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CHAIN OF CUSTODY 27

GAMMA SAMPLE AND QC DATA 35

TOTAL # PAGES IN DOCUMENT 227

Analytical Data Package Prepared For

Brown and Caldwell

Radiochemical Analysis By

TAL Richland

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: STLR

Data Package Contains _____ Pages

Report No.: 36776

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
35634		BGS-A1-01D	J7H200148-15	J47801AA	9J478010	7233484
		BGS-A1-01S-1	J7H200148-13	J478W1AA	9J478W10	7233484
		BGS-A1-01S-2	J7H200148-14	J478X1AA	9J478X10	7233484
		BGS-A1-03D	J7H200148-6	J478M1AA	9J478M10	7233484
		BGS-A1-03S	J7H200148-5	J478L1AA	9J478L10	7233484
		BGS-A1-16D	J7H200148-4	J478K1AA	9J478K10	7233484
		BGS-A1-16S	J7H200148-3	J478J1AA	9J478J10	7233484
		BGS-A1-17D	J7H200148-2	J478H1AA	9J478H10	7233484
		BGS-A1-17S	J7H200148-1	J478G1AA	9J478G10	7233484
		BGS-A1-19D	J7H200148-10	J478R1AA	9J478R10	7233484
		BGS-A1-19S	J7H200148-9	J478Q1AA	9J478Q10	7233484
		BGS-A1-20D	J7H200148-8	J478P1AA	9J478P10	7233484
		BGS-A1-20S	J7H200148-7	J478N1AA	9J478N10	7233484
		BGS-A1-24D	J7H200148-12	J478V1AA	9J478V10	7233484
		BGS-A1-24S	J7H200148-11	J478T1AA	9J478T10	7233484

TestAmerica

Certificate of Analysis

September 19, 2007

Brown & Caldwell
2701 Prospect Park Drive
Rancho Cordova, CA 95670

Attention: Penny Bassett

Date Received at Lab	:	August 16, 2007
Project Name	:	Yerington Mine Soils
Project Number	:	132039
Enfos Number	:	01KF-0109
PO Number	:	129682.001
Sample Type	:	Fifteen (15) Soil Samples
SDG Number	:	35634

CASE NARRATIVE

I. Introduction

On August 16, 2007, fifteen soil samples were received at the TestAmerica Laboratory Richland (TALR) laboratory for radiochemical analysis. Upon receipt, the samples were assigned TALR identification numbers as described on the cover page of the Analytical Data Package report form. The samples were assigned to Lot Number J7H200148.

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analysis requested was:

Gamma
Gamma by method STL RICH-RC-5013/5017

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Gamma

Gamma by method STL RICH-RC-5013/5017:

The LCS, batch blank, samples and sample duplicate results are within analytical requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Sherryl A. Adam
Project Manager

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**STL Richland's SOP number**
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 00-02	Gross Alpha (Coprecipitation)	RICH-RC-5021
EPA 903.0	Total Alpha Radium (Ra-226)	RICH-RC-5027
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr-89/90	RICH-RC-5006
ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007

Uncertainty Estimation

Test America Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/?n), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) ***u_c - Combined Uncertainty.***	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, *u_c the combined uncertainty*. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2$ + $TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

TAL Richland STLR

Ordered by Client Sample ID, Batch No.

Date: 19-Sep-07

Report No. : 36776

SDG No: 35634

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER2
BGS-A1-01D	J47801AA	RA-226	1.12 +- 0.151	=	pCi/g		0.0375	
		RA-228	1.31 +- 0.229	=	pCi/g		0.0775	
BGS-A1-01S-1	J478W1AA	RA-226	1.25 +- 0.159	=	pCi/g		0.0315	
		RA-228	1.46 +- 0.234	=	pCi/g		0.063	
BGS-A1-01S-2	J478X1AA	RA-226	1.29 +- 0.165	=	pCi/g		0.0318	
		RA-228	1.42 +- 0.261	=	pCi/g		0.0624	
BGS-A1-03D	J478M1AA	RA-226	1.12 +- 0.146	=	pCi/g		0.035	
		RA-228	1.42 +- 0.236	=	pCi/g		0.0682	
BGS-A1-03S	J478L1AA	RA-226	1.28 +- 0.169	=	pCi/g		0.0403	
		RA-228	1.53 +- 0.231	=	pCi/g		0.0799	
BGS-A1-16D	J478K1AA	RA-226	1.06 +- 0.145	=	pCi/g		0.035	
		RA-228	1.36 +- 0.231	=	pCi/g		0.073	
BGS-A1-16S	J478J1AA	RA-226	1.22 +- 0.163	=	pCi/g		0.0375	
		RA-228	1.23 +- 0.194	ND	pCi/g		0.171	
BGS-A1-17D	J478H1AA	RA-226	1.44 +- 0.186	=	pCi/g		0.0501	
		RA-228	1.56 +- 0.249	=	pCi/g		0.101	
BGS-A1-17S	J478G1AA	RA-226	1.45 +- 0.188	=	pCi/g		0.0436	
		RA-228	1.48 +- 0.225	=	pCi/g		0.0862	
BGS-A1-17S DUP	J478G1AC	RA-226	1.45 +- 0.186	=	pCi/g		0.0467	0.0
		RA-228	1.56 +- 0.254	=	pCi/g		0.0955	0.5
BGS-A1-19D	J478R1AA	RA-226	1.46 +- 0.188	=	pCi/g		0.0464	
		RA-228	1.51 +- 0.239	=	pCi/g		0.0945	
BGS-A1-19S	J478Q1AA	RA-226	1.47 +- 0.188	=	pCi/g		0.0431	
		RA-228	1.52 +- 0.228	=	pCi/g		0.0825	
BGS-A1-20D	J478P1AA	RA-226	1.26 +- 0.169	=	pCi/g		0.0435	
		RA-228	1.44 +- 0.236	=	pCi/g		0.0871	
BGS-A1-20S	J478N1AA	RA-226	1.29 +- 0.168	=	pCi/g		0.041	
		RA-228	1.38 +- 0.209	=	pCi/g		0.0829	
BGS-A1-24D	J478V1AA	RA-226	0.909 +- 0.120	=	pCi/g		0.0348	

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RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

Sample Results Summary

TAL Richland STLR

Ordered by Client Sample ID, Batch No.

Date: 19-Sep-07

Report No. : 36776

SDG No: 35634

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER2
BGS-A1-24D	J478V1AA	RA-228	0.903 +- 0.152	=	pCi/g		0.065	
BGS-A1-24S	J478T1AA	RA-226	1.03 +- 0.140	=	pCi/g		0.0383	
		RA-228	1.17 +- 0.189	=	pCi/g		0.0782	

Number of Results: 32

TAL Richland

rptSTLRchSaSum
V5.1.4 A2002

RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
= ERPIMS - Equal To, Analyte Detected

QC Results Summary
TAL Richland STLR

Ordered by QC Type, Batch No.

Date: 19-Sep-07

Report No. : 36776

SDG No.: 35634

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC|MDA
BLANK QC	J5A4K1AA	RA-226	-0.0162 +- 0.0493	N	pCi/g				0.0602
		RA-228	-0.0409 +- 0.0793	N	pCi/g				0.105
LCS	J5A4K1AC	CS-137	1.31 +- 0.168	=	pCi/g		119%	0.2	0.0266

Number of Results: 3

TAL Richland
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Bias - (Result/Expected)-1 as defined by ANSI N13.30.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	**SDG:**	35634	**Collection Date:**	7/29/2007 8:15:00 AM
Lot-Sample No.:	J7H200148-15	**Report No. :**	36776	**Received Date:**	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-01D	**COC No. :**		**Matrix:**	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	**Work Order:** J47801AA			**Report DB ID:** 9J478010								
RA-226	**1.12**	=	0.15	0.15	0.0375	pCi/g		*(29.9)*	9/18/07 06:09 a		344.2	E901.1
								(14.9)			g	GER13$1
RA-228	**1.31**	=	0.23	0.23	0.0775	pCi/g		*(16.9)*	9/18/07 06:09 a		344.2	E901.1
								(11.4)			g	GER13$1

Number of Results: 2

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	**SDG:**	35634	**Collection Date:**	7/29/2007 8:15:00 AM
Lot-Sample No.:	J7H200148-13	**Report No. :**	36776	**Received Date:**	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-01S-1	**COC No. :**		**Matrix:**	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	**Work Order:** J478W1AA			**Report DB ID:** 9J478W10								
RA-226	**1.25**	=	0.16	0.16	0.0315	pCi/g		*(39.6)*	9/18/07 06:08 a		338.1	E901.1
								(15.7)			g	GER11$1
RA-228	**1.46**	=	0.23	0.23	0.063	pCi/g		*(23.2)*	9/18/07 06:08 a		338.1	E901.1
								(12.5)			g	GER11$1

Number of Results: 2

Comments:

TAL Richland
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V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	**TA Richland**	**SDG:**	35634	**Collection Date:**	7/29/2007 8:15:00 AM
Lot-Sample No.:	**J7H200148-14**	**Report No. :**	36776	**Received Date:**	8/16/2007 10:00:00 AM
Client Sample ID:	**BGS-A1-01S-2**	**COC No. :**		**Matrix:**	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	**Work Order:** J478X1AA			**Report DB ID:** 9J478X10								
RA-226	**1.29**	=	0.17	0.17	0.0318	pCi/g		*(40.8)*	9/18/07 06:09 a		349.5	E901.1
								(15.7)			g	GER12$1
RA-228	**1.42**	=	0.26	0.26	0.0624	pCi/g		*(22.7)*	9/18/07 06:09 a		349.5	E901.1
								(10.9)			g	GER12$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	SDG:	35634	Collection Date:	7/29/2007 10:15:00 AM
Lot-Sample No.:	J7H200148-6	Report No. :	36776	Received Date:	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-03D	COC No. :		Matrix:	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	Work Order: J478M1AA			Report DB ID: 9J478M10								
RA-226	**1.12**	=	0.15	0.15	0.035	pCi/g		*(31.9)* *(15.3)*	9/17/07 07:05 p		376.7 g	E901.1 GER13$1
RA-228	**1.42**	=	0.24	0.24	0.0682	pCi/g		*(20.8)* *(12.)*	9/17/07 07:05 p		376.7 g	E901.1 GER13$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	SDG:	35634	Collection Date:	7/29/2007 10:15:00 AM
Lot-Sample No.:	J7H200148-5	Report No. :	36776	Received Date:	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-03S	COC No. :		Matrix:	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	Work Order: J478L1AA			Report DB ID: 9J478L10								
RA-226	**1.28**	=	0.17	0.17	0.0403	pCi/g		*(31.6)*	9/17/07 07:04 p		365.2	E901.1
								(15.1)			g	GER8$1
RA-228	**1.53**	=	0.23	0.23	0.0799	pCi/g		*(19.2)*	9/17/07 07:04 p		365.2	E901.1
								(13.3)			g	GER8$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	SDG:	35634	Collection Date:	7/29/2007 1:00:00 PM
Lot-Sample No.:	J7H200148-4	Report No. :	36776	Received Date:	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-16D	COC No. :		Matrix:	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	Work Order: J478K1AA			Report DB ID: 9J478K10								
RA-226	**1.06**	=	0.15	0.15	0.035	pCi/g		*(30.4)*	9/17/07 05:24 a		356.6	E901.1
								(14.6)			g	GER13$1
RA-228	**1.36**	=	0.23	0.23	0.073	pCi/g		*(18.7)*	9/17/07 05:24 a		356.6	E901.1
								(11.8)			g	GER13$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	**SDG:**	35634	**Collection Date:**	7/29/2007 1:00:00 PM
Lot-Sample No.:	J7H200148-3	**Report No. :**	36776	**Received Date:**	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-16S	**COC No. :**		**Matrix:**	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	**Work Order:** J478J1AA			**Report DB ID:** 9J478J10								
RA-226	**1.22**	=	0.16	0.16	0.0375	pCi/g		*(32.5)*	9/17/07 05:24 a		355.1	E901.1
								(15.)			g	GER8$1
RA-228	**1.23**	ND	0.19	0.19	0.171	pCi/g		*(7.2)*	9/17/07 05:24 a		355.1	E901.1
								(12.6)			g	GER8$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	SDG:	35634	Collection Date:	7/29/2007 1:30:00 PM
Lot-Sample No.:	J7H200148-2	Report No. :	36776	Received Date:	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-17D	COC No. :		Matrix:	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	Work Order: J478H1AA			Report DB ID: 9J478H10								
RA-226	**1.44**	=	0.19	0.19	0.0501	pCi/g		*(28.7)*	9/17/07 05:24 a		345.3	E901.1
								(15.5)			g	GER6$1
RA-228	**1.56**	=	0.25	0.25	0.101	pCi/g		*(15.5)*	9/17/07 05:24 a		345.3	E901.1
								(12.6)			g	GER6$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	**SDG:**	35634	**Collection Date:**	7/29/2007 1:30:00 PM
Lot-Sample No.:	J7H200148-1	**Report No. :**	36776	**Received Date:**	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-17S	**COC No. :**		**Matrix:**	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	**Work Order:** J478G1AA			**Report DB ID:** 9J478G10								
RA-226	**1.45**	=	0.19	0.19	0.0436	pCi/g		*(33.3)*	9/17/07 05:23 a		340.2	E901.1
								(15.5)			g	GER5$1
RA-228	**1.48**	=	0.23	0.23	0.0862	pCi/g		*(17.2)*	9/17/07 05:23 a		340.2	E901.1
								(13.1)			g	GER5$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	SDG:	35634	Collection Date:	7/28/2007 1:30:00 PM
Lot-Sample No.:	J7H200148-10	Report No. :	36776	Received Date:	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-19D	COC No. :		Matrix:	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	Work Order: J478R1AA			Report DB ID: 9J478R10								
RA-226	**1.46**	=	0.19	0.19	0.0464	pCi/g		*(31.4)* *(15.5)*	9/18/07 06:08 a		353.6 g	E901.1 GER6$1
RA-228	**1.51**	=	0.24	0.24	0.0945	pCi/g		*(15.9)* *(12.6)*	9/18/07 06:08 a		353.6 g	E901.1 GER6$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	SDG:	35634	Collection Date:	7/28/2007 1:30:00 PM
Lot-Sample No.:	J7H200148-9	Report No. :	36776	Received Date:	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-19S	COC No. :		Matrix:	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	Work Order: J478Q1AA			Report DB ID: 9J478Q10								
RA-226	**1.47**	=	0.19	0.19	0.0431	pCi/g		*(34.)* *(15.6)*	9/18/07 06:07 a		342.7 g	E901.1 GER5$1
RA-228	**1.52**	=	0.23	0.23	0.0825	pCi/g		*(18.4)* *(13.3)*	9/18/07 06:07 a		342.7 g	E901.1 GER5$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	SDG:	35634	Collection Date:	7/28/2007 2:15:00 PM
Lot-Sample No.:	J7H200148-8	Report No. :	36776	Received Date:	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-20D	COC No. :		Matrix:	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	Work Order: J478P1AA			Report DB ID: 9J478P10								
RA-226	**1.26**	=	0.17	0.17	0.0435	pCi/g		*(28.9)* *(14.9)*	9/18/07 06:07 a		353.3 g	E901.1 GER4$1
RA-228	**1.44**	=	0.24	0.24	0.0871	pCi/g		*(16.5)* *(12.2)*	9/18/07 06:07 a		353.3 g	E901.1 GER4$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	SDG:	35634	Collection Date:	7/28/2007 2:15:00 PM
Lot-Sample No.:	J7H200148-7	Report No. :	36776	Received Date:	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-20S	COC No. :		Matrix:	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	Work Order: J478N1AA			Report DB ID: 9J478N10								
RA-226	**1.29**	=	0.17	0.17	0.041	pCi/g		*(31.4)*	9/17/07 06:59 p		368.2	E901.1
								(15.3)			g	GER5$1
RA-228	**1.38**	=	0.21	0.21	0.0829	pCi/g		*(16.7)*	9/17/07 06:59 p		368.2	E901.1
								(13.2)			g	GER5$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	**SDG:**	35634	**Collection Date:**	7/28/2007 11:45:00 AM
Lot-Sample No.:	J7H200148-12	**Report No. :**	36776	**Received Date:**	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-24D	**COC No. :**		**Matrix:**	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	**Work Order:** J478V1AA			**Report DB ID:** 9J478V10								
RA-226	**0.909**	=	0.12	0.12	0.0348	pCi/g		*(26.1)*	9/18/07 06:08 a		334.2	E901.1
								(15.2)			g	GER10$1
RA-228	**0.903**	=	0.15	0.15	0.065	pCi/g		*(13.9)*	9/18/07 06:08 a		334.2	E901.1
								(11.9)			g	GER10$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM I

SAMPLE RESULTS

Date: 19-Sep-07

Lab Name:	TA Richland	SDG:	35634	Collection Date:	7/28/2007 11:45:00 AM
Lot-Sample No.:	J7H200148-11	Report No. :	36776	Received Date:	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-24S	COC No. :		Matrix:	SOIL SO

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	Work Order: J478T1AA			Report DB ID: 9J478T10								
RA-226	**1.03**	=	0.14	0.14	0.0383	pCi/g		*(26.9)*	9/18/07 06:08 a		344.2	E901.1
								(14.7)			g	GER8$1
RA-228	**1.17**	=	0.19	0.19	0.0782	pCi/g		*(15.)*	9/18/07 06:08 a		344.2	E901.1
								(12.4)			g	GER8$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchSample
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM II

Date: 19-Sep-07

DUPLICATE RESULTS

Lab Name:	TA Richland	SDG:	35634	Collection Date:	7/29/2007 1:30:00 PM
Lot-Sample No.:	J7H200148-1	Report No. :	36776	Received Date:	8/16/2007 10:00:00 AM
Client Sample ID:	BGS-A1-17S DUP	COC No. :		Matrix:	SOIL SO

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	Work Order: J478G1AC			Report DB ID: J478G1CR		Orig Sa DB ID: 9J478G10						
RA-226	1.45	=	0.19	0.19	0.0467	pCi/g		(31.1)	9/17/07 07:03 p		340.2	E901.1
	1.45	= RER2	0.0					(15.6)			g	GER6$1
RA-228	1.56	=	0.25	0.25	0.0955	pCi/g		(16.4)	9/17/07 07:03 p		340.2	E901.1
	1.48	= RER2	0.5					(12.3)			g	GER6$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchDupV5.1
.4 A2002

RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
= ERPIMS - Equal To, Analyte Detected

FORM II

BLANK RESULTS

Date: 19-Sep-07

Lab Name: TA Richland

SDG: 35634

Lot-Sample No.: J7H210000-484

Report No. : 36776

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	Work Order: J5A4K1AA			Report DB ID: J5A4K1AB								
RA-226	-0.0162	ND	0.049	0.049	0.0602	pCi/g		-0.27	9/18/07 06:09 a		202.3	E901.1
								-0.66			g	GER15$1
RA-228	-0.0409	ND	0.079	0.079	0.105	pCi/g		-0.39	9/18/07 06:09 a		202.3	E901.1
								-(1.)			g	GER15$1

Number of Results: 2

Comments:

TAL Richland
rptSTLRchBlank
V5.1.4 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
D Qual - Result is greater than 3 times 1s Total Uncertainty

FORM II

LCS RESULTS

Date: 19-Sep-07

Lab Name: TA Richland

SDG: 35634

Lot-Sample No.: J7H210000-484

Report No. : 36776

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 7233484	Work Order: J5A4K1AC			Report DB ID: J5A4K1CS									
CS-137	1.31	=	0.17	0.17	0.0266	pCi/g		1.10	0.038	119%	9/18/07 06:09 a	200.18	E901.1
							Rec Limits:	70.	130.	0.2		g	GER14$1

Number of Results: 1

Comments:

TAL Richland
rptSTLRchLcs
V5.1.4 A2002

Bias - (Result/Expected)-1 as defined by ANSI N13.30.
= ERPIMS - Equal To, Analyte Detected

BROWN AND CALDWELL

CHAIN OF CUSTODY RECORD

COC No. _____

YERS000229

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Las Vegas, NV 89102
702-938-4080 / FAX 702-938-4082

☐ 201 East Washington Street / Suite 5[illegible]
Phoenix, AZ 85004
602-567-4000 / FAX 602-567-4001

PROJECT NAME: Yerington Mine Site

PROJECT NUMBER: 132039 JTH200148 35634

LABORATORY NAME & ADDRESS: SEVERN TRENT LABS, RICHLAND, WA Due 09.07.07

LINE NO.	SAMPLE – I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESER-VATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	QC – REQ	TAT	SAMPLING METHOD	DEPTH (FT.) BEGIN ---- END	PID READING (ppm)
01	BGS-A1-01S-1	7/29/07	08:15	PB	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478W					0.1 ---- 0.8	
02	BGS-A1-01S-2	↓	↓	↓	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478X					0.1 ---- 0.8	
03	BGS-A1-01D	↓	↓	↓	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478O					2 ---- 3	
04														----	
05														----	
06														----	
07														----	
08														----	
09														----	
10														----	

COLLECTED & RELEASED BY: Penny Barnett	DATE 8/15/07	TIME 8:30	COOLER I.D.:			COMMENTS (see note on back):
RECEIVED BY: [signature]	DATE 8/16/07	TIME 10:00	RELINQUISHED BY:	DATE / /	TIME :	
RECORD RETURNED BY:	DATE / /	TIME :				
COURIER:			SHIPPING NUMBER:			

DISTRIBUTION: WHITE – PROJECT FILE • CANARY – LAB RECEIPT • PINK – DATA MANAGEMENT • GOLDENROD – FIELD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK.

TAL RICHLAND

27

TAL RICHLAND

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CHAIN OF CUSTODY RECORD

COC No. YERS000275

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702-938-4080 / FAX 702-938-4082

☐ 201 East Washington Street / Suite 500
Phoenix, AZ 85004
602-567-4000 / FAX 602-567-4001

PROJECT NAME: Yerington Mine Site

PROJECT NUMBER: 132039 ~~J7855~~ J7H200148

LABORATORY NAME & ADDRESS: ~~SEVERN TRENT LABS, RICHLAND, WA~~ 35634 Due 09.07.07

LINE NO.	SAMPLE – I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESER-VATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	QC – REQ	TAT	SAMPLING METHOD	DEPTH (FT.) BEGIN ---- END	PID READING (ppm)
01	BGS-A1-24S	7/25/07	11:45	PB	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478T					0.1 ---~~0.8~~	
02	BGS-A1-24D	↓	↓	↓	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478V					2 ---~~3~~	
03														----	
04														----	
05														----	
06														----	
07														----	
08														----	
09														----	
10														----	

COLLECTED & RELEASED BY: Penny Barnett	DATE 8/13/07	TIME 8:30	COOLER I.D.:			COMMENTS (see note on back):
RECEIVED BY:	DATE 8/16/07	TIME 10:00	RELINQUISHED BY:	DATE / /	TIME :	
RECORD RETURNED BY:	DATE / /	TIME :				
COURIER:			SHIPPING NUMBER:			

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BROWN AND CALDWELL

CHAIN OF CUSTODY RECORD

COC No. YERS000265

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702-938-4080 / FAX 702-938-4082

☐ 201 East Washington Street / Suite 500
Phoenix, AZ 85004
602-567-4000 / FAX 602-567-4001

PROJECT NAME: Yerington Mine Site

PROJECT NUMBER: 132039 J7H200148 35634

LABORATORY NAME & ADDRESS: SEVERN TRENT LABS, RICHLAND, WA Due 09 07 07

LINE NO.	SAMPLE - I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESER-VATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	QC - REQ	TAT	SAMPLING METHOD	DEPTH (FT.) BEGIN ---- END	PID READING (ppm)
01	BGS-A1-19S	7/28/07	13:30	PB	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478Q					0.1 ---- 0.8	
02	BGS-A1-19D	↓	↓	↓	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478R					2 ---- 3	
03														----	
04														----	
05														----	
06														----	
07														----	
08														----	
09														----	
10														----	

COLLECTED & RELEASED BY: Penny Bassett	DATE 8/8/07	TIME 8:30	COOLER I.D.:			COMMENTS (see note on back):
RECEIVED BY:	DATE 8/16/07	TIME 10:00	RELINQUISHED BY:	DATE / /	TIME :	
RECORD RETURNED BY:	DATE / /	TIME :				
COURIER:			SHIPPING NUMBER:			

DISTRIBUTION: WHITE - PROJECT FILE • CANARY - LAB RECEIPT • PINK - DATA MANAGEMENT • GOLDENROD - FIELD

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29

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BROWN AND CALDWELL

CHAIN OF CUSTODY RECORD

COC No. YERS000267

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702-938-4080 / FAX 702-938-4082

☐ 201 East Washington Street / Suite 5[illegible]
Phoenix, AZ 85004
602-567-4000 / FAX 602-567-4001

PROJECT NAME: Yerington Mine Site

PROJECT NUMBER: 132039 J7H200148 35634 Due 0907.07

LABORATORY NAME & ADDRESS: SEVERN TRENT LABS, RICHLAND, WA

LINE NO.	SAMPLE – I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESER-VATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	QC – REQ	TAT	SAMPLING METHOD	DEPTH (FT.) BEGIN ---- END	PID READING (ppm)
01	BGS-A1-20S	7/28/07	14:15	PB	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478N					0.1 ---- 0.8	
02	BGS-A1-20D	↓	↓	↓	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478P					2 ---- 3	
03														----	
04														----	
05														----	
06														----	
07														----	
08														----	
09														----	
10														----	

COLLECTED & RELEASED BY: Penny Bagwell	DATE 8/5/07	TIME 8:30	COOLER I.D.:			COMMENTS (see note on back):
RECEIVED BY: [signature]	DATE 8/6/07	TIME 10:00	RELINQUISHED BY:	DATE / /	TIME :	
RECORD RETURNED BY:	DATE / /	TIME :				
COURIER:			SHIPPING NUMBER:			

DISTRIBUTION: WHITE – PROJECT FILE • CANARY – LAB RECEIPT • PINK – DATA MANAGEMENT • GOLDENROD – FIELD

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TAL RICHLAND

BROWN AND CALDWELL

CHAIN OF CUSTODY RECORD

COC No. _____

YERS000233

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702-938-4080 / FAX 702-938-4082

☐ 201 East Washington Street / Suite 500
Phoenix, AZ 85004
602-567-4000 / FAX 602-567-4001

PROJECT NAME: Yerington Mine Site

PROJECT NUMBER: 132039 J7H200148 35634 Due 09-07-07

LABORATORY NAME & ADDRESS: SEVERN TRENT LABS, RICHLAND, WA

LINE NO.	SAMPLE – I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESER-VATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	QC – REQ	TAT	SAMPLING METHOD	DEPTH (FT.) BEGIN ---- END	PID READING (ppm)
01	BGS-A1-03S	7/29/07	10:15	PB	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478L					0.1 ---- 0.8	
02	BGS-A1-03D	↓	↓	↓	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478M					2 ---- 3	
03														----	
04														----	
05														----	
06														----	
07														----	
08														----	
09														----	
10														----	

COLLECTED & RELEASED BY: Henry Bassett	DATE 8/13/07	TIME 8:30	COOLER I.D.:			COMMENTS (see note on back):
RECEIVED BY: RJP	DATE 8/17/07	TIME 10:00	RELINQUISHED BY:	DATE / /	TIME :	
RECORD RETURNED BY:	DATE / /	TIME :				
COURIER:			SHIPPING NUMBER:			

DISTRIBUTION: WHITE – PROJECT FILE • CANARY – LAB RECEIPT • PINK – DATA MANAGEMENT • GOLDENROD – FIELD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK.

TAL RICHLAND

BROWN AND CALDWELL

CHAIN OF CUSTODY RECORD

COC No. YERS000259

☐ 3264 Goni Road / Suite 153
Carson City, NV 89706
775-883-4118 / FAX 775-883-5108

☐ 4425 W. Spring Mountain Road / Suite 225
Las Vegas, NV 89102
702-938-4080 / FAX 702-938-4082

☐ 201 East Washington Street / Suite 500
Phoenix, AZ 85004
602-567-4000 / FAX 602-567-4001

PROJECT NAME: Yerington Mine Site

PROJECT NUMBER: 132039 J7H200148 35634 Due 09.07.07

LABORATORY NAME & ADDRESS: SEVERN TRENT LABS, RICHLAND, WA

LINE NO.	SAMPLE – I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	QC – REQ	TAT	SAMPLING METHOD	DEPTH (FT.) BEGIN ---- END	PID READING (ppm)
01	BGS-A1-16S	7/29/07	13:00	PB	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478J					0.1 ---- 0.8	
02	BGS-A1-16D	↓	↓	↓	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478K					2 ---- 3	
03														----	
04														----	
05														----	
06														----	
07														----	
08														----	
09														----	
10														----	

COLLECTED & RELEASED BY: Penny Barnett	DATE 8/3/07	TIME 830	COOLER I.D.:			COMMENTS (see note on back):
RECEIVED BY: [signature]	DATE 8/16/07	TIME 10 00	RELINQUISHED BY:	DATE / /	TIME :	
RECORD RETURNED BY:	DATE / /	TIME :				
COURIER:			SHIPPING NUMBER:			

DISTRIBUTION: WHITE – PROJECT FILE • CANARY – LAB RECEIPT • PINK – DATA MANAGEMENT • GOLDENROD – FIELD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK.

TAL RICHLAND

BROWN AND CALDWELL

CHAIN OF CUSTODY RECORD

COC No. _____

YERS000261

☐ 3264 Goni Road / Suite 153
Carson City, NV 89706
775-883-4118 / FAX 775-883-5108

☐ 4425 W. Spring Mountain Road / Suite 225
Las Vegas, NV 89102
702-938-4080 / FAX 702-938-4082

☐ 201 East Washington Street / Suite
Phoenix, AZ 85004
602-567-4000 / FAX 602-567-4001

PROJECT NAME: Yerington Mine Site

PROJECT NUMBER: 132039 JTH200148 35634

LABORATORY NAME & ADDRESS: SEVERN TRENT LABS, RICHLAND, WA Due 09-07-07

LINE NO.	SAMPLE – I.D.	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESER-VATIVE	MATRIX CODE	ANALYSES REQUESTED	FIELD FILTERED	QC – REQ	TAT	SAMPLING METHOD	DEPTH (FT.) BEGIN – END	PID READING (ppm)
01	BGS-A1-17S	7/29/07	13:30	PB	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478G					0.1 – 0.8	
02	BGS-A1-17D	↓	↓	↓	1	9 oz Glass	NONE	S	EPA 903.0, EPA 904.0, HASL 300 (U, TH) J478H					2 – 3	
03														----	
04														----	
05														----	
06														----	
07														----	
08														----	
09														----	
10														----	

COLLECTED & RELEASED BY: Penny Bassett	DATE 8/15/07	TIME 8:30	COOLER I.D.:			COMMENTS (see note on back):
RECEIVED BY:	DATE 8/16/07	TIME 10:00	RELINQUISHED BY:	DATE / /	TIME :	
RECORD RETURNED BY:	DATE / /	TIME :				
COURIER:			SHIPPING NUMBER:			

DISTRIBUTION: WHITE – PROJECT FILE • CANARY – LAB RECEIPT • PINK – DATA MANAGEMENT • GOLDENROD – FIELD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK.

SEVERN TRENT STL

Sample Check-in List

Date/Time Received: 8-16-07 1000

Client: BRC SDG #: 35634 NA [ ] SAF #: _____ NA [ ]

Work Order Number: J7H200148 Chain of Custody # YERS000261,259,233,267,265,275,229

Shipping Container ID: _____ Air Bill # _____

1. Custody Seals on shipping container intact? NA [✓] Yes [✓] No [ ]
2. Custody Seals dated and signed? NA [✓] Yes [ ] No [ ]
3. Chain of Custody record present? Yes [✓] No [ ]
4. Cooler temperature: _____ NA [✓] 5. Vermiculite/packing materials is NA [✓] Wet [ ] Dry [ ]
6. Number of samples in shipping container: 15
7. Sample holding times exceeded? NA [✓] Yes [ ] No [ ]
8. Samples have:
   - _____ tape
   - _____ custody seals
   - _____ hazard labels
   - ✓ appropriate samples labels
9. Samples are:
   - ✓ in good condition
   - _____ broken
   - _____ leaking
   - _____ have air bubbles (Only for samples requiring head space)
10. Sample pH taken? SOIL NA [✓] pH<2 [ ] pH>2 [ ] pH>9 [ ]
11. Sample Location, Sample Collector Listed? * Yes [✓] No [ ]
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [✓]
13. Description of anomalies (include sample numbers): _____

Sample Custodian: _____ Date: 8-16-07

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[ ] No action necessary; process as is.

Project Manager _____ Date _____

LS-023, 9/03, Rev. 5

SEVERN TRENT STL

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

9/19/2007 9:50:55 AM

Lot No., Due Date: J7H200148; 09/07/2007

Client, Site: 536403; BRC GW/SOIL Yerington Quarterly GW/Soil

QC Batch No., Method Test: 7233484; RGAMMA Gamma by GER

SDG, Matrix: 35634; SOIL

1.0 COC

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions? Yes ✓ No N/A

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes ✓ No N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes ✓ No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes ✓ No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A ✓

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits? Yes ✓ No N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes ✓ No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A ✓

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes ✓ No N/A

3.5 Are the sample yields and MDAs within contract limits? Yes ✓ No N/A

4.0 Raw Data

4.1 Were results calculated in the correct units? Yes ✓ No N/A

4.2 Were analysis volumes entered correctly? Yes ✓ No N/A

4.3 Were Yields entered correctly? Yes No N/A ✓

4.4 Were spectra reviewed/meet contractual requirements? Yes ✓ No N/A

4.5 Were raw counts reviewed for anomalies? Yes ✓ No N/A

5.0 Other

5.1 Are all noncon ormances included and noted? Yes No N/A ✓

5.2 Are all required forms filled out? Yes ✓ No N/A

5.3 Was the correct methodology used? Yes ✓ No N/A

5.4 Was transcript.on checked? Yes ✓ No N/A

5.5 Were all calculations checked at a minimum frequency? Yes ✓ No N/A

5.6 Are worksheet entries complete and correct? Yes ✓ No N/A

6.0 Comments on any No response:

First Level Review Lisa Antonson **Date** 9/19/07

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 7233484

Review Item	Yes (√)	No (√)	NA (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Non-conformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: Sheryl R Adam Date: 9-19-07

LS-038B, Rev. 10, 9/07

TAL RICHLAND

8/29/2007 1:44:20 PM

Sample Preparation/Analysis

536403, Brown and Caldwell and Caldwell , Brown

AX Gamma PrpRC5013/5017
TA Gamma by HPGE 10 day ingrowth 8/29/07 JBW
01 STANDARD TEST SET

Balance Id:1120421763
Pipet #:

AnalyDueDate: 09/03/2007

Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:

Batch: 7233484 SOIL pCi/g PM, Quote: SA , 73181
SEQ Batch, Test: None

Prep Tech: ,WoodT I Barcot

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 J478G-1-AA J7H200148-1-SAMP 07/29/2007 13:30	AmtRec: JAR16OZG	340.20g,in	#Containers: 1		5200	~~1000~~ 600 9/17/07	65	1523	9/17/07	Scr: Alpha: Beta:
2 J478G-1-AC-X J7H200148-1-DUP 07/29/2007 13:30	AmtRec: JAR16OZG	Not enough Sample for Dup	#Containers: 1				66	0503	9/17/07	Scr: Alpha: Beta:
3 J478H-1-AA J7H200148-2-SAMP 07/29/2007 13:30	AmtRec: JAR16OZG	345.30g,in	#Containers: 1		5200		66	1524	9/17/07	Scr: Alpha: Beta:
4 J478H-1-AC-S J7H200148-2-MS 07/29/2007 13:30	AmtRec: JAR16OZG		#Containers: 1							Scr: Alpha: Beta:
5 J478J-1-AA J7H200148-3-SAMP 07/29/2007 13:00	AmtRec: JAR16OZG	355.10g,in	#Containers: 1		5200		68	1524	9/17/07	Scr: Alpha: Beta:
6 J478K-1-AA J7H200148-4-SAMP 07/29/2007 13:00	AmtRec: JAR16OZG	356.60g,in	#Containers: 1				63	1524		Scr: Alpha: Beta:
7 J478L-1-AA J7H200148-5-SAMP 07/29/2007 10:15	AmtRec: JAR16OZG	365.20g,in	#Containers: 1				68	1504	9/17/07	Scr: Alpha: Beta:

STL Richland Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 1 ISV - Insufficient Volume for Analysis WO Cnt: 7
Richland Wa. pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added Prep_SamplePrep v4.8.26

TAL RICHLAND

8/29/2007 1:44:23 PM

Sample Preparation/Analysis

536403, Brown and Caldwell and Caldwell , Brown

AX Gamma PrpRC5013/5017
TA Gamma by HPGE
01 STANDARD TEST SET

Balance Id:1120421763

Pipet #: _____

AnalyDueDate: 09/03/2007

Batch: 7233484 SOIL pCi/g PM, Quote: SA , 73181

SEQ Batch, Test: None

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,WoodT

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
8 J478M-1-AA J7H200148-6-SAMP 07/29/2007 10:15		376.70g,in AmtRec: JAR16OZG	#Containers: 1		5200	600 9/17/07	G13	0505	9/17/07	Scr: Alpha: Beta:
9 J478N-1-AA J7H200148-7-SAMP 07/28/2007 14:15		368.20g,in AmtRec: JAR16OZG	#Containers: 1				G5	0459		Scr: Alpha: Beta:
10 J478P-1-AA J7H200148-8-SAMP 07/28/2007 14:15		353.30g,in AmtRec: JAR16OZG	#Containers: 1				G4	1607	9/18/07	Scr: Alpha: Beta:
11 J478Q-1-AA J7H200148-9-SAMP 07/28/2007 13:30		342.70g,in AmtRec: JAR16OZG	#Containers: 1				G5	1607		Scr: Alpha: Beta:
12 J478R-1-AA J7H200148-10-SAMP 07/28/2007 13:30		353.60g,in AmtRec: JAR16OZG	#Containers: 1				G6	1608		Scr: Alpha: Beta:
13 J478T-1-AA J7H200148-11-SAMP 07/28/2007 11:45		344.20g,in AmtRec: JAR16OZG	#Containers: 1				G8	1608		Scr: Alpha: Beta:
14 J478V-1-AA J7H200148-12-SAMP 07/28/2007 11:45		334.20g,in AmtRec: JAR16OZG	#Containers: 1				G10	1608		Scr: Alpha: Beta:

STL Richland Key: In - Initial Amt. fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 2 ISV - Insufficient Volume for Analysis WO Cnt: 14

Richland Wa. pd - Prep Dt. r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added Prep_SamplePrep v4.8.26

TAL RICHLAND

8/29/2007 1:44:24 PM

Sample Preparation/Analysis

536403, Brown and Caldwell and Caldwell , Brown

AX Gamma PrpRC5013/5017
TA Gamma by HPGE
01 STANDARD TEST SET

Balance Id:1120421763

Pipet #:

AnalyDueDate: 09/03/2007

Batch: 7233484 SOIL pCi/g PM, Quote: SA , 73181

SEQ Batch, Test: None

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,WoodT

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
15 J478W-1-AA J7H200148-13-SAMP 07/29/2007 08:15		338.10g,in AmtRec: JAR16OZG	#Containers: 1		5200	1600	611 Scr:	1605 Alpha:	9/18/07 Beta:	
16 J478X-1-AA J7H200148-14-SAMP 07/29/2007 08:15		349.50g,in AmtRec: JAR16OZG	#Containers: 1				612 Scr:	1609 Alpha:	Beta:	
17 J4780-1-AA J7H200148-15-SAMP 07/29/2007 08:15		344.20g,in AmtRec: JAR16OZG	#Containers: 1				613 Scr:	1609 Alpha:	Beta:	
18 J5A4K-1-AA-B J7H210000-484-BLK 07/29/2007 13:30		202.30g,in AmtRec:	#Containers: 1		200		615 Scr:	1609 Alpha:	Beta:	
18 J5A4K-1-AC-C J7H210000-484-LCS 07/29/2007 13:30		200.18g,in AmtRec:	GSE1133 08/06/07,pd 07/15/00,r #Containers: 1				614 Scr:	1609 Alpha:	Beta:	

Comments: Not enough Sample for Dup please recount on spare Detector

All Clients for Batch:
536403, Brown and Caldwell Brown and Caldwell , SA , 73181

J478G1AA-SAMP Constituent List:

Cs-137	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35	Cs-137DA	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35

8/29/2007 1:44:25 PM

Sample Preparation/Analysis

AX Gamma PrpRC5013/5017
TA Gamma by HPGE
01 STANDARD TEST SET

Balance Id:1120373922I4 A

Pipet #:

AnalyDueDate: 09/03/2007

Sep1 DT/Tm Tech:

Batch: 7233484 pCi/g
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,WoodT

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

J478H1AC-MS:

J5A4K1AA-BLK:
Cs-137 RDL:0.2 pCi/g LCL: UCL: RPD: Cs-137DA RDL:0.2 pCi/g LCL: UCL: RPD:

J5A4K1AC-LCS:
Cs-137 RDL:0.2 pCi/g LCL:70 UCL:130 RPD:35 Cs-137DA RDL:0.2 pCi/g LCL:70 UCL:130 RPD:35

J478G1AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
J478H1AC-MS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
J5A4K1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
J5A4K1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date: _____

9/19/2007 8:56:33 AM

ICOC Fraction Transfer/Status Report

ByDate: 9/19/2006, 9/24/2007, Batch: '7233484', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
7233484						
AC		CalcC	**WoodT**	8/29/2007 1:34:38 PM		
SC			Wagarr	IsBatched	8/21/2007 4:21:17 PM	ICOC_RADCALC v4.8.26
SC			WoodT	InPrep	8/29/2007 1:34:38 PM	RICH-RC-5013 REVISION 7
SC			Barcotl	InPrep	8/29/2007 1:34:58 PM	RICH-RC-5013 REVISION 7
SC			Barcotl	Prep1C	8/29/2007 1:35:14 PM	RICH-RC-5013 REVISION 7
SC			Barcotl	InPrep2	8/29/2007 1:35:24 PM	RICH-RC-5017 REVISION 6
SC			Barcotl	Prep2C	8/29/2007 1:35:44 PM	RICH-RC-5017 REVISION 6
SC			StringerR	InCnt1	8/29/2007 2:49:56 PM	RICH-RD-0007 REVISION 6
SC			DAWKINSO	CalcC	9/18/2007 8:46:01 PM	RICH-RD-0007 REVISION 6
AC			**Barcotl**	8/29/2007 1:34:58 PM		
AC			**Barcotl**	8/29/2007 1:35:14 PM		
AC			**Barcotl**	8/29/2007 1:35:24 PM		
AC			**Barcotl**	8/29/2007 1:35:44 PM		
AC			**StringerR**	8/29/2007 2:49:56 PM		
AC			**DAWKINSO**	9/18/2007 8:46:01 PM		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt: 7

ICOCFractions v4.8.27

9/19/2007 8:56:32 AM

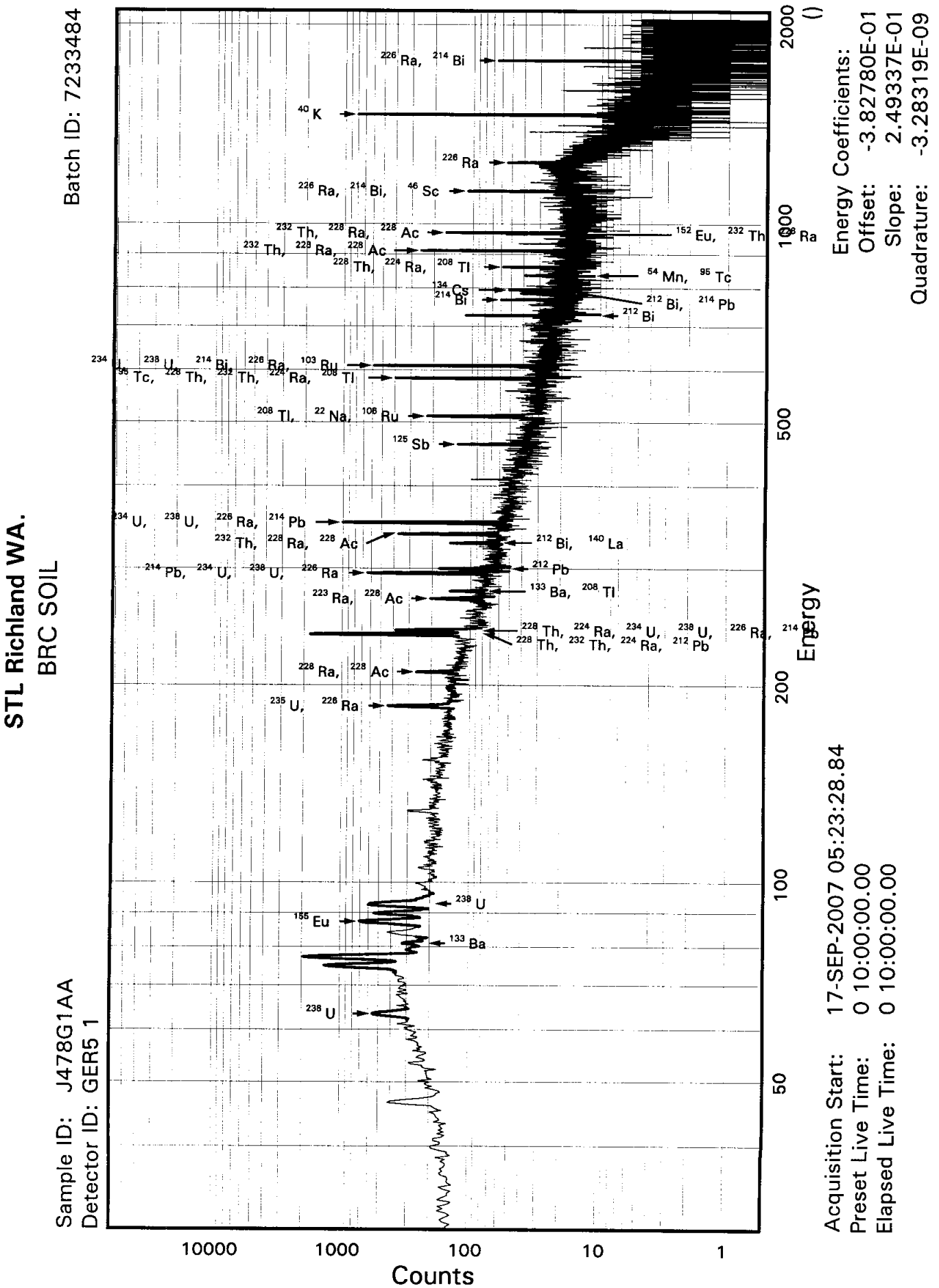
Rpt DB Transfer log (Batch Results)

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot Uncert	Sample Date / Mda	Units	Expected	Yield	Volumes
35634	**9J478010**			**J7H20014815**	BGS-A1-01D	SOIL	8/16/2007 10:00:00	7/29/2007 8:15:00 AM				
RA-226DA	AXTA		0	9/18/2007 6:09:18 AM	**1.1215E+00**	7.544E-02	7.544E-02	3.75E-02	PCI/GRAM			3.442E+2
RA-228DA	AXTA		0	9/18/2007 6:09:18 AM	**1.3099E+00**	1.145E-01	1.145E-01	7.746E-02	PCI/GRAM			3.442E+2
35634	**9J478G10**			**J7H2001481**	BGS-A1-17S	SOIL	8/16/2007 10:00:00	7/29/2007 1:30:00 PM				
RA-226DA	AXTA		0	9/17/2007 5:23:29 AM	**1.4519E+00**	9.384E-02	9.384E-02	4.362E-02	PCI/GRAM			3.402E+2
RA-228DA	AXTA		0	9/17/2007 5:23:29 AM	**1.4799E+00**	1.127E-01	1.127E-01	8.62E-02	PCI/GRAM			3.402E+2
35634	**9J478H10**			**J7H2001482**	BGS-A1-17D	SOIL	8/16/2007 10:00:00	7/29/2007 1:30:00 PM				
RA-226DA	AXTA		0	9/17/2007 5:24:05 AM	**1.4391E+00**	9.31E-02	9.31E-02	5.006E-02	PCI/GRAM			3.453E+2
RA-228DA	AXTA		0	9/17/2007 5:24:05 AM	**1.5649E+00**	1.243E-01	1.243E-01	1.007E-01	PCI/GRAM			3.453E+2
35634	**9J478J10**			**J7H2001483**	BGS-A1-16S	SOIL	8/16/2007 10:00:00	7/29/2007 1:00:00 PM				
RA-226DA	AXTA		0	9/17/2007 5:24:28 AM	**1.2191E+00**	8.133E-02	8.133E-02	3.754E-02	PCI/GRAM			3.551E+2
RA-228DA	AXTA		0	9/17/2007 5:24:28 AM	**1.2262E+00**	9.719E-02	9.719E-02	1.713E-01	PCI/GRAM			3.551E+2
35634	**9J478K10**			**J7H2001484**	BGS-A1-16D	SOIL	8/16/2007 10:00:00	7/29/2007 1:00:00 PM				
RA-226DA	AXTA		0	9/17/2007 5:24:39 AM	**1.0643E+00**	7.274E-02	7.274E-02	3.505E-02	PCI/GRAM			3.566E+2
RA-228DA	AXTA		0	9/17/2007 5:24:39 AM	**1.3623E+00**	1.154E-01	1.154E-01	7.303E-02	PCI/GRAM			3.566E+2
35634	**9J478L10**			**J7H2001485**	BGS-A1-03S	SOIL	8/16/2007 10:00:00	7/29/2007 10:15:00 AM				
RA-226DA	AXTA		0	9/17/2007 7:04:20 PM	**1.2757E+00**	8.471E-02	8.471E-02	4.033E-02	PCI/GRAM			3.652E+2
RA-228DA	AXTA		0	9/17/2007 7:04:20 PM	**1.5338E+00**	1.154E-01	1.154E-01	7.986E-02	PCI/GRAM			3.652E+2
35634	9J478M10			**J7H2001486**	BGS-A1-03D	SOIL	8/16/2007 10:00:00	7/29/2007 10:15:00 AM				
RA-226DA	AXTA		0	9/17/2007 7:05:05 PM	**1.1177E+00**	7.321E-02	7.321E-02	3.504E-02	PCI/GRAM			3.767E+2
RA-228DA	AXTA		0	9/17/2007 7:05:05 PM	**1.421E+00**	1.182E-01	1.182E-01	6.82E-02	PCI/GRAM			3.767E+2
35634	**9J478N10**			**J7H2001487**	BGS-A1-20S	SOIL	8/16/2007 10:00:00	7/28/2007 2:15:00 PM				
RA-226DA	AXTA		0	9/17/2007 6:59:57 PM	**1.287E+00**	8.408E-02	8.408E-02	4.102E-02	PCI/GRAM			3.682E+2
RA-228DA	AXTA		0	9/17/2007 6:59:57 PM	**1.3803E+00**	1.047E-01	1.047E-01	8.29E-02	PCI/GRAM			3.682E+2
35634	**9J478P10**			**J7H2001488**	BGS-A1-20D	SOIL	8/16/2007 10:00:00	7/28/2007 2:15:00 PM				
RA-226DA	AXTA		0	9/18/2007 6:07:31 AM	**1.2574E+00**	8.46E-02	8.46E-02	4.354E-02	PCI/GRAM			3.533E+2
RA-228DA	AXTA		0	9/18/2007 6:07:31 AM	**1.4356E+00**	1.18E-01	1.18E-01	8.707E-02	PCI/GRAM			3.533E+2
35634	**9J478Q10**			**J7H2001489**	BGS-A1-19S	SOIL	8/16/2007 10:00:00	7/28/2007 1:30:00 PM				
RA-226DA	AXTA		0	9/18/2007 6:07:35 AM	**1.4676E+00**	9.415E-02	9.415E-02	4.312E-02	PCI/GRAM			3.427E+2
RA-228DA	AXTA		0	9/18/2007 6:07:35 AM	**1.5166E+00**	1.14E-01	1.14E-01	8.247E-02	PCI/GRAM			3.427E+2
35634	**9J478R10**			**J7H20014810**	BGS-A1-19D	SOIL	8/16/2007 10:00:00	7/28/2007 1:30:00 PM				
RA-226DA	AXTA		0	9/18/2007 6:08:07 AM	**1.4561E+00**	9.406E-02	9.406E-02	4.635E-02	PCI/GRAM			3.536E+2
RA-228DA	AXTA		0	9/18/2007 6:08:07 AM	**1.5051E+00**	1.195E-01	1.195E-01	9.447E-02	PCI/GRAM			3.536E+2
35634	**9J478T10**			**J7H20014811**	BGS-A1-24S	SOIL	8/16/2007 10:00:00	7/28/2007 11:45:00 AM				
RA-226DA	AXTA		0	9/18/2007 6:08:21 AM	**1.0305E+00**	6.987E-02	6.987E-02	3.826E-02	PCI/GRAM			3.442E+2
RA-228DA	AXTA		0	9/18/2007 6:08:21 AM	**1.173E+00**	9.456E-02	9.456E-02	7.824E-02	PCI/GRAM			3.442E+2
35634	**9J478V10**			**J7H20014812**	BGS-A1-24D	SOIL	8/16/2007 10:00:00	7/28/2007 11:45:00 AM				
RA-226DA	AXTA		0	9/18/2007 6:08:36 AM	**9.0873E-01**	5.998E-02	5.998E-02	3.479E-02	PCI/GRAM			3.342E+2
RA-228DA	AXTA		0	9/18/2007 6:08:36 AM	**9.0295E-01**	7.601E-02	7.601E-02	6.5E-02	PCI/GRAM			3.342E+2
35634	**9J478W10**			**J7H20014813**	BGS-A1-01S-1	SOIL	8/16/2007 10:00:00	7/29/2007 8:15:00 AM				
RA-226DA	AXTA		0	9/18/2007 6:08:49 AM	**1.2467E+00**	7.932E-02	7.932E-02	3.151E-02	PCI/GRAM			3.381E+2
RA-228DA	AXTA		0	9/18/2007 6:08:49 AM	**1.46E+00**	1.168E-01	1.168E-01	6.3E-02	PCI/GRAM			3.381E+2
35634	**9J478X10**			**J7H20014814**	BGS-A1-01S-2	SOIL	8/16/2007 10:00:00	7/29/2007 8:15:00 AM				
RA-226DA	AXTA		0	9/18/2007 6:09:07 AM	**1.2946E+00**	8.258E-02	8.258E-02	3.176E-02	PCI/GRAM			3.495E+2
RA-228DA	AXTA		0	9/18/2007 6:09:07 AM	**1.4183E+00**	1.304E-01	1.304E-01	6.237E-02	PCI/GRAM			3.495E+2
35634	**J478G1CR**			**J7H2001481**	BGS-A1-17S DUP	SOIL	8/16/2007 10:00:00	7/29/2007 1:30:00 PM				
RA-226DA	AXTA		0	R 9/17/2007 7:03:39 PM	**1.4539E+00**	9.307E-02	9.307E-02	4.671E-02	PCI/GRAM			3.402E+2
RA-228DA	AXTA		0	R 9/17/2007 7:03:39 PM	**1.564E+00**	1.269E-01	1.269E-01	9.545E-02	PCI/GRAM			3.402E+2
35634	**J5A4K1AB**			**J7H210000484**	INTRA-LAB BLANK	SOIL	8/16/2007 10:00:00	7/29/2007 1:30:00 PM				
RA-226DA	AXTA		0	B 9/18/2007 6:09:28 AM	**-1.616E-02**	2.464E-02	2.464E-02	6.024E-02	PCI/GRAM			2.023E+2
RA-228DA	AXTA		0	B 9/18/2007 6:09:28 AM	**-4.0946E-02**	3.966E-02	3.966E-02	1.047E-01	PCI/GRAM			2.023E+2

7233484,7233484, **Samples Inserted | Updated | NotUpdated => 10 | 0 | 8,
**Results Inserted | ReTestInserted | Updated | NotInserted => 21 | 0 | 0 | 14.
**Diff RptDb | Qtims => *wo:J478M1AA=> , unt: | pCi/g.

SDG or Batch Isotope	Rpt Db Id Method	RTst	Qc	LotSample Analysis Date	Client Id Result	Matrix Cnt Uncert	Tot Uncert	Received Date Mdq	Sample Date Units	Expected	Yield	Volumes
35634	**J5A4K1CS**			**J7H210000484**	INTRA-LAB CHECK	SOIL		8/16/2007 10:00:00	7/29/2007 1:30:00 PM			
CS-137DA	AXTA	0	S	9/18/2007 6:09:54 AM	**1.3148E+00**	8.405E-02	8.405E-02	2.658E-02	PCI/GRAM	1.1005E+00		2.002E+2

7233484,7233484, **Samples Inserted | Updated | NotUpdated => 10 | 0 | 8,
**Results Inserted | ReTestInserted | Updated | NotInserted => 21 | 0 | 0 | 14.
**Diff RptDb | Qtims => *wo:J478M1AA=> , unt: | pCi/g.


