State of Missouri
Department of Natural Resources

ALPD/HWP/FFS

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #05-08095-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 # 05-08095

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	ICAB	Sample Log-In
		9/6/05	CAB	Data Compilation
		9-12-05	[illegible]	Technical Data Review [illegible] 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: [signature] 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 SMA/ Eberline JAR MIDGE AB

05-08095

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
VPSCR081705SL13	Date: 08/17/05 Time: 10:32 AM	Iso Th, Iso U, Ra_{226} pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	X Grab __ Composite __ Modified __ Other:	X Soil	X Encore __ Other:	X None
VPSCR081705SL14	Date: 08/17/05 Time: 10:44 AM	Iso Th, Iso U, Ra_{226} pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	X Grab __ Composite __ Modified __ Other:	X Soil	X Encore __ Other:	X None
4 VPSCR081705SL15	Date: 08/17/05 Time: 10:46 AM	Iso Th, Iso U, Ra_{226} pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	X Grab __ Composite __ Modified __ Other:	X Soil	X Encore __ Other:	X None
5 VPSCR081705SL16	Date: 08/17/05 Time: 10:51 AM	Iso Th, Iso U, Ra_{226} pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	X Grab __ Composite __ Modified __ Other:	X Soil	X Encore __ Other:	X None

For Lab Use Only

Relinquished By: Darrick Steen	Received By: Erin Mistrap MoDNR	Date: 8/18/05	Time: 2:00 PM
Relinquished By: Erin Mistrap	Received By: J C Bernsten	Date: 8/19/05	Time: 0900
Relinquished By:	Received By:	Date:	Time:

R

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

RECEIVED
AUG 19 2005

05-08095

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
VPSCR081705SL17	Date: 08/17/05 Time: 10:52 AM	Iso Th, Iso U, Ra_{226} 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
VPSCR081705SL18	Date: 08/17/05 Time: 10:54 AM	Iso Th, Iso U, Ra_{226} 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
VPSCR081705SL19	Date: 08/17/05 Time: 10:59 AM	Iso Th, Iso U, Ra_{226} 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
VPSCR081705SL20	Date: 08/17/05 Time: 11:00 AM	Iso Th, Iso U, Ra_{226} 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: Eric Gilstrap	Date: 8/18/05	Time: 2:00 PM
Relinquished By: Eric Gilstrap	Received By: K Bannister	Date: 8/19/05	Time: 0900
Relinquished By:	Received By:	Date:	Time:

8
6

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

RECEIVED
AUG 19 2005
JAK NICHOLS

05-08095

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
VPSCR081705SL0A	Date: 08/17/05 Time: 8:50 AM	Iso Th, Iso U, Ra_{226}	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
For Lab Use Only		pH; Temp.; Spec. Cond.; D.O.; Flow; Other:		
VPSCR081705SL0B	Date: 08/17/05 Time: 8:55 AM	Iso Th, Iso U, Ra_{226}	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
For Lab Use Only		pH; Temp.; Spec. Cond.; D.O.; Flow; Other:		
VPSCR081705SL0C	Date: 08/17/05 Time: 9:00 AM	Iso Th, Iso U, Ra_{226}	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
For Lab Use Only		pH; Temp.; Spec. Cond.; D.O.; Flow; Other:		
VPSCR081705SL0D	Date: 08/17/05 Time: 9:05 AM	Iso Th, Iso U, Ra_{226}	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
For Lab Use Only		pH; Temp.; Spec. Cond.; D.O.; Flow; Other:		

Relinquished By: Darrick Steen	Received By: Erin Hilstrap	Date: 8/18/05	Time: 2:00 PM
Relinquished By: Erin Hilstrap	Received By: JC Bannister	Date: 8/19/05	Time: 0900
Relinquished By:	Received By:	Date:	Time:

88
96

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

RECEIVED
AUG 19 2005
FMA, Sherling
PAK RIDGE LAB

05-08095

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	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	9:07 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	
VPSCR081705SL0F	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	9:08 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	
VPSCR081705SL0G	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	9:09 AM	pH / Temp. / Spec. Cond. / D.O. / Flow / Other:	Other:	Sludge	8 oz glass	HCL
				Other:	VOA vial	X None
					Encore	Disinfected
					X Other:	
VPSCR081705SL0H	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	9:15 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	Erin Gilstrap MoDNR	8/18/05	2:00pm
Erin Gilstrap	K Bannister	8/19/05	0900

8.8
8.6B

EBERLINE SERVICES
Oak Ridge Laboratory

Internal Chain of Custody

Work Order #	05-08095
Lab Deadline	9/9/2005
Analysis	UUISO - Level 4
Sample Matrix	Soil/Solid

Comments

Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
04	34	J1.1
05	41	J1.1
06	49	J1,1
07	39	J1.1
08	47	J1.1
09	41	J1.1
10	51	J1.1
11	22	J1.1
12	48	J1.1
13	26	J1.1
14	30	J1.1
15	48	J1.1
16	40	J1.1

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1230	Kennysellers	8-22-05
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1360	Kennysellers	8-23-05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Rcanard	8/23/05 1310
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	Rcanard	8/29/05 0110
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		8-29-05 1100
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		9-1-05 0820
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		9-1-05 0830
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		9-1-05 1408
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 #	05-08095
		Lab Deadline	9/9/2005
		Analysis	ThISO - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
	04	34	J1.1
	05	41	J1.1
	06	49	J1.1
	07	39	J1.1
	08	47	J1.1
	09	41	J1.1
	10	51	J1.1
	11	22	J1.1
	12	48	J1.1
	13	26	J1.1
	14	30	J1.1
	15	48	J1.1
	16	40	J1.1

	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	1306	Kenny Sallings	8-23-05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		[illegible]	8/23/05 1306
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		[illegible]	8/30/05 0920
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		[illegible]	8-30-05 0920
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		[illegible]	9-6-05 0615
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		[illegible]	9-6-05 0615
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		[illegible]	9-6-05 1030
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 #	05-08095
Lab Deadline	9/9/2005
Analysis	Ra226 - Level 4
Sample Matrix	Soil/Solid

Comments

Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
04	34	J1.1
05	41	J1.1
06	49	J1.1
07	39	J1.1
08	47	J1.1
09	41	J1.1
10	51	J1.1
11	22	J1.1
12	48	J1.1
13	26	J1.1
14	30	J1.1
15	48	J1.1
16	40	J1.1

	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 1310	Kenny Sellers	8.23.05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/30/05 1310
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/30/05 0830
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 0830	[illegible]	8/30/05
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1310	[illegible]	8/30/05
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/30/05 1313
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	[illegible]	8/31/05 0400
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	05-08095
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	J1.1	X	X	X																						3
02	BLANK	08/22/05	SO	J1.1	X	X	X																						3
03	DUP	08/22/05	SO	J1.1	X	X	X																						3
04	VPSCR081705SL15	08/17/05 10:46	SO	J1.1	X	X	X																						3
05	VPSCR081705SL16	08/17/05 10:51	SO	J1.1	X	X	X																						3
06	VPSCR081705SL17	08/17/05 10:52	SO	J1.1	X	X	X																						3
07	VPSCR081705SL18	08/17/05 10:54	SO	J1.1	X	X	X																						3
08	VPSCR081705SL19	08/17/05 10:59	SO	J1.1	X	X	X																						3
09	VPSCR081705SL20	08/17/05 11:00	SO	J1.1	X	X	X																						3
10	VPSCR081705SL0A	08/17/05 08:50	SO	J1.1	X	X	X																						3
11	VPSCR081705SL0B	08/17/05 08:55	SO	J1.1	X	X	X																						3
12	VPSCR081705SL0C	08/17/05 09:00	SO	J1.1	X	X	X																						3
13	VPSCR081705SL0D	08/17/05 09:05	SO	J1.1	X	X	X																						3
14	VPSCR081705SL0E	08/17/05 09:07	SO	J1.1	X	X	X																						3
15	VPSCR081705SL0F	08/17/05 09:08	SO	J1.1	X	X	X																						3
16	VPSCR081705SL0G	08/17/05 09:09	SO	J1.1	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
Voice	314-877-3252
Fax	314-877-3254
Contact	Steve Lang
Voice	314-877-3252
Fax	314-877-3254

Report Data	Steve Lang Missouri Dept. of Natural Resources 917 Hwy. 67 North #104 Florissant, MO 63031
Voice	314-877-3252
Fax	314-877-3254

eMail data file to Steve Lang

Printed: 8/22/2005 9:19 AM

Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST

MP-001-2

WORK ORDER # 05-08095

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-22950

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# 05-08095-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
VPSCR081705SL15	05-08095-04	VPSCR081705SL0B	05-08095-11
VPSCR081705SL16	05-08095-05	VPSCR081705SL0C	05-08095-12
VPSCR081705SL17	05-08095-06	VPSCR081705SL0D	05-08095-13
VPSCR081705SL18	05-08095-07	VPSCR081705SL0E	05-08095-14
VPSCR081705SL19	05-08095-08	VPSCR081705SL0F	05-08095-15
VPSCR081705SL20	05-08095-09	VPSCR081705SL0G	05-08095-16
VPSCR081705SL0A	05-08095-10		

The file name for these samples is 0508095.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.

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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-235 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Uranium-238 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Uranium-234 and Uranium-238 laboratory control sample demonstrated an acceptable percent recovery. Results for the Uranium-235 laboratory control sample demonstrated a high percent recovery; however, normalized difference is within acceptable limits for the analytical technique.

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, Thorium-230 and Thorium-232 replicate demonstrated a slightly high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. 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 near 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 an acceptable relative percent difference and normalized difference. 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
Miss. Dept. of Nat. Resources
917 Hwy. 67 North, #104
Florissant, MO 63031

Affiliation: ALPD/HWP/FFS
SDG: 0508095
Matrix: Soil

Final Report of Analysis
Date Reported: 9/14/2005

Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifer
KNOWN	0508095-01	08/30/05	Radium-226	EPA 903.0 Modified	10.34	0.48	0.20	pCi/g	
KNOWN	0508095-01	09/06/05	Thorium-228	EML Th-01 Modified	4.72	0.17	0.10	pCi/g	
KNOWN	0508095-01	09/06/05	Thorium-230	EML Th-01 Modified	5.35	0.14	0.07	pCi/g	
KNOWN	0508095-01	09/06/05	Thorium-232	EML Th-01 Modified	4.72	0.17	0.09	pCi/g	
KNOWN	0508095-01	09/01/05	Uranium-234	EML U-02 Modified	7.98	0.29	0.09	pCi/g	
KNOWN	0508095-01	09/01/05	Uranium-235	EML U-02 Modified	0.36	0.01	0.09	pCi/g	
KNOWN	0508095-01	09/01/05	Uranium-238	EML U-02 Modified	7.78	0.28	0.08	pCi/g	
SPIKE	0508095-01	08/30/05	Radium-226	EPA 903.0 Modified	9.93	1.40	0.20	pCi/g	
SPIKE	0508095-01	09/06/05	Thorium-228	EML Th-01 Modified	4.53	0.92	0.10	pCi/g	
SPIKE	0508095-01	09/06/05	Thorium-230	EML Th-01 Modified	5.40	1.07	0.07	pCi/g	
SPIKE	0508095-01	09/06/05	Thorium-232	EML Th-01 Modified	5.45	1.08	0.09	pCi/g	
SPIKE	0508095-01	09/01/05	Uranium-234	EML U-02 Modified	7.81	1.32	0.09	pCi/g	
SPIKE	0508095-01	09/01/05	Uranium-235	EML U-02 Modified	0.54	0.21	0.09	pCi/g	
SPIKE	0508095-01	09/01/05	Uranium-238	EML U-02 Modified	7.22	1.23	0.08	pCi/g	
BLANK	0508095-02	08/30/05	Radium-226	EPA 903.0 Modified	0.00	0.01	0.18	pCi/g	U
BLANK	0508095-02	09/06/05	Thorium-228	EML Th-01 Modified	0.01	0.03	0.09	pCi/g	U
BLANK	0508095-02	09/06/05	Thorium-230	EML Th-01 Modified	0.49	0.20	0.07	pCi/g	
BLANK	0508095-02	09/06/05	Thorium-232	EML Th-01 Modified	0.03	0.05	0.04	pCi/g	U
BLANK	0508095-02	09/01/05	Uranium-234	EML U-02 Modified	0.15	0.12	0.19	pCi/g	J
BLANK	0508095-02	09/01/05	Uranium-235	EML U-02 Modified	0.04	0.06	0.06	pCi/g	U
BLANK	0508095-02	09/01/05	Uranium-238	EML U-02 Modified	0.05	0.07	0.12	pCi/g	U
VPSCR081705SL15	0508095-03	08/30/05	Radium-226	EPA 903.0 Modified	1.02	0.36	0.17	pCi/g	
VPSCR081705SL15	0508095-03	09/06/05	Thorium-228	EML Th-01 Modified	0.77	0.25	0.10	pCi/g	
VPSCR081705SL15	0508095-03	09/06/05	Thorium-230	EML Th-01 Modified	1.46	0.38	0.07	pCi/g	
VPSCR081705SL15	0508095-03	09/06/05	Thorium-232	EML Th-01 Modified	0.57	0.21	0.08	pCi/g	
VPSCR081705SL15	0508095-03	09/01/05	Uranium-234	EML U-02 Modified	0.80	0.24	0.08	pCi/g	
VPSCR081705SL15	0508095-03	09/01/05	Uranium-235	EML U-02 Modified	0.10	0.09	0.09	pCi/g	J
VPSCR081705SL15	0508095-03	09/01/05	Uranium-238	EML U-02 Modified	0.81	0.25	0.09	pCi/g	

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Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifer
VPSCR081705SL15	0508095-04	08/30/05	Radium-226	EPA 903.0 Modified	1.04	0.35	0.08	pCi/g	
VPSCR081705SL15	0508095-04	09/06/05	Thorium-228	EML Th-01 Modified	0.62	0.21	0.04	pCi/g	
VPSCR081705SL15	0508095-04	09/06/05	Thorium-230	EML Th-01 Modified	1.06	0.30	0.04	pCi/g	
VPSCR081705SL15	0508095-04	09/06/05	Thorium-232	EML Th-01 Modified	0.72	0.23	0.04	pCi/g	
VPSCR081705SL15	0508095-04	09/01/05	Uranium-234	EML U-02 Modified	1.10	0.32	0.11	pCi/g	
VPSCR081705SL15	0508095-04	09/01/05	Uranium-235	EML U-02 Modified	0.14	0.11	0.05	pCi/g	J
VPSCR081705SL15	0508095-04	09/01/05	Uranium-238	EML U-02 Modified	0.79	0.26	0.12	pCi/g	
VPSCR081705SL16	0508095-05	08/30/05	Radium-226	EPA 903.0 Modified	0.82	0.30	0.12	pCi/g	
VPSCR081705SL16	0508095-05	09/06/05	Thorium-228	EML Th-01 Modified	0.58	0.23	0.05	pCi/g	
VPSCR081705SL16	0508095-05	09/06/05	Thorium-230	EML Th-01 Modified	1.39	0.40	0.10	pCi/g	
VPSCR081705SL16	0508095-05	09/06/05	Thorium-232	EML Th-01 Modified	0.59	0.23	0.05	pCi/g	
VPSCR081705SL16	0508095-05	09/01/05	Uranium-234	EML U-02 Modified	1.23	0.31	0.11	pCi/g	
VPSCR081705SL16	0508095-05	09/01/05	Uranium-235	EML U-02 Modified	0.05	0.06	0.09	pCi/g	U
VPSCR081705SL16	0508095-05	09/01/05	Uranium-238	EML U-02 Modified	0.72	0.22	0.07	pCi/g	
VPSCR081705SL17	0508095-06	08/30/05	Radium-226	EPA 903.0 Modified	1.34	0.40	0.18	pCi/g	
VPSCR081705SL17	0508095-06	09/06/05	Thorium-228	EML Th-01 Modified	0.98	0.29	0.08	pCi/g	
VPSCR081705SL17	0508095-06	09/06/05	Thorium-230	EML Th-01 Modified	5.87	1.12	0.04	pCi/g	
VPSCR081705SL17	0508095-06	09/06/05	Thorium-232	EML Th-01 Modified	1.35	0.36	0.07	pCi/g	
VPSCR081705SL17	0508095-06	09/01/05	Uranium-234	EML U-02 Modified	0.83	0.25	0.11	pCi/g	
VPSCR081705SL17	0508095-06	09/01/05	Uranium-235	EML U-02 Modified	0.05	0.06	0.08	pCi/g	U
VPSCR081705SL17	0508095-06	09/01/05	Uranium-238	EML U-02 Modified	1.19	0.31	0.09	pCi/g	
VPSCR081705SL18	0508095-07	08/30/05	Radium-226	EPA 903.0 Modified	1.98	0.53	0.22	pCi/g	
VPSCR081705SL18	0508095-07	09/06/05	Thorium-228	EML Th-01 Modified	1.12	0.32	0.08	pCi/g	
VPSCR081705SL18	0508095-07	09/06/05	Thorium-230	EML Th-01 Modified	6.21	1.18	0.07	pCi/g	
VPSCR081705SL18	0508095-07	09/06/05	Thorium-232	EML Th-01 Modified	1.17	0.33	0.08	pCi/g	
VPSCR081705SL18	0508095-07	09/01/05	Uranium-234	EML U-02 Modified	0.60	0.20	0.10	pCi/g	
VPSCR081705SL18	0508095-07	09/01/05	Uranium-235	EML U-02 Modified	0.10	0.08	0.04	pCi/g	J
VPSCR081705SL18	0508095-07	09/01/05	Uranium-238	EML U-02 Modified	0.89	0.25	0.08	pCi/g	

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Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifer
VPSCR081705SL19	0508095-08	08/30/05	Radium-226	EPA 903.0 Modified	1.52	0.47	0.20	pCi/g	
VPSCR081705SL19	0508095-08	09/06/05	Thorium-228	EML Th-01 Modified	0.68	0.23	0.09	pCi/g	
VPSCR081705SL19	0508095-08	09/06/05	Thorium-230	EML Th-01 Modified	2.08	0.48	0.04	pCi/g	
VPSCR081705SL19	0508095-08	09/06/05	Thorium-232	EML Th-01 Modified	0.74	0.24	0.04	pCi/g	
VPSCR081705SL19	0508095-08	09/01/05	Uranium-234	EML U-02 Modified	0.89	0.27	0.08	pCi/g	
VPSCR081705SL19	0508095-08	09/01/05	Uranium-235	EML U-02 Modified	0.04	0.06	0.11	pCi/g	U
VPSCR081705SL19	0508095-08	09/01/05	Uranium-238	EML U-02 Modified	0.90	0.27	0.07	pCi/g	
VPSCR081705SL20	0508095-09	08/30/05	Radium-226	EPA 903.0 Modified	1.03	0.37	0.19	pCi/g	
VPSCR081705SL20	0508095-09	09/06/05	Thorium-228	EML Th-01 Modified	0.64	0.21	0.06	pCi/g	
VPSCR081705SL20	0508095-09	09/06/05	Thorium-230	EML Th-01 Modified	1.62	0.39	0.08	pCi/g	
VPSCR081705SL20	0508095-09	09/06/05	Thorium-232	EML Th-01 Modified	0.77	0.24	0.06	pCi/g	
VPSCR081705SL20	0508095-09	09/01/05	Uranium-234	EML U-02 Modified	0.83	0.23	0.05	pCi/g	
VPSCR081705SL20	0508095-09	09/01/05	Uranium-235	EML U-02 Modified	0.06	0.06	0.08	pCi/g	U
VPSCR081705SL20	0508095-09	09/01/05	Uranium-238	EML U-02 Modified	0.93	0.24	0.09	pCi/g	
VPSCR081705SL0A	0508095-10	08/30/05	Radium-226	EPA 903.0 Modified	1.26	0.40	0.26	pCi/g	
VPSCR081705SL0A	0508095-10	09/06/05	Thorium-228	EML Th-01 Modified	0.53	0.19	0.06	pCi/g	
VPSCR081705SL0A	0508095-10	09/06/05	Thorium-230	EML Th-01 Modified	1.45	0.37	0.07	pCi/g	
VPSCR081705SL0A	0508095-10	09/06/05	Thorium-232	EML Th-01 Modified	0.54	0.19	0.08	pCi/g	
VPSCR081705SL0A	0508095-10	09/01/05	Uranium-234	EML U-02 Modified	0.86	0.26	0.09	pCi/g	
VPSCR081705SL0A	0508095-10	09/01/05	Uranium-235	EML U-02 Modified	0.14	0.10	0.08	pCi/g	J
VPSCR081705SL0A	0508095-10	09/01/05	Uranium-238	EML U-02 Modified	0.77	0.24	0.09	pCi/g	
VPSCR081705SL0B	0508095-11	08/30/05	Radium-226	EPA 903.0 Modified	1.30	0.39	0.18	pCi/g	
VPSCR081705SL0B	0508095-11	09/06/05	Thorium-228	EML Th-01 Modified	0.72	0.23	0.08	pCi/g	
VPSCR081705SL0B	0508095-11	09/06/05	Thorium-230	EML Th-01 Modified	3.19	0.67	0.07	pCi/g	
VPSCR081705SL0B	0508095-11	09/06/05	Thorium-232	EML Th-01 Modified	1.01	0.29	0.06	pCi/g	
VPSCR081705SL0B	0508095-11	09/01/05	Uranium-234	EML U-02 Modified	0.98	0.28	0.13	pCi/g	
VPSCR081705SL0B	0508095-11	09/01/05	Uranium-235	EML U-02 Modified	0.05	0.06	0.05	pCi/g	U
VPSCR081705SL0B	0508095-11	09/01/05	Uranium-238	EML U-02 Modified	0.86	0.26	0.10	pCi/g	

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Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifer
VPSCR081705SL0C	0508095-12	08/30/05	Radium-226	EPA 903.0 Modified	1.23	0.37	0.15	pCi/g	
VPSCR081705SL0C	0508095-12	09/06/05	Thorium-228	EML Th-01 Modified	0.41	0.20	0.16	pCi/g	
VPSCR081705SL0C	0508095-12	09/06/05	Thorium-230	EML Th-01 Modified	1.18	0.37	0.13	pCi/g	
VPSCR081705SL0C	0508095-12	09/06/05	Thorium-232	EML Th-01 Modified	0.55	0.23	0.10	pCi/g	
VPSCR081705SL0C	0508095-12	09/01/05	Uranium-234	EML U-02 Modified	0.64	0.20	0.07	pCi/g	
VPSCR081705SL0C	0508095-12	09/01/05	Uranium-235	EML U-02 Modified	0.01	0.03	0.09	pCi/g	U
VPSCR081705SL0C	0508095-12	09/01/05	Uranium-238	EML U-02 Modified	0.78	0.23	0.07	pCi/g	
VPSCR081705SL0D	0508095-13	08/30/05	Radium-226	EPA 903.0 Modified	1.58	0.44	0.26	pCi/g	
VPSCR081705SL0D	0508095-13	09/06/05	Thorium-228	EML Th-01 Modified	0.73	0.23	0.07	pCi/g	
VPSCR081705SL0D	0508095-13	09/06/05	Thorium-230	EML Th-01 Modified	8.81	1.56	0.04	pCi/g	
VPSCR081705SL0D	0508095-13	09/06/05	Thorium-232	EML Th-01 Modified	1.01	0.28	0.04	pCi/g	
VPSCR081705SL0D	0508095-13	09/01/05	Uranium-234	EML U-02 Modified	0.70	0.22	0.08	pCi/g	
VPSCR081705SL0D	0508095-13	09/01/05	Uranium-235	EML U-02 Modified	0.04	0.06	0.07	pCi/g	U
VPSCR081705SL0D	0508095-13	09/01/05	Uranium-238	EML U-02 Modified	0.91	0.26	0.03	pCi/g	
VPSCR081705SL0E	0508095-14	08/30/05	Radium-226	EPA 903.0 Modified	1.14	0.42	0.26	pCi/g	
VPSCR081705SL0E	0508095-14	09/06/05	Thorium-228	EML Th-01 Modified	0.77	0.28	0.11	pCi/g	
VPSCR081705SL0E	0508095-14	09/06/05	Thorium-230	EML Th-01 Modified	1.78	0.49	0.14	pCi/g	
VPSCR081705SL0E	0508095-14	09/06/05	Thorium-232	EML Th-01 Modified	0.72	0.27	0.09	pCi/g	
VPSCR081705SL0E	0508095-14	09/01/05	Uranium-234	EML U-02 Modified	0.78	0.22	0.05	pCi/g	
VPSCR081705SL0E	0508095-14	09/01/05	Uranium-235	EML U-02 Modified	0.07	0.06	0.06	pCi/g	J
VPSCR081705SL0E	0508095-14	09/01/05	Uranium-238	EML U-02 Modified	0.72	0.21	0.08	pCi/g	
VPSCR081705SL0F	0508095-15	08/30/05	Radium-226	EPA 903.0 Modified	1.46	0.48	0.21	pCi/g	
VPSCR081705SL0F	0508095-15	09/06/05	Thorium-228	EML Th-01 Modified	1.15	0.32	0.09	pCi/g	
VPSCR081705SL0F	0508095-15	09/06/05	Thorium-230	EML Th-01 Modified	3.00	0.63	0.06	pCi/g	
VPSCR081705SL0F	0508095-15	09/06/05	Thorium-232	EML Th-01 Modified	1.21	0.32	0.10	pCi/g	
VPSCR081705SL0F	0508095-15	09/01/05	Uranium-234	EML U-02 Modified	0.77	0.24	0.06	pCi/g	
VPSCR081705SL0F	0508095-15	09/01/05	Uranium-235	EML U-02 Modified	0.05	0.06	0.05	pCi/g	U
VPSCR081705SL0F	0508095-15	09/01/05	Uranium-238	EML U-02 Modified	0.68	0.22	0.10	pCi/g	

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SDG: 0508095
Matrix: Soil

Client ID	Lab ID	Date Analyzed	Analyte	Method	Result	Error	MDA	Unit	Qualifer
VPSCR081705SL0G	0508095-16	08/30/05	Radium-226	EPA 903.0 Modified	1.26	0.42	0.24	pCi/g	
VPSCR081705SL0G	0508095-16	09/06/05	Thorium-228	EML Th-01 Modified	0.64	0.26	0.19	pCi/g	
VPSCR081705SL0G	0508095-16	09/06/05	Thorium-230	EML Th-01 Modified	1.13	0.37	0.14	pCi/g	
VPSCR081705SL0G	0508095-16	09/06/05	Thorium-232	EML Th-01 Modified	0.71	0.27	0.14	pCi/g	
VPSCR081705SL0G	0508095-16	09/01/05	Uranium-234	EML U-02 Modified	0.76	0.25	0.04	pCi/g	
VPSCR081705SL0G	0508095-16	09/01/05	Uranium-235	EML U-02 Modified	0.18	0.13	0.09	pCi/g	J
VPSCR081705SL0G	0508095-16	09/01/05	Uranium-238	EML U-02 Modified	0.72	0.25	0.08	pCi/g	

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SECTION V

ANALYTICAL STANDARD

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

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

U-8

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

ISOTOPE PRODUCTS LABORATORIES
3017 N. SAN FERNANDO BLVD.
BURBANK, CALIFORNIA 91504
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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	1/4/2005 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: 19 CA 1/18/2005 11:55
QC Approval		Date: 1/18/2005 11:55

EBERLINE

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

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.

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

Roger Wiltshire

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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

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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	Reference Date	3/1/2000 0:00
Certified Activity	9.760E-01	µCi	
Certified Concentration		µCi per gram	

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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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. Khan
QUALITY CONTROL

Nov. 8, 1993
Date Signed

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

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MP-009

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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

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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: $^{228\ \&\ 232}Th$
Parent Solution Conc.: 2.07E+02 dpm/ml

Reference Date: 11/1/1993 0:00

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
Total Activity:	1.0355E+05	dpm
Final Volume:	1000.00	ml

Final Activity Concentration: 1.0355E+02 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 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 WT 10/14/91 WT

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(NO3)4 in 0.1N HNO3	
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)

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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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EBERLINE SERVICES - OAK RIDGE LABORATORY
RADIOACTIVE REFERENCE STANDARD SOLUTIONS

SECONDARY DILUTION RECERTIFICATION

	MP-009	Date	1/5/2005 0:00
Solution Reference #	IPL 388-116	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.

Quality Control

9-Jan-02
Date Signed

IPL Ref. No.: 867-54

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

MP-009

Rev.8; 1/10/03
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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

EBERLINE SERVICES

QUALITY CONTROL PROGRAM

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

MP-009

Solution Reference # IPL 867-54

Date 1/12/2005 0:00

Solution # Th-18a

Principal Radionuclide	Half Life, Years	Half Life, Days
^{229}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 SERVICES

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	Reference Date	9/1/1993 0:00
Parent Solution Conc.	1.48E+05 dpm/ml		

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	Final Activity Concentration:	3.6950E+03 dpm/ml
Total Activity:	3.6950E+06 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: November 6, 2005

Diluted By _____ Date: 11/6/04

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

QC Approval _____ Date: 11/6/04

CERTIFICATE OF CALIBRATION
ALPHA STANDARD SOLUTION

Ra-5
QA/QC REVIEWED
Date 2/8/94 Initials MT

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).

Anna U. Kuan
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	^{228}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
05-08095	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	0.24	97.79%	18.05%	100.00%	3.60%	7.98E+00	2.87E-01	7.81E+00	1.41E+00	U-8a	3.52E+01	3.60E+00	5.03E-01
U-235	1.62	148.02%	39.17%	100.00%	3.60%	3.63E-01	1.31E-02	5.37E-01	2.10E-01	U-8a	1.60E+00	3.60E+00	5.03E-01
U-238	0.84	92.72%	18.20%	100.00%	3.60%	7.78E+00	2.80E-01	7.22E+00	1.31E+00	U-8a	3.44E+01	3.60E+00	5.03E-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

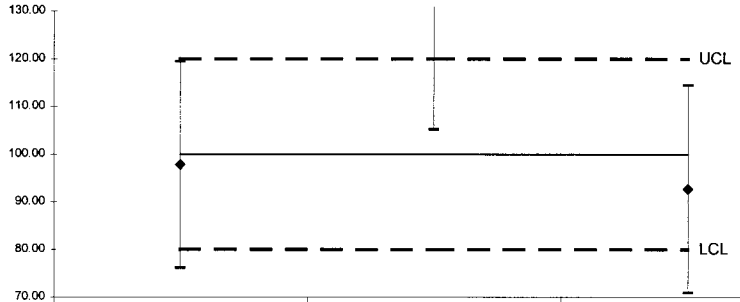
Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original TPU*	*Replicate Result*	*Replicate TPU*
U-234	1.43	31.59	1.10E+00	3.27E-01	8.00E-01	2.50E-01
U-235	0.60	35.51	1.39E-01	1.08E-01	9.72E-02	8.60E-02
U-238	0.12	2.82	7.86E-01	2.64E-01	8.08E-01	2.52E-01

QC Summary

LCS Relative Bias	*LCS % R*	*LCS ND*	*MS % R*	*MS ND*	*Rep RPD*	*Rep ND*
0.98	OK	OK			INV	OK
1.48	INV	OK			INV	OK
0.93	OK	OK			OK	OK

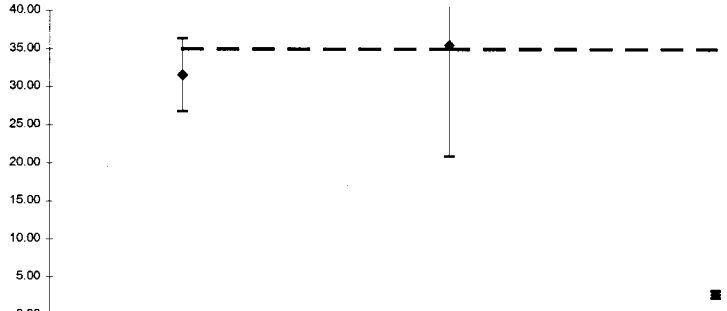
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08095	UUISO	1	pCi	g	Missouri Dept. of Natural Resources

LCS % Recovery



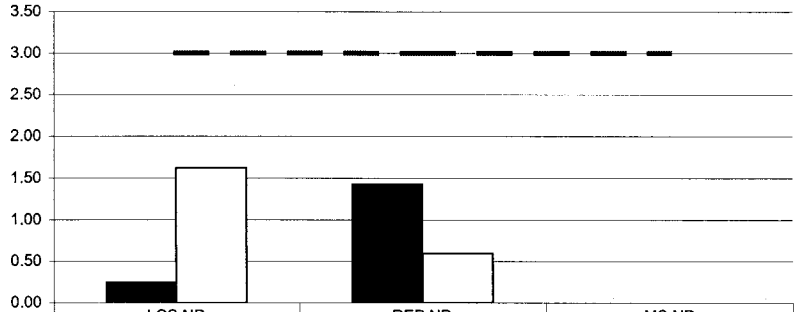
	U-234	U-235	U-238
Lower Error	76.14	105.24	70.92
Upper Error	119.44	190.79	114.52
%R	97.79	148.02	92.72
LCL	80	80	80
Mean	100	100	100
UCL	120	120	120

Replicate Sample RPD



	U-234	U-235	U-238
Lower Error	36.39	50.08	3.28
Upper Error	26.79	20.95	2.37
RPD	31.59	35.51	2.82
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
U-234	0.24	1.43	0.00
U-235	1.62	0.60	0.00
UCL	3	3	3

No Matrix Spike

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08095	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	0.38	96.05%	20.89%	100.00%	3.60%	4.72E+00	1.70E-01	4.53E+00	9.46E-01	Th-8b	1.04E+02	3.60E+00	1.01E-01
TH-230	0.09	100.96%	20.34%	100.00%	2.70%	5.35E+00	1.45E-01	5.40E+00	1.10E+00	Th-1b	2.35E+01	2.70E+00	5.05E-01
TH-232	1.30	115.64%	20.30%	100.00%	3.60%	4.72E+00	1.70E-01	5.45E+00	1.11E+00	Th-8b	1.04E+02	3.60E+00	1.01E-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	0.89	21.81	6.18E-01	2.15E-01	7.70E-01	2.53E-01
TH-230	1.59	31.60	1.06E+00	3.02E-01	1.46E+00	3.84E-01
TH-232	0.94	23.39	7.18E-01	2.35E-01	5.68E-01	2.08E-01

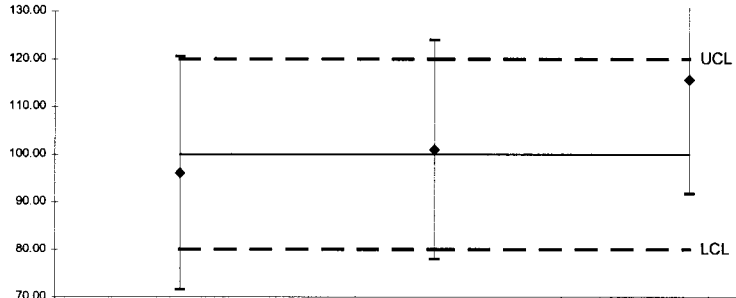
QC Summary

LCS Relative Bias	*LCS % R*	*LCS ND*	*MS % R*	*MS ND*	*Rep RPD*	*Rep ND*
0.96	OK	OK			INV	OK
1.01	OK	OK			INV	OK
1.16	OK	OK			INV	OK

Version

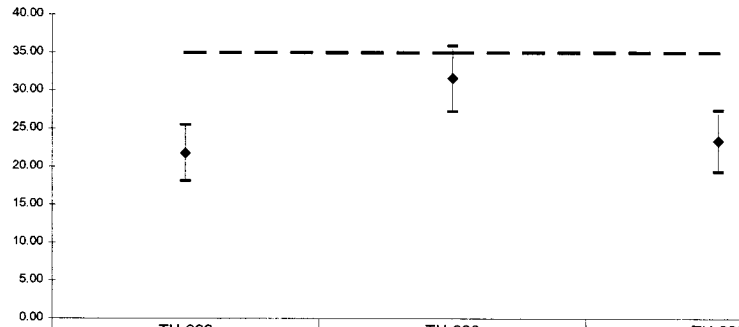
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08095	ThISO	1	pCi	g	Missouri Dept. of Natural Resources

LCS % Recovery



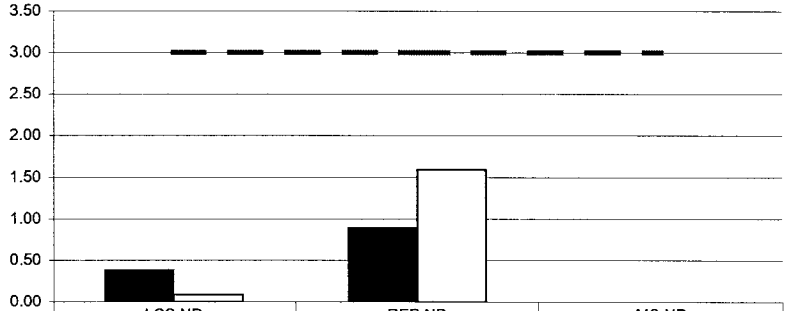
	TH-228	TH-230	TH-232
Lower Error	71.56	77.92	91.74
Upper Error	120.54	124.00	139.55
%R	96.05	100.96	115.64
LCL	80	80	80
Mean	100	100	100
UCL	120	120	120

Replicate Sample RPD



	TH-228	TH-230	TH-232
Lower Error	25.49	35.91	27.41
Upper Error	18.13	27.28	19.37
RPD	21.81	31.60	23.39
CL	35	35	35

Normalized Difference



	LCS ND	REP ND	MS ND
TH-228	0.38	0.89	0.00
TH-230	0.09	1.59	0.00
UCL	3	3	3

No Matrix Spike

Version

WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08095	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	0.53	96.06%	14.87%	100.00%	4.60%	1.03E+01	4.75E-01	9.93E+00	1.48E+00	Ra-5b	4.42E+01	4.60E+00	5.19E-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

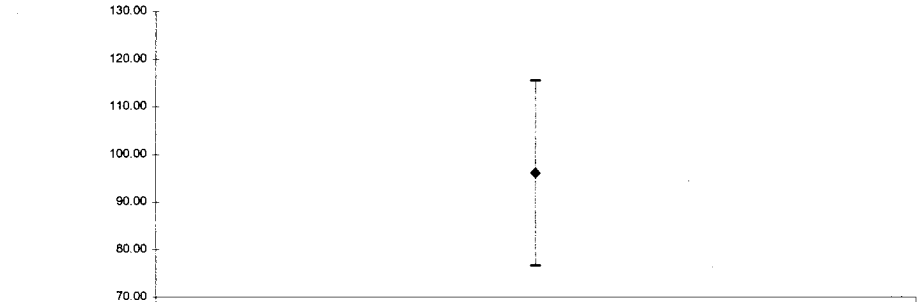
Analyte	*Normalized Difference*	*RPD*	*Original Result*	*Original TPU*	*Replicate Result*	*Replicate TPU*
RA-226	0.09	2.24	1.04E+00	3.52E-01	1.02E+00	3.65E-01

QC Summary

LCS Relative Bias	*LCS % R*	*LCS ND*	*MS % R*	*MS ND*	*Rep RPD*	*Rep ND*
0.96	OK	OK			OK	OK

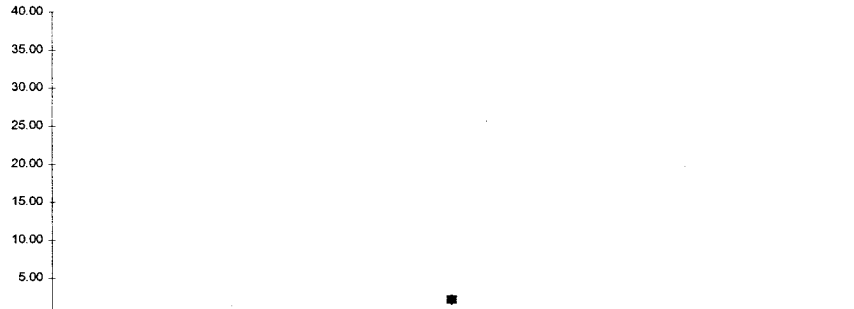
WO	Analysis	Run	Activity Units	Aliquot Units	Client Name
05-08095	Ra226	1	pCi	g	Missouri Dept. of Natural Resources

LCS % Recovery



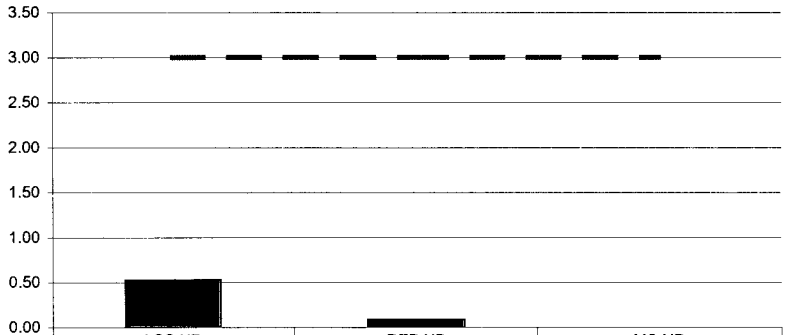
	RA-226
Lower Error	76.59
Upper Error	115.53
%R	96.06
LCL	80
Mean	100
UCL	120

Replicate Sample RPD



	RA-226
Lower Error	2.63
Upper Error	1.85
RPD	2.24
CL	35

Normalized Difference



	LCS ND	REP ND	MS ND
RA-226	0.53	0.09	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	05-08095
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 13:23	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

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	05-08095
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 13:23	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	08/31/05 14:30	CHEM	BNEWTON	Used column separation technique to elute Uranium fraction (steps 12.2 to 12.2.7 in AP-005 Rev. 9)

8/31/05

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	05-08095
Analysis Code	UUISO
Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 13:23	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	08/31/05 14:30	CHEM	BNEWTON	Used column separation technique to elute Uranium fraction (steps 12.2 to 12.2.7 in AP-005 Rev. 9)
3	09/01/05 04:59	CHEM	TSMITH	Followed steps 12.2.7 to 12.5.5 in AP-005 rev. 9 . (Precipitated and filtered samples)

9-1-05

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
05-08095	
Analysis Code	Run
UUISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
003144P	Hydrofluoric Acid	Reagent Grade	JBARNARD	8/23/2005
003250P	Nitric Acid	Reagent Grade	JBARNARD	8/23/2005
002930P	Perchloric Acid	Reagent Grade	JBARNARD	8/23/2005
000059P	Sulfuric Acid	Reagent Grade	JBARNARD	8/23/2005
003131P	Anion Exchange Resin	Reagent Grade	BNEWTON	8/30/2005
003065D02	Hydrochloric Acid	0.5N	BNEWTON	8/31/2005
003306S	Hydrochloric Acid	8N	BNEWTON	8/31/2005
003279P	Hydrochloric Acid	Reagent Grade	BNEWTON	8/31/2005
003313S	HCl - NH4I	8N - 0.1M	BNEWTON	8/31/2005
003291S	HCl - HF	6.5N - 0.04N	BNEWTON	8/31/2005
003210S	Hydrochloric Acid	6.5N	BNEWTON	8/31/2005
003143P	Hydrofluoric Acid	Reagent Grade	TSMITH	9/1/2005
002954S	Neodymium Carrier	1 mg/ml	TSMITH	9/1/2005
002827P	Reagent Alcohol	Reagent Grade	TSMITH	9/1/2005
002985P	Titanous Chloride	Reagent Grade	TSMITH	9/1/2005
003297S	Carbon substrate	Solution	TSMITH	9/1/2005

ALPHA 2

Date	Sample #	Client	Load Time	Ct. Time	Analysis	Tech
8-30-05	0508109A(1-7)	PCC	0737	2HR-50mn	Th	[illegible]
8-30-05	0508114A(1-3,6)	DOPH	0737	2HR. 50mn.	Th	[illegible]
8-30-05	0508111A(1-3,5)	NFT	0737	2HR. 50mn.	UU	[illegible]
8-30-05	0508112A(1-12)	PARSONS	1041	5HR. 35mn.	UU	[illegible]
8-30-05	0508104B(1-3)	CAS	1041	5HR 35mn	Am	[illegible]
8-30-05	0508095A (11-16)	Mizzou	1829	2HR 50mn	Ra	MR
8-31-05	Daily Pulser	LAB	0434	10mn.	NA	[illegible]
8-31-05	0508124A(1-6)	CAS	0712	2HR. 50mn.	Th	[illegible]
8-31-05	0508092A (1-9)	URS	0712	2HR. 50mn	UU	[illegible]
8-31-05	0508124A (5,6)	CAS	1040	2HR. 50mn	UU	[illegible]
8-31-05	0508077B(1-9,16-10,12,14)	CAS	1040	2HR. 50mn	Am	[illegible]
8-31-05	0508124A(1,2)	CAS	1040	2HR. 50mn	Am	[illegible]
8-31-05	0508124A (6)	CAS	1352	2HR 50mn	Cm/Am	MR
9-1-05	Daily Pulser	LAB	0415	10mn.	NA	[illegible]
9-1-05	Calibrations	LAB	0451	2½HR	QISO	[illegible]
9-1-05	0508117A (13)	CAS	0815	2HR. 50mn	UU	[illegible]
9-1-05	0508129A (1-4,6,8)	Duratek	0815	2HR 50mn.	UU	[illegible]
9-1-05	0508095A(1-8)	MDN	0815	2HR 50mn	UU	[illegible]

ALPHA 1

DATE	SAMPLE#	CLIENT	LOAD TIME	CT. TIME	ANALYSIS	TECH
8-30-05	050811IA(1-3,5)	NFT	0715	5HR. 35MIN.	NP	
8-30-05	050811IA(1-3,5)	NFT	0715	5HR. 35MIN.	Pu	
8-30-05	050812A (1-7)	PARSONS	0715	5HR. 35MIN.	Th	
8-30-05	050812A(10-12)	Parsons	1307	5HR 35min	Am	MR
8-31-05	DAILY PULSER	LAB	0434	10 MIN.	NA	
8-31-05	CALIBRATIONS	LAB	0452	2 1/2HR	αISO	
8-31-05	050809 2A(10-20)	URS	0745	2HR 50MIN	UU	
8-31-05	050812A (1-4)	CAS	0745	2HR. 50MIN.	UU	
8-31-05	050812A (3-5)	CAS	1101	2HR. 50MIN.	Cm	
8-31-05	050813OA(1-4)	PARSONS	1101	5HR 35MIN	Th	
8-31-05	050813OA(1-4)	PARSONS	1101	5HR. 35MIN.	UU	
8-31-05	050813OA(1-4)	PARSONS	1101	5HR 35MIN	Am	
9-1-05	DAILY PULSER	LAB	0415	10MIN.	NA	
9-1-05	050812 9A(1-4,6,8)	DUPLICATE	0707	2HR. 50MIN.	NP	
9-1-05	050809 2A(1-9)	URS	0707	2HR. 50MIN.	Th	
9-1-05	050809 5A(1-16)	MPM	1030	2HR 50MIN.	UU	
9-1-05	050812 9A(1-4,6,8)	DUPLICATE	1030	2HR. 50MIN	Am/Cm	

ISO-TH NOTES

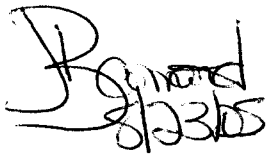
EBERLINE SERVICES

Work Order Analysis Notes

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

Internal Work Order	05-08095
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 13:25	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 KHO 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	05-08095
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 13:25	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 KHO 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	05-08095
Analysis Code	ThISO
Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 13:25	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 KHO 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	
05-08095	
Analysis Code	Run
ThISO	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
003255D02	Barium Carrier	50 mg/ml	JBARNARD	8/23/2005
003272S	EDTA	0.25M	JBARNARD	8/23/2005
003144P	Hydrofluoric Acid	Reagent Grade	JBARNARD	8/23/2005
003137D07	Nitric Acid	8N	JBARNARD	8/23/2005
003250P	Nitric Acid	Reagent Grade	JBARNARD	8/23/2005
002930P	Perchloric Acid	Reagent Grade	JBARNARD	8/23/2005
001365D01	Potassium Hydroxide	10M	JBARNARD	8/23/2005
003136P	Potassium Sulfate	Reagent Grade	JBARNARD	8/23/2005
000059P	Sulfuric Acid	Reagent Grade	JBARNARD	8/23/2005
001010P	Titanous Chloride	Reagent Grade	JBARNARD	8/23/2005
003319S	Nitric Acid	8N	BNEWTON	9/2/2005
003318S	Hydrochloric Acid	8N	BNEWTON	9/2/2005
003279P	Hydrochloric Acid	Reagent Grade	BNEWTON	9/2/2005
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
003297S	Carbon substrate	Solution	TSMITH	9/6/2005

ALPHA-3

17

DATE	SAMPLE #	CLIENT	LOAD TIME	CT. TIME	ANALYSIS	TECH
9-2-05	0508126A(1,2)	CAS	0950	2HR 50min.	[illegible]	[illegible]
9-2-05	Weekly Bkgds	LAB	1505	16HR 40min	α-iso	[illegible]
9-6-05	DayPulser	LAB	0404	10min	NA	[illegible]
9-6-05	0508095A(1-16)	MDN	0718	2HR-50min.	Th	[illegible]

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	05-08095
Analysis Code	Ra226
Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 13:26	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 PHENOLPTHALINE TO PRECIP, VORTEXED AND PUT SAMPLES IN A HOT WATER BATH- VORTEXED AND CHECKED PH- PUT SAMPLES BACK IN THE HOT WATER BATH- VORTEXED AND CENTRIFUGED- TRANSFERRED SUPERNATE INTO CLEAN C-TUBES AND SUBMITTED TO SEPARATIONS

8/23/05

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	05-08095
Analysis Code	Ra226
Run Number	1

#	Date	Dept	User	Notes
1	08/23/05 13:26	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 PHENOLPTHALINE TO PRECIP, VORTEXED AND PUT SAMPLES IN A HOT WATER BATH- VORTEXED AND CHECKED PH- PUT SAMPLES BACK IN THE HOT WATER BATH- VORTEXED AND CENTRIFUGED- TRANSFERRED SUPERNATE INTO CLEAN C-TUBES AND SUBMITTED TO SEPARATIONS
2	08/30/05 12:50	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 being brown and its dup #4 being light tan colored. Submitted samples to the count room.

8/30/05

EBERLINE SERVICES

Reagents Used in an Analysis

Internal Work Order	
05-08095	
Analysis Code	Run
Ra226	1

Reagent ID	Reagent Name	Reagent Concentration	Analyst ID	Date Recorded
001772P	Ammonium Hydroxide	Reagent Grade	JBARNARD	8/23/2005
003255D01	Barium Carrier	1 mg/ml	JBARNARD	8/23/2005
003272S	EDTA	0.25M	JBARNARD	8/23/2005
003144P	Hydrofluoric Acid	Reagent Grade	JBARNARD	8/23/2005
001848D10	Lead Carrier	40 mg/ml	JBARNARD	8/23/2005
003250P	Nitric Acid	Reagent Grade	JBARNARD	8/23/2005
002930P	Perchloric Acid	Reagent Grade	JBARNARD	8/23/2005
001755S	Phenolphthalein Indicator	0.1%	JBARNARD	8/23/2005
003136P	Potassium Sulfate	Reagent Grade	JBARNARD	8/23/2005
000059P	Sulfuric Acid	Reagent Grade	JBARNARD	8/23/2005
000868P	Acetic Acid	Reagent Grade	DJOHNSON	8/30/2005
002851D02	Ammonium Sulfate	200 mg/ml	DJOHNSON	8/30/2005

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 40min	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 35min	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 50min	Ra	MR
8-30-05	0508095A(1-10)	Mizzou	1829	2HR 50min	Ra	MR

ALPHA 2

Date	Sample #	Client	Load time	Ck. time	Analysis	Tech.
8-30-05	0508109A (1-7)	PCC	0737	2HR-56mm	TH	JD
8-30-05	0508114A (1-3,6)	DOE H	0737	2HR. 56mm.	TH	JD
8-30-05	0508111A (1-3,5)	NFT	0737	2HR. 56mm.	UU	JD
8-30-05	0508112A (1-12)	PARSONS	1041	5 HR. 35mm.	UU	JD
8-30-05	0508104B (1-3)	CAS	1041	5HR 35mm	AM	JD
8-30-05	0508095A (11-16)	Mizzou	1829	2HR 50mm	RA	MR

SECTION VIII

ANALYTICAL DATA (ISOTOPIC URANIUM)

05-08095
UUISO
Run 1

Work Order	05-08095
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	VPSCR081705SL15	34	08/17/05 10:46	1.1825E+00
04	DO	VPSCR081705SL15	34	08/17/05 10:46	1.1404E+00
05	TRG	VPSCR081705SL16	41	08/17/05 10:51	1.0541E+00
06	TRG	VPSCR081705SL17	49	08/17/05 10:52	9.9670E-01
07	TRG	VPSCR081705SL18	39	08/17/05 10:54	1.0292E+00
08	TRG	VPSCR081705SL19	47	08/17/05 10:59	1.0500E+00
09	TRG	VPSCR081705SL20	41	08/17/05 11:00	1.1599E+00
10	TRG	VPSCR081705SL0A	51	08/17/05 08:50	1.0090E+00
11	TRG	VPSCR081705SL0B	22	08/17/05 08:55	1.0142E+00
12	TRG	VPSCR081705SL0C	48	08/17/05 09:00	1.0849E+00
13	TRG	VPSCR081705SL0D	26	08/17/05 09:05	1.1468E+00
14	TRG	VPSCR081705SL0E	30	08/17/05 09:07	1.1867E+00
15	TRG	VPSCR081705SL0F	48	08/17/05 09:08	1.0245E+00
16	TRG	VPSCR081705SL0G	40	08/17/05 09:09	1.0248E+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.

05-08095
UUISO
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	0.6193	12.9										
02	MBL	0.6118	12.7										
03	DUP	0.6108	12.7										
04	DO	0.6105	12.7										
05	TRG	0.6140	12.7										
06	TRG	0.6111	12.7										
07	TRG	0.6009	12.5										
08	TRG	0.6097	12.7										
09	TRG	0.6118	12.7										
10	TRG	0.5956	12.4										
11	TRG	0.6031	12.5										
12	TRG	0.6080	12.6										
13	TRG	0.5927	12.3										
14	TRG	0.6093	12.6										
15	TRG	0.6110	12.7										
16	TRG	0.6100	12.7										

* 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.

05-08095
UUISO
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			08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
02	MBL			08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
03	DUP			08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
04	DO	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
05	TRG	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
06	TRG	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
07	TRG	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
08	TRG	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
09	TRG	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
10	TRG	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
11	TRG	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
12	TRG	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
13	TRG	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
14	TRG	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
15	TRG	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	TSMITH		
16	TRG	08/23/05 12:08	KSALLINGS	08/29/05 08:09	JBARNARD	09/01/05 05:04	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: 05-08095-UUISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	UUISO	05-08095	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	U-234	LCS	LCS	pCi/g	7.81E+00	1.32E+00	8.99E-02	7.98E+00	97.79	OK		OK	
02	U-234	MBL	BLANK	pCi/g	1.53E-01	1.23E-01	1.85E-01					OK	OK
03	U-234	DUP	VPSCR081705SL15	pCi/g	8.00E-01	2.45E-01	8.39E-02				INV	OK	
04	U-234	DO	VPSCR081705SL15	pCi/g	1.10E+00	3.19E-01	1.05E-01					OK	
05	U-234	TRG	VPSCR081705SL16	pCi/g	1.23E+00	3.10E-01	1.12E-01					OK	
06	U-234	TRG	VPSCR081705SL17	pCi/g	8.33E-01	2.52E-01	1.10E-01					OK	
07	U-234	TRG	VPSCR081705SL18	pCi/g	6.02E-01	2.02E-01	9.91E-02					OK	
08	U-234	TRG	VPSCR081705SL19	pCi/g	8.89E-01	2.65E-01	7.94E-02					OK	
09	U-234	TRG	VPSCR081705SL20	pCi/g	8.32E-01	2.26E-01	5.08E-02					OK	
10	U-234	TRG	VPSCR081705SL0A	pCi/g	8.61E-01	2.57E-01	8.59E-02					OK	
11	U-234	TRG	VPSCR081705SL0B	pCi/g	9.75E-01	2.84E-01	1.34E-01					OK	
12	U-234	TRG	VPSCR081705SL0C	pCi/g	6.40E-01	2.02E-01	6.71E-02					OK	
13	U-234	TRG	VPSCR081705SL0D	pCi/g	6.99E-01	2.18E-01	8.42E-02					OK	
14	U-234	TRG	VPSCR081705SL0E	pCi/g	7.78E-01	2.18E-01	5.16E-02					OK	
15	U-234	TRG	VPSCR081705SL0F	pCi/g	7.73E-01	2.37E-01	6.41E-02					OK	
16	U-234	TRG	VPSCR081705SL0G	pCi/g	7.63E-01	2.54E-01	4.49E-02					OK	

Run: 1
Analysis Code: UUISO
Eberline Services Work Order: 05-08095
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-234	LCS	08/22/05 00:00	1.00E+00	94.22				9/1/2005 5:04	
02	U-234	MBL	08/22/05 00:00	1.00E+00	79.82				9/1/2005 5:04	
03	U-234	DUP	08/17/05 10:46	1.18E+00	80.81				9/1/2005 5:04	
04	U-234	DO	08/17/05 10:46	1.14E+00	71.42				9/1/2005 5:04	
05	U-234	TRG	08/17/05 10:51	1.05E+00	99.65				9/1/2005 5:04	
06	U-234	TRG	08/17/05 10:52	9.97E-01	89.73				9/1/2005 5:04	
07	U-234	TRG	08/17/05 10:54	1.03E+00	94.87				9/1/2005 5:04	
08	U-234	TRG	08/17/05 10:59	1.05E+00	88.83				9/1/2005 5:04	
09	U-234	TRG	08/17/05 11:00	1.16E+00	97.15				9/1/2005 5:04	
10	U-234	TRG	08/17/05 08:50	1.01E+00	90.84				9/1/2005 5:04	
11	U-234	TRG	08/17/05 08:55	1.01E+00	86.01				9/1/2005 5:04	
12	U-234	TRG	08/17/05 09:00	1.08E+00	93.20				9/1/2005 5:04	
13	U-234	TRG	08/17/05 09:05	1.15E+00	86.04				9/1/2005 5:04	
14	U-234	TRG	08/17/05 09:07	1.19E+00	97.52				9/1/2005 5:04	
15	U-234	TRG	08/17/05 09:08	1.02E+00	101.32				9/1/2005 5:04	
16	U-234	TRG	08/17/05 09:09	1.02E+00	76.26				9/1/2005 5:04	

Preliminary Data Report & Analytical Calculations

Work Order: 05-08095-UUISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	UUISO	05-08095	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	09/01/05 08:12		A_Spec	25	170.03	5.68 E+02	4.00 E-03	20.5
02	U-234	MBL	09/01/05 08:12		A_Spec	26	170.1	8.94 E+00	1.80 E-02	19.5
03	U-234	DUP	09/01/05 08:13		A_Spec	27	170.13	5.75 E+01	3.00 E-03	20
04	U-234	DO	09/01/05 08:13		A_Spec	28	170.1	6.83 E+01	4.00 E-03	20.2
05	U-234	TRG	09/01/05 08:14		A_Spec	29	170.13	9.63 E+01	1.00 E-02	19.8
06	U-234	TRG	09/01/05 08:14		A_Spec	30	170.1	5.88 E+01	7.00 E-03	21
07	U-234	TRG	09/01/05 08:14		A_Spec	31	170.07	4.50 E+01	6.00 E-03	20.3
08	U-234	TRG	09/01/05 08:15		A_Spec	32	170.12	6.07 E+01	2.00 E-03	19.4
09	U-234	TRG	09/01/05 10:26		A_Spec	1	170.08	7.58 E+01	1.00 E-03	21.5
10	U-234	TRG	09/01/05 10:27		A_Spec	2	170.02	6.05 E+01	3.00 E-03	20.3
11	U-234	TRG	09/01/05 10:27		A_Spec	3	170.02	6.61 E+01	1.10 E-02	20.6
12	U-234	TRG	09/01/05 10:27		A_Spec	5	170.03	5.17 E+01	2.00 E-03	21.2
13	U-234	TRG	09/01/05 10:28		A_Spec	6	170.07	5.43 E+01	4.00 E-03	20.9
14	U-234	TRG	09/01/05 10:28		A_Spec	7	170.02	6.98 E+01	1.00 E-03	20.6
15	U-234	TRG	09/01/05 10:28		A_Spec	8	170.03	5.58 E+01	1.00 E-03	18.5
16	U-234	TRG	09/01/05 10:28		A_Spec	9	170.07	4.60 E+01	0.00 E+00	20.5

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Preliminary Data Report & Analytical Calculations

Work Order: 05-08095-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Services Work Order: 05-08095
Client: 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	U-235	LCS	LCS	pCi/g	5.37E-01	2.07E-01	9.19E-02	3.63E-01	148.02	INV		OK	
02	U-235	MBL	BLANK	pCi/g	4.21E-02	5.99E-02	5.70E-02					OK	OK
03	U-235	DUP	VPSCR081705SL15	pCi/g	9.72E-02	8.58E-02	9.31E-02				INV	OK	
04	U-235	DO	VPSCR081705SL15	pCi/g	1.39E-01	1.07E-01	5.39E-02					OK	
05	U-235	TRG	VPSCR081705SL16	pCi/g	5.49E-02	6.41E-02	9.49E-02					OK	
06	U-235	TRG	VPSCR081705SL17	pCi/g	4.94E-02	6.13E-02	8.09E-02					OK	
07	U-235	TRG	VPSCR081705SL18	pCi/g	9.90E-02	8.22E-02	4.47E-02					OK	
08	U-235	TRG	VPSCR081705SL19	pCi/g	4.50E-02	6.39E-02	1.09E-01					OK	
09	U-235	TRG	VPSCR081705SL20	pCi/g	6.08E-02	6.17E-02	8.16E-02					OK	
10	U-235	TRG	VPSCR081705SL0A	pCi/g	1.38E-01	1.02E-01	8.13E-02					OK	
11	U-235	TRG	VPSCR081705SL0B	pCi/g	5.46E-02	6.36E-02	4.93E-02					OK	
12	U-235	TRG	VPSCR081705SL0C	pCi/g	7.48E-03	3.19E-02	9.21E-02					OK	
13	U-235	TRG	VPSCR081705SL0D	pCi/g	4.49E-02	5.56E-02	7.34E-02					OK	
14	U-235	TRG	VPSCR081705SL0E	pCi/g	6.64E-02	6.24E-02	6.36E-02					OK	
15	U-235	TRG	VPSCR081705SL0F	pCi/g	5.12E-02	5.96E-02	4.63E-02					OK	
16	U-235	TRG	VPSCR081705SL0G	pCi/g	1.81E-01	1.26E-01	9.47E-02					OK	

Run	1
Analysis Code	UUISO
Eberline Services Work Order	05-08095
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-235	LCS	08/22/05 00:00	1.00E+00	94.22				9/1/2005 5:04	
02	U-235	MBL	08/22/05 00:00	1.00E+00	79.82				9/1/2005 5:04	
03	U-235	DUP	08/17/05 10:46	1.18E+00	80.81				9/1/2005 5:04	
04	U-235	DO	08/17/05 10:46	1.14E+00	71.42				9/1/2005 5:04	
05	U-235	TRG	08/17/05 10:51	1.05E+00	99.65				9/1/2005 5:04	
06	U-235	TRG	08/17/05 10:52	9.97E-01	89.73				9/1/2005 5:04	
07	U-235	TRG	08/17/05 10:54	1.03E+00	94.87				9/1/2005 5:04	
08	U-235	TRG	08/17/05 10:59	1.05E+00	88.83				9/1/2005 5:04	
09	U-235	TRG	08/17/05 11:00	1.16E+00	97.15				9/1/2005 5:04	
10	U-235	TRG	08/17/05 08:50	1.01E+00	90.84				9/1/2005 5:04	
11	U-235	TRG	08/17/05 08:55	1.01E+00	86.01				9/1/2005 5:04	
12	U-235	TRG	08/17/05 09:00	1.08E+00	93.20				9/1/2005 5:04	
13	U-235	TRG	08/17/05 09:05	1.15E+00	86.04				9/1/2005 5:04	
14	U-235	TRG	08/17/05 09:07	1.19E+00	97.52				9/1/2005 5:04	
15	U-235	TRG	08/17/05 09:08	1.02E+00	101.32				9/1/2005 5:04	
16	U-235	TRG	08/17/05 09:09	1.02E+00	76.26				9/1/2005 5:04	

Run	Analysis Code	Eberline Services Work Order	Client
1	UUISO	05-08095	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	09/01/05 08:12		A_Spec	25	170.03	3.17 E+01	2.00 E-03	20.5
02	U-235	MBL	09/01/05 08:12		A_Spec	26	170.1	2.00 E+00	0.00 E+00	19.5
03	U-235	DUP	09/01/05 08:13		A_Spec	27	170.13	5.66 E+00	2.00 E-03	20
04	U-235	DO	09/01/05 08:13		A_Spec	28	170.1	7.00 E+00	0.00 E+00	20.2
05	U-235	TRG	09/01/05 08:14		A_Spec	29	170.13	3.49 E+00	3.00 E-03	19.8
06	U-235	TRG	09/01/05 08:14		A_Spec	30	170.1	2.83 E+00	1.00 E-03	21
07	U-235	TRG	09/01/05 08:14		A_Spec	31	170.07	6.00 E+00	0.00 E+00	20.3
08	U-235	TRG	09/01/05 08:15		A_Spec	32	170.12	2.49 E+00	3.00 E-03	19.4
09	U-235	TRG	09/01/05 10:26		A_Spec	1	170.08	4.49 E+00	3.00 E-03	21.5
10	U-235	TRG	09/01/05 10:27		A_Spec	2	170.02	7.83 E+00	1.00 E-03	20.3
11	U-235	TRG	09/01/05 10:27		A_Spec	3	170.02	3.00 E+00	0.00 E+00	20.6
12	U-235	TRG	09/01/05 10:27		A_Spec	5	170.03	4.90 E-01	3.00 E-03	21.2
13	U-235	TRG	09/01/05 10:28		A_Spec	6	170.07	2.83 E+00	1.00 E-03	20.9
14	U-235	TRG	09/01/05 10:28		A_Spec	7	170.02	4.83 E+00	1.00 E-03	20.6
15	U-235	TRG	09/01/05 10:28		A_Spec	8	170.03	3.00 E+00	0.00 E+00	18.5
16	U-235	TRG	09/01/05 10:28		A_Spec	9	170.07	8.83 E+00	1.00 E-03	20.5

Preliminary Data Report & Analytical Calculations

Work Order: 05-08095-UUISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	UUISO	05-08095	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	U-238	LCS	LCS	pCi/g	7.22E+00	1.23E+00	8.25E-02	7.78E+00	92.72	OK		OK	
02	U-238	MBL	BLANK	pCi/g	5.35E-02	6.97E-02	1.19E-01					OK	OK
03	U-238	DUP	VPSCR081705SL15	pCi/g	8.08E-01	2.46E-01	9.07E-02				OK	OK	
04	U-238	DO	VPSCR081705SL15	pCi/g	7.86E-01	2.59E-01	1.19E-01					OK	
05	U-238	TRG	VPSCR081705SL16	pCi/g	7.19E-01	2.19E-01	6.88E-02					OK	
06	U-238	TRG	VPSCR081705SL17	pCi/g	1.19E+00	3.14E-01	8.51E-02					OK	
07	U-238	TRG	VPSCR081705SL18	pCi/g	8.86E-01	2.54E-01	8.04E-02					OK	
08	U-238	TRG	VPSCR081705SL19	pCi/g	9.02E-01	2.67E-01	6.75E-02					OK	
09	U-238	TRG	VPSCR081705SL20	pCi/g	9.26E-01	2.43E-01	8.50E-02					OK	
10	U-238	TRG	VPSCR081705SL0A	pCi/g	7.70E-01	2.40E-01	9.28E-02					OK	
11	U-238	TRG	VPSCR081705SL0B	pCi/g	8.57E-01	2.60E-01	9.61E-02					OK	
12	U-238	TRG	VPSCR081705SL0C	pCi/g	7.83E-01	2.28E-01	7.44E-02					OK	
13	U-238	TRG	VPSCR081705SL0D	pCi/g	9.09E-01	2.55E-01	3.47E-02					OK	
14	U-238	TRG	VPSCR081705SL0E	pCi/g	7.23E-01	2.09E-01	7.76E-02					OK	
15	U-238	TRG	VPSCR081705SL0F	pCi/g	6.78E-01	2.19E-01	9.65E-02					OK	
16	U-238	TRG	VPSCR081705SL0G	pCi/g	7.24E-01	2.46E-01	7.64E-02					OK	

Run	Analysis Code	Eberline Services Work Order	Client
1	UUISO	05-08095	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	94.22				9/1/2005 5:04	
02	U-238	MBL	08/22/05 00:00	1.00E+00	79.82				9/1/2005 5:04	
03	U-238	DUP	08/17/05 10:46	1.18E+00	80.81				9/1/2005 5:04	
04	U-238	DO	08/17/05 10:46	1.14E+00	71.42				9/1/2005 5:04	
05	U-238	TRG	08/17/05 10:51	1.05E+00	99.65				9/1/2005 5:04	
06	U-238	TRG	08/17/05 10:52	9.97E-01	89.73				9/1/2005 5:04	
07	U-238	TRG	08/17/05 10:54	1.03E+00	94.87				9/1/2005 5:04	
08	U-238	TRG	08/17/05 10:59	1.05E+00	88.83				9/1/2005 5:04	
09	U-238	TRG	08/17/05 11:00	1.16E+00	97.15				9/1/2005 5:04	
10	U-238	TRG	08/17/05 08:50	1.01E+00	90.84				9/1/2005 5:04	
11	U-238	TRG	08/17/05 08:55	1.01E+00	86.01				9/1/2005 5:04	
12	U-238	TRG	08/17/05 09:00	1.08E+00	93.20				9/1/2005 5:04	
13	U-238	TRG	08/17/05 09:05	1.15E+00	86.04				9/1/2005 5:04	
14	U-238	TRG	08/17/05 09:07	1.19E+00	97.52				9/1/2005 5:04	
15	U-238	TRG	08/17/05 09:08	1.02E+00	101.32				9/1/2005 5:04	
16	U-238	TRG	08/17/05 09:09	1.02E+00	76.26				9/1/2005 5:04	

Preliminary Data Report & Analytical Calculations

Work Order: 05-08095-UUISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	UUISO	05-08095	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-238	LCS	09/01/05 08:12		A_Spec	25	170.03	5.28 E+02	3.00 E-03	20.5
02	U-238	MBL	09/01/05 08:12		A_Spec	26	170.1	3.15 E+00	5.00 E-03	19.5
03	U-238	DUP	09/01/05 08:13		A_Spec	27	170.13	5.83 E+01	4.00 E-03	20
04	U-238	DO	09/01/05 08:13		A_Spec	28	170.1	4.90 E+01	6.00 E-03	20.2
05	U-238	TRG	09/01/05 08:14		A_Spec	29	170.13	5.67 E+01	2.00 E-03	19.8
06	U-238	TRG	09/01/05 08:14		A_Spec	30	170.1	8.45 E+01	3.00 E-03	21
07	U-238	TRG	09/01/05 08:14		A_Spec	31	170.07	6.65 E+01	3.00 E-03	20.3
08	U-238	TRG	09/01/05 08:15		A_Spec	32	170.12	6.18 E+01	1.00 E-03	19.4
09	U-238	TRG	09/01/05 10:26		A_Spec	1	170.08	8.48 E+01	7.00 E-03	21.5
10	U-238	TRG	09/01/05 10:27		A_Spec	2	170.02	5.43 E+01	4.00 E-03	20.3
11	U-238	TRG	09/01/05 10:27		A_Spec	3	170.02	5.83 E+01	4.00 E-03	20.6
12	U-238	TRG	09/01/05 10:27		A_Spec	5	170.03	6.35 E+01	3.00 E-03	21.2
13	U-238	TRG	09/01/05 10:28		A_Spec	6	170.07	7.10 E+01	0.00 E+00	20.9
14	U-238	TRG	09/01/05 10:28		A_Spec	7	170.02	6.52 E+01	5.00 E-03	20.6
15	U-238	TRG	09/01/05 10:28		A_Spec	8	170.03	4.92 E+01	5.00 E-03	18.5
16	U-238	TRG	09/01/05 10:28		A_Spec	9	170.07	4.38 E+01	1.00 E-03	20.5

Preliminary Data Report & Analytical Calculations

Work Order: 05-08095-UUISO-1

Run: 1
Analysis Code: UUISO
Eberline Services Work Order: 05-08095
Client: 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
02	U-236	MBL	BLANK	pCi/g	3.78E-02	5.38E-02	5.12E-02					OK	OK
03	U-236	DUP	VPSCR081705SL15	pCi/g	4.36E-02	5.41E-02	7.13E-02				INV	OK	
04	U-236	DO	VPSCR081705SL15	pCi/g	1.61E-01	1.10E-01	4.84E-02					OK	
05	U-236	TRG	VPSCR081705SL16	pCi/g	-2.40E-03	4.82E-03	6.54E-02					OK	
06	U-236	TRG	VPSCR081705SL17	pCi/g	-2.67E-03	5.35E-03	7.26E-02					OK	
07	U-236	TRG	VPSCR081705SL18	pCi/g	2.71E-02	4.24E-02	6.86E-02					OK	
08	U-236	TRG	VPSCR081705SL19	pCi/g	2.97E-02	4.64E-02	7.51E-02					OK	
09	U-236	TRG	VPSCR081705SL20	pCi/g	3.44E-02	4.26E-02	5.62E-02					OK	
10	U-236	TRG	VPSCR081705SL0A	pCi/g	2.89E-02	4.51E-02	7.30E-02					OK	
11	U-236	TRG	VPSCR081705SL0B	pCi/g	2.71E-02	4.71E-02	8.86E-02					OK	
12	U-236	TRG	VPSCR081705SL0C	pCi/g	6.72E-03	2.86E-02	8.27E-02					OK	
13	U-236	TRG	VPSCR081705SL0D	pCi/g	9.49E-02	7.70E-02	7.72E-02					OK	
14	U-236	TRG	VPSCR081705SL0E	pCi/g	3.70E-02	4.31E-02	3.35E-02					OK	
15	U-236	TRG	VPSCR081705SL0F	pCi/g	0.00E+00	0.00E+00	4.16E-02					OK	
16	U-236	TRG	VPSCR081705SL0G	pCi/g	1.84E-02	3.69E-02	4.98E-02					OK	

Run: 1
Analysis Code: UUISO
Eberline Services Work Order: 05-08095
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
02	U-236	MBL	08/22/05 00:00	1.00E+00	79.82				9/1/2005 5:04	
03	U-236	DUP	08/17/05 10:46	1.18E+00	80.81				9/1/2005 5:04	
04	U-236	DO	08/17/05 10:46	1.14E+00	71.42				9/1/2005 5:04	
05	U-236	TRG	08/17/05 10:51	1.05E+00	99.65				9/1/2005 5:04	
06	U-236	TRG	08/17/05 10:52	9.97E-01	89.73				9/1/2005 5:04	
07	U-236	TRG	08/17/05 10:54	1.03E+00	94.87				9/1/2005 5:04	
08	U-236	TRG	08/17/05 10:59	1.05E+00	88.83				9/1/2005 5:04	
09	U-236	TRG	08/17/05 11:00	1.16E+00	97.15				9/1/2005 5:04	
10	U-236	TRG	08/17/05 08:50	1.01E+00	90.84				9/1/2005 5:04	
11	U-236	TRG	08/17/05 08:55	1.01E+00	86.01				9/1/2005 5:04	
12	U-236	TRG	08/17/05 09:00	1.08E+00	93.20				9/1/2005 5:04	
13	U-236	TRG	08/17/05 09:05	1.15E+00	86.04				9/1/2005 5:04	
14	U-236	TRG	08/17/05 09:07	1.19E+00	97.52				9/1/2005 5:04	
15	U-236	TRG	08/17/05 09:08	1.02E+00	101.32				9/1/2005 5:04	
16	U-236	TRG	08/17/05 09:09	1.02E+00	76.26				9/1/2005 5:04	

Run: 1
Analysis Code: UUISO
Eberline Services Work Order: 05-08095
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	09/01/05 08:12		A_Spec	26	170.1	2.00 E+00	0.00 E+00	19.5
03	U-236	DUP	09/01/05 08:13		A_Spec	27	170.13	2.83 E+00	1.00 E-03	20
04	U-236	DO	09/01/05 08:13		A_Spec	28	170.1	9.00 E+00	0.00 E+00	20.2
05	U-236	TRG	09/01/05 08:14		A_Spec	29	170.13	-1.70 E-01	1.00 E-03	19.8
06	U-236	TRG	09/01/05 08:14		A_Spec	30	170.1	-1.70 E-01	1.00 E-03	21
07	U-236	TRG	09/01/05 08:14		A_Spec	31	170.07	1.83 E+00	1.00 E-03	20.3
08	U-236	TRG	09/01/05 08:15		A_Spec	32	170.12	1.83 E+00	1.00 E-03	19.4
09	U-236	TRG	09/01/05 10:26		A_Spec	1	170.08	2.83 E+00	1.00 E-03	21.5
10	U-236	TRG	09/01/05 10:27		A_Spec	2	170.02	1.83 E+00	1.00 E-03	20.3
11	U-236	TRG	09/01/05 10:27		A_Spec	3	170.02	1.66 E+00	2.00 E-03	20.6
12	U-236	TRG	09/01/05 10:27		A_Spec	5	170.03	4.90 E-01	3.00 E-03	21.2
13	U-236	TRG	09/01/05 10:28		A_Spec	6	170.07	6.66 E+00	2.00 E-03	20.9
14	U-236	TRG	09/01/05 10:28		A_Spec	7	170.02	3.00 E+00	0.00 E+00	20.6
15	U-236	TRG	09/01/05 10:28		A_Spec	8	170.03	0.00 E+00	0.00 E+00	18.5
16	U-236	TRG	09/01/05 10:28		A_Spec	9	170.07	1.00 E+00	0.00 E+00	20.5

Count Room Report
Client: Missouri Dept. of Natural

05-08095-UUISO-1 (pCi/g) in SO
Tracer ID: U-10a

25-32, 1-9

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	0.6193	12.8517				
02	MBL	BLANK	08/22/05 00:00	1.0000	0.6118	12.6961				
03	DUP	VPSCR081705SL15	08/17/05 10:46	1.1825	0.6108	12.6753				
04	DO	VPSCR081705SL15	08/17/05 10:46	1.1404	0.6105	12.6691				
05	TRG	VPSCR081705SL16	08/17/05 10:51	1.0541	0.6140	12.7417				
06	TRG	VPSCR081705SL17	08/17/05 10:52	0.9967	0.6111	12.6815				
07	TRG	VPSCR081705SL18	08/17/05 10:54	1.0292	0.6009	12.4699				
08	TRG	VPSCR081705SL19	08/17/05 10:59	1.0500	0.6097	12.6525				
09	TRG	VPSCR081705SL20	08/17/05 11:00	1.1599	0.6118	12.6961				
10	TRG	VPSCR081705SL0A	08/17/05 08:50	1.0090	0.5956	12.3599				
11	TRG	VPSCR081705SL0B	08/17/05 08:55	1.0142	0.6031	12.5155				
12	TRG	VPSCR081705SL0C	08/17/05 09:00	1.0849	0.6080	12.6172				
13	TRG	VPSCR081705SL0D	08/17/05 09:05	1.1468	0.5927	12.2997				
14	TRG	VPSCR081705SL0E	08/17/05 09:07	1.1867	0.6093	12.6442				
15	TRG	VPSCR081705SL0F	08/17/05 09:08	1.0245	0.6110	12.6795				
16	TRG	VPSCR081705SL0G	08/17/05 09:09	1.0248	0.6100	12.6587				

Eberline Services
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/29/2005 8:09 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
05-08095	1	UUISO	8/29/2005 7:58	JBARNARD		

LCS & Matrix Spikes

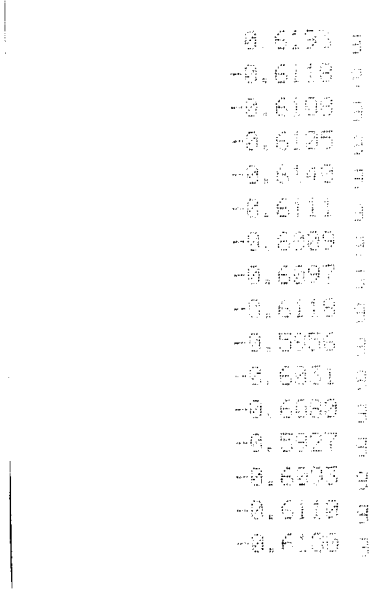
					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	*Sol #*	*Activity dpm/g*	*Solution Date*	*Approx Addition*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*
U-234	U-8a	35.240	8/29/2005	**0.500**	**0.5030**				7.98	0.287	0.00	0.000	0.00	0.000	0.00	0.000
U-235	U-8a	1.600	8/29/2005	**0.500**	**0.5030**				0.36	0.013	0.00	0.000	0.00	0.000	0.00	0.000
U-238	U-8a	34.350	8/29/2005	**0.500**	**0.5030**				7.78	0.280	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	8/29/2005	**0.6193**	**0.5800**
02	**U-232**	U-10a	20.752	8/29/2005	**0.6118**	**0.5800**
03	**U-232**	U-10a	20.752	8/29/2005	**0.6108**	**0.5800**
04	**U-232**	U-10a	20.752	8/29/2005	**0.6105**	**0.5800**
05	**U-232**	U-10a	20.752	8/29/2005	**0.6140**	**0.5800**
06	**U-232**	U-10a	20.752	8/29/2005	**0.6111**	**0.5800**
07	**U-232**	U-10a	20.752	8/29/2005	**0.6009**	**0.5800**
08	**U-232**	U-10a	20.752	8/29/2005	**0.6097**	**0.5800**
09	**U-232**	U-10a	20.752	8/29/2005	**0.6118**	**0.5800**
10	**U-232**	U-10a	20.752	8/29/2005	**0.5956**	**0.5800**
11	**U-232**	U-10a	20.752	8/29/2005	**0.6031**	**0.5800**
12	**U-232**	U-10a	20.752	8/29/2005	**0.6080**	**0.5800**
13	**U-232**	U-10a	20.752	8/29/2005	**0.5927**	**0.5800**
14	**U-232**	U-10a	20.752	8/29/2005	**0.6093**	**0.5800**
15	**U-232**	U-10a	20.752	8/29/2005	**0.6110**	**0.5800**
16	**U-232**	U-10a	20.752	8/29/2005	**0.6100**	**0.5800**

