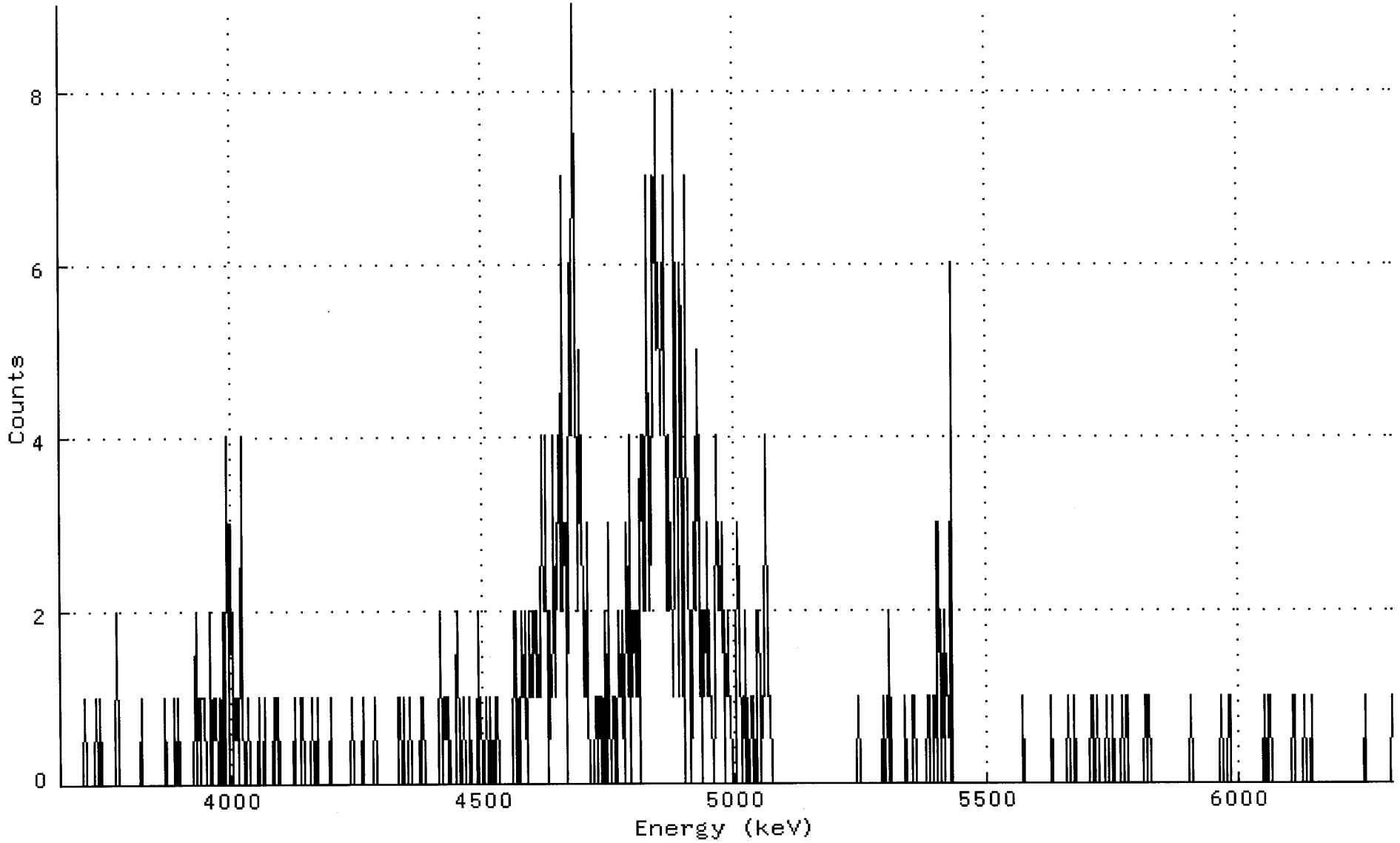
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	15.81	1.19	97.5	2.498E-01	1.376E-01	1.227E-01
TH-228	5400.0	31.66	0.34	99.9	4.970E-01	1.963E-01	8.341E-02
TH229	4872.0	274.66	0.34	99.5	4.243E+00	6.474E-01	8.376E-02
TH-230	4672.0	157.00	0.00	99.8	2.418E+00	5.599E-01	4.174E-02
TH-232	3997.0	43.66	0.34	100.0	6.713E-01	2.331E-01	8.336E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$06_TH.CNF;1
Title : 007
Sample Title: VPSCR081705SL0J
Start Time: 6-SEP-2005 08:15: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.65062E+03
Real Time : 0 02:50:02.00 Sample ID : 06 Energy Slope : 2.69584E+00
Live Time : 0 02:50:02.00 Sample Type: TH Energy Quad : -1.01301E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$06_TH

Channel

1:	10202	10202	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
29:	0	1	0	0	1	0	0	0	0	0	0	0	0	0
43:	0	0	2	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
85:	0	0	0	1	0	0	1	0	0	0	0	0	0	0
99:	0	0	0	0	1	2	0	1	0	1	1	1	0	0
113:	0	0	2	0	1	1	1	0	0	1	0	2	0	0
127:	4	2	0	3	1	0	1	1	0	1	1	4	1	0
141:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
155:	1	0	0	0	0	0	0	1	0	1	0	1	0	0
169:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
183:	1	1	0	0	0	0	0	0	1	0	0	0	1	0
197:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
225:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	1	1	0	1	0	0	0	0	1	0	0
267:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
281:	0	0	0	0	0	0	2	0	0	1	1	0	1	0
295:	0	0	0	0	1	2	0	0	0	1	0	0	0	0
309:	1	0	0	0	0	0	2	0	1	0	0	0	1	1
323:	0	0	1	0	0	1	0	1	0	0	0	0	0	0
337:	0	0	0	0	0	0	2	0	2	0	1	0	2	1
351:	2	1	0	2	1	1	2	1	2	1	2	1	1	4
365:	3	2	3	4	0	1	2	1	2	4	1	3	3	4
379:	2	7	2	3	3	0	3	5	6	4	9	6	6	2
393:	5	3	4	1	2	1	3	1	0	0	0	0	1	1
407:	0	1	0	1	0	2	0	0	3	1	0	1	1	0
421:	0	2	2	1	2	1	0	3	2	1	4	0	2	2
435:	1	2	2	0	3	4	2	4	2	6	7	2	3	5
449:	7	6	8	5	6	4	5	5	7	6	2	4	2	3
463:	1	3	8	4	3	1	6	5	2	0	7	4	3	1
477:	0	1	3	2	3	5	1	4	0	2	2	2	1	3
491:	1	1	1	0	1	1	4	2	2	2	3	0	2	1
505:	2	1	1	0	0	0	0	1	3	2	0	0	1	0
519:	2	0	0	0	1	0	1	0	0	2	2	1	0	1
533:	1	1	4	1	1	1	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	1	0	0	1	0	2	0
631:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
645:	0	0	1	1	0	0	0	0	0	0	0	0	0	1
659:	1	0	0	0	1	1	0	3	3	0	2	1	0	2
673:	1	1	1	0	6	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
757:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
771:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
785:	0	1	0	1	0	1	1	0	0	0	0	0	0	1
799:	0	0	0	0	1	0	0	0	0	0	0	1	0	0
813:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	1	0	1	1	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	1	0	0	0	0	0	1	1	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
925:	1	0	1	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	1	1	0	0	0	0	0	0
953:	0	1	0	0	0	0	0	1	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

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Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:17:09.26

Detector ID: 7 Acquisition Start: 6-SEP-2005 08:15:43.01
Live Time: 0 02:50:02.00 Real Time: 0 02:50:02.00
Batch Id: 0508096A-TH Sample Id: 06
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3984.68	44	0	32.73	124.50	56	113	4.31E-03	15.1	
2	0	4636.88	157	0	37.01	371.02	290	116	1.54E-02	8.0	
3	0	4882.91	275	0	104.45	465.24	405	145	2.70E-02	6.0	
4	0	5386.47	32	0	2.70	660.28	568	118	3.14E-03	17.7	
5	0	5823.59	17	0	0.00	832.06	783	140	1.67E-03	24.3	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:17:18.64

Acquisition Start: 2-SEP-2005 15:06:03.01
Live Time: 0 16:40:03.00 Real Time: 0 16:40:03.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3951.44	2	0	86.26	112.00	56	113	3.33E-05	70.7	
2	0	4575.38	0	0	0.00	347.50	290	116	0.00E+00	0.0	
3	0	4913.73	2	0	183.31	477.00	405	145	3.33E-05	70.7	
4	0	5300.12	2	0	91.65	626.50	568	118	3.33E-05	70.7	
5	0	5875.70	7	0	0.00	852.50	783	140	1.17E-04	37.8	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:17:18.88

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3984.68*	44	0	32.73	124.50	56	113	4.28E-03	15.2	
2	0	4636.88*	157	0	37.01	371.02	290	116	1.54E-02	8.0	
3	0	4882.91*	275	0	104.45	465.24	405	145	2.69E-02	6.0	
4	0	5386.47*	32	0	2.70	660.28	568	118	3.10E-03	17.9	
5	0	5823.59*	16	0	0.00	832.06	783	140	1.55E-03	26.2	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:17:19

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0J		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 08:15:43
Sample ID	: 06	Sample quantity	: 1.0885 gram
Sample type	: TH	Sample geometry	:
Detector name	: 007	Detector geometry	:
Elapsed live time	: 0 02:50:02.00	Elapsed real time	: 0 02:50:02.00 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3984.68*	44	32.73	124.50	56	113	30.4		TH-232	0.525
0	4636.88*	157	37.01	371.02	290	116	16.0		TH-230	1.89
0	4882.91*	275	104.45	465.24	405	145	12.1		TH229	3.32
0	5386.47*	32	2.70	660.28	568	118	35.8		TH-228	0.389
0	5823.59*	16	0.00	832.06	783	140	52.5		TH-227	0.195

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Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:17:38

****
Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$07_TH.CNF
****

BATCH ID:	0508096A-TH	SAMPLE ID:	07
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.037E+00 gram
SAMPLE TITLE:	VPSCR081705SL0K	DETECTOR NUMBER:	008
ACQ DATE:	6-SEP-2005 08:16	AVERAGE EFFICIENCY:	18.70%
ELAPSED LIVE TIME:	10201.	RECOVERY:	87.59%
TRACER ID:	TH-18A	TRACER FWHM (kev):	65.66
LAMBDA VALUE:	457.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.276	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE:	31-AUG-2005 04:52
BKG FILENAME:	B_008_2SEP05	BKG ELAPSED TIME:	60000.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	1.66	0.34	97.5	2.661E-02	4.621E-02	8.676E-02
TH-228	5400.0	45.49	0.51	99.9	7.247E-01	2.476E-01	9.415E-02
TH229	4872.0	284.83	0.17	99.5	4.465E+00	6.737E-01	7.255E-02
TH-230	4672.0	79.00	0.00	99.8	1.235E+00	3.454E-01	4.236E-02
TH-232	3997.0	52.00	0.00	100.0	8.113E-01	2.623E-01	4.228E-02

****

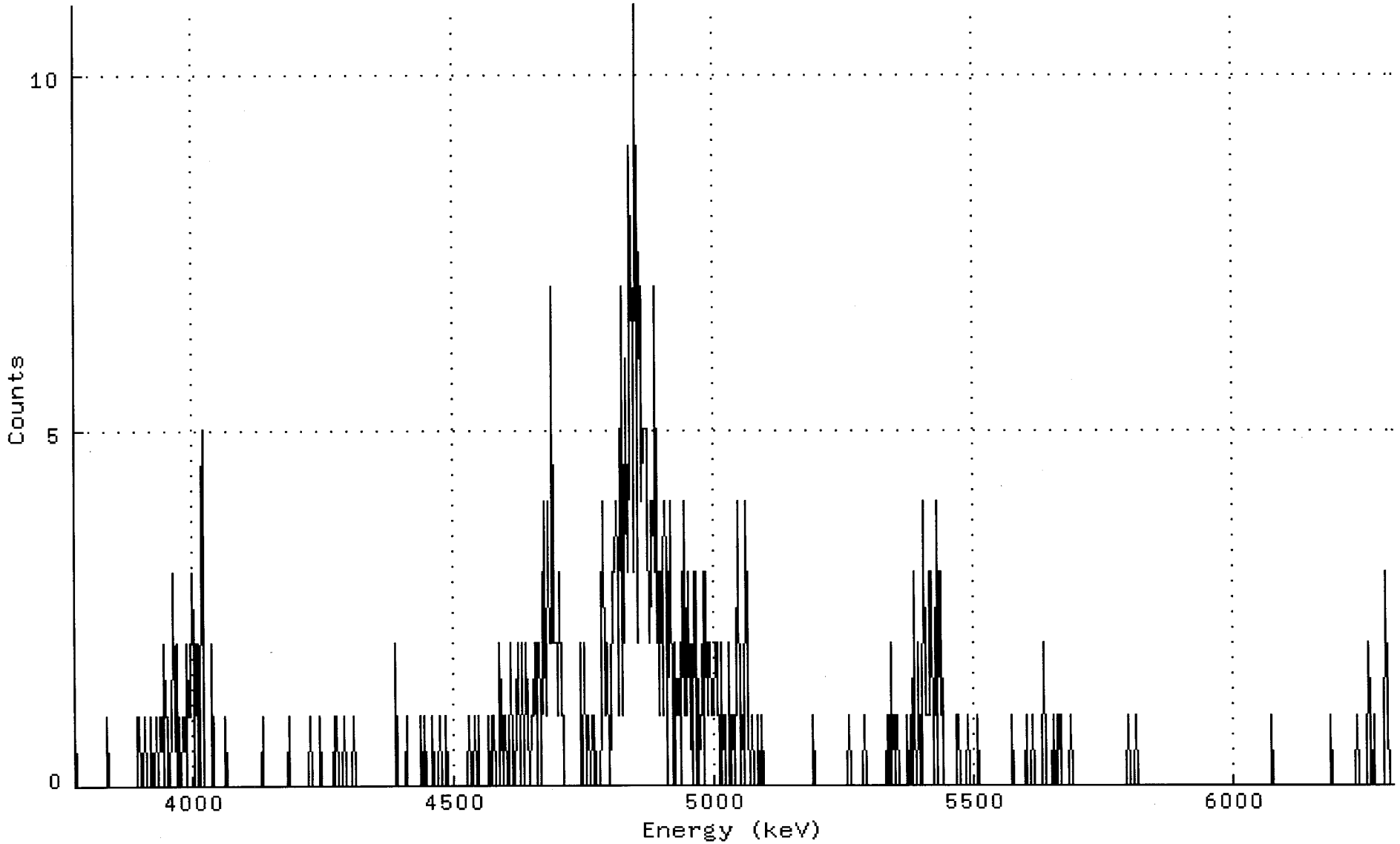
Jay Price
Analyst

9-6-05
Date

Alan Jaregilny
Reviewer

9/6/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$07_TH.CNF;1
Title : 008
Sample Title: VPSCR081705SL0K
Start Time: 6-SEP-2005 08:16: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.76295E+03
Real Time : 0 02:50:01.00 Sample ID : 07 Energy Slope : 2.56258E+00
Live Time : 0 02:50:01.00 Sample Type: TH Energy Quad : -7.84436E-05



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$07_TH

Channel

1:	10201	10201	1	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	1	1	0	0	0	1
57:	0	0	0	0	1	0	0	1	1	0	1	1	1	0
71:	2	1	1	0	0	1	2	3	1	0	2	0	0	0
85:	1	1	0	2	1	2	1	3	2	0	2	0	2	0
99:	4	5	0	0	0	0	0	0	2	0	0	0	0	0
113:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
183:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
197:	0	0	0	1	0	1	0	0	0	0	1	1	0	0
211:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	2	0	0	0	0	0
253:	0	0	1	0	0	0	0	0	0	0	0	0	0	1
267:	0	0	1	0	0	0	0	0	1	0	0	0	0	1
281:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	1	0	0	0	1	1	0
309:	1	0	0	0	0	0	0	0	1	0	1	0	1	0
323:	0	0	0	2	1	0	1	1	0	0	0	2	0	0
337:	0	1	1	2	0	0	2	0	0	2	1	1	0	1
351:	1	1	2	0	2	2	1	0	2	4	2	1	4	3
365:	2	2	7	2	2	2	1	3	1	2	0	0	0	0
379:	0	0	0	0	0	0	0	0	0	0	2	0	2	0
393:	0	1	0	0	1	0	1	0	0	0	0	1	2	4
407:	1	2	2	0	0	1	3	3	3	4	3	1	5	1
421:	7	2	5	6	3	5	9	7	6	3	11	2	9	6
435:	7	4	5	5	5	4	2	3	4	4	3	7	3	1
449:	3	3	1	3	4	3	0	3	2	4	0	0	2	1
463:	1	2	0	3	1	4	1	2	3	1	0	1	3	0
477:	3	0	1	1	1	3	0	3	1	2	2	1	1	1
491:	2	1	2	0	2	0	1	1	0	0	0	2	0	1
505:	1	0	2	1	4	0	0	1	1	0	4	2	1	0
519:	1	1	0	0	0	1	0	0	1	0	0	0	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
603:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	1	0	0	2	0	1	0
631:	1	1	0	0	0	0	0	0	0	1	0	1	0	0
645:	3	1	0	1	2	0	1	0	4	1	1	1	1	3
659:	3	0	1	1	4	0	3	1	3	0	0	0	0	0
673:	0	0	0	0	0	0	1	1	0	0	0	0	0	0
687:	1	0	0	0	0	0	0	0	1	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
729:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
743:	0	0	0	0	2	0	0	0	0	0	0	1	0	0
757:	1	0	1	1	0	0	0	0	0	0	0	1	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	1	0	0	0	0	0	1	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	1	0	0	0	0	0	0	0	0	2	1	0	0	1
1009:	0	0	0	0	0	0	0	0	0	3	1	1	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:17:23.91

Detector ID: 8 Acquisition Start: 6-SEP-2005 08:16:03.01
Live Time: 0 02:50:01.00 Real Time: 0 02:50:01.00
Batch Id: 0508096A-TH Sample Id: 07
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3976.92	52	0	58.43	83.71	14	119	5.10E-03	13.9	
2	0	4644.50	79	0	20.37	347.71	260	121	7.74E-03	11.3	
3	0	4891.95	285	0	65.66	446.68	380	151	2.79E-02	5.9	
4	0	5391.26	46	0	58.07	648.28	551	122	4.51E-03	14.7	
5	0	5801.78	2	0	17.94	816.00	774	145	1.96E-04	70.7	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:17:37.18

Acquisition Start: 2-SEP-2005 15:06:06.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3951.10	0	0	0.00	73.00	14	119	0.00E+00	0.0	
2	0	4576.11	0	0	0.00	320.00	260	121	0.00E+00	0.0	
3	0	4913.63	1	0	2.56	455.00	380	151	1.67E-05	100.0	
4	0	5301.28	3	0	286.89	611.50	551	122	5.00E-05	57.7	
5	0	5874.88	2	0	0.00	846.00	774	145	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:17:37.45

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3976.92*	52	0	58.43	83.71	14	119	5.10E-03	13.9	
2	0	4644.50*	79	0	20.37	347.71	260	121	7.74E-03	11.3	
3	0	4891.95*	285	0	65.66	446.68	380	151	2.79E-02	5.9	
4	0	5391.26*	45	0	58.07	648.28	551	122	4.46E-03	14.9	
5	0	5801.78*	2	0	17.94	816.00	774	145	1.63E-04	86.4	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:17:38

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0K		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 08:16:03
Sample ID	: 07	Sample quantity	: 1.0366 gram
Sample type	: TH	Sample geometry	:
Detector name	: 008	Detector geometry	:
Elapsed live time	: 0 02:50:01.00	Elapsed real time	: 0 02:50:01.00 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3976.92*	52	58.43	83.71	14	119	27.7		TH-232	0.711
0	4644.50*	79	20.37	347.71	260	121	22.5		TH-230	1.08
0	4891.95*	285	65.66	446.68	380	151	11.9		TH229	3.91
0	5391.26*	45	58.07	648.28	551	122	29.8		TH-228	0.635
0	5801.78*	2	17.94	816.00	774	145	172.8		TH-227	2.331E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:17:52

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Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$08_TH.CNF

****

BATCH ID:	0508096A-TH	SAMPLE ID:	08
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 9.973E-01	gram
SAMPLE TITLE:	VPSCR081705SL0L	DETECTOR NUMBER:	009
ACQ DATE:	6-SEP-2005 08:16	AVERAGE EFFICIENCY:	20.35%
ELAPSED LIVE TIME:	10205.	RECOVERY:	98.30%
TRACER ID:	TH-18A	TRACER FWHM (kev):	147.52
LAMBDA VALUE:	450.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.114	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE: 31-AUG-2005	04:52
BKG FILENAME:	B_009_2SEP05	BKG ELAPSED TIME:	60004.

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NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	7.47	1.53	97.5	1.019E-01	8.457E-02	1.152E-01
TH-228	5400.0	41.13	1.87	99.9	5.575E-01	1.992E-01	1.205E-01
TH229	4872.0	342.49	0.51	99.5	4.568E+00	6.522E-01	8.045E-02
TH-230	4672.0	116.49	0.51	99.8	1.549E+00	3.786E-01	8.021E-02
TH-232	3997.0	46.83	0.17	100.0	6.216E-01	2.071E-01	6.143E-02

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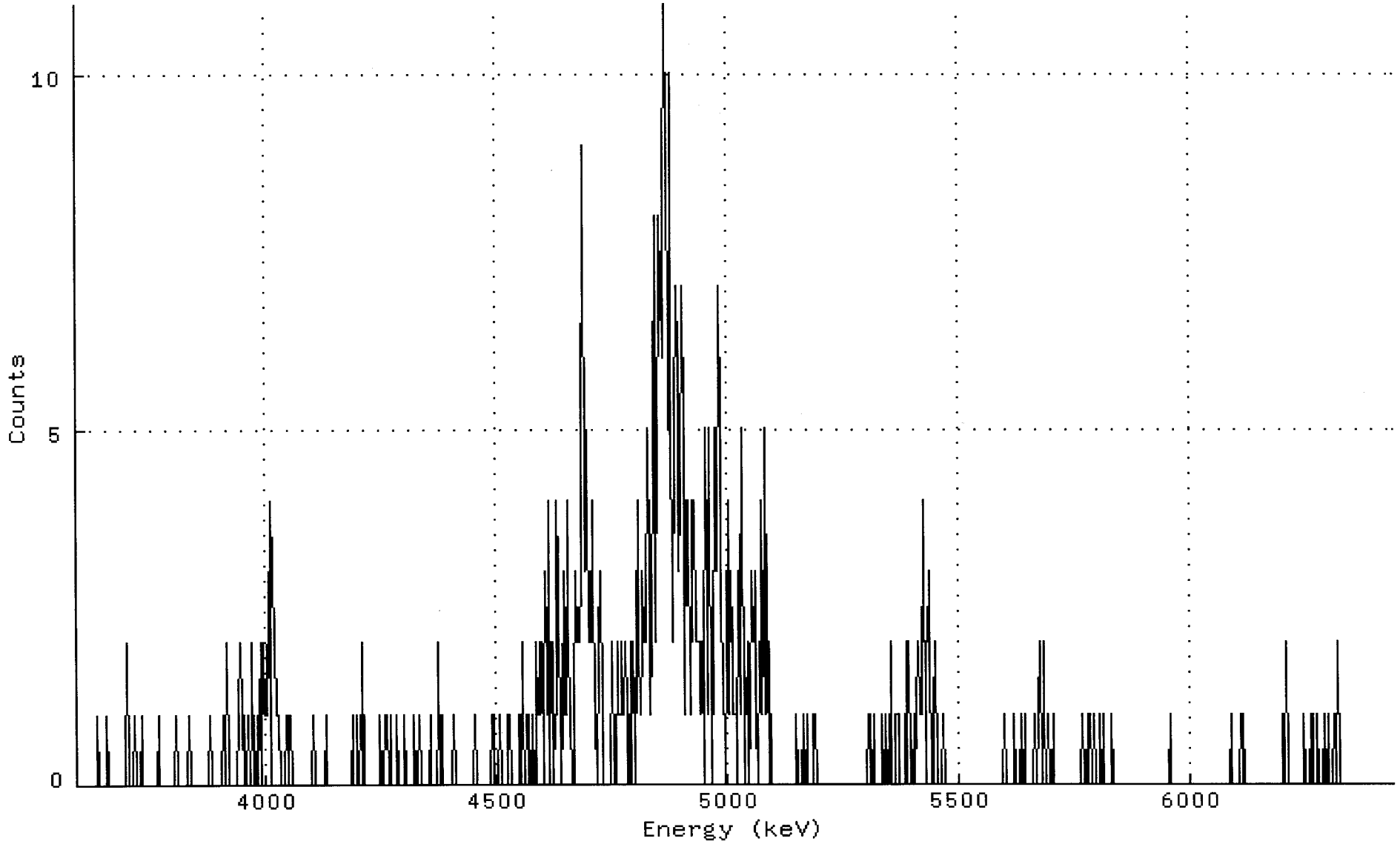
*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$08_TH.CNF;1
Title : 009
Sample Title: VPSCR081705SL0L
Start Time: 6-SEP-2005 08:16: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.57634E+03
Real Time : 0 02:50:05.00 Sample ID : 08 Energy Slope : 2.91693E+00
Live Time : 0 02:50:05.00 Sample Type: TH Energy Quad : -1.20009E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$08_TH

Channel

1:	10205	10205	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	1	0	0	0	0	0	0	1	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	2	0
43:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
57:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
71:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
85:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
113:	0	1	0	0	2	0	0	0	0	0	0	0	1	1
127:	2	1	0	1	0	1	1	0	1	2	0	0	1	0
141:	1	2	0	2	1	1	1	3	0	4	3	2	2	1
155:	1	1	0	0	0	0	1	1	0	1	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
183:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	1	0	0	0	1	0	1	0	2	0	0	0	0	0
225:	0	0	0	0	0	0	0	1	0	0	0	1	1	1
239:	0	1	0	0	0	0	1	0	0	0	0	0	1	0
253:	0	0	0	0	0	1	0	0	0	1	0	0	0	0
267:	0	0	0	1	0	0	0	0	0	1	2	0	1	0
281:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
309:	0	0	0	0	0	0	0	0	1	1	0	0	0	0
323:	1	0	0	0	0	0	1	1	0	0	0	0	0	0
337:	0	1	0	2	1	0	1	0	1	0	0	1	0	0
351:	2	1	2	1	2	0	1	3	1	4	0	2	2	0
365:	1	1	4	3	0	0	1	3	1	1	4	2	1	0
379:	0	1	3	2	2	2	3	4	9	3	6	4	2	3
393:	2	4	3	1	0	2	2	3	1	0	0	0	0	0
407:	0	0	2	0	0	0	2	1	1	1	2	1	2	1
421:	0	0	2	0	2	1	0	2	4	2	1	2	3	2
435:	2	2	5	3	1	2	5	8	2	5	7	8	7	6
449:	8	11	9	10	5	10	6	2	5	5	7	6	3	4
463:	7	5	1	4	4	4	1	3	4	4	2	2	2	2
477:	1	2	0	1	5	1	3	5	0	1	1	5	3	3
491:	7	5	3	1	1	0	2	4	1	3	2	1	1	1
505:	0	3	1	2	5	0	1	1	2	0	1	3	2	2
519:	3	1	0	2	1	4	2	1	5	2	0	2	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	1	0	0	0	0	1	0	0	1	0
561:	0	0	0	1	1	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	1	1	0	0	1	0	0	0	0	0
617:	0	1	0	0	1	0	0	2	0	0	0	1	1	1
631:	0	0	0	0	0	2	0	2	0	0	0	1	0	1
645:	2	2	1	1	1	4	0	2	2	3	2	0	0	1
659:	2	0	0	0	0	0	1	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
715:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
729:	1	0	0	0	0	0	0	0	1	0	0	1	2	2
743:	0	2	1	0	1	1	0	0	0	1	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	1	0	0	0	1	0	1	0	0	1
785:	0	0	0	0	1	0	1	0	0	0	0	0	0	1
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
897:	0	0	0	0	1	0	1	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	1	0	0	2
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
953:	0	0	0	0	1	0	1	0	0	0	1	0	0	0
967:	0	1	0	0	1	0	0	0	0	1	0	1	1	2
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:17:42.31

Detector ID: 9 Acquisition Start: 6-SEP-2005 08:16:23.01
Live Time: 0 02:50:05.00 Real Time: 0 02:50:05.00
Batch Id: 0508096A-TH Sample Id: 08
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3982.54	47	0	12.63	140.06	77	105	4.61E-03	14.6	
2	0	4650.10	117	0	10.64	373.86	295	106	1.15E-02	9.2	
3	0	4909.76	343	0	147.52	466.07	401	134	3.36E-02	5.4	
4	0	5377.44	43	0	16.49	634.00	552	109	4.21E-03	15.2	
5	0	5800.67	9	0	271.27	788.11	751	130	8.82E-04	33.3	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:17:50.82

Acquisition Start: 2-SEP-2005 15:06:08.01
Live Time: 0 16:40:04.00 Real Time: 0 16:40:04.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3952.67	1	0	2.91	129.00	77	105	1.67E-05	100.0	
2	0	4576.64	3	0	34.55	347.50	295	106	5.00E-05	57.7	
3	0	4914.77	3	0	200.74	467.50	401	134	5.00E-05	57.7	
4	0	5300.99	11	0	0.00	606.00	552	109	1.83E-04	30.2	
5	0	5877.01	9	0	5.82	815.50	751	130	1.50E-04	33.3	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:17:51.15

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3982.54*	47	0	12.63	140.06	77	105	4.59E-03	14.6	
2	0	4650.10*	116	0	10.64	373.86	295	106	1.14E-02	9.3	
3	0	4909.76*	342	0	147.52	466.07	401	134	3.36E-02	5.4	
4	0	5377.44*	41	0	16.49	634.00	552	109	4.03E-03	16.0	
5	0	5800.67*	7	0	271.27	788.11	751	130	7.32E-04	40.7	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:17:51

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0L		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 08:16:23
Sample ID	: 08	Sample quantity	: 0.99730 gram
Sample type	: TH	Sample geometry	:
Detector name	: 009	Detector geometry	:
Elapsed live time	: 0 02:50:05.00	Elapsed real time	: 0 02:50:05.00 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3982.54*	47	12.63	140.06	77	105	29.3		TH-232	0.611
0	4650.10*	116	10.64	373.86	295	106	18.6		TH-230	1.52
0	4909.76*	342	147.52	466.07	401	134	10.8		TH229	4.49
0	5377.44*	41	16.49	634.00	552	109	32.0		TH-228	0.548
0	5800.67*	72	71.27	788.11	751	130	81.5		TH-227	0.100

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:18:10

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Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$09_TH.CNF

****

BATCH ID:	0508096A-TH	SAMPLE ID:	09
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.005E+00	gram
SAMPLE TITLE:	VPSCR081705SL0M	DETECTOR NUMBER:	010
ACQ DATE:	6-SEP-2005 08:16	AVERAGE EFFICIENCY:	21.12%
ELAPSED LIVE TIME:	10205.	RECOVERY:	74.04%
TRACER ID:	TH-18A	TRACER FWHM (kev):	60.46
LAMBDA VALUE:	455.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.238	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE: 31-AUG-2005	04:52
BKG FILENAME:	B_010_2SEP05	BKG ELAPSED TIME:	60001.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	14.09	3.91	97.5	2.440E-01	1.552E-01	2.059E-01
TH-228	5400.0	28.66	0.34	99.9	4.934E-01	2.033E-01	9.147E-02
TH229	4872.0	271.00	0.00	99.5	4.591E+00	7.028E-01	4.591E-02
TH-230	4672.0	82.32	0.68	99.8	1.390E+00	3.866E-01	1.106E-01
TH-232	3997.0	34.83	0.17	100.0	5.872E-01	2.227E-01	7.802E-02

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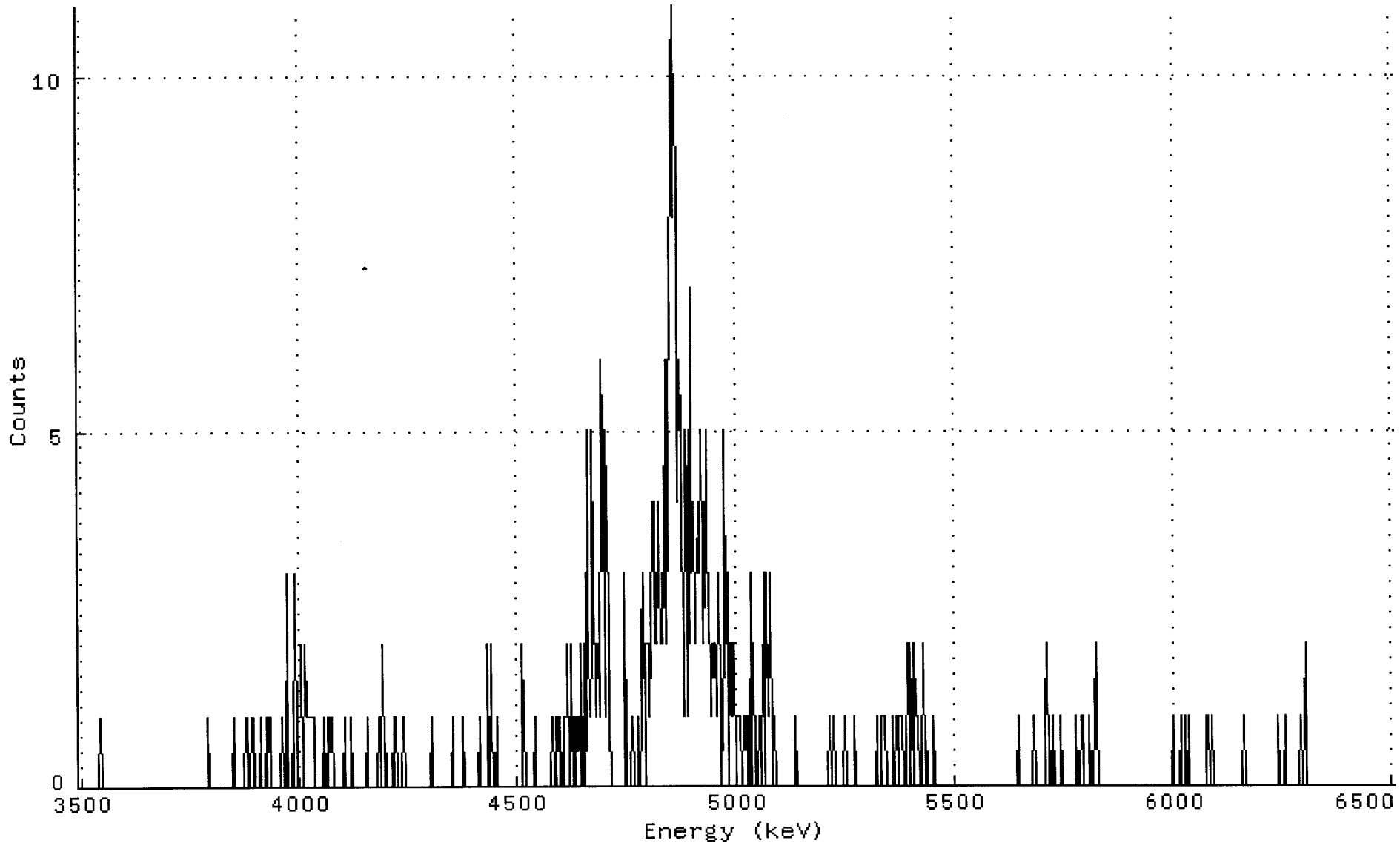
Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$09_TH.CNF;1
Title : 010
Sample Title: VPSCR081705SL0M
Start Time: 6-SEP-2005 08:16: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.48067E+03
Real Time : 0 02:50:05.00 Sample ID : 09 Energy Slope : 3.09949E+00
Live Time : 0 02:50:05.00 Sample Type: TH Energy Quad : -1.44099E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$09_TH

Channel

1:	10205	10205	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
127:	0	0	1	0	1	0	1	0	1	0	0	0	0	1
141:	0	0	0	1	0	1	1	0	0	0	0	0	0	0
155:	0	1	0	0	0	3	0	0	0	1	0	3	0	1
169:	1	1	2	0	2	1	1	1	1	1	1	1	0	0
183:	0	0	0	0	1	0	0	1	0	1	1	0	0	0
197:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
211:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
225:	0	0	0	0	1	0	0	2	0	1	0	0	0	0
239:	0	1	0	1	0	0	0	0	0	1	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	1	0	0	0	0	0	0	0	1	0
295:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
309:	0	0	0	2	0	2	1	0	0	1	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	2	1	0	0	0	0	0	0	0	1	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	1	0	1	0
365:	1	0	1	0	0	1	1	1	2	0	1	2	0	1
379:	0	1	1	0	2	0	2	0	1	5	2	1	2	5
393:	3	1	2	2	1	5	6	5	1	5	4	2	1	0
407:	0	0	0	0	0	0	0	0	0	0	3	0	0	0
421:	0	1	0	0	0	0	1	0	1	2	3	0	2	2
435:	2	1	2	4	4	2	2	4	3	2	3	2	3	6
449:	2	4	8	6	10	11	8	10	8	4	6	5	5	1
463:	5	4	1	3	7	3	4	2	3	3	4	3	5	3
477:	2	3	5	3	3	1	1	2	2	2	1	3	1	0
491:	1	2	5	2	3	0	2	2	1	2	0	1	1	1
505:	1	0	1	1	1	0	1	0	3	0	2	0	1	0
519:	1	0	1	1	3	0	3	1	1	3	0	0	1	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
575:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
589:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	1	0	0	0	1	1
617:	1	1	0	0	0	0	0	1	0	1	0	1	1	1
631:	1	0	0	0	2	0	2	1	0	2	1	1	1	0
645:	0	0	2	0	1	0	0	0	0	0	1	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
729:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
743:	0	1	2	0	1	0	0	1	0	0	0	0	0	1
757:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
771:	0	1	1	0	0	0	0	0	1	0	0	0	1	2
785:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	1	0	0	0	0	0	1	0	0	0
855:	1	0	1	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	1	1	0	0	1	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	1	0	0	0	0	1	0	0	0
939:	0	0	0	0	0	0	0	0	0	1	0	0	1	2
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:17:56.17

Detector ID: 10 Acquisition Start: 6-SEP-2005 08:16:41.01
Live Time: 0 02:50:05.00 Real Time: 0 02:50:05.00
Batch Id: 0508096A-TH Sample Id: 09
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3983.28	35	0	43.39	163.40	104	99	3.43E-03	16.9	
2	0	4646.06	83	0	49.59	382.81	309	101	8.13E-03	11.0	
3	0	4896.29	271	0	60.46	466.86	410	127	2.66E-02	6.1	
4	0	5365.29	29	0	40.29	626.28	553	103	2.84E-03	18.6	
5	0	5823.85	18	0	126.95	784.61	742	123	1.76E-03	23.6	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:18:07.82

Acquisition Start: 2-SEP-2005 15:06:11.01
Live Time: 0 16:40:01.00 Real Time: 0 16:40:01.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3951.15	1	0	3.09	153.00	104	99	1.67E-05	100.0	
2	0	4574.21	4	0	194.96	359.00	309	101	6.67E-05	50.0	
3	0	4914.02	0	0	0.00	473.00	410	127	0.00E+00	0.0	
4	0	5300.10	2	0	136.17	604.00	553	103	3.33E-05	70.7	
5	0	5877.60	23	0	53.96	803.00	742	123	3.83E-04	20.9	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:18:08.35

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3983.28*	35	0	43.39	163.40	104	99	3.41E-03	17.0	
2	0	4646.06*	82	0	49.59	382.81	309	101	8.07E-03	11.1	
3	0	4896.29*	271	0	60.46	466.86	410	127	2.66E-02	6.1	
4	0	5365.29*	29	0	40.29	626.28	553	103	2.81E-03	18.8	
5	0	5823.85*	14	0	126.95	784.61	742	123	1.38E-03	30.7	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:18:09

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0M		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 08:16:41
Sample ID	: 09	Sample quantity	: 1.0045 gram
Sample type	: TH	Sample geometry	:
Detector name	: 010	Detector geometry	:
Elapsed live time	: 0 02:50:05.00	Elapsed real time	: 0 02:50:05.00 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3983.28*	35	43.39	163.40	104	99	34.0		TH-232	0.435
0	4646.06*	82	49.59	382.81	309	101	22.1		TH-230	1.03
0	4896.29*	271	60.46	466.86	410	127	12.1		TH229	3.40
0	5365.29*	29	40.29	626.28	553	103	37.6		TH-228	0.365
0	5823.85*	14	126.95	784.61	742	123	61.3		TH-227	0.181

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Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:18:26

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$10_TH.CNF

BATCH ID:	0508096A-TH	SAMPLE ID:	10
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.165E+00	gram
SAMPLE TITLE:	VPSCR081705SL0N	DETECTOR NUMBER:	011
ACQ DATE:	6-SEP-2005 08:17	AVERAGE EFFICIENCY:	21.52%
ELAPSED LIVE TIME:	10201.	RECOVERY:	79.46%
TRACER ID:	TH-18A	TRACER FWHM (kev):	88.41
LAMBDA VALUE:	455.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.227	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE: 31-AUG-2005	04:52
BKG FILENAME:	B_011_2SEP05	BKG ELAPSED TIME:	60007.

