December 14, 1999

Docket Nos. 030-05248
030-29741
Control Nos. 127060
127061

License Nos. 29-01022-06
29-01022-14

Joseph M. Santarsiero
Acting Director, Safety Risk Management
Department of the Army
U.S. Army Communications Electronics Command
AMSEL-SF-RER
Ft. Monmouth, NJ 07703-5024

Dear Mr. Santarsiero:

This refers to your license amendment request. Enclosed with this letter is the amended license. The facilities at Zones 3 & 4 may be released for unrestricted use except for the waste storage area described in your letters dated September 1 & 10, 1999.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Thank you for your cooperation.

Sincerely,

Original signed by Steven W. Shaffer

Steve W. Shaffer
Health Physicist
Decommissioning and Laboratory Branch
Division of Nuclear Materials Safety

Enclosure:
Amendment No. 49
Amendment No. 18
cc:
Joseph M. Santarsiero, Radiation Safety Officer
State of New Jersey

Information in this record was deleted
in accordance with the Freedom of Information
Act, exemptions 2
FOIA- 2006-0238

HH/17

ML10

[redacted]

DOCUMENT NAME: B:\DNMS Documents\Lic Cover Letter\L29-01022-06.127060.wpd 10133880

To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy

OFFICE	DNMS/RI	N	DNMS/RI					
NAME	SShaffer							
DATE	12/14/99		12/ /99		12/ /99		12/ /99	

OFFICIAL RECORD COPY

NRC FORM 374

U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 49

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

FEE EXEMPT

Licensee	In accordance with the letter dated July 14, 1999,
1. Department of the Army U.S. Army Communications - Electronics Command AMSEL-SF-RER 2. Fort Monmouth, New Jersey 07703-5024	3. License number 29-01022-06 is amended in its entirety to read as follows: 4. Expiration date February 28, 2005 5. Docket No. 030-05248 Reference No.

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with atomic numbers 1 through 83	A. Any	A. Not to exceed 1 curie per radionuclide and 10 curies total
B. Any byproduct material with atomic numbers 84 through 95	B. Any	B. Not to exceed 1 millicurie total
C. Hydrogen 3	C. Accelerator targets	C. 30 curies
D. Cobalt 60	D. Sealed sources	D. [redacted] Ex2
E. Strontium 90	E. Sealed sources	E. 5 curies
F. Cesium 137	F. Sealed sources	F. [redacted] Ex2
G. Uranium (Natural or Depleted)	G. Any	G. 5 kilograms
H. Thorium (Natural)	H. Any	H. 10 kilograms
I. Polonium 210	I. Any	I. 10 microcuries
J. Plutonium 238	J. Sealed sources	J. 10 microcuries
K. Americium 241	K. Any	K. 1 millicurie
L. Californium 252	L. Sealed source	L. [redacted]
M. Cesium 137	M. Sealed sources (J.L. Shepherd Model 6810)	M. [redacted] Ex2

License Number
29-01022-06

Docket or Reference Number
030-05248

Amendment No. 49

MATERIALS LICENSE
SUPPLEMENTARY SHEET

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
N. Cesium 137	N. Sealed source (J.L. Shepherd Model 6810)	N. [ ] Ex2
O. Cesium 137	O. Sealed source (J.L. Shepherd Model 6810)	O. 130 millicuries

9. Authorized use:

A. Research and development as defined in 10 CFR 30.4; for training and instrument calibrations; analysis of test samples as a service for persons as defined in 10 CFR 20.1003; calibration of instruments as a service for persons as defined in 10 CFR 20.1003 and the storage of contaminated materials.

B. through L. Research and development as defined in 10 CFR 30.4; for training and instrument calibrations; analysis of test samples as a service for persons as defined in 10 CFR 20.1003; calibration of instruments as a service for persons as defined in 10 CFR 20.1003.

M. For use in a J.L. Shepherd Model 81-14Q calibrator; calibration of instruments as a service for persons as defined in 10 CFR 20.1003.