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478G1AA
Detector ID: GER5 1
Energy Coefficients:
Offset: -3.82780E-01
Slope: 2.49337E-01
Quadrature: -3.28319E-09
Acquisition Start: 17-SEP-2007 05:23:28.84
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
10000
1000
100
10
1
50
100
200
500
1000
2000
226 Ra, 214 Bi
40 K
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
152 Eu, 232 Th
228 Ra
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
54 Mn, 95 Tc
134 Cs
214 Bi
212 Bi, 214 Pb
212 Bi
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
95 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 228 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Bi, 140 La
214 Pb, 234 U, 238 U, 226 Ra
212 Pb
133 Ba, 208 Tl
223 Ra, 228 Ac
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214 Pb
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 226 Ra
238 U
155 Eu
133 Ba
238 U

SAMPLE IDENTIFICATION: ~~J47~~8G1AA

CONFIGURATION ID: GER5:J478G1AA_170970523
TITLE : BRC SOIL
SAMPLE ID : J478G1AA

REPORT DATE: 17-SEP-07
ACQUIRE DATE: 17-SEP-07 05:23:28
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: ~~29-~~JUL-2007 13:30:00.00
CALIB DATE: 17-SEP-2007 04:58:30.80
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:13

SAMPLE QUANTITY: 3.4020E+02
SAMPLE GEOMETRY: ES200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.3828E+00 keV
ENERGY SLOPE: 2.4934E-01 keV/C
ENERGY Q COEFF: -.3283E-08 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 7.1245E-01 keV
FWHM SLOPE: 3.0285E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 40.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 17-SEP-2007 19:40:41

Configuration : RDND06$DKA100:[GER5.SAMPLE]J478G1AA_170970523.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:30:00 Acquisition date : 17-SEP-2007 05:23:28
Sample ID : J478G1AA Sample quantity : 340.20 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:13.66 0.0%
Start energy : 19.56 End energy : 2041.96
Sensitivity : 5.00 Gaussian : 40.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.65*	511	1850	0.80	188.64	184	11	1.42E-02	18.4	
2	0	52.92	134	1755	0.48	213.79	212	8	3.73E-03	54.6	
3	0	63.38*	670	3268	0.99	255.74	251	11	1.86E-02	17.8	
4	1	74.85*	3809	3686	0.92	301.72	294	40	1.06E-01	3.4	1.56E+00
5	1	77.14*	6281	3174	0.90	310.90	294	40	1.74E-01	2.2	
6	1	81.05	327	3145	1.04	326.60	294	40	9.09E-03	38.7	
7	0	84.07	1032	2985	1.24	338.72	333	13	2.87E-02	11.3	
8	1	87.23	2277	3119	1.09	351.40	345	23	6.32E-02	5.4	1.05E+00
9	1	89.88	1439	2443	1.08	362.02	345	23	4.00E-02	7.3	
10	0	93.03*	2074	4261	1.48	374.66	368	21	5.76E-02	8.6	
11	0	129.04	437	2055	0.91	519.08	514	11	1.21E-02	20.6	
12	0	185.94*	1204	2045	1.17	747.27	740	14	3.34E-02	8.9	
13	0	209.29	553	1520	0.85	840.93	835	12	1.54E-02	14.7	
14	4	238.60*	7314	1324	1.02	958.47	950	30	2.03E-01	1.6	2.55E+00
15	4	241.68	2066	1725	1.73	970.84	950	30	5.74E-02	5.7	
16	0	270.21	748	1487	1.31	1085.25	1075	19	2.08E-02	12.9	
17	0	277.25	243	875	0.86	1113.49	1108	11	6.74E-03	24.5	
18	0	295.16	2898	1166	1.18	1185.34	1177	18	8.05E-02	3.3	
19	0	299.99	564	1188	0.97	1204.72	1196	19	1.57E-02	15.3	
20	0	328.30	336	1144	1.05	1318.25	1309	17	9.33E-03	23.8	
21	0	338.28	1347	1077	1.11	1358.28	1351	16	3.74E-02	6.1	
22	0	351.94	4739	1414	1.20	1413.08	1402	24	1.32E-01	2.6	
23	0	409.45	226	618	0.81	1643.72	1638	14	6.27E-03	24.3	
24	0	462.88	462	633	1.13	1858.03	1849	19	1.28E-02	13.9	
25	0	510.54*	644	871	1.63	2049.20	2036	25	1.79E-02	15.1	
26	0	559.65*	154	837	4.86	2246.17	2234	32	4.27E-03	58.5	
27	0	583.23*	2213	443	1.47	2340.73	2332	18	6.15E-02	3.2	
28	0	609.34	3478	577	1.39	2445.46	2434	24	9.66E-02	2.5	
29	0	727.39	533	513	1.48	2918.97	2904	27	1.48E-02	10.9	
30	0	768.19	295	337	1.52	3082.60	3072	18	8.20E-03	13.7	
31	0	785.69	143	312	1.45	3152.78	3144	17	3.98E-03	25.5	
32	0	794.91	233	319	2.02	3189.75	3181	18	6.48E-03	16.6	
33	0	835.71	94	216	1.30	3353.42	3348	13	2.61E-03	29.6	
34	0	860.64	254	325	1.92	3453.42	3443	19	7.06E-03	15.8	
35	0	911.14*	1483	380	1.59	3655.98	3640	25	4.12E-02	4.1	
36	0	934.20	155	280	1.72	3748.45	3739	16	4.30E-03	22.2	
37	0	965.04	93	297	1.89	3872.17	3869	11	2.58E-03	34.0	
38	0	969.05	868	376	1.39	3888.24	3879	23	2.41E-02	6.0	
39	0	1120.29	690	336	1.47	4494.88	4483	21	1.92E-02	6.8	
40	0	1237.81	325	511	1.92	4966.29	4950	29	9.02E-03	17.7	
41	0	1378.01	177	131	1.25	5528.66	5517	23	4.92E-03	16.2	
42	0	1460.73*	6339	171	1.93	5860.47	5842	34	1.76E-01	1.4	
43	0	1591.33	207	172	6.14	6384.35	6359	45	5.76E-03	19.7	

Sample ID : J478G1AA Acquisition date : 17-SEP-2007 05:23:28

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
44	0	1764.34	581	64	2.08	7078.35	7062	32	1.61E-02	5.4	

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

VMS Nuclide Identification Report V3.1 Generated 17-SEP-2007 19:40:41

Configuration : RDND06$DKA100:[GER5.SAMPLE]J478G1AA_170970523.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:30:00 Acquisition date : 17-SEP-2007 05:23:28
Sample ID : J478G1AA Sample quantity : 340.20 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:13.66 0.0%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	6339	10.67*	5.413E-01	2.422E+01	2.422E+01	6.22
TL-208	277.35	243	6.80	2.162E+00	3.640E-01	3.640E-01	25.22
	510.84	644	21.60	1.323E+00	4.975E-01	4.975E-01	16.19
	583.14	2213	84.20*	1.185E+00	4.897E-01	4.897E-01	6.78
	860.37	254	12.46	8.521E-01	5.282E-01	5.282E-01	17.02
PB-212	238.63	7314	44.60*	2.420E+00	1.495E+00	1.495E+00	6.36
	300.09	564	3.41	2.034E+00	1.796E+00	1.796E+00	16.40
BI-214	609.31	3478	46.30*	1.142E+00	1.452E+00	1.452E+00	6.46
	768.36	295	5.04	9.388E-01	1.377E+00	1.377E+00	15.03
	1120.29	690	15.10	6.795E-01	1.483E+00	1.483E+00	9.12
	1764.49	581	15.80	4.621E-01	1.756E+00	1.756E+00	8.03
PB-214	241.98	2066	7.49	2.397E+00	2.539E+00	2.539E+00	8.42
	295.21	2898	19.20	2.060E+00	1.617E+00	1.617E+00	6.90
	351.92	4739	37.20*	1.793E+00	1.568E+00	1.568E+00	6.48
	785.91	143	1.10	9.210E-01	3.119E+00	3.119E+00	26.28
RA-224DA	238.63	7314	44.60*	2.420E+00	1.495E+00	1.571E+00	6.36
	240.98	2066	3.95	2.397E+00	4.814E+00	5.059E+00	8.42
	583.14	2213	30.25	1.185E+00	1.363E+00	1.432E+00	6.78
	860.37	254	4.48	8.521E-01	1.469E+00	1.544E+00	17.02
RA-226DA	186.21	1204	3.50	2.881E+00	2.635E+00	2.635E+00	10.84
	241.98	2066	7.49	2.397E+00	2.539E+00	2.539E+00	8.42
	295.22	2898	19.20	2.060E+00	1.617E+00	1.617E+00	6.90
	351.92	4739	37.20	1.793E+00	1.568E+00	1.568E+00	6.48
	609.32	3478	46.30*	1.142E+00	1.452E+00	1.452E+00	6.46
	1120.28	690	15.10	6.795E-01	1.483E+00	1.483E+00	9.12
	1238.11	325	5.94	6.236E-01	1.935E+00	1.935E+00	18.71
	1764.49	581	15.80	4.621E-01	1.756E+00	1.756E+00	8.03
AC-228	209.28	553	4.40	2.659E+00	1.044E+00	1.044E+00	15.96
	270.23	748	3.60	2.205E+00	2.080E+00	2.080E+00	14.28
	338.32	1347	11.40	1.850E+00	1.409E+00	1.409E+00	8.51
	911.07	1483	27.70*	8.115E-01	1.456E+00	1.456E+00	7.62
	969.11	868	16.60	7.697E-01	1.500E+00	1.500E+00	8.72
RA-228DA	209.28	553	4.40	2.659E+00	1.044E+00	1.061E+00	15.96
	338.32	1347	11.40	1.850E+00	1.409E+00	1.432E+00	8.51
	911.07	1483	27.70*	8.115E-01	1.456E+00	1.480E+00	7.62
	964.60	93	5.20	7.724E-01	5.094E-01	5.179E-01	34.60

Sample ID : J478G1AA Acquisition date : 17-SEP-2007 05:23:28

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	969.11	868	16.60	7.697E-01	1.500E+00	1.525E+00	8.72
TH-228DA	238.63	7314	44.60	2.420E+00	1.495E+00	1.571E+00	6.36
	240.98	2066	3.95	2.397E+00	4.814E+00	5.059E+00	8.42
	583.14	2213	30.25*	1.185E+00	1.363E+00	1.432E+00	6.78
	860.37	254	4.48	8.521E-01	1.469E+00	1.544E+00	17.02
TH-232DA	238.63	7314	44.60	2.420E+00	1.495E+00	1.495E+00	6.36
	338.32	1347	12.40*	1.850E+00	1.295E+00	1.295E+00	8.51
	583.14	2213	30.25	1.185E+00	1.363E+00	1.363E+00	6.78
	911.07	1483	27.70	8.115E-01	1.456E+00	1.456E+00	7.62
	964.60	93	5.20	7.724E-01	5.094E-01	5.094E-01	34.60
	969.11	868	16.60	7.697E-01	1.500E+00	1.500E+00	8.72
U-234DA	241.98	2066	7.49	2.397E+00	2.539E+00	2.539E+00	8.42
	295.22	2898	19.20*	2.060E+00	1.617E+00	1.617E+00	6.90
	351.92	4739	37.20	1.793E+00	1.568E+00	1.568E+00	6.48
	609.31	3478	46.30	1.142E+00	1.452E+00	1.452E+00	6.46
U-238DA	241.98	2066	7.49	2.397E+00	2.539E+00	2.539E+00	8.42
	295.22	2898	19.20	2.060E+00	1.617E+00	1.617E+00	6.90
	351.92	4739	37.20*	1.793E+00	1.568E+00	1.568E+00	6.48
	609.31	3478	46.30	1.142E+00	1.452E+00	1.452E+00	6.46
U-238DHP	63.28	670	3.80*	3.564E+00	1.092E+00	1.092E+00	18.73
	92.59	2074	5.41	3.876E+00	2.183E+00	2.183E+00	10.48

Nuclide Type: AP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
MN-54	834.83	94	99.98*	8.737E-01	2.373E-02	2.650E-02	30.29

Flag: "*" = Keyline

Sample ID : J478G1AA Acquisition date : 17-SEP-2007 05:23:28

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	46.65	511	1850	0.80	188.64	184	11	1.42E-02	18.4	2.64E+00	
0	52.92	134	1755	0.48	213.79	212	8	3.73E-03	54.6	3.08E+00	
1	74.85	3809	3686	0.92	301.72	294	40	1.06E-01	3.4	3.82E+00	
1	77.14	6281	3174	0.90	310.90	294	40	1.74E-01	2.2	3.84E+00	
1	81.05	327	3145	1.04	326.60	294	40	9.09E-03	38.7	3.87E+00	T
0	84.07	1032	2985	1.24	338.72	333	13	2.87E-02	11.3	3.88E+00	
1	87.23	2277	3119	1.09	351.40	345	23	6.32E-02	5.4	3.89E+00	T
1	89.88	1439	2443	1.08	362.02	345	23	4.00E-02	7.3	3.89E+00	
0	129.04	437	2055	0.91	519.08	514	11	1.21E-02	20.6	3.54E+00	
0	328.30	336	1144	1.05	1318.25	1309	17	9.33E-03	23.8	1.89E+00	T
0	409.45	226	618	0.81	1643.72	1638	14	6.27E-03	24.3	1.59E+00	
0	462.88	462	633	1.13	1858.03	1849	19	1.28E-02	13.9	1.43E+00	T
0	559.65	154	837	4.86	2246.17	2234	32	4.27E-03	58.5	1.23E+00	
0	727.39	533	513	1.48	2918.97	2904	27	1.48E-02	10.9	9.83E-01	T
0	794.91	233	319	2.02	3189.75	3181	18	6.48E-03	16.6	9.12E-01	T
0	934.20	155	280	1.72	3748.45	3739	16	4.30E-03	22.2	7.94E-01	
0	1378.01	177	131	1.25	5528.66	5517	23	4.92E-03	16.2	5.69E-01	
0	1591.33	207	172	6.14	6384.35	6359	45	5.76E-03	19.7	5.04E-01	

Flags: "T" = Tentatively associated

Sample ID : J478G1AA Acquisition date : 17-SEP-2007 05:23:28

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	6.203E-02	16.19	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.59	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	3.382E-01	9.12	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.82	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	2.480E+00	6.78	
			835.13	26.10	1.602E-01	30.29	
		% Abundances Found =		45.56			
RU-103	39.35D	1.27	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	2.889E+01	6.46	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	5.730E-01	16.19	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	7.099E-01	15.09	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
BA-133	10.50Y	0.01	81.00	33.00	5.702E-02	39.14	Abun.
			276.40	6.90	3.620E-01	25.22	
			302.84	17.80	--- Not Found ---		
			356.00*	62.05	--- Not Found ---		
			383.85	8.70	--- Not Found ---		
		% Abundances Found =		31.06			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	6.926E-02	17.74	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	29.76	328.77	20.50	1.731E+08	24.50	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-152	13.60Y	0.01	121.78	28.40	--- Not Found ---		Abun.
			244.67	7.49	--- Not Found ---		
			344.27*	26.50	--- Not Found ---		
			778.89	12.74	--- Not Found ---		
			964.01	14.40	1.852E-01	34.60	

Sample ID : J478G1AA Acquisition date : 17-SEP-2007 05:23:28

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
EU-152	13.60Y	0.01	1085.78	10.00	--- Not Found ---		Abun.
			1112.02	13.30	--- Not Found ---		
			1407.95	20.70	--- Not Found ---		
		% Abundances Found =		10.78			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	4.262E-01	8.08	
			105.31*	20.70	--- Not Found ---		
		% Abundances Found =		42.47			
BI-212	1.41E+10Y	0.00	288.07	0.31	--- Not Found ---		Abun.
			327.96	0.14	2.815E+01	25.75	
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.818E+00	12.65	
			785.37	1.10	3.119E+00	26.43	
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		
			1078.62	0.56	--- Not Found ---		
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	--- Not Found ---		
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		68.47			
RA-223	21.77Y	0.01	154.21	5.58	--- Not Found ---		Abun.
			269.46*	13.60	5.530E-01	14.28	
			323.87	3.88	--- Not Found ---		
		% Abundances Found =		58.98			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	1.708E-01	10.84	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.1 Generated 17-SEP-2007 19:40:42

Configuration : RDND06$DKA100:[GER5.SAMPLE]J478G1AA_170970523.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:30:00 Acquisition date : 17-SEP-2007 05:23:28
Sample ID : J478G1AA Sample quantity : 340.20 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:13.66 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

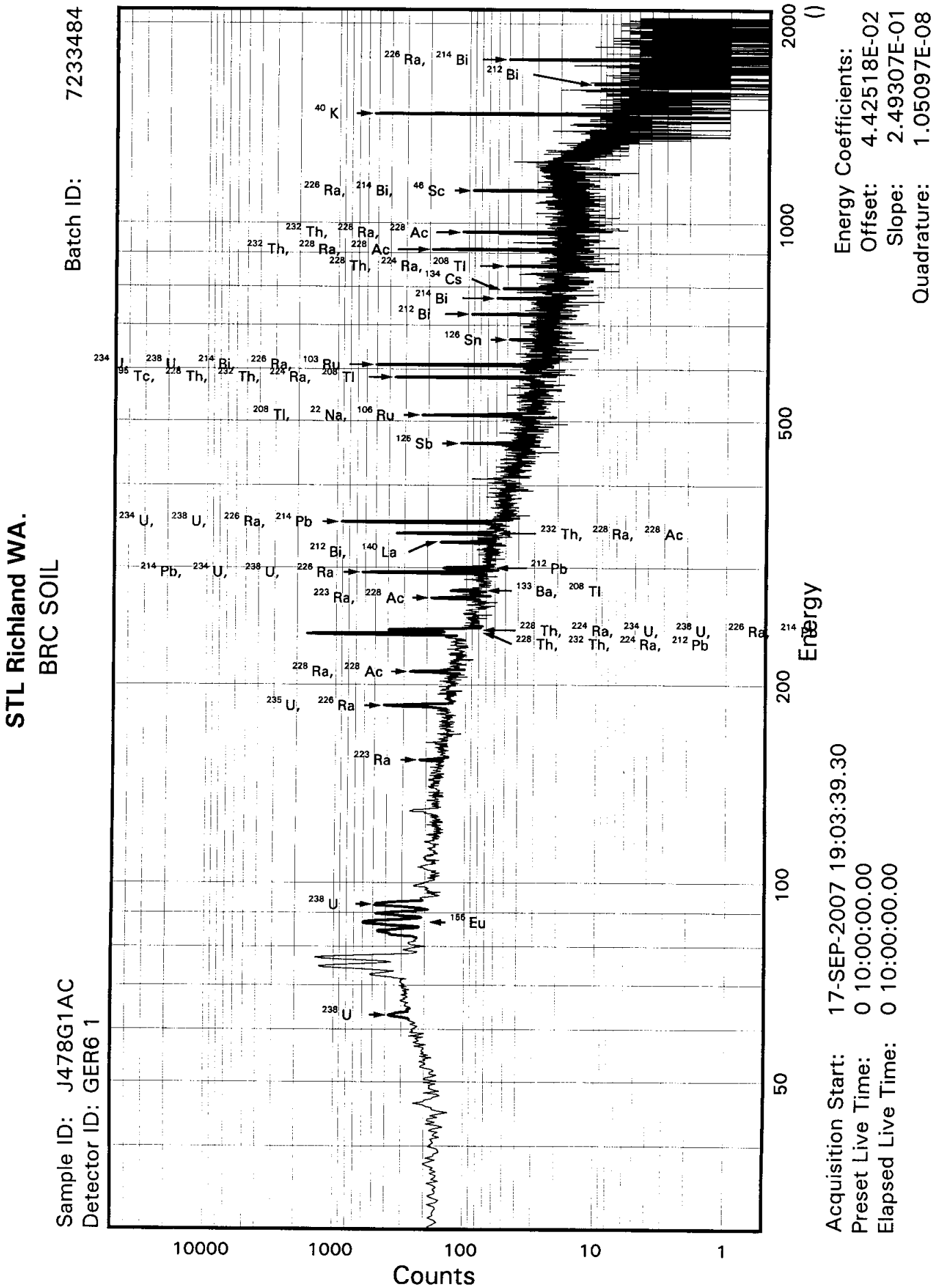
Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.422E+01	1.506E+00	2.005E-01	6.832E-03	120.812
MN-54	2.650E-02	8.028E-03	2.684E-02	1.019E-03	0.987
TL-208	4.897E-01	3.319E-02	2.353E-02	7.643E-04	20.809
PB-212	1.495E+00	9.517E-02	3.670E-02	1.319E-03	40.745
BI-214	1.452E+00	9.384E-02	4.362E-02	1.416E-03	33.285
PB-214	1.568E+00	1.017E-01	4.592E-02	1.484E-03	34.153
RA-224DA	1.571E+00	1.000E-01	3.856E-02	1.387E-03	40.745
RA-226DA	1.452E+00	9.384E-02	4.362E-02	1.416E-03	33.285
AC-228	1.456E+00	1.109E-01	8.480E-02	3.373E-03	17.167
RA-228DA	1.480E+00	1.127E-01	8.620E-02	3.429E-03	17.167
TH-228DA	1.432E+00	9.709E-02	6.883E-02	2.235E-03	20.809
TH-232DA	1.295E+00	1.103E-01	1.421E-01	4.579E-03	9.118
U-234DA	1.617E+00	1.115E-01	8.735E-02	2.950E-03	18.513
U-238DA	1.568E+00	1.017E-01	4.592E-02	1.484E-03	34.153
U-238DHP	1.092E+00	2.045E-01	4.530E-01	1.421E-02	2.410

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-1.355E-01		1.008E-01	3.289E-01	1.068E-02	-0.412
NA-22	-1.777E-02		8.875E-03	2.887E-02	9.683E-04	-0.616
NA-24	-3.290E+15		6.662E+15	Half-Life too short		
SC-46	3.382E-01	+	3.084E-02	7.465E-02	2.567E-03	4.531
CR-51	4.545E-02		1.747E-01	5.952E-01	1.905E-02	0.076
CO-57	-5.519E-03		4.708E-02	1.539E-01	5.157E-03	-0.036
CO-58	-2.011E-02		1.110E-02	3.561E-02	1.325E-03	-0.565
FE-59	-1.057E-01		3.196E-02	9.815E-02	3.449E-03	-1.077
CO-60	5.508E-03		7.500E-03	2.617E-02	8.934E-04	0.210
ZN-65	-4.437E-02		2.413E-02	6.402E-02	2.213E-03	-0.693
SE-75	-7.389E-04		1.136E-02	3.525E-02	1.243E-03	-0.021
SR-85	4.347E-02		1.250E-02	3.687E-02	1.182E-03	1.179
Y-88	9.407E-03		7.758E-03	2.859E-02	8.914E-04	0.329

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
NB-94	7.498E-03		6.620E-03	2.307E-02	9.027E-04	0.325
NB-95	6.837E-02		2.300E-02	6.852E-02	2.447E-03	0.998
TC-95M	1.428E-02		1.297E-02	4.370E-02	1.577E-03	0.327
ZR-95	1.766E-02		2.128E-02	7.226E-02	2.559E-03	0.244
ZRNB-95	9.056E-02		2.944E-02	8.779E-02	3.136E-03	1.032
MO-99	-2.243E-03		1.441E-03	Half-Life too short		
RH-101	9.564E-03		6.908E-03	2.331E-02	8.398E-04	0.410
RH-102M	3.213E-03		5.896E-03	1.984E-02	6.449E-04	0.162
RU-103	-2.876E-03		1.462E-02	4.860E-02	1.570E-03	-0.059
RU-106DA	-8.938E-02		6.717E-02	2.224E-01	7.209E-03	-0.402
AG-108M	1.255E-05		5.802E-03	1.947E-02	6.346E-04	0.001
AG-110M	-7.608E-03		1.038E-02	3.498E-02	1.383E-03	-0.218
SN-113DA	-2.878E-02		1.136E-02	3.661E-02	1.181E-03	-0.786
SB-124	-7.737E-03		1.160E-02	3.641E-02	1.182E-03	-0.212
SB-125	-4.626E-02		1.897E-02	6.089E-02	1.983E-03	-0.760
SN-126DA	2.305E-02		6.508E-03	2.269E-02	7.332E-04	1.016
I-131	2.490E-01		4.650E-01	1.580E+00	5.115E-02	0.158
BA-133	7.667E-03		9.389E-03	2.740E-02	8.864E-04	0.280
CS-134	6.926E-02	+	1.229E-02	3.386E-02	1.243E-03	2.045
CS-137DA	-1.393E-02		7.797E-03	2.544E-02	8.178E-04	-0.548
LA-138	2.123E-03		9.402E-03	3.263E-02	1.114E-03	0.065
CE-139	-1.358E-02		7.238E-03	2.392E-02	8.456E-04	-0.568
BA-140	-4.257E-03		3.287E-01	1.124E+00	3.627E-02	-0.004
BALA-140	4.151E-01		2.301E-01	7.341E-01	2.459E-02	0.565
LA-140	9.794E+00		6.832E+00	Half-Life too short		
CE-141	-1.073E-02		2.774E-02	9.020E-02	3.080E-03	-0.119
CE-144	-3.230E-02		4.629E-02	1.506E-01	5.017E-03	-0.214
CEPR-144	-5.911E-02		9.252E-02	3.013E-01	1.003E-02	-0.196
PM-144	1.430E-02		6.772E-03	2.353E-02	7.631E-04	0.608
PM-146	1.765E-02		8.544E-03	2.918E-02	9.514E-04	0.605
EU-152	-4.495E-02		1.953E-02	6.380E-02	2.060E-03	-0.704
EU-154	-4.641E-02		2.434E-02	7.940E-02	2.663E-03	-0.584
EU-155	6.148E-02		2.053E-02	6.821E-02	2.218E-03	0.901
HF-181	1.516E-03		1.487E-02	4.971E-02	1.613E-03	0.030
BI-207	7.391E-03		6.055E-03	2.093E-02	6.792E-04	0.353
BI-210M	-5.607E-03		1.149E-02	3.212E-02	1.131E-03	-0.175
BI-212	1.818E+00	+	2.300E-01	4.770E-01	1.969E-02	3.812
RA-223	5.530E-01	+	7.895E-02	1.502E-01	5.269E-03	3.681
AC-227DA	1.836E-01		5.716E-02	1.650E-01	5.940E-03	1.112
TH-234DA	3.347E+00		1.184E+00	4.159E+00	1.581E-01	0.805
U-235HP	1.277E-01		4.458E-02	1.464E-01	4.982E-03	0.872
NP-237DA	-8.120E-03		1.344E-02	4.541E-02	1.482E-03	-0.179
AM-241HP	-1.607E-02		1.475E-02	4.694E-02	1.497E-03	-0.342


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478G1AC
Detector ID: GER6 1
Energy Coefficients:
Offset: 4.42518E-02
Slope: 2.49307E-01
Quadrature: 1.05097E-08
Acquisition Start: 17-SEP-2007 19:03:39.30
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
10000
1000
100
10
1
50
100
200
500
1000
2000
40 K
226 Ra, 214 Bi
212 Bi
46 Sc
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
214 Bi
126 Sn
103 Ru
95 Tc,
22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
140 La
212 Pb
133 Ba,
223 Ra,
235 U,
223 Ra
238 U
155 Eu

SAMPLE IDENTIFICATION: J478G1AC

CONFIGURATION ID: GER6:J478G1AC_170971903
TITLE : BRC SOIL
SAMPLE ID : J478G1AC

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 17-SEP-07 19:03:39
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 29-JUL-2007 13:30:00.00
CALIB DATE: 17-SEP-2007 04:59:12.70
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:15

SAMPLE QUANTITY: 3.4020E+02
SAMPLE GEOMETRY: S200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: 4.4252E-02 keV
ENERGY SLOPE: 2.4931E-01 keV/C
ENERGY Q COEFF: 1.0510E-08 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 6.4482E-02 keV
FWHM SLOPE: 7.2901E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 50.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 17:27:53

Configuration : $DISK1:[GER6.SAMPLE]J478G1AC_170971903.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:30:00 Acquisition date : 17-SEP-2007 19:03:39
Sample ID : J478G1AC Sample quantity : 340.20 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:15.32 0.0%
Start energy : 19.99 End energy : 2043.07
Sensitivity : 5.00 Gaussian : 50.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.13*	336	2837	0.94	253.04	248	11	9.33E-03	32.4	
2	7	72.72*	543	3231	0.93	291.53	285	30	1.51E-02	21.4	2.27E+00
3	7	74.74*	4068	3558	1.11	299.60	285	30	1.13E-01	3.6	
4	7	77.03	4990	2928	1.04	308.79	285	30	1.39E-01	2.7	
5	7	84.37*	1017	3349	1.43	338.24	331	35	2.83E-02	13.1	2.02E+00
6	7	87.14*	1874	2978	1.18	349.33	331	35	5.20E-02	6.9	
7	7	89.76	1096	2428	1.00	359.86	331	35	3.04E-02	9.7	
8	0	92.79*	1351	2685	1.39	372.03	366	13	3.75E-02	8.7	
9	0	128.96	572	2485	1.13	517.07	509	15	1.59E-02	19.4	
10	0	153.96	313	1745	1.07	617.36	612	12	8.69E-03	27.4	
11	0	185.84*	1482	2527	1.19	745.23	735	19	4.12E-02	8.8	
12	0	209.27	655	1684	0.87	839.20	832	14	1.82E-02	13.8	
13	4	238.62*	7559	1549	1.16	956.93	949	29	2.10E-01	1.6	1.54E+00
14	4	241.70	2297	1550	1.69	969.29	949	29	6.38E-02	5.0	
15	0	270.27	698	1281	1.50	1083.87	1075	17	1.94E-02	12.3	
16	0	277.22	256	928	1.22	1111.72	1106	12	7.12E-03	24.5	
17	0	295.22	2920	1271	1.19	1183.94	1175	19	8.11E-02	3.5	
18	0	299.93	556	1163	1.28	1202.81	1194	18	1.54E-02	15.0	
19	0	327.77	426	907	1.03	1314.49	1308	14	1.18E-02	15.8	
20	0	338.27	1521	1059	1.29	1356.60	1348	18	4.23E-02	5.6	
21	0	351.91	5060	1194	1.35	1411.30	1401	22	1.41E-01	2.2	
22	0	409.16	285	818	0.83	1640.91	1631	19	7.91E-03	21.4	
23	0	462.70	613	790	1.34	1855.62	1843	26	1.70E-02	11.3	
24	0	510.80*	872	1049	1.73	2048.54	2032	34	2.42E-02	11.4	
25	0	583.09	2361	802	1.69	2338.43	2325	26	6.56E-02	3.5	
26	0	609.22	3653	636	1.72	2443.22	2431	25	1.01E-01	2.3	
27	0	665.30	145	448	1.77	2668.11	2660	19	4.03E-03	30.9	
28	0	727.28	519	660	1.58	2916.66	2900	29	1.44E-02	11.5	
29	0	768.27	240	395	1.94	3081.03	3073	17	6.67E-03	16.0	
30	0	794.91	319	446	2.11	3187.88	3176	27	8.85E-03	15.0	
31	0	860.45	277	352	2.16	3450.69	3439	22	7.69E-03	14.4	
32	0	911.05	1688	545	2.33	3653.58	3637	35	4.69E-02	4.0	
33	0	933.90	195	416	1.60	3745.23	3729	26	5.41E-03	22.8	
34	0	967.72	1277	615	2.07	3880.84	3859	42	3.55E-02	5.6	
35	0	1119.96	829	535	2.14	4491.27	4473	34	2.30E-02	6.8	
36	0	1460.66*	6635	299	3.31	5857.27	5835	44	1.84E-01	1.4	
37	0	1621.05	51	88	1.77	6500.28	6485	26	1.41E-03	37.8	
38	0	1764.55	636	139	3.44	7075.53	7051	48	1.77E-02	6.0	

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

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:27:54

Configuration : $DISK1:[GER6.SAMPLE]J478G1AC_170971903.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:30:00 Acquisition date : 17-SEP-2007 19:03:39
Sample ID : J478G1AC Sample quantity : 340.20 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:15.32 0.0%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	6635	10.67*	5.924E-01	2.316E+01	2.316E+01	8.41
TL-208	277.35	256	6.80	2.286E+00	3.639E-01	3.639E-01	25.31
	510.84	872	21.60	1.379E+00	6.461E-01	6.461E-01	12.80
	583.14	2361	84.20*	1.240E+00	4.990E-01	4.990E-01	6.89
	860.37	277	12.46	9.140E-01	5.368E-01	5.368E-01	15.98
PB-212	238.63	7559	44.60*	2.572E+00	1.454E+00	1.454E+00	6.43
	300.09	556	3.41	2.144E+00	1.678E+00	1.678E+00	16.21
BI-214	609.31	3653	46.30*	1.197E+00	1.454E+00	1.454E+00	6.40
	768.36	240	5.04	9.982E-01	1.054E+00	1.054E+00	17.23
	1120.29	829	15.10	7.421E-01	1.633E+00	1.633E+00	9.49
	1764.49	636	15.80	4.956E-01	1.792E+00	1.792E+00	8.82
PB-214	241.98	2297	7.49	2.547E+00	2.657E+00	2.657E+00	7.96
	295.21	2920	19.20	2.172E+00	1.545E+00	1.545E+00	7.08
	351.92	5060	37.20*	1.878E+00	1.599E+00	1.599E+00	6.47
	785.91	------	1.10	9.808E-01	------ Line Not Found		------
RA-223	154.21	313	5.58	3.374E+00	3.667E-01	3.684E-01	28.06
	269.46	698	13.60*	2.333E+00	4.856E-01	4.878E-01	13.82
	323.87	------	3.88	2.012E+00	------ Line Not Found		------
RA-224DA	238.63	7559	44.60*	2.572E+00	1.454E+00	1.529E+00	6.43
	240.98	2297	3.95	2.547E+00	5.038E+00	5.297E+00	7.96
	583.14	2361	30.25	1.240E+00	1.389E+00	1.460E+00	6.89
	860.37	277	4.48	9.140E-01	1.493E+00	1.570E+00	15.98
RA-226DA	186.21	1482	3.50	3.059E+00	3.055E+00	3.056E+00	10.78
	241.98	2297	7.49	2.547E+00	2.657E+00	2.657E+00	7.96
	295.22	2920	19.20	2.172E+00	1.545E+00	1.545E+00	7.08
	351.92	5060	37.20	1.878E+00	1.599E+00	1.599E+00	6.47
	609.32	3653	46.30*	1.197E+00	1.454E+00	1.454E+00	6.40
	1120.28	829	15.10	7.421E-01	1.633E+00	1.633E+00	9.49
	1238.11	------	5.94	6.834E-01	------ Line Not Found		------
	1764.49	636	15.80	4.956E-01	1.792E+00	1.793E+00	8.82
AC-228	209.28	655	4.40	2.830E+00	1.161E+00	1.161E+00	15.17
	270.23	698	3.60	2.333E+00	1.835E+00	1.835E+00	13.82
	338.32	1521	11.40	1.941E+00	1.517E+00	1.517E+00	8.29
	911.07	1688	27.70*	8.741E-01	1.538E+00	1.538E+00	8.11
	969.11	1277	16.60	8.337E-01	2.037E+00	2.037E+00	8.92
RA-228DA	209.28	655	4.40	2.830E+00	1.161E+00	1.181E+00	15.17

Sample ID : J478G1AC Acquisition date : 17-SEP-2007 19:03:39

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	338.32	1521	11.40	1.941E+00	1.517E+00	1.543E+00	8.29
	911.07	1688	27.70*	8.741E-01	1.538E+00	1.564E+00	8.11
	964.60	------	5.20	8.359E-01	------ Line Not Found		------
	969.11	1277	16.60	8.337E-01	2.037E+00	2.071E+00	8.92
TH-228DA	238.63	7559	44.60	2.572E+00	1.454E+00	1.529E+00	6.43
	240.98	2297	3.95	2.547E+00	5.038E+00	5.297E+00	7.96
	583.14	2361	30.25*	1.240E+00	1.389E+00	1.460E+00	6.89
	860.37	277	4.48	9.140E-01	1.493E+00	1.570E+00	15.98
TH-232DA	238.63	7559	44.60	2.572E+00	1.454E+00	1.454E+00	6.43
	338.32	1521	12.40*	1.941E+00	1.395E+00	1.395E+00	8.29
	583.14	2361	30.25	1.240E+00	1.389E+00	1.389E+00	6.89
	911.07	1688	27.70	8.741E-01	1.538E+00	1.538E+00	8.11
	964.60	------	5.20	8.359E-01	------ Line Not Found		------
	969.11	1277	16.60	8.337E-01	2.037E+00	2.037E+00	8.92
U-234DA	241.98	2297	7.49	2.547E+00	2.657E+00	2.657E+00	7.96
	295.22	2920	19.20*	2.172E+00	1.545E+00	1.545E+00	7.08
	351.92	5060	37.20	1.878E+00	1.599E+00	1.599E+00	6.47
	609.31	3653	46.30	1.197E+00	1.454E+00	1.454E+00	6.40
U-238DA	241.98	2297	7.49	2.547E+00	2.657E+00	2.657E+00	7.96
	295.22	2920	19.20	2.172E+00	1.545E+00	1.545E+00	7.08
	351.92	5060	37.20*	1.878E+00	1.599E+00	1.599E+00	6.47
	609.31	3653	46.30	1.197E+00	1.454E+00	1.454E+00	6.40
U-238DHP	63.28	336	3.80*	2.140E+00	9.114E-01	9.114E-01	32.96
	92.59	1351	5.41	3.368E+00	1.637E+00	1.637E+00	10.94

Flag: "*" = Keyline

Sample ID : J478G1AC Acquisition date : 17-SEP-2007 19:03:39

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
7	72.72	543	3231	0.93	291.53	285	30	1.51E-02	21.4	2.69E+00	
7	74.74	4068	3558	1.11	299.60	285	30	1.13E-01	3.6	2.78E+00	
7	77.03	4990	2928	1.04	308.79	285	30	1.39E-01	2.7	2.89E+00	
7	84.37	1017	3349	1.43	338.24	331	35	2.83E-02	13.1	3.15E+00	
7	87.14	1874	2978	1.18	349.33	331	35	5.20E-02	6.9	3.23E+00	T
7	89.76	1096	2428	1.00	359.86	331	35	3.04E-02	9.7	3.30E+00	
0	128.96	572	2485	1.13	517.07	509	15	1.59E-02	19.4	3.56E+00	
0	327.77	426	907	1.03	1314.49	1308	14	1.18E-02	15.8	1.99E+00	T
0	409.16	285	818	0.83	1640.91	1631	19	7.91E-03	21.4	1.66E+00	
0	462.70	613	790	1.34	1855.62	1843	26	1.70E-02	11.3	1.50E+00	T
0	665.30	145	448	1.77	2668.11	2660	19	4.03E-03	30.9	1.12E+00	T
0	727.28	519	660	1.58	2916.66	2900	29	1.44E-02	11.5	1.04E+00	T
0	794.91	319	446	2.11	3187.88	3176	27	8.85E-03	15.0	9.72E-01	T
0	933.90	195	416	1.60	3745.23	3729	26	5.41E-03	22.8	8.57E-01	
0	1621.05	51	88	1.77	6500.28	6485	26	1.41E-03	37.8	5.38E-01	T

Flags: "T" = Tentatively associated

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	8.058E-02	12.80	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.60	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	3.741E-01	9.49	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.83	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	2.544E+00	6.89	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-103	39.35D	1.28	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	2.923E+01	6.40	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	7.449E-01	12.80	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	9.051E-01	12.80	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
SN-126DA	1.00E+05Y	0.00	414.70	97.66	--- Not Found ---		Abun.
			666.33*	99.95	2.869E-02	31.45	
			695.00	99.95	--- Not Found ---		
		% Abundances Found =		33.59			
BA-133	10.50Y	0.01	81.00	33.00	--- Not Found ---		Abun.
			276.40	6.90	3.619E-01	25.31	
			302.84	17.80	--- Not Found ---		
			356.00*	62.05	--- Not Found ---		
			383.85	8.70	--- Not Found ---		
		% Abundances Found =		5.37			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	8.869E-02	16.32	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	30.10	328.77	20.50	2.641E+08	16.89	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			

Sample ID : J478G1AC
Acquisition date : 17-SEP-2007 19:03:39

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	4.217E-01	9.63	
			105.31*	20.70	--- Not Found ---		
		% Abundances Found =		42.47			
BI-212	1.41E+10Y	0.00	288.07	0.31	--- Not Found ---		Abun.
			327.96	0.14	3.392E+01	18.65	
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.672E+00	13.29	
			785.37	1.10	--- Not Found ---		
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		
			1078.62	0.56	--- Not Found ---		
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	1.397E+00	38.70	
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		71.89			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	1.980E-01	10.78	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:27:56

Configuration : $DISK1:[GER6.SAMPLE]J478G1AC_170971903.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:30:00 Acquisition date : 17-SEP-2007 19:03:39
Sample ID : J478G1AC Sample quantity : 340.20 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:15.32 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.316E+01	1.947E+00	2.412E-01	1.593E-02	96.037
TL-208	4.990E-01	3.439E-02	2.601E-02	8.468E-04	19.187
PB-212	1.454E+00	9.357E-02	3.573E-02	1.326E-03	40.697
BI-214	1.454E+00	9.306E-02	4.670E-02	1.533E-03	31.128
PB-214	1.599E+00	1.034E-01	4.634E-02	1.591E-03	34.501
RA-223	4.878E-01	6.741E-02	1.130E-01	4.166E-03	4.315
RA-224DA	1.529E+00	9.838E-02	3.757E-02	1.394E-03	40.697
RA-226DA	1.454E+00	9.307E-02	4.671E-02	1.533E-03	31.127
AC-228	1.538E+00	1.248E-01	9.388E-02	4.655E-03	16.385
RA-228DA	1.564E+00	1.269E-01	9.545E-02	4.733E-03	16.385
TH-228DA	1.460E+00	1.007E-01	7.611E-02	2.478E-03	19.187
TH-232DA	1.395E+00	1.157E-01	1.394E-01	4.832E-03	10.008
U-234DA	1.545E+00	1.094E-01	8.614E-02	3.111E-03	17.935
U-238DA	1.599E+00	1.034E-01	4.634E-02	1.591E-03	34.501
U-238DHP	9.114E-01	3.004E-01	5.663E-01	2.024E-02	1.609

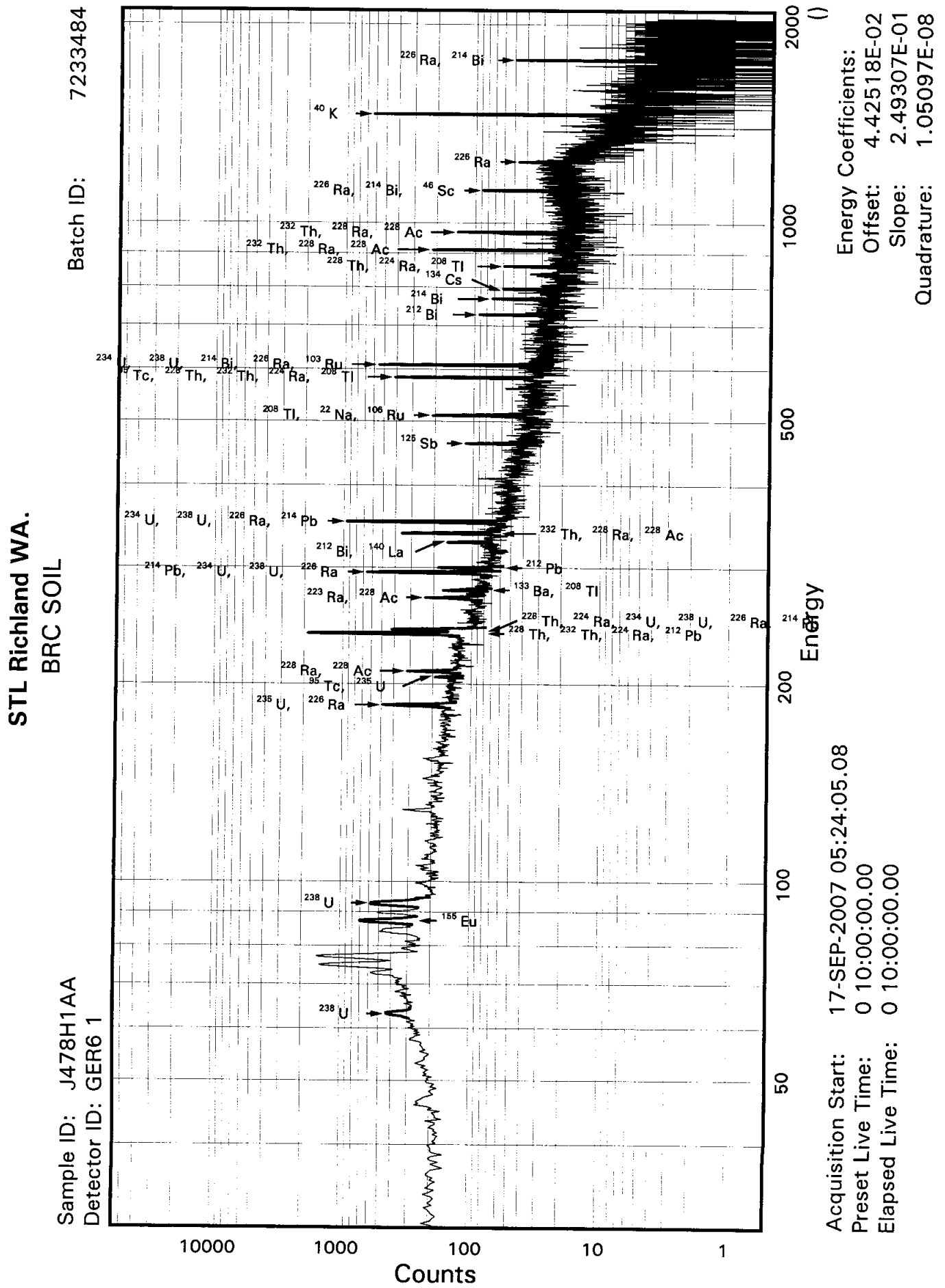
RRE= 0.0513
RRE= 0.4949
OK
WLA 9/19/07

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-8.752E-02		1.076E-01	3.573E-01	1.156E-02	-0.245
NA-22	-1.856E-02		1.054E-02	3.422E-02	2.074E-03	-0.542
SC-46	3.741E-01	+	3.550E-02	7.727E-02	3.316E-03	4.842
CR-51	2.027E-01		1.827E-01	6.128E-01	2.141E-02	0.331
MN-54	-5.849E-03		9.239E-03	3.075E-02	1.387E-03	-0.190
CO-57	-1.062E-02		4.005E-02	1.360E-01	5.094E-03	-0.078
CO-58	-2.028E-02		1.198E-02	3.920E-02	1.700E-03	-0.517
FE-59	1.862E-02		3.583E-02	1.219E-01	5.340E-03	0.153
CO-60	5.930E-03		8.589E-03	2.936E-02	2.148E-03	0.202
ZN-65	8.273E-02		2.737E-02	8.049E-02	3.471E-03	1.028
SE-75	1.120E-02		1.043E-02	3.391E-02	1.252E-03	0.330
SR-85	1.245E-01		1.523E-02	4.344E-02	1.368E-03	2.867
Y-88	1.681E-02		9.130E-03	3.344E-02	1.133E-03	0.503

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
NB-94	3.634E-03		7.591E-03	2.564E-02	1.226E-03	0.142
NB-95	1.493E-01		2.710E-02	8.050E-02	3.233E-03	1.855
TC-95M	8.866E-03		1.203E-02	4.010E-02	1.474E-03	0.221
ZR-95	3.568E-02		2.354E-02	7.989E-02	3.158E-03	0.447
ZRNB-95	1.924E-01		3.450E-02	1.024E-01	4.114E-03	1.878
RH-101	1.408E-02		6.230E-03	2.127E-02	7.796E-04	0.662
RH-102M	-2.358E-03		6.215E-03	2.080E-02	6.736E-04	-0.113
RU-103	-1.168E-02		1.591E-02	5.269E-02	1.682E-03	-0.222
RU-106DA	-1.366E-01		7.261E-02	2.344E-01	7.714E-03	-0.583
AG-108M	-1.745E-02		6.128E-03	1.979E-02	6.504E-04	-0.882
AG-110M	5.504E-03		1.178E-02	3.975E-02	1.941E-03	0.138
SN-113DA	-1.742E-02		1.172E-02	3.837E-02	1.260E-03	-0.454
SB-124	-9.408E-03		1.433E-02	4.077E-02	1.336E-03	-0.231
SB-125	-5.525E-04		1.980E-02	6.557E-02	2.157E-03	-0.008
SN-126DA	2.869E-02	+	9.021E-03	2.482E-02	8.295E-04	1.155
I-131	4.557E-01		4.756E-01	1.621E+00	5.504E-02	0.281
BA-133	1.686E-02		9.385E-03	2.760E-02	9.448E-04	0.611
CS-134	8.869E-02	+	1.447E-02	3.581E-02	1.514E-03	2.477
CS-137DA	3.062E-03		9.743E-03	2.790E-02	9.237E-04	0.110
LA-138	1.559E-03		1.155E-02	3.959E-02	2.675E-03	0.039
CE-139	-1.081E-02		6.529E-03	2.132E-02	7.675E-04	-0.507
BA-140	1.982E-01		3.625E-01	1.240E+00	3.957E-02	0.160
BALA-140	-9.711E-01		2.863E-01	8.680E-01	4.899E-02	-1.119
CE-141	-5.164E-02		2.374E-02	7.808E-02	2.871E-03	-0.661
CE-144	9.321E-03		4.055E-02	1.324E-01	4.995E-03	0.070
CEPR-144	1.812E-02		8.110E-02	2.648E-01	9.990E-03	0.068
PM-144	4.930E-03		7.110E-03	2.400E-02	7.894E-04	0.205
PM-146	2.401E-02		8.902E-03	3.068E-02	1.003E-03	0.783
EU-152	1.296E-02		2.028E-02	6.616E-02	2.285E-03	0.196
EU-154	-4.955E-02		2.893E-02	9.401E-02	5.695E-03	-0.527
EU-155	1.013E-01		1.956E-02	6.447E-02	2.627E-03	1.571
HF-181	1.264E-02		1.609E-02	5.451E-02	1.758E-03	0.232
BI-207	-3.382E-03		6.455E-03	2.161E-02	7.001E-04	-0.156
BI-210M	-4.719E-03		1.054E-02	3.025E-02	1.116E-03	-0.156
BI-212	1.672E+00	+	2.222E-01	5.011E-01	2.199E-02	3.336
AC-227DA	3.646E-01		5.810E-02	1.634E-01	6.065E-03	2.231
TH-234DA	1.200E+00		1.258E+00	4.287E+00	2.028E-01	0.280
U-235HP	2.159E-02		3.689E-02	1.252E-01	4.621E-03	0.172
NP-237DA	2.075E-02		1.377E-02	4.644E-02	1.643E-03	0.447
AM-241HP	2.020E-02		1.896E-02	6.454E-02	2.240E-03	0.313


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478H1AA
Detector ID: GER6 1
Energy Coefficients:
Offset: 4.42518E-02
Slope: 2.49307E-01
Quadrature: 1.05097E-08
Acquisition Start: 17-SEP-2007 05:24:05.08
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
10000
1000
100
10
1
50
100
200
500
1000
2000
226 Ra, 214 Bi
40 K
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
214 Bi
212 Bi
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
99 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Bi, 140 La
214 Pb, 234 U, 238 U, 226 Ra
212 Pb
133 Ba, 208 Tl
223 Ra, 228 Ac
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
95 Tc, 235 U
235 U, 226 Ra
238 U
155 Eu
238 U

SAMPLE IDENTIFICATION: J478H1AA

CONFIGURATION ID: GER6:J478H1AA_170970524
TITLE : BRC SOIL
SAMPLE ID : J478H1AA

REPORT DATE: 17-SEP-07
ACQUIRE DATE: 17-SEP-07 05:24:05
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 29-JUL-2007 13:30:00.00
CALIB DATE: 17-SEP-2007 04:59:12.70
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:16

SAMPLE QUANTITY: 3.4530E+02
SAMPLE GEOMETRY: S200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: 4.4252E-02 keV
ENERGY SLOPE: 2.4931E-01 keV/C
ENERGY Q COEFF: 1.0510E-08 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 6.4482E-02 keV
FWHM SLOPE: 7.2901E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 50.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 17-SEP-2007 19:44:31

Configuration : $DISK1:[GER6.SAMPLE]J478H1AA_170970524.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:30:00 Acquisition date : 17-SEP-2007 05:24:05
Sample ID : J478H1AA Sample quantity : 345.30 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:16.68 0.0%
Start energy : 19.99 End energy : 2043.07
Sensitivity : 5.00 Gaussian : 50.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.09*	537	3059	0.92	252.89	248	11	1.49E-02	21.1	
2	4	72.77*	592	3922	1.00	291.72	286	29	1.64E-02	22.3	1.70E+00
3	4	74.76*	4095	3678	1.02	299.70	286	29	1.14E-01	3.5	
4	4	77.01	5329	3337	1.03	308.73	286	29	1.48E-01	2.6	
5	0	84.21*	745	3481	1.45	337.58	330	13	2.07E-02	17.5	
6	0	87.20*	1773	3299	1.06	349.57	344	12	4.93E-02	7.2	
7	0	89.85	1076	2528	0.97	360.21	356	10	2.99E-02	9.3	
8	0	92.89*	1983	3367	1.44	372.40	366	15	5.51E-02	7.0	
9	0	128.93	502	2317	0.91	516.95	512	12	1.39E-02	19.7	
10	0	185.90*	1612	2532	1.22	745.46	737	18	4.48E-02	8.0	
11	0	205.16	70	1375	0.71	822.72	819	10	1.95E-03	99.5	
12	0	209.29	670	1934	0.96	839.28	833	14	1.86E-02	14.5	
13	4	238.65*	8471	1612	1.15	957.04	949	29	2.35E-01	1.5	1.86E+00
14	4	241.69	2471	1522	1.75	969.21	949	29	6.87E-02	4.5	
15	0	270.29	835	1688	1.02	1083.95	1075	20	2.32E-02	12.6	
16	0	277.57	400	1122	1.14	1113.15	1107	14	1.11E-02	18.4	
17	0	295.17	3271	1350	1.32	1183.73	1172	19	9.09E-02	3.2	
18	0	300.19	602	1155	0.94	1203.85	1195	17	1.67E-02	13.6	
19	0	327.88	427	910	1.24	1314.93	1309	13	1.19E-02	15.3	
20	0	338.29	1701	1255	1.33	1356.65	1348	20	4.72E-02	5.6	
21	0	351.92	5265	1250	1.40	1411.33	1401	20	1.46E-01	2.1	
22	0	409.61	272	808	1.34	1642.71	1635	18	7.56E-03	21.7	
23	0	463.10	671	821	1.62	1857.24	1845	26	1.86E-02	10.6	
24	0	510.86*	872	1088	1.99	2048.77	2032	32	2.42E-02	11.3	
25	0	583.21	2529	792	1.53	2338.90	2327	22	7.02E-02	3.1	
26	0	609.33	3669	875	1.74	2443.65	2431	25	1.02E-01	2.5	
27	0	727.25	489	582	1.37	2916.56	2906	24	1.36E-02	10.9	
28	0	768.15	364	509	1.91	3080.56	3069	22	1.01E-02	13.1	
29	0	794.81	210	508	1.80	3187.46	3178	21	5.83E-03	21.6	
30	0	860.29	263	436	1.66	3450.03	3440	22	7.31E-03	16.5	
31	0	911.25	1714	530	2.19	3654.38	3641	26	4.76E-02	3.7	
32	0	934.19	241	387	2.29	3746.39	3734	26	6.70E-03	18.1	
33	0	968.11	1408	668	2.22	3882.38	3860	45	3.91E-02	5.4	
34	0	1120.09	837	566	2.59	4491.77	4474	32	2.32E-02	6.8	
35	0	1239.14	236	662	4.07	4969.10	4951	30	6.55E-03	22.9	
36	0	1378.48	169	303	2.11	5527.78	5508	36	4.70E-03	23.3	
37	0	1460.87*	7611	324	3.07	5858.10	5835	44	2.11E-01	1.3	
38	0	1764.71	578	149	2.96	7076.18	7052	43	1.61E-02	6.4	

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

VMS Nuclide Identification Report V3.0 Generated 17-SEP-2007 19:44:31

Configuration : $DISK1:[GER6.SAMPLE]J478H1AA_170970524.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:30:00 Acquisition date : 17-SEP-2007 05:24:05
Sample ID : J478H1AA Sample quantity : 345.30 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:16.68 0.0%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	7611	10.67*	5.924E-01	2.618E+01	2.618E+01	8.39
TL-208	277.35	400	6.80	2.284E+00	5.605E-01	5.605E-01	19.44
	510.84	872	21.60	1.379E+00	6.361E-01	6.361E-01	12.76
	583.14	2529	84.20*	1.240E+00	5.266E-01	5.266E-01	6.73
	860.37	263	12.46	9.141E-01	5.022E-01	5.022E-01	17.91
PB-212	238.63	8471	44.60*	2.572E+00	1.606E+00	1.606E+00	6.41
	300.09	602	3.41	2.142E+00	1.793E+00	1.793E+00	14.91
BI-214	609.31	3669	46.30*	1.197E+00	1.439E+00	1.439E+00	6.47
	768.36	364	5.04	9.984E-01	1.574E+00	1.574E+00	14.58
	1120.29	837	15.10	7.420E-01	1.624E+00	1.624E+00	9.45
	1764.49	578	15.80	4.955E-01	1.606E+00	1.606E+00	9.09
PB-214	241.98	2471	7.49	2.547E+00	2.817E+00	2.817E+00	7.67
	295.21	3271	19.20	2.172E+00	1.705E+00	1.705E+00	6.96
	351.92	5265	37.20*	1.878E+00	1.639E+00	1.639E+00	6.43
	785.91	------	1.10	9.808E-01	------ Line Not Found		------
RA-224DA	238.63	8471	44.60*	2.572E+00	1.606E+00	1.687E+00	6.41
	240.98	2471	3.95	2.547E+00	5.341E+00	5.612E+00	7.67
	583.14	2529	30.25	1.240E+00	1.466E+00	1.540E+00	6.73
	860.37	263	4.48	9.141E-01	1.397E+00	1.468E+00	17.91
RA-226DA	186.21	1612	3.50	3.058E+00	3.275E+00	3.275E+00	10.12
	241.98	2471	7.49	2.547E+00	2.817E+00	2.817E+00	7.67
	295.22	3271	19.20	2.172E+00	1.705E+00	1.705E+00	6.96
	351.92	5265	37.20	1.878E+00	1.639E+00	1.639E+00	6.43
	609.32	3669	46.30*	1.197E+00	1.439E+00	1.439E+00	6.47
	1120.28	837	15.10	7.420E-01	1.624E+00	1.624E+00	9.45
	1238.11	236	5.94	6.829E-01	1.264E+00	1.264E+00	24.06
	1764.49	578	15.80	4.955E-01	1.606E+00	1.606E+00	9.09
AC-228	209.28	670	4.40	2.830E+00	1.170E+00	1.170E+00	15.74
	270.23	835	3.60	2.333E+00	2.161E+00	2.161E+00	14.01
	338.32	1701	11.40	1.940E+00	1.672E+00	1.672E+00	8.29
	911.07	1714	27.70*	8.740E-01	1.539E+00	1.539E+00	7.94
	969.11	1408	16.60	8.335E-01	2.213E+00	2.213E+00	8.82
RA-228DA	209.28	670	4.40	2.830E+00	1.170E+00	1.189E+00	15.74
	338.32	1701	11.40	1.940E+00	1.672E+00	1.699E+00	8.29
	911.07	1714	27.70*	8.740E-01	1.539E+00	1.565E+00	7.94
	964.60	------	5.20	8.359E-01	------ Line Not Found		------

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	969.11	1408	16.60	8.335E-01	2.213E+00	2.249E+00	8.82
TH-228DA	238.63	8471	44.60	2.572E+00	1.606E+00	1.687E+00	6.41
	240.98	2471	3.95	2.547E+00	5.341E+00	5.612E+00	7.67
	583.14	2529	30.25*	1.240E+00	1.466E+00	1.540E+00	6.73
	860.37	263	4.48	9.141E-01	1.397E+00	1.468E+00	17.91
TH-232DA	238.63	8471	44.60	2.572E+00	1.606E+00	1.606E+00	6.41
	338.32	1701	12.40*	1.940E+00	1.537E+00	1.537E+00	8.29
	583.14	2529	30.25	1.240E+00	1.466E+00	1.466E+00	6.73
	911.07	1714	27.70	8.740E-01	1.539E+00	1.539E+00	7.94
	964.60	------	5.20	8.359E-01	------ Line Not Found		------
	969.11	1408	16.60	8.335E-01	2.213E+00	2.213E+00	8.82
U-234DA	241.98	2471	7.49	2.547E+00	2.817E+00	2.817E+00	7.67
	295.22	3271	19.20*	2.172E+00	1.705E+00	1.705E+00	6.96
	351.92	5265	37.20	1.878E+00	1.639E+00	1.639E+00	6.43
	609.31	3669	46.30	1.197E+00	1.439E+00	1.439E+00	6.47
U-235HP	143.76	------	10.50*	3.462E+00	------ Line Not Found		------
	185.71	1612	54.00	3.058E+00	2.122E-01	2.122E-01	10.12
	205.31	70	4.70	2.869E+00	1.134E-01	1.134E-01	99.70
U-238DA	241.98	2471	7.49	2.547E+00	2.817E+00	2.817E+00	7.67
	295.22	3271	19.20	2.172E+00	1.705E+00	1.705E+00	6.96
	351.92	5265	37.20*	1.878E+00	1.639E+00	1.639E+00	6.43
	609.31	3669	46.30	1.197E+00	1.439E+00	1.439E+00	6.47
U-238DHP	63.28	537	3.80*	2.138E+00	1.437E+00	1.437E+00	22.00
	92.59	1983	5.41	3.370E+00	2.365E+00	2.365E+00	9.64

Flag: "*" = Keyline

Sample ID : J478H1AA
Acquisition date : 17-SEP-2007 05:24:05

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
4	72.77	592	3922	1.00	291.72	286	29	1.64E-02	22.3	2.69E+00	
4	74.76	4095	3678	1.02	299.70	286	29	1.14E-01	3.5	2.79E+00	
4	77.01	5329	3337	1.03	308.73	286	29	1.48E-01	2.6	2.89E+00	
0	84.21	745	3481	1.45	337.58	330	13	2.07E-02	17.5	3.15E+00	
0	87.20	1773	3299	1.06	349.57	344	12	4.93E-02	7.2	3.24E+00	T
0	89.85	1076	2528	0.97	360.21	356	10	2.99E-02	9.3	3.30E+00	
0	128.93	502	2317	0.91	516.95	512	12	1.39E-02	19.7	3.56E+00	
0	327.88	427	910	1.24	1314.93	1309	13	1.19E-02	15.3	1.99E+00	T
0	409.61	272	808	1.34	1642.71	1635	18	7.56E-03	21.7	1.65E+00	
0	463.10	671	821	1.62	1857.24	1845	26	1.86E-02	10.6	1.49E+00	T
0	727.25	489	582	1.37	2916.56	2906	24	1.36E-02	10.9	1.04E+00	T
0	794.81	210	508	1.80	3187.46	3178	21	5.83E-03	21.6	9.72E-01	T
0	934.19	241	387	2.29	3746.39	3734	26	6.70E-03	18.1	8.57E-01	
0	1378.48	169	303	2.11	5527.78	5508	36	4.70E-03	23.3	6.24E-01	

Flags: "T" = Tentatively associated

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	7.930E-02	12.76	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.59	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	3.703E-01	9.45	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.82	204.12*	66.20	1.418E-02	99.70	Abun.
			582.07	29.30	2.667E+00	6.73	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		78.54			
RU-103	39.35D	1.27	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	2.864E+01	6.47	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	7.326E-01	12.76	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	9.762E-01	12.16	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
BA-133	10.50Y	0.01	81.00	33.00	--- Not Found ---		Abun.
			276.40	6.90	5.574E-01	19.44	
			302.84	17.80	--- Not Found ---		
			356.00*	62.05	--- Not Found ---		
			383.85	8.70	--- Not Found ---		
		% Abundances Found =		5.37			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	5.754E-02	22.57	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	29.76	328.77	20.50	2.062E+08	16.51	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	3.929E-01	9.84	
			105.31*	20.70	--- Not Found ---		
		% Abundances Found =		42.47			

Sample ID : J478H1AA
Acquisition date : 17-SEP-2007 05:24:05

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
BI-212	1.41E+10Y	0.00	288.07	0.31	--- Not Found ---		Abun.
			327.96	0.14	3.351E+01	18.31	
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.551E+00	12.75	
			785.37	1.10	--- Not Found ---		
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		
			1078.62	0.56	--- Not Found ---		
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	--- Not Found ---		
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		58.84			
RA-223	21.77Y	0.01	154.21	5.58	--- Not Found ---		Abun.
			269.46*	13.60	5.745E-01	14.01	
			323.87	3.88	--- Not Found ---		
		% Abundances Found =		58.98			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 17-SEP-2007 19:44:33

Configuration : $DISK1:[GER6.SAMPLE]J478H1AA_170970524.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:30:00
Sample ID : J478H1AA
Sample type :
Elapsed live time: 0 10:00:00.00
Peak Width (FWHM): 3.00
Energy tolerance : 1.50
Errors propagated: Yes
Efficiency type : Empirical
Abundance limit : 80.00

Acquisition date : 17-SEP-2007 05:24:05
Sample quantity : 345.30 GRAMS
Sample geometry : S200
Elapsed real time: 0 10:00:16.68 0.0%
Confidence level : 5.00 %
Half life ratio : 8.00
Systematic Error : 5.00 %
Efficiencies at : Peak Energy
WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