NUCLIDE ACTIVITY SUMMARY

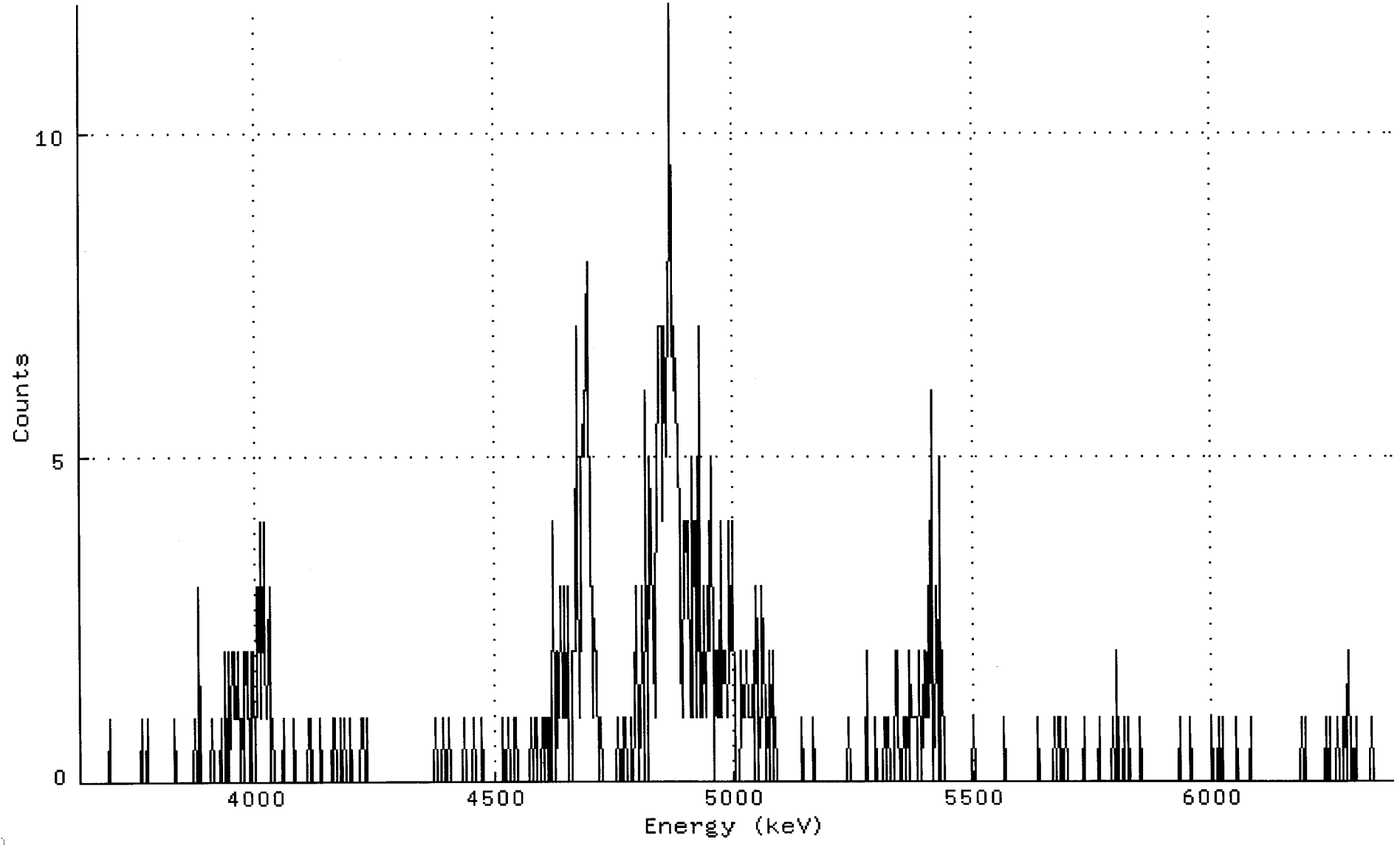
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	12.81	1.19	97.5	1.751E-01	1.070E-01	1.062E-01
TH-228	5400.0	54.49	0.51	99.9	7.403E-01	2.355E-01	8.029E-02
TH229	4872.0	295.83	0.17	99.5	3.955E+00	5.893E-01	6.187E-02
TH-230	4672.0	116.49	0.51	99.8	1.553E+00	3.852E-01	8.039E-02
TH-232	3997.0	63.83	0.17	100.0	8.493E-01	2.546E-01	6.157E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst 9-6-05
Date

Reviewer 9/6/05
Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$10_TH.CNF;1
Title : 011
Sample Title: VPSCR081705SLON
Start Time: 6-SEP-2005 08:17: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.61975E+03
Real Time : 0 02:50:01.00 Sample ID : 10 Energy Slope : 2.83987E+00
Live Time : 0 02:50:01.00 Sample Type: TH Energy Quad : -1.43440E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$10_TH

Channel

1:	10201	10201	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	1	0	0	3	0	0	0	0	0	0
99:	0	0	1	1	0	0	0	0	0	1	0	0	0	2
113:	0	2	0	1	2	1	2	1	1	2	0	1	0	2
127:	2	1	2	0	2	0	2	0	2	3	3	1	4	2
141:	4	2	1	2	3	0	1	0	0	0	0	0	0	0
155:	1	0	0	0	0	0	0	0	1	0	0	0	0	0
169:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
183:	1	0	0	0	0	0	0	0	0	1	0	1	0	0
197:	0	0	1	0	1	0	0	0	0	1	0	0	0	0
211:	0	0	0	1	1	1	0	1	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	1	0	0	0	0	0	1	0	0	0	1
281:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
295:	0	0	0	0	1	0	0	0	0	0	1	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
323:	0	0	1	0	0	0	0	1	1	0	0	0	0	0
337:	0	0	0	0	0	1	1	0	1	1	0	0	0	0
351:	1	1	0	1	0	1	0	2	0	4	0	1	2	1
365:	3	3	1	1	3	1	3	0	0	0	2	2	2	7
379:	4	1	3	5	5	6	5	7	8	5	5	1	3	2
393:	2	0	0	1	0	0	0	0	0	0	0	0	0	0
407:	0	0	1	1	0	0	1	0	1	0	0	0	0	1
421:	0	1	1	3	0	0	1	2	3	0	4	6	0	5
435:	4	4	2	1	2	5	6	7	7	7	4	7	5	6
449:	7	9	12	7	6	7	6	5	4	2	1	4	3	4
463:	4	4	1	1	5	3	4	1	3	7	1	1	3	2
477:	1	3	2	3	5	1	0	2	2	1	1	4	1	2
491:	2	2	1	2	4	2	2	4	0	0	0	0	1	2
505:	1	1	1	2	1	1	1	1	2	0	3	2	0	1
519:	1	3	2	1	0	1	0	2	1	2	0	1	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	2
603:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
617:	1	0	1	0	0	0	0	0	2	2	1	0	0	0
631:	1	0	1	1	0	2	1	1	1	1	1	0	2	0
645:	0	1	2	1	1	3	1	2	6	0	1	2	3	0
659:	5	0	2	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
743:	0	0	0	0	0	0	0	1	0	0	1	0	1	0
757:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
785:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
799:	0	0	2	0	0	0	0	1	0	0	0	1	0	0
813:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
855:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
883:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
897:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	1	1	0	1
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	1	0	0	1	0	0	0	0	0	0	1	0
981:	0	0	0	1	1	0	1	2	0	1	0	0	0	1
995:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:18:13.59

Detector ID: 11 Acquisition Start: 6-SEP-2005 08:17:03.01
Live Time: 0 02:50:01.00 Real Time: 0 02:50:01.00
Batch Id: 0508096A-TH Sample Id: 10
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3980.33	64	0	152.38	127.80	64	108	6.27E-03	12.5	
2	0	4658.48	117	0	33.57	372.79	288	110	1.15E-02	9.2	
3	0	4904.10	296	0	88.41	463.09	398	139	2.90E-02	5.8	
4	0	5378.90	55	0	20.27	640.15	554	114	5.39E-03	13.5	
5	0	5881.74	14	0	2.84	831.43	762	135	1.37E-03	26.7	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:18:23.82

Acquisition Start: 2-SEP-2005 15:06:14.01
Live Time: 0 16:40:07.00 Real Time: 0 16:40:07.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3952.51	1	0	2.83	117.50	64	108	1.67E-05	100.0	
2	0	4575.43	3	0	104.63	342.50	288	110	5.00E-05	57.7	
3	0	4914.51	1	0	2.83	467.00	398	139	1.67E-05	100.0	
4	0	5300.39	3	0	0.00	610.50	554	114	5.00E-05	57.7	
5	0	5877.76	7	0	144.22	829.00	762	135	1.17E-04	37.8	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:18:24.09

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3980.33*	64	0	152.38	127.80	64	108	6.26E-03	12.5	
2	0	4658.48*	116	0	33.57	372.79	288	110	1.14E-02	9.3	
3	0	4904.10*	296	0	88.41	463.09	398	139	2.90E-02	5.8	
4	0	5378.90*	54	0	20.27	640.15	554	114	5.34E-03	13.6	
5	0	5881.74*	13	0	2.84	831.43	762	135	1.26E-03	29.4	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:18:25

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0N
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 6-SEP-2005 08:17:03
Sample ID : 10 Sample quantity : 1.1647 gram
Sample type : TH Sample geometry :
Detector name : 011 Detector geometry:
Elapsed live time: 0 02:50:01.00 Elapsed real time: 0 02:50:01.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3980.33*	64	152.38	127.80	64	108	25.1		TH-232	0.675
0	4658.48*	116	33.57	372.79	288	110	18.6		TH-230	1.23
0	4904.10*	296	88.41	463.09	398	139	11.6		TH229	3.14
0	5378.90*	54	20.27	640.15	554	114	27.2		TH-228	0.588
0	5881.74*	13	2.84	831.43	762	135	58.8		TH-227	0.139

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:18:45

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$11_TH.CNF

BATCH ID:	0508096A-TH	SAMPLE ID:	11
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.044E+00	gram
SAMPLE TITLE:	VPSCR081705SL0O	DETECTOR NUMBER:	012
ACQ DATE:	6-SEP-2005 08:17	AVERAGE EFFICIENCY:	21.29%
ELAPSED LIVE TIME:	10205.	RECOVERY:	92.04%
TRACER ID:	TH-18A	TRACER FWHM (kev):	41.27
LAMBDA VALUE:	455.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.240	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE: 31-AUG-2005	04:52
BKG FILENAME:	B_012_2SEP05	BKG ELAPSED TIME:	60004.

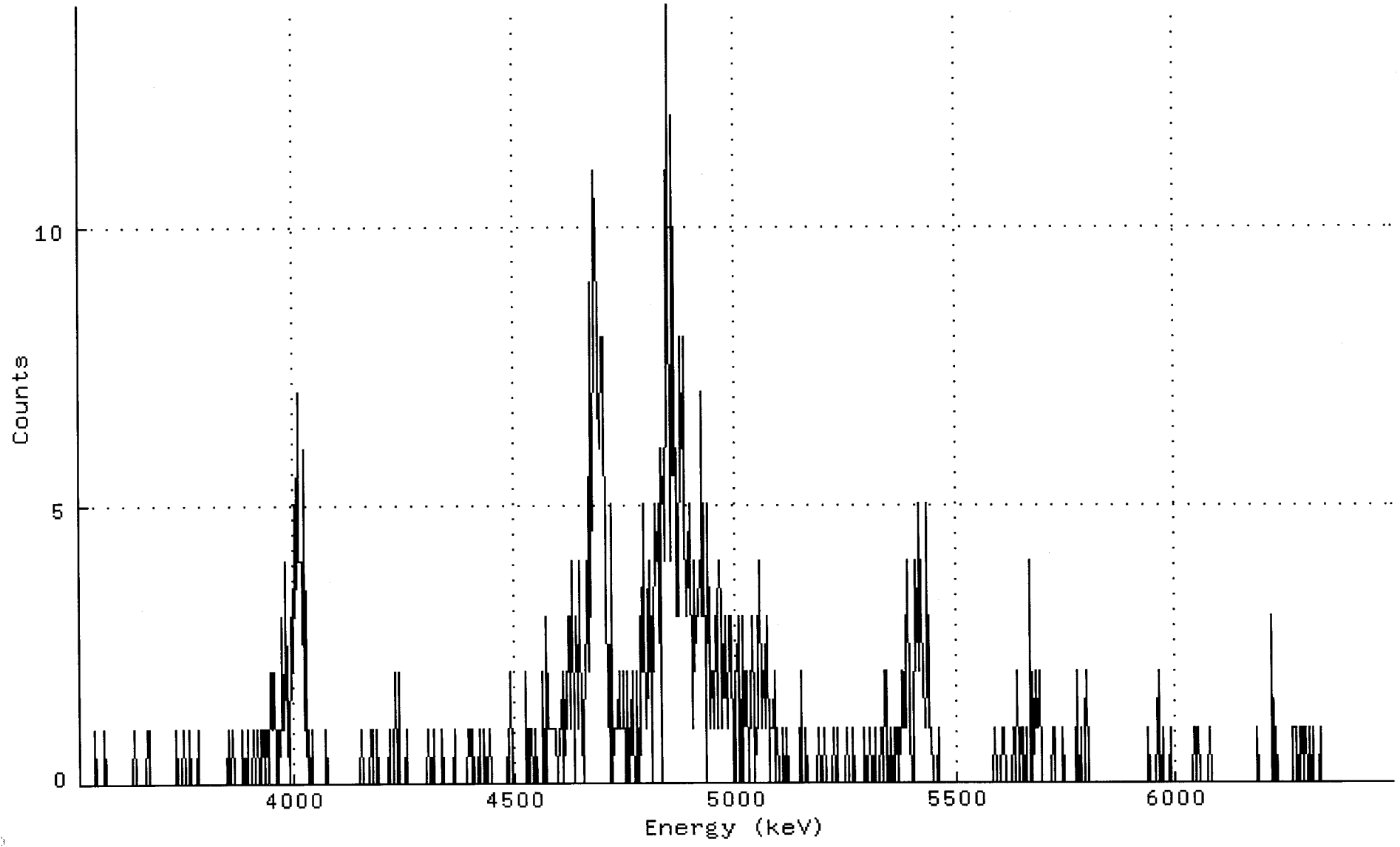
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	17.15	0.85	97.5	2.281E-01	1.190E-01	9.291E-02
TH-228	5400.0	67.64	1.36	99.9	8.940E-01	2.619E-01	1.054E-01
TH229	4872.0	339.66	0.34	99.5	4.418E+00	6.320E-01	7.052E-02
TH-230	4672.0	168.66	0.34	99.8	2.187E+00	4.845E-01	7.031E-02
TH-232	3997.0	81.00	0.00	100.0	1.048E+00	2.865E-01	3.508E-02

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$11_TH.CNF;1
Title : 012
Sample Title: VPSCR081705SL00
Start Time: 6-SEP-2005 08:17: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.50106E+03
Real Time : 0 02:50:05.00 Sample ID : 11 Energy Slope : 3.04639E+00
Live Time : 0 02:50:05.00 Sample Type: TH Energy Quad : -1.24226E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$11_TH

Channel

1:	10205	10205	0	0	0	0	0	0	0	0	0	0	0	0
15:	1	0	0	0	0	0	0	1	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	1	0	0	0	0	0	0	0	0	0	1	1	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	1	0	0	0	0	1	0	0	0
85:	0	1	0	0	0	0	0	1	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	1	0	0	1	0	0	0	0	0	0	0	1
127:	0	0	1	0	0	0	0	1	0	0	1	0	1	0
141:	1	0	1	1	0	0	2	2	1	2	0	1	0	1
155:	1	3	1	2	4	1	0	3	3	2	5	3	4	7
169:	4	4	4	1	6	1	0	1	0	1	0	0	0	0
183:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	1	0	0	0	0	0	0	1	1
225:	0	0	0	1	0	0	0	0	0	0	0	0	1	0
239:	0	0	0	2	0	2	0	0	0	0	0	1	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
267:	1	0	0	1	0	0	0	0	0	0	1	0	0	0
281:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
295:	0	0	1	1	0	1	0	0	0	0	1	0	0	0
309:	1	0	0	0	1	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	1	0	2	0	0	0	0	0	0	0
337:	0	0	0	0	2	0	1	0	1	0	0	1	0	0
351:	0	0	0	2	0	0	3	1	1	1	1	1	1	1
365:	0	1	1	1	2	0	1	2	1	3	1	2	4	0
379:	1	3	1	4	3	1	0	1	2	3	4	2	9	3
393:	6	8	11	10	8	7	6	8	6	8	3	2	2	0
407:	5	0	1	1	1	1	2	1	1	1	2	0	0	2
421:	0	1	2	1	0	0	2	0	1	3	2	5	3	1
435:	2	3	4	0	3	2	5	4	4	5	0	6	5	5
449:	4	8	14	11	4	7	12	8	3	6	3	7	8	6
463:	8	5	3	4	4	5	1	4	2	3	3	3	4	3
477:	7	3	3	0	5	2	1	2	2	1	3	1	3	4
491:	3	1	2	3	2	1	3	3	3	0	0	2	2	3
505:	0	0	3	0	2	2	2	0	2	1	3	1	0	1
519:	1	2	4	1	1	2	1	2	3	0	1	1	1	2
533:	0	1	0	0	0	0	1	0	0	1	0	0	0	0
547:	0	0	0	0	0	0	2	0	0	0	1	0	0	0
561:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
575:	0	0	0	1	1	0	1	0	0	0	0	0	0	0
589:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
603:	1	0	0	0	1	0	0	0	1	0	0	0	0	1
617:	1	0	2	2	0	0	1	0	0	1	0	1	1	0
631:	1	1	2	1	3	1	4	1	1	0	1	0	4	3
645:	2	5	3	2	2	1	2	5	1	1	1	0	0	0
659:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	1	0	0	0	0	0	1	1	1	0	0
715:	0	0	0	0	1	0	0	2	0	0	1	1	0	0
729:	1	0	0	0	4	0	1	1	2	1	1	2	2	0
743:	0	0	0	0	0	0	0	0	1	1	0	0	0	0
757:	0	0	1	0	0	0	0	0	0	0	0	0	0	2
771:	0	0	1	0	0	0	1	2	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	1	0	0	0	0	0	0	1	2	0	0	1	0	0
841:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	1	0	1	1	0	0
869:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
925:	0	3	0	0	1	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	1	1	1	0	0	1	0	1	0	1
953:	1	0	0	1	0	0	1	0	0	0	0	0	1	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:18:30.57

Detector ID: 12 Acquisition Start: 6-SEP-2005 08:17:23.01
Live Time: 0 02:50:05.00 Real Time: 0 02:50:05.00
Batch Id: 0508096A-TH Sample Id: 11
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3986.79	81	0	44.93	160.49	99	100	7.94E-03	11.1	
2	0	4659.52	169	0	36.49	386.36	307	103	1.66E-02	7.7	
3	0	4894.53	340	0	41.27	466.28	409	129	3.33E-02	5.4	
4	0	5374.63	69	0	54.43	631.26	554	104	6.76E-03	12.0	
5	0	5876.86	18	0	201.06	806.39	744	124	1.76E-03	23.6	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:18:42.87

Acquisition Start: 2-SEP-2005 15:06:17.01
Live Time: 0 16:40:04.00 Real Time: 0 16:40:04.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3947.43	0	0	0.00	148.50	99	100	0.00E+00	0.0	
2	0	4576.22	2	0	265.67	358.00	307	103	3.33E-05	70.7	
3	0	4914.91	2	0	120.48	473.00	409	129	3.33E-05	70.7	
4	0	5299.46	8	0	3.09	605.50	554	104	1.33E-04	35.4	
5	0	5868.38	5	0	3.09	805.50	744	124	8.33E-05	44.7	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:18:43.41

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3986.79*	81	0	44.93	160.49	99	100	7.94E-03	11.1	
2	0	4659.52*	169	0	36.49	386.36	307	103	1.65E-02	7.7	
3	0	4894.53*	340	0	41.27	466.28	409	129	3.33E-02	5.4	
4	0	5374.63*	68	0	54.43	631.26	554	104	6.63E-03	12.3	
5	0	5876.86*	17	0	201.06	806.39	744	124	1.68E-03	24.8	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:18:44

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0O
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 6-SEP-2005 08:17:23
Sample ID : 11 Sample quantity : 1.0441 gram
Sample type : TH Sample geometry :
Detector name : 012 Detector geometry:
Elapsed live time: 0 02:50:05.00 Elapsed real time: 0 02:50:05.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3986.79*	81	44.93	160.49	99	100	22.2		TH-232	0.965
0	4659.52*	169	36.49	386.36	307	103	15.4		TH-230	2.01
0	4894.53*	340	41.27	466.28	409	129	10.9		TH229	4.07
0	5374.63*	68	54.43	631.26	554	104	24.6		TH-228	0.823
0	5876.86*	17201.06		806.39	744	124	49.7		TH-227	0.210

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Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:19:03

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$12_TH.CNF

****

BATCH ID:	0508096A-TH	SAMPLE ID:	12
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.028E+00	gram
SAMPLE TITLE:	VPSCR081705SL0P	DETECTOR NUMBER:	013
ACQ DATE:	6-SEP-2005 08:17	AVERAGE EFFICIENCY:	20.94%
ELAPSED LIVE TIME:	10203.	RECOVERY:	85.46%
TRACER ID:	TH-18A	TRACER FWHM (kev):	68.10
LAMBDA VALUE:	464.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.429	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE: 31-AUG-2005	04:52
BKG FILENAME:	B_013_2SEP05	BKG ELAPSED TIME:	60001.

****

NUCLIDE ACTIVITY SUMMARY

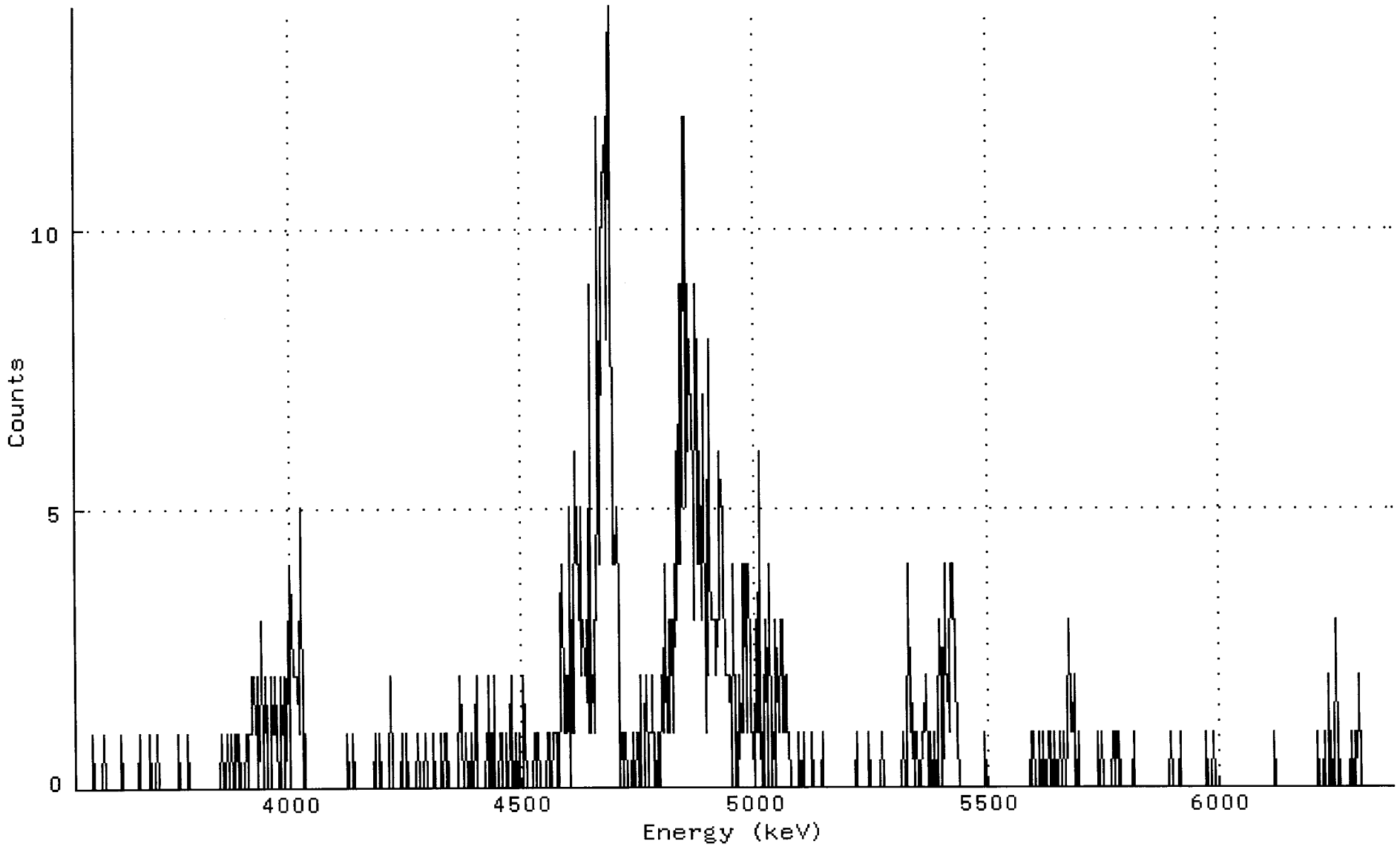
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	10.81	1.19	97.5	1.599E-01	1.065E-01	1.149E-01
TH-228	5400.0	56.49	0.51	99.9	8.302E-01	2.595E-01	8.686E-02
TH229	4872.0	315.83	0.17	99.5	4.568E+00	6.675E-01	6.692E-02
TH-230	4672.0	247.83	0.17	99.8	3.573E+00	7.353E-01	6.672E-02
TH-232	3997.0	66.66	0.34	100.0	9.594E-01	2.823E-01	7.803E-02

****

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$12_TH.CNF;1
Title : 013
Sample Title: VPSCR081705SLOP
Start Time: 6-SEP-2005 08:17: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.52890E+03
Real Time : 0 02:50:03.00 Sample ID : 12 Energy Slope : 2.94831E+00
Live Time : 0 02:50:03.00 Sample Type: TH Energy Quad : -1.68083E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$12_TH

Channel

1:	10203	10203	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
29:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
43:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
57:	0	1	0	0	0	0	1	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
85:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
113:	0	0	1	0	0	1	0	0	1	1	0	1	0	0
127:	0	0	1	0	1	1	1	2	2	1	2	0	1	2
141:	3	0	2	1	0	0	0	2	1	1	2	1	0	0
155:	2	1	2	0	1	3	0	4	3	2	2	2	2	2
169:	1	5	0	2	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	1	0	0	0	1	0
211:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225:	1	0	0	0	1	0	0	0	0	0	0	0	2	0
239:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
253:	0	0	0	0	1	0	0	0	0	0	1	0	0	0
267:	0	0	1	0	0	0	0	0	1	0	1	0	1	0
281:	0	0	0	0	0	0	0	0	2	1	0	0	1	0
295:	0	0	1	0	0	1	2	0	0	0	0	0	0	0
309:	1	0	2	0	0	2	0	0	0	0	1	1	0	0
323:	0	1	0	1	2	0	0	1	0	0	1	0	0	0
337:	2	1	0	0	0	0	0	0	1	0	1	1	0	0
351:	0	0	0	0	1	0	1	0	1	1	1	1	0	0
365:	2	3	4	1	2	1	2	0	5	1	1	2	6	4
379:	5	3	5	2	3	2	3	2	1	9	1	2	1	3
393:	3	6	12	4	10	9	11	11	12	8	13	14	11	4
407:	4	4	5	3	0	1	1	0	1	0	0	0	0	1
421:	0	0	1	1	0	2	0	0	0	1	2	0	1	1
435:	1	2	0	0	1	0	0	2	2	1	4	2	1	3
449:	1	3	3	1	4	3	6	4	9	4	6	12	5	12
463:	6	8	7	7	5	3	9	4	8	4	4	3	7	1
477:	1	3	8	4	3	3	3	2	3	3	6	5	5	4
491:	2	2	2	2	1	0	4	0	2	0	1	2	1	1
505:	4	4	1	4	4	2	1	1	0	3	1	1	6	1
519:	0	2	0	3	0	1	4	0	1	1	0	3	2	1
533:	1	3	1	3	1	2	1	1	0	0	0	0	0	0
547:	0	1	0	0	1	0	0	0	0	0	0	1	0	0
561:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
603:	1	0	0	0	0	0	0	0	0	0	1	0	0	0
617:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
631:	0	0	0	4	1	2	1	0	1	1	0	0	0	1
645:	1	1	2	2	0	0	1	0	0	1	0	0	1	3
659:	2	0	1	4	2	2	1	2	4	3	4	2	1	1
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	1	0	1	0	0	0	0	1	0	0	1	0	0
743:	0	1	0	1	0	0	1	0	0	0	1	0	0	1
757:	0	0	1	3	2	2	1	1	2	0	0	1	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
785:	0	1	1	0	0	0	0	0	0	0	0	1	0	1
799:	1	0	1	0	0	0	0	0	0	0	0	0	0	1
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	1	0	0	0	0	0	0	1	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	1	0	0	0	0	0	1	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
967:	1	0	0	0	2	0	0	0	1	0	3	0	1	0
981:	0	0	0	0	0	0	0	0	1	0	0	1	0	1
995:	1	2	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:18:49.30

Detector ID: 13 Acquisition Start: 6-SEP-2005 08:17:44.01
Live Time: 0 02:50:03.00 Real Time: 0 02:50:03.00
Batch Id: 0508096A-TH Sample Id: 12
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3968.83	67	0	88.42	150.51	92	105	6.57E-03	12.2	
2	0	4646.96	248	0	52.49	387.79	309	108	2.43E-02	6.4	
3	0	4900.62	316	0	68.10	478.30	416	135	3.10E-02	5.6	
4	0	5381.32	57	0	107.59	652.58	568	111	5.59E-03	13.2	
5	0	5824.58	12	0	274.19	816.67	770	132	1.18E-03	28.9	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:19:00.59

Acquisition Start: 2-SEP-2005 15:06:20.01
Live Time: 0 16:40:01.00 Real Time: 0 16:40:01.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3951.61	2	0	29.26	144.00	92	105	3.33E-05	70.7	
2	0	4575.13	1	0	2.93	362.50	309	108	1.67E-05	100.0	
3	0	4913.15	1	0	2.93	483.00	416	135	1.67E-05	100.0	
4	0	5300.68	3	0	2.93	623.00	568	111	5.00E-05	57.7	
5	0	5878.18	7	0	298.45	835.50	770	132	1.17E-04	37.8	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:19:01.07

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3968.83*	67	0	88.42	150.51	92	105	6.53E-03	12.3	
2	0	4646.96*	248	0	52.49	387.79	309	108	2.43E-02	6.4	
3	0	4900.62*	316	0	68.10	478.30	416	135	3.10E-02	5.6	
4	0	5381.32*	56	0	107.59	652.58	568	111	5.54E-03	13.4	
5	0	5824.58*	11	0	274.19	816.67	770	132	1.06E-03	32.3	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:19:02

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0P
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 6-SEP-2005 08:17:44
Sample ID : 12 Sample quantity : 1.0285 gram
Sample type : TH Sample geometry :
Detector name : 013 Detector geometry:
Elapsed live time: 0 02:50:03.00 Elapsed real time: 0 02:50:03.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3968.83*	67	88.42	150.51	92	105	24.6		TH-232	0.820
0	4646.96*	248	52.49	387.79	309	108	12.7		TH-230	3.05
0	4900.62*	316	68.10	478.30	416	135	11.3		TH229	3.90
0	5381.32*	56107.59		652.58	568	111	26.8		TH-228	0.709
0	5824.58*	11274.19		816.67	770	132	64.6		TH-227	0.137

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:19:19

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$13_TH.CNF

****

BATCH ID:	0508096A-TH	SAMPLE ID:	13
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.044E+00	gram
SAMPLE TITLE:	VPSCR081705SL0Q	DETECTOR NUMBER:	014
ACQ DATE:	6-SEP-2005 08:18	AVERAGE EFFICIENCY:	21.04%
ELAPSED LIVE TIME:	10205.	RECOVERY:	93.41%
TRACER ID:	TH-18A	TRACER FWHM (kev):	146.40
LAMBDA VALUE:	457.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.272	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE: 31-AUG-2005	04:52
BKG FILENAME:	B_014_2SEP05	BKG ELAPSED TIME:	60006.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	9.47	1.53	97.5	1.256E-01	9.122E-02	1.120E-01
TH-228	5400.0	80.96	2.04	99.9	1.067E+00	2.943E-01	1.208E-01
TH229	4872.0	341.66	0.34	99.5	4.431E+00	6.329E-01	7.032E-02
TH-230	4672.0	135.49	0.51	99.8	1.752E+00	4.104E-01	7.799E-02
TH-232	3997.0	88.49	0.51	100.0	1.142E+00	3.038E-01	7.785E-02

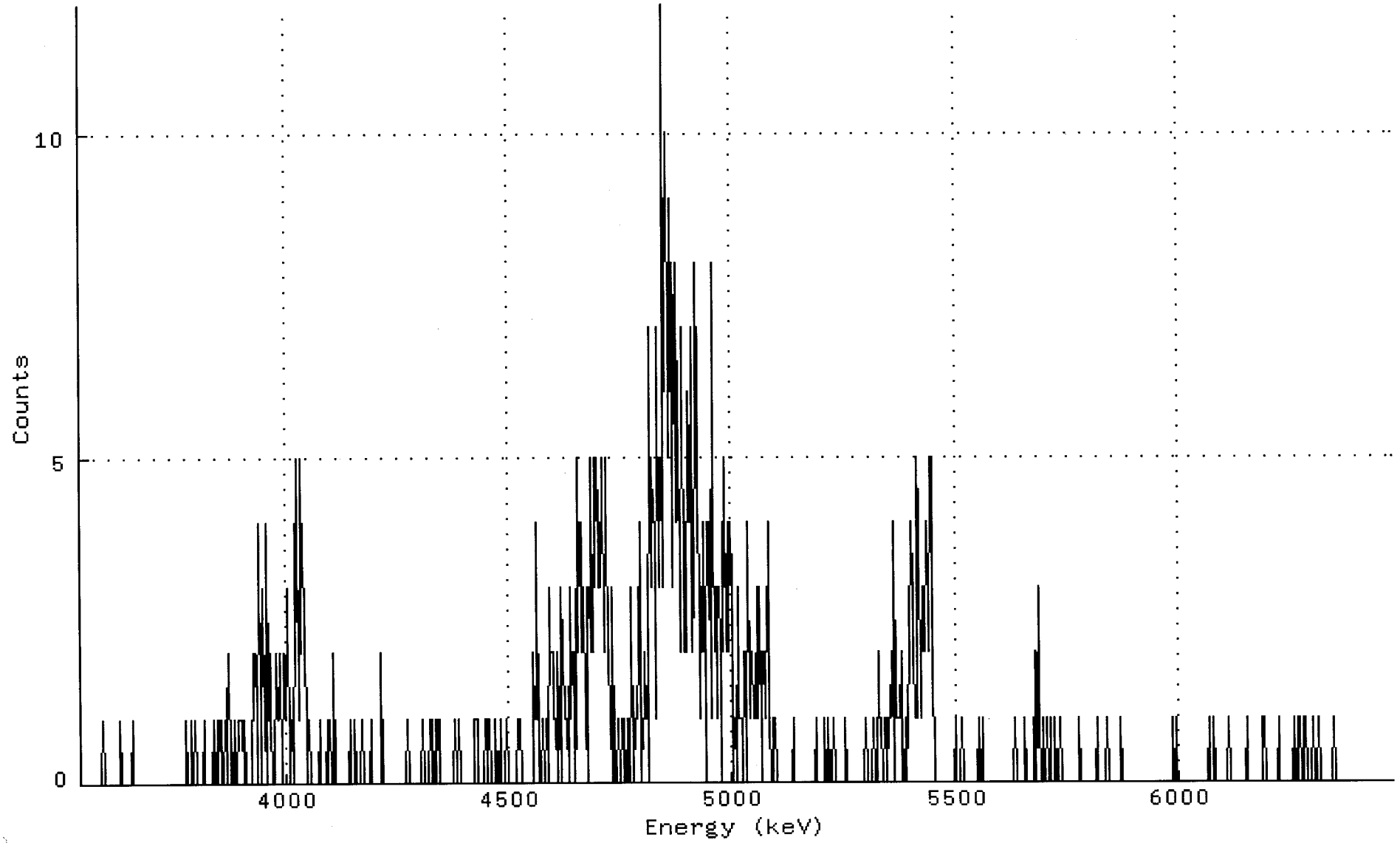
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$13_TH.CNF;1
Title : 014
Sample Title: VPSCR081705SL0Q
Start Time: 6-SEP-2005 08:18: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.52757E+03
Real Time : 0 02:50:05.00 Sample ID : 13 Energy Slope : 3.01675E+00
Live Time : 0 02:50:05.00 Sample Type: TH Energy Quad : -1.32731E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$13_TH

Channel

1:	10205	10205	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
29:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
85:	0	0	1	0	1	1	0	0	0	0	0	1	0	0
99:	0	0	0	0	1	0	0	1	0	1	1	0	0	1
113:	0	1	2	0	0	0	1	0	0	1	1	1	1	0
127:	1	0	0	0	0	0	2	1	2	1	0	4	1	0
141:	3	1	0	4	1	2	1	0	0	0	2	1	2	2
155:	0	2	2	1	3	3	0	1	1	0	3	5	4	1
169:	5	2	4	2	1	0	1	0	0	0	0	0	0	0
183:	1	0	0	0	0	0	1	0	1	0	0	2	0	0
197:	0	0	0	0	0	0	0	0	0	1	0	0	0	1
211:	0	0	0	0	1	0	0	0	0	0	0	1	0	0
225:	0	0	0	0	0	2	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
253:	0	0	0	0	0	0	0	0	1	1	0	0	0	0
267:	1	1	0	0	1	0	1	1	0	0	0	0	0	0
281:	0	0	0	0	0	1	0	0	1	0	0	0	0	0
295:	0	0	0	0	0	0	1	1	1	0	0	0	0	0
309:	1	1	0	1	0	0	0	0	1	0	0	1	0	0
323:	0	0	1	0	0	0	0	0	0	0	0	1	1	0
337:	0	0	0	0	0	0	0	0	0	2	1	1	4	0
351:	0	1	1	0	1	1	0	3	2	2	2	1	1	0
365:	2	1	0	3	2	1	1	1	0	3	1	2	2	0
379:	1	5	2	4	4	2	3	1	0	3	3	2	5	2
393:	5	3	5	4	3	3	5	5	2	5	4	2	1	0
407:	3	0	0	0	1	0	0	1	0	1	0	1	0	0
421:	2	3	0	1	1	1	2	4	0	1	1	2	1	1
435:	0	7	3	5	4	4	1	7	3	3	5	3	12	6
449:	10	6	5	9	3	8	7	4	8	5	3	2	7	2
463:	2	2	6	4	4	7	2	3	6	8	6	1	3	2
477:	4	0	2	4	3	4	1	8	3	3	1	3	3	2
491:	0	4	3	5	2	4	2	4	3	0	1	0	3	1
505:	1	1	0	2	2	0	4	1	2	2	1	1	1	3
519:	1	3	0	2	2	1	2	2	4	1	0	1	0	1
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	1	0	0	0	0	0	0	1	0	0	1
575:	0	0	0	1	0	0	0	0	0	0	0	0	1	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	1	0	0	0	0	0	1	0	0	0	2	1	1	0
617:	0	1	1	0	1	1	1	2	0	4	1	1	1	1
631:	2	0	0	1	0	1	2	2	4	3	2	1	1	5
645:	4	1	1	3	2	2	4	2	2	5	5	2	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
687:	0	0	0	0	1	0	0	1	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	1	0	0	0	0	0	0	0	1
729:	0	0	0	0	0	0	0	2	0	1	3	1	0	0
743:	1	0	1	1	0	1	0	0	0	1	0	0	0	1
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
799:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	1	0	0	0	1	0	0	0	0
883:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
911:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
925:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
939:	0	0	0	0	1	0	0	1	0	1	1	0	1	0
953:	1	0	0	0	0	0	1	0	0	0	1	1	0	0
967:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:19:06.73

Detector ID: 14 Acquisition Start: 6-SEP-2005 08:18:06.01
Live Time: 0 02:50:05.00 Real Time: 0 02:50:05.00
Batch Id: 0508096A-TH Sample Id: 13
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3977.40	89	0	102.90	150.10	91	101	8.72E-03	10.6	
2	0	4645.72	136	0	166.65	376.90	301	104	1.33E-02	8.6	
3	0	4907.10	342	0	146.40	466.88	404	131	3.35E-02	5.4	
4	0	5390.92	83	0	90.93	635.43	551	106	8.13E-03	11.0	
5	0	5804.48	11	0	0.00	781.64	745	125	1.08E-03	30.2	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:19:17.39

Acquisition Start: 2-SEP-2005 15:06:22.01
Live Time: 0 16:40:06.00 Real Time: 0 16:40:06.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.09	3	0	118.38	141.00	91	101	5.00E-05	57.7	
2	0	4575.62	3	0	188.20	352.50	301	104	5.00E-05	57.7	
3	0	4914.15	2	0	145.70	469.00	404	131	3.33E-05	70.7	
4	0	5299.66	12	0	3.04	603.50	551	106	2.00E-04	28.9	
5	0	5872.10	9	0	363.87	807.00	745	125	1.50E-04	33.3	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:19:17.66

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3977.40*	88	0	102.90	150.10	91	101	8.67E-03	10.7	
2	0	4645.72*	135	0	166.65	376.90	301	104	1.33E-02	8.6	
3	0	4907.10*	342	0	146.40	466.88	404	131	3.35E-02	5.4	
4	0	5390.92*	81	0	90.93	635.43	551	106	7.93E-03	11.3	
5	0	5804.48*	9	0	0.00	781.64	745	125	9.28E-04	35.4	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:19:18

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0Q
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 6-SEP-2005 08:18:06
Sample ID : 13 Sample quantity : 1.0441 gram
Sample type : TH Sample geometry :
Detector name : 014 Detector geometry:
Elapsed live time: 0 02:50:05.00 Elapsed real time: 0 02:50:05.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3977.40*	88	102.90	150.10	91	101	21.3		TH-232	1.07
0	4645.72*	135	166.65	376.90	301	104	17.2		TH-230	1.64
0	4907.10*	342	146.40	466.88	404	131	10.8		TH229	4.14
0	5390.92*	81	90.93	635.43	551	106	22.6		TH-228	0.997
0	5804.48*	9	0.00	781.64	745	125	70.9		TH-227	0.117

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:19:42

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$14_TH.CNF

BATCH ID:	0508096A-TH	SAMPLE ID:	14
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.068E+00 gram
SAMPLE TITLE:	VPSCR081705SL0R	DETECTOR NUMBER:	015
ACQ DATE:	6-SEP-2005 08:18	AVERAGE EFFICIENCY:	21.11%
ELAPSED LIVE TIME:	10204.	RECOVERY:	83.16%
TRACER ID:	TH-18A	TRACER FWHM (kev):	180.65
LAMBDA VALUE:	451.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.139	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE:	31-AUG-2005 04:52
BKG FILENAME:	B_015_2SEP05	BKG ELAPSED TIME:	60004.