N. and O. For use in a J.L. Shepherd Model 89-260 calibrator; calibration of instruments as a service for persons as defined in 10 CFR 20.1003.

★ CONDITIONS ★

10. Licensed material may be used only at the licensee's facilities located at the U.S. Army Communications - Electronics Command, Fort Monmouth, New Jersey.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated in writing by the Radiation Safety Committee, Joseph M. Santarsiero, Chairman.

B. The Radiation Safety Officer for this license is Joseph M. Santarsiero.

12. Licensed material shall not be used in or on human beings.

13. The licensee shall not use licensed material in field applications where activity is released except as provided otherwise by specific condition of this license.

14. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
29-01022-06

Docket or Reference Number
030-05248

Amendment No. 49

15. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.

16. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

    B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

    C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

    D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

    E. Sealed sources and detector cells need not be leak tested if:

    (i) they contain only hydrogen-3, or

    (ii) they contain only a radioactive gas, or

    (iii) the half-life of the isotope is 30 days or less; or

    (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

    (v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
29-01022-06

Docket or Reference Number
030-05248

Amendment No. 49

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the appropriate U.S. Nuclear Regulatory Commission, Regional Office referenced in Appendix D of 10 CFR Part 20. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

17. The licensee shall conduct a physical inventory every six months to account for all sealed sources and devices containing licensed material received and possessed under the license.

18. This license does not authorize commercial distribution of licensed material.

19. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
29-01022-06

Docket or Reference Number
030-05248

Amendment No. 49

20. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Letter dated February 15, 1995
B. Letter dated March 15, 1995
C. Letter dated May 19, 1995
D. Letter dated August 15, 1995
E. Letter dated March 10, 1997
F. Letter dated April 11, 1997
G. Letter dated May 12, 1997
H. Letter dated July 30, 1997
I. Letter dated August 27, 1997, with attachment
J. Letter dated December 2, 1997
K. Letter dated July 30, 1998
L. Letter dated May 13, 1998, with attached survey report
M. Letter dated November 18, 1998
N. Facsimile dated February 26, 1999
O. Letters dated September 10, 1999
P. Letter dated September 23, 1999
Q. Letter dated July 14, 1999, with attached survey report
R. Letter dated September 1, 1999
S. letter dated September 10, 1999

For the U.S. Nuclear Regulatory Commission

Date December 14, 1999

By *Original signed by Steven W. Shaffer*

Steven W. Shaffer
Decommissioning and Laboratory Branch
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY COMMUNICATIONS-ELECTRONICS COMMAND
AND FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY 07703-5000

REPLY TO
ATTENTION OF

December 10, 1999

Directorate for Safety

U.S. Nuclear Regulatory Commission
Region I
DNMS
Attention: Mr. Steven W. Shaffer
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Shaffer:

This refers to U.S. Nuclear Regulatory Commission (NRC) License Number 29-01022-06, Docket Number 030-05248; NRC License Number 29-01022-14, Docket Number 030-29741; and to the Radiological Characterization Plan for the U.S. Army Evans Area, Fort Monmouth, Wall Township, New Jersey, dated September 1996.

As discussed in our telephone conversation on 9 December 1999, we are providing retake soil data for soil samples located near buildings 9041 and 9037. Your concerns addressed elevated soil sample readings provided and retake soil data omitted from our Report, Radiological Status Survey of Buildings, Sewer System and Soil in Survey Zones Three and Four at Evans Area, Fort Monmouth, New Jersey, conducted August 1996 to June 1999, Volumes 1 through 5.

Provided at enclosure 1 is the documentation omitted from our original data package, which includes five retake data samples each, for four sample locations identified as 9037 soil grid S22, 9041 soil grid S06, 9041 soil grid S08, and 9041 soil grid S09. Enclosure 2 contains the original data provided at Tabs Soil 9037 and Soil 9041.

We are requesting that permission be granted for the unrestricted radiological release for public use of the buildings and land addressed by this survey report. We are also requesting that you amend the aforementioned NRC Licenses to reflect this release for unrestricted use.