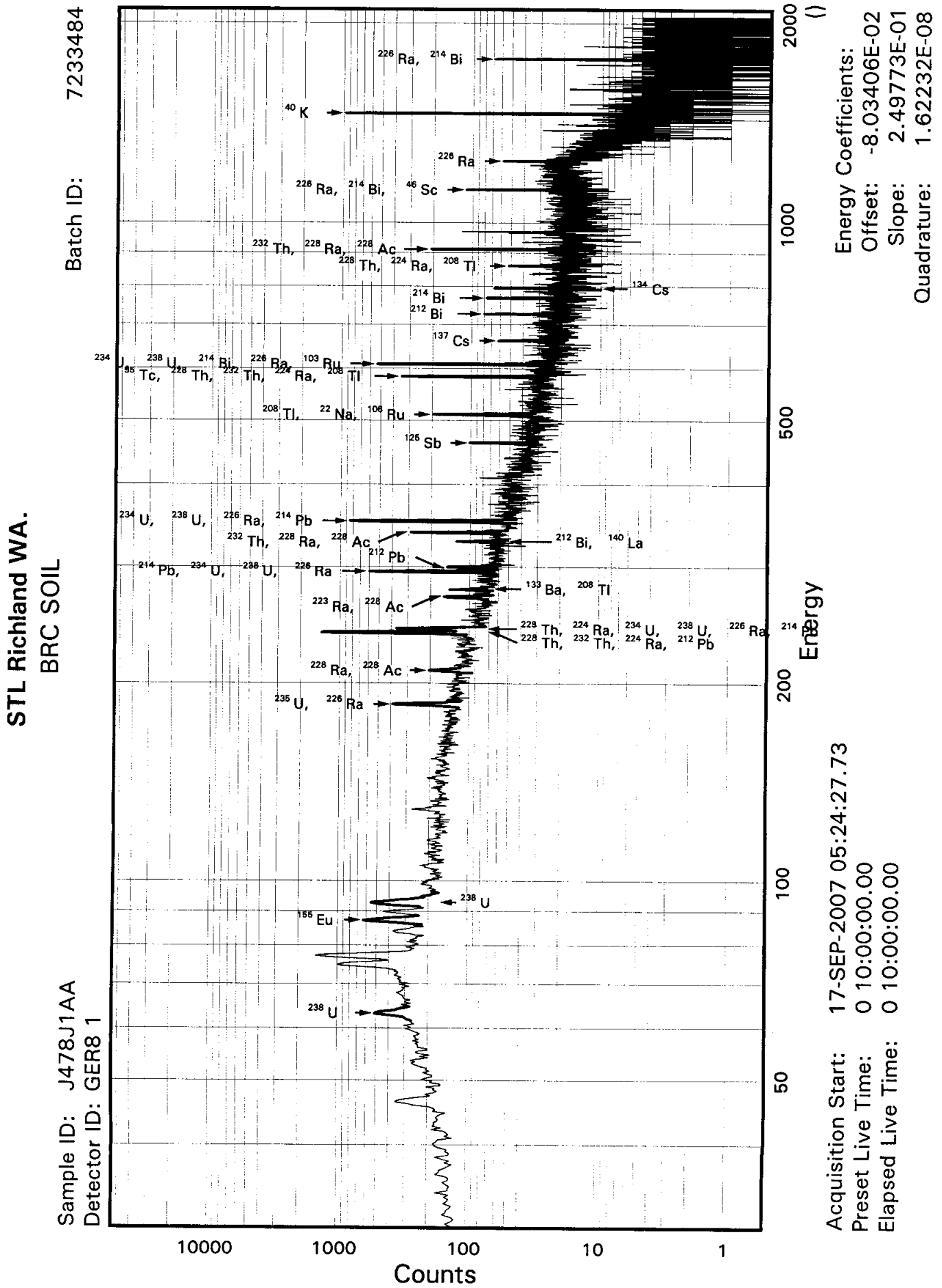
Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.618E+01	2.196E+00	2.342E-01	1.547E-02	111.776
TL-208	5.266E-01	3.545E-02	2.528E-02	8.231E-04	20.832
PB-212	1.606E+00	1.029E-01	3.618E-02	1.343E-03	44.387
BI-214	1.439E+00	9.309E-02	5.006E-02	1.643E-03	28.747
PB-214	1.639E+00	1.055E-01	4.717E-02	1.620E-03	34.747
RA-224DA	1.687E+00	1.081E-01	3.801E-02	1.411E-03	44.387
RA-226DA	1.439E+00	9.310E-02	5.006E-02	1.643E-03	28.746
AC-228	1.539E+00	1.223E-01	9.904E-02	4.911E-03	15.543
RA-228DA	1.565E+00	1.243E-01	1.007E-01	4.993E-03	15.543
TH-228DA	1.540E+00	1.037E-01	7.394E-02	2.407E-03	20.832
TH-232DA	1.537E+00	1.274E-01	1.398E-01	4.846E-03	10.993
U-234DA	1.705E+00	1.186E-01	8.573E-02	3.096E-03	19.889
U-235HP	2.122E-01	2.148E-02	1.343E-01	4.957E-03	1.580
U-238DA	1.639E+00	1.055E-01	4.717E-02	1.620E-03	34.747
U-238DHP	1.437E+00	3.162E-01	5.851E-01	2.092E-02	2.456

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	1.301E-01		1.065E-01	3.624E-01	1.172E-02	0.359
NA-22	2.495E-03		1.040E-02	3.522E-02	2.135E-03	0.071
SC-46	3.703E-01	+	3.501E-02	7.713E-02	3.310E-03	4.801
CR-51	-2.371E-01		1.824E-01	5.955E-01	2.080E-02	-0.398
MN-54	-3.908E-03		9.392E-03	3.136E-02	1.414E-03	-0.125
CO-57	2.969E-02		4.094E-02	1.398E-01	5.238E-03	0.212
CO-58	-3.804E-02		1.256E-02	3.965E-02	1.719E-03	-0.960
FE-59	3.954E-02		3.764E-02	1.285E-01	5.629E-03	0.308
CO-60	1.598E-03		8.549E-03	2.897E-02	2.119E-03	0.055
ZN-65	8.998E-02		2.922E-02	8.538E-02	3.682E-03	1.054
SE-75	3.564E-03		1.102E-02	3.555E-02	1.313E-03	0.100
SR-85	1.218E-01		1.543E-02	4.394E-02	1.383E-03	2.772
Y-88	8.548E-03		9.318E-03	3.319E-02	1.124E-03	0.258

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
NB-94	3.860E-03		7.705E-03	2.601E-02	1.243E-03	0.148
NB-95	1.787E-01		2.837E-02	8.323E-02	3.342E-03	2.147
TC-95M	1.418E-02	+	1.414E-02	4.138E-02	1.521E-03	0.343
ZR-95	1.030E-01		2.496E-02	8.495E-02	3.358E-03	1.212
ZRNB-95	2.305E-01		3.630E-02	1.064E-01	4.274E-03	2.166
RH-101	2.185E-03		6.243E-03	2.119E-02	7.767E-04	0.103
RH-102M	-3.975E-04		6.368E-03	2.139E-02	6.927E-04	-0.019
RU-103	-1.275E-02		1.583E-02	5.233E-02	1.671E-03	-0.244
RU-106DA	-4.621E-02		7.547E-02	2.496E-01	8.217E-03	-0.185
AG-108M	-2.609E-03		6.277E-03	2.120E-02	6.967E-04	-0.123
AG-110M	8.791E-03		1.258E-02	4.245E-02	2.072E-03	0.207
SN-113DA	-3.022E-03		1.172E-02	3.906E-02	1.283E-03	-0.077
SB-124	-2.222E-02		1.440E-02	4.010E-02	1.314E-03	-0.554
SB-125	1.868E-02		2.025E-02	6.770E-02	2.227E-03	0.276
SN-126DA	1.641E-02		7.234E-03	2.494E-02	8.334E-04	0.658
I-131	8.505E-01		4.707E-01	1.609E+00	5.466E-02	0.528
BA-133	1.867E-02		9.634E-03	2.832E-02	9.693E-04	0.659
CS-134	5.754E-02	+	1.299E-02	3.753E-02	1.587E-03	1.533
CS-137DA	3.263E-03		8.177E-03	2.783E-02	9.213E-04	0.117
LA-138	-2.228E-03		1.114E-02	3.789E-02	2.560E-03	-0.059
CE-139	-9.208E-03		6.643E-03	2.177E-02	7.839E-04	-0.423
BA-140	6.396E-01		3.620E-01	1.250E+00	3.988E-02	0.512
BALA-140	-7.725E-01		2.703E-01	8.408E-01	4.745E-02	-0.919
CE-141	-1.324E-02		2.439E-02	8.194E-02	3.013E-03	-0.162
CE-144	-6.576E-02		4.234E-02	1.355E-01	5.111E-03	-0.485
CEPR-144	-1.302E-01		8.469E-02	2.710E-01	1.022E-02	-0.480
PM-144	-5.954E-03		7.527E-03	2.484E-02	8.168E-04	-0.240
PM-146	1.558E-02		9.178E-03	3.144E-02	1.028E-03	0.496
EU-152	1.257E-02		2.168E-02	6.794E-02	2.346E-03	0.185
EU-154	4.502E-03		2.850E-02	9.640E-02	5.840E-03	0.047
EU-155	1.056E-01		2.046E-02	6.725E-02	2.740E-03	1.570
HF-181	-2.287E-02		1.568E-02	5.144E-02	1.659E-03	-0.445
BI-207	2.240E-03		6.580E-03	2.228E-02	7.216E-04	0.101
BI-210M	-3.486E-03		1.119E-02	3.215E-02	1.187E-03	-0.108
BI-212	1.551E+00	+	1.977E-01	4.933E-01	2.165E-02	3.144
RA-223	5.745E-01	+	8.051E-02	1.471E-01	5.422E-03	3.905
AC-227DA	3.129E-01		5.756E-02	1.633E-01	6.061E-03	1.916
TH-234DA	2.050E+00		1.345E+00	4.593E+00	2.173E-01	0.446
NP-237DA	1.535E-02		1.384E-02	4.653E-02	1.646E-03	0.330
AM-241HP	-4.180E-02		2.011E-02	6.635E-02	2.303E-03	-0.630


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478J1AA
Detector ID: GER8 1
Energy Coefficients:
Offset: -8.03406E-02
Slope: 2.49773E-01
Quadrature: 1.62232E-08
Acquisition Start: 17-SEP-2007 05:24:27.73
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
10000
1000
100
10
1
50
100
200
500
1000
2000
226 Ra, 214 Bi
40 K
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
214 Bi
212 Bi
137 Cs
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
95 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Pb
212 Bi, 140 La
214 Pb, 234 U, 238 U, 226 Ra
133 Ba, 208 Tl
223 Ra, 228 Ac
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214 Pb
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 226 Ra
238 U
155 Eu
238 U

SAMPLE IDENTIFICATION: J478J1AA

CONFIGURATION ID: GER8:J478J1AA_170970524
TITLE : BRC SOIL
SAMPLE ID : J478J1AA

REPORT DATE: 17-SEP-07
ACQUIRE DATE: 17-SEP-07 05:24:27
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 29-JUL-2007 13:00:00.00
CALIB DATE: 17-SEP-2007 05:00:01.58
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:13

SAMPLE QUANTITY: 3.5510E+02
SAMPLE GEOMETRY: ES200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.8034E-01 keV
ENERGY SLOPE: 2.4977E-01 keV/C
ENERGY Q COEFF: 1.6223E-08 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 9.4975E-01 keV
FWHM SLOPE: 2.1290E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 70.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 17-SEP-2007 19:43:37

Configuration : $DISK1:[GER8.SAMPLE]J478J1AA_170970524.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:00:00 Acquisition date : 17-SEP-2007 05:24:27
Sample ID : J478J1AA Sample quantity : 355.10 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:13.95 0.0%
Start energy : 19.90 End energy : 2047.15
Sensitivity : 5.00 Gaussian : 70.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.43*	529	2444	1.14	186.20	179	15	1.47E-02	22.0	
2	0	63.22*	781	3883	0.98	253.42	246	14	2.17E-02	18.1	
3	2	74.85*	3323	4449	1.18	299.97	292	25	9.23E-02	4.7	7.69E-01
4	2	77.12*	5415	3727	1.11	309.06	292	25	1.50E-01	2.8	
5	0	84.05*	627	2555	1.16	336.81	332	11	1.74E-02	16.6	
6	0	87.21	1745	2913	1.10	349.46	344	12	4.85E-02	6.6	
7	0	89.87	903	2313	1.02	360.12	356	10	2.51E-02	10.5	
8	0	92.95*	1950	4163	1.52	372.45	366	21	5.42E-02	8.9	
9	0	129.29	512	1939	0.91	517.94	512	12	1.42E-02	17.8	
10	0	185.98*	1275	2302	1.40	744.87	736	18	3.54E-02	9.7	
11	0	209.19	644	1839	1.56	837.79	830	17	1.79E-02	15.7	
12	4	238.65*	6405	1439	1.16	955.73	948	29	1.78E-01	1.8	1.56E+00
13	4	241.72	1928	1595	1.66	968.02	948	29	5.36E-02	5.7	
14	0	270.05	640	1179	1.75	1081.43	1073	17	1.78E-02	12.9	
15	0	277.85	143	1146	0.53	1112.64	1103	14	3.98E-03	50.8	
16	0	295.27	2570	1160	1.17	1182.38	1175	16	7.14E-02	3.6	
17	0	299.94	416	853	1.21	1201.07	1196	13	1.15E-02	15.2	
18	0	327.87	364	716	1.00	1312.89	1307	13	1.01E-02	16.0	
19	0	338.25	1240	1119	1.30	1354.43	1346	19	3.44E-02	7.1	
20	0	351.87*	4512	1035	1.30	1408.95	1400	22	1.25E-01	2.4	
21	0	409.40	129	579	1.08	1639.23	1633	12	3.58E-03	38.4	
22	0	462.61	455	625	1.13	1852.21	1841	20	1.27E-02	14.2	
23	0	510.66*	542	815	1.76	2044.53	2032	24	1.51E-02	17.3	
24	0	583.13	1901	555	1.40	2334.62	2325	20	5.28E-02	3.8	
25	0	609.26*	3249	551	1.56	2439.18	2426	25	9.02E-02	2.7	
26	0	661.43	154	510	1.61	2647.99	2641	18	4.28E-03	35.5	
27	0	727.24	399	323	1.51	2911.37	2902	17	1.11E-02	10.1	
28	0	768.29	301	367	1.39	3075.68	3065	19	8.35E-03	14.2	
29	0	794.67	254	328	0.91	3181.23	3172	20	7.05E-03	16.1	
30	0	860.44	310	414	1.70	3444.44	3430	29	8.61E-03	16.9	
31	0	911.02	1366	384	1.64	3646.86	3632	27	3.79E-02	4.3	
32	0	1120.23	764	473	1.76	4483.99	4469	29	2.12E-02	7.8	
33	0	1238.13	259	458	1.82	4955.73	4944	22	7.20E-03	18.9	
34	0	1378.02	193	160	3.30	5515.43	5502	25	5.36E-03	16.6	
35	0	1460.73*	7918	139	1.93	5846.33	5830	36	2.20E-01	1.2	
36	0	1509.07	100	87	1.62	6039.73	6026	25	2.77E-03	23.6	
37	0	1587.81	86	69	1.60	6354.71	6346	18	2.38E-03	22.2	
38	0	1729.77	94	72	1.56	6922.58	6907	33	2.61E-03	25.1	
39	0	1764.44	558	53	1.81	7061.25	7044	31	1.55E-02	5.3	

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

VMS Nuclide Identification Report V3.0 Generated 17-SEP-2007 19:43:38

Configuration : $DISK1:[GER8.SAMPLE]J478J1AA_170970524.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:00:00 Acquisition date : 17-SEP-2007 05:24:27
Sample ID : J478J1AA Sample quantity : 355.10 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:13.95 0.0%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	7918	10.67*	5.801E-01	2.705E+01	2.705E+01	6.24
TL-208	277.35	143	6.80	2.332E+00	1.912E-01	1.912E-01	51.17
	510.84	542	21.60	1.414E+00	3.751E-01	3.751E-01	18.26
	583.14	1901	84.20*	1.263E+00	3.779E-01	3.779E-01	7.15
	860.37	310	12.46	9.072E-01	5.797E-01	5.797E-01	18.11
PB-212	238.63	6405	44.60*	2.617E+00	1.160E+00	1.160E+00	6.57
	300.09	416	3.41	2.196E+00	1.173E+00	1.173E+00	16.46
BI-214	609.31	3249	46.30*	1.217E+00	1.219E+00	1.219E+00	6.67
	768.36	301	5.04	9.989E-01	1.262E+00	1.262E+00	15.61
	1120.29	764	15.10	7.256E-01	1.474E+00	1.474E+00	9.89
	1764.49	558	15.80	4.950E-01	1.507E+00	1.507E+00	7.98
PB-214	241.98	1928	7.49	2.593E+00	2.100E+00	2.100E+00	8.49
	295.21	2570	19.20	2.224E+00	1.273E+00	1.273E+00	7.17
	351.92	4512	37.20*	1.931E+00	1.328E+00	1.328E+00	6.52
	785.91	------	1.10	9.798E-01	------	Line Not Found	------
RA-224DA	238.63	6405	44.60*	2.617E+00	1.160E+00	1.219E+00	6.57
	240.98	1928	3.95	2.593E+00	3.981E+00	4.184E+00	8.49
	583.14	1901	30.25	1.263E+00	1.052E+00	1.105E+00	7.15
	860.37	310	4.48	9.072E-01	1.612E+00	1.694E+00	18.11
RA-226DA	186.21	1275	3.50	3.108E+00	2.478E+00	2.478E+00	11.56
	241.98	1928	7.49	2.593E+00	2.100E+00	2.100E+00	8.49
	295.22	2570	19.20	2.224E+00	1.273E+00	1.273E+00	7.17
	351.92	4512	37.20	1.931E+00	1.328E+00	1.328E+00	6.52
	609.32	3249	46.30*	1.217E+00	1.219E+00	1.219E+00	6.67
	1120.28	764	15.10	7.256E-01	1.474E+00	1.474E+00	9.89
	1238.11	259	5.94	6.668E-01	1.383E+00	1.383E+00	19.83
	1764.49	558	15.80	4.950E-01	1.507E+00	1.508E+00	7.98
TH-228DA	238.63	6405	44.60	2.617E+00	1.160E+00	1.219E+00	6.57
	240.98	1928	3.95	2.593E+00	3.981E+00	4.184E+00	8.49
	583.14	1901	30.25*	1.263E+00	1.052E+00	1.105E+00	7.15
	860.37	310	4.48	9.072E-01	1.612E+00	1.694E+00	18.11
TH-232DA	238.63	6405	44.60	2.617E+00	1.160E+00	1.160E+00	6.57
	338.32	1240	12.40*	1.994E+00	1.060E+00	1.060E+00	9.33
	583.14	1901	30.25	1.263E+00	1.052E+00	1.052E+00	7.15
	911.07	1366	27.70	8.643E-01	1.206E+00	1.206E+00	7.93
	964.60	------	5.20	8.234E-01	------	Line Not Found	------

Sample ID : J478J1AA
Acquisition date : 17-SEP-2007 05:24:27

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	969.11	------	16.60	8.202E-01	------	Line Not Found	------
U-234DA	241.98	1928	7.49	2.593E+00	2.100E+00	2.100E+00	8.49
	295.22	2570	19.20*	2.224E+00	1.273E+00	1.273E+00	7.17
	351.92	4512	37.20	1.931E+00	1.328E+00	1.328E+00	6.52
	609.31	3249	46.30	1.217E+00	1.219E+00	1.219E+00	6.67
U-238DA	241.98	1928	7.49	2.593E+00	2.100E+00	2.100E+00	8.49
	295.22	2570	19.20	2.224E+00	1.273E+00	1.273E+00	7.17
	351.92	4512	37.20*	1.931E+00	1.328E+00	1.328E+00	6.52
	609.31	3249	46.30	1.217E+00	1.219E+00	1.219E+00	6.67
U-238DHP	63.28	781	3.80*	3.723E+00	1.168E+00	1.168E+00	19.04
	92.59	1950	5.41	4.071E+00	1.871E+00	1.871E+00	10.71

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
CS-137DA	661.65	154	85.10*	1.135E+00	3.371E-02	3.382E-02	36.07

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : J478J1AA

Acquisition date : 17-SEP-2007 05:24:27

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	46.43	529	2444	1.14	186.20	179	15	1.47E-02	22.0	2.83E+00	
2	74.85	3323	4449	1.18	299.97	292	25	9.23E-02	4.7	3.99E+00	
2	77.12	5415	3727	1.11	309.06	292	25	1.50E-01	2.8	4.01E+00	
0	84.05	627	2555	1.16	336.81	332	11	1.74E-02	16.6	4.07E+00	
0	87.21	1745	2913	1.10	349.46	344	12	4.85E-02	6.6	4.07E+00	T
0	89.87	903	2313	1.02	360.12	356	10	2.51E-02	10.5	4.08E+00	
0	129.29	512	1939	0.91	517.94	512	12	1.42E-02	17.8	3.77E+00	
0	209.19	644	1839	1.56	837.79	830	17	1.79E-02	15.7	2.87E+00	T
0	270.05	640	1179	1.75	1081.43	1073	17	1.78E-02	12.9	2.38E+00	T
0	327.87	364	716	1.00	1312.89	1307	13	1.01E-02	16.0	2.05E+00	T
0	409.40	129	579	1.08	1639.23	1633	12	3.58E-03	38.4	1.70E+00	
0	462.61	455	625	1.13	1852.21	1841	20	1.27E-02	14.2	1.54E+00	T
0	727.24	399	323	1.51	2911.37	2902	17	1.11E-02	10.1	1.05E+00	T
0	794.67	254	328	0.91	3181.23	3172	20	7.05E-03	16.1	9.71E-01	T
0	1378.02	193	160	3.30	5515.43	5502	25	5.36E-03	16.6	6.09E-01	
0	1509.07	100	87	1.62	6039.73	6026	25	2.77E-03	23.6	5.64E-01	
0	1587.81	86	69	1.60	6354.71	6346	18	2.38E-03	22.2	5.41E-01	
0	1729.77	94	72	1.56	6922.58	6907	33	2.61E-03	25.1	5.03E-01	

Flags: "T" = Tentatively associated

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	4.676E-02	18.26	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.60	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	3.361E-01	9.89	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.82	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	1.914E+00	7.15	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-103	39.35D	1.27	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	2.427E+01	6.67	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	4.320E-01	18.26	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	6.263E-01	15.43	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
BA-133	10.50Y	0.01	81.00	33.00	--- Not Found ---		Abun.
			276.40	6.90	1.901E-01	51.17	
			302.84	17.80	--- Not Found ---		
			356.00*	62.05	--- Not Found ---		
			383.85	8.70	--- Not Found ---		
		% Abundances Found =		5.37			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	6.781E-02	17.35	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	29.77	328.77	20.50	1.682E+08	17.12	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	2.987E-01	8.97	
			105.31*	20.70	--- Not Found ---		
		% Abundances Found =		42.47			

Sample ID : J478J1AA
Acquisition date : 17-SEP-2007 05:24:27

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
BI-212	1.41E+10Y	0.00	288.07	0.31	--- Not Found ---		Abun.
			327.96	0.14	2.711E+01	18.86	
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.224E+00	12.18	
			785.37	1.10	--- Not Found ---		
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		
			1078.62	0.56	--- Not Found ---		
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	--- Not Found ---		
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		58.84			
RA-223	21.77Y	0.01	154.21	5.58	--- Not Found ---		Abun.
			269.46*	13.60	4.192E-01	14.36	
			323.87	3.88	--- Not Found ---		
		% Abundances Found =		58.98			
AC-228	1.41E+10Y	0.00	209.28	4.40	1.077E+00	16.94	Abun.
			270.23	3.60	1.577E+00	14.36	
			338.32	11.40	1.153E+00	9.33	
			911.07*	27.70	1.206E+00	7.93	
			969.11	16.60	--- Not Found ---		
		% Abundances Found =		73.94			
RA-228DA	5.75Y	0.02	209.28	4.40	1.095E+00	16.94	Abun.
			338.32	11.40	1.173E+00	9.33	
			911.07*	27.70	1.226E+00	7.93	
			964.60	5.20	--- Not Found ---		
			969.11	16.60	--- Not Found ---		
		% Abundances Found =		66.62			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	1.606E-01	11.56	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 17-SEP-2007 19:43:40

Configuration : $DISK1:[GER8.SAMPLE]J478J1AA_170970524.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:00:00
Sample ID : J478J1AA
Sample type :
Elapsed live time: 0 10:00:00.00
Peak Width (FWHM): 3.00
Energy tolerance : 1.50
Errors propagated: Yes
Efficiency type : Empirical
Abundance limit : 80.00

Acquisition date : 17-SEP-2007 05:24:27
Sample quantity : 355.10 GRAMS
Sample geometry : ES200
Elapsed real time: 0 10:00:13.95 0.0%
Confidence level : 5.00 %
Half life ratio : 8.00
Systematic Error : 5.00 %
Efficiencies at : Peak Energy
WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

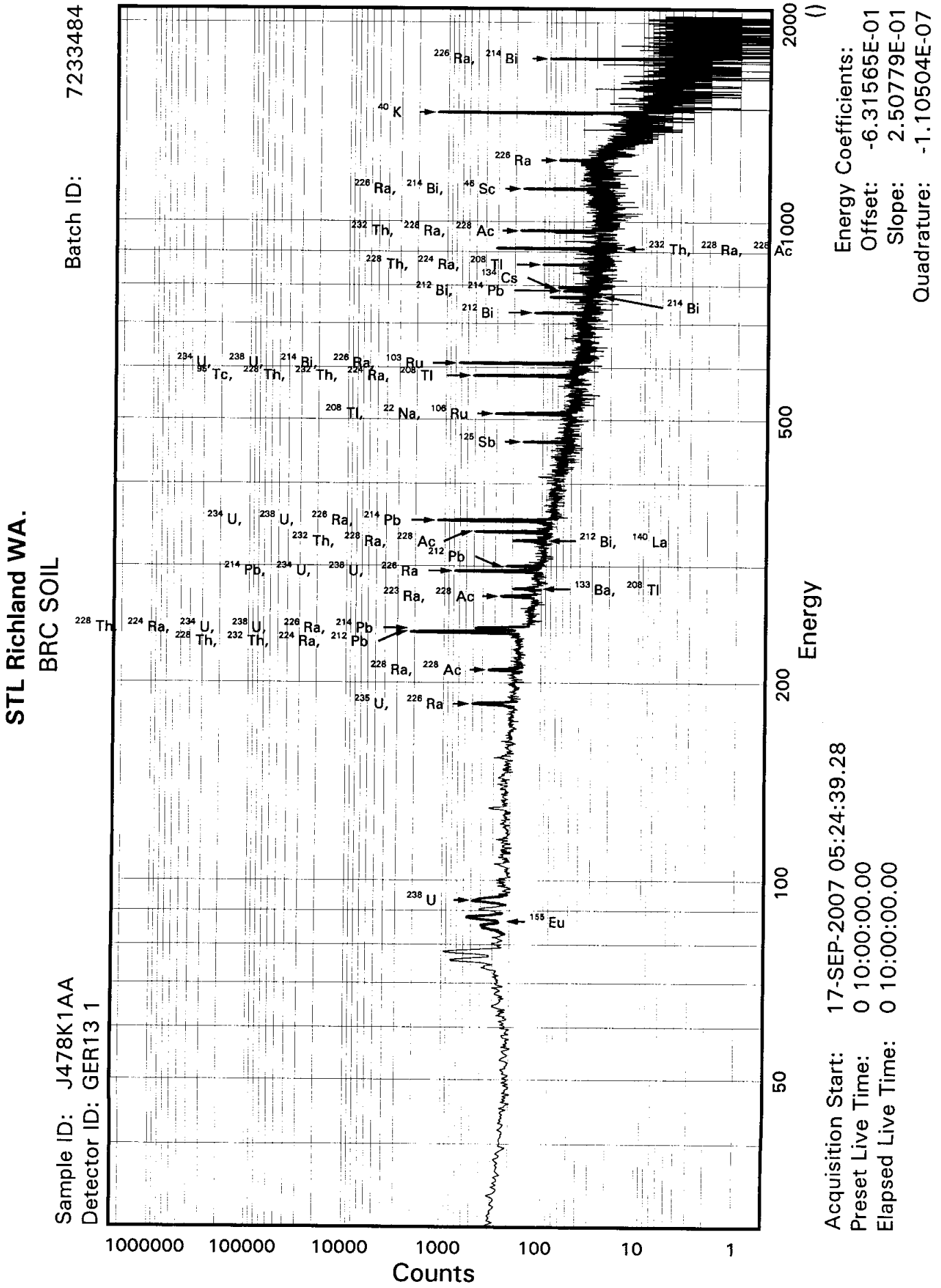
Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.705E+01	1.687E+00	1.563E-01	5.514E-03	173.086
CS-137DA	3.382E-02	1.220E-02	2.359E-02	8.629E-04	1.434
TL-208	3.779E-01	2.702E-02	2.125E-02	7.256E-04	17.782
PB-212	1.160E+00	7.618E-02	3.320E-02	1.277E-03	34.941
BI-214	1.219E+00	8.132E-02	3.754E-02	1.314E-03	32.476
PB-214	1.328E+00	8.655E-02	4.041E-02	1.382E-03	32.863
RA-224DA	1.219E+00	8.005E-02	3.489E-02	1.341E-03	34.941
RA-226DA	1.219E+00	8.133E-02	3.754E-02	1.314E-03	32.475
TH-228DA	1.105E+00	7.903E-02	6.215E-02	2.122E-03	17.782
TH-232DA	1.060E+00	9.890E-02	1.258E-01	4.388E-03	8.432
U-234DA	1.273E+00	9.129E-02	7.663E-02	2.837E-03	16.609
U-238DA	1.328E+00	8.655E-02	4.041E-02	1.382E-03	32.863
U-238DHP	1.168E+00	2.223E-01	4.414E-01	1.407E-02	2.645

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	8.644E-02		9.136E-02	3.066E-01	9.807E-03	0.282
NA-22	-6.522E-03		8.130E-03	2.698E-02	9.280E-04	-0.242
SC-46	3.361E-01	+	3.325E-02	6.846E-02	2.407E-03	4.910
CR-51	3.678E-02		1.578E-01	5.301E-01	1.889E-02	0.069
MN-54	6.530E-03		7.297E-03	2.476E-02	1.046E-03	0.264
CO-57	-1.766E-02		4.249E-02	1.399E-01	4.783E-03	-0.126
CO-58	-9.272E-03		9.531E-03	3.136E-02	1.302E-03	-0.296
FE-59	7.012E-05		2.740E-02	9.320E-02	3.382E-03	0.001
CO-60	4.202E-03		6.900E-03	2.374E-02	8.471E-04	0.177
ZN-65	-4.603E-02		2.203E-02	5.874E-02	2.082E-03	-0.784
SE-75	-9.652E-03		1.012E-02	3.114E-02	1.186E-03	-0.310
SR-85	5.885E-02		1.098E-02	3.341E-02	1.059E-03	1.761
Y-88	3.773E-03		6.288E-03	2.284E-02	7.132E-04	0.165
NB-94	-1.244E-03		6.248E-03	2.083E-02	9.019E-04	-0.060
NB-95	8.711E-02		2.001E-02	6.067E-02	2.434E-03	1.436

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
TC-95M	1.786E-02		1.223E-02	3.878E-02	1.483E-03	0.461
ZR-95	2.086E-02		1.843E-02	6.306E-02	2.512E-03	0.331
ZRNB-95	1.097E-01		2.571E-02	7.782E-02	3.123E-03	1.409
RH-101	-3.637E-03		6.993E-03	2.073E-02	7.902E-04	-0.175
RH-102M	-7.027E-03		5.343E-03	1.731E-02	5.540E-04	-0.406
RU-103	1.837E-02		1.271E-02	4.413E-02	1.406E-03	0.416
RU-106DA	-4.995E-02		5.775E-02	1.927E-01	6.821E-03	-0.259
AG-108M	-7.758E-03		5.236E-03	1.698E-02	5.424E-04	-0.457
AG-110M	8.899E-03		9.616E-03	3.352E-02	1.464E-03	0.265
SN-113DA	-1.506E-02		1.011E-02	3.293E-02	1.037E-03	-0.457
SB-124	-9.522E-03		1.066E-02	3.171E-02	1.103E-03	-0.300
SB-125	1.293E-02		1.699E-02	5.703E-02	1.820E-03	0.227
SN-126DA	2.188E-02		6.865E-03	2.067E-02	7.598E-04	1.058
I-131	-3.263E-01		4.067E-01	1.344E+00	4.495E-02	-0.243
BA-133	-2.493E-03		8.693E-03	2.450E-02	8.320E-04	-0.102
CS-134	6.781E-02	+	1.176E-02	3.008E-02	1.235E-03	2.255
LA-138	1.003E-02		8.039E-03	2.914E-02	1.032E-03	0.344
CE-139	-5.328E-04		6.751E-03	2.219E-02	8.267E-04	-0.024
BA-140	-2.959E-02		3.015E-01	1.024E+00	3.334E-02	-0.029
BALA-140	-7.353E-01		1.895E-01	5.556E-01	1.907E-02	-1.323
CE-141	6.178E-02		2.503E-02	8.308E-02	2.930E-03	0.744
CE-144	-2.410E-03		4.374E-02	1.355E-01	4.586E-03	-0.018
CEPR-144	-4.441E-03		8.748E-02	2.710E-01	9.172E-03	-0.016
PM-144	4.214E-03		5.830E-03	1.997E-02	7.045E-04	0.211
PM-146	1.492E-02		7.529E-03	2.554E-02	8.179E-04	0.584
EU-152	-4.452E-02		1.829E-02	5.530E-02	1.913E-03	-0.805
EU-154	-2.146E-02		2.232E-02	7.378E-02	2.538E-03	-0.291
EU-155	7.092E-02		1.918E-02	6.377E-02	2.100E-03	1.112
HF-181	-6.798E-03		1.322E-02	4.478E-02	1.432E-03	-0.152
BI-207	6.488E-03		5.450E-03	1.877E-02	6.325E-04	0.346
BI-210M	2.117E-03		9.801E-03	2.814E-02	1.071E-03	0.075
BI-212	1.224E+00	+	1.491E-01	3.970E-01	1.789E-02	3.084
RA-223	4.192E-01	+	6.021E-02	1.284E-01	4.875E-03	3.264
AC-227DA	4.066E-01		5.598E-02	1.560E-01	5.998E-03	2.607
AC-228	1.206E+00	+	9.560E-02	1.685E-01	7.365E-03	7.158
RA-228DA	1.226E+00	+	9.719E-02	1.713E-01	7.487E-03	7.158
TH-234DA	1.918E+00		1.051E+00	3.682E+00	1.500E-01	0.521
U-235HP	9.307E-02		3.981E-02	1.322E-01	4.636E-03	0.704
NP-237DA	4.305E-03		1.237E-02	4.162E-02	1.504E-03	0.103
AM-241HP	4.064E-02		1.572E-02	4.563E-02	1.472E-03	0.891


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478K1AA
Detector ID: GER13 1
Energy Coefficients:
Offset: -6.31565E-01
Slope: 2.50779E-01
Quadrature: -1.10504E-07
Acquisition Start: 17-SEP-2007 05:24:39.28
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
1000000
100000
10000
1000
100
10
1
50
100
200
500
1000
2000
226 Ra, 214 Bi
40 K
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
212 Bi, 214 Pb
212 Bi
214 Bi
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
95 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Pb
212 Bi, 140 La
214 Pb, 234 U, 238 U, 226 Ra
223 Ra, 228 Ac
133 Ba, 208 Tl
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214 Pb
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 226 Ra
238 U
155 Eu

SAMPLE IDENTIFICATION: J478K1AA

CONFIGURATION ID: GER13:J478K1AA_170970524
TITLE : BRC SOIL
SAMPLE ID : J478K1AA

REPORT DATE: 17-SEP-07
ACQUIRE DATE: 17-SEP-07 05:24:39
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 29-JUL-2007 13:00:00.00
CALIB DATE: 17-SEP-2007 05:00:57.10
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:21

SAMPLE QUANTITY: 3.5660E+02
SAMPLE GEOMETRY: S200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.6316E+00 keV
ENERGY SLOPE: 2.5078E-01 keV/C
ENERGY Q COEFF: -.1105E-06 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 5.3673E-01 keV
FWHM SLOPE: 3.5178E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 50.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 17-SEP-2007 19:42:34

Configuration : $DISK1:[GER13.SAMPLE]J478K1AA_170970524.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:00:00 Acquisition date : 17-SEP-2007 05:24:39
Sample ID : J478K1AA Sample quantity : 356.60 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:21.97 0.1%
Start energy : 19.43 End energy : 2046.34
Sensitivity : 5.00 Gaussian : 50.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	75.83*	1356	3335	0.80	304.94	298	21	3.77E-02	8.6	2.00E+00
2	2	78.02	2693	3071	0.89	313.69	298	21	7.48E-02	4.6	
3	0	86.67*	2205	5842	2.83	348.19	334	25	6.12E-02	10.0	
4	0	90.54	813	2324	0.98	363.60	359	10	2.26E-02	11.7	
5	0	93.42	1360	3203	1.26	375.09	369	14	3.78E-02	9.2	
6	0	129.33	399	2468	0.99	518.34	513	11	1.11E-02	24.6	
7	0	185.83	1818	2763	1.34	743.77	736	15	5.05E-02	6.7	
8	0	209.21	1000	2219	1.13	837.05	831	14	2.78E-02	10.5	
9	5	238.48*	8986	2084	1.11	953.86	945	29	2.50E-01	1.6	2.69E+00
10	5	241.49	2478	2083	1.73	965.90	945	29	6.88E-02	4.6	
11	0	270.11	879	1904	1.38	1080.13	1072	16	2.44E-02	11.6	
12	0	277.16	265	1296	0.67	1108.26	1103	11	7.36E-03	27.0	
13	0	294.96*	3110	1843	1.11	1179.29	1170	17	8.64E-02	3.8	
14	0	300.02	532	1419	0.83	1199.49	1193	14	1.48E-02	15.7	
15	0	327.87	450	1391	1.06	1310.69	1304	15	1.25E-02	18.7	
16	0	338.09	1931	1476	1.09	1351.48	1342	17	5.36E-02	5.1	
17	0	351.67*	5804	1659	1.28	1405.69	1395	21	1.61E-01	2.3	
18	0	462.86	523	794	1.12	1849.71	1843	15	1.45E-02	12.6	
19	0	510.68*	615	1605	1.73	2040.74	2028	28	1.71E-02	21.9	
20	0	583.05*	2846	1063	1.42	2329.85	2318	23	7.90E-02	3.8	
21	0	609.17*	3896	1330	1.49	2434.24	2422	28	1.08E-01	3.3	
22	0	727.38	637	611	1.80	2906.72	2897	18	1.77E-02	10.0	
23	0	768.09	410	715	2.02	3069.49	3057	22	1.14E-02	14.9	
24	0	786.28	166	736	1.60	3142.21	3128	22	4.61E-03	36.2	
25	0	794.81	324	874	2.00	3176.34	3165	31	8.99E-03	23.4	
26	0	860.93	341	481	0.83	3440.74	3432	18	9.47E-03	14.0	
27	0	911.18*	2088	692	1.77	3641.76	3626	28	5.80E-02	3.9	
28	0	934.29	249	579	1.22	3734.22	3724	23	6.91E-03	22.2	
29	0	968.04*	1358	969	1.78	3869.25	3850	34	3.77E-02	6.7	
30	0	1120.24*	974	754	1.74	4478.40	4464	28	2.71E-02	7.8	
31	0	1238.11	329	889	2.00	4950.36	4936	29	9.13E-03	22.6	
32	0	1377.33	244	215	1.78	5508.09	5500	21	6.77E-03	13.1	
33	0	1460.52*	10916	622	2.12	5841.47	5824	36	3.03E-01	1.2	
34	0	1587.99	178	150	1.50	6352.51	6339	25	4.95E-03	17.3	
35	0	1639.00	38	59	1.20	6557.10	6547	17	1.04E-03	43.4	
36	0	1763.80*	730	117	2.08	7057.73	7039	36	2.03E-02	5.6	
37	0	1846.97	71	90	1.56	7391.50	7378	22	1.96E-03	28.6	

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

VMS Nuclide Identification Report V3.0 Generated 17-SEP-2007 19:42:35

Configuration : $DISK1:[GER13.SAMPLE]J478K1AA_170970524.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:00:00 Acquisition date : 17-SEP-2007 05:24:39
Sample ID : J478K1AA Sample quantity : 356.60 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:21.97 0.1%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	10916	10.67*	7.699E-01	2.798E+01	2.798E+01	6.55
TL-208	277.35	265	6.80	2.835E+00	2.894E-01	2.894E-01	27.72
	510.84	615	21.60	1.898E+00	3.158E-01	3.158E-01	22.67
	583.14	2846	84.20*	1.721E+00	4.133E-01	4.133E-01	7.05
	860.37	341	12.46	1.246E+00	4.622E-01	4.622E-01	15.78
PB-212	238.63	8986	44.60*	3.095E+00	1.371E+00	1.371E+00	6.57
	300.09	532	3.41	2.701E+00	1.216E+00	1.216E+00	16.90
BI-214	609.31	3896	46.30*	1.665E+00	1.064E+00	1.064E+00	6.83
	768.36	410	5.04	1.378E+00	1.242E+00	1.242E+00	16.34
	1120.29	974	15.10	9.770E-01	1.390E+00	1.390E+00	10.15
	1764.49	730	15.80	6.731E-01	1.446E+00	1.446E+00	8.28
PB-214	241.98	2478	7.49	3.073E+00	2.267E+00	2.267E+00	7.89
	295.21	3110	19.20	2.730E+00	1.249E+00	1.249E+00	7.42
	351.92	5804	37.20*	2.443E+00	1.345E+00	1.345E+00	6.58
	785.91	166	1.10	1.350E+00	2.354E+00	2.354E+00	36.83
RA-224DA	238.63	8986	44.60*	3.095E+00	1.371E+00	1.440E+00	6.57
	240.98	2478	3.95	3.073E+00	4.298E+00	4.517E+00	7.89
	583.14	2846	30.25	1.721E+00	1.150E+00	1.209E+00	7.05
	860.37	341	4.48	1.246E+00	1.286E+00	1.351E+00	15.78
RA-226DA	186.21	1818	3.50	3.493E+00	3.130E+00	3.130E+00	9.25
	241.98	2478	7.49	3.073E+00	2.267E+00	2.267E+00	7.89
	295.22	3110	19.20	2.730E+00	1.249E+00	1.249E+00	7.42
	351.92	5804	37.20	2.443E+00	1.345E+00	1.345E+00	6.58
	609.32	3896	46.30*	1.665E+00	1.064E+00	1.064E+00	6.83
	1120.28	974	15.10	9.770E-01	1.390E+00	1.390E+00	10.15
	1238.11	329	5.94	8.902E-01	1.309E+00	1.309E+00	23.45
	1764.49	730	15.80	6.731E-01	1.446E+00	1.446E+00	8.28
AC-228	209.28	1000	4.40	3.315E+00	1.444E+00	1.444E+00	12.26
	270.23	879	3.60	2.879E+00	1.785E+00	1.785E+00	13.25
	338.32	1931	11.40	2.505E+00	1.424E+00	1.424E+00	8.06
	911.07	2088	27.70*	1.184E+00	1.340E+00	1.340E+00	8.47
	969.11	1358	16.60	1.120E+00	1.538E+00	1.538E+00	9.88
RA-228DA	209.28	1000	4.40	3.315E+00	1.444E+00	1.468E+00	12.26
	338.32	1931	11.40	2.505E+00	1.424E+00	1.447E+00	8.06
	911.07	2088	27.70*	1.184E+00	1.340E+00	1.362E+00	8.47
	964.60	------	5.20	1.124E+00	------ Line Not Found		------

Sample ID : J478K1AA Acquisition date : 17-SEP-2007 05:24:39

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	969.11	1358	16.60	1.120E+00	1.538E+00	1.564E+00	9.88
TH-228DA	238.63	8986	44.60	3.095E+00	1.371E+00	1.440E+00	6.57
	240.98	2478	3.95	3.073E+00	4.298E+00	4.517E+00	7.89
	583.14	2846	30.25*	1.721E+00	1.150E+00	1.209E+00	7.05
	860.37	341	4.48	1.246E+00	1.286E+00	1.351E+00	15.78
TH-232DA	238.63	8986	44.60	3.095E+00	1.371E+00	1.371E+00	6.57
	338.32	1931	12.40*	2.505E+00	1.309E+00	1.309E+00	8.06
	583.14	2846	30.25	1.721E+00	1.150E+00	1.150E+00	7.05
	911.07	2088	27.70	1.184E+00	1.340E+00	1.340E+00	8.47
	964.60	------	5.20	1.124E+00	------ Line Not Found		------
	969.11	1358	16.60	1.120E+00	1.538E+00	1.538E+00	9.88
U-234DA	241.98	2478	7.49	3.073E+00	2.267E+00	2.267E+00	7.89
	295.22	3110	19.20*	2.730E+00	1.249E+00	1.249E+00	7.42
	351.92	5804	37.20	2.443E+00	1.345E+00	1.345E+00	6.58
	609.31	3896	46.30	1.665E+00	1.064E+00	1.064E+00	6.83
U-238DA	241.98	2478	7.49	3.073E+00	2.267E+00	2.267E+00	7.89
	295.22	3110	19.20	2.730E+00	1.249E+00	1.249E+00	7.42
	351.92	5804	37.20*	2.443E+00	1.345E+00	1.345E+00	6.58
	609.31	3896	46.30	1.665E+00	1.064E+00	1.064E+00	6.83

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : J478K1AA

Acquisition date : 17-SEP-2007 05:24:39

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
2	75.83	1356	3335	0.80	304.94	298	21	3.77E-02	8.6	1.75E+00	
2	78.02	2693	3071	0.89	313.69	298	21	7.48E-02	4.6	1.90E+00	
0	86.67	2205	5842	2.83	348.19	334	25	6.12E-02	10.0	2.43E+00	T
0	90.54	813	2324	0.98	363.60	359	10	2.26E-02	11.7	2.64E+00	
0	93.42	1360	3203	1.26	375.09	369	14	3.78E-02	9.2	2.78E+00	T
0	129.33	399	2468	0.99	518.34	513	11	1.11E-02	24.6	3.65E+00	
0	327.87	450	1391	1.06	1310.69	1304	15	1.25E-02	18.7	2.55E+00	T
0	462.86	523	794	1.12	1849.71	1843	15	1.45E-02	12.6	2.03E+00	T
0	727.38	637	611	1.80	2906.72	2897	18	1.77E-02	10.0	1.44E+00	T
0	794.81	324	874	2.00	3176.34	3165	31	8.99E-03	23.4	1.34E+00	T
0	934.29	249	579	1.22	3734.22	3724	23	6.91E-03	22.2	1.16E+00	
0	1377.33	244	215	1.78	5508.09	5500	21	6.77E-03	13.1	8.09E-01	
0	1587.99	178	150	1.50	6352.51	6339	25	4.95E-03	17.3	7.21E-01	
0	1639.00	38	59	1.20	6557.10	6547	17	1.04E-03	43.4	7.05E-01	
0	1846.97	71	90	1.56	7391.50	7378	22	1.96E-03	28.6	6.57E-01	

Flags: "T" = Tentatively associated

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	3.938E-02	22.67	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.60	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	3.170E-01	10.15	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.82	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	2.094E+00	7.05	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-103	39.35D	1.27	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	2.119E+01	6.83	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	3.638E-01	22.67	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	5.411E-01	13.89	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
BA-133	10.50Y	0.01	81.00	33.00	--- Not Found ---		Abun.
			276.40	6.90	2.878E-01	27.72	
			302.84	17.80	--- Not Found ---		
			356.00*	62.05	--- Not Found ---		
			383.85	8.70	--- Not Found ---		
		% Abundances Found =		5.37			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	6.248E-02	24.41	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	29.77	328.77	20.50	1.656E+08	19.70	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	6.298E-01	12.11	
			105.31*	20.70	--- Not Found ---		
		% Abundances Found =		42.47			

Sample ID : J478K1AA Acquisition date : 17-SEP-2007 05:24:39

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
BI-212	1.41E+10Y	0.00	288.07	0.31	--- Not Found ---		Abun.
			327.96	0.14	2.668E+01	21.23	
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.413E+00	12.03	
			785.37	1.10	2.354E+00	36.93	
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		
			1078.62	0.56	--- Not Found ---		
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	--- Not Found ---		
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		68.47			
RA-223	21.77Y	0.01	154.21	5.58	--- Not Found ---		Abun.
			269.46*	13.60	4.744E-01	13.25	
			323.87	3.88	--- Not Found ---		
		% Abundances Found =		58.98			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	2.028E-01	9.25	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			
U-238DHP	4.47E+09Y	0.00	63.28*	3.80	--- Not Found ---		Abun.
			92.59	5.41	1.905E+00	11.37	
		% Abundances Found =		58.74			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 17-SEP-2007 19:42:37

Configuration : $DISK1:[GER13.SAMPLE]J478K1AA_170970524.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:00:00
Sample ID : J478K1AA
Sample type :
Elapsed live time: 0 10:00:00.00
Peak Width (FWHM): 3.00
Energy tolerance : 1.50
Errors propagated: Yes
Efficiency type : Empirical
Abundance limit : 80.00

Acquisition date : 17-SEP-2007 05:24:39
Sample quantity : 356.60 GRAMS
Sample geometry : S200
Elapsed real time: 0 10:00:21.97 0.1%
Confidence level : 5.00 %
Half life ratio : 8.00
Systematic Error : 5.00 %
Efficiencies at : Peak Energy
WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

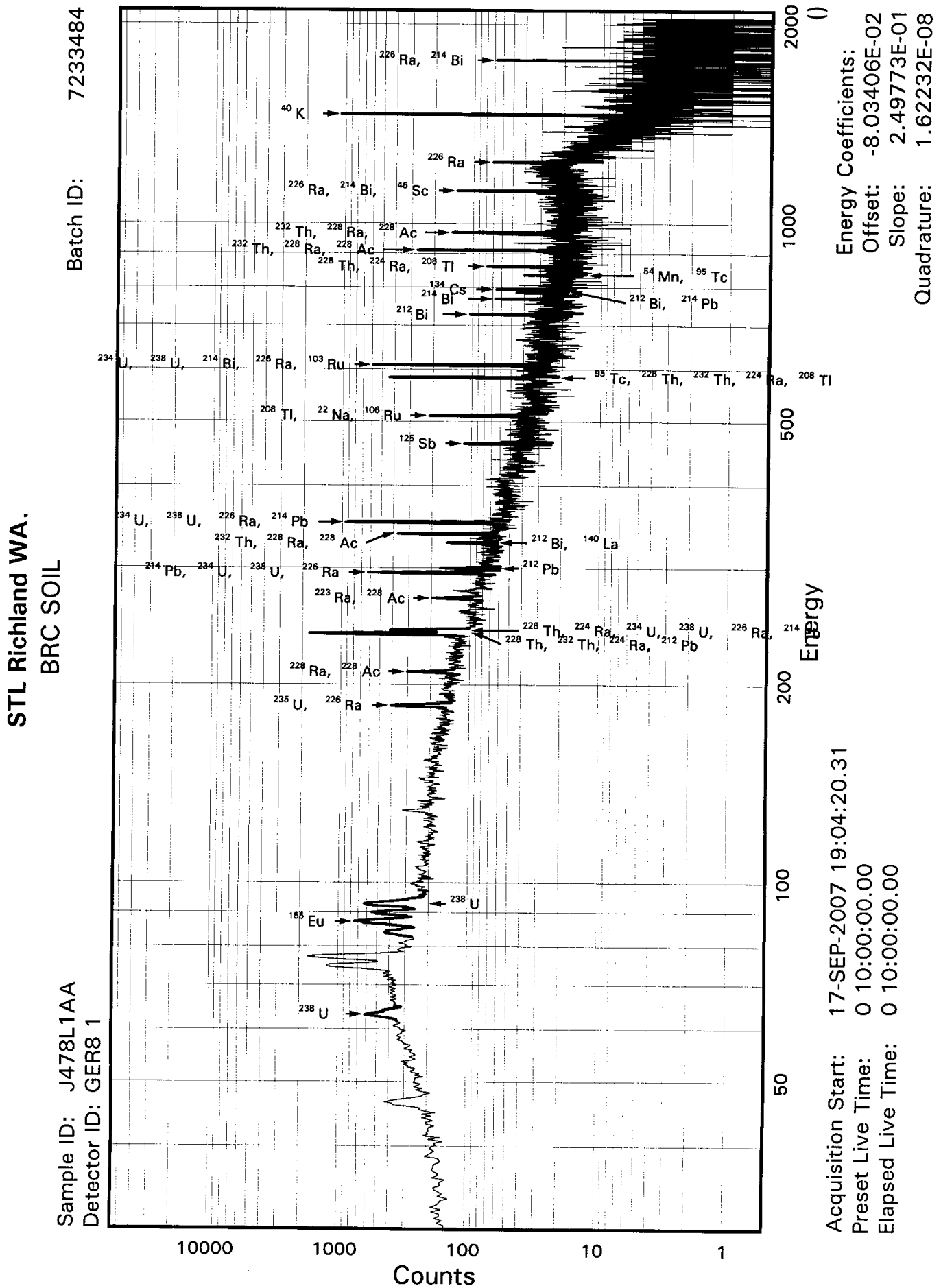
Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.798E+01	1.833E+00	2.175E-01	8.816E-03	128.647
TL-208	4.133E-01	2.915E-02	1.911E-02	6.225E-04	21.625
PB-212	1.371E+00	8.999E-02	3.240E-02	1.283E-03	42.311
BI-214	1.064E+00	7.273E-02	3.504E-02	1.154E-03	30.370
PB-214	1.345E+00	8.846E-02	3.776E-02	1.368E-03	35.608
RA-224DA	1.440E+00	9.456E-02	3.404E-02	1.348E-03	42.311
RA-226DA	1.064E+00	7.274E-02	3.504E-02	1.154E-03	30.370
AC-228	1.340E+00	1.135E-01	7.183E-02	4.049E-03	18.655
RA-228DA	1.362E+00	1.154E-01	7.303E-02	4.116E-03	18.655
TH-228DA	1.209E+00	8.527E-02	5.590E-02	1.821E-03	21.625
TH-232DA	1.309E+00	1.055E-01	1.137E-01	4.259E-03	11.513
U-234DA	1.249E+00	9.266E-02	7.351E-02	2.899E-03	16.995
U-238DA	1.345E+00	8.846E-02	3.776E-02	1.368E-03	35.608

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-2.677E-02		8.057E-02	2.707E-01	8.618E-03	-0.099
NA-22	5.315E-03		7.531E-03	2.586E-02	1.018E-03	0.206
SC-46	3.170E-01	+	3.219E-02	6.174E-02	2.527E-03	5.135
CR-51	1.071E-01		1.492E-01	5.017E-01	1.953E-02	0.214
MN-54	1.291E-02		6.487E-03	2.206E-02	1.104E-03	0.585
CO-57	-5.541E-02		4.362E-02	1.454E-01	5.306E-03	-0.381
CO-58	-1.081E-02		8.765E-03	2.872E-02	1.364E-03	-0.377
FE-59	-2.791E-03		2.637E-02	8.835E-02	3.794E-03	-0.032
CO-60	-3.042E-03		6.535E-03	2.203E-02	9.153E-04	-0.138
ZN-65	-1.749E-02		1.932E-02	5.320E-02	2.203E-03	-0.329
SE-75	-3.788E-05		8.987E-03	2.983E-02	1.184E-03	-0.001
SR-85	4.040E-02		9.794E-03	2.898E-02	9.106E-04	1.394
Y-88	3.802E-04		5.826E-03	2.032E-02	6.556E-04	0.019
NB-94	5.746E-03		5.488E-03	1.855E-02	1.001E-03	0.310
NB-95	6.001E-02		1.838E-02	5.424E-02	2.333E-03	1.106

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
TC-95M	3.037E-02		1.170E-02	3.879E-02	1.522E-03	0.783
ZR-95	3.573E-02		1.684E-02	5.771E-02	2.431E-03	0.619
ZRNB-95	7.890E-02		2.351E-02	6.941E-02	2.985E-03	1.137
RH-101	1.139E-02		5.994E-03	1.994E-02	7.811E-04	0.571
RH-102M	-4.817E-03		4.675E-03	1.556E-02	4.957E-04	-0.310
RU-103	-2.171E-02		1.184E-02	3.873E-02	1.225E-03	-0.561
RU-106DA	2.533E-02		5.224E-02	1.744E-01	5.771E-03	0.145
AG-108M	-1.838E-03		4.620E-03	1.561E-02	5.006E-04	-0.118
AG-110M	-4.099E-03		8.839E-03	2.920E-02	1.620E-03	-0.140
SN-113DA	-3.964E-03		9.025E-03	2.965E-02	9.485E-04	-0.134
SB-124	3.091E-03		9.696E-03	2.989E-02	9.817E-04	0.103
SB-125	3.486E-02		1.502E-02	5.179E-02	1.661E-03	0.673
SN-126DA	1.267E-02		5.029E-03	1.742E-02	5.912E-04	0.727
I-131	2.556E-01		3.784E-01	1.264E+00	4.424E-02	0.202
BA-133	-1.563E-04		7.756E-03	2.195E-02	7.867E-04	-0.007
CS-134	6.248E-02	+	1.525E-02	2.659E-02	1.223E-03	2.350
CS-137DA	-1.118E-02		6.016E-03	1.982E-02	6.648E-04	-0.564
LA-138	-9.950E-03		8.087E-03	2.665E-02	1.087E-03	-0.373
CE-139	-3.857E-03		6.484E-03	2.154E-02	8.420E-04	-0.179
BA-140	-1.859E-01		2.638E-01	8.748E-01	2.785E-02	-0.213
BALA-140	-4.768E-01		1.787E-01	5.518E-01	2.121E-02	-0.864
CE-141	-7.086E-03		2.467E-02	8.273E-02	3.091E-03	-0.086
CE-144	2.898E-02		4.262E-02	1.444E-01	5.239E-03	0.201
CEPR-144	5.963E-02		8.708E-02	2.888E-01	1.048E-02	0.206
PM-144	8.362E-03		5.146E-03	1.739E-02	5.747E-04	0.481
PM-146	1.609E-03		6.492E-03	2.205E-02	7.055E-04	0.073
EU-152	-2.034E-02		1.633E-02	5.351E-02	1.977E-03	-0.380
EU-154	1.620E-02		2.060E-02	7.084E-02	2.787E-03	0.229
EU-155	7.471E-02		2.327E-02	7.624E-02	2.931E-03	0.980
HF-181	-8.076E-03		1.204E-02	4.025E-02	1.280E-03	-0.201
BI-207	5.147E-04		4.809E-03	1.605E-02	5.196E-04	0.032
BI-210M	-9.449E-04		9.295E-03	2.685E-02	1.065E-03	-0.035
BI-212	1.413E+00	+	1.700E-01	3.670E-01	1.669E-02	3.849
RA-223	4.744E-01	+	6.288E-02	1.252E-01	4.965E-03	3.790
AC-227DA	1.984E-01		5.132E-02	1.448E-01	5.730E-03	1.370
TH-234DA	2.468E+00		9.599E-01	3.318E+00	1.689E-01	0.744
U-235HP	1.171E-01		3.988E-02	1.344E-01	4.995E-03	0.871
NP-237DA	-1.098E-02		1.146E-02	3.797E-02	1.486E-03	-0.289
U-238DHP	1.535E-01		4.316E-01	1.448E+00	7.028E-02	0.106
AM-241HP	-3.595E-02		5.834E-02	1.948E-01	9.346E-03	-0.185


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478L1AA
Detector ID: GER8 1
Energy Coefficients:
Offset: -8.03406E-02
Slope: 2.49773E-01
Quadrature: 1.62232E-08
Acquisition Start: 17-SEP-2007 19:04:20.31
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
10000
1000
100
10
1
50
100
200
500
1000
2000
226 Ra, 214 Bi
40 K
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
214 Bi
212 Bi
54 Mn, 95 Tc
212 Bi, 214 Pb
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
95 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Bi, 140 La
214 Pb, 234 U, 238 U, 226 Ra
212 Pb
223 Ra, 228 Ac
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214 Pb
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 226 Ra
238 U
152 Eu
238 U

SAMPLE IDENTIFICATION: J478L1AA

CONFIGURATION ID: GER8:J478L1AA_170971904
TITLE : BRC SOIL
SAMPLE ID : J478L1AA

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 17-SEP-07 19:04:20
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 29-JUL-2007 10:15:00.00
CALIB DATE: 17-SEP-2007 05:00:01.58
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:15

SAMPLE QUANTITY: 3.6520E+02
SAMPLE GEOMETRY: ES200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.8034E-01 keV
ENERGY SLOPE: 2.4977E-01 keV/C
ENERGY Q COEFF: 1.6223E-08 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 9.4975E-01 keV
FWHM SLOPE: 2.1290E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 60.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 17:29:03