NUCLIDE ACTIVITY SUMMARY

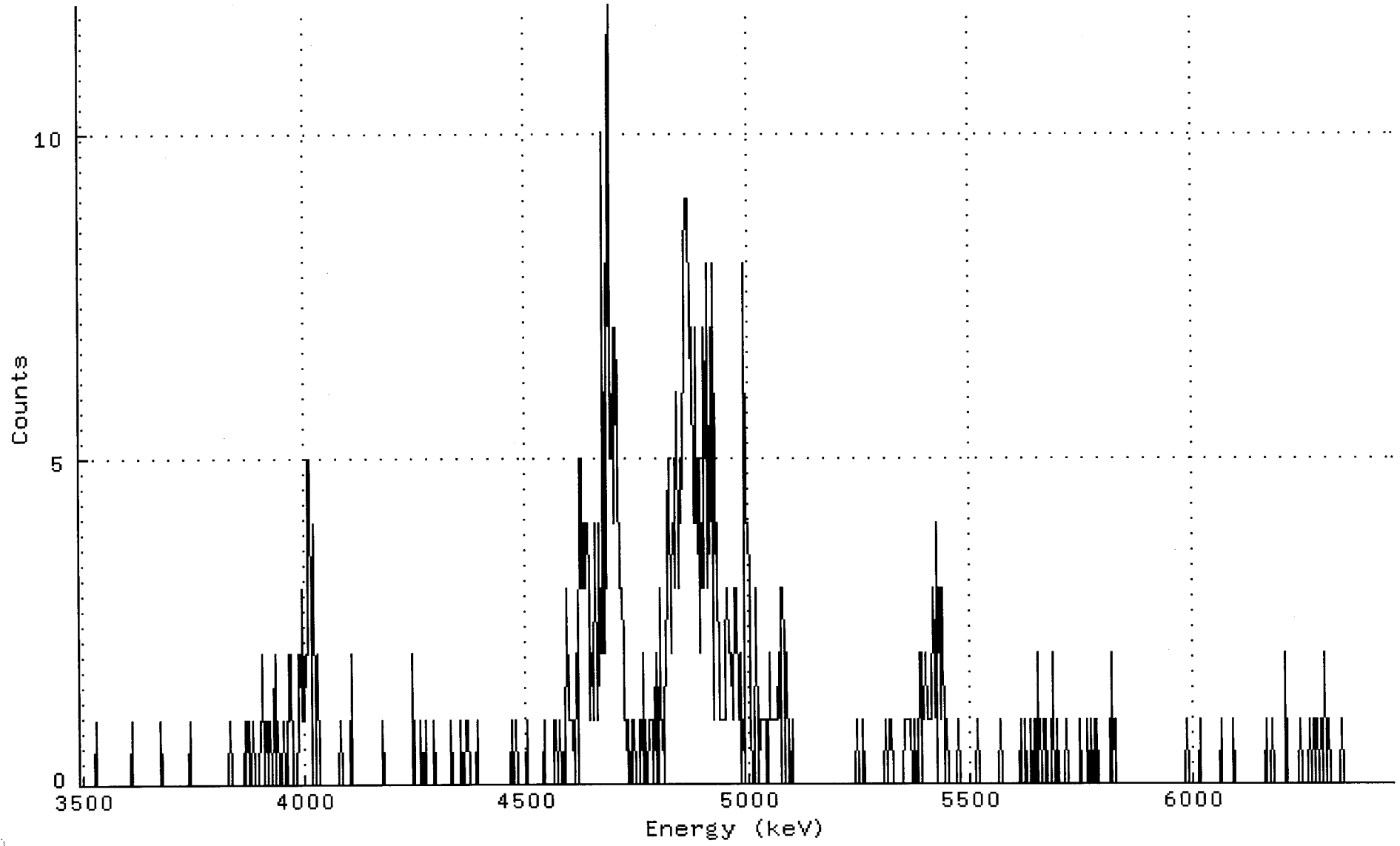
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	11.15	0.85	97.5	1.618E-01	1.046E-01	1.014E-01
TH-228	5400.0	48.15	0.85	99.9	6.945E-01	2.321E-01	9.891E-02
TH229	4872.0	301.30	1.70	99.5	4.277E+00	6.350E-01	1.245E-01
TH-230	4672.0	162.13	1.87	99.8	2.294E+00	5.226E-01	1.284E-01
TH-232	3997.0	55.32	0.68	100.0	7.815E-01	2.474E-01	9.246E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$14_TH.CNF;1
Title : 015
Sample Title: VPSCR081705SL0R
Start Time: 6-SEP-2005 08:18: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.48089E+03
Real Time : 0 02:50:04.00 Sample ID : 14 Energy Slope : 3.04649E+00
Live Time : 0 02:50:04.00 Sample Type: TH Energy Quad : -1.43061E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$14_TH

Channel

1:	10204	10204	0	0	0	0	0	0	0	0	0	0	0	0
15:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
127:	1	0	1	0	1	0	1	0	0	0	0	0	1	1
141:	2	0	1	1	0	1	0	0	1	2	0	1	0	0
155:	0	1	0	0	0	2	1	2	0	0	0	0	1	2
169:	2	1	3	1	2	2	5	5	2	0	4	0	1	2
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	1	0	0	0	0	0	0	0	2	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	2	0	0	0	0	0	1	0	0	1	0	0	0
267:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
281:	0	0	1	0	0	0	0	0	0	1	0	0	0	1
295:	1	1	0	0	0	0	0	1	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	1	0	0	1	1	0	0	0	0
337:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
351:	0	0	1	0	0	0	0	0	0	0	1	1	0	0
365:	1	0	0	0	1	0	3	1	1	1	1	0	0	2
379:	0	1	5	3	5	3	4	3	4	3	1	2	1	1
393:	4	1	2	4	2	2	10	2	8	3	11	12	5	5
407:	7	4	7	6	5	3	3	2	1	1	0	1	0	0
421:	1	1	0	0	0	0	1	1	0	2	0	0	1	1
435:	1	1	0	1	2	0	0	3	1	1	0	1	2	3
449:	4	5	2	3	4	3	4	6	3	5	4	5	7	8
463:	9	9	9	7	6	7	4	7	4	5	2	5	3	3
477:	7	5	8	3	4	7	1	8	4	3	4	1	1	1
491:	1	1	2	3	2	2	2	1	1	3	3	3	1	2
505:	0	1	0	8	4	4	3	1	0	0	0	3	0	0
519:	1	1	1	1	1	0	0	2	1	1	1	1	1	1
533:	1	2	0	3	3	2	0	2	0	0	0	1	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	1	0	0	1	1	1	0	0	0	0	0	0	0	0
631:	0	1	1	1	1	1	1	0	1	0	0	1	0	2
645:	0	2	1	2	2	1	1	1	1	3	3	2	0	4
659:	2	3	1	3	0	0	1	0	0	0	0	0	0	0
673:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	1	0	0	0	1	0
729:	0	0	0	1	0	1	0	0	2	0	1	0	0	1
743:	0	1	0	0	0	0	2	1	0	0	1	0	0	0
757:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
771:	1	0	0	0	0	0	1	0	1	0	0	1	0	0
785:	1	0	0	0	0	0	0	0	0	0	0	2	0	1
799:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	1	0	0	0	0	0	0	0	0	0	1	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	1	0	0	0	0	0	0	0	0	0	1	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
925:	1	0	0	0	0	0	0	0	0	0	0	2	0	0
939:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
953:	0	0	0	1	0	0	1	0	1	1	0	0	1	0
967:	0	2	0	0	1	1	0	0	0	0	0	0	0	0
981:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:19:23.76

Detector ID: 15 Acquisition Start: 6-SEP-2005 08:18:26.01
Live Time: 0 02:50:04.00 Real Time: 0 02:50:04.00
Batch Id: 0508096A-TH Sample Id: 14
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3974.90	56	0	25.85	163.41	105	101	5.49E-03	13.4	
2	0	4662.77	164	0	34.07	395.29	315	103	1.61E-02	7.8	
3	0	4902.48	303	0	180.65	477.33	417	129	2.97E-02	5.7	
4	0	5390.21	49	0	26.81	646.35	563	105	4.80E-03	14.3	
5	0	5818.30	12	0	3.05	797.08	755	126	1.18E-03	28.9	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:19:41.01

Acquisition Start: 2-SEP-2005 15:06:25.01
Live Time: 0 16:40:04.00 Real Time: 0 16:40:04.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3951.54	4	0	221.39	155.00	105	101	6.67E-05	50.0	
2	0	4576.92	11	0	3.03	366.00	315	103	1.83E-04	30.2	
3	0	4912.82	10	0	275.98	481.00	417	129	1.67E-04	31.6	
4	0	5299.80	5	0	191.06	615.00	563	105	8.33E-05	44.7	
5	0	5875.61	5	0	151.63	817.50	755	126	8.33E-05	44.7	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:19:41.29

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3974.90*	55	0	25.85	163.41	105	101	5.42E-03	13.5	
2	0	4662.77*	162	0	34.07	395.29	315	103	1.59E-02	7.9	
3	0	4902.48*	301	0	180.65	477.33	417	129	2.95E-02	5.8	
4	0	5390.21*	48	0	26.81	646.35	563	105	4.72E-03	14.6	
5	0	5818.30*	11	0	3.05	797.08	755	126	1.09E-03	31.3	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:19:42

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0R
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 6-SEP-2005 08:18:26
Sample ID : 14 Sample quantity : 1.0679 gram
Sample type : TH Sample geometry :
Detector name : 015 Detector geometry:
Elapsed live time: 0 02:50:04.00 Elapsed real time: 0 02:50:04.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3974.90*	55	25.85	163.41	105	101	27.1		TH-232	0.650
0	4662.77*	162	34.07	395.29	315	103	15.8		TH-230	1.91
0	4902.48*	301	180.65	477.33	417	129	11.6		TH229	3.56
0	5390.21*	48	26.81	646.35	563	105	29.1		TH-228	0.578
0	5818.30*	11	3.05	797.08	755	126	62.5		TH-227	0.135

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:19:56

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Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$15_TH.CNF

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BATCH ID:	0508096A-TH	SAMPLE ID:	15
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.197E+00	gram
SAMPLE TITLE:	VPSCR081705SL0S	DETECTOR NUMBER:	016
ACQ DATE:	6-SEP-2005 08:18	AVERAGE EFFICIENCY:	20.80%
ELAPSED LIVE TIME:	10202.	RECOVERY:	90.98%
TRACER ID:	TH-18A	TRACER FWHM (kev):	123.64
LAMBDA VALUE:	454.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.216	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	31-AUG-2005 04:52	EFF CAL DATE: 31-AUG-2005	04:52
BKG FILENAME:	B_016_2SEP05	BKG ELAPSED TIME:	60008.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	8.13	1.87	97.5	9.767E-02	7.876E-02	1.088E-01
TH-228	5400.0	66.62	2.38	99.9	7.953E-01	2.364E-01	1.156E-01
TH229	4872.0	327.15	0.85	99.5	3.844E+00	5.563E-01	8.221E-02
TH-230	4672.0	123.98	1.02	99.8	1.452E+00	3.508E-01	8.675E-02
TH-232	3997.0	71.83	0.17	100.0	8.399E-01	2.399E-01	5.410E-02

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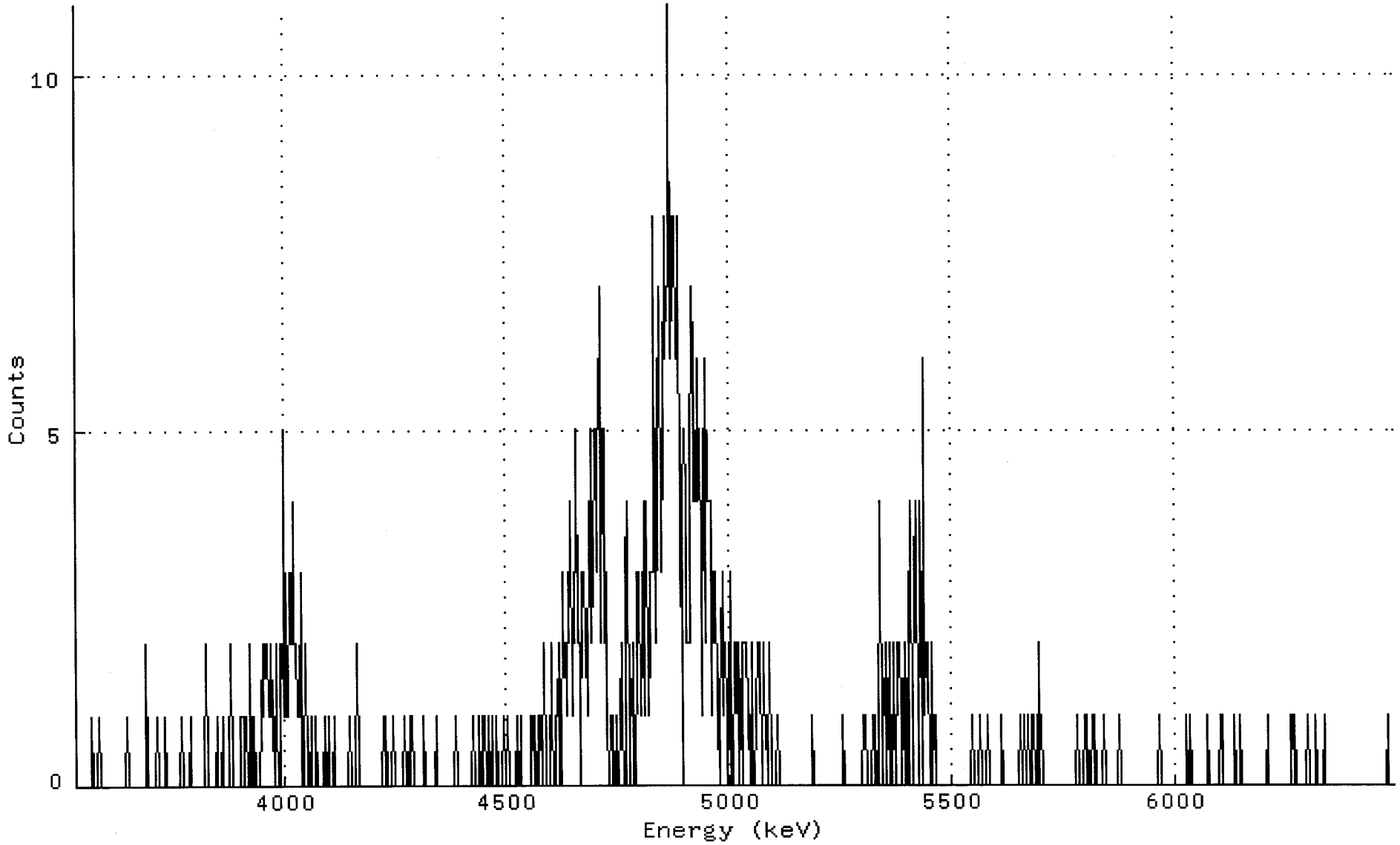
*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$15_TH.CNF;1
Title : 016
Sample Title: VPSCR081705SL0S
Start Time: 6-SEP-2005 08:18: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.52030E+03
Real Time : 0 02:50:02.00 Sample ID : 15 Energy Slope : 3.03454E+00
Live Time : 0 02:50:02.00 Sample Type: TH Energy Quad : -1.31397E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$15_TH

Channel

1:	10202	10202	0	0	0	0	0	0	0	0	0	0	0	0
15:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	2
57:	0	0	0	0	0	0	0	1	0	0	0	0	0	1
71:	0	0	0	0	0	0	0	0	0	0	0	1	1	0
85:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
99:	0	0	2	0	0	0	0	0	0	0	1	0	0	0
113:	1	0	0	0	0	0	2	2	0	0	0	0	0	0
127:	1	1	1	0	1	0	0	2	0	0	1	0	0	0
141:	0	1	2	1	2	2	2	1	1	2	1	0	2	1
155:	0	0	2	2	1	5	1	1	3	2	2	4	2	2
169:	1	1	1	3	0	0	2	0	0	0	1	0	0	0
183:	1	0	0	0	0	0	1	0	0	1	0	0	0	1
197:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
211:	0	0	0	2	0	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
239:	0	0	1	1	0	0	0	0	0	0	0	1	0	0
253:	0	1	0	1	0	0	0	0	0	0	0	0	1	0
267:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
295:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
309:	0	1	1	0	0	1	0	1	0	0	0	1	0	0
323:	0	0	1	0	0	1	0	0	0	0	0	0	1	0
337:	0	1	0	0	0	0	0	0	0	1	1	0	1	0
351:	0	1	1	0	0	2	0	0	0	0	2	1	0	0
365:	1	1	2	0	0	3	2	2	1	2	2	4	1	1
379:	3	3	5	2	2	0	3	3	3	2	1	2	3	5
393:	2	3	5	3	5	5	7	2	5	2	5	1	0	0
407:	1	0	1	0	1	0	0	1	2	1	0	0	3	4
421:	0	1	1	2	0	0	2	3	3	1	1	2	4	1
435:	4	1	2	3	3	3	8	2	4	5	7	3	3	5
449:	8	6	7	7	11	6	7	8	8	6	8	6	5	0
463:	4	5	4	2	2	2	4	7	6	4	4	6	4	5
477:	3	1	5	2	6	4	4	4	1	3	2	3	1	0
491:	1	2	3	1	2	1	0	1	3	0	0	2	2	2
505:	0	2	1	0	2	2	2	2	1	0	2	0	0	1
519:	1	2	2	2	0	2	1	1	0	0	2	0	0	0
533:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
603:	1	1	0	0	0	0	1	0	1	0	0	0	4	0
617:	1	1	2	0	1	2	0	0	2	1	0	2	1	2
631:	1	0	1	2	0	0	3	0	4	0	1	3	4	4
645:	0	3	4	0	6	1	2	2	2	0	2	0	1	1
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	1	0	0	0	0	0	1	0	0	0	0	0	1	0
701:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	1	1	0	1	1
729:	0	1	1	0	1	0	1	0	0	0	2	0	1	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
771:	0	0	0	0	0	1	0	1	0	0	1	0	1	0
785:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
799:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	1	0	0	1	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
883:	0	1	1	0	0	0	0	0	0	0	0	0	1	0
897:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	1	1	0	1	0	0	0	0	0	0	0	0
953:	0	1	1	0	0	0	0	0	1	0	0	0	0	0
967:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:19:46.14

Detector ID: 16 Acquisition Start: 6-SEP-2005 08:18:48.01
Live Time: 0 02:50:02.00 Real Time: 0 02:50:02.00
Batch Id: 0508096A-TH Sample Id: 15
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3980.43	72	0	38.82	152.64	93	101	7.06E-03	11.8	
2	0	4652.83	125	0	83.65	379.45	302	103	1.23E-02	8.9	
3	0	4897.70	328	0	123.64	463.20	404	130	3.22E-02	5.5	
4	0	5389.14	69	0	105.75	633.22	550	105	6.76E-03	12.0	
5	0	5874.00	10	0	276.14	803.60	742	125	9.80E-04	31.6	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:19:53.97

Acquisition Start: 2-SEP-2005 15:06:29.01
Live Time: 0 16:40:08.00 Real Time: 0 16:40:08.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3950.36	1	0	3.05	143.00	93	101	1.67E-05	100.0	
2	0	4575.15	6	0	289.56	353.00	302	103	1.00E-04	40.8	
3	0	4913.27	5	0	320.04	468.50	404	130	8.33E-05	44.7	
4	0	5299.21	14	0	0.00	602.00	550	105	2.33E-04	26.7	
5	0	5873.23	11	0	0.00	804.00	742	125	1.83E-04	30.2	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:19:54.41

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3980.43*	72	0	38.82	152.64	93	101	7.04E-03	11.8	
2	0	4652.83*	124	0	83.65	379.45	302	103	1.22E-02	9.0	
3	0	4897.70*	327	0	123.64	463.20	404	130	3.21E-02	5.5	
4	0	5389.14*	67	0	105.75	633.22	550	105	6.53E-03	12.5	
5	0	5874.00*	8	0	276.14	803.60	742	125	7.97E-04	39.5	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:19:55

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0S		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 08:18:48
Sample ID	: 15	Sample quantity	: 1.1972 gram
Sample type	: TH	Sample geometry	:
Detector name	: 016	Detector geometry	:
Elapsed live time	: 0 02:50:02.00	Elapsed real time	: 0 02:50:02.00 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3980.43*	72	38.82	152.64	93	101	23.6		TH-232	0.764
0	4652.83*	124	83.65	379.45	302	103	18.0		TH-230	1.32
0	4897.70*	327	123.64	463.20	404	130	11.1		TH229	3.50
0	5389.14*	67	105.75	633.22	550	105	25.0		TH-228	0.724
0	5874.00*	8	276.14	803.60	742	125	79.0		TH-227	8.886E-02

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Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 11:20:12

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Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-TH$16_TH.CNF

****

BATCH ID:	0508096A-TH	SAMPLE ID:	16
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.049E+00 gram
SAMPLE TITLE:	VPSCR081705SL0T	DETECTOR NUMBER:	017
ACQ DATE:	6-SEP-2005 08:19	AVERAGE EFFICIENCY:	20.15%
ELAPSED LIVE TIME:	10201.	RECOVERY:	69.06%
TRACER ID:	TH-18A	TRACER FWHM (kev):	51.40
LAMBDA VALUE:	445.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	9.997	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	1-SEP-2005 04:51	EFF CAL DATE:	1-SEP-2005 04:51
BKG FILENAME:	B_017_2SEP05	BKG ELAPSED TIME:	60007.

****

NUCLIDE ACTIVITY SUMMARY

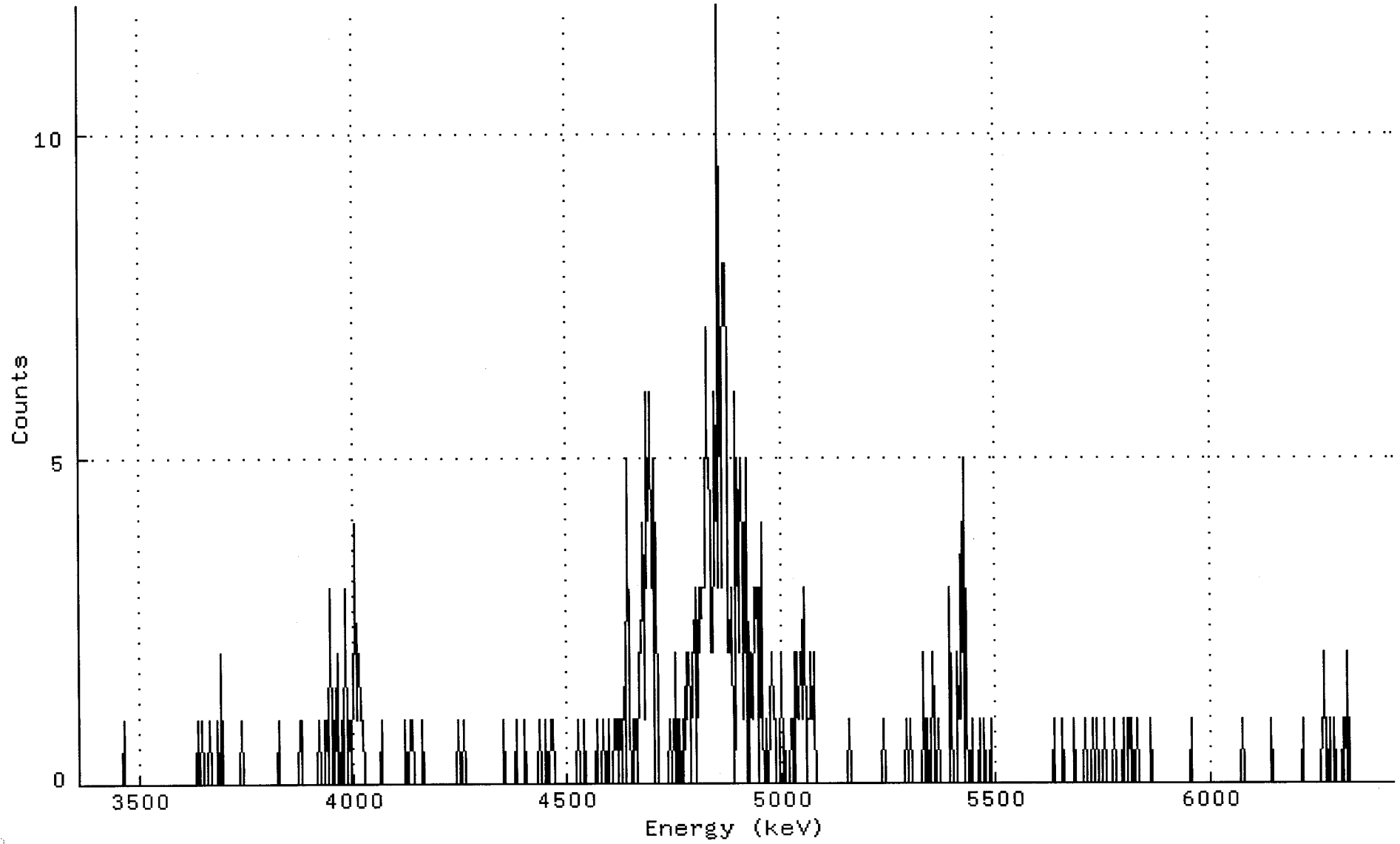
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	11.13	1.87	97.5	2.077E-01	1.409E-01	1.689E-01
TH-228	5400.0	34.47	1.53	99.9	6.391E-01	2.497E-01	1.537E-01
TH229	4872.0	235.32	0.68	99.5	4.294E+00	6.890E-01	1.194E-01
TH-230	4672.0	78.49	0.51	99.8	1.428E+00	4.087E-01	1.097E-01
TH-232	3997.0	32.64	1.36	100.0	5.927E-01	2.364E-01	1.477E-01

****

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-TH$16_TH.CNF;1
Title : 017
Sample Title: VPSCR081705SL0T
Start Time: 6-SEP-2005 08:19: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.34870E+03
Real Time : 0 02:50:01.00 Sample ID : 16 Energy Slope : 3.17349E+00
Live Time : 0 02:50:01.00 Sample Type: TH Energy Quad : -1.68375E-04



952

Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-TH$16_TH

Channel

1:	10201	10201	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	1	0	0	1	0	0	0	0
99:	0	1	0	0	0	0	0	1	0	0	2	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
169:	1	0	0	0	0	0	0	0	0	0	0	0	0	1
183:	0	0	0	0	1	1	0	0	3	0	1	0	1	2
197:	0	0	1	0	0	3	0	1	1	0	0	2	2	4
211:	1	2	1	1	1	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	1	0	0	0	1	1
253:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
323:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
337:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
351:	0	0	0	1	0	0	1	1	1	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
379:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
393:	0	0	0	0	1	0	0	0	1	0	0	0	1	1
407:	1	0	1	1	0	1	1	2	0	5	1	1	0	0
421:	1	1	0	2	2	2	3	4	1	6	3	5	5	6
435:	3	5	0	4	0	0	0	0	0	0	0	0	0	1
449:	0	0	1	0	2	0	1	0	0	1	0	1	2	1
463:	2	1	0	2	2	3	0	2	3	2	3	3	3	3
477:	7	5	5	4	2	2	4	6	5	3	12	7	3	6
491:	8	8	6	2	2	3	3	0	1	6	4	2	4	5
505:	3	1	4	0	5	0	2	2	1	3	2	3	3	0
519:	2	4	1	0	0	1	0	1	2	2	1	1	0	0
533:	0	0	2	0	1	0	0	0	0	1	1	0	2	0
547:	2	1	1	2	1	2	3	0	1	1	1	2	1	2
561:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
617:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
631:	0	1	0	0	1	0	0	0	0	0	0	0	0	0
645:	1	2	0	1	0	0	1	0	2	1	0	0	1	1
659:	0	0	0	0	0	0	0	0	3	1	0	0	0	0
673:	2	1	1	3	4	0	5	1	0	0	0	1	0	0
687:	0	0	0	1	0	0	0	1	0	0	0	0	1	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
757:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
771:	0	0	0	1	0	0	0	0	0	1	0	0	1	0
785:	0	0	0	0	1	0	0	0	0	0	0	1	1	0
799:	0	0	0	0	0	1	0	0	0	1	1	0	1	0
813:	0	0	1	0	0	0	0	0	0	0	0	0	0	1
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
967:	1	2	0	0	0	1	0	0	0	1	0	0	0	0
981:	0	0	1	0	1	0	2	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:20:00.72

Detector ID: 17 Acquisition Start: 6-SEP-2005 08:19:07.01
Live Time: 0 02:50:01.00 Real Time: 0 02:50:01.00
Batch Id: 0508096A-TH Sample Id: 16
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3976.03	34	0	63.44	199.79	143	98	3.33E-03	17.1	
2	0	4652.14	79	0	71.83	420.09	345	100	7.74E-03	11.3	
3	0	4886.73	236	0	51.40	497.80	444	126	2.31E-02	6.5	
4	0	5376.26	36	0	40.58	662.17	586	102	3.53E-03	16.7	
5	0	5791.13	13	0	272.92	803.92	773	122	1.27E-03	27.7	

Background Counts Within Peak Regions Generated: 6-SEP-2005 11:20:10.45

Acquisition Start: 2-SEP-2005 15:06:32.01
Live Time: 0 16:40:07.00 Real Time: 0 16:40:07.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3948.65	8	0	279.85	191.50	143	98	1.33E-04	35.4	
2	0	4572.82	3	0	241.69	394.50	345	100	5.00E-05	57.7	
3	0	4910.83	4	0	159.01	506.50	444	126	6.67E-05	50.0	
4	0	5297.51	9	0	0.00	636.50	586	102	1.50E-04	33.3	
5	0	5871.89	11	0	4.67	833.50	773	122	1.83E-04	30.2	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 11:20:10.73

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3976.03*	33	0	63.44	199.79	143	98	3.20E-03	17.9	
2	0	4652.14*	78	0	71.83	420.09	345	100	7.69E-03	11.3	
3	0	4886.73*	235	0	51.40	497.80	444	126	2.31E-02	6.5	
4	0	5376.26*	34	0	40.58	662.17	586	102	3.38E-03	17.5	
5	0	5791.13*	11	0	272.92	803.92	773	122	1.09E-03	32.8	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 11:20:11

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0T
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 6-SEP-2005 08:19:07
Sample ID : 16 Sample quantity : 1.0488 gram
Sample type : TH Sample geometry :
Detector name : 017 Detector geometry:
Elapsed live time: 0 02:50:01.00 Elapsed real time: 0 02:50:01.00 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	3976.03*	33	63.44	199.79	143	98	35.9		TH-232	0.409
0	4652.14*	78	71.83	420.09	345	100	22.7		TH-230	0.986
0	4886.73*	235	51.40	497.80	444	126	13.1		TH229	2.97
0	5376.26*	34	40.58	662.17	586	102	34.9		TH-228	0.441
0	5791.13*	11	272.92	803.92	773	122	65.6		TH-227	0.143

SECTION X

ANALYTICAL DATA (RADIUM-226)

05-08096
Ra226
Run 1

Work Order	05-08096
Analysis Code	Ra226
Run	1
Date Received	8/19/2005
Lab Deadline	9/9/2005
Client	Missouri Dept. of Natural Resources
Project	B3Z02092
Report Level	4
Activity Units	pCi
Aliquot Units	g
Matrix	SO
Method	EPA 903.0 Modified
Instrument Type	Alpha Spectroscopy
Radiometric Tracer	Ba-133
Radiometric Sol#	Ba-6a
Tracer Act (dpm/g)	1673.814
Carrier	
Carrier Conc (mg/ml)	

Internal Fraction	Sample Desc	Client ID	Login CPM	Sample Date	Sample Aliquot
01	LCS	LCS		08/22/05 00:00	1.0000E+00
02	MBL	BLANK		08/22/05 00:00	1.0000E+00
03	DUP	VPSCR081705SL0H	42	08/17/05 09:15	1.0295E+00
04	DO	VPSCR081705SL0H	42	08/17/05 09:15	1.0123E+00
05	TRG	VPSCR081705SL0I	41	08/17/05 09:16	1.0085E+00
06	TRG	VPSCR081705SL0J	45	08/17/05 09:19	1.0491E+00
07	TRG	VPSCR081705SL0K	40	08/17/05 09:21	1.0290E+00
08	TRG	VPSCR081705SL0L	38	08/17/05 09:29	1.0238E+00
09	TRG	VPSCR081705SL0M	26	08/17/05 09:31	1.0610E+00
10	TRG	VPSCR081705SL0N	37	08/17/05 09:33	1.1063E+00
11	TRG	VPSCR081705SL0O	37	08/17/05 09:35	1.0136E+00
12	TRG	VPSCR081705SL0P	48	08/17/05 09:40	1.0072E+00
13	TRG	VPSCR081705SL0Q	50	08/17/05 09:50	1.0147E+00
14	TRG	VPSCR081705SL0R	36	08/17/05 09:55	1.0939E+00
15	TRG	VPSCR081705SL0S	35	08/17/05 09:58	1.0349E+00
16	TRG	VPSCR081705SL0T	34	08/17/05 10:00	1.0795E+00

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

05-08096
Ra226
Run 1

Internal Fraction	Sample Desc	Tracer Aliquot (g)	Tracer Total ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	Grav Carrier Added (ml)	Grav Filter Tare (g)	Grav Filter Final (g)	Grav Filter Net (g)	Grav % Rec	Mean % Rec	SAF 1*	SAF 2*
01	LCS	0.6160	1031.1	478.0	102.92		0.0232	0.0303	0.0071		100.00	2.53	1.00
02	MBL	0.6093	1019.9	453.1	98.63		0.0235	0.0306	0.0071		98.63	2.53	1.00
03	DUP	0.6040	1011.0	440.0	96.62		0.0233	0.0289	0.0056		96.62	2.00	1.00
04	DO	0.6036	1010.3	427.8	94.00		0.0238	0.0293	0.0055		94.00	1.95	1.00
05	TRG	0.6058	1014.0	465.4	101.89		0.0235	0.0298	0.0063		100.00	2.27	1.00
06	TRG	0.6033	1009.8	467.1	102.69		0.0240	0.0292	0.0052		100.00	1.81	1.00
07	TRG	0.6014	1006.6	467.0	102.99		0.0239	0.0291	0.0052		100.00	1.81	1.00
08	TRG	0.6016	1007.0	443.5	97.78		0.0232	0.0290	0.0058		97.78	2.08	1.00
09	TRG	0.5986	1001.9	364.6	80.78		0.0238	0.0296	0.0058		80.78	2.08	1.00
10	TRG	0.6018	1007.3	417.6	92.04		0.0234	0.0289	0.0055		92.04	1.95	1.00
11	TRG	0.5991	1002.8	430.8	95.37		0.0238	0.0291	0.0053		95.37	1.86	1.00
12	TRG	0.5998	1004.0	429.6	95.00		0.0234	0.0297	0.0063		95.00	2.27	1.00
13	TRG	0.6022	1008.0	407.4	89.73		0.0239	0.0289	0.0050		89.73	1.71	1.00
14	TRG	0.6026	1008.6	415.5	91.45		0.0229	0.0283	0.0054		91.45	1.91	1.00
15	TRG	0.6006	1005.3	398.1	87.91		0.0238	0.0288	0.0050		87.91	1.71	1.00
16	TRG	0.6040	1011.0	434.7	95.45		0.0236	0.0288	0.0052		95.45	1.81	1.00

272

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

05-08096
Ra226
Run 1

Internal Fraction	Sample Desc	Rough Prep Date	Rough Prep By	Prep Date	Prep By	Sep t0 Date/Time	Sep t0 By	Sep t1 Date/Time	Sep t1 By
01	LCS			08/30/05 06:44	JBARNARD				
02	MBL			08/30/05 06:44	JBARNARD				
03	DUP			08/30/05 06:44	JBARNARD				
04	DO	08/24/05 08:00	KSALLINGS	08/30/05 06:44	JBARNARD				
05	TRG	08/24/05 08:00	KSALLINGS	08/30/05 06:44	JBARNARD				
06	TRG	08/24/05 08:00	KSALLINGS	08/30/05 06:44	JBARNARD				
07	TRG	08/24/05 08:00	KSALLINGS	08/30/05 06:44	JBARNARD				
08	TRG	08/24/05 08:00	KSALLINGS	08/30/05 06:44	JBARNARD				
09	TRG	08/24/05 08:00	KSALLINGS	08/30/05 06:44	JBARNARD				
10	TRG	08/24/05 08:00	KSALLINGS	08/30/05 06:44	JBARNARD				
11	TRG	08/24/05 08:01	KSALLINGS	08/30/05 06:44	JBARNARD				
12	TRG	08/24/05 08:01	KSALLINGS	08/30/05 06:44	JBARNARD				
13	TRG	08/24/05 08:01	KSALLINGS	08/30/05 06:44	JBARNARD				
14	TRG	08/24/05 08:01	KSALLINGS	08/30/05 06:44	JBARNARD				
15	TRG	08/24/05 08:01	KSALLINGS	08/30/05 06:44	JBARNARD				
16	TRG	08/24/05 08:01	KSALLINGS	08/30/05 06:44	JBARNARD				

* SAF1 is used for Gross Alpha and all other radionuclides. SAF2 is used for Gross Beta only. ** Actual mass exceeded the calibration curve range. Results should be qualified as appropriate.

Preliminary Data Report & Analytical Calculations
Work Order: 05-08096-Ra226-1

Run	Analysis Code	Eberline Services Work Order	Client
1	Ra226	05-08096	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Client Identification	Activity Units	Results	Error Estimate	MDA	LCS Known	LCS %R	LCS Flag	RPD Flag	MDA Flag	Blank Flag
01	RA-226	LCS	LCS	pCi/g	8.68E+00	1.21E+00	1.71E-01	1.04E+01	83.60	OK		OK	
02	RA-226	MBL	BLANK	pCi/g	0.00E+00	0.00E+00	9.12E-02					OK	OK
03	RA-226	DUP	VPSCR081705SL0H	pCi/g	7.45E-01	2.85E-01	1.70E-01				INV	OK	
04	RA-226	DO	VPSCR081705SL0H	pCi/g	1.11E+00	3.49E-01	1.20E-01					OK	
05	RA-226	TRG	VPSCR081705SL0I	pCi/g	1.41E+00	4.13E-01	1.54E-01					OK	
06	RA-226	TRG	VPSCR081705SL0J	pCi/g	7.64E-01	2.70E-01	1.49E-01					OK	
07	RA-226	TRG	VPSCR081705SL0K	pCi/g	6.79E-01	2.54E-01	1.24E-01					OK	
08	RA-226	TRG	VPSCR081705SL0L	pCi/g	1.08E+00	3.46E-01	1.43E-01					OK	
09	RA-226	TRG	VPSCR081705SL0M	pCi/g	1.06E+00	3.68E-01	1.65E-01					OK	
10	RA-226	TRG	VPSCR081705SL0N	pCi/g	9.57E-01	3.06E-01	6.33E-02					OK	
11	RA-226	TRG	VPSCR081705SL0O	pCi/g	9.83E-01	3.12E-01	1.09E-01					OK	
12	RA-226	TRG	VPSCR081705SL0P	pCi/g	1.19E+00	3.88E-01	1.96E-01					OK	
13	RA-226	TRG	VPSCR081705SL0Q	pCi/g	1.13E+00	3.41E-01	1.59E-01					OK	
14	RA-226	TRG	VPSCR081705SL0R	pCi/g	1.11E+00	3.39E-01	1.47E-01					OK	
15	RA-226	TRG	VPSCR081705SL0S	pCi/g	1.29E+00	3.58E-01	1.39E-01					OK	
16	RA-226	TRG	VPSCR081705SL0T	pCi/g	1.08E+00	3.27E-01	2.01E-01					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 05-08096-Ra226-1

Run	Analysis Code	Eberline Services Work Order	Client
1	Ra226	05-08096	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Sample Date	Sample Aliquot	Radiometric % Rec	Grav % Rec	Mean % Rec	SAF	Sep t0 Date/Time	Sep t1 Date/Time
01	RA-226	LCS	08/22/05 00:00	1.00E+00	100.00		100.00			
02	RA-226	MBL	08/22/05 00:00	1.00E+00	98.63		98.63			
03	RA-226	DUP	08/17/05 09:15	1.03E+00	96.62		96.62			
04	RA-226	DO	08/17/05 09:15	1.01E+00	94.00		94.00			
05	RA-226	TRG	08/17/05 09:16	1.01E+00	100.00		100.00			
06	RA-226	TRG	08/17/05 09:19	1.05E+00	100.00		100.00			
07	RA-226	TRG	08/17/05 09:21	1.03E+00	100.00		100.00			
08	RA-226	TRG	08/17/05 09:29	1.02E+00	97.78		97.78			
09	RA-226	TRG	08/17/05 09:31	1.06E+00	80.78		80.78			
10	RA-226	TRG	08/17/05 09:33	1.11E+00	92.04		92.04			
11	RA-226	TRG	08/17/05 09:35	1.01E+00	95.37		95.37			
12	RA-226	TRG	08/17/05 09:40	1.01E+00	95.00		95.00			
13	RA-226	TRG	08/17/05 09:50	1.01E+00	89.73		89.73			
14	RA-226	TRG	08/17/05 09:55	1.09E+00	91.45		91.45			
15	RA-226	TRG	08/17/05 09:58	1.03E+00	87.91		87.91			
16	RA-226	TRG	08/17/05 10:00	1.08E+00	95.45		95.45			

Run	Analysis Code	Eberline Services Work Order	Client
1	Ra226	05-08096	Missouri Dept. of Natural Resources

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	RA-226	LCS	08/31/05 13:34		A_Spec	33	170	6.98 E+02	2.00 E-03	21.3
02	RA-226	MBL	08/31/05 13:34		A_Spec	34	170	0.00 E+00	0.00 E+00	20.2
03	RA-226	DUP	08/31/05 13:34		A_Spec	35	170	5.73 E+01	4.00 E-03	20.5
04	RA-226	DO	08/31/05 13:35		A_Spec	36	170	8.37 E+01	1.00 E-03	20.9
05	RA-226	TRG	08/31/05 13:35		A_Spec	37	170	1.13 E+02	2.00 E-03	21
06	RA-226	TRG	08/31/05 13:35		A_Spec	38	170	6.09 E+01	4.00 E-03	20.1
07	RA-226	TRG	08/31/05 13:36		A_Spec	39	170	5.40 E+01	2.00 E-03	20.5
08	RA-226	TRG	08/31/05 13:36		A_Spec	40	170	8.49 E+01	2.00 E-03	20.9
09	RA-226	TRG	08/31/05 13:37		A_Spec	41	170	7.25 E+01	2.00 E-03	21.1
10	RA-226	TRG	08/31/05 13:37		A_Spec	42	170	8.00 E+01	0.00 E+00	21.7
11	RA-226	TRG	08/31/05 13:37		A_Spec	43	170	7.80 E+01	1.00 E-03	21.7
12	RA-226	TRG	08/31/05 13:38		A_Spec	44	170	9.01 E+01	4.00 E-03	21
13	RA-226	TRG	08/31/05 13:38		A_Spec	45	170	7.97 E+01	4.00 E-03	20.5
14	RA-226	TRG	08/31/05 13:39		A_Spec	46	170	8.74 E+01	3.00 E-03	20.8
15	RA-226	TRG	08/31/05 13:39		A_Spec	47	170	9.53 E+01	3.00 E-03	21.5
16	RA-226	TRG	08/31/05 13:39		A_Spec	48	170	8.52 E+01	1.00 E-02	20.3

Count Room Report
Client: Missouri Dept. of Natural

05-08096-Ra226-1 (pCi/g) in SO
Tracer ID: Ba-6a

Internal Fraction	Sample Desc	Client ID	Sample Date	Sample Aliquot	Tracer Aliquot (g)	Tracer ACT (dpm)	Radiometric Tracer (pCi)	Radiometric % Rec	SAF 1*	SAF 2*
01	LCS	LCS	08/22/05 00:00	1.0000	0.6160	1031.0694	478.0000	102.92	2.53	1.00
02	MBL	BLANK	08/22/05 00:00	1.0000	0.6093	1019.8549	453.1000	98.63	2.53	1.00
03	DUP	VPSCR081705SL0H	08/17/05 09:15	1.0295	0.6040	1010.9837	440.0000	96.62	2.00	1.00
04	DO	VPSCR081705SL0H	08/17/05 09:15	1.0123	0.6036	1010.3141	427.8000	94.00	1.95	1.00
05	TRG	VPSCR081705SL0I	08/17/05 09:16	1.0085	0.6058	1013.9965	465.4000	101.89	2.27	1.00
06	TRG	VPSCR081705SL0J	08/17/05 09:19	1.0491	0.6033	1009.8120	467.1000	102.69	1.81	1.00
07	TRG	VPSCR081705SL0K	08/17/05 09:21	1.0290	0.6014	1006.6317	467.0000	102.99	1.81	1.00
08	TRG	VPSCR081705SL0L	08/17/05 09:29	1.0238	0.6016	1006.9665	443.5000	97.78	2.08	1.00
09	TRG	VPSCR081705SL0M	08/17/05 09:31	1.0610	0.5986	1001.9451	364.6000	80.78	2.08	1.00
10	TRG	VPSCR081705SL0N	08/17/05 09:33	1.1063	0.6018	1007.3013	417.6000	92.04	1.95	1.00
11	TRG	VPSCR081705SL0O	08/17/05 09:35	1.0136	0.5991	1002.7820	430.8000	95.37	1.86	1.00
12	TRG	VPSCR081705SL0P	08/17/05 09:40	1.0072	0.5998	1003.9536	429.6000	95.00	2.27	1.00
13	TRG	VPSCR081705SL0Q	08/17/05 09:50	1.0147	0.6022	1007.9708	407.4000	89.73	1.71	1.00
14	TRG	VPSCR081705SL0R	08/17/05 09:55	1.0939	0.6026	1008.6403	415.5000	91.45	1.91	1.00
15	TRG	VPSCR081705SL0S	08/17/05 09:58	1.0349	0.6006	1005.2927	398.1000	87.91	1.71	1.00
16	TRG	VPSCR081705SL0T	08/17/05 10:00	1.0795	0.6040	1010.9837	434.7000	95.45	1.81	1.00

Eberline Services
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/30/2005 6:44 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
05-08096	1	Ra226	8/30/2005 6:32	JBARNARD	JBarnard	

LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	*Sol #*	*Activity dpm/g*	*Solution Date*	*Approx Addition*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*
Ra-226	Ra-5b	44.218	8/30/2005	**0.500**	**0.5212**				10.38	0.478	0.00	0.000	0.00	0.000	0.00	0.000

Tracers

fraction	*Isotope*	*Sol #*	*Activity dpm/g*	*Solution Date*	*Volume Used (g)*	*Approx Addition*
01	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6160**	**0.6100**
02	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6093**	**0.6100**
03	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6040**	**0.6100**
04	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6036**	**0.6100**
05	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6058**	**0.6100**
06	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6033**	**0.6100**
07	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6014**	**0.6100**
08	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6016**	**0.6100**
09	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.5986**	**0.6100**
10	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6018**	**0.6100**
11	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.5991**	**0.6100**
12	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.5998**	**0.6100**
13	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6022**	**0.6100**
14	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6026**	**0.6100**
15	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6006**	**0.6100**
16	**Ba-133**	Ba-6a	1673.814	8/30/2005	**0.6040**	**0.6100**

Balance Printer Tapes

Tracer

0.6160 g
-0.6093 g
-0.6040 g
-0.6036 g
-0.6058 g
-0.6033 g
-0.6014 g
-0.6016 g
-0.5986 g
-0.6018 g
-0.5991 g
-0.5998 g
-0.6022 g
-0.6026 g
-0.6006 g
-0.6040 g

LCS

0.5212 g

Matrix Spike

2760

Eberline Services - Oak Ridge
Version 2.0 8/1999

Aliquot Worksheet

Printed: 8/29/2005 9:24 AM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
05-08096	1	Ra226	grams	9/9/2005	JBARNARD

Lab Fraction	Missouri Dept. of Natural Resources Client ID	Sample Type	Muffle Data Ratio Post/Pre	Dilution Data No of Dils	Dil Factor	Ratio	Aliquot Data Aliquot	Net Equiv	MS Aliquot Data Aliquot	Net Equiv	H-3 Solids Only Water Added (ml)	H3 Dist Aliq
01	LCS	LCS					1.0000E+00	1.0000E+00				
02	BLANK	MBL					1.0000E+00	1.0000E+00				
03	VPSCR081705SL0H	DUP					1.0295E+00	1.0295E+00				
04	VPSCR081705SL0H	DO					1.0123E+00	1.0123E+00				
05	VPSCR081705SL0I	TRG					1.0085E+00	1.0085E+00				
06	VPSCR081705SL0J	TRG					1.0491E+00	1.0491E+00				
07	VPSCR081705SL0K	TRG					1.0290E+00	1.0290E+00				
08	VPSCR081705SL0L	TRG					1.0238E+00	1.0238E+00				
09	VPSCR081705SL0M	TRG					1.0610E+00	1.0610E+00				
10	VPSCR081705SL0N	TRG					1.1063E+00	1.1063E+00				
11	VPSCR081705SL0O	TRG					1.0136E+00	1.0136E+00				
12	VPSCR081705SL0P	TRG					1.0072E+00	1.0072E+00				
13	VPSCR081705SL0Q	TRG					1.0147E+00	1.0147E+00				
14	VPSCR081705SL0R	TRG					1.0939E+00	1.0939E+00				
15	VPSCR081705SL0S	TRG					1.0349E+00	1.0349E+00				
16	VPSCR081705SL0T	TRG					1.0795E+00	1.0795E+00				