Our points of contact are Mr. Richard Lovell or the undersigned, Voice on (732) 427-4427/3112, ext. 6441/6427; or Facsimile (732) 532-6403 or (732) 542-7161.

Sincerely,

Joseph M. Santarsiero

JOSEPH M. SANTARSIERO
Acting Director
Directorate for Safety

Enclosures

127060/127061

OFFICIAL RECORD COPY Printed on Recycled Paper

ML 10

FAX REC'D DEC 13 1999

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm	GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
				Alpha						Beta				Gamma (Sum)	
Minimum				1.937			0.674			2.890			0.143		8.678E+00
Maximum				5.370			0.855			4.241			0.156		1.027E+01
Average				3.745			0.779			3.616			0.151		9.540E+00

ZONE 3 SUBZONE NA BUILDING 9037 ROOM NA

11-Dec-99

RADIOLOGICAL SURVEY DATA REPORT (RETAKES)

LOCATION

SOIL

ZONE: 3 SUBZONE: NA BUILDING: 9037 ROOM: NA

All field data in this report are background corrected; all lab data are corrected values using an empty container or planchet for background.

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S22E		3.159	0.855	2.890	0.156	Sum	9.070E+00
						CS-137	7.029E-01
						K-40	6.682E+00
						RA-226	7.941E-01
						TH-232	8.915E-01
S22N		1.937	0.749	3.800	0.151	Sum	1.022E+01
						CS-137	6.122E-01
						K-40	6.898E+00
						RA-226	7.030E-01
						TH-232	9.625E-01
						U-238	1.049E+00
S22R		3.734	0.674	4.241	0.143	Sum	1.027E+01
						CS-137	6.700E-01
						K-40	6.993E+00
						RA-226	8.028E-01
						TH-232	8.589E-01
						U-238	9.433E-01
S22S		5.370	0.855	4.161	0.156	Sum	9.458E+00
						CS-137	7.814E-01
						K-40	6.484E+00
						RA-226	8.000E-01
						TH-232	9.042E-01

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
						U-238	4.881E-01
S22W		4.527	0.766	2.988	0.147	Sum	8.678E+00
						CS-137	3.791E-01
						K-40	6.471E+00
						RA-226	8.821E-01
						TH-232	9.458E-01

ZONE 3 SUBZONE NA BUILDING 9037 ROOM NA

12-13-99; 8:51 ;US ARMY CECOM, DSEN ;732 542 716; # 4/ 8

Building 9037 Soil (Retakes)

Grid Number	Gross Alpha pCi/gm	Net Alpha pCi/gm	Gross Beta pCi/gm	Net Beta pCi/gm	Gross Gamma pCi/gm	Net Gamma pCi/gm	Alpha	Beta	Gamma
S22E	3.159	0.558	2.890	-2.351	9.070	0.904	2.601	5.241	8.166
S22N	1.937	-0.664	3.800	-1.441	10.225	2.059			
S22R	3.734	1.133	4.241	-1.000	10.268	2.102			
S22S	5.370	2.769	4.161	-1.080	9.458	1.292			
S22W	4.527	1.926	2.988	-2.253	8.678	0.512			

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	MDA (pCi/gm)	BETA pCi/gm	MDA (pCi/gm)	GAMMA Nuclide	pCi/gm	GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	MDA (pCi/gm)	BETA pCi/gm	MDA (pCi/gm)	GAMMA Nuclide	pCi/gm
				Alpha				Beta				Gamma (Sum)			
Minimum				1.257		0.645		2.543		0.145		8.314E+00			
Maximum				5.963		1.074		6.770		0.165		1.608E+01			
Average				3.854		0.881		4.686		0.155		1.135E+01			

ZONE 4 SUBZONE NA BUILDING 9041 ROOM NA

11-Dec-99

RADIOLOGICAL SURVEY DATA REPORT

(RETAKES)

LOCATION	SOIL				
	ZONE: 4	SUBZONE: NA	BUILDING: 9041	ROOM: NA	

All field data in this report are background corrected; all lab data are corrected values using an empty container or planchet for background.