Configuration : $DISK1:[GER8.SAMPLE]J478L1AA_170971904.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 29-JUL-2007 10:15:00 Acquisition date : 17-SEP-2007 19:04:20
Sample ID : J478L1AA Sample quantity : 365.20 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:15.67 0.0%
Start energy : 19.90 End energy : 2047.15
Sensitivity : 5.00 Gaussian : 60.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.56*	646	2546	1.12	186.72	180	13	1.79E-02	17.6	
2	0	63.26*	1014	4736	0.96	253.58	247	14	2.82E-02	15.3	
3	2	74.85*	4010	5171	1.07	299.98	293	37	1.11E-01	4.0	3.09E+00
4	2	77.13*	6702	4666	1.15	309.10	293	37	1.86E-01	2.6	
5	2	84.16*	977	3186	1.34	337.27	331	25	2.71E-02	12.3	1.33E+00
6	2	87.21	2267	3603	1.23	349.49	331	25	6.30E-02	5.8	
7	3	89.95	1312	2460	1.08	360.42	356	35	3.65E-02	7.2	1.64E+00
8	3	92.95*	2190	4486	1.54	372.47	356	35	6.08E-02	7.7	
9	0	129.24	575	2603	1.04	517.72	511	13	1.60E-02	18.8	
10	0	186.11*	1339	2144	1.42	745.38	739	14	3.72E-02	8.3	
11	0	209.28	787	2372	0.98	838.17	828	18	2.19E-02	14.9	
12	3	238.65*	8439	1569	1.22	955.75	948	29	2.34E-01	1.5	1.67E+00
13	3	241.66	2249	1860	1.69	967.78	948	29	6.25E-02	5.1	
14	0	270.14	707	1521	1.37	1081.81	1073	18	1.96E-02	13.5	
15	0	295.26	3124	1300	1.22	1182.34	1174	20	8.68E-02	3.4	
16	0	299.90	530	1414	1.17	1200.93	1194	20	1.47E-02	17.9	
17	0	328.01	380	857	1.07	1313.44	1307	13	1.05E-02	16.7	
18	0	338.25	1651	1228	1.28	1354.45	1344	20	4.59E-02	5.8	
19	0	351.88*	5088	1100	1.36	1408.99	1399	20	1.41E-01	2.2	
20	0	463.35	570	590	1.50	1855.18	1846	19	1.58E-02	11.1	
21	0	510.80*	825	860	1.80	2045.09	2034	27	2.29E-02	12.2	
22	0	583.18	2588	687	1.50	2334.81	2324	22	7.19E-02	3.3	
23	0	609.26*	3496	637	1.51	2439.20	2428	24	9.71E-02	2.6	
24	0	727.33	653	535	1.50	2911.74	2899	27	1.81E-02	9.2	
25	0	768.49	230	467	1.33	3076.45	3069	17	6.40E-03	19.6	
26	0	786.28	93	408	1.44	3147.64	3136	17	2.58E-03	43.9	
27	0	795.00	298	401	1.61	3182.53	3172	21	8.27E-03	15.4	
28	0	835.71	122	354	1.49	3345.47	3335	19	3.38E-03	32.9	
29	0	860.49	322	430	1.25	3444.63	3434	22	8.95E-03	15.0	
30	0	911.17	1756	410	1.56	3647.45	3636	25	4.88E-02	3.5	
31	0	934.72	160	347	1.43	3741.71	3730	20	4.45E-03	25.6	
32	0	967.85	1276	563	1.73	3874.28	3856	33	3.54E-02	5.5	
33	0	1120.33	864	469	1.78	4484.39	4469	29	2.40E-02	6.9	
34	0	1238.67	316	640	1.49	4957.92	4945	27	8.79E-03	19.8	
35	0	1377.62	224	127	1.97	5513.85	5503	23	6.22E-03	12.9	
36	0	1460.75*	8861	135	1.90	5846.41	5830	30	2.46E-01	1.1	
37	0	1729.83	131	85	2.38	6922.82	6906	30	3.64E-03	19.3	
38	0	1764.45	604	63	2.32	7061.27	7045	40	1.68E-02	5.4	
39	0	1847.74	99	47	0.70	7394.44	7383	27	2.75E-03	19.4	

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

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:29:03

Configuration : $DISK1:[GER8.SAMPLE]J478L1AA_170971904.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 29-JUL-2007 10:15:00 Acquisition date : 17-SEP-2007 19:04:20
Sample ID : J478L1AA Sample quantity : 365.20 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:15.67 0.0%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	8861	10.67*	5.801E-01	2.943E+01	2.943E+01	6.22
TL-208	277.35	------	6.80	2.336E+00	------ Line Not Found		------
	510.84	825	21.60	1.414E+00	5.556E-01	5.556E-01	13.52
	583.14	2588	84.20*	1.263E+00	5.003E-01	5.003E-01	6.87
	860.37	322	12.46	9.072E-01	5.861E-01	5.861E-01	16.35
PB-212	238.63	8439	44.60*	2.617E+00	1.486E+00	1.486E+00	6.49
	300.09	530	3.41	2.197E+00	1.453E+00	1.453E+00	18.91
BI-214	609.31	3496	46.30*	1.217E+00	1.276E+00	1.276E+00	6.64
	768.36	230	5.04	9.987E-01	9.414E-01	9.414E-01	20.61
	1120.29	864	15.10	7.255E-01	1.621E+00	1.621E+00	9.25
	1764.49	604	15.80	4.950E-01	1.587E+00	1.587E+00	8.04
PB-214	241.98	2249	7.49	2.593E+00	2.381E+00	2.381E+00	8.13
	295.21	3124	19.20	2.224E+00	1.504E+00	1.504E+00	7.07
	351.92	5088	37.20*	1.931E+00	1.456E+00	1.456E+00	6.44
	785.91	93	1.10	9.794E-01	1.772E+00	1.772E+00	44.42
RA-224DA	238.63	8439	44.60*	2.617E+00	1.486E+00	1.563E+00	6.49
	240.98	2249	3.95	2.593E+00	4.515E+00	4.747E+00	8.13
	583.14	2588	30.25	1.263E+00	1.393E+00	1.464E+00	6.87
	860.37	322	4.48	9.072E-01	1.630E+00	1.714E+00	16.35
RA-226DA	186.21	1339	3.50	3.107E+00	2.531E+00	2.531E+00	10.43
	241.98	2249	7.49	2.593E+00	2.381E+00	2.381E+00	8.13
	295.22	3124	19.20	2.224E+00	1.504E+00	1.504E+00	7.07
	351.92	5088	37.20	1.931E+00	1.456E+00	1.456E+00	6.44
	609.32	3496	46.30*	1.217E+00	1.276E+00	1.276E+00	6.64
	1120.28	864	15.10	7.255E-01	1.621E+00	1.621E+00	9.25
	1238.11	316	5.94	6.665E-01	1.643E+00	1.643E+00	20.71
	1764.49	604	15.80	4.950E-01	1.587E+00	1.587E+00	8.04
AC-228	209.28	787	4.40	2.874E+00	1.280E+00	1.280E+00	16.21
	270.23	707	3.60	2.384E+00	1.694E+00	1.694E+00	14.86
	338.32	1651	11.40	1.994E+00	1.493E+00	1.493E+00	8.38
	911.07	1756	27.70*	8.642E-01	1.508E+00	1.508E+00	7.53
	969.11	1276	16.60	8.211E-01	1.924E+00	1.924E+00	8.54
RA-228DA	209.28	787	4.40	2.874E+00	1.280E+00	1.301E+00	16.21
	338.32	1651	11.40	1.994E+00	1.493E+00	1.518E+00	8.38
	911.07	1756	27.70*	8.642E-01	1.508E+00	1.534E+00	7.53
	964.60	------	5.20	8.234E-01	------ Line Not Found		------

Sample ID : J478L1AA Acquisition date : 17-SEP-2007 19:04:20

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	969.11	1276	16.60	8.211E-01	1.924E+00	1.956E+00	8.54
TH-228DA	238.63	8439	44.60	2.617E+00	1.486E+00	1.563E+00	6.49
	240.98	2249	3.95	2.593E+00	4.515E+00	4.747E+00	8.13
	583.14	2588	30.25*	1.263E+00	1.393E+00	1.464E+00	6.87
	860.37	322	4.48	9.072E-01	1.630E+00	1.714E+00	16.35
TH-232DA	238.63	8439	44.60	2.617E+00	1.486E+00	1.486E+00	6.49
	338.32	1651	12.40*	1.994E+00	1.373E+00	1.373E+00	8.38
	583.14	2588	30.25	1.263E+00	1.393E+00	1.393E+00	6.87
	911.07	1756	27.70	8.642E-01	1.508E+00	1.508E+00	7.53
	964.60	------	5.20	8.234E-01	------ Line Not Found		------
	969.11	1276	16.60	8.211E-01	1.924E+00	1.924E+00	8.54
U-234DA	241.98	2249	7.49	2.593E+00	2.381E+00	2.381E+00	8.13
	295.22	3124	19.20*	2.224E+00	1.504E+00	1.504E+00	7.07
	351.92	5088	37.20	1.931E+00	1.456E+00	1.456E+00	6.44
	609.31	3496	46.30	1.217E+00	1.276E+00	1.276E+00	6.64
U-238DA	241.98	2249	7.49	2.593E+00	2.381E+00	2.381E+00	8.13
	295.22	3124	19.20	2.224E+00	1.504E+00	1.504E+00	7.07
	351.92	5088	37.20*	1.931E+00	1.456E+00	1.456E+00	6.44
	609.31	3496	46.30	1.217E+00	1.276E+00	1.276E+00	6.64
U-238DHP	63.28	1014	3.80*	3.724E+00	1.473E+00	1.473E+00	16.40
	92.59	2190	5.41	4.071E+00	2.045E+00	2.045E+00	9.81

Nuclide Type: AP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
MN-54	834.83	122	99.98*	9.300E-01	2.689E-02	3.008E-02	33.53

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : J478L1AA

Acquisition date : 17-SEP-2007 19:04:20

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	46.56	646	2546	1.12	186.72	180	13	1.79E-02	17.6	2.84E+00	
2	74.85	4010	5171	1.07	299.98	293	37	1.11E-01	4.0	3.99E+00	
2	77.13	6702	4666	1.15	309.10	293	37	1.86E-01	2.6	4.01E+00	
2	84.16	977	3186	1.34	337.27	331	25	2.71E-02	12.3	4.07E+00	
2	87.21	2267	3603	1.23	349.49	331	25	6.30E-02	5.8	4.07E+00	T
3	89.95	1312	2460	1.08	360.42	356	35	3.65E-02	7.2	4.08E+00	
0	129.24	575	2603	1.04	517.72	511	13	1.60E-02	18.8	3.77E+00	
0	328.01	380	857	1.07	1313.44	1307	13	1.05E-02	16.7	2.04E+00	T
0	463.35	570	590	1.50	1855.18	1846	19	1.58E-02	11.1	1.54E+00	T
0	727.33	653	535	1.50	2911.74	2899	27	1.81E-02	9.2	1.05E+00	T
0	795.00	298	401	1.61	3182.53	3172	21	8.27E-03	15.4	9.70E-01	T
0	934.72	160	347	1.43	3741.71	3730	20	4.45E-03	25.6	8.46E-01	
0	1377.62	224	127	1.97	5513.85	5503	23	6.22E-03	12.9	6.09E-01	
0	1729.83	131	85	2.38	6922.82	6906	30	3.64E-03	19.3	5.03E-01	
0	1847.74	99	47	0.70	7394.44	7383	27	2.75E-03	19.4	4.76E-01	

Flags: "T" = Tentatively associated

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	6.930E-02	13.52	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.60	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	3.718E-01	9.25	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.83	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	2.554E+00	6.87	
			835.13	26.10	1.830E-01	33.53	
		% Abundances Found =		45.56			
RU-103	39.35D	1.29	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	2.571E+01	6.64	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	6.407E-01	13.52	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	7.640E-01	12.61	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	7.742E-02	16.72	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	30.18	328.77	20.50	2.263E+08	17.81	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	3.774E-01	8.38	
			105.31*	20.70	--- Not Found ---		
		% Abundances Found =		42.47			
BI-212	1.41E+10Y	0.00	288.07	0.31	--- Not Found ---		Abun.
			327.96	0.14	2.747E+01	19.49	
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.950E+00	11.39	
			785.37	1.10	1.772E+00	44.50	
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		

Sample ID : J478L1AA
Acquisition date : 17-SEP-2007 19:04:20

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
BI-212	1.41E+10Y	0.00	1078.62	0.56	--- Not Found ---		Abun.
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	--- Not Found ---		
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		68.47			
RA-223	21.77Y	0.01	154.21	5.58	--- Not Found ---		Abun.
			269.46*	13.60	4.503E-01	14.86	
			323.87	3.88	--- Not Found ---		
		% Abundances Found =		58.98			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	1.641E-01	10.43	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:29:05

Configuration : $DISK1:[GER8.SAMPLE]J478L1AA_170971904.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 29-JUL-2007 10:15:00 Acquisition date : 17-SEP-2007 19:04:20
Sample ID : J478L1AA Sample quantity : 365.20 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:15.67 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.943E+01	1.831E+00	1.715E-01	6.052E-03	171.609
MN-54	3.008E-02	1.008E-02	2.409E-02	1.018E-03	1.249
TL-208	5.003E-01	3.439E-02	2.171E-02	7.414E-04	23.042
PB-212	1.486E+00	9.650E-02	3.479E-02	1.337E-03	42.725
BI-214	1.276E+00	8.471E-02	4.032E-02	1.411E-03	31.635
PB-214	1.456E+00	9.375E-02	4.267E-02	1.459E-03	34.132
RA-224DA	1.563E+00	1.015E-01	3.658E-02	1.406E-03	42.725
RA-226DA	1.276E+00	8.471E-02	4.033E-02	1.411E-03	31.635
AC-228	1.508E+00	1.135E-01	7.854E-02	3.433E-03	19.206
RA-228DA	1.534E+00	1.154E-01	7.986E-02	3.490E-03	19.206
TH-228DA	1.464E+00	1.006E-01	6.355E-02	2.170E-03	23.042
TH-232DA	1.373E+00	1.151E-01	1.304E-01	4.550E-03	10.525
U-234DA	1.504E+00	1.063E-01	7.825E-02	2.897E-03	19.220
U-238DA	1.456E+00	9.375E-02	4.267E-02	1.459E-03	34.132
U-238DHP	1.473E+00	2.417E-01	4.665E-01	1.487E-02	3.158

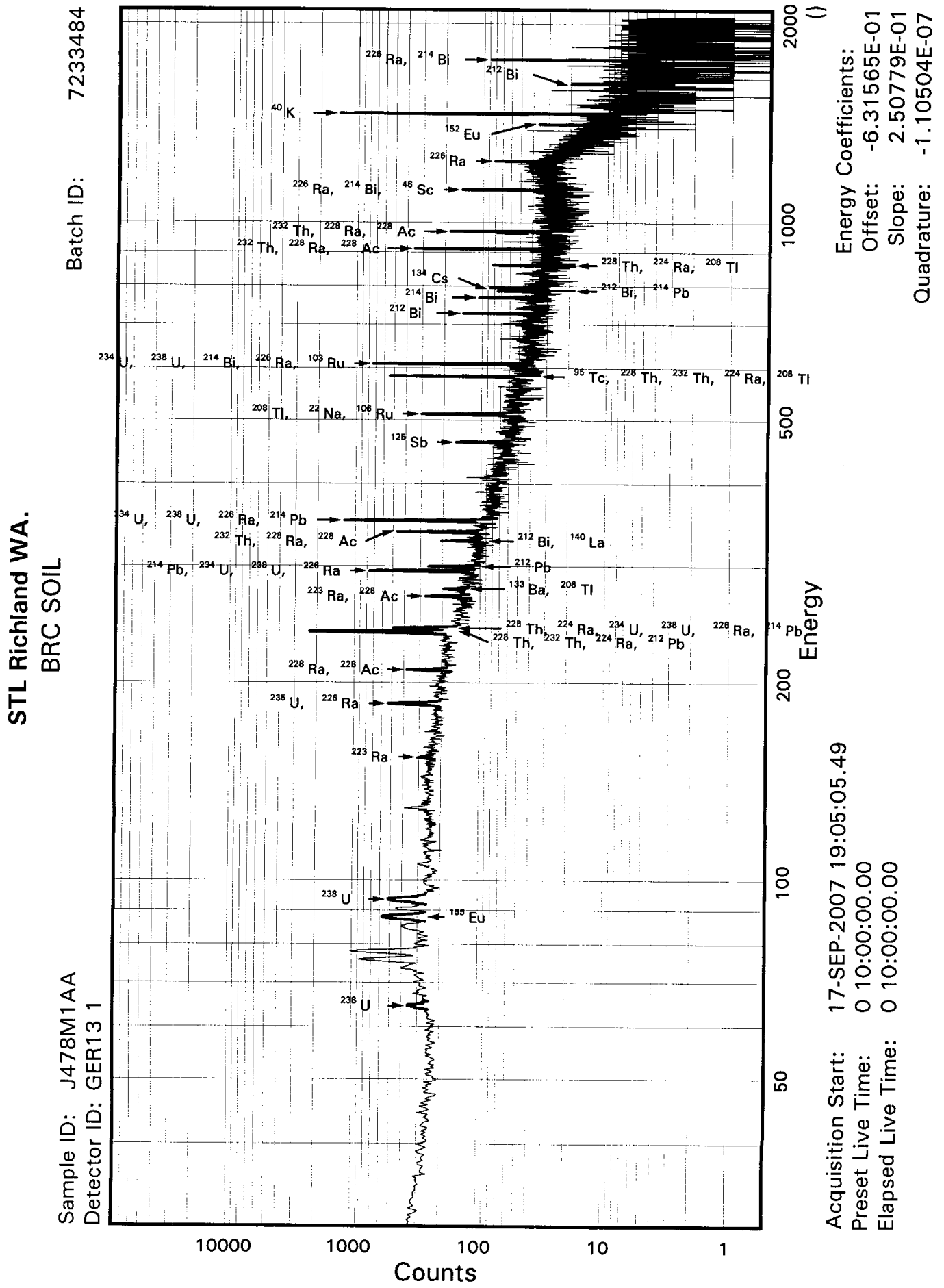
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	3.287E-02		9.335E-02	3.106E-01	9.936E-03	0.106
NA-22	1.137E-03		8.246E-03	2.790E-02	9.596E-04	0.041
SC-46	3.718E-01	+	3.440E-02	6.958E-02	2.447E-03	5.343
CR-51	7.765E-02		1.651E-01	5.551E-01	1.979E-02	0.140
CO-57	-2.800E-02		4.510E-02	1.481E-01	5.064E-03	-0.189
CO-58	-2.494E-02		1.043E-02	3.304E-02	1.372E-03	-0.755
FE-59	2.107E-02		2.918E-02	1.002E-01	3.636E-03	0.210
CO-60	6.795E-03		6.838E-03	2.369E-02	8.453E-04	0.287
ZN-65	-3.237E-02		2.185E-02	5.961E-02	2.112E-03	-0.543
SE-75	1.235E-02		1.076E-02	3.387E-02	1.290E-03	0.365
SR-85	5.217E-02		1.102E-02	3.340E-02	1.059E-03	1.562
Y-88	9.720E-04		5.816E-03	2.083E-02	6.505E-04	0.047
NB-94	-5.424E-03		6.164E-03	2.024E-02	8.764E-04	-0.268

Sample ID : J478L1AA
Acquisition date : 17-SEP-2007 19:04:20

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
NB-95	7.156E-02		2.192E-02	6.514E-02	2.614E-03	1.099
TC-95M	4.833E-03		1.362E-02	4.066E-02	1.554E-03	0.119
ZR-95	5.780E-02		1.950E-02	6.741E-02	2.685E-03	0.857
ZRNB-95	8.667E-02		2.793E-02	8.284E-02	3.324E-03	1.046
RH-101	4.332E-03		7.197E-03	2.183E-02	8.324E-04	0.198
RH-102M	1.347E-04		5.385E-03	1.785E-02	5.711E-04	0.008
RU-103	1.481E-02		1.338E-02	4.617E-02	1.472E-03	0.321
RU-106DA	1.309E-01		6.030E-02	2.091E-01	7.400E-03	0.626
AG-108M	-7.288E-04		5.336E-03	1.770E-02	5.653E-04	-0.041
AG-110M	-1.376E-02		9.737E-03	3.243E-02	1.417E-03	-0.424
SN-113DA	-1.268E-02		1.042E-02	3.408E-02	1.073E-03	-0.372
SB-124	7.323E-03		1.071E-02	3.432E-02	1.194E-03	0.213
SB-125	-8.314E-03		1.751E-02	5.778E-02	1.843E-03	-0.144
SN-126DA	1.448E-02		5.928E-03	2.049E-02	7.529E-04	0.707
I-131	9.079E-02		4.493E-01	1.503E+00	5.027E-02	0.060
BA-133	1.159E-02		8.907E-03	2.570E-02	8.728E-04	0.451
CS-134	7.742E-02	+	1.294E-02	3.136E-02	1.288E-03	2.469
CS-137DA	-1.086E-02		7.110E-03	2.331E-02	8.528E-04	-0.466
LA-138	-1.803E-03		8.252E-03	2.864E-02	1.014E-03	-0.063
CE-139	-9.701E-04		7.141E-03	2.343E-02	8.732E-04	-0.041
BA-140	-2.924E-01		3.132E-01	1.049E+00	3.415E-02	-0.279
BALA-140	-1.022E+00		2.137E-01	5.996E-01	2.058E-02	-1.704
CE-141	7.373E-02		2.688E-02	8.893E-02	3.137E-03	0.829
CE-144	-6.035E-02		4.720E-02	1.442E-01	4.880E-03	-0.419
CEPR-144	-1.210E-01		9.440E-02	2.884E-01	9.760E-03	-0.420
PM-144	1.131E-05		5.993E-03	2.028E-02	7.155E-04	0.001
PM-146	5.041E-03		7.822E-03	2.614E-02	8.371E-04	0.193
EU-152	-2.276E-02		1.853E-02	5.873E-02	2.032E-03	-0.388
EU-154	1.459E-02		2.241E-02	7.656E-02	2.634E-03	0.191
EU-155	3.527E-02		2.000E-02	6.678E-02	2.199E-03	0.528
HF-181	1.148E-02		1.347E-02	4.638E-02	1.483E-03	0.248
BI-207	5.841E-04		5.448E-03	1.851E-02	6.235E-04	0.032
BI-210M	-1.248E-02		1.070E-02	3.000E-02	1.141E-03	-0.416
BI-212	1.950E+00	+	2.220E-01	4.466E-01	2.012E-02	4.366
RA-223	4.503E-01	+	6.693E-02	1.336E-01	5.071E-03	3.371
AC-227DA	5.419E-01		6.184E-02	1.641E-01	6.312E-03	3.302
TH-234DA	2.062E+00		1.072E+00	3.748E+00	1.527E-01	0.550
U-235HP	1.398E-01		4.242E-02	1.400E-01	4.909E-03	0.999
NP-237DA	-1.371E-02		1.257E-02	4.152E-02	1.501E-03	-0.330
AM-241HP	6.964E-02		1.730E-02	4.975E-02	1.605E-03	1.400


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478M1AA
Detector ID: GER13 1
Energy Coefficients:
Offset: -6.31565E-01
Slope: 2.50779E-01
Quadrature: -1.10504E-07
Acquisition Start: 17-SEP-2007 19:05:05.49
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
10000
1000
100
10
1
50
100
200
500
1000
2000
40 K
152 Eu
226 Ra
226 Ra, 214 Bi
212 Bi
46 Sc
232 Th, 228 Ra, 228 Ac
134 Cs
214 Bi
212 Bi
228 Th, 224 Ra, 208 Tl
212 Bi, 214 Pb
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
95 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Bi, 140 La
214 Pb, 234 U, 238 U, 226 Ra
212 Pb
223 Ra, 228 Ac
133 Ba, 208 Tl
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214 Pb
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 226 Ra
223 Ra
238 U
155 Eu
238 U

SAMPLE IDENTIFICATION: J478M1AA

CONFIGURATION ID: GER13:J478M1AA_170971905
TITLE : BRC SOIL
SAMPLE ID : J478M1AA

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 17-SEP-07 19:05:05
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 29-JUL-2007 10:15:00.00
CALIB DATE: 17-SEP-2007 05:00:57.10
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:23

SAMPLE QUANTITY: 3.7670E+02
SAMPLE GEOMETRY: S200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.6316E+00 keV
ENERGY SLOPE: 2.5078E-01 keV/C
ENERGY Q COEFF: -.1105E-06 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 5.3673E-01 keV
FWHM SLOPE: 3.5178E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 40.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 17:30:38

Configuration : $DISK1:[GER13.SAMPLE]J478M1AA_170971905.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 29-JUL-2007 10:15:00 Acquisition date : 17-SEP-2007 19:05:05
Sample ID : J478M1AA Sample quantity : 376.70 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:23.69 0.1%
Start energy : 19.43 End energy : 2046.34
Sensitivity : 5.00 Gaussian : 40.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	64.58	306	2298	0.88	260.06	256	9	8.50E-03	28.8	
2	2	73.98*	178	3585	1.02	297.55	289	31	4.94E-03	70.0	1.98E+00
3	2	75.87*	1905	3151	0.94	305.09	289	31	5.29E-02	6.5	
4	2	78.01	3106	2944	0.95	313.62	289	31	8.63E-02	3.9	
5	0	87.96	1598	3157	1.20	353.31	348	12	4.44E-02	7.5	
6	0	90.59	778	2655	1.02	363.81	360	10	2.16E-02	12.9	
7	0	93.59	1503	4258	1.47	375.79	369	16	4.17E-02	10.1	
8	0	129.35	511	2752	0.86	518.43	513	11	1.42E-02	20.4	
9	0	154.20	257	2140	0.79	617.58	613	9	7.13E-03	33.1	
10	0	185.86	1815	3540	1.37	743.90	735	17	5.04E-02	7.9	
11	0	209.18	959	2565	1.20	836.95	829	14	2.66E-02	11.7	
12	4	238.50*	9373	2502	1.09	953.94	944	30	2.60E-01	1.6	2.55E+00
13	4	241.48	2227	2814	1.59	965.85	944	30	6.19E-02	6.2	
14	0	270.02	833	2037	1.22	1079.76	1072	16	2.31E-02	12.6	
15	0	277.20	277	1445	1.16	1108.39	1103	11	7.69E-03	27.3	
16	0	295.01*	3233	1900	1.21	1179.49	1172	16	8.98E-02	3.6	
17	0	299.79	625	1442	0.85	1198.60	1193	13	1.74E-02	13.1	
18	0	327.67	590	1408	1.19	1309.87	1302	15	1.64E-02	14.4	
19	0	338.03	1927	1470	1.17	1351.25	1343	15	5.35E-02	4.9	
20	0	351.72*	5728	2057	1.24	1405.88	1397	22	1.59E-01	2.5	
21	0	409.51	172	1331	1.13	1636.65	1627	17	4.79E-03	49.1	
22	0	462.61	627	934	1.58	1848.71	1840	16	1.74E-02	11.6	
23	0	510.79*	930	1759	1.86	2041.18	2028	33	2.58E-02	15.9	
24	0	583.10*	3051	989	1.41	2330.07	2319	21	8.47E-02	3.4	
25	0	609.18*	4322	982	1.60	2434.27	2421	24	1.20E-01	2.7	
26	0	727.29	759	627	1.56	2906.36	2896	19	2.11E-02	8.7	
27	0	768.32	463	677	1.43	3070.41	3060	20	1.29E-02	12.6	
28	0	786.14	239	473	1.15	3141.67	3134	17	6.65E-03	19.0	
29	0	794.80	378	845	1.47	3176.28	3163	26	1.05E-02	18.5	
30	0	860.80	367	650	1.51	3440.23	3430	22	1.02E-02	15.9	
31	0	911.24*	2300	680	1.58	3641.99	3628	27	6.39E-02	3.5	
32	0	933.97	318	602	1.42	3732.92	3719	26	8.82E-03	18.7	
33	0	968.29*	1357	1016	1.73	3870.23	3851	31	3.77E-02	6.6	
34	0	1120.37*	1037	820	1.86	4478.90	4462	34	2.88E-02	8.1	
35	0	1238.30	364	775	1.86	4951.14	4940	23	1.01E-02	17.7	
36	0	1377.48	305	266	2.35	5508.71	5496	27	8.48E-03	13.8	
37	0	1407.64	138	214	1.08	5629.56	5620	22	3.84E-03	24.3	
38	0	1460.56*	12542	788	2.10	5841.63	5824	33	3.48E-01	1.1	
39	0	1588.17	131	169	2.01	6353.25	6344	18	3.63E-03	21.8	
40	0	1621.20	75	134	1.27	6485.69	6473	22	2.10E-03	35.2	
41	0	1728.88	167	80	2.67	6917.64	6905	23	4.63E-03	14.1	
42	0	1763.72*	691	184	2.20	7057.44	7041	32	1.92E-02	6.4	
43	0	1846.50	142	59	1.34	7389.64	7376	23	3.95E-03	13.5	

Sample ID : J478M1AA Acquisition date : 17-SEP-2007 19:05:05

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

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

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:30:39

Configuration : $DISK1:[GER13.SAMPLE]J478M1AA_170971905.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 29-JUL-2007 10:15:00 Acquisition date : 17-SEP-2007 19:05:05
Sample ID : J478M1AA Sample quantity : 376.70 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:23.69 0.1%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	12542	10.67*	7.699E-01	3.043E+01	3.043E+01	6.53
TL-208	277.35	277	6.80	2.835E+00	2.861E-01	2.861E-01	28.05
	510.84	930	21.60	1.898E+00	4.522E-01	4.522E-01	16.98
	583.14	3051	84.20*	1.721E+00	4.195E-01	4.195E-01	6.86
	860.37	367	12.46	1.247E+00	4.707E-01	4.707E-01	17.50
PB-212	238.63	9373	44.60*	3.095E+00	1.353E+00	1.353E+00	6.57
	300.09	625	3.41	2.702E+00	1.352E+00	1.352E+00	14.59
BI-214	609.31	4322	46.30*	1.665E+00	1.118E+00	1.118E+00	6.55
	768.36	463	5.04	1.378E+00	1.330E+00	1.330E+00	14.21
	1120.29	1037	15.10	9.769E-01	1.401E+00	1.401E+00	10.37
	1764.49	691	15.80	6.731E-01	1.296E+00	1.296E+00	8.79
PB-214	241.98	2227	7.49	3.073E+00	1.928E+00	1.928E+00	8.91
	295.21	3233	19.20	2.729E+00	1.230E+00	1.230E+00	7.34
	351.92	5728	37.20*	2.443E+00	1.256E+00	1.256E+00	6.66
	785.91	239	1.10	1.351E+00	3.210E+00	3.210E+00	20.20
RA-223	154.21	257	5.58	3.677E+00	2.492E-01	2.503E-01	33.68
	269.46	833	13.60*	2.880E+00	4.240E-01	4.259E-01	14.12
	323.87	------	3.88	2.575E+00	------	Line Not Found	------
RA-224DA	238.63	9373	44.60*	3.095E+00	1.353E+00	1.423E+00	6.57
	240.98	2227	3.95	3.073E+00	3.656E+00	3.844E+00	8.91
	583.14	3051	30.25	1.721E+00	1.168E+00	1.228E+00	6.86
	860.37	367	4.48	1.247E+00	1.309E+00	1.376E+00	17.50
RA-226DA	186.21	1815	3.50	3.493E+00	2.958E+00	2.958E+00	10.11
	241.98	2227	7.49	3.073E+00	1.928E+00	1.928E+00	8.91
	295.22	3233	19.20	2.729E+00	1.230E+00	1.230E+00	7.34
	351.92	5728	37.20	2.443E+00	1.256E+00	1.256E+00	6.66
	609.32	4322	46.30*	1.665E+00	1.118E+00	1.118E+00	6.55
	1120.28	1037	15.10	9.769E-01	1.401E+00	1.401E+00	10.37
	1238.11	364	5.94	8.901E-01	1.373E+00	1.373E+00	18.77
	1764.49	691	15.80	6.731E-01	1.296E+00	1.296E+00	8.79
AC-228	209.28	959	4.40	3.315E+00	1.310E+00	1.310E+00	13.28
	270.23	833	3.60	2.880E+00	1.602E+00	1.602E+00	14.12
	338.32	1927	11.40	2.506E+00	1.344E+00	1.344E+00	7.94
	911.07	2300	27.70*	1.184E+00	1.397E+00	1.397E+00	8.32
	969.11	1357	16.60	1.120E+00	1.455E+00	1.455E+00	9.80
RA-228DA	209.28	959	4.40	3.315E+00	1.310E+00	1.332E+00	13.28

Sample ID : J478M1AA Acquisition date : 17-SEP-2007 19:05:05

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	338.32	1927	11.40	2.506E+00	1.344E+00	1.367E+00	7.94
	911.07	2300	27.70*	1.184E+00	1.397E+00	1.421E+00	8.32
	964.60	------	5.20	1.124E+00	------ Line Not Found		------
	969.11	1357	16.60	1.120E+00	1.455E+00	1.479E+00	9.80
TH-228DA	238.63	9373	44.60	3.095E+00	1.353E+00	1.423E+00	6.57
	240.98	2227	3.95	3.073E+00	3.656E+00	3.844E+00	8.91
	583.14	3051	30.25*	1.721E+00	1.168E+00	1.228E+00	6.86
	860.37	367	4.48	1.247E+00	1.309E+00	1.376E+00	17.50
TH-232DA	238.63	9373	44.60	3.095E+00	1.353E+00	1.353E+00	6.57
	338.32	1927	12.40*	2.506E+00	1.236E+00	1.236E+00	7.94
	583.14	3051	30.25	1.721E+00	1.168E+00	1.168E+00	6.86
	911.07	2300	27.70	1.184E+00	1.397E+00	1.397E+00	8.32
	964.60	------	5.20	1.124E+00	------ Line Not Found		------
	969.11	1357	16.60	1.120E+00	1.455E+00	1.455E+00	9.80
U-234DA	241.98	2227	7.49	3.073E+00	1.928E+00	1.928E+00	8.91
	295.22	3233	19.20*	2.729E+00	1.230E+00	1.230E+00	7.34
	351.92	5728	37.20	2.443E+00	1.256E+00	1.256E+00	6.66
	609.31	4322	46.30	1.665E+00	1.118E+00	1.118E+00	6.55
U-238DA	241.98	2227	7.49	3.073E+00	1.928E+00	1.928E+00	8.91
	295.22	3233	19.20	2.729E+00	1.230E+00	1.230E+00	7.34
	351.92	5728	37.20*	2.443E+00	1.256E+00	1.256E+00	6.66
	609.31	4322	46.30	1.665E+00	1.118E+00	1.118E+00	6.55
U-238DHP	63.28	306	3.80*	9.708E-01	1.653E+00	1.653E+00	29.64
	92.59	1503	5.41	2.786E+00	1.987E+00	1.987E+00	12.04

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
BI-212	288.07	------	0.31	2.769E+00	------ Line Not Found		------
	327.96	590	0.14	2.556E+00	3.312E+01	3.312E+01	17.63
	452.83	------	0.31	2.065E+00	------ Line Not Found		------
	727.33	759	6.58*	1.443E+00	1.592E+00	1.592E+00	11.02
	785.37	239	1.10	1.351E+00	3.210E+00	3.210E+00	20.38
	893.41	------	0.38	1.206E+00	------ Line Not Found		------
	952.12	------	0.17	1.137E+00	------ Line Not Found		------
	1078.62	------	0.56	1.012E+00	------ Line Not Found		------
	1512.70	------	0.29	7.484E-01	------ Line Not Found		------
	1620.50	75	1.49	7.105E-01	1.420E+00	1.420E+00	35.95
	1806.00	------	0.09	6.644E-01	------ Line Not Found		------

Flag: "*" = Keyline

Sample ID : J478M1AA
Acquisition date : 17-SEP-2007 19:05:05

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
2	73.98	178	3585	1.02	297.55	289	31	4.94E-03	70.0	1.62E+00	
2	75.87	1905	3151	0.94	305.09	289	31	5.29E-02	6.5	1.75E+00	
2	78.01	3106	2944	0.95	313.62	289	31	8.63E-02	3.9	1.89E+00	
0	87.96	1598	3157	1.20	353.31	348	12	4.44E-02	7.5	2.50E+00	T
0	90.59	778	2655	1.02	363.81	360	10	2.16E-02	12.9	2.64E+00	
0	129.35	511	2752	0.86	518.43	513	11	1.42E-02	20.4	3.65E+00	
0	409.51	172	1331	1.13	1636.65	1627	17	4.79E-03	49.1	2.21E+00	
0	462.61	627	934	1.58	1848.71	1840	16	1.74E-02	11.6	2.03E+00	T
0	794.80	378	845	1.47	3176.28	3163	26	1.05E-02	18.5	1.34E+00	T
0	933.97	318	602	1.42	3732.92	3719	26	8.82E-03	18.7	1.16E+00	
0	1377.48	305	266	2.35	5508.71	5496	27	8.48E-03	13.8	8.09E-01	
0	1407.64	138	214	1.08	5629.56	5620	22	3.84E-03	24.3	7.94E-01	T
0	1588.17	131	169	2.01	6353.25	6344	18	3.63E-03	21.8	7.21E-01	
0	1728.88	167	80	2.67	6917.64	6905	23	4.63E-03	14.1	6.81E-01	
0	1846.50	142	59	1.34	7389.64	7376	23	3.95E-03	13.5	6.57E-01	

Flags: "T" = Tentatively associated

Sample ID : J478M1AA Acquisition date : 17-SEP-2007 19:05:05

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	5.641E-02	16.98	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.60	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	3.213E-01	10.37	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.83	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	2.142E+00	6.86	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-103	39.35D	1.29	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	2.252E+01	6.55	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	5.215E-01	16.98	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	6.143E-01	13.04	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
BA-133	10.50Y	0.01	81.00	33.00	--- Not Found ---		Abun.
			276.40	6.90	2.845E-01	28.05	
			302.84	17.80	--- Not Found ---		
			356.00*	62.05	--- Not Found ---		
			383.85	8.70	--- Not Found ---		
		% Abundances Found =		5.37			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	6.903E-02	19.71	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	30.18	328.77	20.50	2.728E+08	15.76	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-152	13.60Y	0.01	121.78	28.40	--- Not Found ---		Abun.
			244.67	7.49	--- Not Found ---		
			344.27*	26.50	--- Not Found ---		
			778.89	12.74	--- Not Found ---		
			964.01	14.40	--- Not Found ---		

Sample ID : J478M1AA Acquisition date : 17-SEP-2007 19:05:05

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
EU-152	13.60Y	0.01	1085.78	10.00	--- Not Found ---		Abun.
			1112.02	13.30	--- Not Found ---		
			1407.95	20.70	1.690E-01	25.15	
		% Abundances Found =		15.50			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	4.201E-01	10.18	
			105.31*	20.70	--- Not Found ---		
		% Abundances Found =		42.47			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	1.917E-01	10.11	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:30:42

Configuration : $DISK1:[GER13.SAMPLE]J478M1AA_170971905.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 29-JUL-2007 10:15:00 Acquisition date : 17-SEP-2007 19:05:05
Sample ID : J478M1AA Sample quantity : 376.70 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:23.69 0.1%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

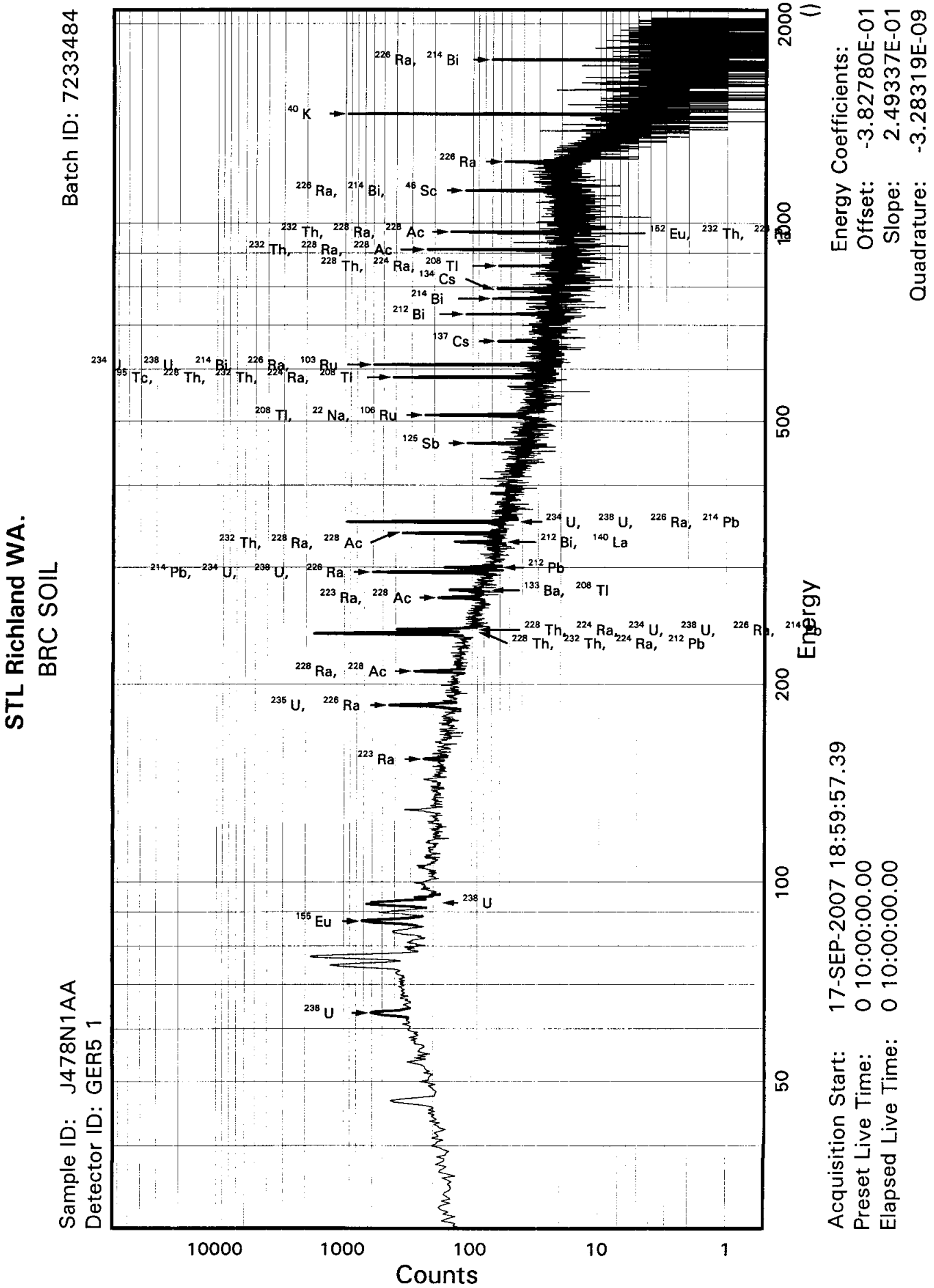
Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	3.043E+01	1.988E+00	2.154E-01	8.733E-03	141.250
TL-208	4.195E-01	2.878E-02	1.868E-02	6.085E-04	22.458
BI-212	1.592E+00	1.755E-01	2.480E-01	1.128E-02	6.420
PB-212	1.353E+00	8.890E-02	3.179E-02	1.259E-03	42.569
BI-214	1.118E+00	7.321E-02	3.504E-02	1.154E-03	31.897
PB-214	1.256E+00	8.371E-02	3.740E-02	1.355E-03	33.588
RA-223	4.259E-01	6.013E-02	1.020E-01	4.044E-03	4.177
RA-224DA	1.423E+00	9.348E-02	3.343E-02	1.324E-03	42.569
RA-226DA	1.118E+00	7.321E-02	3.504E-02	1.154E-03	31.897
AC-228	1.397E+00	1.162E-01	6.707E-02	3.781E-03	20.835
RA-228DA	1.421E+00	1.182E-01	6.820E-02	3.845E-03	20.835
TH-228DA	1.228E+00	8.423E-02	5.468E-02	1.781E-03	22.458
TH-232DA	1.236E+00	9.816E-02	1.170E-01	4.385E-03	10.560
U-234DA	1.230E+00	9.023E-02	7.264E-02	2.864E-03	16.928
U-238DA	1.256E+00	8.371E-02	3.740E-02	1.355E-03	33.588
U-238DHP	1.653E+00	4.900E-01	1.350E+00	6.553E-02	1.225

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-6.715E-02		7.963E-02	2.656E-01	8.455E-03	-0.253
NA-22	-5.644E-03		7.262E-03	2.434E-02	9.579E-04	-0.232
SC-46	3.213E-01	+	3.333E-02	5.769E-02	2.361E-03	5.570
CR-51	8.685E-02		1.482E-01	4.977E-01	1.938E-02	0.175
MN-54	9.166E-03		6.445E-03	2.180E-02	1.091E-03	0.420
CO-57	-1.047E-02		4.292E-02	1.444E-01	5.270E-03	-0.073
CO-58	-9.057E-03		8.624E-03	2.836E-02	1.347E-03	-0.319
FE-59	-1.954E-02		2.532E-02	8.386E-02	3.601E-03	-0.233
CO-60	9.259E-03		6.375E-03	2.215E-02	9.203E-04	0.418
ZN-65	-3.179E-03		1.904E-02	5.339E-02	2.211E-03	-0.060
SE-75	-1.377E-02		9.195E-03	2.997E-02	1.189E-03	-0.459
SR-85	5.181E-02		9.837E-03	2.899E-02	9.109E-04	1.787

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
Y-88	7.367E-03		6.095E-03	2.188E-02	7.059E-04	0.337
NB-94	9.758E-03		5.534E-03	1.875E-02	1.012E-03	0.520
NB-95	4.969E-02		1.782E-02	5.239E-02	2.253E-03	0.948
TC-95M	-1.474E-03		1.151E-02	3.707E-02	1.455E-03	-0.040
ZR-95	3.087E-02		1.679E-02	5.735E-02	2.416E-03	0.538
ZRNB-95	6.536E-02		2.265E-02	6.664E-02	2.866E-03	0.981
RH-101	8.356E-03		5.979E-03	1.986E-02	7.779E-04	0.421
RH-102M	-7.790E-04		4.606E-03	1.550E-02	4.940E-04	-0.050
RU-103	-1.948E-02		1.173E-02	3.850E-02	1.218E-03	-0.506
RU-106DA	8.636E-02		5.164E-02	1.742E-01	5.764E-03	0.496
AG-108M	-9.918E-03		4.581E-03	1.505E-02	4.826E-04	-0.659
AG-110M	5.861E-03		8.766E-03	2.942E-02	1.632E-03	0.199
SN-113DA	-1.376E-02		8.988E-03	2.905E-02	9.294E-04	-0.474
SB-124	-1.497E-03		9.887E-03	2.946E-02	9.676E-04	-0.051
SB-125	3.312E-03		1.469E-02	4.998E-02	1.603E-03	0.066
SN-126DA	2.252E-02		5.169E-03	1.781E-02	6.044E-04	1.265
I-131	6.451E-01		3.972E-01	1.333E+00	4.665E-02	0.484
BA-133	1.340E-02		7.786E-03	2.247E-02	8.053E-04	0.597
CS-134	6.903E-02	+	1.361E-02	2.668E-02	1.227E-03	2.587
CS-137DA	-1.739E-02		5.956E-03	1.916E-02	6.429E-04	-0.907
LA-138	-9.831E-03		8.197E-03	2.702E-02	1.103E-03	-0.364
CE-139	-5.645E-03		6.415E-03	2.124E-02	8.305E-04	-0.266
BA-140	-2.644E-01		2.774E-01	9.156E-01	2.915E-02	-0.289
BALA-140	-4.480E-01		1.750E-01	5.578E-01	2.144E-02	-0.803
CE-141	5.265E-03		2.480E-02	8.340E-02	3.116E-03	0.063
CE-144	-4.357E-02		4.242E-02	1.419E-01	5.148E-03	-0.307
CEPR-144	-1.002E-01		8.685E-02	2.839E-01	1.030E-02	-0.353
PM-144	-9.630E-04		5.155E-03	1.704E-02	5.632E-04	-0.057
PM-146	1.435E-02		6.740E-03	2.312E-02	7.399E-04	0.621
EU-152	-1.132E-02		1.602E-02	5.289E-02	1.954E-03	-0.214
EU-154	-1.754E-02		1.999E-02	6.689E-02	2.632E-03	-0.262
EU-155	1.024E-01		2.340E-02	7.581E-02	2.915E-03	1.350
HF-181	3.646E-03		1.180E-02	3.989E-02	1.268E-03	0.091
BI-207	3.179E-03		4.832E-03	1.621E-02	5.246E-04	0.196
BI-210M	7.495E-03		9.369E-03	2.730E-02	1.083E-03	0.275
AC-227DA	2.291E-01		5.086E-02	1.425E-01	5.642E-03	1.607
TH-234DA	1.987E+00		9.414E-01	3.243E+00	1.651E-01	0.613
U-235HP	7.627E-02		3.932E-02	1.327E-01	4.935E-03	0.575
NP-237DA	-1.005E-03		1.125E-02	3.761E-02	1.472E-03	-0.027
AM-241HP	-4.314E-02		5.693E-02	1.897E-01	9.103E-03	-0.227


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478N1AA
Detector ID: GER5 1
Energy Coefficients:
Offset: -3.82780E-01
Slope: 2.49337E-01
Quadrature: -3.28319E-09
Acquisition Start: 17-SEP-2007 18:59:57.39
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
10000
1000
100
10
1
50
100
200
500
1000
2000
226 Ra, 214 Bi
40 K
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
152 Eu, 232 Th,
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
214 Bi
212 Bi
137 Cs
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
95 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Bi, 140 La
214 Pb, 234 U, 238 U, 226 Ra
212 Pb
223 Ra, 228 Ac
133 Ba, 208 Tl
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214 Pb
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 226 Ra
223 Ra
238 U
155 Eu
238 U

SAMPLE IDENTIFICATION: J478N1AA

CONFIGURATION ID: GER5:J478N1AA_170971859
TITLE : BRC SOIL
SAMPLE ID : J478N1AA

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 17-SEP-07 18:59:57
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 28-JUL-2007 14:15:00.00
CALIB DATE: 17-SEP-2007 04:58:30.80
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:14

SAMPLE QUANTITY: 3.6820E+02
SAMPLE GEOMETRY: ES200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.3828E+00 keV
ENERGY SLOPE: 2.4934E-01 keV/C
ENERGY Q COEFF: -.3283E-08 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 7.1245E-01 keV
FWHM SLOPE: 3.0285E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 20.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 17:32:54

Configuration : RDND06$DKA100:[GER5.SAMPLE]J478N1AA_170971859.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 28-JUL-2007 14:15:00 Acquisition date : 17-SEP-2007 18:59:57
Sample ID : J478N1AA Sample quantity : 368.20 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:14.25 0.0%
Start energy : 19.56 End energy : 2041.96
Sensitivity : 5.00 Gaussian : 20.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.69*	416	2167	0.84	188.78	184	11	1.16E-02	24.0	
2	0	53.39	181	2373	0.49	215.65	211	10	5.04E-03	50.8	
3	0	63.39*	741	3426	0.94	255.76	250	11	2.06E-02	16.5	
4	2	74.85*	3542	3873	0.95	301.74	296	22	9.84E-02	3.8	1.28E+00
5	2	77.13*	5855	3404	0.88	310.88	296	22	1.63E-01	2.4	
6	0	84.11	1061	3137	1.47	338.87	332	13	2.95E-02	11.3	
7	0	87.22	2123	2956	1.03	351.34	346	12	5.90E-02	5.6	
8	0	89.96	1249	2367	1.00	362.35	358	10	3.47E-02	7.8	
9	0	93.01*	2239	3750	1.44	374.56	368	18	6.22E-02	7.2	
10	0	129.08	649	2340	0.73	519.22	513	13	1.80E-02	15.9	
11	0	154.05	239	1694	0.88	619.39	615	10	6.65E-03	32.8	
12	0	185.86*	1520	2421	1.24	746.95	737	18	4.22E-02	8.3	
13	0	209.26	620	1938	0.95	840.82	834	15	1.72E-02	16.0	
14	6	238.60*	6759	1494	1.01	958.50	951	28	1.88E-01	1.7	3.45E+00
15	6	241.65	1871	1831	1.62	970.72	951	28	5.20E-02	6.0	
16	0	270.08	594	1284	1.66	1084.75	1077	15	1.65E-02	13.8	
17	0	277.12	330	1033	1.23	1112.97	1107	13	9.18E-03	20.8	
18	0	295.14	2815	1246	1.12	1185.27	1174	21	7.82E-02	3.7	
19	0	300.10	565	791	1.28	1205.15	1199	13	1.57E-02	11.1	
20	0	327.98	401	870	1.33	1316.95	1311	14	1.11E-02	16.4	
21	0	338.25	1448	809	1.11	1358.15	1351	14	4.02E-02	4.9	
22	0	351.91	4430	930	1.10	1412.95	1405	19	1.23E-01	2.2	
23	0	409.16	213	782	1.10	1642.55	1633	17	5.91E-03	30.9	
24	0	462.95	530	660	1.20	1858.29	1849	22	1.47E-02	13.0	
25	0	510.82*	672	969	1.54	2050.33	2036	26	1.87E-02	15.1	
26	0	562.32	147	318	0.98	2256.88	2250	13	4.08E-03	26.4	
27	0	583.17*	2178	491	1.34	2340.48	2333	19	6.05E-02	3.4	
28	0	609.29	3337	638	1.34	2445.27	2433	25	9.27E-02	2.7	
29	0	661.71	135	386	0.84	2655.51	2647	15	3.74E-03	33.0	
30	0	727.24	527	431	1.23	2918.34	2909	20	1.46E-02	9.3	
31	0	768.08	314	452	1.34	3082.14	3071	21	8.74E-03	15.4	
32	0	794.92	203	359	0.98	3189.81	3182	18	5.63E-03	20.0	
33	0	860.78	299	296	1.29	3453.99	3445	18	8.30E-03	12.9	
34	0	911.10*	1496	365	1.64	3655.82	3643	25	4.16E-02	4.1	
35	0	934.15	150	269	0.87	3748.27	3740	17	4.18E-03	22.9	
36	0	964.65	233	351	1.25	3870.61	3860	19	6.49E-03	17.6	
37	0	968.99	823	364	1.46	3888.01	3879	20	2.29E-02	6.0	
38	0	1120.18	687	372	1.71	4494.44	4483	21	1.91E-02	7.1	
39	0	1237.97	407	600	2.31	4966.92	4952	32	1.13E-02	15.9	
40	0	1377.77	132	161	1.30	5527.70	5516	23	3.66E-03	22.9	
41	0	1460.71*	7966	160	1.99	5860.36	5844	33	2.21E-01	1.2	
42	0	1509.76	100	97	1.87	6057.11	6046	25	2.78E-03	24.4	
43	0	1588.11	102	80	1.01	6371.40	6359	21	2.83E-03	21.2	

Sample ID : J478N1AA Acquisition date : 17-SEP-2007 18:59:57

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
44	0	1764.36	469	78	1.25	7078.41	7066	26	1.30E-02	6.3	

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

VMS Nuclide Identification Report V3.1 Generated 18-SEP-2007 17:32:54

Configuration : RDND06$DKA100:[GER5.SAMPLE]J478N1AA_170971859.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4
Sample title : BRC SOIL
Sample date : 28-JUL-2007 14:15:00 Acquisition date : 17-SEP-2007 18:59:57
Sample ID : J478N1AA Sample quantity : 368.20 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:14.25 0.0%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	7966	10.67*	5.413E-01	2.812E+01	2.812E+01	6.18
TL-208	277.35	330	6.80	2.163E+00	4.580E-01	4.580E-01	21.63
	510.84	672	21.60	1.323E+00	4.797E-01	4.797E-01	16.22
	583.14	2178	84.20*	1.185E+00	4.453E-01	4.453E-01	6.85
	860.37	299	12.46	8.519E-01	5.741E-01	5.741E-01	14.37
PB-212	238.63	6759	44.60*	2.420E+00	1.277E+00	1.277E+00	6.40
	300.09	565	3.41	2.033E+00	1.661E+00	1.661E+00	12.63
BI-214	609.31	3337	46.30*	1.142E+00	1.287E+00	1.287E+00	6.53
	768.36	314	5.04	9.389E-01	1.355E+00	1.355E+00	16.58
	1120.29	687	15.10	6.795E-01	1.366E+00	1.366E+00	9.31
	1764.49	469	15.80	4.621E-01	1.308E+00	1.308E+00	8.69
PB-214	241.98	1871	7.49	2.398E+00	2.124E+00	2.124E+00	8.58
	295.21	2815	19.20	2.060E+00	1.451E+00	1.451E+00	7.06
	351.92	4430	37.20*	1.793E+00	1.354E+00	1.354E+00	6.36
	785.91	------	1.10	9.208E-01	------ Line Not Found		------
RA-223	154.21	239	5.58	3.233E+00	2.704E-01	2.716E-01	33.38
	269.46	594	13.60*	2.205E+00	4.038E-01	4.056E-01	15.06
	323.87	------	3.88	1.915E+00	------ Line Not Found		------
RA-224DA	238.63	6759	44.60*	2.420E+00	1.277E+00	1.344E+00	6.40
	240.98	1871	3.95	2.398E+00	4.028E+00	4.239E+00	8.58
	583.14	2178	30.25	1.185E+00	1.240E+00	1.304E+00	6.85
	860.37	299	4.48	8.519E-01	1.597E+00	1.680E+00	14.37
RA-226DA	186.21	1520	3.50	2.882E+00	3.073E+00	3.073E+00	10.35
	241.98	1871	7.49	2.398E+00	2.124E+00	2.124E+00	8.58
	295.22	2815	19.20	2.060E+00	1.451E+00	1.452E+00	7.06
	351.92	4430	37.20	1.793E+00	1.354E+00	1.354E+00	6.36
	609.32	3337	46.30*	1.142E+00	1.287E+00	1.287E+00	6.53
	1120.28	687	15.10	6.795E-01	1.366E+00	1.366E+00	9.31
	1238.11	407	5.94	6.236E-01	2.243E+00	2.243E+00	17.04
	1764.49	469	15.80	4.621E-01	1.308E+00	1.309E+00	8.69
AC-228	209.28	620	4.40	2.659E+00	1.080E+00	1.080E+00	17.16
	270.23	594	3.60	2.205E+00	1.525E+00	1.525E+00	15.06
	338.32	1448	11.40	1.850E+00	1.400E+00	1.400E+00	7.72
	911.07	1496	27.70*	8.115E-01	1.357E+00	1.357E+00	7.58
	969.11	823	16.60	7.697E-01	1.313E+00	1.313E+00	8.69
RA-228DA	209.28	620	4.40	2.659E+00	1.080E+00	1.098E+00	17.16

Sample ID : J478N1AA Acquisition date : 17-SEP-2007 18:59:57

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	338.32	1448	11.40	1.850E+00	1.400E+00	1.424E+00	7.72
	911.07	1496	27.70*	8.115E-01	1.357E+00	1.380E+00	7.58
	964.60	233	5.20	7.727E-01	1.185E+00	1.205E+00	18.75
	969.11	823	16.60	7.697E-01	1.313E+00	1.335E+00	8.69
TH-228DA	238.63	6759	44.60	2.420E+00	1.277E+00	1.344E+00	6.40
	240.98	1871	3.95	2.398E+00	4.028E+00	4.239E+00	8.58
	583.14	2178	30.25*	1.185E+00	1.240E+00	1.304E+00	6.85
	860.37	299	4.48	8.519E-01	1.597E+00	1.680E+00	14.37
TH-232DA	238.63	6759	44.60	2.420E+00	1.277E+00	1.277E+00	6.40
	338.32	1448	12.40*	1.850E+00	1.287E+00	1.287E+00	7.72
	583.14	2178	30.25	1.185E+00	1.240E+00	1.240E+00	6.85
	911.07	1496	27.70	8.115E-01	1.357E+00	1.357E+00	7.58
	964.60	233	5.20	7.727E-01	1.185E+00	1.185E+00	18.75
	969.11	823	16.60	7.697E-01	1.313E+00	1.313E+00	8.69
U-234DA	241.98	1871	7.49	2.398E+00	2.124E+00	2.124E+00	8.58
	295.22	2815	19.20*	2.060E+00	1.451E+00	1.451E+00	7.06
	351.92	4430	37.20	1.793E+00	1.354E+00	1.354E+00	6.36
	609.31	3337	46.30	1.142E+00	1.287E+00	1.287E+00	6.53
U-238DA	241.98	1871	7.49	2.398E+00	2.124E+00	2.124E+00	8.58
	295.22	2815	19.20	2.060E+00	1.451E+00	1.451E+00	7.06
	351.92	4430	37.20*	1.793E+00	1.354E+00	1.354E+00	6.36
	609.31	3337	46.30	1.142E+00	1.287E+00	1.287E+00	6.53
U-238DHP	63.28	741	3.80*	3.564E+00	1.116E+00	1.116E+00	17.48
	92.59	2239	5.41	3.876E+00	2.177E+00	2.177E+00	9.36

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
CS-137DA	661.65	135	85.10*	1.065E+00	3.029E-02	3.039E-02	33.48

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : J478N1AA

Acquisition date : 17-SEP-2007 18:59:57

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	46.69	416	2167	0.84	188.78	184	11	1.16E-02	24.0	2.64E+00	
0	53.39	181	2373	0.49	215.65	211	10	5.04E-03	50.8	3.11E+00	
2	74.85	3542	3873	0.95	301.74	296	22	9.84E-02	3.8	3.82E+00	
2	77.13	5855	3404	0.88	310.88	296	22	1.63E-01	2.4	3.84E+00	
0	84.11	1061	3137	1.47	338.87	332	13	2.95E-02	11.3	3.88E+00	
0	87.22	2123	2956	1.03	351.34	346	12	5.90E-02	5.6	3.89E+00	T
0	89.96	1249	2367	1.00	362.35	358	10	3.47E-02	7.8	3.89E+00	
0	129.08	649	2340	0.73	519.22	513	13	1.80E-02	15.9	3.53E+00	
0	327.98	401	870	1.33	1316.95	1311	14	1.11E-02	16.4	1.90E+00	T
0	409.16	213	782	1.10	1642.55	1633	17	5.91E-03	30.9	1.59E+00	
0	462.95	530	660	1.20	1858.29	1849	22	1.47E-02	13.0	1.43E+00	T
0	562.32	147	318	0.98	2256.88	2250	13	4.08E-03	26.4	1.22E+00	
0	727.24	527	431	1.23	2918.34	2909	20	1.46E-02	9.3	9.84E-01	T
0	794.92	203	359	0.98	3189.81	3182	18	5.63E-03	20.0	9.12E-01	T
0	934.15	150	269	0.87	3748.27	3740	17	4.18E-03	22.9	7.94E-01	
0	1377.77	132	161	1.30	5527.70	5516	23	3.66E-03	22.9	5.69E-01	
0	1509.76	100	97	1.87	6057.11	6046	25	2.78E-03	24.4	5.26E-01	
0	1588.11	102	80	1.01	6371.40	6359	21	2.83E-03	21.2	5.04E-01	