Balance Printer Tapes

Tracer



LCS

Matrix Spike

Eberline Services - Oak Ridge
Version 2.0 8/1999

Aliquot Worksheet

Printed: 8/29/2005 8:38 AM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
05-08095	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	VPSCR081705SL15	DUP					1.1825E+00	1.1825E+00				
04	VPSCR081705SL15	DO					1.1404E+00	1.1404E+00				
05	VPSCR081705SL16	TRG					1.0541E+00	1.0541E+00				
06	VPSCR081705SL17	TRG					9.9670E-01	9.9670E-01				
07	VPSCR081705SL18	TRG					1.0292E+00	1.0292E+00				
08	VPSCR081705SL19	TRG					1.0500E+00	1.0500E+00				
09	VPSCR081705SL20	TRG					1.1599E+00	1.1599E+00				
10	VPSCR081705SL0A	TRG					1.0090E+00	1.0090E+00				
11	VPSCR081705SL0B	TRG					1.0142E+00	1.0142E+00				
12	VPSCR081705SL0C	TRG					1.0849E+00	1.0849E+00				
13	VPSCR081705SL0D	TRG					1.1468E+00	1.1468E+00				
14	VPSCR081705SL0E	TRG					1.1867E+00	1.1867E+00				
15	VPSCR081705SL0F	TRG					1.0245E+00	1.0245E+00				
16	VPSCR081705SL0G	TRG					1.0248E+00	1.0248E+00				

1.1825 g
1.1404 g
1.0541 g
0.9967 g
1.0292 g
1.0500 g
1.1599 g
1.0090 g
1.0142 g
1.0849 g
1.1468 g
1.1867 g
1.0245 g
1.0248 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: 8/23/2005 12:08 PM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
05-08095	9/9/2005	8/22/2005	8/23/2005	8/24/2005	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	VPSCR081705SL15	14.0300	580.1100	471.8800	566.0800	457.8500	19.12%	80.88%			
05	VPSCR081705SL16	13.9300	428.4500	359.0900	414.5200	345.1600	16.73%	83.27%			
06	VPSCR081705SL17	13.9200	427.0000	338.5700	413.0800	324.6500	21.41%	78.59%			
07	VPSCR081705SL18	13.9700	443.3600	349.9900	429.3900	336.0200	21.74%	78.26%			
08	VPSCR081705SL19	14.0000	461.8600	375.5800	447.8600	361.5800	19.26%	80.74%			
09	VPSCR081705SL20	13.9000	459.3100	382.8200	445.4100	368.9200	17.17%	82.83%			
10	VPSCR081705SL0A	13.8400	553.7300	471.5600	539.8900	457.7200	15.22%	84.78%			
11	VPSCR081705SL0B	14.0000	494.9000	395.4400	480.9000	381.4400	20.68%	79.32%			
12	VPSCR081705SL0C	13.9900	542.7700	455.2500	528.7800	441.2600	16.55%	83.45%			
13	VPSCR081705SL0D	13.9800	607.3900	507.0900	593.4100	493.1100	16.90%	83.10%			
14	VPSCR081705SL0E	14.0800	481.1200	410.0500	467.0400	395.9700	15.22%	84.78%			
15	VPSCR081705SL0F	14.0600	481.7400	382.8400	467.6800	368.7800	21.15%	78.85%			
16	VPSCR081705SL0G	14.0000	486.3300	403.9300	472.3300	389.9300	17.45%	82.55%			

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
1-SEP-2005 14:03:10

****

Spectral File: ND_AMS_ARCHIVE_C:C_0508095A-UU$01_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	01
SAMPLE DATE:	1-SEP-2005 00:00	ALIQUOT:	1.000E+00 gram
SAMPLE TITLE:	SPIKE	DETECTOR NUMBER:	025
ACQ DATE:	1-SEP-2005 08:12	AVERAGE EFFICIENCY:	20.51%
ELAPSED LIVE TIME:	10202.	RECOVERY:	94.22%
TRACER ID:	UU-10A	TRACER FWHM (kev):	91.89
LAMBDA VALUE:	619.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.851	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 09:58	EFF CAL DATE:	24-AUG-2005 09:58
BKG FILENAME:	B_025_26AUG05	BKG ELAPSED TIME:	60003.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	421.32	0.68	99.8	5.789E+00	7.427E-01	8.992E-02
U-234	4761.5	568.32	0.68	99.8	7.808E+00	1.315E+00	8.992E-02
U-235	4385.5	31.66	0.34	80.9	5.366E-01	2.073E-01	9.189E-02
U-236	4485.2	10.83	0.17	90.1	1.648E-01	1.039E-01	7.042E-02
U-238	4184.4	527.49	0.51	100.2	7.216E+00	1.227E+00	8.251E-02

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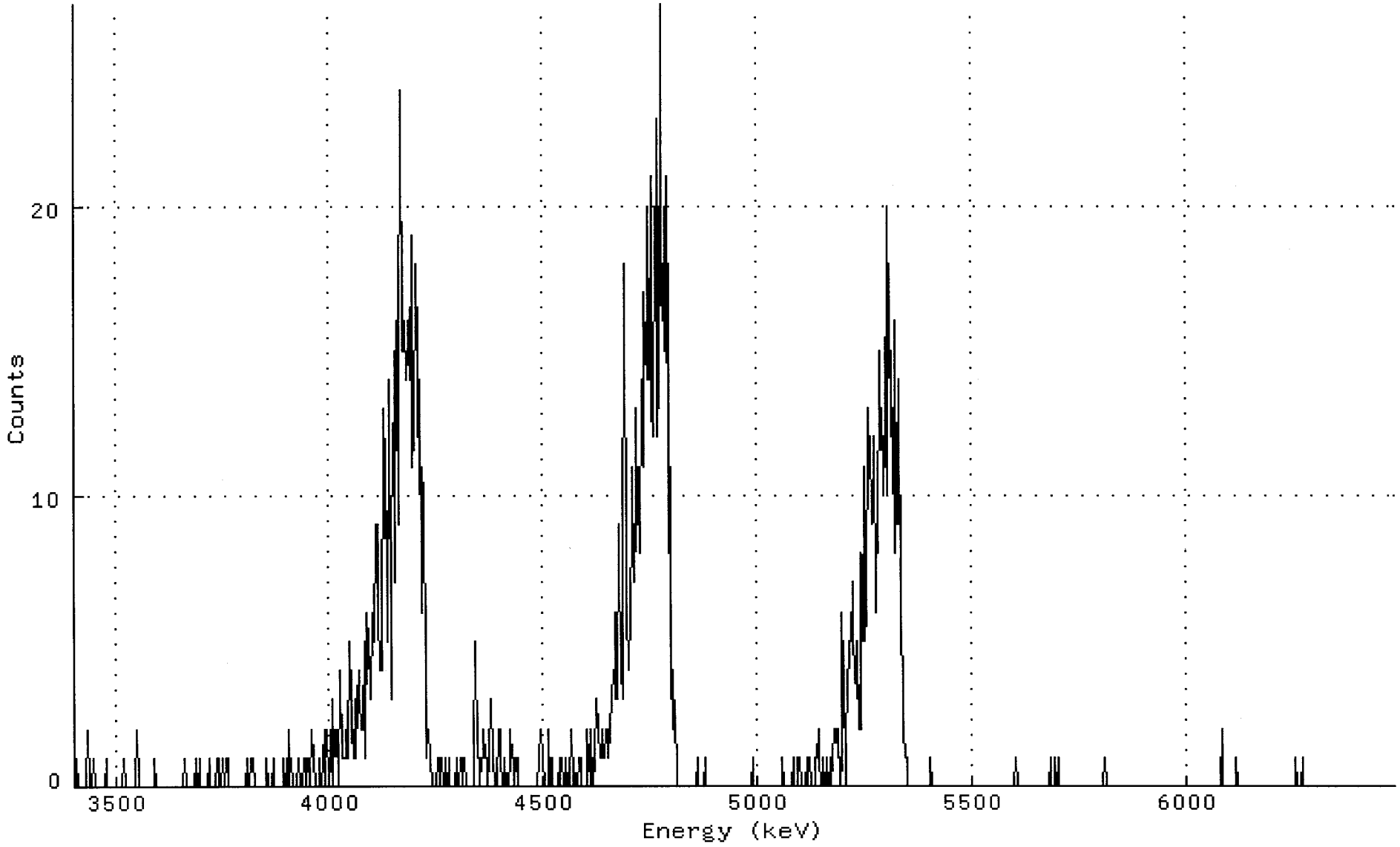
*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.C]C_0508095A-UU$01_UU.CNF;1
Title : 025
Sample Title: SPIKE
Start Time: 1-SEP-2005 08:12: Sample Time: 1-SEP-2005 00:00: Energy Offset: 3.39332E+03
Real Time : 0 02:50:02.00 Sample ID : 01 Energy Slope : 3.20554E+00
Live Time : 0 02:50:02.00 Sample Type: UU Energy Quad : -1.82430E-04



Channel Contents for ND_AMS_ARCHIVE_C:C_0508095A-UU$01_UU

Channel

1:	10202	10202	0	0	1	0	0	0	0	0	0	0	2	0
15:	0	0	1	0	0	0	0	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	2	0	0	0	0	0	0	0
57:	0	0	0	0	0	1	0	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	1	0	0	1	0	0	0
99:	0	0	0	1	0	0	0	0	0	1	1	0	0	1
113:	0	0	1	1	0	0	0	0	0	0	0	0	0	0
127:	0	0	0	1	0	0	1	1	1	0	0	0	0	0
141:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
155:	0	0	0	1	0	0	2	0	1	0	0	0	0	0
169:	1	0	0	0	1	0	1	1	0	0	2	1	0	0
183:	0	0	1	0	1	2	0	2	0	0	1	3	0	2
197:	2	0	0	4	1	1	1	1	2	1	5	3	2	1
211:	3	1	3	4	3	2	2	5	1	6	5	5	3	6
225:	6	5	9	9	6	4	5	4	13	11	6	5	14	3
239:	10	10	15	7	16	9	14	24	15	15	16	14	16	15
253:	14	19	11	12	18	15	12	14	6	11	10	4	1	2
267:	1	0	0	0	0	0	1	0	1	1	0	0	1	0
281:	1	0	0	0	0	0	1	0	0	1	1	0	1	0
295:	0	0	0	0	0	0	1	5	1	1	0	1	1	2
309:	1	1	0	1	3	1	1	0	0	0	2	2	1	0
323:	0	1	0	0	1	2	1	1	0	1	1	0	0	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
351:	2	1	1	0	0	0	2	0	1	0	0	0	0	0
365:	1	0	1	0	0	1	0	0	0	2	0	1	0	0
379:	0	1	1	0	0	0	0	2	1	0	2	0	1	1
393:	3	2	2	1	1	2	1	2	2	1	2	3	3	4
407:	3	6	3	9	8	4	3	6	18	6	6	4	6	9
421:	11	7	9	13	9	11	8	14	11	17	15	14	20	14
435:	21	13	12	20	12	23	13	27	17	16	20	15	21	8
449:	18	4	2	4	2	1	0	0	0	0	0	0	0	0
463:	0	0	0	0	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:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	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	1	0	0	0	0	0	0	0	1	0	0
547:	0	1	1	0	0	0	0	1	0	1	0	0	0	0
561:	1	1	2	1	0	0	1	0	1	0	0	1	0	1
575:	2	2	2	1	2	0	1	6	4	0	2	3	5	5
589:	5	7	5	4	3	5	2	2	8	5	11	5	6	13
603:	10	12	9	9	12	6	8	8	15	12	13	10	12	11
617:	20	10	18	12	14	12	8	16	9	9	14	6	3	2
631:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	1	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	1	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	1	0	0	0	1	0	1	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	1	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:	2	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	1	0	0	0	0	1	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: 1-SEP-2005 14:03:06.60

Detector ID: 25 Acquisition Start: 1-SEP-2005 08:12:47.01
Live Time: 0 02:50:02.00 Real Time: 0 02:50:02.00
Batch Id: 0508095A-UU Sample Id: 01
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4157.88	528	0	87.70	241.84	191	88	5.18E-02	4.4	
2	0	4370.08	32	0	38.07	310.19	288	41	3.14E-03	17.7	
3	0	4491.23	11	0	24.04	349.45	331	29	1.08E-03	30.2	
4	0	4740.36	569	0	111.20	430.78	385	80	5.58E-02	4.2	
5	0	5278.39	422	0	91.89	609.18	566	74	4.14E-02	4.9	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:03:08.22

Acquisition Start: 26-AUG-2005 12:01:12.01
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	4134.99	3	0	227.59	234.50	191	88	5.00E-05	57.7	
2	0	4363.32	2	0	22.44	308.00	288	41	3.33E-05	70.7	
3	0	4477.52	1	0	3.21	345.00	331	29	1.67E-05	100.0	
4	0	4721.20	4	0	99.37	424.50	385	80	6.67E-05	50.0	
5	0	5258.43	4	0	57.70	602.50	566	74	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:03:08.56

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4157.88*	527	0	87.70	241.84	191	88	5.17E-02	4.4	
2	0	4370.08*	32	0	38.07	310.19	288	41	3.10E-03	17.9	
3	0	4491.23*	11	0	24.04	349.45	331	29	1.06E-03	30.7	
4	0	4740.36*	568	0	111.20	430.78	385	80	5.57E-02	4.2	
5	0	5278.39*	421	0	91.89	609.18	566	74	4.13E-02	4.9	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:03:09

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: SPIKE		
Sample date	: 1-SEP-2005 00:00:00	Acquisition date	: 1-SEP-2005 08:12:47
Sample ID	: 01	Sample quantity	: 1.0000 gram
Sample type	: UU	Sample geometry	:
Detector name	: 025	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	4157.88*	527	87.70	241.84	191	88	8.7		U-238	6.80
0	4370.08*	32	38.07	310.19	288	41	35.8		U-235	0.506
0	4491.23*	11	24.04	349.45	331	29	61.3		U-236	0.155
0	4740.36*	568	111.20	430.78	385	80	8.4		U-234	7.36
0	5278.39*	421	91.89	609.18	566	74	9.8		U232	5.45

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:03:23

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Spectral File: ND_AMS_ARCHIVE_R:R_0508095A-UU$02_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	02
SAMPLE DATE:	1-SEP-2005 00:00	ALIQUOT:	1.000E+00 gram
SAMPLE TITLE:	BLANK	DETECTOR NUMBER:	026
ACQ DATE:	1-SEP-2005 08:12	AVERAGE EFFICIENCY:	19.48%
ELAPSED LIVE TIME:	10206.	RECOVERY:	79.82%
TRACER ID:	UU-10A	TRACER FWHM (kev):	74.93
LAMBDA VALUE:	612.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.695	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 09:58	EFF CAL DATE:	24-AUG-2005 09:58
BKG FILENAME:	B_026_26AUG05	BKG ELAPSED TIME:	60000.

****

NUCLIDE ACTIVITY SUMMARY

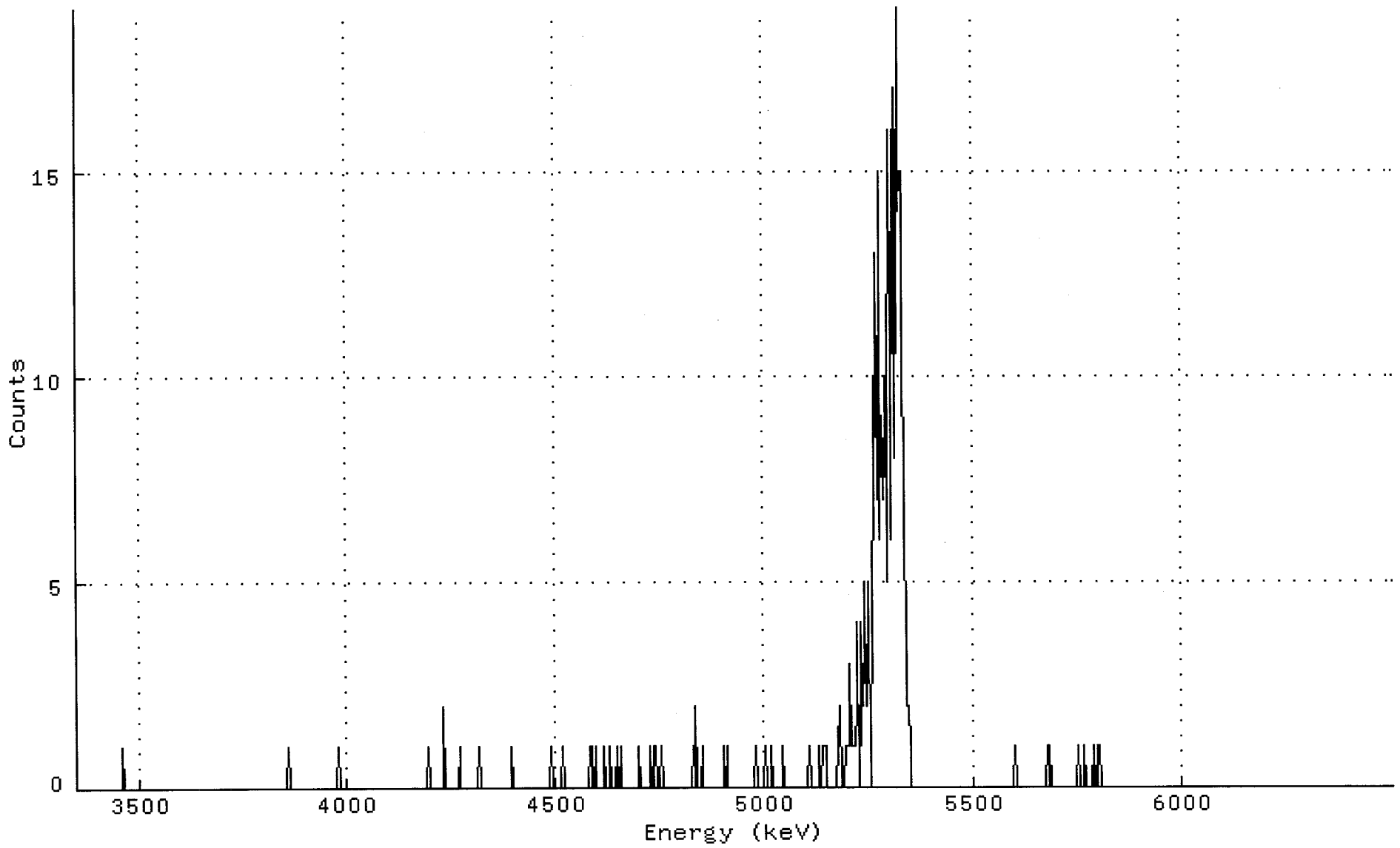
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	335.15	0.85	99.8	5.719E+00	7.871E-01	1.194E-01
U-234	4761.5	8.94	3.06	99.8	1.525E-01	1.230E-01	1.851E-01
U-235	4385.5	2.00	0.00	80.9	4.210E-02	5.989E-02	5.704E-02
U-236	4485.2	2.00	0.00	90.1	3.780E-02	5.377E-02	5.122E-02
U-238	4184.4	3.15	0.85	100.2	5.351E-02	6.967E-02	1.189E-01

****

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.R]R_0508095A-UU$02_UU.CNF;1
Title : 026
Sample Title: BLANK
Start Time: 1-SEP-2005 08:12: Sample Time: 1-SEP-2005 00:00: Energy Offset: 3.34055E+03
Real Time : 0 02:50:06.00 Sample ID : 02 Energy Slope : 3.26385E+00
Live Time : 0 02:50:06.00 Sample Type: UU Energy Quad : -1.74348E-04



Channel Contents for ND_AMS_ARCHIVE_R:R_0508095A-UU$02_UU

Channel

1:	10206	10206	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	1	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	1	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	1	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	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	1	0
267:	0	0	0	0	0	0	0	0	0	0	2	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	0	0	1	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	1	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	1	0	0	0	0	0
365:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	0	0	0	0	1	0	1	0	1
393:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
407:	0	1	0	0	1	0	0	0	0	0	0	0	0	0
421:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
435:	0	1	0	1	0	0	0	1	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	1	0	2	0	0	0	0	1	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	1	0	1	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:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
533:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
561:	0	0	0	0	1	0	1	1	1	1	0	0	0	0
575:	0	0	0	0	1	1	2	0	0	0	1	1	1	1
589:	3	1	1	1	1	2	4	0	2	4	2	3	5	2
603:	3	5	0	5	5	7	13	10	7	15	6	9	7	7
617:	10	5	8	16	11	6	15	17	8	13	19	14	15	15
631:	11	7	3	2	2	1	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	1	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	1	0	1	0	0	0	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
771:	0	0	0	1	0	0	0	0	0	0	1	0	0	1
785:	0	1	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: 1-SEP-2005 14:03:17.60

Detector ID: 26 Acquisition Start: 1-SEP-2005 08:12:59.01
Live Time: 0 02:50:06.00 Real Time: 0 02:50:06.00
Batch Id: 0508095A-UU Sample Id: 02
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4231.26	4	0	3.26	277.00	204	86	3.92E-04	50.0	
2	0	4356.10	2	0	84.86	316.50	299	40	1.96E-04	70.7	
3	0	4503.92	2	0	32.64	363.50	342	28	1.96E-04	70.7	
4	0	4722.41	12	0	3.26	433.42	394	78	1.18E-03	28.9	
5	0	5288.96	336	0	74.93	617.32	572	72	3.29E-02	5.5	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:03:21.48

Acquisition Start: 26-AUG-2005 12:01:14.01
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	4134.50	5	0	205.62	246.50	204	86	8.33E-05	44.7	
2	0	4362.40	0	0	0.00	318.50	299	40	0.00E+00	0.0	
3	0	4478.82	0	0	0.00	355.50	342	28	0.00E+00	0.0	
4	0	4719.55	18	0	127.29	432.50	394	78	3.00E-04	23.6	
5	0	5259.00	5	0	0.00	607.50	572	72	8.33E-05	44.7	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:03:21.82

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4231.26*	3	0	3.26	277.00	204	86	3.09E-04	64.6	
2	0	4356.10*	2	0	84.86	316.50	299	40	1.96E-04	70.7	
3	0	4503.92*	2	0	32.64	363.50	342	28	1.96E-04	70.7	
4	0	4722.41*	9	0	3.26	433.42	394	78	8.76E-04	39.6	
5	0	5288.96*	335	0	74.93	617.32	572	72	3.28E-02	5.5	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:03:22

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: BLANK		
Sample date	: 1-SEP-2005 00:00:00	Acquisition date	: 1-SEP-2005 08:12:59
Sample ID	: 02	Sample quantity	: 1.0000 gram
Sample type	: UU	Sample geometry	:
Detector name	: 026	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	4231.26*	3	3.26	277.00	204	86129.3			U-238	4.271E-02
0	4356.10*	2	84.86	316.50	299	40141.4			U-235	3.360E-02
0	4503.92*	2	32.64	363.50	342	28141.4			U-236	3.017E-02
0	4722.41*	9	3.26	433.42	394	78	79.2		U-234	0.122
0	5288.96*	335	74.93	617.32	572	72	10.9		U232	4.56

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:03:33

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$03_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	03
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.183E+00	gram
SAMPLE TITLE:	VPSCR081705SL15	DETECTOR NUMBER:	027
ACQ DATE:	1-SEP-2005 08:13	AVERAGE EFFICIENCY:	19.95%
ELAPSED LIVE TIME:	10208.	RECOVERY:	80.81%
TRACER ID:	UU-10A	TRACER FWHM (kev):	74.71
LAMBDA VALUE:	611.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.679	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 09:58	EFF CAL DATE: 24-AUG-2005	09:58
BKG FILENAME:	B_027_26AUG05	BKG ELAPSED TIME:	60006.

****

NUCLIDE ACTIVITY SUMMARY

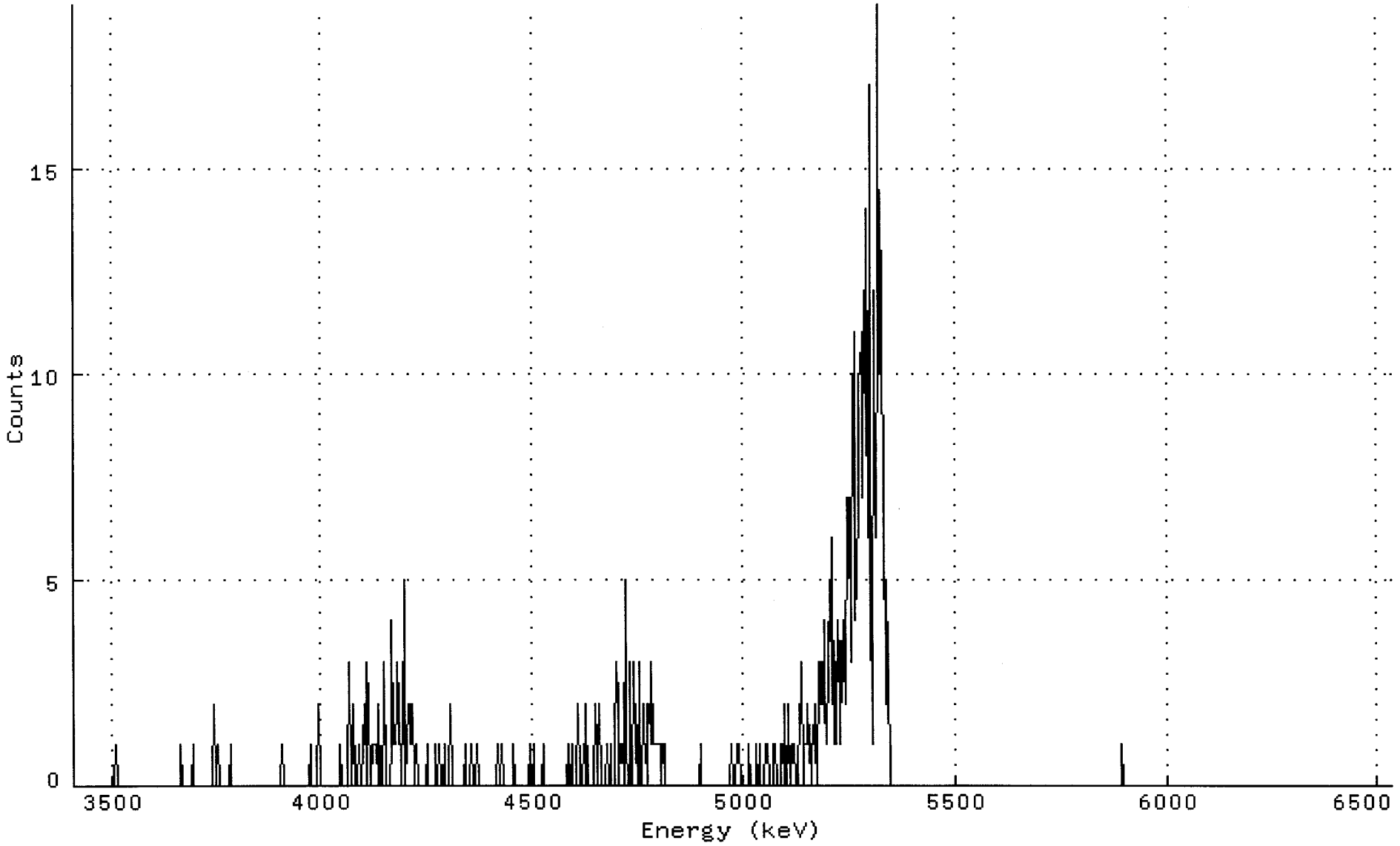
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	347.00	0.00	99.8	4.830E+00	6.568E-01	3.771E-02
U-234	4761.5	57.49	0.51	99.8	7.999E-01	2.448E-01	8.393E-02
U-235	4385.5	5.66	0.34	80.9	9.715E-02	8.579E-02	9.307E-02
U-236	4485.2	2.83	0.17	90.1	4.361E-02	5.406E-02	7.132E-02
U-238	4184.4	58.32	0.68	100.2	8.080E-01	2.462E-01	9.069E-02

****

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$03_UU.CNF;1
Title : 027
Sample Title: VPSCR081705SL15
Start Time: 1-SEP-2005 08:13: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.40153E+03
Real Time : 0 02:50:08.00 Sample ID : 03 Energy Slope : 3.23237E+00
Live Time : 0 02:50:08.00 Sample Type: UU Energy Quad : -1.71833E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$03_UU

Channel

1:	10208	10208	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	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	1	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	0	0	2	0	0	1	0	0
113:	0	0	0	0	0	0	1	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	1	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	2	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	0	1	0	0	0	0	0	0	3	0	1
211:	2	0	0	0	1	0	0	1	2	0	3	2	0	0
225:	1	1	1	1	0	2	0	0	2	3	0	0	0	0
239:	1	4	1	1	2	3	2	0	1	1	5	0	1	2
253:	1	2	2	0	0	1	0	0	0	0	0	0	0	1
267:	0	0	0	0	0	0	1	0	1	0	0	0	1	0
281:	0	0	0	2	0	0	0	0	0	0	0	0	0	0
295:	1	0	0	0	0	1	0	0	0	1	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
323:	1	0	0	0	0	0	0	0	0	1	0	0	0	0
337:	0	0	0	0	0	0	0	1	0	0	1	0	0	0
351:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	1	0	0	1	0	0
379:	0	0	2	0	0	0	1	0	2	0	0	0	0	0
393:	0	2	0	1	2	0	0	0	0	0	1	0	1	0
407:	0	0	1	3	2	0	1	1	1	0	5	1	0	0
421:	3	0	3	1	1	0	3	0	0	2	1	1	0	2
435:	2	1	3	1	1	1	1	1	1	0	1	1	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	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	0	0	0	0	1	0	0	0	1	1	1
505:	0	0	0	0	0	0	0	1	0	0	0	0	0	1
519:	0	1	0	0	0	1	1	1	0	0	0	0	1	1
533:	0	0	0	0	1	1	0	2	0	1	2	0	1	1
547:	1	0	0	0	2	1	3	0	1	1	1	2	1	0
561:	1	1	2	1	0	3	3	2	2	4	2	1	3	3
575:	5	2	6	1	3	1	4	3	1	3	4	3	2	7
589:	7	7	3	5	9	11	4	5	7	10	10	11	7	12
603:	8	14	6	17	5	1	12	11	6	12	19	10	13	11
617:	7	2	5	3	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	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	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	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: 1-SEP-2005 14:03:29.71

Detector ID: 27 Acquisition Start: 1-SEP-2005 08:13:21.01
Live Time: 0 02:50:08.00 Real Time: 0 02:50:08.00
Batch Id: 0508095A-UU Sample Id: 03
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4154.70	59	0	134.67	235.97	187	87	5.78E-03	13.0	
2	0	4349.00	6	0	3.23	297.83	282	41	5.88E-04	40.8	
3	0	4483.79	3	0	51.72	341.00	325	29	2.94E-04	57.7	
4	0	4726.53	58	0	88.87	419.26	378	79	5.68E-03	13.1	
5	0	5274.55	347	0	74.71	598.50	557	73	3.40E-02	5.4	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:03:31.41

Acquisition Start: 26-AUG-2005 12:01:17.01
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	4135.89	4	0	116.37	230.00	187	87	6.67E-05	50.0	
2	0	4362.04	2	0	42.02	302.00	282	41	3.33E-05	70.7	
3	0	4477.56	1	0	3.23	339.00	325	29	1.67E-05	100.0	
4	0	4719.55	3	0	164.85	417.00	378	79	5.00E-05	57.7	
5	0	5257.91	0	0	0.00	593.00	557	73	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:03:31.71

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4154.70*	58	0	134.67	235.97	187	87	5.71E-03	13.2	
2	0	4349.00*	6	0	3.23	297.83	282	41	5.54E-04	43.5	
3	0	4483.79*	3	0	51.72	341.00	325	29	2.77E-04	61.5	
4	0	4726.53*	57	0	88.87	419.26	378	79	5.63E-03	13.3	
5	0	5274.55*	347	0	74.71	598.50	557	73	3.40E-02	5.4	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:03:32

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL15
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 1-SEP-2005 08:13:21
Sample ID : 03 Sample quantity : 1.1825 gram
Sample type : UU Sample geometry :
Detector name : 027 Detector geometry:
Elapsed live time: 0 02:50:08.00 Elapsed real time: 0 02:50:08.00 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	4154.70*	58134.67		235.97	187	87	26.4		U-238	0.653
0	4349.00*	6	3.23	297.83	282	41	87.0		U-235	7.851E-02
0	4483.79*	3	51.72	341.00	325	29	123.0		U-236	3.524E-02
0	4726.53*	57	88.87	419.26	378	79	26.5		U-234	0.646
0	5274.55*	347	74.71	598.50	557	73	10.7		U232	3.90

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:03:41

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$04_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	04
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.140E+00 gram
SAMPLE TITLE:	VPSCR081705SL15	DETECTOR NUMBER:	028
ACQ DATE:	1-SEP-2005 08:13	AVERAGE EFFICIENCY:	20.23%
ELAPSED LIVE TIME:	10206.	RECOVERY:	71.42%
TRACER ID:	UU-10A	TRACER FWHM (kev):	109.90
LAMBDA VALUE:	610.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.673	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 09:59	EFF CAL DATE:	24-AUG-2005 09:59
BKG FILENAME:	B_028_26AUG05	BKG ELAPSED TIME:	60003.

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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	310.66	0.34	99.8	5.006E+00	7.053E-01	8.733E-02
U-234	4761.5	68.32	0.68	99.8	1.100E+00	3.188E-01	1.054E-01
U-235	4385.5	7.00	0.00	80.9	1.391E-01	1.074E-01	5.385E-02
U-236	4485.2	9.00	0.00	90.1	1.606E-01	1.100E-01	4.835E-02
U-238	4184.4	48.98	1.02	100.2	7.855E-01	2.586E-01	1.188E-01

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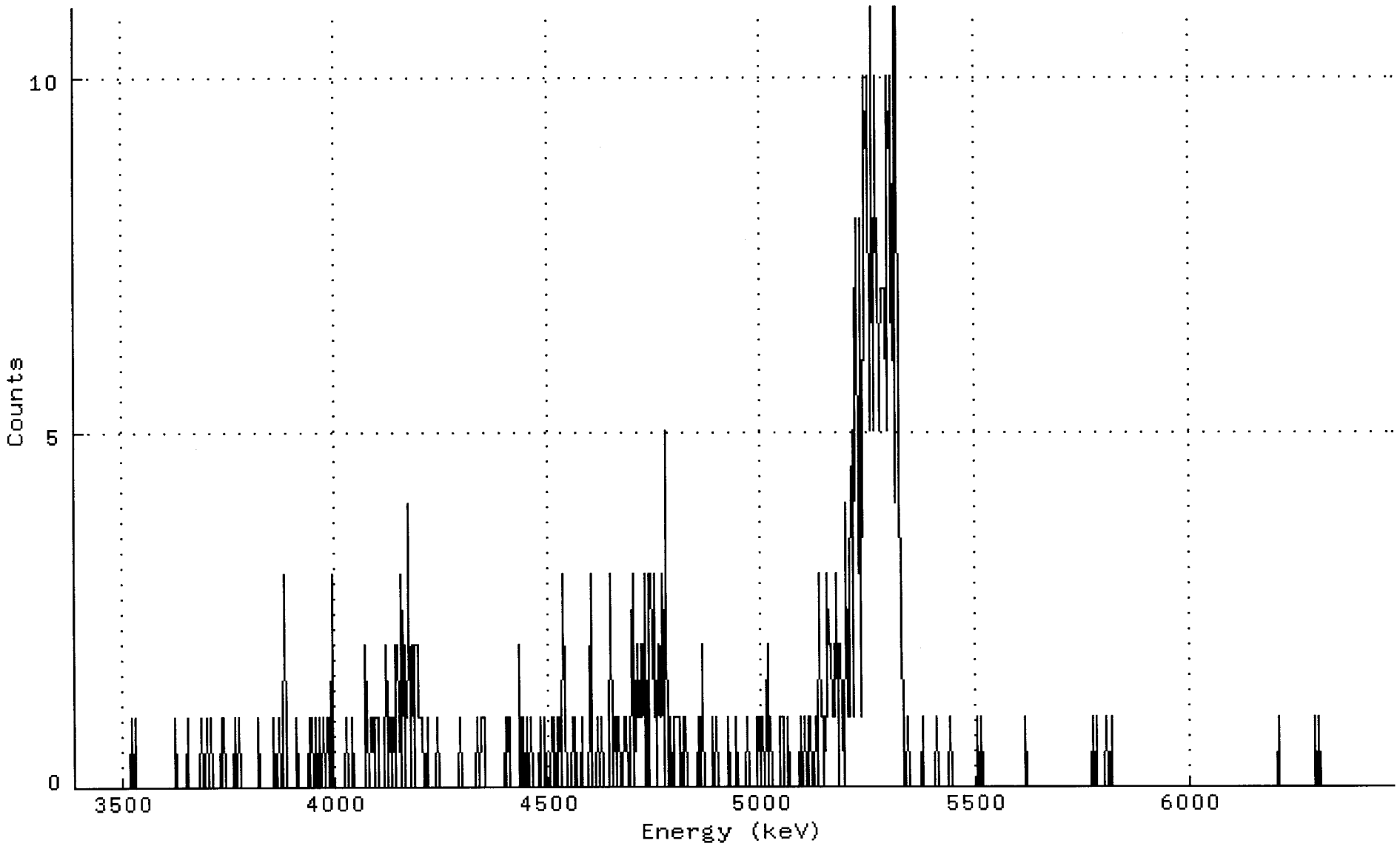
*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$04_UU.CNF;1
Title : 028
Sample Title: VPSCR081705SL15
Start Time: 1-SEP-2005 08:13: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.37804E+03
Real Time : 0 02:50:06.00 Sample ID : 04 Energy Slope : 3.23072E+00
Live Time : 0 02:50:06.00 Sample Type: UU Energy Quad : -2.01463E-04



881

Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$04_UU

Channel

1:	10206	10206	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	1	0	0	1	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	1	0	0	0	0	0	0	0
85:	0	1	0	0	0	0	0	0	0	0	0	1	0	0
99:	0	1	1	0	1	0	0	0	0	0	0	0	1	0
113:	1	0	0	0	0	0	0	0	1	0	0	1	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
141:	0	0	0	0	0	0	0	0	0	1	0	0	0	1
155:	0	0	0	3	0	0	0	0	0	0	0	0	1	0
169:	0	0	0	0	0	0	0	1	0	1	0	0	1	0
183:	0	1	0	1	1	0	1	0	1	0	3	0	0	0
197:	0	0	0	0	0	0	1	1	0	0	0	1	0	0
211:	0	0	0	0	0	0	0	2	1	0	0	1	1	0
225:	1	1	1	0	0	0	0	0	2	1	0	1	1	0
239:	1	0	2	2	1	0	3	2	0	2	1	2	4	0
253:	2	0	2	2	2	1	1	1	1	0	0	1	0	0
267:	0	0	0	0	0	1	0	0	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	1	1	1	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	1	0	1	1	0	0	0	0	0	0	0	2	0	1
337:	0	0	1	0	0	1	0	0	0	0	0	0	1	0
351:	0	0	1	0	0	0	0	1	0	1	0	0	1	1
365:	0	0	3	1	0	0	0	0	0	1	0	1	0	0
379:	0	0	1	0	0	0	0	0	1	3	0	0	0	0
393:	1	0	0	1	0	0	0	0	0	0	3	0	0	1
407:	0	1	1	0	0	0	1	1	1	0	0	0	2	3
421:	0	1	2	1	1	2	1	2	0	3	0	0	3	3
435:	2	1	3	0	2	2	1	3	2	0	5	3	0	0
449:	1	0	0	1	1	1	1	0	0	1	0	1	0	0
463:	0	0	0	0	0	0	0	1	0	0	2	1	0	0
477:	0	0	0	0	1	0	1	1	0	0	0	0	0	0
491:	0	0	1	0	0	0	0	0	1	0	0	0	0	0
505:	0	0	1	0	0	0	0	0	0	0	1	1	0	1
519:	1	0	0	1	2	0	1	0	0	0	0	0	0	0
533:	1	1	1	0	0	0	1	0	0	0	0	0	0	0
547:	0	1	0	0	1	1	0	1	0	1	0	0	0	1
561:	1	0	3	2	1	1	0	1	1	3	2	2	2	1
575:	2	1	3	0	2	2	1	1	0	3	4	1	1	3
589:	4	5	1	7	7	8	3	8	1	6	6	10	9	10
603:	10	5	8	11	5	10	8	8	5	6	7	7	7	7
617:	5	10	9	10	7	6	11	4	11	4	4	3	0	1
631:	0	1	1	0	0	0	0	0	0	0	0	0	0	1
645:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
659:	0	0	0	0	0	0	1	1	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	1	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	1	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	1	0	0	1	0	0
785:	0	0	0	0	0	1	0	0	0	1	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	1	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	1	0	0	1	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: 1-SEP-2005 14:03:37.68

Detector ID: 28 Acquisition Start: 1-SEP-2005 08:13:40.01
Live Time: 0 02:50:06.00 Real Time: 0 02:50:06.00
Batch Id: 0508095A-UU Sample Id: 04
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4148.46	50	0	22.00	242.12	195	87	4.90E-03	14.1	
2	0	4370.85	7	0	80.77	313.43	291	41	6.86E-04	37.8	
3	0	4468.66	9	0	0.00	345.00	334	29	8.82E-04	33.3	
4	0	4728.67	69	0	0.00	429.57	388	79	6.76E-03	12.0	
5	0	5261.66	311	0	109.90	605.93	569	74	3.05E-02	5.7	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:03:39.10

Acquisition Start: 26-AUG-2005 12:01:20.01
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	4135.54	6	0	264.52	238.00	195	87	1.00E-04	40.8	
2	0	4363.31	0	0	0.00	311.00	291	41	0.00E+00	0.0	
3	0	4477.94	0	0	0.00	348.00	334	29	0.00E+00	0.0	
4	0	4720.83	4	0	122.77	427.00	388	79	6.67E-05	50.0	
5	0	5260.38	2	0	145.38	605.50	569	74	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:03:39.39

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4148.46*	49	0	22.00	242.12	195	87	4.80E-03	14.5	
2	0	4370.85*	7	0	80.77	313.43	291	41	6.86E-04	37.8	
3	0	4468.66*	9	0	0.00	345.00	334	29	8.82E-04	33.3	
4	0	4728.67*	68	0	0.00	429.57	388	79	6.69E-03	12.2	
5	0	5261.66*	311	0	109.90	605.93	569	74	3.04E-02	5.7	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:03:40

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL15		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 1-SEP-2005 08:13:40
Sample ID	: 04	Sample quantity	: 1.1404 gram
Sample type	: UU	Sample geometry	:
Detector name	: 028	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	4148.46*	49	22.00	242.12	195	87	28.9		U-238	0.561
0	4370.85*	7	80.77	313.43	291	41	75.6		U-235	9.934E-02
0	4468.66*	9	0.00	345.00	334	29	66.7		U-236	0.115
0	4728.67*	68	0.00	429.57	388	79	24.3		U-234	0.786
0	5261.66*	311	109.90	605.93	569	74	11.4		U232	3.58

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Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:03:50

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$05_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	05
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.054E+00 gram
SAMPLE TITLE:	VPSCR081705SL16	DETECTOR NUMBER:	029
ACQ DATE:	1-SEP-2005 08:14	AVERAGE EFFICIENCY:	19.81%
ELAPSED LIVE TIME:	10208.	RECOVERY:	99.65%
TRACER ID:	UU-10A	TRACER FWHM (kev):	84.67
LAMBDA VALUE:	614.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.746	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 09:59	EFF CAL DATE:	24-AUG-2005 09:59
BKG FILENAME:	B_029_26AUG05	BKG ELAPSED TIME:	60001.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	427.00	0.00	99.8	5.447E+00	6.962E-01	3.455E-02
U-234	4761.5	96.30	1.70	99.8	1.228E+00	3.096E-01	1.119E-01
U-235	4385.5	3.49	0.51	80.9	5.489E-02	6.410E-02	9.488E-02
U-236	4485.2	-0.17	0.17	90.1	-2.403E-03	4.818E-03	6.536E-02
U-238	4184.4	56.66	0.34	100.2	7.193E-01	2.185E-01	6.884E-02

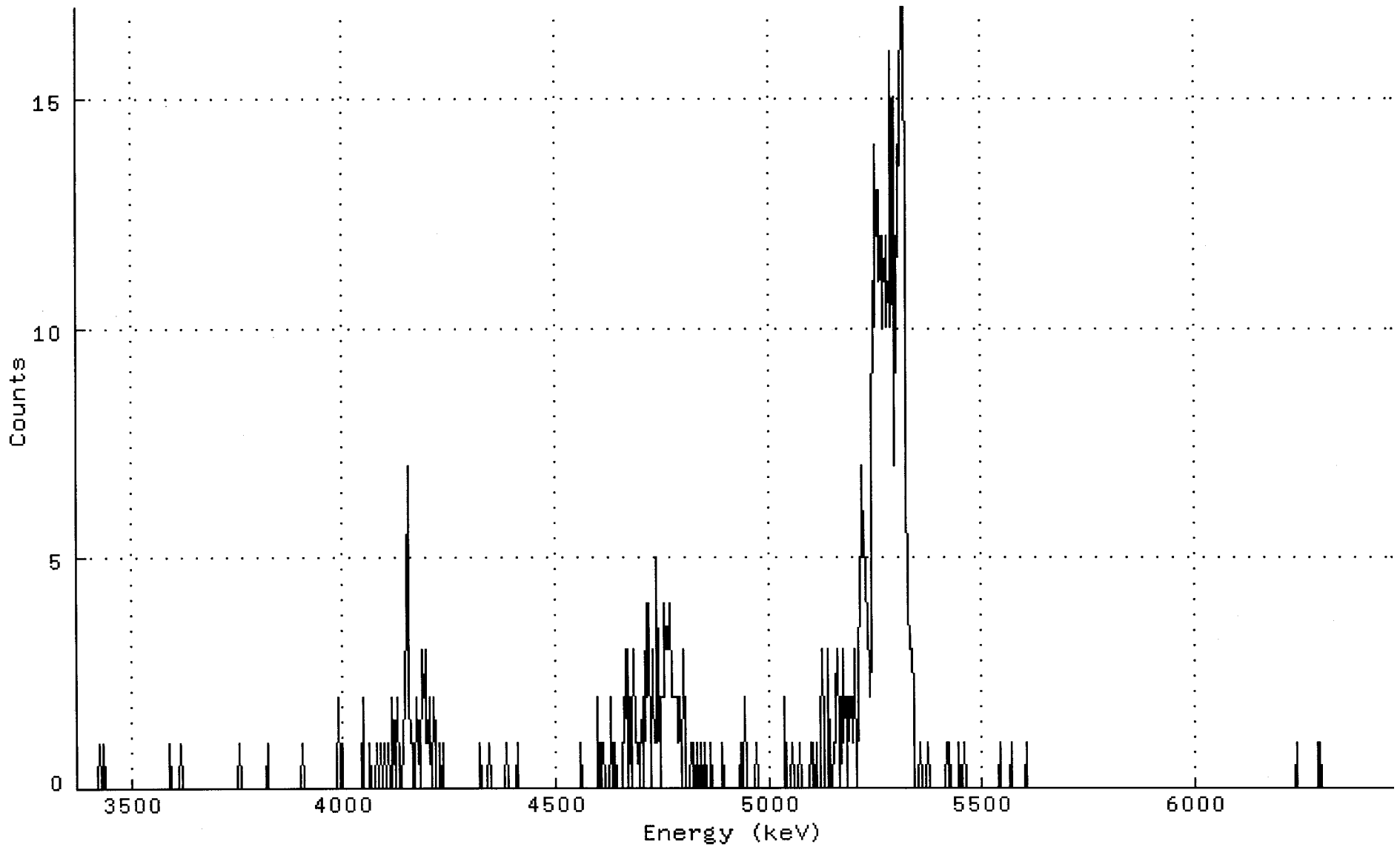
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$05_UU.CNF;1
Title : 029
Sample Title: VPSCR081705SL16
Start Time: 1-SEP-2005 08:14: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.36194E+03
Real Time : 0 02:50:08.00 Sample ID : 05 Energy Slope : 3.22321E+00
Live Time : 0 02:50:08.00 Sample Type: UU Energy Quad : -1.90683E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$05_UU

Channel

1:	10208	10208	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	1	1	0	0	1	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	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	1	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	0	0	0
169:	0	1	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:	2	0	1	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	2	0	0	0	0	1	0	0	0	0
225:	1	0	0	1	0	0	1	0	0	1	0	0	2	1
239:	0	1	2	0	0	0	1	2	2	4	7	2	1	1
253:	0	0	2	1	1	0	3	2	2	3	1	1	2	1
267:	0	2	1	0	0	0	1	0	1	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	1	0	0	0	0	0	0	0	0	0	0	0	0
323:	1	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	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	1	0	0	0	0	0	0	0	0	0	0	0	0
393:	2	0	0	1	1	0	0	0	0	1	2	0	0	1
407:	0	0	0	0	0	1	1	3	0	3	1	0	1	3
421:	1	1	1	0	1	1	2	0	2	4	2	4	0	3
435:	2	1	1	5	2	0	2	2	2	4	3	3	3	4
449:	2	2	2	2	2	1	2	0	0	3	1	0	0	0
463:	0	1	0	1	0	0	1	0	0	1	0	0	1	0
477:	0	0	1	0	0	0	0	0	0	0	0	1	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
505:	2	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	2	0	0	0	0	1	0	0	0	0
547:	0	1	0	0	0	0	0	0	0	0	1	1	0	0
561:	1	0	0	0	1	3	1	0	0	0	3	0	0	0
575:	1	1	2	3	1	0	1	3	1	2	2	0	2	2
589:	2	1	3	3	0	2	2	5	5	7	5	5	3	4
603:	2	3	7	11	10	14	12	13	11	12	10	12	11	12
617:	10	11	10	16	14	7	15	9	14	12	15	17	17	17
631:	12	7	4	3	3	3	2	0	0	0	0	1	0	0
645:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	0	1	0	1	0	0	0	0	0	0	0
673:	1	0	0	0	1	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	1	0	0	0	0	0	0	0	0	1
715:	0	0	0	0	0	0	0	0	0	0	0	1	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	1	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	1	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: 1-SEP-2005 14:03:45.50

Detector ID: 29 Acquisition Start: 1-SEP-2005 08:14:02.01
Live Time: 0 02:50:08.00 Real Time: 0 02:50:08.00
Batch Id: 0508095A-UU Sample Id: 05
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4157.20	57	0	6.21	250.44	200	88	5.58E-03	13.2	
2	0	4363.76	4	0	93.47	316.75	296	42	3.92E-04	50.0	
3	0	4477.52	0	0	0.00	353.50	340	28	0.00E+00	0.0	
4	0	4729.14	98	0	143.40	435.39	393	80	9.60E-03	10.1	
5	0	5272.89	427	0	84.67	615.27	574	74	4.18E-02	4.8	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:03:47.59

Acquisition Start: 26-AUG-2005 12:01:22.01
Live Time: 0 16:40:01.00 Real Time: 0 16:40:00.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.48	2	0	106.37	243.50	200	88	3.33E-05	70.7	
2	0	4362.98	3	0	0.00	316.50	296	42	5.00E-05	57.7	
3	0	4477.52	1	0	3.22	353.50	340	28	1.67E-05	100.0	
4	0	4720.31	10	0	3.22	432.50	393	80	1.67E-04	31.6	
5	0	5258.64	0	0	0.00	610.50	574	74	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:03:47.88

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4157.20*	57	0	6.21	250.44	200	88	5.55E-03	13.3	
2	0	4363.76*	3	0	93.47	316.75	296	42	3.42E-04	57.9	
3	0	4477.52*	0	0	0.00	353.50	340	28	-1.67E-05	100.0	
4	0	4729.14*	96	0	143.40	435.39	393	80	9.43E-03	10.3	
5	0	5272.89*	427	0	84.67	615.27	574	74	4.18E-02	4.8	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:03:49

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL16		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 1-SEP-2005 08:14:02
Sample ID	: 05	Sample quantity	: 1.0541 gram
Sample type	: UU	Sample geometry	:
Detector name	: 029	Detector geometry	:
Elapsed live time	: 0 02:50:08.00	Elapsed real time	: 0 02:50:08.00 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	4157.20*	57	6.21	250.44	200	88	26.7		U-238	0.717
0	4363.76*	3	93.47	316.75	296	42	115.9		U-235	5.470E-02
0	4477.52*	0	0.00	353.50	340	28	200.0		U-236	-2.395E-03
0	4729.14*	96	143.40	435.39	393	80	20.6		U-234	1.22
0	5272.89*	427	84.67	615.27	574	74	9.7		U232	5.43

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:03:59

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$06_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	06
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 9.967E-01	gram
SAMPLE TITLE:	VPSCR081705SL17	DETECTOR NUMBER:	030
ACQ DATE:	1-SEP-2005 08:14	AVERAGE EFFICIENCY:	20.95%
ELAPSED LIVE TIME:	10206.	RECOVERY:	89.73%
TRACER ID:	UU-10A	TRACER FWHM (kev):	53.48
LAMBDA VALUE:	611.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.686	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 09:59	EFF CAL DATE: 24-AUG-2005	09:59
BKG FILENAME:	B_030_26AUG05	BKG ELAPSED TIME:	60006.

****

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	5.733E+00	7.441E-01	7.679E-02
U-234	4761.5	58.81	1.19	99.8	8.329E-01	2.517E-01	1.102E-01
U-235	4385.5	2.83	0.17	80.9	4.944E-02	6.125E-02	8.085E-02
U-236	4485.2	-0.17	0.17	90.1	-2.668E-03	5.351E-03	7.259E-02
U-238	4184.4	84.49	0.51	100.2	1.191E+00	3.138E-01	8.505E-02

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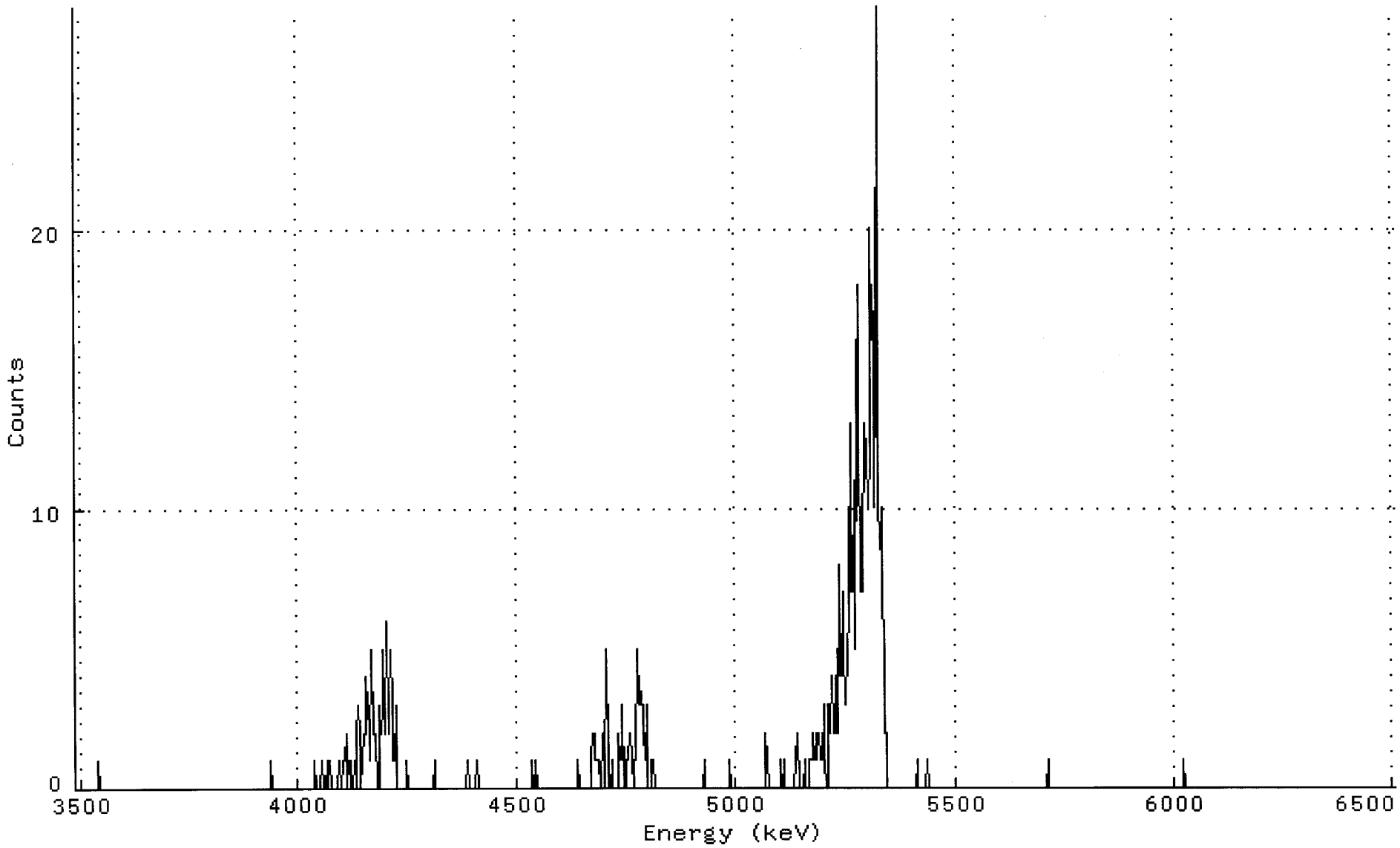
Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$06_UU.CNF;1
Title : 030
Sample Title: VPSCR081705SL17
Start Time: 1-SEP-2005 08:14: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.47712E+03
Real Time : 0 02:50:06.00 Sample ID : 06 Energy Slope : 3.19065E+00
Live Time : 0 02:50:06.00 Sample Type: UU Energy Quad : -2.30193E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$06_UU

Channel

1:	10206	10206	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	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	1	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	0	0	0	1	0	1	0	0	0	0	0	0	1
197:	0	0	1	1	2	0	1	0	1	0	1	0	2	3
211:	2	0	1	2	2	4	3	2	1	5	2	2	2	0
225:	0	3	2	3	5	2	6	2	3	5	3	1	1	3
239:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	0	0
295:	0	0	0	1	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	1	0	0	1	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	1	0	0	0
379:	0	0	0	0	0	0	1	2	2	1	1	1	0	0
393:	2	0	0	5	1	0	0	1	0	0	0	0	2	1
407:	1	3	0	0	1	1	2	2	1	0	1	1	5	3
421:	4	3	3	2	1	3	0	0	0	1	1	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	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	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	2
519:	1	0	0	0	0	0	0	0	0	0	0	1	0	1
533:	0	0	0	0	0	0	0	0	1	1	2	0	0	0
547:	0	1	0	0	0	1	1	1	2	1	2	1	2	1
561:	1	1	3	1	0	0	3	2	4	4	2	4	2	2
575:	8	4	4	7	5	3	5	4	7	13	7	7	11	5
589:	14	18	13	7	7	8	13	12	12	10	12	20	16	17
603:	10	15	28	10	9	8	10	2	2	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	1	0	0	0	0	0	0	0	1	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	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	1	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: 1-SEP-2005 14:03:54.65

Detector ID: 30 Acquisition Start: 1-SEP-2005 08:14:20.01
Live Time: 0 02:50:06.00 Real Time: 0 02:50:06.00
Batch Id: 0508095A-UU Sample Id: 06
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4170.47	85	0	62.22	220.82	166	88	8.33E-03	10.8	
2	0	4367.76	3	0	105.29	285.00	263	42	2.94E-04	57.7	
3	0	4477.60	0	0	0.00	321.00	307	29	0.00E+00	0.0	
4	0	4746.40	60	0	97.83	409.93	361	81	5.88E-03	12.9	
5	0	5285.05	405	0	53.48	591.91	546	75	3.97E-02	5.0	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:03:56.82

Acquisition Start: 26-AUG-2005 12:01:25.01
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	4135.46	3	0	67.00	209.50	166	88	5.00E-05	57.7	
2	0	4363.17	1	0	0.00	283.50	263	42	1.67E-05	100.0	
3	0	4477.60	1	0	0.00	321.00	307	29	1.67E-05	100.0	
4	0	4719.56	7	0	3.19	401.00	361	81	1.17E-04	37.8	
5	0	5259.03	2	0	0.00	583.00	546	75	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:03:57.14

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4170.47*	84	0	62.22	220.82	166	88	8.28E-03	10.9	
2	0	4367.76*	3	0	105.29	285.00	263	42	2.77E-04	61.5	
3	0	4477.60*	0	0	0.00	321.00	307	29	-1.67E-05	100.0	
4	0	4746.40*	59	0	97.83	409.93	361	81	5.76E-03	13.2	
5	0	5285.05*	405	0	53.48	591.91	546	75	3.96E-02	5.0	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:03:58

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL17		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 1-SEP-2005 08:14:20
Sample ID	: 06	Sample quantity	: 0.99670 gram
Sample type	: UU	Sample geometry	:
Detector name	: 030	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	4170.47*	84	62.22	220.82	166	88	21.8		U-238	1.07
0	4367.76*	3105.29		285.00	263	42123.0			U-235	4.436E-02
0	4477.60*	0	0.00	321.00	307	29200.0			U-236	-2.394E-03
0	4746.40*	59	97.83	409.93	361	81	26.4		U-234	0.747
0	5285.05*	405	53.48	591.91	546	75	9.9		U232	5.14

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:04:14

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$07_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	07
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.029E+00 gram
SAMPLE TITLE:	VPSCR081705SL18	DETECTOR NUMBER:	031
ACQ DATE:	1-SEP-2005 08:14	AVERAGE EFFICIENCY:	20.31%
ELAPSED LIVE TIME:	10204.	RECOVERY:	94.87%
TRACER ID:	UU-10A	TRACER FWHM (kev):	97.75
LAMBDA VALUE:	601.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.474	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 09:59	EFF CAL DATE:	24-AUG-2005 09:59
BKG FILENAME:	B_031_26AUG05	BKG ELAPSED TIME:	60004.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	407.83	0.17	99.8	5.459E+00	7.071E-01	6.192E-02
U-234	4761.5	44.98	1.02	99.8	6.019E-01	2.022E-01	9.912E-02
U-235	4385.5	6.00	0.00	80.9	9.904E-02	8.217E-02	4.474E-02
U-236	4485.2	1.83	0.17	90.1	2.712E-02	4.241E-02	6.859E-02
U-238	4184.4	66.49	0.51	100.2	8.859E-01	2.542E-01	8.036E-02

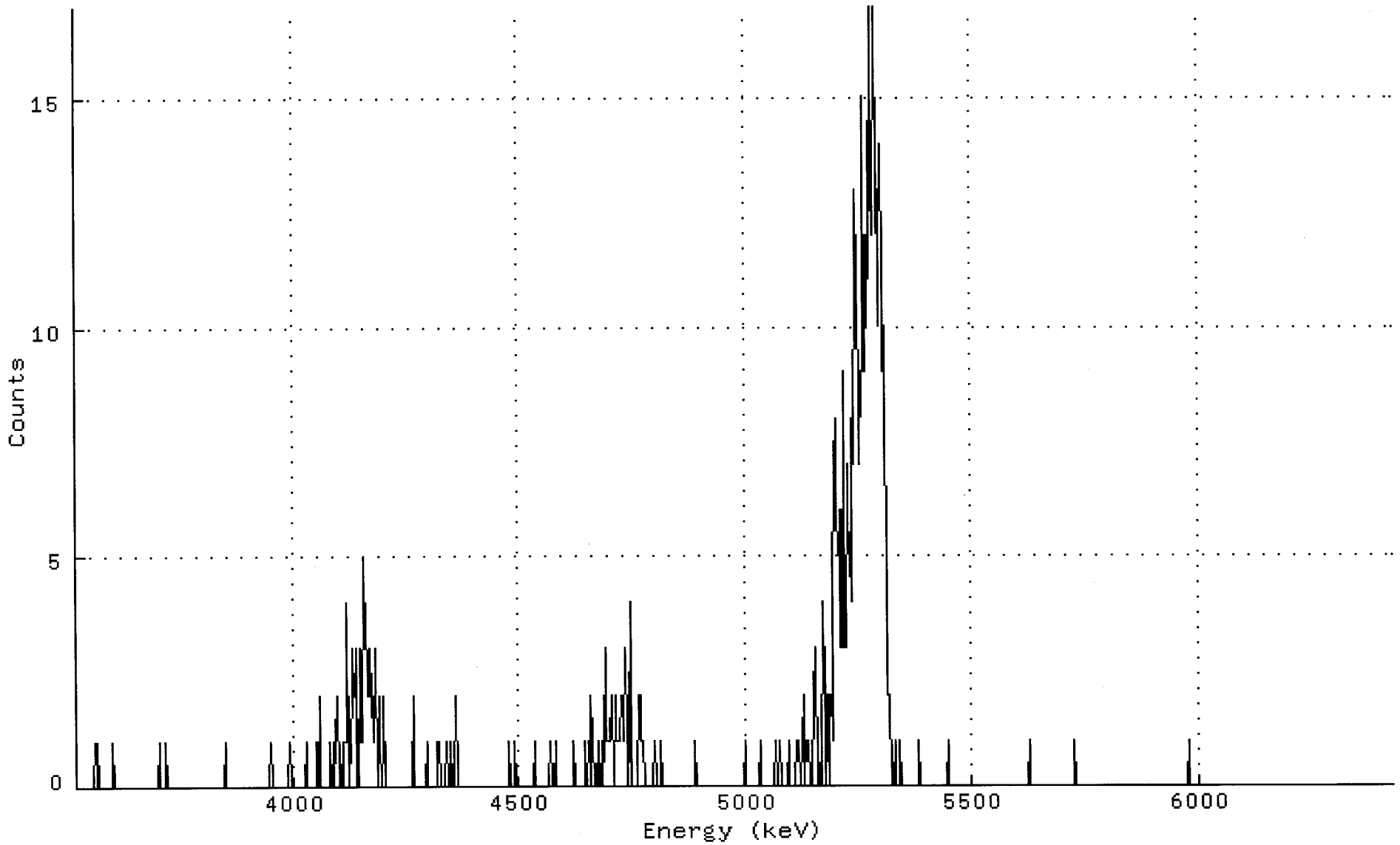
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$07_UU.CNF;1
Title : 031
Sample Title: VPSCR081705SL18
Start Time: 1-SEP-2005 08:14: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.50727E+03
Real Time : 0 02:50:04.00 Sample ID : 07 Energy Slope : 3.02669E+00
Live Time : 0 02:50:04.00 Sample Type: UU Energy Quad : -1.71261E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$07_UU

Channel

1:	10204	10204	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
29:	0	1	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	1	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	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:	1	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	1	1	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	1	0	0	0	0	0	0	0	1
183:	0	2	0	0	0	0	0	0	0	1	0	1	0	1
197:	2	0	1	0	0	1	1	1	4	0	1	2	3	2
211:	3	0	0	3	1	1	5	3	4	2	2	3	2	1
225:	1	3	0	2	1	0	1	2	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	0	0	0	0	1	0	0
267:	0	0	0	0	0	1	1	0	0	0	0	0	1	0
281:	0	1	0	0	0	2	0	0	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	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
351:	0	0	0	0	0	0	0	1	0	0	0	1	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
379:	0	0	0	0	0	0	1	0	1	0	2	1	0	0
393:	0	1	0	0	1	0	1	3	1	1	1	2	2	0
407:	2	1	1	1	1	2	1	1	3	1	0	1	4	0
421:	0	0	0	0	2	2	1	1	0	0	0	0	0	0
435:	0	0	1	0	0	0	0	1	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	1	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	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
519:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
533:	0	1	0	0	0	0	0	0	1	0	0	0	0	0
547:	1	1	1	0	0	1	2	0	1	1	1	0	1	0
561:	2	3	3	0	0	1	0	4	0	3	1	0	2	2
575:	1	4	7	8	6	5	6	3	3	9	3	3	7	6
589:	5	4	8	7	12	13	11	8	7	9	9	15	9	12
603:	10	12	17	13	12	17	16	14	10	12	14	11	9	10
617:	3	2	2	0	1	0	1	0	0	0	1	0	0	0
631:	0	0	0	0	0	0	0	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	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	0	0
715:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
729:	0	1	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	1	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	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												

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Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:04:03.63

Detector ID: 31 Acquisition Start: 1-SEP-2005 08:14:39.01
Live Time: 0 02:50:04.00 Real Time: 0 02:50:04.00
Batch Id: 0508095A-UU Sample Id: 07
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4146.69	67	0	65.49	213.85	164	93	6.57E-03	12.2	
2	0	4340.34	6	0	3.03	279.67	266	44	5.88E-04	40.8	
3	0	4484.51	2	0	15.13	329.00	312	30	1.96E-04	70.7	
4	0	4717.16	46	0	60.51	409.22	369	84	4.51E-03	14.7	
5	0	5257.14	408	0	97.75	598.41	561	78	4.00E-02	5.0	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:04:11.91

Acquisition Start: 26-AUG-2005 12:01:27.01
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	4135.32	3	0	211.87	210.00	164	93	5.00E-05	57.7	
2	0	4363.28	0	0	0.00	287.50	266	44	0.00E+00	0.0	
3	0	4477.22	1	0	3.03	326.50	312	30	1.67E-05	100.0	
4	0	4720.86	6	0	133.17	410.50	369	84	1.00E-04	40.8	
5	0	5260.21	1	0	0.00	599.50	561	78	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:04:12.22

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4146.69*	66	0	65.49	213.85	164	93	6.52E-03	12.3	
2	0	4340.34*	6	0	3.03	279.67	266	44	5.88E-04	40.8	
3	0	4484.51*	2	0	15.13	329.00	312	30	1.79E-04	77.8	
4	0	4717.16*	45	0	60.51	409.22	369	84	4.41E-03	15.1	
5	0	5257.14*	408	0	97.75	598.41	561	78	4.00E-02	5.0	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:04:13

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL18		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 1-SEP-2005 08:14:39
Sample ID	: 07	Sample quantity	: 1.0292 gram
Sample type	: UU	Sample geometry	:
Detector name	: 031	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	4146.69*	66	65.49	213.85	164	93	24.6		U-238	0.840
0	4340.34*	6	3.03	279.67	266	44	81.6		U-235	9.397E-02
0	4484.51*	2	15.13	329.00	312	301	55.7		U-236	2.573E-02
0	4717.16*	45	60.51	409.22	369	84	30.2		U-234	0.571
0	5257.14*	408	97.75	598.41	561	78	9.9		U232	5.18

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:04:24

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$08_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	08
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.050E+00 gram
SAMPLE TITLE:	VPSCR081705SL19	DETECTOR NUMBER:	032
ACQ DATE:	1-SEP-2005 08:15	AVERAGE EFFICIENCY:	19.42%
ELAPSED LIVE TIME:	10207.	RECOVERY:	88.83%
TRACER ID:	UU-10A	TRACER FWHM (kev):	91.15
LAMBDA VALUE:	610.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.657	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 09:59	EFF CAL DATE:	24-AUG-2005 09:59
BKG FILENAME:	B_032_26AUG05	BKG ELAPSED TIME:	60001.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	370.49	0.51	99.8	5.430E+00	7.242E-01	8.836E-02
U-234	4761.5	60.66	0.34	99.8	8.886E-01	2.651E-01	7.943E-02
U-235	4385.5	2.49	0.51	80.9	4.499E-02	6.386E-02	1.090E-01
U-236	4485.2	1.83	0.17	90.1	2.969E-02	4.644E-02	7.510E-02
U-238	4184.4	61.83	0.17	100.2	9.019E-01	2.669E-01	6.751E-02

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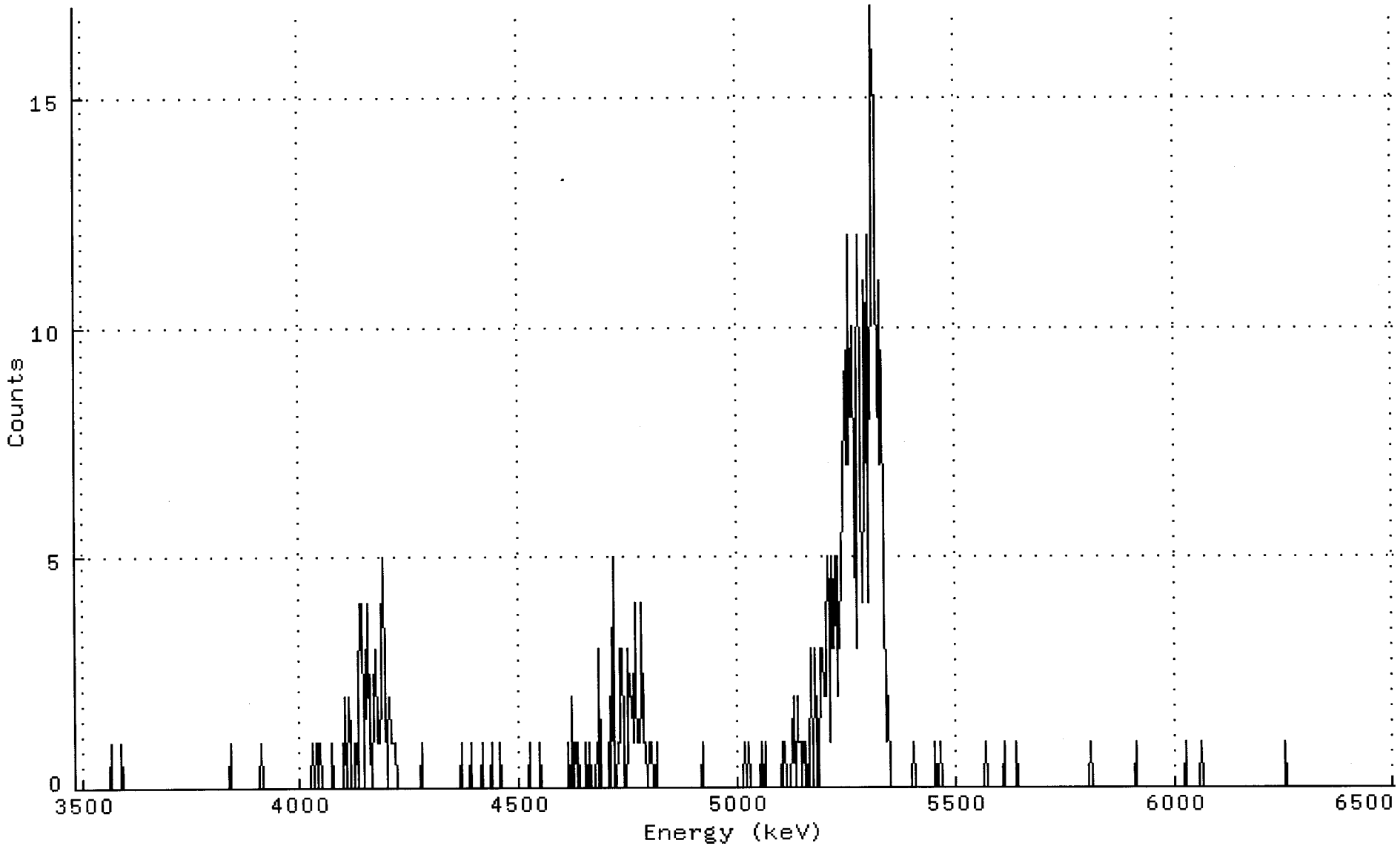
*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$08_UU.CNF;1
Title : 032
Sample Title: VPSCR081705SL19
Start Time: 1-SEP-2005 08:15: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.47349E+03
Real Time : 0 02:50:07.00 Sample ID : 08 Energy Slope : 3.14876E+00
Live Time : 0 02:50:07.00 Sample Type: UU Energy Quad : -1.88450E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$08_UU

Channel

1:	10207	10207	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:	1	0	0	0	0	0	0	0	1	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	1	0	0	0	0	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0
183:	1	1	0	0	0	0	0	0	0	0	1	0	0	0
197:	0	0	0	0	0	2	1	0	2	1	0	0	0	1
211:	1	0	2	4	4	1	0	3	2	4	1	0	0	2
225:	3	1	1	1	2	3	5	2	0	1	2	1	1	1
239:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	0	0	0	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	1	0	0	0	0	0
295:	0	1	0	0	0	0	0	0	0	0	1	0	0	0
309:	0	0	0	1	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	1	0	0	0	0	0	0	0	1	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	1	0	0	2	0	1	0	1
379:	0	0	0	0	0	1	0	0	1	0	0	0	0	1
393:	0	3	0	0	0	0	0	0	0	2	0	2	5	0
407:	0	1	1	3	3	1	0	0	1	3	2	2	2	1
421:	4	2	1	1	2	4	1	1	1	0	1	1	1	0
435:	0	0	1	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	0	0	1	0	0	0	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:	1	0	0	1	0	0	0	0	0	0	0	0	0	1
519:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
533:	0	1	0	1	0	0	0	0	0	1	2	1	0	2
547:	1	1	1	0	1	1	0	0	1	0	3	0	0	3
561:	1	0	0	3	2	3	2	2	3	5	4	1	5	3
575:	4	5	2	5	3	5	5	6	9	8	7	12	7	9
589:	10	10	6	3	8	12	8	7	4	7	11	10	4	12
603:	8	12	17	15	15	11	9	7	11	8	6	5	1	2
617:	2	0	0	0	0	0	0	0	0	0	0	0	0	0
631:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
645:	0	0	0	0	0	0	0	0	1	0	0	0	1	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	0	0	0	0	0	0	0
701:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
715:	0	0	0	1	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:	1	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	1	0
855:	0	0	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:	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	1	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: 1-SEP-2005 14:04:18.45

Detector ID: 32 Acquisition Start: 1-SEP-2005 08:15:00.01
Live Time: 0 02:50:07.00 Real Time: 0 02:50:07.00
Batch Id: 0508095A-UU Sample Id: 08
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4154.08	62	0	58.48	219.02	169	89	6.07E-03	12.7	
2	0	4391.03	3	0	53.53	296.67	267	42	2.94E-04	57.7	
3	0	4448.16	2	0	25.19	315.50	311	29	1.96E-04	70.7	
4	0	4736.43	61	0	102.79	411.21	366	81	5.98E-03	12.8	
5	0	5276.06	371	0	91.15	593.56	551	75	3.63E-02	5.2	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:04:22.31

Acquisition Start: 26-AUG-2005 12:01:30.01
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	4135.62	1	0	3.15	213.00	169	89	1.67E-05	100.0	
2	0	4363.18	3	0	40.93	287.50	267	42	5.00E-05	57.7	
3	0	4476.93	1	0	3.15	325.00	311	29	1.67E-05	100.0	
4	0	4720.82	2	0	9.45	406.00	366	81	3.33E-05	70.7	
5	0	5259.80	3	0	107.06	588.00	551	75	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:04:22.64

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4154.08*	62	0	58.48	219.02	169	89	6.06E-03	12.7	
2	0	4391.03*	2	0	53.53	296.67	267	42	2.44E-04	70.6	
3	0	4448.16*	2	0	25.19	315.50	311	29	1.79E-04	77.8	
4	0	4736.43*	61	0	102.79	411.21	366	81	5.94E-03	12.9	
5	0	5276.06*	370	0	91.15	593.56	551	75	3.63E-02	5.2	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:04:23

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL19		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 1-SEP-2005 08:15:00
Sample ID	: 08	Sample quantity	: 1.0500 gram
Sample type	: UU	Sample geometry	:
Detector name	: 032	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	4154.08*	62	58.48	219.02	169	89	25.5		U-238	0.801
0	4391.03*	2	53.53	296.67	267	42141	.1		U-235	3.997E-02
0	4448.16*	2	25.19	315.50	311	29155	.7		U-236	2.638E-02
0	4736.43*	61	102.79	411.21	366	81	25.8		U-234	0.789
0	5276.06*	370	91.15	593.56	551	75	10.4		U232	4.82

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:04:36

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$09_UU.CNF

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BATCH ID:	0508095A-UU	SAMPLE ID:	09
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.160E+00 gram
SAMPLE TITLE:	VPSCR081705SL20	DETECTOR NUMBER:	001
ACQ DATE:	1-SEP-2005 10:26	AVERAGE EFFICIENCY:	21.47%
ELAPSED LIVE TIME:	10205.	RECOVERY:	97.15%
TRACER ID:	UU-10A	TRACER FWHM (kev):	89.02
LAMBDA VALUE:	612.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.700	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 04:24	EFF CAL DATE:	24-AUG-2005 04:24
BKG FILENAME:	B_001_26AUG05	BKG ELAPSED TIME:	60005.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	449.49	0.51	99.8	4.932E+00	6.210E-01	6.616E-02
U-234	4761.5	75.83	0.17	99.8	8.317E-01	2.256E-01	5.076E-02
U-235	4385.5	4.49	0.51	80.9	6.075E-02	6.166E-02	8.161E-02
U-236	4485.2	2.83	0.17	90.1	3.438E-02	4.258E-02	5.622E-02
U-238	4184.4	84.81	1.19	100.2	9.262E-01	2.426E-01	8.501E-02