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S06E		4.144	0.801	5.172	0.154	Sum	1.226E+01
						CS-137	8.345E-01
						K-40	7.002E+00
						RA-226	9.083E-01
						TH-232	9.933E-01
						U-238	2.520E+00
S06N		5.963	0.896	6.770	0.157	Sum	8.746E+00
						CS-137	1.042E+00
						K-40	5.737E+00
						RA-226	9.805E-01
						TH-232	9.869E-01
S06R		4.139	0.933	6.226	0.156	Sum	9.107E+00
						CS-137	7.543E-01
						K-40	6.450E+00
						RA-226	8.333E-01
						TH-232	1.069E+00
S06S		3.098	0.645	6.228	0.145	Sum	8.488E+00
						CS-137	7.666E-01
						K-40	5.763E+00
						RA-226	9.412E-01
						TH-232	1.017E+00
S06W		3.338	0.821	5.385	0.150	Sum	1.062E+01
						CS-137	9.188E-01
						K-40	6.788E+00
						RA-226	8.433E-01
						TH-232	1.022E+00
						U-238	1.044E+00
S08E		4.739	0.855	2.543	0.156	Sum	8.314E+00
						K-40	6.416E+00
						RA-226	8.058E-01
						TH-232	1.092E+00
S08N		4.808	0.813	3.848	0.149	Sum	8.775E+00
						CS-137	6.024E-02
						K-40	6.987E+00
						RA-226	7.985E-01
						TH-232	9.294E-01
S08R		1.257	0.850	4.370	0.156	Sum	8.475E+00
						K-40	6.769E+00
						RA-226	8.207E-01
						TH-232	8.852E-01

ZONE 4 SUBZONE NA BUILDING 9041 ROOM NA

12-13-99; 8:51 ;US ARMY CECOM, DSFM ;732 542 716; # 6/ 8

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S08S		1.830	0.825	2.790	0.151	Sum	1.024E+01
						CS-137	6.628E-02
						K-40	6.583E+00
						RA-226	7.891E-01
						TH-232	1.034E+00
						U-238	1.764E+00
S08W		1.767	0.797	3.054	0.153	Sum	9.548E+00
						CS-137	6.581E-02
						K-40	6.323E+00
						RA-226	7.459E-01
						TH-232	8.181E-01
						U-238	1.595E+00
S09E		4.288	0.967	4.240	0.162	Sum	1.435E+01
						CS-137	3.592E+00
						K-40	9.345E+00
						RA-226	6.755E-01
						TH-232	7.353E-01
S09N		5.159	1.074	5.491	0.165	Sum	1.608E+01
						CS-137	3.508E+00
						K-40	9.887E+00
						RA-226	6.820E-01
						TH-232	8.800E-01
						U-238	1.120E+00
S09R		5.366	1.037	5.302	0.159	Sum	1.400E+01
						CS-137	3.342E+00
						K-40	9.270E+00
						RA-226	6.558E-01
						TH-232	7.388E-01
S09S		5.654	1.020	4.527	0.163	Sum	1.594E+01

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
						CS-137	3.955E+00
						K-40	9.301E+00
						RA-226	6.472E-01
						TH-232	9.006E-01
						U-238	1.132E+00
S09W		2.262	0.874	4.346	0.153	Sum	1.526E+01
						CS-137	3.617E+00
						K-40	9.261E+00
						RA-226	6.659E-01
						TH-232	8.780E-01
						U-238	8.339E-01

ZONE 4 SUBZONE NA BUILDING 9041 ROOM NA

12-13-99 8:51 ;US ARMY CECOM, USFM ;732 542 7161 # 17/ 9

Soil 9041 (Retakes)