Comments	

1.0295 3
1.0123 3
1.0085 3
1.0491 3
1.0290 3
1.0238 3
1.0610 3
1.1063 3
1.0136 3
1.0072 3
1.0147 3
1.0939 3
1.0349 3
1.0795 3

Technician: JBarnard Date: 8/29/05

Eberline Services - Oak Ridge
Version 1.0 9/1999

Gravimetric Worksheet

Printed: 8/31/2005 9:21 AM

Work Order	Run	Analysis Code	Gravimetric Carrier	Carrier Conc (mg/ml)	Technician
05-08096	1	Ra226			DJOHNSON

TRetec	Missouri Dept. of Natural Resources	Sample	Carrier Data	Filter Data			Gravimetric
Fraction	Client ID	Type	Carrier Added (ml)	Filter Tare (g)	Filter Final (g)	Filter Net (g)	% Recovery
01	LCS	LCS		0.0232	0.0303	0.0071	
02	BLANK	MBL		0.0235	0.0306	0.0071	
03	DUP	DUP		0.0233	0.0289	0.0056	
04	VPSCR081705SL0H	DO		0.0238	0.0293	0.0055	
05	VPSCR081705SL0I	TRG		0.0235	0.0298	0.0063	
06	VPSCR081705SL0J	TRG		0.0240	0.0292	0.0052	
07	VPSCR081705SL0K	TRG		0.0239	0.0291	0.0052	
08	VPSCR081705SL0L	TRG		0.0232	0.0290	0.0058	
09	VPSCR081705SL0M	TRG		0.0238	0.0296	0.0058	
10	VPSCR081705SL0N	TRG		0.0234	0.0289	0.0055	
11	VPSCR081705SL0O	TRG		0.0238	0.0291	0.0053	
12	VPSCR081705SL0P	TRG		0.0234	0.0297	0.0063	
13	VPSCR081705SL0Q	TRG		0.0239	0.0289	0.0050	
14	VPSCR081705SL0R	TRG		0.0229	0.0283	0.0054	
15	VPSCR081705SL0S	TRG		0.0238	0.0288	0.0050	
16	VPSCR081705SL0T	TRG		0.0236	0.0288	0.0052	

Technician: _____ Date: 8/31/05

Eberline Services - Oak Ridge
Prep Logbook
Version 2.0 8/1999

Rough Sample Preparation
Log Book

Printed: 8/24/2005 8:01 AM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
05-08096	9/9/2005	8/23/2005	8/24/2005	8/25/2005	KSALLINGS

Eberline	Missouri Dept. of Natural Resources	Tare (g)	Gross (g)		Net (g)		Percent		Gamma		Special
Fraction	Client ID	Pan Wt	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Liquid	Solid	Dry Wt.	LEPS Wt.	Info
04	VPSCR081705SL0H	13.9000	566.5000	482.3100	552.6000	468.4100	15.24%	84.76%			
05	VPSCR081705SL0I	13.8700	572.4000	454.1400	558.5300	440.2700	21.17%	78.83%			
06	VPSCR081705SL0J	13.8200	558.6600	466.7700	544.8400	452.9500	16.87%	83.13%			
07	VPSCR081705SL0K	13.8800	586.4300	499.4100	572.5500	485.5300	15.20%	84.80%			
08	VPSCR081705SL0L	13.8700	511.0600	438.4300	497.1900	424.5600	14.61%	85.39%			
09	VPSCR081705SL0M	13.8900	333.5200	215.9100	319.6300	202.0200	36.80%	63.20%			
10	VPSCR081705SL0N	14.0800	539.4800	444.2100	525.4000	430.1300	18.13%	81.87%			
11	VPSCR081705SL0O	14.0400	479.6500	395.9200	465.6100	381.8800	17.98%	82.02%			
12	VPSCR081705SL0P	13.8300	466.8600	366.5700	453.0300	352.7400	22.14%	77.86%			
13	VPSCR081705SL0Q	13.9300	518.5200	365.4100	504.5900	351.4800	30.34%	69.66%			
14	VPSCR081705SL0R	14.0500	604.2100	466.5400	590.1600	452.4900	23.33%	76.67%			
15	VPSCR081705SL0S	13.9600	563.2300	453.8000	549.2700	439.8400	19.92%	80.08%			
16	VPSCR081705SL0T	13.8700	475.0400	386.5100	461.1700	372.6400	19.20%	80.80%			

Comments	
Special Codes	H: Hot, O: Organic Hazard, P: PCB Hazard, R: Rush, T: Other (see comments)

Technician: Kenny Sallings Date: Analysis: Rough Prep Logbook

Analysis: Ra226 Page No. 5095

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:25:49

****

Spectral File: ND_AMS_ARCHIVE_C:C_0508096A-RA$01_RA.CNF

****

BATCH ID:	0508096A-RA	SAMPLE ID:	01
SAMPLE DATE:	31-AUG-2005 00:00	ALIQUOT:	1.000E+00 gram
SAMPLE TITLE:	SPIKE	DETECTOR NUMBER:	033
ACQ DATE:	31-AUG-2005 13:34	AVERAGE EFFICIENCY:	21.31%
ELAPSED LIVE TIME:	10200.	RECOVERY:	100.00%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_033_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	2.53

****

NUCLIDE ACTIVITY SUMMARY

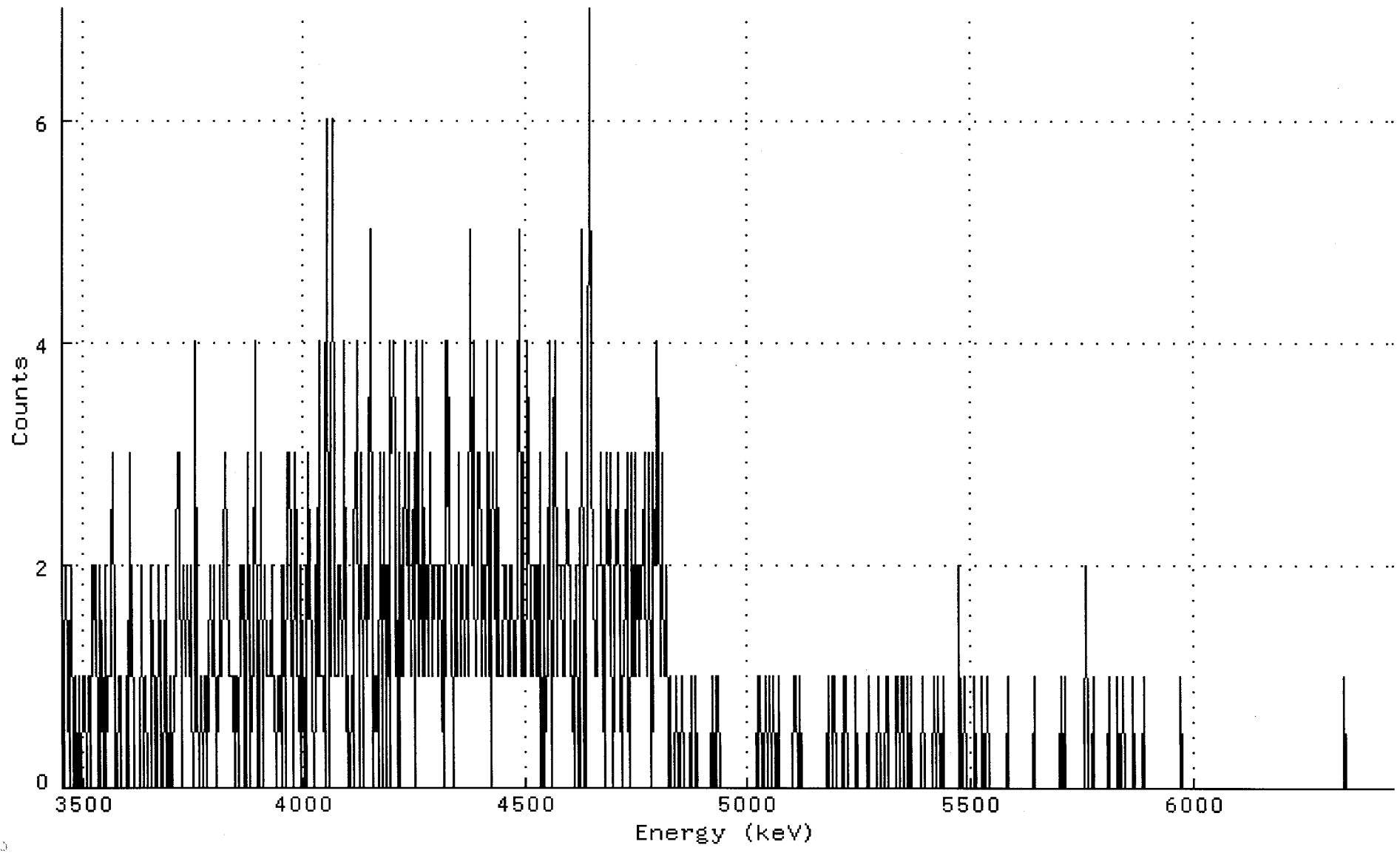
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	29.85	0.51	100.0	3.712E-01	2.196E-01	1.898E-01
RN-222	5490.0	87.70	0.85	99.9	1.091E+00	3.803E-01	2.203E-01
RA-226	4785.0	697.94	0.34	100.0	8.679E+00	1.207E+00	1.706E-01

****

Analyst _____ Date 8-31-05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.C]C_0508096A-RA$01_RA.CNF;1
Title : 033
Sample Title: SPIKE
Start Time: 31-AUG-2005 13:34 Sample Time: 31-AUG-2005 00:00 Energy Offset: 3.44527E+03
Real Time : 0 02:50:00.20 Sample ID : 01 Energy Slope : 3.13024E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.93467E-04



Channel Contents for ND_AMS_ARCHIVE_C:C_0508096A-RA$01_RA

Channel

1:	0	1	1	0	1	2	1	0	1	2	0	1	0	0
15:	1	0	0	1	1	1	0	1	1	0	2	2	1	2
29:	0	0	2	1	0	2	0	1	1	1	2	3	1	0
43:	0	1	1	0	0	0	0	1	0	3	1	2	0	0
57:	0	0	0	2	2	0	1	1	0	0	0	2	1	1
71:	0	0	2	1	0	0	1	2	0	0	1	0	0	1
85:	1	2	3	3	0	1	2	1	1	2	1	2	1	0
99:	1	4	1	0	1	1	0	1	1	0	1	2	2	1
113:	2	0	0	1	1	2	1	2	3	3	2	1	1	1
127:	1	0	1	1	0	2	1	2	2	0	0	3	1	0
141:	1	1	1	4	0	0	0	3	0	1	2	1	1	1
155:	1	2	1	1	0	1	1	1	0	2	2	0	3	3
169:	3	2	2	0	3	2	1	1	0	2	1	0	2	0
183:	3	2	1	1	0	1	2	1	4	1	1	1	0	2
197:	6	0	0	2	6	2	1	1	1	2	2	1	2	4
211:	1	0	1	0	1	0	2	3	3	4	0	3	0	1
225:	2	2	1	2	5	1	0	1	1	1	0	3	1	0
239:	3	1	0	2	0	4	3	4	3	2	0	3	0	2
253:	1	4	3	2	3	2	1	2	3	0	4	3	1	2
267:	1	4	1	2	2	1	3	1	1	2	2	2	1	2
281:	1	1	0	4	1	4	3	1	2	0	2	1	1	3
295:	1	2	2	1	1	2	2	1	5	2	4	2	1	2
309:	3	3	2	1	2	1	3	4	2	0	2	3	2	1
323:	4	1	1	1	1	2	2	2	1	1	2	2	1	1
337:	1	2	3	5	1	3	1	1	2	4	3	1	1	1
351:	2	1	2	1	3	0	0	2	0	1	1	4	3	0
365:	2	3	4	1	2	2	2	2	1	1	3	3	2	2
379:	1	1	0	1	2	0	0	0	5	0	1	0	4	2
393:	7	3	2	2	1	1	2	2	2	3	1	0	1	3
407:	2	3	2	0	1	2	2	3	3	1	0	1	1	2
421:	3	1	0	2	3	1	3	1	2	2	1	2	2	3
435:	2	1	2	3	0	1	3	2	2	4	3	1	3	2
449:	1	1	2	0	1	0	0	0	0	1	0	0	0	1
463:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
477:	0	0	0	0	0	0	0	0	1	0	0	1	0	1
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	1	0	1	0	0	0	1	0	0	1	0	0	1
533:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
547:	0	1	1	1	0	0	1	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
575:	0	0	0	1	1	0	0	0	0	0	0	1	0	1
589:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
603:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
617:	0	0	1	1	0	0	0	0	0	0	1	1	0	0
631:	1	1	0	0	0	1	0	1	0	0	0	0	0	0
645:	0	0	1	0	0	0	0	0	0	0	0	1	0	0
659:	1	0	0	0	1	0	0	0	0	0	0	0	0	0
673:	0	0	0	2	0	0	0	1	0	0	0	0	0	0
687:	0	1	0	0	0	0	0	1	0	0	0	1	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
757:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	2	0	0	0	0	1	0	0	0
785:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
799:	0	0	1	0	0	0	1	0	0	0	0	0	0	0
813:	1	0	0	0	0	0	0	0	1	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:25:32.25

Detector ID: 33 Acquisition Start: 31-AUG-2005 13:34:21.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.20
Batch Id: 0508096A-RA Sample Id: 01
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4594.11	276	0	0.00	375.74	303	155	2.71E-02	6.0	
2	0	5266.51	35	0	3.13	604.40	520	176	3.43E-03	16.9	
3	0	5794.82	12	0	3.13	789.08	715	163	1.18E-03	28.9	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:25:47.65

Acquisition Start: 26-AUG-2005 12:01:33.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.20

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.82	2	0112.69		380.00	303	155	3.33E-05	70.7	
2	0	5275.49	5	0363.11		607.50	520	176	8.33E-05	44.7	
3	0	5814.35	3	0297.37		796.00	715	163	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:25:47.96

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4594.11*	698	0	0.00	375.74	303	155	6.84E-02	6.0	
2	0	5266.51*	88	0	3.13	604.40	520	176	8.60E-03	17.1	
3	0	5794.82*	30	0	3.13	789.08	715	163	2.93E-03	29.4	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:25:48

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: SPIKE		
Sample date	: 31-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:34:21
Sample ID	: 01	Sample quantity	: 1.0000 gram
Sample type	: RA	Sample geometry	:
Detector name	: 033	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.20 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4594.11*	698	0.00	375.74	303	155	12.0		RA-226	8.68
0	5266.51*	88	3.13	604.40	520	176	34.1		RN-222	1.09
0	5794.82*	30	3.13	789.08	715	163	58.8		PO-218	0.371

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:26:03

Spectral File: ND_AMS_ARCHIVE_R:R_0508096A-RA$02_RA.CNF

BATCH ID:	0508096A-RA	SAMPLE ID:	02
SAMPLE DATE:	31-AUG-2005 00:00	ALIQUOT:	1.000E+00 gram
SAMPLE TITLE:	BLANK	DETECTOR NUMBER:	034
ACQ DATE:	31-AUG-2005 13:34	AVERAGE EFFICIENCY:	20.21%
ELAPSED LIVE TIME:	10200.	RECOVERY:	98.63%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_034_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	2.53

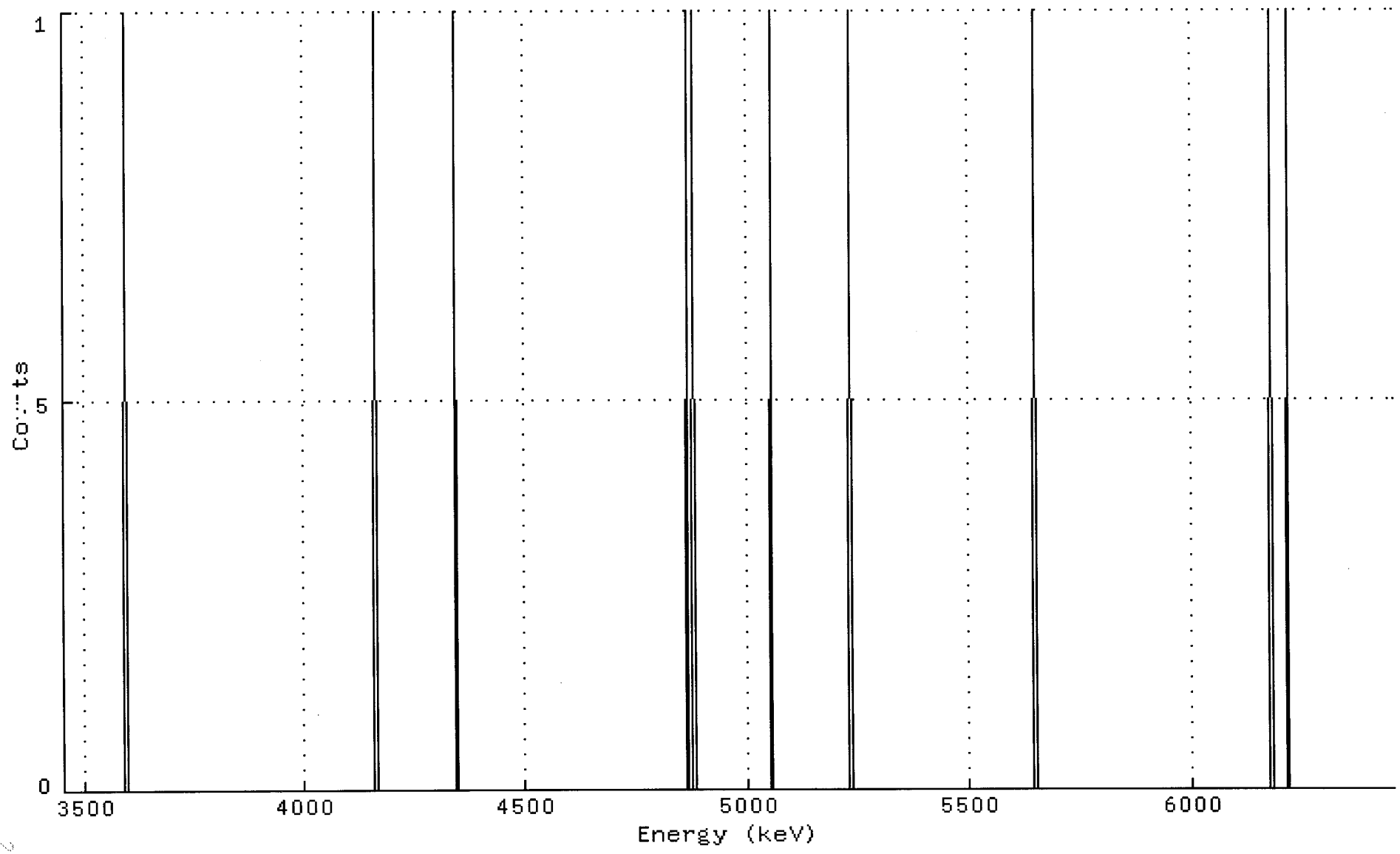
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	2.19	0.34	100.0	2.912E-02	6.762E-02	1.824E-01
RN-222	5490.0	4.38	0.68	99.9	5.828E-02	9.573E-02	2.203E-01
RA-226	4785.0	0.00	0.00	100.0	0.000E+00	0.000E+00	9.115E-02

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.R]R_0508096A-RA$02_RA.CNF;1
Title : 034
Sample Title: BLANK
Start Time: 31-AUG-2005 13:34 Sample Time: 31-AUG-2005 00:00 Energy Offset: 3.44466E+03
Real Time : 0 02:50:00.20 Sample ID : 02 Energy Slope : 3.08962E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.48111E-04



Channel Contents for ND_AMS_ARCHIVE_R:R_0508096A-RA$02_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
393:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
407:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
421:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
435:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
533:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
939:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:25:56.28

Detector ID: 34 Acquisition Start: 31-AUG-2005 13:34:36.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.20
Batch Id: 0508096A-RA Sample Id: 02
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.26	0	0	0.00	383.00	306	155	0.00E+00	0.0	
2	0	5141.55	2	0	191.56	564.50	523	176	1.96E-04	70.7	
3	0	5647.00	1	0	3.09	739.00	717	162	9.80E-05	100.0	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:26:01.81

Acquisition Start: 26-AUG-2005 12:01:36.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.26	0	0	0.00	383.00	306	155	0.00E+00	0.0	
2	0	5275.67	4	0	472.71	610.50	523	176	6.67E-05	50.0	
3	0	5814.43	2	0	52.52	797.50	717	162	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:26:02.08

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.26*	0	0	0.00	383.00	306	155	0.00E+00	0.0	
2	0	5141.55*	4	0	191.56	564.50	523	176	4.29E-04	82.1	
3	0	5647.00*	2	0	3.09	739.00	717	162	2.15E-04	116.0	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:26:02

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: BLANK		
Sample date	: 31-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:34:36
Sample ID	: 02	Sample quantity	: 1.0000 gram
Sample type	: RA	Sample geometry	:
Detector name	: 034	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.20 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4606.26*	0	0.00	383.00	306	155	0.0		RA-226	0.000E+00
0	5141.55*	4191.56		564.50	523	176	164.1		RN-222	5.748E-02
0	5647.00*	2	3.09	739.00	717	162	232.1		PO-218	2.872E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:26:14

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$03_RA.CNF

****

BATCH ID:	0508096A-RA	SAMPLE ID:	03
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.030E+00	gram
SAMPLE TITLE:	VPSCR081705SL0H	DETECTOR NUMBER:	035
ACQ DATE:	31-AUG-2005 13:34	AVERAGE EFFICIENCY:	20.51%
ELAPSED LIVE TIME:	10200.	RECOVERY:	96.62%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE: 25-AUG-2005	04:28
BKG FILENAME:	B_035_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	2.00

****

NUCLIDE ACTIVITY SUMMARY

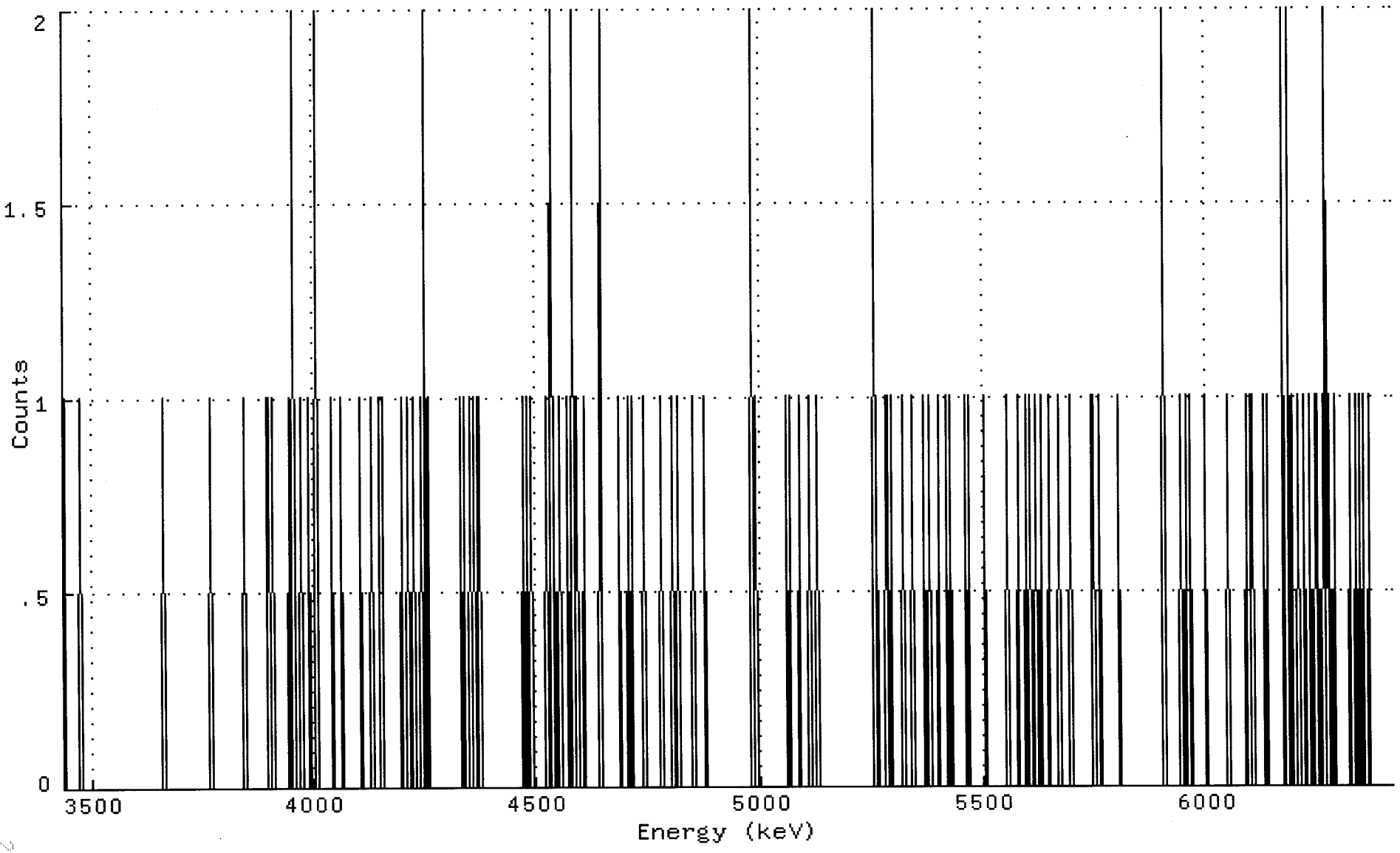
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	35.49	0.51	100.0	4.610E-01	2.229E-01	1.567E-01
RN-222	5490.0	42.47	1.53	99.9	5.520E-01	2.472E-01	2.200E-01
RA-226	4785.0	57.32	0.68	100.0	7.445E-01	2.846E-01	1.700E-01

****

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$03_RA.CNF;1
Title : 035
Sample Title: VPSCR081705SL0H
Start Time: 31-AUG-2005 13:34 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42698E+03
Real Time : 0 02:50:00.20 Sample ID : 03 Energy Slope : 3.10189E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.80495E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$03_RA

Channel

1:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
15:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
155:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
169:	1	0	0	2	0	0	0	0	0	1	0	0	0	0
183:	0	1	0	0	0	0	2	0	0	0	0	0	0	0
197:	0	0	0	0	1	0	0	0	0	0	0	1	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
225:	0	0	0	0	0	1	0	0	0	0	0	1	1	1
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
253:	0	0	0	0	1	0	0	0	1	0	0	0	0	1
267:	1	0	0	2	0	1	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	0	1	0	1	0	0	0	1	1	0	1	1	0
309:	0	1	1	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	1	0	0	1	0	0	1	1
351:	0	0	0	0	0	0	0	0	0	0	1	0	0	1
365:	2	0	1	0	0	0	1	0	0	0	0	0	1	0
379:	1	0	2	0	1	1	0	0	0	0	1	0	0	0
393:	0	0	0	0	0	0	0	0	1	2	0	0	0	0
407:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
421:	0	1	0	0	1	0	0	0	0	0	0	0	0	1
435:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
449:	0	0	0	0	0	0	0	1	0	0	0	1	1	0
463:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
477:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	2	0
519:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	1	0	1
547:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
561:	1	0	0	0	0	0	1	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	2	0	1	0	0	0
617:	0	0	0	1	1	0	0	1	0	0	0	0	0	0
631:	0	0	1	1	0	0	0	0	0	0	1	0	0	0
645:	0	0	0	0	0	1	0	0	0	1	0	0	0	0
659:	0	0	1	0	0	0	0	0	0	1	0	0	1	0
673:	0	0	0	0	0	0	0	0	0	0	1	0	1	0
687:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	1	1	0	0	0	0	0	0	0	1	0	0	0	0
729:	0	1	0	0	1	1	0	0	0	1	0	0	0	1
743:	0	0	0	0	0	1	0	0	0	0	0	0	0	1
757:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	1	1	0
785:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	2	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
855:	0	0	1	0	0	0	1	0	0	0	0	0	0	0
869:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	1	0	0	0	1
911:	1	0	0	0	0	0	0	0	0	0	1	0	1	0
925:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
939:	0	0	2	0	1	0	0	0	0	1	0	0	0	0
953:	1	0	0	0	0	1	0	0	0	1	0	1	0	0
967:	0	1	0	2	1	0	1	0	0	0	1	0	0	0
981:	0	0	0	0	0	0	0	0	1	0	0	0	0	1
995:	0	0	1	0	0	1	0	0	0	0	1	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:26:08.61

Detector ID: 35 Acquisition Start: 31-AUG-2005 13:34:55.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.20
Batch Id: 0508096A-RA Sample Id: 03
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4607.43	29	0	119.33	389.38	311	157	2.84E-03	18.6	
2	0	5295.03	22	0	3.10	624.95	530	177	2.16E-03	21.3	
3	0	5765.45	18	0	3.10	790.22	726	164	1.76E-03	23.6	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:26:12.75

Acquisition Start: 26-AUG-2005 12:01:39.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.20

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.30	4	0	446.67	389.00	311	157	6.67E-05	50.0	
2	0	5275.01	9	0	514.91	618.00	530	177	1.50E-04	33.3	
3	0	5814.06	3	0	350.51	807.50	726	164	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:26:12.99

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4607.43*	57	0	119.33	389.38	311	157	5.62E-03	18.8	
2	0	5295.03*	42	0	3.10	624.95	530	177	4.16E-03	22.1	
3	0	5765.45*	35	0	3.10	790.22	726	164	3.48E-03	23.9	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:26:13

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0H		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:34:55
Sample ID	: 03	Sample quantity	: 1.0295 gram
Sample type	: RA	Sample geometry	:
Detector name	: 035	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.20 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4607.43*	57119.33		389.38	311	157	37.6		RA-226	0.719
0	5295.03*	42	3.10	624.95	530	177	44.2		RN-222	0.533
0	5765.45*	35	3.10	790.22	726	164	47.8		PO-218	0.445

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:31:14

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Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$04_RA.CNF

****

BATCH ID:	0508096A-RA	SAMPLE ID:	04
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.012E+00	gram
SAMPLE TITLE:	VPSCR081705SL0H	DETECTOR NUMBER:	036
ACQ DATE:	31-AUG-2005 13:35	AVERAGE EFFICIENCY:	20.93%
ELAPSED LIVE TIME:	10200.	RECOVERY:	94.00%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE: 25-AUG-2005	04:28
BKG FILENAME:	B_036_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	1.95

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NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	44.34	0.51	100.0	5.900E-01	2.523E-01	1.565E-01
RN-222	5490.0	33.74	1.36	99.9	4.492E-01	2.229E-01	2.111E-01
RA-226	4785.0	83.68	0.17	100.0	1.113E+00	3.489E-01	1.200E-01

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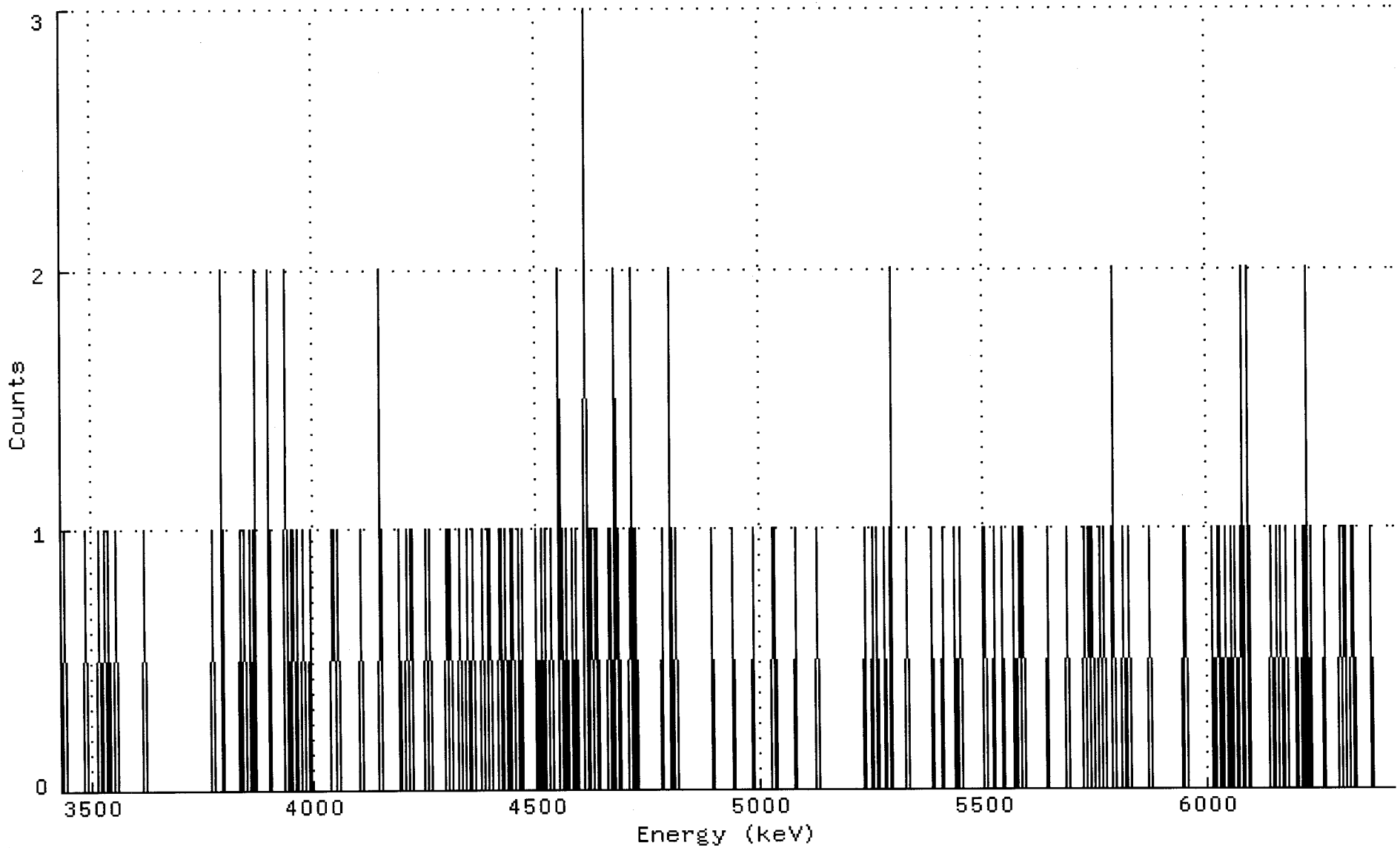
Analyst _____ Date 8.30.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$04_RA.CNF;1
Title : 036
Sample Title: VPSCR081705SL0H
Start Time: 31-AUG-2005 13:35 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42318E+03
Real Time : 0 02:50:00.20 Sample ID : 04 Energy Slope : 3.08239E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.58962E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$04_RA

Channel

1:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
29:	0	0	1	0	0	0	1	0	0	1	0	0	0	0
43:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	1	1	0	0	0	0	0	0	2	0	0	0	0
127:	0	0	0	0	0	0	0	0	1	0	0	1	0	0
141:	0	0	1	0	0	2	0	0	0	0	0	0	0	0
155:	0	0	2	0	0	0	0	0	0	0	0	0	0	0
169:	2	0	0	0	1	0	1	0	1	0	0	0	0	1
183:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	1	1	1	0	1	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
239:	2	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	1	0	0	0	0	1	0	0	1	1	0	0	0	0
267:	0	0	0	0	0	1	1	0	1	0	0	0	0	0
281:	0	0	0	0	0	0	0	1	1	0	1	0	0	0
295:	0	0	0	1	0	0	0	0	0	1	0	0	0	1
309:	0	0	0	0	0	0	1	0	0	0	0	1	1	0
323:	0	0	0	0	0	1	0	1	0	1	1	0	0	1
337:	0	1	0	0	0	0	1	0	1	0	0	0	0	0
351:	0	0	0	0	0	1	0	0	1	0	0	1	0	0
365:	0	0	1	0	0	0	0	0	2	1	0	1	0	0
379:	1	0	0	0	1	0	0	1	0	0	0	0	0	0
393:	3	0	0	1	1	0	0	1	0	1	0	0	0	0
407:	0	0	0	1	0	1	0	0	2	1	0	1	0	0
421:	0	0	0	0	0	1	0	2	0	0	1	0	0	0
435:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
449:	0	1	0	0	0	0	0	0	2	0	0	0	1	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	1	0	0	0	0	0	1	0	0	0	1	0
617:	0	0	0	0	1	0	0	0	0	2	0	0	0	0
631:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
659:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
673:	0	0	0	1	0	0	0	1	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	1	1	0
701:	0	0	0	0	0	1	0	0	0	0	0	0	1	0
715:	0	0	0	0	0	0	0	1	0	0	0	1	1	0
729:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	1	1	0	0	0	0	0	0
771:	0	0	0	0	0	0	1	0	0	1	1	0	1	0
785:	0	0	0	0	1	0	0	1	0	0	0	0	0	0
799:	2	1	0	0	0	0	0	0	1	0	0	0	1	1
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
855:	1	0	1	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
883:	1	0	1	0	0	0	1	0	0	0	1	0	0	1
897:	1	0	0	0	1	0	2	0	0	0	0	2	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	1	1	0	0	0	1	0	0	1	0	0	0	0	1
939:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
953:	0	2	0	0	1	0	0	0	0	0	0	0	0	0
967:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
981:	1	0	0	1	1	0	0	0	0	1	0	1	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:26:18.23

Detector ID: 36 Acquisition Start: 31-AUG-2005 13:35:16.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.20
Batch Id: 0508096A-RA Sample Id: 04
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4584.41	43	0	2	60.46	384.35	314	157	4.22E-03	15.2
2	0	5298.47	18	0	3.08	628.78	533	177	1.76E-03	23.6	
3	0	5813.16	23	0	4.53	809.13	728	164	2.25E-03	20.9	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:31:12.77

Acquisition Start: 26-AUG-2005 12:01:42.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4607.05	1	0	3.08	392.00	314	157	1.67E-05	100.0	
2	0	5276.04	8	0	3	63.72	621.00	533	177	1.33E-04	35.4
3	0	5814.21	3	0	3	35.98	809.50	728	164	5.00E-05	57.7

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:31:13.01

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4584.41*	84	0	2	60.46	384.35	314	157	8.20E-03	15.3
2	0	5298.47*	34	0	3.08	628.78	533	177	3.31E-03	24.6	
3	0	5813.16*	44	0	4.53	809.13	728	164	4.35E-03	21.1	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:31:13

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0H		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:35:16
Sample ID	: 04	Sample quantity	: 1.0123 gram
Sample type	: RA	Sample geometry	:
Detector name	: 036	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.20 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4584.41*	8426	0.46	384.35	314	157	30.6		RA-226	1.05
0	5298.47*	34	3.08	628.78	533	177	49.1		RN-222	0.422
0	5813.16*	44	4.53	809.13	728	164	42.2		PO-218	0.555

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:31:24

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$05_RA.CNF

BATCH ID:	0508096A-RA	SAMPLE ID:	05
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.008E+00	gram
SAMPLE TITLE:	VPSCR081705SL0I	DETECTOR NUMBER:	037
ACQ DATE:	31-AUG-2005 13:35	AVERAGE EFFICIENCY:	21.04%
ELAPSED LIVE TIME:	10200.	RECOVERY:	100.00%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE: 25-AUG-2005	04:28
BKG FILENAME:	B_037_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	2.27

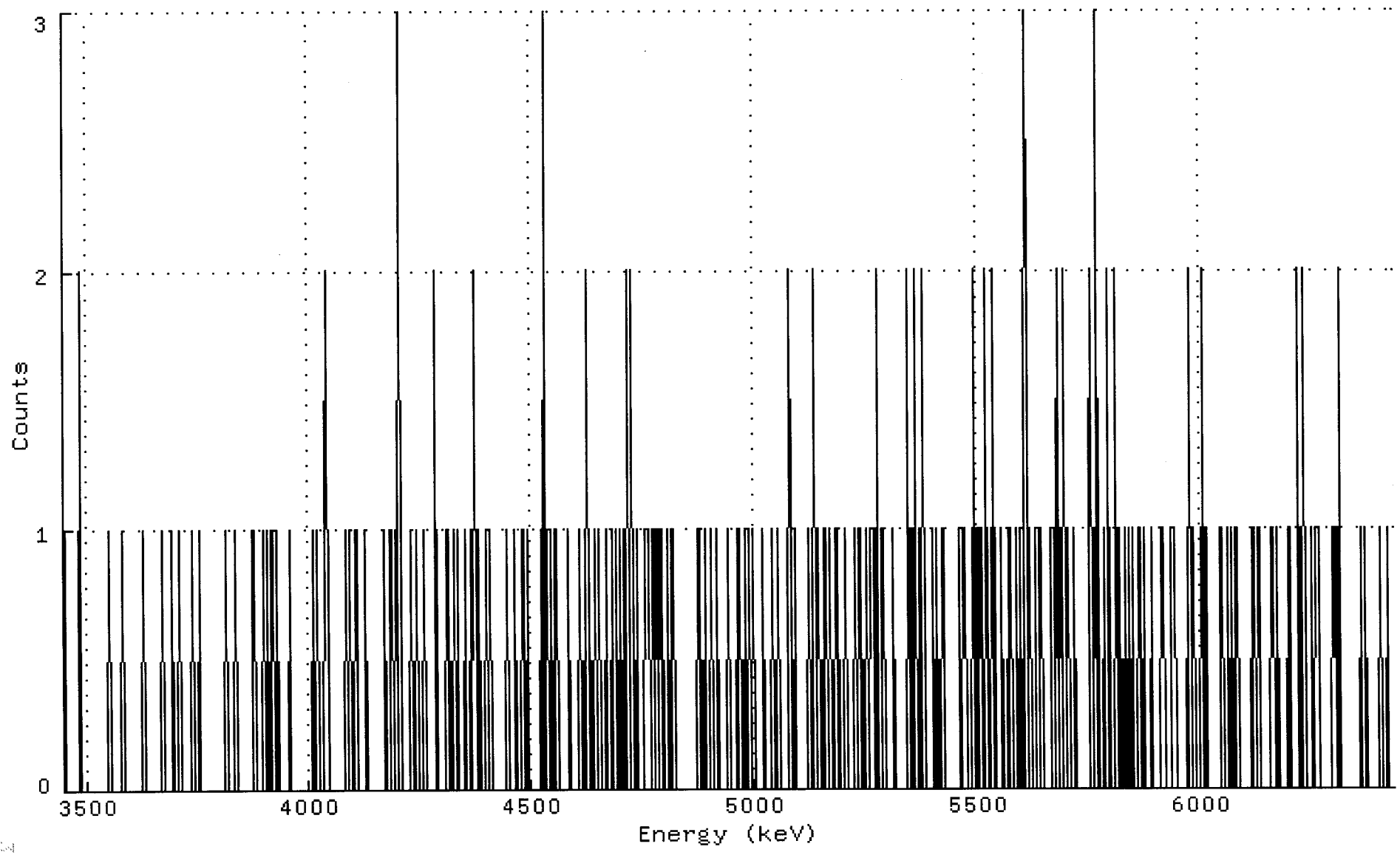
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	136.03	0.17	100.0	1.699E+00	4.549E-01	1.312E-01
RN-222	5490.0	131.32	0.34	99.9	1.641E+00	4.470E-01	1.538E-01
RA-226	4785.0	113.16	0.34	100.0	1.413E+00	4.128E-01	1.537E-01

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$05_RA.CNF;1
Title : 037
Sample Title: VPSCR081705SL0I
Start Time: 31-AUG-2005 13:35 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.43795E+03
Real Time : 0 02:50:00.20 Sample ID : 05 Energy Slope : 3.11040E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.80693E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$05_RA