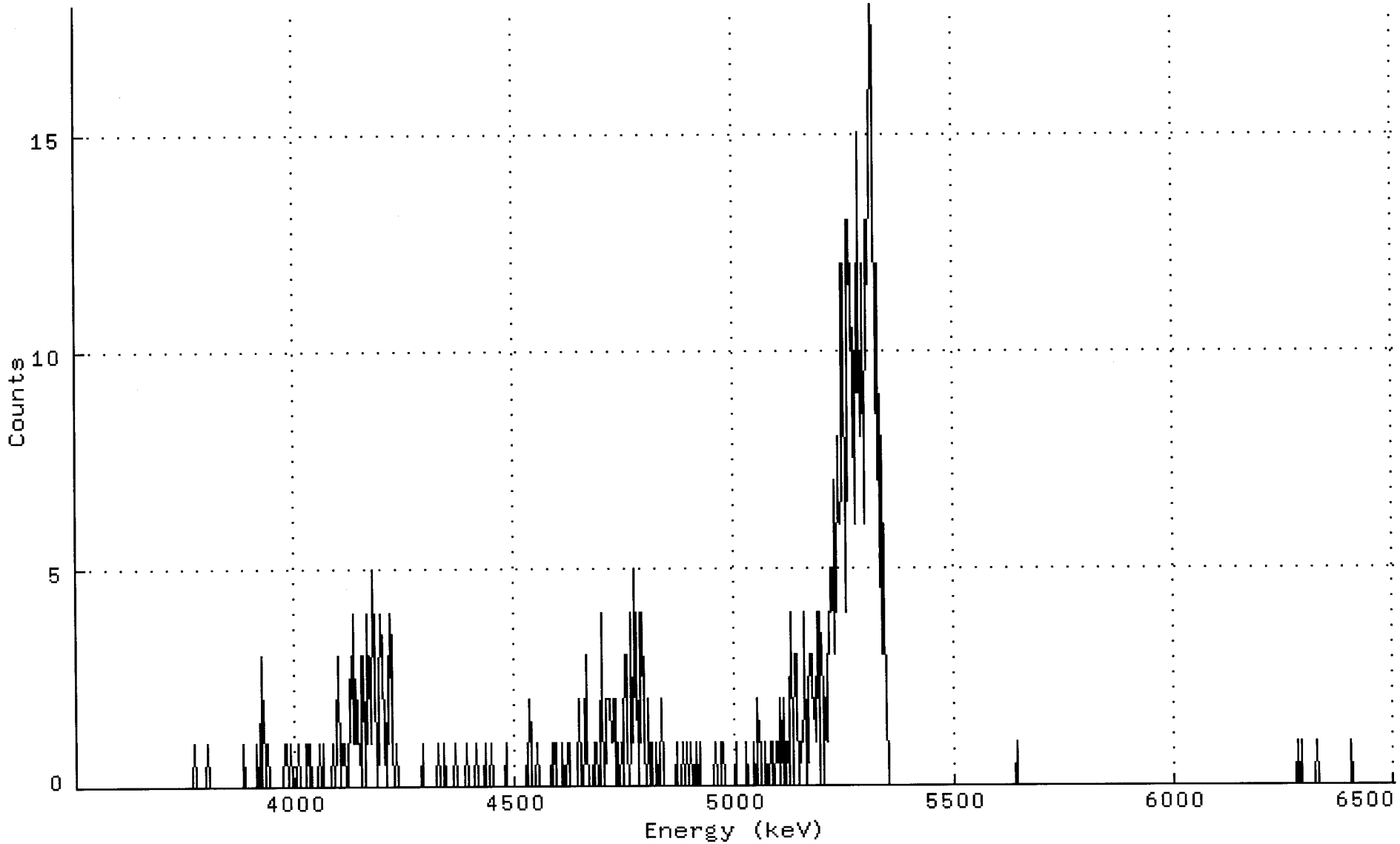
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$09_UU.CNF;1
Title : 001
Sample Title: VPSCR081705SL20
Start Time: 1-SEP-2005 10:26: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.49319E+03
Real Time : 0 02:50:05.00 Sample ID : 09 Energy Slope : 3.06351E+00
Live Time : 0 02:50:05.00 Sample Type: UU Energy Quad : -1.23267E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$09_UU

Channel

1:	10205	10205	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	1	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	0	0	0	0	0	0	0
127:	0	0	1	0	0	0	0	0	0	0	0	0	1	0
141:	0	3	0	2	0	0	1	0	0	0	0	0	0	0
155:	0	0	0	0	0	1	1	0	0	1	0	0	0	0
169:	0	1	0	0	0	0	0	1	1	0	1	0	0	0
183:	0	0	1	1	0	1	0	0	0	0	0	0	0	1
197:	0	1	1	3	0	0	1	1	1	0	1	0	2	3
211:	1	4	1	2	1	1	0	3	3	0	4	1	3	2
225:	1	5	3	3	0	1	2	4	3	1	1	0	3	1
239:	4	3	1	0	1	1	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	0	0	0	0	0	0	0	1	0	0	0	0	1
281:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
295:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
309:	0	0	1	0	0	0	0	1	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	0	0	1	0	2	1	0	0	0	0
351:	1	0	0	0	0	0	0	0	0	0	0	1	0	1
365:	1	0	0	0	0	1	0	0	0	1	1	0	0	0
379:	0	0	0	0	2	0	0	0	1	3	1	0	0	0
393:	0	1	0	1	0	0	0	4	2	0	1	2	2	2
407:	1	1	2	0	2	0	0	0	1	0	1	3	3	1
421:	0	1	4	1	3	5	3	0	4	1	4	2	1	0
435:	1	2	0	1	0	0	0	1	0	0	0	2	0	0
449:	0	0	0	0	0	0	0	0	1	0	0	0	0	1
463:	0	0	1	0	0	1	0	0	0	1	0	0	1	0
477:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
491:	0	1	1	0	0	0	0	0	0	0	0	0	1	0
505:	0	0	0	0	0	0	1	0	0	0	0	0	1	0
519:	0	2	1	1	0	0	0	1	0	0	0	1	1	0
533:	0	1	1	1	0	2	1	0	2	0	1	0	1	4
547:	0	1	3	3	2	0	1	1	1	2	4	0	1	2
561:	3	3	2	2	1	1	4	0	4	3	2	0	2	1
575:	3	3	5	4	5	3	7	4	8	7	6	7	12	12
589:	4	9	13	13	10	12	9	6	10	9	15	10	8	12
603:	11	6	13	11	12	14	14	18	17	14	10	7	12	6
617:	3	8	4	2	2	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	1	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	1	0	0	1	0	0	0	0
953:	0	0	0	0	0	0	0	0	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	1	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: 1-SEP-2005 14:04:28.43

Detector ID: 1 Acquisition Start: 1-SEP-2005 10:26:44.01
Live Time: 0 02:50:05.00 Real Time: 0 02:50:05.00
Batch Id: 0508095A-UU Sample Id: 09
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4158.64	86	0	123.94	219.15	167	90	8.43E-03	10.8	
2	0	4367.65	5	0	91.91	288.80	266	43	4.90E-04	44.7	
3	0	4454.92	3	0	0.00	318.00	311	30	2.94E-04	57.7	
4	0	4743.24	76	0	134.79	414.97	367	82	7.45E-03	11.5	
5	0	5276.55	450	0	89.02	596.44	553	76	4.41E-02	4.7	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:04:33.88

Acquisition Start: 26-AUG-2005 13:00:10.01
Live Time: 0 16:40:05.00 Real Time: 0 16:40:05.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.61	7	0	226.70	211.50	167	90	1.17E-04	37.8	
2	0	4362.26	3	0	49.02	287.00	266	43	5.00E-05	57.7	
3	0	4477.30	1	0	3.06	325.50	311	30	1.67E-05	100.0	
4	0	4721.10	1	0	3.06	407.50	367	82	1.67E-05	100.0	
5	0	5259.21	3	0	150.11	590.50	553	76	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:04:34.42

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4158.64*	85	0	123.94	219.15	167	90	8.31E-03	10.9	
2	0	4367.65*	4	0	91.91	288.80	266	43	4.40E-04	50.2	
3	0	4454.92*	3	0	0.00	318.00	311	30	2.77E-04	61.5	
4	0	4743.24*	76	0	134.79	414.97	367	82	7.43E-03	11.5	
5	0	5276.55*	449	0	89.02	596.44	553	76	4.40E-02	4.7	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:04:35

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL20		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 1-SEP-2005 10:26:44
Sample ID	: 09	Sample quantity	: 1.1599 gram
Sample type	: UU	Sample geometry	:
Detector name	: 001	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	4158.64*	85	123.94	219.15	167	90	21.9		U-238	0.900
0	4367.65*	4	91.91	288.80	266	43	100.5		U-235	5.902E-02
0	4454.92*	3	0.00	318.00	311	30	123.0		U-236	3.340E-02
0	4743.24*	76	134.79	414.97	367	82	23.0		U-234	0.808
0	5276.55*	449	89.02	596.44	553	76	9.4		U232	4.79

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:04:49

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$10_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	10
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.009E+00 gram
SAMPLE TITLE:	VPSCR081705SL0A	DETECTOR NUMBER:	002
ACQ DATE:	1-SEP-2005 10:27	AVERAGE EFFICIENCY:	20.34%
ELAPSED LIVE TIME:	10201.	RECOVERY:	90.84%
TRACER ID:	UU-10A	TRACER FWHM (kev):	100.40
LAMBDA VALUE:	596.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.364	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 04:24	EFF CAL DATE:	24-AUG-2005 04:24
BKG FILENAME:	B_002_26AUG05	BKG ELAPSED TIME:	60002.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	387.49	0.51	99.8	5.520E+00	7.259E-01	8.587E-02
U-234	4761.5	60.49	0.51	99.8	8.613E-01	2.568E-01	8.587E-02
U-235	4385.5	7.83	0.17	80.9	1.375E-01	1.016E-01	8.128E-02
U-236	4485.2	1.83	0.17	90.1	2.886E-02	4.514E-02	7.298E-02
U-238	4184.4	54.32	0.68	100.2	7.701E-01	2.397E-01	9.279E-02

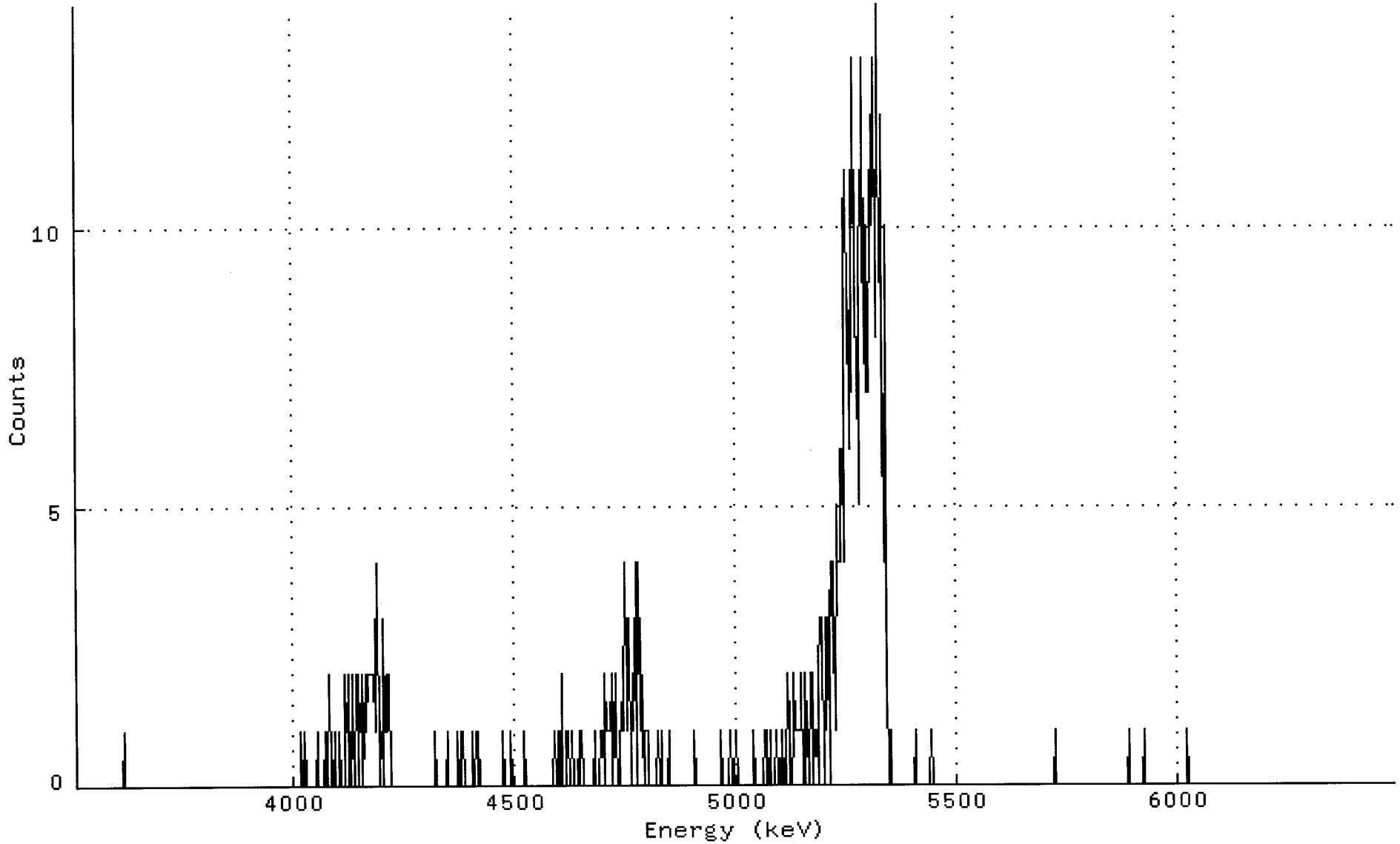
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.7.05

Reviewer _____ Date 9/11/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$10_UU.CNF;1
Title : 002
Sample Title: VPSCR081705SL0A
Start Time: 1-SEP-2005 10:27: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.49865E+03
Real Time : 0 02:50:01.00 Sample ID : 10 Energy Slope : 3.05737E+00
Live Time : 0 02:50:01.00 Sample Type: UU Energy Quad : -1.36165E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$10_UU

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	0	0	1	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	1	0	0	1	0	0	0	0	0	0	0	0
183:	1	0	0	0	0	0	1	0	0	2	0	0	0	1
197:	0	0	0	1	0	0	0	2	1	2	0	0	2	1
211:	0	2	0	2	1	2	0	1	2	1	2	2	2	2
225:	2	1	2	4	0	1	1	0	3	1	2	1	2	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	1	0	0	0	0	0	0	0	0
281:	1	0	0	0	0	0	0	0	1	0	0	1	1	0
295:	0	0	0	0	0	0	1	0	1	0	1	0	0	0
309:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	1	0	0	0	0	0	1	0	0	0	0	0	0
337:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
365:	0	1	0	2	0	0	0	1	1	0	0	1	0	0
379:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
393:	1	0	0	0	0	1	1	0	2	1	1	1	1	2
407:	0	1	2	1	0	0	1	1	2	1	4	2	1	3
421:	0	2	1	2	4	0	4	1	3	1	0	1	1	1
435:	0	0	0	0	0	0	0	1	0	1	0	0	0	0
449:	0	1	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	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	1	0	0	0	0	0	1	1	0	0	0	1	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
519:	0	0	0	0	0	1	1	0	0	1	0	0	0	0
533:	1	0	0	0	1	0	0	1	0	2	1	0	0	1
547:	2	1	1	1	1	1	2	0	0	2	1	0	0	2
561:	2	0	1	1	0	2	3	2	3	0	3	1	3	0
575:	3	4	2	4	1	5	4	4	4	6	6	4	10	11
589:	8	9	6	11	7	13	9	8	8	5	9	11	9	13
603:	8	7	10	7	11	9	11	13	13	8	14	12	9	12
617:	7	4	10	2	0	1	0	0	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
645:	0	0	0	0	0	0	0	0	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	1	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	1	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	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: 1-SEP-2005 14:04:39.95

Detector ID: 2 Acquisition Start: 1-SEP-2005 10:27:05.01
Live Time: 0 02:50:01.00 Real Time: 0 02:50:01.00
Batch Id: 0508095A-UU Sample Id: 10
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4154.92	55	0	19.75	216.75	165	91	5.39E-03	13.5	
2	0	4379.79	8	0	103.95	292.00	265	43	7.84E-04	35.4	
3	0	4483.85	2	0	21.40	327.00	311	29	1.96E-04	70.7	
4	0	4736.04	61	0	40.22	412.30	366	83	5.98E-03	12.8	
5	0	5278.98	388	0	100.40	598.25	554	76	3.80E-02	5.1	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:04:47.74

Acquisition Start: 26-AUG-2005 13:00:13.01
Live Time: 0 16:40:02.00 Real Time: 0 16:40:02.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4134.69	4	0	247.65	210.00	165	91	6.67E-05	50.0	
2	0	4361.92	1	0	3.06	286.00	265	43	1.67E-05	100.0	
3	0	4477.91	1	0	3.06	325.00	311	29	1.67E-05	100.0	
4	0	4720.44	3	0	110.07	407.00	366	83	5.00E-05	57.7	
5	0	5259.44	3	0	155.93	591.50	554	76	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:04:48.06

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4154.92*	54	0	19.75	216.75	165	91	5.32E-03	13.7	
2	0	4379.79*	8	0	103.95	292.00	265	43	7.68E-04	36.2	
3	0	4483.85*	2	0	21.40	327.00	311	29	1.79E-04	77.8	
4	0	4736.04*	60	0	40.22	412.30	366	83	5.93E-03	12.9	
5	0	5278.98*	387	0	100.40	598.25	554	76	3.80E-02	5.1	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:04:48

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0A		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 1-SEP-2005 10:27:05
Sample ID	: 10	Sample quantity	: 1.0090 gram
Sample type	: UU	Sample geometry	:
Detector name	: 002	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	4154.92*	54	19.75	216.75	165	91	27.3		U-238	0.700
0	4379.79*	81	03.95	292.00	265	43	72.4		U-235	0.125
0	4483.85*	2	21.40	327.00	311	29	155.7		U-236	2.622E-02
0	4736.04*	60	40.22	412.30	366	83	25.8		U-234	0.782
0	5278.98*	387	100.40	598.25	554	76	10.2		U232	5.01

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:05:01

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$11_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	11
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.014E+00 gram
SAMPLE TITLE:	VPSCR081705SL0B	DETECTOR NUMBER:	003
ACQ DATE:	1-SEP-2005 10:27	AVERAGE EFFICIENCY:	20.63%
ELAPSED LIVE TIME:	10201.	RECOVERY:	86.01%
TRACER ID:	UU-10A	TRACER FWHM (kev):	92.25
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:	24-AUG-2005 04:24	EFF CAL DATE:	24-AUG-2005 04:24
BKG FILENAME:	B_003_26AUG05	BKG ELAPSED TIME:	60005.

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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	5.561E+00	7.370E-01	6.825E-02
U-234	4761.5	66.13	1.87	99.8	9.754E-01	2.842E-01	1.338E-01
U-235	4385.5	3.00	0.00	80.9	5.459E-02	6.356E-02	4.931E-02
U-236	4485.2	1.66	0.34	90.1	2.712E-02	4.705E-02	8.857E-02
U-238	4184.4	58.32	0.68	100.2	8.565E-01	2.597E-01	9.612E-02

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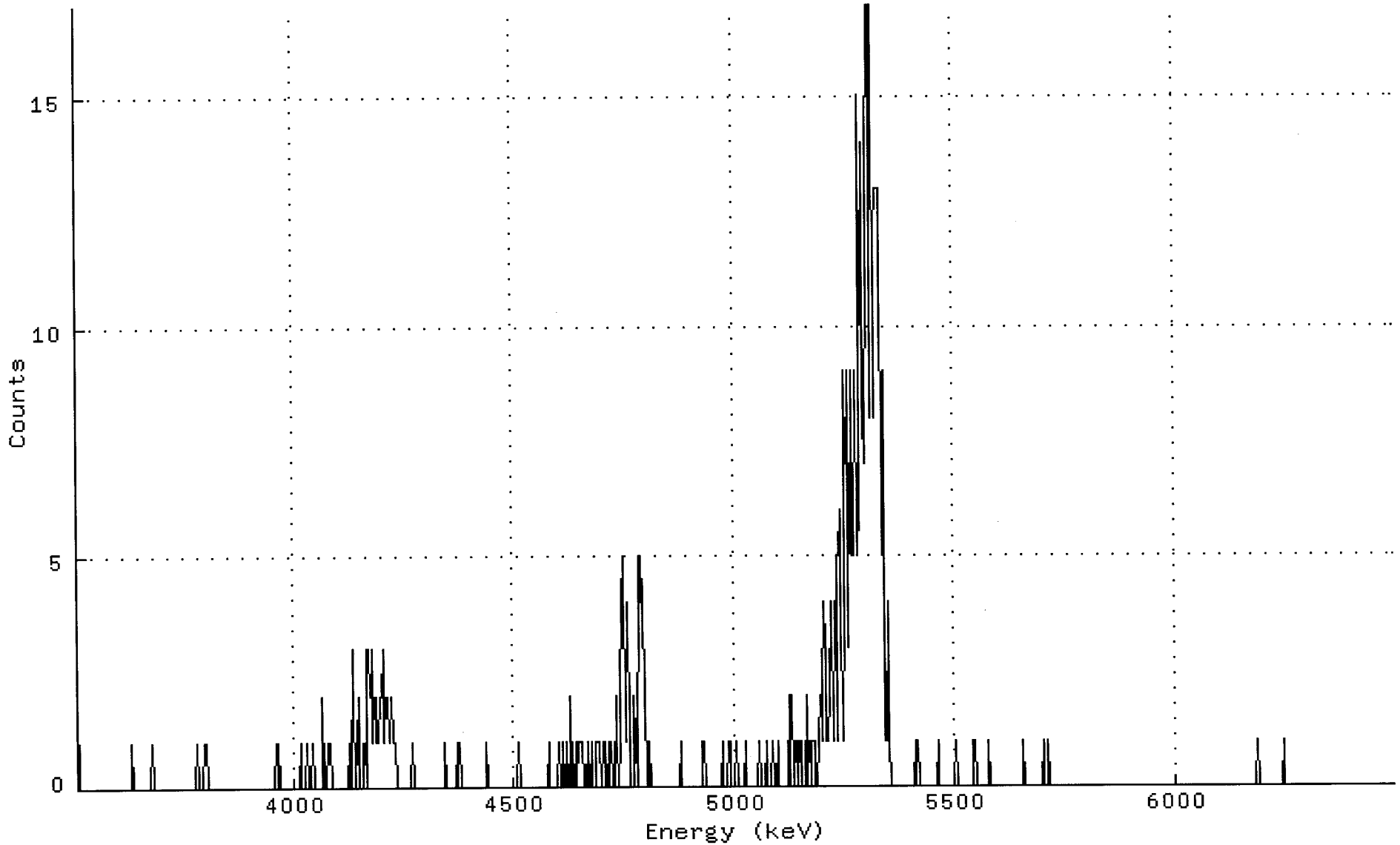
*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$11_UU.CNF;1
Title : 003
Sample Title: VPSCR081705SL0B
Start Time: 1-SEP-2005 10:27: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.49798E+03
Real Time : 0 02:50:01.00 Sample ID : 11 Energy Slope : 3.06679E+00
Live Time : 0 02:50:01.00 Sample Type: UU Energy Quad : -1.37605E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$11_UU

Channel

1:	10201	10201	0	1	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:	1	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	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	1	0	0	0	0	0	1
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	1	0	1
155:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169:	0	1	0	0	0	0	1	0	0	0	1	0	0	0
183:	0	0	0	0	2	0	0	1	1	1	0	0	0	0
197:	0	0	0	0	0	0	0	0	0	1	0	0	3	2
211:	0	1	2	0	0	0	1	1	0	3	3	2	3	1
225:	2	2	1	1	2	2	2	3	1	2	2	1	1	2
239:	1	1	1	0	0	0	0	0	0	0	0	0	0	0
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	1	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	0	0	0
309:	0	0	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	1	0
337:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
365:	1	1	0	0	1	0	0	1	0	0	2	0	0	1
379:	0	1	1	1	1	0	0	0	1	0	0	1	0	0
393:	0	1	1	1	0	0	1	0	1	0	0	1	1	0
407:	0	0	2	1	0	1	2	4	5	1	1	4	1	0
421:	0	0	2	1	0	0	5	4	5	4	2	2	0	0
435:	1	0	0	0	0	0	0	0	0	0	0	0	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	1
477:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	1	0	0	0	0	1	1	0	0	0	0	1	0	0
505:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
519:	1	1	0	0	0	0	1	0	0	0	0	1	0	0
533:	0	1	0	0	0	0	0	0	0	0	2	0	2	0
547:	0	1	1	0	1	1	0	0	0	2	0	1	0	1
561:	1	1	0	0	1	1	2	1	2	4	3	1	1	2
575:	2	4	1	1	4	1	5	5	6	4	1	4	9	7
589:	9	3	7	5	9	5	9	9	5	6	15	10	14	8
603:	7	12	13	17	17	8	17	8	12	13	13	13	13	5
617:	9	1	1	4	1	0	0	0	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	0	0	0	1	0	1	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
673:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
687:	1	1	0	0	0	0	0	0	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	1	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
743:	0	0	0	1	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	1	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	1	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: 1-SEP-2005 14:04:54.07

Detector ID: 3 Acquisition Start: 1-SEP-2005 10:27:24.01
Live Time: 0 02:50:01.00 Real Time: 0 02:50:01.00
Batch Id: 0508095A-UU Sample Id: 11
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4166.21	59	0	158.42	220.07	165	91	5.78E-03	13.0	
2	0	4362.83	3	0	36.80	285.67	265	42	2.94E-04	57.7	
3	0	4474.19	2	0	76.67	323.00	310	29	1.96E-04	70.7	
4	0	4735.75	68	0	53.32	411.19	365	83	6.67E-03	12.1	
5	0	5286.07	377	0	92.25	599.16	552	76	3.70E-02	5.2	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:04:59.02

Acquisition Start: 26-AUG-2005 13:00:16.01
Live Time: 0 16:40:05.00 Real Time: 0 16:40:05.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4135.93	4	0	245.34	210.00	165	91	6.67E-05	50.0	
2	0	4362.33	0	0	0.00	285.50	265	42	0.00E+00	0.0	
3	0	4477.17	2	0	42.94	324.00	310	29	3.33E-05	70.7	
4	0	4720.41	11	0	116.15	406.00	365	83	1.83E-04	30.2	
5	0	5258.03	1	0	3.07	589.50	552	76	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:04:59.33

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4166.21*	58	0	158.42	220.07	165	91	5.72E-03	13.2	
2	0	4362.83*	3	0	36.80	285.67	265	42	2.94E-04	57.7	
3	0	4474.19*	2	0	76.67	323.00	310	29	1.63E-04	86.4	
4	0	4735.75*	66	0	53.32	411.19	365	83	6.48E-03	12.5	
5	0	5286.07*	377	0	92.25	599.16	552	76	3.69E-02	5.2	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:05:00

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0B		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 1-SEP-2005 10:27:24
Sample ID	: 11	Sample quantity	: 1.0142 gram
Sample type	: UU	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	4166.21*	58158.42	220.07	165	91	26.4			U-238	0.737
0	4362.83*	3 36.80	285.67	265	42	115.5			U-235	4.695E-02
0	4474.19*	2 76.67	323.00	310	29	172.8			U-236	2.333E-02
0	4735.75*	66 53.32	411.19	365	83	25.0			U-234	0.839
0	5286.07*	377 92.25	599.16	552	76	10.3			U232	4.78

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ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:05:10

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$12_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	12
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.085E+00 gram
SAMPLE TITLE:	VPSCR081705SL0C	DETECTOR NUMBER:	005
ACQ DATE:	1-SEP-2005 10:27	AVERAGE EFFICIENCY:	21.20%
ELAPSED LIVE TIME:	10202.	RECOVERY:	93.20%
TRACER ID:	UU-10A	TRACER FWHM (kev):	95.15
LAMBDA VALUE:	608.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.621	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 04:24	EFF CAL DATE:	24-AUG-2005 04:24
BKG FILENAME:	B_005_26AUG05	BKG ELAPSED TIME:	60003.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	423.00	0.00	99.8	5.240E+00	6.711E-01	3.356E-02
U-234	4761.5	51.66	0.34	99.8	6.397E-01	2.015E-01	6.714E-02
U-235	4385.5	0.49	0.51	80.9	7.484E-03	3.187E-02	9.213E-02
U-236	4485.2	0.49	0.51	90.1	6.720E-03	2.862E-02	8.273E-02
U-238	4184.4	63.49	0.51	100.2	7.829E-01	2.280E-01	7.437E-02

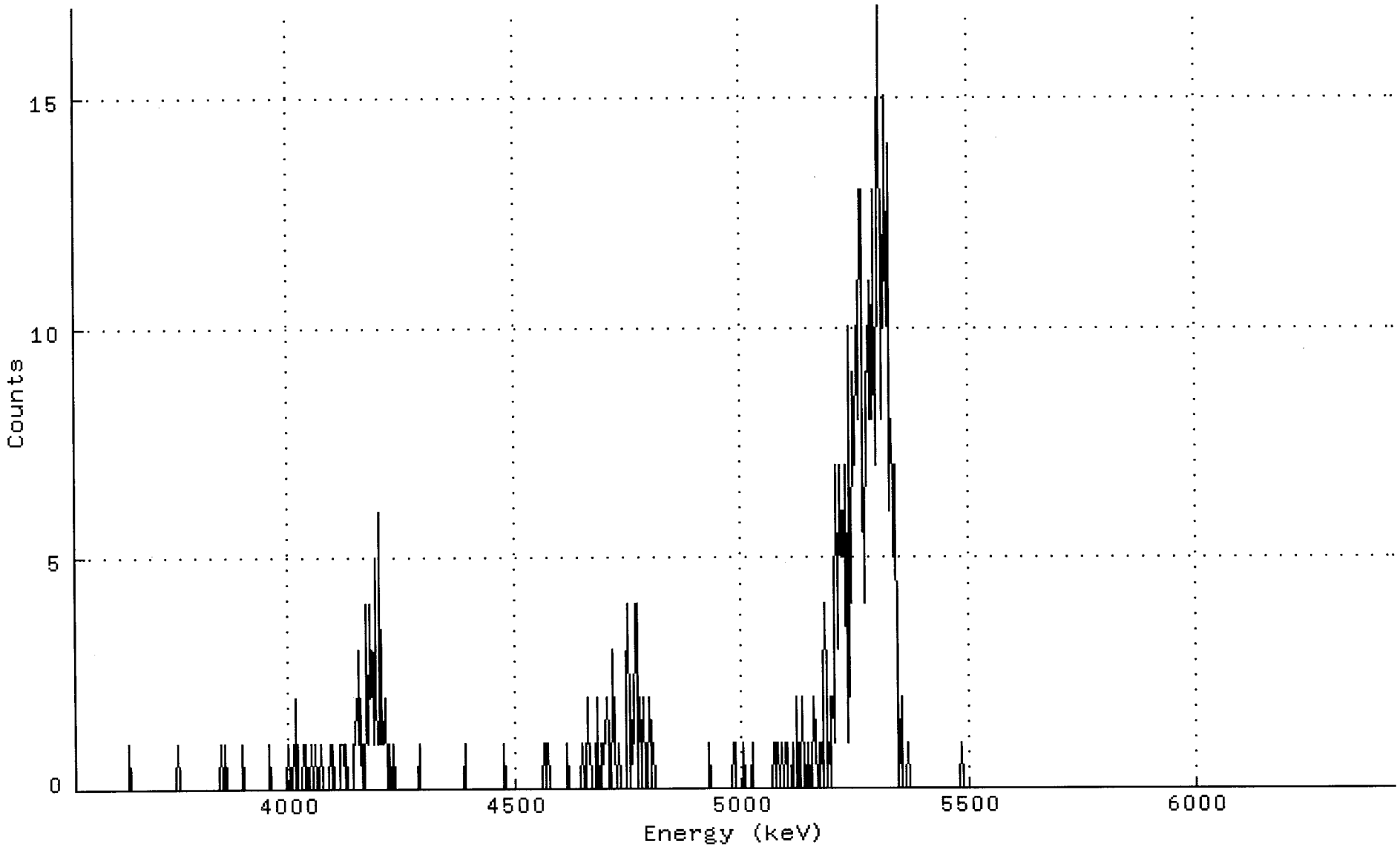
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$12_UU.CNF;1
Title : 005
Sample Title: VPSCR081705SL0C
Start Time: 1-SEP-2005 10:27: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.52032E+03
Real Time : 0 02:50:02.00 Sample ID : 12 Energy Slope : 2.98902E+00
Live Time : 0 02:50:02.00 Sample Type: UU Energy Quad : -1.40682E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$12_UU

Channel

1:	10202	10202	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:	1	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	1	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	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	1	0	0	0	1	0	2
169:	0	0	0	0	1	0	1	0	0	0	1	0	0	1
183:	0	0	0	1	0	0	0	0	0	0	1	0	1	0
197:	0	0	0	0	1	1	1	0	1	0	0	0	0	0
211:	1	1	2	1	3	1	0	1	0	2	4	1	4	2
225:	3	1	5	2	1	1	6	1	1	1	2	0	0	1
239:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
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	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	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	1	1	0	1	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
379:	0	0	0	0	0	1	0	0	0	2	1	1	0	0
393:	0	0	2	0	0	1	0	1	1	1	2	1	0	0
407:	2	3	1	0	1	1	0	0	0	0	0	2	4	1
421:	0	1	2	1	4	4	0	2	1	0	2	0	1	0
435:	2	1	0	1	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	0	0	0	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	1	1	0	0	0
505:	0	0	0	1	0	0	0	0	0	1	0	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
533:	0	1	0	0	1	0	0	1	1	0	0	0	1	0
547:	0	0	2	0	1	0	2	0	0	0	1	0	0	1
561:	0	2	1	1	0	1	0	1	0	2	4	2	0	1
575:	0	2	2	1	3	7	4	3	7	5	5	5	7	6
589:	1	10	2	6	7	9	7	10	8	9	13	13	7	4
603:	9	9	9	11	8	8	13	10	7	13	13	17	9	8
617:	12	11	15	10	14	6	8	6	5	7	2	0	1	2
631:	0	0	0	0	1	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	1	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: 1-SEP-2005 14:05:04.66

Detector ID: 5 Acquisition Start: 1-SEP-2005 10:27:42.01
Live Time: 0 02:50:02.00 Real Time: 0 02:50:02.00
Batch Id: 0508095A-UU Sample Id: 12
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4156.96	64	0	33.18	215.17	162	93	6.27E-03	12.5	
2	0	4389.84	1	0	2.99	295.00	264	44	9.80E-05	100.0	
3	0	4476.89	1	0	2.99	325.00	311	30	9.80E-05	100.0	
4	0	4734.05	52	0	58.24	414.13	368	84	5.10E-03	13.9	
5	0	5274.26	423	0	95.15	603.96	560	78	4.15E-02	4.9	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:05:07.59

Acquisition Start: 26-AUG-2005 13:00:19.01
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	4135.95	3	0	59.78	208.00	162	93	5.00E-05	57.7	
2	0	4362.22	3	0	35.87	285.50	264	44	5.00E-05	57.7	
3	0	4478.34	3	0	62.77	325.50	311	30	5.00E-05	57.7	
4	0	4720.73	2	0	0.00	409.50	368	84	3.33E-05	70.7	
5	0	5258.85	0	0	0.00	598.50	560	78	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:05:07.88

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4156.96*	63	0	33.18	215.17	162	93	6.22E-03	12.6	
2	0	4389.84*	0	0	2.99	295.00	264	44	4.80E-05	212.8	
3	0	4476.89*	0	0	2.99	325.00	311	30	4.80E-05	212.8	
4	0	4734.05*	52	0	58.24	414.13	368	84	5.06E-03	14.0	
5	0	5274.26*	423	0	95.15	603.96	560	78	4.15E-02	4.9	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:05:08

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0C
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 1-SEP-2005 10:27:42
Sample ID : 12 Sample quantity : 1.0849 gram
Sample type : UU Sample geometry :
Detector name : 005 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	4156.96*	63	33.18	215.17	162	93	25.2		U-238	0.730
0	4389.84*	0	2.99	295.00	264	44	425.6		U-235	6.975E-03
0	4476.89*	0	2.99	325.00	311	30	425.6		U-236	6.263E-03
0	4734.05*	52	58.24	414.13	368	84	27.9		U-234	0.596
0	5274.26*	423	95.15	603.96	560	78	9.7		U232	4.88

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:05:20

****
Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$13_UU.CNF
****

BATCH ID:	0508095A-UU	SAMPLE ID:	13
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.147E+00 gram
SAMPLE TITLE:	VPSCR081705SL0D	DETECTOR NUMBER:	006
ACQ DATE:	1-SEP-2005 10:28	AVERAGE EFFICIENCY:	20.92%
ELAPSED LIVE TIME:	10204.	RECOVERY:	86.04%
TRACER ID:	UU-10A	TRACER FWHM (kev):	111.05
LAMBDA VALUE:	593.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.304	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 04:24	EFF CAL DATE:	24-AUG-2005 04:24
BKG FILENAME:	B_006_26AUG05	BKG ELAPSED TIME:	60006.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	375.66	0.34	99.8	4.833E+00	6.412E-01	6.972E-02
U-234	4761.5	54.32	0.68	99.8	6.985E-01	2.177E-01	8.417E-02
U-235	4385.5	2.83	0.17	80.9	4.489E-02	5.563E-02	7.341E-02
U-236	4485.2	6.66	0.34	90.1	9.486E-02	7.700E-02	7.723E-02
U-238	4184.4	71.00	0.00	100.2	9.091E-01	2.551E-01	3.470E-02

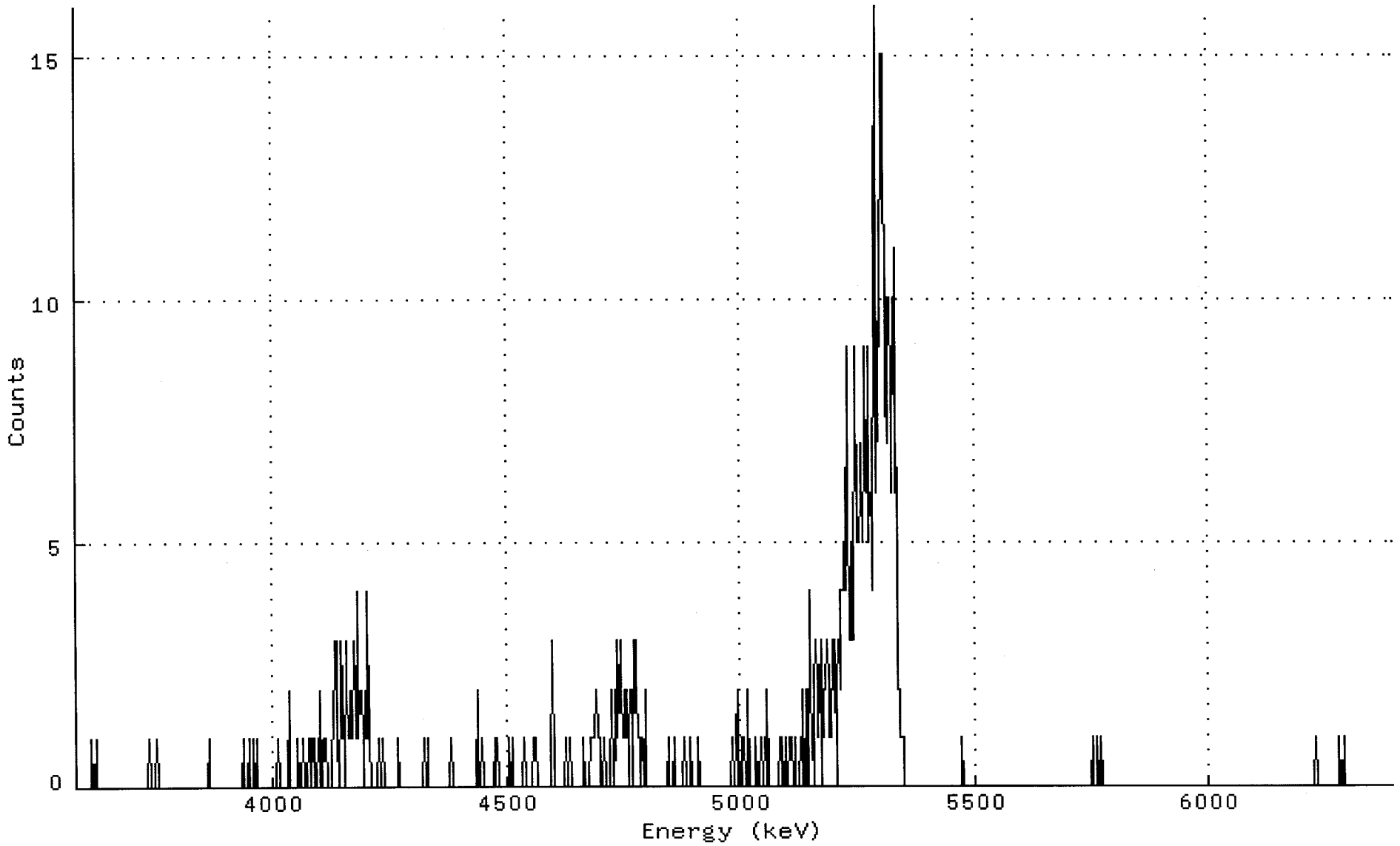
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$13_UU.CNF;1
Title : 006
Sample Title: VPSCR081705SL0D
Start Time: 1-SEP-2005 10:28: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.56747E+03
Real Time : 0 02:50:04.00 Sample ID : 13 Energy Slope : 2.88433E+00
Live Time : 0 02:50:04.00 Sample Type: UU Energy Quad : -1.25475E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$13_UU

Channel

1:	10204	10204	0	0	0	0	0	0	0	0	0	0	0	0
15:	1	0	0	1	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	1	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	1	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	1	0	0	0	1	0	0	0	1	0	1	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155:	1	0	0	0	0	0	0	0	2	0	0	0	0	0
169:	0	1	0	0	1	1	0	0	0	1	1	0	1	1
183:	0	0	1	0	2	0	1	1	1	0	0	0	0	2
197:	1	3	3	1	0	2	3	2	0	3	2	1	2	1
211:	1	3	3	1	4	1	2	2	1	0	2	1	4	1
225:	0	0	0	0	0	0	1	0	0	1	0	0	0	0
239:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
267:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
309:	1	0	0	0	0	0	0	0	0	0	1	0	1	0
323:	0	0	0	0	0	0	0	1	0	1	0	0	0	0
337:	0	0	0	0	1	0	0	0	0	0	0	1	1	1
351:	0	0	0	0	0	0	0	0	0	0	0	0	3	0
365:	0	0	0	0	0	0	0	0	1	0	0	1	0	0
379:	0	0	0	0	0	0	0	0	1	0	0	0	0	1
393:	1	1	1	2	2	1	1	0	0	1	1	0	0	0
407:	0	2	2	0	1	3	1	2	3	2	1	2	1	2
421:	0	1	2	2	0	3	3	2	1	1	0	1	0	2
435:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
449:	0	0	0	1	0	0	0	1	0	0	0	0	0	0
463:	0	1	0	0	0	0	1	0	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	1	0	0	1
505:	2	0	0	1	0	1	0	0	2	0	0	0	0	0
519:	1	0	0	0	1	0	0	1	0	2	0	0	0	0
533:	0	0	0	0	0	1	1	0	0	1	0	0	1	1
547:	1	0	1	0	0	0	0	1	0	2	0	2	0	0
561:	4	2	1	0	2	3	2	1	2	3	0	2	2	2
575:	3	2	1	1	3	2	3	0	2	3	2	4	4	4
589:	5	4	9	6	3	5	3	3	9	5	6	5	6	7
603:	5	7	9	6	9	5	6	6	4	11	16	6	8	11
617:	9	15	13	15	8	7	10	10	8	6	10	6	11	2
631:	2	1	1	1	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	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	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	0	0
785:	0	0	1	0	0	1	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	1	0	0	0	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
981:	1	0	0	0	1	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: 1-SEP-2005 14:05:14.13

Detector ID: 6 Acquisition Start: 1-SEP-2005 10:28:02.01
Live Time: 0 02:50:04.00 Real Time: 0 02:50:04.00
Batch Id: 0508095A-UU Sample Id: 13
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4150.17	71	0	75.47	203.83	151	96	6.96E-03	11.9	
2	0	4346.48	3	0	60.57	273.33	257	45	2.94E-04	57.7	
3	0	4470.79	7	0	2.88	317.57	305	31	6.86E-04	37.8	
4	0	4736.48	55	0	111.77	412.71	364	87	5.39E-03	13.5	
5	0	5271.67	376	0	111.05	606.87	562	81	3.68E-02	5.2	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:05:17.57

Acquisition Start: 26-AUG-2005 13:00:21.01
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	4135.06	0	0	0.00	198.50	151	96	0.00E+00	0.0	
2	0	4362.43	1	0	2.88	279.00	257	45	1.67E-05	100.0	
3	0	4477.60	2	0	66.34	320.00	305	31	3.33E-05	70.7	
4	0	4720.60	4	0	106.72	407.00	364	87	6.67E-05	50.0	
5	0	5258.36	2	0	60.57	602.00	562	81	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:05:17.86

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4150.17*	71	0	75.47	203.83	151	96	6.96E-03	11.9	
2	0	4346.48*	3	0	60.57	273.33	257	45	2.77E-04	61.5	
3	0	4470.79*	7	0	2.88	317.57	305	31	6.53E-04	39.9	
4	0	4736.48*	54	0	111.77	412.71	364	87	5.32E-03	13.7	
5	0	5271.67*	376	0	111.05	606.87	562	81	3.68E-02	5.2	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:05:19

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0D
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 1-SEP-2005 10:28:02
Sample ID : 13 Sample quantity : 1.1468 gram
Sample type : UU Sample geometry :
Detector name : 006 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	4150.17*	71	75.47	203.83	151	96	23.7		U-238	0.782
0	4346.48*	3	60.57	273.33	257	45	123.0		U-235	3.863E-02
0	4470.79*	7	2.88	317.57	305	31	79.8		U-236	8.163E-02
0	4736.48*	54	111.77	412.71	364	87	27.3		U-234	0.601
0	5271.67*	376	111.05	606.87	562	81	10.3		U232	4.16

Eberline Services
Oak Ridge Laboratory

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

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$14_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	14
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.187E+00	gram
SAMPLE TITLE:	VPSCR081705SL0E	DETECTOR NUMBER:	007
ACQ DATE:	1-SEP-2005 10:28	AVERAGE EFFICIENCY:	20.59%
ELAPSED LIVE TIME:	10201.	RECOVERY:	97.52%
TRACER ID:	UU-10A	TRACER FWHM (kev):	79.97
LAMBDA VALUE:	609.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.648	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 04:24	EFF CAL DATE: 24-AUG-2005	04:24
BKG FILENAME:	B_007_26AUG05	BKG ELAPSED TIME:	60003.

****

NUCLIDE ACTIVITY SUMMARY

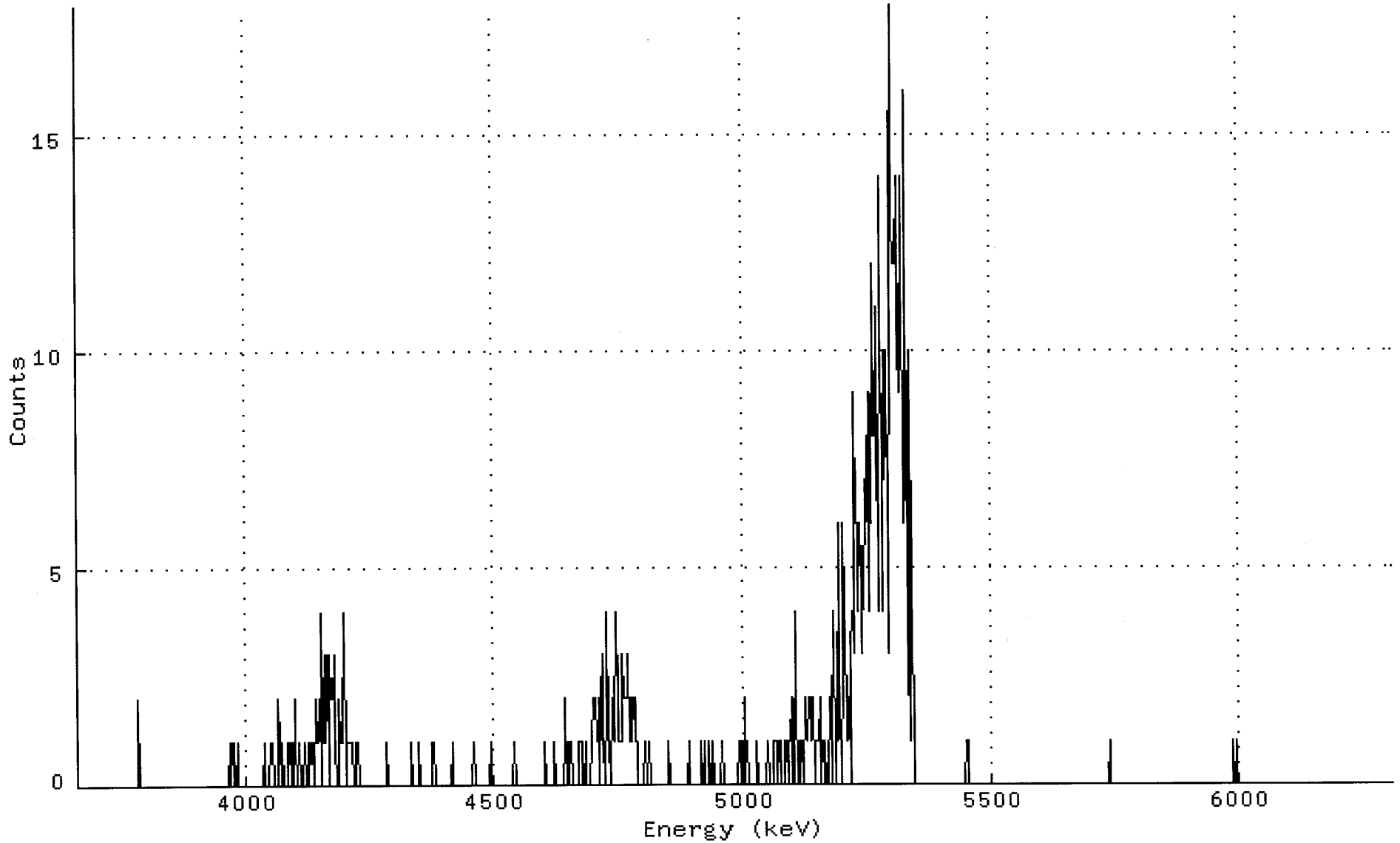
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	430.66	0.34	99.8	4.801E+00	6.121E-01	6.041E-02
U-234	4761.5	69.83	0.17	99.8	7.782E-01	2.181E-01	5.156E-02
U-235	4385.5	4.83	0.17	80.9	6.640E-02	6.241E-02	6.361E-02
U-236	4485.2	3.00	0.00	90.1	3.703E-02	4.310E-02	3.345E-02
U-238	4184.4	65.15	0.85	100.2	7.229E-01	2.088E-01	7.764E-02

****

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$14_UU.CNF;1
Title : 007
Sample Title: VPSCR081705SL0E
Start Time: 1-SEP-2005 10:28: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.65079E+03
Real Time : 0 02:50:01.00 Sample ID : 14 Energy Slope : 2.69568E+00
Live Time : 0 02:50:01.00 Sample Type: UU Energy Quad : -1.00659E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$14_UU

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	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	2	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	1	0	1	0	1	0	1	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	1	1	0	0	0	0
155:	2	1	0	1	0	0	0	1	1	0	1	0	2	1
169:	0	1	1	0	0	1	1	0	1	0	1	1	1	0
183:	2	1	1	2	0	4	1	3	1	3	0	3	2	2
197:	3	1	0	0	2	1	1	1	4	0	1	1	1	1
211:	1	0	1	0	1	0	0	0	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
239:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	0	0	1	0	0	0	0	0	1	0	0	0	0
267:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
281:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	1	1	0	0	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	0	1	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	1	0	0	0	0	0	0
365:	1	0	0	0	0	0	0	0	1	2	0	0	1	1
379:	0	0	0	0	0	1	1	1	0	0	1	0	0	0
393:	0	1	2	2	2	1	2	0	2	3	1	0	2	4
407:	1	0	0	2	1	1	4	2	1	1	1	3	2	2
421:	2	3	1	1	2	2	1	2	0	0	0	0	0	0
435:	1	0	0	1	0	0	0	0	0	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	1	0	0	0	0	0	0	0	0
477:	0	1	0	1	0	0	0	1	0	0	1	0	0	0
491:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
505:	0	0	1	1	0	0	2	0	1	0	0	0	0	0
519:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
533:	0	1	1	1	0	1	1	0	0	0	1	1	0	1
547:	1	2	0	0	4	2	0	1	0	1	1	0	2	1
561:	1	2	1	2	2	0	1	1	1	2	0	1	1	0
575:	0	1	0	2	0	1	4	0	1	1	6	2	0	3
589:	6	4	1	2	2	0	3	4	3	9	6	6	4	6
603:	5	3	5	6	6	8	4	9	6	12	8	8	11	9
617:	4	13	14	4	10	9	10	5	3	13	18	13	12	12
631:	14	10	9	14	13	6	7	16	3	1	10	4	1	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	1	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	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	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	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	1
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	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: 1-SEP-2005 14:05:24.15

Detector ID: 7 Acquisition Start: 1-SEP-2005 10:28:21.01
Live Time: 0 02:50:01.00 Real Time: 0 02:50:01.00
Batch Id: 0508095A-UU Sample Id: 14
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4149.99	66	0	48.51	186.48	130	103	6.47E-03	12.3	
2	0	4371.28	5	0	86.26	270.00	243	48	4.90E-04	44.7	
3	0	4470.63	3	0	37.40	307.67	294	33	2.94E-04	57.7	
4	0	4730.77	70	0	57.91	406.81	357	93	6.86E-03	12.0	
5	0	5277.05	431	0	79.97	617.52	568	86	4.23E-02	4.8	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:05:31.60

Acquisition Start: 26-AUG-2005 13:00:24.01
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	4135.41	5	0	196.78	181.00	130	103	8.33E-05	44.7	
2	0	4362.04	1	0	2.70	266.50	243	48	1.67E-05	100.0	
3	0	4476.78	0	0	0.00	310.00	294	33	0.00E+00	0.0	
4	0	4720.80	1	0	2.70	403.00	357	93	1.67E-05	100.0	
5	0	5258.98	2	0	0.00	610.50	568	86	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:05:31.91

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4149.99*	65	0	48.51	186.48	130	103	6.39E-03	12.5	
2	0	4371.28*	5	0	86.26	270.00	243	48	4.73E-04	46.4	
3	0	4470.63*	3	0	37.40	307.67	294	33	2.94E-04	57.7	
4	0	4730.77*	70	0	57.91	406.81	357	93	6.85E-03	12.0	
5	0	5277.05*	431	0	79.97	617.52	568	86	4.22E-02	4.8	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:05:32

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0E		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 1-SEP-2005 10:28:21
Sample ID	: 14	Sample quantity	: 1.1867 gram
Sample type	: UU	Sample geometry	:
Detector name	: 007	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	4149.99*	65	48.51	186.48	130	103	25.0		U-238	0.705
0	4371.28*	5	86.26	270.00	243	48	92.9		U-235	6.475E-02
0	4470.63*	3	37.40	307.67	294	33	115.5		U-236	3.611E-02
0	4730.77*	70	57.91	406.81	357	93	24.0		U-234	0.759
0	5277.05*	431	79.97	617.52	568	86	9.6		U232	4.68

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:05:43

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$15_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	15
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.025E+00 gram
SAMPLE TITLE:	VPSCR081705SL0F	DETECTOR NUMBER:	008
ACQ DATE:	1-SEP-2005 10:28	AVERAGE EFFICIENCY:	18.47%
ELAPSED LIVE TIME:	10202.	RECOVERY:	101.32%
TRACER ID:	UU-10A	TRACER FWHM (kev):	92.47
LAMBDA VALUE:	611.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.684	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 04:24	EFF CAL DATE:	24-AUG-2005 04:24
BKG FILENAME:	B_008_26AUG05	BKG ELAPSED TIME:	60001.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	402.66	0.34	99.8	5.577E+00	7.256E-01	7.506E-02
U-234	4761.5	55.83	0.17	99.8	7.729E-01	2.366E-01	6.406E-02
U-235	4385.5	3.00	0.00	80.9	5.123E-02	5.964E-02	4.628E-02
U-236	4485.2	0.00	0.00	90.1	0.000E+00	0.000E+00	4.156E-02
U-238	4184.4	49.15	0.85	100.2	6.775E-01	2.194E-01	9.646E-02

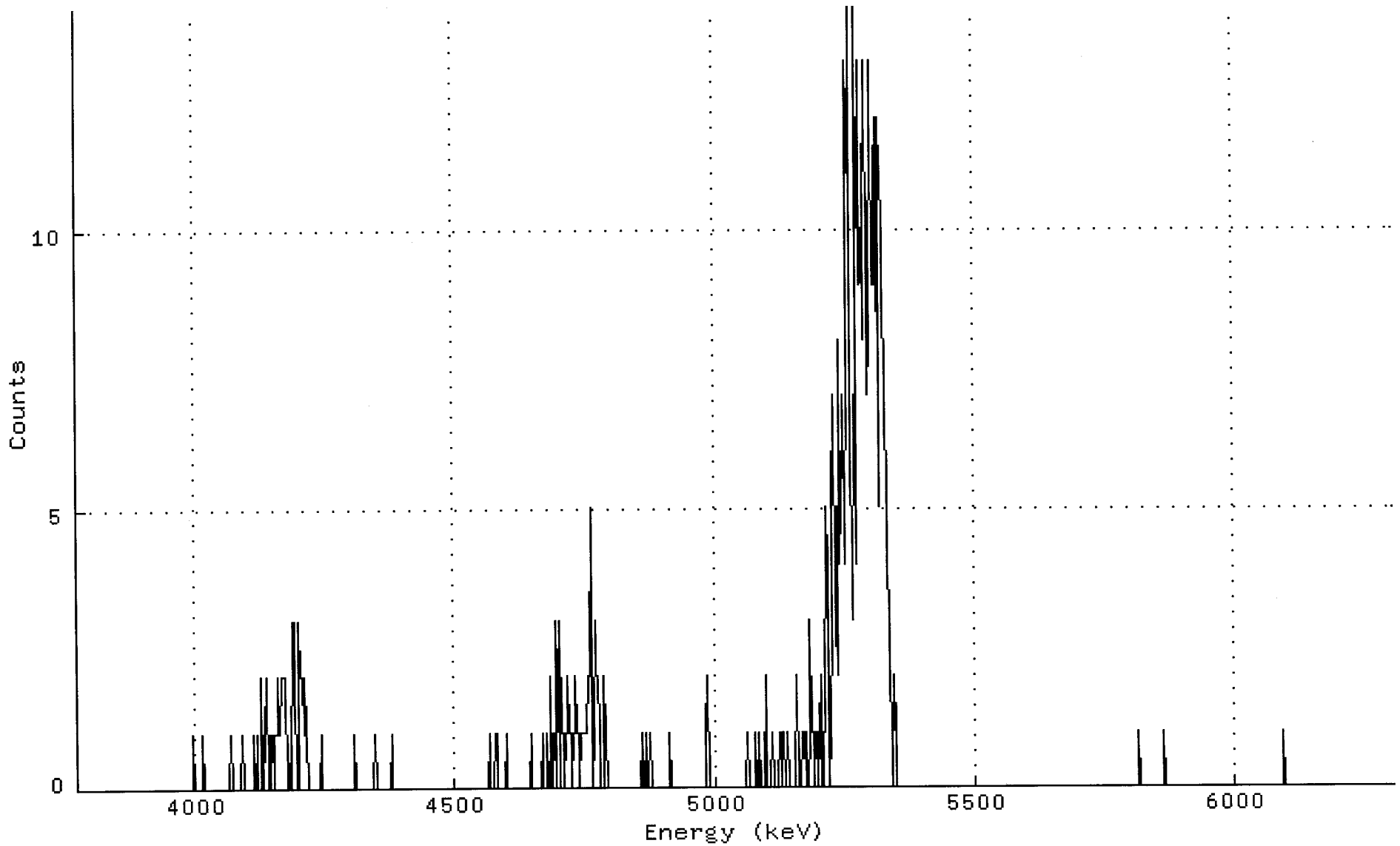
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-1-05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$15_UU.CNF;1
Title : 008
Sample Title: VPSCR081705SLOF
Start Time: 1-SEP-2005 10:28: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.76453E+03
Real Time : 0 02:50:02.00 Sample ID : 15 Energy Slope : 2.56154E+00
Live Time : 0 02:50:02.00 Sample Type: UU Energy Quad : -7.92413E-05



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$15_UU

Channel

1:	10202	10202	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	1	0	0	0	0	0	0	1
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	0	0	0	0	0	1	1	0	0	0	0	0	0
127:	0	1	0	0	0	0	0	0	0	0	1	0	1	0
141:	0	0	2	0	1	1	2	0	1	0	1	0	1	1
155:	1	2	1	2	2	2	2	0	1	0	1	0	3	3
169:	2	0	0	3	2	2	1	2	1	0	0	0	0	0
183:	0	0	0	0	0	1	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	1	0	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	1	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:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	1	0	0	0	0	1	1
323:	0	0	0	0	0	0	1	0	0	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	0	1	0	0	0	1	0	0	2
365:	0	1	0	3	2	0	3	1	1	0	1	1	2	1
379:	1	0	1	1	2	1	1	0	1	1	1	1	1	2
393:	2	2	5	0	1	3	2	2	1	0	0	0	2	1
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	1	0
435:	0	1	0	0	1	1	0	0	0	0	0	0	0	0
449:	0	0	0	0	0	0	1	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	0	0	0	0	1	2	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	1	0	0	0
519:	0	0	1	0	0	1	0	0	0	0	2	0	0	0
533:	0	1	0	0	0	0	0	1	0	1	1	0	0	1
547:	0	0	0	0	0	0	2	0	1	0	1	1	1	0
561:	1	0	1	3	1	1	0	1	1	0	1	2	0	0
575:	2	1	5	4	0	1	3	5	7	3	3	2	8	4
589:	5	7	7	4	8	13	11	14	7	3	7	4	14	10
603:	13	9	10	8	10	13	9	7	8	13	12	9	9	11
617:	12	5	12	11	10	9	7	5	5	2	1	0	2	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	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	1	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
841:	1	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	1	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: 1-SEP-2005 14:05:37.41

Detector ID: 8 Acquisition Start: 1-SEP-2005 10:28:40.01
Live Time: 0 02:50:02.00 Real Time: 0 02:50:02.00
Batch Id: 0508095A-UU Sample Id: 15
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4166.87	50	0	85.73	157.84	92	108	4.90E-03	14.1	
2	0	4345.28	3	0	74.28	228.33	210	51	2.94E-04	57.7	
3	0	4478.07	0	0	0.00	281.00	264	35	0.00E+00	0.0	
4	0	4736.48	56	0	78.45	384.00	330	96	5.49E-03	13.4	
5	0	5279.60	403	0	92.47	602.71	550	90	3.95E-02	5.0	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:05:41.46

Acquisition Start: 26-AUG-2005 13:00:27.01
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	4135.56	5	0	151.13	145.50	92	108	8.33E-05	44.7	
2	0	4362.12	0	0	0.00	235.00	210	51	0.00E+00	0.0	
3	0	4478.07	0	0	0.00	281.00	264	35	0.00E+00	0.0	
4	0	4720.22	1	0	2.56	377.50	330	96	1.67E-05	100.0	
5	0	5259.36	2	0	51.23	594.50	550	90	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:05:41.76

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4166.87*	49	0	85.73	157.84	92	108	4.82E-03	14.4	
2	0	4345.28*	3	0	74.28	228.33	210	51	2.94E-04	57.7	
3	0	4478.07*	0	0	0.00	281.00	264	35	0.00E+00	0.0	
4	0	4736.48*	56	0	78.45	384.00	330	96	5.47E-03	13.4	
5	0	5279.60*	403	0	92.47	602.71	550	90	3.95E-02	5.0	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:05:42

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0F
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 1-SEP-2005 10:28:40
Sample ID : 15 Sample quantity : 1.0245 gram
Sample type : UU Sample geometry :
Detector name : 008 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	4166.87*	49	85.73	157.84	92	108	28.8		U-238	0.686
0	4345.28*	3	74.28	228.33	210	51	115.5		U-235	5.191E-02
0	4478.07*	0	0.00	281.00	264	35	0.0		U-236	0.000E+00
0	4736.48*	56	78.45	384.00	330	96	26.8		U-234	0.783
0	5279.60*	403	92.47	602.71	550	90	10.0		U232	5.65

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
1-SEP-2005 14:05:55

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-UU$16_UU.CNF

****

BATCH ID:	0508095A-UU	SAMPLE ID:	16
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.025E+00	gram
SAMPLE TITLE:	VPSCR081705SL0G	DETECTOR NUMBER:	009
ACQ DATE:	1-SEP-2005 10:28	AVERAGE EFFICIENCY:	20.48%
ELAPSED LIVE TIME:	10204.	RECOVERY:	76.26%
TRACER ID:	UU-10A	TRACER FWHM (kev):	82.91
LAMBDA VALUE:	610.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	12.663	CONFIDENCE FACTOR:	4.65
SAMPLE MATRIX:	SOIL	LLD CONSTANT:	2.71
ENERGY CAL DATE:	24-AUG-2005 04:24	EFF CAL DATE: 24-AUG-2005	04:24
BKG FILENAME:	B_009_26AUG05	BKG ELAPSED TIME:	60001.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
U232	5302.5	335.49	0.51	99.8	5.566E+00	7.651E-01	1.000E-01
U-234	4761.5	46.00	0.00	99.8	7.629E-01	2.538E-01	4.494E-02
U-235	4385.5	8.83	0.17	80.9	1.806E-01	1.261E-01	9.467E-02
U-236	4485.2	1.00	0.00	90.1	1.837E-02	3.685E-02	4.978E-02
U-238	4184.4	43.83	0.17	100.2	7.237E-01	2.459E-01	7.641E-02

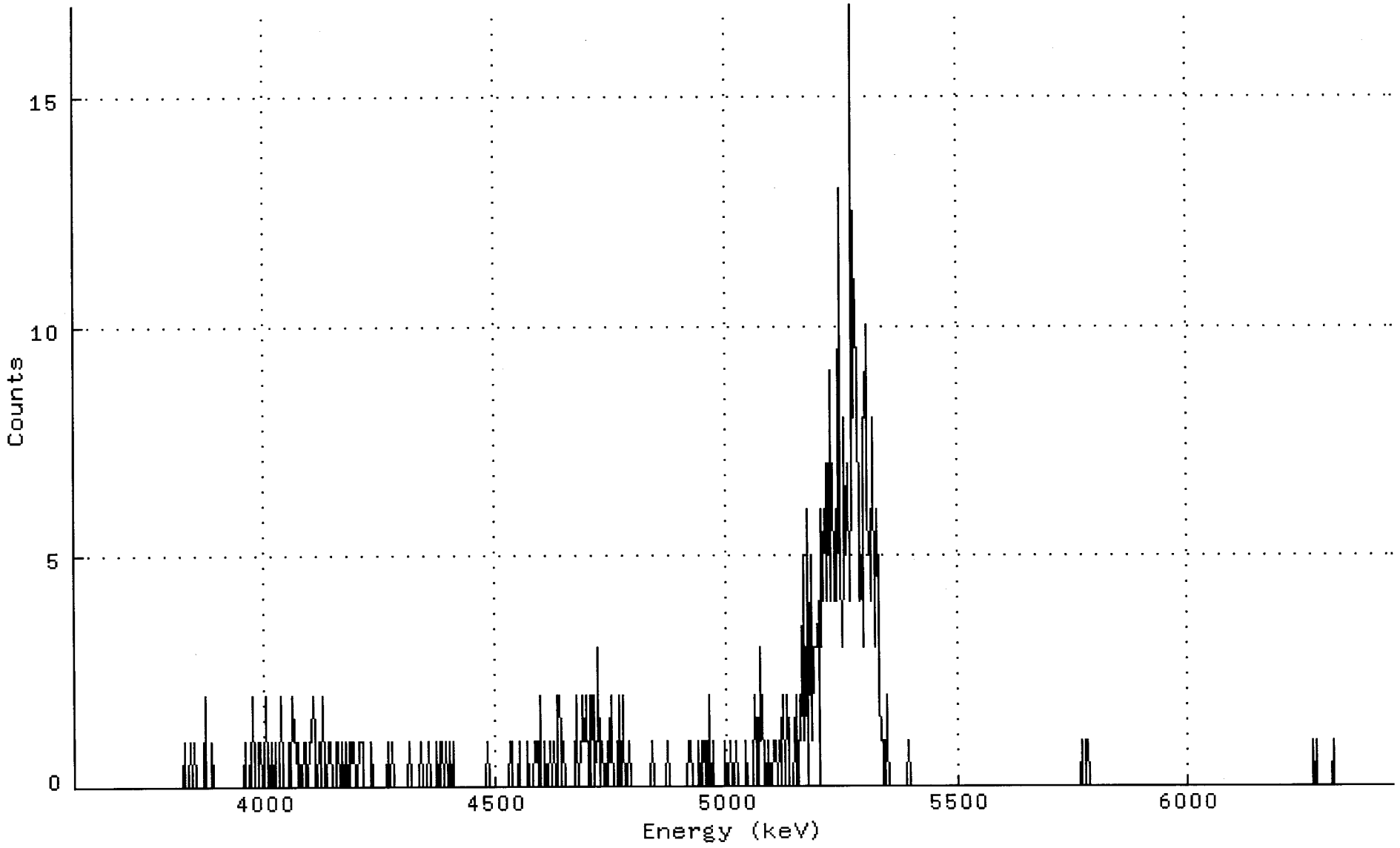
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9.1.05

Reviewer _____ Date 9/1/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-UU$16_UU.CNF;1
Title : 009
Sample Title: VPSCR081705SLOG
Start Time: 1-SEP-2005 10:28: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.57924E+03
Real Time : 0 02:50:04.00 Sample ID : 16 Energy Slope : 2.90930E+00
Live Time : 0 02:50:04.00 Sample Type: UU Energy Quad : -1.12412E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-UU$16_UU

Channel

1:	10204	10204	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:	1	0	0	0	0	1	0	0	1	0	0	0	0	0
99:	0	0	2	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	1	0	0	0	1	0	2	0	0	0
141:	0	1	1	0	0	0	2	0	0	0	1	0	0	1
155:	0	0	0	2	2	0	0	0	0	0	1	0	2	1
169:	1	1	0	1	0	0	0	1	1	0	0	1	1	1
183:	2	1	0	0	1	1	0	2	0	0	0	1	1	1
197:	0	0	0	0	1	1	0	0	1	0	1	0	0	1
211:	0	1	1	1	0	0	1	1	1	1	0	0	0	0
225:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
239:	1	0	0	1	0	0	0	0	0	0	0	0	0	0
253:	0	0	1	0	0	0	0	0	0	0	0	1	0	0
267:	0	0	0	1	0	0	0	0	0	1	0	1	0	1
281:	0	0	1	0	0	1	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	0	0	0	1	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	1	1	0	0	0
337:	0	0	1	0	0	0	0	0	0	1	0	0	0	0
351:	1	1	1	0	2	0	0	0	1	0	0	0	1	0
365:	0	1	0	0	2	2	1	0	1	0	0	0	0	0
379:	0	0	0	0	2	1	0	1	1	2	1	1	2	0
393:	2	0	2	2	0	1	1	3	0	1	1	0	0	1
407:	0	1	2	1	0	0	0	0	2	0	0	2	1	0
421:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
435:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
449:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	1	1	1	0	0	0	0	0	1
477:	0	1	0	1	0	1	0	2	0	0	1	0	0	0
491:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
505:	1	0	0	0	0	0	0	0	1	0	0	0	0	0
519:	0	2	1	0	0	3	1	2	0	1	0	0	1	0
533:	0	0	1	1	1	0	1	0	1	2	0	0	2	1
547:	0	0	0	0	1	2	0	0	2	1	2	5	1	3
561:	0	6	2	5	1	3	3	3	3	4	0	6	4	5
575:	6	4	7	5	9	4	7	4	6	4	6	13	5	3
589:	5	8	5	6	7	4	7	17	8	11	10	9	5	4
603:	5	3	8	8	10	6	5	6	4	8	3	3	6	4
617:	2	1	1	0	0	2	1	0	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	0	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	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	1	0	0	0	1	1	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	1	0	1	0	0	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: 1-SEP-2005 14:05:48.21

Detector ID: 9 Acquisition Start: 1-SEP-2005 10:28:58.01
Live Time: 0 02:50:04.00 Real Time: 0 02:50:04.00
Batch Id: 0508095A-UU Sample Id: 16
Sample Type: UU

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4117.58	44	0	128.01	186.39	145	96	4.31E-03	15.1	
2	0	4372.37	9	0	98.92	275.56	250	45	8.82E-04	33.3	
3	0	4484.51	1	0	2.91	315.00	298	31	9.80E-05	100.0	
4	0	4710.93	46	0	144.68	395.02	356	86	4.51E-03	14.7	
5	0	5257.53	336	0	82.91	590.34	552	79	3.29E-02	5.5	

Background Counts Within Peak Regions Generated: 1-SEP-2005 14:05:53.36

Acquisition Start: 26-AUG-2005 13:00:29.01
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	4135.11	1	0	2.91	192.50	145	96	1.67E-05	100.0	
2	0	4362.25	1	0	2.91	272.00	250	45	1.67E-05	100.0	
3	0	4478.83	0	0	0.00	313.00	298	31	0.00E+00	0.0	
4	0	4720.74	0	0	0.00	398.50	356	86	0.00E+00	0.0	
5	0	5259.37	3	0	46.55	591.00	552	79	5.00E-05	57.7	

Net Sample Counts Within Peak Regions Generated: 1-SEP-2005 14:05:53.67

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4117.58*	44	0	128.01	186.39	145	96	4.30E-03	15.1	
2	0	4372.37*	9	0	98.92	275.56	250	45	8.65E-04	34.0	
3	0	4484.51*	1	0	2.91	315.00	298	31	9.80E-05	100.0	
4	0	4710.93*	46	0	144.68	395.02	356	86	4.51E-03	14.7	
5	0	5257.53*	335	0	82.91	590.34	552	79	3.29E-02	5.5	

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

VMS Nuclide Identification Report V3.0 Generated 1-SEP-2005 14:05:54

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0G
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 1-SEP-2005 10:28:58
Sample ID : 16 Sample quantity : 1.0248 gram
Sample type : UU Sample geometry :
Detector name : 009 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	4117.58*	44128.01	186.39	145	96	30.3			U-238	0.552
0	4372.37*	9 98.92	275.56	250	45	68.1			U-235	0.138
0	4484.51*	1 2.91	315.00	298	31200.0				U-236	1.401E-02
0	4710.93*	46144.68	395.02	356	86	29.5			U-234	0.582
0	5257.53*	335 82.91	590.34	552	79	10.9			U232	4.24

SECTION IX

ANALYTICAL DATA (ISOTOPIC THORIUM)

05-08095
ThISO
Run 1

Work Order	05-08095
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	VPSCR081705SL15	34	08/17/05 10:46	1.0347E+00
04	DO	VPSCR081705SL15	34	08/17/05 10:46	1.0344E+00
05	TRG	VPSCR081705SL16	41	08/17/05 10:51	1.0666E+00
06	TRG	VPSCR081705SL17	49	08/17/05 10:52	1.0226E+00
07	TRG	VPSCR081705SL18	39	08/17/05 10:54	1.0172E+00
08	TRG	VPSCR081705SL19	47	08/17/05 10:59	1.0104E+00
09	TRG	VPSCR081705SL20	41	08/17/05 11:00	1.0833E+00
10	TRG	VPSCR081705SL0A	51	08/17/05 08:50	1.0284E+00
11	TRG	VPSCR081705SL0B	22	08/17/05 08:55	1.0992E+00
12	TRG	VPSCR081705SL0C	48	08/17/05 09:00	1.1730E+00
13	TRG	VPSCR081705SL0D	26	08/17/05 09:05	1.0534E+00
14	TRG	VPSCR081705SL0E	30	08/17/05 09:07	1.0530E+00
15	TRG	VPSCR081705SL0F	48	08/17/05 09:08	9.9260E-01
16	TRG	VPSCR081705SL0G	40	08/17/05 09:09	1.0511E+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.

05-08095
ThISO
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	0.4641	10.4										
02	MBL	0.4592	10.3										
03	DUP	0.4590	10.3										
04	DO	0.4650	10.5										
05	TRG	0.4159	9.4										
06	TRG	0.4587	10.3										
07	TRG	0.4645	10.4										
08	TRG	0.4709	10.6										
09	TRG	0.4698	10.6										
10	TRG	0.4550	10.2										
11	TRG	0.4595	10.3										
12	TRG	0.4707	10.6										
13	TRG	0.4647	10.4										
14	TRG	0.4556	10.2										
15	TRG	0.4555	10.2										
16	TRG	0.4590	10.3										

* 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.