Grid Number	Gross Alpha pCi/gm	Net Alpha pCi/gm	Gross Beta pCi/gm	Net Beta pCi/gm	Gross Gamma pCi/gm	Net Gamma pCi/gm
S06E	4.144	1.543	5.172	-0.069	12.258	4.092
S06N	5.963	3.362	6.770	1.529	8.746	0.580
S06R	4.139	1.538	6.226	0.985	9.107	0.941
S06S	3.098	0.497	6.228	0.987	8.488	0.322
S06W	3.338	0.737	5.385	0.144	10.616	2.450
S08E	4.739	2.138	2.543	-2.698	8.314	0.148
S08N	4.808	2.207	3.848	-1.393	8.775	0.609
S08R	1.257	-1.344	4.370	-0.871	8.475	0.309
S08S	1.830	-0.771	2.790	-2.451	10.236	2.070
S08W	1.767	-0.834	3.054	-2.187	9.548	1.382
S09E	4.288	1.687	4.240	-1.001	14.348	6.182
S09N	5.159	2.658	5.491	0.250	16.077	7.911
S09R	5.366	2.765	5.302	0.061	14.005	5.839
S09S	5.654	3.053	4.527	-0.714	15.936	7.770
S09W	2.262	-0.339	4.346	-0.895	15.256	7.090

Alpha	Beta	Gamma
2.601	5.241	8.166

DEPARTMENT OF THE ARMY
HEADQUARTERS, US ARMY COMMUNICATIONS-ELECTRONICS COMMAND
AND FORT MONMOUTH
FORT MONMOUTH, NEW JERSEY 07703-5000

MS16
J5

REPLY TO
ATTENTION OF

December 7, 1999

Directorate for Safety

U.S. Nuclear Regulatory Commission
Region I
DNMS
Attention: Mr. Steven W. Shaffer
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Shaffer:

This refers to U.S. Nuclear Regulatory Commission (NRC) License Number 29-01022-06, Docket Number 030-05248; NRC License Number 29-01022-14, Docket Number 030-29741; and to the Radiological Characterization Plan for the U.S. Army Evans Area, Fort Monmouth, Wall Township, New Jersey, dated September 1996.

We have enclosed our response to your question posed during our conversation of 8 November 1999. Your question addressed concerns with the Report, Radiological Status Survey of Buildings, Sewer System and Soil in Survey Zones Three and Four at Evans Area, Fort Monmouth, New Jersey, conducted August 1996 to June 1999, Volumes 1 through 5.

Provided at the enclosure is the supporting documentation we discussed, which includes the original soil data for the eleven soil sample locations and the follow-up analysis data indicating no contamination.

As before, we are requesting that permission be granted for the unrestricted radiological release for public use of the buildings and land addressed by this survey report. We are also requesting that you amend the aforementioned NRC Licenses to reflect this release for unrestricted use.

Our points of contact are Mr. Richard Lovell or the undersigned, Voice on (732) 427-4427/3112, ext. 6441/6427; or Facsimile (732) 532-6403 or (732) 542-7161.

Sincerely,

Fernando Mancini
for JOSEPH M. SANTARSIERO
Acting Director
Directorate for Safety

Enclosure

OFFICIAL RECORD COPY ML 10

Printed on Recycled Paper

127060
DEC - 8 1999

RESPONSE TO NRC QUESTIONS
EVANS AREA ZONE 3 & 4 RADIOLOGICAL SURVEY REPORT
7 DECEMBER 1999

1. In our characterization report for Evans Area Zones 3 and 4, dated June 1999, we identified 11 soil samples in Evans Area Zones 3 and 4 with 'elevated' readings, followed by additional sampling data of those 11 elevated soil samples. Four of the eleven soil samples were adjacent to Building 9010 and seven of the eleven were adjacent to Building 9036. The four samples near Building 9010 that exhibited elevated readings are identified as sample numbers S17, S20, S21, and S23. The seven samples next to Building 9036 that exhibited elevated readings are sample numbers S01, S05, S06, S14, S15, S20, and S24. All soil sample analysis data is contained at Tab 1. All elevated samples are shown as dark circles on the sample maps.