Flags: "T" = Tentatively associated

Sample ID : J478N1AA
Acquisition date : 17-SEP-2007 18:59:57

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	5.987E-02	16.22	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.61	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	3.155E-01	9.31	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.84	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	2.295E+00	6.85	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-103	39.35D	1.31	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	2.631E+01	6.53	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	5.541E-01	16.22	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	7.543E-01	14.35	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
BA-133	10.50Y	0.01	81.00	33.00	--- Not Found ---		Abun.
			276.40	6.90	4.556E-01	21.63	
			302.84	17.80	--- Not Found ---		
			356.00*	62.05	--- Not Found ---		
			383.85	8.70	--- Not Found ---		
		% Abundances Found =		5.37			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	5.560E-02	20.95	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	30.68	328.77	20.50	3.603E+08	17.41	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-152	13.60Y	0.01	121.78	28.40	--- Not Found ---		Abun.
			244.67	7.49	--- Not Found ---		
			344.27*	26.50	--- Not Found ---		
			778.89	12.74	--- Not Found ---		
			964.01	14.40	4.309E-01	18.75	

Sample ID : J478N1AA Acquisition date : 17-SEP-2007 18:59:57

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
EU-152	13.60Y	0.01	1085.78	10.00	--- Not Found ---		Abun.
			1112.02	13.30	--- Not Found ---		
			1407.95	20.70	--- Not Found ---		
		% Abundances Found =		10.78			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	3.675E-01	8.18	
			105.31*	20.70	--- Not Found ---		
		% Abundances Found =		42.47			
BI-212	1.41E+10Y	0.00	288.07	0.31	--- Not Found ---		Abun.
			327.96	0.14	3.103E+01	19.13	
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.661E+00	11.32	
			785.37	1.10	--- Not Found ---		
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		
			1078.62	0.56	--- Not Found ---		
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	--- Not Found ---		
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		58.84			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	1.992E-01	10.35	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.1 Generated 18-SEP-2007 17:32:55

Configuration : RDND06$DKA100:[GER5.SAMPLE]J478N1AA_170971859.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 28-JUL-2007 14:15:00 Acquisition date : 17-SEP-2007 18:59:57
Sample ID : J478N1AA Sample quantity : 368.20 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:14.25 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

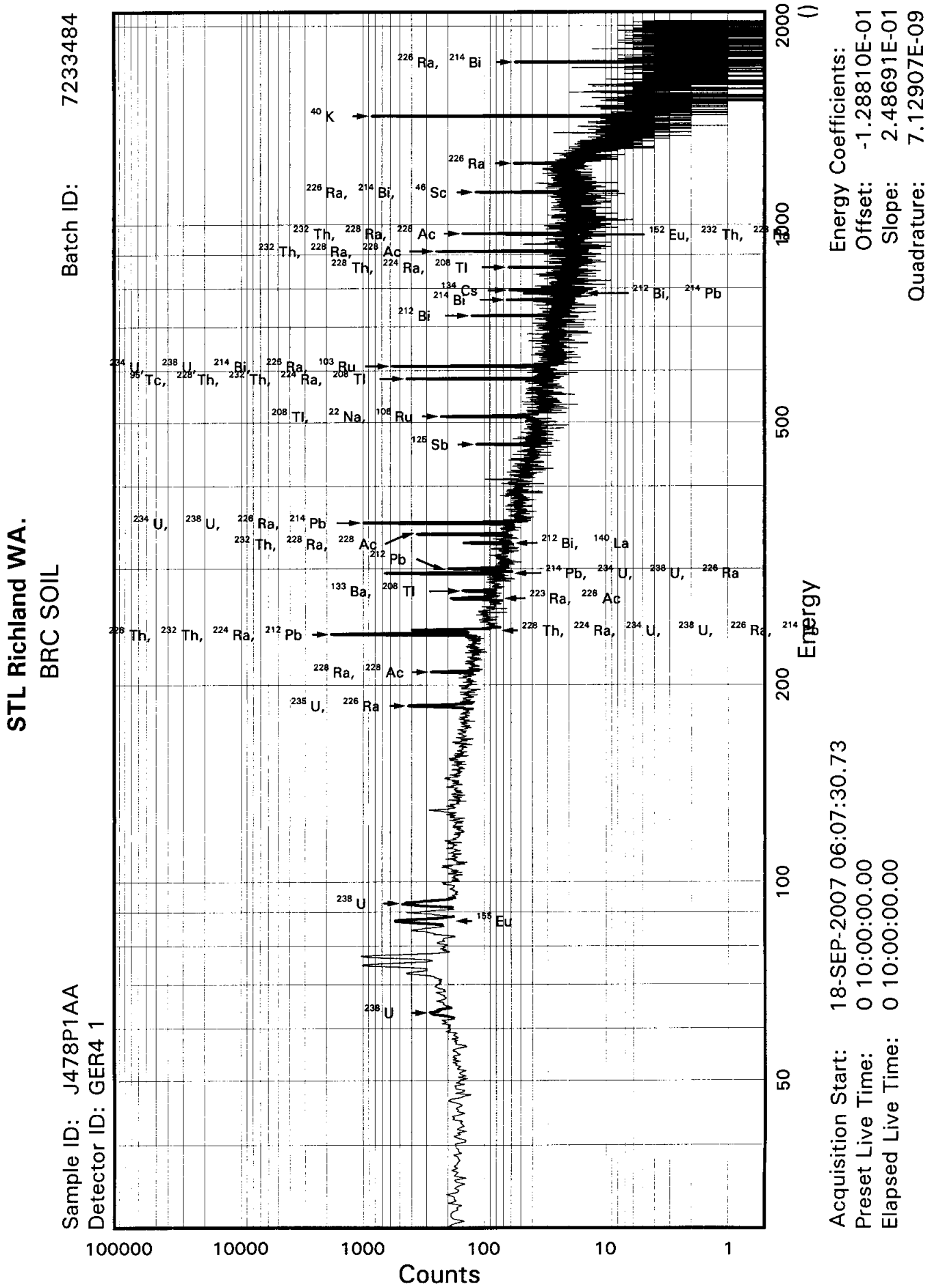
Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.812E+01	1.737E+00	1.937E-01	6.600E-03	145.201
CS-137DA	3.039E-02	1.018E-02	2.498E-02	8.029E-04	1.217
TL-208	4.453E-01	3.050E-02	2.375E-02	7.715E-04	18.747
PB-212	1.277E+00	8.173E-02	3.472E-02	1.248E-03	36.772
BI-214	1.287E+00	8.408E-02	4.101E-02	1.331E-03	31.378
PB-214	1.354E+00	8.616E-02	4.319E-02	1.396E-03	31.359
RA-223	4.056E-01	6.109E-02	1.117E-01	3.917E-03	3.632
RA-224DA	1.344E+00	8.601E-02	3.654E-02	1.314E-03	36.772
RA-226DA	1.287E+00	8.408E-02	4.102E-02	1.331E-03	31.377
AC-228	1.357E+00	1.029E-01	8.150E-02	3.242E-03	16.650
RA-228DA	1.380E+00	1.047E-01	8.290E-02	3.297E-03	16.650
TH-228DA	1.304E+00	8.933E-02	6.958E-02	2.260E-03	18.747
TH-232DA	1.287E+00	9.940E-02	1.320E-01	4.255E-03	9.751
U-234DA	1.451E+00	1.024E-01	7.936E-02	2.680E-03	18.290
U-238DA	1.354E+00	8.616E-02	4.319E-02	1.396E-03	31.359
U-238DHP	1.116E+00	1.951E-01	4.266E-01	1.338E-02	2.616

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-2.877E-01		9.843E-02	3.095E-01	1.005E-02	-0.930
NA-22	4.337E-05		8.424E-03	2.878E-02	9.653E-04	0.002
NA-24	-2.049E+16		3.443E+16	Half-Life too short		
SC-46	3.155E-01	+	2.938E-02	7.030E-02	2.418E-03	4.487
CR-51	2.115E-01		1.700E-01	5.836E-01	1.868E-02	0.362
MN-54	-1.702E-03		7.513E-03	2.559E-02	9.719E-04	-0.067
CO-57	-1.530E-02		4.525E-02	1.476E-01	4.945E-03	-0.104
CO-58	-3.123E-02		1.074E-02	3.335E-02	1.241E-03	-0.936
FE-59	1.446E-02		3.184E-02	1.078E-01	3.789E-03	0.134
CO-60	-3.026E-03		7.097E-03	2.407E-02	8.219E-04	-0.126
ZN-65	-4.388E-02		2.331E-02	6.181E-02	2.137E-03	-0.710
SE-75	-2.882E-03		1.041E-02	3.373E-02	1.189E-03	-0.085

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
SR-85	6.799E-02		1.211E-02	3.595E-02	1.153E-03	1.891
Y-88	9.389E-03		6.858E-03	2.557E-02	7.973E-04	0.367
NB-94	3.365E-03		6.268E-03	2.164E-02	8.464E-04	0.156
NB-95	7.632E-02		2.275E-02	6.783E-02	2.423E-03	1.125
TC-95M	1.514E-02		1.272E-02	4.207E-02	1.518E-03	0.360
ZR-95	7.380E-02		2.003E-02	6.963E-02	2.466E-03	1.060
ZRNB-95	9.781E-02		2.868E-02	8.555E-02	3.056E-03	1.143
MO-99	-4.003E-03		2.012E-03	Half-Life too short		
RH-101	8.253E-03		6.446E-03	2.174E-02	7.832E-04	0.380
RH-102M	2.665E-03		5.443E-03	1.830E-02	5.950E-04	0.146
RU-103	1.639E-02		1.424E-02	4.814E-02	1.555E-03	0.340
RU-106DA	1.408E-03		6.114E-02	2.076E-01	6.730E-03	0.007
AG-108M	-6.513E-03		5.504E-03	1.811E-02	5.904E-04	-0.360
AG-110M	-9.414E-03		1.022E-02	3.427E-02	1.355E-03	-0.275
SN-113DA	-7.013E-03		1.047E-02	3.494E-02	1.127E-03	-0.201
SB-124	1.348E-02		1.133E-02	3.597E-02	1.168E-03	0.375
SB-125	2.519E-02		1.774E-02	6.039E-02	1.967E-03	0.417
SN-126DA	1.832E-02		6.718E-03	2.116E-02	6.838E-04	0.866
I-131	1.194E+00		4.954E-01	1.704E+00	5.514E-02	0.701
BA-133	-1.762E-03		8.750E-03	2.510E-02	8.119E-04	-0.070
CS-134	5.560E-02	+	1.165E-02	3.180E-02	1.168E-03	1.748
LA-138	-3.466E-03		8.698E-03	2.960E-02	1.010E-03	-0.117
CE-139	-1.328E-02		6.849E-03	2.262E-02	7.995E-04	-0.587
BA-140	-3.036E-01		3.384E-01	1.140E+00	3.680E-02	-0.266
BALA-140	-9.976E-01		2.344E-01	6.850E-01	2.294E-02	-1.456
LA-140	-5.358E+01		1.245E+01	Half-Life too short		
CE-141	-2.360E-02		2.688E-02	8.698E-02	2.970E-03	-0.271
CE-144	4.203E-03		4.455E-02	1.427E-01	4.751E-03	0.029
CEPR-144	-1.896E-02		8.933E-02	2.853E-01	9.502E-03	-0.066
PM-144	-8.213E-03		6.001E-03	1.986E-02	6.442E-04	-0.414
PM-146	6.281E-03		7.783E-03	2.631E-02	8.577E-04	0.239
EU-152	-2.031E-02		1.821E-02	6.078E-02	1.962E-03	-0.334
EU-154	-5.810E-03		2.317E-02	7.872E-02	2.641E-03	-0.074
EU-155	8.860E-02		2.001E-02	6.575E-02	2.138E-03	1.347
HF-181	1.183E-02		1.457E-02	4.909E-02	1.593E-03	0.241
BI-207	2.189E-03		5.725E-03	1.959E-02	6.356E-04	0.112
BI-210M	8.151E-03		1.061E-02	3.022E-02	1.064E-03	0.270
BI-212	1.661E+00	+	1.880E-01	4.548E-01	1.878E-02	3.652
AC-227DA	2.021E-01		5.320E-02	1.535E-01	5.524E-03	1.317
TH-234DA	1.761E+00		1.137E+00	3.936E+00	1.496E-01	0.447
U-235HP	1.116E-01		4.189E-02	1.376E-01	4.681E-03	0.811
NP-237DA	-6.415E-03		1.257E-02	4.250E-02	1.387E-03	-0.151
AM-241HP	1.793E-02		1.438E-02	4.517E-02	1.441E-03	0.397


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478P1AA
Detector ID: GER4 1
Energy Coefficients:
Offset: -1.28810E-01
Slope: 2.48691E-01
Quadrature: 7.12907E-09
Acquisition Start: 18-SEP-2007 06:07:30.73
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
100000
10000
1000
100
10
1
50
100
200
500
1000
2000
226 Ra, 214 Bi
40 K
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
152 Eu, 232 Th,
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
214 Bi
212 Bi
212 Bi, 214 Pb
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
95 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Bi, 140 La
212 Pb
214 Pb, 234 U, 238 U, 226 Ra
133 Ba, 208 Tl
223 Ra, 228 Ac
228 Th, 232 Th, 224 Ra, 212 Pb
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214
228 Ra, 228 Ac
235 U, 226 Ra
238 U
155 Eu
238 U

SAMPLE IDENTIFICATION: J478P1AA

CONFIGURATION ID: GER4:J478P1AA_180970607
TITLE : BRC SOIL
SAMPLE ID : J478P1AA

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 18-SEP-07 06:07:30
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 28-JUL-2007 14:15:00.00
CALIB DATE: 18-SEP-2007 05:03:01.22
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:19

SAMPLE QUANTITY: 3.5330E+02
SAMPLE GEOMETRY: S200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.1288E+00 keV
ENERGY SLOPE: 2.4869E-01 keV/C
ENERGY Q COEFF: 7.1291E-09 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 3.7765E-01 keV
FWHM SLOPE: 4.0583E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 16:08:00

Configuration : $DISK1:[GER4.SAMPLE]J478P1AA_180970607.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 28-JUL-2007 14:15:00 Acquisition date : 18-SEP-2007 06:07:30
Sample ID : J478P1AA Sample quantity : 353.30 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:19.40 0.1%
Start energy : 19.77 End energy : 2037.63
Sensitivity : 5.00 Gaussian : 10.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.43*	283	1883	1.18	255.57	251	10	7.85E-03	31.2	
2	5	72.82*	592	2948	1.08	293.34	285	32	1.64E-02	20.2	2.82E+00
3	5	74.89*	2331	2426	0.89	301.67	285	32	6.47E-02	5.0	
4	5	77.13*	3112	2333	0.93	310.66	285	32	8.65E-02	3.7	
5	0	84.39*	638	2398	1.16	339.83	334	12	1.77E-02	16.9	
6	0	87.26*	1314	2269	0.98	351.39	346	11	3.65E-02	7.8	
7	0	89.89	844	1912	0.75	361.99	357	10	2.35E-02	10.3	
8	0	92.92*	1292	2636	1.39	374.14	368	14	3.59E-02	9.3	
9	0	129.07	403	1779	0.75	519.51	515	10	1.12E-02	20.2	
10	0	185.96*	1476	2091	1.27	748.27	740	16	4.10E-02	7.7	
11	0	209.20	684	1425	1.02	841.71	835	12	1.90E-02	11.7	
12	5	238.60*	7251	1250	1.00	959.91	953	32	2.01E-01	1.6	1.96E+00
13	5	241.67	2068	1834	1.62	972.24	953	32	5.75E-02	6.0	
14	0	270.33	704	1373	1.70	1087.48	1079	17	1.96E-02	12.6	
15	0	277.33	266	937	1.12	1115.64	1111	11	7.40E-03	23.1	
16	0	295.18*	2853	1057	1.10	1187.43	1179	17	7.92E-02	3.3	
17	0	300.04	518	1028	0.79	1206.95	1200	15	1.44E-02	14.2	
18	0	327.88	413	824	1.03	1318.87	1313	13	1.15E-02	15.1	
19	0	338.26*	1371	1118	1.14	1360.64	1352	17	3.81E-02	6.5	
20	0	351.89*	4651	995	1.15	1415.43	1406	19	1.29E-01	2.3	
21	0	409.92	235	794	0.97	1648.76	1642	17	6.53E-03	28.5	
22	0	463.06	453	446	1.40	1862.39	1856	13	1.26E-02	10.7	
23	0	510.97*	687	1142	1.60	2055.03	2042	29	1.91E-02	16.4	
24	0	583.15*	2253	513	1.29	2345.25	2337	18	6.26E-02	3.3	
25	0	609.29*	3112	577	1.35	2450.35	2441	18	8.64E-02	2.7	
26	0	727.23	526	396	1.27	2924.49	2915	17	1.46E-02	9.7	
27	0	768.30	243	350	1.34	3089.60	3082	15	6.76E-03	15.8	
28	0	785.86	122	260	0.83	3160.20	3154	14	3.39E-03	25.8	
29	0	794.97	244	347	1.36	3196.86	3188	18	6.77E-03	16.6	
30	0	860.41	292	433	1.59	3459.92	3449	22	8.11E-03	16.5	
31	0	911.11*	1498	475	1.50	3663.77	3649	27	4.16E-02	4.4	
32	0	934.01	201	369	1.50	3755.81	3747	22	5.58E-03	21.9	
33	0	964.66	245	348	1.37	3879.05	3870	17	6.80E-03	16.2	
34	0	968.98	886	379	1.48	3896.39	3887	20	2.46E-02	5.7	
35	0	1120.31	734	384	1.69	4504.76	4494	23	2.04E-02	7.0	
36	0	1238.27	276	530	1.45	4978.97	4967	24	7.67E-03	19.6	
37	0	1460.71*	7458	314	2.26	5873.12	5855	40	2.07E-01	1.4	
38	0	1764.31	540	102	2.22	7093.47	7076	34	1.50E-02	6.1	

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

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 16:08:01

Configuration : $DISK1:[GER4.SAMPLE]J478P1AA_180970607.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 28-JUL-2007 14:15:00 Acquisition date : 18-SEP-2007 06:07:30
Sample ID : J478P1AA Sample quantity : 353.30 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:19.40 0.1%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	7458	10.67*	5.415E-01	2.743E+01	2.743E+01	6.43
TL-208	277.35	266	6.80	2.029E+00	4.102E-01	4.102E-01	23.99
	510.84	687	21.60	1.301E+00	5.190E-01	5.190E-01	17.49
	583.14	2253	84.20*	1.176E+00	4.837E-01	4.837E-01	7.01
	860.37	292	12.46	8.556E-01	5.819E-01	5.819E-01	17.82
PB-212	238.63	7251	44.60*	2.244E+00	1.540E+00	1.540E+00	6.64
	300.09	518	3.41	1.921E+00	1.679E+00	1.679E+00	15.70
BI-214	609.31	3112	46.30*	1.136E+00	1.257E+00	1.257E+00	6.73
	768.36	243	5.04	9.414E-01	1.089E+00	1.089E+00	17.04
	1120.29	734	15.10	6.798E-01	1.519E+00	1.519E+00	9.35
	1764.49	540	15.80	4.702E-01	1.545E+00	1.545E+00	8.55
PB-214	241.98	2068	7.49	2.226E+00	2.637E+00	2.637E+00	8.80
	295.21	2853	19.20	1.943E+00	1.625E+00	1.625E+00	7.45
	351.92	4651	37.20*	1.714E+00	1.550E+00	1.550E+00	6.81
	785.91	122	1.10	9.238E-01	2.552E+00	2.552E+00	26.62
RA-224DA	238.63	7251	44.60*	2.244E+00	1.540E+00	1.621E+00	6.64
	240.98	2068	3.95	2.226E+00	4.999E+00	5.264E+00	8.80
	583.14	2253	30.25	1.176E+00	1.346E+00	1.418E+00	7.01
	860.37	292	4.48	8.556E-01	1.619E+00	1.704E+00	17.82
RA-226DA	186.21	1476	3.50	2.594E+00	3.455E+00	3.455E+00	9.91
	241.98	2068	7.49	2.226E+00	2.637E+00	2.637E+00	8.80
	295.22	2853	19.20	1.943E+00	1.625E+00	1.625E+00	7.45
	351.92	4651	37.20	1.714E+00	1.550E+00	1.550E+00	6.81
	609.32	3112	46.30*	1.136E+00	1.257E+00	1.257E+00	6.73
	1120.28	734	15.10	6.798E-01	1.519E+00	1.519E+00	9.35
	1238.11	276	5.94	6.228E-01	1.586E+00	1.586E+00	20.56
	1764.49	540	15.80	4.702E-01	1.545E+00	1.545E+00	8.55
AC-228	209.28	684	4.40	2.434E+00	1.358E+00	1.358E+00	13.28
	270.23	704	3.60	2.065E+00	2.014E+00	2.014E+00	14.24
	338.32	1371	11.40	1.764E+00	1.449E+00	1.449E+00	9.26
	911.07	1498	27.70*	8.145E-01	1.411E+00	1.411E+00	8.22
	969.11	886	16.60	7.721E-01	1.469E+00	1.469E+00	8.86
RA-228DA	209.28	684	4.40	2.434E+00	1.358E+00	1.381E+00	13.28
	338.32	1371	11.40	1.764E+00	1.449E+00	1.474E+00	9.26
	911.07	1498	27.70*	8.145E-01	1.411E+00	1.436E+00	8.22
	964.60	245	5.20	7.751E-01	1.291E+00	1.313E+00	17.60

Sample ID : J478P1AA Acquisition date : 18-SEP-2007 06:07:30

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	969.11	886	16.60	7.721E-01	1.469E+00	1.494E+00	8.86
TH-228DA	238.63	7251	44.60	2.244E+00	1.540E+00	1.621E+00	6.64
	240.98	2068	3.95	2.226E+00	4.999E+00	5.264E+00	8.80
	583.14	2253	30.25*	1.176E+00	1.346E+00	1.418E+00	7.01
	860.37	292	4.48	8.556E-01	1.619E+00	1.704E+00	17.82
TH-232DA	238.63	7251	44.60	2.244E+00	1.540E+00	1.540E+00	6.64
	338.32	1371	12.40*	1.764E+00	1.332E+00	1.332E+00	9.26
	583.14	2253	30.25	1.176E+00	1.346E+00	1.346E+00	7.01
	911.07	1498	27.70	8.145E-01	1.411E+00	1.411E+00	8.22
	964.60	245	5.20	7.751E-01	1.291E+00	1.291E+00	17.60
	969.11	886	16.60	7.721E-01	1.469E+00	1.469E+00	8.86
U-234DA	241.98	2068	7.49	2.226E+00	2.637E+00	2.637E+00	8.80
	295.22	2853	19.20*	1.943E+00	1.625E+00	1.625E+00	7.45
	351.92	4651	37.20	1.714E+00	1.550E+00	1.550E+00	6.81
	609.31	3112	46.30	1.136E+00	1.257E+00	1.257E+00	6.73
U-238DA	241.98	2068	7.49	2.226E+00	2.637E+00	2.637E+00	8.80
	295.22	2853	19.20	1.943E+00	1.625E+00	1.625E+00	7.45
	351.92	4651	37.20*	1.714E+00	1.550E+00	1.550E+00	6.81
	609.31	3112	46.30	1.136E+00	1.257E+00	1.257E+00	6.73
U-238DHP	63.28	283	3.80*	1.039E+00	1.521E+00	1.521E+00	31.92
	92.59	1292	5.41	2.394E+00	2.121E+00	2.121E+00	11.51

Flag: "*" = Keyline

Sample ID : J478P1AA Acquisition date : 18-SEP-2007 06:07:30

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
5	72.82	592	2948	1.08	293.34	285	32	1.64E-02	20.2	1.56E+00	
5	74.89	2331	2426	0.89	301.67	285	32	6.47E-02	5.0	1.67E+00	
5	77.13	3112	2333	0.93	310.66	285	32	8.65E-02	3.7	1.78E+00	
0	84.39	638	2398	1.16	339.83	334	12	1.77E-02	16.9	2.10E+00	
0	87.26	1314	2269	0.98	351.39	346	11	3.65E-02	7.8	2.21E+00	T
0	89.89	844	1912	0.75	361.99	357	10	2.35E-02	10.3	2.30E+00	
0	129.07	403	1779	0.75	519.51	515	10	1.12E-02	20.2	2.85E+00	
0	327.88	413	824	1.03	1318.87	1313	13	1.15E-02	15.1	1.80E+00	T
0	409.92	235	794	0.97	1648.76	1642	17	6.53E-03	28.5	1.53E+00	
0	463.06	453	446	1.40	1862.39	1856	13	1.26E-02	10.7	1.40E+00	T
0	727.23	526	396	1.27	2924.49	2915	17	1.46E-02	9.7	9.85E-01	T
0	794.97	244	347	1.36	3196.86	3188	18	6.77E-03	16.6	9.15E-01	T
0	934.01	201	369	1.50	3755.81	3747	22	5.58E-03	21.9	7.97E-01	

Flags: "T" = Tentatively associated

Sample ID : J478P1AA
Acquisition date : 18-SEP-2007 06:07:30

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	6.480E-02	17.49	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.62	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	3.523E-01	9.35	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.85	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	2.506E+00	7.01	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-103	39.35D	1.32	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	2.592E+01	6.73	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	6.001E-01	17.49	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	6.879E-01	12.33	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
BA-133	10.50Y	0.01	81.00	33.00	--- Not Found ---		Abun.
			276.40	6.90	4.081E-01	23.99	
			302.84	17.80	--- Not Found ---		
			356.00*	62.05	--- Not Found ---		
			383.85	8.70	--- Not Found ---		
		% Abundances Found =		5.37			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	6.952E-02	17.89	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	30.95	328.77	20.50	4.929E+08	16.53	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-152	13.60Y	0.01	121.78	28.40	--- Not Found ---		Abun.
			244.67	7.49	--- Not Found ---		
			344.27*	26.50	--- Not Found ---		
			778.89	12.74	--- Not Found ---		
			964.01	14.40	4.696E-01	17.60	

Sample ID : J478P1AA Acquisition date : 18-SEP-2007 06:07:30

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
EU-152	13.60Y	0.01	1085.78	10.00	--- Not Found ---		Abun.
			1112.02	13.30	--- Not Found ---		
			1407.95	20.70	--- Not Found ---		
		% Abundances Found =		10.78			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	4.172E-01	10.50	
			105.31*	20.70	--- Not Found ---		
		% Abundances Found =		42.47			
BI-212	1.41E+10Y	0.00	288:07	0.31	--- Not Found ---		Abun.
			327.96	0.14	3.505E+01	18.33	
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.725E+00	11.81	
			785.37	1.10	2.552E+00	26.76	
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		
			1078.62	0.56	--- Not Found ---		
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	--- Not Found ---		
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		68.47			
RA-223	21.77Y	0.01	154.21	5.58	--- Not Found ---		Abun.
			269.46*	13.60	5.354E-01	14.24	
			323.87	3.88	--- Not Found ---		
		% Abundances Found =		58.98			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	2.239E-01	9.91	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 16:08:03

Configuration : $DISK1:[GER4.SAMPLE]J478P1AA_180970607.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 28-JUL-2007 14:15:00 Acquisition date : 18-SEP-2007 06:07:30
Sample ID : J478P1AA Sample quantity : 353.30 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:19.40 0.1%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

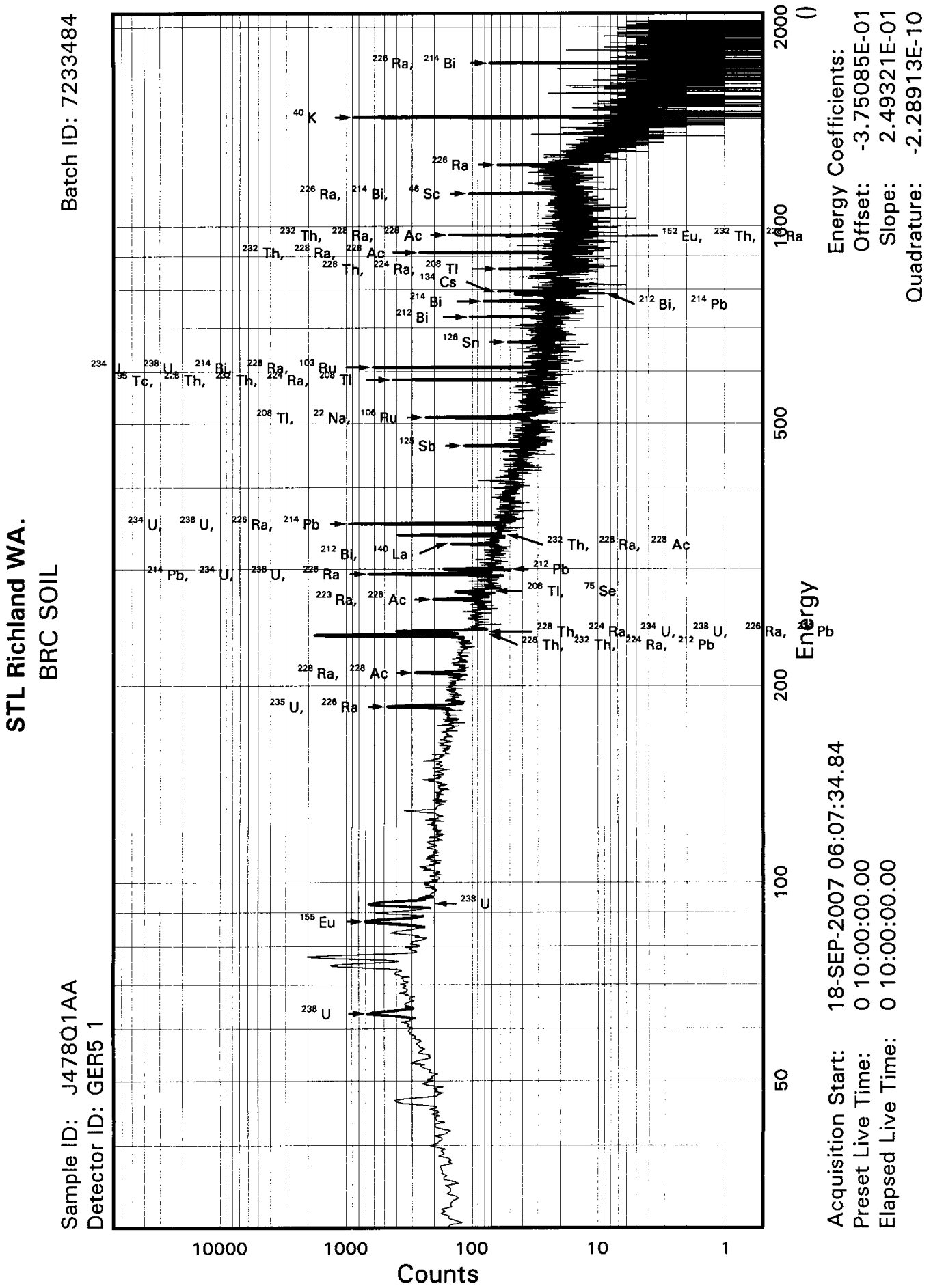
Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.743E+01	1.764E+00	2.120E-01	8.044E-03	129.367
TL-208	4.837E-01	3.390E-02	2.379E-02	8.592E-04	20.335
PB-212	1.540E+00	1.023E-01	3.606E-02	1.472E-03	42.698
BI-214	1.257E+00	8.459E-02	4.354E-02	1.574E-03	28.880
PB-214	1.550E+00	1.056E-01	4.456E-02	1.795E-03	34.781
RA-224DA	1.621E+00	1.077E-01	3.797E-02	1.550E-03	42.698
RA-226DA	1.257E+00	8.460E-02	4.354E-02	1.574E-03	28.879
AC-228	1.411E+00	1.160E-01	8.559E-02	4.102E-03	16.488
RA-228DA	1.436E+00	1.180E-01	8.707E-02	4.173E-03	16.488
TH-228DA	1.418E+00	9.934E-02	6.971E-02	2.518E-03	20.335
TH-232DA	1.332E+00	1.233E-01	1.399E-01	5.968E-03	9.523
U-234DA	1.625E+00	1.211E-01	8.321E-02	3.682E-03	19.530
U-238DA	1.550E+00	1.056E-01	4.456E-02	1.795E-03	34.781
U-238DHP	1.521E+00	4.857E-01	1.075E+00	4.562E-02	1.415

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-3.751E-02		9.800E-02	3.321E-01	1.155E-02	-0.113
NA-22	-1.375E-02		9.364E-03	3.074E-02	1.134E-03	-0.448
SC-46	3.523E-01	+	3.294E-02	7.490E-02	2.812E-03	4.703
CR-51	2.522E-01		1.805E-01	6.192E-01	2.817E-02	0.407
MN-54	2.372E-02		8.278E-03	2.849E-02	1.280E-03	0.832
CO-57	-2.493E-03		4.735E-02	1.567E-01	6.256E-03	-0.016
CO-58	-4.810E-03		1.110E-02	3.701E-02	1.615E-03	-0.130
FE-59	-9.011E-03		3.286E-02	1.097E-01	4.268E-03	-0.082
CO-60	-6.576E-03		8.057E-03	2.682E-02	1.035E-03	-0.245
ZN-65	-1.118E-02		2.403E-02	6.665E-02	2.524E-03	-0.168
SE-75	-1.626E-02		1.068E-02	3.458E-02	1.469E-03	-0.470
SR-85	6.975E-02		1.258E-02	3.793E-02	1.352E-03	1.839
Y-88	3.493E-03		7.341E-03	2.650E-02	8.458E-04	0.132
NB-94	-4.343E-03		6.612E-03	2.241E-02	1.050E-03	-0.194

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
NB-95	4.775E-02		2.325E-02	6.881E-02	2.840E-03	0.694
TC-95M	3.617E-03		1.300E-02	4.390E-02	1.691E-03	0.082
ZR-95	4.330E-02		2.090E-02	7.238E-02	2.952E-03	0.598
ZRNB-95	4.840E-02		2.944E-02	8.655E-02	3.571E-03	0.559
RH-101	9.955E-04		7.053E-03	2.250E-02	8.578E-04	0.044
RH-102M	8.605E-03		5.669E-03	1.965E-02	6.821E-04	0.438
RU-103	1.783E-03		1.497E-02	5.094E-02	1.796E-03	0.035
RU-106DA	3.329E-02		6.426E-02	2.164E-01	7.816E-03	0.154
AG-108M	-6.174E-03		5.862E-03	1.912E-02	6.418E-04	-0.323
AG-110M	6.570E-03		1.070E-02	3.704E-02	1.764E-03	0.177
SN-113DA	-1.608E-02		1.110E-02	3.627E-02	1.167E-03	-0.443
SB-124	-6.767E-03		1.145E-02	3.788E-02	1.369E-03	-0.179
SB-125	1.218E-03		1.828E-02	6.079E-02	2.029E-03	0.020
SN-126DA	8.126E-03		6.275E-03	2.176E-02	7.869E-04	0.374
I-131	-1.065E-01		5.159E-01	1.732E+00	6.565E-02	-0.062
BA-133	6.418E-03		8.732E-03	2.548E-02	1.008E-03	0.252
CS-134	6.952E-02	+	1.244E-02	3.310E-02	1.418E-03	2.100
CS-137DA	-1.250E-02		7.396E-03	2.447E-02	8.795E-04	-0.511
LA-138	-2.737E-02		9.691E-03	3.044E-02	1.161E-03	-0.899
CE-139	-1.585E-02		7.544E-03	2.395E-02	8.687E-04	-0.662
BA-140	3.651E-01		3.617E-01	1.238E+00	4.441E-02	0.295
BALA-140	-7.590E-01		2.576E-01	7.955E-01	2.900E-02	-0.954
CE-141	3.187E-02		2.882E-02	9.562E-02	3.655E-03	0.333
CE-144	-7.151E-02		4.670E-02	1.521E-01	6.164E-03	-0.470
CEPR-144	-1.420E-01		9.340E-02	3.042E-01	1.233E-02	-0.467
PM-144	-9.799E-03		6.452E-03	2.090E-02	7.552E-04	-0.469
PM-146	-1.698E-03		8.481E-03	2.796E-02	9.546E-04	-0.061
EU-152	-3.913E-04		1.900E-02	6.412E-02	2.670E-03	-0.006
EU-154	-2.786E-02		2.550E-02	8.449E-02	3.116E-03	-0.330
EU-155	9.353E-02		2.377E-02	7.982E-02	3.475E-03	1.172
HF-181	3.844E-02		1.481E-02	5.163E-02	1.802E-03	0.745
BI-207	-1.853E-03		5.816E-03	1.944E-02	7.014E-04	-0.095
BI-210M	-1.911E-03		1.094E-02	3.091E-02	1.316E-03	-0.062
BI-212	1.725E+00	+	2.038E-01	4.777E-01	2.169E-02	3.611
RA-223	5.354E-01	+	7.625E-02	1.444E-01	6.178E-03	3.708
AC-227DA	8.239E-02		5.224E-02	1.518E-01	6.172E-03	0.543
TH-234DA	2.770E+00		1.204E+00	4.191E+00	1.856E-01	0.661
U-235HP	1.348E-01		4.482E-02	1.488E-01	5.731E-03	0.906
NP-237DA	-1.222E-02		1.353E-02	4.547E-02	2.051E-03	-0.269
AM-241HP	-1.444E-03		4.107E-02	1.356E-01	5.590E-03	-0.011


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478Q1AA
Detector ID: GER5 1
Energy Coefficients:
Offset: -3.75085E-01
Slope: 2.49321E-01
Quadrature: -2.28913E-10
Acquisition Start: 18-SEP-2007 06:07:34.84
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
10000
1000
100
10
1
50
100
200
500
1000
2000
226 Ra, 214 Bi
40 K
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
214 Bi
212 Bi
126 Sn
152 Eu, 232 Th, 226 Ra
212 Bi, 214 Pb
234 U, 238 U, 214 Bi, 228 Ra, 103 Ru
95 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
212 Bi, 140 La
232 Th, 228 Ra, 228 Ac
214 Pb, 234 U, 238 U, 226 Ra
212 Pb
208 Tl, 75 Se
223 Ra, 228 Ac
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214 Pb
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 226 Ra
238 U
155 Eu
238 U

SAMPLE IDENTIFICATION: J478Q1AA

CONFIGURATION ID: GER5:J478Q1AA_180970607
TITLE : BRC SOIL
SAMPLE ID : J478Q1AA

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 18-SEP-07 06:07:34
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 28-JUL-2007 13:30:00.00
CALIB DATE: 18-SEP-2007 05:19:13.49
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:14

SAMPLE QUANTITY: 3.4270E+02
SAMPLE GEOMETRY: ES200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.3751E+00 keV
ENERGY SLOPE: 2.4932E-01 keV/C
ENERGY Q COEFF: -.2289E-09 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 7.3159E-01 keV
FWHM SLOPE: 2.8302E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 50.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 17:44:36

Configuration : RDND06$DKA100:[GER5.SAMPLE]J478Q1AA_180970607.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 28-JUL-2007 13:30:00 Acquisition date : 18-SEP-2007 06:07:34
Sample ID : J478Q1AA Sample quantity : 342.70 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:14.23 0.0%
Start energy : 19.57 End energy : 2042.04
Sensitivity : 5.00 Gaussian : 50.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.59*	455	2314	0.96	188.38	183	12	1.26E-02	23.2	
2	0	53.19	328	2398	0.65	214.83	209	11	9.11E-03	29.4	
3	0	63.32*	938	3089	0.86	255.46	251	10	2.61E-02	12.2	
4	1	74.87*	3805	3958	0.92	301.81	296	21	1.06E-01	3.6	8.72E-01
5	1	77.12*	6303	3397	0.89	310.81	296	21	1.75E-01	2.3	
6	0	83.99	1064	3147	1.19	338.40	332	13	2.95E-02	11.3	
7	0	87.21	2356	3244	1.17	351.30	345	13	6.54E-02	5.4	
8	0	89.96	1296	2373	0.84	362.32	358	10	3.60E-02	7.6	
9	0	92.94*	2231	3477	1.56	374.30	368	16	6.20E-02	6.7	
10	0	128.98	575	2492	0.86	518.83	512	13	1.60E-02	18.4	
11	0	185.85*	1598	2411	1.30	746.92	738	18	4.44E-02	7.9	
12	0	209.26	730	1877	1.04	840.83	833	15	2.03E-02	13.5	
13	4	238.60*	7344	1286	1.02	958.51	947	32	2.04E-01	1.6	1.90E+00
14	4	241.59	2118	1478	1.72	970.51	947	32	5.88E-02	5.0	
15	0	270.22	901	1388	1.47	1085.31	1076	19	2.50E-02	10.5	
16	0	278.18	170	1426	1.42	1117.24	1105	16	4.73E-03	50.3	
17	0	295.13	2860	1066	1.10	1185.24	1178	16	7.94E-02	3.2	
18	0	300.10	562	678	1.08	1205.17	1200	12	1.56E-02	10.2	
19	0	328.02	276	915	0.90	1317.17	1310	13	7.67E-03	23.4	
20	0	338.28	1533	968	1.08	1358.33	1350	16	4.26E-02	5.2	
21	0	351.86	4616	910	1.17	1412.79	1404	17	1.28E-01	2.1	
22	0	462.80	514	536	1.11	1857.74	1849	17	1.43E-02	11.2	
23	0	510.86*	785	1019	1.57	2050.53	2037	30	2.18E-02	13.9	
24	0	583.24*	2218	695	1.35	2340.82	2327	23	6.16E-02	3.8	
25	0	609.30	3542	541	1.34	2445.36	2437	22	9.84E-02	2.4	
26	0	665.58	97	356	1.05	2671.07	2664	14	2.71E-03	42.3	
27	0	726.76	528	507	1.35	2916.46	2903	24	1.47E-02	12.2	
28	0	768.08	363	469	1.33	3082.19	3071	22	1.01E-02	13.9	
29	0	785.81	181	274	1.51	3153.32	3146	17	5.02E-03	19.5	
30	0	795.07	222	366	1.41	3190.47	3182	19	6.16E-03	18.9	
31	0	860.65	206	409	1.62	3453.50	3442	19	5.72E-03	21.2	
32	0	911.20*	1530	349	1.51	3656.24	3643	25	4.25E-02	4.0	
33	0	934.03	156	282	1.33	3747.84	3739	18	4.33E-03	23.1	
34	0	964.84	57	249	1.38	3871.38	3870	7	1.58E-03	42.3	
35	0	969.11	835	333	1.48	3888.51	3879	19	2.32E-02	5.7	
36	0	1120.31	664	528	1.65	4494.97	4479	32	1.84E-02	9.5	
37	0	1238.15	214	359	1.37	4967.64	4958	17	5.94E-03	18.7	
38	0	1377.91	181	150	1.39	5528.18	5514	25	5.02E-03	17.1	
39	0	1460.75*	7530	160	2.06	5860.48	5844	34	2.09E-01	1.3	
40	0	1509.25	60	93	1.55	6054.99	6047	17	1.66E-03	34.2	
41	0	1589.85	259	154	5.03	6378.29	6360	42	7.19E-03	14.9	
42	0	1631.25	62	67	1.41	6544.34	6533	25	1.73E-03	32.4	
43	0	1729.88	166	37	1.55	6939.91	6925	32	4.61E-03	12.1	

Sample ID : J478Q1AA Acquisition date : 18-SEP-2007 06:07:34

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
44	0	1764.35	566	51	1.73	7078.17	7060	33	1.57E-02	5.3	
45	0	1847.32	92	28	0.53	7410.99	7399	24	2.55E-03	16.6	

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

VMS Nuclide Identification Report V3.1 Generated 18-SEP-2007 17:44:36

Configuration : RDND06$DKA100:[GER5.SAMPLE]J478Q1AA_180970607.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4
Sample title : BRC SOIL
Sample date : 28-JUL-2007 13:30:00 Acquisition date : 18-SEP-2007 06:07:34
Sample ID : J478Q1AA Sample quantity : 342.70 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:14.23 0.0%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	7530	10.67*	5.413E-01	2.856E+01	2.856E+01	6.18
TL-208	277.35	170	6.80	2.156E+00	2.542E-01	2.542E-01	50.62
	510.84	785	21.60	1.323E+00	6.019E-01	6.019E-01	15.10
	583.14	2218	84.20*	1.184E+00	4.872E-01	4.872E-01	7.09
	860.37	206	12.46	8.521E-01	4.251E-01	4.251E-01	22.13
PB-212	238.63	7344	44.60*	2.420E+00	1.490E+00	1.490E+00	6.36
	300.09	562	3.41	2.033E+00	1.775E+00	1.775E+00	11.82
BI-214	609.31	3542	46.30*	1.142E+00	1.468E+00	1.468E+00	6.42
	768.36	363	5.04	9.389E-01	1.680E+00	1.680E+00	15.22
	1120.29	664	15.10	6.795E-01	1.418E+00	1.418E+00	11.30
	1764.49	566	15.80	4.621E-01	1.697E+00	1.697E+00	7.94
PB-214	241.98	2118	7.49	2.398E+00	2.583E+00	2.583E+00	7.94
	295.21	2860	19.20	2.060E+00	1.584E+00	1.584E+00	6.81
	351.92	4616	37.20*	1.793E+00	1.516E+00	1.516E+00	6.31
	785.91	181	1.10	9.209E-01	3.905E+00	3.905E+00	20.47
RA-224DA	238.63	7344	44.60*	2.420E+00	1.490E+00	1.569E+00	6.36
	240.98	2118	3.95	2.398E+00	4.898E+00	5.157E+00	7.94
	583.14	2218	30.25	1.184E+00	1.356E+00	1.428E+00	7.09
	860.37	206	4.48	8.521E-01	1.182E+00	1.245E+00	22.13
RA-226DA	186.21	1598	3.50	2.882E+00	3.469E+00	3.470E+00	10.03
	241.98	2118	7.49	2.398E+00	2.583E+00	2.583E+00	7.94
	295.22	2860	19.20	2.060E+00	1.584E+00	1.584E+00	6.81
	351.92	4616	37.20	1.793E+00	1.516E+00	1.516E+00	6.31
	609.32	3542	46.30*	1.142E+00	1.468E+00	1.468E+00	6.42
	1120.28	664	15.10	6.795E-01	1.418E+00	1.418E+00	11.30
	1238.11	214	5.94	6.235E-01	1.265E+00	1.265E+00	19.61
	1764.49	566	15.80	4.621E-01	1.697E+00	1.697E+00	7.94
AC-228	209.28	730	4.40	2.659E+00	1.367E+00	1.367E+00	14.80
	270.23	901	3.60	2.205E+00	2.487E+00	2.487E+00	12.11
	338.32	1533	11.40	1.850E+00	1.592E+00	1.592E+00	7.91
	911.07	1530	27.70*	8.114E-01	1.491E+00	1.491E+00	7.52
	969.11	835	16.60	7.697E-01	1.432E+00	1.432E+00	8.49
RA-228DA	209.28	730	4.40	2.659E+00	1.367E+00	1.391E+00	14.80
	338.32	1533	11.40	1.850E+00	1.592E+00	1.620E+00	7.91
	911.07	1530	27.70*	8.114E-01	1.491E+00	1.517E+00	7.52
	964.60	57	5.20	7.726E-01	3.108E-01	3.162E-01	42.81

Sample ID : J478Q1AA Acquisition date : 18-SEP-2007 06:07:34

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	969.11	835	16.60	7.697E-01	1.432E+00	1.457E+00	8.49
TH-228DA	238.63	7344	44.60	2.420E+00	1.490E+00	1.569E+00	6.36
	240.98	2118	3.95	2.398E+00	4.898E+00	5.157E+00	7.94
	583.14	2218	30.25*	1.184E+00	1.356E+00	1.428E+00	7.09
	860.37	206	4.48	8.521E-01	1.182E+00	1.245E+00	22.13
TH-232DA	238.63	7344	44.60	2.420E+00	1.490E+00	1.490E+00	6.36
	338.32	1533	12.40*	1.850E+00	1.464E+00	1.464E+00	7.91
	583.14	2218	30.25	1.184E+00	1.356E+00	1.356E+00	7.09
	911.07	1530	27.70	8.114E-01	1.491E+00	1.491E+00	7.52
	964.60	57	5.20	7.726E-01	3.108E-01	3.108E-01	42.81
	969.11	835	16.60	7.697E-01	1.432E+00	1.432E+00	8.49
U-234DA	241.98	2118	7.49	2.398E+00	2.583E+00	2.583E+00	7.94
	295.22	2860	19.20*	2.060E+00	1.584E+00	1.584E+00	6.81
	351.92	4616	37.20	1.793E+00	1.516E+00	1.516E+00	6.31
	609.31	3542	46.30	1.142E+00	1.468E+00	1.468E+00	6.42
U-238DA	241.98	2118	7.49	2.398E+00	2.583E+00	2.583E+00	7.94
	295.22	2860	19.20	2.060E+00	1.584E+00	1.584E+00	6.81
	351.92	4616	37.20*	1.793E+00	1.516E+00	1.516E+00	6.31
	609.31	3542	46.30	1.142E+00	1.468E+00	1.468E+00	6.42
U-238DHP	63.28	938	3.80*	3.562E+00	1.519E+00	1.519E+00	13.51
	92.59	2231	5.41	3.876E+00	2.331E+00	2.331E+00	9.01

Flag: "*" = Keyline

Sample ID : J478Q1AA Acquisition date : 18-SEP-2007 06:07:34

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	46.59	455	2314	0.96	188.38	183	12	1.26E-02	23.2	2.63E+00	
0	53.19	328	2398	0.65	214.83	209	11	9.11E-03	29.4	3.10E+00	
1	74.87	3805	3958	0.92	301.81	296	21	1.06E-01	3.6	3.82E+00	
1	77.12	6303	3397	0.89	310.81	296	21	1.75E-01	2.3	3.84E+00	
0	83.99	1064	3147	1.19	338.40	332	13	2.95E-02	11.3	3.88E+00	
0	87.21	2356	3244	1.17	351.30	345	13	6.54E-02	5.4	3.89E+00	T
0	89.96	1296	2373	0.84	362.32	358	10	3.60E-02	7.6	3.89E+00	
0	128.98	575	2492	0.86	518.83	512	13	1.60E-02	18.4	3.54E+00	
0	328.02	276	915	0.90	1317.17	1310	13	7.67E-03	23.4	1.90E+00	T
0	462.80	514	536	1.11	1857.74	1849	17	1.43E-02	11.2	1.44E+00	T
0	665.58	97	356	1.05	2671.07	2664	14	2.71E-03	42.3	1.06E+00	T
0	726.76	528	507	1.35	2916.46	2903	24	1.47E-02	12.2	9.84E-01	T
0	795.07	222	366	1.41	3190.47	3182	19	6.16E-03	18.9	9.12E-01	T
0	934.03	156	282	1.33	3747.84	3739	18	4.33E-03	23.1	7.94E-01	
0	1377.91	181	150	1.39	5528.18	5514	25	5.02E-03	17.1	5.69E-01	
0	1509.25	60	93	1.55	6054.99	6047	17	1.66E-03	34.2	5.27E-01	
0	1589.85	259	154	5.03	6378.29	6360	42	7.19E-03	14.9	5.04E-01	
0	1631.25	62	67	1.41	6544.34	6533	25	1.73E-03	32.4	4.93E-01	
0	1729.88	166	37	1.55	6939.91	6925	32	4.61E-03	12.1	4.70E-01	
0	1847.32	92	28	0.53	7410.99	7399	24	2.55E-03	16.6	4.45E-01	

Flags: "T" = Tentatively associated

Sample ID : J478Q1AA
Acquisition date : 18-SEP-2007 06:07:34

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	7.515E-02	15.10	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.62	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	3.289E-01	11.30	
		% Abundances Found =		50.00			
SE-75	119.78D	0.43	121.12	16.70	--- Not Found ---		Abun.
			136.00	59.20	--- Not Found ---		
			264.65*	59.80	--- Not Found ---		
			279.53	25.20	9.262E-02	50.62	
			400.65	11.40	--- Not Found ---		
		% Abundances Found =		14.63			
TC-95M	61.00D	0.85	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	2.525E+00	7.09	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-103	39.35D	1.32	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	3.027E+01	6.42	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	6.959E-01	15.10	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	7.847E-01	12.72	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
SN-126DA	1.00E+05Y	0.00	414.70	97.66	--- Not Found ---		Abun.
			666.33*	99.95	2.016E-02	42.74	
			695.00	99.95	--- Not Found ---		
		% Abundances Found =		33.59			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	6.543E-02	19.87	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	30.97	328.77	20.50	3.268E+08	24.14	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			

Sample ID : J478Q1AA Acquisition date : 18-SEP-2007 06:07:34

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
EU-152	13.60Y	0.01	121.78	28.40	--- Not Found ---		Abun.
			244.67	7.49	--- Not Found ---		
			344.27*	26.50	--- Not Found ---		
			778.89	12.74	--- Not Found ---		
			964.01	14.40	1.131E-01	42.81	
			1085.78	10.00	--- Not Found ---		
			1112.02	13.30	--- Not Found ---		
			1407.95	20.70	--- Not Found ---		
		% Abundances Found =		10.78			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	4.382E-01	8.06	
			105.31*	20.70	--- Not Found ---		
		% Abundances Found =		42.47			
BI-212	1.41E+10Y	0.00	288.07	0.31	--- Not Found ---		Abun.
			327.96	0.14	2.294E+01	25.41	
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.786E+00	13.79	
			785.37	1.10	3.905E+00	20.65	
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		
			1078.62	0.56	--- Not Found ---		
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	--- Not Found ---		
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		68.47			
RA-223	21.77Y	0.01	154.21	5.58	--- Not Found ---		Abun.
			269.46*	13.60	6.613E-01	12.11	
			323.87	3.88	--- Not Found ---		
		% Abundances Found =		58.98			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	2.249E-01	10.03	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.1 Generated 18-SEP-2007 17:44:38

Configuration : RDND06$DKA100:[GER5.SAMPLE]J478Q1AA_180970607.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 28-JUL-2007 13:30:00 Acquisition date : 18-SEP-2007 06:07:34
Sample ID : J478Q1AA Sample quantity : 342.70 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:14.23 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

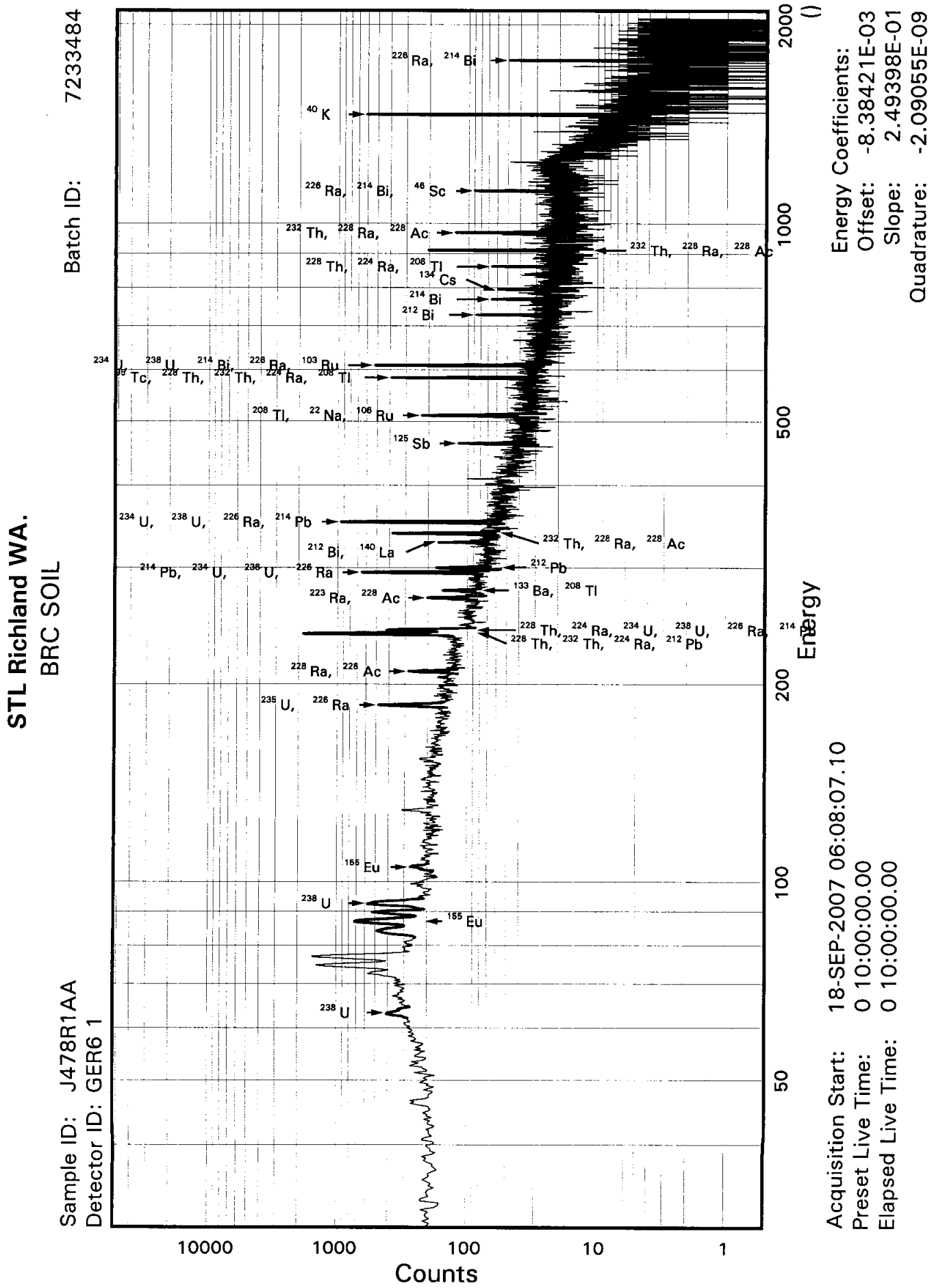
Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.856E+01	1.766E+00	2.035E-01	6.934E-03	140.366
TL-208	4.872E-01	3.453E-02	2.367E-02	7.689E-04	20.580
PB-212	1.490E+00	9.482E-02	3.679E-02	1.323E-03	40.510
BI-214	1.468E+00	9.415E-02	4.312E-02	1.400E-03	34.033
PB-214	1.516E+00	9.573E-02	4.464E-02	1.443E-03	33.967
RA-224DA	1.569E+00	9.983E-02	3.874E-02	1.393E-03	40.509
RA-226DA	1.468E+00	9.415E-02	4.312E-02	1.400E-03	34.032
AC-228	1.491E+00	1.121E-01	8.107E-02	3.225E-03	18.389
RA-228DA	1.517E+00	1.140E-01	8.247E-02	3.280E-03	18.389
TH-228DA	1.428E+00	1.012E-01	6.939E-02	2.254E-03	20.580
TH-232DA	1.464E+00	1.157E-01	1.411E-01	4.547E-03	10.377
U-234DA	1.584E+00	1.079E-01	8.647E-02	2.920E-03	18.318
U-238DA	1.516E+00	9.573E-02	4.464E-02	1.443E-03	33.967
U-238DHP	1.519E+00	2.052E-01	4.651E-01	1.459E-02	3.266

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	4.543E-02		1.017E-01	3.432E-01	1.115E-02	0.132
NA-22	-1.375E-02		9.081E-03	2.941E-02	9.865E-04	-0.468
NA-24	-1.408E+17		6.220E+16	Half-Life too short		
SC-46	3.289E-01	+	3.717E-02	7.344E-02	2.526E-03	4.478
CR-51	1.551E-01		1.893E-01	6.293E-01	2.014E-02	0.246
MN-54	3.191E-03		8.798E-03	2.960E-02	1.124E-03	0.108
CO-57	5.155E-02		4.749E-02	1.565E-01	5.243E-03	0.329
CO-58	-6.857E-03		1.095E-02	3.639E-02	1.354E-03	-0.188
FE-59	-5.136E-02		3.269E-02	1.069E-01	3.758E-03	-0.480
CO-60	-8.493E-03		7.467E-03	2.503E-02	8.547E-04	-0.339
ZN-65	-1.800E-02		2.369E-02	6.591E-02	2.279E-03	-0.273
SE-75	1.645E-02		1.130E-02	3.651E-02	1.288E-03	0.451
SR-85	5.434E-02		1.238E-02	3.700E-02	1.186E-03	1.468
Y-88	1.317E-02		7.457E-03	2.831E-02	8.826E-04	0.465