05-08095
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			08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
02	MBL			08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
03	DUP			08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
04	DO	08/23/05 12:08	KSALLINGS	08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
05	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
06	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
07	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
08	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
09	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
10	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
11	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
12	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
13	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
14	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
15	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:56	JBARNARD	09/06/05 05:40	TSMITH		
16	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:56	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: 05-08095-ThISO-1

Client: Missouri Dept. of Natural Resources
Eberline Services Work Order: 05-08095
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-228	LCS	LCS	pCi/g	4.53E+00	9.20E-01	9.63E-02	4.72E+00	96.05	OK		OK	
02	TH-228	MBL	BLANK	pCi/g	1.05E-02	3.28E-02	8.63E-02					OK	OK
03	TH-228	DUP	VPSCR081705SL15	pCi/g	7.70E-01	2.50E-01	9.62E-02				INV	OK	
04	TH-228	DO	VPSCR081705SL15	pCi/g	6.18E-01	2.13E-01	3.82E-02					OK	
05	TH-228	TRG	VPSCR081705SL16	pCi/g	5.84E-01	2.31E-01	4.85E-02					OK	
06	TH-228	TRG	VPSCR081705SL17	pCi/g	9.78E-01	2.90E-01	7.91E-02					OK	
07	TH-228	TRG	VPSCR081705SL18	pCi/g	1.12E+00	3.19E-01	8.09E-02					OK	
08	TH-228	TRG	VPSCR081705SL19	pCi/g	6.76E-01	2.28E-01	9.35E-02					OK	
09	TH-228	TRG	VPSCR081705SL20	pCi/g	6.40E-01	2.14E-01	6.20E-02					OK	
10	TH-228	TRG	VPSCR081705SL0A	pCi/g	5.30E-01	1.93E-01	6.36E-02					OK	
11	TH-228	TRG	VPSCR081705SL0B	pCi/g	7.20E-01	2.33E-01	8.26E-02					OK	
12	TH-228	TRG	VPSCR081705SL0C	pCi/g	4.06E-01	2.00E-01	1.57E-01					OK	
13	TH-228	TRG	VPSCR081705SL0D	pCi/g	7.32E-01	2.31E-01	7.12E-02					OK	
14	TH-228	TRG	VPSCR081705SL0E	pCi/g	7.70E-01	2.84E-01	1.06E-01					OK	
15	TH-228	TRG	VPSCR081705SL0F	pCi/g	1.15E+00	3.16E-01	9.10E-02					OK	
16	TH-228	TRG	VPSCR081705SL0G	pCi/g	6.35E-01	2.63E-01	1.88E-01					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 05-08095-ThISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	ThISO	05-08095	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	76.26				9/6/2005 5:40	
02	TH-228	MBL	08/22/05 00:00	1.00E+00	81.47				9/6/2005 5:40	
03	TH-228	DUP	08/17/05 10:46	1.03E+00	85.02				9/6/2005 5:40	
04	TH-228	DO	08/17/05 10:46	1.03E+00	86.12				9/6/2005 5:40	
05	TH-228	TRG	08/17/05 10:51	1.07E+00	65.58				9/6/2005 5:40	
06	TH-228	TRG	08/17/05 10:52	1.02E+00	87.94				9/6/2005 5:40	
07	TH-228	TRG	08/17/05 10:54	1.02E+00	84.08				9/6/2005 5:40	
08	TH-228	TRG	08/17/05 10:59	1.01E+00	87.13				9/6/2005 5:40	
09	TH-228	TRG	08/17/05 11:00	1.08E+00	88.93				9/6/2005 5:40	
10	TH-228	TRG	08/17/05 08:50	1.03E+00	85.51				9/6/2005 5:40	
11	TH-228	TRG	08/17/05 08:55	1.10E+00	81.15				9/6/2005 5:40	
12	TH-228	TRG	08/17/05 09:00	1.17E+00	58.00				9/6/2005 5:40	
13	TH-228	TRG	08/17/05 09:05	1.05E+00	91.58				9/6/2005 5:40	
14	TH-228	TRG	08/17/05 09:07	1.05E+00	61.23				9/6/2005 5:40	
15	TH-228	TRG	08/17/05 09:08	9.93E-01	89.76				9/6/2005 5:40	
16	TH-228	TRG	08/17/05 09:09	1.05E+00	62.48				9/6/2005 5:40	

Preliminary Data Report & Analytical Calculations

Work Order: 05-08095-ThISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	ThISO	05-08095	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 07:14		A_Spec	33	170	2.84 E+02	3.00 E-03	21.8
02	TH-228	MBL	09/06/05 07:14		A_Spec	34	170	6.60 E-01	2.00 E-03	20.5
03	TH-228	DUP	09/06/05 07:14		A_Spec	35	170	5.13 E+01	4.00 E-03	20.5
04	TH-228	DO	09/06/05 07:14		A_Spec	36	170	4.30 E+01	0.00 E+00	21.1
05	TH-228	TRG	09/06/05 07:15		A_Spec	37	170	3.20 E+01	0.00 E+00	21.2
06	TH-228	TRG	09/06/05 07:15		A_Spec	38	170	6.57 E+01	2.00 E-03	20.2
07	TH-228	TRG	09/06/05 07:15		A_Spec	39	170	7.37 E+01	2.00 E-03	20.8
08	TH-228	TRG	09/06/05 07:16		A_Spec	40	170	4.63 E+01	4.00 E-03	21.1
09	TH-228	TRG	09/06/05 07:16		A_Spec	41	170	4.68 E+01	1.00 E-03	20.6
10	TH-228	TRG	09/06/05 07:16		A_Spec	42	170	3.78 E+01	1.00 E-03	21.9
11	TH-228	TRG	09/06/05 07:17		A_Spec	43	170	5.15 E+01	3.00 E-03	21.7
12	TH-228	TRG	09/06/05 07:17		A_Spec	44	170	2.06 E+01	8.00 E-03	20.2
13	TH-228	TRG	09/06/05 07:17		A_Spec	45	170	5.47 E+01	2.00 E-03	20.9
14	TH-228	TRG	09/06/05 07:18		A_Spec	46	170	3.87 E+01	2.00 E-03	21.1
15	TH-228	TRG	09/06/05 07:18		A_Spec	47	170	8.13 E+01	4.00 E-03	21.4
16	TH-228	TRG	09/06/05 07:18		A_Spec	48	170	3.10 E+01	1.20 E-02	20.1

Preliminary Data Report & Analytical Calculations

Work Order: 05-08095-ThISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	ThISO	05-08095	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-230	LCS	LCS	pCi/g	5.40E+00	1.07E+00	7.40E-02	5.35E+00	100.96	OK		OK	
02	TH-230	MBL	BLANK	pCi/g	4.91E-01	1.95E-01	7.37E-02					OK	OK
03	TH-230	DUP	VPSCR081705SL15	pCi/g	1.46E+00	3.77E-01	6.81E-02				INV	OK	
04	TH-230	DO	VPSCR081705SL15	pCi/g	1.06E+00	2.98E-01	3.82E-02					OK	
05	TH-230	TRG	VPSCR081705SL16	pCi/g	1.39E+00	4.02E-01	9.71E-02					OK	
06	TH-230	TRG	VPSCR081705SL17	pCi/g	5.87E+00	1.12E+00	3.96E-02					OK	
07	TH-230	TRG	VPSCR081705SL18	pCi/g	6.21E+00	1.18E+00	6.91E-02					OK	
08	TH-230	TRG	VPSCR081705SL19	pCi/g	2.08E+00	4.79E-01	3.88E-02					OK	
09	TH-230	TRG	VPSCR081705SL20	pCi/g	1.62E+00	3.93E-01	8.08E-02					OK	
10	TH-230	TRG	VPSCR081705SL0A	pCi/g	1.45E+00	3.67E-01	7.46E-02					OK	
11	TH-230	TRG	VPSCR081705SL0B	pCi/g	3.19E+00	6.67E-01	7.43E-02					OK	
12	TH-230	TRG	VPSCR081705SL0C	pCi/g	1.18E+00	3.72E-01	1.26E-01					OK	
13	TH-230	TRG	VPSCR081705SL0D	pCi/g	8.81E+00	1.56E+00	3.56E-02					OK	
14	TH-230	TRG	VPSCR081705SL0E	pCi/g	1.78E+00	4.91E-01	1.37E-01					OK	
15	TH-230	TRG	VPSCR081705SL0F	pCi/g	3.00E+00	6.31E-01	6.44E-02					OK	
16	TH-230	TRG	VPSCR081705SL0G	pCi/g	1.13E+00	3.66E-01	1.41E-01					OK	

Work Order: 05-08095-ThISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	ThISO	05-08095	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-230	LCS	08/22/05 00:00	1.00E+00	76.26				9/6/2005 5:40	
02	TH-230	MBL	08/22/05 00:00	1.00E+00	81.47				9/6/2005 5:40	
03	TH-230	DUP	08/17/05 10:46	1.03E+00	85.02				9/6/2005 5:40	
04	TH-230	DO	08/17/05 10:46	1.03E+00	86.12				9/6/2005 5:40	
05	TH-230	TRG	08/17/05 10:51	1.07E+00	65.58				9/6/2005 5:40	
06	TH-230	TRG	08/17/05 10:52	1.02E+00	87.94				9/6/2005 5:40	
07	TH-230	TRG	08/17/05 10:54	1.02E+00	84.08				9/6/2005 5:40	
08	TH-230	TRG	08/17/05 10:59	1.01E+00	87.13				9/6/2005 5:40	
09	TH-230	TRG	08/17/05 11:00	1.08E+00	88.93				9/6/2005 5:40	
10	TH-230	TRG	08/17/05 08:50	1.03E+00	85.51				9/6/2005 5:40	
11	TH-230	TRG	08/17/05 08:55	1.10E+00	81.15				9/6/2005 5:40	
12	TH-230	TRG	08/17/05 09:00	1.17E+00	58.00				9/6/2005 5:40	
13	TH-230	TRG	08/17/05 09:05	1.05E+00	91.58				9/6/2005 5:40	
14	TH-230	TRG	08/17/05 09:07	1.05E+00	61.23				9/6/2005 5:40	
15	TH-230	TRG	08/17/05 09:08	9.93E-01	89.76				9/6/2005 5:40	
16	TH-230	TRG	08/17/05 09:09	1.05E+00	62.48				9/6/2005 5:40	

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Client	Eberline Services Work Order	Analysis Code	Run
Missouri Dept. of Natural Resources	05-08095	ThISO	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 07:14		A_Spec	33	170	3.38 E+02	1.00 E-03	21.8
02	TH-230	MBL	09/06/05 07:14		A_Spec	34	170	3.08 E+01	1.00 E-03	20.5
03	TH-230	DUP	09/06/05 07:14		A_Spec	35	170	9.88 E+01	1.00 E-03	20.5
04	TH-230	DO	09/06/05 07:14		A_Spec	36	170	7.50 E+01	0.00 E+00	21.1
05	TH-230	TRG	09/06/05 07:15		A_Spec	37	170	7.77 E+01	2.00 E-03	21.2
06	TH-230	TRG	09/06/05 07:15		A_Spec	38	170	4.02 E+02	0.00 E+00	20.2
07	TH-230	TRG	09/06/05 07:15		A_Spec	39	170	4.16 E+02	1.00 E-03	20.8
08	TH-230	TRG	09/06/05 07:16		A_Spec	40	170	1.45 E+02	0.00 E+00	21.1
09	TH-230	TRG	09/06/05 07:16		A_Spec	41	170	1.21 E+02	3.00 E-03	20.6
10	TH-230	TRG	09/06/05 07:16		A_Spec	42	170	1.06 E+02	2.00 E-03	21.9
11	TH-230	TRG	09/06/05 07:17		A_Spec	43	170	2.33 E+02	2.00 E-03	21.7
12	TH-230	TRG	09/06/05 07:17		A_Spec	44	170	6.13 E+01	4.00 E-03	20.2
13	TH-230	TRG	09/06/05 07:17		A_Spec	45	170	6.70 E+02	0.00 E+00	20.9
14	TH-230	TRG	09/06/05 07:18		A_Spec	46	170	9.12 E+01	5.00 E-03	21.1
15	TH-230	TRG	09/06/05 07:18		A_Spec	47	170	2.16 E+02	1.00 E-03	21.4
16	TH-230	TRG	09/06/05 07:18		A_Spec	48	170	5.62 E+01	5.00 E-03	20.1

Preliminary Data Report & Analytical Calculations
Work Order: 05-08095-ThISO-1

Client: Missouri Dept. of Natural Resources
Eberline Services Work Order: 05-08095
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-232	LCS	LCS	pCi/g	5.45E+00	1.08E+00	8.65E-02	4.72E+00	115.64	OK		OK	
02	TH-232	MBL	BLANK	pCi/g	3.18E-02	4.53E-02	4.31E-02					OK	OK
03	TH-232	DUP	VPSCR081705SL15	pCi/g	5.68E-01	2.06E-01	7.96E-02				INV	OK	
04	TH-232	DO	VPSCR081705SL15	pCi/g	7.18E-01	2.32E-01	3.82E-02					OK	
05	TH-232	TRG	VPSCR081705SL16	pCi/g	5.90E-01	2.31E-01	4.84E-02					OK	
06	TH-232	TRG	VPSCR081705SL17	pCi/g	1.35E+00	3.57E-01	6.75E-02					OK	
07	TH-232	TRG	VPSCR081705SL18	pCi/g	1.17E+00	3.27E-01	8.08E-02					OK	
08	TH-232	TRG	VPSCR081705SL19	pCi/g	7.43E-01	2.38E-01	3.87E-02					OK	
09	TH-232	TRG	VPSCR081705SL20	pCi/g	7.74E-01	2.39E-01	6.19E-02					OK	
10	TH-232	TRG	VPSCR081705SL0A	pCi/g	5.42E-01	1.94E-01	8.28E-02					OK	
11	TH-232	TRG	VPSCR081705SL0B	pCi/g	1.01E+00	2.87E-01	6.33E-02					OK	
12	TH-232	TRG	VPSCR081705SL0C	pCi/g	5.52E-01	2.31E-01	1.05E-01					OK	
13	TH-232	TRG	VPSCR081705SL0D	pCi/g	1.01E+00	2.81E-01	3.56E-02					OK	
14	TH-232	TRG	VPSCR081705SL0E	pCi/g	7.19E-01	2.70E-01	9.03E-02					OK	
15	TH-232	TRG	VPSCR081705SL0F	pCi/g	1.21E+00	3.25E-01	9.72E-02					OK	
16	TH-232	TRG	VPSCR081705SL0G	pCi/g	7.07E-01	2.73E-01	1.41E-01					OK	

Work Order: 05-08095-ThISO-1

Run	Analysis Code	Eberline Services Work Order	Client
1	ThISO	05-08095	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	76.26				9/6/2005 5:40	
02	TH-232	MBL	08/22/05 00:00	1.00E+00	81.47				9/6/2005 5:40	
03	TH-232	DUP	08/17/05 10:46	1.03E+00	85.02				9/6/2005 5:40	
04	TH-232	DO	08/17/05 10:46	1.03E+00	86.12				9/6/2005 5:40	
05	TH-232	TRG	08/17/05 10:51	1.07E+00	65.58				9/6/2005 5:40	
06	TH-232	TRG	08/17/05 10:52	1.02E+00	87.94				9/6/2005 5:40	
07	TH-232	TRG	08/17/05 10:54	1.02E+00	84.08				9/6/2005 5:40	
08	TH-232	TRG	08/17/05 10:59	1.01E+00	87.13				9/6/2005 5:40	
09	TH-232	TRG	08/17/05 11:00	1.08E+00	88.93				9/6/2005 5:40	
10	TH-232	TRG	08/17/05 08:50	1.03E+00	85.51				9/6/2005 5:40	
11	TH-232	TRG	08/17/05 08:55	1.10E+00	81.15				9/6/2005 5:40	
12	TH-232	TRG	08/17/05 09:00	1.17E+00	58.00				9/6/2005 5:40	
13	TH-232	TRG	08/17/05 09:05	1.05E+00	91.58				9/6/2005 5:40	
14	TH-232	TRG	08/17/05 09:07	1.05E+00	61.23				9/6/2005 5:40	
15	TH-232	TRG	08/17/05 09:08	9.93E-01	89.76				9/6/2005 5:40	
16	TH-232	TRG	08/17/05 09:09	1.05E+00	62.48				9/6/2005 5:40	

Run	Analysis Code	Eberline Services Work Order	Client
1	ThISO	05-08095	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-232	LCS	09/06/05 07:14		A_Spec	33	170	3.42 E+02	2.00 E-03	21.8
02	TH-232	MBL	09/06/05 07:14		A_Spec	34	170	2.00 E+00	0.00 E+00	20.5
03	TH-232	DUP	09/06/05 07:14		A_Spec	35	170	3.87 E+01	2.00 E-03	20.5
04	TH-232	DO	09/06/05 07:14		A_Spec	36	170	5.10 E+01	0.00 E+00	21.1
05	TH-232	TRG	09/06/05 07:15		A_Spec	37	170	3.30 E+01	0.00 E+00	21.2
06	TH-232	TRG	09/06/05 07:15		A_Spec	38	170	9.28 E+01	1.00 E-03	20.2
07	TH-232	TRG	09/06/05 07:15		A_Spec	39	170	7.87 E+01	2.00 E-03	20.8
08	TH-232	TRG	09/06/05 07:16		A_Spec	40	170	5.20 E+01	0.00 E+00	21.1
09	TH-232	TRG	09/06/05 07:16		A_Spec	41	170	5.78 E+01	1.00 E-03	20.6
10	TH-232	TRG	09/06/05 07:16		A_Spec	42	170	3.95 E+01	3.00 E-03	21.9
11	TH-232	TRG	09/06/05 07:17		A_Spec	43	170	7.38 E+01	1.00 E-03	21.7
12	TH-232	TRG	09/06/05 07:17		A_Spec	44	170	2.87 E+01	2.00 E-03	20.2
13	TH-232	TRG	09/06/05 07:17		A_Spec	45	170	7.70 E+01	0.00 E+00	20.9
14	TH-232	TRG	09/06/05 07:18		A_Spec	46	170	3.68 E+01	1.00 E-03	21.1
15	TH-232	TRG	09/06/05 07:18		A_Spec	47	170	8.72 E+01	5.00 E-03	21.4
16	TH-232	TRG	09/06/05 07:18		A_Spec	48	170	3.52 E+01	5.00 E-03	20.1

Count Room Report
Client: Missouri Dept. of Natural

05-08095-ThISO-1 (pCi/g) in SO
Tracer ID: Th-18a

33-48

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	0.4641	10.4339				
02	MBL	BLANK	08/22/05 00:00	1.0000	0.4592	10.3237				
03	DUP	VPSCR081705SL15	08/17/05 10:46	1.0347	0.4590	10.3192				
04	DO	VPSCR081705SL15	08/17/05 10:46	1.0344	0.4650	10.4541				
05	TRG	VPSCR081705SL16	08/17/05 10:51	1.0666	0.4159	9.3503				
06	TRG	VPSCR081705SL17	08/17/05 10:52	1.0226	0.4587	10.3125				
07	TRG	VPSCR081705SL18	08/17/05 10:54	1.0172	0.4645	10.4429				
08	TRG	VPSCR081705SL19	08/17/05 10:59	1.0104	0.4709	10.5868				
09	TRG	VPSCR081705SL20	08/17/05 11:00	1.0833	0.4698	10.5620				
10	TRG	VPSCR081705SL0A	08/17/05 08:50	1.0284	0.4550	10.2293				
11	TRG	VPSCR081705SL0B	08/17/05 08:55	1.0992	0.4595	10.3305				
12	TRG	VPSCR081705SL0C	08/17/05 09:00	1.1730	0.4707	10.5823				
13	TRG	VPSCR081705SL0D	08/17/05 09:05	1.0534	0.4647	10.4474				
14	TRG	VPSCR081705SL0E	08/17/05 09:07	1.0530	0.4556	10.2428				
15	TRG	VPSCR081705SL0F	08/17/05 09:08	0.9926	0.4555	10.2406				
16	TRG	VPSCR081705SL0G	08/17/05 09:09	1.0511	0.4590	10.3192				

Eberline Services
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/29/2005 7:56 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
05-08095	1	ThISO	8/29/2005 7:45	JBARNARD	JB	

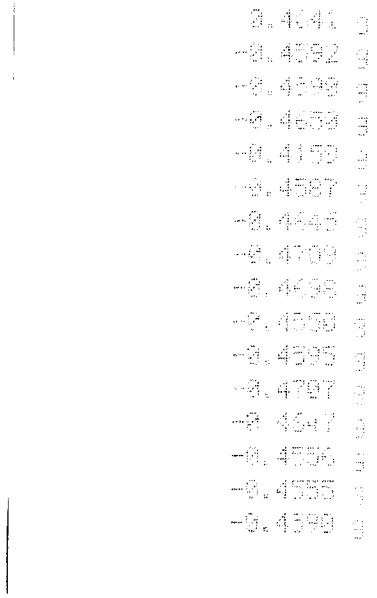
LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	*Sol #*	*Activity dpm/g*	*Solution Date*	*Approx Addition*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*
Th-228	Th-8b	103.560	8/29/2005	**0.100**	**0.1011**				4.72	0.170	0.00	0.000	0.00	0.000	0.00	0.000
Th-230	Th-1b	23.527	8/29/2005	**0.500**	**0.5050**				5.35	0.145	0.00	0.000	0.00	0.000	0.00	0.000
Th-232	Th-8b	103.560	8/29/2005	**0.100**	**0.1011**				4.72	0.170	0.00	0.000	0.00	0.000	0.00	0.000

Tracers

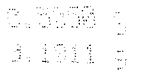
fraction	*Isotope*	*Sol #*	*Activity dpm/g*	*Solution Date*	*Volume Used (g)*	*Approx Addition*
01	**Th-229**	Th-18a	22.482	8/29/2005	**0.4641**	**0.4600**
02	**Th-229**	Th-18a	22.482	8/29/2005	**0.4592**	**0.4600**
03	**Th-229**	Th-18a	22.482	8/29/2005	**0.4590**	**0.4600**
04	**Th-229**	Th-18a	22.482	8/29/2005	**0.4650**	**0.4600**
05	**Th-229**	Th-18a	22.482	8/29/2005	**0.4159**	**0.4600**
06	**Th-229**	Th-18a	22.482	8/29/2005	**0.4587**	**0.4600**
07	**Th-229**	Th-18a	22.482	8/29/2005	**0.4645**	**0.4600**
08	**Th-229**	Th-18a	22.482	8/29/2005	**0.4709**	**0.4600**
09	**Th-229**	Th-18a	22.482	8/29/2005	**0.4698**	**0.4600**
10	**Th-229**	Th-18a	22.482	8/29/2005	**0.4550**	**0.4600**
11	**Th-229**	Th-18a	22.482	8/29/2005	**0.4595**	**0.4600**
12	**Th-229**	Th-18a	22.482	8/29/2005	**0.4707**	**0.4600**
13	**Th-229**	Th-18a	22.482	8/29/2005	**0.4647**	**0.4600**
14	**Th-229**	Th-18a	22.482	8/29/2005	**0.4556**	**0.4600**
15	**Th-229**	Th-18a	22.482	8/29/2005	**0.4555**	**0.4600**
16	**Th-229**	Th-18a	22.482	8/29/2005	**0.4590**	**0.4600**

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 8:26 AM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
05-08095	1	ThISO	grams	9/9/2005	JBARNARD

Lab Fraction	Missouri Dept. of Natural Resources Client ID	Sample Type	Muffle Data	Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	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	VPSCR081705SL15	DUP					1.0347E+00	1.0347E+00				
04	VPSCR081705SL15	DO					1.0344E+00	1.0344E+00				
05	VPSCR081705SL16	TRG					1.0666E+00	1.0666E+00				
06	VPSCR081705SL17	TRG					1.0226E+00	1.0226E+00				
07	VPSCR081705SL18	TRG					1.0172E+00	1.0172E+00				
08	VPSCR081705SL19	TRG					1.0104E+00	1.0104E+00				
09	VPSCR081705SL20	TRG					1.0833E+00	1.0833E+00				
10	VPSCR081705SL0A	TRG					1.0284E+00	1.0284E+00				
11	VPSCR081705SL0B	TRG					1.0992E+00	1.0992E+00				
12	VPSCR081705SL0C	TRG					1.1730E+00	1.1730E+00				
13	VPSCR081705SL0D	TRG					1.0534E+00	1.0534E+00				
14	VPSCR081705SL0E	TRG					1.0530E+00	1.0530E+00				
15	VPSCR081705SL0F	TRG					9.9260E-01	9.9260E-01				
16	VPSCR081705SL0G	TRG					1.0511E+00	1.0511E+00				

1.0347 5
1.0344 5
1.0666 5
1.0226 5
1.0172 5
1.0104 5
1.0833 5
1.0284 5
1.0992 5
1.1730 5
1.0534 5
1.0530 5
0.9926 5
1.0511 5

Comments	

Technician: JBarnard Date: 8/29/05

1

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

Rough Sample Preparation Log Book

Printed: 8/23/2005 12:08 PM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
05-08095	9/9/2005	8/22/2005	8/23/2005	8/24/2005	KSALLINGS

Eberline Fraction	Missouri Dept. of Natural Resources Client ID	Tare (g) Pan Wt	Gross (g) Wet Wt.	Gross (g) Dry Wt.	Net (g) Wet Wt.	Net (g) Dry Wt.	Percent Liquid	Percent Solid	Gamma Dry Wt.	Gamma LEPS Wt.	Special Info
04	VPSCR081705SL15	14.0300	580.1100	471.8800	566.0800	457.8500	19.12%	80.88%			
05	VPSCR081705SL16	13.9300	428.4500	359.0900	414.5200	345.1600	16.73%	83.27%			
06	VPSCR081705SL17	13.9200	427.0000	338.5700	413.0800	324.6500	21.41%	78.59%			
07	VPSCR081705SL18	13.9700	443.3600	349.9900	429.3900	336.0200	21.74%	78.26%			
08	VPSCR081705SL19	14.0000	461.8600	375.5800	447.8600	361.5800	19.26%	80.74%			
09	VPSCR081705SL20	13.9000	459.3100	382.8200	445.4100	368.9200	17.17%	82.83%			
10	VPSCR081705SL0A	13.8400	553.7300	471.5600	539.8900	457.7200	15.22%	84.78%			
11	VPSCR081705SL0B	14.0000	494.9000	395.4400	480.9000	381.4400	20.68%	79.32%			
12	VPSCR081705SL0C	13.9900	542.7700	455.2500	528.7800	441.2600	16.55%	83.45%			
13	VPSCR081705SL0D	13.9800	607.3900	507.0900	593.4100	493.1100	16.90%	83.10%			
14	VPSCR081705SL0E	14.0800	481.1200	410.0500	467.0400	395.9700	15.22%	84.78%			
15	VPSCR081705SL0F	14.0600	481.7400	382.8400	467.6800	368.7800	21.15%	78.85%			
16	VPSCR081705SL0G	14.0000	486.3300	403.9300	472.3300	389.9300	17.45%	82.55%			

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
6-SEP-2005 10:24:26

****

Spectral File: ND_AMS_ARCHIVE_C:C_0508095A-TH$01_TH.CNF

****

BATCH ID:	0508095A-TH	SAMPLE ID:	01
SAMPLE DATE:	6-SEP-2005 00:00	ALIQUOT:	1.000E+00 gram
SAMPLE TITLE:	SPIKE	DETECTOR NUMBER:	033
ACQ DATE:	6-SEP-2005 07:14	AVERAGE EFFICIENCY:	21.77%
ELAPSED LIVE TIME:	10200.	RECOVERY:	76.26%
TRACER ID:	TH-18A	TRACER FWHM (kev):	80.79
LAMBDA VALUE:	464.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.434	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
TH-227	5850.0	11.81	1.19	97.5	1.934E-01	1.232E-01	1.274E-01
TH-228	5400.0	283.49	0.51	99.9	4.530E+00	9.203E-01	9.633E-02
TH229	4872.0	293.00	0.00	99.5	4.700E+00	7.021E-01	4.347E-02
TH-230	4672.0	337.83	0.17	99.8	5.403E+00	1.067E+00	7.400E-02
TH-232	3997.0	341.66	0.34	100.0	5.454E+00	1.075E+00	8.654E-02

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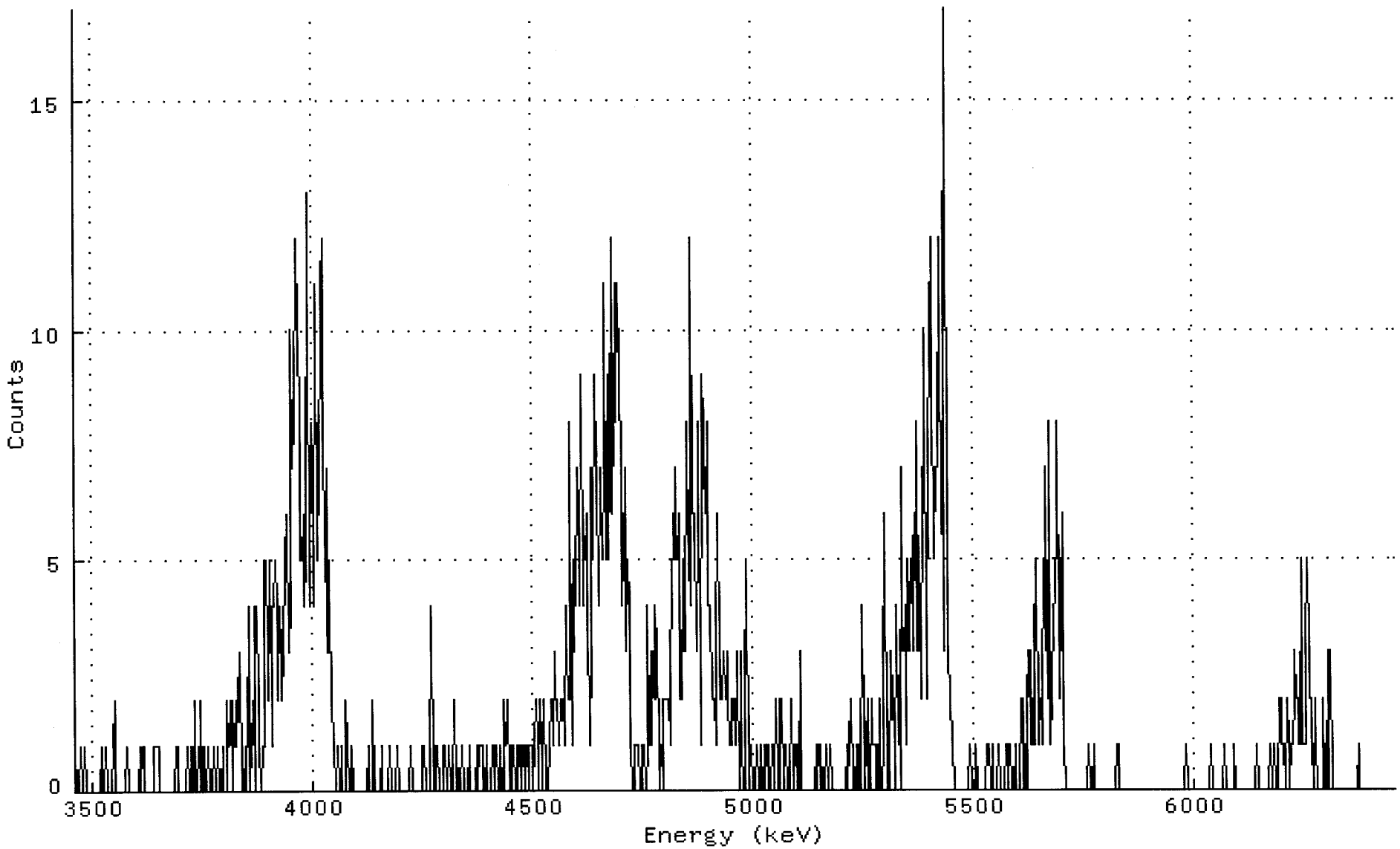
*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.C]C_0508095A-TH$01_TH.CNF;1
Title : 033
Sample Title: SPIKE
Start Time: 6-SEP-2005 07:14: Sample Time: 6-SEP-2005 00:00: Energy Offset: 3.44982E+03
Real Time : 0 02:50:00.40 Sample ID : 01 Energy Slope : 3.10876E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.68614E-04



Channel Contents for ND_AMS_ARCHIVE_C:C_0508095A-TH$01_TH

Channel

1:	1	2	1	0	0	0	1	0	0	1	0	0	0	0
15:	0	0	0	0	0	0	0	1	0	0	1	1	0	0
29:	0	0	1	2	0	0	0	0	0	0	0	0	1	0
43:	0	0	0	0	0	0	0	1	0	1	1	0	0	0
57:	0	0	0	0	1	1	1	1	0	0	0	0	0	0
71:	0	0	0	0	0	0	1	1	0	0	0	0	0	0
85:	0	1	0	1	0	0	2	0	0	1	0	2	0	1
99:	0	0	1	0	0	0	1	1	0	1	0	0	0	1
113:	0	0	0	2	1	2	0	2	1	2	1	2	3	0
127:	1	0	0	1	1	4	0	1	2	0	4	4	2	1
141:	0	1	1	5	5	3	2	5	1	4	4	5	4	2
155:	4	3	2	3	5	6	6	3	4	10	7	8	8	12
169:	10	8	5	5	6	4	5	13	11	4	8	7	4	11
183:	5	8	6	11	12	7	6	3	7	3	3	2	1	0
197:	1	1	0	1	0	0	0	2	1	0	0	1	0	0
211:	0	0	0	0	0	0	0	0	0	1	0	0	0	2
225:	0	0	0	0	0	1	0	0	0	0	0	1	0	0
239:	0	0	0	1	0	0	0	0	0	0	0	0	0	1
253:	0	0	0	0	0	0	0	0	1	1	0	0	0	0
267:	0	4	0	1	0	1	0	0	0	0	1	1	0	0
281:	1	0	0	0	2	0	1	0	0	0	1	0	0	0
295:	0	1	0	0	0	0	0	1	0	1	1	1	0	0
309:	1	0	0	0	0	1	0	1	1	0	0	1	0	0
323:	2	1	2	2	0	1	0	1	0	1	0	1	1	0
337:	1	0	1	1	0	1	1	1	0	1	2	1	0	2
351:	0	1	2	0	1	0	1	1	2	1	3	2	2	1
365:	1	2	2	2	1	4	3	2	2	8	1	5	4	4
379:	7	5	4	9	4	5	5	6	4	1	3	7	5	9
393:	7	7	4	7	6	5	7	11	5	9	5	7	12	6
407:	8	11	8	11	9	7	4	5	7	3	5	4	1	0
421:	0	1	1	1	1	0	0	1	1	0	1	4	1	3
435:	1	3	2	4	3	1	0	1	0	2	2	2	2	2
449:	1	2	5	5	7	5	5	6	2	2	5	3	3	8
463:	8	5	4	12	6	6	6	3	6	8	1	9	8	7
477:	6	8	4	4	2	2	2	1	3	6	3	2	2	3
491:	3	2	3	2	1	2	1	2	2	1	3	0	3	1
505:	0	0	2	5	0	1	1	0	0	0	1	1	0	0
519:	1	0	1	0	1	1	0	0	1	1	0	2	2	0
533:	0	2	2	0	1	1	0	0	0	2	0	0	1	0
547:	1	0	3	0	0	0	0	0	0	0	0	0	0	0
561:	1	0	1	0	1	0	0	0	1	0	0	1	0	0
575:	0	0	0	0	0	0	0	0	0	0	1	0	1	2
589:	0	0	0	1	0	0	2	0	4	1	0	1	2	0
603:	0	2	1	1	1	0	0	2	0	0	1	2	6	0
617:	2	0	3	3	2	1	0	4	1	2	0	7	3	3
631:	4	1	5	4	3	5	3	5	6	3	8	3	3	2
645:	7	6	10	2	8	7	10	12	9	5	7	7	7	12
659:	8	8	3	9	17	3	3	2	1	1	0	0	0	0
673:	0	0	0	0	0	0	0	0	1	0	0	0	0	1
687:	0	0	0	0	0	0	0	1	1	1	0	0	1	0
701:	0	0	0	1	0	0	0	0	0	1	0	1	1	0
715:	0	0	1	0	0	0	0	2	0	2	0	0	2	3
729:	1	3	1	1	3	5	1	2	2	1	2	5	3	7
743:	2	8	1	2	4	3	5	5	8	3	2	4	6	1
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	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	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	1	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	0
883:	0	1	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	1
911:	0	0	0	0	0	0	0	0	0	0	1	0	0	1
925:	0	0	0	0	2	2	1	1	0	0	2	1	0	1
939:	1	1	2	3	2	2	1	1	5	1	1	1	3	5
953:	3	2	2	1	0	2	1	0	0	0	0	0	2	0
967:	0	0	3	0	3	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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 10:24:21.33

Detector ID: 33 Acquisition Start: 6-SEP-2005 07:14:05.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-TH Sample Id: 01
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3965.55	342	0	85.85	167.42	113	100	3.35E-02	5.4	
2	0	4635.05	338	0	129.27	389.48	319	102	3.31E-02	5.4	
3	0	4881.52	293	0	80.79	472.65	420	128	2.87E-02	5.8	
4	0	5375.87	284	0	52.69	641.90	564	105	2.78E-02	5.9	
5	0	5777.11	13	0	0.00	781.77	755	124	1.27E-03	27.7	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:24:24.83

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	3948.82	2	0	165.90	162.50	113	100	3.33E-05	70.7	
2	0	4575.48	1	0	3.13	369.50	319	102	1.67E-05	100.0	
3	0	4913.51	0	0	0.00	483.50	420	128	0.00E+00	0.0	
4	0	5300.08	3	0	228.51	616.00	564	105	5.00E-05	57.7	
5	0	5872.13	7	0	0.00	816.50	755	124	1.17E-04	37.8	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:24:25.15

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3965.55*	342	0	85.85	167.42	113	100	3.35E-02	5.4	
2	0	4635.05*	338	0	129.27	389.48	319	102	3.31E-02	5.4	
3	0	4881.52*	293	0	80.79	472.65	420	128	2.87E-02	5.8	
4	0	5375.87*	283	0	52.69	641.90	564	105	2.78E-02	5.9	
5	0	5777.11*	12	0	0.00	781.77	755	124	1.16E-03	30.8	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:24:26

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 07:14:05
Sample ID	: 01	Sample quantity	: 1.0000 gram
Sample type	: TH	Sample geometry	:
Detector name	: 033	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	3965.55*	342	85.85	167.42	113	100	10.8		TH-232	4.16
0	4635.05*	338	129.27	389.48	319	102	10.9		TH-230	4.12
0	4881.52*	293	80.79	472.65	420	128	11.7		TH229	3.58
0	5375.87*	283	52.69	641.90	564	105	11.9		TH-228	3.45
0	5777.11*	12	0.00	781.77	755	124	61.5		TH-227	0.147

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:24:41

****

Spectral File: ND_AMS_ARCHIVE_R:R_0508095A-TH$02_TH.CNF

****

BATCH ID:	0508095A-TH	SAMPLE ID:	02
SAMPLE DATE:	6-SEP-2005 00:00	ALIQUOT:	1.000E+00 gram
SAMPLE TITLE:	BLANK	DETECTOR NUMBER:	034
ACQ DATE:	6-SEP-2005 07:14	AVERAGE EFFICIENCY:	20.45%
ELAPSED LIVE TIME:	10200.	RECOVERY:	81.47%
TRACER ID:	TH-18A	TRACER FWHM (kev):	130.61
LAMBDA VALUE:	459.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.323	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
TH-227	5850.0	9.83	0.17	97.5	1.603E-01	1.067E-01	7.548E-02
TH-228	5400.0	0.66	0.34	99.9	1.051E-02	3.279E-02	8.627E-02
TH229	4872.0	291.00	0.00	99.5	4.650E+00	6.964E-01	4.331E-02
TH-230	4672.0	30.83	0.17	99.8	4.912E-01	1.951E-01	7.372E-02
TH-232	3997.0	2.00	0.00	100.0	3.181E-02	4.529E-02	4.310E-02

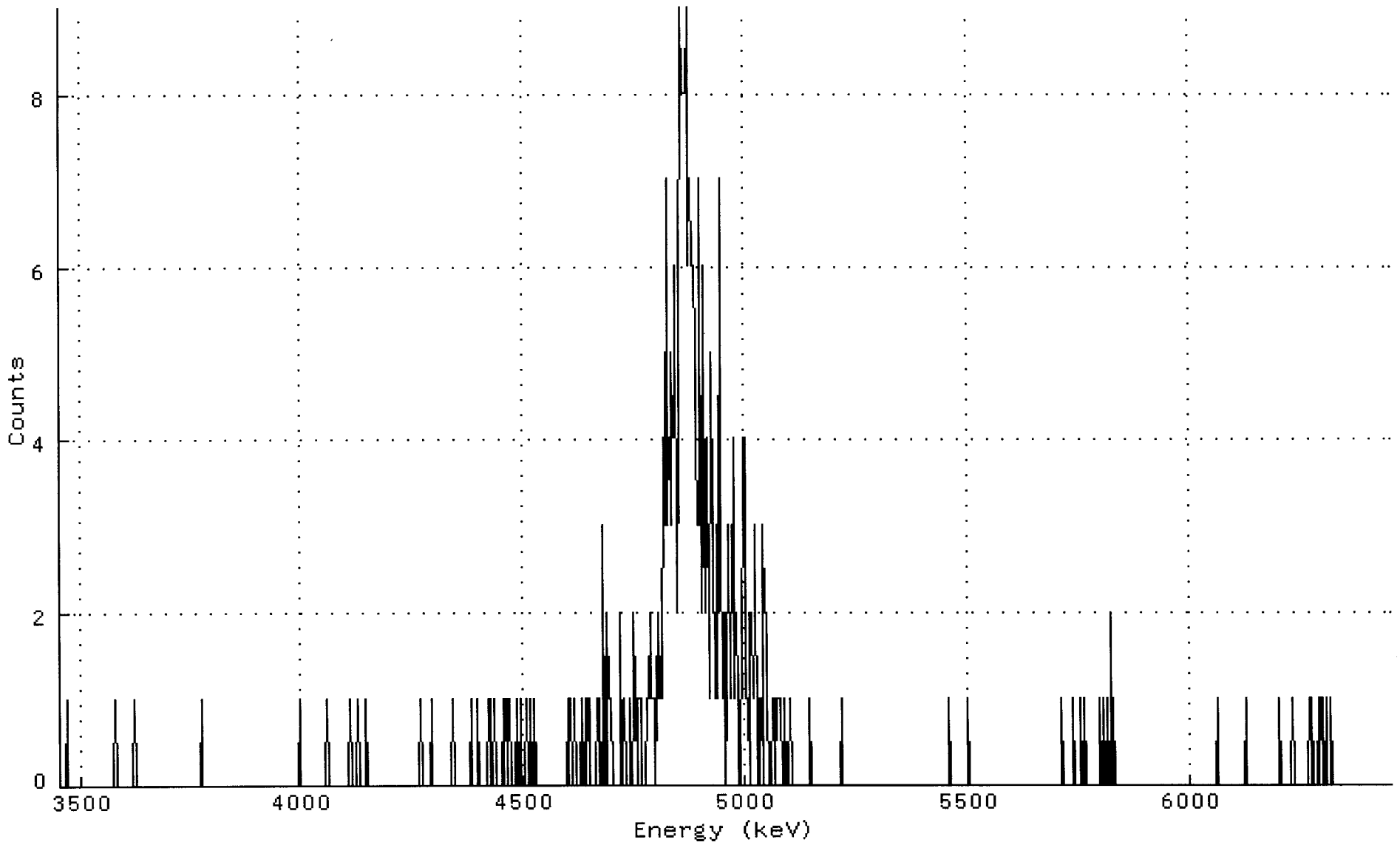
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.R]R_0508095A-TH$02_TH.CNF;1
Title : 034
Sample Title: BLANK
Start Time: 6-SEP-2005 07:14: Sample Time: 6-SEP-2005 00:00: Energy Offset: 3.44384E+03
Real Time : 0 02:50:00.40 Sample ID : 02 Energy Slope : 3.09557E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.56613E-04



Channel Contents for ND_AMS_ARCHIVE_R:R_0508095A-TH$02_TH

Channel

1:	0	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	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43:	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57:	1	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	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	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	0
127:	0	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	0
155:	0	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	1	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
225:	0	0	0	0	1	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	0
253:	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
267:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
281:	0	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	0	0	0	1	0
309:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1
323:	1	0	1	1	0	0	0	0	0	1	0	1	0	1	1
337:	1	0	0	0	0	1	0	0	1	0	0	0	0	0	1
351:	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
379:	0	0	1	0	1	0	0	1	0	0	0	0	1	0	0
393:	0	1	0	1	1	0	0	0	0	0	1	0	1	0	0
407:	0	3	0	0	2	1	1	0	0	0	0	0	0	1	0
421:	2	0	1	1	0	0	0	1	0	1	2	1	0	1	1
435:	1	1	0	0	0	1	1	1	2	1	1	1	0	1	1
449:	2	1	1	2	1	4	3	7	3	4	3	5	4	4	4
463:	6	2	4	5	9	8	8	8	8	9	6	7	6	6	6
477:	6	5	4	3	3	7	2	3	6	2	4	1	1	5	5
491:	3	3	1	1	3	2	7	3	1	2	0	1	3	1	1
505:	2	2	4	1	2	1	0	0	2	1	4	4	1	1	1
519:	0	2	2	1	2	3	0	0	1	1	0	3	2	2	2
533:	1	0	0	0	1	1	0	1	1	1	1	0	0	1	1
547:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	1	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	0
589:	1	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	0	0	0	0
617:	0	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	0
645:	0	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	0
673:	1	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	0	0	0	0	0
701:	0	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	0
729:	0	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	0
757:	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
771:	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
785:	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
799:	0	2	0	1	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	0
827:	0	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	0
855:	0	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	0
883:	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
939:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0
967:	1	1	0	0	1	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	0
995:	0	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	0
1023:	0	0													

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:24:35.79

Detector ID: 34 Acquisition Start: 6-SEP-2005 07:14:20.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-TH Sample Id: 02
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4026.35	2	0	65.01	190.00	116	99	1.96E-04	70.7	
2	0	4592.84	31	0	42.56	378.42	322	102	3.04E-03	18.0	
3	0	4894.62	291	0	130.61	480.34	423	128	2.85E-02	5.9	
4	0	5212.80	1	0	3.10	589.00	567	105	9.80E-05	100.0	
5	0	5783.06	10	0	3.10	787.00	758	124	9.80E-04	31.6	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:24:39.26

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	3950.42	0	0	0.00	165.00	116	99	0.00E+00	0.0	
2	0	4574.99	1	0	3.09	372.50	322	102	1.67E-05	100.0	
3	0	4912.70	0	0	0.00	486.50	423	128	0.00E+00	0.0	
4	0	5300.38	2	0	157.57	619.00	567	105	3.33E-05	70.7	
5	0	5877.13	1	0	3.09	819.50	758	124	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:24:39.57

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4026.35*	2	0	65.01	190.00	116	99	1.96E-04	70.7	
2	0	4592.84*	31	0	42.56	378.42	322	102	3.02E-03	18.1	
3	0	4894.62*	291	0	130.61	480.34	423	128	2.85E-02	5.9	
4	0	5212.80*	1	0	3.10	589.00	567	105	6.47E-05	155.8	
5	0	5783.06*	10	0	3.10	787.00	758	124	9.64E-04	32.2	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:24:40

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 07:14:20
Sample ID	: 02	Sample quantity	: 1.0000 gram
Sample type	: TH	Sample geometry	:
Detector name	: 034	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	4026.35*	2	65.01	190.00	116	99	141.4		TH-232	2.591E-02
0	4592.84*	31	42.56	378.42	322	102	36.1		TH-230	0.400
0	4894.62*	291	130.61	480.34	423	128	11.7		TH229	3.79
0	5212.80*	1	3.10	589.00	567	105	311.7		TH-228	8.560E-03
0	5783.06*	10	3.10	787.00	758	124	64.4		TH-227	0.131

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:24:51

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$03_TH.CNF

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BATCH ID:	0508095A-TH	SAMPLE ID:	03
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.035E+00	gram
SAMPLE TITLE:	VPSCR081705SL15	DETECTOR NUMBER:	035
ACQ DATE:	6-SEP-2005 07:14	AVERAGE EFFICIENCY:	20.50%
ELAPSED LIVE TIME:	10200.	RECOVERY:	85.02%
TRACER ID:	TH-18A	TRACER FWHM (kev):	58.17
LAMBDA VALUE:	459.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.319	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.

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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	13.83	0.17	97.5	2.088E-01	1.181E-01	6.972E-02
TH-228	5400.0	51.32	0.68	99.9	7.698E-01	2.504E-01	9.620E-02
TH229	4872.0	304.32	0.68	99.5	4.492E+00	6.641E-01	9.661E-02
TH-230	4672.0	98.83	0.17	99.8	1.455E+00	3.772E-01	6.810E-02
TH-232	3997.0	38.66	0.34	100.0	5.679E-01	2.057E-01	7.964E-02

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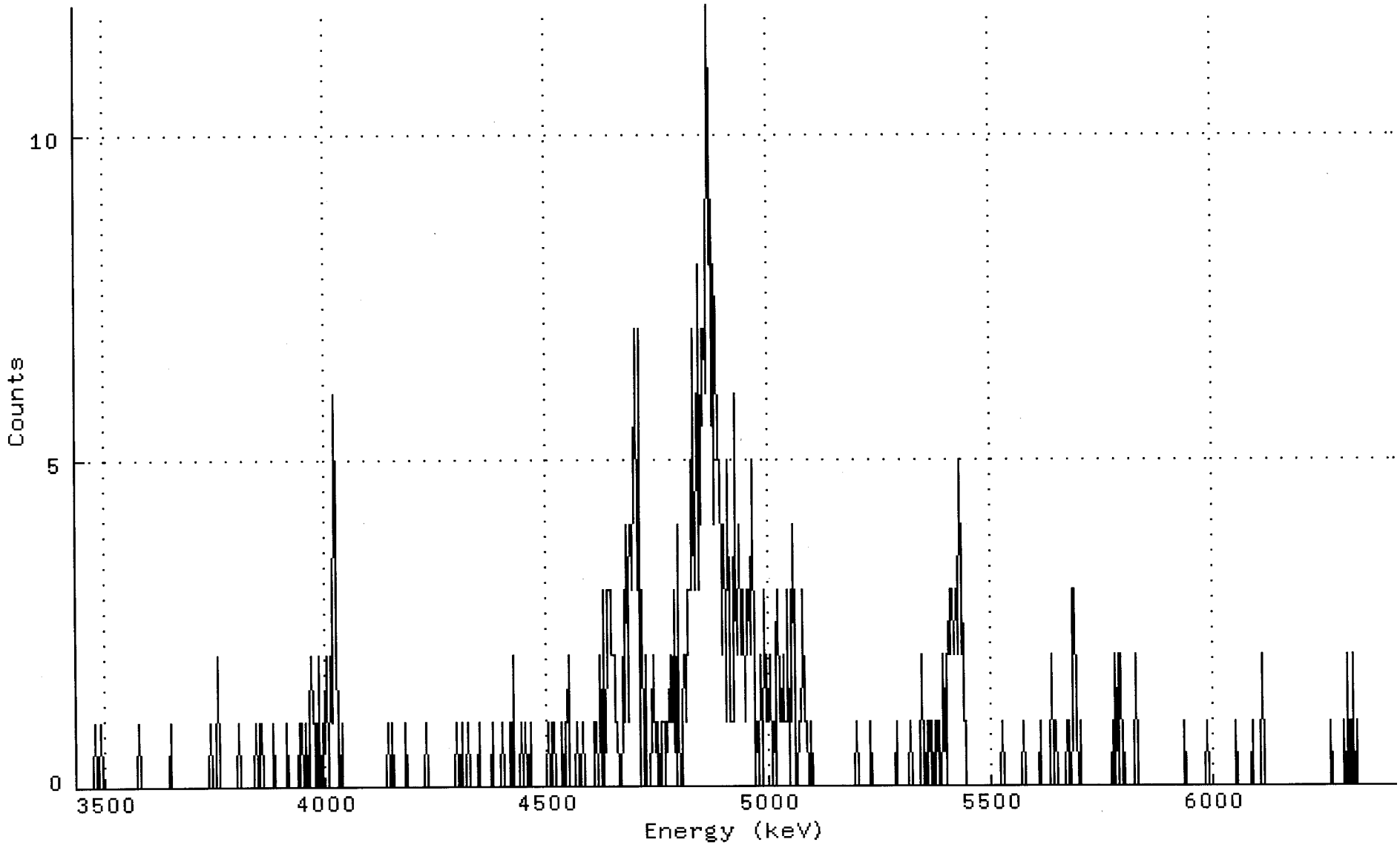
Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$03_TH.CNF;1
Title : 035
Sample Title: VPSCR081705SL15
Start Time: 6-SEP-2005 07:14: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42452E+03
Real Time : 0 02:50:00.40 Sample ID : 03 Energy Slope : 3.10538E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.85187E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$03_TH

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	1	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	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	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	1	0	0	0	0	0	2	0	0	0	0
113:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
127:	0	0	0	0	0	0	0	0	0	1	0	1	0	1
141:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
155:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
169:	0	1	0	0	1	0	0	1	2	1	1	0	0	2
183:	0	0	1	0	1	2	0	0	2	2	1	6	4	3
197:	0	0	1	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	1	0	0	1	0
239:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	1	1	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	1	0	0	0	1	0	0	0	0	1
295:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
309:	0	0	0	1	0	0	0	0	0	0	0	1	0	0
323:	0	0	0	1	0	2	0	0	0	0	0	1	0	0
337:	1	0	0	0	1	0	0	0	0	0	0	0	0	0
351:	0	0	0	1	1	0	0	1	1	0	0	0	0	0
365:	1	0	0	1	1	2	0	0	0	0	0	1	0	0
379:	0	1	1	0	0	0	0	0	0	0	0	1	1	0
393:	1	2	0	3	0	1	2	3	3	3	2	2	2	1
407:	1	0	0	0	1	3	1	4	1	3	4	3	3	5
421:	6	7	3	7	0	3	0	2	0	0	0	0	1	2
435:	1	1	0	1	0	0	1	1	1	0	1	1	2	1
449:	1	3	1	0	4	1	0	0	1	2	2	1	3	3
463:	3	3	7	4	3	6	3	8	4	7	6	7	7	6
477:	12	8	11	7	4	8	7	5	5	5	3	2	4	2
491:	1	5	2	1	1	1	6	3	2	4	4	2	2	3
505:	1	3	2	3	3	2	5	1	0	1	1	0	2	1
519:	0	3	1	2	1	2	2	0	1	0	2	3	1	1
533:	1	2	1	1	1	3	0	3	1	4	2	0	0	1
547:	1	1	2	3	1	1	1	0	0	1	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	1	0	0	0	0	0	0	0	0	0	0	1
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
631:	0	0	1	0	0	0	0	0	0	0	0	2	0	0
645:	0	1	0	1	0	1	0	1	0	1	0	1	0	1
659:	2	1	0	2	2	3	2	3	2	2	3	2	2	5
673:	2	4	1	1	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	1	1	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	0	1	0	0	0	0	0	0	0
743:	0	0	2	0	0	1	0	0	0	0	0	0	0	0
757:	1	1	0	0	1	3	3	1	1	0	1	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	1	0	0	2	1	0
799:	2	2	0	1	0	0	0	0	0	0	0	0	0	2
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	1	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	1	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	0	0	0	0	0	1	0	0	0	0
911:	0	0	0	2	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	1	0	0	0	0	0	0	0	0	0
981:	0	1	0	0	2	0	1	0	2	0	0	1	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 10:24:46.63

Detector ID: 35 Acquisition Start: 6-SEP-2005 07:14:24.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-TH Sample Id: 03
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3979.44	39	0	7.77	180.64	122	99	3.82E-03	16.0	
2	0	4652.51	99	0	32.96	405.23	329	102	9.71E-03	10.1	
3	0	4897.31	305	0	58.17	488.50	430	129	2.99E-02	5.7	
4	0	5395.39	52	0	34.16	660.69	575	106	5.10E-03	13.9	
5	0	5834.20	14	0	52.73	815.64	768	126	1.37E-03	26.7	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:24:49.50

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	3952.13	2	0	117.87	171.00	122	99	3.33E-05	70.7	
2	0	4578.15	1	0	0.00	379.50	329	102	1.67E-05	100.0	
3	0	4915.27	4	0	322.60	494.00	430	129	6.67E-05	50.0	
4	0	5302.35	4	0	3.10	627.50	575	106	6.67E-05	50.0	
5	0	5878.61	1	0	3.10	830.50	768	126	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:24:49.79

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3979.44*	39	0	7.77	180.64	122	99	3.79E-03	16.2	
2	0	4652.51*	99	0	32.96	405.23	329	102	9.69E-03	10.1	
3	0	4897.31*	304	0	58.17	488.50	430	129	2.98E-02	5.7	
4	0	5395.39*	51	0	34.16	660.69	575	106	5.03E-03	14.1	
5	0	5834.20*	14	0	52.73	815.64	768	126	1.36E-03	27.1	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:24:50

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL15		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 07:14:24
Sample ID	: 03	Sample quantity	: 1.0347 gram
Sample type	: TH	Sample geometry	:
Detector name	: 035	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	3979.44*	39	7.77	180.64	122	99	32.3		TH-232	0.483
0	4652.51*	99	32.96	405.23	329	102	20.1		TH-230	1.24
0	4897.31*	304	58.17	488.50	430	129	11.5		TH229	3.82
0	5395.39*	51	34.16	660.69	575	106	28.1		TH-228	0.654
0	5834.20*	14	52.73	815.64	768	126	54.2		TH-227	0.177

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:24:59

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$04_TH.CNF

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BATCH ID:	0508095A-TH	SAMPLE ID:	04
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.034E+00 gram
SAMPLE TITLE:	VPSCR081705SL15	DETECTOR NUMBER:	036
ACQ DATE:	6-SEP-2005 07:14	AVERAGE EFFICIENCY:	21.12%
ELAPSED LIVE TIME:	10200.	RECOVERY:	86.12%
TRACER ID:	TH-18A	TRACER FWHM (kev):	176.64
LAMBDA VALUE:	465.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.454	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.

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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	14.83	0.17	97.5	2.146E-01	1.174E-01	6.684E-02
TH-228	5400.0	43.00	0.00	99.9	6.184E-01	2.133E-01	3.819E-02
TH229	4872.0	321.66	0.34	99.5	4.552E+00	6.617E-01	7.673E-02
TH-230	4672.0	75.00	0.00	99.8	1.058E+00	2.980E-01	3.824E-02
TH-232	3997.0	51.00	0.00	100.0	7.183E-01	2.321E-01	3.817E-02

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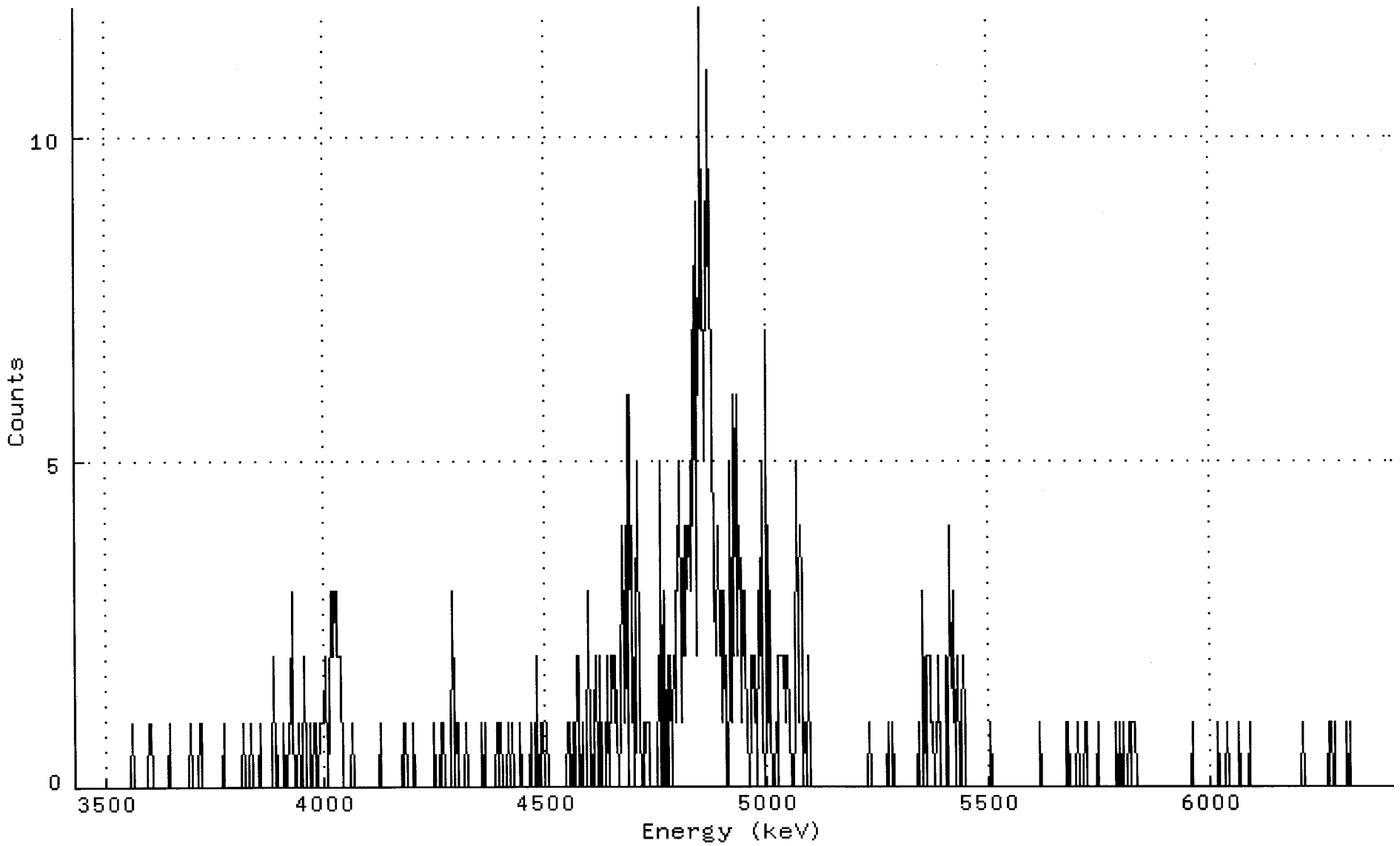
*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$04_TH.CNF;1
Title : 036
Sample Title: VPSCR081705SL15
Start Time: 6-SEP-2005 07:14: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42383E+03
Real Time : 0 02:50:00.40 Sample ID : 04 Energy Slope : 3.07663E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.54719E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$04_TH

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	1	0	0	0	0	0	0	0	0	0	0	0
57:	0	1	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	1	0	0	0	0	0	0	1	1	0
99:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
127:	0	1	1	0	0	0	0	1	0	0	0	0	0	0
141:	1	0	0	0	0	0	0	0	0	0	2	0	1	0
155:	0	0	0	0	1	0	0	1	1	1	3	1	0	0
169:	0	1	0	0	0	2	0	0	0	0	1	0	1	0
183:	1	0	1	1	1	1	1	2	0	1	1	3	3	2
197:	3	3	2	2	2	0	0	0	0	0	0	0	0	1
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	1	0	1	0	0
253:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	1	0	0	0	1	0	1	0	0
281:	0	0	0	0	0	3	1	0	1	1	0	0	0	0
295:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
309:	0	1	0	0	0	0	0	0	0	0	1	1	0	1
323:	0	0	0	0	0	1	0	0	1	0	0	0	0	0
337:	1	0	0	0	0	0	0	0	1	0	0	0	2	0
351:	0	1	0	1	0	0	1	0	0	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	1	0	1	0	0	1
379:	0	2	2	0	0	1	0	0	0	0	3	0	1	0
393:	0	1	2	0	0	2	0	0	0	0	2	1	0	2
407:	1	2	1	2	1	0	0	1	4	2	1	2	6	0
421:	6	1	4	0	1	2	5	1	1	0	1	0	1	1
435:	1	0	0	0	0	0	0	0	2	0	5	0	0	3
449:	0	0	2	2	0	1	2	1	3	3	5	2	1	3
463:	4	2	4	4	4	3	7	4	8	2	9	6	8	12
477:	7	7	5	9	8	11	8	6	3	3	2	4	4	2
491:	3	1	3	0	2	0	2	5	1	6	2	5	6	2
505:	4	3	1	3	3	2	1	0	1	2	2	1	2	0
519:	3	3	2	5	1	0	1	7	1	3	1	0	0	0
533:	1	0	2	2	2	2	2	1	2	2	1	1	0	0
547:	0	1	5	1	3	4	3	0	1	0	0	2	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	0	1	0	0	0	0	0	0	0	0	0	0
617:	0	0	0	1	0	0	0	1	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
645:	0	0	0	3	1	0	2	2	2	1	1	0	0	1
659:	1	2	0	0	0	0	0	2	0	4	3	2	1	3
673:	0	2	2	0	0	1	2	1	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	0	0	0	0	0	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	1	0	1	0	0	0	0	0	0	1
771:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
785:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	1	0	0	1	0	1	0	0	0	0	1	0
813:	1	1	1	1	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	1	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
883:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
897:	0	0	1	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	0	0	1	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	0	0	1	0	1	0	0	1	0	0	0
981:	0	0	0	0	0	0	1	0	1	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 10:24:55.91

Detector ID: 36 Acquisition Start: 6-SEP-2005 07:14:56.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-TH Sample Id: 04
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3974.45	51	0	155.37	180.61	123	100	5.00E-03	14.0	
2	0	4639.25	75	0	39.44	403.23	331	102	7.35E-03	11.5	
3	0	4897.31	322	0	176.64	491.05	433	129	3.16E-02	5.6	
4	0	5388.14	43	0	75.66	660.40	578	105	4.22E-03	15.2	
5	0	5827.76	15	0	0.00	814.73	770	125	1.47E-03	25.8	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:24:57.58

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	3950.16	0	0	0.00	172.50	123	100	0.00E+00	0.0	
2	0	4575.98	0	0	0.00	381.50	331	102	0.00E+00	0.0	
3	0	4915.86	2	0	21.58	497.00	433	129	3.33E-05	70.7	
4	0	5301.99	0	0	0.00	630.00	578	105	0.00E+00	0.0	
5	0	5877.69	1	0	0.00	832.00	770	125	1.67E-05	100.0	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:24:57.83

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3974.45*	51	0	155.37	180.61	123	100	5.00E-03	14.0	
2	0	4639.25*	75	0	39.44	403.23	331	102	7.35E-03	11.5	
3	0	4897.31*	322	0	176.64	491.05	433	129	3.15E-02	5.6	
4	0	5388.14*	43	0	75.66	660.40	578	105	4.22E-03	15.2	
5	0	5827.76*	15	0	0.00	814.73	770	125	1.45E-03	26.1	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:24:58

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL15		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 07:14:56
Sample ID	: 04	Sample quantity	: 1.0344 gram
Sample type	: TH	Sample geometry	:
Detector name	: 036	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	3974.45*	51155.37	180.61	123	100	28.0			TH-232	0.619
0	4639.25*	75 39.44	403.23	331	102	23.1			TH-230	0.911
0	4897.31*	322176.64	491.05	433	129	11.2			TH229	3.92
0	5388.14*	43 75.66	660.40	578	105	30.5			TH-228	0.533
0	5827.76*	15 0.00	814.73	770	125	52.3			TH-227	0.185

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:25:09

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$05_TH.CNF

****

BATCH ID:	0508095A-TH	SAMPLE ID:	05
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.067E+00 gram
SAMPLE TITLE:	VPSCR081705SL16	DETECTOR NUMBER:	037
ACQ DATE:	6-SEP-2005 07:15	AVERAGE EFFICIENCY:	21.19%
ELAPSED LIVE TIME:	10200.	RECOVERY:	65.58%
TRACER ID:	TH-18A	TRACER FWHM (kev):	40.32
LAMBDA VALUE:	416.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	9.350	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

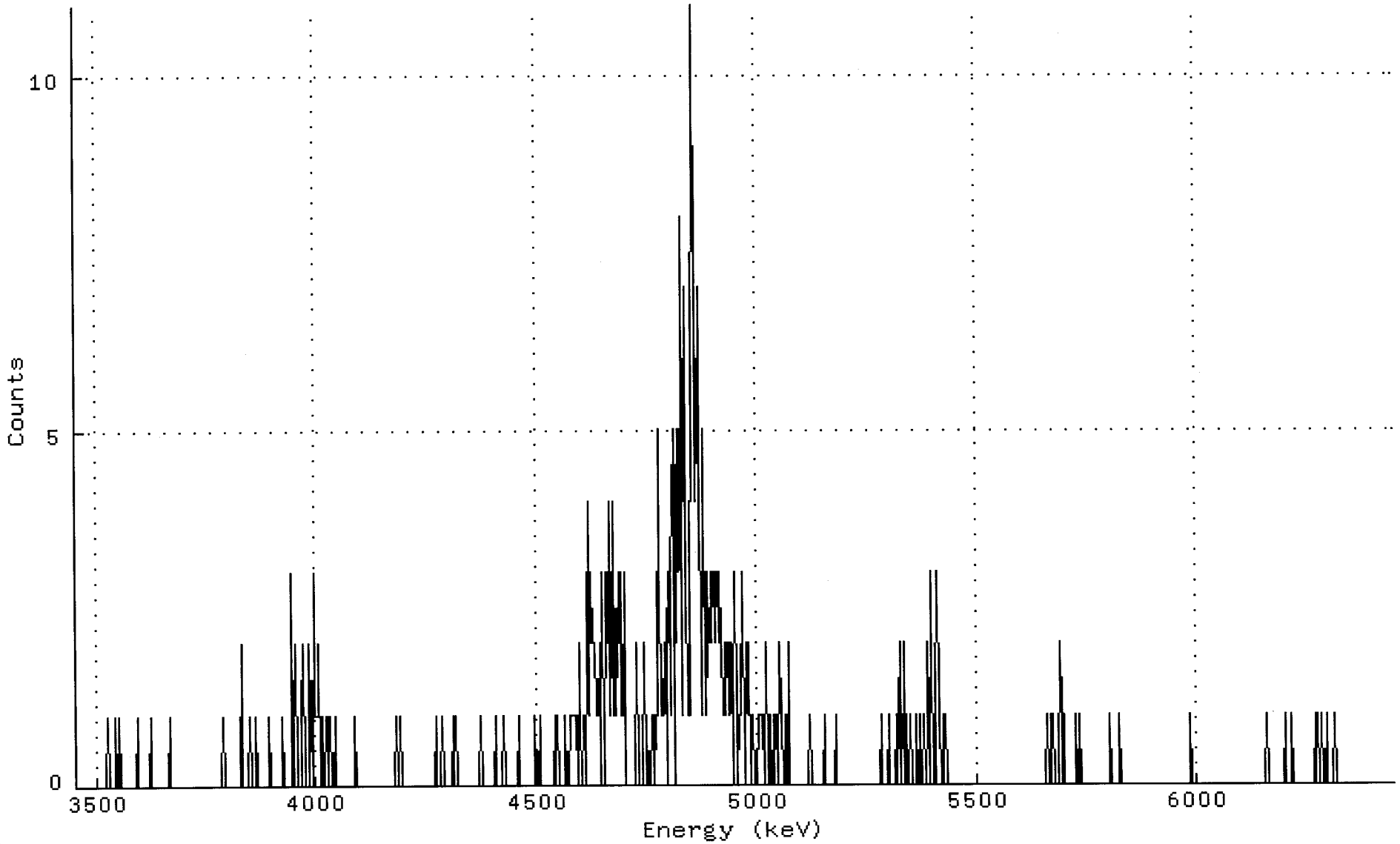
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	5.00	0.00	97.5	9.184E-02	8.375E-02	4.969E-02
TH-228	5400.0	32.00	0.00	99.9	5.841E-01	2.312E-01	4.847E-02
TH229	4872.0	219.83	0.17	99.5	3.949E+00	6.474E-01	8.312E-02
TH-230	4672.0	77.66	0.34	99.8	1.391E+00	4.018E-01	9.709E-02
TH-232	3997.0	33.00	0.00	100.0	5.899E-01	2.307E-01	4.844E-02

****

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$05_TH.CNF;1
Title : 037
Sample Title: VPSCR081705SL16
Start Time: 6-SEP-2005 07:15: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44278E+03
Real Time : 0 02:50:00.40 Sample ID : 05 Energy Slope : 3.08429E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.47964E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$05_TH

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	1	0
29:	0	0	0	0	1	0	0	1	0	0	0	0	0	0
43:	0	0	0	0	0	0	1	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	0	0	0	0	0	0	0	0	0	0	0	0	0
113:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
127:	2	0	0	0	0	0	1	0	0	0	0	1	0	0
141:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
155:	0	0	0	1	0	0	0	0	0	0	3	0	2	2
169:	0	0	0	1	2	0	0	0	0	2	1	0	3	1
183:	1	1	2	0	0	1	0	1	0	1	1	0	0	0
197:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	1	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	0	1	0	0	1	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	1	0	0	0	0	1	0	0
281:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
309:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
323:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
337:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
351:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
365:	1	0	0	0	0	0	1	0	0	0	1	1	1	1
379:	1	1	0	2	1	0	1	1	0	2	4	1	3	2
393:	2	2	1	1	1	2	0	3	0	3	2	3	1	4
407:	2	1	4	1	2	2	3	1	3	1	3	0	0	0
421:	0	0	0	0	0	2	0	0	0	0	0	2	0	1
435:	0	0	0	1	1	0	1	1	5	3	1	1	1	2
449:	0	2	3	1	3	4	5	0	4	5	3	5	1	8
463:	4	7	3	1	1	7	4	11	7	4	5	7	5	1
477:	4	5	1	2	3	2	3	2	3	2	3	3	2	3
491:	2	1	1	2	2	1	2	2	0	1	3	1	0	1
505:	1	1	3	0	0	2	1	2	0	1	1	0	0	0
519:	1	1	1	1	0	2	2	0	0	1	0	1	0	1
533:	0	0	2	1	1	0	1	0	0	2	0	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
561:	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0
603:	0	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	1	2
631:	0	1	0	2	0	0	0	1	0	0	0	0	1	0
645:	1	0	0	1	1	0	1	2	0	3	2	0	0	1
659:	3	1	1	0	0	1	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	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	1	0	1	0	1	0	0	0	0	0	2	1
757:	0	1	0	0	0	0	0	0	0	0	0	1	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	1	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	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	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:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
939:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	1	0	1	0	0	1	0
967:	0	0	1	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 10:25:03.40

Detector ID: 37 Acquisition Start: 6-SEP-2005 07:15:17.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-TH Sample Id: 05
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3969.54	33	0	180.43	172.21	116	100	3.24E-03	17.4	
2	0	4637.95	78	0	90.44	394.99	323	102	7.65E-03	11.3	
3	0	4877.37	220	0	40.32	476.00	425	128	2.16E-02	6.7	
4	0	5361.18	32	0	93.01	641.75	569	104	3.14E-03	17.7	
5	0	5813.23	5	0	283.75	799.20	760	124	4.90E-04	44.7	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:25:07.28

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	3947.77	0	0	0.00	165.50	116	100	0.00E+00	0.0	
2	0	4574.48	2	0	52.88	373.50	323	102	3.33E-05	70.7	
3	0	4914.26	1	0	3.11	488.50	425	128	1.67E-05	100.0	
4	0	5298.38	0	0	0.00	620.50	569	104	0.00E+00	0.0	
5	0	5871.20	0	0	0.00	821.50	760	124	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:25:07.52

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3969.54*	33	0	180.43	172.21	116	100	3.24E-03	17.4	
2	0	4637.95*	78	0	90.44	394.99	323	102	7.61E-03	11.4	
3	0	4877.37*	220	0	40.32	476.00	425	128	2.16E-02	6.7	
4	0	5361.18*	32	0	93.01	641.75	569	104	3.14E-03	17.7	
5	0	5813.23*	5	0	283.75	799.20	760	124	4.90E-04	44.7	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:25:08

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL16
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 6-SEP-2005 07:15:17
Sample ID : 05 Sample quantity : 1.0666 gram
Sample type : TH Sample geometry :
Detector name : 037 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.40 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	3969.54*	33180.43	172.21	116	100	34.8			TH-232	0.387
0	4637.95*	78 90.44	394.99	323	102	22.8			TH-230	0.912
0	4877.37*	220 40.32	476.00	425	128	13.5			TH229	2.59
0	5361.18*	32 93.01	641.75	569	104	35.4			TH-228	0.383
0	5813.23*	5283.75	799.20	760	124	89.4			TH-227	6.023E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:25:20

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$06_TH.CNF

****

BATCH ID:	0508095A-TH	SAMPLE ID:	06
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.023E+00 gram
SAMPLE TITLE:	VPSCR081705SL17	DETECTOR NUMBER:	038
ACQ DATE:	6-SEP-2005 07:15	AVERAGE EFFICIENCY:	20.21%
ELAPSED LIVE TIME:	10200.	RECOVERY:	87.94%
TRACER ID:	TH-18A	TRACER FWHM (kev):	158.93
LAMBDA VALUE:	459.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.312	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
TH-227	5850.0	8.66	0.34	97.5	1.298E-01	9.262E-02	8.109E-02
TH-228	5400.0	65.66	0.34	99.9	9.776E-01	2.895E-01	7.911E-02
TH229	4872.0	310.00	0.00	99.5	4.542E+00	6.674E-01	3.971E-02
TH-230	4672.0	402.00	0.00	99.8	5.873E+00	1.120E+00	3.959E-02
TH-232	3997.0	92.83	0.17	100.0	1.354E+00	3.572E-01	6.748E-02

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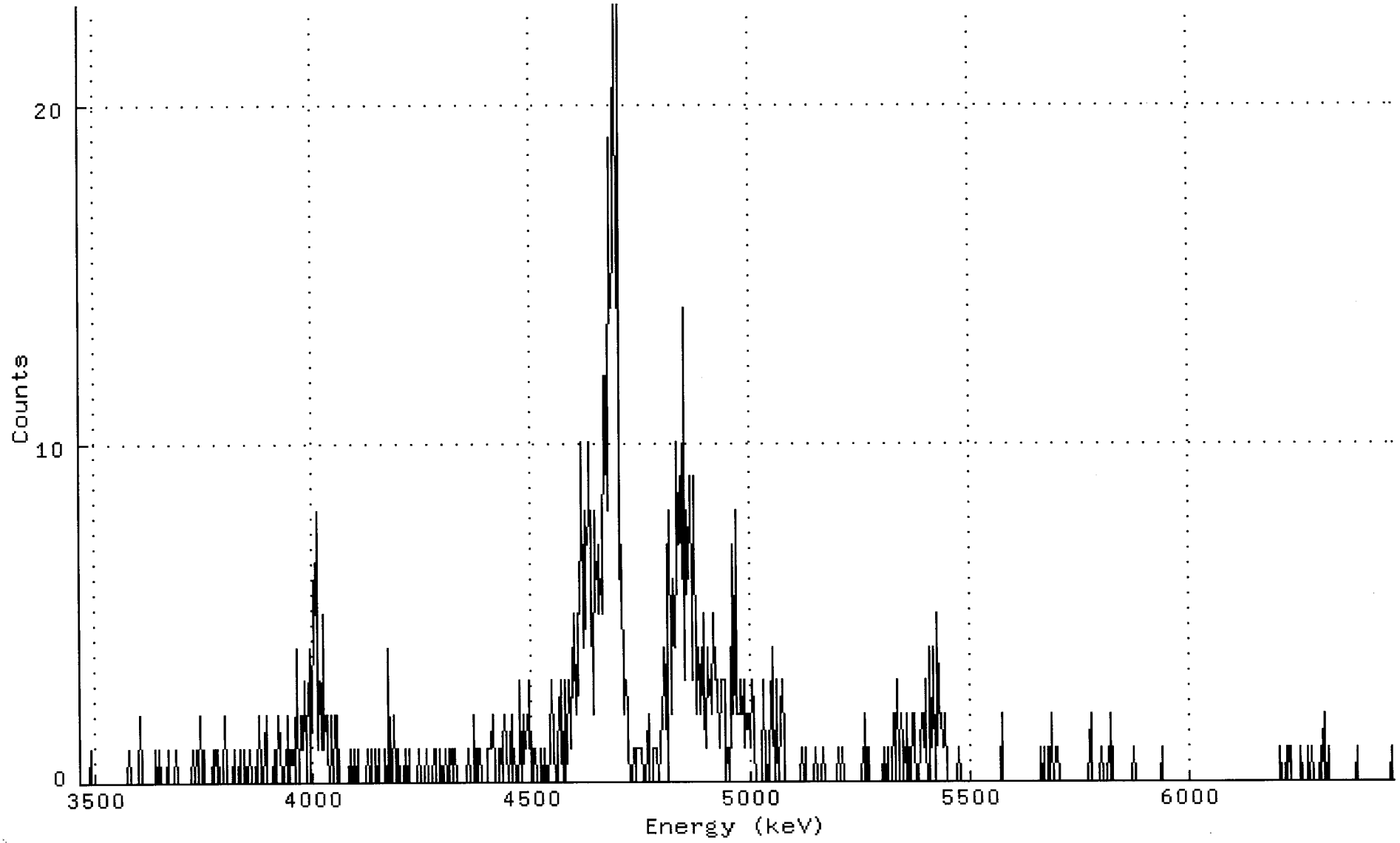
*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$06_TH.CNF;1
Title : 038
Sample Title: VPSCR081705SL17
Start Time: 6-SEP-2005 07:15: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45550E+03
Real Time : 0 02:50:00.40 Sample ID : 06 Energy Slope : 3.07720E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.33734E-04



512

Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$06_TH

Channel

1:	0	0	0	0	0	0	0	0	0	0	1	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	1	0	0
43:	0	0	0	0	0	2	0	0	0	0	0	0	0	0
57:	0	0	0	1	0	0	1	0	0	0	0	0	1	0
71:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
85:	0	0	0	1	0	0	1	0	0	2	0	1	0	0
99:	0	0	0	0	1	0	1	0	1	0	0	0	0	2
113:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
127:	1	0	0	0	1	0	0	0	0	1	0	2	0	0
141:	0	1	2	0	0	0	0	0	1	0	0	2	1	1
155:	0	0	0	1	0	2	0	1	1	1	0	4	2	0
169:	2	1	1	3	0	2	2	4	0	3	4	6	5	8
183:	1	3	1	5	1	2	2	1	0	1	2	0	2	0
197:	2	0	0	0	0	0	0	0	0	1	0	0	1	0
211:	0	1	0	0	0	0	0	0	1	1	0	1	0	0
225:	0	1	0	1	0	0	0	0	1	0	0	4	0	0
239:	0	2	0	0	1	0	0	0	0	1	0	0	1	0
253:	0	0	0	0	0	1	1	0	0	0	0	1	1	0
267:	0	0	0	1	1	0	0	0	1	0	0	0	1	0
281:	1	0	1	1	0	1	0	0	0	0	0	0	0	0
295:	0	1	0	0	0	0	2	0	1	0	1	0	0	0
309:	0	0	1	1	1	1	2	0	0	0	0	1	1	0
323:	1	2	1	0	0	1	2	0	1	0	0	0	1	3
337:	0	1	2	1	2	1	3	0	0	1	1	0	0	0
351:	0	1	0	0	1	0	0	1	1	3	1	1	0	0
365:	1	2	3	1	0	3	0	1	3	2	1	4	3	5
379:	2	3	5	5	8	10	4	5	8	7	8	10	6	2
393:	8	7	6	7	5	6	5	5	12	12	10	8	19	14
407:	14	16	18	23	14	23	6	7	2	2	3	2	1	0
421:	0	0	1	0	1	1	1	1	1	0	0	0	1	2
435:	0	0	0	1	1	1	1	0	1	1	2	3	4	3
449:	0	6	8	3	2	6	4	7	10	7	9	8	6	14
463:	3	8	7	6	9	5	3	9	2	2	4	3	2	3
477:	5	2	1	4	3	3	2	5	5	3	3	3	1	3
491:	3	3	3	0	1	0	1	1	7	2	3	8	2	2
505:	2	3	2	3	1	2	2	1	1	3	2	1	0	0
519:	0	0	0	0	3	0	1	0	0	1	2	4	2	0
533:	3	1	0	2	2	3	1	0	0	0	0	0	0	0
547:	0	0	0	0	0	1	1	0	1	0	0	0	0	0
561:	0	0	1	0	0	0	0	0	1	0	0	0	0	0
575:	0	0	0	0	0	0	1	0	0	1	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	1	0	2
603:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
617:	0	0	1	0	0	0	0	2	0	1	3	0	1	2
631:	1	0	1	0	2	0	0	0	2	2	1	0	0	0
645:	1	2	2	1	3	1	0	0	4	1	2	4	0	2
659:	5	2	2	2	1	2	2	0	0	0	0	0	0	0
673:	0	0	1	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	2	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	1	0	1
743:	0	0	0	1	0	2	1	0	1	1	1	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	1	2	0	0	0	0
785:	0	0	0	1	0	0	0	0	0	1	0	2	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
813:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
827:	0	0	0	0	0	0	0	0	0	1	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	1	0	0	0	0	1	0
939:	1	1	0	0	0	0	0	0	0	0	1	0	0	0
953:	0	0	1	0	1	1	0	0	0	0	0	0	1	0
967:	1	2	0	0	1	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	1
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:25:12.47

Detector ID: 38 Acquisition Start: 6-SEP-2005 07:15:37.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-TH Sample Id: 06
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3984.57	93	0	22.08	173.24	113	99	9.12E-03	10.4	
2	0	4646.23	402	0	36.11	393.69	319	102	3.94E-02	5.0	
3	0	4890.81	310	0	158.93	476.29	421	127	3.04E-02	5.7	
4	0	5374.00	66	0	101.80	641.33	565	104	6.47E-03	12.3	
5	0	5819.90	9	0	53.75	795.89	754	124	8.82E-04	33.3	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:25:18.06

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	3950.97	1	0	3.09	162.00	113	99	1.67E-05	100.0	
2	0	4575.86	0	0	0.00	369.50	319	102	0.00E+00	0.0	
3	0	4915.28	0	0	0.00	484.00	421	127	0.00E+00	0.0	
4	0	5303.27	2	0	0.00	616.50	565	104	3.33E-05	70.7	
5	0	5876.32	2	0	40.16	815.50	754	124	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:25:18.34

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3984.57*	93	0	22.08	173.24	113	99	9.10E-03	10.4	
2	0	4646.23*	402	0	36.11	393.69	319	102	3.94E-02	5.0	
3	0	4890.81*	310	0	158.93	476.29	421	127	3.04E-02	5.7	
4	0	5374.00*	66	0	101.80	641.33	565	104	6.44E-03	12.4	
5	0	5819.90*	9	0	53.75	795.89	754	124	8.49E-04	34.8	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:25:19

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL17		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 07:15:37
Sample ID	: 06	Sample quantity	: 1.0226 gram
Sample type	: TH	Sample geometry	:
Detector name	: 038	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	3984.57*	93	22.08	173.24	113	99	20.8		TH-232	1.19
0	4646.23*	402	36.11	393.69	319	102	10.0		TH-230	5.16
0	4890.81*	310158	.93	476.29	421	127	11.4		TH229	3.99
0	5374.00*	66101	.80	641.33	565	104	24.8		TH-228	0.860
0	5819.90*	9	53.75	795.89	754	124	69.5		TH-227	0.114

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:25:28

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$07_TH.CNF

****

BATCH ID:	0508095A-TH	SAMPLE ID:	07
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.017E+00 gram
SAMPLE TITLE:	VPSCR081705SL18	DETECTOR NUMBER:	039
ACQ DATE:	6-SEP-2005 07:15	AVERAGE EFFICIENCY:	20.78%
ELAPSED LIVE TIME:	10200.	RECOVERY:	84.08%
TRACER ID:	TH-18A	TRACER FWHM (kev):	37.85
LAMBDA VALUE:	464.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.443	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.