2. In order to verify the elevated readings at the 11 sample sites, additional soil samples were taken at each of the elevated locations. At each elevated sample location, an additional sample was taken at the same location, as well as one additional sample, one meter to the North, South, East, and West, for a total of five follow-up samples. This procedure was followed for all elevated samples with the exception of sample number S06 which was located adjacent to Building 9036 and between three large concrete slabs. In this case, only two retake soil samples were collected due to the presence of fixed masonry structures in the one-meter vicinity of the original sample. All "retake" data are shown at Tab 2. No activity above background was noted in the follow-up investigative surveys.

Net alpha, beta, and gamma readings (also enclosed at Tab 2) were calculated by subtraction of the Charles Wood Area background data from the gross readings. No significant differences were observed between these readings and the Charles Wood background data. The elevated activity was determined to be a variation in background due to these sample locations being rainwater run-off areas located near downspouts around buildings.

3. All supporting data for the "retake" of Building 9010 elevated soil sample locations is enclosed at Tab 3, followed by the supporting data for Building 9036 elevated soil sample locations, enclosed at Tab 4.

127060

Table of Contents

1 Original Building 9010 and 9036 Soil Sample Data

2 Analysis Data for the 11 Elevated Soil Sample Locations "Retake"

3 Supporting Field Data Building 9010 Soil Samples "Retake"

4 Supporting Field Data Building 9036 Soil Samples "Retake"

5

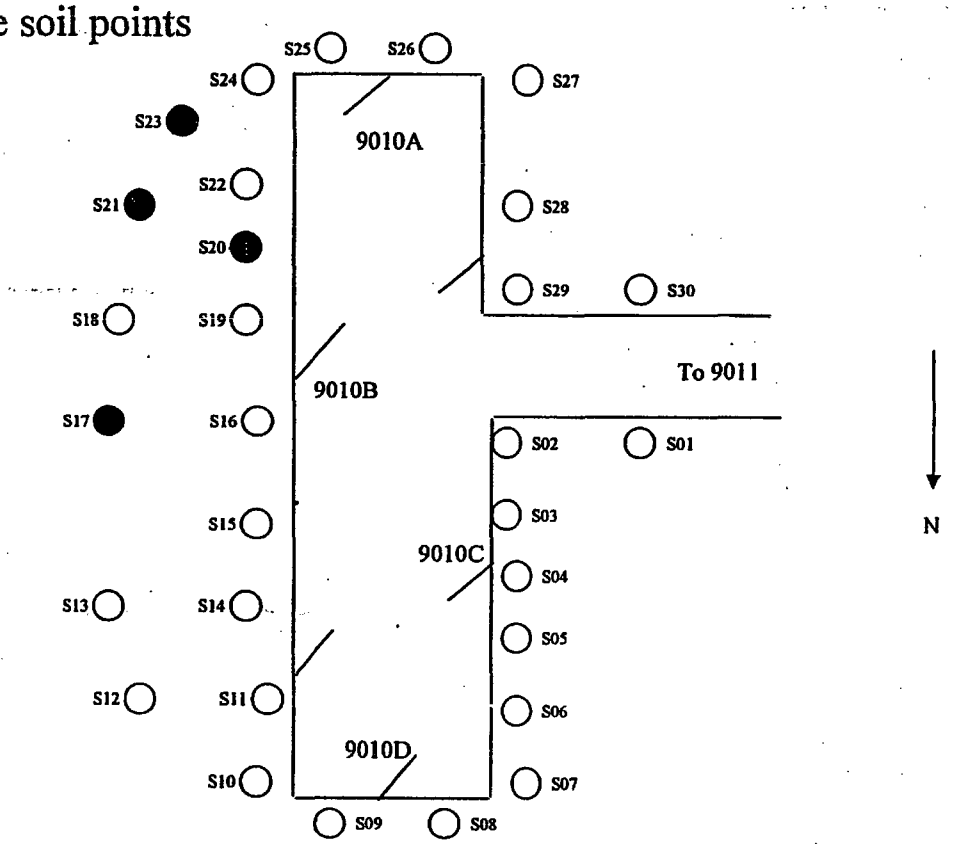
Modern Technologies

Evans Area Soil Sample Data for Buildings 9010 and 9036

7 December 1999

AVERY READY INDEX® INDEXING SYSTEM

BLDG. 9010
outside soil points



14-Oct-98