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
NB-94	-2.195E-03		6.754E-03	2.250E-02	8.803E-04	-0.098
NB-95	5.010E-02		2.404E-02	7.110E-02	2.540E-03	0.705
TC-95M	-5.581E-03		1.382E-02	4.435E-02	1.601E-03	-0.126
ZR-95	5.475E-02		2.131E-02	7.409E-02	2.624E-03	0.739
ZRNB-95	6.572E-02		3.019E-02	8.940E-02	3.194E-03	0.735
MO-99	-6.610E-03		2.400E-03	Half-Life too short		
RH-101	9.919E-03		6.965E-03	2.354E-02	8.481E-04	0.421
RH-102M	-8.958E-03		5.882E-03	1.921E-02	6.246E-04	-0.466
RU-103	1.002E-02		1.496E-02	5.058E-02	1.633E-03	0.198
RU-106DA	6.983E-02		6.602E-02	2.284E-01	7.405E-03	0.306
AG-108M	-4.188E-04		5.857E-03	1.971E-02	6.423E-04	-0.021
AG-110M	-3.982E-04		1.103E-02	3.691E-02	1.460E-03	-0.011
SN-113DA	-5.662E-03		1.116E-02	3.747E-02	1.209E-03	-0.151
SB-124	-1.687E-02		1.137E-02	3.724E-02	1.209E-03	-0.453
SB-125	-5.215E-03		1.856E-02	6.228E-02	2.029E-03	-0.084
SN-126DA	2.016E-02	+	8.615E-03	2.307E-02	7.454E-04	0.874
I-131	1.696E-01		5.407E-01	1.841E+00	5.958E-02	0.092
BA-133	-4.155E-03		9.291E-03	2.665E-02	8.620E-04	-0.156
CS-134	6.543E-02	+	1.300E-02	3.383E-02	1.242E-03	1.934
CS-137DA	1.066E-02		9.059E-03	2.666E-02	8.571E-04	0.400
LA-138	-5.035E-03		8.892E-03	3.038E-02	1.037E-03	-0.166
CE-139	-2.914E-03		7.377E-03	2.485E-02	8.783E-04	-0.117
BA-140	1.999E-01		3.867E-01	1.298E+00	4.191E-02	0.154
BALA-140	3.521E-01		2.327E-01	7.342E-01	2.459E-02	0.480
LA-140	1.324E+01		1.485E+01	Half-Life too short		
CE-141	-7.248E-03		2.940E-02	9.579E-02	3.271E-03	-0.076
CE-144	-1.931E-02		4.613E-02	1.507E-01	5.018E-03	-0.128
CEPR-144	-3.915E-02		9.226E-02	3.013E-01	1.003E-02	-0.130
PM-144	6.921E-03		6.478E-03	2.243E-02	7.274E-04	0.309
PM-146	2.243E-02		8.568E-03	2.944E-02	9.599E-04	0.762
EU-152	-1.340E-02		1.899E-02	6.398E-02	2.066E-03	-0.209
EU-154	-4.139E-02		2.483E-02	8.008E-02	2.686E-03	-0.517
EU-155	9.925E-02		2.127E-02	6.980E-02	2.269E-03	1.422
HF-181	4.797E-03		1.511E-02	5.089E-02	1.652E-03	0.094
BI-207	1.772E-02		6.157E-03	2.108E-02	6.839E-04	0.841
BI-210M	-3.585E-03		1.144E-02	3.218E-02	1.133E-03	-0.111
BI-212	1.786E+00	+	2.464E-01	4.775E-01	1.972E-02	3.740
RA-223	6.613E-01	+	8.008E-02	1.485E-01	5.207E-03	4.455
AC-227DA	1.999E-01		5.648E-02	1.635E-01	5.886E-03	1.222
TH-234DA	4.368E+00		1.225E+00	4.327E+00	1.645E-01	1.010
U-235HP	2.032E-01		4.595E-02	1.495E-01	5.086E-03	1.359
NP-237DA	1.636E-02		1.417E-02	4.725E-02	1.542E-03	0.346
AM-241HP	2.896E-02		1.543E-02	4.981E-02	1.589E-03	0.581


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478R1AA
Detector ID: GER6 1
Energy Coefficients:
Offset: -8.38421E-03
Slope: 2.49398E-01
Quadrature: -2.09055E-09
Acquisition Start: 18-SEP-2007 06:08:07.10
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
10000
1000
100
10
1
50
100
200
500
1000
2000
226 Ra, 214 Bi
40 K
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
214 Bi
212 Bi
234 U, 238 U, 214 Bi, 228 Ra, 103 Ru
99 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
212 Bi, 140 La
214 Pb, 234 U, 238 U, 226 Ra
223 Ra, 228 Ac
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214 Pb
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 226 Ra
155 Eu
238 U
155 Eu
238 U

SAMPLE IDENTIFICATION: J478R1AA

CONFIGURATION ID: GER6:J478R1AA_180970608
TITLE : BRC SOIL
SAMPLE ID : J478R1AA

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 18-SEP-07 06:08:07
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 28-JUL-2007 13:30:00.00
CALIB DATE: 18-SEP-2007 05:25:28.31
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:16

SAMPLE QUANTITY: 3.5360E+02
SAMPLE GEOMETRY: S200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.8384E-02 keV
ENERGY SLOPE: 2.4940E-01 keV/C
ENERGY Q COEFF: -.2091E-08 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 9.8151E-02 keV
FWHM SLOPE: 6.8588E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 40.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 17:45:57

Configuration : $DISK1:[GER6.SAMPLE]J478R1AA_180970608.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 28-JUL-2007 13:30:00 Acquisition date : 18-SEP-2007 06:08:07
Sample ID : J478R1AA Sample quantity : 353.60 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:16.82 0.0%
Start energy : 19.94 End energy : 2042.92
Sensitivity : 5.00 Gaussian : 40.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.31*	196	1714	0.92	185.73	182	9	5.44E-03	40.1	
2	0	63.32*	490	3029	0.97	253.91	249	11	1.36E-02	23.0	
3	4	72.82*	524	3922	1.00	292.01	285	30	1.46E-02	25.4	3.22E+00
4	4	74.72*	3795	3750	0.99	299.65	285	30	1.05E-01	3.8	
5	4	76.98	5271	3509	1.03	308.69	285	30	1.46E-01	2.7	
6	10	84.28*	1300	3595	1.60	337.97	330	35	3.61E-02	10.7	1.01E+00
7	10	87.06*	2484	3472	1.27	349.11	330	35	6.90E-02	5.8	
8	10	89.76	1283	2006	1.06	359.96	330	35	3.56E-02	6.9	
9	0	92.74*	1905	3087	1.53	371.88	365	14	5.29E-02	6.8	
10	0	105.13	356	2525	1.18	421.58	416	13	9.89E-03	29.5	
11	0	129.21	561	2404	0.85	518.12	513	13	1.56E-02	18.6	
12	0	185.96*	1552	2412	1.17	745.68	739	16	4.31E-02	7.8	
13	0	209.21	855	1735	1.49	838.92	832	14	2.38E-02	10.9	
14	4	238.61*	8648	1558	1.19	956.80	948	30	2.40E-01	1.5	2.02E+00
15	4	241.66	2299	1614	1.70	969.03	948	30	6.39E-02	4.8	
16	0	270.13	826	1465	1.44	1083.17	1075	18	2.29E-02	11.4	
17	0	277.37	283	1038	1.02	1112.19	1107	12	7.86E-03	23.6	
18	0	295.25	3091	1222	1.29	1183.91	1176	16	8.59E-02	3.1	
19	0	300.38	381	1260	1.03	1204.47	1194	16	1.06E-02	21.5	
20	0	327.77	348	1189	0.83	1314.29	1307	16	9.67E-03	22.7	
21	0	338.33	1697	1598	1.21	1356.65	1346	24	4.71E-02	6.7	
22	0	351.90	5168	1062	1.36	1411.06	1402	17	1.44E-01	2.0	
23	0	409.36	197	1007	1.02	1641.43	1631	19	5.46E-03	39.4	
24	0	463.06	485	708	1.36	1856.79	1848	19	1.35E-02	12.1	
25	0	510.69*	1036	940	1.86	2047.78	2033	30	2.88E-02	9.0	
26	0	583.23	2507	796	1.62	2338.63	2326	25	6.97E-02	3.2	
27	0	609.21	3802	846	1.75	2442.81	2428	28	1.06E-01	2.4	
28	0	727.07	584	517	1.88	2915.40	2902	25	1.62E-02	9.8	
29	0	768.17	346	515	1.84	3080.21	3070	22	9.61E-03	13.8	
30	0	794.99	340	569	2.13	3187.77	3172	30	9.43E-03	16.3	
31	0	860.35	277	477	1.47	3449.85	3439	23	7.70E-03	16.6	
32	0	911.04	1687	507	2.33	3653.12	3640	26	4.69E-02	3.7	
33	0	967.67	1430	659	2.27	3880.19	3856	39	3.97E-02	5.1	
34	0	1120.21	820	599	2.57	4491.86	4476	35	2.28E-02	7.8	
35	0	1460.61*	7689	343	3.22	5856.88	5834	45	2.14E-01	1.3	
36	0	1764.31	674	105	3.99	7074.74	7051	50	1.87E-02	5.4	

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

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:45:57

Configuration : $DISK1:[GER6.SAMPLE]J478R1AA_180970608.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 28-JUL-2007 13:30:00 Acquisition date : 18-SEP-2007 06:08:07
Sample ID : J478R1AA Sample quantity : 353.60 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:16.82 0.0%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	7689	10.67*	5.925E-01	2.583E+01	2.583E+01	8.39
TL-208	277.35	283	6.80	2.285E+00	3.865E-01	3.865E-01	24.39
	510.84	1036	21.60	1.380E+00	7.380E-01	7.380E-01	10.74
	583.14	2507	84.20*	1.240E+00	5.100E-01	5.100E-01	6.79
	860.37	277	12.46	9.141E-01	5.165E-01	5.165E-01	18.00
PB-212	238.63	8648	44.60*	2.572E+00	1.601E+00	1.601E+00	6.40
	300.09	381	3.41	2.141E+00	1.106E+00	1.106E+00	22.35
BI-214	609.31	3802	46.30*	1.198E+00	1.456E+00	1.456E+00	6.46
	768.36	346	5.04	9.983E-01	1.460E+00	1.460E+00	15.21
	1120.29	820	15.10	7.420E-01	1.553E+00	1.553E+00	10.19
	1764.49	674	15.80	4.956E-01	1.827E+00	1.827E+00	8.42
PB-214	241.98	2299	7.49	2.547E+00	2.559E+00	2.559E+00	7.85
	295.21	3091	19.20	2.172E+00	1.574E+00	1.574E+00	6.91
	351.92	5168	37.20*	1.878E+00	1.571E+00	1.571E+00	6.39
	785.91	------	1.10	9.808E-01	------ Line Not Found		------
RA-224DA	238.63	8648	44.60*	2.572E+00	1.601E+00	1.685E+00	6.40
	240.98	2299	3.95	2.547E+00	4.851E+00	5.108E+00	7.85
	583.14	2507	30.25	1.240E+00	1.420E+00	1.495E+00	6.79
	860.37	277	4.48	9.141E-01	1.436E+00	1.512E+00	18.00
RA-226DA	186.21	1552	3.50	3.058E+00	3.078E+00	3.079E+00	9.97
	241.98	2299	7.49	2.547E+00	2.559E+00	2.559E+00	7.85
	295.22	3091	19.20	2.172E+00	1.574E+00	1.574E+00	6.91
	351.92	5168	37.20	1.878E+00	1.571E+00	1.571E+00	6.39
	609.32	3802	46.30*	1.198E+00	1.456E+00	1.456E+00	6.46
	1120.28	820	15.10	7.420E-01	1.553E+00	1.553E+00	10.19
	1238.11	------	5.94	6.834E-01	------ Line Not Found		------
	1764.49	674	15.80	4.956E-01	1.827E+00	1.827E+00	8.42
AC-228	209.28	855	4.40	2.831E+00	1.458E+00	1.458E+00	12.53
	270.23	826	3.60	2.334E+00	2.087E+00	2.087E+00	13.00
	338.32	1697	11.40	1.940E+00	1.629E+00	1.629E+00	9.04
	911.07	1687	27.70*	8.741E-01	1.480E+00	1.480E+00	7.94
	969.11	1430	16.60	8.338E-01	2.194E+00	2.194E+00	8.63
RA-228DA	209.28	855	4.40	2.831E+00	1.458E+00	1.483E+00	12.53
	338.32	1697	11.40	1.940E+00	1.629E+00	1.657E+00	9.04
	911.07	1687	27.70*	8.741E-01	1.480E+00	1.505E+00	7.94
	964.60	------	5.20	8.359E-01	------ Line Not Found		------

Sample ID : J478R1AA Acquisition date : 18-SEP-2007 06:08:07

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	969.11	1430	16.60	8.338E-01	2.194E+00	2.232E+00	8.63
TH-228DA	238.63	8648	44.60	2.572E+00	1.601E+00	1.685E+00	6.40
	240.98	2299	3.95	2.547E+00	4.851E+00	5.108E+00	7.85
	583.14	2507	30.25*	1.240E+00	1.420E+00	1.495E+00	6.79
	860.37	277	4.48	9.141E-01	1.436E+00	1.512E+00	18.00
TH-232DA	238.63	8648	44.60	2.572E+00	1.601E+00	1.601E+00	6.40
	338.32	1697	12.40*	1.940E+00	1.498E+00	1.498E+00	9.04
	583.14	2507	30.25	1.240E+00	1.420E+00	1.420E+00	6.79
	911.07	1687	27.70	8.741E-01	1.480E+00	1.480E+00	7.94
	964.60	------	5.20	8.359E-01	------	Line Not Found	------
	969.11	1430	16.60	8.338E-01	2.194E+00	2.194E+00	8.63
U-234DA	241.98	2299	7.49	2.547E+00	2.559E+00	2.559E+00	7.85
	295.22	3091	19.20*	2.172E+00	1.574E+00	1.574E+00	6.91
	351.92	5168	37.20	1.878E+00	1.571E+00	1.571E+00	6.39
	609.31	3802	46.30	1.198E+00	1.456E+00	1.456E+00	6.46
U-238DA	241.98	2299	7.49	2.547E+00	2.559E+00	2.559E+00	7.85
	295.22	3091	19.20	2.172E+00	1.574E+00	1.574E+00	6.91
	351.92	5168	37.20*	1.878E+00	1.571E+00	1.571E+00	6.39
	609.31	3802	46.30	1.198E+00	1.456E+00	1.456E+00	6.46
U-238DHP	63.28	490	3.80*	2.152E+00	1.272E+00	1.272E+00	23.82
	92.59	1905	5.41	3.367E+00	2.221E+00	2.221E+00	9.52

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : J478R1AA

Acquisition date : 18-SEP-2007 06:08:07

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	46.31	196	1714	0.92	185.73	182	9	5.44E-03	40.1	9.38E-01	
4	72.82	524	3922	1.00	292.01	285	30	1.46E-02	25.4	2.69E+00	
4	74.72	3795	3750	0.99	299.65	285	30	1.05E-01	3.8	2.78E+00	
4	76.98	5271	3509	1.03	308.69	285	30	1.46E-01	2.7	2.88E+00	
10	84.28	1300	3595	1.60	337.97	330	35	3.61E-02	10.7	3.15E+00	
10	87.06	2484	3472	1.27	349.11	330	35	6.90E-02	5.8	3.23E+00	T
10	89.76	1283	2006	1.06	359.96	330	35	3.56E-02	6.9	3.30E+00	
0	105.13	356	2525	1.18	421.58	416	13	9.89E-03	29.5	3.54E+00	T
0	129.21	561	2404	0.85	518.12	513	13	1.56E-02	18.6	3.56E+00	
0	327.77	348	1189	0.83	1314.29	1307	16	9.67E-03	22.7	1.99E+00	T
0	409.36	197	1007	1.02	1641.43	1631	19	5.46E-03	39.4	1.66E+00	
0	463.06	485	708	1.36	1856.79	1848	19	1.35E-02	12.1	1.49E+00	T
0	727.07	584	517	1.88	2915.40	2902	25	1.62E-02	9.8	1.04E+00	T
0	794.99	340	569	2.13	3187.77	3172	30	9.43E-03	16.3	9.72E-01	T

Flags: "T" = Tentatively associated

Sample ID : J478R1AA Acquisition date : 18-SEP-2007 06:08:07

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	9.215E-02	10.74	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.62	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	3.602E-01	10.19	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.85	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	2.643E+00	6.79	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-103	39.35D	1.32	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	3.003E+01	6.46	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	8.533E-01	10.74	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	6.897E-01	13.49	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
BA-133	10.50Y	0.01	81.00	33.00	--- Not Found ---		Abun.
			276.40	6.90	3.845E-01	24.39	
			302.84	17.80	--- Not Found ---		
			356.00*	62.05	--- Not Found ---		
			383.85	8.70	--- Not Found ---		
		% Abundances Found =		5.37			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	9.113E-02	17.52	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	30.97	328.77	20.50	3.804E+08	23.55	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	5.386E-01	8.87	
			105.31*	20.70	1.053E-01	30.24	
		% Abundances Found =		70.92			

Sample ID : J478R1AA Acquisition date : 18-SEP-2007 06:08:07

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
BI-212	1.41E+10Y	0.00	288.07	0.31	--- Not Found ---		Abun.
			327.96	0.14	2.670E+01	24.84	
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.809E+00	11.81	
			785.37	1.10	--- Not Found ---		
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		
			1078.62	0.56	--- Not Found ---		
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	--- Not Found ---		
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		58.84			
RA-223	21.77Y	0.01	154.21	5.58	--- Not Found ---		Abun.
			269.46*	13.60	5.549E-01	13.00	
			323.87	3.88	--- Not Found ---		
		% Abundances Found =		58.98			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	1.995E-01	9.97	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:45:59

Configuration : $DISK1:[GER6.SAMPLE]J478R1AA_180970608.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 28-JUL-2007 13:30:00 Acquisition date : 18-SEP-2007 06:08:07
Sample ID : J478R1AA Sample quantity : 353.60 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:16.82 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.583E+01	2.166E+00	2.401E-01	1.586E-02	107.556
TL-208	5.100E-01	3.465E-02	2.519E-02	8.203E-04	20.242
PB-212	1.601E+00	1.024E-01	3.483E-02	1.293E-03	45.949
BI-214	1.456E+00	9.405E-02	4.635E-02	1.521E-03	31.415
PB-214	1.571E+00	1.004E-01	4.505E-02	1.547E-03	34.866
RA-224DA	1.685E+00	1.079E-01	3.668E-02	1.361E-03	45.949
RA-226DA	1.456E+00	9.406E-02	4.635E-02	1.521E-03	31.415
AC-228	1.480E+00	1.175E-01	9.287E-02	4.605E-03	15.932
RA-228DA	1.505E+00	1.195E-01	9.447E-02	4.685E-03	15.932
TH-228DA	1.495E+00	1.015E-01	7.384E-02	2.404E-03	20.242
TH-232DA	1.498E+00	1.354E-01	1.342E-01	4.653E-03	11.157
U-234DA	1.574E+00	1.087E-01	8.513E-02	3.075E-03	18.485
U-238DA	1.571E+00	1.004E-01	4.505E-02	1.547E-03	34.866
U-238DHP	1.272E+00	3.030E-01	5.818E-01	2.080E-02	2.187

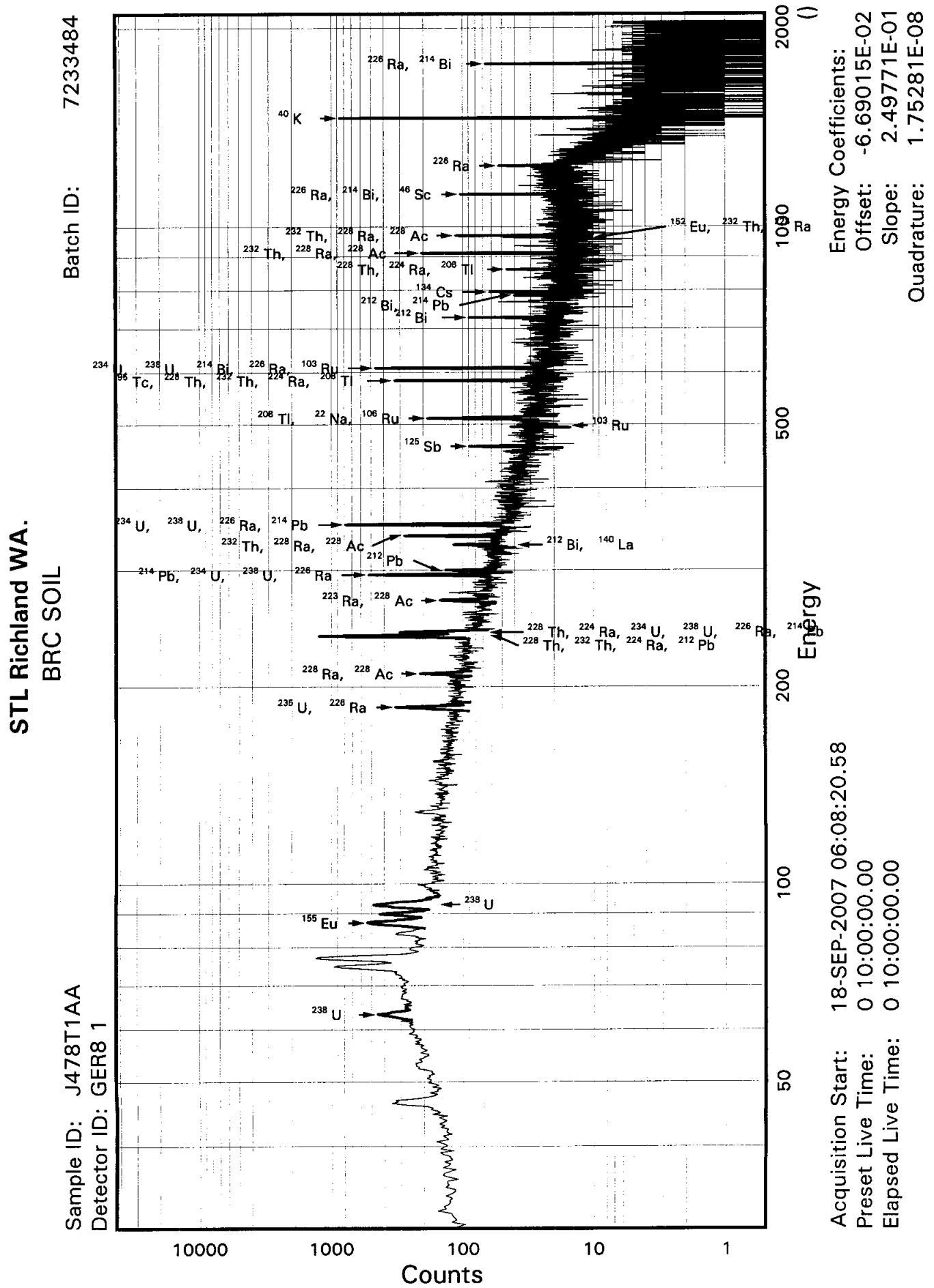
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-1.275E-01		1.061E-01	3.535E-01	1.143E-02	-0.361
NA-22	-2.534E-02		1.056E-02	3.343E-02	2.026E-03	-0.758
SC-46	3.602E-01	+	3.671E-02	7.551E-02	3.240E-03	4.770
CR-51	-2.133E-01		1.836E-01	6.059E-01	2.116E-02	-0.352
MN-54	9.008E-03		9.027E-03	3.099E-02	1.398E-03	0.291
CO-57	-2.949E-02		4.212E-02	1.366E-01	5.117E-03	-0.216
CO-58	-2.723E-02		1.247E-02	3.989E-02	1.729E-03	-0.683
FE-59	-4.100E-02		3.604E-02	1.185E-01	5.190E-03	-0.346
CO-60	-3.730E-03		8.273E-03	2.800E-02	2.048E-03	-0.133
ZN-65	8.112E-02		2.711E-02	7.914E-02	3.413E-03	1.025
SE-75	-6.189E-03		1.074E-02	3.385E-02	1.251E-03	-0.183
SR-85	1.049E-01		1.421E-02	4.142E-02	1.304E-03	2.533
Y-88	4.213E-03		8.918E-03	3.139E-02	1.064E-03	0.134
NB-94	1.771E-03		7.483E-03	2.544E-02	1.216E-03	0.070

Sample ID : J478R1AA Acquisition date : 18-SEP-2007 06:08:07

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
NB-95	1.351E-01		2.747E-02	8.088E-02	3.248E-03	1.670
TC-95M	1.606E-02		1.252E-02	4.121E-02	1.515E-03	0.390
ZR-95	2.515E-02		2.322E-02	7.923E-02	3.131E-03	0.317
ZRNB-95	1.718E-01		3.450E-02	1.016E-01	4.079E-03	1.692
RH-101	1.844E-02		6.411E-03	2.119E-02	7.767E-04	0.870
RH-102M	1.080E-02		6.080E-03	2.096E-02	6.789E-04	0.515
RU-103	5.293E-03		1.564E-02	5.305E-02	1.694E-03	0.100
RU-106DA	3.988E-02		7.009E-02	2.383E-01	7.845E-03	0.167
AG-108M	-1.191E-02		6.027E-03	1.948E-02	6.404E-04	-0.611
AG-110M	-1.368E-02		1.214E-02	4.020E-02	1.963E-03	-0.340
SN-113DA	-1.727E-02		1.122E-02	3.705E-02	1.217E-03	-0.466
SB-124	1.846E-03		1.424E-02	4.066E-02	1.332E-03	0.045
SB-125	-4.651E-04		1.923E-02	6.427E-02	2.114E-03	-0.007
SN-126DA	1.918E-02		7.033E-03	2.407E-02	8.041E-04	0.797
I-131	4.029E-01		5.504E-01	1.832E+00	6.222E-02	0.220
BA-133	3.277E-03		9.674E-03	2.725E-02	9.328E-04	0.120
CS-134	9.113E-02	+	1.596E-02	3.583E-02	1.515E-03	2.543
CS-137DA	-2.614E-02		8.205E-03	2.573E-02	8.518E-04	-1.016
LA-138	-3.703E-04		1.092E-02	3.719E-02	2.513E-03	-0.010
CE-139	1.849E-03		6.579E-03	2.205E-02	7.939E-04	0.084
BA-140	-5.613E-01		3.866E-01	1.264E+00	4.035E-02	-0.444
BALA-140	-1.098E+00		3.038E-01	9.086E-01	5.128E-02	-1.209
CE-141	-4.126E-02		2.487E-02	8.289E-02	3.048E-03	-0.498
CE-144	5.252E-02		4.193E-02	1.345E-01	5.074E-03	0.390
CEPR-144	1.050E-01		8.385E-02	2.690E-01	1.015E-02	0.390
PM-144	3.436E-03		6.947E-03	2.361E-02	7.766E-04	0.146
PM-146	1.045E-02		8.737E-03	2.939E-02	9.610E-04	0.356
EU-152	-5.575E-02		2.249E-02	6.213E-02	2.146E-03	-0.897
EU-154	-6.879E-02		2.894E-02	9.170E-02	5.555E-03	-0.750
EU-155	1.053E-01	+	3.185E-02	6.579E-02	2.680E-03	1.601
HF-181	2.680E-02		1.561E-02	5.376E-02	1.734E-03	0.498
BI-207	5.937E-03		6.627E-03	2.225E-02	7.209E-04	0.267
BI-210M	-7.059E-03		1.083E-02	3.009E-02	1.111E-03	-0.235
BI-212	1.809E+00	+	2.137E-01	4.765E-01	2.091E-02	3.796
RA-223	5.549E-01	+	7.212E-02	1.410E-01	5.197E-03	3.935
AC-227DA	3.173E-01		5.568E-02	1.588E-01	5.894E-03	1.998
TH-234DA	2.006E+00		1.284E+00	4.433E+00	2.097E-01	0.452
U-235HP	9.349E-02		3.804E-02	1.299E-01	4.791E-03	0.720
NP-237DA	1.018E-02		1.319E-02	4.462E-02	1.578E-03	0.228
AM-241HP	-5.044E-03		1.948E-02	6.569E-02	2.280E-03	-0.077


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478T1AA
Detector ID: GER8 1
Energy Coefficients:
Offset: -6.69015E-02
Slope: 2.49771E-01
Quadrature: 1.75281E-08
Acquisition Start: 18-SEP-2007 06:08:20.58
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
10000
1000
100
10
1
50
100
200
500
1000
2000
226 Ra, 214 Bi
40 K
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
212 Bi, 214 Pb
212 Bi
152 Eu, 232 Th, 226 Ra
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
95 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
103 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Pb
212 Bi, 140 La
214 Pb, 234 U, 238 U, 226 Ra
223 Ra, 228 Ac
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214 Pb
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 228 Ra
238 U
155 Eu
238 U

SAMPLE IDENTIFICATION: J478T1AA

CONFIGURATION ID: GER8:J478T1AA_180970608
TITLE : BRC SOIL
SAMPLE ID : J478T1AA

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 18-SEP-07 06:08:20
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 28-JUL-2007 11:45:00.00
CALIB DATE: 18-SEP-2007 05:25:43.94
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:12

SAMPLE QUANTITY: 3.4420E+02
SAMPLE GEOMETRY: ES200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.6690E-01 keV
ENERGY SLOPE: 2.4977E-01 keV/C
ENERGY Q COEFF: 1.7528E-08 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 9.4695E-01 keV
FWHM SLOPE: 2.2529E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 30.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 17:49:32

Configuration : $DISK1:[GER8.SAMPLE]J478T1AA_180970608.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 28-JUL-2007 11:45:00 Acquisition date : 18-SEP-2007 06:08:20
Sample ID : J478T1AA Sample quantity : 344.20 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:12.50 0.0%
Start energy : 19.91 End energy : 2047.23
Sensitivity : 5.00 Gaussian : 30.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.65*	396	2398	0.99	187.04	180	15	1.10E-02	29.1	
2	0	63.30*	295	3285	0.80	253.71	249	12	8.19E-03	41.8	
3	2	74.83*	3076	3892	1.16	299.86	289	28	8.54E-02	4.8	1.34E+00
4	2	77.12*	4901	3202	1.06	309.01	289	28	1.36E-01	2.9	
5	0	84.16*	558	2475	1.06	337.21	331	12	1.55E-02	18.8	
6	0	87.21	1720	2766	1.20	349.44	343	13	4.78E-02	6.7	
7	4	89.92	815	1671	0.85	360.27	356	28	2.26E-02	9.1	1.25E+00
8	4	92.98*	1659	3448	1.61	372.51	356	28	4.61E-02	9.3	
9	0	129.17	507	2002	1.34	517.40	510	14	1.41E-02	19.2	
10	0	186.22*	1380	2223	1.26	745.80	736	23	3.83E-02	9.7	
11	0	209.28	543	1799	1.08	838.10	829	18	1.51E-02	18.8	
12	3	238.65*	5901	1354	1.21	955.69	945	31	1.64E-01	1.9	1.96E+00
13	3	241.69	1617	1282	1.73	967.85	945	31	4.49E-02	6.1	
14	0	269.87	609	1253	1.57	1080.66	1070	20	1.69E-02	14.8	
15	0	295.24	2398	979	1.23	1182.21	1174	18	6.66E-02	3.7	
16	0	300.10	343	835	1.12	1201.66	1195	14	9.52E-03	18.7	
17	0	327.62	423	1117	1.23	1311.82	1300	22	1.18E-02	20.7	
18	0	338.27	1087	765	1.09	1354.45	1347	15	3.02E-02	6.3	
19	0	351.86*	3924	886	1.25	1408.86	1398	21	1.09E-01	2.6	
20	0	462.93	349	524	1.66	1853.45	1842	18	9.70E-03	16.3	
21	0	497.61	78	615	4.61	1992.25	1979	24	2.16E-03	85.3	
22	0	510.92*	684	787	1.88	2045.51	2033	29	1.90E-02	14.4	
23	0	583.20	1846	479	1.36	2334.82	2325	21	5.13E-02	3.8	
24	0	609.29*	2662	599	1.51	2439.26	2427	25	7.39E-02	3.0	
25	0	727.34	322	442	0.96	2911.70	2902	20	8.94E-03	14.7	
26	0	785.70	109	296	1.39	3145.24	3137	17	3.02E-03	32.4	
27	0	795.03	195	262	1.56	3182.61	3175	15	5.41E-03	17.2	
28	0	860.62	174	325	1.79	3445.07	3435	19	4.83E-03	22.5	
29	0	911.17	1265	390	1.61	3647.37	3635	26	3.52E-02	4.6	
30	0	934.02	121	252	1.50	3738.80	3729	18	3.36E-03	27.7	
31	0	964.50	170	309	1.06	3860.78	3852	18	4.72E-03	22.1	
32	0	968.94	670	243	1.56	3878.54	3870	17	1.86E-02	6.0	
33	0	1120.32	669	319	1.76	4484.23	4474	24	1.86E-02	7.1	
34	0	1237.96	186	441	1.80	4954.93	4944	21	5.17E-03	25.0	
35	0	1377.62	186	130	1.88	5513.67	5499	25	5.15E-03	15.8	
36	0	1460.74*	7291	128	1.99	5846.18	5830	32	2.03E-01	1.2	
37	0	1509.03	76	102	3.83	6039.36	6023	28	2.10E-03	30.4	
38	0	1590.44	219	77	5.38	6365.01	6345	43	6.08E-03	13.4	
39	0	1630.66	55	32	1.40	6525.90	6515	21	1.54E-03	25.4	
40	0	1764.55	504	78	1.54	7061.44	7046	31	1.40E-02	6.2	

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

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:49:33

Configuration : $DISK1:[GER8.SAMPLE]J478T1AA_180970608.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 28-JUL-2007 11:45:00 Acquisition date : 18-SEP-2007 06:08:20
Sample ID : J478T1AA Sample quantity : 344.20 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:12.50 0.0%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	7291	10.67*	5.801E-01	2.569E+01	2.569E+01	6.25
TL-208	277.35	------	6.80	2.336E+00	------ Line Not Found		------
	510.84	684	21.60	1.413E+00	4.888E-01	4.888E-01	15.61
	583.14	1846	84.20*	1.263E+00	3.786E-01	3.786E-01	7.14
	860.37	174	12.46	9.071E-01	3.355E-01	3.355E-01	23.46
PB-212	238.63	5901	44.60*	2.617E+00	1.103E+00	1.103E+00	6.60
	300.09	343	3.41	2.195E+00	9.985E-01	9.985E-01	19.70
BI-214	609.31	2662	46.30*	1.217E+00	1.030E+00	1.030E+00	6.78
	768.36	------	5.04	9.988E-01	------ Line Not Found		------
	1120.29	669	15.10	7.255E-01	1.331E+00	1.331E+00	9.41
	1764.49	504	15.80	4.950E-01	1.407E+00	1.407E+00	8.61
PB-214	241.98	1617	7.49	2.593E+00	1.816E+00	1.816E+00	8.76
	295.21	2398	19.20	2.224E+00	1.225E+00	1.225E+00	7.23
	351.92	3924	37.20*	1.931E+00	1.192E+00	1.192E+00	6.58
	785.91	109	1.10	9.800E-01	2.203E+00	2.203E+00	33.08
RA-224DA	238.63	5901	44.60*	2.617E+00	1.103E+00	1.161E+00	6.60
	240.98	1617	3.95	2.593E+00	3.443E+00	3.625E+00	8.76
	583.14	1846	30.25	1.263E+00	1.054E+00	1.110E+00	7.14
	860.37	174	4.48	9.071E-01	9.331E-01	9.825E-01	23.46
RA-226DA	186.21	1380	3.50	3.106E+00	2.769E+00	2.769E+00	11.52
	241.98	1617	7.49	2.593E+00	1.816E+00	1.816E+00	8.76
	295.22	2398	19.20	2.224E+00	1.225E+00	1.225E+00	7.23
	351.92	3924	37.20	1.931E+00	1.192E+00	1.192E+00	6.58
	609.32	2662	46.30*	1.217E+00	1.030E+00	1.030E+00	6.78
	1120.28	669	15.10	7.255E-01	1.331E+00	1.331E+00	9.41
	1238.11	186	5.94	6.669E-01	1.024E+00	1.024E+00	25.76
	1764.49	504	15.80	4.950E-01	1.407E+00	1.407E+00	8.61
AC-228	209.28	543	4.40	2.874E+00	9.361E-01	9.361E-01	19.85
	270.23	609	3.60	2.386E+00	1.548E+00	1.548E+00	16.08
	338.32	1087	11.40	1.994E+00	1.043E+00	1.043E+00	8.78
	911.07	1265	27.70*	8.642E-01	1.153E+00	1.153E+00	8.06
	969.11	670	16.60	8.203E-01	1.074E+00	1.074E+00	8.85
RA-228DA	209.28	543	4.40	2.874E+00	9.361E-01	9.523E-01	19.85
	338.32	1087	11.40	1.994E+00	1.043E+00	1.061E+00	8.78
	911.07	1265	27.70*	8.642E-01	1.153E+00	1.173E+00	8.06
	964.60	170	5.20	8.235E-01	8.649E-01	8.798E-01	23.03

Sample ID : J478T1AA Acquisition date : 18-SEP-2007 06:08:20

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	969.11	670	16.60	8.203E-01	1.074E+00	1.092E+00	8.85
TH-228DA	238.63	5901	44.60	2.617E+00	1.103E+00	1.161E+00	6.60
	240.98	1617	3.95	2.593E+00	3.443E+00	3.625E+00	8.76
	583.14	1846	30.25*	1.263E+00	1.054E+00	1.110E+00	7.14
	860.37	174	4.48	9.071E-01	9.331E-01	9.825E-01	23.46
TH-232DA	238.63	5901	44.60	2.617E+00	1.103E+00	1.103E+00	6.60
	338.32	1087	12.40*	1.994E+00	9.590E-01	9.590E-01	8.78
	583.14	1846	30.25	1.263E+00	1.054E+00	1.054E+00	7.14
	911.07	1265	27.70	8.642E-01	1.153E+00	1.153E+00	8.06
	964.60	170	5.20	8.235E-01	8.649E-01	8.649E-01	23.03
	969.11	670	16.60	8.203E-01	1.074E+00	1.074E+00	8.85
U-234DA	241.98	1617	7.49	2.593E+00	1.816E+00	1.816E+00	8.76
	295.22	2398	19.20*	2.224E+00	1.225E+00	1.225E+00	7.23
	351.92	3924	37.20	1.931E+00	1.192E+00	1.192E+00	6.58
	609.31	2662	46.30	1.217E+00	1.030E+00	1.030E+00	6.78
U-238DA	241.98	1617	7.49	2.593E+00	1.816E+00	1.816E+00	8.76
	295.22	2398	19.20	2.224E+00	1.225E+00	1.225E+00	7.23
	351.92	3924	37.20*	1.931E+00	1.192E+00	1.192E+00	6.58
	609.31	2662	46.30	1.217E+00	1.030E+00	1.030E+00	6.78
U-238DHP	63.28	295	3.80*	3.725E+00	4.544E-01	4.544E-01	42.20
	92.59	1659	5.41	4.071E+00	1.643E+00	1.643E+00	11.07

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
RU-103	497.08	78	89.00*	1.445E+00	1.320E-02	3.296E-02	85.46
	610.33	2662	5.60	1.217E+00	8.519E+00	2.128E+01	6.78

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : J478T1AA

Acquisition date : 18-SEP-2007 06:08:20

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	46.65	396	2398	0.99	187.04	180	15	1.10E-02	29.1	2.85E+00	
2	74.83	3076	3892	1.16	299.86	289	28	8.54E-02	4.8	3.99E+00	
2	77.12	4901	3202	1.06	309.01	289	28	1.36E-01	2.9	4.01E+00	
0	84.16	558	2475	1.06	337.21	331	12	1.55E-02	18.8	4.07E+00	
0	87.21	1720	2766	1.20	349.44	343	13	4.78E-02	6.7	4.07E+00	T
4	89.92	815	1671	0.85	360.27	356	28	2.26E-02	9.1	4.08E+00	
0	129.17	507	2002	1.34	517.40	510	14	1.41E-02	19.2	3.77E+00	
0	327.62	423	1117	1.23	1311.82	1300	22	1.18E-02	20.7	2.05E+00	T
0	462.93	349	524	1.66	1853.45	1842	18	9.70E-03	16.3	1.54E+00	T
0	727.34	322	442	0.96	2911.70	2902	20	8.94E-03	14.7	1.05E+00	T
0	795.03	195	262	1.56	3182.61	3175	15	5.41E-03	17.2	9.70E-01	T
0	934.02	121	252	1.50	3738.80	3729	18	3.36E-03	27.7	8.46E-01	
0	1377.62	186	130	1.88	5513.67	5499	25	5.15E-03	15.8	6.09E-01	
0	1509.03	76	102	3.83	6039.36	6023	28	2.10E-03	30.4	5.64E-01	
0	1590.44	219	77	5.38	6365.01	6345	43	6.08E-03	13.4	5.40E-01	
0	1630.66	55	32	1.40	6525.90	6515	21	1.54E-03	25.4	5.29E-01	

Flags: "T" = Tentatively associated

Sample ID : J478T1AA Acquisition date : 18-SEP-2007 06:08:20

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	6.103E-02	15.61	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.62	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	3.089E-01	9.41	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.85	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	1.964E+00	7.14	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-106DA	368.20D	0.14	511.85	20.60	5.652E-01	15.61	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	4.966E-01	17.35	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	5.376E-02	18.36	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	31.01	328.77	20.50	4.768E+08	21.59	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-152	13.60Y	0.01	121.78	28.40	--- Not Found ---		Abun.
			244.67	7.49	--- Not Found ---		
			344.27*	26.50	--- Not Found ---		
			778.89	12.74	--- Not Found ---		
			964.01	14.40	3.146E-01	23.03	
			1085.78	10.00	--- Not Found ---		
			1112.02	13.30	--- Not Found ---		
			1407.95	20.70	--- Not Found ---		
		% Abundances Found =		10.78			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	3.040E-01	9.05	
			105.31*	20.70	--- Not Found ---		
		% Abundances Found =		42.47			
BI-212	1.41E+10Y	0.00	288.07	0.31	--- Not Found ---		Abun.

Sample ID : J478T1AA Acquisition date : 18-SEP-2007 06:08:20

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
BI-212	1.41E+10Y	0.00	327.96	0.14	3.246E+01	22.99	Abun.
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.020E+00	16.17	
			785.37	1.10	2.203E+00	33.19	
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		
			1078.62	0.56	--- Not Found ---		
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	--- Not Found ---		
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		68.47			
RA-223	21.77Y	0.01	154.21	5.58	--- Not Found ---		Abun.
			269.46*	13.60	4.116E-01	16.08	
			323.87	3.88	--- Not Found ---		
		% Abundances Found =		58.98			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	1.795E-01	11.52	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:49:36

Configuration : $DISK1:[GER8.SAMPLE]J478T1AA_180970608.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 28-JUL-2007 11:45:00 Acquisition date : 18-SEP-2007 06:08:20
Sample ID : J478T1AA Sample quantity : 344.20 GRAMS
Sample type : Sample geometry : ES200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:12.50 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.569E+01	1.605E+00	1.631E-01	5.756E-03	157.502
RU-103	3.296E-02	2.817E-02	4.332E-02	1.381E-03	0.761
TL-208	3.786E-01	2.704E-02	2.133E-02	7.283E-04	17.750
PB-212	1.103E+00	7.277E-02	3.205E-02	1.232E-03	34.406
BI-214	1.030E+00	6.986E-02	3.826E-02	1.339E-03	26.933
PB-214	1.192E+00	7.836E-02	4.009E-02	1.371E-03	29.726
RA-224DA	1.161E+00	7.663E-02	3.375E-02	1.298E-03	34.406
RA-226DA	1.030E+00	6.987E-02	3.826E-02	1.339E-03	26.932
AC-228	1.153E+00	9.295E-02	7.691E-02	3.361E-03	14.993
RA-228DA	1.173E+00	9.456E-02	7.824E-02	3.419E-03	14.993
TH-228DA	1.110E+00	7.925E-02	6.252E-02	2.135E-03	17.750
TH-232DA	9.590E-01	8.422E-02	1.266E-01	4.417E-03	7.574
U-234DA	1.225E+00	8.861E-02	7.652E-02	2.833E-03	16.008
U-238DA	1.192E+00	7.836E-02	4.009E-02	1.371E-03	29.726
U-238DHP	4.544E-01	1.917E-01	4.268E-01	1.361E-02	1.065

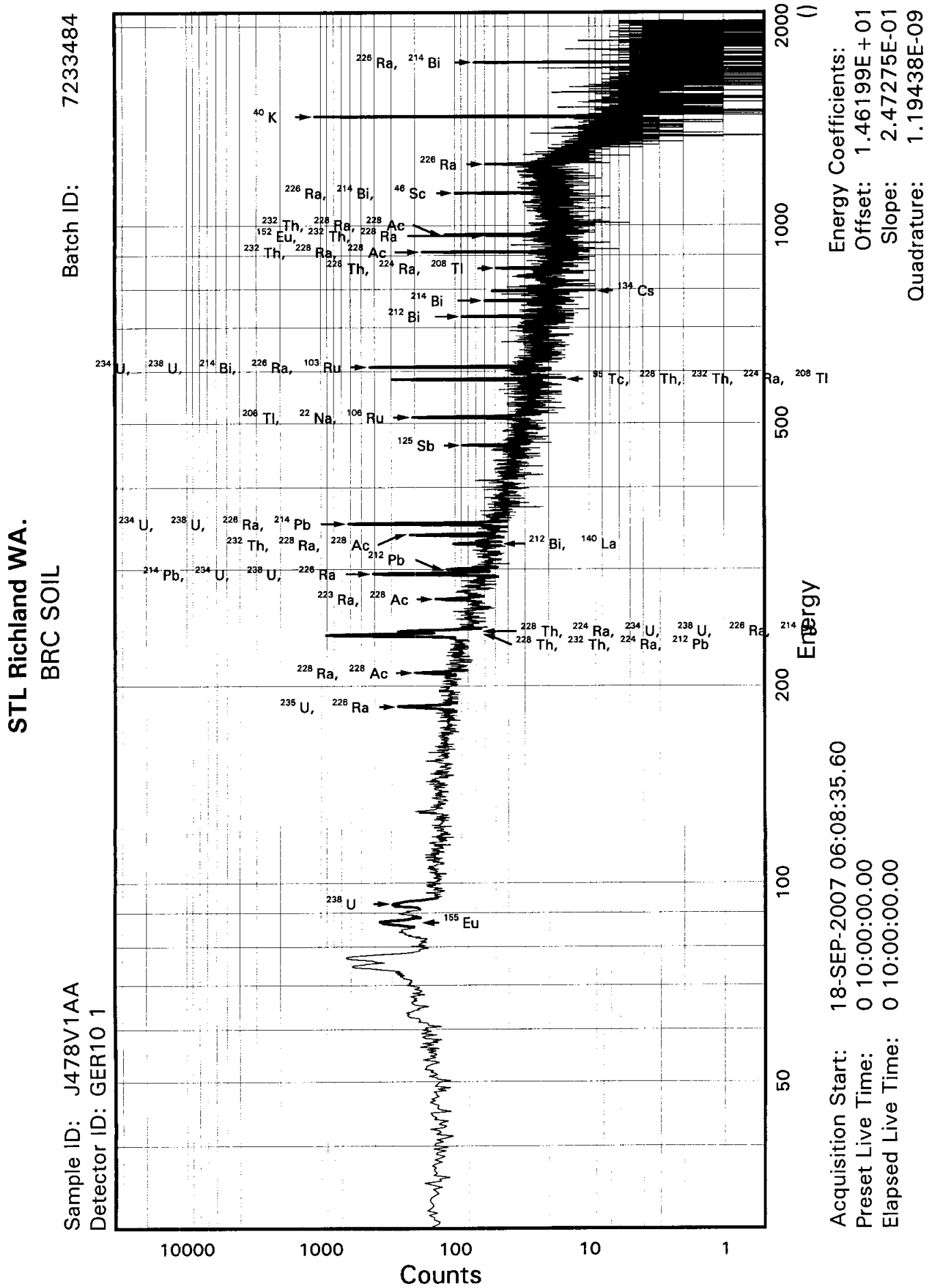
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-5.995E-02		8.780E-02	2.958E-01	9.461E-03	-0.203
NA-22	-1.234E-03		7.816E-03	2.684E-02	9.232E-04	-0.046
SC-46	3.089E-01	+	2.906E-02	6.743E-02	2.371E-03	4.582
CR-51	2.647E-02		1.649E-01	5.521E-01	1.968E-02	0.048
MN-54	1.488E-02		7.394E-03	2.590E-02	1.094E-03	0.575
CO-57	8.740E-04		4.191E-02	1.383E-01	4.727E-03	0.006
CO-58	-1.412E-02		9.926E-03	3.303E-02	1.372E-03	-0.428
FE-59	-5.338E-03		3.118E-02	1.049E-01	3.807E-03	-0.051
CO-60	-4.251E-03		6.519E-03	2.219E-02	7.915E-04	-0.192
ZN-65	-3.014E-02		2.136E-02	5.788E-02	2.051E-03	-0.521
SE-75	1.642E-02		1.108E-02	3.219E-02	1.226E-03	0.510
SR-85	5.673E-02		1.139E-02	3.454E-02	1.095E-03	1.642
Y-88	7.325E-03		6.337E-03	2.353E-02	7.346E-04	0.311

Sample ID : J478T1AA Acquisition date : 18-SEP-2007 06:08:20

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
NB-94	6.965E-03		5.970E-03	2.084E-02	9.022E-04	0.334
NB-95	2.152E-02		1.919E-02	6.500E-02	2.608E-03	0.331
TC-95M	1.280E-02		1.286E-02	3.960E-02	1.514E-03	0.323
ZR-95	2.989E-02		1.896E-02	6.500E-02	2.589E-03	0.460
ZRNB-95	3.063E-02		2.411E-02	8.179E-02	3.282E-03	0.374
RH-101	-6.362E-03		6.889E-03	1.997E-02	7.614E-04	-0.319
RH-102M	-4.534E-03		5.038E-03	1.691E-02	5.411E-04	-0.268
RU-106DA	1.904E-02		5.920E-02	2.009E-01	7.111E-03	0.095
AG-108M	-6.044E-03		5.162E-03	1.730E-02	5.526E-04	-0.349
AG-110M	-2.828E-03		9.546E-03	3.248E-02	1.419E-03	-0.087
SN-113DA	-3.507E-03		9.962E-03	3.293E-02	1.037E-03	-0.107
SB-124	-5.302E-03		1.063E-02	3.253E-02	1.132E-03	-0.163
SB-125	2.834E-02		1.730E-02	5.837E-02	1.862E-03	0.486
SN-126DA	2.202E-02		5.915E-03	2.055E-02	7.553E-04	1.072
I-131	-3.801E-01		4.807E-01	1.583E+00	5.295E-02	-0.240
BA-133	1.393E-02		8.486E-03	2.460E-02	8.355E-04	0.566
CS-134	5.376E-02	+	9.873E-03	3.075E-02	1.263E-03	1.748
CS-137DA	-1.971E-02		7.075E-03	2.233E-02	8.168E-04	-0.883
LA-138	-1.561E-03		8.303E-03	2.875E-02	1.018E-03	-0.054
CE-139	1.222E-03		6.595E-03	2.168E-02	8.078E-04	0.056
BA-140	6.889E-01		3.218E-01	1.121E+00	3.648E-02	0.615
BALA-140	1.656E-01		2.015E-01	6.218E-01	2.134E-02	0.266
CE-141	6.419E-02		2.547E-02	8.450E-02	2.981E-03	0.760
CE-144	-8.311E-03		4.348E-02	1.342E-01	4.542E-03	-0.062
CEPR-144	-1.490E-02		8.697E-02	2.685E-01	9.087E-03	-0.055
PM-144	1.284E-02		5.989E-03	2.075E-02	7.319E-04	0.619
PM-146	2.268E-02		7.306E-03	2.556E-02	8.184E-04	0.887
EU-152	-1.448E-02		1.742E-02	5.742E-02	1.987E-03	-0.252
EU-154	9.662E-03		2.124E-02	7.386E-02	2.541E-03	0.131
EU-155	4.620E-02		1.861E-02	6.217E-02	2.047E-03	0.743
HF-181	6.115E-03		1.357E-02	4.645E-02	1.485E-03	0.132
BI-207	-8.093E-03		5.281E-03	1.736E-02	5.847E-04	-0.466
BI-210M	-5.094E-03		9.885E-03	2.794E-02	1.063E-03	-0.182
BI-212	1.020E+00	+	1.649E-01	4.091E-01	1.843E-02	2.493
RA-223	4.116E-01	+	6.617E-02	1.268E-01	4.814E-03	3.245
AC-227DA	3.257E-01		5.399E-02	1.538E-01	5.913E-03	2.118
TH-234DA	-7.455E-02		1.076E+00	3.650E+00	1.487E-01	-0.020
U-235HP	1.340E-01		3.917E-02	1.295E-01	4.542E-03	1.034
NP-237DA	-2.533E-02		1.236E-02	3.999E-02	1.446E-03	-0.633
AM-241HP	1.985E-02		1.463E-02	4.520E-02	1.458E-03	0.439


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478V1AA
Detector ID: GER10 1
Energy Coefficients:
Offset: 1.46199E+01
Slope: 2.47275E-01
Quadrature: 1.19438E-09
Acquisition Start: 18-SEP-2007 06:08:35.60
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
10000
1000
100
10
1
50
100
200
500
1000
2000
40 K
226 Ra, 214 Bi
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
152 Eu, 232 Th, 228 Ra
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
214 Bi
212 Bi
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
95 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Pb
212 Bi, 140 La
214 Pb, 234 U, 238 U, 226 Ra
223 Ra, 228 Ac
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 226 Ra
238 U
155 Eu

SAMPLE IDENTIFICATION: J478V1AA

CONFIGURATION ID: GER10:J478V1AA_180970608
TITLE : BRC SOIL
SAMPLE ID : J478V1AA

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 18-SEP-07 06:08:35
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 28-JUL-2007 11:45:00.00
CALIB DATE: 18-SEP-2007 04:51:21.80
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:14

SAMPLE QUANTITY: 3.3420E+02
SAMPLE GEOMETRY: S200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: 1.4620E+01 keV
ENERGY SLOPE: 2.4727E-01 keV/C
ENERGY Q COEFF: 1.1944E-09 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 1.0692E+00 keV
FWHM SLOPE: 2.8159E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 40.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 17:48:02

Configuration : $DISK1:[GER10.SAMPLE]J478V1AA_180970608.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 28-JUL-2007 11:45:00 Acquisition date : 18-SEP-2007 06:08:35
Sample ID : J478V1AA Sample quantity : 334.20 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:14.09 0.0%
Start energy : 17.09 End energy : 2040.37
Sensitivity : 5.00 Gaussian : 40.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	1	74.80*	1705	3820	1.43	243.36	234	30	4.74E-02	9.1	1.20E+00
2	1	77.00	2894	3523	1.45	252.25	234	30	8.04E-02	5.4	
3	0	87.09	851	2404	1.21	293.06	288	12	2.36E-02	12.0	
4	0	93.01	1015	2531	1.95	317.02	310	16	2.82E-02	11.6	
5	0	185.93	1099	2349	1.55	692.80	681	22	3.05E-02	11.6	
6	0	209.32	604	1580	1.30	787.37	779	17	1.68E-02	15.6	
7	2	238.66	5252	1684	1.51	906.03	896	33	1.46E-01	2.1	1.60E+00
8	2	241.74	1468	1649	1.82	918.51	896	33	4.08E-02	7.6	
9	0	270.36	500	1385	1.75	1034.23	1024	21	1.39E-02	16.4	
10	0	295.22	2395	1353	1.56	1134.79	1123	23	6.65E-02	3.9	
11	0	300.13	328	1096	1.26	1154.62	1146	18	9.12E-03	20.9	
12	0	327.87	366	1041	1.73	1266.82	1257	20	1.02E-02	19.1	
13	0	338.26	1010	1182	1.67	1308.84	1298	21	2.81E-02	7.9	
14	0	351.89*	3983	1488	1.61	1363.93	1348	31	1.11E-01	2.9	
15	0	462.97	306	785	1.19	1813.14	1803	23	8.49E-03	21.0	
16	0	510.80*	795	1127	2.24	2006.56	1990	41	2.21E-02	14.1	
17	0	583.24	1959	586	1.70	2299.52	2287	25	5.44E-02	3.6	
18	0	609.28	3094	749	1.73	2404.82	2390	27	8.59E-02	2.7	
19	0	727.18	512	450	1.65	2881.60	2869	25	1.42E-02	10.4	
20	0	768.40	326	271	1.70	3048.31	3040	17	9.04E-03	11.4	
21	0	794.55	254	403	1.42	3154.05	3140	25	7.04E-03	19.1	
22	0	860.34	175	457	1.77	3420.11	3409	23	4.87E-03	27.8	
23	0	911.04	1331	411	1.98	3625.16	3610	27	3.70E-02	4.5	
24	0	964.62	242	390	1.65	3841.81	3830	21	6.73E-03	18.5	
25	0	969.01	731	358	1.82	3859.55	3851	22	2.03E-02	6.8	
26	0	1120.27	675	466	2.37	4471.25	4459	25	1.88E-02	7.5	
27	0	1238.02	296	512	1.69	4947.40	4936	26	8.22E-03	16.8	
28	0	1377.97	167	181	1.70	5513.37	5497	29	4.64E-03	19.0	
29	0	1460.79*	10187	239	2.19	5848.28	5829	36	2.83E-01	1.1	
30	0	1729.40	127	48	1.39	6934.48	6922	24	3.54E-03	14.0	
31	0	1764.35	580	72	1.81	7075.81	7060	32	1.61E-02	5.3	
32	0	1847.79	105	67	2.02	7413.25	7399	38	2.90E-03	21.1	

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

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:48:03

Configuration : $DISK1:[GER10.SAMPLE]J478V1AA_180970608.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 28-JUL-2007 11:45:00 Acquisition date : 18-SEP-2007 06:08:35
Sample ID : J478V1AA Sample quantity : 334.20 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:14.09 0.0%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	10187	10.67*	8.323E-01	2.577E+01	2.577E+01	6.34
TL-208	277.35	------	6.80	2.752E+00	------ Line Not Found		------
	510.84	795	21.60	1.867E+00	4.430E-01	4.430E-01	15.32
	583.14	1959	84.20*	1.704E+00	3.067E-01	3.067E-01	6.98
	860.37	175	12.46	1.273E+00	2.484E-01	2.484E-01	28.66
PB-212	238.63	5252	44.60*	3.006E+00	8.800E-01	8.800E-01	6.75
	300.09	328	3.41	2.623E+00	8.242E-01	8.242E-01	21.85
BI-214	609.31	3094	46.30*	1.652E+00	9.087E-01	9.087E-01	6.60
	768.36	326	5.04	1.391E+00	1.043E+00	1.043E+00	13.08
	1120.29	675	15.10	1.028E+00	9.774E-01	9.774E-01	9.82
	1764.49	580	15.80	7.322E-01	1.127E+00	1.127E+00	7.99
PB-214	241.98	1468	7.49	2.984E+00	1.475E+00	1.475E+00	9.98
	295.21	2395	19.20	2.650E+00	1.058E+00	1.058E+00	7.44
	351.92	3983	37.20*	2.378E+00	1.012E+00	1.012E+00	6.77
	785.91	------	1.10	1.367E+00	------ Line Not Found		------
RA-224DA	238.63	5252	44.60*	3.006E+00	8.800E-01	9.267E-01	6.75
	240.98	1468	3.95	2.984E+00	2.798E+00	2.946E+00	9.98
	583.14	1959	30.25	1.704E+00	8.537E-01	8.989E-01	6.98
	860.37	175	4.48	1.273E+00	6.909E-01	7.275E-01	28.66
RA-226DA	186.21	1099	3.50	3.434E+00	2.055E+00	2.055E+00	13.30
	241.98	1468	7.49	2.984E+00	1.475E+00	1.475E+00	9.98
	295.22	2395	19.20	2.650E+00	1.058E+00	1.058E+00	7.44
	351.92	3983	37.20	2.378E+00	1.012E+00	1.012E+00	6.77
	609.32	3094	46.30*	1.652E+00	9.087E-01	9.087E-01	6.60
	1120.28	675	15.10	1.028E+00	9.774E-01	9.775E-01	9.82
	1238.11	296	5.94	9.475E-01	1.182E+00	1.182E+00	17.90
	1764.49	580	15.80	7.322E-01	1.127E+00	1.127E+00	7.99
AC-228	209.28	604	4.40	3.233E+00	9.542E-01	9.542E-01	16.91
	270.23	500	3.60	2.794E+00	1.116E+00	1.116E+00	17.62
	338.32	1010	11.40	2.437E+00	8.166E-01	8.166E-01	10.00
	911.07	1331	27.70*	1.216E+00	8.876E-01	8.876E-01	8.42
	969.11	731	16.60	1.157E+00	8.544E-01	8.544E-01	9.69
RA-228DA	209.28	604	4.40	3.233E+00	9.542E-01	9.707E-01	16.91
	338.32	1010	11.40	2.437E+00	8.166E-01	8.307E-01	10.00
	911.07	1331	27.70*	1.216E+00	8.876E-01	9.030E-01	8.42
	964.60	242	5.20	1.162E+00	9.013E-01	9.169E-01	19.73