****

NUCLIDE ACTIVITY SUMMARY

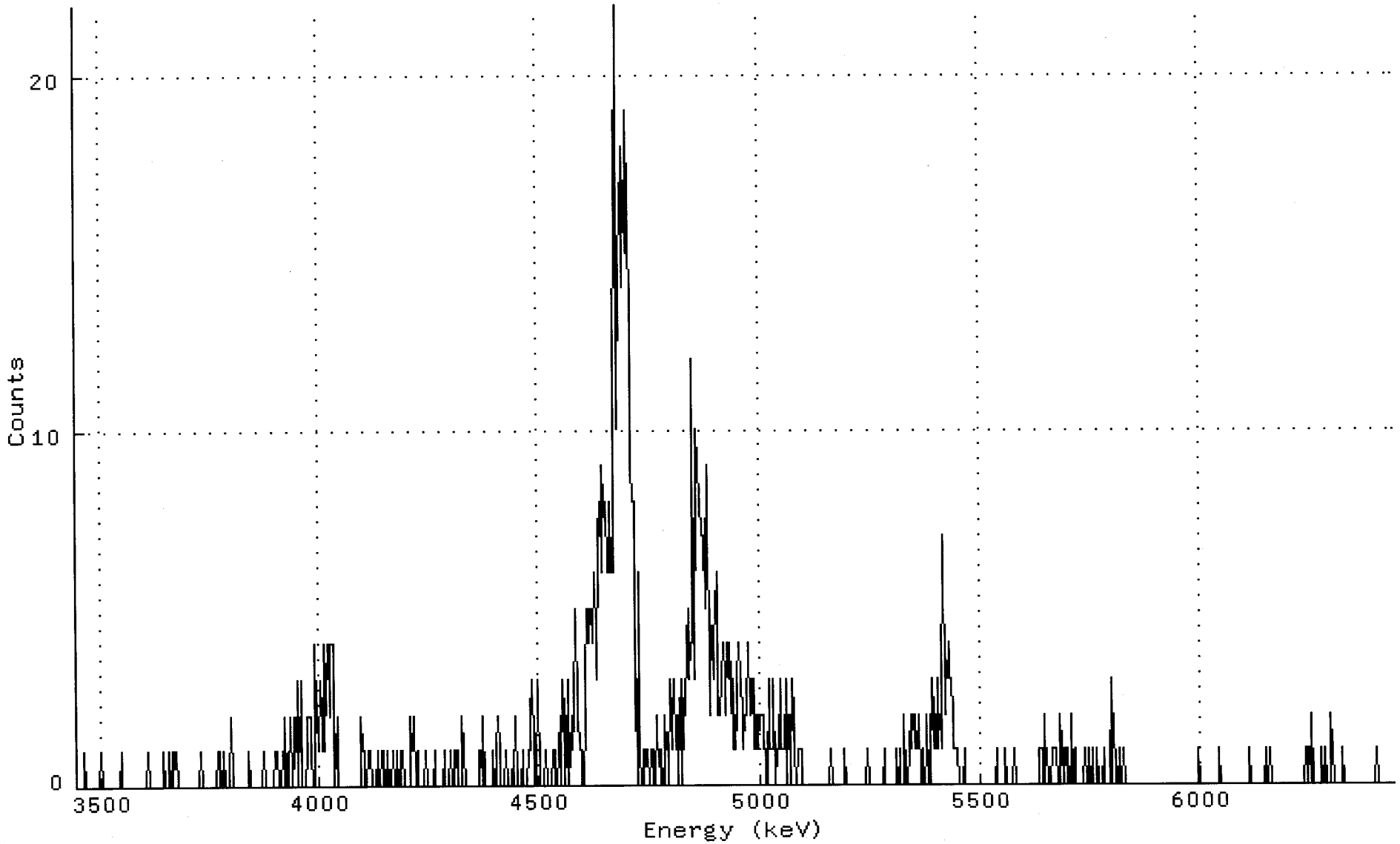
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	17.66	0.34	97.5	2.705E-01	1.374E-01	8.291E-02
TH-228	5400.0	73.66	0.34	99.9	1.121E+00	3.193E-01	8.088E-02
TH229	4872.0	308.66	0.34	99.5	4.624E+00	6.805E-01	8.122E-02
TH-230	4672.0	415.83	0.17	99.8	6.211E+00	1.180E+00	6.912E-02
TH-232	3997.0	78.66	0.34	100.0	1.173E+00	3.267E-01	8.083E-02

****

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$07_TH.CNF;1
Title : 039
Sample Title: VPSCR081705SL18
Start Time: 6-SEP-2005 07:15: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.43564E+03
Real Time : 0 02:50:00.30 Sample ID : 07 Energy Slope : 3.10814E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.73477E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$07_TH

Channel

1:	0	1	0	0	0	0	0	0	1	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	1	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
57:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
71:	0	1	0	1	0	1	1	0	0	0	0	0	0	0
85:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
99:	0	0	0	0	0	0	0	0	0	1	0	1	0	0
113:	1	0	0	0	0	2	0	0	0	0	0	0	0	0
127:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
141:	0	1	0	0	0	0	0	0	0	1	1	1	0	0
155:	0	1	0	2	0	1	0	2	0	1	2	2	0	3
169:	1	3	0	0	0	1	2	2	2	1	0	0	4	2
183:	1	3	3	1	4	1	3	4	2	4	4	4	0	1
197:	2	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	2	1	1	0	0	1	1	1	0	0
225:	0	0	1	0	0	1	0	1	0	0	1	0	0	0
239:	1	0	0	1	0	1	0	1	0	0	0	0	0	2
253:	1	1	2	0	1	0	0	0	0	0	1	0	0	0
267:	0	0	0	1	0	0	0	0	0	0	1	0	0	0
281:	0	1	0	1	0	1	1	0	0	0	2	1	0	0
295:	0	0	0	0	0	0	0	0	0	1	1	0	2	0
309:	0	0	0	0	0	1	0	0	1	2	1	0	0	0
323:	1	1	0	0	0	0	1	0	2	0	0	0	0	1
337:	0	0	0	0	1	1	2	3	1	0	0	3	0	0
351:	0	0	0	1	0	0	0	0	0	1	1	0	0	1
365:	2	0	3	2	0	1	3	0	1	2	1	2	5	2
379:	2	1	1	0	0	2	3	5	5	4	5	5	4	6
393:	4	3	7	8	6	9	8	7	8	6	6	8	6	6
407:	12	16	22	10	15	16	18	14	17	15	19	16	13	9
421:	8	8	3	0	6	1	0	1	0	1	1	0	0	1
435:	1	0	0	2	1	1	0	1	0	0	2	1	1	0
449:	3	1	2	3	1	2	0	2	3	0	2	3	2	4
463:	5	3	4	4	12	3	9	10	9	8	8	7	7	5
477:	6	9	2	5	4	3	4	5	6	2	2	3	3	4
491:	3	2	4	3	4	3	1	3	1	2	3	4	3	2
505:	1	2	2	2	4	2	2	3	1	3	1	2	1	2
519:	2	2	2	0	1	0	3	1	1	1	3	0	1	1
533:	1	3	1	1	1	3	0	2	2	0	3	2	1	0
547:	1	1	1	1	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
575:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
603:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
617:	0	0	0	0	0	0	0	1	0	1	0	0	0	2
631:	0	0	0	1	2	1	2	1	2	1	1	2	0	0
645:	1	0	1	2	0	2	0	3	2	1	1	3	1	2
659:	1	2	7	2	3	3	4	3	3	2	1	1	1	1
673:	0	0	0	0	1	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	1	0	0	0	0	0	0	1	0	0	0	0
715:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	1	1	1	0	2	0
743:	1	0	0	0	1	1	1	1	1	0	0	2	1	0
757:	1	1	0	1	0	0	2	0	1	0	0	0	0	0
771:	0	0	1	0	0	1	0	0	1	0	0	0	1	0
785:	0	0	0	1	0	0	0	0	0	3	0	2	0	0
799:	0	1	0	0	1	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	1	0	0	0	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	1	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	1	0	0	0	0
911:	0	0	0	0	0	0	0	0	1	0	0	1	1	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	1
953:	1	0	1	0	2	0	0	0	0	0	0	0	1	0
967:	0	1	0	0	0	0	2	1	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	1	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 10:25:23.49

Detector ID: 39 Acquisition Start: 6-SEP-2005 07:15:57.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.30
Batch Id: 0508095A-TH Sample Id: 07
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3984.71	79	0	83.33	178.43	118	99	7.75E-03	11.3	
2	0	4658.72	416	0	39.21	402.55	324	102	4.08E-02	4.9	
3	0	4900.63	309	0	37.85	484.44	425	129	3.03E-02	5.7	
4	0	5385.17	74	0	16.16	650.88	570	104	7.25E-03	11.6	
5	0	5797.92	18	0	104.12	795.33	761	125	1.76E-03	23.6	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:25:26.91

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	3951.92	2	0	92.82	167.00	118	99	3.33E-05	70.7	
2	0	4576.28	1	0	3.09	374.50	324	102	1.67E-05	100.0	
3	0	4915.02	2	0	139.23	489.00	425	129	3.33E-05	70.7	
4	0	5301.87	2	0	170.17	621.50	570	104	3.33E-05	70.7	
5	0	5879.61	2	0	68.07	823.00	761	125	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:25:27.21

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3984.71*	79	0	83.33	178.43	118	99	7.71E-03	11.3	
2	0	4658.72*	416	0	39.21	402.55	324	102	4.08E-02	4.9	
3	0	4900.63*	309	0	37.85	484.44	425	129	3.03E-02	5.7	
4	0	5385.17*	74	0	16.16	650.88	570	104	7.22E-03	11.7	
5	0	5797.92*	18	0	104.12	795.33	761	125	1.73E-03	24.1	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:25:28

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL18		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 07:15:57
Sample ID	: 07	Sample quantity	: 1.0172 gram
Sample type	: TH	Sample geometry	:
Detector name	: 039	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	3984.71*	79	83.33	178.43	118	99	22.6		TH-232	0.986
0	4658.72*	416	39.21	402.55	324	102	9.8		TH-230	5.22
0	4900.63*	309	37.85	484.44	425	129	11.4		TH229	3.89
0	5385.17*	74	16.16	650.88	570	104	23.4		TH-228	0.943
0	5797.92*	18	104.12	795.33	761	125	48.1		TH-227	0.227

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:25:40

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$08_TH.CNF

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BATCH ID:	0508095A-TH	SAMPLE ID:	08
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.010E+00 gram
SAMPLE TITLE:	VPSCR081705SL19	DETECTOR NUMBER:	040
ACQ DATE:	6-SEP-2005 07:16	AVERAGE EFFICIENCY:	21.07%
ELAPSED LIVE TIME:	10200.	RECOVERY:	87.13%
TRACER ID:	TH-18A	TRACER FWHM (kev):	48.99
LAMBDA VALUE:	471.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.586	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
TH-227	5850.0	8.15	0.85	97.5	1.196E-01	9.081E-02	1.025E-01
TH-228	5400.0	46.32	0.68	99.9	6.755E-01	2.276E-01	9.354E-02
TH229	4872.0	328.83	0.17	99.5	4.720E+00	6.814E-01	6.641E-02
TH-230	4672.0	145.00	0.00	99.8	2.075E+00	4.788E-01	3.878E-02
TH-232	3997.0	52.00	0.00	100.0	7.428E-01	2.379E-01	3.871E-02

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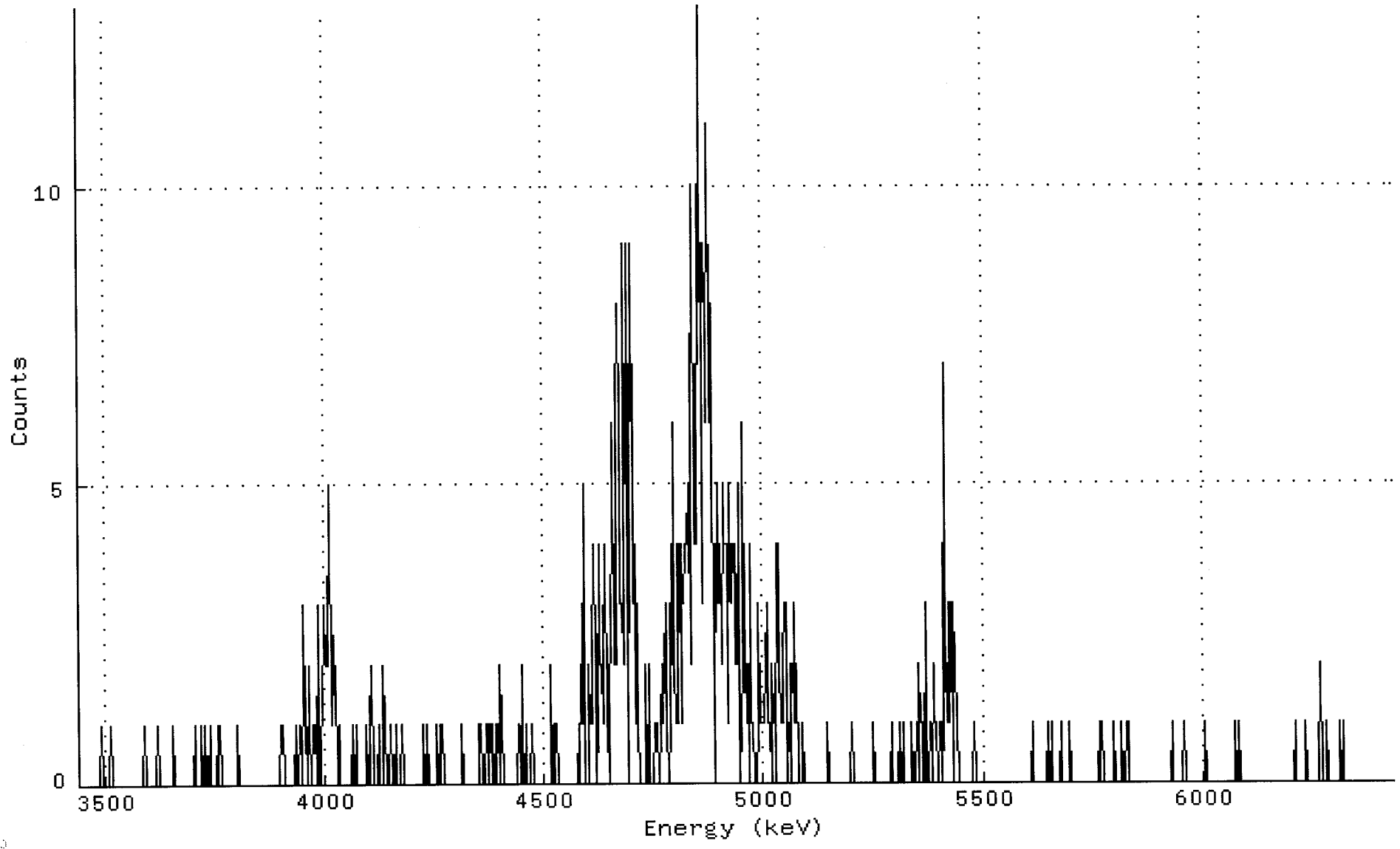
Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$08_TH.CNF;1
Title : 040
Sample Title: VPSCR081705SL19
Start Time: 6-SEP-2005 07:16: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42923E+03
Real Time : 0 02:50:00.40 Sample ID : 08 Energy Slope : 3.08734E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.53973E-04



225

Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$08_TH

Channel

1:	0	0	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	1	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	1	0	0	0	0
57:	0	0	0	0	0	1	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	0	1	0	0	0	0	1	0	0	1
99:	0	0	1	0	0	0	0	0	1	0	1	0	0	0
113:	0	0	0	0	0	0	0	0	0	1	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	1
155:	1	1	0	0	0	0	0	0	0	0	1	0	0	1
169:	1	0	2	3	1	0	2	1	0	1	1	1	0	3
183:	0	0	2	1	3	2	2	2	5	1	3	2	1	2
197:	0	1	0	0	0	0	0	0	0	0	0	1	0	0
211:	1	0	0	0	0	0	0	0	1	0	0	1	2	0
225:	0	0	0	1	0	0	0	2	1	0	0	0	1	0
239:	0	0	1	0	0	0	0	1	0	0	0	0	0	0
253:	0	0	0	0	0	0	0	0	0	1	0	0	1	0
267:	0	0	0	0	0	1	0	0	1	1	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
295:	0	0	0	0	0	0	0	0	0	1	1	0	0	0
309:	1	1	0	1	0	1	0	1	0	1	0	2	1	0
323:	0	0	0	0	0	0	0	0	0	0	0	1	0	2
337:	0	0	1	0	0	0	0	1	0	0	0	0	0	0
351:	0	0	0	0	0	0	0	0	2	0	1	0	1	0
365:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
379:	0	1	0	2	1	5	0	0	0	2	1	1	2	4
393:	2	0	1	4	2	2	1	2	4	1	0	1	3	4
407:	6	2	2	6	8	6	3	3	2	9	5	9	0	5
421:	9	3	7	1	3	1	0	0	0	0	0	2	0	2
435:	0	0	0	0	1	1	0	0	1	2	1	2	3	1
449:	0	1	3	2	6	2	1	1	4	4	1	4	3	4
463:	4	4	5	2	5	10	4	7	4	10	7	13	3	9
477:	9	7	6	11	7	6	8	0	2	3	5	3	4	2
491:	5	4	4	4	1	5	3	3	4	4	2	2	5	0
505:	1	2	6	2	1	2	0	4	1	1	0	0	0	1
519:	3	1	1	1	1	2	3	1	1	0	2	1	1	0
533:	4	4	2	1	1	2	3	3	0	1	0	2	2	1
547:	3	1	1	0	0	0	1	0	0	0	0	0	0	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	0	0	0	0	0	0
589:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
603:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
617:	0	0	0	0	0	1	0	0	0	0	0	1	0	0
631:	1	0	0	0	0	0	0	1	0	0	0	1	0	2
645:	1	1	0	0	3	0	0	1	1	0	2	1	1	0
659:	0	1	1	0	1	7	2	1	3	1	3	0	3	2
673:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
687:	1	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	1	0	0	1	0	0	0	0	0	0	0	1
757:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	1	0	1	0	0	0	0	0	0	0	0	0	1
799:	0	0	0	0	0	1	0	0	0	1	1	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	1
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	1	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	1	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	1	0	0	0	0	0	0	0	0
953:	1	0	0	0	0	0	0	0	0	0	0	0	2	0
967:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
981:	1	0	1	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 10:25:32.19

Detector ID: 40 Acquisition Start: 6-SEP-2005 07:16:17.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-TH Sample Id: 08
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3989.12	52	0	67.87	183.02	121	100	5.10E-03	13.9	
2	0	4654.35	145	0	122.01	405.00	328	102	1.42E-02	8.3	
3	0	4893.16	329	0	48.99	485.95	429	129	3.23E-02	5.5	
4	0	5387.66	47	0	3.96	655.79	574	104	4.61E-03	14.6	
5	0	5851.65	9	0	265.51	818.00	765	124	8.82E-04	33.3	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:25:38.91

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	3955.81	0	0	0.00	170.50	121	100	0.00E+00	0.0	
2	0	4581.62	0	0	0.00	378.50	328	102	0.00E+00	0.0	
3	0	4920.00	1	0	3.10	493.00	429	129	1.67E-05	100.0	
4	0	5306.17	4	0	272.75	625.50	574	104	6.67E-05	50.0	
5	0	5880.88	5	0	0.00	826.50	765	124	8.33E-05	44.7	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:25:39.21

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3989.12*	52	0	67.87	183.02	121	100	5.10E-03	13.9	
2	0	4654.35*	145	0	122.01	405.00	328	102	1.42E-02	8.3	
3	0	4893.16*	329	0	48.99	485.95	429	129	3.22E-02	5.5	
4	0	5387.66*	46	0	3.96	655.79	574	104	4.54E-03	14.8	
5	0	5851.65*	8	0	265.51	818.00	765	124	7.99E-04	37.1	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:25:40

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL19		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 07:16:17
Sample ID	: 08	Sample quantity	: 1.0104 gram
Sample type	: TH	Sample geometry	:
Detector name	: 040	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	3989.12*	52	67.87	183.02	121	100	27.7		TH-232	0.647
0	4654.35*	145	122.01	405.00	328	102	16.6		TH-230	1.81
0	4893.16*	329	48.99	485.95	429	129	11.0		TH229	4.11
0	5387.66*	46	3.96	655.79	574	104	29.6		TH-228	0.589
0	5851.65*	8	265.51	818.00	765	124	74.2		TH-227	0.104

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:25:58

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$09_TH.CNF

****

BATCH ID:	0508095A-TH	SAMPLE ID:	09
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.083E+00	gram
SAMPLE TITLE:	VPSCR081705SL20	DETECTOR NUMBER:	041
ACQ DATE:	6-SEP-2005 07:16	AVERAGE EFFICIENCY:	20.56%
ELAPSED LIVE TIME:	10200.	RECOVERY:	88.93%
TRACER ID:	TH-18A	TRACER FWHM (kev):	122.25
LAMBDA VALUE:	470.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.562	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.

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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	5.32	0.68	97.5	7.313E-02	6.900E-02	8.981E-02
TH-228	5400.0	46.83	0.17	99.9	6.397E-01	2.137E-01	6.195E-02
TH229	4872.0	326.66	0.34	99.5	4.392E+00	6.355E-01	7.289E-02
TH-230	4672.0	120.49	0.51	99.8	1.615E+00	3.927E-01	8.084E-02
TH-232	3997.0	57.83	0.17	100.0	7.737E-01	2.387E-01	6.191E-02

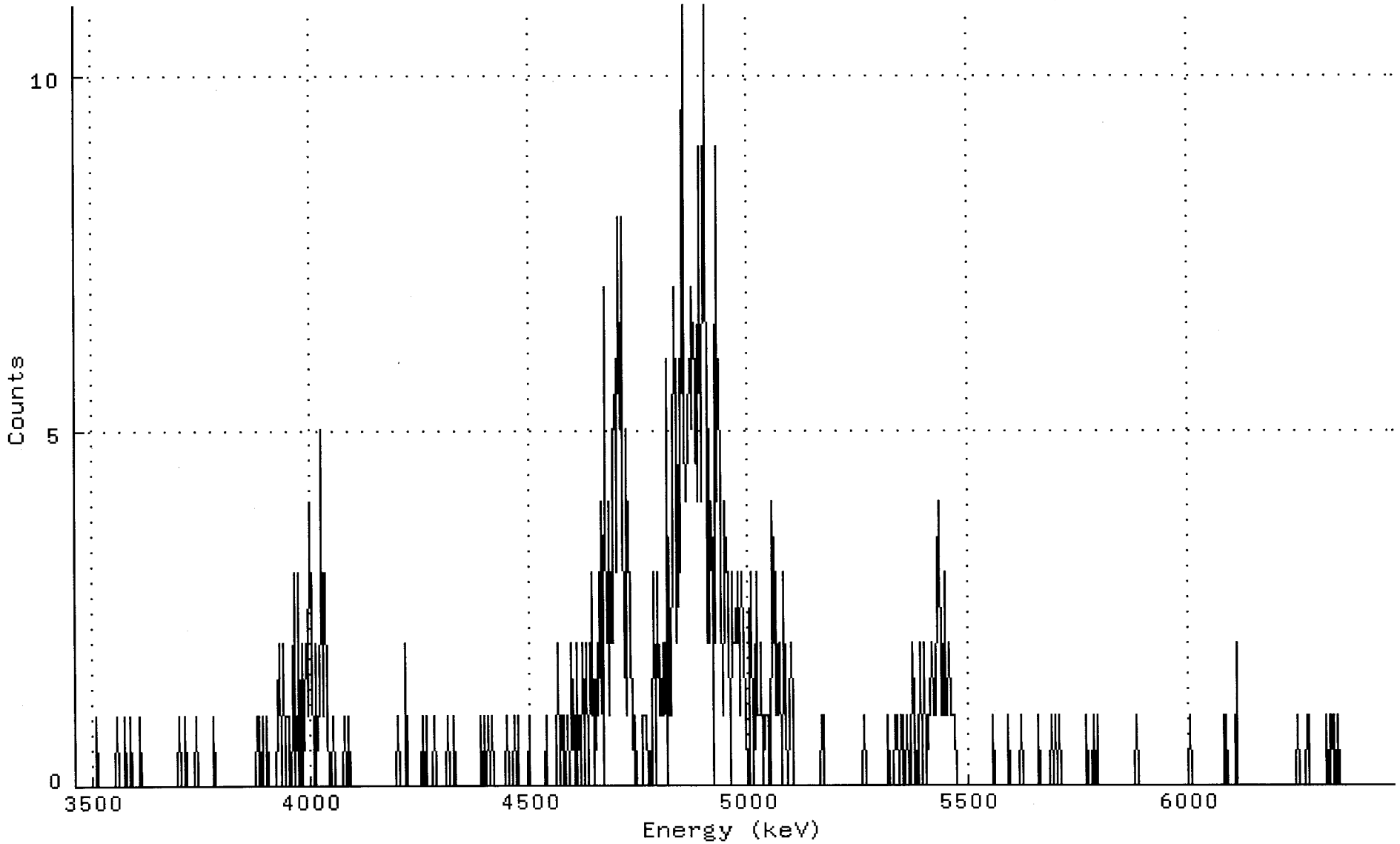
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$09_TH.CNF;1
Title : 041
Sample Title: VPSCR081705SL20
Start Time: 6-SEP-2005 07:16: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45081E+03
Real Time : 0 02:50:00.40 Sample ID : 09 Energy Slope : 3.11139E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.62528E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$09_TH

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
29:	0	0	0	0	0	1	0	0	0	0	0	1	0	0
43:	0	1	0	0	0	0	0	0	1	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:	1	0	0	0	0	0	0	0	1	0	0	0	0	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	0	0	0	0	0	1	1	0
141:	0	1	0	0	0	1	0	0	0	0	0	0	0	1
155:	2	0	0	2	0	1	1	1	0	0	1	3	0	1
169:	0	3	0	2	0	1	2	1	1	4	2	2	0	2
183:	0	1	1	3	5	1	3	3	1	0	0	0	1	0
197:	0	0	0	0	0	0	0	1	0	0	1	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	0	0	0	0
239:	0	0	0	0	0	1	0	0	0	0	0	2	0	0
253:	0	0	0	0	0	0	0	0	0	1	0	0	1	0
267:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
281:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
295:	0	0	0	0	0	0	0	0	0	0	0	1	0	1
309:	0	0	1	1	0	1	1	0	0	0	0	0	0	0
323:	0	0	0	1	0	0	0	0	0	1	0	1	0	0
337:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
351:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
365:	2	0	1	1	0	1	0	1	1	0	1	2	1	0
379:	2	0	1	1	0	2	1	0	2	0	0	2	1	3
393:	0	1	2	1	2	4	2	0	7	4	2	4	1	3
407:	2	5	5	6	3	8	5	8	4	2	1	5	3	3
421:	2	1	0	1	0	0	0	0	0	1	1	1	0	0
435:	0	1	0	3	1	0	3	1	1	1	2	1	2	0
449:	6	1	2	1	4	7	5	2	3	6	3	8	11	5
463:	4	5	5	6	5	7	6	6	5	4	9	7	4	9
477:	7	11	2	5	2	4	3	0	4	9	4	6	4	3
491:	1	3	4	3	3	3	0	3	2	2	2	2	3	1
505:	2	3	2	1	1	0	0	2	3	0	0	1	3	1
519:	1	1	2	0	1	1	1	1	0	0	3	4	3	1
533:	3	1	2	2	0	2	3	1	0	0	1	2	1	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	1	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	1	0
603:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	0	1	0	0	0	0	1	1	1	0	0	1	0
631:	1	0	1	1	0	0	0	2	1	0	0	1	0	2
645:	0	0	2	0	0	1	1	1	2	1	1	1	3	3
659:	4	1	1	1	3	1	1	2	2	1	1	1	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	1	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	0	0	0
743:	0	0	0	0	0	1	0	0	1	0	0	1	0	0
757:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
771:	0	0	0	0	0	1	0	0	0	0	1	0	0	1
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	1	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	1	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	1	0	1	0	0	0	0	0	0	0	2
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	1	0	0	0	0	0	0
953:	0	1	1	0	0	0	0	0	0	0	0	0	0	0
967:	0	0	0	1	0	1	0	1	0	1	0	0	1	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: 6-SEP-2005 10:25:44.29

Detector ID: 41 Acquisition Start: 6-SEP-2005 07:16:36.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-TH Sample Id: 09
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3991.28	58	0	76.10	175.31	113	99	5.69E-03	13.1	
2	0	4667.27	121	0	55.72	399.30	318	102	1.19E-02	9.1	
3	0	4903.20	327	0	122.25	478.77	419	128	3.21E-02	5.5	
4	0	5391.34	47	0	21.59	645.45	563	104	4.61E-03	14.6	
5	0	5820.70	6	0	326.70	794.67	752	124	5.88E-04	40.8	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:25:56.30

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	3951.94	1	0	3.12	162.00	113	99	1.67E-05	100.0	
2	0	4577.12	3	0	24.54	368.50	318	102	5.00E-05	57.7	
3	0	4916.12	2	0	84.15	482.50	419	128	3.33E-05	70.7	
4	0	5303.18	1	0	3.12	614.50	563	104	1.67E-05	100.0	
5	0	5875.64	4	0	43.63	813.50	752	124	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:25:56.95

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3991.28*	58	0	76.10	175.31	113	99	5.67E-03	13.2	
2	0	4667.27*	120	0	55.72	399.30	318	102	1.18E-02	9.1	
3	0	4903.20*	327	0	122.25	478.77	419	128	3.20E-02	5.5	
4	0	5391.34*	47	0	21.59	645.45	563	104	4.59E-03	14.6	
5	0	5820.70*	5	0	326.70	794.67	752	124	5.22E-04	46.5	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:25:57

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL20		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 07:16:36
Sample ID	: 09	Sample quantity	: 1.0833 gram
Sample type	: TH	Sample geometry	:
Detector name	: 041	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	3991.28*	58	76.10	175.31	113	99	26.3		TH-232	0.688
0	4667.27*	120	55.72	399.30	318	102	18.3		TH-230	1.44
0	4903.20*	327	122.25	478.77	419	128	11.1		TH229	3.91
0	5391.34*	47	21.59	645.45	563	104	29.3		TH-228	0.569
0	5820.70*		5326.70	794.67	752	124	93.0		TH-227	6.504E-02

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ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:26:12

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$10_TH.CNF

****

BATCH ID:	0508095A-TH	SAMPLE ID:	10
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.028E+00	gram
SAMPLE TITLE:	VPSCR081705SL0A	DETECTOR NUMBER:	042
ACQ DATE:	6-SEP-2005 07:16	AVERAGE EFFICIENCY:	21.95%
ELAPSED LIVE TIME:	10200.	RECOVERY:	85.51%
TRACER ID:	TH-18A	TRACER FWHM (kev):	95.48
LAMBDA VALUE:	455.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.229	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
TH-227	5850.0	23.00	0.00	97.5	3.244E-01	1.450E-01	3.815E-02
TH-228	5400.0	37.83	0.17	99.9	5.302E-01	1.927E-01	6.356E-02
TH229	4872.0	324.83	0.17	99.5	4.480E+00	6.490E-01	6.382E-02
TH-230	4672.0	105.66	0.34	99.8	1.453E+00	3.670E-01	7.455E-02
TH-232	3997.0	39.49	0.51	100.0	5.421E-01	1.944E-01	8.278E-02

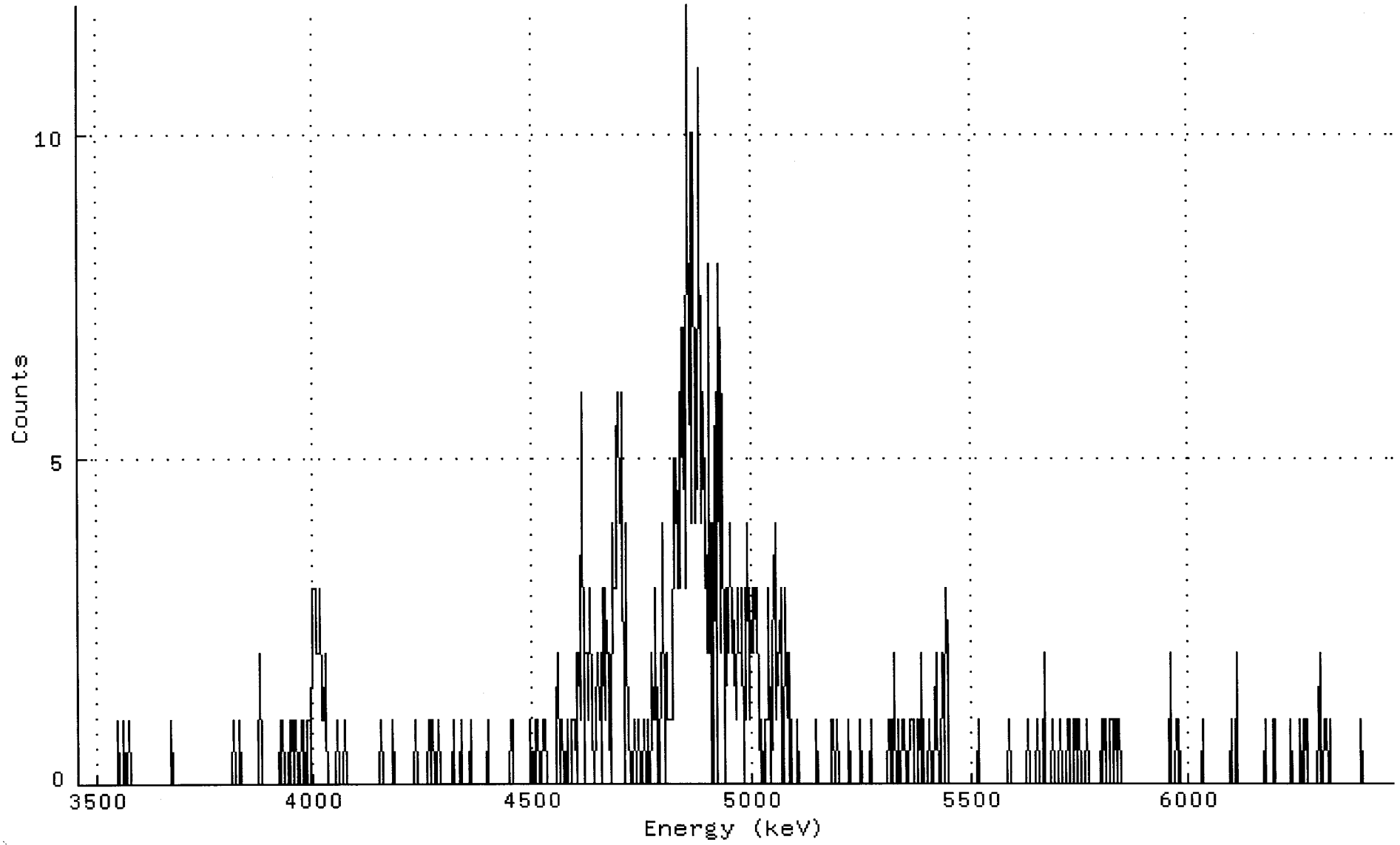
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$10_TH.CNF;1
Title : 042
Sample Title: VPSCR081705SL0A
Start Time: 6-SEP-2005 07:16: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44836E+03
Real Time : 0 02:50:00.40 Sample ID : 10 Energy Slope : 3.11933E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.69445E-04



225

Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$10_TH

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	1	0	0	0	1	0	0	0	1	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	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	1	0	0	0	0	1	0	0	0
127:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
155:	1	0	0	0	0	1	0	1	1	0	1	0	0	0
169:	1	0	1	0	0	1	1	1	0	3	3	3	2	2
183:	2	3	1	1	2	1	0	0	0	0	0	0	0	1
197:	0	0	0	0	0	1	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	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	1	0	0	0	0	0	0	0	0	0	1	1
267:	0	1	0	0	0	1	0	0	0	0	0	0	0	0
281:	0	0	1	0	0	0	0	0	1	0	0	0	0	0
295:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
309:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	0	0	1	1	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	1	0	0	1	0	1	0	0	0
351:	1	1	1	0	0	0	0	0	0	0	0	1	2	0
365:	0	1	0	0	0	1	0	0	0	1	1	1	0	2
379:	2	1	1	6	0	2	2	2	1	3	1	1	0	1
393:	2	2	1	2	0	3	1	3	2	2	1	0	4	3
407:	3	3	5	6	4	6	5	0	4	2	1	0	0	0
421:	1	1	0	1	1	0	0	0	1	0	1	0	0	1
435:	2	1	1	3	0	1	0	2	2	4	0	2	1	1
449:	1	1	1	5	4	5	3	6	3	7	7	6	3	12
463:	9	7	4	10	10	4	4	5	9	11	4	6	3	5
477:	2	2	8	0	4	0	5	6	0	8	2	7	5	1
491:	0	3	2	2	4	2	3	2	1	3	2	2	2	3
505:	0	3	1	4	1	3	2	2	3	3	2	3	1	0
519:	1	0	0	1	1	1	3	0	1	2	3	4	1	2
533:	2	3	0	0	3	2	2	0	2	0	0	0	0	0
547:	1	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	1
575:	1	0	0	1	0	0	0	0	0	0	0	0	1	0
589:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
603:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
617:	0	1	0	1	0	2	1	0	0	1	0	1	1	1
631:	0	0	0	1	1	1	1	0	0	0	1	1	0	2
645:	0	0	0	0	1	1	0	0	0	1	2	1	0	1
659:	0	2	0	1	3	2	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	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	0	0	0	0	0	0	0	1
729:	0	0	0	0	0	0	1	1	0	0	0	0	2	0
743:	0	0	0	0	1	1	0	0	0	0	1	1	0	0
757:	0	0	0	1	1	0	0	0	1	1	0	1	1	0
771:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
785:	0	0	1	0	1	1	0	0	0	1	1	1	0	1
799:	1	0	1	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	2	0	0	0	0	1	0	1	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	0	0	1	0	0	0	0	2
897:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
925:	0	1	1	0	0	0	0	0	0	0	0	0	0	0
939:	0	1	0	0	0	0	0	0	0	1	0	1	0	1
953:	1	0	0	0	0	0	0	0	0	0	1	2	0	0
967:	1	1	1	1	0	1	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	1	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 10:26:02.09

Detector ID: 42 Acquisition Start: 6-SEP-2005 07:16:54.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-TH Sample Id: 10
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3983.39	40	0	154.31	173.15	113	99	3.92E-03	15.8	
2	0	4650.23	106	0	106.36	393.72	319	101	1.04E-02	9.7	
3	0	4904.53	325	0	95.48	479.30	419	128	3.19E-02	5.5	
4	0	5360.12	38	0	132.51	634.76	563	104	3.73E-03	16.2	
5	0	5819.03	23	0	3.12	794.26	753	124	2.25E-03	20.9	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:26:10.14

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	3950.94	3	0	172.15	162.00	113	99	5.00E-05	57.7	
2	0	4578.36	2	0	237.88	369.00	319	101	3.33E-05	70.7	
3	0	4915.61	1	0	3.13	482.50	419	128	1.67E-05	100.0	
4	0	5301.78	1	0	0.00	614.50	563	104	1.67E-05	100.0	
5	0	5874.51	0	0	0.00	814.50	753	124	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:26:10.47

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3983.39*	39	0	154.31	173.15	113	99	3.87E-03	16.0	
2	0	4650.23*	106	0	106.36	393.72	319	101	1.04E-02	9.7	
3	0	4904.53*	325	0	95.48	479.30	419	128	3.18E-02	5.6	
4	0	5360.12*	38	0	132.51	634.76	563	104	3.71E-03	16.3	
5	0	5819.03*	23	0	3.12	794.26	753	124	2.25E-03	20.9	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:26:11

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0A		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 07:16:54
Sample ID	: 10	Sample quantity	: 1.0284 gram
Sample type	: TH	Sample geometry	:
Detector name	: 042	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	3983.39*	39154.31	173.15	113	99	32.1			TH-232	0.464
0	4650.23*	106106.36	393.72	319	101	19.5			TH-230	1.24
0	4904.53*	325 95.48	479.30	419	128	11.1			TH229	3.83
0	5360.12*	38132.51	634.76	563	104	32.6			TH-228	0.453
0	5819.03*	23 3.12	794.26	753	124	41.7			TH-227	0.277

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:26:29

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$11_TH.CNF

****

BATCH ID:	0508095A-TH	SAMPLE ID:	11
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.099E+00 gram
SAMPLE TITLE:	VPSCR081705SL0B	DETECTOR NUMBER:	043
ACQ DATE:	6-SEP-2005 07:17	AVERAGE EFFICIENCY:	21.70%
ELAPSED LIVE TIME:	10200.	RECOVERY:	81.15%
TRACER ID:	TH-18A	TRACER FWHM (kev):	191.97
LAMBDA VALUE:	459.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.330	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
TH-227	5850.0	7.66	0.34	97.5	1.077E-01	8.173E-02	7.610E-02
TH-228	5400.0	51.49	0.51	99.9	7.195E-01	2.332E-01	8.259E-02
TH229	4872.0	307.83	0.17	99.5	4.233E+00	6.231E-01	6.363E-02
TH-230	4672.0	232.66	0.34	99.8	3.190E+00	6.669E-01	7.433E-02
TH-232	3997.0	73.83	0.17	100.0	1.010E+00	2.872E-01	6.333E-02

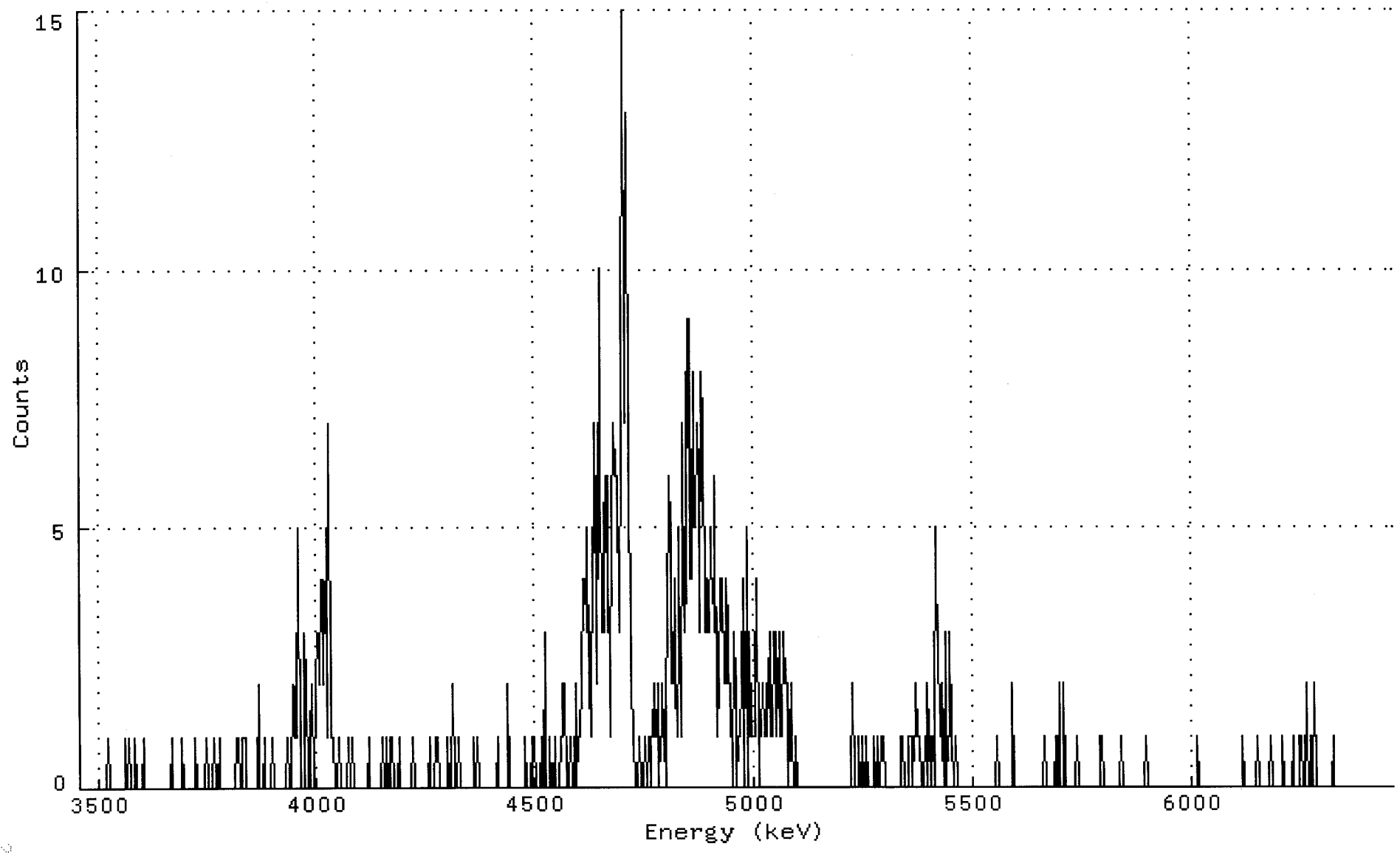
****

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$11_TH.CNF;1
Title : 043
Sample Title: VPSCR081705SL0B
Start Time: 6-SEP-2005 07:17: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44612E+03
Real Time : 0 02:50:00.40 Sample ID : 11 Energy Slope : 3.11752E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.75406E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$11_TH

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	1	0	0	0	0
29:	0	0	0	0	0	0	0	0	1	0	1	0	0	0
43:	0	1	0	0	0	0	0	1	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	1	0	0	0	0	0
85:	0	0	0	0	1	0	0	0	0	0	0	0	1	0
99:	0	0	0	1	1	0	0	1	0	0	0	0	0	0
113:	0	0	0	0	0	0	1	1	1	0	0	1	1	1
127:	0	0	0	0	0	0	0	0	0	2	0	0	0	1
141:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
155:	0	0	1	1	0	1	0	2	1	3	1	5	0	0
169:	0	0	3	2	0	0	1	2	0	0	2	3	2	2
183:	4	2	4	3	5	1	7	1	1	1	0	0	0	1
197:	0	0	0	0	0	0	1	0	0	1	0	0	0	0
211:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
225:	0	0	0	1	1	0	1	0	0	1	0	1	0	0
239:	0	0	1	0	0	0	0	0	0	0	0	0	1	1
253:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
267:	0	0	1	1	0	0	0	0	0	0	0	1	0	0
281:	0	2	0	0	0	1	0	0	0	0	0	0	0	0
295:	0	0	0	1	0	1	1	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
323:	0	2	0	0	0	0	0	0	0	0	0	0	0	0
337:	1	0	0	0	0	1	0	1	0	0	0	0	1	0
351:	0	3	0	0	0	1	0	0	1	0	0	0	0	1
365:	1	2	2	0	1	0	1	1	0	0	2	0	1	1
379:	1	2	4	4	4	3	5	2	1	3	3	7	2	6
393:	4	10	6	3	3	5	6	3	6	1	6	5	7	6
407:	6	6	3	7	7	15	7	10	13	6	7	2	1	1
421:	0	0	0	1	0	0	0	1	0	0	1	0	1	1
435:	2	1	1	2	0	1	1	2	1	0	2	3	6	5
449:	2	2	4	2	1	3	5	1	6	7	3	4	7	9
463:	4	9	4	8	5	5	7	6	3	8	7	7	3	4
477:	3	3	5	4	4	3	6	1	2	2	4	3	4	2
491:	2	4	3	1	2	0	3	2	0	1	1	1	2	4
505:	0	3	0	5	1	2	1	1	1	2	4	0	2	1
519:	2	2	1	2	1	2	3	1	1	3	3	1	2	3
533:	1	1	3	3	2	2	0	1	2	1	0	0	1	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:	2	0	0	0	0	1	0	0	1	0	0	1	0	0
603:	0	0	0	1	0	0	1	0	1	1	1	0	0	0
617:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
631:	0	0	1	1	1	0	1	1	2	1	1	1	0	0
645:	0	1	0	2	1	0	1	1	0	1	5	2	3	1
659:	2	1	0	3	0	1	1	3	1	0	0	1	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	1	1	0	0	0	0	0	0	0	0	0	0
715:	0	2	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	1	0
743:	0	0	0	0	0	0	0	1	0	0	2	0	0	0
757:	2	0	0	0	0	0	0	0	0	0	1	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
785:	0	1	1	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	1	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	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	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	1	0	0	0	0	0	0	0	0	0	0	1
925:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
939:	0	0	0	1	0	0	0	0	0	1	1	0	0	0
953:	2	1	0	1	0	0	2	1	1	0	0	0	0	0
967:	0	0	0	0	0	0	0	0	1	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 10:26:15.44

Detector ID: 43 Acquisition Start: 6-SEP-2005 07:17:14.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-TH Sample Id: 11
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3978.96	74	0	74.69	172.59	114	99	7.25E-03	11.6	
2	0	4658.40	233	0	69.22	397.76	320	101	2.28E-02	6.6	
3	0	4903.07	308	0	191.97	480.32	420	128	3.02E-02	5.7	
4	0	5374.77	52	0	37.00	641.83	564	105	5.10E-03	13.9	
5	0	5807.30	8	0	3.12	792.75	755	125	7.84E-04	35.4	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:26:26.79

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	3949.17	1	0	3.13	163.00	114	99	1.67E-05	100.0	
2	0	4576.94	2	0	137.87	370.00	320	101	3.33E-05	70.7	
3	0	4914.26	1	0	3.13	483.50	420	128	1.67E-05	100.0	
4	0	5301.89	3	0	134.74	616.00	564	105	5.00E-05	57.7	
5	0	5877.24	2	0	131.61	817.00	755	125	3.33E-05	70.7	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:26:27.11

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3978.96*	74	0	74.69	172.59	114	99	7.24E-03	11.7	
2	0	4658.40*	233	0	69.22	397.76	320	101	2.28E-02	6.6	
3	0	4903.07*	308	0	191.97	480.32	420	128	3.02E-02	5.7	
4	0	5374.77*	51	0	37.00	641.83	564	105	5.05E-03	14.0	
5	0	5807.30*	8	0	3.12	792.75	755	125	7.51E-04	37.1	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:26:28

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0B		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 07:17:14
Sample ID	: 11	Sample quantity	: 1.0992 gram
Sample type	: TH	Sample geometry	:
Detector name	: 043	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	3978.96*	74	74.69	172.59	114	99	23.3		TH-232	0.820
0	4658.40*	233	69.22	397.76	320	101	13.1		TH-230	2.59
0	4903.07*	308	191.97	480.32	420	128	11.4		TH229	3.44
0	5374.77*	51	37.00	641.83	564	105	28.0		TH-228	0.584
0	5807.30*	8	3.12	792.75	755	125	74.1		TH-227	8.741E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:26:47

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$12_TH.CNF

****

BATCH ID:	0508095A-TH	SAMPLE ID:	12
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.173E+00	gram
SAMPLE TITLE:	VPSCR081705SL0C	DETECTOR NUMBER:	044
ACQ DATE:	6-SEP-2005 07:17	AVERAGE EFFICIENCY:	20.21%
ELAPSED LIVE TIME:	10200.	RECOVERY:	58.00%
TRACER ID:	TH-18A	TRACER FWHM (kev):	61.07
LAMBDA VALUE:	471.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.582	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.

****

NUCLIDE ACTIVITY SUMMARY

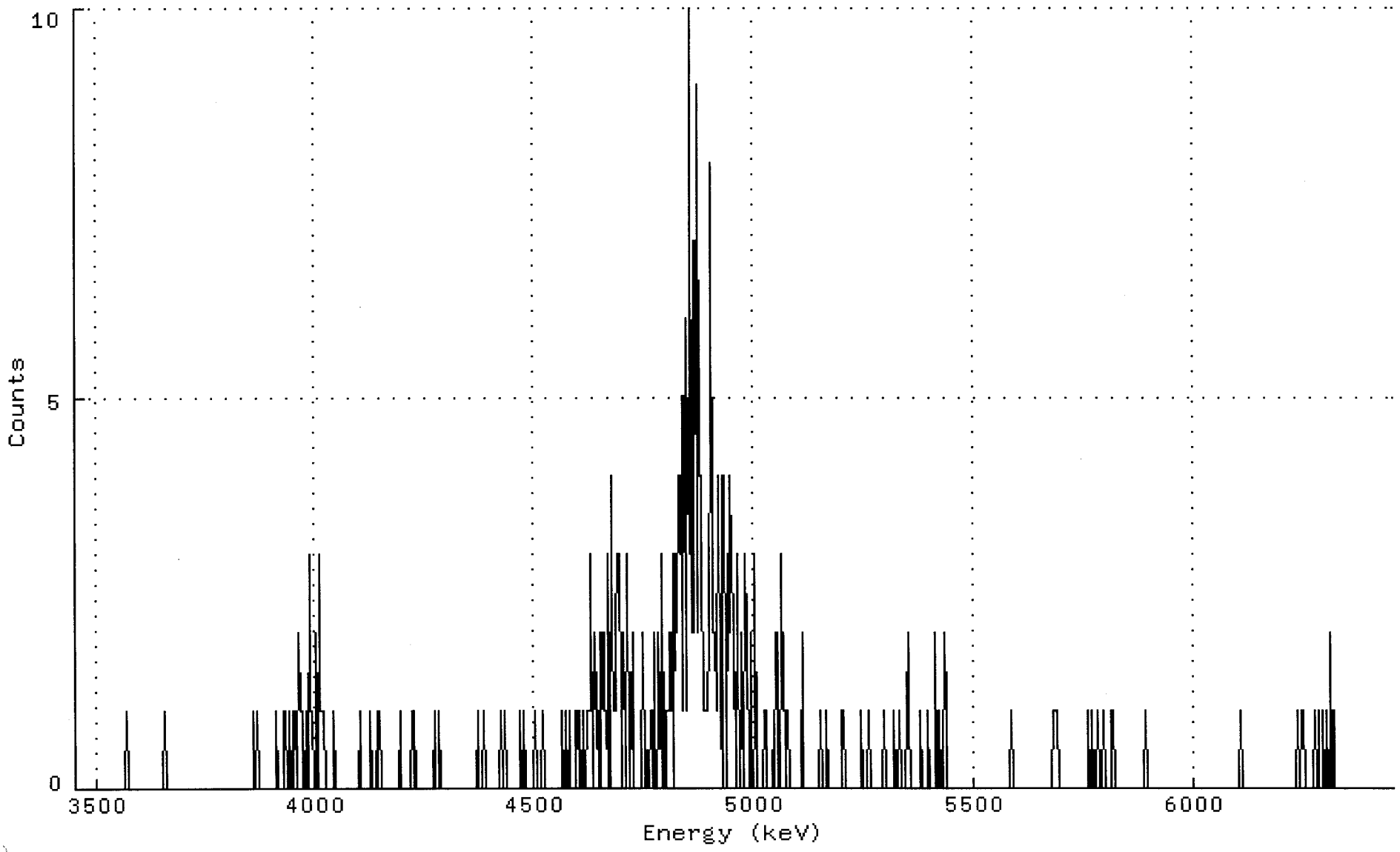
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	7.15	0.85	97.5	1.416E-01	1.159E-01	1.383E-01
TH-228	5400.0	20.64	1.36	99.9	4.062E-01	1.995E-01	1.568E-01
TH229	4872.0	209.83	0.17	99.5	4.064E+00	6.772E-01	8.961E-02
TH-230	4672.0	61.32	0.68	99.8	1.184E+00	3.720E-01	1.264E-01
TH-232	3997.0	28.66	0.34	100.0	5.524E-01	2.305E-01	1.045E-01

****

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$12_TH.CNF;1
Title : 044
Sample Title: VPSCR081705SL0C
Start Time: 6-SEP-2005 07:17: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44245E+03
Real Time : 0 02:50:00.40 Sample ID : 12 Energy Slope : 3.10035E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.56371E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$12_TH

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	1	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	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	1	0	1	1	0
141:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
155:	0	0	0	0	1	1	0	1	0	0	1	0	1	0
169:	0	2	1	1	0	0	1	0	0	3	1	1	0	0
183:	2	0	3	1	1	1	1	0	0	0	0	0	0	1
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	1	0	0	0	0	0	0	0	1	0
225:	0	0	0	1	0	1	0	0	0	0	0	0	0	0
239:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
253:	0	1	0	1	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	1	0	0	0	1	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	0	1	0	0	0	0
309:	1	0	0	0	0	0	0	0	0	0	0	0	0	1
323:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
337:	1	0	0	1	0	0	0	0	0	0	0	1	0	0
351:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	1	0	1	0	0	1	0	0	0	0
379:	1	1	0	1	0	1	0	0	1	1	1	1	3	0
393:	2	2	1	0	2	0	2	2	1	1	0	3	0	4
407:	2	1	1	2	3	3	1	0	2	1	0	3	0	0
421:	1	2	0	0	0	0	0	0	0	2	0	1	0	0
435:	1	1	0	2	0	0	1	2	1	0	3	0	0	1
449:	1	1	2	1	3	0	3	2	4	4	3	5	1	5
463:	1	6	4	3	10	2	7	2	7	2	9	4	4	3
477:	1	1	1	1	2	5	8	2	2	2	1	4	4	1
491:	0	4	4	1	0	3	2	4	3	2	2	0	3	2
505:	0	2	1	0	3	2	2	0	2	0	0	1	3	0
519:	0	0	0	0	0	1	1	0	0	0	0	0	1	0
533:	2	0	2	0	2	3	1	1	0	1	0	0	0	0
547:	0	0	0	0	0	0	2	0	0	0	0	0	0	0
561:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
575:	0	0	0	0	0	0	0	0	0	1	1	0	0	0
589:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
603:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
617:	0	0	0	0	0	0	0	1	0	0	0	1	0	0
631:	0	0	0	1	2	1	0	0	0	0	0	0	0	0
645:	1	0	0	0	0	0	1	0	0	0	0	0	2	0
659:	0	1	0	1	0	2	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	0	0
715:	0	0	1	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	1	1	1	1	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	1	0	0	1	0	0	0
785:	1	0	0	0	1	1	0	0	0	0	0	1	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	0	0	1	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	1	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	1	0	0	1	1	1	0
953:	0	0	0	0	0	0	0	1	0	0	1	0	0	0
967:	1	0	0	1	0	0	2	0	1	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 10:26:32.87

Detector ID: 44 Acquisition Start: 6-SEP-2005 07:17:34.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-TH Sample Id: 12
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3972.03	29	0	49.57	172.31	116	99	2.84E-03	18.6	
2	0	4642.69	62	0	86.19	395.00	322	102	6.08E-03	12.7	
3	0	4893.44	210	0	61.07	479.61	423	128	2.06E-02	6.9	
4	0	5331.50	22	0	96.11	629.27	567	104	2.16E-03	21.3	
5	0	5800.91	8	0	142.62	792.37	757	124	7.84E-04	35.4	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:26:44.74

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	3949.98	2	0	71.59	165.00	116	99	3.33E-05	70.7	
2	0	4576.73	4	0	68.48	372.50	322	102	6.67E-05	50.0	
3	0	4914.79	1	0	3.11	486.50	423	128	1.67E-05	100.0	
4	0	5300.66	8	0	0.00	618.50	567	104	1.33E-04	35.4	
5	0	5873.94	5	0	4.57	818.50	757	124	8.33E-05	44.7	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:26:45.03

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3972.03*	29	0	49.57	172.31	116	99	2.81E-03	18.8	
2	0	4642.69*	61	0	86.19	395.00	322	102	6.01E-03	12.9	
3	0	4893.44*	210	0	61.07	479.61	423	128	2.06E-02	6.9	
4	0	5331.50*	21	0	96.11	629.27	567	104	2.02E-03	22.8	
5	0	5800.91*	7	0	142.62	792.37	757	124	7.01E-04	39.9	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:26:46

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0C		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 07:17:34
Sample ID	: 12	Sample quantity	: 1.1730 gram
Sample type	: TH	Sample geometry	:
Detector name	: 044	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	3972.03*	29	49.57	172.31	116	99	37.6		TH-232	0.320
0	4642.69*	61	86.19	395.00	322	102	25.7		TH-230	0.687
0	4893.44*	210	61.07	479.61	423	128	13.8		TH229	2.36
0	5331.50*	21	96.11	629.27	567	104	45.7		TH-228	0.236
0	5800.91*	7	142.62	792.37	757	124	79.8		TH-227	8.213E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:26:55

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$13_TH.CNF

****

BATCH ID:	0508095A-TH	SAMPLE ID:	13
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.053E+00 gram
SAMPLE TITLE:	VPSCR081705SL0D	DETECTOR NUMBER:	045
ACQ DATE:	6-SEP-2005 07:17	AVERAGE EFFICIENCY:	20.93%
ELAPSED LIVE TIME:	10200.	RECOVERY:	91.58%
TRACER ID:	TH-18A	TRACER FWHM (kev):	0.00
LAMBDA VALUE:	465.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.447	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.

****

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	24.00	0.00	97.5	3.236E-01	1.418E-01	3.647E-02
TH-228	5400.0	54.66	0.34	99.9	7.323E-01	2.305E-01	7.118E-02
TH229	4872.0	338.83	0.17	99.5	4.467E+00	6.395E-01	6.101E-02
TH-230	4672.0	670.00	0.00	99.8	8.807E+00	1.558E+00	3.562E-02
TH-232	3997.0	77.00	0.00	100.0	1.010E+00	2.809E-01	3.556E-02

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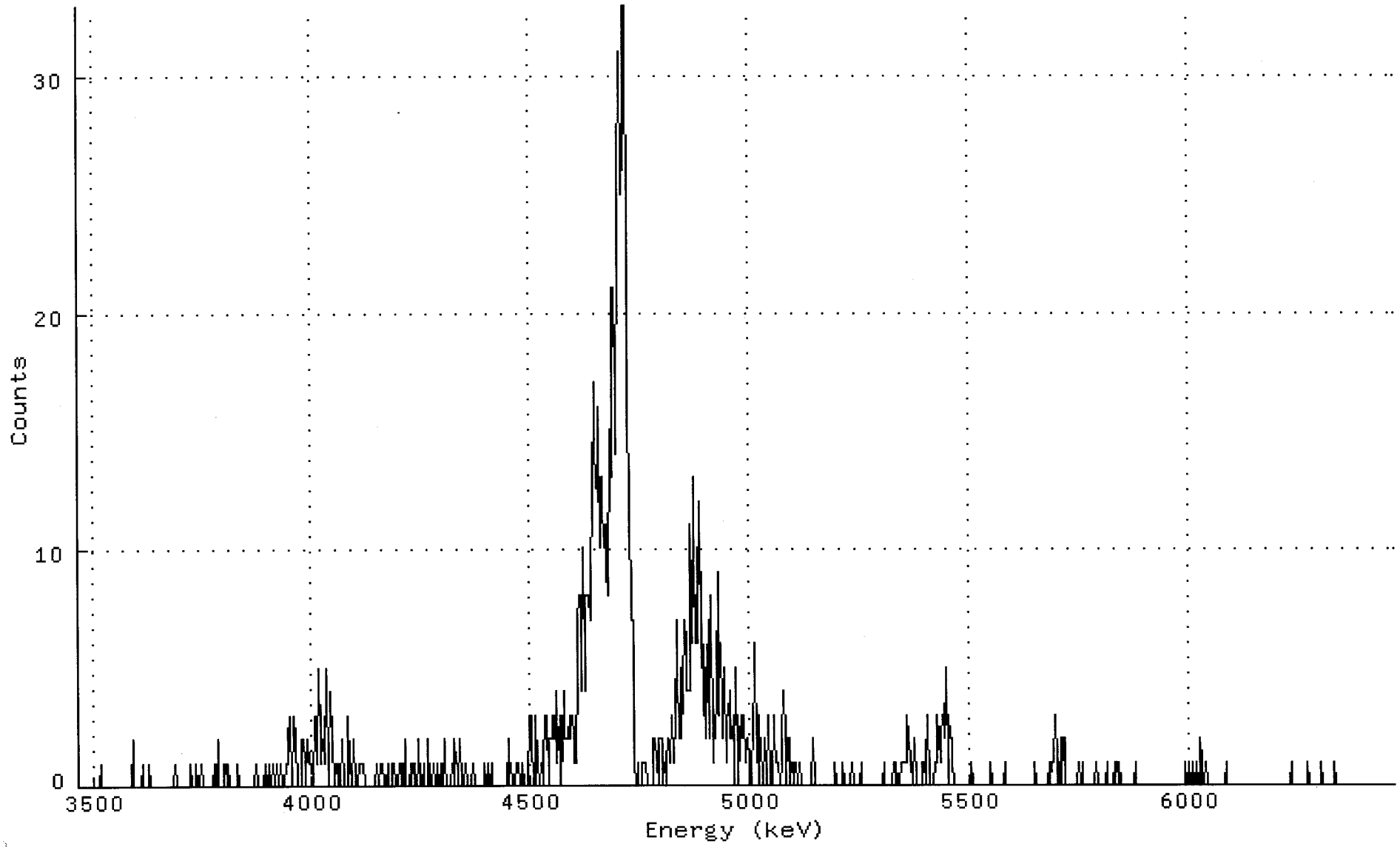
*** Tracer FWHM < 10.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$13_TH.CNF;1
Title : 045
Sample Title: VPSCR081705SL0D
Start Time: 6-SEP-2005 07:17: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45559E+03
Real Time : 0 02:50:00.10 Sample ID : 13 Energy Slope : 3.12488E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.83707E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$13_TH

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	1	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:	2	0	0	0	0	0	0	1	0	0	0	0	1	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	1	0	0	0	1	0	0	0	1	0	0	0	0
99:	0	0	0	0	1	0	0	2	0	0	0	0	1	1
113:	0	1	0	0	0	0	0	0	1	0	0	0	0	0
127:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
141:	1	0	0	1	0	0	1	0	0	1	0	0	1	0
155:	0	0	1	1	2	3	0	0	3	2	0	0	0	0
169:	2	2	1	0	2	1	1	1	0	3	3	1	5	2
183:	1	2	1	1	5	0	1	4	2	0	1	1	0	1
197:	0	2	2	0	0	0	3	1	0	0	2	0	0	0
211:	1	1	1	1	0	0	0	0	0	0	0	0	0	1
225:	0	0	1	1	0	0	0	1	0	0	0	1	1	0
239:	0	0	1	0	1	0	2	0	0	0	1	0	1	1
253:	0	0	1	2	0	0	1	0	0	0	2	0	0	0
267:	1	0	0	1	0	1	0	0	2	1	0	0	0	0
281:	1	0	2	1	1	0	2	0	1	0	1	0	0	0
295:	0	0	1	0	0	0	0	0	0	0	0	1	0	1
309:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
323:	0	2	0	1	0	0	0	1	1	1	0	0	1	0
337:	0	0	0	3	3	2	0	0	3	1	0	0	1	0
351:	1	3	3	0	2	2	2	3	2	4	1	2	3	0
365:	2	4	2	2	2	3	2	3	2	1	1	5	7	8
379:	8	4	10	4	8	8	8	7	9	12	17	14	13	12
393:	16	10	13	12	10	11	9	8	15	13	21	21	16	14
407:	25	31	31	25	27	33	33	22	16	12	7	7	1	0
421:	1	0	0	0	1	1	1	1	0	0	0	0	0	2
435:	2	1	0	2	2	2	0	1	0	1	2	1	1	3
449:	1	2	2	7	5	2	5	2	4	7	6	4	4	4
463:	11	6	13	9	6	10	6	12	5	9	3	5	2	5
477:	7	2	8	1	2	2	4	9	3	6	3	2	5	1
491:	3	3	4	2	2	3	0	5	1	0	2	3	2	3
505:	1	1	2	1	0	0	3	4	6	1	3	0	2	0
519:	0	2	1	0	3	0	0	0	3	2	1	1	1	0
533:	1	2	4	2	0	2	2	0	1	0	1	1	0	0
547:	1	0	0	0	0	0	0	0	0	0	2	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
575:	0	0	0	0	0	1	0	0	0	0	0	0	1	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	0	1	0	0	0	0
617:	0	0	0	1	0	1	0	0	0	1	1	1	1	1
631:	3	2	1	1	0	2	2	0	0	0	0	0	1	1
645:	0	1	3	0	0	0	0	0	1	1	3	2	1	2
659:	3	3	2	5	0	3	2	2	1	0	0	0	0	0
673:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
701:	0	0	0	0	0	0	0	1	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	1	0	0	0	0	0	0	0	0	0	0
743:	1	0	1	1	1	3	1	0	0	2	0	2	2	0
757:	0	0	0	0	0	0	0	0	0	1	1	0	1	0
771:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
785:	0	0	0	0	1	0	0	0	0	0	1	0	1	0
799:	1	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	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	1	0
855:	0	1	0	0	1	0	0	1	0	0	2	1	0	0
869:	1	1	0	0	0	0	0	0	0	0	0	0	0	0
883:	0	0	0	1	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	1
953:	0	0	0	0	0	0	0	0	0	0	1	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: 6-SEP-2005 10:26:51.51

Detector ID: 45 Acquisition Start: 6-SEP-2005 07:17:54.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508095A-TH Sample Id: 13
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3994.79	77	0	136.67	174.34	111	99	7.55E-03	11.4	
2	0	4664.60	670	0	80.87	396.12	316	101	6.57E-02	3.9	
3	0	4900.71	339	0	0.00	475.76	417	128	3.32E-02	5.4	
4	0	5386.10	55	0	0.00	642.02	561	104	5.39E-03	13.5	
5	0	5856.90	24	0	357.80	806.71	751	125	2.35E-03	20.4	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:26:53.71

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	3951.29	0	0	0.00	160.00	111	99	0.00E+00	0.0	
2	0	4575.49	0	0	0.00	366.00	316	101	0.00E+00	0.0	
3	0	4915.72	1	0	3.13	480.50	417	128	1.67E-05	100.0	
4	0	5301.99	2	0	0.00	612.50	561	104	3.33E-05	70.7	
5	0	5876.52	0	0	0.00	813.00	751	125	0.00E+00	0.0	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:26:54.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3994.79*	77	0	136.67	174.34	111	99	7.55E-03	11.4	
2	0	4664.60*	670	0	80.87	396.12	316	101	6.57E-02	3.9	
3	0	4900.71*	339	0	0.00	475.76	417	128	3.32E-02	5.4	
4	0	5386.10*	55	0	0.00	642.02	561	104	5.36E-03	13.6	
5	0	5856.90*	24	0	357.80	806.71	751	125	2.35E-03	20.4	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:26:54

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0D		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 07:17:54
Sample ID	: 13	Sample quantity	: 1.0534 gram
Sample type	: TH	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	3994.79*	77136.67		174.34	111	99	22.8		TH-232	0.925
0	4664.60*	670	80.87	396.12	316	101	7.7		TH-230	8.07
0	4900.71*	339	0.00	475.76	417	128	10.9		TH229	4.09
0	5386.10*	55	0.00	642.02	561	104	27.1		TH-228	0.671
0	5856.90*	24357.80		806.71	751	125	40.8		TH-227	0.296

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:27:07

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$14_TH.CNF

BATCH ID:	0508095A-TH	SAMPLE ID:	14
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.053E+00 gram
SAMPLE TITLE:	VPSCR081705SL0E	DETECTOR NUMBER:	046
ACQ DATE:	6-SEP-2005 07:18	AVERAGE EFFICIENCY:	21.06%
ELAPSED LIVE TIME:	10200.	RECOVERY:	61.23%
TRACER ID:	TH-18A	TRACER FWHM (kev):	154.95
LAMBDA VALUE:	456.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.243	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

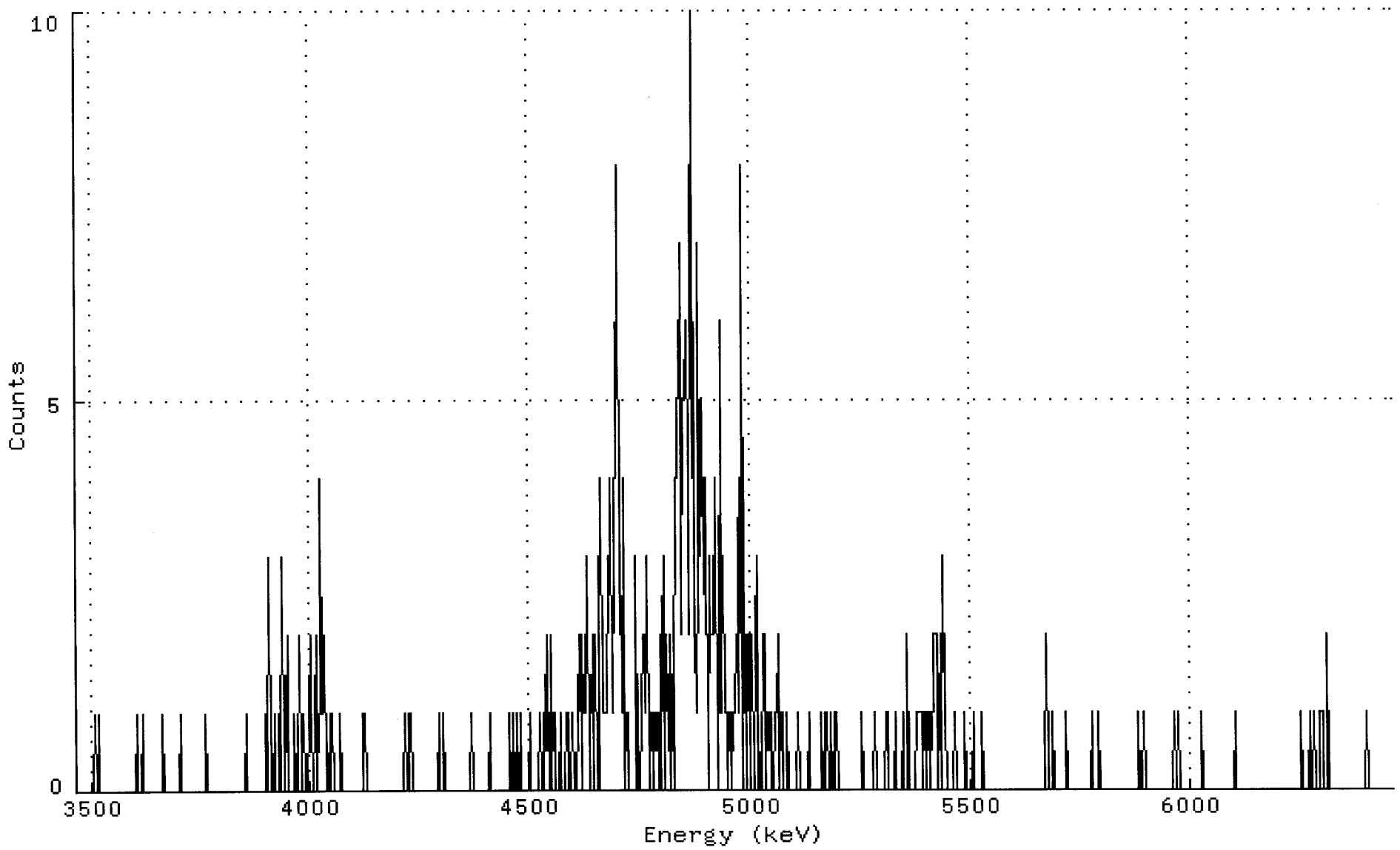
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	7.32	0.68	97.5	1.467E-01	1.171E-01	1.310E-01
TH-228	5400.0	38.66	0.34	99.9	7.701E-01	2.840E-01	1.058E-01
TH229	4872.0	223.49	0.51	99.5	4.382E+00	7.149E-01	1.182E-01
TH-230	4672.0	91.15	0.85	99.8	1.782E+00	4.906E-01	1.368E-01
TH-232	3997.0	36.83	0.17	100.0	7.186E-01	2.695E-01	9.028E-02

*** Tracer FWHM > 80.0 Kev ***

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$14_TH.CNF;1
Title : 046
Sample Title: VPSCR081705SL0E
Start Time: 6-SEP-2005 07:18: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45583E+03
Real Time : 0 02:50:00.10 Sample ID : 14 Energy Slope : 3.13546E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.97992E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$14_TH

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	1	0	1	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	1	0	0	0	1	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	1	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	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	0	0	0	0	0	0
141:	0	0	1	0	3	0	0	0	1	0	0	0	1	0
155:	3	0	0	1	2	0	0	0	0	1	0	0	0	2
169:	0	1	1	0	0	0	1	2	1	0	1	2	0	1
183:	1	4	1	2	0	0	0	1	0	1	0	0	0	0
197:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	1	1	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	1	0	0	1	1	0	0
253:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
281:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
309:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
323:	0	0	1	0	1	0	0	1	0	0	1	0	0	0
337:	0	0	0	1	0	0	0	0	0	0	0	1	0	1
351:	0	1	2	1	0	2	0	1	1	0	0	0	1	0
365:	0	0	0	1	1	0	0	1	1	0	0	0	1	2
379:	0	2	1	2	1	3	0	1	1	2	0	2	0	0
393:	2	4	1	1	1	1	1	3	3	4	1	3	4	4
407:	8	2	4	1	4	0	1	1	0	0	0	0	0	0
421:	3	0	0	0	1	2	1	1	3	0	0	1	1	0
435:	1	1	1	0	2	0	2	3	0	2	1	0	2	1
449:	0	1	4	4	5	5	7	2	5	5	5	6	4	2
463:	8	4	10	2	1	3	7	3	4	5	3	2	4	0
477:	3	2	2	2	2	4	0	2	1	6	1	3	1	2
491:	0	1	1	0	1	1	1	2	1	3	4	0	8	1
505:	2	0	2	2	0	2	0	0	2	3	0	0	1	0
519:	2	2	0	1	1	0	1	0	1	1	1	2	0	1
533:	1	0	0	0	1	0	0	0	0	0	0	0	1	1
547:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
561:	0	0	0	1	0	0	1	1	0	1	0	0	1	0
575:	1	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	1	0	0	0	0	0	0	0	0	1	1	0
617:	0	0	0	0	1	0	0	0	0	0	1	0	0	0
631:	2	0	0	0	0	0	0	1	1	1	1	1	0	1
645:	1	0	1	1	0	1	1	2	2	2	0	1	2	0
659:	3	1	1	0	0	0	0	0	0	1	0	0	0	0
673:	0	0	0	1	0	0	0	0	0	0	1	0	0	0
687:	0	0	0	1	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	2	0
743:	0	0	0	1	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	1	0	0	0	0	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	1	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	1	0	0	1	0	0	0	0	0	0	0
855:	0	0	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:	0	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	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	1	0	0	0	0	0
953:	0	1	0	0	1	1	0	0	0	0	1	1	1	0
967:	0	0	2	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												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:26:59.13

Detector ID: 46 Acquisition Start: 6-SEP-2005 07:18:13.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508095A-TH Sample Id: 14
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3981.56	37	0	125.42	169.49	111	98	3.63E-03	16.4	
2	0	4644.23	92	0	5.19	388.55	315	102	9.02E-03	10.4	
3	0	4894.55	224	0	154.95	472.98	416	128	2.20E-02	6.7	
4	0	5356.80	39	0	90.89	631.46	560	105	3.82E-03	16.0	
5	0	5875.50	8	0	344.90	813.50	751	126	7.84E-04	35.4	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:27:05.25

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	3950.25	1	0	3.14	159.50	111	98	1.67E-05	100.0	
2	0	4575.25	5	0	260.39	365.50	315	102	8.33E-05	44.7	
3	0	4913.95	3	0	144.31	479.50	416	128	5.00E-05	57.7	
4	0	5301.19	2	0	188.24	612.00	560	105	3.33E-05	70.7	
5	0	5876.84	4	0	0.00	813.50	751	126	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:27:05.55

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3981.56*	37	0	125.42	169.49	111	98	3.61E-03	16.5	
2	0	4644.23*	91	0	5.19	388.55	315	102	8.94E-03	10.5	
3	0	4894.55*	223	0	154.95	472.98	416	128	2.19E-02	6.7	
4	0	5356.80*	39	0	90.89	631.46	560	105	3.79E-03	16.2	
5	0	5875.50*	7	0	344.90	813.50	751	126	7.18E-04	38.9	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:27:06

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0E		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 6-SEP-2005 07:18:13
Sample ID	: 14	Sample quantity	: 1.0530 gram
Sample type	: TH	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	3981.56*	37125.42	169.49	111	98	33.0			TH-232	0.440
0	4644.23*	91 5.19	388.55	315	102	21.1			TH-230	1.09
0	4894.55*	223154.95	472.98	416	128	13.4			TH229	2.68
0	5356.80*	39 90.89	631.46	560	105	32.3			TH-228	0.472
0	5875.50*	7344.90	813.50	751	126	77.8			TH-227	8.985E-02

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:27:23

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$15_TH.CNF

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BATCH ID:	0508095A-TH	SAMPLE ID:	15
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 9.926E-01	gram
SAMPLE TITLE:	VPSCR081705SL0F	DETECTOR NUMBER:	047
ACQ DATE:	6-SEP-2005 07:18	AVERAGE EFFICIENCY:	21.40%
ELAPSED LIVE TIME:	10200.	RECOVERY:	89.76%
TRACER ID:	TH-18A	TRACER FWHM (kev):	48.59
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:	2-SEP-2005 04:47	EFF CAL DATE:	2-SEP-2005 04:47
BKG FILENAME:	B_047_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
TH-227	5850.0	11.32	0.68	97.5	1.616E-01	1.027E-01	9.327E-02
TH-228	5400.0	81.32	0.68	99.9	1.154E+00	3.164E-01	9.099E-02
TH229	4872.0	332.83	0.17	99.5	4.647E+00	6.686E-01	6.461E-02
TH-230	4672.0	215.83	0.17	99.8	3.004E+00	6.308E-01	6.441E-02
TH-232	3997.0	87.15	0.85	100.0	1.211E+00	3.248E-01	9.723E-02