FIELD TECHNICAL SUPPORT DATA

LOCATION	SOIL		
	ZONE: 3	SUBZONE: NA	BUILDING: 9010

FIELD SURVEY

GRIDS		LEAD TECH	SURVEY DATE	INST #	PROBE #	ALPHA BKG	ALPHA MDA (dpm/100cm²)	ALPHA EFF. %	BETA BKG	BETA MDA (dpm/100cm²)	BETA EFF. %	GAMMA BKG (µR/hr)	GAMMA PROBE AREA
S01	- S30	ELLIOTT	12-Aug-97	00892	723412							9.00	N/A

ZONE 3 SUB ZON NA BUILDING 9010

14-Oct-98

FIELD TECHNICAL SUPPORT DATA (2)

LOCATION	SOIL		
	ZONE: 3	SUBZONE: NA	BUILDING: 9010

FIELD SURVEY

GRIDS	SURVEY NUMBER	SAMPLE NUMBER	
S01 - S30	1640	.01 - .38	

ZONE 3 SUBZONE NA BUILDING 9010

14-Oct-98

RADIOLOGICAL SURVEY DATA REPORT

LOCATION	SOIL		
	ZONE: 3	SUBZONE: NA	BUILDING: 9010

All field data in this report are background corrected; all lab data are corrected values using an empty container or planchet for background.

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S01	-1	2.240	0.720	4.158	0.602	Sum	3.259E+00
						CS-137	1.419E-01
						K-40	2.320E+00
						RA-226	3.748E-01
						TH-232	2.804E-01
						U-235	1.421E-01
S02	4	2.640	1.080	7.105	0.721	Sum	7.985E+00
						CS-137	4.284E-01
						K-40	5.566E+00
						RA-226	9.974E-01
						TH-232	6.036E-01
						U-235	1.891E-01
S03	0	1.243	0.699	4.304	0.597	Sum	5.312E+00
						CS-137	3.467E-01
						K-40	3.623E+00
						RA-226	5.962E-01
						TH-232	6.694E-01
						U-235	7.663E-02
S04	0	1.884	0.547	3.315	0.541	Sum	4.968E+00
						CS-137	9.151E-01
						K-40	2.844E+00
						RA-226	6.012E-01
						TH-232	5.168E-01
						U-235	9.072E-02
S05	3	1.879	0.676	5.543	0.590	Sum	6.420E+00
						CS-137	3.722E-01
						K-40	4.370E+00
						RA-226	8.434E-01
						TH-232	7.007E-01
						U-235	1.340E-01
S06	-1	1.407	0.452	2.571	0.495	Sum	4.011E+00
						CS-137	7.180E-02
						K-40	2.885E+00
						RA-226	6.185E-01
						TH-232	3.930E-01
						U-235	4.228E-02
S07	4	2.274	0.660	8.446	0.588	Sum	9.205E+00
						CS-137	2.245E+00
						K-40	5.241E+00
						RA-226	8.157E-01
						TH-232	7.747E-01
						U-235	1.288E-01