Channel

1:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
15:	2	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
43:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	1	0	0	0	0	0	0	1	0	0
85:	0	0	1	0	0	0	0	0	0	0	0	0	1	0
99:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
127:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
141:	0	1	1	0	0	0	0	0	0	1	0	0	1	0
155:	0	1	1	0	0	1	0	0	0	0	0	0	0	0
169:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	1	0	0	1	0	0	0	0	0	1	2
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
211:	0	0	1	0	0	0	1	1	0	0	0	0	0	0
225:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	1	0	0	0	1	1	0	0	1	0	0	3	0	0
253:	0	0	0	0	0	1	0	0	0	1	1	0	0	0
267:	0	1	0	0	0	0	0	0	0	0	2	0	0	0
281:	0	0	0	0	1	0	1	0	0	0	1	0	1	0
295:	0	0	0	0	1	0	0	0	1	0	1	1	2	0
309:	0	1	0	0	0	0	1	0	0	1	0	0	0	0
323:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
337:	1	0	0	0	0	1	1	0	0	1	0	0	0	0
351:	0	0	0	0	0	1	0	0	3	0	1	0	0	1
365:	0	1	0	1	0	0	0	0	0	0	0	1	0	0
379:	0	0	0	0	0	0	1	0	0	0	1	0	2	0
393:	1	0	0	0	1	0	1	1	0	0	0	0	1	0
407:	0	0	1	0	0	0	1	0	1	0	0	1	0	0
421:	2	0	0	2	0	0	0	1	0	0	0	0	0	1
435:	1	1	1	0	0	1	1	0	1	1	0	1	0	1
449:	0	0	0	1	0	0	1	1	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
477:	1	0	0	1	0	0	0	0	1	0	0	0	0	1
491:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
505:	1	0	1	0	0	0	1	0	0	1	0	0	1	0
519:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
533:	0	0	0	1	0	0	0	0	0	0	0	0	2	1
547:	0	0	1	0	0	0	0	0	0	0	0	0	1	1
561:	0	0	0	2	0	0	1	0	0	0	1	0	1	0
575:	0	1	0	0	0	1	0	1	0	0	0	0	1	1
589:	0	0	0	0	0	0	1	0	0	1	0	1	0	1
603:	0	1	0	0	1	1	1	0	0	2	0	0	0	1
617:	1	0	0	0	0	0	0	0	1	0	0	0	0	0
631:	0	0	0	0	0	1	2	0	0	1	0	2	1	0
645:	1	0	0	2	0	0	0	0	0	0	0	1	0	0
659:	1	0	0	0	1	1	0	0	0	0	0	0	0	0
673:	0	0	0	0	1	0	1	1	1	0	0	0	0	0
687:	1	0	2	0	1	0	1	0	1	0	1	2	0	0
701:	0	1	0	2	0	0	0	0	0	1	0	0	0	0
715:	1	0	1	0	0	0	0	1	0	0	1	0	0	1
729:	3	2	0	1	0	0	0	0	1	1	1	0	1	0
743:	0	0	0	0	0	0	1	1	1	0	1	2	0	1
757:	0	0	2	0	0	1	0	0	0	0	1	0	0	0
771:	0	0	0	0	0	0	0	0	1	2	0	0	1	0
785:	3	0	0	0	0	1	0	0	0	2	0	0	0	0
799:	1	2	0	0	1	0	0	0	1	0	0	1	0	0
813:	1	0	0	0	0	1	0	1	0	1	0	0	0	0
827:	0	1	0	0	0	0	0	0	0	1	1	1	0	0
841:	0	0	0	1	1	1	1	0	0	0	0	0	0	0
855:	0	0	1	0	2	0	0	1	0	0	0	0	0	1
869:	0	2	0	1	0	0	0	0	0	0	0	0	0	0
883:	0	1	1	0	0	0	0	1	0	0	1	0	1	0
897:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
911:	1	0	0	1	1	0	0	0	0	0	0	0	0	0
925:	1	1	1	0	0	1	0	0	0	0	0	0	0	1
939:	0	1	0	0	0	0	0	0	2	0	0	0	2	0
953:	0	0	0	0	0	1	0	1	1	1	1	0	0	0
967:	0	0	0	0	0	0	0	1	1	1	0	1	0	2
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	1	0	0	0	1	0	0	0	0	0	0	0
1009:	0	0	0	0	1	0	0	0	0	0	1	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:31:18.39

Detector ID: 37 Acquisition Start: 31-AUG-2005 13:35:38.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.20
Batch Id: 0508096A-RA Sample Id: 05
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4630.35	50	0	0.00	392.30	307	156	4.90E-03	14.1	
2	0	5297.24	58	0	478.94	620.10	525	176	5.69E-03	13.1	
3	0	5782.77	60	0	441.61	790.13	720	164	5.88E-03	12.9	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:31:23.04

Acquisition Start: 26-AUG-2005 12:01:45.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4607.18	2	0	46.66	384.50	307	156	3.33E-05	70.7	
2	0	5275.28	2	0	0.00	612.50	525	176	3.33E-05	70.7	
3	0	5814.86	1	0	3.11	801.50	720	164	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:31:23.28

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4630.35*	113	0	0.00	392.30	307	156	1.11E-02	14.2	
2	0	5297.24*	131	0	478.94	620.10	525	176	1.29E-02	13.2	
3	0	5782.77*	136	0	441.61	790.13	720	164	1.33E-02	12.9	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:31:24

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0I		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:35:38
Sample ID	: 05	Sample quantity	: 1.0085 gram
Sample type	: RA	Sample geometry	:
Detector name	: 037	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.20 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4630.35*	113	0.00	392.30	307	156	28.4		RA-226	1.41
0	5297.24*	131	478.94	620.10	525	176	26.3		RN-222	1.64
0	5782.77*	136	441.61	790.13	720	164	25.9		PO-218	1.70

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:31:34

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Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$06_RA.CNF

****

BATCH ID:	0508096A-RA	SAMPLE ID:	06
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.049E+00	gram
SAMPLE TITLE:	VPSCR081705SL0J	DETECTOR NUMBER:	038
ACQ DATE:	31-AUG-2005 13:35	AVERAGE EFFICIENCY:	20.12%
ELAPSED LIVE TIME:	10200.	RECOVERY:	100.00%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE: 25-AUG-2005	04:28
BKG FILENAME:	B_038_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	1.81

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NUCLIDE ACTIVITY SUMMARY

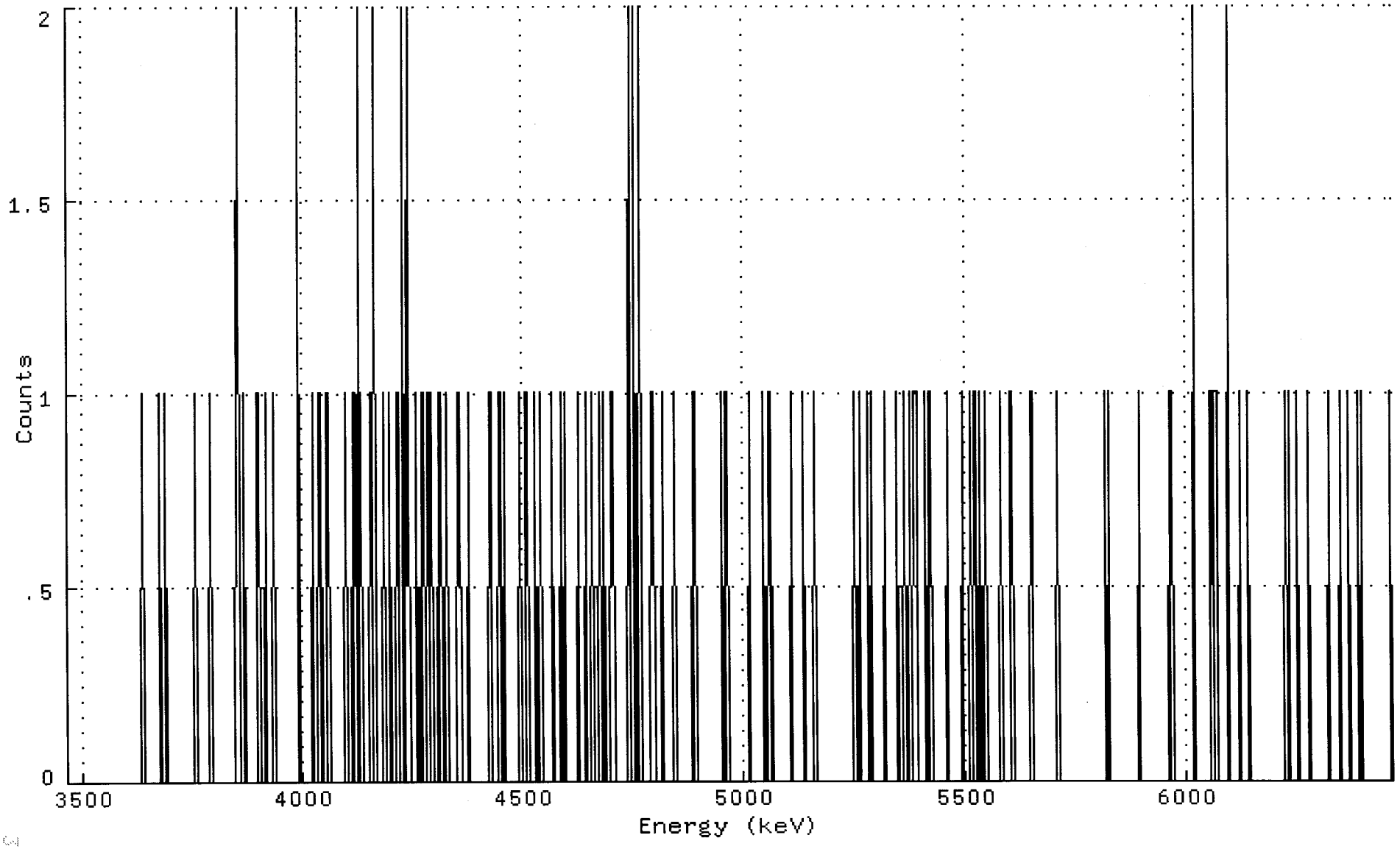
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	21.04	0.68	100.0	2.642E-01	1.588E-01	1.487E-01
RN-222	5490.0	47.68	1.19	99.9	5.990E-01	2.402E-01	1.770E-01
RA-226	4785.0	60.86	0.68	100.0	7.640E-01	2.704E-01	1.487E-01

****

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$06_RA.CNF;1
Title : 038
Sample Title: VPSCR081705SL0J
Start Time: 31-AUG-2005 13:35 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45434E+03
Real Time : 0 02:50:00.10 Sample ID : 06 Energy Slope : 3.08936E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.46447E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$06_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
71:	0	1	0	0	0	1	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
99:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	1	2	0	0	0	0	1	0	0	0	0	0
141:	0	0	0	0	1	1	0	0	0	0	1	0	0	0
155:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	2	0	0	0	0	0	0
183:	0	0	0	1	0	0	0	0	1	0	1	0	0	0
197:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
211:	1	0	0	0	0	1	0	1	0	2	0	1	0	0
225:	0	0	0	0	1	1	0	2	0	0	0	0	0	0
239:	1	0	0	0	0	1	0	0	0	0	1	1	0	0
253:	0	2	0	1	2	1	0	0	0	0	0	1	0	0
267:	1	0	1	0	0	1	1	0	1	0	0	0	0	1
281:	0	1	0	0	0	1	0	0	0	0	0	0	0	0
295:	1	1	0	0	0	0	0	0	1	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
323:	0	0	0	1	1	0	0	1	0	0	0	0	0	0
337:	0	0	0	0	0	1	0	0	0	0	1	1	0	0
351:	0	0	0	1	0	0	0	1	0	0	0	0	0	0
365:	0	0	1	0	0	0	0	0	1	0	0	1	0	0
379:	0	0	0	0	0	0	0	1	0	0	0	0	0	1
393:	0	0	0	0	1	0	0	0	0	1	1	0	0	1
407:	0	0	0	0	1	1	1	0	0	0	0	0	0	0
421:	0	0	0	1	2	0	0	0	2	0	0	0	2	0
435:	0	0	0	0	0	0	1	1	1	0	0	0	0	0
449:	0	1	0	0	0	0	0	0	0	0	1	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	1	0	1	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	1	0	1	0	1	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
519:	0	0	0	0	0	0	0	0	0	1	0	0	0	1
533:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	1	0	0	0	0	0	0	0	0	0	1	0
561:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	1	0	0	0	1
603:	0	0	0	0	0	0	1	0	1	0	0	0	0	0
617:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
631:	1	0	0	0	0	1	1	0	0	0	1	0	0	1
645:	1	1	0	0	0	0	0	0	1	0	0	1	1	0
659:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
673:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
687:	0	1	1	0	1	0	1	0	0	1	0	0	0	1
701:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
715:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	1	0	1	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	1	0	1	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	2	0	0	0
869:	0	0	0	0	0	0	0	0	0	1	1	0	1	1
883:	1	0	0	0	0	0	0	0	0	2	0	0	0	0
897:	0	0	0	0	1	0	0	0	0	0	0	1	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
939:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
953:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
981:	0	1	0	0	0	0	0	0	1	0	0	0	0	0
995:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:31:28.31

Detector ID: 38 Acquisition Start: 31-AUG-2005 13:35:59.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508096A-RA Sample Id: 06
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4630.44	34	0	29.25	387.82	302	156	3.33E-03	17.1	
2	0	5327.34	27	0	512.83	624.78	520	175	2.65E-03	19.2	
3	0	5809.73	12	0	3.09	792.17	713	162	1.18E-03	28.9	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:31:33.10

Acquisition Start: 26-AUG-2005 12:01:48.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4605.66	4	0	240.97	379.50	302	156	6.67E-05	50.0	
2	0	5275.62	7	0	352.19	607.00	520	175	1.17E-04	37.8	
3	0	5813.54	4	0	370.72	793.50	713	162	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:31:33.34

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4630.44*	61	0	29.25	387.82	302	156	5.97E-03	17.4	
2	0	5327.34*	48	0	512.83	624.78	520	175	4.67E-03	19.7	
3	0	5809.73*	21	0	3.09	792.17	713	162	2.06E-03	29.8	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:31:34

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0J		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:35:59
Sample ID	: 06	Sample quantity	: 1.0491 gram
Sample type	: RA	Sample geometry	:
Detector name	: 038	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.10 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4630.44*	61	29.25	387.82	302	156	34.7		RA-226	0.764
0	5327.34*	485	12.83	624.78	520	175	39.5		RN-222	0.599
0	5809.73*	21	3.09	792.17	713	162	59.7		PO-218	0.264

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:31:46

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$07_RA.CNF

BATCH ID:	0508096A-RA	SAMPLE ID:	07
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.029E+00 gram
SAMPLE TITLE:	VPSCR081705SL0K	DETECTOR NUMBER:	039
ACQ DATE:	31-AUG-2005 13:36	AVERAGE EFFICIENCY:	20.45%
ELAPSED LIVE TIME:	10200.	RECOVERY:	100.00%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_039_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	1.81

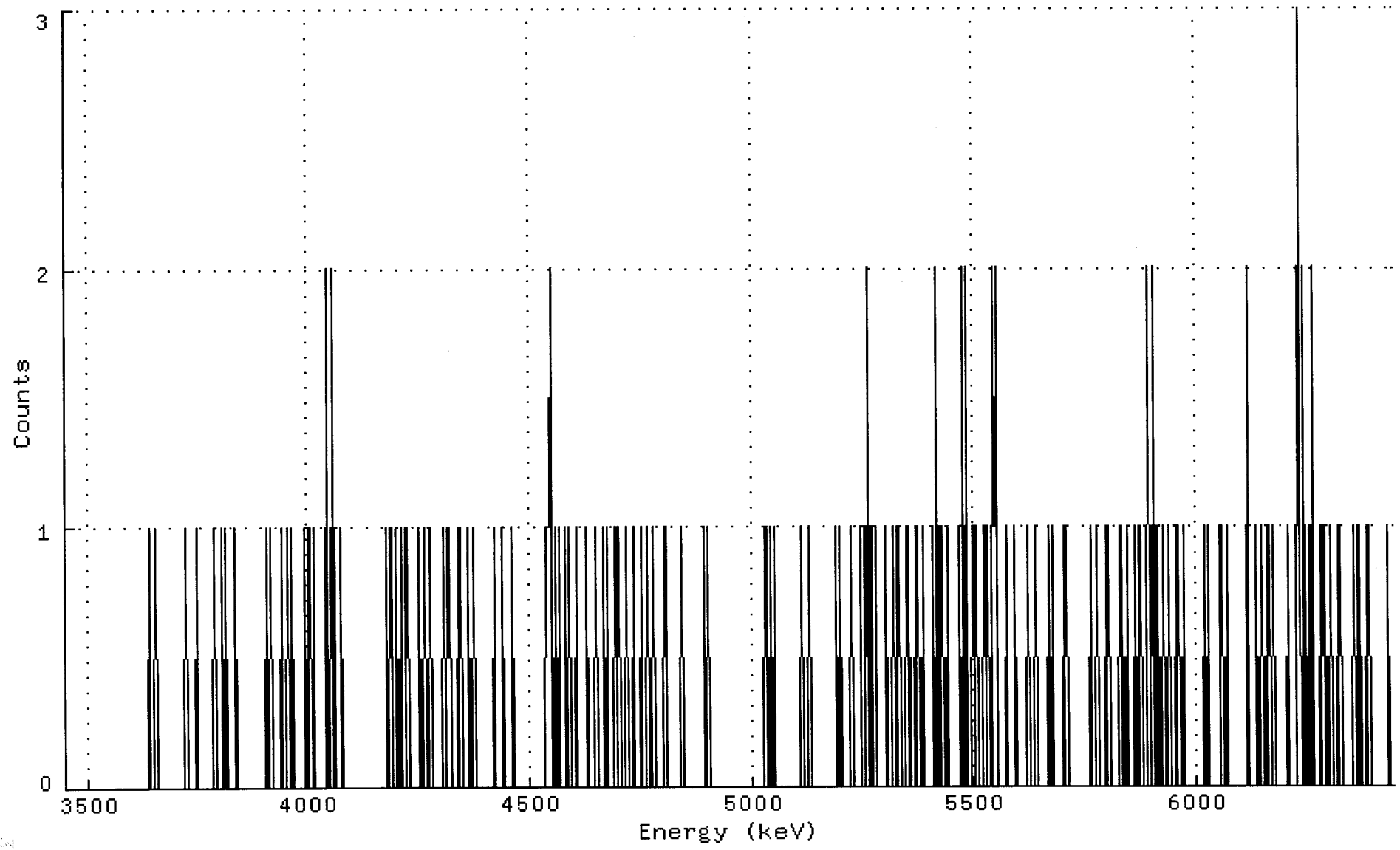
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	55.77	0.34	100.0	7.022E-01	2.585E-01	1.236E-01
RN-222	5490.0	79.13	0.51	99.9	9.970E-01	3.105E-01	1.375E-01
RA-226	4785.0	53.96	0.34	100.0	6.793E-01	2.541E-01	1.235E-01

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$07_RA.CNF;1
Title : 039
Sample Title: VPSCR081705SL0K
Start Time: 31-AUG-2005 13:36 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.43960E+03
Real Time : 0 02:50:00.20 Sample ID : 07 Energy Slope : 3.09399E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.57003E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$07_RA

Channel

1:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	1	0	0	0	0	1
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
99:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
113:	1	0	0	0	0	0	1	0	0	1	0	0	0	0
127:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
155:	1	0	0	0	0	0	0	0	1	0	0	0	0	1
169:	0	0	1	0	0	0	0	0	0	0	0	0	1	0
183:	0	1	1	0	1	0	0	0	0	0	0	0	0	0
197:	2	0	0	1	0	2	0	0	0	0	0	1	0	0
211:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	1	0	1	1	0	0	0	1	0	0	1
253:	0	0	0	1	1	0	0	0	0	0	0	0	0	1
267:	0	0	0	1	0	0	0	1	0	0	0	0	0	0
281:	0	0	0	1	0	0	1	1	0	0	0	0	0	0
295:	1	0	1	0	0	0	0	0	1	0	0	0	1	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
323:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	1	1	1	1
365:	2	0	0	1	0	0	1	0	0	0	0	1	0	1
379:	1	0	0	0	0	1	0	0	0	0	0	0	0	1
393:	0	0	0	0	0	0	1	0	0	0	0	0	1	0
407:	1	0	0	0	0	0	1	0	1	1	0	0	0	0
421:	0	1	0	0	0	0	1	0	0	0	0	0	1	0
435:	0	0	0	1	0	0	0	1	0	0	0	0	0	0
449:	0	0	1	1	0	0	0	0	0	0	0	0	0	0
463:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	1	0	1	0	1
533:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
561:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	1	0	0	1	0	0
589:	0	0	0	0	0	1	0	0	0	0	0	0	0	1
603:	1	1	0	1	0	2	0	0	1	1	1	0	0	0
617:	0	0	0	0	1	0	0	0	0	1	1	0	1	0
631:	1	0	0	0	0	0	1	0	1	0	0	0	0	1
645:	0	1	0	0	0	1	0	0	0	0	0	0	0	1
659:	0	0	2	0	1	0	1	0	0	0	1	0	0	0
673:	0	0	0	0	0	0	1	0	0	2	0	2	0	0
687:	0	0	1	0	1	1	0	0	0	0	0	1	0	1
701:	1	0	0	0	2	1	1	2	0	0	0	0	0	0
715:	1	0	0	0	0	0	0	1	0	0	0	0	0	0
729:	0	0	0	1	0	0	0	0	0	1	0	0	0	0
743:	0	0	0	0	0	1	0	0	1	0	0	0	0	0
757:	0	0	0	1	0	1	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
785:	0	1	0	0	0	0	0	0	1	0	1	0	0	0
799:	0	0	0	0	0	1	0	1	0	0	0	1	0	0
813:	0	0	0	1	0	0	1	0	1	0	0	0	0	0
827:	2	0	0	1	0	2	0	0	1	0	0	0	1	0
841:	0	0	1	1	0	0	0	0	1	0	1	0	0	0
855:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	1	0	0	1	0	0	0	0	0	0	0
883:	0	0	1	1	0	0	0	1	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	2	0	0	0
911:	0	0	0	1	0	0	0	1	0	0	0	1	0	1
925:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
939:	1	0	0	0	0	0	0	1	1	3	1	0	0	2
953:	0	0	0	1	0	0	2	0	0	0	0	0	1	0
967:	1	0	1	0	0	0	1	0	0	0	0	0	1	0
981:	1	0	0	0	0	0	0	0	0	0	1	1	0	1
995:	0	0	1	0	0	0	0	1	0	1	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:31:38.49

Detector ID: 39 Acquisition Start: 31-AUG-2005 13:36:18.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.20
Batch Id: 0508096A-RA Sample Id: 07
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4616.63	30	0	4.54	388.07	307	156	2.94E-03	18.3	
2	0	5323.93	44	0	238.24	629.11	525	176	4.31E-03	15.1	
3	0	5837.68	31	0	18.56	808.23	719	163	3.04E-03	18.0	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:31:44.52

Acquisition Start: 26-AUG-2005 12:01:50.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.03	2	0	352.71	384.50	307	156	3.33E-05	70.7	
2	0	5275.76	3	0	389.84	612.50	525	176	5.00E-05	57.7	
3	0	5814.31	2	0	74.26	800.00	719	163	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:31:44.78

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4616.63*	54	0	4.54	388.07	307	156	5.29E-03	18.4	
2	0	5323.93*	79	0	238.24	629.11	525	176	7.76E-03	15.2	
3	0	5837.68*	56	0	18.56	808.23	719	163	5.47E-03	18.1	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:31:45

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0K		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:36:18
Sample ID	: 07	Sample quantity	: 1.0290 gram
Sample type	: RA	Sample geometry	:
Detector name	: 039	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.20 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4616.63*	54	4.54	388.07	307	156	36.8		RA-226	0.679
0	5323.93*	79	238.24	629.11	525	176	30.4		RN-222	0.997
0	5837.68*	56	18.56	808.23	719	163	36.2		PO-218	0.702

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:32:22

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$08_RA.CNF

BATCH ID:	0508096A-RA	SAMPLE ID:	08
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.024E+00 gram
SAMPLE TITLE:	VPSCR081705SL0L	DETECTOR NUMBER:	040
ACQ DATE:	31-AUG-2005 13:36	AVERAGE EFFICIENCY:	20.89%
ELAPSED LIVE TIME:	10200.	RECOVERY:	97.78%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_040_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	2.08

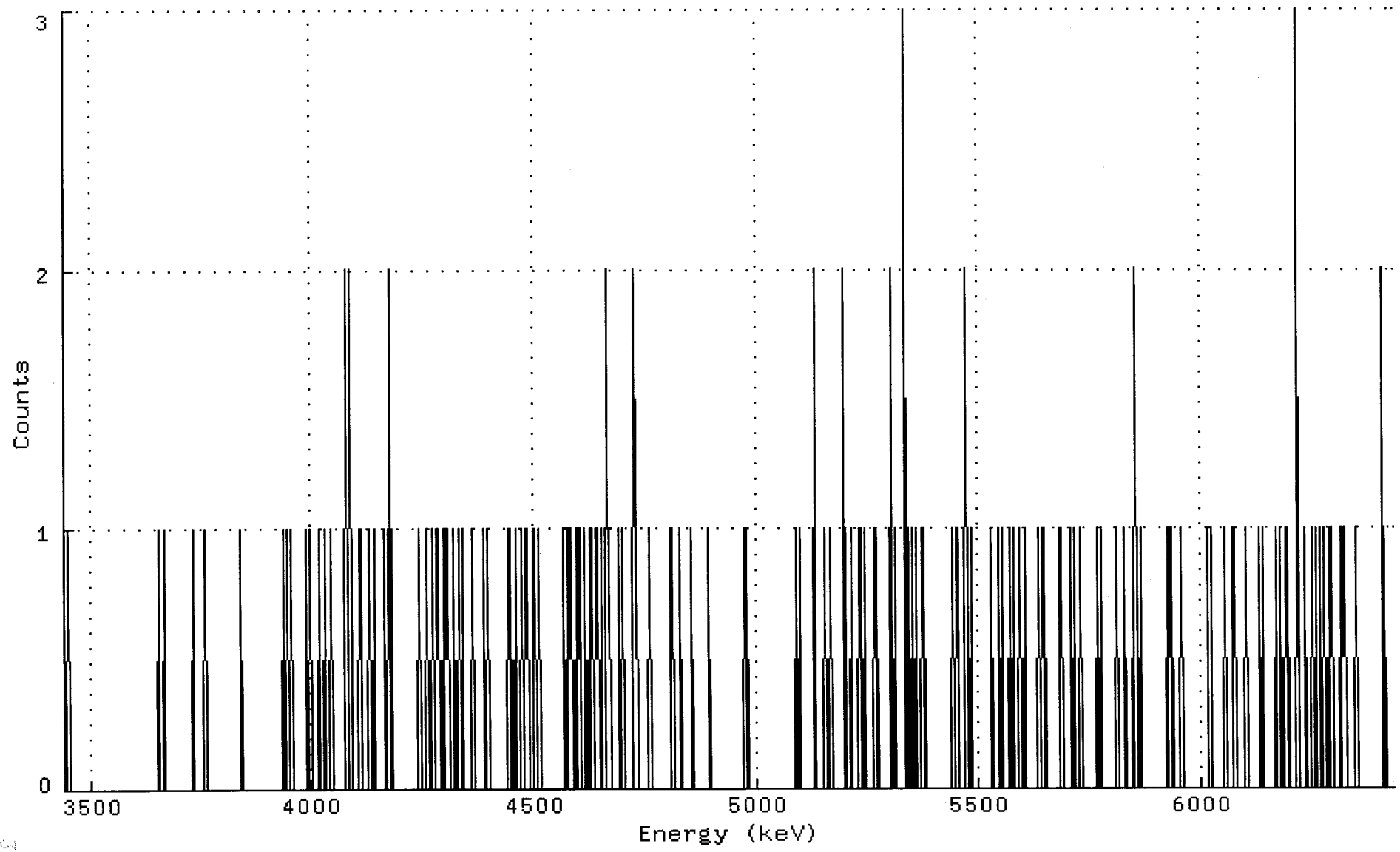
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	52.89	1.19	100.0	6.702E-01	2.730E-01	2.051E-01
RN-222	5490.0	65.54	1.02	99.9	8.310E-01	3.041E-01	1.953E-01
RA-226	4785.0	84.94	0.34	100.0	1.076E+00	3.457E-01	1.429E-01

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$08_RA.CNF;1
Title : 040
Sample Title: VPSCR081705SL0L
Start Time: 31-AUG-2005 13:36 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.43216E+03
Real Time : 0 02:50:00.20 Sample ID : 08 Energy Slope : 3.09948E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.65420E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$08_RA

Channel

1:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	1	0	0	0	1	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
99:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	1	0	0	1	1
169:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
183:	0	1	0	0	0	0	0	0	1	0	0	0	1	0
197:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
211:	2	0	0	2	0	0	0	0	0	0	1	1	0	0
225:	0	0	0	1	0	0	0	1	0	0	0	0	0	0
239:	0	1	0	1	0	2	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
267:	0	0	0	1	1	0	0	0	1	0	0	1	1	0
281:	0	0	1	0	1	1	0	0	0	0	1	0	0	0
295:	1	0	1	0	0	0	0	0	0	0	1	0	0	0
309:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
337:	1	0	0	0	0	1	0	0	1	1	0	0	0	0
351:	1	1	0	0	1	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	1	0	1	0	1
379:	1	1	0	0	1	0	1	1	0	0	0	1	0	0
393:	1	0	1	0	0	1	1	1	0	1	0	0	0	2
407:	1	1	0	0	0	0	0	0	0	1	0	1	0	0
421:	0	0	0	0	0	0	2	1	1	0	0	0	0	0
435:	0	0	0	1	1	0	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	1	1	0	0	0	0	0	1
463:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
477:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	1	0	1	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	1	0	0	1	0	0	0	0	0	0	0
561:	0	0	0	0	2	0	0	0	0	0	0	0	1	0
575:	0	0	1	0	0	0	0	0	0	0	0	0	0	2
589:	0	0	0	0	1	0	0	0	0	0	1	0	1	0
603:	1	0	0	0	0	0	0	0	1	0	1	0	0	0
617:	0	0	0	0	0	0	0	2	0	0	1	0	0	0
631:	0	0	0	0	3	0	0	1	0	1	0	0	1	0
645:	0	0	0	1	0	1	0	0	0	0	0	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
673:	0	0	1	1	0	0	0	0	0	2	0	0	0	1
687:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
701:	0	1	0	0	0	0	0	1	0	1	0	0	0	0
715:	0	1	0	0	1	0	0	0	0	1	0	0	0	1
729:	0	0	0	0	0	0	0	0	0	0	1	0	0	1
743:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
757:	1	0	0	0	0	0	0	0	1	0	1	0	0	0
771:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
785:	1	0	0	1	0	0	0	0	0	0	0	0	0	0
799:	0	1	1	0	0	0	0	0	1	0	0	0	0	0
813:	0	1	0	2	0	0	0	1	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	1	0	1	0	1	0	0	0	0	0	0	1	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	1	1	1	0	0	0	0	0	0
883:	0	0	0	0	1	0	0	0	0	0	0	1	1	0
897:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
911:	0	0	0	0	1	0	1	0	0	0	0	0	0	0
925:	0	0	0	1	0	0	0	1	0	0	0	1	0	1
939:	0	0	0	0	0	0	1	3	0	0	0	0	0	1
953:	0	0	0	0	1	1	0	1	0	0	0	1	0	0
967:	1	0	0	0	1	0	1	0	0	0	0	0	0	1
981:	0	1	1	1	0	0	0	0	0	0	0	0	1	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	2	0	1	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:31:49.84

Detector ID: 40 Acquisition Start: 31-AUG-2005 13:36:46.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.20
Batch Id: 0508096A-RA Sample Id: 08
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4613.91	41	0	69.64	389.37	309	156	4.02E-03	15.6	
2	0	5300.47	32	0	364.19	623.53	527	177	3.14E-03	17.7	
3	0	5800.10	26	0	3.10	797.96	722	163	2.55E-03	19.6	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:32:20.32

Acquisition Start: 26-AUG-2005 12:01:53.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4605.40	2	0	176.67	386.50	309	156	3.33E-05	70.7	
2	0	5275.78	6	0	3.10	615.00	527	177	1.00E-04	40.8	
3	0	5814.38	7	0	4.55	803.00	722	163	1.17E-04	37.8	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:32:20.57

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4613.91*	85	0	69.64	389.37	309	156	8.33E-03	15.7	
2	0	5300.47*	66	0	364.19	623.53	527	177	6.43E-03	18.0	
3	0	5800.10*	53	0	3.10	797.96	722	163	5.19E-03	20.1	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:32:21

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0L		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:36:46
Sample ID	: 08	Sample quantity	: 1.0238 gram
Sample type	: RA	Sample geometry	:
Detector name	: 040	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.20 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4613.91*	85	69.64	389.37	309	156	31.4		RA-226	1.05
0	5300.47*	663	64.19	623.53	527	177	35.9		RN-222	0.813
0	5800.10*	53	3.10	797.96	722	163	40.1		PO-218	0.655

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:32:35

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$09_RA.CNF

BATCH ID:	0508096A-RA	SAMPLE ID:	09
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.061E+00	gram
SAMPLE TITLE:	VPSCR081705SL0M	DETECTOR NUMBER:	041
ACQ DATE:	31-AUG-2005 13:37	AVERAGE EFFICIENCY:	21.11%
ELAPSED LIVE TIME:	10200.	RECOVERY:	80.78%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE: 25-AUG-2005	04:28
BKG FILENAME:	B_041_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	2.08

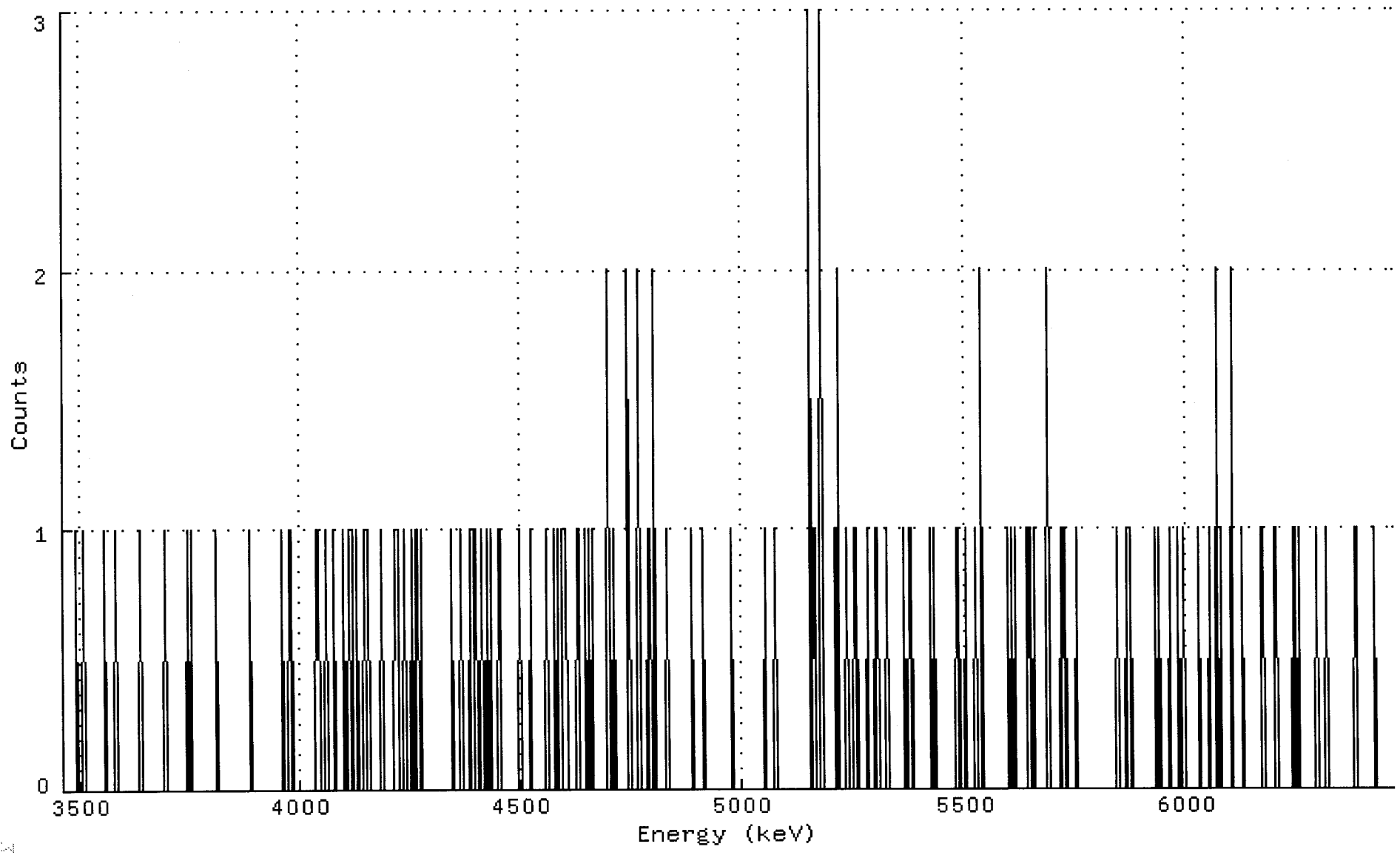
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	44.91	0.85	100.0	6.579E-01	2.897E-01	2.132E-01
RN-222	5490.0	60.15	0.17	99.9	8.817E-01	3.341E-01	1.411E-01
RA-226	4785.0	72.46	0.34	100.0	1.061E+00	3.680E-01	1.652E-01

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$09_RA.CNF;1
Title : 041
Sample Title: VPSCR081705SL0M
Start Time: 31-AUG-2005 13:37 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45145E+03
Real Time : 0 02:50:00.10 Sample ID : 09 Energy Slope : 3.11669E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.68087E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$09_RA

Channel

1:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
15:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	1	0	0	0	0	0	0	0	1
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	1	0	0	1	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
169:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
197:	1	0	0	0	0	0	1	0	0	0	0	0	0	1
211:	0	0	0	1	0	1	0	0	0	1	0	0	0	0
225:	1	0	0	1	0	0	0	0	0	0	0	0	0	1
239:	0	0	0	0	0	0	0	0	0	1	1	1	0	0
253:	0	0	1	0	0	0	0	1	0	0	1	0	1	0
267:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
295:	0	0	1	1	0	0	0	0	0	1	0	0	0	1
309:	1	0	0	0	1	0	0	0	1	0	0	1	0	0
323:	0	0	0	1	1	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	1	0	0	0	0	0	0	0	1
351:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
365:	0	0	0	1	0	1	0	0	0	1	1	1	0	0
379:	0	0	0	0	0	0	1	1	0	0	0	0	1	0
393:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
407:	0	2	0	1	0	0	1	0	0	0	0	0	0	0
421:	0	0	2	1	0	0	0	0	0	0	2	0	0	0
435:	0	0	0	1	0	1	0	0	2	0	0	0	0	0
449:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
477:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
533:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	3	0	1	1	0	0	0	0	3	0	0	0
575:	0	0	0	0	0	0	0	1	0	2	0	0	0	0
589:	0	1	0	0	0	0	0	1	0	1	0	0	0	0
603:	0	0	0	1	0	0	0	0	0	1	0	1	0	0
617:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
631:	0	0	0	0	1	0	0	0	1	0	1	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
659:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	1	0	1	0	0	0	0	1	0	0	0
687:	0	0	0	0	1	0	0	0	0	2	0	0	0	0
701:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
715:	0	0	1	0	0	1	0	1	0	0	0	0	0	0
729:	0	0	0	1	1	0	1	0	1	0	0	0	0	0
743:	0	0	0	0	0	2	0	0	0	0	0	0	0	0
757:	0	1	0	1	0	1	0	0	0	0	0	0	0	1
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	1	0	0	0	0	0	0	1	0	0	0
813:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	1	0	0	1	0	0	0	0
841:	0	0	0	1	0	0	0	0	0	0	1	0	0	0
855:	1	0	0	0	0	0	0	0	0	0	0	0	0	1
869:	0	0	0	0	0	0	0	1	0	0	0	0	0	2
883:	0	0	1	0	0	0	0	0	0	0	0	2	0	0
897:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
925:	0	0	0	0	1	1	0	0	0	0	0	0	0	0
939:	0	0	0	0	1	0	1	0	0	1	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
967:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:32:25.96

Detector ID: 41 Acquisition Start: 31-AUG-2005 13:37:07.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508096A-RA Sample Id: 09
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4618.43	35	0	112.20	382.31	301	155	3.43E-03	16.9	
2	0	5275.22	29	0	67.79	604.90	518	175	2.84E-03	18.6	
3	0	5779.29	22	0	3.12	779.68	712	162	2.16E-03	21.3	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:32:34.07

Acquisition Start: 26-AUG-2005 12:01:56.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4605.54	2	0	52.98	378.00	301	155	3.33E-05	70.7	
2	0	5275.52	1	0	3.12	605.00	518	175	1.67E-05	100.0	
3	0	5815.86	5	0	221.29	792.50	712	162	8.33E-05	44.7	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:32:34.31

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4618.43*	72	0	112.20	382.31	301	155	7.10E-03	17.0	
2	0	5275.22*	60	0	67.79	604.90	518	175	5.90E-03	18.6	
3	0	5779.29*	45	0	3.12	779.68	712	162	4.40E-03	21.7	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:32:35

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0M		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:37:07
Sample ID	: 09	Sample quantity	: 1.0610 gram
Sample type	: RA	Sample geometry	:
Detector name	: 041	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.10 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4618.43*	72	112.20	382.31	301	155	34.0		RA-226	0.857
0	5275.22*	60	67.79	604.90	518	175	37.2		RN-222	0.712
0	5779.29*	45	3.12	779.68	712	162	43.5		PO-218	0.531

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Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:33:14

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$10_RA.CNF

BATCH ID:	0508096A-RA	SAMPLE ID:	10
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.106E+00	gram
SAMPLE TITLE:	VPSCR081705SL0N	DETECTOR NUMBER:	042
ACQ DATE:	31-AUG-2005 13:37	AVERAGE EFFICIENCY:	21.73%
ELAPSED LIVE TIME:	10200.	RECOVERY:	92.04%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE: 25-AUG-2005	04:28
BKG FILENAME:	B_042_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	1.95

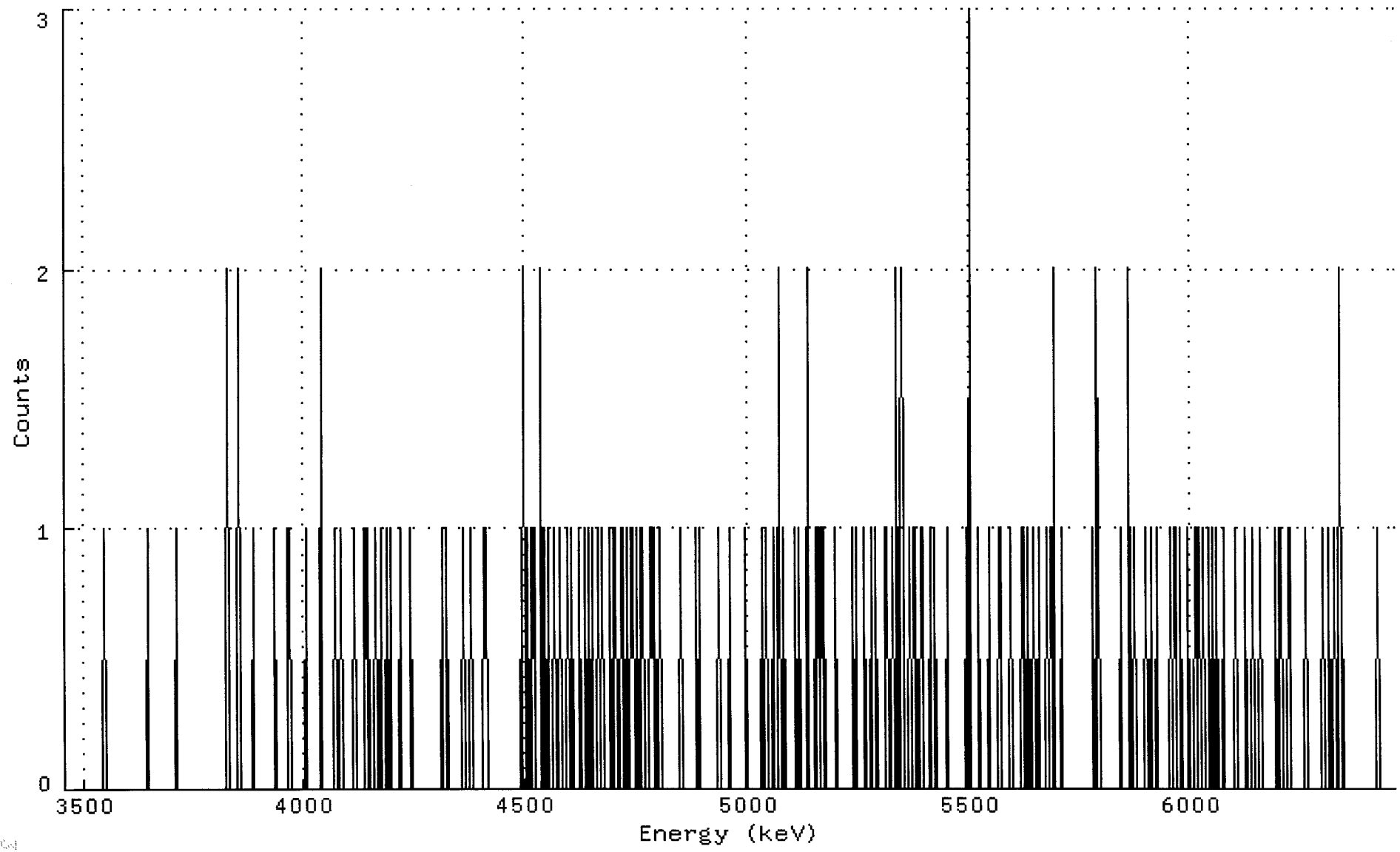
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	67.74	0.51	100.0	8.112E-01	2.821E-01	1.408E-01
RN-222	5490.0	88.51	1.19	99.9	1.061E+00	3.256E-01	1.819E-01
RA-226	4785.0	79.95	0.00	100.0	9.573E-01	3.063E-01	6.327E-02