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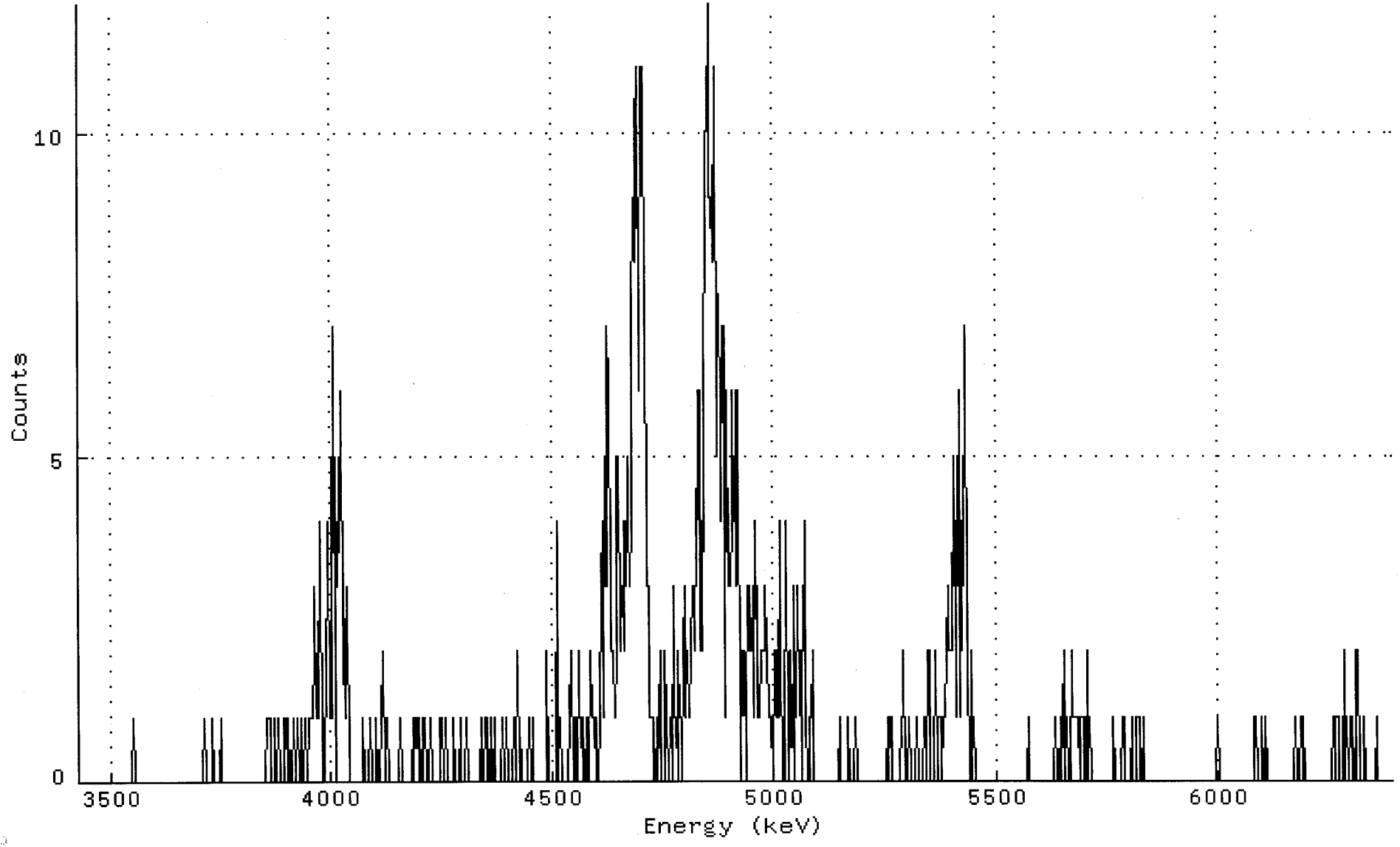
Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$15_TH.CNF;1
Title : 047
Sample Title: VPSCR081705SL0F
Start Time: 6-SEP-2005 07:18: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.41850E+03
Real Time : 0 02:50:00.10 Sample ID : 15 Energy Slope : 3.04405E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.38313E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$15_TH

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	1	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	1
99:	0	0	0	0	0	1	0	0	0	0	0	1	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	1	1	0	0	0	1	0	1	1
155:	0	0	0	1	1	0	1	0	0	0	1	0	1	1
169:	0	0	1	0	1	1	0	1	1	1	1	2	3	1
183:	2	1	4	0	1	0	2	3	4	1	1	3	7	0
197:	5	3	4	6	6	2	1	2	3	0	0	0	0	0
211:	0	0	0	0	0	0	1	0	0	0	0	1	0	0
225:	0	0	1	0	0	0	1	2	0	0	1	0	0	0
239:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
253:	0	0	1	0	1	1	0	1	0	0	1	1	0	0
267:	0	1	0	0	0	0	0	0	0	1	1	0	0	1
281:	0	0	0	0	0	1	0	0	0	0	1	0	0	0
295:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
309:	0	1	1	0	0	1	0	0	1	0	0	0	0	0
323:	1	1	0	1	0	0	0	0	0	1	1	0	2	0
337:	1	0	0	0	0	0	1	1	0	1	0	0	0	0
351:	0	0	0	0	0	0	2	0	0	0	0	0	0	0
365:	4	0	1	0	0	0	0	0	0	1	2	2	0	0
379:	1	0	2	1	1	0	1	0	1	0	0	2	1	1
393:	1	0	1	0	1	1	3	4	1	5	3	7	6	3
407:	2	2	1	2	5	5	2	2	3	2	4	3	5	4
421:	3	4	7	9	8	10	11	6	7	11	11	7	8	3
435:	3	1	1	1	0	0	1	0	1	2	0	0	0	2
449:	1	0	0	1	0	3	1	1	0	2	1	1	0	2
463:	3	1	2	1	1	2	3	3	2	4	3	6	2	6
477:	2	5	10	10	10	12	9	9	8	8	11	5	8	7
491:	6	4	7	7	1	6	3	3	3	4	6	4	6	3
505:	6	0	2	2	2	0	1	3	2	3	2	3	1	4
519:	2	1	1	2	2	2	2	3	2	1	1	1	0	0
533:	2	2	1	1	4	2	0	2	0	4	0	1	2	1
547:	0	3	1	3	2	2	0	2	2	4	1	0	0	1
561:	1	2	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
589:	0	1	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	1	0	1	1	0	0	0	0	0	0	0
631:	1	1	2	0	0	0	1	0	0	0	0	0	1	0
645:	0	0	0	0	1	1	0	2	2	0	0	0	0	2
659:	0	1	1	1	0	1	1	1	2	3	2	2	2	2
673:	5	1	3	5	1	6	2	4	3	7	2	2	0	2
687:	0	1	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	1	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
757:	1	0	1	2	0	1	0	0	0	2	1	1	1	1
771:	1	0	1	1	1	0	0	2	0	1	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	1	0	0	0	0	0	0	1	1	0	0	0	0	0
813:	1	0	0	0	1	1	1	0	0	1	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	1
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	1	1	0	0	0	0	1	0	0	1	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	1	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	0	0	0	0	0	0	0	1	0	1	1	1
981:	0	0	0	0	2	0	1	0	0	1	0	1	0	0
995:	2	2	0	0	0	0	1	0	0	0	0	0	0	0
1009:	0	0	1	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 10:27:10.82

Detector ID: 47 Acquisition Start: 6-SEP-2005 07:18:34.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508095A-TH Sample Id: 15
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3986.37	88	0	51.02	188.16	126	101	8.63E-03	10.7	
2	0	4655.23	216	0	90.71	414.07	336	103	2.12E-02	6.8	
3	0	4896.01	333	0	48.59	496.58	438	130	3.26E-02	5.5	
4	0	5385.53	82	0	31.04	666.37	584	106	8.04E-03	11.0	
5	0	5793.20	12	0	3.04	809.92	777	125	1.18E-03	28.9	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:27:21.33

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	3948.85	5	0	197.26	176.00	126	101	8.33E-05	44.7	
2	0	4577.45	1	0	3.08	387.00	336	103	1.67E-05	100.0	
3	0	4914.65	1	0	3.08	502.50	438	130	1.67E-05	100.0	
4	0	5299.74	4	0	3.08	636.50	584	106	6.67E-05	50.0	
5	0	5869.21	4	0	0.00	839.00	777	125	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:27:21.63

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3986.37*	87	0	51.02	188.16	126	101	8.54E-03	10.8	
2	0	4655.23*	216	0	90.71	414.07	336	103	2.12E-02	6.8	
3	0	4896.01*	333	0	48.59	496.58	438	130	3.26E-02	5.5	
4	0	5385.53*	81	0	31.04	666.37	584	106	7.97E-03	11.1	
5	0	5793.20*	11	0	3.04	809.92	777	125	1.11E-03	30.7	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:27:22

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0F
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 6-SEP-2005 07:18:34
Sample ID : 15 Sample quantity : 0.99260 gram
Sample type : TH 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	3986.37*	87	51.02	188.16	126	101	21.5		TH-232	1.09
0	4655.23*	216	90.71	414.07	336	103	13.6		TH-230	2.70
0	4896.01*	333	48.59	496.58	438	130	11.0		TH229	4.17
0	5385.53*	81	31.04	666.37	584	106	22.3		TH-228	1.04
0	5793.20*	11	3.04	809.92	777	125	61.5		TH-227	0.145

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
6-SEP-2005 10:27:37

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-TH$16_TH.CNF

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BATCH ID:	0508095A-TH	SAMPLE ID:	16
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.051E+00 gram
SAMPLE TITLE:	VPSCR081705SL0G	DETECTOR NUMBER:	048
ACQ DATE:	6-SEP-2005 07:18	AVERAGE EFFICIENCY:	20.07%
ELAPSED LIVE TIME:	10200.	RECOVERY:	62.48%
TRACER ID:	TH-18A	TRACER FWHM (kev):	46.15
LAMBDA VALUE:	459.	ROI TYPE:	STANDARD
TRACER DPM AT SAMPLE DATE:	10.319	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

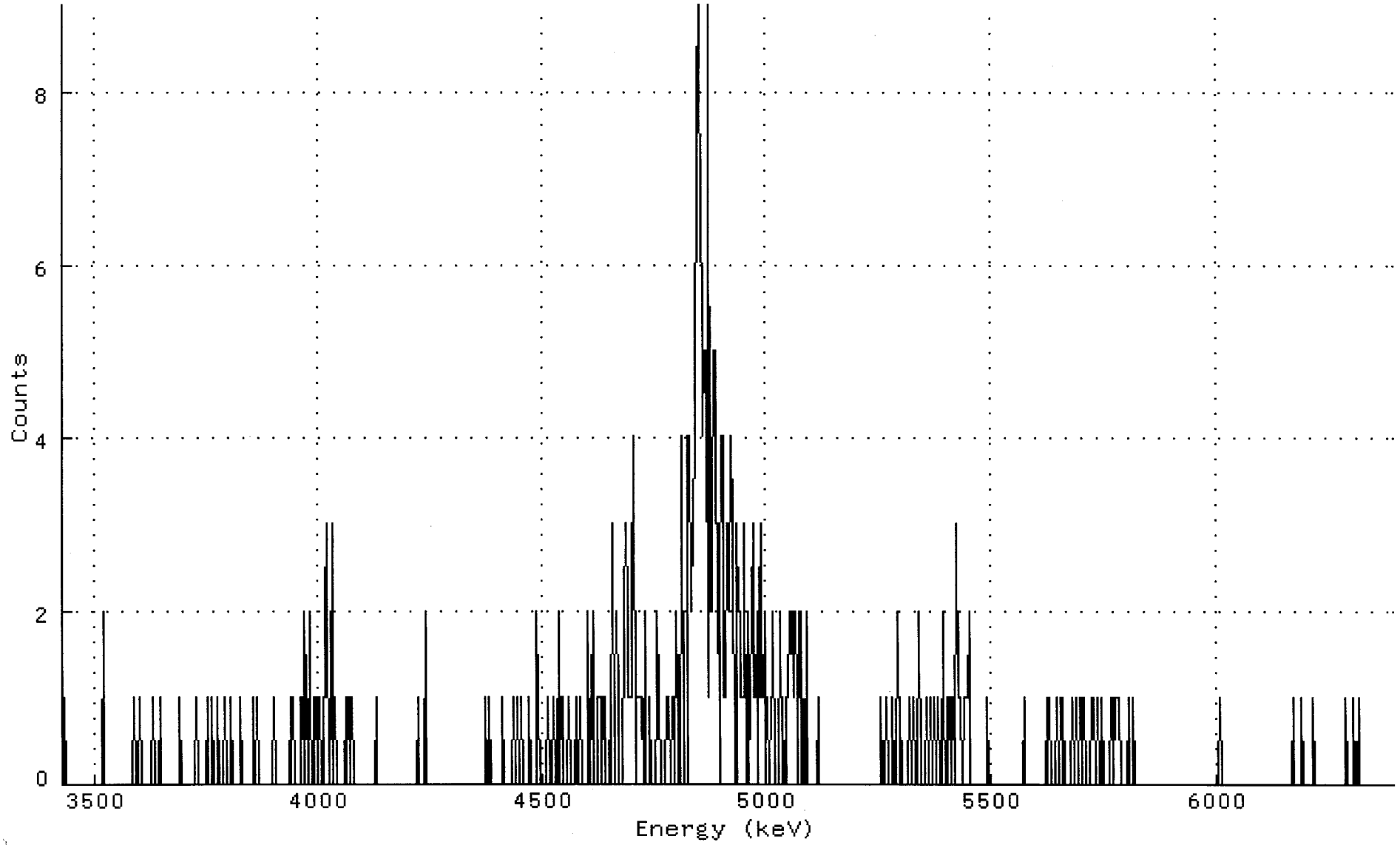
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
TH-227	5850.0	16.32	0.68	97.5	3.370E-01	1.812E-01	1.349E-01
TH-228	5400.0	30.96	2.04	99.9	6.354E-01	2.629E-01	1.881E-01
TH229	4872.0	218.96	2.04	99.5	4.422E+00	7.288E-01	1.889E-01
TH-230	4672.0	56.15	0.85	99.8	1.131E+00	3.655E-01	1.409E-01
TH-232	3997.0	35.15	0.85	100.0	7.065E-01	2.727E-01	1.406E-01

****

Analyst _____ Date 9-6-05

Reviewer _____ Date 9/6/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-TH$16_TH.CNF;1
Title : 048
Sample Title: VPSCR081705SL0G
Start Time: 6-SEP-2005 07:18: Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.41833E+03
Real Time : 0 02:50:00.10 Sample ID : 16 Energy Slope : 3.05138E+00
Live Time : 0 02:50:00.00 Sample Type: TH Energy Quad : -1.44547E-04



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Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-TH$16_TH

Channel

1:	0	0	0	0	1	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	2	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
57:	0	0	0	1	0	0	0	0	0	0	0	0	0	1
71:	0	0	0	0	1	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	0	0	1	0	0	0	0	0	0	0	1	0	0
113:	0	1	0	0	0	1	0	0	0	0	1	0	0	0
127:	0	1	0	0	0	0	0	0	1	0	0	0	0	0
141:	0	0	0	0	1	0	1	0	0	0	0	0	0	0
155:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
169:	0	0	0	1	0	1	0	0	0	0	0	1	1	0
183:	2	1	0	2	1	0	1	0	1	0	1	1	0	1
197:	0	2	3	2	0	1	3	0	1	0	0	0	0	0
211:	0	0	1	0	1	1	0	1	0	0	0	0	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	1	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	0	0	0	2	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	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	1	0	0	1	0
323:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
337:	0	0	1	0	0	1	0	0	1	0	0	0	0	0
351:	1	0	0	0	0	0	2	1	0	0	0	0	0	0
365:	1	0	0	0	1	1	0	0	2	0	1	1	0	0
379:	0	0	1	0	0	0	0	1	0	0	1	1	0	0
393:	0	0	0	2	0	1	2	0	0	0	1	1	1	0
407:	1	1	0	0	0	1	0	3	0	1	2	1	0	0
421:	0	0	2	3	2	1	1	1	2	4	0	1	1	1
435:	1	1	0	2	0	0	0	1	0	0	0	0	1	2
449:	1	0	0	0	0	1	1	1	0	0	1	1	0	2
463:	1	0	0	3	4	0	0	0	4	4	2	2	3	4
477:	4	8	9	8	7	5	4	5	5	1	9	2	2	3
491:	5	5	3	3	0	2	4	4	1	1	3	3	2	4
505:	3	3	0	0	3	2	2	1	1	1	3	0	2	0
519:	1	2	3	1	1	2	0	2	3	1	1	2	0	1
533:	0	0	1	1	2	0	0	0	0	2	0	1	0	0
547:	1	1	2	2	2	1	2	2	1	0	2	0	2	0
561:	0	2	0	0	0	0	0	0	0	0	1	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	0	0	0	0	0	0
617:	0	0	1	0	0	0	1	0	0	0	0	1	0	0
631:	0	2	0	1	0	0	0	0	0	0	1	0	0	1
645:	0	0	0	2	0	0	0	0	0	1	0	0	1	0
659:	0	1	0	0	1	0	0	0	2	1	0	1	0	1
673:	1	0	1	0	0	3	1	1	1	0	0	1	1	1
687:	1	2	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	0	0	0	0	0	0	0	0	0	0
729:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	0	0	0	1	0	1	0	0	0	0	0
757:	1	0	0	1	0	1	0	0	0	0	0	0	1	0
771:	0	1	0	0	1	0	1	1	0	0	0	0	0	1
785:	1	1	0	1	1	0	0	1	0	0	0	0	0	0
799:	1	1	0	1	1	1	1	0	0	0	0	0	0	1
813:	0	0	0	1	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	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	0
939:	0	0	0	0	0	1	0	0	0	0	0	0	1	0
953:	0	0	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	1	0	0	0	0	0	1	0	0
995:	0	1	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 10:27:27.60

Detector ID: 48 Acquisition Start: 6-SEP-2005 07:18:54.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508095A-TH Sample Id: 16
Sample Type: TH

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3986.63	36	0	63.32	187.92	126	101	3.53E-03	16.7	
2	0	4622.44	57	0	51.29	402.28	335	103	5.59E-03	13.2	
3	0	4897.51	221	0	46.15	496.43	438	129	2.17E-02	6.7	
4	0	5376.81	33	0	0.00	662.64	584	105	3.24E-03	17.4	
5	0	5767.75	17	0	332.22	800.29	776	126	1.67E-03	24.3	

Background Counts Within Peak Regions Generated: 6-SEP-2005 10:27:35.37

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	3952.94	5	0	3.04	176.00	126	101	8.33E-05	44.7	
2	0	4575.71	5	0	261.65	386.00	335	103	8.33E-05	44.7	
3	0	4914.53	12	0	0.00	502.00	438	129	2.00E-04	28.9	
4	0	5301.34	12	0	0.00	636.00	584	105	2.00E-04	28.9	
5	0	5876.57	4	0	298.16	838.50	776	126	6.67E-05	50.0	

Net Sample Counts Within Peak Regions Generated: 6-SEP-2005 10:27:35.66

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	3986.63*	35	0	63.32	187.92	126	101	3.45E-03	17.1	
2	0	4622.44*	56	0	51.29	402.28	335	103	5.50E-03	13.5	
3	0	4897.51*	219	0	46.15	496.43	438	129	2.15E-02	6.8	
4	0	5376.81*	31	0	0.00	662.64	584	105	3.04E-03	18.7	
5	0	5767.75*	16	0	332.22	800.29	776	126	1.60E-03	25.3	

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

VMS Nuclide Identification Report V3.0 Generated 6-SEP-2005 10:27:36

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0G
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 6-SEP-2005 07:18:54
Sample ID : 16 Sample quantity : 1.0511 gram
Sample type : TH 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	3986.63*	35	63.32	187.92	126	101	34.2		TH-232	0.441
0	4622.44*	56	51.29	402.28	335	103	26.9		TH-230	0.706
0	4897.51*	219	46.15	496.43	438	129	13.6		TH229	2.76
0	5376.81*	31	0.00	662.64	584	105	37.3		TH-228	0.397
0	5767.75*	16	332.22	800.29	776	126	50.7		TH-227	0.211

SECTION X

ANALYTICAL DATA (RADIUM-226)

Work Order	05-08095
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)	1674.117
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	VPSCR081705SL15	34	08/17/05 10:46	1.0141E+00
04	DO	VPSCR081705SL15	34	08/17/05 10:46	1.0807E+00
05	TRG	VPSCR081705SL16	41	08/17/05 10:51	1.0645E+00
06	TRG	VPSCR081705SL17	49	08/17/05 10:52	1.0305E+00
07	TRG	VPSCR081705SL18	39	08/17/05 10:54	1.1063E+00
08	TRG	VPSCR081705SL19	47	08/17/05 10:59	1.0134E+00
09	TRG	VPSCR081705SL20	41	08/17/05 11:00	1.0152E+00
10	TRG	VPSCR081705SL0A	51	08/17/05 08:50	1.0994E+00
11	TRG	VPSCR081705SL0B	22	08/17/05 08:55	1.0168E+00
12	TRG	VPSCR081705SL0C	48	08/17/05 09:00	1.1872E+00
13	TRG	VPSCR081705SL0D	26	08/17/05 09:05	1.0525E+00
14	TRG	VPSCR081705SL0E	30	08/17/05 09:07	1.0177E+00
15	TRG	VPSCR081705SL0F	48	08/17/05 09:08	1.0273E+00
16	TRG	VPSCR081705SL0G	40	08/17/05 09:09	1.0821E+00

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* 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	0.6139	1027.7	394.8	85.28		0.0244	0.0312	0.0068		85.28	2.44	1.00
02	MBL	0.6055	1013.7	460.2	100.79		0.0243	0.0315	0.0072		100.00	2.55	1.00
03	DUP	0.5997	1004.0	411.3	90.95		0.0233	0.0296	0.0063		90.95	2.27	1.00
04	DO	0.6012	1006.5	413.8	91.27		0.0232	0.0295	0.0063		91.27	2.27	1.00
05	TRG	0.6016	1007.1	430.8	94.96		0.0233	0.0294	0.0061		94.96	2.20	1.00
06	TRG	0.6013	1006.6	448.1	98.82		0.0234	0.0297	0.0063		98.82	2.27	1.00
07	TRG	0.5997	1004.0	367.8	81.33		0.0234	0.0298	0.0064		81.33	2.31	1.00
08	TRG	0.5977	1000.6	424.9	94.27		0.0234	0.0306	0.0072		94.27	2.55	1.00
09	TRG	0.6029	1009.3	433.8	95.41		0.0238	0.0307	0.0069		95.41	2.47	1.00
10	TRG	0.6033	1010.0	385.4	84.71		0.0233	0.0291	0.0058		84.71	2.08	1.00
11	TRG	0.5995	1003.6	430.1	95.14		0.0235	0.0293	0.0058		95.14	2.08	1.00
12	TRG	0.6009	1006.0	447.3	98.71		0.0241	0.0302	0.0061		98.71	2.20	1.00
13	TRG	0.6020	1007.8	476.7	105.01		0.0235	0.0295	0.0060		100.00	2.16	1.00
14	TRG	0.6004	1005.1	363.9	80.37		0.0238	0.0301	0.0063		80.37	2.27	1.00
15	TRG	0.5985	1002.0	435.8	96.56		0.0239	0.0317	0.0078		96.56	2.72	1.00
16	TRG	0.6016	1007.1	428.9	94.54		0.0239	0.0302	0.0063		94.54	2.27	1.00

* 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.

05-08095
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			08/29/05 07:44	JBARNARD				
02	MBL			08/29/05 07:44	JBARNARD				
03	DUP			08/29/05 07:44	JBARNARD				
04	DO	08/23/05 12:08	KSALLINGS	08/29/05 07:44	JBARNARD				
05	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:44	JBARNARD				
06	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:44	JBARNARD				
07	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:44	JBARNARD				
08	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:44	JBARNARD				
09	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:44	JBARNARD				
10	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:44	JBARNARD				
11	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:44	JBARNARD				
12	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:44	JBARNARD				
13	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:44	JBARNARD				
14	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:44	JBARNARD				
15	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:44	JBARNARD				
16	TRG	08/23/05 12:08	KSALLINGS	08/29/05 07:44	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: 05-08095-Ra226-1

Run: 1
Analysis Code: Ra226
Eberline Services Work Order: 05-08095
Client: 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	9.93E+00	1.40E+00	2.01E-01	1.03E+01	96.06	OK		OK	
02	RA-226	MBL	BLANK	pCi/g	-4.31E-03	6.11E-03	1.75E-01					OK	OK
03	RA-226	DUP	VPSCR081705SL15	pCi/g	1.02E+00	3.62E-01	1.68E-01				OK	OK	
04	RA-226	DO	VPSCR081705SL15	pCi/g	1.04E+00	3.49E-01	7.60E-02					OK	
05	RA-226	TRG	VPSCR081705SL16	pCi/g	8.21E-01	3.01E-01	1.23E-01					OK	
06	RA-226	TRG	VPSCR081705SL17	pCi/g	1.34E+00	4.01E-01	1.84E-01					OK	
07	RA-226	TRG	VPSCR081705SL18	pCi/g	1.98E+00	5.31E-01	2.17E-01					OK	
08	RA-226	TRG	VPSCR081705SL19	pCi/g	1.52E+00	4.68E-01	2.05E-01					OK	
09	RA-226	TRG	VPSCR081705SL20	pCi/g	1.03E+00	3.68E-01	1.89E-01					OK	
10	RA-226	TRG	VPSCR081705SL0A	pCi/g	1.26E+00	3.97E-01	2.56E-01					OK	
11	RA-226	TRG	VPSCR081705SL0B	pCi/g	1.30E+00	3.92E-01	1.82E-01					OK	
12	RA-226	TRG	VPSCR081705SL0C	pCi/g	1.23E+00	3.66E-01	1.55E-01					OK	
13	RA-226	TRG	VPSCR081705SL0D	pCi/g	1.58E+00	4.44E-01	2.60E-01					OK	
14	RA-226	TRG	VPSCR081705SL0E	pCi/g	1.14E+00	4.23E-01	2.61E-01					OK	
15	RA-226	TRG	VPSCR081705SL0F	pCi/g	1.46E+00	4.85E-01	2.08E-01					OK	
16	RA-226	TRG	VPSCR081705SL0G	pCi/g	1.26E+00	4.18E-01	2.42E-01					OK	

Preliminary Data Report & Analytical Calculations

Work Order: 05-08095-Ra226-1

Run	1
Analysis Code	Ra226
Eberline Services Work Order	05-08095
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	RA-226	LCS	08/22/05 00:00	1.00E+00	85.28		85.28			
02	RA-226	MBL	08/22/05 00:00	1.00E+00	100.00		100.00			
03	RA-226	DUP	08/17/05 10:46	1.01E+00	90.95		90.95			
04	RA-226	DO	08/17/05 10:46	1.08E+00	91.27		91.27			
05	RA-226	TRG	08/17/05 10:51	1.06E+00	94.96		94.96			
06	RA-226	TRG	08/17/05 10:52	1.03E+00	98.82		98.82			
07	RA-226	TRG	08/17/05 10:54	1.11E+00	81.33		81.33			
08	RA-226	TRG	08/17/05 10:59	1.01E+00	94.27		94.27			
09	RA-226	TRG	08/17/05 11:00	1.02E+00	95.41		95.41			
10	RA-226	TRG	08/17/05 08:50	1.10E+00	84.71		84.71			
11	RA-226	TRG	08/17/05 08:55	1.02E+00	95.14		95.14			
12	RA-226	TRG	08/17/05 09:00	1.19E+00	98.71		98.71			
13	RA-226	TRG	08/17/05 09:05	1.05E+00	100.00		100.00			
14	RA-226	TRG	08/17/05 09:07	1.02E+00	80.37		80.37			
15	RA-226	TRG	08/17/05 09:08	1.03E+00	96.56		96.56			
16	RA-226	TRG	08/17/05 09:09	1.08E+00	94.54		94.54			

Preliminary Data Report & Analytical Calculations

Work Order: 05-08095-Ra226-1

Client	Eberline Services Work Order	Analysis Code	Run
Missouri Dept. of Natural Resources	05-08095	Ra226	1

Lab Fraction	Nuclide	Sample Desc	Counting Date/Time	Halflife (days)	Detect	Carrier	Count Time	Counts	Bkg CPM	Eff
01	RA-226	LCS	08/30/05 18:22		A_Spec	39	170	6.54 E+02	2.00 E-03	20.5
02	RA-226	MBL	08/30/05 18:23		A_Spec	40	170	-3.40 E-01	2.00 E-03	20.9
03	RA-226	DUP	08/30/05 18:23		A_Spec	41	170	7.46 E+01	2.00 E-03	21.1
04	RA-226	DO	08/30/05 18:23		A_Spec	42	170	8.40 E+01	0.00 E+00	21.7
05	RA-226	TRG	08/30/05 18:24		A_Spec	43	170	6.80 E+01	1.00 E-03	21.7
06	RA-226	TRG	08/30/05 18:24		A_Spec	44	170	1.08 E+02	4.00 E-03	21
07	RA-226	TRG	08/30/05 18:25		A_Spec	45	170	1.38 E+02	4.00 E-03	20.5
08	RA-226	TRG	08/30/05 18:25		A_Spec	46	170	1.14 E+02	3.00 E-03	20.8
09	RA-226	TRG	08/30/05 18:26		A_Spec	47	170	8.10 E+01	3.00 E-03	21.5
10	RA-226	TRG	08/30/05 18:26		A_Spec	48	170	8.98 E+01	1.00 E-02	20.3
11	RA-226	TRG	08/30/05 18:27		A_Spec	17	170.07	9.71 E+01	4.00 E-03	20.5
12	RA-226	TRG	08/30/05 18:27		A_Spec	18	170.05	1.05 E+02	3.00 E-03	19.4
13	RA-226	TRG	08/30/05 18:28		A_Spec	19	170.03	1.19 E+02	1.10 E-02	18.9
14	RA-226	TRG	08/30/05 18:28		A_Spec	20	170.03	6.95 E+01	5.00 E-03	19.7
15	RA-226	TRG	08/30/05 18:28		A_Spec	21	170.03	1.03 E+02	2.00 E-03	18.9
16	RA-226	TRG	08/30/05 18:29		A_Spec	22	170.03	8.75 E+01	6.00 E-03	18

Count Room Report
Client: Missouri Dept. of Natural

05-08095-Ra226-1 (pCi/g) in SO
Tracer ID: Ba-6a

39.48, 17.22

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	0.6139	1027.7404	394.8000	85.28	2.44	1.00
02	MBL	BLANK	08/22/05 00:00	1.0000	0.6055	1013.6778	460.2000	100.79	2.55	1.00
03	DUP	VPSCR081705SL15	08/17/05 10:46	1.0141	0.5997	1003.9680	411.3000	90.95	2.27	1.00
04	DO	VPSCR081705SL15	08/17/05 10:46	1.0807	0.6012	1006.4791	413.8000	91.27	2.27	1.00
05	TRG	VPSCR081705SL16	08/17/05 10:51	1.0645	0.6016	1007.1488	430.8000	94.96	2.20	1.00
06	TRG	VPSCR081705SL17	08/17/05 10:52	1.0305	0.6013	1006.6466	448.1000	98.82	2.27	1.00
07	TRG	VPSCR081705SL18	08/17/05 10:54	1.1063	0.5997	1003.9680	367.8000	81.33	2.31	1.00
08	TRG	VPSCR081705SL19	08/17/05 10:59	1.0134	0.5977	1000.6197	424.9000	94.27	2.55	1.00
09	TRG	VPSCR081705SL20	08/17/05 11:00	1.0152	0.6029	1009.3251	433.8000	95.41	2.47	1.00
10	TRG	VPSCR081705SL0A	08/17/05 08:50	1.0994	0.6033	1009.9948	385.4000	84.71	2.08	1.00
11	TRG	VPSCR081705SL0B	08/17/05 08:55	1.0168	0.5995	1003.6331	430.1000	95.14	2.08	1.00
12	TRG	VPSCR081705SL0C	08/17/05 09:00	1.1872	0.6009	1005.9769	447.3000	98.71	2.20	1.00
13	TRG	VPSCR081705SL0D	08/17/05 09:05	1.0525	0.6020	1007.8184	476.7000	105.01	2.16	1.00
14	TRG	VPSCR081705SL0E	08/17/05 09:07	1.0177	0.6004	1005.1398	363.9000	80.37	2.27	1.00
15	TRG	VPSCR081705SL0F	08/17/05 09:08	1.0273	0.5985	1001.9590	435.8000	96.56	2.72	1.00
16	TRG	VPSCR081705SL0G	08/17/05 09:09	1.0821	0.6016	1007.1488	428.9000	94.54	2.27	1.00

Eberline Services
Oak Ridge Laboratory

Spike and Tracer Worksheet

Printed: 8/29/2005 7:44 AM

Internal Work Order	Run	Analysis Code	Date	Technician	Technician Initials	Witness Initials
05-08095	1	Ra226	8/29/2005 7:34	JBARNARD		

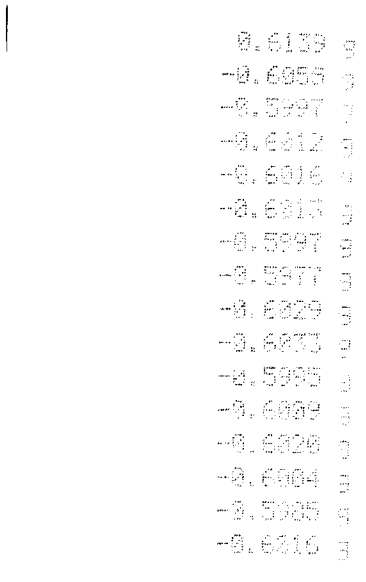
LCS & Matrix Spikes					LCS	MS	LCSD	MSD	LCS		MS		LCSD		MSD	
Isotope	*Sol #*	*Activity dpm/g*	*Solution Date*	*Approx Addition*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Volume Used (g)*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*	*Known pCi*	*Error Estimate*	*Added pCi*	*Error Estimate*
Ra-226	Ra-5b	44.218	8/29/2005	**0.500**	**0.5189**				10.34	0.475	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	1674.117	8/29/2005	**0.6139**	**0.6100**
02	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.6055**	**0.6100**
03	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.5997**	**0.6100**
04	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.6012**	**0.6100**
05	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.6016**	**0.6100**
06	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.6013**	**0.6100**
07	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.5997**	**0.6100**
08	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.5977**	**0.6100**
09	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.6029**	**0.6100**
10	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.6033**	**0.6100**
11	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.5995**	**0.6100**
12	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.6009**	**0.6100**
13	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.6020**	**0.6100**
14	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.6004**	**0.6100**
15	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.5985**	**0.6100**
16	**Ba-133**	Ba-6a	1674.117	8/29/2005	**0.6016**	**0.6100**

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 8:17 AM

Work Order	Run	Analysis Code	Rpt Units	Lab Deadline	Technician
05-08095	1	Ra226	grams	9/9/2005	JBARNARD

Lab Fraction	Missouri Dept. of Natural Resources Client ID	Sample Type	Muffle Data	Dilution Data			Aliquot Data		MS Aliquot Data		H-3 Solids Only	
			Ratio Post/Pre	No of Dils	Dil Factor	Ratio	Aliquot	Net Equiv	Aliquot	Net Equiv	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	VPSCR081705SL15	DUP					1.0141E+00	1.0141E+00				
04	VPSCR081705SL15	DO					1.0807E+00	1.0807E+00				
05	VPSCR081705SL16	TRG					1.0645E+00	1.0645E+00				
06	VPSCR081705SL17	TRG					1.0305E+00	1.0305E+00				
07	VPSCR081705SL18	TRG					1.1063E+00	1.1063E+00				
08	VPSCR081705SL19	TRG					1.0134E+00	1.0134E+00				
09	VPSCR081705SL20	TRG					1.0152E+00	1.0152E+00				
10	VPSCR081705SL0A	TRG					1.0994E+00	1.0994E+00				
11	VPSCR081705SL0B	TRG					1.0168E+00	1.0168E+00				
12	VPSCR081705SL0C	TRG					1.1872E+00	1.1872E+00				
13	VPSCR081705SL0D	TRG					1.0525E+00	1.0525E+00				
14	VPSCR081705SL0E	TRG					1.0177E+00	1.0177E+00				
15	VPSCR081705SL0F	TRG					1.0273E+00	1.0273E+00				
16	VPSCR081705SL0G	TRG					1.0821E+00	1.0821E+00				

Comments	

1.0141
1.0807
1.0645
1.0305
1.1063
1.0134
1.0152
1.0994
1.0168
1.1872
1.0525
1.0177
1.0273
1.0821

Technician: JBarnard Date: 8/29/05

Gravimetric Worksheet

Work Order	Run	Analysis Code	Gravimetric Carrier	Carrier Conc (mg/ml)	Technician
05-08095	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		0.0244	0.0312	0.0068	
02	BLANK	MBL		0.0243	0.0315	0.0072	
03	DUP	DUP		0.0233	0.0296	0.0063	
04	VPSCR081705SL15	DO		0.0232	0.0295	0.0063	
05	VPSCR081705SL16	TRG		0.0233	0.0294	0.0061	
06	VPSCR081705SL17	TRG		0.0234	0.0297	0.0063	
07	VPSCR081705SL18	TRG		0.0234	0.0298	0.0064	
08	VPSCR081705SL19	TRG		0.0234	0.0306	0.0072	
09	VPSCR081705SL20	TRG		0.0238	0.0307	0.0069	
10	VPSCR081705SL0A	TRG		0.0233	0.0291	0.0058	
11	VPSCR081705SL0B	TRG		0.0235	0.0293	0.0058	
12	VPSCR081705SL0C	TRG		0.0241	0.0302	0.0061	
13	VPSCR081705SL0D	TRG		0.0235	0.0295	0.0060	
14	VPSCR081705SL0E	TRG		0.0238	0.0301	0.0063	
15	VPSCR081705SL0F	TRG		0.0239	0.0317	0.0078	
16	VPSCR081705SL0G	TRG		0.0239	0.0302	0.0063	

Technician: _____ Date: 8/30/05

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

Rough Sample Preparation
Log Book

Printed: 8/23/2005 12:08 PM

Work Order	Lab Deadline	Date Received in Prep	Date Sealed	Date Returned	Technician
05-08095	9/9/2005	8/22/2005	8/23/2005	8/24/2005	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	VPSCR081705SL15	14.0300	580.1100	471.8800	566.0800	457.8500	19.12%	80.88%			
05	VPSCR081705SL16	13.9300	428.4500	359.0900	414.5200	345.1600	16.73%	83.27%			
06	VPSCR081705SL17	13.9200	427.0000	338.5700	413.0800	324.6500	21.41%	78.59%			
07	VPSCR081705SL18	13.9700	443.3600	349.9900	429.3900	336.0200	21.74%	78.26%			
08	VPSCR081705SL19	14.0000	461.8600	375.5800	447.8600	361.5800	19.26%	80.74%			
09	VPSCR081705SL20	13.9000	459.3100	382.8200	445.4100	368.9200	17.17%	82.83%			
10	VPSCR081705SL0A	13.8400	553.7300	471.5600	539.8900	457.7200	15.22%	84.78%			
11	VPSCR081705SL0B	14.0000	494.9000	395.4400	480.9000	381.4400	20.68%	79.32%			
12	VPSCR081705SL0C	13.9900	542.7700	455.2500	528.7800	441.2600	16.55%	83.45%			
13	VPSCR081705SL0D	13.9800	607.3900	507.0900	593.4100	493.1100	16.90%	83.10%			
14	VPSCR081705SL0E	14.0800	481.1200	410.0500	467.0400	395.9700	15.22%	84.78%			
15	VPSCR081705SL0F	14.0600	481.7400	382.8400	467.6800	368.7800	21.15%	78.85%			
16	VPSCR081705SL0G	14.0000	486.3300	403.9300	472.3300	389.9300	17.45%	82.55%			

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. 5092

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:08:46

****

Spectral File: ND_AMS_ARCHIVE_C:C_0508095A-RA$01_RA.CNF

****

BATCH ID:	0508095A-RA	SAMPLE ID:	01
SAMPLE DATE:	30-AUG-2005 00:00	ALIQUOT: 1.000E+00	gram
SAMPLE TITLE:	SPIKE	DETECTOR NUMBER:	039
ACQ DATE:	30-AUG-2005 18:22	AVERAGE EFFICIENCY:	20.45%
ELAPSED LIVE TIME:	10200.	RECOVERY:	85.28%
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:	2.44

****

NUCLIDE ACTIVITY SUMMARY

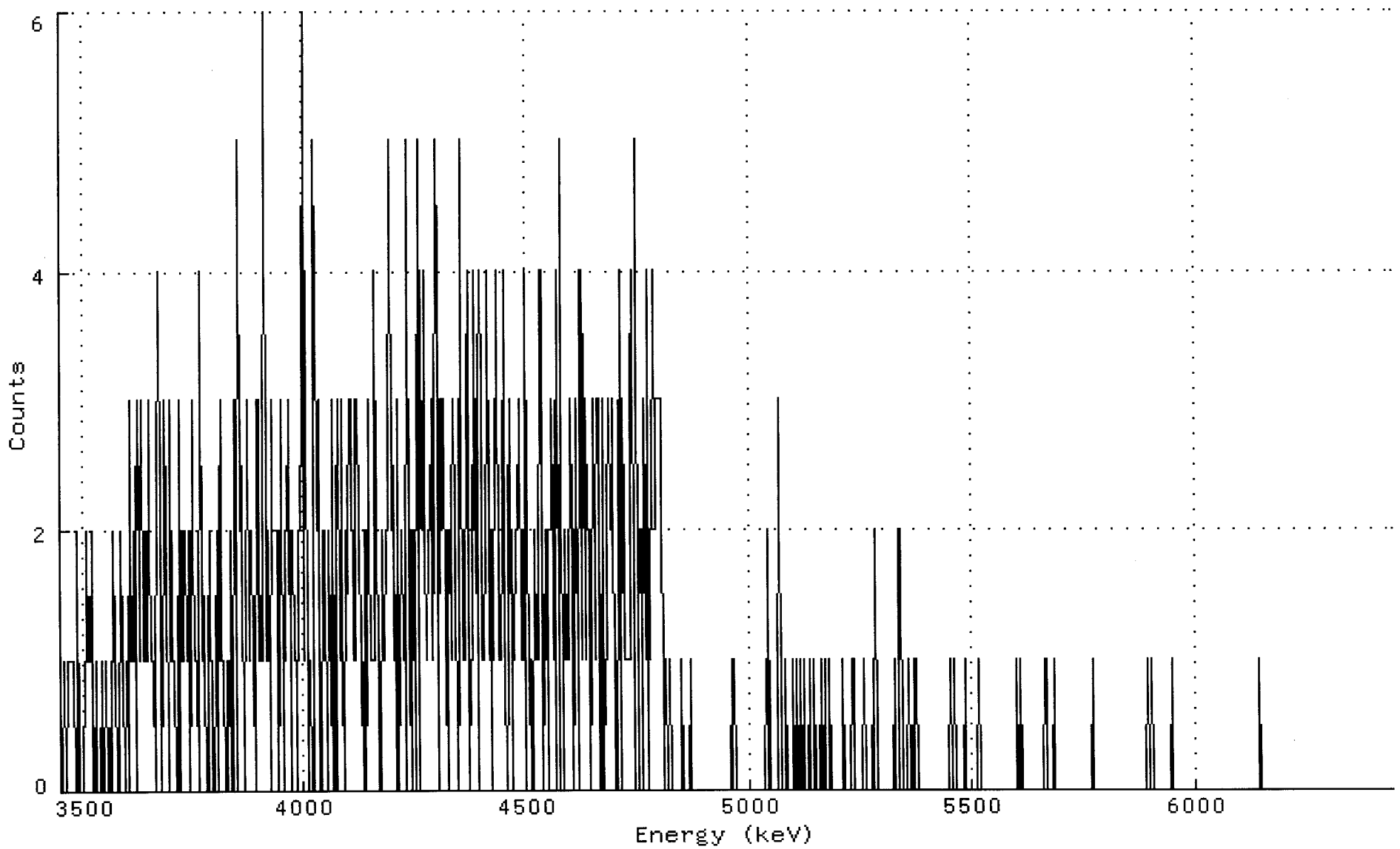
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	21.62	0.34	100.0	3.285E-01	2.237E-01	2.010E-01
RN-222	5490.0	89.77	0.51	99.9	1.365E+00	4.612E-01	2.237E-01
RA-226	4785.0	653.58	0.34	100.0	9.928E+00	1.396E+00	2.009E-01

****

Analyst _____ Date 8-31-05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.C]C_0508095A-RA$01_RA.CNF;1
Title : 039
Sample Title: SPIKE
Start Time: 30-AUG-2005 18:22 Sample Time: 30-AUG-2005 00:00 Energy Offset: 3.43960E+03
Real Time : 0 02:50:00.50 Sample ID : 01 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_C:C_0508095A-RA$01_RA

Channel

1:	0	0	1	0	0	1	0	1	1	1	1	1	1	0	
15:	0	2	0	0	0	0	1	1	2	1	1	2	0	0	
29:	1	0	0	0	1	0	0	1	0	0	0	1	0	2	
43:	1	0	0	0	2	2	1	0	1	1	0	3	1	1	
57:	2	0	2	3	1	2	3	1	1	2	1	3	2	1	
71:	1	0	1	2	4	2	0	1	2	3	2	0	2	3	
85:	1	1	1	0	0	3	0	2	1	2	2	1	2	0	
99:	1	3	2	1	1	0	0	4	1	2	1	0	0	1	
113:	2	0	1	0	1	2	0	2	3	1	1	0	1	0	
127:	1	0	2	0	3	0	1	5	2	3	2	0	2	1	
141:	3	1	1	2	1	0	0	3	3	1	1	2	1	6	
155:	1	1	2	0	3	2	2	2	2	0	1	3	3	0	
169:	2	2	2	3	0	2	2	1	1	0	2	2	2	3	
183:	6	1	4	0	1	1	0	0	5	4	2	3	0	0	
197:	2	2	2	0	2	2	1	0	3	0	0	2	3	1	
211:	3	1	0	2	1	2	3	2	3	1	1	3	3	2	
225:	2	1	0	2	0	1	3	2	1	1	1	4	2	1	
239:	0	0	2	2	1	2	2	2	5	2	3	2	0	3	
253:	0	1	2	2	1	2	0	5	1	0	2	2	0	2	
267:	2	5	0	4	2	4	2	1	2	2	2	3	1	2	
281:	5	4	0	3	2	3	3	1	0	2	2	1	2	3	
295:	2	2	0	1	5	3	1	1	1	3	4	0	1	1	
309:	4	2	3	0	3	4	3	1	1	2	3	4	2	0	
323:	2	1	3	2	4	1	2	1	2	4	1	0	1	2	
337:	3	0	2	1	2	2	2	3	1	1	2	0	4	2	
351:	1	0	1	0	2	1	1	2	1	4	4	0	1	2	
365:	0	2	2	2	3	2	0	2	4	0	5	3	0	2	
379:	2	1	2	1	3	2	0	1	3	0	0	4	1	4	
393:	3	1	3	2	2	0	1	3	1	2	3	3	0	0	
407:	3	0	1	1	2	3	2	2	3	0	0	0	2	4	
421:	0	3	2	1	1	1	1	3	4	1	0	5	0	1	
435:	2	2	0	3	1	4	0	2	2	2	4	2	3	3	
449:	3	3	3	0	0	1	0	1	1	0	0	0	0	0	
463:	0	0	0	1	0	0	0	0	0	1	0	0	0	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	1	
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:	2	0	0	0	0	0	0	0	3	0	0	0	0	1	
547:	0	0	0	0	0	1	0	0	1	0	1	0	0	1	
561:	0	0	0	1	0	0	0	1	0	0	0	0	1	0	
575:	0	1	0	0	0	1	0	0	0	0	0	0	0	0	
589:	0	1	0	0	0	0	0	0	1	1	0	0	0	0	
603:	0	0	0	1	0	0	0	0	0	0	1	0	2	0	
617:	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
631:	0	0	2	2	0	0	0	0	0	1	0	0	0	1	
645:	0	1	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:	1	0	1	1	0	0	0	0	0	0	0	1	0	0	
687:	0	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	0	0	0	1	0	0	1	
729:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
743:	0	0	0	0	1	1	0	0	0	0	0	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	1	
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	1	0	0	0	0	0	0	0	0	0	0	
841:	0	0	0	0	0	1	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	1	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: 31-AUG-2005 04:08:40.05

Detector ID: 39 Acquisition Start: 30-AUG-2005 18:22:48.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.50
Batch Id: 0508095A-RA Sample Id: 01
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4593.66	268	0441.24	380.34	307	156	2.63E-02	6.1		
2	0	5243.63	37	0314.04	601.43	525	176	3.63E-03	16.4		
3	0	5747.57	9	0377.47	776.56	719	163	8.82E-04	33.3		

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:08:45.01

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	0352.71	384.50	307	156	3.33E-05	70.7		
2	0	5275.76	3	0389.84	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 04:08:45.26

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4593.66*	654	0441.24	380.34	307	156	6.41E-02	6.1		
2	0	5243.63*	90	0314.04	601.43	525	176	8.80E-03	16.5		
3	0	5747.57*	22	0377.47	776.56	719	163	2.12E-03	33.9		

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:08:46

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: SPIKE		
Sample date	: 30-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:22:48
Sample ID	: 01	Sample quantity	: 1.0000 gram
Sample type	: RA	Sample geometry	:
Detector name	: 039	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.50 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	4593.66*	654441.24	380.34		307	156	12.2		RA-226	8.47
0	5243.63*	90314.04	601.43		525	176	33.1		RN-222	1.16
0	5747.57*	22377.47	776.56		719	163	67.8		PO-218	0.280

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:09:02

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Spectral File: ND_AMS_ARCHIVE_R:R_0508095A-RA$02_RA.CNF

****

BATCH ID:	0508095A-RA	SAMPLE ID:	02
SAMPLE DATE:	30-AUG-2005 00:00	ALIQUOT: 1.000E+00	gram
SAMPLE TITLE:	BLANK	DETECTOR NUMBER:	040
ACQ DATE:	30-AUG-2005 18:23	AVERAGE EFFICIENCY:	20.89%
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_040_26AUG05	BKG ELAPSED TIME:	60000.
		SAF:	2.55

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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	9.01	1.19	100.0	1.143E-01	1.301E-01	2.517E-01
RN-222	5490.0	9.18	1.02	99.9	1.165E-01	1.301E-01	2.397E-01
RA-226	4785.0	-0.34	0.34	100.0	-4.312E-03	6.105E-03	1.753E-01

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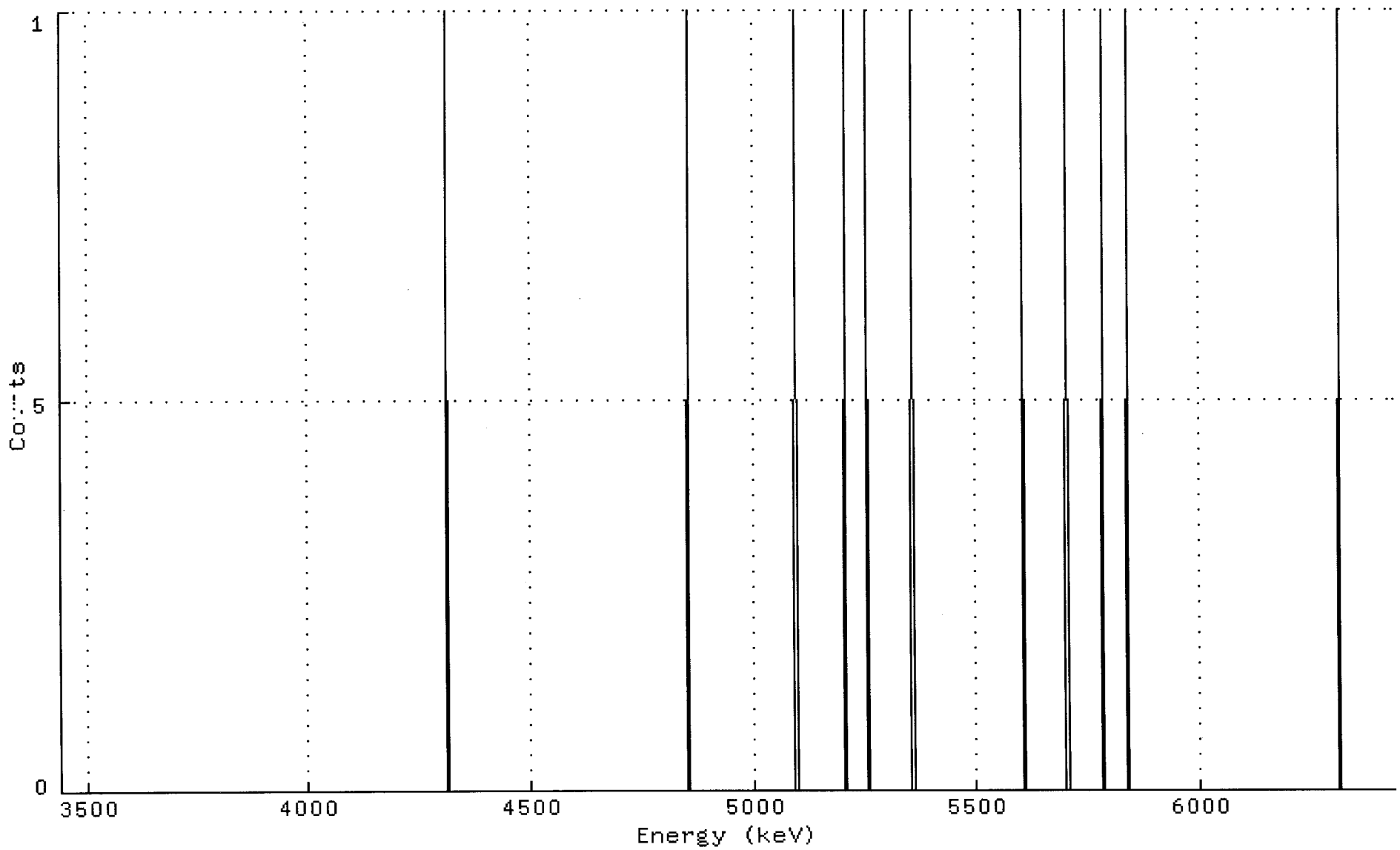
Analyst _____ Date 8-31-05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.R]R_0508095A-RA$02_RA.CNF;1
Title : 040
Sample Title: BLANK
Start Time: 30-AUG-2005 18:23 Sample Time: 30-AUG-2005 00:00 Energy Offset: 3.43216E+03
Real Time : 0 02:50:00.40 Sample ID : 02 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_R:R_0508095A-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	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	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	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	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	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	0	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	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	0	0	0	0	0	0	0	0	0	0	0
589:	0	1	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	0	0
631:	0	0	0	0	0	0	0	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:	1	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	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	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	1	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	1
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 04:08:55.30

Detector ID: 40 Acquisition Start: 30-AUG-2005 18:23:02.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-RA Sample Id: 02
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4605.40	0	0	0.00	386.50	309	156	0.00E+00	0.0	
2	0	5225.77	4	0	282.05	597.75	527	177	3.92E-04	50.0	
3	0	5730.64	4	0	257.26	773.50	722	163	3.92E-04	50.0	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:09:00.19

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 04:09:00.59

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4605.40*	0	0	0.00	386.50	309	156	-3.33E-05	70.7	
2	0	5225.77*	9	0	282.05	597.75	527	177	9.00E-04	55.7	
3	0	5730.64*	9	0	257.26	773.50	722	163	8.83E-04	56.8	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:09:01

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: BLANK		
Sample date	: 30-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:23:02
Sample ID	: 02	Sample quantity	: 1.0000 gram
Sample type	: RA	Sample geometry	:
Detector name	: 040	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	4605.40*	0	0.00	386.50	309	156141.4			RA-226	-4.312E-03
0	5225.77*	9282.05		597.75	527	177111.5			RN-222	0.117
0	5730.64*	9257.26		773.50	722	163113.6			PO-218	0.114

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:09:14

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$03_RA.CNF

****

BATCH ID:	0508095A-RA	SAMPLE ID:	03
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.014E+00	gram
SAMPLE TITLE:	VPSCR081705SL15	DETECTOR NUMBER:	041
ACQ DATE:	30-AUG-2005 18:23	AVERAGE EFFICIENCY:	21.11%
ELAPSED LIVE TIME:	10200.	RECOVERY:	90.95%
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:	2.27

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NUCLIDE ACTIVITY SUMMARY

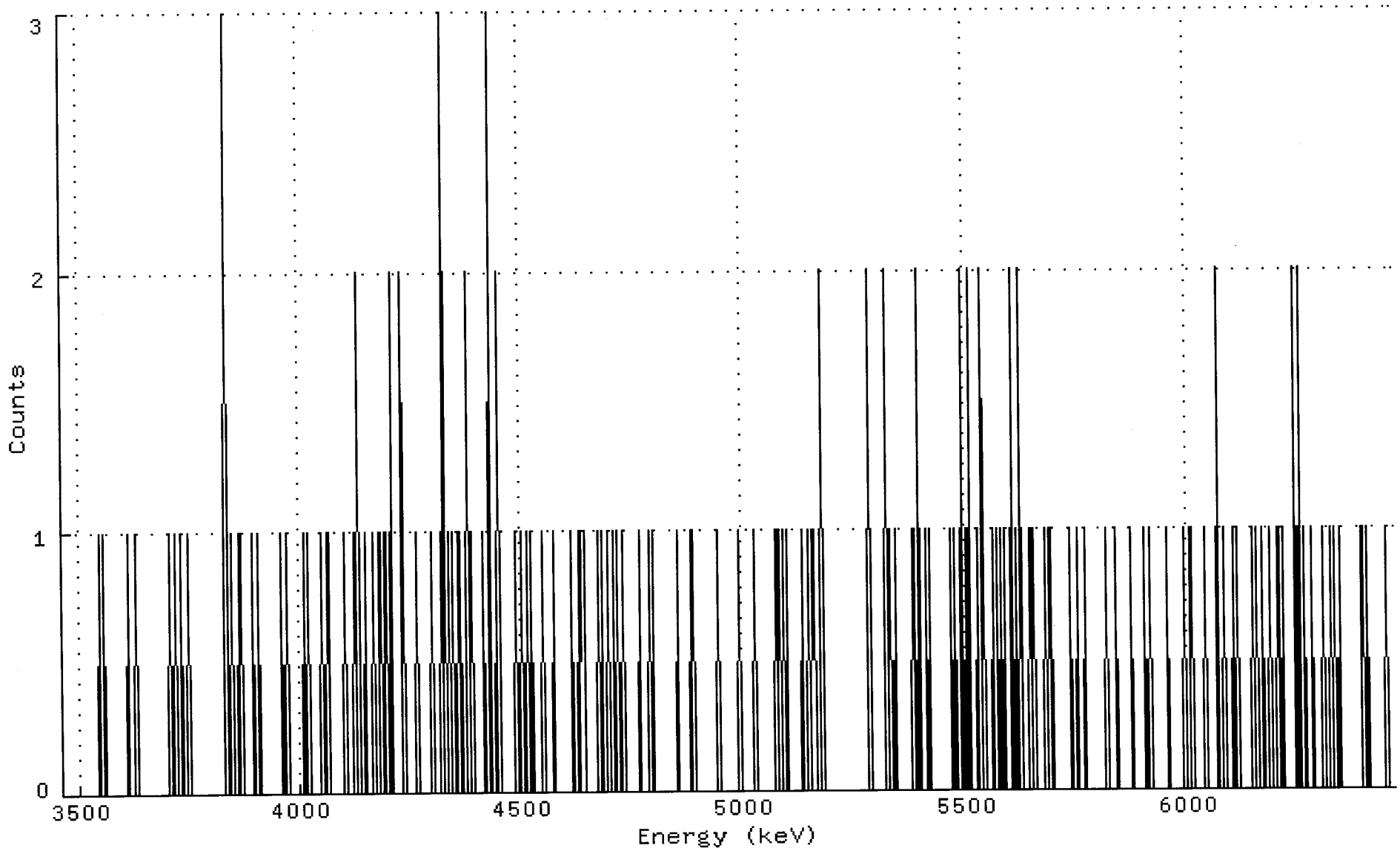
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	58.17	0.85	100.0	7.919E-01	3.201E-01	2.162E-01
RN-222	5490.0	74.74	0.17	99.9	1.018E+00	3.622E-01	1.431E-01
RA-226	4785.0	74.57	0.34	100.0	1.015E+00	3.620E-01	1.675E-01

****

Analyst _____ Date 8-31-05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$03_RA.CNF;1
Title : 041
Sample Title: VPSCR081705SL15
Start Time: 30-AUG-2005 18:23 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45145E+03
Real Time : 0 02:50:00.40 Sample ID : 03 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_0508095A-RA$03_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	1	0	0	0	1	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
57:	1	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	1	0	0	0	0	1	0	0	0	0	1	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	3	0	0
127:	0	1	0	0	0	0	1	0	1	0	0	0	0	0
141:	0	0	0	1	0	0	0	1	0	0	0	0	0	0
155:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
169:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
183:	0	1	0	0	0	0	0	0	0	0	0	1	0	0
197:	0	1	1	0	0	0	0	0	0	0	0	0	0	0
211:	1	0	0	0	0	0	0	1	0	0	2	0	0	0
225:	0	1	0	0	0	0	0	1	0	0	0	0	1	1
239:	0	1	0	1	0	0	0	2	0	0	0	0	0	0
253:	0	2	1	0	0	0	0	0	0	0	0	0	1	0
267:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
281:	0	0	1	0	3	1	0	0	1	0	0	1	0	0
295:	0	1	0	1	0	0	0	0	2	0	1	1	0	0
309:	0	0	0	0	0	0	1	0	0	0	0	3	0	0
323:	0	1	0	2	0	0	0	0	0	0	0	0	0	0
337:	0	0	1	0	0	0	1	0	0	0	1	1	0	0
351:	1	0	0	0	0	0	0	0	1	0	0	0	0	0
365:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
379:	0	0	1	0	0	0	0	1	0	1	1	1	0	0
393:	0	0	0	0	0	0	0	0	1	0	1	0	0	0
407:	0	1	0	0	0	0	1	0	1	0	0	0	1	1
421:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
435:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
449:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
463:	0	0	0	0	0	0	0	0	1	0	1	0	0	0
477:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
491:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	1	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	0	1	0	1	1	0	0	1	0	1	0	0
547:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
561:	1	0	0	1	1	0	0	0	0	0	2	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	2	0	0	0	0	0	0	0	0
617:	0	0	0	0	2	0	1	1	0	0	0	1	0	0
631:	0	0	0	0	0	0	0	0	0	0	0	1	0	1
645:	0	0	2	0	0	0	0	0	1	0	1	0	0	0
659:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
673:	0	0	1	0	0	0	0	2	0	0	1	0	0	2
687:	0	0	0	0	0	1	0	0	0	2	1	0	0	0
701:	0	0	0	1	0	0	0	1	0	0	1	0	1	0
715:	0	0	0	0	2	0	0	1	0	0	1	2	0	0
729:	0	0	0	0	1	1	0	1	0	0	0	0	0	0
743:	0	0	1	0	0	1	0	1	0	0	0	0	0	0
757:	0	0	0	0	0	0	0	0	1	0	0	0	0	1
771:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
799:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
813:	1	0	0	0	0	0	0	0	0	0	0	1	0	0
827:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
841:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
855:	1	0	0	0	0	1	1	0	0	0	0	0	0	0
869:	0	0	0	1	0	0	0	0	0	0	0	0	0	2
883:	0	0	0	0	1	0	0	0	0	0	0	1	0	0
897:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
911:	0	0	1	0	0	0	0	1	0	0	0	0	0	1
925:	0	0	0	0	0	1	0	1	0	1	0	0	0	0
939:	0	0	0	0	0	2	0	0	0	2	0	0	0	1
953:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
967:	1	0	0	0	0	0	1	0	0	1	0	0	0	1
981:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
995:	0	0	0	1	1	0	0	0	1	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:09:07.21

Detector ID: 41 Acquisition Start: 30-AUG-2005 18:23:25.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-RA Sample Id: 03
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4567.01	33	0	73.24	365.12	301	155	3.24E-03	17.4	
2	0	5303.49	33	0	361.54	614.61	518	175	3.24E-03	17.4	
3	0	5766.59	26	0	24.93	775.23	712	162	2.55E-03	19.6	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:09:12.25

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 04:09:12.50

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4567.01*	75	0	73.24	365.12	301	155	7.31E-03	17.5	
2	0	5303.49*	75	0	361.54	614.61	518	175	7.33E-03	17.4	
3	0	5766.59*	58	0	24.93	775.23	712	162	5.70E-03	19.9	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:09:13

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL15		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:23:25
Sample ID	: 03	Sample quantity	: 1.0141 gram
Sample type	: RA	Sample geometry	:
Detector name	: 041	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	4567.01*	75	73.24	365.12	301	155	35.0		RA-226	0.923
0	5303.49*	75	361.54	614.61	518	175	34.9		RN-222	0.926
0	5766.59*	58	24.93	775.23	712	162	39.8		PO-218	0.720

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:09:23

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$04_RA.CNF

****

BATCH ID:	0508095A-RA	SAMPLE ID:	04
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.081E+00	gram
SAMPLE TITLE:	VPSCR081705SL15	DETECTOR NUMBER:	042
ACQ DATE:	30-AUG-2005 18:23	AVERAGE EFFICIENCY:	21.73%
ELAPSED LIVE TIME:	10200.	RECOVERY:	91.27%
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:	2.27

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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	44.89	0.51	100.0	5.550E-01	2.541E-01	1.692E-01
RN-222	5490.0	80.53	1.19	99.9	9.962E-01	3.442E-01	2.185E-01
RA-226	4785.0	83.99	0.00	100.0	1.038E+00	3.489E-01	7.604E-02

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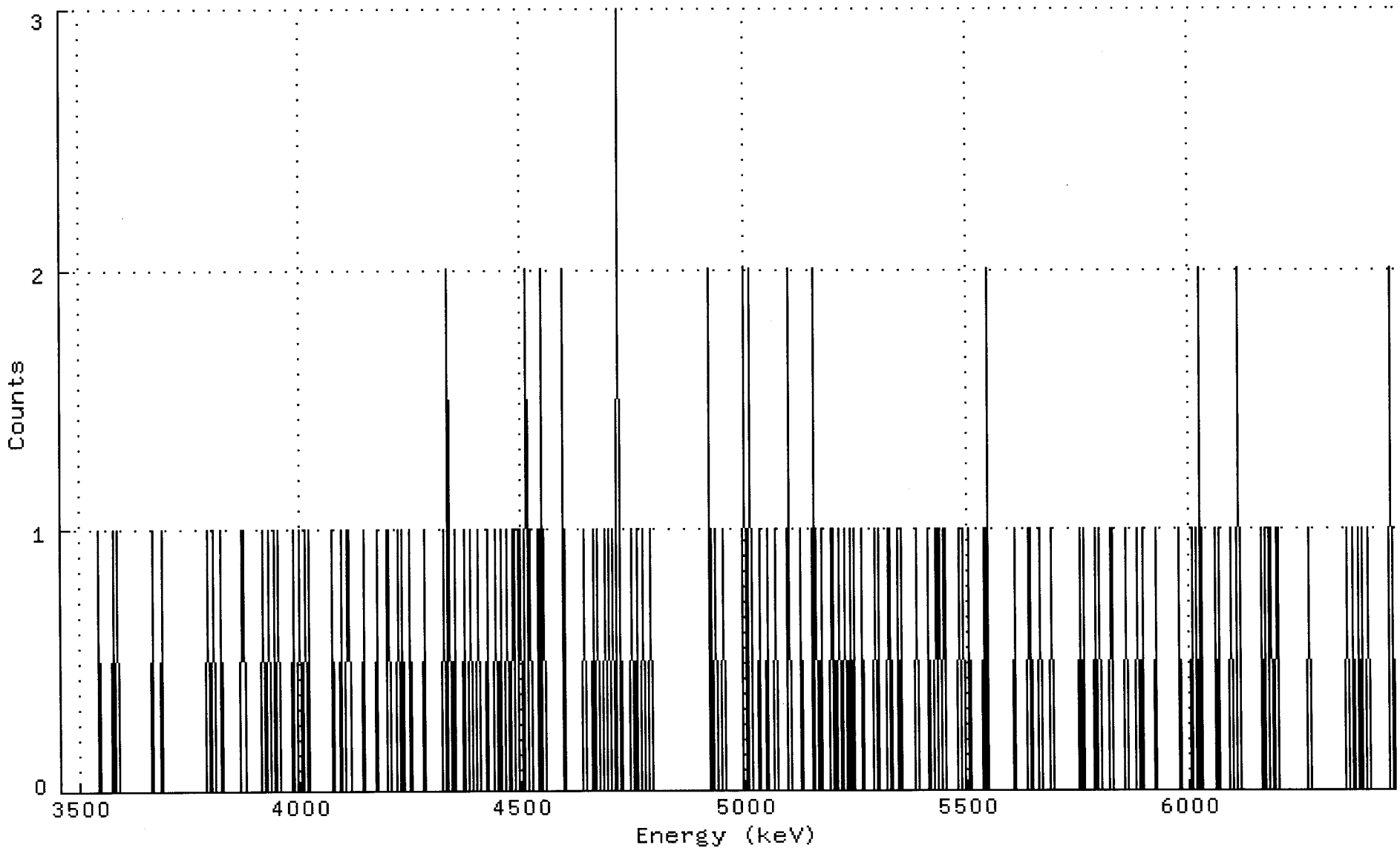
Analyst _____ Date 8-31-05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$04_RA.CNF;1
Title : 042
Sample Title: VPSCR081705SL15
Start Time: 30-AUG-2005 18:23 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44878E+03
Real Time : 0 02:50:00.50 Sample ID : 04 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_0508095A-RA$04_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	1	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	0	0	0	0	0	0	0	1
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	1	1	0
113:	0	0	1	0	0	0	0	0	1	0	0	0	0	0
127:	0	0	0	0	0	0	0	0	0	1	1	0	0	0
141:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
155:	1	0	0	0	0	1	0	1	0	0	0	0	0	0
169:	0	0	0	0	1	0	0	0	1	1	0	0	0	1
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	1	0	0
211:	0	0	1	1	0	0	0	0	0	0	0	0	0	0
225:	1	0	0	0	0	0	0	0	0	0	1	0	0	0
239:	0	0	0	0	1	1	0	0	0	0	0	0	1	0
253:	0	1	0	0	0	0	0	1	0	0	0	0	0	0
267:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	1	0	0	2	1	0	0	0	1	0
295:	0	0	0	0	0	1	0	0	0	0	1	0	0	0
309:	0	1	1	0	0	0	0	0	1	0	0	0	0	0
323:	1	0	0	0	1	0	0	0	0	1	0	0	0	1
337:	1	0	0	0	1	1	0	1	0	2	1	0	1	0
351:	0	0	0	0	1	0	2	0	1	0	0	0	0	0
365:	0	0	0	0	0	0	0	0	0	2	0	0	0	0
379:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
393:	0	0	0	1	0	0	1	0	0	0	0	0	1	0
407:	0	1	0	0	1	0	0	0	3	0	1	0	0	0
421:	0	0	0	0	1	0	0	0	1	0	0	0	0	1
435:	0	0	0	0	1	1	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	0	0	0	0	0	0	0
477:	0	0	0	0	0	0	0	0	2	0	0	0	1	0
491:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	2	0	1	0	2	0	0	0
519:	0	0	0	1	0	0	0	0	0	1	0	0	0	0
533:	0	1	0	0	0	0	0	0	0	0	0	2	1	0
547:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
561:	0	0	2	0	1	0	0	0	1	0	0	0	0	0
575:	0	0	1	0	1	0	0	1	1	0	0	0	1	0
589:	0	0	1	0	0	1	0	0	0	0	0	0	1	0
603:	0	0	0	0	0	0	0	0	1	0	1	0	0	0
617:	0	0	0	0	1	0	1	0	0	0	0	0	1	0
631:	1	0	0	0	0	0	0	0	0	0	0	0	1	1
645:	0	0	0	0	0	0	0	0	1	0	0	0	0	1
659:	1	0	1	0	0	1	1	0	0	0	0	0	0	0
673:	0	0	0	1	0	0	1	0	0	0	0	1	0	0
687:	0	0	0	0	0	0	0	0	1	0	0	2	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	1	0	1	0	0	0	0	0	0	1	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	0	0	0	0	0	0	0	1
771:	0	0	1	0	0	0	0	0	0	0	0	1	0	0
785:	0	1	0	0	0	0	0	0	0	0	1	1	0	0
799:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
813:	0	0	0	1	0	0	0	1	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	1	0	0	0	0
855:	0	0	0	0	0	1	0	0	0	1	0	0	2	0
869:	0	0	0	0	0	0	0	0	0	0	1	0	1	0
883:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
897:	2	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	1	0	1	0	0	0	1	1	0
925:	0	0	0	1	1	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	1	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	1	0	0	0	0	1	0	0	0	0
995:	1	0	1	0	0	0	0	1	0	0	0	0	0	0
1009:	0	0	0	0	0	0	0	0	0	0	0	0	2	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:09:17.88

Detector ID: 42 Acquisition Start: 30-AUG-2005 18:23:51.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.50
Batch Id: 0508095A-RA Sample Id: 04
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4584.27	37	0	218.32	370.97	301	156	3.63E-03	16.4	
2	0	5270.89	36	0	62.53	603.86	518	176	3.53E-03	16.7	
3	0	5826.69	20	0	3.13	797.60	712	163	1.96E-03	22.4	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:09:21.54

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 04:09:21.79

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4584.27*	84	0	218.32	370.97	301	156	8.23E-03	16.4	
2	0	5270.89*	81	0	62.53	603.86	518	176	7.90E-03	16.9	
3	0	5826.69*	45	0	3.13	797.60	712	163	4.40E-03	22.6	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:09:22

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL15		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:23:51
Sample ID	: 04	Sample quantity	: 1.0807 gram
Sample type	: RA	Sample geometry	:
Detector name	: 042	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.50 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	4584.27*	84218.32	370.97		301	156	32.9		RA-226	0.948
0	5270.89*	81 62.53	603.86		518	176	33.8		RN-222	0.909
0	5826.69*	45 3.13	797.60		712	163	45.2		PO-218	0.507

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:09:46

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$05_RA.CNF

****

BATCH ID:	0508095A-RA	SAMPLE ID:	05
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.064E+00	gram
SAMPLE TITLE:	VPSCR081705SL16	DETECTOR NUMBER:	043
ACQ DATE:	30-AUG-2005 18:24	AVERAGE EFFICIENCY:	21.73%
ELAPSED LIVE TIME:	10200.	RECOVERY:	94.96%
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:	2.20

****

NUCLIDE ACTIVITY SUMMARY

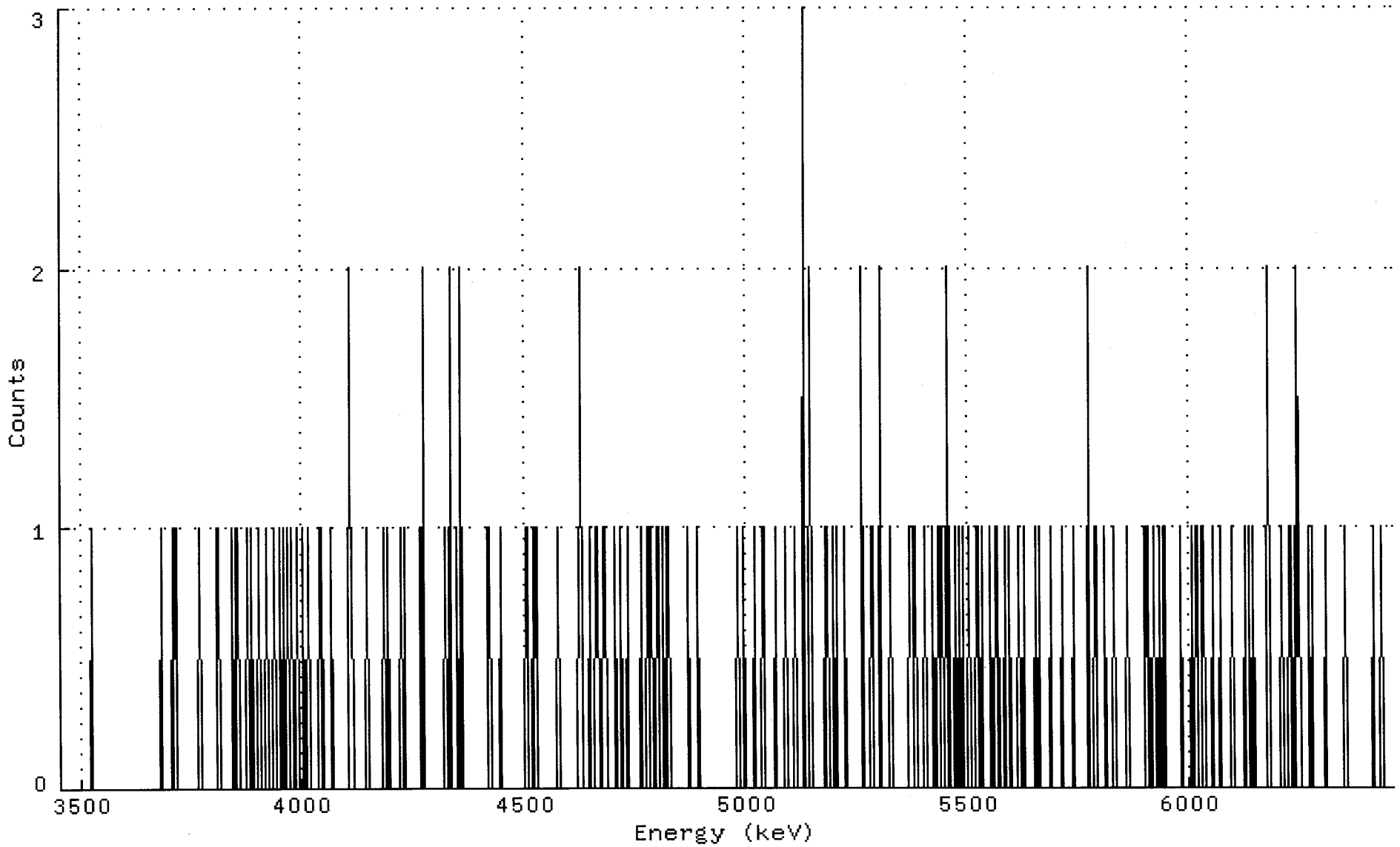
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	63.63	0.17	100.0	7.677E-01	2.908E-01	1.228E-01
RN-222	5490.0	93.92	0.68	99.9	1.134E+00	3.572E-01	1.738E-01
RA-226	4785.0	68.03	0.17	100.0	8.206E-01	3.010E-01	1.228E-01

****

Analyst _____ Date 8/31/05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$05_RA.CNF;1
Title : 043
Sample Title: VPSCR081705SL16
Start Time: 30-AUG-2005 18:24 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44344E+03
Real Time : 0 02:50:00.40 Sample ID : 05 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_0508095A-RA$05_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	1	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	1	0	0	0	0	0	0	0
85:	1	0	1	1	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
113:	0	0	0	0	0	1	1	0	0	0	0	0	0	0
127:	0	0	1	0	1	0	1	0	0	0	0	0	0	1
141:	0	0	1	0	0	0	0	1	0	0	0	0	0	1
155:	0	0	0	0	1	1	0	0	0	1	0	1	0	0
169:	1	0	0	1	0	0	0	1	0	0	0	0	1	0
183:	0	1	1	0	0	0	0	0	0	0	1	0	1	0
197:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
211:	0	0	0	0	2	1	1	0	0	0	0	0	0	0
225:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
239:	0	0	1	0	0	1	0	0	0	0	0	0	0	0
253:	1	1	0	1	0	0	0	0	0	0	0	0	0	0
267:	0	1	0	2	0	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	0	1	0	0	0	2	0	0	0	0
295:	1	0	0	2	0	0	0	0	0	0	0	0	0	0
309:	0	0	0	0	0	0	0	0	0	1	1	0	0	0
323:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
337:	0	0	0	0	0	0	0	0	0	1	1	0	0	0
351:	1	0	1	1	0	0	0	0	0	0	0	0	0	0
365:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
379:	0	0	0	0	0	0	0	1	1	2	0	0	0	0
393:	0	1	0	0	0	0	1	1	1	0	0	0	1	1
407:	0	0	0	0	0	0	0	1	0	0	0	1	0	0
421:	0	0	1	0	0	0	0	0	0	0	0	0	1	0
435:	0	0	0	1	1	0	1	0	0	0	1	1	0	0
449:	0	1	0	1	0	1	0	0	0	0	0	0	0	0
463:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
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	1	0	0	0	0	1	0	0	0	0	0	0	0
519:	1	0	0	0	0	0	1	1	0	0	0	0	0	0
533:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
547:	0	0	0	1	0	0	0	0	0	0	3	0	0	0
561:	0	2	0	0	0	0	0	0	0	0	0	0	1	0
575:	1	0	0	0	0	1	0	1	0	0	0	0	0	0
589:	1	0	0	0	0	0	0	0	0	0	0	0	0	2
603:	0	0	0	0	0	0	1	1	0	0	0	0	0	2
617:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
631:	0	0	0	0	0	0	0	1	1	1	1	0	1	0
645:	0	0	0	0	0	1	1	0	0	0	0	0	1	0
659:	0	0	1	1	0	1	0	0	1	0	2	0	0	0
673:	0	1	0	0	1	0	0	1	0	0	0	0	1	0
687:	0	0	0	0	1	0	1	0	1	0	0	0	0	0
701:	0	1	0	0	0	1	0	1	0	0	0	0	1	0
715:	0	0	1	0	0	0	0	0	0	1	0	0	0	1
729:	0	0	0	0	0	0	0	0	1	0	0	1	0	0
743:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
757:	0	1	0	0	0	0	0	0	0	0	1	0	0	0
771:	0	0	0	0	0	0	0	0	2	0	0	0	0	1
785:	1	0	0	0	0	0	0	1	0	0	0	0	0	0
799:	1	0	0	0	0	0	0	0	0	0	0	1	0	0
813:	0	0	0	0	0	0	0	0	0	0	0	1	1	0
827:	1	0	0	0	1	0	0	0	1	0	0	1	0	1
841:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
855:	0	0	0	0	0	0	1	0	0	1	1	1	0	0
869:	0	1	1	0	0	0	0	0	0	1	0	0	0	0
883:	0	1	0	0	0	0	0	0	0	0	0	1	0	0
897:	0	0	0	0	0	0	0	1	0	0	0	1	0	0
911:	1	0	0	0	0	0	0	0	0	0	0	0	2	0
925:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
939:	0	1	0	1	0	1	0	1	2	1	0	0	0	0
953:	0	0	0	1	0	1	0	0	0	0	0	0	0	0
967:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	0	1	0	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1009:	0	0	0	0	0	1	1	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 04:09:26.80

Detector ID: 43 Acquisition Start: 30-AUG-2005 18:24:17.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-RA Sample Id: 05
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4656.18	31	0	4.60	396.52	303	155	3.04E-03	18.0	
2	0	5297.44	43	0	353.30	614.47	519	176	4.22E-03	15.2	
3	0	5840.69	29	0	3.13	804.07	714	163	2.84E-03	18.6	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:09:44.76