Sample ID : J478V1AA Acquisition date : 18-SEP-2007 06:08:35

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	969.11	731	16.60	1.157E+00	8.544E-01	8.692E-01	9.69
TH-228DA	238.63	5252	44.60	3.006E+00	8.800E-01	9.267E-01	6.75
	240.98	1468	3.95	2.984E+00	2.798E+00	2.946E+00	9.98
	583.14	1959	30.25*	1.704E+00	8.537E-01	8.989E-01	6.98
	860.37	175	4.48	1.273E+00	6.909E-01	7.275E-01	28.66
TH-232DA	238.63	5252	44.60	3.006E+00	8.800E-01	8.800E-01	6.75
	338.32	1010	12.40*	2.437E+00	7.507E-01	7.507E-01	10.00
	583.14	1959	30.25	1.704E+00	8.537E-01	8.537E-01	6.98
	911.07	1331	27.70	1.216E+00	8.876E-01	8.876E-01	8.42
	964.60	242	5.20	1.162E+00	9.013E-01	9.013E-01	19.73
	969.11	731	16.60	1.157E+00	8.544E-01	8.544E-01	9.69
U-234DA	241.98	1468	7.49	2.984E+00	1.475E+00	1.475E+00	9.98
	295.22	2395	19.20*	2.650E+00	1.058E+00	1.058E+00	7.44
	351.92	3983	37.20	2.378E+00	1.012E+00	1.012E+00	6.77
	609.31	3094	46.30	1.652E+00	9.087E-01	9.087E-01	6.60
U-238DA	241.98	1468	7.49	2.984E+00	1.475E+00	1.475E+00	9.98
	295.22	2395	19.20	2.650E+00	1.058E+00	1.058E+00	7.44
	351.92	3983	37.20*	2.378E+00	1.012E+00	1.012E+00	6.77
	609.31	3094	46.30	1.652E+00	9.087E-01	9.087E-01	6.60

Flag: "*" = Keyline

Sample ID : J478V1AA Acquisition date : 18-SEP-2007 06:08:35

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
1	74.80	1705	3820	1.43	243.36	234	30	4.74E-02	9.1	2.87E+00	
1	77.00	2894	3523	1.45	252.25	234	30	8.04E-02	5.4	2.99E+00	
0	87.09	851	2404	1.21	293.06	288	12	2.36E-02	12.0	3.42E+00	T
0	93.01	1015	2531	1.95	317.02	310	16	2.82E-02	11.6	3.60E+00	T
0	327.87	366	1041	1.73	1266.82	1257	20	1.02E-02	19.1	2.48E+00	T
0	462.97	306	785	1.19	1813.14	1803	23	8.49E-03	21.0	1.99E+00	T
0	727.18	512	450	1.65	2881.60	2869	25	1.42E-02	10.4	1.45E+00	T
0	794.55	254	403	1.42	3154.05	3140	25	7.04E-03	19.1	1.36E+00	T
0	1377.97	167	181	1.70	5513.37	5497	29	4.64E-03	19.0	8.70E-01	
0	1729.40	127	48	1.39	6934.48	6922	24	3.54E-03	14.0	7.41E-01	
0	1847.79	105	67	2.02	7413.25	7399	38	2.90E-03	21.1	7.13E-01	

Flags: "T" = Tentatively associated

Sample ID : J478V1AA Acquisition date : 18-SEP-2007 06:08:35

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	5.532E-02	15.32	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.62	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	2.268E-01	9.82	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.85	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	1.591E+00	6.98	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-103	39.35D	1.32	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	1.877E+01	6.60	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	5.123E-01	15.32	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	3.449E-01	21.81	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	5.162E-02	20.19	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	31.01	328.77	20.50	3.492E+08	20.08	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-152	13.60Y	0.01	121.78	28.40	--- Not Found ---		Abun.
			244.67	7.49	--- Not Found ---		
			344.27*	26.50	--- Not Found ---		
			778.89	12.74	--- Not Found ---		
			964.01	14.40	3.278E-01	19.73	
			1085.78	10.00	--- Not Found ---		
			1112.02	13.30	--- Not Found ---		
			1407.95	20.70	--- Not Found ---		
		% Abundances Found =		10.78			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	1.842E-01	13.57	

Sample ID : J478V1AA Acquisition date : 18-SEP-2007 06:08:35

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
EU-155	4.96Y	0.03	105.31*	20.70	--- Not Found ---		Abun.
		% Abundances Found =		42.47			
BI-212	1.41E+10Y	0.00	288.07	0.31	--- Not Found ---		Abun.
			327.96	0.14	2.377E+01	21.58	
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.205E+00	12.38	
			785.37	1.10	--- Not Found ---		
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		
			1078.62	0.56	--- Not Found ---		
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	--- Not Found ---		
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		58.84			
RA-223	21.77Y	0.01	154.21	5.58	--- Not Found ---		Abun.
			269.46*	13.60	2.967E-01	17.62	
			323.87	3.88	--- Not Found ---		
		% Abundances Found =		58.98			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	1.332E-01	13.30	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			
U-238DHP	4.47E+09Y	0.00	63.28*	3.80	--- Not Found ---		Abun.
			92.59	5.41	1.172E+00	13.14	
		% Abundances Found =		58.74			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:48:04

Configuration : $DISK1:[GER10.SAMPLE]J478V1AA_180970608.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 28-JUL-2007 11:45:00 Acquisition date : 18-SEP-2007 06:08:35
Sample ID : J478V1AA Sample quantity : 334.20 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:14.09 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.577E+01	1.633E+00	1.594E-01	5.966E-03	161.681
TL-208	3.067E-01	2.141E-02	1.749E-02	5.727E-04	17.534
PB-212	8.800E-01	5.937E-02	3.134E-02	1.262E-03	28.081
BI-214	9.087E-01	5.998E-02	3.479E-02	1.156E-03	26.118
PB-214	1.012E+00	6.850E-02	3.763E-02	1.314E-03	26.881
RA-224DA	9.267E-01	6.251E-02	3.300E-02	1.329E-03	28.081
RA-226DA	9.087E-01	5.998E-02	3.479E-02	1.156E-03	26.117
AC-228	8.876E-01	7.472E-02	6.390E-02	3.228E-03	13.891
RA-228DA	9.030E-01	7.601E-02	6.500E-02	3.284E-03	13.891
TH-228DA	8.989E-01	6.275E-02	5.127E-02	1.679E-03	17.534
TH-232DA	7.507E-01	7.506E-02	1.114E-01	3.997E-03	6.739
U-234DA	1.058E+00	7.868E-02	7.068E-02	2.717E-03	14.962
U-238DA	1.012E+00	6.850E-02	3.763E-02	1.314E-03	26.881

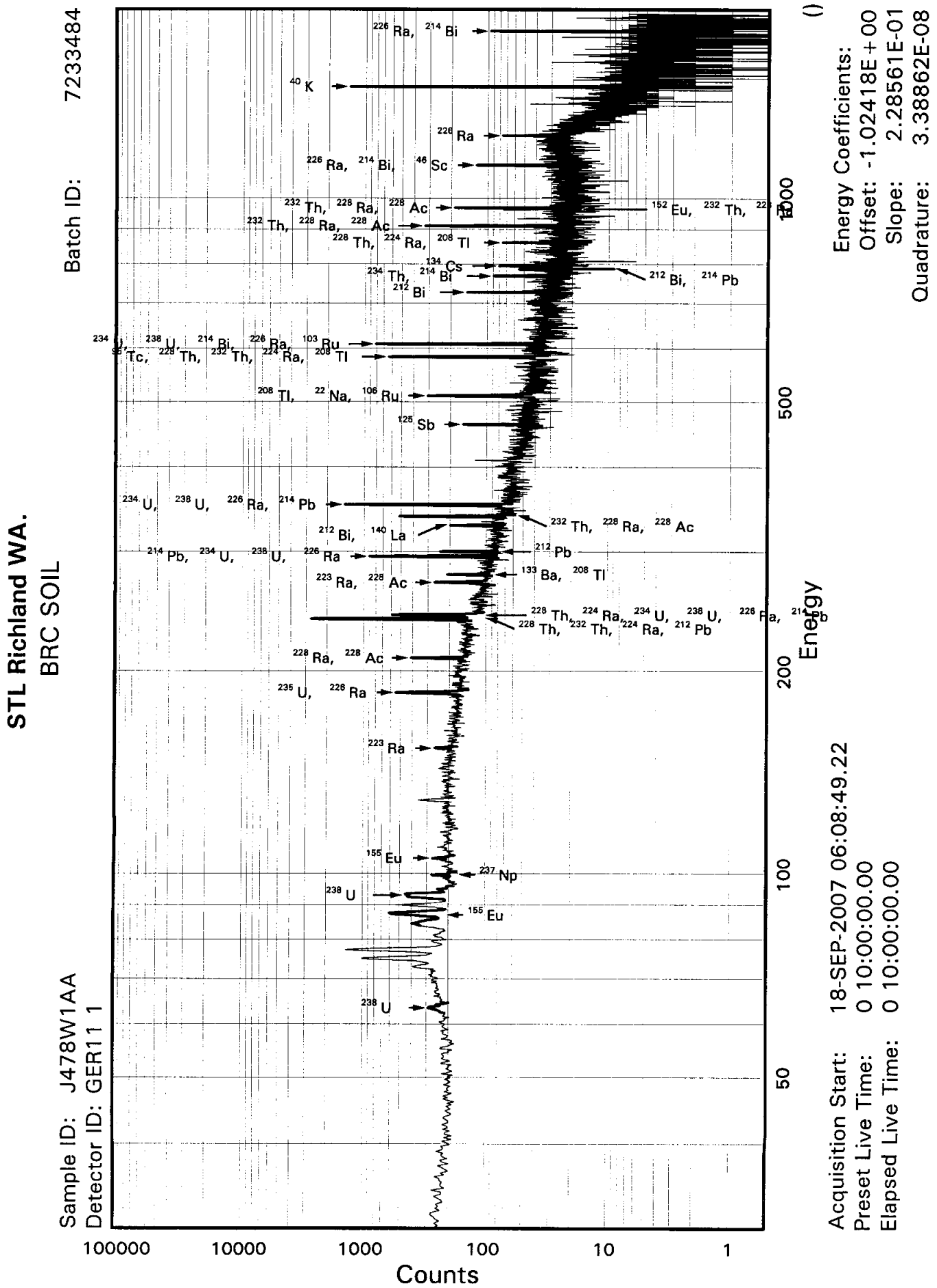
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-3.940E-02		7.868E-02	2.612E-01	8.253E-03	-0.151
NA-22	-1.347E-02		7.082E-03	2.320E-02	8.500E-04	-0.581
SC-46	2.268E-01	+	2.228E-02	5.356E-02	2.042E-03	4.235
CR-51	2.101E-01		1.533E-01	5.244E-01	1.942E-02	0.401
MN-54	1.682E-03		6.550E-03	2.194E-02	1.013E-03	0.077
CO-57	-5.341E-04		4.276E-02	1.402E-01	4.960E-03	-0.004
CO-58	-8.177E-03		8.478E-03	2.790E-02	1.238E-03	-0.293
FE-59	-7.176E-02		2.588E-02	8.170E-02	3.244E-03	-0.878
CO-60	9.394E-03		5.588E-03	1.975E-02	7.536E-04	0.476
ZN-65	-1.791E-02		1.849E-02	5.069E-02	1.952E-03	-0.353
SE-75	2.179E-03		1.014E-02	3.014E-02	1.195E-03	0.072
SR-85	9.936E-02		1.049E-02	3.276E-02	1.026E-03	3.033
Y-88	7.854E-03		5.598E-03	2.059E-02	6.497E-04	0.381
NB-94	3.903E-04		5.030E-03	1.721E-02	8.422E-04	0.023
NB-95	7.282E-02		1.822E-02	5.411E-02	2.226E-03	1.346

Sample ID : J478V1AA Acquisition date : 18-SEP-2007 06:08:35

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
TC-95M	5.434E-03		1.286E-02	3.858E-02	1.564E-03	0.141
ZR-95	2.662E-02		1.605E-02	5.500E-02	2.227E-03	0.484
ZRNB-95	9.291E-02		2.287E-02	6.792E-02	2.794E-03	1.368
RH-101	-5.169E-03		7.203E-03	2.050E-02	8.310E-04	-0.252
RH-102M	-7.840E-03		4.589E-03	1.491E-02	4.712E-04	-0.526
RU-103	7.090E-03		1.175E-02	3.955E-02	1.244E-03	0.179
RU-106DA	2.078E-02		5.161E-02	1.759E-01	5.881E-03	0.118
AG-108M	-4.857E-04		4.683E-03	1.569E-02	4.971E-04	-0.031
AG-110M	-5.972E-03		8.189E-03	2.757E-02	1.379E-03	-0.217
SN-113DA	-1.248E-02		8.696E-03	2.866E-02	9.028E-04	-0.435
SB-124	1.276E-02		1.054E-02	3.075E-02	1.018E-03	0.415
SB-125	2.952E-02		1.476E-02	5.041E-02	1.597E-03	0.586
SN-126DA	1.044E-02		4.828E-03	1.668E-02	5.736E-04	0.626
I-131	-6.700E-02		4.427E-01	1.491E+00	5.056E-02	-0.045
BA-133	8.640E-03		7.932E-03	2.296E-02	7.944E-04	0.376
CS-134	5.162E-02	+	1.042E-02	2.389E-02	1.034E-03	2.161
CS-137DA	-9.726E-03		5.536E-03	1.811E-02	6.175E-04	-0.537
LA-138	-3.678E-03		7.206E-03	2.444E-02	9.198E-04	-0.150
CE-139	3.267E-03		6.448E-03	2.173E-02	8.773E-04	0.150
BA-140	-6.533E-02		2.884E-01	9.571E-01	3.045E-02	-0.068
BALA-140	-4.025E-01		1.639E-01	5.130E-01	1.844E-02	-0.785
CE-141	2.893E-02		2.461E-02	8.344E-02	3.106E-03	0.347
CE-144	-7.618E-02		4.238E-02	1.363E-01	4.745E-03	-0.559
CEPR-144	-1.526E-01		8.476E-02	2.726E-01	9.489E-03	-0.560
PM-144	1.766E-03		5.216E-03	1.775E-02	5.924E-04	0.099
PM-146	1.952E-02		6.701E-03	2.294E-02	7.269E-04	0.851
EU-152	-4.230E-02		2.145E-02	5.237E-02	1.857E-03	-0.808
EU-154	-3.029E-02		1.927E-02	6.367E-02	2.332E-03	-0.476
EU-155	1.945E-02		1.999E-02	6.638E-02	2.264E-03	0.293
HF-181	-9.546E-03		1.192E-02	3.938E-02	1.243E-03	-0.242
BI-207	2.355E-03		4.420E-03	1.515E-02	4.919E-04	0.156
BI-210M	7.864E-03		9.531E-03	2.696E-02	1.068E-03	0.292
BI-212	1.205E+00	+	1.491E-01	3.366E-01	1.504E-02	3.581
RA-223	2.967E-01	+	5.228E-02	1.152E-01	4.551E-03	2.576
AC-227DA	9.710E-01		8.135E-02	1.744E-01	7.034E-03	5.566
TH-234DA	1.474E+00		8.970E-01	3.102E+00	1.428E-01	0.475
U-235HP	7.450E-02		3.798E-02	1.288E-01	4.749E-03	0.578
NP-237DA	-2.820E-03		1.113E-02	3.762E-02	1.412E-03	-0.075
U-238DHP	7.419E-01		2.237E-01	7.466E-01	2.674E-02	0.994
AM-241HP	-1.171E-01		2.650E-02	8.259E-02	3.055E-03	-1.417


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478W1AA
Detector ID: GER11 1
Energy Coefficients:
Offset: -1.02418E+00
Slope: 2.28561E-01
Quadrature: 3.38862E-08
Acquisition Start: 18-SEP-2007 06:08:49.22
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
100000
10000
1000
100
10
1
50
100
200
500
1000
226 Ra, 214 Bi
40 K
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
152 Eu, 232 Th,
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
234 Th, 214 Bi
212 Bi
212 Bi, 214 Pb
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
99 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Bi, 140 La
212 Pb
214 Pb, 234 U, 238 U, 226 Ra
133 Ba, 208 Tl
223 Ra, 228 Ac
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214 Pb
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 226 Ra
223 Ra
155 Eu
237 Np
238 U
155 Eu
238 U

SAMPLE IDENTIFICATION: J478W1AA

CONFIGURATION ID: GER11:J478W1AA_180970608
TITLE : BRC SOIL
SAMPLE ID : J478W1AA

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 18-SEP-07 06:08:49
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 29-JUL-2007 08:15:00.00
CALIB DATE: 18-SEP-2007 04:51:52.77
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:38

SAMPLE QUANTITY: 3.3810E+02
SAMPLE GEOMETRY: S200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.1024E+01 keV
ENERGY SLOPE: 2.2856E-01 keV/C
ENERGY Q COEFF: 3.3886E-08 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 2.0382E-01 keV
FWHM SLOPE: 4.1169E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 70.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 17:51:27

Configuration : $DISK1:[GER11.SAMPLE]J478W1AA_180970608.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 29-JUL-2007 08:15:00 Acquisition date : 18-SEP-2007 06:08:49
Sample ID : J478W1AA Sample quantity : 338.10 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:38.83 0.1%
Start energy : 1.26 End energy : 1873.62
Sensitivity : 5.00 Gaussian : 70.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.43	390	2062	1.13	281.97	277	10	1.08E-02	22.4	
2	3	74.97*	2313	2485	0.75	332.46	319	30	6.42E-02	4.7	7.32E+00
3	3	77.20	3682	2098	0.72	342.23	319	30	1.02E-01	2.8	
4	0	86.83*	1708	5939	0.93	384.36	371	22	4.75E-02	11.8	
5	0	89.91	1073	2621	0.70	397.84	393	12	2.98E-02	10.0	
6	0	93.05	1667	3974	1.52	411.57	404	19	4.63E-02	9.4	
7	0	99.57	205	1755	0.44	440.10	436	9	5.68E-03	37.7	
8	0	105.66	173	1820	0.61	466.73	463	9	4.80E-03	45.3	
9	0	129.02	432	2273	0.83	568.92	564	11	1.20E-02	21.9	
10	0	153.95	245	1685	0.82	677.99	674	9	6.81E-03	30.9	
11	0	186.01	1859	2295	1.04	818.20	811	15	5.16E-02	6.1	
12	0	209.20	902	1797	0.74	919.65	914	12	2.50E-02	10.0	
13	6	238.62	10210	1356	0.83	1048.31	1042	32	2.84E-01	1.2	8.71E+00
14	6	241.73	2633	2257	1.50	1061.91	1042	32	7.31E-02	5.0	
15	0	270.02	906	1811	0.88	1185.69	1176	19	2.52E-02	11.7	
16	0	277.35	366	1191	0.67	1217.71	1213	12	1.02E-02	19.6	
17	0	295.15	3613	1323	0.94	1295.56	1287	16	1.00E-01	2.8	
18	0	300.14	624	1131	1.01	1317.40	1311	13	1.73E-02	11.8	
19	0	327.92	551	848	0.96	1438.87	1433	12	1.53E-02	11.4	
20	0	338.24	2080	1073	0.98	1484.02	1476	16	5.78E-02	4.2	
21	0	351.82*	5998	1218	0.93	1543.42	1535	16	1.67E-01	1.9	
22	0	409.52	375	813	0.86	1795.73	1788	16	1.04E-02	17.9	
23	0	462.90	568	648	1.10	2029.14	2021	15	1.58E-02	10.6	
24	0	510.61*	960	1374	1.39	2237.76	2225	29	2.67E-02	13.1	
25	0	582.94	3430	970	1.24	2554.00	2541	25	9.53E-02	3.0	
26	0	609.03	4568	760	1.22	2668.07	2658	21	1.27E-01	2.1	
27	0	726.90	822	509	1.53	3183.29	3174	19	2.28E-02	7.4	
28	0	767.89	454	460	1.41	3362.49	3353	20	1.26E-02	12.5	
29	0	785.42	220	366	1.90	3439.10	3431	16	6.12E-03	20.7	
30	0	794.51	381	423	1.55	3478.82	3469	19	1.06E-02	13.9	
31	0	860.03	429	481	1.74	3765.19	3754	24	1.19E-02	12.4	
32	0	910.70	2263	705	1.58	3986.63	3972	28	6.29E-02	3.5	
33	0	933.71	251	375	0.89	4087.16	4077	20	6.97E-03	17.3	
34	0	964.34	243	433	1.11	4221.01	4216	14	6.76E-03	17.3	
35	0	968.47	1359	517	1.75	4239.08	4229	25	3.78E-02	4.7	
36	0	1119.81	929	700	2.16	4900.31	4885	30	2.58E-02	7.7	
37	0	1237.40	421	751	1.65	5414.01	5399	28	1.17E-02	16.2	
38	0	1377.27	360	217	1.98	6024.92	6011	30	9.99E-03	11.4	
39	0	1460.05*	12621	261	2.02	6386.46	6370	33	3.51E-01	1.0	
40	0	1587.22	149	120	1.34	6941.75	6932	22	4.15E-03	16.6	
41	0	1660.76	79	66	1.74	7262.80	7251	23	2.19E-03	23.2	
42	0	1729.04	197	116	2.40	7560.89	7544	31	5.46E-03	14.0	
43	0	1763.70*	846	72	2.15	7712.23	7695	36	2.35E-02	4.4	

Sample ID : J478W1AA Acquisition date : 18-SEP-2007 06:08:49

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
44	0	1847.05	94	57	1.36	8076.05	8065	22	2.62E-03	18.9	

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

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:51:27

Configuration : $DISK1:[GER11.SAMPLE]J478W1AA_180970608.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 29-JUL-2007 08:15:00 Acquisition date : 18-SEP-2007 06:08:49
Sample ID : J478W1AA Sample quantity : 338.10 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:38.83 0.1%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	12621	10.67*	8.390E-01	3.130E+01	3.130E+01	6.45
TL-208	277.35	366	6.80	2.956E+00	4.040E-01	4.040E-01	20.57
	510.84	960	21.60	1.997E+00	4.940E-01	4.940E-01	14.40
	583.14	3430	84.20*	1.816E+00	4.982E-01	4.982E-01	6.70
	860.37	429	12.46	1.328E+00	5.751E-01	5.751E-01	14.24
PB-212	238.63	10210	44.60*	3.226E+00	1.576E+00	1.576E+00	6.35
	300.09	624	3.41	2.818E+00	1.441E+00	1.441E+00	13.41
BI-214	609.31	4568	46.30*	1.757E+00	1.247E+00	1.247E+00	6.36
	768.36	454	5.04	1.463E+00	1.366E+00	1.366E+00	14.08
	1120.29	929	15.10	1.051E+00	1.300E+00	1.300E+00	9.98
	1764.49	846	15.80	7.427E-01	1.602E+00	1.602E+00	7.47
PB-214	241.98	2633	7.49	3.203E+00	2.437E+00	2.437E+00	7.98
	295.21	3613	19.20	2.847E+00	1.468E+00	1.468E+00	6.88
	351.92	5998	37.20*	2.553E+00	1.402E+00	1.402E+00	6.44
	785.91	220	1.10	1.435E+00	3.098E+00	3.098E+00	21.69
RA-223	154.21	245	5.58	3.887E+00	2.508E-01	2.520E-01	31.48
	269.46	906	13.60*	3.003E+00	4.925E-01	4.947E-01	13.31
	323.87	------	3.88	2.689E+00	------	Line Not Found	------
RA-224DA	238.63	10210	44.60*	3.226E+00	1.576E+00	1.658E+00	6.35
	240.98	2633	3.95	3.203E+00	4.621E+00	4.861E+00	7.98
	583.14	3430	30.25	1.816E+00	1.387E+00	1.459E+00	6.70
	860.37	429	4.48	1.328E+00	1.600E+00	1.683E+00	14.24
RA-226DA	186.21	1859	3.50	3.657E+00	3.225E+00	3.225E+00	8.65
	241.98	2633	7.49	3.203E+00	2.437E+00	2.437E+00	7.98
	295.22	3613	19.20	2.847E+00	1.468E+00	1.468E+00	6.88
	351.92	5998	37.20	2.553E+00	1.402E+00	1.402E+00	6.44
	609.32	4568	46.30*	1.757E+00	1.247E+00	1.247E+00	6.36
	1120.28	929	15.10	1.051E+00	1.300E+00	1.300E+00	9.98
	1238.11	421	5.94	9.618E-01	1.636E+00	1.636E+00	17.40
	1764.49	846	15.80	7.427E-01	1.602E+00	1.602E+00	7.47
AC-228	209.28	902	4.40	3.462E+00	1.314E+00	1.314E+00	11.74
	270.23	906	3.60	3.003E+00	1.860E+00	1.860E+00	13.31
	338.32	2080	11.40	2.617E+00	1.548E+00	1.548E+00	7.48
	911.07	2263	27.70*	1.264E+00	1.436E+00	1.436E+00	8.00
	969.11	1359	16.60	1.197E+00	1.519E+00	1.519E+00	8.43
RA-228DA	209.28	902	4.40	3.462E+00	1.314E+00	1.337E+00	11.74

Sample ID : J478W1AA Acquisition date : 18-SEP-2007 06:08:49

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	338.32	2080	11.40	2.617E+00	1.548E+00	1.574E+00	7.48
	911.07	2263	27.70*	1.264E+00	1.436E+00	1.460E+00	8.00
	964.60	243	5.20	1.201E+00	8.646E-01	8.793E-01	18.64
	969.11	1359	16.60	1.197E+00	1.519E+00	1.545E+00	8.43
TH-228DA	238.63	10210	44.60	3.226E+00	1.576E+00	1.658E+00	6.35
	240.98	2633	3.95	3.203E+00	4.621E+00	4.861E+00	7.98
	583.14	3430	30.25*	1.816E+00	1.387E+00	1.459E+00	6.70
	860.37	429	4.48	1.328E+00	1.600E+00	1.683E+00	14.24
TH-232DA	238.63	10210	44.60	3.226E+00	1.576E+00	1.576E+00	6.35
	338.32	2080	12.40*	2.617E+00	1.423E+00	1.423E+00	7.48
	583.14	3430	30.25	1.816E+00	1.387E+00	1.387E+00	6.70
	911.07	2263	27.70	1.264E+00	1.436E+00	1.436E+00	8.00
	964.60	243	5.20	1.201E+00	8.646E-01	8.646E-01	18.64
	969.11	1359	16.60	1.197E+00	1.519E+00	1.519E+00	8.43
U-234DA	241.98	2633	7.49	3.203E+00	2.437E+00	2.437E+00	7.98
	295.22	3613	19.20*	2.847E+00	1.468E+00	1.468E+00	6.88
	351.92	5998	37.20	2.553E+00	1.402E+00	1.402E+00	6.44
	609.31	4568	46.30	1.757E+00	1.247E+00	1.247E+00	6.36
U-238DA	241.98	2633	7.49	3.203E+00	2.437E+00	2.437E+00	7.98
	295.22	3613	19.20	2.847E+00	1.468E+00	1.468E+00	6.88
	351.92	5998	37.20*	2.553E+00	1.402E+00	1.402E+00	6.44
	609.31	4568	46.30	1.757E+00	1.247E+00	1.247E+00	6.36
U-238DHP	63.28	390	3.80*	1.166E+00	1.952E+00	1.952E+00	23.32
	92.59	1667	5.41	3.134E+00	2.182E+00	2.182E+00	11.49

Flag: "*" = Keyline

Sample ID : J478W1AA Acquisition date : 18-SEP-2007 06:08:49

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	74.97	2313	2485	0.75	332.46	319	30	6.42E-02	4.7	2.05E+00	
3	77.20	3682	2098	0.72	342.23	319	30	1.02E-01	2.8	2.21E+00	
0	86.83	1708	5939	0.93	384.36	371	22	4.75E-02	11.8	2.82E+00	T
0	89.91	1073	2621	0.70	397.84	393	12	2.98E-02	10.0	2.98E+00	
0	99.57	205	1755	0.44	440.10	436	9	5.68E-03	37.7	3.40E+00	T
0	105.66	173	1820	0.61	466.73	463	9	4.80E-03	45.3	3.58E+00	T
0	129.02	432	2273	0.83	568.92	564	11	1.20E-02	21.9	3.91E+00	
0	327.92	551	848	0.96	1438.87	1433	12	1.53E-02	11.4	2.67E+00	T
0	409.52	375	813	0.86	1795.73	1788	16	1.04E-02	17.9	2.32E+00	
0	462.90	568	648	1.10	2029.14	2021	15	1.58E-02	10.6	2.14E+00	T
0	726.90	822	509	1.53	3183.29	3174	19	2.28E-02	7.4	1.53E+00	T
0	794.51	381	423	1.55	3478.82	3469	19	1.06E-02	13.9	1.42E+00	T
0	933.71	251	375	0.89	4087.16	4077	20	6.97E-03	17.3	1.24E+00	
0	1377.27	360	217	1.98	6024.92	6011	30	9.99E-03	11.4	8.79E-01	
0	1587.22	149	120	1.34	6941.75	6932	22	4.15E-03	16.6	7.90E-01	
0	1660.76	79	66	1.74	7262.80	7251	23	2.19E-03	23.2	7.68E-01	
0	1729.04	197	116	2.40	7560.89	7544	31	5.46E-03	14.0	7.50E-01	
0	1847.05	94	57	1.36	8076.05	8065	22	2.62E-03	18.9	7.27E-01	

Flags: "T" = Tentatively associated

Sample ID : J478W1AA Acquisition date : 18-SEP-2007 06:08:49

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	6.165E-02	14.40	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.61	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	2.996E-01	9.98	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.84	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	2.559E+00	6.70	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-103	39.35D	1.30	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	2.536E+01	6.36	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	5.704E-01	14.40	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	5.912E-01	12.20	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
BA-133	10.50Y	0.01	81.00	33.00	--- Not Found ---		Abun.
			276.40	6.90	4.018E-01	20.57	
			302.84	17.80	--- Not Found ---		
			356.00*	62.05	--- Not Found ---		
			383.85	8.70	--- Not Found ---		
		% Abundances Found =		5.37			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	7.311E-02	15.40	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	30.50	328.77	20.50	3.403E+08	13.01	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-152	13.60Y	0.01	121.78	28.40	--- Not Found ---		Abun.
			244.67	7.49	--- Not Found ---		
			344.27*	26.50	--- Not Found ---		
			778.89	12.74	--- Not Found ---		
			964.01	14.40	3.145E-01	18.64	

Sample ID : J478W1AA Acquisition date : 18-SEP-2007 06:08:49

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
EU-152	13.60Y	0.01	1085.78	10.00	--- Not Found ---		Abun.
			1112.02	13.30	--- Not Found ---		
			1407.95	20.70	--- Not Found ---		
		% Abundances Found =		10.78			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	4.439E-01	13.64	
			105.31*	20.70	5.275E-02	45.78	
		% Abundances Found =		70.92			
BI-212	1.41E+10Y	0.00	288.07	0.31	--- Not Found ---		Abun.
			327.96	0.14	3.299E+01	15.23	
			452.83	0.31	--- Not Found ---		
			727.33*	6.58	1.813E+00	10.00	
			785.37	1.10	3.098E+00	21.86	
			893.41	0.38	--- Not Found ---		
			952.12	0.17	--- Not Found ---		
			1078.62	0.56	--- Not Found ---		
			1512.70	0.29	--- Not Found ---		
			1620.50	1.49	--- Not Found ---		
			1806.00	0.09	--- Not Found ---		
		% Abundances Found =		68.47			
TH-234DA	4.47E+09Y	0.00	766.41	0.21	3.279E+01	14.08	Abun.
			1001.03*	0.65	--- Not Found ---		
		% Abundances Found =		24.42			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	2.090E-01	8.65	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			
NP-237DA	2.14E+06Y	0.00	98.44	17.60	7.601E-02	38.22	Abun.
			311.98*	36.00	--- Not Found ---		
		% Abundances Found =		32.84			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:51:29

Configuration : $DISK1:[GER11.SAMPLE]J478W1AA_180970608.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 29-JUL-2007 08:15:00 Acquisition date : 18-SEP-2007 06:08:49
Sample ID : J478W1AA Sample quantity : 338.10 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:38.83 0.1%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	3.130E+01	2.018E+00	1.555E-01	6.141E-03	201.358
TL-208	4.982E-01	3.336E-02	1.691E-02	5.597E-04	29.468
PB-212	1.576E+00	1.001E-01	2.818E-02	1.051E-03	55.905
BI-214	1.247E+00	7.932E-02	3.151E-02	1.046E-03	39.565
PB-214	1.402E+00	9.038E-02	3.440E-02	1.243E-03	40.772
RA-223	4.947E-01	6.585E-02	8.725E-02	3.306E-03	5.670
RA-224DA	1.658E+00	1.053E-01	2.965E-02	1.106E-03	55.905
RA-226DA	1.247E+00	7.932E-02	3.151E-02	1.046E-03	39.565
AC-228	1.436E+00	1.149E-01	6.195E-02	3.205E-03	23.174
RA-228DA	1.460E+00	1.168E-01	6.300E-02	3.260E-03	23.174
TH-228DA	1.459E+00	9.771E-02	4.951E-02	1.639E-03	29.468
TH-232DA	1.423E+00	1.065E-01	1.027E-01	3.807E-03	13.859
U-234DA	1.468E+00	1.010E-01	6.107E-02	2.330E-03	24.034
U-238DA	1.402E+00	9.038E-02	3.440E-02	1.243E-03	40.772
U-238DHP	1.952E+00	4.552E-01	9.272E-01	3.844E-02	2.105

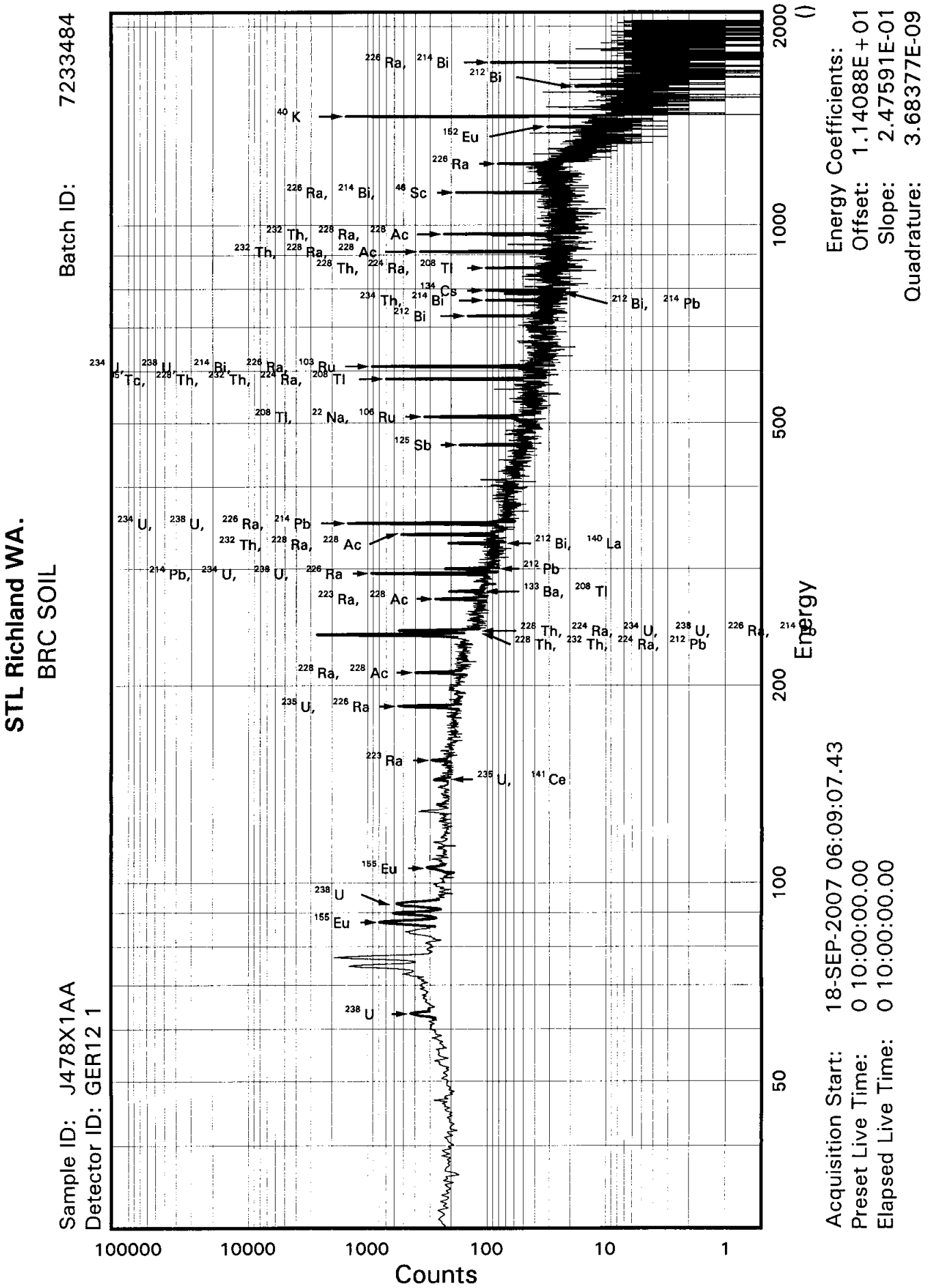
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	5.429E-02		7.313E-02	2.460E-01	8.096E-03	0.221
NA-22	4.518E-05		7.114E-03	2.407E-02	9.198E-04	0.002
SC-46	2.996E-01	+	2.990E-02	5.725E-02	2.226E-03	5.234
CR-51	4.917E-02		1.362E-01	4.546E-01	1.736E-02	0.108
MN-54	4.907E-03		6.135E-03	2.080E-02	9.710E-04	0.236
CO-57	3.251E-02		3.802E-02	1.237E-01	4.540E-03	0.263
CO-58	-6.669E-04		7.651E-03	2.581E-02	1.152E-03	-0.026
FE-59	-9.222E-03		2.478E-02	8.256E-02	3.349E-03	-0.112
CO-60	-6.845E-03		6.054E-03	1.996E-02	8.069E-04	-0.343
ZN-65	-1.130E-03		1.713E-02	4.811E-02	1.890E-03	-0.023
SE-75	4.325E-03		7.884E-03	2.679E-02	1.013E-03	0.161
SR-85	1.266E-02		8.670E-03	2.497E-02	8.142E-04	0.507
Y-88	6.121E-03		5.016E-03	1.847E-02	5.901E-04	0.331

Sample ID : J478W1AA Acquisition date : 18-SEP-2007 06:08:49

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
NB-94	5.361E-03		5.058E-03	1.720E-02	8.575E-04	0.312
NB-95	5.657E-02		1.683E-02	5.050E-02	2.070E-03	1.120
TC-95M	-6.689E-03		9.953E-03	3.265E-02	1.188E-03	-0.205
ZR-95	6.788E-03		1.545E-02	5.273E-02	2.123E-03	0.129
ZRNB-95	6.798E-02		2.138E-02	6.402E-02	2.624E-03	1.062
RH-101	7.661E-03		5.604E-03	1.765E-02	6.392E-04	0.434
RH-102M	-3.647E-03		4.275E-03	1.407E-02	4.633E-04	-0.259
RU-103	-9.025E-03		1.080E-02	3.540E-02	1.160E-03	-0.255
RU-106DA	2.801E-02		4.809E-02	1.629E-01	5.411E-03	0.172
AG-108M	2.227E-03		4.205E-03	1.423E-02	4.699E-04	0.156
AG-110M	-3.086E-03		8.097E-03	2.690E-02	1.374E-03	-0.115
SN-113DA	-1.447E-02		8.034E-03	2.652E-02	8.708E-04	-0.546
SB-124	-4.668E-03		7.976E-03	2.663E-02	8.835E-04	-0.175
SB-125	1.841E-02		1.331E-02	4.544E-02	1.500E-03	0.405
SN-126DA	1.036E-02		4.616E-03	1.577E-02	5.284E-04	0.657
I-131	3.581E-01		3.621E-01	1.204E+00	4.237E-02	0.297
BA-133	-1.300E-03		6.263E-03	1.958E-02	7.018E-04	-0.066
CS-134	7.311E-02	+	1.126E-02	2.483E-02	1.078E-03	2.944
CS-137DA	1.234E-02		5.666E-03	1.931E-02	6.409E-04	0.639
LA-138	5.965E-03		7.423E-03	2.615E-02	1.040E-03	0.228
CE-139	-2.635E-03		5.494E-03	1.841E-02	6.538E-04	-0.143
BA-140	-4.505E-02		2.533E-01	8.612E-01	2.826E-02	-0.052
BALA-140	-4.226E-01		1.711E-01	5.392E-01	2.026E-02	-0.784
CE-141	-1.569E-02		2.114E-02	7.141E-02	2.575E-03	-0.220
CE-144	1.600E-02		3.690E-02	1.200E-01	4.438E-03	0.133
CEPR-144	3.117E-02		7.380E-02	2.400E-01	8.875E-03	0.130
PM-144	3.301E-03		4.893E-03	1.659E-02	5.508E-04	0.199
PM-146	1.382E-02		6.033E-03	2.062E-02	6.807E-04	0.670
EU-152	-4.751E-03		1.398E-02	4.599E-02	1.687E-03	-0.103
EU-154	2.511E-03		1.955E-02	6.626E-02	2.532E-03	0.038
EU-155	5.275E-02	+	2.415E-02	6.250E-02	2.469E-03	0.844
HF-181	1.341E-02		1.083E-02	3.660E-02	1.203E-03	0.366
BI-207	9.341E-03		4.424E-03	1.528E-02	5.048E-04	0.611
BI-210M	-7.235E-03		8.219E-03	2.357E-02	8.919E-04	-0.307
BI-212	1.813E+00	+	1.813E-01	3.738E-01	1.656E-02	4.852
AC-227DA	7.717E-02		4.090E-02	1.168E-01	4.350E-03	0.661
TH-234DA	1.639E+00		8.946E-01	3.093E+00	1.460E-01	0.530
U-235HP	9.298E-02		3.300E-02	1.130E-01	4.084E-03	0.823
NP-237DA	1.335E-03		1.011E-02	3.373E-02	1.288E-03	0.040
AM-241HP	-3.121E-02		3.971E-02	1.269E-01	5.043E-03	-0.246


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J478X1AA
Detector ID: GER12 1
Energy Coefficients:
Offset: 1.14088E+01
Slope: 2.47591E-01
Quadrature: 3.68377E-09
Acquisition Start: 18-SEP-2007 06:09:07.43
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
100000
10000
1000
100
10
1
50
100
200
500
1000
2000
226 Ra, 214 Bi
212 Bi
40 K
152 Eu
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
234 Th, 214 Bi
212 Bi
212 Bi, 214 Pb
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
99 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Bi, 140 La
214 Pb, 234 U, 238 U, 226 Ra
212 Pb
133 Ba, 208 Tl
223 Ra, 228 Ac
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 226 Ra
223 Ra
235 U, 141 Ce
155 Eu
238 U
155 Eu
238 U

SAMPLE IDENTIFICATION: J478X1AA

CONFIGURATION ID: GER12:J478X1AA_180970609
TITLE : BRC SOIL
SAMPLE ID : J478X1AA

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 18-SEP-07 06:09:07
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 29-JUL-2007 08:15:00.00
CALIB DATE: 18-SEP-2007 04:52:06.99
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:23

SAMPLE QUANTITY: 3.4950E+02
SAMPLE GEOMETRY: S200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: 1.1409E+01 keV
ENERGY SLOPE: 2.4759E-01 keV/C
ENERGY Q COEFF: 3.6838E-09 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 3.3564E-01 keV
FWHM SLOPE: 3.8676E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 60.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 2.000 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 17:52:37

Configuration : $DISK1:[GER12.SAMPLE]J478X1AA_180970609.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 29-JUL-2007 08:15:00 Acquisition date : 18-SEP-2007 06:09:07
Sample ID : J478X1AA Sample quantity : 349.50 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:23.08 0.1%
Start energy : 11.66 End energy : 2039.92
Sensitivity : 5.00 Gaussian : 60.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.30	457	2902	0.84	209.57	205	10	1.27E-02	22.5	
2	4	74.83*	3962	3709	0.98	256.15	240	32	1.10E-01	3.6	1.26E+01
3	4	77.06	5371	2960	0.84	265.15	240	32	1.49E-01	2.4	
4	0	84.31*	857	3936	1.45	294.45	287	14	2.38E-02	16.4	
5	0	87.16*	2116	3056	1.00	305.95	301	11	5.88E-02	5.6	
6	7	89.85	1322	2424	0.90	316.83	312	24	3.67E-02	7.2	1.30E+00
7	7	92.90	1900	3677	1.35	329.13	312	24	5.28E-02	7.2	
8	0	105.13	465	2875	1.13	378.52	372	13	1.29E-02	24.2	
9	0	129.04	617	2389	0.90	475.09	470	11	1.71E-02	15.9	
10	0	144.12	236	1907	0.86	536.02	532	9	6.54E-03	34.1	
11	0	153.88	283	1873	0.80	575.43	571	9	7.85E-03	28.2	
12	0	185.96	1871	2651	1.19	705.01	697	15	5.20E-02	6.4	
13	0	209.19	913	2306	0.91	798.81	792	14	2.54E-02	11.6	
14	6	238.66	10523	1942	0.99	917.86	909	29	2.92E-01	1.3	6.96E+00
15	6	241.70	2781	2052	1.66	930.12	909	29	7.73E-02	4.4	
16	0	270.24	994	1700	1.10	1045.40	1038	17	2.76E-02	10.0	
17	0	277.29	321	1079	0.58	1073.85	1069	10	8.91E-03	19.9	
18	0	295.21*	3819	1567	1.05	1146.24	1138	16	1.06E-01	2.9	
19	0	300.14	706	1246	1.14	1166.16	1158	14	1.96E-02	11.3	
20	0	327.88	566	1190	0.91	1278.17	1271	14	1.57E-02	13.6	
21	0	338.28	2053	1310	1.04	1320.20	1312	15	5.70E-02	4.4	
22	0	351.90*	6669	1793	1.08	1375.20	1364	23	1.85E-01	2.1	
23	0	409.62	335	817	1.07	1608.29	1602	15	9.31E-03	19.4	
24	0	462.99	656	887	1.18	1823.86	1815	18	1.82E-02	11.4	
25	0	510.94*	1043	1412	1.50	2017.49	2005	28	2.90E-02	11.9	
26	0	583.15	3391	835	1.17	2309.14	2299	19	9.42E-02	2.7	
27	0	609.26*	4985	736	1.26	2414.58	2405	19	1.38E-01	2.0	
28	0	727.28	693	529	1.69	2891.21	2884	15	1.93E-02	8.2	
29	0	768.14	587	546	1.53	3056.25	3044	23	1.63E-02	11.1	
30	0	785.49	221	490	0.82	3126.30	3117	19	6.14E-03	24.9	
31	0	794.93	427	438	1.47	3164.43	3157	16	1.19E-02	12.0	
32	0	860.29	543	547	1.56	3428.37	3415	24	1.51E-02	12.2	
33	0	910.90	2368	786	1.62	3632.77	3619	31	6.58E-02	3.6	
34	0	934.32	197	500	1.18	3727.36	3716	20	5.47E-03	24.7	
35	0	968.69	1377	1061	1.47	3866.15	3848	30	3.83E-02	6.4	
36	0	1120.24	914	784	1.29	4478.21	4465	27	2.54E-02	7.9	
37	0	1237.84	445	878	2.44	4953.10	4940	31	1.24E-02	17.2	
38	0	1377.46	237	265	1.88	5516.94	5506	24	6.59E-03	16.6	
39	0	1407.84	157	197	2.13	5639.60	5628	22	4.37E-03	20.9	
40	0	1460.59*	12618	876	1.89	5852.64	5836	33	3.51E-01	1.1	
41	0	1509.30	137	186	1.65	6049.31	6035	27	3.82E-03	24.7	
42	0	1589.60	266	207	1.79	6373.59	6355	38	7.39E-03	16.1	
43	0	1620.45	71	105	1.57	6498.19	6488	19	1.97E-03	31.7	

Sample ID : J478X1AA Acquisition date : 18-SEP-2007 06:09:07

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
44	0	1729.09	173	99	1.72	6936.87	6923	26	4.79E-03	15.4	
45	0	1764.14	891	166	2.16	7078.41	7061	33	2.48E-02	5.0	

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

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:52:37

Configuration : $DISK1:[GER12.SAMPLE]J478X1AA_180970609.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 29-JUL-2007 08:15:00 Acquisition date : 18-SEP-2007 06:09:07
Sample ID : J478X1AA Sample quantity : 349.50 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:23.08 0.1%
Energy tolerance : 2.00 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	12618	10.67*	8.870E-01	2.864E+01	2.864E+01	10.06
TL-208	277.35	321	6.80	3.060E+00	3.310E-01	3.310E-01	21.00
	510.84	1043	21.60	2.026E+00	5.119E-01	5.119E-01	13.27
	583.14	3391	84.20*	1.844E+00	4.691E-01	4.691E-01	6.57
	860.37	543	12.46	1.378E+00	6.801E-01	6.801E-01	14.58
PB-212	238.63	10523	44.60*	3.357E+00	1.510E+00	1.510E+00	6.85
	300.09	706	3.41	2.908E+00	1.529E+00	1.529E+00	12.98
BI-214	609.31	4985	46.30*	1.787E+00	1.295E+00	1.295E+00	6.38
	768.36	587	5.04	1.504E+00	1.664E+00	1.664E+00	13.16
	1120.29	914	15.10	1.112E+00	1.169E+00	1.169E+00	10.58
	1764.49	891	15.80	7.551E-01	1.605E+00	1.605E+00	8.56
PB-214	241.98	2781	7.49	3.332E+00	2.394E+00	2.394E+00	8.01
	295.21	3819	19.20	2.939E+00	1.454E+00	1.454E+00	7.10
	351.92	6669	37.20*	2.617E+00	1.471E+00	1.471E+00	6.66
	785.91	221	1.10	1.478E+00	2.918E+00	2.918E+00	25.95
RA-223	154.21	283	5.58	4.132E+00	2.634E-01	2.646E-01	28.99
	269.46	994	13.60*	3.110E+00	5.047E-01	5.070E-01	12.01
	323.87	------	3.88	2.766E+00	------ Line Not Found		------
RA-224DA	238.63	10523	44.60*	3.357E+00	1.510E+00	1.588E+00	6.85
	240.98	2781	3.95	3.332E+00	4.539E+00	4.776E+00	8.01
	583.14	3391	30.25	1.844E+00	1.306E+00	1.374E+00	6.57
	860.37	543	4.48	1.378E+00	1.892E+00	1.990E+00	14.58
RA-226DA	186.21	1871	3.50	3.841E+00	2.989E+00	2.989E+00	9.38
	241.98	2781	7.49	3.332E+00	2.394E+00	2.394E+00	8.01
	295.22	3819	19.20	2.939E+00	1.454E+00	1.454E+00	7.10
	351.92	6669	37.20	2.617E+00	1.471E+00	1.471E+00	6.66
	609.32	4985	46.30*	1.787E+00	1.295E+00	1.295E+00	6.38
	1120.28	914	15.10	1.112E+00	1.169E+00	1.169E+00	10.58
	1238.11	445	5.94	1.022E+00	1.573E+00	1.573E+00	19.03
	1764.49	891	15.80	7.551E-01	1.605E+00	1.605E+00	8.56
AC-228	209.28	913	4.40	3.619E+00	1.232E+00	1.232E+00	13.46
	270.23	994	3.60	3.110E+00	1.907E+00	1.907E+00	12.01
	338.32	2053	11.40	2.687E+00	1.440E+00	1.440E+00	7.73
	911.07	2368	27.70*	1.317E+00	1.395E+00	1.395E+00	9.19
	969.11	1377	16.60	1.253E+00	1.422E+00	1.422E+00	10.32
RA-228DA	209.28	913	4.40	3.619E+00	1.232E+00	1.253E+00	13.46

Sample ID : J478X1AA Acquisition date : 18-SEP-2007 06:09:07

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	338.32	2053	11.40	2.687E+00	1.440E+00	1.464E+00	7.73
	911.07	2368	27.70*	1.317E+00	1.395E+00	1.418E+00	9.19
	964.60	------	5.20	1.257E+00	------ Line Not Found		------
	969.11	1377	16.60	1.253E+00	1.422E+00	1.446E+00	10.32
TH-228DA	238.63	10523	44.60	3.357E+00	1.510E+00	1.588E+00	6.85
	240.98	2781	3.95	3.332E+00	4.539E+00	4.776E+00	8.01
	583.14	3391	30.25*	1.844E+00	1.306E+00	1.374E+00	6.57
	860.37	543	4.48	1.378E+00	1.892E+00	1.990E+00	14.58
TH-232DA	238.63	10523	44.60	3.357E+00	1.510E+00	1.510E+00	6.85
	338.32	2053	12.40*	2.687E+00	1.324E+00	1.324E+00	7.73
	583.14	3391	30.25	1.844E+00	1.306E+00	1.306E+00	6.57
	911.07	2368	27.70	1.317E+00	1.395E+00	1.395E+00	9.19
	964.60	------	5.20	1.257E+00	------ Line Not Found		------
	969.11	1377	16.60	1.253E+00	1.422E+00	1.422E+00	10.32
U-234DA	241.98	2781	7.49	3.332E+00	2.394E+00	2.394E+00	8.01
	295.22	3819	19.20*	2.939E+00	1.454E+00	1.454E+00	7.10
	351.92	6669	37.20	2.617E+00	1.471E+00	1.471E+00	6.66
	609.31	4985	46.30	1.787E+00	1.295E+00	1.295E+00	6.38
U-235HP	143.76	236	10.50*	4.200E+00	1.148E-01	1.148E-01	34.69
	185.71	1871	54.00	3.841E+00	1.937E-01	1.937E-01	9.38
	205.31	------	4.70	3.656E+00	------ Line Not Found		------
U-238DA	241.98	2781	7.49	3.332E+00	2.394E+00	2.394E+00	8.01
	295.22	3819	19.20	2.939E+00	1.454E+00	1.454E+00	7.10
	351.92	6669	37.20*	2.617E+00	1.471E+00	1.471E+00	6.66
	609.31	4985	46.30	1.787E+00	1.295E+00	1.295E+00	6.38
U-238DHP	63.28	457	3.80*	2.177E+00	1.186E+00	1.186E+00	23.38
	92.59	1900	5.41	3.846E+00	1.962E+00	1.962E+00	10.01

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
CE-141	145.44	236	48.40*	4.200E+00	2.490E-02	7.407E-02	34.69

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
BI-212	288.07	------	0.31	2.986E+00	------ Line Not Found		------
	327.96	566	0.14	2.744E+00	3.188E+01	3.188E+01	16.96
	452.83	------	0.31	2.204E+00	------ Line Not Found		------
	727.33	693	6.58*	1.568E+00	1.443E+00	1.443E+00	10.78
	785.37	221	1.10	1.478E+00	2.918E+00	2.918E+00	26.10
	893.41	------	0.38	1.337E+00	------ Line Not Found		------
	952.12	------	0.17	1.271E+00	------ Line Not Found		------
	1078.62	------	0.56	1.147E+00	------ Line Not Found		------
	1512.70	------	0.29	8.607E-01	------ Line Not Found		------
	1620.50	71	1.49	8.114E-01	1.260E+00	1.260E+00	33.04
	1806.00	------	0.09	7.405E-01	------ Line Not Found		------

Sample ID : J478X1AA Acquisition date : 18-SEP-2007 06:09:07

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : J478X1AA
Acquisition date : 18-SEP-2007 06:09:07

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
4	74.83	3962	3709	0.98	256.15	240	32	1.10E-01	3.6	3.02E+00	
4	77.06	5371	2960	0.84	265.15	240	32	1.49E-01	2.4	3.15E+00	
0	84.31	857	3936	1.45	294.45	287	14	2.38E-02	16.4	3.52E+00	
0	87.16	2116	3056	1.00	305.95	301	11	5.88E-02	5.6	3.65E+00	T
7	89.85	1322	2424	0.90	316.83	312	24	3.67E-02	7.2	3.75E+00	
0	105.13	465	2875	1.13	378.52	372	13	1.29E-02	24.2	4.12E+00	T
0	129.04	617	2389	0.90	475.09	470	11	1.71E-02	15.9	4.26E+00	
0	409.62	335	817	1.07	1608.29	1602	15	9.31E-03	19.4	2.36E+00	
0	462.99	656	887	1.18	1823.86	1815	18	1.82E-02	11.4	2.17E+00	T
0	794.93	427	438	1.47	3164.43	3157	16	1.19E-02	12.0	1.46E+00	T
0	934.32	197	500	1.18	3727.36	3716	20	5.47E-03	24.7	1.29E+00	
0	1377.46	237	265	1.88	5516.94	5506	24	6.59E-03	16.6	9.33E-01	
0	1407.84	157	197	2.13	5639.60	5628	22	4.37E-03	20.9	9.16E-01	T
0	1509.30	137	186	1.65	6049.31	6035	27	3.82E-03	24.7	8.62E-01	
0	1589.60	266	207	1.79	6373.59	6355	38	7.39E-03	16.1	8.25E-01	
0	1729.09	173	99	1.72	6936.87	6923	26	4.79E-03	15.4	7.68E-01	

Flags: "T" = Tentatively associated

Sample ID : J478X1AA Acquisition date : 18-SEP-2007 06:09:07

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	6.387E-02	13.27	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.61	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	2.693E-01	10.58	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.84	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	2.410E+00	6.57	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-103	39.35D	1.30	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	2.634E+01	6.38	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	5.909E-01	13.27	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	6.498E-01	12.88	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
BA-133	10.50Y	0.01	81.00	33.00	--- Not Found ---		Abun.
			276.40	6.90	3.292E-01	21.00	
			302.84	17.80	--- Not Found ---		
			356.00*	62.05	--- Not Found ---		
			383.85	8.70	--- Not Found ---		
		% Abundances Found =		5.37			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	7.683E-02	14.04	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	30.50	328.77	20.50	3.289E+08	15.00	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-152	13.60Y	0.01	121.78	28.40	--- Not Found ---		Abun.
			244.67	7.49	--- Not Found ---		
			344.27*	26.50	--- Not Found ---		
			778.89	12.74	--- Not Found ---		
			964.01	14.40	--- Not Found ---		

Sample ID : J478X1AA Acquisition date : 18-SEP-2007 06:09:07

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
EU-152	13.60Y	0.01	1085.78	10.00	--- Not Found ---		Abun.
			1112.02	13.30	--- Not Found ---		
			1407.95	20.70	1.794E-01	23.37	
		% Abundances Found =		15.50			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	4.114E-01	9.16	
			105.31*	20.70	1.193E-01	25.08	
		% Abundances Found =		70.92			
TH-234DA	4.47E+09Y	0.00	766.41	0.21	3.992E+01	13.16	Abun.
			1001.03*	0.65	--- Not Found ---		
		% Abundances Found =		24.42			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 17:52:39

Configuration : $DISK1:[GER12.SAMPLE]J478X1AA_180970609.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 29-JUL-2007 08:15:00 Acquisition date : 18-SEP-2007 06:09:07
Sample ID : J478X1AA Sample quantity : 349.50 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:23.08 0.1%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 2.00 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	2.864E+01	2.880E+00	2.082E-01	1.802E-02	137.526
CE-141	7.407E-02	2.569E-02	6.752E-02	2.869E-03	1.097
TL-208	4.691E-01	3.082E-02	1.685E-02	5.601E-04	27.844
BI-212	1.443E+00	1.556E-01	2.375E-01	1.167E-02	6.077
PB-212	1.510E+00	1.033E-01	2.802E-02	1.261E-03	53.867
BI-214	1.295E+00	8.258E-02	3.176E-02	1.077E-03	40.758
PB-214	1.471E+00	9.796E-02	3.300E-02	1.275E-03	44.587
RA-223	5.070E-01	6.087E-02	8.513E-02	3.689E-03	5.956
RA-224DA	1.588E+00	1.087E-01	2.948E-02	1.326E-03	53.867
RA-226DA	1.295E+00	8.258E-02	3.176E-02	1.077E-03	40.757
AC-228	1.395E+00	1.282E-01	6.132E-02	4.188E-03	22.740
RA-228DA	1.418E+00	1.304E-01	6.237E-02	4.260E-03	22.740
TH-228DA	1.374E+00	9.025E-02	4.934E-02	1.640E-03	27.844
TH-232DA	1.324E+00	1.023E-01	1.010E-01	3.923E-03	13.105
U-234DA	1.454E+00	1.033E-01	6.341E-02	2.624E-03	22.925
U-235HP	1.148E-01	3.981E-02	1.049E-01	4.402E-03	1.094
U-238DA	1.471E+00	9.796E-02	3.300E-02	1.275E-03	44.587
U-238DHP	1.186E+00	2.773E-01	5.781E-01	2.213E-02	2.052