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$10_RA.CNF;1
Title : 042
Sample Title: VPSCR081705SL0N
Start Time: 31-AUG-2005 13:37 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44878E+03
Real Time : 0 02:50:00.10 Sample ID : 10 Energy Slope : 3.12999E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.86374E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$10_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	2	0	0	0	0
127:	0	0	0	2	0	0	0	0	0	0	0	0	0	0
141:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	0	1	0	0	0	0	0	0	0	0	0	1	1
169:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
183:	0	0	0	0	0	0	0	0	2	0	0	0	0	0
197:	0	0	0	0	1	1	0	0	0	1	0	0	0	0
211:	0	0	0	0	1	1	0	0	0	0	0	0	1	1
225:	0	1	0	0	0	0	1	0	0	0	1	0	0	0
239:	1	0	0	1	0	0	0	0	0	0	1	0	0	0
253:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
281:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
295:	0	1	0	0	0	0	0	1	0	0	0	0	0	0
309:	0	0	0	1	1	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	1	0	2	0	0	1	0	1	0	1	1
351:	0	0	0	0	2	0	0	1	0	1	0	0	0	0
365:	1	0	0	0	1	0	0	0	0	0	1	0	0	1
379:	0	0	0	0	0	1	0	0	0	1	0	0	1	0
393:	1	0	0	0	0	1	0	1	1	0	0	0	0	0
407:	1	0	1	0	1	0	0	0	1	0	1	0	1	0
421:	0	1	1	1	0	0	1	0	0	1	1	0	0	0
435:	0	0	1	1	0	1	0	0	0	1	0	0	0	0
449:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
463:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
491:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
505:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
519:	0	0	0	1	0	0	1	1	0	0	0	0	1	0
533:	0	0	2	1	0	0	1	0	0	0	0	0	0	0
547:	0	1	0	0	1	0	0	0	0	0	2	0	0	0
561:	0	0	1	0	1	1	0	1	0	1	0	0	0	0
575:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
589:	0	0	0	1	0	1	0	0	0	0	0	0	1	0
603:	0	0	0	1	0	0	0	1	0	0	0	0	0	0
617:	1	1	0	0	0	1	1	0	0	2	0	0	1	2
631:	1	0	0	0	0	1	0	0	1	0	1	0	0	0
645:	1	1	0	0	0	0	0	1	0	0	0	1	0	0
659:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	0	1	0	0	3	0	0	0
687:	0	0	0	1	0	0	0	0	0	0	0	1	0	0
701:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
715:	1	0	0	0	0	0	0	0	0	1	0	1	0	0
729:	1	0	0	0	1	0	0	0	1	0	0	0	0	0
743:	1	1	0	1	1	0	2	0	0	0	0	0	1	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	1	0	0	2	1
785:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	1	0	0	0	0	0	0	2	0	0	0
813:	1	0	0	0	0	0	0	0	0	1	0	0	0	1
827:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
841:	0	1	0	0	1	1	0	0	0	1	0	0	0	0
855:	0	1	0	0	0	0	0	1	1	0	1	0	0	1
869:	0	0	0	0	1	0	0	1	0	0	1	0	0	0
883:	0	1	0	0	0	0	0	0	0	0	0	1	0	0
897:	0	0	0	0	0	1	0	0	0	0	0	1	0	0
911:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
925:	0	0	1	0	0	1	1	0	0	0	0	0	1	1
939:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
967:	0	0	0	1	0	0	0	1	0	0	0	0	2	0
981:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1009:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
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Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:32:39.34

Detector ID: 42 Acquisition Start: 31-AUG-2005 13:37:30.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508096A-RA Sample Id: 10
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4627.73	41	0	43.82	385.51	301	156	4.02E-03	15.6	
2	0	5267.70	46	0	465.59	602.76	518	176	4.51E-03	14.7	
3	0	5816.81	35	0	190.93	794.11	712	163	3.43E-03	16.9	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:33:12.61

Acquisition Start: 26-AUG-2005 12:01:59.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.78	0	0	0.00	378.50	301	156	0.00E+00	0.0	
2	0	5275.65	7	0	313.00	605.50	518	176	1.17E-04	37.8	
3	0	5813.65	3	0	143.98	793.00	712	163	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:33:12.86

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4627.73*	80	0	43.82	385.51	301	156	7.84E-03	15.6	
2	0	5267.70*	89	0	465.59	602.76	518	176	8.68E-03	15.0	
3	0	5816.81*	68	0	190.93	794.11	712	163	6.64E-03	17.0	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:33:13

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0N		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:37:30
Sample ID	: 10	Sample quantity	: 1.1063 gram
Sample type	: RA	Sample geometry	:
Detector name	: 042	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.10 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4627.73*	80	43.82	385.51	301	156	31.2		RA-226	0.881
0	5267.70*	89465.59		602.76	518	176	29.9		RN-222	0.976
0	5816.81*	68190.93		794.11	712	163	34.1		PO-218	0.747

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:33:30

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$11_RA.CNF

BATCH ID:	0508096A-RA	SAMPLE ID:	11
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.014E+00 gram
SAMPLE TITLE:	VPSCR081705SL0O	DETECTOR NUMBER:	043
ACQ DATE:	31-AUG-2005 13:37	AVERAGE EFFICIENCY:	21.73%
ELAPSED LIVE TIME:	10200.	RECOVERY:	95.37%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE:	25-AUG-2005 04:28
BKG FILENAME:	B_043_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	1.86

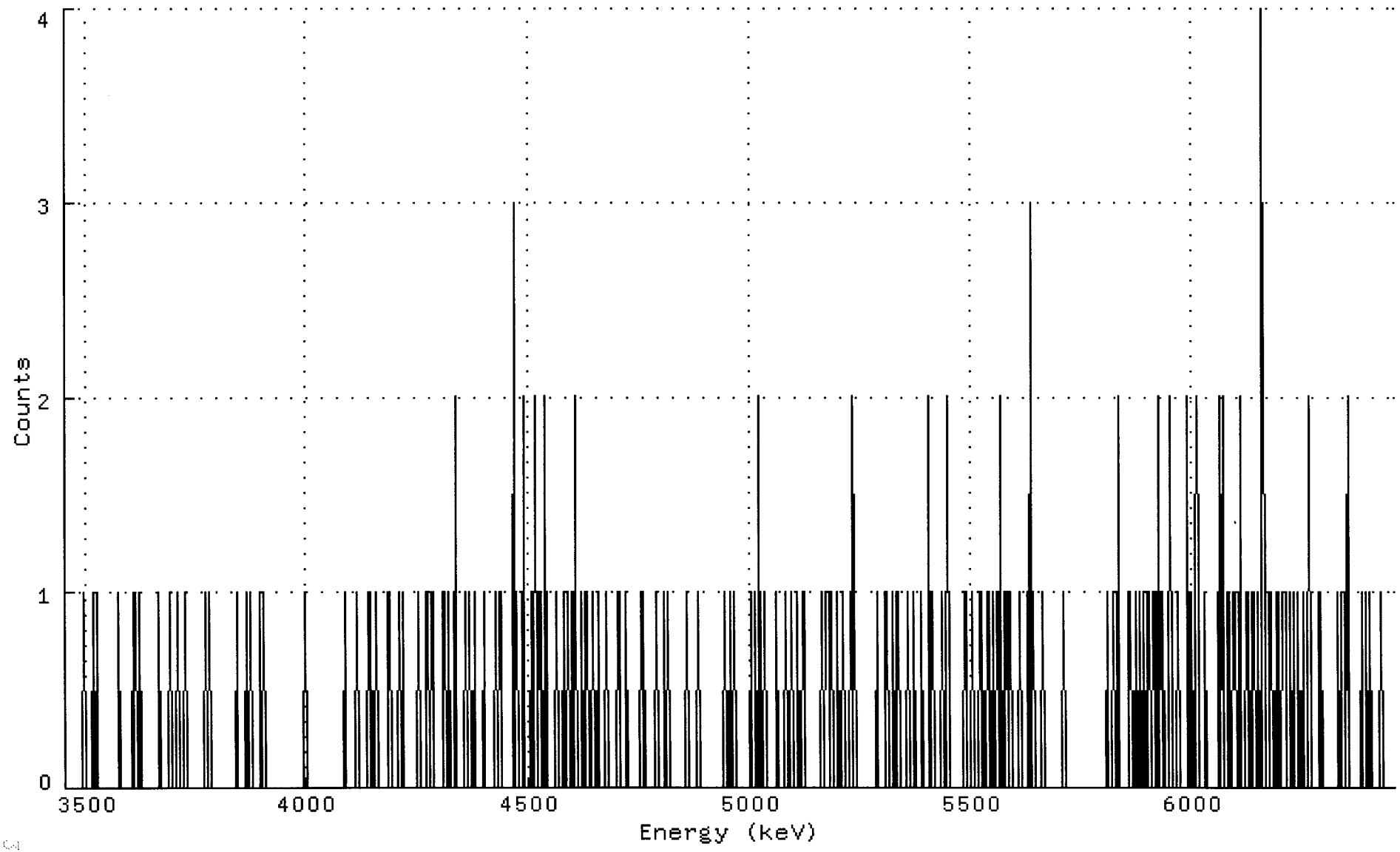
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	74.23	0.17	100.0	9.365E-01	3.039E-01	1.086E-01
RN-222	5490.0	81.16	0.68	99.9	1.025E+00	3.196E-01	1.537E-01
RA-226	4785.0	77.95	0.17	100.0	9.833E-01	3.117E-01	1.086E-01

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$11_RA.CNF;1
Title : 043
Sample Title: VPSCR081705SL00
Start Time: 31-AUG-2005 13:37 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44344E+03
Real Time : 0 02:50:00.30 Sample ID : 11 Energy Slope : 3.13349E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.89158E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$11_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	1	0	0	0	0	0	1	0	0	1	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
43:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
57:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	1	0	0	0	0	0	0	0	1	0	0	0	0	1
85:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	1	0	0	1	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	1	0	0	0	0	0	0	1	0	0	1	1	0
141:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
211:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
225:	1	0	1	0	0	0	1	0	0	0	0	0	0	0
239:	0	1	1	0	0	0	0	0	0	1	0	1	0	0
253:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
267:	0	1	1	0	0	1	1	0	0	0	0	0	0	0
281:	1	1	0	0	1	0	0	0	0	2	0	0	0	0
295:	0	0	1	1	0	1	0	0	0	1	0	0	0	0
309:	0	0	1	0	0	0	0	0	0	0	0	1	0	0
323:	1	1	0	0	0	0	0	0	0	0	0	3	0	1
337:	0	0	0	0	2	0	0	0	0	0	1	0	0	2
351:	0	0	1	0	1	0	0	2	0	0	0	0	0	0
365:	0	1	0	0	0	0	1	0	0	1	1	0	0	1
379:	0	2	1	0	0	0	1	0	0	1	1	0	0	0
393:	1	0	0	0	1	0	0	0	0	0	1	1	0	0
407:	0	0	0	0	0	1	1	0	0	0	0	1	0	0
421:	0	0	0	0	0	0	0	0	1	0	1	0	0	0
435:	0	0	0	0	0	0	1	0	0	0	0	0	1	0
449:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
463:	0	1	0	0	0	0	0	0	0	0	1	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	1	0	0	0	1	0	0	1	1	0	0	0
505:	0	0	0	0	0	0	0	0	1	0	0	0	1	0
519:	0	2	0	0	0	1	0	0	0	0	0	0	0	0
533:	1	0	0	0	0	0	0	1	0	0	0	1	0	0
547:	0	0	1	0	0	0	1	1	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	1	0	1	1	1	1	0
575:	1	0	0	0	0	1	0	0	0	1	0	0	0	0
589:	0	1	0	2	1	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
617:	1	1	0	0	0	0	1	0	0	1	1	0	0	0
631:	0	0	0	1	0	0	0	0	1	0	0	0	0	0
645:	1	0	0	0	0	0	2	0	1	1	0	0	0	0
659:	0	0	1	0	0	0	2	2	0	0	0	0	0	0
673:	0	0	0	0	0	0	1	1	0	0	0	0	1	0
687:	0	0	0	0	1	0	1	0	0	0	1	0	1	0
701:	0	1	0	1	1	0	2	0	0	1	0	1	0	1
715:	1	0	0	0	0	0	0	1	1	0	0	0	0	0
729:	1	0	3	0	1	0	0	0	0	0	0	1	1	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
757:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
799:	0	2	0	0	0	0	0	0	0	0	1	1	0	0
813:	0	1	0	0	1	0	0	1	0	0	1	0	1	0
827:	0	1	1	0	0	2	0	1	0	1	0	0	0	0
841:	0	2	0	0	0	0	0	1	0	0	0	0	0	0
855:	0	2	0	0	1	0	0	1	2	1	0	0	0	0
869:	0	1	0	0	0	0	0	0	0	0	0	0	2	0
883:	1	2	0	0	0	1	0	1	0	1	1	1	0	0
897:	0	2	0	0	0	0	1	0	1	0	1	0	1	0
911:	0	0	1	0	0	4	2	1	0	0	0	1	1	0
925:	0	0	1	0	1	0	0	1	1	1	1	0	0	0
939:	1	0	1	0	0	0	1	0	0	0	1	0	0	0
953:	0	2	0	0	0	0	0	0	0	1	0	1	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
981:	1	1	1	0	1	2	0	0	0	0	0	0	0	0
995:	0	0	1	0	0	0	1	0	0	1	0	0	0	0
1009:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:33:17.99

Detector ID: 43 Acquisition Start: 31-AUG-2005 13:37:53.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.30
Batch Id: 0508096A-RA Sample Id: 11
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4590.26	42	0	147.27	374.45	303	155	4.12E-03	15.4	
2	0	5281.58	44	0	460.62	609.00	519	176	4.31E-03	15.1	
3	0	5835.40	40	0	416.75	802.20	714	163	3.92E-03	15.8	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:33:29.19

Acquisition Start: 26-AUG-2005 12:02:03.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.85	1	0	3.13	380.00	303	155	1.67E-05	100.0	
2	0	5274.32	4	0	213.08	606.50	519	176	6.67E-05	50.0	
3	0	5815.01	1	0	3.13	795.00	714	163	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:33:29.43

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4590.26*	78	0	147.27	374.45	303	155	7.64E-03	15.5	
2	0	5281.58*	81	0	460.62	609.00	519	176	7.96E-03	15.2	
3	0	5835.40*	74	0	416.75	802.20	714	163	7.28E-03	15.8	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:33:30

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0O		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:37:53
Sample ID	: 11	Sample quantity	: 1.0136 gram
Sample type	: RA	Sample geometry	:
Detector name	: 043	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.30 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4590.26*	78147.27	374.45	303	155	30.9			RA-226	0.938
0	5281.58*	81460.62	609.00	519	176	30.4			RN-222	0.977
0	5835.40*	74416.75	802.20	714	163	31.7			PO-218	0.893

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:33:59

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$12_RA.CNF

BATCH ID:	0508096A-RA	SAMPLE ID:	12
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.007E+00	gram
SAMPLE TITLE:	VPSCR081705SL0P	DETECTOR NUMBER:	044
ACQ DATE:	31-AUG-2005 13:38	AVERAGE EFFICIENCY:	20.99%
ELAPSED LIVE TIME:	10200.	RECOVERY:	95.00%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE: 25-AUG-2005	04:28
BKG FILENAME:	B_044_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	2.27

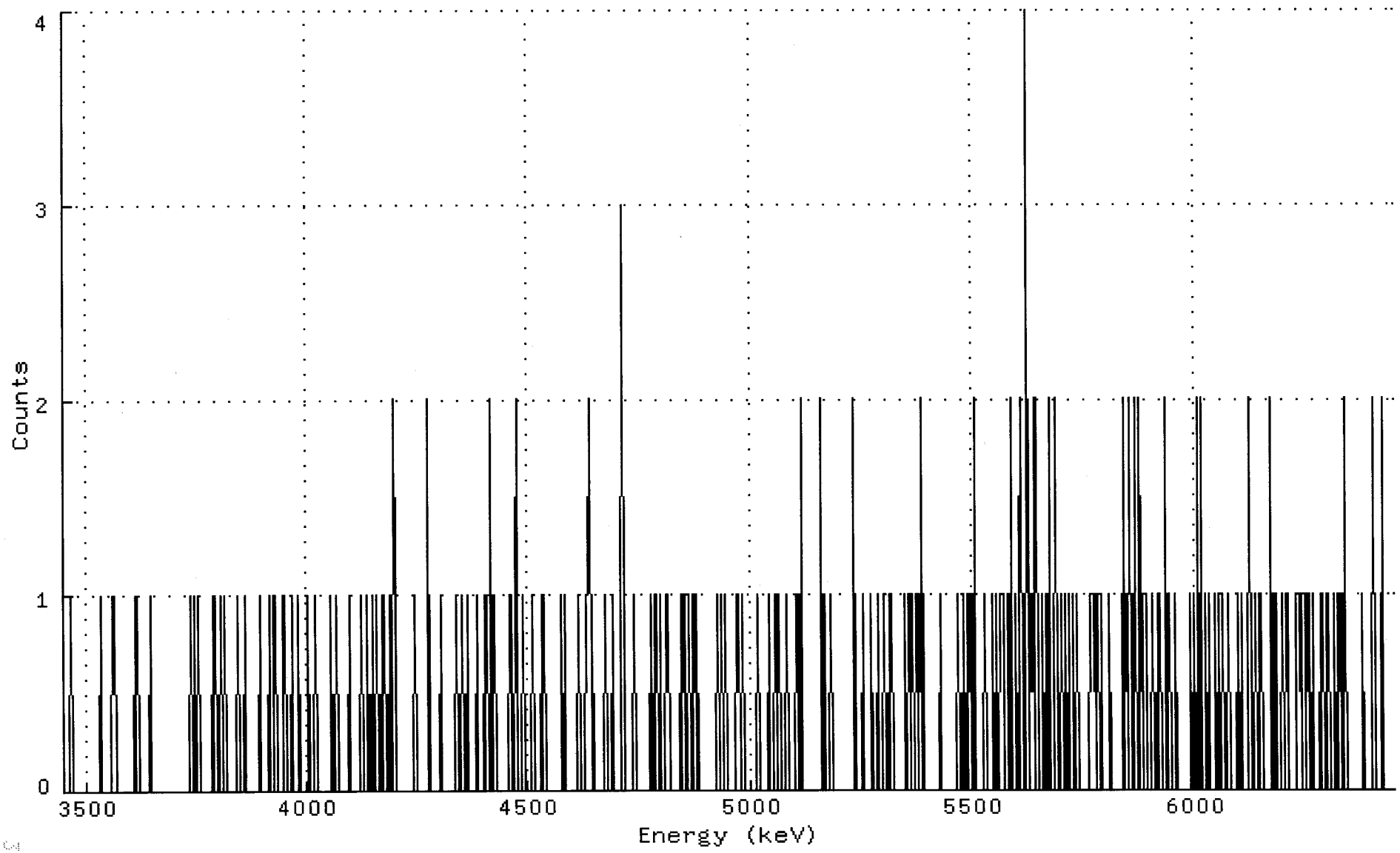
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	155.61	1.02	100.0	2.053E+00	5.178E-01	2.218E-01
RN-222	5490.0	91.71	1.36	99.9	1.211E+00	3.931E-01	2.437E-01
RA-226	4785.0	90.12	0.68	100.0	1.189E+00	3.878E-01	1.960E-01

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$12_RA.CNF;1
Title : 044
Sample Title: VPSCR081705SLOP
Start Time: 31-AUG-2005 13:38 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44108E+03
Real Time : 0 02:50:00.20 Sample ID : 12 Energy Slope : 3.11251E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.71265E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$12_RA

Channel

1:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	1	0	0	0	0	0	0	0	0	1	1	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
57:	1	0	0	0	0	0	0	0	0	1	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
99:	1	0	1	1	0	0	0	0	0	0	0	0	0	1
113:	0	1	0	0	0	1	0	0	1	0	0	0	0	0
127:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
141:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
155:	0	0	0	1	1	0	0	0	0	0	1	1	0	0
169:	0	0	1	0	0	0	0	1	0	0	0	0	0	0
183:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
197:	0	0	0	1	0	0	0	1	0	0	0	0	0	0
211:	0	0	1	0	0	0	0	0	0	0	0	1	0	0
225:	0	0	1	0	0	1	0	0	1	1	0	0	1	0
239:	1	0	0	0	1	0	0	2	1	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
267:	0	0	0	0	0	2	0	0	0	0	0	0	0	0
281:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
295:	0	0	1	0	0	0	1	0	0	0	0	0	1	1
309:	0	0	0	0	0	1	0	1	0	0	2	0	1	1
323:	0	0	0	0	0	0	0	0	0	0	1	0	1	0
337:	1	2	0	0	0	0	1	0	0	0	0	0	0	1
351:	0	0	0	0	0	0	1	0	1	0	0	0	0	0
365:	0	0	0	0	0	0	0	1	0	1	0	0	0	0
379:	0	0	0	0	0	1	1	0	0	0	0	1	1	1
393:	2	0	1	0	0	0	0	0	0	0	0	0	1	0
407:	0	0	0	1	0	0	0	0	0	0	0	3	0	0
421:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
435:	0	0	0	0	1	0	0	1	0	1	0	1	0	0
449:	0	0	1	1	1	0	0	0	0	0	0	0	0	1
463:	0	1	1	0	0	1	1	0	1	0	1	0	1	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
491:	1	0	1	0	0	1	0	0	0	0	0	0	0	0
505:	1	1	1	0	1	0	0	0	0	0	0	0	0	0
519:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
533:	0	1	0	1	1	0	0	0	0	0	1	0	0	0
547:	0	0	0	1	0	1	0	2	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	2	0	1	0	0
575:	0	1	1	0	0	0	0	0	0	0	0	0	0	0
589:	0	0	0	0	0	0	2	0	0	0	0	0	1	0
603:	0	0	0	0	0	1	0	0	0	0	1	0	0	0
617:	0	1	0	0	0	1	0	1	0	0	0	0	0	0
631:	0	0	0	0	1	0	1	1	0	1	0	0	1	1
645:	0	1	0	2	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
673:	0	0	0	1	0	0	0	1	0	0	1	0	1	1
687:	0	0	2	0	0	0	0	0	0	1	1	0	0	0
701:	0	0	1	0	0	1	0	1	1	1	1	0	0	0
715:	1	0	2	0	0	0	1	0	0	1	2	0	0	0
729:	2	4	0	1	1	1	0	2	2	0	0	0	0	1
743:	0	0	1	0	2	0	0	0	0	2	0	0	0	1
757:	1	0	0	1	0	1	0	0	0	1	0	1	1	0
771:	0	0	0	0	0	0	0	0	1	1	1	1	0	1
785:	1	0	0	1	0	0	0	0	0	0	1	0	0	0
799:	0	0	0	0	0	0	0	2	0	1	0	0	2	0
813:	0	0	2	1	0	0	2	1	0	1	1	1	0	0
827:	0	0	1	0	0	0	1	0	1	0	0	0	0	2
841:	0	0	1	0	0	0	0	1	0	0	0	0	0	0
855:	0	0	0	0	0	1	0	0	1	0	0	2	0	2
869:	0	0	0	1	0	1	0	0	0	0	0	1	0	0
883:	1	0	1	1	0	0	0	1	0	0	0	0	0	0
897:	1	0	0	1	0	0	0	0	0	0	2	0	0	0
911:	1	1	0	1	0	1	0	0	0	0	0	0	0	2
925:	0	0	1	1	0	0	0	0	1	0	0	1	1	0
939:	0	0	0	0	0	1	1	1	1	0	1	1	1	0
953:	1	0	1	0	1	0	0	0	0	0	1	0	1	0
967:	0	0	1	1	0	0	0	0	1	0	0	1	1	0
981:	1	0	2	1	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	1	0	0	0	0	0	0	0	0	2	0
1009:	0	0	0	0	0	2	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:33:34.35

Detector ID: 44 Acquisition Start: 31-AUG-2005 13:38:14.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.20
Batch Id: 0508096A-RA Sample Id: 12
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4601.12	40	0310.47		380.68	305	156	3.92E-03	15.8	
2	0	5293.12	41	0423.30		615.90	522	176	4.02E-03	15.6	
3	0	5779.03	69	0	4.57	785.06	717	162	6.76E-03	12.0	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:33:57.36

Acquisition Start: 26-AUG-2005 12:02:06.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.56	4	0270.79		382.50	305	156	6.67E-05	50.0	
2	0	5274.54	8	0392.18		609.50	522	176	1.33E-04	35.4	
3	0	5814.39	6	0	3.11	797.50	717	162	1.00E-04	40.8	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:33:57.61

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4601.12*	90	0310.47		380.68	305	156	8.84E-03	15.9	
2	0	5293.12*	92	0423.30		615.90	522	176	8.99E-03	15.9	
3	0	5779.03*	156	0	4.57	785.06	717	162	1.53E-02	12.1	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:33:58

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0P
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 13:38:14
Sample ID : 12 Sample quantity : 1.0072 gram
Sample type : RA Sample geometry :
Detector name : 044 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.20 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4601.12*	90310.47	380.68	305	156	31.9			RA-226	1.13
0	5293.12*	92423.30	615.90	522	176	31.7			RN-222	1.15
0	5779.03*	156	4.57	785.06	717	162	24.2		PO-218	1.95

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ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:34:14

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$13_RA.CNF

BATCH ID:	0508096A-RA	SAMPLE ID:	13
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.015E+00	gram
SAMPLE TITLE:	VPSCR081705SL0Q	DETECTOR NUMBER:	045
ACQ DATE:	31-AUG-2005 13:38	AVERAGE EFFICIENCY:	20.55%
ELAPSED LIVE TIME:	10200.	RECOVERY:	89.73%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:28	EFF CAL DATE: 25-AUG-2005	04:28
BKG FILENAME:	B_045_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	1.71

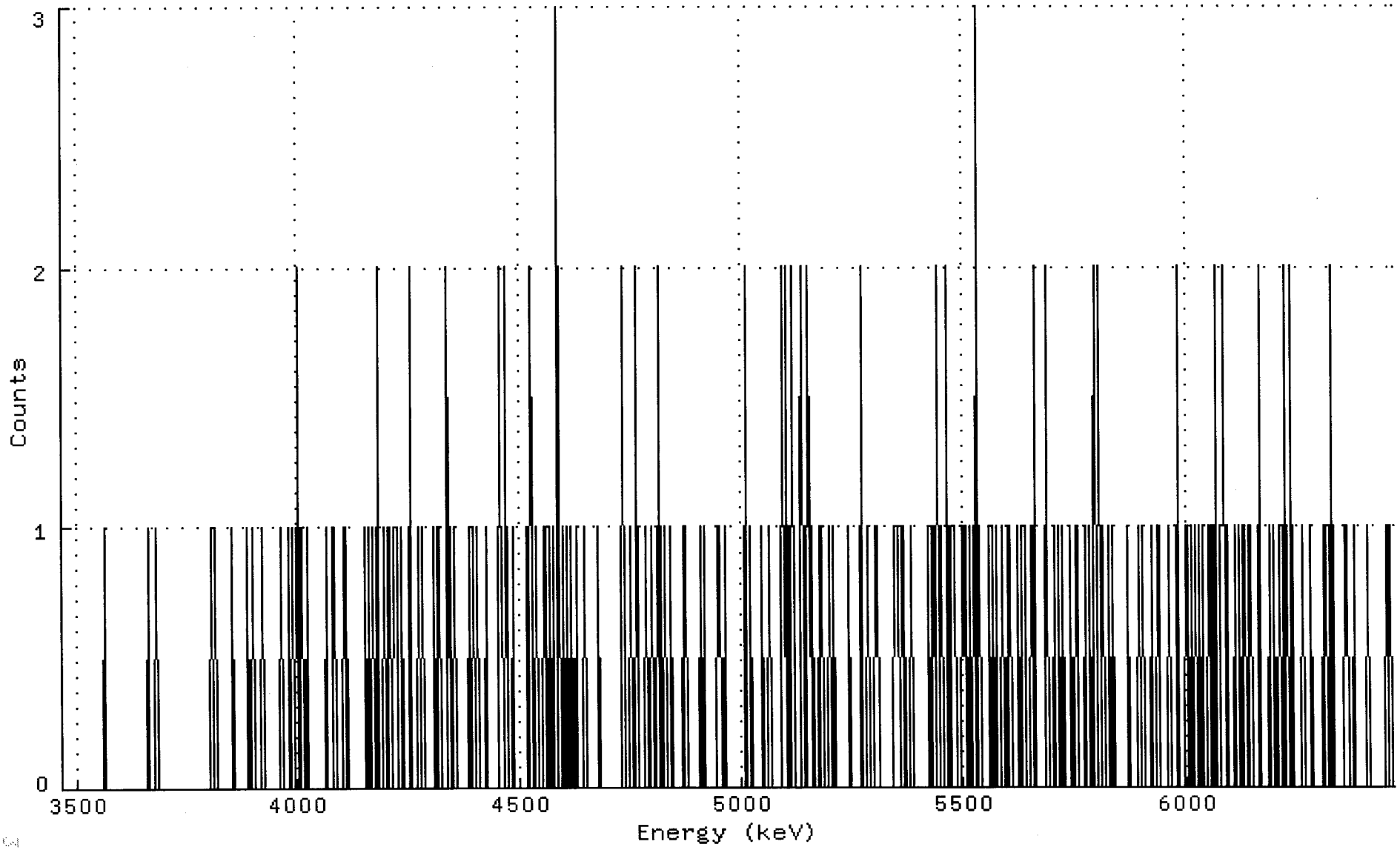
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	80.03	0.34	100.0	1.134E+00	3.414E-01	1.313E-01
RN-222	5490.0	104.14	0.17	99.9	1.476E+00	3.923E-01	1.121E-01
RA-226	4785.0	79.69	0.68	100.0	1.129E+00	3.413E-01	1.585E-01

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$13_RA.CNF;1
Title : 045
Sample Title: VPSCR081705SL0Q
Start Time: 31-AUG-2005 13:38 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45577E+03
Real Time : 0 02:50:00.10 Sample ID : 13 Energy Slope : 3.12631E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.82971E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$13_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
71:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
113:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
127:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
141:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
169:	0	1	0	1	0	0	1	0	2	0	1	0	0	0
183:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	1	0	0	0	0	1	1	0	0	0	0	0	0	1
211:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
225:	0	1	0	1	0	0	1	0	0	0	2	0	0	0
239:	0	1	0	0	1	1	0	0	1	1	1	0	0	0
253:	1	0	0	0	0	0	2	0	0	0	0	0	1	0
267:	0	1	0	0	0	0	0	0	0	0	1	0	1	0
281:	1	0	0	0	0	0	2	1	0	1	0	1	0	0
295:	0	0	0	0	0	0	0	0	1	0	0	1	1	0
309:	1	0	0	0	0	0	0	1	0	0	0	0	0	0
323:	0	0	0	2	1	1	0	1	2	0	0	0	0	1
337:	0	0	0	0	0	0	0	0	0	0	1	0	2	1
351:	0	0	1	1	0	0	0	0	1	1	0	0	1	0
365:	0	1	0	0	0	3	1	0	0	1	0	0	1	0
379:	0	1	0	0	1	0	0	0	0	0	1	1	0	0
393:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
407:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
421:	0	0	0	1	0	0	0	1	2	0	0	0	0	0
435:	1	1	0	0	0	1	0	0	0	1	0	2	0	0
449:	0	1	0	0	0	0	1	0	0	0	0	0	0	0
463:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
477:	1	0	0	1	0	0	0	0	0	0	0	0	0	0
491:	1	1	0	0	0	1	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	2	0	0	0	1	0	0
519:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
533:	0	0	0	0	0	0	0	2	1	1	0	2	0	0
547:	0	2	0	0	0	0	0	1	2	0	0	0	2	2
561:	1	0	1	0	0	0	0	1	0	1	0	0	0	0
575:	1	1	0	0	1	0	0	0	0	0	0	0	0	0
589:	0	0	1	0	0	0	0	0	0	0	0	2	0	0
603:	0	0	1	0	0	0	0	0	1	1	1	0	0	0
617:	0	0	0	0	0	0	0	0	0	1	1	1	1	0
631:	0	1	0	1	0	0	0	0	1	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	1	0	0	1	1	0
659:	0	2	0	0	1	0	0	0	0	2	0	0	1	1
673:	1	1	0	0	0	0	1	1	1	0	1	0	0	1
687:	0	1	1	0	3	0	1	0	0	0	0	0	0	0
701:	1	0	0	1	0	1	0	0	0	0	1	0	0	0
715:	1	0	1	0	0	0	0	0	1	0	0	1	1	1
729:	0	0	0	0	1	1	0	2	0	0	0	0	0	0
743:	0	0	2	1	0	0	0	0	1	0	0	0	1	0
757:	0	1	0	0	0	0	0	1	0	0	0	1	1	0
771:	0	0	0	0	1	0	0	0	1	0	0	1	2	0
785:	0	2	0	1	1	0	0	0	0	1	0	0	1	0
799:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
813:	0	0	0	0	0	1	0	0	1	0	0	0	0	0
827:	0	1	0	0	0	0	1	1	0	0	0	0	0	0
841:	0	1	0	0	0	0	0	0	2	0	0	0	0	0
855:	0	1	1	0	0	1	0	0	1	1	0	0	1	0
869:	1	0	0	0	0	1	0	1	0	1	0	2	0	0
883:	0	1	1	1	2	0	1	0	0	0	0	0	1	0
897:	0	0	1	0	0	1	1	1	0	0	1	1	0	0
911:	0	0	0	0	2	0	0	0	0	0	0	0	1	0
925:	0	0	1	0	0	0	1	0	0	0	2	0	1	0
939:	0	0	2	0	0	0	0	0	0	0	1	1	0	0
953:	0	0	0	1	0	0	0	0	0	0	0	0	0	1
967:	0	1	0	0	0	2	0	1	0	0	0	0	0	0
981:	0	0	1	1	1	0	0	0	0	0	1	0	0	0
995:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	1	1	1	0	1	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:34:02.56

Detector ID: 45 Acquisition Start: 31-AUG-2005 13:38:39.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508096A-RA Sample Id: 13
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4597.19	47	0	376.68	373.26	299	156	4.61E-03	14.6	
2	0	5298.68	61	0	0.00	611.36	516	176	5.98E-03	12.8	
3	0	5800.37	47	0	356.40	786.13	710	163	4.61E-03	14.6	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:34:12.83

Acquisition Start: 26-AUG-2005 12:02:09.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.89	4	0	231.35	376.50	299	156	6.67E-05	50.0	
2	0	5275.86	1	0	3.13	603.50	516	176	1.67E-05	100.0	
3	0	5814.20	2	0	93.79	791.00	710	163	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:34:13.07

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4597.19*	80		376.68	373.26	299	156	7.81E-03	14.7	
2	0	5298.68*	104		0.00	611.36	516	176	1.02E-02	12.8	
3	0	5800.37*	80		356.40	786.13	710	163	7.85E-03	14.7	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:34:13

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0Q		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:38:39
Sample ID	: 13	Sample quantity	: 1.0147 gram
Sample type	: RA	Sample geometry	:
Detector name	: 045	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.10 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4597.19*	80	376.68	373.26	299	156	29.4		RA-226	1.01
0	5298.68*	104	0.00	611.36	516	176	25.7		RN-222	1.32
0	5800.37*	80	356.40	786.13	710	163	29.3		PO-218	1.02

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ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:35:24

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$14_RA.CNF

****

BATCH ID:	0508096A-RA	SAMPLE ID:	14
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.094E+00	gram
SAMPLE TITLE:	VPSCR081705SL0R	DETECTOR NUMBER:	046
ACQ DATE:	31-AUG-2005 13:39	AVERAGE EFFICIENCY:	20.82%
ELAPSED LIVE TIME:	10200.	RECOVERY:	91.45%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:29	EFF CAL DATE: 25-AUG-2005	04:29
BKG FILENAME:	B_046_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	1.91

****

NUCLIDE ACTIVITY SUMMARY

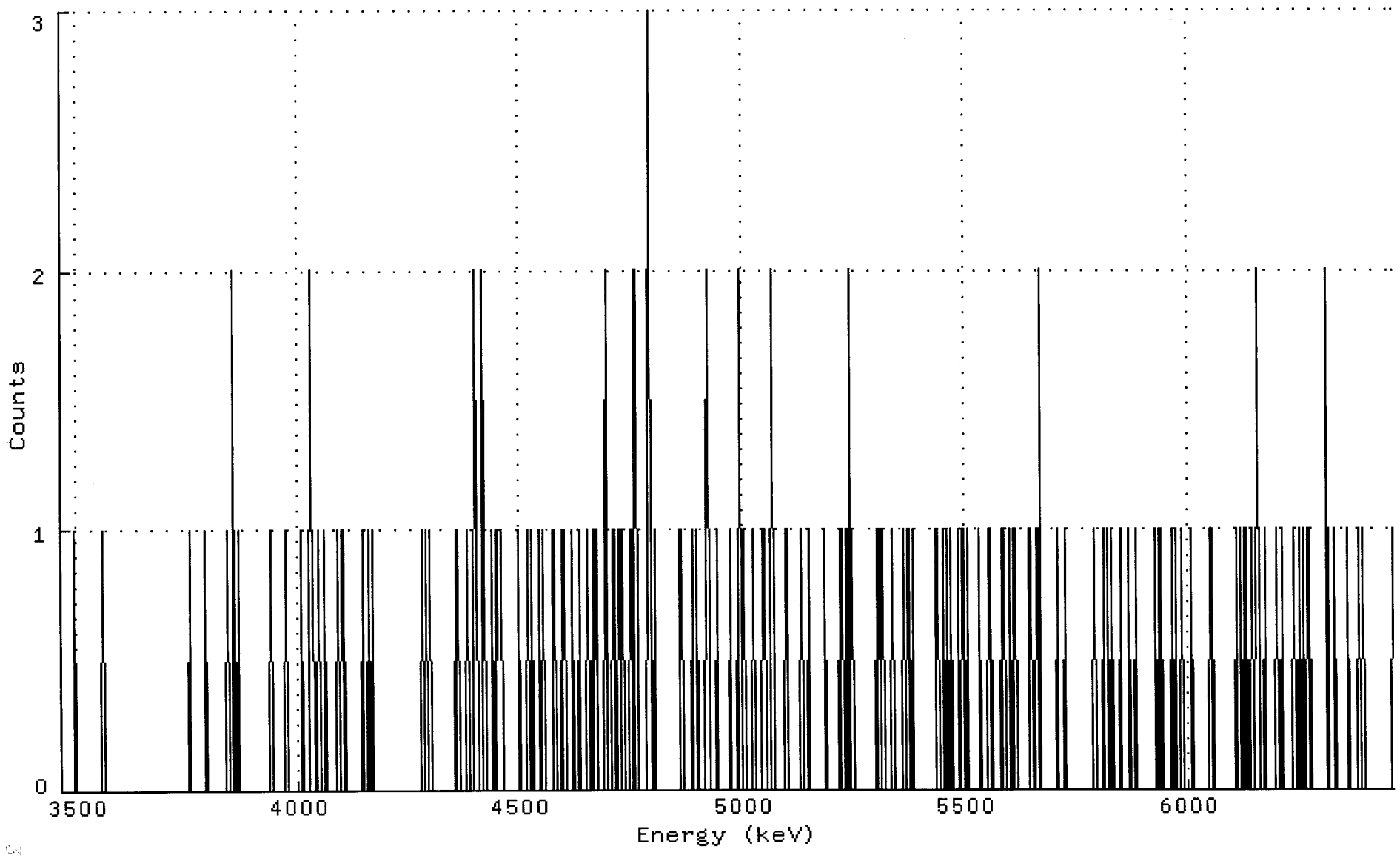
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	48.81	0.85	100.0	6.212E-01	2.518E-01	1.701E-01
RN-222	5490.0	66.34	0.51	99.9	8.448E-01	2.938E-01	1.467E-01
RA-226	4785.0	87.35	0.51	100.0	1.111E+00	3.387E-01	1.466E-01

****

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$14_RA.CNF;1
Title : 046
Sample Title: VPSCR081705SL0R
Start Time: 31-AUG-2005 13:39 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45486E+03
Real Time : 0 02:50:00.00 Sample ID : 14 Energy Slope : 3.13726E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.96714E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$14_RA

Channel

1:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
99:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
127:	0	0	2	0	0	1	0	0	0	0	0	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	1	0	0	0	0	0	0	0	0	0	0	1	1
169:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
183:	0	0	2	1	1	0	0	0	1	0	0	0	0	1
197:	0	0	0	0	0	0	0	0	1	0	0	1	0	1
211:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
225:	0	0	1	0	0	1	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	1	0	0	1	0	0	1	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	1	0	1
295:	0	0	0	0	0	0	1	0	0	0	0	0	2	1
309:	0	0	0	0	2	1	0	0	0	0	0	1	0	1
323:	0	1	1	1	1	0	0	0	0	0	0	0	0	0
337:	0	0	0	1	0	0	0	0	0	0	1	0	0	1
351:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
365:	0	1	1	0	0	0	0	1	0	1	0	0	0	0
379:	0	1	0	0	0	0	1	0	0	0	0	0	1	0
393:	0	0	1	0	1	1	0	0	0	0	0	1	2	0
407:	0	0	0	1	1	0	0	1	1	0	1	0	0	0
421:	0	0	1	0	2	0	2	0	0	0	0	0	0	0
435:	0	1	3	0	0	0	1	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
463:	0	0	0	0	0	0	0	1	0	0	0	1	0	0
477:	0	0	0	0	1	2	0	0	0	0	0	0	1	0
491:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
505:	1	0	2	0	0	1	0	0	0	0	0	0	1	0
519:	0	0	0	0	0	1	1	1	0	0	0	0	0	2
533:	0	0	0	0	0	0	0	0	0	1	1	0	0	0
547:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
561:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
575:	0	0	0	0	0	0	0	0	1	0	1	0	0	1
589:	0	2	0	1	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	0	0	0	1	0	1	0	1	1
617:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
631:	0	1	0	0	1	1	0	0	1	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
659:	1	0	0	0	0	1	0	0	1	0	0	1	0	0
673:	0	0	0	1	0	1	1	0	0	1	0	0	0	0
687:	0	0	0	0	0	1	0	0	0	0	0	0	1	0
701:	1	0	0	0	0	0	0	0	1	0	1	0	0	0
715:	0	1	0	0	1	1	0	0	0	0	0	0	0	0
729:	0	0	1	1	0	0	0	1	1	0	2	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
757:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
785:	0	0	0	0	1	0	0	0	1	0	0	1	0	0
799:	0	0	0	0	1	0	0	0	0	0	0	1	0	0
813:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	1	0	0	1	0	1	0	0	0	0
841:	0	0	0	1	0	0	1	0	0	0	0	1	0	0
855:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	1	0	1	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
897:	0	0	0	1	0	1	0	0	1	0	0	0	1	0
911:	0	1	1	2	0	0	0	0	1	0	0	0	0	0
925:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
939:	0	0	0	0	1	0	0	0	1	0	0	1	0	0
953:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	2	0	0	0	0	0	1	0	0	0	0
981:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
995:	0	1	0	0	1	0	0	0	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:35:13.59

Detector ID: 46 Acquisition Start: 31-AUG-2005 13:39:05.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.00
Batch Id: 0508096A-RA Sample Id: 14
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4605.56	46	0410.16		375.63	299	155	4.51E-03	14.7	
2	0	5275.27	35	0185.10		603.06	516	176	3.43E-03	16.9	
3	0	5782.68	26	0	3.14	780.15	710	164	2.55E-03	19.6	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:35:22.06