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 04:09:45.01

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4656.18*	68	0	4.60	396.52	303	155	6.67E-03	18.0	
2	0	5297.44*	94	0	353.30	614.47	519	176	9.21E-03	15.4	
3	0	5840.69*	64	0	3.13	804.07	714	163	6.24E-03	18.6	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:09:45

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL16		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:24:17
Sample ID	: 05	Sample quantity	: 1.0645 gram
Sample type	: RA	Sample geometry	:
Detector name	: 043	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	4656.18*	68	4.60	396.52	303	155	36.0		RA-226	0.779
0	5297.44*	943	53.30	614.47	519	176	30.7		RN-222	1.08
0	5840.69*	64	3.13	804.07	714	163	37.2		PO-218	0.729

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:10:03

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$06_RA.CNF

****

BATCH ID:	0508095A-RA	SAMPLE ID:	06
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.031E+00 gram
SAMPLE TITLE:	VPSCR081705SL17	DETECTOR NUMBER:	044
ACQ DATE:	30-AUG-2005 18:24	AVERAGE EFFICIENCY:	20.99%
ELAPSED LIVE TIME:	10200.	RECOVERY:	98.82%
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

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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	151.07	1.02	100.0	1.873E+00	4.789E-01	2.084E-01
RN-222	5490.0	143.92	1.36	99.9	1.785E+00	4.675E-01	2.290E-01
RA-226	4785.0	108.28	0.68	100.0	1.342E+00	4.010E-01	1.841E-01

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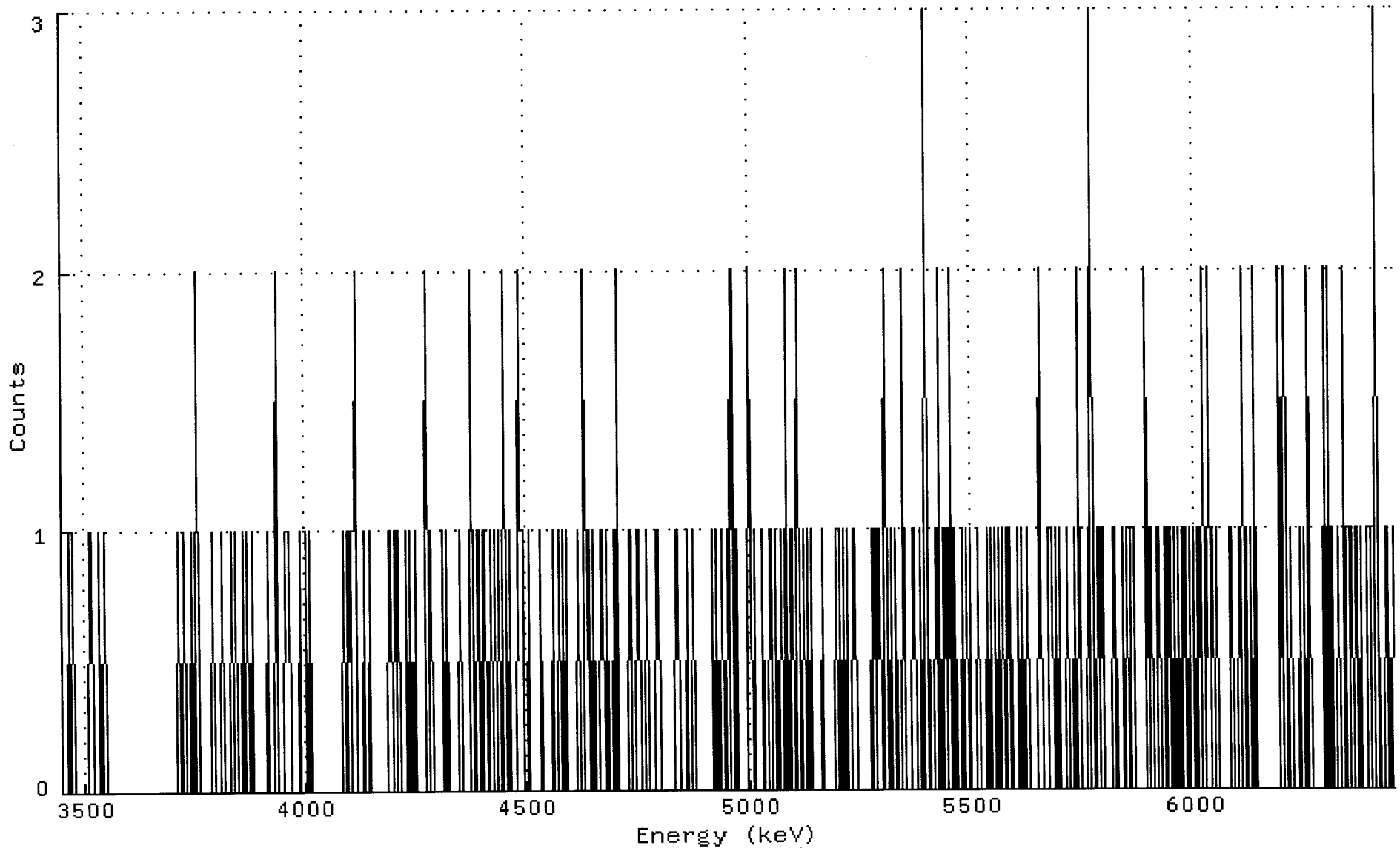
Analyst _____ Date 8.31.05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$06_RA.CNF;1
Title : 044
Sample Title: VPSCR081705SL17
Start Time: 30-AUG-2005 18:24 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.44108E+03
Real Time : 0 02:50:00.40 Sample ID : 06 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_0508095A-RA$06_RA

Channel

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

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:09:49.99

Detector ID: 44 Acquisition Start: 30-AUG-2005 18:24:37.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.40
Batch Id: 0508095A-RA Sample Id: 06
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4584.56	48		0345.49	375.12	305	156	4.71E-03	14.4	
2	0	5288.05	64		0399.96	614.16	522	176	6.27E-03	12.5	
3	0	5836.73	67		0419.35	805.37	717	162	6.57E-03	12.2	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:10:01.86

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 04:10:02.24

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4584.56*	108		0345.49	375.12	305	156	1.06E-02	14.5	
2	0	5288.05*	144		0399.96	614.16	522	176	1.41E-02	12.6	
3	0	5836.73*	151		0419.35	805.37	717	162	1.48E-02	12.3	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:10:03

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL17		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:24:37
Sample ID	: 06	Sample quantity	: 1.0305 gram
Sample type	: RA	Sample geometry	:
Detector name	: 044	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.40 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	4584.56*	108345.49	375.12		305	156	29.1		RA-226	1.33
0	5288.05*	144399.96	614.16		522	176	25.2		RN-222	1.76
0	5836.73*	151419.35	805.37		717	162	24.6		PO-218	1.85

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:10:25

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$07_RA.CNF

****

BATCH ID:	0508095A-RA	SAMPLE ID:	07
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.106E+00	gram
SAMPLE TITLE:	VPSCR081705SL18	DETECTOR NUMBER:	045
ACQ DATE:	30-AUG-2005 18:25	AVERAGE EFFICIENCY:	20.55%
ELAPSED LIVE TIME:	10200.	RECOVERY:	81.33%
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:	2.31

****

NUCLIDE ACTIVITY SUMMARY

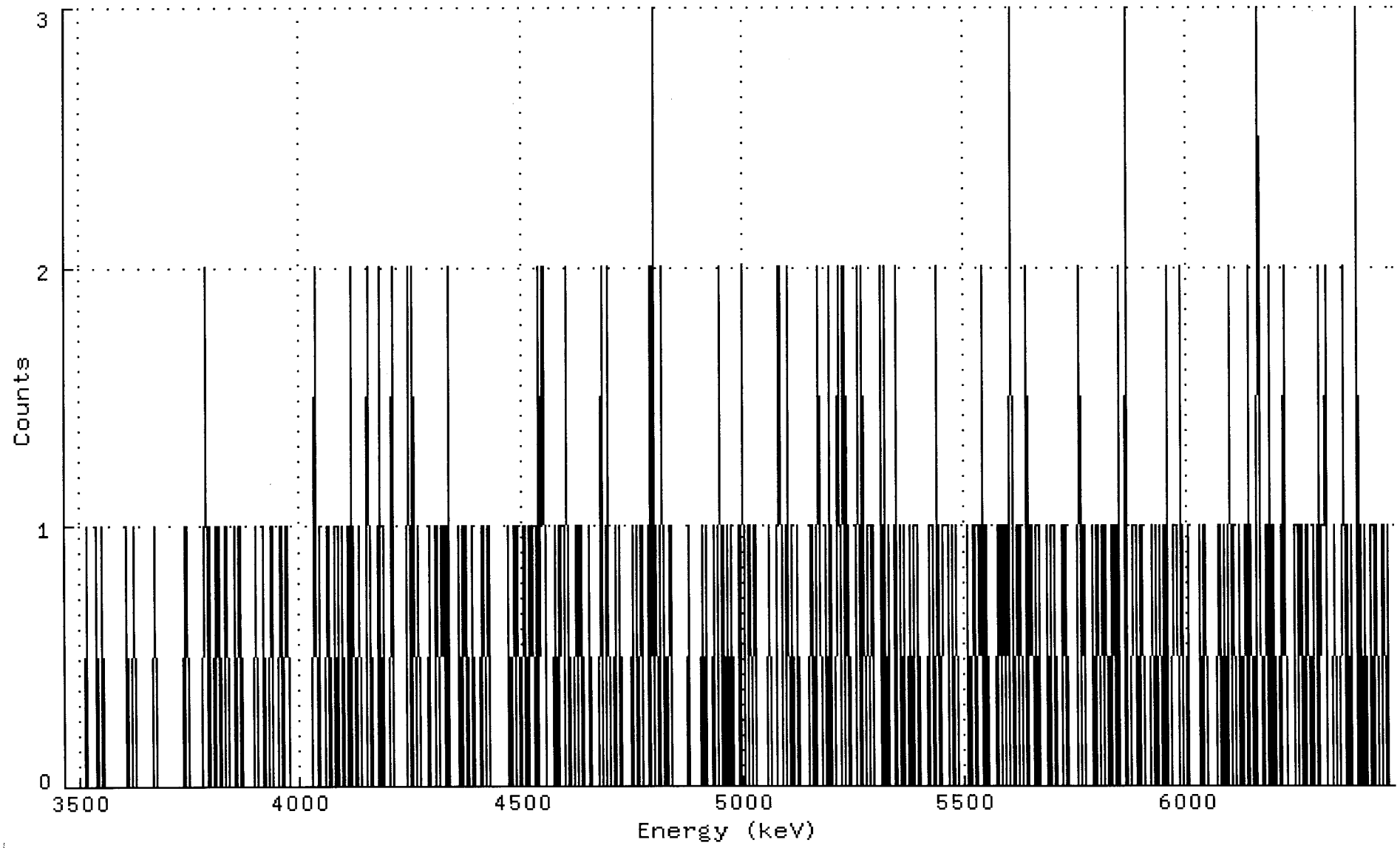
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	159.05	0.34	100.0	2.280E+00	5.725E-01	1.795E-01
RN-222	5490.0	163.84	0.17	99.9	2.350E+00	5.818E-01	1.533E-01
RA-226	4785.0	137.92	0.68	100.0	1.977E+00	5.311E-01	2.166E-01

****

Analyst _____ Date 8-31-05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$07_RA.CNF;1
Title : 045
Sample Title: VPSCR081705SL18
Start Time: 30-AUG-2005 18:25 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45577E+03
Real Time : 0 02:50:00.00 Sample ID : 07 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_0508095A-RA$07_RA

Channel

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

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:10:07.47

Detector ID: 45 Acquisition Start: 30-AUG-2005 18:25:06.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.00
Batch Id: 0508095A-RA Sample Id: 07
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4626.46	60		0295.40	383.05	299	156	5.88E-03	12.9	
2	0	5271.66	71		0387.27	602.06	516	176	6.96E-03	11.9	
3	0	5801.25	69		0424.40	786.43	710	163	6.76E-03	12.0	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:10:24.03

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		0231.35	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 04:10:24.27

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4626.46*	138		0295.40	383.05	299	156	1.35E-02	13.0	
2	0	5271.66*	164		0387.27	602.06	516	176	1.61E-02	11.9	
3	0	5801.25*	159		0424.40	786.43	710	163	1.56E-02	12.1	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:10:25

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL18		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:25:06
Sample ID	: 07	Sample quantity	: 1.1063 gram
Sample type	: RA	Sample geometry	:
Detector name	: 045	Detector geometry	:
Elapsed live time	: 0 02:50:00.00	Elapsed real time	: 0 02:50:00.00 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	4626.46*	138295.40	383.05	299	156	26.0			RA-226	1.61
0	5271.66*	164387.27	602.06	516	176	23.8			RN-222	1.91
0	5801.25*	159424.40	786.43	710	163	24.1			PO-218	1.85

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:10:38

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$08_RA.CNF

****

BATCH ID:	0508095A-RA	SAMPLE ID:	08
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.013E+00	gram
SAMPLE TITLE:	VPSCR081705SL19	DETECTOR NUMBER:	046
ACQ DATE:	30-AUG-2005 18:25	AVERAGE EFFICIENCY:	20.82%
ELAPSED LIVE TIME:	10200.	RECOVERY:	94.27%
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:	2.55

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NUCLIDE ACTIVITY SUMMARY

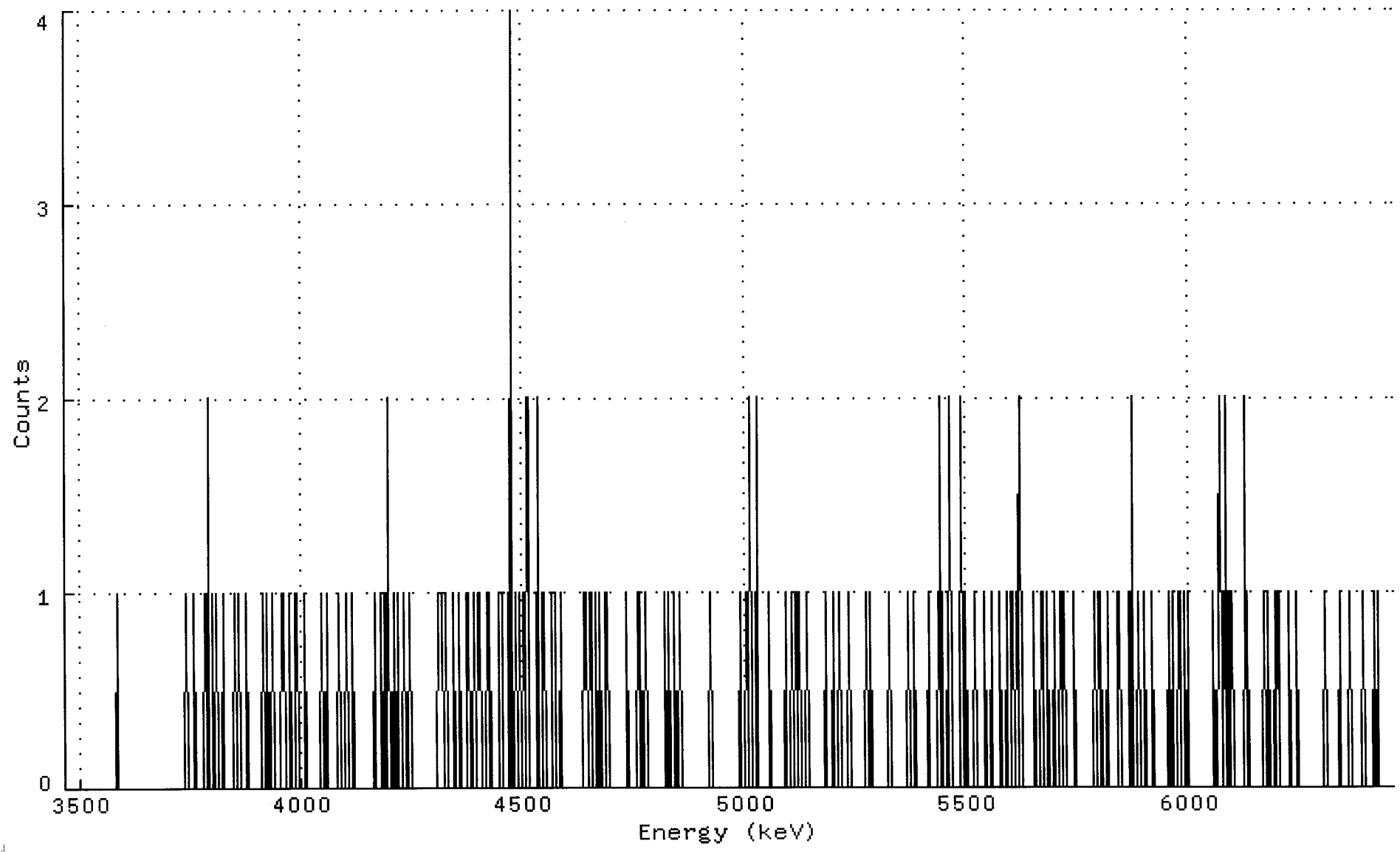
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	88.40	0.85	100.0	1.178E+00	4.105E-01	2.378E-01
RN-222	5490.0	75.99	0.51	99.9	1.013E+00	3.792E-01	2.051E-01
RA-226	4785.0	114.24	0.51	100.0	1.522E+00	4.680E-01	2.049E-01

****

Analyst _____ Date 8-31-05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$08_RA.CNF;1
Title : 046
Sample Title: VPSCR081705SL19
Start Time: 30-AUG-2005 18:25 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.45486E+03
Real Time : 0 02:50:00.10 Sample ID : 08 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_0508095A-RA$08_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	1	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	0	0	0	1	0
99:	0	0	0	0	0	0	1	0	2	0	0	0	1	0
113:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
127:	1	0	0	1	0	0	0	0	0	1	0	0	0	0
141:	0	0	0	0	0	0	0	1	0	0	1	0	0	0
155:	1	0	0	0	0	0	0	1	1	0	0	0	0	1
169:	0	0	0	1	1	0	0	0	0	0	1	0	0	0
183:	0	0	0	0	0	0	0	0	1	0	0	0	1	0
197:	0	0	0	0	0	0	0	1	0	0	0	0	1	1
211:	0	0	0	1	0	0	0	0	0	0	0	0	0	1
225:	0	0	0	0	0	1	0	0	0	0	1	0	0	1
239:	0	2	1	0	0	1	0	0	1	0	0	0	1	1
253:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
267:	0	0	0	0	0	0	0	0	0	0	1	1	1	1
281:	0	1	1	0	0	0	0	0	1	0	0	0	1	0
295:	0	0	0	0	1	1	0	0	0	1	0	0	1	1
309:	0	0	0	0	0	1	0	1	0	0	0	0	0	1
323:	1	1	1	0	0	0	0	1	0	4	0	0	1	1
337:	0	1	0	0	1	0	0	2	2	0	0	0	0	1
351:	0	2	0	0	0	1	1	0	0	0	0	0	1	1
365:	1	0	0	0	1	0	0	0	0	0	0	0	0	1
379:	0	0	0	0	0	0	0	0	1	1	0	0	1	1
393:	0	0	0	1	0	0	1	0	0	0	1	1	0	0
407:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
421:	0	0	0	0	0	0	1	0	1	0	0	0	1	0
435:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
449:	0	0	1	0	0	0	1	0	0	0	1	0	0	0
463:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
491:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
505:	1	0	0	0	0	1	0	0	2	0	0	0	0	2
519:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
533:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
547:	0	1	1	0	1	0	0	0	0	0	1	0	0	0
561:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
575:	0	0	1	0	0	0	0	1	0	0	0	0	0	0
589:	1	0	0	0	0	0	0	0	0	0	0	0	0	1
603:	1	0	0	1	0	0	0	0	0	0	0	0	0	0
617:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
631:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
645:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
659:	1	0	2	0	0	0	0	1	0	2	0	0	0	0
673:	0	0	0	0	2	0	0	1	0	0	0	0	0	0
687:	1	0	0	0	0	0	0	0	1	0	0	0	0	1
701:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
715:	0	1	1	0	0	1	0	1	2	0	0	0	0	0
729:	0	0	0	0	0	1	0	0	0	0	1	1	1	0
743:	0	0	1	0	0	0	0	1	0	0	0	0	1	0
757:	1	1	0	0	0	0	0	0	0	1	0	0	0	0
771:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
785:	1	0	1	0	0	0	0	1	0	0	0	0	0	0
799:	0	0	1	1	0	0	0	0	0	0	0	1	0	2
813:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
827:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
841:	1	0	0	1	0	0	0	0	1	1	0	0	0	1
855:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
869:	0	0	0	0	0	0	0	0	1	0	0	0	1	2
883:	1	1	0	1	0	2	0	1	0	1	0	0	0	0
897:	0	0	0	0	0	1	2	0	1	0	0	0	0	0
911:	0	0	0	0	0	0	0	1	0	0	0	1	0	0
925:	0	0	1	0	1	1	0	0	0	0	0	0	0	0
939:	1	0	0	0	0	0	1	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
967:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
981:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
995:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
1009:	0	0	1	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 04:10:29.21

Detector ID: 46 Acquisition Start: 30-AUG-2005 18:25:29.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508095A-RA Sample Id: 08
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4555.52	45	0	3.14	358.91	299	155	4.41E-03	14.9	
2	0	5289.02	30	0501.96		607.80	516	176	2.94E-03	18.3	
3	0	5779.17	35	0283.82		778.91	710	164	3.43E-03	16.9	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:10:36.96

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 04:10:37.21

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4555.52*	114	0	3.14	358.91	299	155	1.12E-02	15.0	
2	0	5289.02*	76	0501.96		607.80	516	176	7.45E-03	18.4	
3	0	5779.17*	88	0283.82		778.91	710	164	8.67E-03	17.1	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:10:38

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL19
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 18:25:29
Sample ID : 08 Sample quantity : 1.0134 gram
Sample type : RA Sample geometry :
Detector name : 046 Detector geometry:
Elapsed live time: 0 02:50:00.00 Elapsed real time: 0 02:50:00.10 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	4555.52*	114	3.14	358.91	299	155	30.0		RA-226	1.43
0	5289.02*	765	01.96	607.80	516	176	36.8		RN-222	0.955
0	5779.17*	882	83.82	778.91	710	164	34.1		PO-218	1.11

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:10:57

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$09_RA.CNF

BATCH ID:	0508095A-RA	SAMPLE ID:	09
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.015E+00	gram
SAMPLE TITLE:	VPSCR081705SL20	DETECTOR NUMBER:	047
ACQ DATE:	30-AUG-2005 18:26	AVERAGE EFFICIENCY:	21.54%
ELAPSED LIVE TIME:	10200.	RECOVERY:	95.41%
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:	2.47

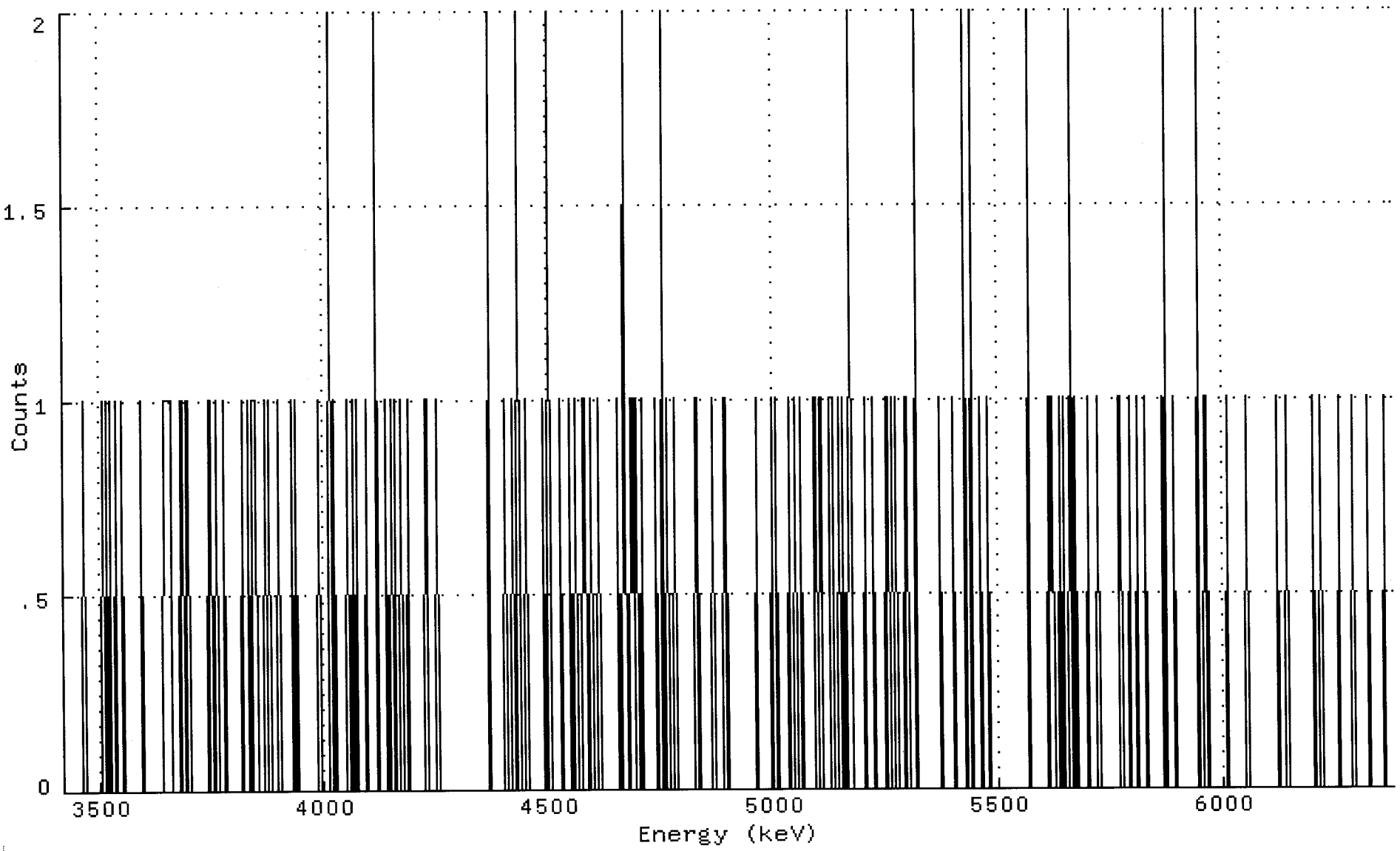
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	63.37	0.85	100.0	8.050E-01	3.250E-01	2.195E-01
RN-222	5490.0	82.45	1.53	99.9	1.048E+00	3.735E-01	2.657E-01
RA-226	4785.0	81.00	0.51	100.0	1.029E+00	3.675E-01	1.892E-01

Analyst _____ Date 8-31-05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$09_RA.CNF;1
Title : 047
Sample Title: VPSCR081705SL20
Start Time: 30-AUG-2005 18:26 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.41205E+03
Real Time : 0 02:50:00.10 Sample ID : 09 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_0508095A-RA$09_RA

Channel

1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
29:	0	0	0	1	0	0	1	0	1	0	0	0	1	0
43:	0	0	0	1	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	1	1	1	1	1	1	0	0	0
85:	0	0	0	1	0	1	0	1	0	1	0	0	0	0
99:	0	0	0	0	0	0	0	0	0	0	1	0	1	0
113:	0	0	1	0	0	0	0	0	1	0	0	0	0	0
127:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
141:	0	1	1	1	0	0	0	0	0	0	1	0	0	1
155:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
169:	0	0	1	0	0	1	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
197:	0	0	2	0	0	1	0	0	0	0	0	0	0	0
211:	1	1	0	0	1	0	0	1	0	0	0	0	0	0
225:	1	0	0	0	0	0	0	0	2	0	0	0	0	0
239:	0	1	0	0	0	1	0	1	0	0	0	0	1	0
253:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
267:	0	0	1	1	0	0	0	0	0	0	0	1	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	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	1	0	0	0	0	0	1	0
337:	0	0	2	0	0	0	0	0	1	0	0	0	0	0
351:	0	0	0	0	0	0	0	1	0	0	0	2	0	0
365:	0	0	0	0	0	0	1	0	0	0	0	0	0	1
379:	0	0	0	1	0	0	0	0	0	1	1	0	0	0
393:	1	1	0	0	0	0	1	0	0	0	0	0	0	0
407:	0	0	0	0	0	0	0	1	0	0	0	1	2	1
421:	0	0	0	1	1	0	1	1	0	0	0	1	0	0
435:	0	0	0	0	0	0	0	0	1	0	0	0	0	2
449:	0	0	1	0	0	0	0	0	1	0	0	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	1	0	0	0	0
491:	0	0	0	0	1	0	1	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
533:	0	0	1	0	0	0	0	0	0	0	0	1	0	0
547:	0	0	1	0	0	0	0	1	0	0	0	0	0	0
561:	0	0	0	1	1	0	0	1	1	0	0	0	0	0
575:	0	1	1	1	0	0	0	0	1	0	0	1	0	0
589:	0	1	1	2	0	0	0	0	0	0	0	0	0	0
603:	1	0	0	0	0	0	0	1	0	0	0	0	0	0
617:	0	0	1	0	1	0	0	1	0	0	1	0	0	0
631:	0	0	0	1	0	1	0	0	0	0	0	0	2	0
645:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
659:	0	0	0	1	0	0	0	0	0	0	0	0	0	1
673:	0	0	0	0	0	0	0	0	2	0	0	0	0	2
687:	0	0	0	0	0	0	1	0	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	2	0	0	0	0	0	0	0	0	0	0	0
743:	0	0	0	1	0	1	1	1	0	0	0	0	1	0
757:	0	1	0	0	0	0	1	0	2	0	0	1	0	0
771:	0	0	0	0	0	0	0	1	0	0	0	0	0	0
785:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	0	0	0	1	1	0	0	0	0	0	0	1	0
813:	0	0	0	0	1	0	0	0	0	0	0	1	0	0
827:	0	0	0	0	0	0	0	0	0	0	0	1	0	2
841:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
855:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
869:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
897:	0	0	0	0	0	0	0	1	1	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	0	0	1	0
939:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
953:	0	0	0	0	0	0	1	0	0	0	0	0	1	0
967:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
981:	0	0	0	0	0	0	0	0	0	0	1	1	0	0
995:	0	0	0	0	0	0	0	0	0	1	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 04:10:42.15

Detector ID: 47 Acquisition Start: 30-AUG-2005 18:26:03.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508095A-RA Sample Id: 09
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4623.12	33	0339.04		402.55	318	158	3.24E-03	17.4	
2	0	5237.38	34	0294.25		614.65	539	179	3.33E-03	17.1	
3	0	5773.57	26	0314.38		804.62	737	166	2.55E-03	19.6	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:10:56.16

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 04:10:56.41

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4623.12*	81	0339.04		402.55	318	158	7.94E-03	17.5	
2	0	5237.38*	82	0294.25		614.65	539	179	8.08E-03	17.5	
3	0	5773.57*	63	0314.38		804.62	737	166	6.21E-03	19.9	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:10:57

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL20		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:26:03
Sample ID	: 09	Sample quantity	: 1.0152 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	4623.12*	81339.04	402.55		318	158	35.0		RA-226	0.982
0	5237.38*	82294.25	614.65		539	179	35.0		RN-222	1.00
0	5773.57*	63314.38	804.62		737	166	39.8		PO-218	0.768

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:11:18

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$10_RA.CNF

****

BATCH ID:	0508095A-RA	SAMPLE ID:	10
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.099E+00 gram
SAMPLE TITLE:	VPSCR081705SL0A	DETECTOR NUMBER:	048
ACQ DATE:	30-AUG-2005 18:26	AVERAGE EFFICIENCY:	20.31%
ELAPSED LIVE TIME:	10200.	RECOVERY:	84.71%
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:	2.08

****

NUCLIDE ACTIVITY SUMMARY

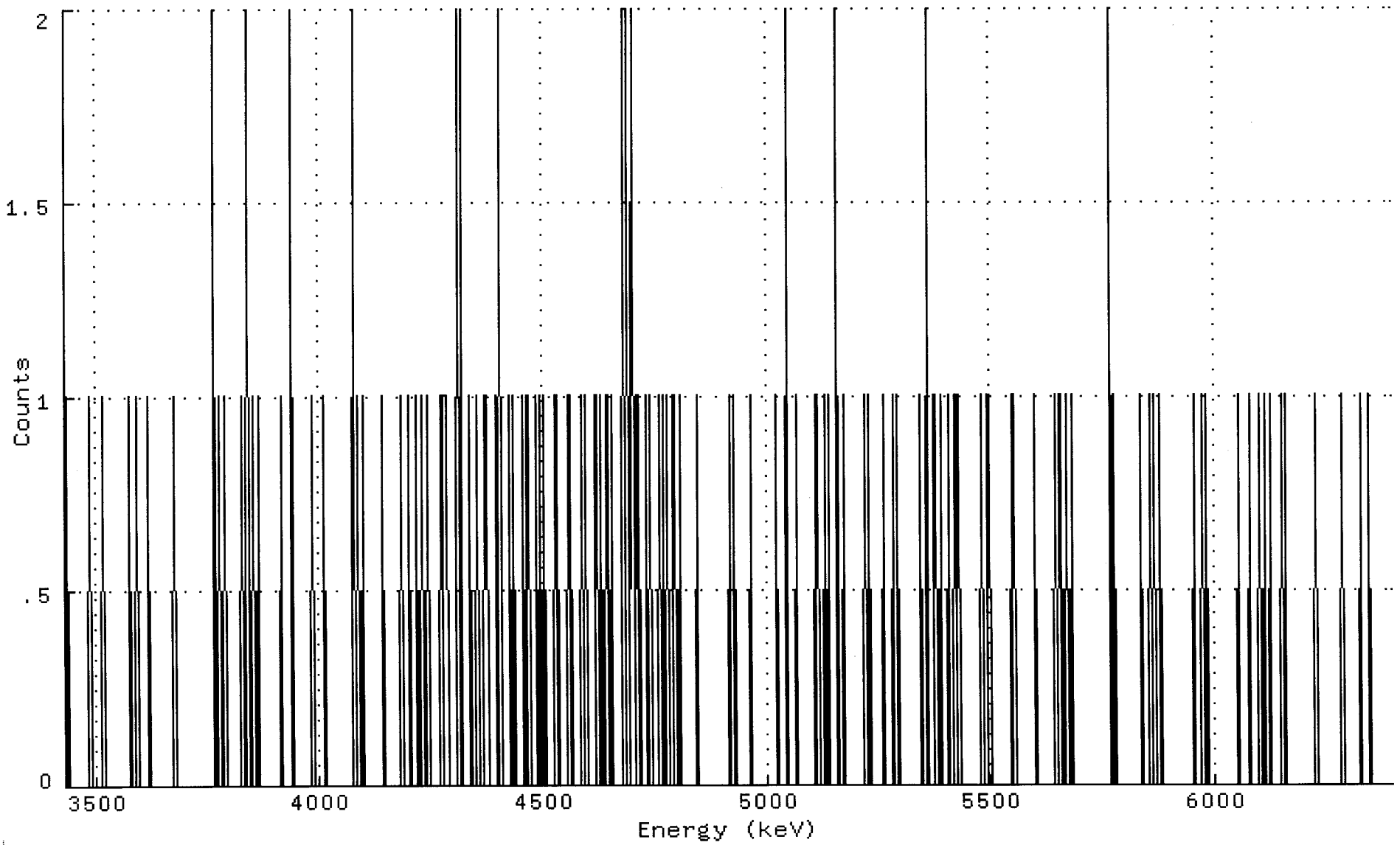
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	34.85	0.51	100.0	4.882E-01	2.428E-01	1.757E-01
RN-222	5490.0	60.70	1.70	99.9	8.509E-01	3.252E-01	2.558E-01
RA-226	4785.0	89.82	1.70	100.0	1.258E+00	3.966E-01	2.556E-01

****

Analyst _____ Date 8/31/05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$10_RA.CNF;1
Title : 048
Sample Title: VPSCR081705SL0A
Start Time: 30-AUG-2005 18:26 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42171E+03
Real Time : 0 02:50:00.10 Sample ID : 10 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_0508095A-RA$10_RA

Channel

1:	0	0	0	0	1	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	1	0	0	0	0	0	0	0	0	0	0	0
43:	0	0	0	0	0	0	0	0	1	0	0	0	0	1
57:	0	0	0	0	0	0	0	0	1	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	2	0	0	0	1	0	0	0	1	0	0	0	0
127:	0	0	0	0	0	0	0	0	1	0	0	0	2	0
141:	0	0	1	0	0	0	1	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	2	0	0	0	0	0	0	0	0	0	0
183:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
197:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	2	1	0	1	0	0	0
225:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
253:	0	1	0	0	0	0	0	1	0	0	0	0	0	1
267:	0	0	1	1	0	0	0	1	0	0	0	0	0	0
281:	0	0	0	1	0	1	1	1	0	0	0	0	0	0
295:	0	0	2	0	2	0	0	0	0	0	0	1	0	0
309:	0	0	1	0	0	0	0	0	1	1	0	0	0	0
323:	0	0	0	1	0	2	0	0	0	0	0	0	0	1
337:	0	0	1	0	0	0	0	0	0	1	0	0	1	1
351:	0	0	0	0	0	1	0	0	1	0	0	1	0	0
365:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
379:	0	1	0	1	0	0	0	0	0	0	0	1	0	0
393:	1	0	0	0	0	0	0	0	1	1	0	0	1	0
407:	0	0	1	0	1	0	1	0	0	0	0	0	0	0
421:	0	2	0	0	2	0	0	1	2	0	0	1	0	1
435:	0	0	0	0	0	1	0	1	1	0	0	0	0	0
449:	1	1	0	1	0	0	1	1	0	0	0	1	1	0
463:	0	0	1	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	1	0
505:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
519:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
533:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
547:	2	0	0	0	0	0	0	1	0	0	0	0	0	0
561:	0	0	0	0	0	0	0	0	1	0	1	0	0	0
575:	0	1	0	0	1	0	0	0	0	0	0	2	0	0
589:	0	0	1	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	0	0	0	0	1	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	1	0	0	0	0	2	0	0
659:	0	0	1	1	0	0	0	1	0	0	0	0	0	1
673:	0	0	0	0	1	1	0	1	0	0	0	0	0	0
687:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
701:	0	0	1	1	0	0	0	0	0	0	0	0	0	0
715:	0	0	0	0	0	0	1	0	1	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
743:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
757:	0	0	1	0	1	0	0	0	1	0	0	0	1	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	2	0	0	1	0	0	0	0	0	0	0	0	0
813:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
827:	0	0	0	0	1	0	0	1	0	0	0	0	1	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	1	1	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	1	0	0	0	0	0	0	0	0	1	0
911:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
925:	0	1	0	0	0	0	0	0	0	0	1	1	0	1
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	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	1	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 04:11:01.54

Detector ID: 48 Acquisition Start: 30-AUG-2005 18:26:51.01
Live Time: 0 02:50:00.00 Real Time: 0 02:50:00.10
Batch Id: 0508095A-RA Sample Id: 10
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4619.73	44		0310.33	401.00	318	158	4.31E-03	15.1	
2	0	5266.81	30		0334.67	623.97	538	178	2.94E-03	18.3	
3	0	5795.29	17		0 3.04	809.65	735	164	1.67E-03	24.3	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:11:16.58

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 04:11:16.83

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4619.73*	90		0310.33	401.00	318	158	8.81E-03	15.4	
2	0	5266.81*	61		0334.67	623.97	538	178	5.95E-03	18.8	
3	0	5795.29*	35		0 3.04	809.65	735	164	3.42E-03	24.6	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:11:17

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0A
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 18:26:51
Sample ID : 10 Sample quantity : 1.0994 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	4619.73*	90310.33		401.00	318	158	30.7		RA-226	1.07
0	5266.81*	61334.67		623.97	538	178	37.6		RN-222	0.721
0	5795.29*	35	3.04	809.65	735	164	49.2		PO-218	0.414

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ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:11:34

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$11_RA.CNF

****

BATCH ID:	0508095A-RA	SAMPLE ID:	11
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.017E+00	gram
SAMPLE TITLE:	VPSCR081705SL0B	DETECTOR NUMBER:	017
ACQ DATE:	30-AUG-2005 18:27	AVERAGE EFFICIENCY:	20.47%
ELAPSED LIVE TIME:	10204.	RECOVERY:	95.14%
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:	24-AUG-2005 09:58	EFF CAL DATE: 24-AUG-2005	09:58
BKG FILENAME:	B_017_26AUG05	BKG ELAPSED TIME:	60001.
		SAF:	2.08

****

NUCLIDE ACTIVITY SUMMARY

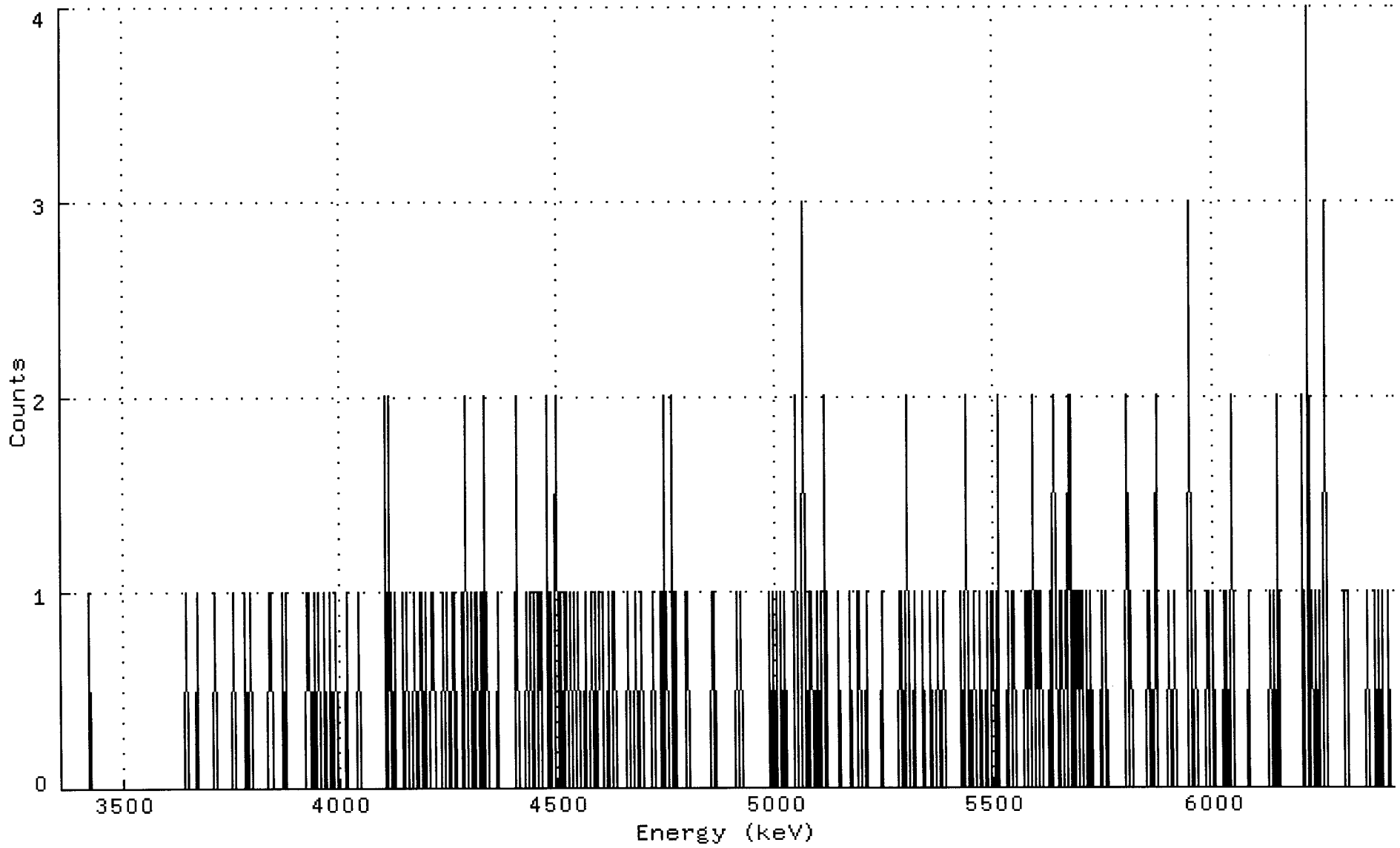
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	103.87	2.21	100.0	1.389E+00	4.093E-01	2.677E-01
RN-222	5490.0	83.07	2.21	99.9	1.112E+00	3.652E-01	2.679E-01
RA-226	4785.0	97.08	0.68	100.0	1.298E+00	3.920E-01	1.821E-01

****

Analyst _____ Date 8-31-05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$11_RA.CNF;1
Title : 017
Sample Title: VPSCR081705SLOB
Start Time: 30-AUG-2005 18:27 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.34625E+03
Real Time : 0 02:50:04.00 Sample ID : 11 Energy Slope : 3.18015E+00
Live Time : 0 02:50:04.00 Sample Type: RA Energy Quad : -1.79959E-04



SSZ

Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-RA$11_RA

Channel

1:	10204	10204	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	0	0	0	0	0	0	1	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	1	0	0	0	0
99:	0	0	0	1	0	0	0	0	0	0	0	0	0	0
113:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
127:	0	0	1	0	0	0	0	0	0	0	0	1	0	0
141:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
155:	0	1	1	0	0	0	0	0	0	0	0	1	0	1
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	0	1	1	0	0	0	1	0	0	1	0	0	0	0
197:	1	0	0	0	1	0	0	0	1	0	0	0	0	0
211:	0	0	1	0	0	0	0	0	0	0	0	1	0	0
225:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239:	0	0	0	2	0	1	2	0	0	1	0	0	0	0
253:	0	0	1	0	1	0	0	0	0	0	1	0	0	0
267:	1	0	1	0	1	0	0	0	1	1	1	0	0	0
281:	0	0	0	1	0	0	1	0	0	0	1	0	1	0
295:	0	0	0	0	1	0	2	0	0	0	0	1	0	1
309:	0	1	0	1	0	0	2	0	1	0	0	0	0	0
323:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
337:	0	0	2	1	0	0	0	0	0	0	1	0	0	1
351:	0	0	1	1	1	0	1	1	0	0	0	0	2	0
365:	1	0	0	0	1	2	0	1	0	0	1	0	1	0
379:	0	1	0	0	1	0	1	1	0	0	0	0	1	0
393:	0	0	1	1	0	1	0	0	1	1	1	1	0	0
407:	0	1	0	0	0	1	1	0	0	0	0	0	0	0
421:	0	0	1	0	0	0	0	0	1	0	0	0	1	0
435:	0	0	0	0	0	0	0	1	0	0	0	0	0	1
449:	0	2	0	1	0	0	0	0	2	0	1	0	0	0
463:	0	0	0	0	1	1	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	0	0	0	0	0
505:	0	1	0	0	1	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:	1	0	0	1	0	0	0	1	0	0	1	0	0	0
547:	0	0	0	0	2	0	0	0	0	0	3	0	1	0
561:	0	1	1	0	0	0	1	0	0	1	0	0	0	2
575:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
589:	0	0	0	0	1	0	0	0	0	0	1	1	0	0
603:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
617:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
631:	1	0	1	0	0	0	2	0	0	0	0	1	0	0
645:	0	0	0	0	1	0	0	0	0	0	1	0	0	0
659:	0	1	1	0	0	0	1	0	0	0	0	0	0	0
673:	0	0	0	0	0	0	1	0	0	0	2	0	1	0
687:	0	0	1	0	0	0	0	1	0	0	0	0	1	0
701:	0	0	1	1	0	0	0	2	0	0	0	0	0	0
715:	1	0	0	0	1	1	0	0	0	0	0	0	0	0
729:	1	1	0	1	0	0	2	0	0	1	0	1	1	0
743:	0	0	0	0	0	1	0	0	1	2	1	1	0	0
757:	1	1	0	0	1	0	1	2	0	2	0	1	0	1
771:	1	0	1	1	0	0	0	1	0	0	1	0	0	0
785:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
799:	0	0	0	0	0	0	0	0	0	0	2	1	0	1
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
827:	0	1	0	0	0	1	2	0	0	0	0	0	0	0
841:	0	1	1	0	0	0	1	0	0	0	0	0	0	0
855:	0	0	0	0	3	0	0	0	0	1	0	0	0	0
869:	0	0	0	0	1	1	0	0	0	1	0	0	0	0
883:	0	0	0	1	0	0	1	0	0	0	2	0	0	0
897:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
911:	0	0	0	0	0	0	0	0	0	0	0	0	1	1
925:	0	0	1	0	0	2	0	0	0	0	0	0	0	0
939:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
953:	0	0	4	0	1	1	0	1	0	0	1	0	0	0
967:	0	3	0	0	0	0	0	0	0	0	0	0	0	0
981:	0	0	0	1	1	1	0	0	0	0	0	0	0	0
995:	0	0	0	0	0	0	0	1	1	0	0	0	0	0
1009:	1	0	0	1	0	1	0	0	0	0	0	1	0	0
1023:	0	0												

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Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:11:21.80

Detector ID: 17 Acquisition Start: 30-AUG-2005 18:27:12.01
Live Time: 0 02:50:04.00 Real Time: 0 02:50:04.00
Batch Id: 0508095A-RA Sample Id: 11
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4577.12	47	0	378.37	395.91	330	153	4.61E-03	14.6	
2	0	5269.17	41	0	500.87	626.90	543	173	4.02E-03	15.6	
3	0	5777.81	51	0	0.00	800.90	734	160	5.00E-03	14.0	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:11:32.55

Acquisition Start: 26-AUG-2005 12:00:52.01
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	4607.73	4	0	209.89	406.00	330	153	6.67E-05	50.0	
2	0	5275.37	13	0	63.60	629.00	543	173	2.17E-04	27.7	
3	0	5814.21	13	0	467.48	813.50	734	160	2.17E-04	27.7	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:11:32.80

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4577.12*	97	0	378.37	395.91	330	153	9.51E-03	14.7	
2	0	5269.17*	83	0	500.87	626.90	543	173	8.14E-03	16.1	
3	0	5777.81*	104	0	0.00	800.90	734	160	1.02E-02	14.3	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:11:33

Configuration : MCA0:[AMSCOUNT]00009067$1
Analyses by : ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : VPSCR081705SL0B
Sample date : 17-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 18:27:12
Sample ID : 11 Sample quantity : 1.0168 gram
Sample type : RA Sample geometry :
Detector name : 017 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	4577.12*	97378.37	395.91	330	153	29.4			RA-226	1.24
0	5269.17*	83500.87	626.90	543	173	32.1			RN-222	1.06
0	5777.81*	104	0.00	800.90	734	160	28.6		PO-218	1.32

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:11:52

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Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$12_RA.CNF

****

BATCH ID:	0508095A-RA	SAMPLE ID:	12
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.187E+00	gram
SAMPLE TITLE:	VPSCR081705SL0C	DETECTOR NUMBER:	018
ACQ DATE:	30-AUG-2005 18:27	AVERAGE EFFICIENCY:	19.39%
ELAPSED LIVE TIME:	10203.	RECOVERY:	98.71%
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:	24-AUG-2005 09:58	EFF CAL DATE:	24-AUG-2005 09:58
BKG FILENAME:	B_018_26AUG05	BKG ELAPSED TIME:	60009.
		SAF:	2.20

****

NUCLIDE ACTIVITY SUMMARY

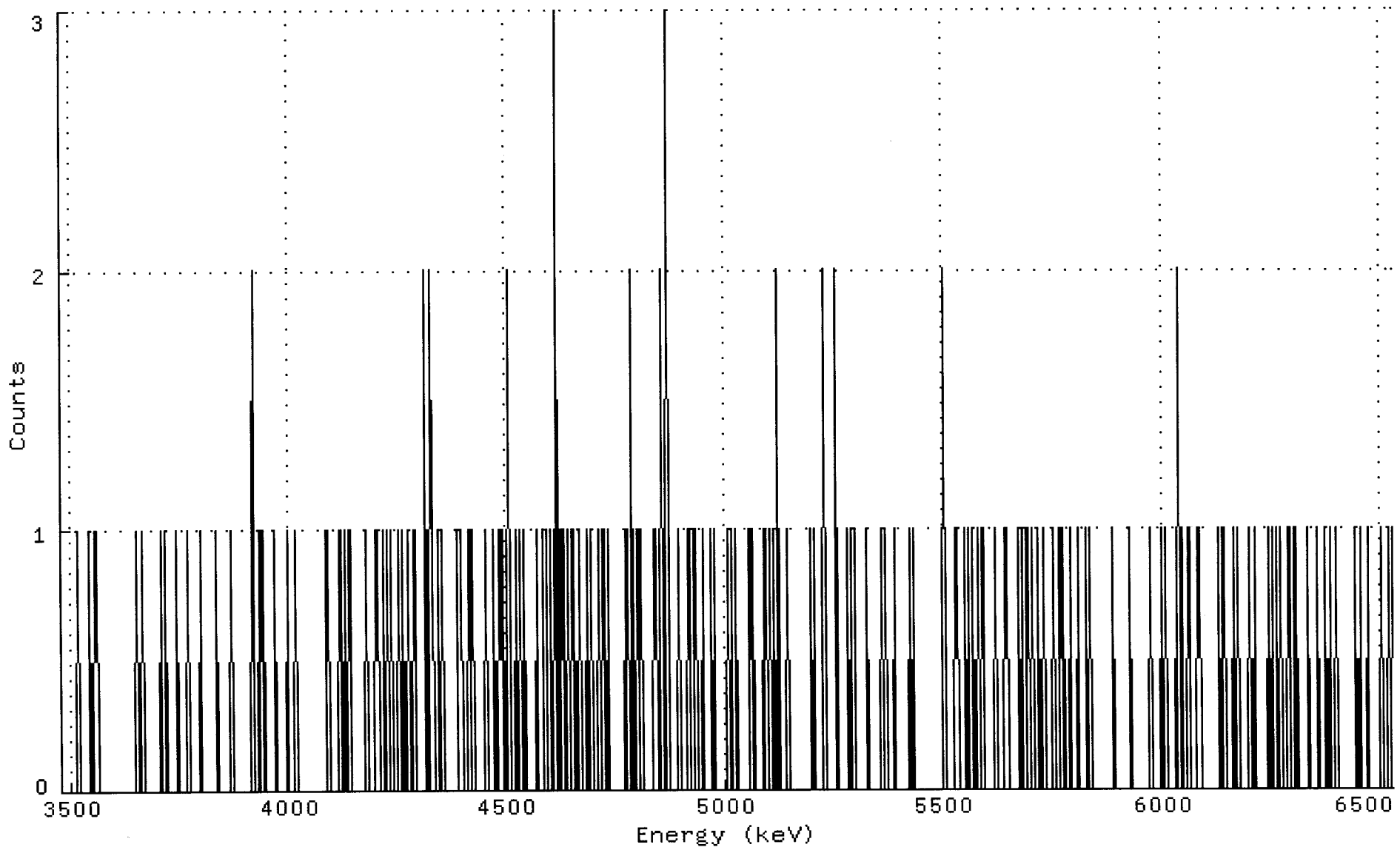
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	71.24	1.36	100.0	8.308E-01	3.006E-01	2.087E-01
RN-222	5490.0	64.97	3.23	99.9	7.581E-01	2.912E-01	2.841E-01
RA-226	4785.0	105.09	0.51	100.0	1.225E+00	3.656E-01	1.547E-01

****

Analyst _____ Date 8-31-05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$12_RA.CNF;1
Title : 018
Sample Title: VPSCR081705SL0C
Start Time: 30-AUG-2005 18:27 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.46836E+03
Real Time : 0 02:50:02.00 Sample ID : 12 Energy Slope : 3.19823E+00
Live Time : 0 02:50:03.00 Sample Type: RA Energy Quad : -2.07468E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-RA$12_RA

Channel

1:	10202	10203	0	0	0	0	0	0	0	0	0	0	0	0
15:	1	0	0	0	0	0	0	0	0	1	0	0	1	1
29:	1	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	1	0	0	0	1	0	0	0	0	0	0	0	0
71:	0	0	0	0	1	0	0	0	1	0	0	0	0	0
85:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
99:	0	0	0	0	0	1	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	0	0	0	0	0	0	0	0	0	0	0	0
141:	0	1	2	0	0	0	1	0	1	0	1	0	0	0
155:	0	0	0	0	1	0	0	0	0	0	0	0	0	1
169:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
183:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197:	1	1	0	0	0	0	0	0	0	1	0	1	0	0
211:	1	0	1	1	0	0	0	0	0	0	0	0	0	0
225:	0	1	0	0	0	0	0	0	1	1	0	0	0	0
239:	1	0	1	0	0	1	0	0	0	0	0	1	0	0
253:	1	0	0	0	1	0	0	0	1	1	0	0	0	0
267:	0	0	0	2	0	0	0	2	1	0	0	0	0	1
281:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
295:	1	1	1	0	0	0	0	1	1	0	1	0	0	0
309:	0	0	0	0	0	0	1	0	0	0	0	0	1	0
323:	0	0	1	1	0	1	0	0	0	2	0	0	0	0
337:	1	0	0	1	1	0	0	1	0	0	0	0	0	0
351:	0	0	1	0	0	0	0	1	1	1	0	0	0	1
365:	0	1	0	3	0	0	1	1	0	1	0	1	0	0
379:	1	0	1	0	0	0	1	0	0	0	0	1	0	0
393:	1	1	0	0	0	0	1	0	0	1	0	1	0	1
407:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
421:	1	0	0	2	0	0	0	1	0	1	1	0	0	0
435:	0	0	0	0	0	0	1	1	1	0	0	0	2	0
449:	1	0	3	0	0	0	0	0	0	0	0	1	0	0
463:	0	0	0	0	1	0	1	1	1	0	1	0	0	0
477:	0	1	0	0	0	0	0	0	1	0	1	0	0	0
491:	0	0	0	0	0	0	1	1	0	1	0	0	0	1
505:	0	0	0	0	0	0	0	0	0	1	1	0	1	0
519:	0	0	0	0	0	0	1	0	1	0	1	1	0	0
533:	1	0	0	2	0	0	0	0	0	0	1	0	0	0
547:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
561:	1	0	1	0	0	0	0	0	0	0	2	0	0	0
575:	0	0	0	0	0	2	0	0	0	0	0	0	0	0
589:	1	0	0	1	1	1	0	0	0	0	0	0	0	0
603:	0	1	0	0	0	0	0	0	0	0	0	0	1	0
617:	0	1	0	0	0	0	0	0	1	0	0	0	0	0
631:	0	0	0	0	0	0	1	0	0	1	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	2	0	0	0	0	0	0	0	0
673:	1	1	1	0	0	0	0	0	1	0	1	0	0	0
687:	1	0	0	0	1	0	0	1	1	0	0	0	0	0
701:	0	0	0	1	1	0	0	0	0	0	0	1	1	1
715:	0	0	0	0	0	0	0	0	1	0	0	1	1	1
729:	0	1	0	0	1	0	0	0	0	1	0	0	0	1
743:	0	0	0	0	0	0	0	1	0	0	0	0	1	1
757:	0	1	0	0	0	0	1	0	0	0	0	0	1	0
771:	0	0	0	0	0	1	0	1	1	0	0	0	0	0
785:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
799:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
813:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
827:	1	0	0	0	0	0	0	0	0	1	0	0	1	1
841:	0	0	0	0	0	0	0	1	0	2	0	0	1	0
855:	0	0	0	1	1	0	0	0	0	0	1	1	1	0
869:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
883:	1	0	0	1	1	0	0	0	0	0	0	1	0	0
897:	0	1	0	0	0	0	0	0	0	0	1	0	0	0
911:	1	0	0	0	0	0	0	0	0	0	0	1	0	0
925:	1	0	0	0	1	0	0	1	0	0	0	0	0	1
939:	1	0	0	0	1	0	1	0	0	0	0	0	0	0
953:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
967:	0	1	0	0	0	1	0	0	0	0	1	0	0	0
981:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
995:	0	0	1	0	0	0	0	0	1	0	0	0	0	0
1009:	0	0	0	0	0	1	1	0	0	0	0	0	1	0
1023:	0	0												

Eberline Services
Oak Ridge Laboratory

Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:11:38.54

Detector ID: 18 Acquisition Start: 30-AUG-2005 18:27:37.01
Live Time: 0 02:50:03.00 Real Time: 0 02:50:02.00
Batch Id: 0508095A-RA Sample Id: 12
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4600.46	48		0295.84	362.50	289	152	4.70E-03	14.4	
2	0	5240.47	31		0412.57	575.58	501	173	3.04E-03	18.0	
3	0	5786.70	33		0 3.20	762.61	693	160	3.23E-03	17.4	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:11:50.20

Acquisition Start: 26-AUG-2005 12:00:55.01
Live Time: 0 16:40:09.00 Real Time: 0 16:40:09.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.55	3		0252.66	364.50	289	152	5.00E-05	57.7	
2	0	5274.24	19		0 20.69	587.00	501	173	3.17E-04	22.9	
3	0	5815.19	8		0182.30	772.50	693	160	1.33E-04	35.4	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:11:50.44

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4600.46*	105		0295.84	362.50	289	152	1.03E-02	14.5	
2	0	5240.47*	65		0412.57	575.58	501	173	6.37E-03	18.9	
3	0	5786.70*	71		0 3.20	762.61	693	160	6.98E-03	17.8	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:11:51

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0C		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:27:37
Sample ID	: 12	Sample quantity	: 1.1872 gram
Sample type	: RA	Sample geometry	:
Detector name	: 018	Detector geometry	:
Elapsed live time	: 0 02:50:03.00	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	4600.46*	105295.84	362.50		289	152	29.0		RA-226	1.21
0	5240.47*	65412.57	575.58		501	173	37.8		RN-222	0.748
0	5786.70*	71	3.20	762.61	693	160	35.5		PO-218	0.820

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ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:12:04

****

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$13_RA.CNF

****

BATCH ID:	0508095A-RA	SAMPLE ID:	13
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.053E+00	gram
SAMPLE TITLE:	VPSCR081705SL0D	DETECTOR NUMBER:	019
ACQ DATE:	30-AUG-2005 18:28	AVERAGE EFFICIENCY:	18.94%
ELAPSED LIVE TIME:	10202.	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:	24-AUG-2005 09:58	EFF CAL DATE:	24-AUG-2005 09:58
BKG FILENAME:	B_019_26AUG05	BKG ELAPSED TIME:	60006.
		SAF:	2.16

****

NUCLIDE ACTIVITY SUMMARY

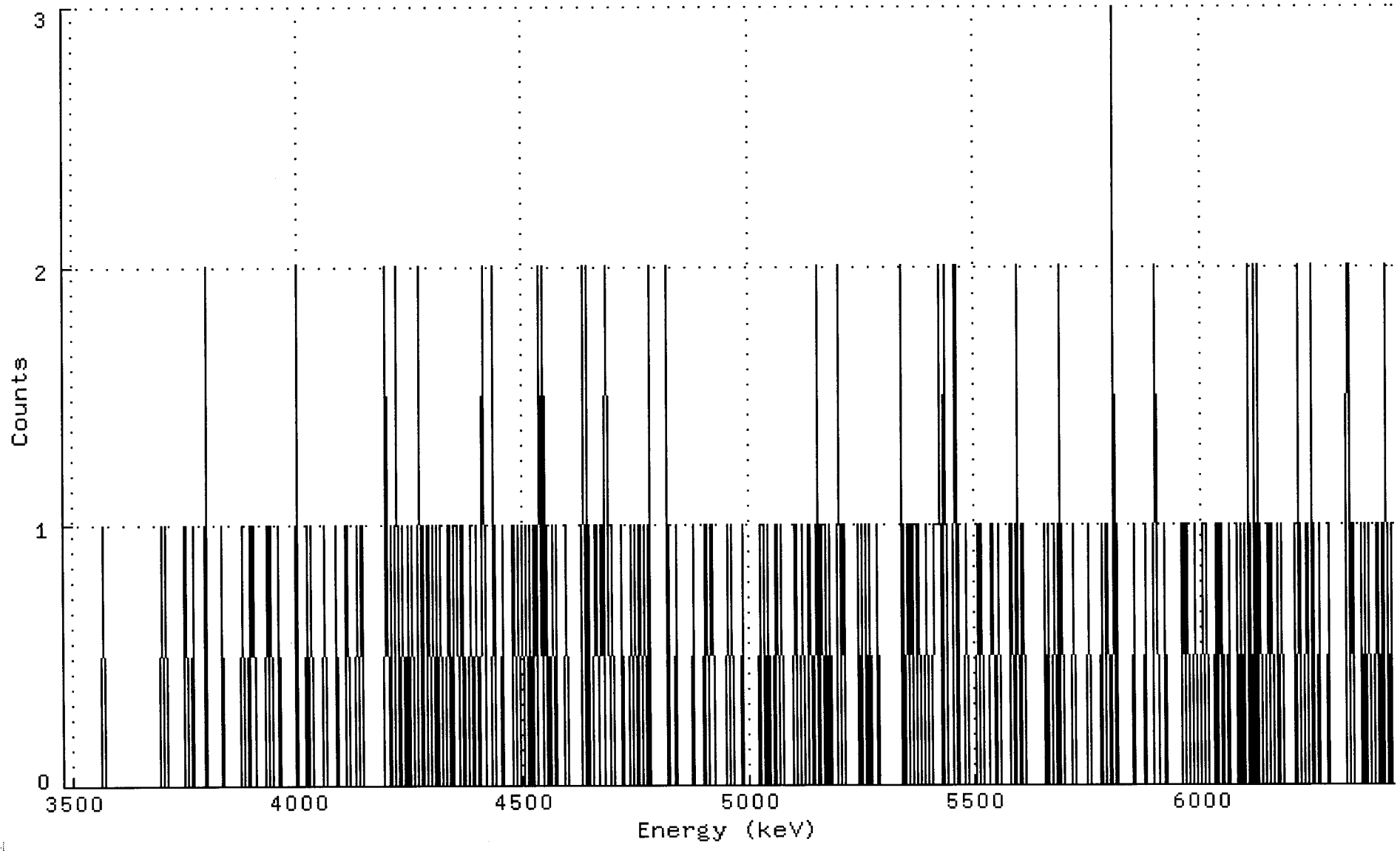
NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	79.87	2.21	100.0	1.062E+00	3.620E-01	2.763E-01
RN-222	5490.0	115.74	3.06	99.9	1.539E+00	4.399E-01	3.116E-01
RA-226	4785.0	119.09	1.87	100.0	1.583E+00	4.439E-01	2.603E-01

****

Analyst _____ 8/31/05 Date

Reviewer _____ 8/31/05 Date

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$13_RA.CNF;1
Title : 019
Sample Title: VPSCR081705SL0D
Start Time: 30-AUG-2005 18:28 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.46854E+03
Real Time : 0 02:50:02.00 Sample ID : 13 Energy Slope : 3.06066E+00
Live Time : 0 02:50:02.00 Sample Type: RA Energy Quad : -1.70196E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-RA$13_RA

Channel

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

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Gross Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:11:54.75

Detector ID: 19 Acquisition Start: 30-AUG-2005 18:28:01.01
Live Time: 0 02:50:02.00 Real Time: 0 02:50:02.00
Batch Id: 0508095A-RA Sample Id: 13
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4595.81	56	0	429.93	376.18	301	158	5.49E-03	13.4	
2	0	5286.88	55	0	333.61	615.15	522	179	5.39E-03	13.5	
3	0	5818.70	38	0	335.85	803.79	720	166	3.72E-03	16.2	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:12:03.02

Acquisition Start: 26-AUG-2005 12:00:58.01
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	4605.55	11	0	443.80	379.50	301	158	1.83E-04	30.2	
2	0	5275.06	18	0	3.06	611.00	522	179	3.00E-04	23.6	
3	0	5815.11	13	0	4.50	802.50	720	166	2.17E-04	27.7	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:12:03.27

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4595.81*	119	0	429.93	376.18	301	158	1.17E-02	13.6	
2	0	5286.88*	116	0	333.61	615.15	522	179	1.13E-02	13.9	
3	0	5818.70*	80	0	335.85	803.79	720	166	7.83E-03	16.7	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:12:04

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0D		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:28:01
Sample ID	: 13	Sample quantity	: 1.0525 gram
Sample type	: RA	Sample geometry	:
Detector name	: 019	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	4595.81*	119429.93	376.18		301	158	27.2		RA-226	1.58
0	5286.88*	116333.61	615.15		522	179	27.7		RN-222	1.54
0	5818.70*	80335.85	803.79		720	166	33.4		PO-218	1.06

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ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:12:49

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$14_RA.CNF

BATCH ID:	0508095A-RA	SAMPLE ID:	14
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.018E+00	gram
SAMPLE TITLE:	VPSCR081705SL0E	DETECTOR NUMBER:	020
ACQ DATE:	30-AUG-2005 18:28	AVERAGE EFFICIENCY:	19.74%
ELAPSED LIVE TIME:	10202.	RECOVERY:	80.37%
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:	24-AUG-2005 09:58	EFF CAL DATE: 24-AUG-2005	09:58
BKG FILENAME:	B_020_26AUG05	BKG ELAPSED TIME:	60005.
		SAF:	2.27

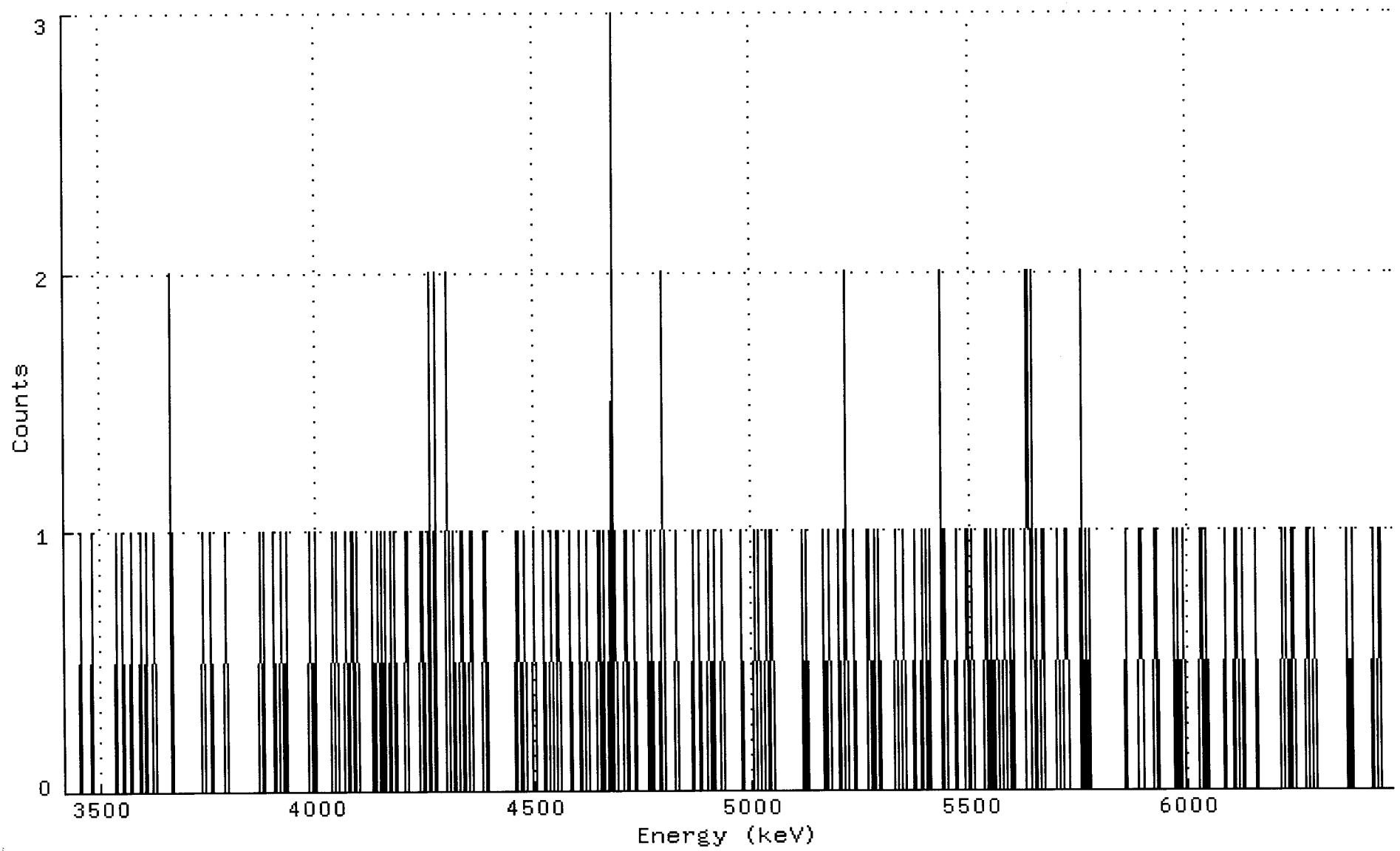
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	73.21	1.70	100.0	1.202E+00	4.366E-01	3.269E-01
RN-222	5490.0	70.77	1.87	99.9	1.162E+00	4.299E-01	3.381E-01
RA-226	4785.0	69.52	0.85	100.0	1.141E+00	4.226E-01	2.607E-01

Analyst _____ Date 8-31-05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$14_RA.CNF;1
Title : 020
Sample Title: VPSCR081705SL0E
Start Time: 30-AUG-2005 18:28 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.40925E+03
Real Time : 0 02:50:02.00 Sample ID : 14 Energy Slope : 3.18280E+00
Live Time : 0 02:50:02.00 Sample Type: RA Energy Quad : -1.91843E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-RA$14_RA

Channel

1:	10202	10202	0	0	0	0	0	0	0	0	0	0	0	0
15:	1	0	0	0	0	0	0	0	1	0	0	0	0	0
29:	0	0	0	0	0	0	0	0	0	0	0	0	1	0
43:	0	0	0	1	0	0	0	0	0	1	0	0	0	0
57:	0	0	1	0	0	0	1	0	0	0	0	0	1	0
71:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
85:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99:	0	0	0	0	0	0	1	0	0	0	0	0	1	0
113:	0	0	0	0	0	0	0	0	0	1	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	1	0	1	0	0	0	0	0
155:	0	0	1	0	0	0	0	1	0	0	0	1	0	0
169:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183:	1	0	0	0	1	0	0	0	0	0	0	0	0	0
197:	0	0	0	1	0	0	1	0	0	0	0	0	0	1
211:	0	0	0	1	0	1	0	1	0	0	0	0	0	0
225:	0	0	0	0	0	1	0	0	0	1	0	0	1	0
239:	1	0	0	0	1	0	0	0	1	0	0	0	0	0
253:	0	0	1	1	0	0	0	0	0	0	0	0	0	1
267:	0	1	0	0	0	0	2	0	0	0	2	0	0	0
281:	0	0	0	0	0	2	0	0	0	0	1	0	0	0
295:	0	1	0	1	0	0	0	0	1	1	0	0	0	0
309:	0	0	0	0	1	0	1	0	0	0	0	0	0	0
323:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337:	1	0	1	0	0	0	1	0	0	0	0	0	0	1
351:	0	0	0	0	0	0	0	1	0	0	0	0	1	0
365:	0	0	0	1	1	0	0	0	0	0	0	0	0	1
379:	0	0	0	0	0	0	1	0	0	0	0	1	1	0
393:	0	0	0	0	0	0	1	1	0	0	1	0	0	0
407:	1	0	0	3	0	1	0	0	0	0	0	0	1	0
421:	1	0	0	0	0	0	1	0	0	0	0	0	0	0
435:	0	0	1	0	0	1	0	0	0	0	0	1	0	2
449:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
463:	0	0	0	0	0	0	0	0	1	0	0	0	0	1
477:	0	0	0	0	0	0	1	0	0	0	1	0	0	0
491:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	1	0	0	0	0	0	0	0	0	0	1
519:	0	0	1	0	0	0	0	1	1	0	1	0	1	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	1	0	0	1	0	0
561:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
575:	1	0	0	0	0	0	0	0	1	0	0	0	0	2
589:	1	0	0	0	0	0	1	0	0	0	0	0	0	0
603:	0	0	1	1	0	0	0	1	0	0	0	1	0	0
617:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
631:	0	0	1	0	0	0	0	0	0	0	1	0	0	0
645:	0	0	1	0	0	0	1	0	1	0	0	0	0	0
659:	0	0	0	0	2	0	1	1	0	0	0	0	0	0
673:	0	1	0	0	0	0	0	0	0	1	0	1	0	1
687:	1	0	0	0	0	0	0	0	0	0	1	0	1	0
701:	0	1	0	0	0	1	0	0	0	0	0	1	0	0
715:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
729:	0	2	1	2	0	2	1	0	1	0	0	0	0	1
743:	1	0	0	0	0	0	0	0	0	0	0	1	0	0
757:	0	0	0	1	1	1	0	0	0	0	0	0	0	0
771:	0	0	2	0	0	1	0	0	1	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	1	0	0	0	0
813:	0	0	0	0	0	0	1	1	1	0	0	0	0	0
827:	0	0	0	0	1	0	1	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	1	0	0	1	0	0	0	1
855:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
869:	0	1	0	0	1	0	0	0	0	0	0	0	0	0
883:	0	0	0	0	1	0	0	0	0	0	0	0	1	0
897:	1	0	0	0	0	1	0	0	0	0	0	0	0	0
911:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
925:	0	0	0	0	0	0	0	0	0	1	0	0	1	0
939:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
953:	0	1	1	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	1	0	0	0	1	0	0	0
995:	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1009:	0	0	0	0	1	1	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 04:12:07.83

Detector ID: 20 Acquisition Start: 30-AUG-2005 18:28:28.01
Live Time: 0 02:50:02.00 Real Time: 0 02:50:02.00
Batch Id: 0508095A-RA Sample Id: 14
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4631.54	31		0123.33	393.35	309	153	3.04E-03	18.0	
2	0	5293.38	32		0241.83	614.75	523	173	3.14E-03	17.7	
3	0	5775.82	33		0139.98	780.24	714	160	3.23E-03	17.4	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:12:47.92

Acquisition Start: 26-AUG-2005 12:01:00.01
Live Time: 0 16:40:05.00 Real Time: 0 16:40:03.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4606.20	5		0155.96	385.00	309	153	8.33E-05	44.7	
2	0	5276.43	11		0276.90	609.00	523	173	1.83E-04	30.2	
3	0	5814.02	10		0 7.36	793.50	714	160	1.67E-04	31.6	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:12:48.17

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4631.54*	70		0123.33	393.35	309	153	6.81E-03	18.2	
2	0	5293.38*	71		0241.83	614.75	523	173	6.94E-03	18.2	
3	0	5775.82*	73		0139.98	780.24	714	160	7.18E-03	17.8	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:12:49

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0E		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:28:28
Sample ID	: 14	Sample quantity	: 1.0177 gram
Sample type	: RA	Sample geometry	:
Detector name	: 020	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	4631.54*	70123.33	393.35	309	153	36.4			RA-226	0.917
0	5293.38*	71241.83	614.75	523	173	36.3			RN-222	0.934
0	5775.82*	73139.98	780.24	714	160	35.7			PO-218	0.966

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:12:59

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$15_RA.CNF

BATCH ID:	0508095A-RA	SAMPLE ID:	15
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT:	1.027E+00 gram
SAMPLE TITLE:	VPSCR081705SL0F	DETECTOR NUMBER:	021
ACQ DATE:	30-AUG-2005 18:28	AVERAGE EFFICIENCY:	18.90%
ELAPSED LIVE TIME:	10202.	RECOVERY:	96.56%
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:	24-AUG-2005 09:58	EFF CAL DATE:	24-AUG-2005 09:58
BKG FILENAME:	B_021_26AUG05	BKG ELAPSED TIME:	60010.
		SAF:	2.72

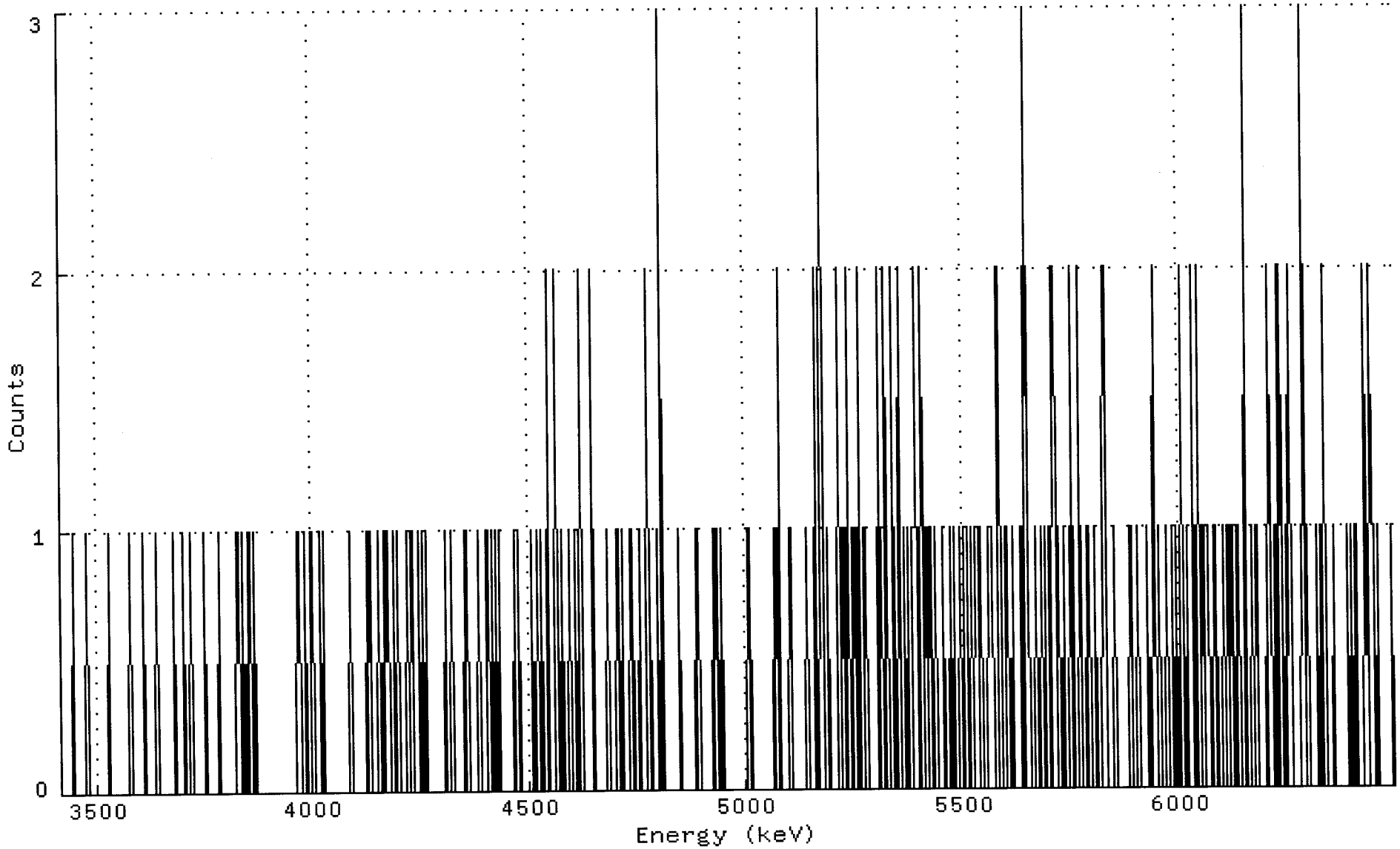
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	172.55	1.53	100.0	2.438E+00	6.382E-01	3.252E-01
RN-222	5490.0	185.30	2.38	99.9	2.620E+00	6.647E-01	3.801E-01
RA-226	4785.0	103.02	0.34	100.0	1.455E+00	4.845E-01	2.083E-01