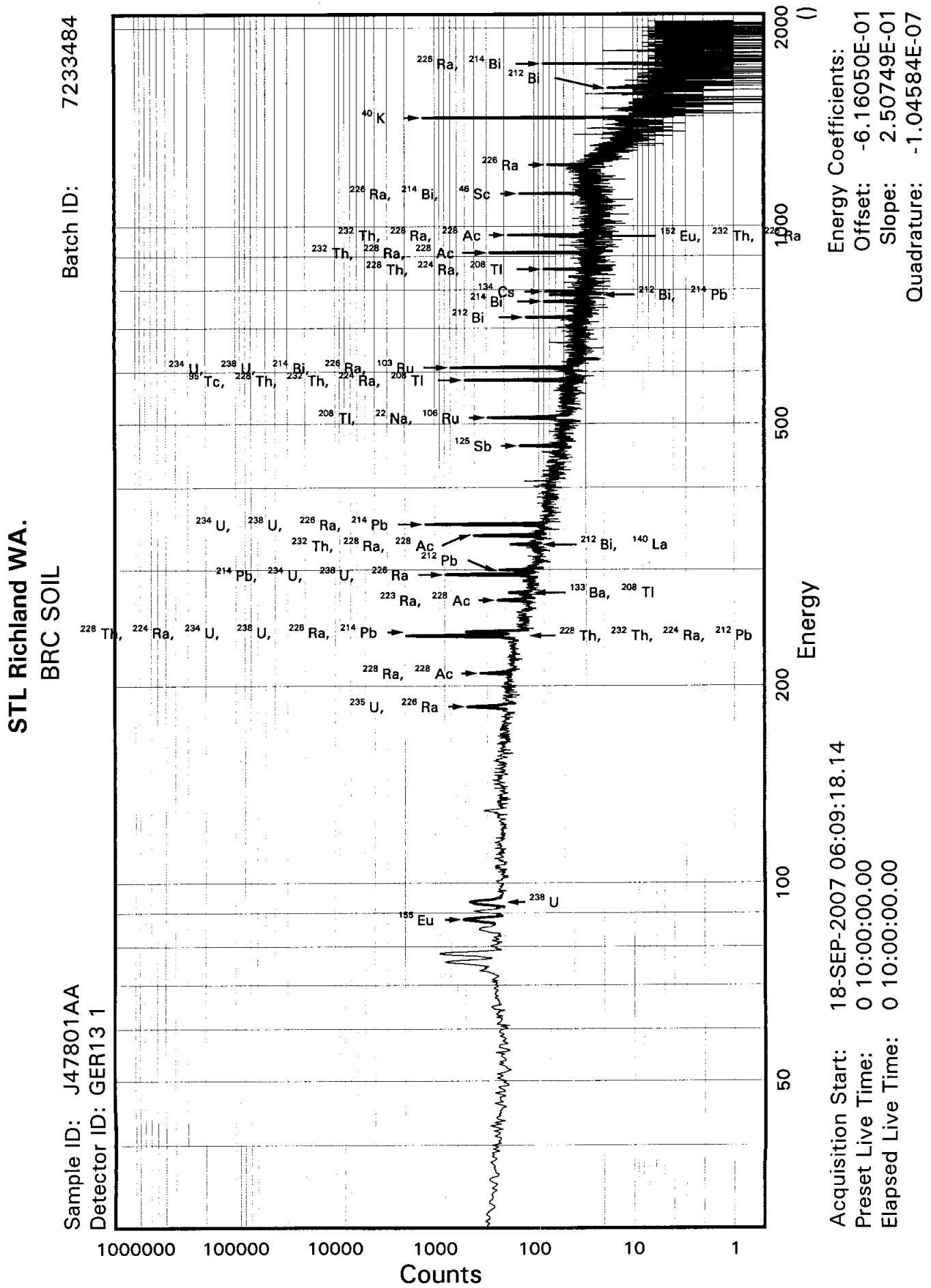
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-1.114E-01		7.354E-02	2.397E-01	8.096E-03	-0.465
NA-22	1.107E-04		6.577E-03	2.202E-02	1.683E-03	0.005
SC-46	2.693E-01	+	2.848E-02	5.340E-02	2.616E-03	5.044
CR-51	3.123E-02		1.310E-01	4.356E-01	1.699E-02	0.072
MN-54	7.711E-03		5.889E-03	2.019E-02	1.192E-03	0.382
CO-57	3.911E-02		3.497E-02	1.185E-01	4.713E-03	0.330
CO-58	-5.800E-03		7.415E-03	2.490E-02	1.379E-03	-0.233
FE-59	2.822E-03		2.275E-02	7.733E-02	3.975E-03	0.036
CO-60	-8.434E-03		5.499E-03	1.803E-02	1.761E-03	-0.468
ZN-65	3.923E-03		1.693E-02	4.855E-02	2.406E-03	0.081

Sample ID : J478X1AA Acquisition date : 18-SEP-2007 06:09:07

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
SE-75	1.143E-02		7.872E-03	2.670E-02	1.165E-03	0.428
SR-85	3.397E-02		8.610E-03	2.545E-02	7.984E-04	1.335
Y-88	7.736E-03		5.339E-03	1.954E-02	7.262E-04	0.396
NB-94	-1.332E-03		4.813E-03	1.620E-02	1.049E-03	-0.082
NB-95	4.394E-02		1.607E-02	4.824E-02	2.356E-03	0.911
TC-95M	6.033E-03		9.787E-03	3.215E-02	1.482E-03	0.188
ZR-95	2.952E-02		1.512E-02	5.123E-02	2.437E-03	0.576
ZRNB-95	5.810E-02		2.035E-02	6.112E-02	2.985E-03	0.951
RH-101	7.876E-03		5.566E-03	1.761E-02	8.140E-04	0.447
RH-102M	-2.115E-03		4.089E-03	1.357E-02	4.603E-04	-0.156
RU-103	-1.352E-03		1.056E-02	3.513E-02	1.143E-03	-0.038
RU-106DA	-2.755E-02		4.585E-02	1.536E-01	5.254E-03	-0.179
AG-108M	-4.388E-04		4.112E-03	1.383E-02	4.986E-04	-0.032
AG-110M	1.297E-02		7.523E-03	2.587E-02	1.733E-03	0.501
SN-113DA	-1.580E-02		7.840E-03	2.578E-02	9.703E-04	-0.613
SB-124	2.303E-03		7.968E-03	2.707E-02	9.133E-04	0.085
SB-125	4.415E-04		1.316E-02	4.436E-02	1.611E-03	0.010
SN-126DA	1.228E-02		4.605E-03	1.581E-02	5.644E-04	0.777
I-131	2.040E-01		3.486E-01	1.197E+00	4.594E-02	0.170
BA-133	5.090E-03		6.703E-03	1.908E-02	7.359E-04	0.267
CS-134	7.683E-02	+	1.079E-02	2.552E-02	1.357E-03	3.010
CS-137DA	-2.482E-03		5.341E-03	1.781E-02	6.257E-04	-0.139
LA-138	-1.005E-02		7.129E-03	2.336E-02	2.078E-03	-0.430
CE-139	3.879E-03		5.385E-03	1.797E-02	8.423E-04	0.216
BA-140	1.808E-01		2.572E-01	8.588E-01	2.750E-02	0.211
BALA-140	1.263E-01		1.574E-01	4.703E-01	3.368E-02	0.269
CE-144	-1.414E-02		3.415E-02	1.148E-01	4.473E-03	-0.123
CEPR-144	-6.941E-02		6.876E-02	2.298E-01	8.949E-03	-0.302
PM-144	-1.862E-03		4.682E-03	1.574E-02	5.369E-04	-0.118
PM-146	1.921E-02		5.970E-03	2.045E-02	7.177E-04	0.939
EU-152	-6.313E-03		1.383E-02	4.534E-02	1.757E-03	-0.139
EU-154	3.097E-04		1.808E-02	6.054E-02	4.624E-03	0.005
EU-155	1.193E-01	+	2.992E-02	5.958E-02	2.504E-03	2.002
HF-181	9.082E-04		1.099E-02	3.673E-02	1.230E-03	0.025
BI-207	2.920E-03		4.294E-03	1.472E-02	4.843E-04	0.198
BI-210M	3.348E-03		7.823E-03	2.366E-02	1.030E-03	0.142
AC-227DA	1.738E-01		4.166E-02	1.222E-01	5.509E-03	1.423
TH-234DA	2.188E+00		8.608E-01	2.929E+00	1.793E-01	0.747
NP-237DA	9.782E-04		9.983E-03	3.320E-02	1.322E-03	0.029
AM-241HP	-3.142E-03		2.069E-02	6.950E-02	2.487E-03	-0.045


STL Richland WA.
BRC SOIL
Batch ID: 7233484
Sample ID: J47801AA
Detector ID: GER13 1
Energy Coefficients:
Offset: -6.16050E-01
Slope: 2.50749E-01
Quadrature: -1.04584E-07
Acquisition Start: 18-SEP-2007 06:09:18.14
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00
Counts
Energy
1000000
100000
10000
1000
100
10
1
50
100
200
500
1000
2000
226 Ra, 214 Bi
212 Bi
40 K
226 Ra
226 Ra, 214 Bi, 46 Sc
232 Th, 228 Ra, 228 Ac
152 Eu, 232 Th, 226 Ra
232 Th, 228 Ra, 228 Ac
228 Th, 224 Ra, 208 Tl
134 Cs
214 Bi
212 Bi
212 Bi, 214 Pb
234 U, 238 U, 214 Bi, 226 Ra, 103 Ru
95 Tc, 228 Th, 232 Th, 224 Ra, 208 Tl
208 Tl, 22 Na, 106 Ru
125 Sb
234 U, 238 U, 226 Ra, 214 Pb
232 Th, 228 Ra, 228 Ac
212 Bi, 140 La
212 Pb
214 Pb, 234 U, 238 U, 226 Ra
133 Ba, 208 Tl
223 Ra, 228 Ac
228 Th, 224 Ra, 234 U, 238 U, 226 Ra, 214 Pb
228 Th, 232 Th, 224 Ra, 212 Pb
228 Ra, 228 Ac
235 U, 226 Ra
238 U
155 Eu

SAMPLE IDENTIFICATION: J47801AA

CONFIGURATION ID: GER13:J47801AA_180970609
TITLE : BRC SOIL
SAMPLE ID : J47801AA

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 18-SEP-07 06:09:18
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 29-JUL-2007 08:15:00.00
CALIB DATE: 18-SEP-2007 05:25:59.36
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:21

SAMPLE QUANTITY: 3.4420E+02
SAMPLE GEOMETRY: S200

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.6161E+00 keV
ENERGY SLOPE: 2.5075E-01 keV/C
ENERGY Q COEFF: -.1046E-06 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 5.0425E-01 keV
FWHM SLOPE: 3.8916E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 16:09:44

Configuration : $DISK1:[GER13.SAMPLE]J47801AA_180970609.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title : BRC SOIL
Sample date : 29-JUL-2007 08:15:00 Acquisition date : 18-SEP-2007 06:09:18
Sample ID : J47801AA Sample quantity : 344.20 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:21.52 0.1%
Start energy : 19.44 End energy : 2046.50
Sensitivity : 5.00 Gaussian : 10.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	75.81*	1429	2966	0.83	304.83	299	27	3.97E-02	7.9	1.95E+00
2	2	78.04	2511	2646	0.86	313.72	299	27	6.97E-02	4.4	
3	0	85.06*	317	2900	1.34	341.74	336	12	8.79E-03	39.2	
4	0	87.90	1207	2633	0.98	353.05	348	11	3.35E-02	8.7	
5	0	90.60	685	2263	0.94	363.82	359	10	1.90E-02	13.5	
6	0	93.55	1212	2946	1.43	375.62	369	13	3.37E-02	9.7	
7	0	129.16	556	2739	1.12	517.68	511	13	1.54E-02	19.9	
8	0	186.08	1554	3090	1.12	744.80	737	17	4.32E-02	8.6	
9	0	209.08	640	2093	0.76	836.58	831	12	1.78E-02	14.8	
10	4	238.47*	8399	1975	1.12	953.85	945	28	2.33E-01	1.6	4.52E+00
11	4	241.57	2255	1771	1.62	966.24	945	28	6.26E-02	4.5	
12	0	269.84	862	1784	1.48	1079.09	1071	17	2.39E-02	11.7	
13	0	277.08	440	1343	1.35	1107.96	1102	13	1.22E-02	17.8	
14	0	294.95*	3269	1959	1.14	1179.31	1169	19	9.08E-02	3.8	
15	0	299.91	746	1612	1.15	1199.11	1190	18	2.07E-02	13.2	
16	0	327.71	269	1518	1.07	1310.09	1302	15	7.47E-03	32.2	
17	0	338.03	1733	1521	1.32	1351.29	1343	18	4.81E-02	5.8	
18	0	351.69*	5465	1585	1.17	1405.85	1395	19	1.52E-01	2.3	
19	0	409.09	232	805	0.88	1635.05	1629	13	6.44E-03	26.1	
20	0	462.78	717	922	1.45	1849.48	1840	20	1.99E-02	11.0	
21	0	510.75*	560	1651	1.66	2041.08	2030	29	1.56E-02	24.6	
22	0	583.04*	2666	877	1.40	2329.91	2318	22	7.40E-02	3.7	
23	0	609.22*	3962	1139	1.49	2434.53	2421	27	1.10E-01	3.1	
24	0	727.24	568	785	1.63	2906.23	2894	22	1.58E-02	11.4	
25	0	768.47	349	518	1.84	3071.10	3062	16	9.71E-03	13.6	
26	0	785.50	257	616	0.90	3139.17	3127	22	7.14E-03	21.8	
27	0	795.01	333	590	1.41	3177.21	3168	21	9.24E-03	16.4	
28	0	860.43	386	471	1.59	3438.84	3429	20	1.07E-02	12.7	
29	0	911.22*	1937	772	1.74	3641.97	3626	32	5.38E-02	4.4	
30	0	934.08	254	443	1.94	3733.41	3723	20	7.04E-03	18.4	
31	0	964.42	317	569	1.40	3854.79	3843	21	8.81E-03	17.0	
32	0	969.08*	970	655	1.44	3873.44	3864	24	2.69E-02	7.1	
33	0	1120.19*	878	785	2.02	4478.18	4463	31	2.44E-02	9.0	
34	0	1238.25	268	933	1.58	4950.88	4938	27	7.44E-03	27.5	
35	0	1377.93	240	309	1.94	5510.36	5495	29	6.66E-03	18.9	
36	0	1460.57*	11431	664	2.10	5841.51	5823	36	3.18E-01	1.2	
37	0	1587.17	109	225	1.88	6348.97	6342	25	3.03E-03	29.2	
38	0	1620.89	108	133	1.62	6484.18	6471	30	3.00E-03	25.1	
39	0	1729.21	156	92	2.25	6918.58	6906	23	4.34E-03	14.5	
40	0	1763.85*	657	97	2.20	7057.53	7040	36	1.83E-02	5.9	
41	0	1846.74	79	99	1.94	7390.13	7378	22	2.19E-03	26.9	

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

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 16:09:44

Configuration : $DISK1:[GER13.SAMPLE]J47801AA_180970609.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 29-JUL-2007 08:15:00 Acquisition date : 18-SEP-2007 06:09:18
Sample ID : J47801AA Sample quantity : 344.20 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:21.52 0.1%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	11431	10.67*	7.699E-01	3.035E+01	3.035E+01	6.55
TL-208	277.35	440	6.80	2.836E+00	4.982E-01	4.982E-01	18.89
	510.84	560	21.60	1.898E+00	2.981E-01	2.981E-01	25.32
	583.14	2666	84.20*	1.721E+00	4.011E-01	4.011E-01	7.03
	860.37	386	12.46	1.247E+00	5.425E-01	5.425E-01	14.67
PB-212	238.63	8399	44.60*	3.095E+00	1.327E+00	1.327E+00	6.58
	300.09	746	3.41	2.702E+00	1.766E+00	1.766E+00	14.61
BI-214	609.31	3962	46.30*	1.664E+00	1.121E+00	1.121E+00	6.73
	768.36	349	5.04	1.377E+00	1.098E+00	1.098E+00	15.09
	1120.29	878	15.10	9.771E-01	1.298E+00	1.298E+00	11.10
	1764.49	657	15.80	6.731E-01	1.348E+00	1.348E+00	8.49
PB-214	241.98	2255	7.49	3.072E+00	2.137E+00	2.137E+00	7.80
	295.21	3269	19.20	2.730E+00	1.361E+00	1.361E+00	7.43
	351.92	5465	37.20*	2.443E+00	1.312E+00	1.312E+00	6.59
	785.91	257	1.10	1.351E+00	3.769E+00	3.769E+00	22.84
RA-224DA	238.63	8399	44.60*	3.095E+00	1.327E+00	1.396E+00	6.58
	240.98	2255	3.95	3.072E+00	4.053E+00	4.264E+00	7.80
	583.14	2666	30.25	1.721E+00	1.117E+00	1.175E+00	7.03
	860.37	386	4.48	1.247E+00	1.509E+00	1.587E+00	14.67
RA-226DA	186.21	1554	3.50	3.491E+00	2.774E+00	2.775E+00	10.69
	241.98	2255	7.49	3.072E+00	2.137E+00	2.137E+00	7.80
	295.22	3269	19.20	2.730E+00	1.361E+00	1.361E+00	7.43
	351.92	5465	37.20	2.443E+00	1.312E+00	1.312E+00	6.59
	609.32	3962	46.30*	1.664E+00	1.121E+00	1.121E+00	6.73
	1120.28	878	15.10	9.771E-01	1.298E+00	1.298E+00	11.10
	1238.11	268	5.94	8.901E-01	1.105E+00	1.105E+00	28.23
	1764.49	657	15.80	6.731E-01	1.348E+00	1.348E+00	8.49
AC-228	209.28	640	4.40	3.316E+00	9.566E-01	9.566E-01	16.14
	270.23	862	3.60	2.881E+00	1.813E+00	1.813E+00	13.35
	338.32	1733	11.40	2.506E+00	1.323E+00	1.323E+00	8.52
	911.07	1937	27.70*	1.184E+00	1.288E+00	1.288E+00	8.74
	969.11	970	16.60	1.119E+00	1.139E+00	1.139E+00	10.16
RA-228DA	209.28	640	4.40	3.316E+00	9.566E-01	9.729E-01	16.14
	338.32	1733	11.40	2.506E+00	1.323E+00	1.346E+00	8.52
	911.07	1937	27.70*	1.184E+00	1.288E+00	1.310E+00	8.74
	964.60	317	5.20	1.124E+00	1.184E+00	1.204E+00	18.51

Sample ID : J47801AA Acquisition date : 18-SEP-2007 06:09:18

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
	969.11	970	16.60	1.119E+00	1.139E+00	1.158E+00	10.16
TH-228DA	238.63	8399	44.60	3.095E+00	1.327E+00	1.396E+00	6.58
	240.98	2255	3.95	3.072E+00	4.053E+00	4.264E+00	7.80
	583.14	2666	30.25*	1.721E+00	1.117E+00	1.175E+00	7.03
	860.37	386	4.48	1.247E+00	1.509E+00	1.587E+00	14.67
TH-232DA	238.63	8399	44.60	3.095E+00	1.327E+00	1.327E+00	6.58
	338.32	1733	12.40*	2.506E+00	1.217E+00	1.217E+00	8.52
	583.14	2666	30.25	1.721E+00	1.117E+00	1.117E+00	7.03
	911.07	1937	27.70	1.184E+00	1.288E+00	1.288E+00	8.74
	964.60	317	5.20	1.124E+00	1.184E+00	1.184E+00	18.51
	969.11	970	16.60	1.119E+00	1.139E+00	1.139E+00	10.16
U-234DA	241.98	2255	7.49	3.072E+00	2.137E+00	2.137E+00	7.80
	295.22	3269	19.20*	2.730E+00	1.361E+00	1.361E+00	7.43
	351.92	5465	37.20	2.443E+00	1.312E+00	1.312E+00	6.59
	609.31	3962	46.30	1.664E+00	1.121E+00	1.121E+00	6.73
U-238DA	241.98	2255	7.49	3.072E+00	2.137E+00	2.137E+00	7.80
	295.22	3269	19.20	2.730E+00	1.361E+00	1.361E+00	7.43
	351.92	5465	37.20*	2.443E+00	1.312E+00	1.312E+00	6.59
	609.31	3962	46.30	1.664E+00	1.121E+00	1.121E+00	6.73

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
BI-212	288.07	------	0.31	2.769E+00	------	Line Not Found	------
	327.96	269	0.14	2.556E+00	1.650E+01	1.650E+01	33.74
	452.83	------	0.31	2.065E+00	------	Line Not Found	------
	727.33	568	6.58*	1.443E+00	1.305E+00	1.305E+00	13.29
	785.37	257	1.10	1.351E+00	3.769E+00	3.769E+00	23.01
	893.41	------	0.38	1.206E+00	------	Line Not Found	------
	952.12	------	0.17	1.137E+00	------	Line Not Found	------
	1078.62	------	0.56	1.012E+00	------	Line Not Found	------
	1512.70	------	0.29	7.484E-01	------	Line Not Found	------
	1620.50	108	1.49	7.106E-01	2.223E+00	2.223E+00	26.08
	1806.00	------	0.09	6.644E-01	------	Line Not Found	------

Flag: "*" = Keyline

Sample ID : J47801AA Acquisition date : 18-SEP-2007 06:09:18

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
2	75.81	1429	2966	0.83	304.83	299	27	3.97E-02	7.9	1.75E+00	
2	78.04	2511	2646	0.86	313.72	299	27	6.97E-02	4.4	1.90E+00	
0	85.06	317	2900	1.34	341.74	336	12	8.79E-03	39.2	2.34E+00	
0	87.90	1207	2633	0.98	353.05	348	11	3.35E-02	8.7	2.50E+00	T
0	90.60	685	2263	0.94	363.82	359	10	1.90E-02	13.5	2.64E+00	
0	93.55	1212	2946	1.43	375.62	369	13	3.37E-02	9.7	2.78E+00	T
0	129.16	556	2739	1.12	517.68	511	13	1.54E-02	19.9	3.65E+00	
0	409.09	232	805	0.88	1635.05	1629	13	6.44E-03	26.1	2.21E+00	
0	462.78	717	922	1.45	1849.48	1840	20	1.99E-02	11.0	2.03E+00	T
0	795.01	333	590	1.41	3177.21	3168	21	9.24E-03	16.4	1.34E+00	T
0	934.08	254	443	1.94	3733.41	3723	20	7.04E-03	18.4	1.16E+00	
0	1377.93	240	309	1.94	5510.36	5495	29	6.66E-03	18.9	8.09E-01	
0	1587.17	109	225	1.88	6348.97	6342	25	3.03E-03	29.2	7.21E-01	
0	1729.21	156	92	2.25	6918.58	6906	23	4.34E-03	14.5	6.81E-01	
0	1846.74	79	99	1.94	7390.13	7378	22	2.19E-03	26.9	6.57E-01	

Flags: "T" = Tentatively associated

Sample ID : J47801AA Acquisition date : 18-SEP-2007 06:09:18

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	3.720E-02	25.32	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
SC-46	83.85D	0.61	889.25	99.98	--- Not Found ---		Abun.
			1120.51*	99.99	2.991E-01	11.10	
		% Abundances Found =		50.00			
TC-95M	61.00D	0.84	204.12*	66.20	--- Not Found ---		Abun.
			582.07	29.30	2.061E+00	7.03	
			835.13	26.10	--- Not Found ---		
		% Abundances Found =		24.10			
RU-103	39.35D	1.30	497.08*	89.00	--- Not Found ---		Abun.
			610.33	5.60	2.282E+01	6.73	
		% Abundances Found =		5.92			
RU-106DA	368.20D	0.14	511.85	20.60	3.442E-01	25.32	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
SB-125	2.77Y	0.05	176.33	6.89	--- Not Found ---		Abun.
			427.89*	29.33	--- Not Found ---		
			463.38	10.35	7.696E-01	12.51	
			600.56	17.80	--- Not Found ---		
			635.90	11.32	--- Not Found ---		
		% Abundances Found =		13.67			
BA-133	10.50Y	0.01	81.00	33.00	--- Not Found ---		Abun.
			276.40	6.90	4.956E-01	18.89	
			302.84	17.80	--- Not Found ---		
			356.00*	62.05	--- Not Found ---		
			383.85	8.70	--- Not Found ---		
		% Abundances Found =		5.37			
CS-134	2.06Y	0.07	569.31	15.43	--- Not Found ---		Abun.
			604.70	97.60	--- Not Found ---		
			795.84*	85.40	6.657E-02	17.76	
			801.93	8.73	--- Not Found ---		
		% Abundances Found =		41.22			
LA-140	40.22H	30.50	328.77	20.50	1.703E+08	32.79	Decay,Abun.
			487.03	45.50	--- Not Found ---		
			815.85	23.50	--- Not Found ---		
			1596.49*	95.49	--- Not Found ---		
		% Abundances Found =		11.08			
EU-152	13.60Y	0.01	121.78	28.40	--- Not Found ---		Abun.
			244.67	7.49	--- Not Found ---		
			344.27*	26.50	--- Not Found ---		
			778.89	12.74	--- Not Found ---		
			964.01	14.40	4.305E-01	18.51	

Sample ID : J47801AA Acquisition date : 18-SEP-2007 06:09:18

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
EU-152	13.60Y	0.01	1085.78	10.00	--- Not Found ---		Abun.
			1112.02	13.30	--- Not Found ---		
			1407.95	20.70	--- Not Found ---		
		% Abundances Found =		10.78			
EU-155	4.96Y	0.03	42.90	21.16	--- Not Found ---		Abun.
			86.54	30.90	3.477E-01	11.14	
			105.31*	20.70	--- Not Found ---		
		% Abundances Found =		42.47			
RA-223	21.77Y	0.01	154.21	5.58	--- Not Found ---		Abun.
			269.46*	13.60	4.820E-01	13.35	
			323.87	3.88	--- Not Found ---		
		% Abundances Found =		58.98			
U-235HP	7.04E+08Y	0.00	143.76*	10.50	--- Not Found ---		Abun.
			185.71	54.00	1.798E-01	10.69	
			205.31	4.70	--- Not Found ---		
		% Abundances Found =		78.03			
U-238DHP	4.47E+09Y	0.00	63.28*	3.80	--- Not Found ---		Abun.
			92.59	5.41	1.755E+00	11.72	
		% Abundances Found =		58.74			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 16:09:48

Configuration : $DISK1:[GER13.SAMPLE]J47801AA_180970609.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 29-JUL-2007 08:15:00 Acquisition date : 18-SEP-2007 06:09:18
Sample ID : J47801AA Sample quantity : 344.20 GRAMS
Sample type : Sample geometry : S200
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:21.52 0.1%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	3.035E+01	1.987E+00	2.210E-01	8.959E-03	137.336
TL-208	4.011E-01	2.819E-02	1.953E-02	6.361E-04	20.539
BI-212	1.305E+00	1.735E-01	2.739E-01	1.246E-02	4.765
PB-212	1.327E+00	8.734E-02	3.328E-02	1.318E-03	39.874
BI-214	1.121E+00	7.543E-02	3.750E-02	1.235E-03	29.905
PB-214	1.312E+00	8.642E-02	3.734E-02	1.353E-03	35.128
RA-224DA	1.396E+00	9.190E-02	3.502E-02	1.387E-03	39.874
RA-226DA	1.121E+00	7.544E-02	3.750E-02	1.235E-03	29.904
AC-228	1.288E+00	1.126E-01	7.616E-02	4.293E-03	16.911
RA-228DA	1.310E+00	1.145E-01	7.746E-02	4.366E-03	16.911
TH-228DA	1.175E+00	8.254E-02	5.720E-02	1.863E-03	20.539
TH-232DA	1.217E+00	1.037E-01	1.206E-01	4.517E-03	10.091
U-234DA	1.361E+00	1.012E-01	7.565E-02	2.983E-03	17.986
U-238DA	1.312E+00	8.642E-02	3.734E-02	1.353E-03	35.128

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-6.247E-02		8.580E-02	2.840E-01	9.042E-03	-0.220
NA-22	-9.043E-03		8.092E-03	2.655E-02	1.045E-03	-0.341
SC-46	2.991E-01	+	3.321E-02	6.212E-02	2.543E-03	4.815
CR-51	1.299E-01		1.582E-01	5.288E-01	2.059E-02	0.246
MN-54	9.412E-03		6.670E-03	2.291E-02	1.146E-03	0.411
CO-57	6.870E-03		4.369E-02	1.471E-01	5.368E-03	0.047
CO-58	-3.761E-02		9.631E-03	2.967E-02	1.410E-03	-1.267
FE-59	-2.418E-02		2.867E-02	9.584E-02	4.116E-03	-0.252
CO-60	7.131E-03		6.880E-03	2.396E-02	9.954E-04	0.298
ZN-65	3.689E-02		2.033E-02	5.974E-02	2.474E-03	0.618
SE-75	1.083E-02		9.691E-03	3.156E-02	1.252E-03	0.343
SR-85	5.057E-02		1.061E-02	3.105E-02	9.754E-04	1.629
Y-88	1.554E-03		6.389E-03	2.245E-02	7.244E-04	0.069
NB-94	7.357E-03		5.767E-03	1.978E-02	1.067E-03	0.372

Sample ID : J47801AA Acquisition date : 18-SEP-2007 06:09:18

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
NB-95	2.780E-02		1.961E-02	5.613E-02	2.414E-03	0.495
TC-95M	-1.199E-02		1.216E-02	3.952E-02	1.551E-03	-0.303
ZR-95	1.502E-02		1.782E-02	5.985E-02	2.521E-03	0.251
ZRNB-95	3.779E-02		2.479E-02	7.107E-02	3.056E-03	0.532
RH-101	4.128E-03		6.237E-03	2.059E-02	8.065E-04	0.200
RH-102M	6.537E-04		4.862E-03	1.629E-02	5.190E-04	0.040
RU-103	2.056E-02		1.269E-02	4.296E-02	1.359E-03	0.479
RU-106DA	7.767E-02		5.536E-02	1.897E-01	6.279E-03	0.409
AG-108M	-6.879E-03		4.943E-03	1.631E-02	5.231E-04	-0.422
AG-110M	-7.141E-03		9.339E-03	3.111E-02	1.727E-03	-0.230
SN-113DA	-5.235E-04		9.268E-03	3.136E-02	1.003E-03	-0.017
SB-124	-1.465E-03		1.056E-02	3.191E-02	1.048E-03	-0.046
SB-125	-1.437E-02		1.587E-02	5.284E-02	1.695E-03	-0.272
SN-126DA	2.246E-02		5.533E-03	1.895E-02	6.431E-04	1.185
I-131	-4.317E-01		4.363E-01	1.418E+00	4.964E-02	-0.304
BA-133	-1.234E-02		8.025E-03	2.269E-02	8.135E-04	-0.544
CS-134	6.657E-02	+	1.183E-02	2.799E-02	1.287E-03	2.379
CS-137DA	-2.581E-02		6.481E-03	1.999E-02	6.705E-04	-1.291
LA-138	-5.072E-03		8.912E-03	3.013E-02	1.229E-03	-0.168
CE-139	-1.941E-02		6.860E-03	2.197E-02	8.591E-04	-0.883
BA-140	8.394E-02		3.066E-01	1.019E+00	3.245E-02	0.082
BALA-140	-6.787E-01		2.138E-01	5.883E-01	2.261E-02	-1.154
CE-141	-4.719E-03		2.595E-02	8.681E-02	3.244E-03	-0.054
CE-144	-1.055E-02		4.413E-02	1.452E-01	5.266E-03	-0.073
CEPR-144	-2.090E-02		8.827E-02	2.904E-01	1.053E-02	-0.072
PM-144	-3.015E-03		5.580E-03	1.871E-02	6.182E-04	-0.161
PM-146	1.663E-02		7.152E-03	2.438E-02	7.804E-04	0.682
EU-152	-2.518E-02		1.715E-02	5.555E-02	2.052E-03	-0.453
EU-154	-2.231E-02		2.219E-02	7.300E-02	2.872E-03	-0.306
EU-155	7.735E-02		2.362E-02	7.732E-02	2.973E-03	1.000
HF-181	-7.532E-03		1.288E-02	4.270E-02	1.358E-03	-0.176
BI-207	4.424E-03		5.063E-03	1.735E-02	5.615E-04	0.255
BI-210M	2.447E-03		9.678E-03	2.786E-02	1.105E-03	0.088
RA-223	4.820E-01	+	6.434E-02	1.250E-01	4.958E-03	3.856
AC-227DA	2.719E-01		5.232E-02	1.506E-01	5.959E-03	1.806
TH-234DA	2.884E+00		1.056E+00	3.601E+00	1.833E-01	0.801
U-235HP	2.867E-02		4.044E-02	1.361E-01	5.058E-03	0.211
NP-237DA	1.322E-02		1.180E-02	3.956E-02	1.548E-03	0.334
U-238DHP	3.559E-02		4.328E-01	1.451E+00	7.045E-02	0.025
AM-241HP	4.597E-03		5.919E-02	1.991E-01	9.552E-03	0.023

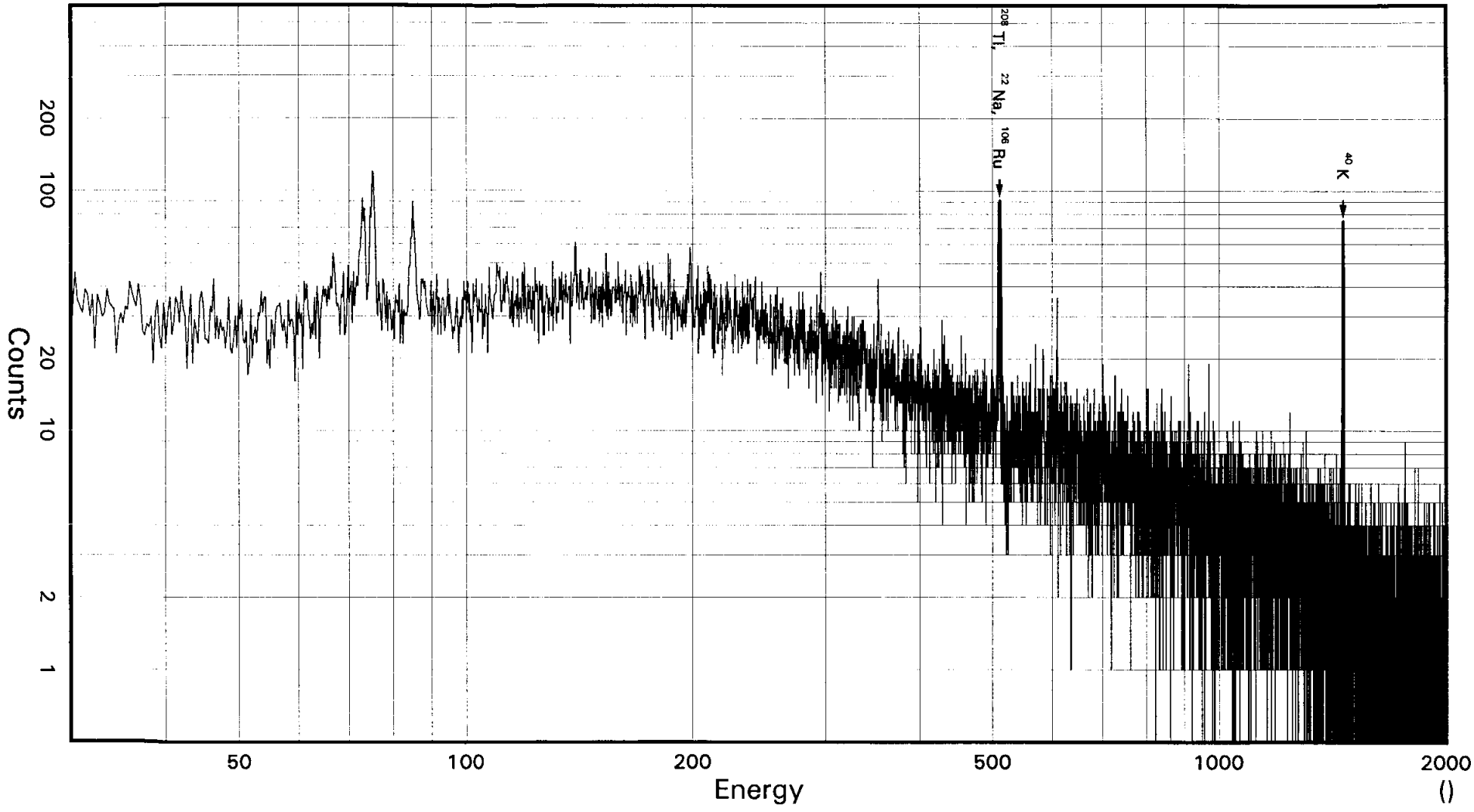
STL Richland WA.

BRC SOIL

Sample ID: J5A4K1AA

Detector ID: GER15 1

Batch ID: 7233484



Acquisition Start: 18-SEP-2007 06:09:27.56

Preset Live Time: 0 10:00:00.00

Elapsed Live Time: 0 10:00:00.00

Energy Coefficients:

Offset: 1.17982E+01

Slope: 2.41328E-01

Quadrature: 1.49908E-08

SAMPLE IDENTIFICATION: J5A4K1AA

CONFIGURATION ID: GER15:J5A4K1AA_180970609
TITLE : BRC SOIL
SAMPLE ID : J5A4K1AA

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 18-SEP-07 06:09:27
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 29-JUL-2007 13:30:00.00
CALIB DATE: 18-SEP-2007 05:04:58.62
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:13

SAMPLE QUANTITY: 2.0230E+02
SAMPLE GEOMETRY: 200ML

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: 1.1798E+01 keV
ENERGY SLOPE: 2.4133E-01 keV/C
ENERGY Q COEFF: 1.4991E-08 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 7.0030E-01 keV
FWHM SLOPE: 2.9458E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 2.000 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 16:09:58

```
Configuration     : RDND06$DKA100:[GER15.SAMPLE]J5A4K1AA_180970609.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title      : BRC SOIL
Sample date       : 29-JUL-2007 13:30:00 Acquisition date : 18-SEP-2007 06:09:27
Sample ID         : J5A4K1AA             Sample quantity  : 202.30 GRAMS
Sample type       :                      Sample geometry  : 200ML
Elapsed live time: 0 10:00:00.00         Elapsed real time: 0 10:00:13.87   0.0%
Start energy      :    12.04             End energy       :  1989.76
Sensitivity       :     5.00             Gaussian         :    10.00
Critical level    : No
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	511.16*	90	301	2.66	2068.98	2056	29	2.50E-03	80.2	0.00E+00
2	0	1460.74*	10	29	1.64	6001.82	5986	29	2.73E-04	338.7	

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

VMS Nuclide Identification Report V3.1 Generated 18-SEP-2007 16:09:58

```
Configuration     : RDND06$DKA100:[GER15.SAMPLE]J5A4K1AA_180970609.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4
Sample title      : BRC SOIL
Sample date       : 29-JUL-2007 13:30:00 Acquisition date : 18-SEP-2007 06:09:27
Sample ID         : J5A4K1AA             Sample quantity  : 202.30 GRAMS
Sample type       :                      Sample geometry  : 200ML
Elapsed live time: 0 10:00:00.00         Elapsed real time: 0 10:00:13.87   0.0%
Energy tolerance :     2.00              Half life ratio  :     8.00
Errors propagated: Yes                   Systematic Error :     5.00 %
Efficiency type  : Empirical             Efficiencies at  : Peak Energy
Abundance limit  :    80.00
```

Nuclide Line Activity Report

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
K-40	1460.81	10	10.67*	5.616E-01	6.090E-02	6.090E-02	338.76

Flag: "*" = Keyline

Unidentified Energy Lines
Page : 2
Sample ID : J5A4K1AA
Acquisition date : 18-SEP-2007 06:09:27

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	511.16	90	301	2.66	2068.98	2056	29	2.50E-03	80.2	1.31E+00	T

Flags: "T" = Tentatively associated

Sample ID : J5A4K1AA Acquisition date : 18-SEP-2007 06:09:27

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
NA-22	2.60Y	0.05	511.00	179.68	1.472E-02	80.51	Abun.
			1274.54*	99.94	--- Not Found ---		
		% Abundances Found =		64.26			
RU-106DA	368.20D	0.14	511.85	20.60	1.361E-01	80.51	Abun.
			621.84*	9.80	--- Not Found ---		
		% Abundances Found =		67.76			
TL-208	1.41E+10Y	0.00	277.35	6.80	--- Not Found ---		Abun.
			510.84	21.60	1.180E-01	80.51	
			583.14*	84.20	--- Not Found ---		
			860.37	12.46	--- Not Found ---		
		% Abundances Found =		17.27			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.1 Generated 18-SEP-2007 16:09:59

Configuration : RDND06$DKA100:[GER15.SAMPLE]J5A4K1AA_180970609.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 29-JUL-2007 13:30:00 Acquisition date : 18-SEP-2007 06:09:27
Sample ID : J5A4K1AA Sample quantity : 202.30 GRAMS
Sample type : Sample geometry : 200ML
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:13.87 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 2.00 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
K-40	6.090E-02	2.063E-01	1.971E-01	6.428E-03	0.309

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-9.303E-02		9.969E-02	3.291E-01	1.336E-02	-0.283
NA-22	-5.911E-03		6.696E-03	2.280E-02	7.318E-04	-0.259
NA-24	4.196E+15		2.103E+16	Half-Life too short		
SC-46	-3.069E-02		1.653E-02	4.329E-02	1.374E-03	-0.709
CR-51	1.410E-02		1.819E-01	6.257E-01	2.345E-02	0.023
MN-54	-1.399E-02		7.116E-03	2.318E-02	7.548E-04	-0.603
CO-57	9.255E-04		4.034E-02	1.335E-01	5.120E-03	0.007
CO-58	6.588E-03		1.011E-02	3.610E-02	1.174E-03	0.182
FE-59	8.940E-03		2.670E-02	9.354E-02	2.986E-03	0.096
CO-60	7.924E-03		6.953E-03	2.562E-02	8.337E-04	0.309
ZN-65	-1.952E-02		1.676E-02	5.515E-02	1.753E-03	-0.354
SE-75	9.991E-04		1.084E-02	3.635E-02	1.551E-03	0.027
SR-85	1.150E-01		1.515E-02	4.780E-02	2.007E-03	2.407
Y-88	2.674E-02		9.339E-03	3.808E-02	1.161E-03	0.702
NB-94	-4.785E-03		6.599E-03	2.247E-02	7.317E-04	-0.213
NB-95	-1.070E-02		1.752E-02	5.868E-02	1.897E-03	-0.182
TC-95M	1.260E-02		1.180E-02	4.052E-02	1.825E-03	0.311
ZR-95	7.214E-03		1.896E-02	6.571E-02	2.121E-03	0.110
ZRNB-95	-1.369E-02		2.215E-02	7.417E-02	2.398E-03	-0.185
MO-99	4.965E-03		1.598E-03	Half-Life too short		
RH-101	3.035E-02		6.795E-03	2.342E-02	1.056E-03	1.296
RH-102M	2.728E-03		5.649E-03	1.939E-02	7.856E-04	0.141
RU-103	-1.268E-02		1.531E-02	5.057E-02	2.092E-03	-0.251
RU-106DA	7.403E-02		6.725E-02	2.377E-01	8.314E-03	0.311
AG-108M	-6.127E-03		6.191E-03	2.050E-02	7.950E-04	-0.299
AG-110M	-1.411E-03		1.025E-02	3.560E-02	1.159E-03	-0.040
SN-113DA	9.055E-03		1.050E-02	3.649E-02	1.345E-03	0.248

Sample ID : J5A4K1AA Acquisition date : 18-SEP-2007 06:09:27

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

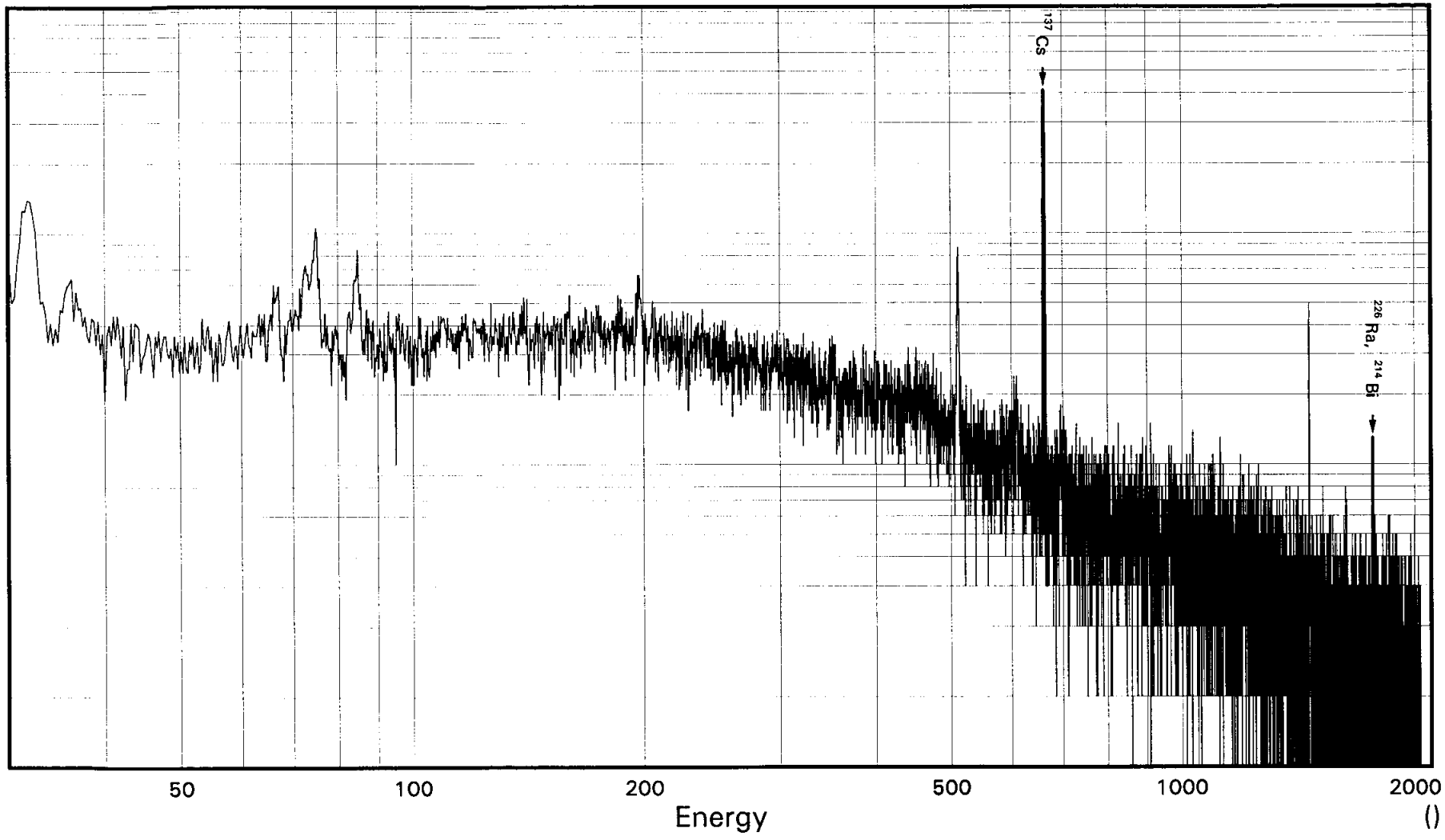
Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
SB-124	1.699E-02		1.160E-02	4.112E-02	1.501E-03	0.413
SB-125	-2.156E-02		1.901E-02	6.275E-02	2.417E-03	-0.344
SN-126DA	-2.838E-03		5.814E-03	1.973E-02	6.205E-04	-0.144
I-131	-2.086E-01		5.085E-01	1.724E+00	6.432E-02	-0.121
BA-133	-1.559E-02		8.491E-03	2.778E-02	1.039E-03	-0.561
CS-134	6.829E-03		7.426E-03	2.672E-02	8.678E-04	0.256
CS-137DA	5.782E-03		6.709E-03	2.367E-02	7.435E-04	0.244
LA-138	-1.291E-02		9.341E-03	3.069E-02	1.001E-03	-0.421
CE-139	-1.187E-03		6.410E-03	2.180E-02	9.793E-04	-0.054
BA-140	2.111E-01		3.351E-01	1.182E+00	4.824E-02	0.179
BALA-140	-5.210E-01		2.232E-01	7.001E-01	2.258E-02	-0.744
LA-140	-1.961E+01		9.671E+00	Half-Life too short		
CE-141	5.604E-03		2.311E-02	7.949E-02	3.245E-03	0.070
CE-144	-3.811E-02		3.866E-02	1.257E-01	4.722E-03	-0.303
CEPR-144	-7.702E-02		7.731E-02	2.512E-01	9.440E-03	-0.307
PM-144	-2.298E-03		6.659E-03	2.273E-02	8.021E-04	-0.101
PM-146	5.138E-03		8.383E-03	2.883E-02	1.143E-03	0.178
EU-152	6.447E-03		1.843E-02	6.366E-02	2.386E-03	0.101
EU-154	-1.823E-02		1.858E-02	6.293E-02	2.020E-03	-0.290
EU-155	-2.476E-02		1.548E-02	5.015E-02	1.664E-03	-0.494
HF-181	1.164E-02		1.474E-02	5.087E-02	2.075E-03	0.229
BI-207	1.354E-02		6.008E-03	2.168E-02	8.426E-04	0.624
TL-208	1.892E-03		1.031E-02	2.648E-02	1.005E-03	0.071
BI-210M	-2.125E-02		9.771E-03	3.102E-02	1.320E-03	-0.685
BI-212	2.972E-01		9.748E-02	3.557E-01	1.400E-02	0.836
PB-212	1.254E-03		1.126E-02	3.783E-02	1.668E-03	0.033
BI-214	-1.613E-02		2.464E-02	6.024E-02	2.168E-03	-0.268
PB-214	1.330E-02		2.129E-02	5.383E-02	2.015E-03	0.247
RA-223	4.352E-02		3.577E-02	1.220E-01	5.163E-03	0.357
RA-224DA	1.319E-03		1.184E-02	3.979E-02	1.754E-03	0.033
RA-226DA	-1.616E-02		2.464E-02	6.024E-02	2.168E-03	-0.268
AC-227DA	-7.327E-02		4.339E-02	1.407E-01	6.218E-03	-0.521
AC-228	-4.026E-02		3.900E-02	1.030E-01	3.351E-03	-0.391
RA-228DA	-4.095E-02		3.966E-02	1.047E-01	3.408E-03	-0.391
TH-228DA	5.540E-03		3.020E-02	7.754E-02	2.942E-03	0.071
TH-232DA	6.703E-02		4.276E-02	1.499E-01	5.620E-03	0.447
TH-234DA	7.350E-01		9.954E-01	3.550E+00	1.153E-01	0.207
U-234DA	7.274E-02		2.796E-02	9.611E-02	3.860E-03	0.757
U-235HP	-2.831E-02		3.587E-02	1.214E-01	4.900E-03	-0.233
NP-237DA	8.317E-04		1.378E-02	4.744E-02	1.823E-03	0.018
U-238DA	1.330E-02		2.129E-02	5.383E-02	2.015E-03	0.247
U-238DHP	-1.761E-01		7.905E-02	2.570E-01	8.014E-03	-0.685
AM-241HP	-6.218E-03		7.918E-03	2.671E-02	8.458E-04	-0.233

STL Richland WA.

BRC SOIL

Sample ID: J5A4K1AC
Detector ID: GER14 1

Batch ID: 7233484



Acquisition Start: 18-SEP-2007 06:09:54.15
Preset Live Time: 0 10:00:00.00
Elapsed Live Time: 0 10:00:00.00

Energy Coefficients:
Offset: -6.98386E-01
Slope: 2.48231E-01
Quadrature: 6.16911E-09

SAMPLE IDENTIFICATION: J5A4K1AC

CONFIGURATION ID: GER14:J5A4K1AC_180970609
TITLE : BRC SOIL
SAMPLE ID : J5A4K1AC

REPORT DATE: 18-SEP-07
ACQUIRE DATE: 18-SEP-07 06:09:54
ELAPSED LIVE TIME: 36000.0 Sec
PRESET LIVE TIME: 0 10:00:00

SAMPLE DATE: 18-SEP-2007 12:00:00.00
CALIB DATE: 18-SEP-2007 04:52:21.16
ELAPSED LIVE TIME: 0 10:00:00
ELAPSED REAL TIME: 0 10:00:06

SAMPLE QUANTITY: 2.0018E+02
SAMPLE GEOMETRY: 200ML

UNITS: GRAMS
SAMPLE TYPE:

ENERGY OFFSET: -.6984E+00 keV
ENERGY SLOPE: 2.4823E-01 keV/C
ENERGY Q COEFF: 6.1691E-09 keV/C^^2
PEAK SENSITIVITY: 5.000

FWHM OFFSET: 1.2127E+00 keV
FWHM SLOPE: 2.3446E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 1.0000E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 18-SEP-2007 16:10:42

```
Configuration     : $DISK1:[GER14.SAMPLE]J5A4K1AC_180970609.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6
Sample title      : BRC SOIL
Sample date       : 18-SEP-2007 12:00:00 Acquisition date : 18-SEP-2007 06:09:54
Sample ID         : J5A4K1AC             Sample quantity  : 200.18 GRAMS
Sample type       :                      Sample geometry  : 200ML
Elapsed live time: 0 10:00:00.00         Elapsed real time: 0 10:00:06.95   0.0%
Start energy      :    19.16             End energy       :  2033.22
Sensitivity       :     5.00             Gaussian         :    10.00
Critical level    : No
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	32.04	512	905	1.50	131.91	124	18	1.42E-02	14.8	
2	0	661.68	3040	259	1.75	2668.23	2654	33	8.44E-02	2.3	
3	0	1765.51*	16	31	1.00	7113.92	7094	36	4.36E-04	115.3	

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

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 16:10:43

Configuration : $DISK1:[GER14.SAMPLE]J5A4K1AC_180970609.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
Sample title : BRC SOIL
Sample date : 18-SEP-2007 12:00:00 Acquisition date : 18-SEP-2007 06:09:54
Sample ID : J5A4K1AC Sample quantity : 200.18 GRAMS
Sample type : Sample geometry : 200ML
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:06.95 0.0%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected PCI/GRAM	Decay Corr PCI/GRAM	1-Sigma %Error
CS-137DA	661.65	3040	85.10*	1.019E+00	1.315E+00	1.315E+00	6.39

Flag: "*" = Keyline

Sample ID : J5A4K1AC Acquisition date : 18-SEP-2007 06:09:54

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	32.04	512	905	1.50	131.91	124	18	1.42E-02	14.8	1.93E+00	
0	1765.51	16	31	1.00	7113.92	7094	36	4.36E-04	****	4.47E-01	T

Flags: "T" = Tentatively associated

Sample ID : J5A4K1AC Acquisition date : 18-SEP-2007 06:09:54

Nuclide	Half-life	Half-Life Ratio	Energy	%Abund	Activity (PCI/GRAM)	1-Sigma %Error	Rejected by
BI-214	4.47E+09Y	0.00	609.31*	46.30	--- Not Found ---		Abun.
			768.36	5.04	--- Not Found ---		
			1120.29	15.10	--- Not Found ---		
			1764.49	15.80	8.331E-02	115.40	
		% Abundances Found =		19.21			
RA-226DA	1600.00Y	0.00	186.21	3.50	--- Not Found ---		Abun.
			241.98	7.49	--- Not Found ---		
			295.22	19.20	--- Not Found ---		
			351.92	37.20	--- Not Found ---		
			609.32*	46.30	--- Not Found ---		
			1120.28	15.10	--- Not Found ---		
			1238.11	5.94	--- Not Found ---		
			1764.49	15.80	8.331E-02	115.40	
		% Abundances Found =		10.50			

Flag: "*" = Keyline

VMS Nuclide Identification Report V3.0 Generated 18-SEP-2007 16:10:45

Configuration : $DISK1:[GER14.SAMPLE]J5A4K1AC_180970609.CNF;1
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
Analyses by : MINACT V2.8
Sample title : BRC SOIL
Sample date : 18-SEP-2007 12:00:00 Acquisition date : 18-SEP-2007 06:09:54
Sample ID : J5A4K1AC Sample quantity : 200.18 GRAMS
Sample type : Sample geometry : 200ML
Elapsed live time: 0 10:00:00.00 Elapsed real time: 0 10:00:06.95 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (PCI/GRAM)	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
CS-137DA	1.315E+00	8.405E-02	2.658E-02	8.688E-04	49.473

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
BE-7	-6.745E-03		7.255E-02	2.429E-01	9.086E-03	-0.028
NA-22	-2.621E-03		7.647E-03	2.630E-02	8.613E-04	-0.100
NA-24	-4.799E-04		7.121E-03	2.529E-02	7.823E-04	-0.019
K-40	-4.784E-01		2.098E-01	7.012E-01	2.187E-02	-0.682
SC-46	-1.398E-02		1.151E-02	3.227E-02	1.151E-03	-0.433
CR-51	-1.494E-03		6.444E-02	2.181E-01	6.922E-03	-0.007
MN-54	-4.697E-03		7.260E-03	2.434E-02	8.380E-04	-0.193
CO-57	-1.118E-02		4.140E-02	1.387E-01	4.574E-03	-0.081
CO-58	-1.077E-02		6.983E-03	2.268E-02	7.783E-04	-0.475
FE-59	2.068E-03		1.498E-02	5.214E-02	1.859E-03	0.040
CO-60	-9.348E-03		7.966E-03	2.630E-02	8.095E-04	-0.355
ZN-65	-1.290E-03		1.650E-02	5.707E-02	2.036E-03	-0.023
SE-75	3.084E-03		9.692E-03	3.311E-02	1.126E-03	0.093
SR-85	-3.730E-02		1.106E-02	3.505E-02	1.314E-03	-1.064
Y-88	4.514E-03		7.304E-03	2.706E-02	8.238E-04	0.167
NB-94	1.031E-02		7.302E-03	2.645E-02	9.132E-04	0.390
NB-95	6.371E-03		7.010E-03	2.464E-02	8.373E-04	0.259
TC-95M	-1.697E-03		8.301E-03	2.756E-02	9.478E-04	-0.062
ZR-95	8.150E-03		1.236E-02	4.322E-02	1.465E-03	0.189
ZRNB-95	1.234E-02		1.401E-02	4.922E-02	1.673E-03	0.251
MO-99	9.156E-03		4.813E-03	1.648E-02	5.453E-04	0.555
RH-101	5.604E-02		8.620E-03	2.864E-02	9.831E-04	1.957
RH-102M	6.977E-03		8.110E-03	2.758E-02	1.031E-03	0.253
RU-103	-5.932E-03		8.063E-03	2.664E-02	9.986E-04	-0.223
RU-106DA	-1.313E-01		7.319E-02	2.389E-01	8.245E-03	-0.549
AG-108M	-3.133E-03		8.012E-03	2.674E-02	9.877E-04	-0.117
AG-110M	-1.015E-03		1.042E-02	3.623E-02	1.252E-03	-0.028

Sample ID : J5A4K1AC Acquisition date : 18-SEP-2007 06:09:54

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

Nuclide	Key-Line Activity (PCI/GRAM)	K.L. Ided	Act error	MDA (PCI/GRAM)	MDA error	Act/MDA
SN-113DA	9.669E-03		1.033E-02	3.535E-02	1.276E-03	0.273
SB-124	3.619E-03		8.228E-03	2.835E-02	9.993E-04	0.128
SB-125	1.130E-02		2.455E-02	8.322E-02	3.065E-03	0.136
SN-126DA	-1.330E-02		8.557E-03	2.304E-02	7.547E-04	-0.578
I-131	1.187E-02		8.037E-03	2.772E-02	9.555E-04	0.428
BA-133	-1.403E-02		1.069E-02	3.522E-02	1.196E-03	-0.398
CS-134	-7.666E-03		8.827E-03	2.939E-02	1.006E-03	-0.261
LA-138	3.538E-03		1.157E-02	4.164E-02	1.296E-03	0.085
CE-139	-2.361E-03		5.958E-03	1.983E-02	6.686E-04	-0.119
BA-140	8.190E-04		2.680E-02	9.231E-02	3.424E-03	0.009
BALA-140	-2.542E-02		1.684E-02	5.536E-02	1.730E-03	-0.459
LA-140	-1.353E-02		8.267E-03	2.697E-02	8.426E-04	-0.502
CE-141	-1.195E-03		8.971E-03	3.009E-02	9.992E-04	-0.040
CE-144	2.018E-02		3.931E-02	1.332E-01	4.383E-03	0.151
CEPR-144	3.991E-02		7.861E-02	2.663E-01	8.765E-03	0.150
PM-144	9.198E-03		7.376E-03	2.592E-02	8.984E-04	0.355
PM-146	3.665E-03		1.183E-02	3.989E-02	1.484E-03	0.092
EU-152	-2.383E-03		2.440E-02	8.238E-02	2.738E-03	-0.029
EU-154	-9.993E-03		2.142E-02	7.329E-02	2.401E-03	-0.136
EU-155	-4.381E-02		1.820E-02	5.889E-02	1.972E-03	-0.744
HF-181	-8.097E-03		8.823E-03	2.904E-02	1.087E-03	-0.279
BI-207	3.013E-03		7.195E-03	2.493E-02	9.052E-04	0.121
TL-208	1.811E-02		8.557E-03	3.044E-02	1.093E-03	0.595
BI-210M	-3.897E-03		1.154E-02	3.906E-02	1.327E-03	-0.100
BI-212	1.128E-01		1.052E-01	3.709E-01	1.506E-02	0.304
PB-212	1.113E-02		1.320E-02	4.536E-02	1.562E-03	0.245
BI-214	-1.031E-01		2.870E-02	6.248E-02	2.187E-03	-1.651
PB-214	7.194E-02		1.911E-02	6.645E-02	2.240E-03	1.083
RA-223	2.678E-02		4.251E-02	1.458E-01	4.940E-03	0.184
RA-224DA	1.113E-02		1.320E-02	4.536E-02	1.561E-03	0.245
RA-226DA	-1.033E-01		2.870E-02	6.245E-02	2.186E-03	-1.654
AC-227DA	5.036E-02		5.139E-02	1.769E-01	6.094E-03	0.285
AC-228	3.613E-02		2.775E-02	1.000E-01	3.467E-03	0.361
RA-228DA	3.613E-02		2.775E-02	1.000E-01	3.467E-03	0.361
TH-228DA	5.041E-02		2.382E-02	8.474E-02	3.043E-03	0.595
TH-232DA	2.352E-02		5.145E-02	1.753E-01	5.762E-03	0.134
TH-234DA	1.575E-01		1.177E+00	4.119E+00	1.456E-01	0.038
U-234DA	6.932E-02		3.281E-02	1.137E-01	3.752E-03	0.609
U-235HP	-9.515E-02		4.212E-02	1.358E-01	4.503E-03	-0.701
NP-237DA	-1.897E-02		1.740E-02	5.785E-02	1.862E-03	-0.328
U-238DA	7.194E-02		1.911E-02	6.645E-02	2.240E-03	1.083
U-238DHP	-2.363E-01		1.062E-01	3.378E-01	1.085E-02	-0.699
AM-241HP	2.986E-03		1.055E-02	3.521E-02	1.134E-03	0.085