Acquisition Start: 26-AUG-2005 12:02:12.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.66	3	0197.65		376.00	299	155	5.00E-05	57.7	
2	0	5276.55	3	0329.41		603.50	516	176	5.00E-05	57.7	
3	0	5814.76	5	0269.80		791.50	710	164	8.33E-05	44.7	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:35:22.33

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4605.56*	87	0410.16		375.63	299	155	8.56E-03	14.8	
2	0	5275.27*	66	0185.10		603.06	516	176	6.50E-03	17.0	
3	0	5782.68*	49	0	3.14	780.15	710	164	4.79E-03	20.0	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:35:23

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0R		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:39:05
Sample ID	: 14	Sample quantity	: 1.0939 gram
Sample type	: RA	Sample geometry	:
Detector name	: 046	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.00 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4605.56*	87410.16		375.63	299	155	29.7		RA-226	1.02
0	5275.27*	66185.10		603.06	516	176	34.1		RN-222	0.773
0	5782.68*	49	3.14	780.15	710	164	39.9		PO-218	0.568

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Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:35:39

Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$15_RA.CNF

BATCH ID:	0508096A-RA	SAMPLE ID:	15
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.035E+00	gram
SAMPLE TITLE:	VPSCR081705SL0S	DETECTOR NUMBER:	047
ACQ DATE:	31-AUG-2005 13:39	AVERAGE EFFICIENCY:	21.54%
ELAPSED LIVE TIME:	10200.	RECOVERY:	87.91%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:29	EFF CAL DATE: 25-AUG-2005	04:29
BKG FILENAME:	B_047_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	1.71

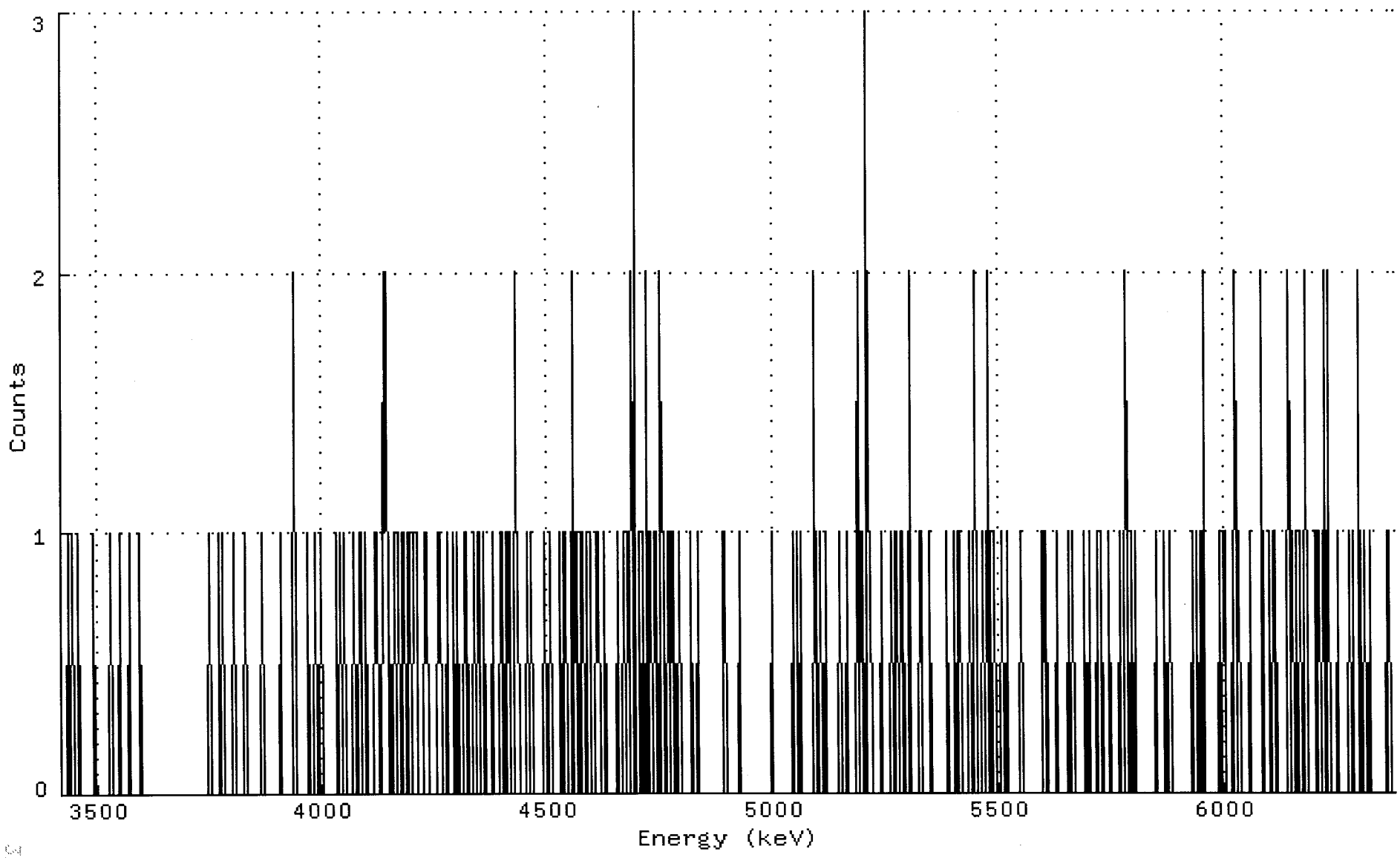
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	57.29	0.85	100.0	7.748E-01	2.752E-01	1.618E-01
RN-222	5490.0	80.55	1.53	99.9	1.090E+00	3.298E-01	1.958E-01
RA-226	4785.0	95.25	0.51	100.0	1.288E+00	3.575E-01	1.394E-01

Analyst _____ Date 8-31-05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$15_RA.CNF;1
Title : 047
Sample Title: VPSCR081705SL0S
Start Time: 31-AUG-2005 13:39 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.41205E+03
Real Time : 0 02:50:00.10 Sample ID : 15 Energy Slope : 3.08217E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.82953E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$15_RA

Channel

1:	0	0	0	0	0	0	0	1	0	0	1	0	0	0
15:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
29:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
43:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
57:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
113:	0	0	0	0	0	1	0	1	1	0	0	0	0	0
127:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
141:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
155:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
169:	0	0	0	0	2	2	0	0	0	0	0	0	0	0
183:	0	1	0	0	0	0	1	0	0	0	1	0	0	0
197:	0	0	0	0	0	0	0	0	1	0	1	0	0	1
211:	0	0	0	0	0	0	1	0	0	0	1	1	0	0
225:	0	1	0	0	0	0	0	1	1	1	0	0	0	1
239:	2	1	2	0	1	0	0	1	1	0	1	1	0	0
253:	1	1	0	1	0	1	0	0	1	1	1	0	0	0
267:	0	0	1	1	1	0	0	0	0	0	0	0	1	1
281:	1	0	0	0	0	1	0	0	0	0	1	0	0	1
295:	0	0	0	0	1	0	1	0	0	0	0	1	0	0
309:	1	1	0	0	0	1	0	0	0	0	0	1	0	0
323:	0	0	0	1	1	0	0	1	0	1	1	0	0	0
337:	2	1	1	0	0	0	0	0	0	1	0	0	1	0
351:	0	0	0	0	0	0	0	0	1	0	0	0	1	1
365:	0	0	0	0	0	0	1	0	0	1	1	0	0	0
379:	0	2	0	1	1	0	0	1	0	1	0	0	1	1
393:	1	0	0	0	0	1	1	0	0	0	0	1	0	0
407:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
421:	1	0	0	2	0	3	0	0	0	1	0	0	1	0
435:	0	2	0	1	0	0	1	0	1	0	0	2	1	1
449:	0	0	1	0	1	1	0	1	0	0	0	1	0	0
463:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	0	0	1	1	0	0	0	0	0	0	0	0	0
505:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
533:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
547:	1	0	0	0	1	0	1	0	0	0	0	0	0	0
561:	0	0	1	2	0	0	0	1	0	0	0	1	0	0
575:	0	0	0	0	0	0	0	0	1	0	0	0	0	1
589:	0	0	0	0	0	0	0	1	2	0	1	0	1	0
603:	0	3	1	1	1	0	0	0	0	0	0	0	1	0
617:	0	0	0	0	0	1	1	0	1	0	1	0	0	1
631:	0	1	0	0	0	0	2	0	0	0	0	0	0	0
645:	1	1	0	0	0	0	0	0	1	0	0	0	0	0
659:	0	0	0	0	0	0	0	1	0	0	0	0	0	1
673:	0	1	0	1	0	0	0	0	0	0	1	1	0	0
687:	0	2	0	0	0	0	0	1	0	0	1	0	2	0
701:	0	0	1	0	0	0	0	0	1	0	0	0	1	0
715:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
743:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
757:	0	0	0	0	1	0	0	1	1	0	0	0	0	0
771:	0	0	0	1	0	0	0	1	0	0	0	0	0	1
785:	0	0	0	1	0	0	0	0	0	1	0	0	0	0
799:	0	0	0	1	0	0	0	0	2	1	0	0	1	0
813:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	1	0	0	0	0	0	0	1	0	0
841:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
855:	0	0	0	0	0	1	0	0	0	1	0	0	1	0
869:	2	0	0	0	0	0	0	0	0	0	0	0	1	0
883:	0	0	1	1	0	0	0	0	0	1	0	2	1	0
897:	1	0	0	0	0	0	0	0	0	1	0	0	0	0
911:	0	0	0	0	0	2	0	0	0	0	0	1	0	1
925:	1	0	1	0	0	0	0	0	0	0	0	0	2	1
939:	0	1	0	0	1	0	0	1	1	0	0	0	2	0
953:	0	0	0	0	0	0	1	0	1	1	0	0	1	0
967:	2	0	2	1	0	0	0	0	0	0	1	0	0	0
981:	0	0	0	0	0	1	1	0	1	0	0	0	0	0
995:	2	0	0	0	1	0	0	0	1	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	1	0	1	1	0	0
1023:	0	0												

Eberline Services
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Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:35:28.04

Detector ID: 47 Acquisition Start: 31-AUG-2005 13:39:29.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508096A-RA Sample Id: 15
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4612.24	56		0338.27	398.84	318	158	5.49E-03	13.4	
2	0	5279.43	48		0418.35	629.37	539	179	4.71E-03	14.4	
3	0	5826.23	34		0272.68	823.53	737	166	3.33E-03	17.1	

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:35:37.76

Acquisition Start: 26-AUG-2005 12:02:15.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4605.37	3		0 92.47	396.50	318	158	5.00E-05	57.7	
2	0	5275.50	9		0376.02	628.00	539	179	1.50E-04	33.3	
3	0	5815.03	5		0385.27	819.50	737	166	8.33E-05	44.7	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:35:38.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4612.24*	95		0338.27	398.84	318	158	9.34E-03	13.4	
2	0	5279.43*	81		0418.35	629.37	539	179	7.90E-03	14.7	
3	0	5826.23*	57		0272.68	823.53	737	166	5.62E-03	17.4	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:35:38

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0S		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 13:39:29
Sample ID	: 15	Sample quantity	: 1.0349 gram
Sample type	: RA	Sample geometry	:
Detector name	: 047	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.10 0.0%
Energy tolerance	: 100.00 keV	Half life ratio	: 8.00
Errors propagated	: Yes	Systematic Error	: 3.00 %
Efficiency type	: Average value	Efficiencies at	: Peak Energy
Abundance limit	: 75.00		

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4612.24*	95338.27	398.84	318	158	26.9			RA-226	1.13
0	5279.43*	81418.35	629.37	539	179	29.4			RN-222	0.958
0	5826.23*	57272.68	823.53	737	166	34.8			PO-218	0.681

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ALPHA SPECTROMETRY REPORT
31-AUG-2005 18:35:50

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Spectral File: ND_AMS_ARCHIVE_S:S_0508096A-RA$16_RA.CNF

****

BATCH ID:	0508096A-RA	SAMPLE ID:	16
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.079E+00	gram
SAMPLE TITLE:	VPSCR081705SL0T	DETECTOR NUMBER:	048
ACQ DATE:	31-AUG-2005 13:39	AVERAGE EFFICIENCY:	20.31%
ELAPSED LIVE TIME:	10200.	RECOVERY:	95.45%
TRACER ID:	NONE	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	0.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	0.000	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	25-AUG-2005 04:29	EFF CAL DATE: 25-AUG-2005	04:29
BKG FILENAME:	B_048_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	1.81

****

NUCLIDE ACTIVITY SUMMARY

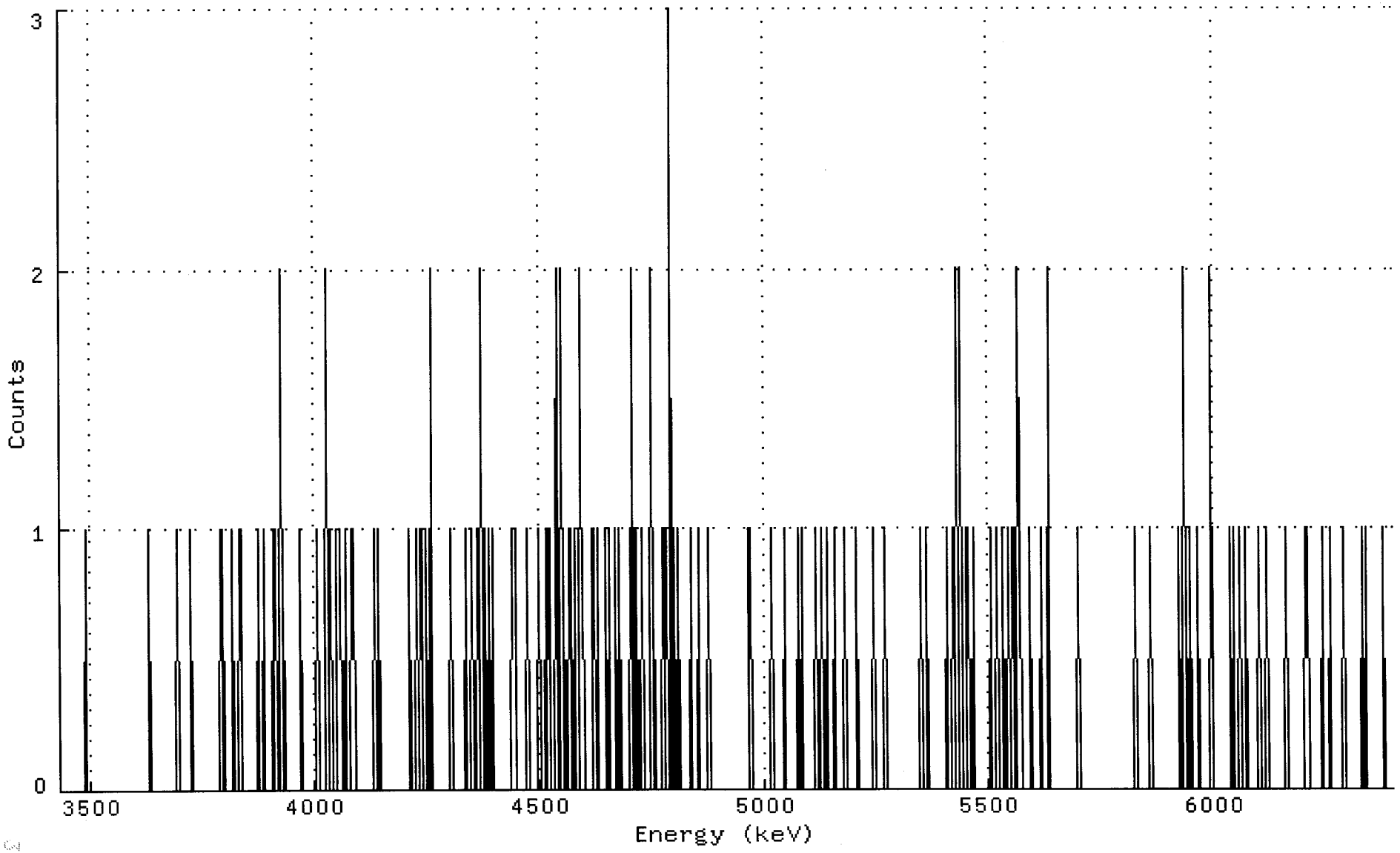
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	32.07	0.51	100.0	4.061E-01	1.967E-01	1.382E-01
RN-222	5490.0	41.74	1.70	99.9	5.288E-01	2.281E-01	2.012E-01
RA-226	4785.0	85.18	1.70	100.0	1.078E+00	3.265E-01	2.010E-01

****

Analyst _____ Date 8.31.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508096A-RA$16_RA.CNF;1
Title : 048
Sample Title: VPSCR081705SL0T
Start Time: 31-AUG-2005 13:39 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42171E+03
Real Time : 0 02:50:00.10 Sample ID : 16 Energy Slope : 3.04247E+00
Live Time : 0 02:50:00.00 Sample Type: RA Energy Quad : -1.36902E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508096A-RA$16_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
71:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
99:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
127:	0	0	0	0	1	0	0	0	0	1	1	0	0	0
141:	0	0	0	0	0	0	0	0	0	1	0	0	0	1
155:	0	0	0	0	0	0	1	0	1	0	0	0	2	0
169:	1	0	0	0	0	0	0	0	0	0	0	0	0	1
183:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
197:	0	0	0	0	2	0	0	1	0	0	0	0	1	1
211:	1	0	0	0	1	0	0	0	0	1	1	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
239:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
267:	0	1	0	0	1	1	0	0	0	1	0	0	2	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
295:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
309:	1	1	0	0	0	1	0	0	2	0	1	0	0	1
323:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	0	1	1	1	0	0	0	0	0	0	0	0
351:	1	0	0	0	0	0	0	0	0	1	0	0	0	0
365:	1	0	1	1	0	0	0	0	1	2	0	0	2	0
379:	1	0	0	0	1	1	0	0	1	0	0	0	2	1
393:	1	0	0	0	0	0	0	0	1	1	0	1	0	0
407:	0	0	0	0	1	0	1	0	0	0	0	1	0	0
421:	1	0	0	0	0	0	0	0	1	0	2	0	0	1
435:	0	0	0	1	0	0	0	0	0	0	2	0	1	0
449:	0	0	0	0	0	1	0	1	1	0	0	3	0	0
463:	1	0	0	1	0	0	0	0	0	0	0	0	1	0
477:	0	0	0	0	1	0	0	0	0	0	0	0	1	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	0	1	1	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
547:	1	0	0	0	0	0	0	0	0	0	1	0	0	1
561:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
575:	1	0	0	0	1	0	0	0	0	0	1	0	0	0
589:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
603:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
617:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
673:	0	0	0	0	1	0	0	2	0	0	2	0	0	0
687:	0	1	1	0	0	0	1	0	0	0	0	0	0	0
701:	0	0	0	0	0	1	0	0	0	0	1	0	0	0
715:	0	1	0	0	0	1	0	0	1	1	0	0	2	2
729:	1	0	0	0	0	0	0	0	1	0	0	0	0	0
743:	0	0	1	0	0	0	0	0	2	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
827:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
855:	0	0	0	2	0	1	0	0	1	0	0	0	0	0
869:	1	0	0	0	0	0	0	0	0	0	1	2	0	0
883:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
897:	1	0	0	0	0	1	0	0	0	0	1	0	0	0
911:	0	0	0	0	0	0	1	0	0	0	0	0	1	0
925:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
939:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	1	1	1	0	0	0	0	0	0	0	0	0	0	0
967:	1	0	0	0	0	0	1	0	0	0	0	0	0	0
981:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	1	0	0	1	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:35:42.95

Detector ID: 48 Acquisition Start: 31-AUG-2005 13:39:52.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508096A-RA Sample Id: 16
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4622.66	48	0264.69	402.00	318	158	4.71E-03	14.4		
2	0	5303.14	24	0 12.17	636.62	538	178	2.35E-03	20.4		
3	0	5862.19	18	0395.52	833.39	735	164	1.76E-03	23.6		

Background Counts Within Peak Regions Generated: 31-AUG-2005 18:35:48.70

Acquisition Start: 26-AUG-2005 12:02:18.01
Live Time: 0 16:40:00.00 Real Time: 0 16:40:00.10

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.53	10	0438.12	396.50	318	158	1.67E-04	31.6		
2	0	5274.08	10	0410.73	626.50	538	178	1.67E-04	31.6		
3	0	5814.62	3	0298.16	816.50	735	164	5.00E-05	57.7		

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 18:35:48.94

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4622.66*	85	0264.69	402.00	318	158	8.35E-03	14.7		
2	0	5303.14*	42	0 12.17	636.62	538	178	4.09E-03	21.3		
3	0	5862.19*	32	0395.52	833.39	735	164	3.14E-03	24.0		

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 18:35:49

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0T
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 13:39:52
Sample ID : 16 Sample quantity : 1.0795 gram
Sample type : RA Sample geometry :
Detector name : 048 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.10 0.0%
Energy tolerance : 100.00 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 3.00 %
Efficiency type : Average value Efficiencies at : Peak Energy
Abundance limit : 75.00

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity pCi/gram
0	4622.66*	85264.69	402.00		318	158	29.5		RA-226	1.03
0	5303.14*	42 12.17	636.62		538	178	42.6		RN-222	0.505
0	5862.19*	32395.52	833.39		735	164	47.9		PO-218	0.388

JP 8/31/05

VAX/VMS Peak Search Report Generated 31-AUG-2005 09:44:13.70

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809601_GE5_BAFIL_87755.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : SPIKE
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 09:33:52
Sample ID : 0508096-01 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.83 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	21.27	55	21	0.65	202.12	194	17	9.20E-02	22.1	
2	0	30.96	1626	33	0.70	295.51	285	25	2.71E+00	2.6	
3	6	35.02	328	11	0.66	334.64	325	25	5.46E-01	6.4	1.68E+00
4	6	35.96	67	11	0.55	343.72	325	25	1.12E-01	19.3	
5	0	53.61	24	26	0.60	513.82	499	19	4.01E-02	47.4	
6	0	61.86	156	52	0.59	593.29	579	24	2.59E-01	13.1	
7	2	65.87	88	24	0.81	631.93	618	28	1.47E-01	16.3	3.71E+00
8	2	66.61	32	10	0.72	639.07	618	28	5.42E-02	28.7	
9	0	81.14	597	87	0.56	779.09	766	28	9.95E-01	5.6	
10	4	110.48	30	24	1.15	1061.81	1052	34	5.02E-02	35.0	3.24E+00
11	4	111.54	53	23	0.79	1072.00	1052	34	8.91E-02	30.9	
12	4	112.07	113	16	0.63	1077.18	1052	34	1.88E-01	12.8	
13	0	115.94	32	19	0.70	1114.43	1102	21	5.32E-02	35.0	
14	0	160.88	26	14	0.40	1547.50	1539	18	4.34E-02	32.2	
15	0	276.50	25	7	0.82	2661.66	2649	21	4.20E-02	28.8	
16	6	302.13	12	0	1.05	2908.65	2903	23	2.07E-02	33.3	3.36E+00
17	6	302.79	116	5	0.96	2915.00	2903	23	1.93E-01	8.7	
18	6	303.57	16	4	1.25	2922.52	2903	23	2.60E-02	36.3	
19	0	333.90	44	8	1.14	3214.81	3200	23	7.34E-02	19.9	
20	0	356.10	278	10	1.05	3428.78	3413	27	4.64E-01	6.4	
21	5	383.73	24	3	1.01	3695.00	3684	24	3.93E-02	35.2	8.70E-01
22	5	384.30	24	1	0.60	3700.55	3684	24	4.08E-02	29.9	
23	2	386.95	180	13	1.23	3726.06	3711	28	3.01E-01	6.9	5.18E+00
24	2	387.46	10	12	1.02	3731.00	3711	28	1.73E-02	103.3	
25	0	391.30	19	9	0.60	3767.92	3756	19	3.18E-02	37.2	
26	0	414.73	30	0	0.34	3993.77	3979	24	5.00E-02	18.3	

Sample ID : 0508096-01 Acquisition date : 31-AUG-2005 09:33:52

Total number of lines in spectrum 26
Number of unidentified lines 20
Number of lines tentatively identified by NID 6 23.08%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.780E+02	4.780E+02	0.803E+02	16.81	
	Total Activity :		4.780E+02	4.780E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	1.847E+03	1.847E+03	0.535E+03	28.97	
	Total Activity :		1.847E+03	1.847E+03			

Grand Total Activity : 2.325E+03 2.325E+03

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.430E+02	4.431E+02	18.97	OK
	302.84	17.80	3.440E+00	8.502E+02	8.502E+02	32.26	OK
	356.01	60.00	1.579E+00	1.324E+03	1.324E+03	32.40	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 4.780E+02+/- 8.035E+01 (16.81%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	1.847E+03	1.847E+03	28.97	OK

Final Mean for 1 Valid Peaks = 1.847E+03+/- 5.351E+02 (28.97%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.780E+02	8.035E+01	2.255E+01	3.329E+00	21.200
TH-234	1.847E+03	5.351E+02	3.410E+02	3.980E+01	5.417

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	5.131E-01		1.837E+00	3.755E+00	1.562E-01	0.137
CD-109	1.720E+01		6.563E+01	1.283E+02	7.009E+00	0.134
PA-231	9.183E+06		2.600E+12	6.484E+07	1.836E+13	0.142
PA-234	1.568E+04	+	7.478E+05	1.126E+04	5.372E+05	1.392
NP-237	-2.227E+01		2.108E+01	3.265E+01	1.835E+00	-0.682
AM-241	2.041E+01		2.323E+01	4.202E+01	5.967E+00	0.486

VAX/VMS Peak Search Report Generated 31-AUG-2005 09:54:41.02

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809602_GE5_BAFIL_87757.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : BLANK
Deposition Date :
Sample Date : 23-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 09:44:22
Sample ID : 0508096-02 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.84 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	21.01	83	29	0.56	199.62	188	19	1.38E-01	17.2	
2	0	30.95	1524	77	0.72	295.44	283	29	2.54E+00	2.9	
3	1	35.08	281	24	0.74	335.21	325	26	4.69E-01	7.5	1.26E+00
4	1	35.99	100	19	0.67	344.00	325	26	1.66E-01	15.9	
5	0	61.78	192	34	0.84	592.51	576	28	3.20E-01	10.1	
6	0	66.11	104	20	1.36	634.24	619	30	1.73E-01	14.4	
7	0	81.12	574	48	0.72	778.91	769	21	9.56E-01	4.9	
8	0	111.86	168	27	0.92	1075.17	1060	26	2.80E-01	10.4	
9	0	116.78	12	31	0.47	1122.49	1109	17	1.95E-02	97.8	
10	0	160.75	20	12	0.15	1546.28	1536	19	3.39E-02	38.1	
11	0	276.68	32	5	0.52	2663.39	2652	21	5.29E-02	22.4	
12	0	302.92	96	0	1.09	2916.28	2902	25	1.60E-01	10.2	
13	0	333.74	46	3	0.91	3213.26	3198	26	7.72E-02	16.7	
14	0	356.09	279	15	0.98	3428.65	3414	25	4.64E-01	6.7	
15	0	383.95	68	4	0.47	3697.10	3682	24	1.13E-01	14.0	
16	5	386.31	18	1	1.49	3719.91	3712	24	3.06E-02	43.1	3.33E+00
17	5	386.84	106	3	1.02	3725.00	3712	24	1.77E-01	9.7	
18	5	387.67	11	2	0.60	3732.98	3712	24	1.90E-02	40.0	

Sample ID : 0508096-02 Acquisition date : 31-AUG-2005 09:44:22

Total number of lines in spectrum 18
Number of unidentified lines 12
Number of lines tentatively identified by NID 6 33.33%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.524E+02	4.531E+02	0.739E+02	16.31	
	Total Activity :		4.524E+02	4.531E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	2.277E+03	2.277E+03	0.541E+03	23.74	
	Total Activity :		2.277E+03	2.277E+03			

Grand Total Activity : 2.729E+03 2.730E+03

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.258E+02	4.265E+02	18.22	OK
	302.84	17.80	3.440E+00	7.062E+02	7.073E+02	33.93	OK
	356.01	60.00	1.579E+00	1.324E+03	1.326E+03	32.64	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 4.531E+02+/- 7.392E+01 (16.31%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	2.277E+03	2.277E+03	23.74	OK

Final Mean for 1 Valid Peaks = 2.277E+03+/- 5.405E+02 (23.74%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.531E+02	7.392E+01	2.286E+01	3.376E+00	19.817
TH-234	2.277E+03	5.405E+02	2.104E+02	2.456E+01	10.821

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-5.552E-01		2.193E+00	4.017E+00	1.671E-01	-0.138
CD-109	-4.598E+01		5.904E+01	9.652E+01	5.273E+00	-0.476
PA-231	2.046E+06		5.794E+11	5.858E+07	1.659E+13	0.035
PA-234	2.345E+04	+	1.118E+06	1.263E+04	6.023E+05	1.857
NP-237	-2.056E+01		2.020E+01	3.146E+01	1.768E+00	-0.654
AM-241	1.398E+01		2.642E+01	4.417E+01	6.273E+00	0.317

VAX/VMS Peak Search Report Generated 31-AUG-2005 10:18:38.98

Configuration	: DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809603_GE5_BAFIL_87758.CNF		
Analyses by	: PEAK V16.9 PEAKEFF V2.2		
Client ID	: VPSCR081705SL0H		
Deposition Date	:		
Sample Date	: 31-AUG-2005 00:00:00	Acquisition date	: 31-AUG-2005 10:08:17
Sample ID	: 0508096-03	Sample Quantity	: 1.00000E+00 FILTER
Sample type	: FILTER	Sample Geometry	: 0
Detector name	: GE5	Detector Geometry	: BAFIL
Elapsed live time	: 0 00:10:00.00	Elapsed real time	: 0 00:10:00.82 0.1%
Start channel	: 25	End channel	: 4096
Sensitivity	: 3.00000	Gaussian	: 10.00000
Critical level	: No		

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	9.03	13	10	1.06	84.19	74	20	2.17E-02	65.7	
2	0	21.24	45	28	0.47	201.84	194	16	7.52E-02	27.9	
3	0	25.24	12	9	0.39	240.43	232	13	2.06E-02	51.1	
4	0	30.95	1433	68	0.89	295.40	280	29	2.39E+00	3.0	
5	2	35.00	239	18	0.70	334.50	323	30	3.99E-01	8.2	1.45E+00
6	2	35.99	67	23	0.67	344.00	323	30	1.11E-01	27.4	
7	0	53.49	33	33	0.42	512.60	496	26	5.54E-02	44.2	
8	1	61.69	93	28	0.79	591.69	581	20	1.55E-01	18.0	2.32E+00
9	1	62.31	52	13	0.65	597.62	581	20	8.69E-02	17.3	
10	5	66.08	63	25	0.73	634.00	621	24	1.05E-01	21.8	1.21E+00
11	5	66.82	21	6	0.43	641.12	621	24	3.42E-02	32.1	
12	0	81.05	593	25	0.72	778.23	760	28	9.88E-01	4.6	
13	0	112.06	124	50	0.95	1077.07	1063	22	2.06E-01	15.1	
14	0	143.32	10	9	0.63	1378.34	1367	14	1.60E-02	66.5	
15	6	275.67	22	2	1.64	2653.67	2649	23	3.64E-02	16.2	1.18E+00
16	6	276.55	36	5	1.16	2662.15	2649	23	6.06E-02	19.1	
17	1	302.79	126	2	0.96	2915.00	2903	23	2.10E-01	7.6	4.38E+00
18	1	303.51	10	2	0.96	2922.00	2903	23	1.63E-02	56.8	
19	1	333.40	10	5	0.98	3210.00	3201	21	1.67E-02	64.0	1.57E+00
20	1	333.81	33	4	0.98	3214.00	3201	21	5.51E-02	19.4	
21	3	354.99	13	4	1.09	3418.04	3414	26	2.14E-02	38.1	3.81E+00
22	3	355.94	252	16	0.90	3427.23	3414	26	4.20E-01	7.3	
23	3	356.56	28	9	0.73	3433.15	3414	26	4.72E-02	52.4	
24	0	383.98	60	6	1.27	3697.42	3683	27	9.97E-02	15.7	
25	2	386.62	29	17	1.18	3722.90	3712	24	4.83E-02	44.6	2.59E+00
26	2	387.15	121	16	1.02	3728.00	3712	24	2.02E-01	9.8	
27	0	391.14	23	0	0.59	3766.43	3755	20	3.83E-02	20.9	

Sample ID : 0508096-03 Acquisition date : 31-AUG-2005 10:08:17

Total number of lines in spectrum 27
Number of unidentified lines 20
Number of lines tentatively identified by NID 7 25.93%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.400E+02	4.400E+02	0.786E+02	17.87	
	Total Activity :		4.400E+02	4.400E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
PA-231	3.28E+04Y	1.00	3.387E+07	3.387E+07	**********		
PA-234	4.47E+09Y	1.00	1.136E+03	1.136E+03	1.345E+03	118.41	
TH-234	4.47E+09Y	1.00	6.192E+02	6.192E+02	2.272E+02	36.70	
	Total Activity :		3.387E+07	3.387E+07			
	Grand Total Activity :		3.387E+07	3.387E+07			

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.400E+02	4.400E+02	17.87	OK
	302.84	17.80	3.440E+00	9.273E+02	9.274E+02	31.11	<<WM Interf
	356.01	60.00	1.579E+00	1.198E+03	1.198E+03	33.11	<<WM N-Sigma

Final Mean for 1 Valid Peaks = 4.400E+02+/- 7.862E+01 (17.87%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
PA-231	9.28	42.00*	4.117E-06	3.387E+07	3.387E+07*******		OK
	10.11	20.20	1.155E-05	2.509E+07	2.509E+07*******		<<WM Interf
	283.67	1.60	4.548E+00	----- Line Not Found -----			Absent
	302.67	2.30	3.449E+00	7.159E+03	7.159E+03	29.37	<<WM Interf

Final Mean for 1 Valid Peaks = 3.387E+07+/- 9.590E+12 (******%)

PA-234	9.89	89.00	8.893E-06	7.398E+06	7.398E+06*******		<<WM Interf
	21.72	64.90*	2.444E-02	1.281E+04	1.281E+044770.21		OK
	37.93	23.75	1.111E+00	1.136E+03	1.136E+03	118.42	OK
	131.42	20.40	2.613E+01	----- Line Not Found -----			Absent

Final Mean for 2 Valid Peaks = 1.136E+03+/- 1.345E+03 (118.41%)

TH-234	63.29	3.80*	9.987E+00	6.192E+02	6.192E+02	36.70	OK

Final Mean for 1 Valid Peaks = 6.192E+02+/- 2.272E+02 (36.70%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.400E+02	7.862E+01	1.667E+01	2.460E+00	26.404
PA-231	3.387E+07	9.590E+12	4.922E+07	1.394E+13	0.688
PA-234	1.136E+03	1.345E+03	3.878E+03	1.850E+05	0.293
TH-234	6.192E+02	2.272E+02	4.689E+02	5.473E+01	1.321

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	9.033E-01		2.069E+00	4.233E+00	1.761E-01	0.213
CD-109	-1.142E+01		6.255E+01	1.149E+02	6.279E+00	-0.099
NP-237	-1.708E+01		2.134E+01	3.489E+01	1.961E+00	-0.490
AM-241	8.679E+00		2.855E+01	4.552E+01	6.465E+00	0.191

9/31-06

VAX/VMS Peak Search Report Generated 31-AUG-2005 10:30:02.87

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809604_GE5_BAFIL_87763.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0H
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 10:19:49
Sample ID : 0508096-04 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.78 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	6	20.94	69	19	0.64	199.00	191	17	1.15E-01	16.0	4.42E+00
2	6	21.51	7	3	0.34	204.42	191	17	1.21E-02	70.4	
3	0	28.60	20	23	1.52	272.81	261	18	3.41E-02	52.3	
4	0	30.95	1425	97	0.67	295.38	282	28	2.38E+00	3.1	
5	4	35.07	259	40	0.63	335.12	324	25	4.32E-01	8.1	9.30E-01
6	4	35.91	57	21	0.57	343.22	324	25	9.48E-02	24.9	
7	0	51.91	23	5	0.76	497.44	490	14	3.89E-02	26.7	
8	0	53.36	29	9	0.68	511.37	504	15	4.77E-02	27.7	
9	0	61.84	218	28	0.76	593.13	581	30	3.63E-01	9.1	
10	0	65.96	94	13	0.86	632.77	619	27	1.56E-01	13.8	
11	0	81.09	542	41	0.59	778.65	769	19	9.04E-01	4.9	
12	0	111.98	130	41	0.34	1076.28	1066	21	2.17E-01	13.7	
13	0	276.59	34	11	0.44	2662.53	2649	22	5.67E-02	25.5	
14	1	302.79	92	0	0.96	2915.00	2903	25	1.53E-01	10.3	2.02E+00
15	1	303.41	20	0	0.96	2921.00	2903	25	3.41E-02	40.8	
16	2	333.20	12	13	1.08	3208.05	3195	25	1.93E-02	85.6	1.12E+00
17	2	333.81	32	12	0.88	3213.95	3195	25	5.39E-02	21.3	
18	0	356.12	273	0	1.08	3428.99	3414	30	4.55E-01	6.1	
19	0	383.87	57	6	0.61	3696.33	3682	26	9.53E-02	16.0	
20	0	386.91	106	11	0.59	3725.68	3710	28	1.77E-01	11.7	

Sample ID : 0508096-04 Acquisition date : 31-AUG-2005 10:19:49

Total number of lines in spectrum 20
Number of unidentified lines 15
Number of lines tentatively identified by NID 5 25.00%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.278E+02	4.278E+02	0.698E+02	16.31	
	Total Activity :		4.278E+02	4.278E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	2.587E+03	2.587E+03	0.570E+03	22.04	
	Total Activity :		2.587E+03	2.587E+03			
	Grand Total Activity :		3.015E+03	3.015E+03			

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.027E+02	4.027E+02	18.19	OK
	302.84	17.80	3.440E+00	6.739E+02	6.740E+02	34.04	OK
	356.01	60.00	1.579E+00	1.298E+03	1.298E+03	32.10	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 4.278E+02+/- 6.979E+01 (16.31%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	2.587E+03	2.587E+03	22.04	OK

Final Mean for 1 Valid Peaks = 2.587E+03+/- 5.701E+02 (22.04%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.278E+02	6.979E+01	2.311E+01	3.412E+00	18.511
TH-234	2.587E+03	5.701E+02	2.104E+02	2.456E+01	12.295

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	4.135E-01		2.046E+00	4.056E+00	1.688E-01	0.102
CD-109	5.687E+01		6.669E+01	1.401E+02	7.652E+00	0.406
PA-231	-4.501E+06		1.274E+12	5.633E+07	1.595E+13	-0.080
PA-234	2.056E+03	+	9.812E+04	1.057E+04	5.042E+05	0.195
NP-237	-1.770E+01		2.009E+01	3.224E+01	1.813E+00	-0.549
AM-241	9.351E+00		2.484E+01	4.094E+01	5.814E+00	0.228

VAX/VMS Peak Search Report Generated 31-AUG-2005 10:40:44.42

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809605_GE5_BAFIL_87764.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0I
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 10:30:26
Sample ID : 0508096-05 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.83 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	21.17	55	31	0.63	201.16	191	19	9.13E-02	25.6	
2	0	30.93	1504	72	0.62	295.28	280	27	2.51E+00	2.9	
3	0	35.17	373	6	0.75	336.07	320	34	6.22E-01	5.4	
4	0	52.19	8	12	0.11	500.12	488	14	1.36E-02	84.0	
5	0	53.28	41	5	0.54	510.65	503	16	6.78E-02	19.1	
6	0	61.83	173	33	0.77	593.01	579	24	2.88E-01	10.6	
7	2	65.98	110	7	0.88	633.04	622	27	1.84E-01	10.0	2.44E+00
8	2	66.76	18	6	0.88	640.47	622	27	3.04E-02	52.0	
9	5	79.61	48	6	0.91	764.38	756	32	8.06E-02	18.8	1.36E+00
10	5	81.06	593	14	0.70	778.36	756	32	9.89E-01	4.3	
11	1	111.46	48	16	0.87	1071.31	1065	21	8.03E-02	23.7	1.73E+00
12	1	112.01	116	14	0.80	1076.58	1065	21	1.93E-01	12.3	
13	0	302.94	96	0	0.83	2916.52	2902	25	1.60E-01	10.2	
14	3	333.60	26	8	1.08	3211.95	3198	24	4.32E-02	32.2	9.00E-01
15	3	334.32	18	1	0.72	3218.91	3198	24	3.06E-02	19.0	
16	0	356.12	264	9	0.95	3428.94	3414	27	4.40E-01	6.6	
17	0	383.96	63	3	0.46	3697.28	3681	27	1.06E-01	13.9	
18	0	386.96	94	10	1.18	3726.12	3711	26	1.56E-01	12.4	

Sample ID : 0508096-05 Acquisition date : 31-AUG-2005 10:30:26

Total number of lines in spectrum 18
Number of unidentified lines 13
Number of lines tentatively identified by NID 5 27.78%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.653E+02	4.654E+02	0.735E+02	15.79	
	Total Activity :		4.653E+02	4.654E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	2.048E+03	2.048E+03	0.502E+03	24.52	
	Total Activity :		2.048E+03	2.048E+03			
	Grand Total Activity :		2.513E+03	2.513E+03			

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.404E+02	4.404E+02	17.53	OK
	302.84	17.80	3.440E+00	7.062E+02	7.063E+02	33.93	OK
	356.01	60.00	1.579E+00	1.255E+03	1.255E+03	32.56	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 4.654E+02+/- 7.347E+01 (15.79%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	2.048E+03	2.048E+03	24.52	OK

Final Mean for 1 Valid Peaks = 2.048E+03+/- 5.021E+02 (24.52%)

Flag: "*" = Keyline

Sample ID : 0508096-05 Acquisition date : 31-AUG-2005 10:30:26

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.654E+02	7.347E+01	2.221E+01	3.279E+00	20.951
TH-234	2.048E+03	5.021E+02	2.505E+02	2.924E+01	8.175

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-1.241E+00		2.227E+00	3.856E+00	1.604E-01	-0.322
CD-109	2.262E+01		5.356E+01	1.112E+02	6.074E+00	0.203
PA-231	-1.202E+07		3.403E+12	5.633E+07	1.595E+13	-0.213
PA-234	1.555E+04	+	7.419E+05	1.117E+04	5.330E+05	1.392
NP-237	-1.910E+01		1.924E+01	3.002E+01	1.688E+00	-0.636
AM-241	7.823E+00		2.564E+01	4.154E+01	5.900E+00	0.188

JD 8.31-05

VAX/VMS Peak Search Report Generated 31-AUG-2005 10:53:45.11

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809606_GE5_BAFIL_87765.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0J
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 10:43:21
Sample ID : 0508096-06 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.82 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	21.12	50	27	0.50	200.75	192	16	8.39E-02	24.2	
2	0	27.55	16	10	0.58	262.66	256	12	2.68E-02	42.2	
3	0	30.92	1483	46	0.70	295.13	283	27	2.47E+00	2.8	
4	1	35.11	354	10	0.72	335.52	322	29	5.90E-01	5.9	3.87E+00
5	1	35.99	118	9	0.67	344.00	322	29	1.96E-01	13.3	
6	0	53.33	20	25	0.49	511.08	502	17	3.31E-02	54.6	
7	0	61.76	176	23	0.72	592.30	582	23	2.93E-01	9.6	
8	1	65.56	64	17	0.73	629.00	622	19	1.07E-01	19.0	8.42E+00
9	1	66.19	77	26	0.73	635.00	622	19	1.29E-01	15.1	
10	9	79.54	41	20	0.91	763.63	757	34	6.87E-02	19.4	2.39E+00
11	9	81.07	570	20	0.70	778.44	757	34	9.49E-01	4.5	
12	0	84.08	8	2	0.46	807.42	801	12	1.32E-02	47.2	
13	0	111.96	144	18	0.65	1076.06	1064	21	2.39E-01	10.4	
14	0	276.59	31	6	0.41	2662.55	2648	22	5.11E-02	23.6	
15	0	302.86	94	0	0.91	2915.76	2901	25	1.57E-01	10.3	
16	0	333.67	39	0	0.41	3212.59	3196	29	6.50E-02	16.0	
17	5	355.97	160	6	0.99	3427.48	3414	27	2.67E-01	10.5	4.96E+00
18	5	356.44	167	6	1.00	3432.00	3414	27	2.78E-01	9.5	
19	0	383.92	62	3	1.06	3696.86	3682	28	1.03E-01	14.2	
20	1	386.53	10	6	1.02	3722.00	3712	28	1.73E-02	100.6	1.58E+00
21	1	387.05	106	10	1.02	3727.00	3712	28	1.77E-01	11.4	
22	1	390.68	21	7	1.02	3762.00	3750	24	3.57E-02	32.9	9.33E-01
23	1	391.30	19	5	1.02	3768.00	3750	24	3.17E-02	29.7	