Analyst _____ Date 8-31-05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$15_RA.CNF;1
Title : 021
Sample Title: VPSCR081705SLOF
Start Time: 30-AUG-2005 18:28 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.40603E+03
Real Time : 0 02:50:01.00 Sample ID : 15 Energy Slope : 3.22263E+00
Live Time : 0 02:50:02.00 Sample Type: RA Energy Quad : -2.02236E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-RA$15_RA

Channel

1:	10201	10202	0	0	0	0	0	0	0	0	0	1	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	1	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	1	0	0	0	0	0	0
71:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
85:	0	1	0	0	0	0	0	0	1	0	0	0	0	1
99:	0	0	0	0	0	0	0	0	0	1	0	0	0	0
113:	0	0	0	0	0	1	0	0	0	0	0	0	0	0
127:	0	0	0	0	1	1	1	0	0	1	0	0	1	0
141:	1	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	0	0	0
169:	0	0	0	0	0	0	0	1	1	0	0	0	0	1
183:	0	0	0	1	1	0	0	0	0	0	1	0	1	0
197:	0	0	0	0	0	0	0	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	1	0	1	1	0	0	0	0	0	1	0	0
239:	0	1	0	1	1	0	0	0	0	1	0	1	0	0
253:	0	0	0	0	1	0	0	1	1	0	0	0	0	1
267:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
281:	0	0	0	0	1	0	0	0	0	1	0	0	0	0
295:	0	0	0	0	1	0	1	0	0	0	0	0	0	0
309:	1	1	0	0	0	0	0	1	1	0	0	1	0	0
323:	1	0	1	0	0	0	0	0	0	0	0	0	0	1
337:	0	0	0	1	0	0	0	0	0	0	0	0	0	1
351:	0	0	0	1	0	0	1	0	0	0	2	0	0	0
365:	0	0	0	2	0	1	0	0	1	0	0	0	0	1
379:	0	0	0	0	1	0	0	0	2	0	0	0	0	0
393:	0	0	0	2	0	0	0	0	0	0	0	0	0	0
407:	1	0	0	0	0	0	0	1	1	0	0	1	0	0
421:	0	0	0	1	0	1	0	0	0	0	1	0	0	0
435:	0	0	2	0	1	0	0	0	0	0	1	0	0	3
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	0	1	0	1	0
477:	0	0	0	0	0	0	0	0	0	1	0	1	0	1
491:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
505:	0	0	0	0	0	0	0	0	1	0	1	0	0	0
519:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
533:	1	0	1	0	2	0	0	0	0	0	0	0	1	1
547:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
561:	0	0	0	0	2	0	0	1	1	3	1	0	0	0
575:	1	0	0	0	0	0	0	0	2	0	0	1	1	0
589:	0	2	1	0	1	0	1	0	1	0	2	0	0	0
603:	1	1	0	0	0	0	0	0	0	0	0	2	0	1
617:	0	0	2	1	0	0	0	0	2	0	0	0	1	2
631:	0	0	0	1	0	1	0	0	0	1	1	1	2	0
645:	1	0	2	1	0	1	0	1	1	0	1	0	1	1
659:	0	0	0	0	0	1	0	0	0	0	1	0	0	1
673:	0	0	0	1	1	0	0	1	1	1	0	0	1	1
687:	0	1	1	1	1	0	1	0	0	0	0	0	1	1
701:	1	1	0	0	0	0	2	2	0	0	0	0	1	1
715:	0	0	0	1	0	0	0	0	0	0	1	0	2	0
729:	3	1	1	0	0	0	0	1	1	0	0	0	1	0
743:	0	1	0	0	0	1	0	2	1	2	1	0	1	0
757:	0	0	1	0	0	0	0	1	0	2	0	0	0	0
771:	1	2	0	0	0	0	1	0	1	0	0	0	0	1
785:	0	0	0	0	1	1	2	2	0	0	0	0	0	1
799:	1	0	0	0	0	0	0	0	0	0	0	0	1	1
813:	0	0	0	0	1	0	0	0	0	0	0	0	1	0
827:	0	0	1	2	1	0	1	1	0	0	0	0	0	1
841:	0	0	0	0	1	0	0	1	0	1	0	2	0	0
855:	0	1	0	0	0	0	0	2	0	0	0	2	0	0
869:	1	0	1	1	1	1	0	0	0	1	0	1	0	0
883:	0	0	0	1	0	0	1	0	1	1	0	1	0	0
897:	1	1	0	0	0	0	0	3	0	0	0	0	1	0
911:	0	1	1	0	0	0	0	0	0	0	1	0	2	1
925:	1	0	1	0	0	2	0	2	1	0	0	1	0	1
939:	1	2	0	0	0	0	0	0	0	0	1	1	3	1
953:	0	1	0	0	0	0	0	0	0	1	0	0	1	0
967:	0	2	0	0	0	0	0	0	1	0	0	0	0	0
981:	0	0	0	0	0	0	1	0	0	1	0	1	0	1
995:	0	0	0	0	0	1	2	1	0	0	2	1	1	1
1009:	0	0	1	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 04:12:52.61

Detector ID: 21 Acquisition Start: 30-AUG-2005 18:28:49.01
Live Time: 0 02:50:02.00 Real Time: 0 02:50:01.00
Batch Id: 0508095A-RA Sample Id: 15
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4608.21	38	0	279.56	382.21	307	151	3.72E-03	16.2	
2	0	5314.52	69	0	356.91	616.03	518	171	6.76E-03	12.0	
3	0	5788.55	64	0	0.00	777.22	707	159	6.27E-03	12.5	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:12:57.88

Acquisition Start: 26-AUG-2005 12:01:04.01
Live Time: 0 16:40:10.00 Real Time: 0 16:40:10.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4607.56	2	0	116.01	382.00	307	151	3.33E-05	70.7	
2	0	5275.74	14	0	3.22	603.00	518	171	2.33E-04	26.7	
3	0	5814.08	9	0	3.22	786.00	707	159	1.50E-04	33.3	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:12:58.15

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4608.21*	103	0	279.56	382.21	307	151	1.01E-02	16.3	
2	0	5314.52*	185	0	356.91	616.03	518	171	1.82E-02	12.2	
3	0	5788.55*	173	0	0.00	777.22	707	159	1.69E-02	12.6	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:12:59

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0F		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:28:49
Sample ID	: 15	Sample quantity	: 1.0273 gram
Sample type	: RA	Sample geometry	:
Detector name	: 021	Detector geometry	:
Elapsed live time	: 0 02:50:02.00	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	4608.21*	103279.56	382.21		307	151	32.6		RA-226	1.41
0	5314.52*	185356.91	616.03		518	171	24.4		RN-222	2.53
0	5788.55*	173	0.00	777.22	707	159	25.2		PO-218	2.35

Eberline Services
Oak Ridge Laboratory

ALPHA SPECTROMETRY REPORT
31-AUG-2005 04:13:18

Spectral File: ND_AMS_ARCHIVE_S:S_0508095A-RA$16_RA.CNF

BATCH ID:	0508095A-RA	SAMPLE ID:	16
SAMPLE DATE:	17-AUG-2005 00:00	ALIQUOT: 1.082E+00	gram
SAMPLE TITLE:	VPSCR081705SL0G	DETECTOR NUMBER:	022
ACQ DATE:	30-AUG-2005 18:29	AVERAGE EFFICIENCY:	17.97%
ELAPSED LIVE TIME:	10202.	RECOVERY:	94.54%
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:	24-AUG-2005 09:58	EFF CAL DATE: 24-AUG-2005	09:58
BKG FILENAME:	B_022_26AUG05	BKG ELAPSED TIME:	60007.
		SAF:	2.27

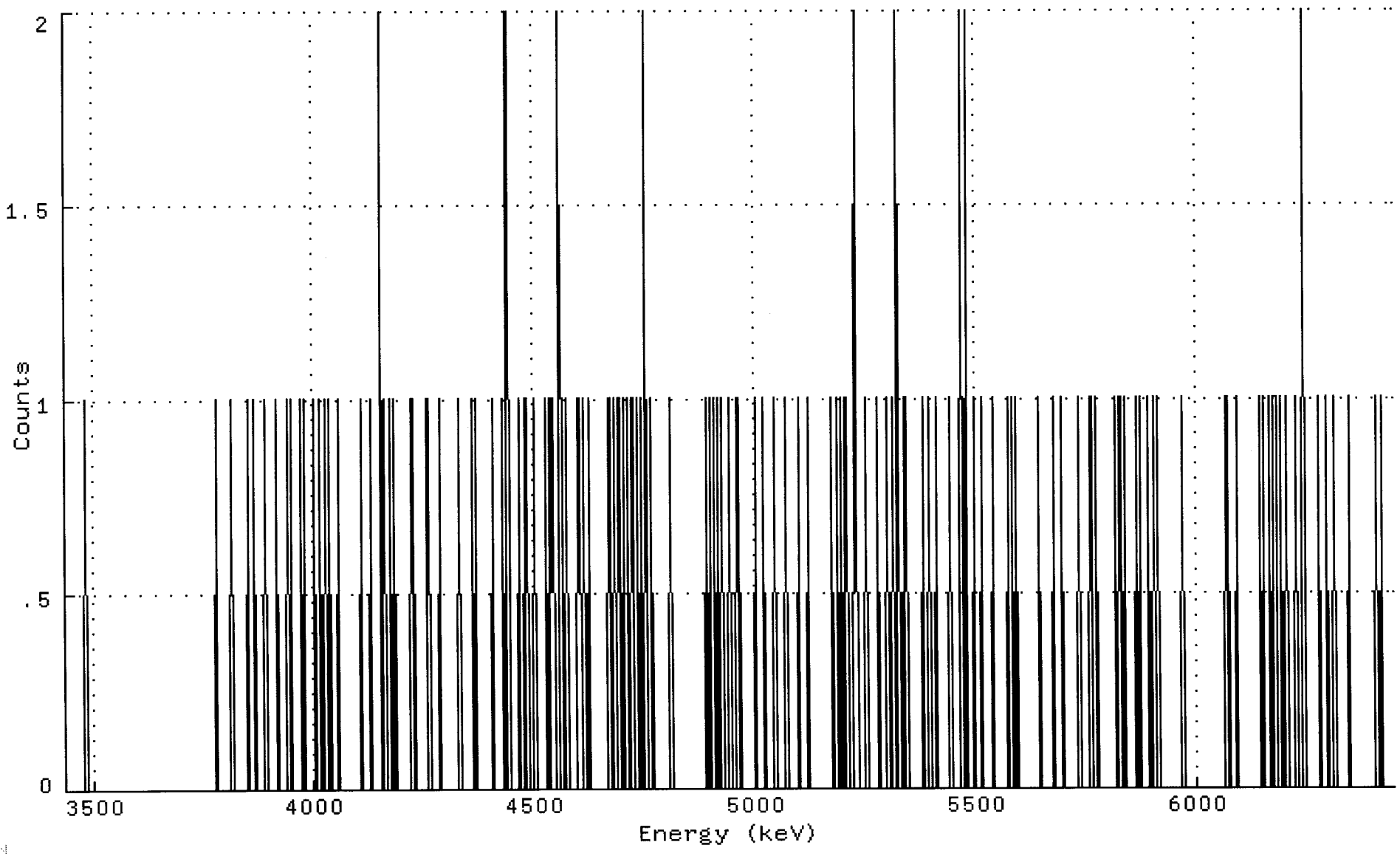
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	NET AREA	BKG	%ABN	ACTIVITY pCi/ gram	TPU/ERROR 2-SIGMA	MDC pCi/ gram
PO-218	6003.0	40.07	3.06	100.0	5.775E-01	2.888E-01	3.548E-01
RN-222	5490.0	78.60	0.85	99.9	1.134E+00	3.955E-01	2.291E-01
RA-226	4785.0	87.51	1.02	100.0	1.261E+00	4.181E-01	2.423E-01

Analyst _____ Date 8/31/05

Reviewer _____ Date 8/31/05

Spectrum : DKA100:[ALPHA.ALUSR.ARCHIVE.S]S_0508095A-RA$16_RA.CNF;1
Title : 022
Sample Title: VPSCR081705SLOG
Start Time: 30-AUG-2005 18:29 Sample Time: 17-AUG-2005 00:00 Energy Offset: 3.42421E+03
Real Time : 0 02:50:02.00 Sample ID : 16 Energy Slope : 3.13650E+00
Live Time : 0 02:50:02.00 Sample Type: RA Energy Quad : -1.81630E-04



Channel Contents for ND_AMS_ARCHIVE_S:S_0508095A-RA$16_RA

Channel

1:	10202	10202	0	0	0	0	0	0	0	0	0	0	0	0
15:	0	0	0	1	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:	1	0	0	0	0	0	0	0	0	0	0	0	1	0
127:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
141:	0	1	0	0	0	0	0	0	0	1	0	0	0	0
155:	0	0	0	0	1	0	0	0	0	0	0	0	1	0
169:	1	0	0	0	0	0	0	0	1	0	1	0	0	0
183:	0	0	0	0	1	0	0	0	1	0	0	0	1	0
197:	0	1	0	0	0	0	0	1	0	0	0	0	0	0
211:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
225:	0	0	0	1	0	0	0	0	0	0	0	2	0	1
239:	1	0	0	0	1	0	0	1	0	0	0	0	0	0
253:	0	0	0	0	0	1	0	1	0	0	0	0	0	0
267:	0	0	0	1	1	0	0	0	0	0	0	0	1	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	1	0	1	0	0
309:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
323:	0	0	0	0	1	0	0	2	2	0	0	0	0	0
337:	0	0	1	0	0	0	1	0	1	0	0	0	0	0
351:	1	0	0	0	0	0	0	0	0	1	0	1	0	1
365:	1	0	0	0	0	2	1	1	0	0	1	0	0	0
379:	0	0	0	0	0	1	1	0	0	1	0	0	0	1
393:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
407:	1	1	0	0	1	0	0	1	0	1	0	1	0	0
421:	0	1	0	1	1	0	0	0	1	0	1	0	0	1
435:	2	0	0	0	1	0	0	0	0	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	0	0	0	0	0
477:	0	0	0	1	0	0	1	0	0	0	1	0	1	0
491:	0	1	1	0	0	0	0	1	0	0	0	0	0	1
505:	0	1	0	0	0	0	0	0	0	0	0	0	0	1
519:	0	0	0	0	0	0	1	0	0	0	0	0	0	0
533:	1	0	0	0	0	0	0	0	0	1	0	0	0	0
547:	0	0	0	0	0	1	0	0	0	0	0	0	1	0
561:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
575:	0	0	0	1	0	0	0	1	0	1	0	0	1	0
589:	1	0	0	0	0	0	1	2	1	0	0	0	0	0
603:	0	1	0	0	0	0	0	0	0	0	1	0	0	0
617:	0	0	0	1	0	0	0	1	1	0	0	2	1	0
631:	0	0	1	0	1	0	0	0	0	0	0	0	0	0
645:	0	0	0	1	0	0	0	0	1	0	0	0	0	1
659:	0	0	0	0	0	0	0	0	0	0	1	0	0	0
673:	0	0	0	0	0	2	0	1	0	2	0	0	0	0
687:	0	1	0	0	0	0	0	1	0	0	0	0	0	0
701:	0	0	1	0	0	0	0	0	0	0	0	0	0	0
715:	1	0	0	0	1	0	0	1	0	0	0	0	0	0
729:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
743:	0	0	0	0	0	0	0	0	1	0	0	0	0	0
757:	0	1	0	0	0	0	0	0	0	0	0	0	0	0
771:	1	0	0	0	0	0	0	0	0	1	1	0	0	0
785:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
799:	0	1	0	0	1	0	1	0	1	0	0	0	0	0
813:	0	0	0	1	0	0	1	0	0	0	0	0	0	1
827:	0	0	0	1	0	0	1	0	0	0	0	0	0	0
841:	0	0	0	0	0	0	0	0	0	0	0	0	1	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	1	0	1	0	0	0	0	0	0
897:	1	0	0	0	0	0	0	0	0	0	0	0	0	0
911:	0	0	0	0	0	1	0	1	0	0	0	0	0	1
925:	0	0	1	1	1	0	0	0	1	0	0	0	1	0
939:	0	0	0	0	0	0	1	0	0	0	0	0	2	0
953:	0	0	0	0	0	0	0	0	0	0	0	1	0	0
967:	0	0	0	1	0	0	0	0	0	1	0	0	0	0
981:	0	0	0	0	0	0	0	1	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	1	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 04:13:02.61

Detector ID: 22 Acquisition Start: 30-AUG-2005 18:29:12.01
Live Time: 0 02:50:02.00 Real Time: 0 02:50:02.00
Batch Id: 0508095A-RA Sample Id: 16
Sample Type: RA

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4604.07	39	0332.08	384.74	309	155	3.82E-03	16.0	
2	0	5296.03	35	0274.44	618.97	525	175	3.43E-03	16.9	
3	0	5787.04	19	0423.43	789.42	718	163	1.86E-03	22.9	

Background Counts Within Peak Regions Generated: 31-AUG-2005 04:13:16.84

Acquisition Start: 26-AUG-2005 12:01:07.01
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	4607.84	6	0	3.14	386.00	309	155	1.00E-04	40.8	
2	0	5275.72	5	0	3.14	612.00	525	175	8.33E-05	44.7	
3	0	5814.33	18	0	9.34	799.00	718	163	3.00E-04	23.6	

Net Sample Counts Within Peak Regions Generated: 31-AUG-2005 04:13:17.08

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4604.07*	88	0332.08	384.74	309	155	8.58E-03	16.2	
2	0	5296.03*	79	0274.44	618.97	525	175	7.70E-03	17.1	
3	0	5787.04*	40	0423.43	789.42	718	163	3.93E-03	24.8	

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

VMS Nuclide Identification Report V3.0 Generated 31-AUG-2005 04:13:18

Configuration	: MCA0:[AMSCOUNT]00009067$1		
Analyses by	: ROIPEAK V1.2,PEAKEFF V2.2,ENBACK V1.6,NID V3.3		
Sample title	: VPSCR081705SL0G		
Sample date	: 17-AUG-2005 00:00:00	Acquisition date	: 30-AUG-2005 18:29:12
Sample ID	: 16	Sample quantity	: 1.0821 gram
Sample type	: RA	Sample geometry	:
Detector name	: 022	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	4604.07*	88332.08	384.74		309	155	32.4		RA-226	1.19
0	5296.03*	79274.44	618.97		525	175	34.2		RN-222	1.07
0	5787.04*	40423.43	789.42		718	163	49.5		PO-218	0.546

VAX/VMS Peak Search Report Generated 30-AUG-2005 17:01:04.99 MR 8.300

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809501_GE5_BAFIL_87695.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : SPIKE
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 16:50:48
Sample ID : 0508095-01 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 00:10:00.84 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	6.33	8	10	0.40	58.16	48	13	1.38E-02	85.2	
2	0	21.06	70	24	0.62	200.11	186	22	1.16E-01	18.9	
3	0	30.97	1536	79	0.82	295.59	281	33	2.56E+00	3.0	
4	1	35.12	330	23	0.74	335.65	321	30	5.50E-01	6.6	2.60E+00
5	1	35.99	108	4	0.67	344.00	321	30	1.80E-01	15.2	
6	0	61.84	164	38	0.63	593.08	581	28	2.73E-01	11.9	
7	0	66.13	68	44	0.58	634.47	621	22	1.13E-01	24.3	
8	4	79.65	47	6	0.82	764.72	756	34	7.90E-02	18.9	7.96E-01
9	4	81.11	593	3	0.68	778.80	756	34	9.88E-01	4.2	
10	0	112.03	153	50	0.71	1076.78	1059	28	2.55E-01	13.4	
11	0	116.01	25	23	0.55	1115.16	1103	20	4.14E-02	45.2	
12	0	276.61	36	8	0.68	2662.78	2650	21	5.97E-02	22.4	
13	1	302.58	31	3	0.96	2913.00	2904	23	5.10E-02	30.0	3.27E-01
14	1	303.30	55	5	0.86	2919.92	2904	23	9.20E-02	16.9	
15	0	333.88	36	0	1.23	3214.61	3200	25	6.00E-02	16.7	
16	0	356.13	302	7	0.60	3429.02	3414	27	5.04E-01	6.0	
17	7	383.27	17	0	0.67	3690.58	3683	27	2.91E-02	32.4	8.56E-01
18	7	384.11	41	0	1.23	3698.70	3683	27	6.85E-02	20.8	
19	1	386.43	46	2	1.02	3721.00	3713	23	7.66E-02	19.4	1.86E+00
20	1	387.05	72	7	1.02	3727.00	3713	23	1.21E-01	15.6	

Sample ID : 0508095-01 Acquisition date : 30-AUG-2005 16:50:48

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	3.947E+02	3.948E+02	0.681E+02	17.26	
		Total Activity :	3.947E+02	3.948E+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	1.942E+03	1.942E+03	0.519E+03	26.73	
		Total Activity :	1.942E+03	1.942E+03			
		Grand Total Activity :	2.337E+03	2.337E+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	4.403E+02	4.403E+02	17.43	OK
	302.84	17.80	3.440E+00	2.250E+02	2.251E+02	65.81	OK
	356.01	60.00	1.579E+00	1.437E+03	1.437E+03	32.08	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 3.948E+02+/- 6.815E+01 (17.26%)

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	1.942E+03	1.942E+03	26.73	OK

Final Mean for 1 Valid Peaks = 1.942E+03+/- 5.191E+02 (26.73%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	3.948E+02	6.815E+01	1.770E+01	2.613E+00	22.308
TH-234	1.942E+03	5.191E+02	4.173E+02	4.871E+01	4.654

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-2.097E+00		2.211E+00	3.538E+00	1.472E-01	-0.593
CD-109	1.090E+02		6.418E+01	1.487E+02	8.124E+00	0.733
PA-231	-2.745E+07		7.773E+12	4.996E+07	1.415E+13	-0.550
PA-234	1.983E+04	+	9.460E+05	1.161E+04	5.537E+05	1.709
NP-237	-2.459E+01		2.183E+01	3.340E+01	1.878E+00	-0.736
AM-241	1.807E+01		2.174E+01	3.967E+01	5.634E+00	0.456

VAX/VMS Peak Search Report Generated 30-AUG-2005 16:56:50.57 MR 8.30.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809502_GE1_BAFIL_87696.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : BLANK
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 16:51:35
Sample ID : 0508095-02 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.07 0.0%
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	62.60	93	38	2.21	62.42	58	12	3.11E-01	15.5	1.83E+00
2	3	66.61	36	46	2.31	66.44	58	12	1.20E-01	39.2	
3	0	81.87	307	53	2.05	81.70	77	11	1.02E+00	7.3	
4	0	94.35	26	55	3.99	94.18	89	12	8.60E-02	61.5	
5	3	112.58	64	29	2.25	112.41	109	12	2.12E-01	19.8	2.08E+00
6	3	116.57	18	23	2.38	116.41	109	12	6.05E-02	62.6	
7	0	145.49	14	26	2.24	145.33	142	7	4.72E-02	64.3	
8	0	163.19	2	28	1.90	163.04	161	6	7.78E-03	376.7	
9	0	277.59	22	9	1.62	277.46	273	7	7.38E-02	30.8	
10	1	303.31	50	10	1.80	303.19	299	12	1.68E-01	17.1	2.51E+00
11	1	307.93	25	4	2.08	307.81	299	12	8.21E-02	25.2	
12	3	334.39	29	6	2.53	334.27	328	15	9.76E-02	26.0	6.88E-01
13	3	338.49	13	5	2.53	338.37	328	15	4.45E-02	51.4	
14	3	352.30	10	0	2.10	352.19	351	13	3.31E-02	24.1	5.81E-01
15	3	356.83	225	5	1.95	356.72	351	13	7.49E-01	6.9	
16	4	384.43	62	0	2.07	384.33	382	15	2.08E-01	12.3	4.24E-01
17	4	387.78	85	2	2.12	387.67	382	15	2.84E-01	14.1	
18	4	392.46	24	4	2.81	392.35	382	15	7.99E-02	38.2	
19	0	416.11	27	10	1.43	416.01	413	8	9.16E-02	27.5	
20	0	437.54	48	2	2.15	437.45	433	8	1.61E-01	15.2	
21	0	469.13	13	4	1.12	469.04	465	7	4.17E-02	37.6	
22	0	511.52	12	2	2.76	511.44	508	7	4.06E-02	33.9	

Sample ID : 0508095-02 Acquisition date : 30-AUG-2005 16:51:35

Total number of lines in spectrum 22
Number of unidentified lines 18
Number of lines tentatively identified by NID 4 18.18%

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	4.601E+02	4.602E+02	0.660E+02	14.34	
	Total Activity :		4.601E+02	4.602E+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	3.777E+02	3.777E+02	1.189E+02	31.47	
	Total Activity :		3.777E+02	3.777E+02			

Grand Total Activity : 8.378E+02 8.379E+02

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*	1.963E+01	4.275E+02	4.276E+02	22.33	OK
	302.84	17.80	4.915E+00	5.198E+02	5.198E+02	44.98	OK
	356.01	60.00	6.963E+00	4.845E+02	4.846E+02	20.46	OK

Final Mean for 3 Valid Peaks = 4.602E+02+/- 6.599E+01 (14.34%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.777E+02	3.777E+02	31.47	OK

Final Mean for 1 Valid Peaks = 3.777E+02+/- 1.189E+02 (31.47%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.602E+02	6.599E+01	3.940E+01	6.467E+00	11.681
TH-234	3.777E+02	1.189E+02	1.147E+02	3.677E+00	3.292

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-9.091E-01		2.532E+01	4.320E+01	1.349E+01	-0.021
CD-109	-1.655E+02		3.778E+02	4.542E+02	5.876E+01	-0.364
PA-231	0.000E+00		0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00		0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	-1.980E+01		1.067E+02	1.368E+02	1.666E+01	-0.145
AM-241	4.911E+00		6.720E+00	1.201E+01	2.818E-01	0.409

VAX/VMS Peak Search Report Generated 30-AUG-2005 17:02:39.56 MR 8.30.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809503_GE1_BAFIL_87698.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL15
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 16:57:23
Sample ID : 0508095-03 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.07 0.0%
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	61.99	54	82	1.43	61.81	58	8	1.78E-01	32.6	
2	0	81.85	281	46	2.25	81.68	77	11	9.36E-01	7.6	
3	0	93.58	23	29	2.31	93.41	89	9	7.76E-02	47.6	
4	0	112.78	79	56	2.02	112.62	108	11	2.62E-01	21.5	
5	0	208.05	4	27	1.22	207.91	205	7	1.28E-02	223.9	
6	0	265.00	23	3	4.95	264.86	261	9	7.81E-02	23.8	
7	0	277.72	20	11	2.02	277.59	273	7	6.50E-02	35.7	
8	0	304.00	53	17	2.19	303.88	299	8	1.75E-01	19.6	
9	0	335.03	20	30	2.17	334.92	329	10	6.59E-02	56.5	
10	0	356.89	194	18	1.93	356.78	352	9	6.46E-01	8.2	
11	0	386.52	102	30	4.50	386.41	382	10	3.40E-01	13.9	
12	5	414.28	16	1	3.11	414.18	412	11	5.17E-02	32.9	1.70E+00
13	5	418.45	13	6	2.91	418.35	412	11	4.21E-02	54.3	
14	0	437.87	44	0	2.45	437.77	434	7	1.47E-01	15.1	
15	0	469.65	8	6	1.23	469.57	467	7	2.75E-02	58.4	

Sample ID : 0508095-03 Acquisition date : 30-AUG-2005 16:57:23

Total number of lines in spectrum 15
Number of unidentified lines 11
Number of lines tentatively identified by NID 4 26.67%

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	4.112E+02	4.113E+02	0.625E+02	15.20	
	Total Activity :		4.112E+02	4.113E+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	2.164E+02	2.164E+02	1.414E+02	65.34	
	Total Activity :		2.164E+02	2.164E+02			

Grand Total Activity : 6.276E+02 6.277E+02

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*	1.963E+01	3.904E+02	3.905E+02	22.73	OK
	302.84	17.80	4.915E+00	5.412E+02	5.413E+02	48.89	OK
	356.01	60.00	6.963E+00	4.180E+02	4.181E+02	22.33	OK

Final Mean for 3 Valid Peaks = 4.113E+02+/- 6.250E+01 (15.20%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	2.164E+02	2.164E+02	65.34	OK

Final Mean for 1 Valid Peaks = 2.164E+02+/- 1.414E+02 (65.34%)

Flag: "*" = Keyline

Sample ID : 0508095-03 Acquisition date : 30-AUG-2005 16:57:23

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.113E+02	6.250E+01	3.699E+01	6.072E+00	11.118
TH-234	2.164E+02	1.414E+02	1.674E+02	5.364E+00	1.293

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-4.550E+00		2.482E+01	4.124E+01	1.288E+01	-0.110
CD-109	-3.369E+01		3.276E+02	4.330E+02	5.601E+01	-0.078
PA-231	0.000E+00		0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00		0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	-8.664E-01		9.155E+01	1.238E+02	1.507E+01	-0.007
AM-241	7.659E+00		6.450E+00	1.210E+01	2.839E-01	0.633

VAX/VMS Peak Search Report Generated 30-AUG-2005 17:11:45.69 MR 8.30.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809504_GE5_BAFIL_87700.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL15
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 17:01:29
Sample ID : 0508095-04 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 00:10:00.83 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	4.66	16	19	0.23	42.08	31	15	2.72E-02	63.0	
2	0	21.18	56	29	0.70	201.31	192	17	9.39E-02	23.4	
3	0	27.97	24	25	0.27	266.68	257	17	4.01E-02	47.2	
4	0	30.96	1429	60	0.70	295.51	284	26	2.38E+00	2.9	
5	3	35.19	358	23	0.79	336.25	319	35	5.97E-01	6.3	2.32E+00
6	3	35.98	74	15	0.67	343.88	319	35	1.23E-01	26.9	
7	0	53.41	31	9	0.29	511.89	502	17	5.23E-02	25.5	
8	0	61.83	170	28	0.68	592.98	578	27	2.84E-01	10.5	
9	0	66.07	75	29	0.82	633.86	623	24	1.25E-01	19.6	
10	0	81.16	528	84	0.57	779.31	768	21	8.80E-01	5.7	
11	0	112.05	151	16	0.61	1076.92	1067	22	2.52E-01	10.1	
12	0	148.00	7	9	0.31	1423.38	1411	17	1.25E-02	84.7	
13	0	303.09	88	7	0.43	2917.94	2903	25	1.46E-01	12.2	
14	0	334.15	30	9	0.51	3217.26	3196	29	5.02E-02	26.8	
15	2	355.81	85	6	1.00	3426.00	3415	26	1.41E-01	20.0	2.55E+00
16	2	356.41	186	5	0.85	3431.79	3415	26	3.11E-01	9.0	
17	1	383.52	27	3	1.01	3693.00	3683	26	4.46E-02	29.7	8.96E-01
18	1	384.14	39	6	1.01	3699.00	3683	26	6.49E-02	22.4	
19	0	387.10	93	24	0.63	3727.47	3712	25	1.55E-01	15.0	

Sample ID : 0508095-04 Acquisition date : 30-AUG-2005 17:01:29

Total number of lines in spectrum 19
Number of unidentified lines 13
Number of lines tentatively identified by NID 6 31.58%

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	4.138E+02	4.138E+02	0.672E+02	16.23	
	Total Activity :		4.138E+02	4.138E+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	2.020E+03	2.020E+03	0.492E+03	24.36	
	Total Activity :		2.020E+03	2.020E+03			
	Grand Total Activity :		2.434E+03	2.434E+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	3.918E+02	3.919E+02	19.08	OK
	302.84	17.80	3.440E+00	6.464E+02	6.464E+02	36.44	OK
	356.01	60.00	1.579E+00	4.034E+02	4.034E+02	49.87	OK

Final Mean for 3 Valid Peaks = 4.138E+02+/- 6.718E+01 (16.23%)

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	2.020E+03	2.020E+03	24.36	OK

Final Mean for 1 Valid Peaks = 2.020E+03+/- 4.921E+02 (24.36%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.138E+02	6.718E+01	2.311E+01	3.412E+00	17.906
TH-234	2.020E+03	4.921E+02	3.305E+02	3.857E+01	6.113

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-4.050E-01		2.371E+00	4.361E+00	1.814E-01	-0.093
CD-109	-1.176E+01		6.039E+01	1.111E+02	6.071E+00	-0.106
PA-231	-1.621E+07		4.589E+12	5.679E+07	1.608E+13	-0.285
PA-234	1.600E+04	+	7.630E+05	1.132E+04	5.399E+05	1.413
NP-237	-6.654E+00		1.896E+01	3.385E+01	1.903E+00	-0.197
AM-241	1.182E+01		2.615E+01	4.327E+01	6.145E+00	0.273

VAX/VMS Peak Search Report Generated 30-AUG-2005 17:08:10.31 MR 8.30.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809505_GE1_BAFIL_87701.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL16
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 17:02:52
Sample ID : 0508095-05 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.07 0.0%
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	62.57	78	65	2.08	62.39	59	7	2.59E-01	20.6	
2	0	67.23	38	34	1.37	67.05	66	5	1.28E-01	29.0	
3	0	81.73	288	36	2.18	81.56	77	11	9.59E-01	7.1	
4	0	94.84	25	28	1.87	94.67	90	10	8.42E-02	43.7	
5	5	112.32	72	21	2.08	112.15	108	15	2.38E-01	15.4	7.80E-01
6	5	117.26	29	19	2.88	117.09	108	15	9.58E-02	42.0	
7	0	163.32	6	28	2.49	163.17	158	7	2.00E-02	151.8	
8	0	241.52	9	8	1.68	241.38	238	6	3.11E-02	57.0	
9	0	303.53	47	18	1.87	303.40	300	7	1.57E-01	20.7	
10	0	308.92	17	11	2.07	308.80	307	6	5.82E-02	39.8	
11	1	334.17	28	0	2.09	334.05	329	19	9.21E-02	19.8	1.11E+00
12	1	338.93	8	0	2.09	338.81	329	19	2.66E-02	46.9	
13	0	356.85	213	14	2.06	356.74	353	10	7.11E-01	7.6	
14	1	384.28	31	10	1.88	384.18	382	10	1.03E-01	24.7	3.97E+00
15	1	387.30	79	26	2.11	387.19	382	10	2.63E-01	16.5	
16	2	414.90	24	6	2.33	414.80	411	11	7.88E-02	28.5	1.11E+00
17	2	418.09	12	10	2.34	417.99	411	11	4.16E-02	60.1	
18	0	437.65	38	0	2.09	437.55	432	12	1.27E-01	16.2	
19	0	510.49	12	0	1.77	510.42	506	8	4.00E-02	28.9	

Sample ID : 0508095-05 Acquisition date : 30-AUG-2005 17:02:52

Total number of lines in spectrum 19
Number of unidentified lines 15
Number of lines tentatively identified by NID 4 21.05%

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	4.308E+02	4.308E+02	0.637E+02	14.79	
	Total Activity :		4.308E+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	3.136E+02	3.136E+02	1.304E+02	41.59	
	Total Activity :		3.136E+02	3.136E+02			

Grand Total Activity : 7.444E+02 7.444E+02

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*	1.963E+01	4.004E+02	4.004E+02	22.12	OK
	302.84	17.80	4.915E+00	4.855E+02	4.856E+02	50.75	OK
	356.01	60.00	6.963E+00	4.599E+02	4.599E+02	21.50	OK

Final Mean for 3 Valid Peaks = 4.308E+02+/- 6.374E+01 (14.79%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.136E+02	3.136E+02	41.59	OK

Final Mean for 1 Valid Peaks = 3.136E+02+/- 1.304E+02 (41.59%)

Flag: "*" = Keyline

Sample ID : 0508095-05 Acquisition date : 30-AUG-2005 17:02:52

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.308E+02	6.374E+01	3.765E+01	6.180E+00	11.444
TH-234	3.136E+02	1.304E+02	1.567E+02	5.021E+00	2.001

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-4.240E+00		2.486E+01	4.141E+01	1.293E+01	-0.102
CD-109	2.648E+01		2.599E+02	3.727E+02	4.822E+01	0.071
PA-231	0.000E+00		0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00		0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	6.140E+01		7.353E+01	1.241E+02	1.510E+01	0.495
AM-241	5.129E+00		6.653E+00	1.195E+01	2.804E-01	0.429

MR 8.30.05

VAX/VMS Peak Search Report Generated 30-AUG-2005 17:14:02.58

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809506_GE1_BAFIL_87702.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL17
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 17:08:44
Sample ID : 0508095-06 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
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	5	62.37	104	29	2.81	62.19	58	12	3.45E-01	13.5	6.18E+00
2	5	66.83	41	31	2.11	66.65	58	12	1.38E-01	30.0	
3	0	81.86	314	54	2.05	81.68	76	12	1.05E+00	7.3	
4	0	93.84	18	45	1.90	93.67	88	10	6.00E-02	73.6	
5	3	112.02	61	25	2.37	111.85	107	13	2.02E-01	18.8	1.53E+00
6	3	116.80	17	16	2.38	116.64	107	13	5.73E-02	58.1	
7	0	253.81	13	4	1.60	253.68	251	7	4.17E-02	37.6	
8	0	276.99	27	4	1.54	276.86	273	7	9.14E-02	22.2	
9	5	303.62	66	1	2.18	303.49	301	10	2.20E-01	12.6	1.28E+00
10	5	308.02	15	3	2.41	307.90	301	10	5.14E-02	49.9	
11	2	334.46	30	4	2.25	334.34	330	13	9.97E-02	22.5	8.35E-01
12	2	338.72	9	4	2.30	338.60	330	13	2.96E-02	65.7	
13	0	356.66	200	4	1.92	356.55	354	7	6.65E-01	7.2	
14	0	367.39	3	15	1.71	367.28	362	7	1.07E-02	202.3	
15	1	385.30	46	2	2.11	385.19	380	15	1.52E-01	20.7	8.84E+00
16	1	391.10	16	0	1.92	391.00	380	15	5.43E-02	44.4	
17	1	415.29	11	1	2.12	415.19	413	13	3.82E-02	34.9	1.54E+00
18	1	418.29	10	5	2.12	418.19	413	13	3.41E-02	53.2	
19	0	437.64	53	0	1.82	437.55	433	9	1.77E-01	13.7	
20	0	510.74	9	0	1.16	510.67	507	8	3.00E-02	33.3	

Sample ID : 0508095-06 Acquisition date : 30-AUG-2005 17:08:44

Total number of lines in spectrum 20
Number of unidentified lines 16
Number of lines tentatively identified by NID 4 20.00%

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	4.480E+02	4.481E+02	0.643E+02	14.35	
	Total Activity :		4.480E+02	4.481E+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	4.184E+02	4.184E+02	1.149E+02	27.46	
	Total Activity :		4.184E+02	4.184E+02			

Grand Total Activity : 8.664E+02 8.665E+02

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*	1.963E+01	4.368E+02	4.368E+02	22.37	OK
	302.84	17.80	4.915E+00	6.808E+02	6.809E+02	38.62	OK
	356.01	60.00	6.963E+00	4.302E+02	4.302E+02	20.97	OK

Final Mean for 3 Valid Peaks = 4.481E+02+/- 6.428E+01 (14.35%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	4.184E+02	4.184E+02	27.46	OK

Final Mean for 1 Valid Peaks = 4.184E+02+/- 1.149E+02 (27.46%)

Flag: "*" = Keyline

Sample ID : 0508095-06
Acquisition date : 30-AUG-2005 17:08:44

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.481E+02	6.428E+01	3.348E+01	5.496E+00	13.383
TH-234	4.184E+02	1.149E+02	1.054E+02	3.378E+00	3.969

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	1.478E+00		2.301E+01	4.044E+01	1.263E+01	0.037
CD-109	4.720E+01		3.191E+02	4.497E+02	5.817E+01	0.105
PA-231	0.000E+00		0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00		0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	2.612E+01		8.975E+01	1.303E+02	1.586E+01	0.201
AM-241	7.270E+00		6.411E+00	1.198E+01	2.811E-01	0.607

VAX/VMS Peak Search Report Generated 30-AUG-2005 17:22:13.78 MR 8.30.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809507_GE5_BAFIL_87703.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL18
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 17:12:00
Sample ID : 0508095-07 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 00:10:00.78 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	0	9.58	5	15	0.59	89.46	80	11	8.08E-03	166.7	
2	2	20.36	19	14	0.70	193.39	187	21	3.19E-02	39.8	1.40E+00
3	2	21.08	53	12	0.76	200.27	187	21	8.88E-02	20.4	
4	0	30.95	1394	67	0.69	295.42	284	25	2.32E+00	3.0	
5	1	35.03	256	22	0.64	334.74	324	30	4.27E-01	7.7	9.28E-01
6	1	35.92	90	22	0.74	343.35	324	30	1.50E-01	22.6	
7	0	53.48	19	19	0.46	512.51	504	14	3.25E-02	46.3	
8	0	61.77	189	11	0.77	592.40	580	23	3.15E-01	8.3	
9	0	81.19	495	69	0.71	779.54	769	19	8.26E-01	5.6	
10	0	111.95	127	34	0.63	1076.00	1062	27	2.11E-01	14.2	
11	0	115.94	25	16	0.49	1114.43	1105	16	4.23E-02	36.0	
12	0	160.90	18	9	0.46	1547.72	1533	21	3.06E-02	37.6	
13	0	276.65	35	2	0.18	2663.12	2649	24	5.76E-02	19.6	
14	1	302.79	93	4	0.96	2915.00	2903	26	1.55E-01	11.4	2.53E+00
15	1	303.20	22	2	0.96	2919.00	2903	26	3.75E-02	46.5	
16	0	333.96	32	10	0.55	3215.39	3200	25	5.38E-02	26.2	
17	0	356.17	263	6	0.80	3429.48	3415	26	4.39E-01	6.5	
18	0	383.99	64	3	1.01	3697.50	3681	29	1.07E-01	14.0	
19	0	387.03	102	7	0.27	3726.83	3712	28	1.70E-01	11.3	

Sample ID : 0508095-07 Acquisition date : 30-AUG-2005 17:12:00

Total number of lines in spectrum 19
Number of unidentified lines 13
Number of lines tentatively identified by NID 6 31.58%

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	3.678E+02	3.678E+02	0.698E+02	18.98	
	Total Activity :		3.678E+02	3.678E+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	1.264E+07	1.264E+07	**********		
PA-234	4.47E+09Y	1.00	1.513E+04	1.513E+04	72.15E+04	4770.05	
TH-234	4.47E+09Y	1.00	2.241E+03	2.241E+03	0.463E+03	20.64	
	Total Activity :		1.265E+07	1.265E+07			
	Grand Total Activity :		1.265E+07	1.265E+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	3.678E+02	3.678E+02	18.98	OK
	302.84	17.80	3.440E+00	6.826E+02	6.827E+02	35.36	<<WM Interf
	356.01	60.00	1.579E+00	1.251E+03	1.252E+03	32.42	<<WM N-Sigma

Final Mean for 1 Valid Peaks = 3.678E+02+/- 6.981E+01 (18.98%)

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	1.264E+07	1.264E+07******		OK
	10.11	20.20	1.155E-05	9.361E+06	9.361E+06******		<<WM Interf
	283.67	1.60	4.548E+00	----- Line Not Found		-----	Absent
	302.67	2.30	3.449E+00	5.270E+03	5.270E+03	33.85	<<WM Interf

Final Mean for 1 Valid Peaks = 1.264E+07+/- 3.578E+12 (******%)

PA-234	9.89	89.00	8.893E-06	2.760E+06	2.760E+06******		<<WM Interf
	21.72	64.90*	2.444E-02	1.513E+04	1.513E+044770.05		OK
	37.93	23.75	1.111E+00	----- Line Not Found		-----	Absent
	131.42	20.40	2.613E+01	----- Line Not Found		-----	Absent

Final Mean for 1 Valid Peaks = 1.513E+04+/- 7.215E+05 (******%)

TH-234	63.29	3.80*	9.987E+00	2.241E+03	2.241E+03	20.64	OK

Final Mean for 1 Valid Peaks = 2.241E+03+/- 4.626E+02 (20.64%)

Flag: "*" = Keyline

Sample ID : 0508095-07 Acquisition date : 30-AUG-2005 17:12:00

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	3.678E+02	6.981E+01	2.226E+01	3.287E+00	16.523
PA-231	1.264E+07	3.578E+12	6.277E+07	1.777E+13	0.201
PA-234	1.513E+04	7.215E+05	5.166E+03	2.464E+05	2.928
TH-234	2.241E+03	4.626E+02	4.344E+02	5.071E+01	5.158

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	6.889E-01		2.100E+00	4.222E+00	1.757E-01	0.163
CD-109	2.228E+01		5.350E+01	1.110E+02	6.064E+00	0.201
NP-237	8.828E+00		1.928E+01	3.893E+01	2.189E+00	0.227
AM-241	-6.314E-01		2.353E+01	3.615E+01	5.134E+00	-0.017

VAX/VMS Peak Search Report Generated 30-AUG-2005 17:19:25.22 MR 8-30-05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809508_GE1_BAFIL_87704.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL19
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 17:14:10
Sample ID : 0508095-08 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.07 0.0%
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	61.79	75	77	1.96	61.61	58	8	2.49E-01	23.5	
2	0	67.26	30	48	1.86	67.08	65	6	9.90E-02	41.9	
3	3	81.75	287	30	2.09	81.58	77	12	9.57E-01	6.5	3.92E+00
4	3	85.17	15	21	1.76	85.00	77	12	4.94E-02	98.0	
5	4	112.93	49	30	2.61	112.76	108	14	1.62E-01	25.3	2.43E+00
6	4	117.23	19	13	2.16	117.07	108	14	6.20E-02	48.0	
7	0	135.83	6	12	2.97	135.67	131	6	2.00E-02	100.0	
8	0	186.27	28	16	4.28	186.12	182	8	9.27E-02	31.4	
9	0	277.67	25	16	1.73	277.54	273	10	8.28E-02	35.7	
10	0	303.79	54	6	1.94	303.67	301	6	1.80E-01	15.4	
11	0	333.97	23	18	2.20	333.85	331	8	7.59E-02	37.5	
12	0	356.75	202	5	2.23	356.64	354	9	6.72E-01	7.3	
13	0	377.40	7	3	1.18	377.30	375	5	2.37E-02	51.0	
14	2	384.44	31	16	2.32	384.33	381	10	1.05E-01	34.6	4.85E+00
15	2	387.85	43	27	1.84	387.75	381	10	1.44E-01	25.6	
16	2	416.69	18	4	2.34	416.59	413	13	6.11E-02	34.5	2.81E+00
17	2	419.69	8	2	2.34	419.59	413	13	2.54E-02	78.9	
18	2	422.84	8	1	2.34	422.74	413	13	2.66E-02	57.6	
19	0	437.67	52	0	2.97	437.58	435	7	1.73E-01	13.9	
20	0	513.13	9	2	1.38	513.05	509	8	3.06E-02	42.2	

Sample ID : 0508095-08 Acquisition date : 30-AUG-2005 17:14:10

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	4.249E+02	4.249E+02	0.603E+02	14.19	
NP-237	2.14E+06Y	1.00	6.912E+01	6.912E+01	13.57E+01	196.38	
	Total Activity :		4.940E+02	4.941E+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	3.025E+02	3.025E+02	1.427E+02	47.18	
	Total Activity :		3.025E+02	3.025E+02			

Grand Total Activity : 7.965E+02 7.966E+02

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*	1.963E+01	3.994E+02	3.995E+02	21.35	OK
	302.84	17.80	4.915E+00	5.561E+02	5.562E+02	42.44	OK
	356.01	60.00	6.963E+00	4.345E+02	4.346E+02	21.04	OK
	Final Mean for 3 Valid Peaks = 4.249E+02+/- 6.029E+01 (14.19%)						
NP-237	86.50	12.60*	1.532E+01	6.912E+01	6.912E+01	196.38	OK
	Final Mean for 1 Valid Peaks = 6.912E+01+/- 1.357E+02 (196.38%)						

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.025E+02	3.025E+02	47.18	OK
	Final Mean for 1 Valid Peaks = 3.025E+02+/- 1.427E+02 (47.18%)						

Flag: "*" = Keyline

Sample ID : 0508095-08 Acquisition date : 30-AUG-2005 17:14:10

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.249E+02	6.029E+01	3.754E+01	6.162E+00	11.320
TH-234	3.025E+02	1.427E+02	1.162E+02	3.724E+00	2.603
NP-237	6.912E+01	1.357E+02	1.124E+02	1.369E+01	0.615

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-4.610E+00		2.205E+01	3.681E+01	1.149E+01	-0.125
CD-109	-8.908E+01		2.791E+02	4.485E+02	5.802E+01	-0.199
PA-231	0.000E+00		0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00		0.000E+00	3.752E-01	7.051E-03	0.000
AM-241	7.982E+00		6.749E+00	1.256E+01	2.946E-01	0.636

VAX/VMS Peak Search Report Generated 30-AUG-2005 17:28:11.41 MR 8.30.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809509_GE1_BAFIL_87705.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL20
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 17:22:54
Sample ID : 0508095-09 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
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	62.57	76	32	2.23	62.39	59	13	2.54E-01	17.4	1.25E+00
2	3	66.64	36	42	2.32	66.46	59	13	1.19E-01	37.0	
3	0	81.77	295	58	1.91	81.59	76	12	9.84E-01	7.8	
4	0	93.50	18	35	1.67	93.33	90	8	5.92E-02	61.9	
5	2	112.50	69	30	2.16	112.33	108	16	2.32E-01	17.3	4.18E-01
6	2	116.35	24	26	2.16	116.18	108	16	7.84E-02	48.3	
7	0	147.86	30	17	6.52	147.70	144	9	9.98E-02	31.3	
8	0	203.02	20	13	3.48	202.87	199	11	6.69E-02	41.9	
9	0	213.78	8	12	2.64	213.64	210	6	2.67E-02	77.1	
10	0	256.83	20	3	5.13	256.70	253	8	6.54E-02	28.4	
11	0	269.36	10	9	1.41	269.23	265	7	3.24E-02	63.0	
12	0	278.71	17	22	1.85	278.58	273	10	5.62E-02	56.0	
13	3	303.50	49	4	2.29	303.38	300	11	1.63E-01	15.9	1.52E+00
14	3	307.75	14	4	2.30	307.62	300	11	4.75E-02	48.7	
15	1	334.29	24	6	2.09	334.17	329	14	7.97E-02	26.8	5.84E-01
16	1	339.05	10	6	2.09	338.93	329	14	3.32E-02	51.1	
17	0	356.86	206	9	1.96	356.74	352	9	6.86E-01	7.5	
18	0	378.10	10	2	2.75	378.00	374	7	3.47E-02	37.3	
19	3	384.45	51	3	2.55	384.35	381	16	1.69E-01	23.6	2.23E+00
20	3	387.74	84	1	2.13	387.64	381	16	2.81E-01	14.1	
21	3	392.47	14	0	2.56	392.36	381	16	4.80E-02	41.7	
22	0	437.65	46	2	2.41	437.56	433	9	1.53E-01	15.9	

Summary of Nuclide Activity
Sample ID : 0508095-09 Acquisition date : 30-AUG-2005 17:22:54

Total number of lines in spectrum	22	
Number of unidentified lines	18	
Number of lines tentatively identified by NID	4	18.18%

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	4.337E+02	4.338E+02	0.637E+02	14.69	
	Total Activity :		4.337E+02	4.338E+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	3.075E+02	3.075E+02	1.082E+02	35.19	
	Total Activity :		3.075E+02	3.075E+02			

Grand Total Activity : 7.412E+02 7.413E+02

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*	1.963E+01	4.108E+02	4.108E+02	22.93	OK
	302.84	17.80	4.915E+00	5.030E+02	5.030E+02	43.16	OK
	356.01	60.00	6.963E+00	4.437E+02	4.438E+02	21.26	OK

Final Mean for 3 Valid Peaks = 4.338E+02+/- 6.372E+01 (14.69%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.075E+02	3.075E+02	35.19	OK

Final Mean for 1 Valid Peaks = 3.075E+02+/- 1.082E+02 (35.19%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.338E+02	6.372E+01	4.136E+01	6.789E+00	10.489
TH-234	3.075E+02	1.082E+02	1.219E+02	3.906E+00	2.522

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	4.796E-01		2.552E+01	4.392E+01	1.371E+01	0.011
CD-109	-1.068E+02		3.369E+02	4.193E+02	5.424E+01	-0.255
PA-231	0.000E+00		0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00		0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	3.078E+00		9.641E+01	1.310E+02	1.594E+01	0.023
AM-241	4.929E+00		5.979E+00	1.098E+01	2.575E-01	0.449

VAX/VMS Peak Search Report Generated 30-AUG-2005 17:33:59.33 MR 8.30.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809510_GE5_BAFIL_87706.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0A
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 17:23:43
Sample ID : 0508095-10 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 00:10:00.81 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	3.61	9	8	0.32	31.94	25	11	1.49E-02	70.7	
2	0	9.01	15	12	0.48	84.05	74	18	2.44E-02	63.9	
3	0	10.22	9	7	0.12	95.66	91	9	1.54E-02	65.1	
4	0	21.38	46	38	0.26	203.18	191	19	7.65E-02	31.1	
5	0	30.97	1446	66	0.72	295.64	282	32	2.41E+00	3.0	
6	7	35.09	288	46	0.71	335.31	323	26	4.80E-01	7.9	1.29E+00
7	7	35.94	51	16	0.52	343.51	323	26	8.52E-02	24.3	
8	0	53.46	29	30	0.18	512.40	499	20	4.83E-02	43.5	
9	1	61.31	19	39	0.72	588.00	579	24	3.14E-02	88.4	1.64E+00
10	1	61.93	132	30	0.72	594.00	579	24	2.20E-01	12.3	
11	1	65.77	47	28	0.73	631.00	622	24	7.79E-02	28.7	2.43E+00
12	1	66.19	39	27	0.73	635.00	622	24	6.51E-02	37.3	
13	0	69.72	14	0	0.36	669.07	663	12	2.33E-02	26.7	
14	0	81.15	519	46	0.66	779.18	767	22	8.65E-01	5.2	
15	4	111.20	30	26	1.15	1068.81	1061	23	4.94E-02	41.0	2.63E+00
16	4	111.96	134	28	0.72	1076.09	1061	23	2.24E-01	11.2	
17	0	303.01	89	11	0.74	2917.12	2902	25	1.48E-01	13.3	
18	6	333.30	23	5	1.08	3209.00	3197	24	3.85E-02	34.8	9.07E-01
19	6	334.20	19	4	0.52	3217.75	3197	24	3.14E-02	25.7	
20	0	356.15	310	6	1.12	3429.22	3414	28	5.16E-01	6.0	
21	1	383.21	21	5	1.01	3690.00	3681	23	3.45E-02	39.8	7.32E-01
22	1	384.04	34	14	0.91	3697.98	3681	23	5.59E-02	24.6	
23	0	387.10	90	16	0.98	3727.51	3714	25	1.50E-01	13.8	

Sample ID : 0508095-10 Acquisition date : 30-AUG-2005 17:23:43

Total number of lines in spectrum 23
Number of unidentified lines 14
Number of lines tentatively identified by NID 9 39.13%

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	3.853E+02	3.854E+02	0.713E+02	18.49	
	Total Activity :		3.853E+02	3.854E+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	3.821E+07	3.821E+07	**********	**********	
PA-234	4.47E+09Y	1.00	8.729E+02	8.729E+02	10.10E+02	115.70	
TH-234	4.47E+09Y	1.00	1.570E+03	1.570E+03	0.432E+03	27.51	
AM-241	432.20Y	1.00	2.884E+01	2.884E+01	5.118E+01	177.47	
	Total Activity :		3.821E+07	3.821E+07			
	Grand Total Activity :		3.821E+07	3.821E+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	3.853E+02	3.854E+02	18.49	OK
	302.84	17.80	3.440E+00	6.524E+02	6.525E+02	37.97	<<WM Interf
	356.01	60.00	1.579E+00	1.472E+03	1.472E+03	32.03	<<WM N-Sigma

Final Mean for 1 Valid Peaks = 3.854E+02+/- 7.125E+01 (18.49%)

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	3.821E+07	3.821E+07******		OK
	10.11	20.20	1.155E-05	1.785E+07	1.785E+07******		<<WM Interf
	283.67	1.60	4.548E+00	----- Line Not Found -----			Absent
	302.67	2.30	3.449E+00	5.037E+03	5.037E+03	36.57	<<WM Interf

Final Mean for 1 Valid Peaks = 3.821E+07+/- 1.082E+13 (******%)

PA-234	9.89	89.00	8.893E-06	5.264E+06	5.264E+06******		<<WM Interf
	21.72	64.90*	2.444E-02	1.304E+04	1.304E+04	4770.29	OK
	37.93	23.75	1.111E+00	8.729E+02	8.729E+02	115.70	OK
	131.42	20.40	2.613E+01	----- Line Not Found -----			Absent

Final Mean for 2 Valid Peaks = 8.729E+02+/- 1.010E+03 (115.70%)

TH-234	63.29	3.80*	9.987E+00	1.570E+03	1.570E+03	27.51	OK

Final Mean for 1 Valid Peaks = 1.570E+03+/- 4.318E+02 (27.51%)

AM-241	59.54	35.90*	8.208E+00	2.884E+01	2.884E+01	177.47	OK

Final Mean for 1 Valid Peaks = 2.884E+01+/- 5.118E+01 (177.47%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	3.854E+02	7.125E+01	1.980E+01	2.923E+00	19.467
PA-231	3.821E+07	1.082E+13	7.833E+07	2.218E+13	0.488
PA-234	8.729E+02	1.010E+03	6.446E+03	3.075E+05	0.135
TH-234	1.570E+03	4.318E+02	4.308E+02	5.029E+01	3.644
AM-241	2.884E+01	5.118E+01	3.497E+01	4.966E+00	0.825

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	1.835E+00		1.883E+00	4.222E+00	1.757E-01	0.435
CD-109	-6.344E+00		6.749E+01	1.248E+02	6.816E+00	-0.051
NP-237	1.036E+01		2.186E+01	4.327E+01	2.433E+00	0.239

VAX/VMS Peak Search Report Generated 30-AUG-2005 17:34:07.98 MR 8.30.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809511_GE1_BAFIL_87709.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0B
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 17:28:54
Sample ID : 0508095-11 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.07 0.0%
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	62.47	103	36	2.20	62.29	58	18	3.42E-01	14.1	2.96E+00
2	3	66.75	44	37	2.32	66.58	58	18	1.48E-01	31.7	
3	3	70.70	26	38	2.33	70.52	58	18	8.73E-02	47.6	
4	0	81.97	284	51	2.06	81.79	77	10	9.45E-01	7.6	
5	0	112.40	67	48	2.37	112.23	107	9	2.23E-01	22.5	
6	0	117.58	22	26	2.00	117.42	116	6	7.37E-02	44.1	
7	1	231.24	17	8	2.04	231.10	228	11	5.65E-02	35.5	7.85E-01
8	1	235.95	10	6	2.04	235.81	228	11	3.22E-02	56.9	
9	0	277.26	31	8	2.42	277.13	271	11	1.03E-01	25.4	
10	3	303.67	72	1	2.30	303.54	300	11	2.39E-01	12.8	1.62E+00
11	3	308.03	18	3	2.46	307.91	300	11	5.94E-02	43.9	
12	4	334.04	38	2	2.78	333.92	328	17	1.27E-01	18.9	1.58E+00
13	4	338.87	13	1	2.78	338.76	328	17	4.46E-02	40.2	
14	0	356.78	202	7	2.04	356.66	353	7	6.74E-01	7.4	
15	0	376.61	10	0	2.00	376.50	373	8	3.33E-02	31.6	
16	2	384.20	38	6	2.32	384.10	381	10	1.27E-01	28.5	2.77E+00
17	2	387.51	73	12	2.01	387.40	381	10	2.44E-01	15.9	
18	0	392.30	18	4	1.39	392.19	391	5	6.11E-02	31.3	
19	2	415.50	15	2	2.33	415.41	412	10	5.13E-02	32.5	1.23E+00
20	2	418.93	10	1	2.34	418.83	412	10	3.33E-02	53.9	
21	0	437.68	36	2	2.15	437.58	434	7	1.21E-01	17.7	
22	0	468.83	10	7	1.74	468.74	464	7	3.44E-02	52.4	

Sample ID : 0508095-11 Acquisition date : 30-AUG-2005 17:28:54

Total number of lines in spectrum	22	
Number of unidentified lines	18	
Number of lines tentatively identified by NID	4	18.18%

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	4.300E+02	4.301E+02	0.627E+02	14.58	
	Total Activity :		4.300E+02	4.301E+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	4.153E+02	4.153E+02	1.192E+02	28.69	
	Total Activity :		4.153E+02	4.153E+02			

Grand Total Activity : 8.454E+02 8.454E+02

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*	1.963E+01	3.944E+02	3.944E+02	22.75	OK
	302.84	17.80	4.915E+00	7.376E+02	7.377E+02	38.86	OK
	356.01	60.00	6.963E+00	4.359E+02	4.359E+02	21.13	OK

Final Mean for 3 Valid Peaks = 4.301E+02+/- 6.271E+01 (14.58%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	4.153E+02	4.153E+02	28.69	OK

Final Mean for 1 Valid Peaks = 4.153E+02+/- 1.192E+02 (28.69%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.301E+02	6.271E+01	3.861E+01	6.338E+00	11.139
TH-234	4.153E+02	1.192E+02	1.205E+02	3.862E+00	3.446

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	8.897E+00		2.151E+01	4.041E+01	1.262E+01	0.220
CD-109	-9.764E+01		2.653E+02	4.238E+02	5.482E+01	-0.230
PA-231	0.000E+00		0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00		0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	-7.032E+00		6.844E+01	1.151E+02	1.401E+01	-0.061
AM-241	7.145E+00		6.930E+00	1.267E+01	2.972E-01	0.564

VAX/VMS Peak Search Report Generated 30-AUG-2005 17:45:51.57 MR 8.30.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809512_GE5_BAFIL_87710.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0C
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 17:35:37
Sample ID : 0508095-12 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 00:10:00.82 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	21.02	52	13	0.84	199.78	189	21	8.68E-02	20.5	
2	0	30.94	1385	21	0.78	295.33	283	25	2.31E+00	2.8	
3	2	35.06	289	6	0.76	335.04	323	30	4.82E-01	6.8	2.18E+00
4	2	35.99	85	10	0.67	344.00	323	30	1.42E-01	20.2	
5	0	61.85	173	25	0.59	593.21	582	21	2.89E-01	9.7	
6	1	65.98	62	12	0.73	633.00	623	26	1.04E-01	19.5	1.71E+00
7	1	66.91	28	16	0.73	642.00	623	26	4.59E-02	34.1	
8	0	69.83	18	5	0.16	670.06	661	15	2.98E-02	33.3	
9	0	81.12	541	46	0.74	778.87	768	21	9.02E-01	5.0	
10	0	111.94	131	23	0.59	1075.89	1064	20	2.19E-01	11.6	
11	0	116.50	16	35	0.30	1119.82	1103	21	2.73E-02	80.5	
12	3	276.32	42	3	0.94	2660.00	2650	20	6.95E-02	17.1	7.21E-01
13	3	277.05	16	0	0.69	2666.96	2650	20	2.60E-02	26.9	
14	0	302.96	100	3	1.04	2916.67	2903	25	1.67E-01	10.6	
15	0	333.95	25	8	0.46	3215.27	3199	23	4.18E-02	30.3	
16	1	356.08	155	6	1.06	3428.61	3415	31	2.58E-01	11.2	3.43E+00
17	1	356.64	167	8	1.00	3434.00	3415	31	2.79E-01	10.1	
18	0	384.06	56	13	0.55	3698.21	3684	28	9.33E-02	19.4	
19	0	387.11	93	18	0.99	3727.58	3712	27	1.55E-01	13.9	
20	0	391.10	23	3	0.65	3766.09	3753	23	3.91E-02	25.0	

Sample ID : 0508095-12 Acquisition date : 30-AUG-2005 17:35:37

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	4.472E+02	4.473E+02	0.685E+02	15.32	
	Total Activity :		4.472E+02	4.473E+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	2.058E+03	2.058E+03	0.474E+03	23.02	
	Total Activity :		2.058E+03	2.058E+03			

Grand Total Activity : 2.505E+03 2.505E+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	4.020E+02	4.020E+02	18.32	OK
	302.84	17.80	3.440E+00	7.369E+02	7.370E+02	34.41	OK
	356.01	60.00	1.579E+00	7.356E+02	7.357E+02	37.28	OK

Final Mean for 3 Valid Peaks = 4.473E+02+/- 6.850E+01 (15.32%)

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	2.058E+03	2.058E+03	23.02	OK

Final Mean for 1 Valid Peaks = 2.058E+03+/- 4.737E+02 (23.02%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.473E+02	6.850E+01	2.339E+01	3.453E+00	19.124
TH-234	2.058E+03	4.737E+02	1.916E+02	2.236E+01	10.740

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-2.876E-01		2.057E+00	3.859E+00	1.606E-01	-0.075
CD-109	-2.269E+01		6.467E+01	1.151E+02	6.287E+00	-0.197
PA-231	2.137E+07		6.051E+12	8.361E+07	2.367E+13	0.256
PA-234	1.479E+04	+	7.055E+05	9.744E+03	4.648E+05	1.518
NP-237	-8.485E+00		2.159E+01	3.793E+01	2.132E+00	-0.224
AM-241	-1.048E+01		2.644E+01	3.700E+01	5.254E+00	-0.283

VAX/VMS Peak Search Report Generated 30-AUG-2005 17:41:48.03

MR 8.30.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809513_GE1_BAFIL_87711.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0D
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 17:36:26
Sample ID : 0508095-13 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
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	4	62.69	99	33	2.14	62.51	58	14	3.31E-01	13.4	6.26E-01
2	4	66.93	38	29	1.91	66.75	58	14	1.28E-01	29.3	
3	0	81.85	331	41	2.11	81.68	76	12	1.10E+00	6.7	
4	3	112.60	84	21	2.37	112.44	107	14	2.80E-01	15.3	1.58E+00
5	3	116.96	21	16	2.14	116.80	107	14	6.86E-02	43.2	
6	0	277.37	29	8	2.00	277.24	273	8	9.67E-02	25.1	
7	0	304.17	43	18	2.09	304.05	299	9	1.44E-01	23.3	
8	0	335.06	35	20	1.49	334.94	330	10	1.16E-01	29.4	
9	0	356.79	231	4	2.14	356.68	353	9	7.71E-01	6.8	
10	3	384.43	34	16	2.55	384.32	381	10	1.13E-01	28.0	5.34E+00
11	3	387.64	60	29	1.98	387.54	381	10	2.01E-01	20.3	
12	0	417.95	24	6	3.66	417.85	412	12	8.00E-02	28.9	
13	0	437.81	39	5	2.07	437.72	434	7	1.29E-01	18.8	
14	0	469.52	14	0	1.84	469.43	466	8	4.67E-02	26.7	
15	0	511.17	11	0	1.35	511.09	508	7	3.67E-02	30.2	

Sample ID : 0508095-13 Acquisition date : 30-AUG-2005 17:36:26

Total number of lines in spectrum	15	
Number of unidentified lines	11	
Number of lines tentatively identified by NID	4	26.67%

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	4.766E+02	4.767E+02	0.682E+02	14.31	
	Total Activity :		4.766E+02	4.767E+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	4.014E+02	4.014E+02	1.096E+02	27.30	
	Total Activity :		4.014E+02	4.014E+02			
	Grand Total Activity :		8.781E+02	8.781E+02			

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*	1.963E+01	4.603E+02	4.603E+02	21.62	OK
	302.84	17.80	4.915E+00	4.460E+02	4.461E+02	54.95	OK
	356.01	60.00	6.963E+00	4.989E+02	4.989E+02	20.32	OK

Final Mean for 3 Valid Peaks = 4.767E+02+/- 6.821E+01 (14.31%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	4.014E+02	4.014E+02	27.30	OK

Final Mean for 1 Valid Peaks = 4.014E+02+/- 1.096E+02 (27.30%)

Flag: "*" = Keyline

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.767E+02	6.821E+01	3.021E+01	4.958E+00	15.782
TH-234	4.014E+02	1.096E+02	1.147E+02	3.677E+00	3.498

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	1.958E+00		2.214E+01	3.929E+01	1.227E+01	0.050
CD-109	-9.805E+01		2.447E+02	3.899E+02	5.043E+01	-0.251
PA-231	0.000E+00		0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00		0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	2.246E+01		6.663E+01	1.203E+02	1.465E+01	0.187
AM-241	4.441E+00		6.764E+00	1.199E+01	2.813E-01	0.370

VAX/VMS Peak Search Report Generated 30-AUG-2005 18:04:24.48 MR 8.30.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809514_GE5_BAFIL_87712.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0E
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 17:54:09
Sample ID : 0508095-14 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 00:10:00.78 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	0	21.49	41	41	0.57	204.27	192	16	6.78E-02	33.8	
2	0	25.32	10	15	0.51	241.15	231	13	1.62E-02	78.0	
3	0	30.93	1455	79	0.80	295.27	280	29	2.43E+00	3.0	
4	3	35.07	257	37	0.59	335.14	324	29	4.29E-01	8.0	1.24E+00
5	3	35.85	106	25	0.81	342.64	324	29	1.77E-01	20.4	
6	0	53.35	34	13	0.65	511.27	502	16	5.63E-02	26.9	
7	1	61.31	91	11	0.72	588.00	578	27	1.51E-01	16.8	3.10E+00
8	1	62.24	77	6	0.72	597.00	578	27	1.29E-01	16.1	
9	0	65.83	63	25	0.59	631.55	620	21	1.04E-01	21.8	
10	0	81.15	456	69	0.69	779.16	768	20	7.60E-01	6.0	
11	0	111.90	151	17	0.63	1075.52	1062	26	2.51E-01	10.4	
12	0	116.15	34	26	0.60	1116.50	1102	26	5.67E-02	38.6	
13	0	133.68	12	4	0.30	1285.41	1279	12	2.06E-02	39.7	
14	0	276.42	28	9	0.61	2660.90	2649	20	4.69E-02	28.0	
15	1	302.99	94	3	0.96	2917.00	2904	25	1.57E-01	10.5	1.00E+00
16	1	303.62	10	3	0.96	2923.00	2904	25	1.63E-02	78.5	
17	1	333.61	51	2	0.98	3212.00	3200	23	8.46E-02	13.6	1.39E+00
18	1	334.12	15	2	1.06	3216.95	3200	23	2.45E-02	38.4	
19	0	356.19	287	4	1.06	3429.62	3415	27	4.79E-01	6.1	
20	0	384.05	63	2	1.28	3698.07	3684	24	1.04E-01	13.8	
21	1	386.84	56	3	1.02	3725.00	3713	27	9.38E-02	19.2	9.87E-01
22	1	387.36	49	2	1.12	3730.02	3713	27	8.21E-02	21.0	

Sample ID : 0508095-14 Acquisition date : 30-AUG-2005 17:54:09

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	3.639E+02	3.639E+02	0.635E+02	17.43	
	Total Activity :		3.639E+02	3.639E+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	9.188E+02	9.188E+02	3.172E+02	34.52	
AM-241	432.20Y	1.00	1.384E+02	1.384E+02	0.508E+02	36.73	
	Total Activity :		1.057E+03	1.057E+03			
	Grand Total Activity :		1.421E+03	1.421E+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	3.387E+02	3.387E+02	19.43	OK
	302.84	17.80	3.440E+00	6.951E+02	6.952E+02	34.33	OK
	356.01	60.00	1.579E+00	1.366E+03	1.366E+03	32.10	<<WM N-Sigma

Final Mean for 2 Valid Peaks = 3.639E+02+/- 6.345E+01 (17.43%)

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	9.188E+02	9.188E+02	34.52	OK

Final Mean for 1 Valid Peaks = 9.188E+02+/- 3.172E+02 (34.52%)

AM-241	59.54	35.90*	8.208E+00	1.384E+02	1.384E+02	36.73	OK

Final Mean for 1 Valid Peaks = 1.384E+02+/- 5.082E+01 (36.73%)

Flag: "*" = Keyline

Sample ID : 0508095-14 Acquisition date : 30-AUG-2005 17:54:09

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	3.639E+02	6.345E+01	2.076E+01	3.065E+00	17.531
TH-234	9.188E+02	3.172E+02	2.104E+02	2.456E+01	4.367
AM-241	1.384E+02	5.082E+01	3.929E+01	5.580E+00	3.521

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	2.444E+00		2.152E+00	4.759E+00	1.980E-01	0.513
CD-109	4.973E+00		6.748E+01	1.279E+02	6.988E+00	0.039
PA-231	9.083E+06		2.572E+12	6.835E+07	1.935E+13	0.133
PA-234	1.156E+04	+	5.513E+05	1.223E+04	5.835E+05	0.945
NP-237	-8.436E+00		2.104E+01	3.697E+01	2.078E+00	-0.228

VAX/VMS Peak Search Report Generated 30-AUG-2005 18:00:23.85 MP 8.30.05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809515_GE1_BAFIL_87713.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0F
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 17:55:07
Sample ID : 0508095-15 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.06 0.0%
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	4	62.59	106	29	2.38	62.41	58	13	3.54E-01	13.0	5.46E-01
2	4	66.97	31	29	2.56	66.79	58	13	1.04E-01	43.2	
3	0	81.79	300	39	2.03	81.62	77	11	9.98E-01	7.0	
4	0	94.17	23	25	2.18	94.00	91	8	7.61E-02	42.9	
5	0	112.40	66	32	2.04	112.23	109	7	2.19E-01	18.9	
6	0	125.77	22	19	4.15	125.61	121	10	7.23E-02	44.0	
7	0	188.47	8	20	2.68	188.32	185	6	2.71E-02	92.9	
8	0	276.96	13	17	1.24	276.83	275	6	4.33E-02	56.9	
9	0	304.00	46	29	1.82	303.88	299	9	1.52E-01	26.0	
10	2	334.72	30	9	2.30	334.60	330	12	1.01E-01	24.9	1.25E+00
11	2	338.72	7	5	2.30	338.60	330	12	2.28E-02	96.1	
12	0	356.98	210	13	2.15	356.87	351	10	7.00E-01	7.6	
13	0	377.06	9	5	1.38	376.95	374	7	3.07E-02	52.3	
14	3	384.54	46	20	2.55	384.43	381	10	1.52E-01	29.8	6.79E+00
15	3	387.67	51	29	1.96	387.57	381	10	1.71E-01	22.8	
16	0	416.71	27	9	2.12	416.61	412	9	9.13E-02	27.4	
17	0	437.96	46	0	3.37	437.87	435	8	1.53E-01	14.7	
18	0	511.72	9	2	2.58	511.65	508	7	3.12E-02	40.0	

Sample ID : 0508095-15 Acquisition date : 30-AUG-2005 17:55:07

Total number of lines in spectrum 18
Number of unidentified lines 14
Number of lines tentatively identified by NID 4 22.22%

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	4.357E+02	4.358E+02	0.649E+02	14.88	
	Total Activity :		4.357E+02	4.358E+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	4.293E+02	4.293E+02	1.136E+02	26.46	
	Total Activity :		4.293E+02	4.293E+02			

Grand Total Activity : 8.650E+02 8.650E+02

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*	1.963E+01	4.166E+02	4.167E+02	21.99	OK
	302.84	17.80	4.915E+00	4.695E+02	4.695E+02	59.71	OK
	356.01	60.00	6.963E+00	4.531E+02	4.532E+02	21.45	OK

Final Mean for 3 Valid Peaks = 4.358E+02+/- 6.486E+01 (14.88%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	4.293E+02	4.293E+02	26.46	OK

Final Mean for 1 Valid Peaks = 4.293E+02+/- 1.136E+02 (26.46%)

Flag: "*" = Keyline

Sample ID : 0508095-15 Acquisition date : 30-AUG-2005 17:55:07

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.358E+02	6.486E+01	3.222E+01	5.289E+00	13.526
TH-234	4.293E+02	1.136E+02	1.162E+02	3.724E+00	3.694

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	-4.771E+01		3.720E+01	4.473E+01	1.396E+01	-1.067
CD-109	1.591E+02		2.345E+02	3.961E+02	5.124E+01	0.402
PA-231	0.000E+00		0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00		0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	6.988E+01		6.887E+01	1.223E+02	1.489E+01	0.571
AM-241	6.895E+00		6.556E+00	1.212E+01	2.843E-01	0.569

VAX/VMS Peak Search Report Generated 30-AUG-2005 18:08:19.33 VR 8·30·05

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_050809516_GE1_BAFIL_87716.CNF
Analyses by : PEAK V16.9 PEAKEFF V2.2
Client ID : VPSCR081705SL0G
Deposition Date :
Sample Date : 30-AUG-2005 00:00:00 Acquisition date : 30-AUG-2005 18:03:05
Sample ID : 0508095-16 Sample Quantity : 1.00000E+00 FILTER
Sample type : FILTER Sample Geometry : 0
Detector name : GE1 Detector Geometry: BAFIL
Elapsed live time: 0 00:05:00.00 Elapsed real time: 0 00:05:00.07 0.0%
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	62.39	80	34	2.32	62.21	58	17	2.65E-01	17.8	1.61E+00
2	3	66.09	29	42	2.32	65.92	58	17	9.56E-02	50.7	
3	0	81.87	305	40	2.08	81.70	77	11	1.02E+00	7.0	
4	3	112.59	79	34	2.20	112.42	108	13	2.64E-01	16.3	7.65E-01
5	3	117.57	26	18	2.38	117.40	108	13	8.81E-02	39.2	
6	0	257.01	9	13	2.69	256.87	253	8	2.85E-02	86.0	
7	0	277.40	25	9	2.78	277.27	273	9	8.18E-02	30.0	
8	0	303.64	37	29	1.84	303.52	301	7	1.23E-01	28.4	
9	0	334.17	22	20	2.45	334.05	330	9	7.18E-02	43.5	
10	0	339.74	10	6	1.92	339.62	338	5	3.41E-02	50.8	
11	2	353.30	10	0	2.10	353.19	352	10	3.25E-02	21.1	8.83E-01
12	2	356.83	204	2	2.18	356.72	352	10	6.81E-01	7.1	
13	6	386.59	101	8	3.40	386.48	381	14	3.37E-01	12.5	4.94E+00
14	6	391.12	17	4	2.32	391.02	381	14	5.64E-02	48.1	
15	3	415.46	14	4	2.57	415.36	410	12	4.82E-02	41.5	1.57E+00
16	3	419.09	6	5	2.57	419.00	410	12	2.02E-02	76.4	
17	0	437.66	47	4	2.28	437.56	434	8	1.57E-01	16.3	
18	0	468.41	13	4	1.28	468.32	465	7	4.17E-02	37.6	
19	0	511.10	8	2	2.65	511.02	508	6	2.82E-02	41.4	

Sample ID : 0508095-16 Acquisition date : 30-AUG-2005 18:03:05

Total number of lines in spectrum 19
Number of unidentified lines 15
Number of lines tentatively identified by NID 4 21.05%

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	4.289E+02	4.289E+02	0.631E+02	14.72	
	Total Activity :		4.289E+02	4.289E+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	3.217E+02	3.217E+02	1.159E+02	36.03	
	Total Activity :		3.217E+02	3.217E+02			

Grand Total Activity : 7.506E+02 7.506E+02

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

Nuclide Line Activity Report
Sample ID : 0508095-16

Acquisition date : 30-AUG-2005 18:03:05

Nuclide Type: FISSION

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
BA-133	81.00	33.00*	1.963E+01	4.243E+02	4.244E+02	21.97	OK
	302.84	17.80	4.915E+00	3.790E+02	3.791E+02	63.80	OK
	356.01	60.00	6.963E+00	4.405E+02	4.405E+02	20.83	OK

Final Mean for 3 Valid Peaks = 4.289E+02+/- 6.313E+01 (14.72%)

Nuclide Type: NATURAL

Nuclide	Energy	%Abn	%Eff	Uncorrected pCi/FILTER	Decay Corr pCi/FILTER	2-Sigma %Error	Status
TH-234	63.29	3.80*	5.865E+01	3.217E+02	3.217E+02	36.03	OK

Final Mean for 1 Valid Peaks = 3.217E+02+/- 1.159E+02 (36.03%)

Flag: "*" = Keyline

Sample ID : 0508095-16 Acquisition date : 30-AUG-2005 18:03:05

---- Identified Nuclides ----

Nuclide	Activity (pCi/FILTER)	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
BA-133	4.289E+02	6.313E+01	4.076E+01	6.692E+00	10.523
TH-234	3.217E+02	1.159E+02	1.126E+02	3.609E+00	2.856

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

Nuclide	Key-Line Activity (pCi/FILTER)	K.L. Ided	Act error	MDA (pCi/FILTER)	MDA error	Act/MDA
CO-57	7.194E-01		2.470E+01	4.275E+01	1.335E+01	0.017
CD-109	-7.877E+01		2.740E+02	4.431E+02	5.732E+01	-0.178
PA-231	0.000E+00		0.000E+00	5.798E-01	1.089E-02	0.000
PA-234	0.000E+00		0.000E+00	3.752E-01	7.051E-03	0.000
NP-237	-2.111E+01		7.593E+01	1.230E+02	1.498E+01	-0.172
AM-241	6.181E+00		6.576E+00	1.202E+01	2.821E-01	0.514