Sample ID : 0508096-06 Acquisition date : 31-AUG-2005 10:43:21

Total number of lines in spectrum 23
Number of unidentified lines 17
Number of lines tentatively identified by NID 6 26.09%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.670E+02	4.671E+02	0.691E+02	14.80	
Total Activity :			4.670E+02	4.671E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	2.089E+03	2.089E+03	0.478E+03	22.87	
Total Activity :			2.089E+03	2.089E+03			

Grand Total Activity : 2.556E+03 2.556E+03

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.228E+02	4.229E+02	17.72	OK
	302.84	17.80	3.440E+00	6.915E+02	6.916E+02	34.06	OK
	356.01	60.00	1.579E+00	7.624E+02	7.625E+02	36.42	OK

Final Mean for 3 Valid Peaks = 4.671E+02+/- 6.914E+01 (14.80%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	2.089E+03	2.089E+03	22.87	OK

Final Mean for 1 Valid Peaks = 2.089E+03+/- 4.778E+02 (22.87%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.671E+02	6.914E+01	1.558E+01	2.300E+00	29.982
TH-234	2.089E+03	4.778E+02	2.505E+02	2.924E+01	8.340

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	4.390E-01		2.258E+00	4.402E+00	1.832E-01	0.100
CD-109	-3.403E+01		5.603E+01	9.538E+01	5.211E+00	-0.357
PA-231	1.881E+07		5.327E+12	5.952E+07	1.685E+13	0.316
PA-234	1.429E+04	+	6.819E+05	1.187E+04	5.662E+05	1.204
NP-237	-7.310E+00		2.087E+01	3.489E+01	1.961E+00	-0.210
AM-241	7.283E+00		2.241E+01	3.725E+01	5.289E+00	0.196

VAX/VMS Peak Search Report Generated 31-AUG-2005 11:04:57.17

8/31/05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809607_GE5_BAFIL_87767.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0K
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 10:54:37
Sample ID : 0508096-07 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.82 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	21.05	54	17	0.54	200.05	193	17	9.08E-02	20.7	
2	0	25.05	27	10	1.81	238.53	227	21	4.43E-02	32.3	
3	2	28.08	43	7	0.79	267.80	258	50	7.11E-02	24.6	2.90E+00
4	2	28.93	30	7	0.66	276.00	258	50	4.93E-02	39.6	
5	2	30.98	1528	24	0.80	295.70	258	50	2.55E+00	2.6	
6	3	35.08	298	25	0.82	335.22	318	33	4.97E-01	7.1	9.62E-01
7	3	35.96	57	4	0.60	343.71	318	33	9.58E-02	25.3	
8	0	53.23	50	13	0.70	510.11	499	20	8.32E-02	20.8	
9	2	61.76	238	28	0.87	592.38	577	29	3.97E-01	7.3	1.16E+01
10	2	62.42	52	9	0.79	598.69	577	29	8.68E-02	25.1	
11	0	66.11	72	30	0.59	634.26	622	23	1.19E-01	20.7	
12	0	81.13	602	54	0.67	779.00	769	27	1.00E+00	5.2	
13	0	111.91	132	22	0.81	1075.65	1061	24	2.19E-01	11.6	
14	0	116.37	25	23	0.32	1118.63	1104	21	4.17E-02	46.2	
15	0	276.59	33	3	0.91	2662.61	2649	22	5.46E-02	20.1	
16	6	302.25	11	0	0.51	2909.79	2903	24	1.87E-02	54.5	5.20E-01
17	6	303.01	82	3	1.04	2917.13	2903	24	1.37E-01	11.5	
18	6	332.99	15	0	0.80	3206.02	3200	25	2.45E-02	22.5	1.02E+00
19	6	333.79	27	3	1.19	3213.79	3200	25	4.43E-02	25.4	
20	0	356.12	289	0	1.05	3428.94	3414	29	4.82E-01	5.9	
21	1	383.83	53	6	1.01	3696.00	3683	24	8.87E-02	16.6	5.57E-01
22	1	384.35	13	3	1.01	3701.00	3683	24	2.18E-02	56.4	
23	1	386.43	30	7	1.02	3721.00	3710	27	5.00E-02	35.2	8.71E-01
24	1	387.17	51	7	0.93	3728.15	3710	27	8.54E-02	20.2	
25	1	414.55	48	2	1.03	3992.00	3982	21	7.93E-02	11.8	1.80E+00
26	1	415.22	12	2	1.14	3998.48	3982	21	2.04E-02	30.9	

Sample ID : 0508096-07 Acquisition date : 31-AUG-2005 10:54:37

Total number of lines in spectrum 26
Number of unidentified lines 20
Number of lines tentatively identified by NID 6 23.08%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.669E+02	4.670E+02	0.771E+02	16.52	
	Total Activity :		4.669E+02	4.670E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	6.181E+02	6.181E+02	3.194E+02	51.68	
	Total Activity :		6.181E+02	6.181E+02			

Grand Total Activity : 1.085E+03 1.085E+03

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.468E+02	4.468E+02	18.50	OK
	302.84	17.80	3.440E+00	6.027E+02	6.027E+02	35.59	OK
	356.01	60.00	1.579E+00	1.374E+03	1.374E+03	31.97	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 4.670E+02+/- 7.713E+01 (16.52%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	6.181E+02	6.181E+02	51.68	OK

Final Mean for 1 Valid Peaks = 6.181E+02+/- 3.194E+02 (51.68%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.670E+02	7.713E+01	2.782E+01	4.107E+00	16.788
TH-234	6.181E+02	3.194E+02	2.505E+02	2.924E+01	2.468

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-8.212E-01		2.300E+00	4.117E+00	1.713E-01	-0.199
CD-109	1.132E+01		6.659E+01	1.282E+02	7.004E+00	0.088
PA-231	-2.291E+06		6.488E+11	5.164E+07	1.462E+13	-0.044
PA-234	1.547E+04	+	7.378E+05	1.103E+04	5.262E+05	1.402
NP-237	-2.401E+01		2.080E+01	3.146E+01	1.768E+00	-0.763
AM-241	7.551E+00		2.561E+01	4.142E+01	5.883E+00	0.182

VAX/VMS Peak Search Report Generated 31-AUG-2005 11:17:17.42

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809608_GE5_BAFIL_87768.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0L
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 11:06:55
Sample ID : 0508096-08 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.81 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	3	20.63	19	24	0.64	196.00	186	22	3.12E-02	69.4	9.28E-01
2	3	21.20	47	17	0.60	201.50	186	22	7.85E-02	23.3	
3	0	30.93	1488	19	0.72	295.27	281	29	2.48E+00	2.7	
4	2	35.05	310	11	0.73	334.96	324	29	5.16E-01	6.4	1.06E+00
5	2	35.89	92	7	0.80	343.06	324	29	1.53E-01	19.3	
6	0	53.09	42	22	0.88	508.78	494	26	7.05E-02	29.7	
7	1	61.41	43	37	0.72	589.00	578	26	7.16E-02	40.2	4.17E+00
8	1	62.24	92	19	0.72	597.00	578	26	1.53E-01	14.3	
9	1	65.91	50	7	0.80	632.30	622	24	8.39E-02	22.4	2.41E+00
10	1	66.91	42	3	0.73	642.00	622	24	6.95E-02	13.7	
11	0	81.11	566	56	0.58	778.82	767	22	9.43E-01	5.1	
12	4	101.14	19	1	0.89	971.80	968	19	3.20E-02	19.1	3.38E-01
13	4	102.25	15	5	0.51	982.48	968	19	2.50E-02	29.4	
14	1	111.64	101	20	0.79	1073.00	1058	30	1.68E-01	15.8	5.27E+00
15	1	112.26	115	10	0.79	1079.00	1058	30	1.92E-01	12.0	
16	0	276.51	25	5	0.55	2661.75	2650	20	4.17E-02	26.1	
17	1	302.68	86	3	0.96	2914.00	2904	25	1.44E-01	10.9	1.99E+00
18	1	303.28	38	2	1.06	2919.75	2904	25	6.31E-02	25.8	
19	0	333.81	48	0	0.39	3213.96	3198	27	8.00E-02	14.4	
20	0	356.06	253	7	0.85	3428.35	3414	28	4.22E-01	6.7	
21	0	383.89	48	11	0.70	3696.59	3683	24	7.93E-02	20.5	
22	0	387.00	106	15	0.96	3726.53	3710	29	1.76E-01	12.4	

Sample ID : 0508096-08 Acquisition date : 31-AUG-2005 11:06:55

Total number of lines in spectrum 22
Number of unidentified lines 16
Number of lines tentatively identified by NID 6 27.27%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.435E+02	4.435E+02	0.728E+02	16.42	
			---	---			
	Total Activity :		4.435E+02	4.435E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	1.087E+03	1.087E+03	0.339E+03	31.18	
AM-241	432.20Y	1.00	6.566E+01	6.566E+01	5.370E+01	81.79	
			---	---			
	Total Activity :		1.153E+03	1.153E+03			

Grand Total Activity : 1.596E+03 1.596E+03

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.201E+02	4.201E+02	18.35	OK
	302.84	17.80	3.440E+00	6.363E+02	6.363E+02	34.81	OK
	356.01	60.00	1.579E+00	1.204E+03	1.204E+03	32.58	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 4.435E+02+/- 7.283E+01 (16.42%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	1.087E+03	1.087E+03	31.18	OK

Final Mean for 1 Valid Peaks = 1.087E+03+/- 3.390E+02 (31.18%)

AM-241	59.54	35.90*	8.208E+00	6.566E+01	6.566E+01	81.79	OK

Final Mean for 1 Valid Peaks = 6.566E+01+/- 5.370E+01 (81.79%)

Flag: "*" = Keyline

Sample ID : 0508096-08
Acquisition date : 31-AUG-2005 11:06:55

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.435E+02	7.283E+01	2.107E+01	3.111E+00	21.051
TH-234	1.087E+03	3.390E+02	2.843E+02	3.318E+01	3.824
AM-241	6.566E+01	5.370E+01	3.647E+01	5.180E+00	1.800

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-6.594E-01		1.983E+00	3.607E+00	1.501E-01	-0.183
CD-109	-1.122E+01		6.663E+01	1.219E+02	6.660E+00	-0.092
PA-231	-2.249E+07		6.369E+12	4.992E+07	1.414E+13	-0.451
PA-234	1.338E+04	+	6.383E+05	1.209E+04	5.768E+05	1.106
NP-237	-6.735E+00		1.957E+01	3.489E+01	1.961E+00	-0.193

VAX/VMS Peak Search Report Generated 31-AUG-2005 11:31:42.77

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809609_GE5_BAFIL_87771.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0M
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 11:21:26
Sample ID : 0508096-09 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.77 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	21.25	37	27	0.54	202.00	192	16	6.21E-02	31.2	
2	0	30.93	1235	64	0.79	295.23	280	29	2.06E+00	3.2	
3	2	35.11	244	22	0.72	335.55	323	27	4.07E-01	8.1	9.27E-01
4	2	35.99	63	10	0.67	344.00	323	27	1.05E-01	21.6	
5	3	50.79	15	3	0.76	486.60	483	20	2.51E-02	25.3	5.42E-01
6	3	51.66	19	5	0.70	495.00	483	20	3.17E-02	35.0	
7	0	53.35	31	8	0.55	511.30	503	15	5.24E-02	24.2	
8	0	61.72	149	20	0.88	591.97	579	21	2.49E-01	10.4	
9	0	66.05	79	5	1.60	633.66	617	30	1.31E-01	13.3	
10	0	81.14	467	58	0.62	779.09	768	24	7.78E-01	6.0	
11	0	111.99	99	26	0.24	1076.42	1066	20	1.66E-01	14.7	
12	6	276.08	30	2	1.45	2657.67	2651	19	4.99E-02	16.7	9.18E-01
13	6	276.65	15	1	0.61	2663.12	2651	19	2.50E-02	33.3	
14	0	302.96	70	3	0.47	2916.70	2903	23	1.16E-01	12.9	
15	1	355.19	30	4	0.90	3420.04	3413	29	5.03E-02	29.7	3.89E+00
16	1	355.92	219	10	1.10	3427.04	3413	29	3.65E-01	7.4	
17	7	383.92	45	0	0.93	3696.86	3683	24	7.55E-02	16.7	6.05E-01
18	7	384.70	19	0	0.49	3704.41	3683	24	3.09E-02	22.2	
19	7	387.17	114	7	1.50	3728.17	3713	23	1.89E-01	9.0	2.92E+00
20	7	387.67	10	3	1.02	3733.00	3713	23	1.73E-02	47.5	

Sample ID : 0508096-09 Acquisition date : 31-AUG-2005 11:21:26

Total number of lines in spectrum 20
Number of unidentified lines 14
Number of lines tentatively identified by NID 6 30.00%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	3.646E+02	3.646E+02	0.635E+02	17.42	
	Total Activity :		3.646E+02	3.646E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	1.774E+03	1.774E+03	0.430E+03	24.22	
	Total Activity :		1.774E+03	1.774E+03			

Grand Total Activity : 2.138E+03 2.138E+03

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	3.464E+02	3.464E+02	19.43	OK
	302.84	17.80	3.440E+00	5.125E+02	5.126E+02	37.48	OK
	356.01	60.00	1.579E+00	1.041E+03	1.041E+03	33.22	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 3.646E+02+/- 6.352E+01 (17.42%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	1.774E+03	1.774E+03	24.22	OK

Final Mean for 1 Valid Peaks = 1.774E+03+/- 4.296E+02 (24.22%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	3.646E+02	6.352E+01	2.740E+01	4.045E+00	13.307
TH-234	1.774E+03	4.296E+02	3.410E+02	3.980E+01	5.202

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-6.656E-02		1.873E+00	3.621E+00	1.507E-01	-0.018
CD-109	1.721E+01		5.238E+01	1.076E+02	5.880E+00	0.160
PA-231	-3.420E+07		9.683E+12	4.338E+07	1.228E+13	-0.788
PA-234	1.059E+04	+	5.049E+05	1.094E+04	5.220E+05	0.967
NP-237	-2.061E+01		1.767E+01	2.604E+01	1.464E+00	-0.791
AM-241	3.070E+01		2.264E+01	4.395E+01	6.241E+00	0.699

VAX/VMS Peak Search Report Generated 31-AUG-2005 11:42:38.17 MR 8.31.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809610_GE5_BAFIL_87773.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0N
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 11:32:13
Sample ID : 0508096-10 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.82 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	21.26	46	34	0.22	202.02	193	16	7.69E-02	29.1	
2	0	30.95	1431	58	0.86	295.44	285	23	2.38E+00	2.9	
3	1	35.12	303	15	0.74	335.66	322	33	5.06E-01	6.7	1.62E+00
4	1	35.99	57	4	0.67	344.00	322	33	9.54E-02	31.9	
5	1	61.59	100	18	0.79	590.69	580	25	1.66E-01	16.1	7.54E-01
6	1	62.00	67	17	0.73	594.69	580	25	1.12E-01	24.0	
7	3	65.45	48	3	0.72	627.93	623	27	8.06E-02	17.7	2.17E+00
8	3	65.95	20	11	0.65	632.70	623	27	3.37E-02	57.9	
9	3	67.01	28	16	0.77	642.92	623	27	4.63E-02	29.2	
10	0	81.14	541	86	0.64	779.05	767	25	9.01E-01	5.9	
11	1	111.06	13	15	0.87	1067.39	1064	23	2.12E-02	42.7	3.61E+00
12	1	111.82	146	26	0.87	1074.76	1064	23	2.44E-01	10.5	
13	0	116.60	37	16	0.51	1120.83	1107	25	6.08E-02	30.3	
14	0	276.59	33	2	0.68	2662.53	2649	23	5.43E-02	20.2	
15	8	302.45	40	1	0.82	2911.74	2903	26	6.59E-02	23.3	2.51E+00
16	8	302.99	73	3	0.96	2917.00	2903	26	1.21E-01	14.0	
17	0	333.86	36	7	1.38	3214.46	3200	24	6.06E-02	21.5	
18	2	355.40	39	2	1.00	3422.00	3413	28	6.55E-02	37.1	2.97E-01
19	2	356.22	256	6	0.88	3429.89	3413	28	4.27E-01	6.7	
20	0	383.88	63	0	1.18	3696.49	3682	24	1.05E-01	12.6	
21	2	386.42	18	9	1.23	3720.94	3711	25	3.05E-02	50.0	3.51E+00
22	2	387.15	88	6	1.02	3728.00	3711	25	1.46E-01	10.4	

Sample ID : 0508096-10 Acquisition date : 31-AUG-2005 11:32:13

Total number of lines in spectrum 22
Number of unidentified lines 15
Number of lines tentatively identified by NID 7 31.82%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.175E+02	4.176E+02	0.726E+02	17.38	
	Total Activity :		4.175E+02	4.176E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	7.961E+02	7.961E+02	3.939E+02	49.48	
	Total Activity :		7.961E+02	7.961E+02			

Grand Total Activity : 1.214E+03 1.214E+03

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.013E+02	4.013E+02	19.29	OK
	302.84	17.80	3.440E+00	5.358E+02	5.358E+02	38.97	OK
	356.01	60.00	1.579E+00	1.217E+03	1.217E+03	32.65	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 4.176E+02+/- 7.259E+01 (17.38%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	7.961E+02	7.961E+02	49.48	OK

Final Mean for 1 Valid Peaks = 7.961E+02+/- 3.939E+02 (49.48%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.176E+02	7.259E+01	2.167E+01	3.200E+00	19.266
TH-234	7.961E+02	3.939E+02	2.274E+02	2.655E+01	3.501

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-1.111E-01		1.864E+00	3.590E+00	1.494E-01	-0.031
CD-109	9.187E+01		6.894E+01	1.513E+02	8.265E+00	0.607
PA-231	-8.047E+06		2.279E+12	6.122E+07	1.733E+13	-0.131
PA-234	1.310E+04	+	6.249E+05	1.173E+04	5.595E+05	1.117
NP-237	5.414E+00		2.161E+01	4.167E+01	2.343E+00	0.130
AM-241	1.529E+00		2.381E+01	3.725E+01	5.289E+00	0.041

VAX/VMS Peak Search Report Generated 31-AUG-2005 11:53:43.32

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809611_GE5_BAFIL_87774.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0O
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 11:43:19
Sample ID : 0508096-11 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.86 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	5.32	9	12	0.29	48.46	39	13	1.46E-02	91.0	
2	0	21.15	50	28	0.14	201.01	193	16	8.39E-02	24.8	
3	0	30.93	1419	57	0.69	295.20	280	28	2.37E+00	2.9	
4	8	35.01	220	10	0.70	334.60	325	27	3.67E-01	7.9	9.99E-01
5	8	35.99	85	6	0.81	343.97	325	27	1.42E-01	16.7	
6	2	61.10	21	20	0.87	585.93	580	25	3.49E-02	43.6	1.45E+00
7	2	61.77	154	24	0.87	592.46	580	25	2.56E-01	11.2	
8	0	66.15	30	49	0.54	634.64	623	21	4.96E-02	53.2	
9	6	79.58	44	7	0.90	764.05	755	35	7.28E-02	23.3	1.01E+00
10	6	81.06	557	18	0.73	778.33	755	35	9.28E-01	4.5	
11	0	112.05	129	37	0.26	1076.91	1065	23	2.15E-01	13.7	
12	0	184.68	10	4	0.52	1776.84	1765	17	1.60E-02	50.0	
13	0	276.45	41	0	0.32	2661.20	2649	21	6.83E-02	15.6	
14	0	303.08	83	14	0.98	2917.81	2903	24	1.39E-01	13.8	
15	0	333.90	36	3	0.32	3214.79	3201	27	5.95E-02	19.9	
16	0	356.09	235	11	0.56	3428.62	3414	29	3.92E-01	7.2	
17	0	384.01	66	7	0.36	3697.69	3683	26	1.09E-01	14.7	
18	1	386.43	71	12	1.02	3721.00	3712	25	1.18E-01	14.0	4.21E+00
19	1	387.36	50	8	1.02	3730.00	3712	25	8.31E-02	19.9	

Sample ID : 0508096-11 Acquisition date : 31-AUG-2005 11:43:19

Total number of lines in spectrum 19
Number of unidentified lines 12
Number of lines tentatively identified by NID 7 36.84%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.307E+02	4.308E+02	0.701E+02	16.27	
	Total Activity :		4.307E+02	4.308E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	1.825E+03	1.825E+03	0.468E+03	25.62	
AM-241	432.20Y	1.00	3.197E+01	3.197E+01	2.828E+01	88.46	
	Total Activity :		1.857E+03	1.857E+03			

Grand Total Activity : 2.288E+03 2.288E+03

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.133E+02	4.133E+02	17.74	OK
	302.84	17.80	3.440E+00	6.137E+02	6.137E+02	38.72	OK
	356.01	60.00	1.579E+00	1.119E+03	1.119E+03	33.01	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 4.308E+02+/- 7.007E+01 (16.27%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	1.825E+03	1.825E+03	25.62	OK

Final Mean for 1 Valid Peaks = 1.825E+03+/- 4.677E+02 (25.62%)

AM-241	59.54	35.90*	8.208E+00	3.197E+01	3.197E+01	88.46	OK

Final Mean for 1 Valid Peaks = 3.197E+01+/- 2.828E+01 (88.46%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.308E+02	7.007E+01	1.653E+01	2.441E+00	26.056
TH-234	1.825E+03	4.677E+02	3.305E+02	3.857E+01	5.524
AM-241	3.197E+01	2.828E+01	3.339E+01	4.741E+00	0.957

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-8.707E-01		2.016E+00	3.593E+00	1.495E-01	-0.242
CD-109	3.410E+01		5.827E+01	1.217E+02	6.650E+00	0.280
PA-231	1.517E+07		4.296E+12	6.651E+07	1.883E+13	0.228
PA-234	1.430E+04	+	6.822E+05	1.204E+04	5.742E+05	1.188
NP-237	-1.702E+01		1.960E+01	3.152E+01	1.772E+00	-0.540

VAX/VMS Peak Search Report Generated 31-AUG-2005 12:05:01.95 MR 8.31.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809612_GE5_BAFIL_87775.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0P
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 11:54:43
Sample ID : 0508096-12 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.81 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	7.03	5	8	0.19	64.88	58	10	8.97E-03	104.6	
2	0	14.09	17	4	1.28	132.96	125	15	2.91E-02	33.9	
3	0	21.24	70	32	0.46	201.85	190	18	1.17E-01	19.7	
4	0	30.95	1441	92	0.79	295.47	282	28	2.40E+00	3.1	
5	1	35.12	402	7	0.74	335.65	325	26	6.71E-01	5.0	8.29E+00
6	1	35.89	75	5	0.61	343.05	325	26	1.24E-01	22.2	
7	1	36.30	20	3	0.67	347.00	325	26	3.25E-02	46.8	
8	0	53.50	32	12	1.04	512.77	503	18	5.37E-02	27.8	
9	4	60.82	24	2	0.52	583.25	580	24	4.08E-02	21.1	2.27E+00
10	4	61.74	166	8	1.05	592.11	580	24	2.76E-01	8.9	
11	0	66.19	92	30	0.77	635.00	619	30	1.53E-01	17.9	
12	0	81.12	576	60	0.60	778.91	767	22	9.60E-01	5.1	
13	0	111.98	118	34	0.79	1076.25	1065	20	1.97E-01	13.7	
14	0	116.26	27	19	0.43	1117.54	1103	22	4.56E-02	38.9	
15	0	160.80	18	12	0.61	1546.76	1535	19	3.00E-02	42.3	
16	0	276.48	46	2	0.14	2661.54	2649	22	7.60E-02	16.3	
17	1	302.37	49	4	0.96	2911.00	2903	24	8.13E-02	17.3	1.79E+00
18	1	303.20	60	4	0.96	2919.00	2903	24	1.00E-01	16.2	
19	0	356.12	282	16	0.99	3428.99	3413	27	4.70E-01	6.7	
20	0	383.94	57	9	1.18	3697.05	3682	24	9.52E-02	17.7	
21	0	387.00	103	14	0.72	3726.50	3711	28	1.72E-01	12.5	

Sample ID : 0508096-12 Acquisition date : 31-AUG-2005 11:54:43

Total number of lines in spectrum 21
Number of unidentified lines 13
Number of lines tentatively identified by NID 8 38.10%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.296E+02	4.296E+02	0.723E+02	16.83	
	Total Activity :		4.296E+02	4.296E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	1.965E+03	1.965E+03	0.426E+03	21.69	
AM-241	432.20Y	1.00	3.743E+01	3.743E+01	1.674E+01	44.73	
	Total Activity :		2.002E+03	2.002E+03			

Grand Total Activity : 2.432E+03 2.432E+03

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.274E+02	4.275E+02	18.35	OK
	302.84	17.80	3.440E+00	4.416E+02	4.417E+02	42.30	OK
	356.01	60.00	1.579E+00	1.339E+03	1.339E+03	32.60	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 4.296E+02+/- 7.232E+01 (16.83%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	1.965E+03	1.965E+03	21.69	OK

Final Mean for 1 Valid Peaks = 1.965E+03+/- 4.262E+02 (21.69%)

AM-241	59.54	35.90*	8.208E+00	3.743E+01	3.743E+01	44.73	OK

Final Mean for 1 Valid Peaks = 3.743E+01+/- 1.674E+01 (44.73%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.296E+02	7.232E+01	2.339E+01	3.453E+00	18.369
TH-234	1.965E+03	4.262E+02	3.208E+01	3.745E+00	61.243
AM-241	3.743E+01	1.674E+01	3.339E+01	4.741E+00	1.121

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	1.001E+00		2.088E+00	4.290E+00	1.785E-01	0.233
CD-109	5.122E+01		6.956E+01	1.429E+02	7.807E+00	0.358
PA-231	-5.456E+06		1.545E+12	5.578E+07	1.579E+13	-0.098
PA-234	1.994E+04	+	9.510E+05	1.304E+04	6.221E+05	1.528
NP-237	-1.730E+01		2.292E+01	3.782E+01	2.126E+00	-0.457

VAX/VMS Peak Search Report Generated 31-AUG-2005 12:15:33.98 MR 8.31.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809613_GE5_BAFIL_87777.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0Q
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 12:05:17
Sample ID : 0508096-13 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.79 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	20.91	101	8	0.90	198.71	187	25	1.68E-01	11.9	
2	0	30.94	1395	67	0.71	295.30	281	29	2.32E+00	3.0	
3	1	35.09	249	34	0.66	335.35	325	26	4.14E-01	8.4	3.28E+00
4	1	35.99	80	14	0.67	344.00	325	26	1.34E-01	20.3	
5	2	51.80	19	11	0.76	496.37	491	25	3.20E-02	31.7	7.27E-01
6	2	53.13	27	8	0.71	509.20	491	25	4.50E-02	28.0	
7	4	60.98	17	20	0.81	584.85	580	25	2.77E-02	43.0	2.24E+00
8	4	61.62	91	30	0.72	591.00	580	25	1.52E-01	18.0	
9	4	62.18	48	11	0.47	596.40	580	25	8.06E-02	27.7	
10	0	65.86	65	13	0.82	631.84	619	26	1.09E-01	17.7	
11	0	81.09	533	34	0.69	778.65	767	22	8.89E-01	4.9	
12	0	111.82	162	10	0.71	1074.78	1059	27	2.70E-01	9.0	
13	0	276.61	21	5	0.16	2662.79	2652	19	3.54E-02	28.7	
14	0	302.97	69	11	0.53	2916.79	2903	24	1.15E-01	15.7	
15	0	356.13	237	7	0.81	3429.02	3414	27	3.95E-01	6.9	
16	0	383.99	52	3	0.76	3697.56	3683	25	8.73E-02	15.4	
17	1	386.26	18	5	1.12	3719.44	3712	25	3.06E-02	43.4	4.56E+00
18	1	386.94	142	14	1.02	3726.00	3712	25	2.37E-01	8.8	

Sample ID : 0508096-13 Acquisition date : 31-AUG-2005 12:05:17

Total number of lines in spectrum 18
Number of unidentified lines 11
Number of lines tentatively identified by NID 7 38.89%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.074E+02	4.074E+02	0.681E+02	16.71	
	Total Activity :		4.074E+02	4.074E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	5.743E+02	5.743E+02	3.259E+02	56.75	
AM-241	432.20Y	1.00	2.540E+01	2.540E+01	2.215E+01	87.21	
	Total Activity :		5.997E+02	5.997E+02			

Grand Total Activity : 1.007E+03 1.007E+03

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	3.958E+02	3.958E+02	18.19	OK
	302.84	17.80	3.440E+00	5.055E+02	5.055E+02	41.44	OK
	356.01	60.00	1.579E+00	1.128E+03	1.128E+03	32.76	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 4.074E+02+/- 6.808E+01 (16.71%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	5.743E+02	5.743E+02	56.75	OK

Final Mean for 1 Valid Peaks = 5.743E+02+/- 3.259E+02 (56.75%)

AM-241	59.54	35.90*	8.208E+00	2.540E+01	2.540E+01	87.21	OK

Final Mean for 1 Valid Peaks = 2.540E+01+/- 2.215E+01 (87.21%)

Flag: "*" = Keyline

Sample ID : 0508096-13 Acquisition date : 31-AUG-2005 12:05:17

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.074E+02	6.808E+01	2.226E+01	3.287E+00	18.301
TH-234	5.743E+02	3.259E+02	2.104E+02	2.456E+01	2.729
AM-241	2.540E+01	2.215E+01	3.497E+01	4.966E+00	0.726

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-5.827E-01		1.998E+00	3.660E+00	1.523E-01	-0.159
CD-109	1.111E+01		6.039E+01	1.182E+02	6.460E+00	0.094
PA-231	-2.996E+07		8.483E+12	4.996E+07	1.415E+13	-0.600
PA-234	2.859E+04	+	1.364E+06	1.206E+04	5.753E+05	2.370
NP-237	-1.124E+01		1.939E+01	3.311E+01	1.861E+00	-0.339

MR 8.31.05

VAX/VMS Peak Search Report Generated 31-AUG-2005 12:27:29.20

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809614_GE5_BAFIL_87779.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0R
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 12:17:09
Sample ID : 0508096-14 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.82 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	8.41	6	5	0.21	78.25	71	10	1.00E-02	80.8	
2	0	21.19	73	29	0.69	201.42	190	25	1.22E-01	21.2	
3	0	25.33	13	11	0.24	241.29	234	13	2.14E-02	53.6	
4	0	30.92	1436	57	0.75	295.15	282	24	2.39E+00	2.9	
5	7	35.10	274	12	0.77	335.46	324	27	4.57E-01	7.0	1.30E+00
6	7	36.01	66	5	0.62	344.17	324	27	1.11E-01	19.9	
7	3	52.77	34	12	0.87	505.70	500	18	5.70E-02	20.4	5.36E+00
8	3	53.22	27	12	0.70	510.07	500	18	4.49E-02	33.7	
9	0	61.80	150	40	0.77	592.73	579	27	2.49E-01	12.9	
10	1	65.46	44	3	0.73	628.00	624	23	7.28E-02	14.7	3.62E+00
11	1	66.06	53	6	0.80	633.73	624	23	8.83E-02	19.8	
12	0	81.11	560	73	0.59	778.82	767	21	9.33E-01	5.3	
13	4	111.54	54	15	0.79	1072.00	1047	39	8.94E-02	27.9	1.85E+00
14	4	112.26	72	7	0.64	1078.99	1047	39	1.20E-01	16.7	
15	0	276.39	40	2	0.69	2660.59	2649	21	6.61E-02	17.6	
16	1	302.27	20	0	0.96	2910.00	2903	23	3.29E-02	36.5	5.99E-01
17	1	302.93	76	0	1.06	2916.40	2903	23	1.26E-01	13.0	
18	0	333.94	37	13	1.03	3215.20	3197	29	6.16E-02	27.4	
19	1	355.92	206	3	1.00	3427.00	3414	30	3.43E-01	7.6	4.41E+00
20	1	356.54	50	4	1.00	3433.00	3414	30	8.36E-02	29.8	
21	3	383.73	37	5	1.01	3695.00	3682	25	6.10E-02	23.3	7.30E-01
22	3	384.67	18	3	0.74	3704.08	3682	25	2.92E-02	23.2	
23	0	386.99	91	9	0.94	3726.39	3713	25	1.51E-01	12.5	

Sample ID : 0508096-14 Acquisition date : 31-AUG-2005 12:17:09

Total number of lines in spectrum 23
Number of unidentified lines 16
Number of lines tentatively identified by NID 7 30.43%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.154E+02	4.155E+02	0.773E+02	18.60	
	Total Activity :		4.154E+02	4.155E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
PA-231	3.28E+04Y	1.00	1.563E+07	1.563E+07	**********		
PA-234	4.47E+09Y	1.00	1.133E+03	1.133E+03	1.272E+03	112.27	
TH-234	4.47E+09Y	1.00	1.775E+03	1.775E+03	0.508E+03	28.60	
	Total Activity :		1.563E+07	1.563E+07			
Grand Total Activity :			1.563E+07	1.563E+07			

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.154E+02	4.155E+02	18.60	OK
	302.84	17.80	3.440E+00	5.558E+02	5.559E+02	37.61	<<WM Interf
	356.01	60.00	1.579E+00	9.787E+02	9.788E+02	33.35	<<WM N-Sigma

Final Mean for 1 Valid Peaks = 4.155E+02+/- 7.730E+01 (18.60%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
PA-231	9.28	42.00*	4.117E-06	1.563E+07	1.563E+07******		OK
	10.11	20.20	1.155E-05	1.158E+07	1.158E+07******		<<WM Interf
	283.67	1.60	4.548E+00	----- Line Not Found -----			Absent
	302.67	2.30	3.449E+00	4.291E+03	4.291E+03	36.19	<<WM Interf

Final Mean for 1 Valid Peaks = 1.563E+07+/- 4.426E+12 (******%)

PA-234	9.89	89.00	8.893E-06	3.415E+06	3.415E+06******		<<WM Interf
	21.72	64.90*	2.444E-02	2.078E+04	2.078E+04	4770.07	OK
	37.93	23.75	1.111E+00	1.133E+03	1.133E+03	112.27	OK
	131.42	20.40	2.613E+01	----- Line Not Found -----			Absent

Final Mean for 2 Valid Peaks = 1.133E+03+/- 1.272E+03 (112.27%)

TH-234	63.29	3.80*	9.987E+00	1.775E+03	1.775E+03	28.60	OK

Final Mean for 1 Valid Peaks = 1.775E+03+/- 5.077E+02 (28.60%)

Flag: "*" = Keyline

Sample ID : 0508096-14 Acquisition date : 31-AUG-2005 12:17:09

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.155E+02	7.730E+01	2.311E+01	3.412E+00	17.977
PA-231	1.563E+07	4.426E+12	4.922E+07	1.394E+13	0.318
PA-234	1.133E+03	1.272E+03	4.359E+03	2.079E+05	0.260
TH-234	1.775E+03	5.077E+02	3.045E+02	3.554E+01	5.830

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-1.184E-01		1.781E+00	3.448E+00	1.435E-01	-0.034
CD-109	-5.666E+00		6.562E+01	1.218E+02	6.656E+00	-0.047
NP-237	3.080E+00		2.123E+01	4.047E+01	2.275E+00	0.076
AM-241	8.584E+00		2.474E+01	4.060E+01	5.765E+00	0.211

MR 8-31-05

VAX/VMS Peak Search Report Generated 31-AUG-2005 12:40:09.52

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809615_GE5_BAFIL_87782.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0S
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 12:29:47
Sample ID : 0508096-15 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.84 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	30.97	1414	65	0.68	295.59	283	30	2.36E+00	3.0	
2	1	35.12	279	8	0.74	335.65	322	31	4.64E-01	7.0	1.01E+00
3	1	36.01	80	1	0.73	344.17	322	31	1.34E-01	18.7	
4	0	53.36	14	18	0.34	511.41	505	11	2.30E-02	58.7	
5	0	61.77	166	22	0.37	592.41	577	33	2.77E-01	10.6	
6	2	65.56	51	28	0.73	629.00	619	24	8.54E-02	26.2	1.55E+00
7	2	65.99	20	28	0.88	633.07	619	24	3.39E-02	66.5	
8	0	81.12	542	82	0.63	778.90	767	22	9.04E-01	5.6	
9	0	111.86	165	14	0.61	1075.10	1061	28	2.75E-01	9.5	
10	0	116.25	33	17	0.90	1117.39	1107	17	5.50E-02	30.0	
11	0	276.47	40	3	0.46	2661.43	2651	20	6.75E-02	17.3	
12	1	302.27	26	4	0.96	2910.00	2902	24	4.39E-02	28.7	8.42E-01
13	1	302.99	51	5	0.96	2917.00	2902	24	8.50E-02	18.4	
14	0	333.66	57	0	0.62	3212.53	3199	25	9.50E-02	13.2	
15	0	337.95	22	0	0.31	3253.82	3240	24	3.67E-02	21.3	
16	3	356.05	236	3	0.90	3428.29	3414	27	3.94E-01	7.0	1.02E+00
17	3	356.44	22	3	1.00	3432.00	3414	27	3.71E-02	71.3	
18	0	384.00	50	3	0.43	3697.60	3683	25	8.40E-02	15.7	
19	1	386.74	54	14	1.02	3724.00	3711	28	9.03E-02	23.5	1.25E+00
20	1	387.26	48	15	1.02	3729.00	3711	28	7.99E-02	25.2	

Sample ID : 0508096-15 Acquisition date : 31-AUG-2005 12:29:47

Total number of lines in spectrum 20
Number of unidentified lines 15
Number of lines tentatively identified by NID 5 25.00%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	3.981E+02	3.981E+02	0.697E+02	17.51	
	Total Activity :		3.981E+02	3.981E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	1.970E+03	1.970E+03	0.483E+03	24.51	
	Total Activity :		1.970E+03	1.970E+03			
	Grand Total Activity :		2.368E+03	2.368E+03			

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.027E+02	4.027E+02	18.95	OK
	302.84	17.80	3.440E+00	3.750E+02	3.750E+02	45.73	OK
	356.01	60.00	1.579E+00	1.123E+03	1.123E+03	32.89	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 3.981E+02+/- 6.972E+01 (17.51%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	1.970E+03	1.970E+03	24.51	OK

Final Mean for 1 Valid Peaks = 1.970E+03+/- 4.830E+02 (24.51%)

Flag: "*" = Keyline

Sample ID : 0508096-15 Acquisition date : 31-AUG-2005 12:29:47

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	3.981E+02	6.972E+01	2.446E+01	3.611E+00	16.279
TH-234	1.970E+03	4.830E+02	2.104E+02	2.456E+01	9.364

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-1.399E+00		2.131E+00	3.624E+00	1.508E-01	-0.386
CD-109	-1.042E-02		6.256E+01	1.184E+02	6.470E+00	0.000
PA-231	1.003E+07		2.839E+12	5.745E+07	1.627E+13	0.174
PA-234	7.049E+03		3.363E+05	1.062E+04	5.065E+05	0.664
NP-237	-1.988E+01		1.972E+01	3.071E+01	1.727E+00	-0.647
AM-241	1.888E+01		2.407E+01	4.260E+01	6.050E+00	0.443

MR 8.31-05

VAX/VMS Peak Search Report Generated 31-AUG-2005 13:01:48.12

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809616_GE5_BAFIL_87785.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0T
Deposition Date :
Sample Date : 31-AUG-2005 00:00:00 Acquisition date : 31-AUG-2005 12:51:31
Sample ID : 0508096-16 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE5 Detector Geometry: BAFIL
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.79 0.1%
Start channel : 25 End channel : 4096
Sensitivity : 3.00000 Gaussian : 10.00000
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	10	4.10	20	21	1.48	36.71	33	31	3.31E-02	35.5	2.73E+00
2	10	5.07	25	33	0.58	46.00	33	31	4.14E-02	54.5	
3	10	6.01	7	13	0.35	55.12	33	31	1.24E-02	110.9	
4	10	6.69	31	3	0.78	61.63	33	31	5.10E-02	16.5	
5	0	7.25	8	5	0.12	67.07	63	9	1.25E-02	62.7	
6	0	21.12	42	29	0.33	200.69	189	17	6.95E-02	29.5	
7	0	30.94	1502	48	0.79	295.36	281	31	2.50E+00	2.8	
8	0	35.26	377	17	0.70	336.94	324	30	6.29E-01	5.9	
9	0	51.38	9	6	0.42	492.29	478	17	1.56E-02	59.7	
10	0	53.47	23	14	0.44	512.45	504	15	3.81E-02	37.7	
11	1	61.41	35	45	0.72	589.00	577	27	5.84E-02	51.8	8.49E-01
12	1	61.96	82	42	0.79	594.31	577	27	1.36E-01	21.1	
13	2	65.84	62	26	0.80	631.70	623	22	1.03E-01	19.6	1.96E+00
14	2	66.89	27	3	0.59	641.78	623	22	4.48E-02	21.0	
15	0	81.14	556	46	0.71	779.12	769	20	9.27E-01	4.9	
16	0	111.96	132	30	0.71	1076.05	1064	22	2.21E-01	12.4	
17	4	276.53	71	2	0.94	2662.00	2649	22	1.18E-01	8.4	8.84E+00
18	4	277.15	8	1	0.65	2667.99	2649	22	1.40E-02	32.5	
19	0	303.01	88	6	0.78	2917.17	2903	25	1.46E-01	12.1	
20	1	333.40	28	4	0.98	3210.00	3198	29	4.73E-02	25.9	5.52E-01
21	1	334.02	30	2	0.98	3216.00	3198	29	5.02E-02	24.5	
22	1	355.24	30	1	0.90	3420.47	3414	29	5.03E-02	36.5	3.26E+00
23	1	355.99	287	6	1.08	3427.70	3414	29	4.78E-01	6.0	
24	0	383.99	59	5	0.71	3697.53	3683	25	9.78E-02	15.6	
25	0	387.00	114	7	1.02	3726.52	3712	29	1.90E-01	10.7	

Sample ID : 0508096-16 Acquisition date : 31-AUG-2005 12:51:31

Total number of lines in spectrum 25
Number of unidentified lines 19
Number of lines tentatively identified by NID 6 24.00%

Nuclide Type : FISSION

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
BA-133	10.50Y	1.00	4.347E+02	4.347E+02	0.717E+02	16.49	
	Total Activity :		4.347E+02	4.347E+02			

Nuclide Type : NATURAL

Nuclide	Hlife	Decay	Wtd Mean Uncorrected pCi/FILTER	Wtd Mean Decay Corr pCi/FILTER	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TH-234	4.47E+09Y	1.00	9.679E+02	9.679E+02	4.251E+02	43.92	
AM-241	432.20Y	1.00	5.357E+01	5.357E+01	5.603E+01	104.59	
	Total Activity :		1.021E+03	1.021E+03			

Grand Total Activity : 1.456E+03 1.456E+03

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

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.839E+01	4.130E+02	4.131E+02	18.22	OK
	302.84	17.80	3.440E+00	6.455E+02	6.456E+02	36.39	OK
	356.01	60.00	1.579E+00	1.363E+03	1.363E+03	32.06	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 4.347E+02+/- 7.167E+01 (16.49%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	9.987E+00	9.679E+02	9.679E+02	43.92	OK

Final Mean for 1 Valid Peaks = 9.679E+02+/- 4.251E+02 (43.92%)

AM-241	59.54	35.90*	8.208E+00	5.357E+01	5.357E+01	104.59	OK

Final Mean for 1 Valid Peaks = 5.357E+01+/- 5.603E+01 (104.59%)

Flag: "*" = Keyline

Sample ID : 0508096-16 Acquisition date : 31-AUG-2005 12:51:31

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.347E+02	7.167E+01	2.311E+01	3.412E+00	18.809
TH-234	9.679E+02	4.251E+02	4.061E+02	4.741E+01	2.383
AM-241	5.357E+01	5.603E+01	4.314E+01	6.126E+00	1.242

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	4.378E-01		2.051E+00	4.071E+00	1.694E-01	0.108
CD-109	5.172E+01		7.149E+01	1.459E+02	7.970E+00	0.355
PA-231	1.798E+07		5.090E+12	6.522E+07	1.847E+13	0.276
PA-234	1.184E+04	+	5.647E+05	1.030E+04	4.915E+05	1.149
NP-237	-1.670E+01		2.301E+01	3.816E+01	2.145E+00	-0.438