ZONE 3 SUBZONE NA BUILDING 9010

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S08	1	2.429	0.546	4.384	0.538	Sum	6.158E+00
						K-40	3.762E+00
						RA-226	7.039E-01
						TH-232	5.810E-01
						U-235	1.115E-01
S09	1	1.990	0.527	2.001	0.528	Sum	6.062E+00
						CS-137	7.243E-01
						K-40	4.018E+00
						RA-226	5.200E-01
						TH-232	7.132E-01
						U-235	6.625E-02
S10	3	2.736	0.572	4.410	0.552	Sum	8.060E+00
						CS-137	9.516E-01
						K-40	5.164E+00
						RA-226	7.244E-01
						TH-232	8.443E-01
						U-235	3.757E-01
S11	4	1.420	0.511	6.253	0.526	Sum	7.470E+00
						CS-137	1.993E+00
						K-40	3.675E+00
						RA-226	8.743E-01
						TH-232	7.668E-01
						U-235	1.608E-01
S12	1	1.197	0.567	2.665	0.548	Sum	7.761E+00
						CS-137	5.820E-01
						K-40	5.696E+00
						RA-226	8.921E-01
						TH-232	4.392E-01
						U-235	1.513E-01
S13	1	1.244	0.509	3.308	0.527	Sum	7.121E+00
						CS-137	4.359E-01
						K-40	5.037E+00
						RA-226	7.389E-01
						TH-232	7.925E-01
						U-235	1.168E-01
S14	1	2.455	0.480	2.406	0.510	Sum	6.953E+00
						CS-137	8.629E-01
						K-40	4.457E+00
						RA-226	8.258E-01
						TH-232	8.071E-01
S15	1	1.503	0.614	4.278	0.569	Sum	5.415E+00
						CS-137	5.583E-01
						K-40	3.868E+00
						RA-226	4.948E-01
						TH-232	3.594E-01
						U-235	1.344E-01
S16	3	2.181	0.577	5.649	0.555	Sum	6.701E+00
						CS-137	1.252E-01
						K-40	4.932E+00
						RA-226	6.314E-01
						TH-232	8.952E-01
						U-235	1.169E-01
S17	1	2.038	1.669	15.226	1.640	Sum	7.459E+00
						CS-137	9.668E-01
						K-40	4.942E+00
						RA-226	7.679E-01
						TH-232	7.306E-01
						U-235	5.162E-02

ZONE 3 SUBZONE NA BUILDING 9010

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S18	0	2.278	0.512	2.659	0.528	Sum	3.540E+00
						CS-137	6.464E-01
						K-40	1.789E+00
						RA-226	5.615E-01
						TH-232	4.591E-01
						U-235	8.355E-02
S19	1	3.836	0.750	9.851	0.616	Sum	6.552E+00
						CS-137	1.060E+00
						K-40	4.269E+00
						RA-226	4.825E-01
						TH-232	6.157E-01
						U-235	1.251E-01
S20	1	2.955	0.782	7.260	0.627	Sum	4.372E+00
						CS-137	1.704E+00
						K-40	1.692E+00
						RA-226	3.752E-01
						TH-232	6.010E-01
S21	-1	4.935	1.869	21.410	1.640	Sum	6.151E+00
						CS-137	9.116E-01
						K-40	3.846E+00
						RA-226	5.931E-01
						TH-232	4.987E-01
						U-235	3.013E-01
S22	1	1.623	0.584	2.707	0.555	Sum	7.140E+00
						CS-137	6.289E-01
						K-40	4.727E+00
						RA-226	8.127E-01
						TH-232	8.509E-01
						U-235	1.201E-01
S23	3	5.895	1.605	16.316	1.538	Sum	6.675E+00
						CS-137	3.091E-01
						K-40	4.491E+00
						RA-226	8.705E-01
						TH-232	6.831E-01
						U-235	1.209E-01
S24	1	0.850	0.588	8.807	0.558	Sum	6.390E+00
						CS-137	1.221E-01
						K-40	4.418E+00
						RA-226	7.015E-01
						TH-232	6.712E-01
						U-235	2.770E-01
S25	2	1.683	0.688	2.630	0.596	Sum	6.253E+00
						CS-137	2.594E-01
						K-40	4.196E+00
						RA-226	7.460E-01
						TH-232	6.303E-01
						U-235	4.215E-01
S26	0	2.766	0.737	6.243	0.614	Sum	6.799E+00
						CS-137	4.760E-01
						K-40	5.068E+00
						RA-226	6.961E-01
						TH-232	5.590E-01
S27	1	0.895	0.619	2.775	0.569	Sum	7.341E+00
						CS-137	5.212E-01
						K-40	5.098E+00
						RA-226	8.292E-01
						TH-232	7.862E-01
						U-235	1.063E-01

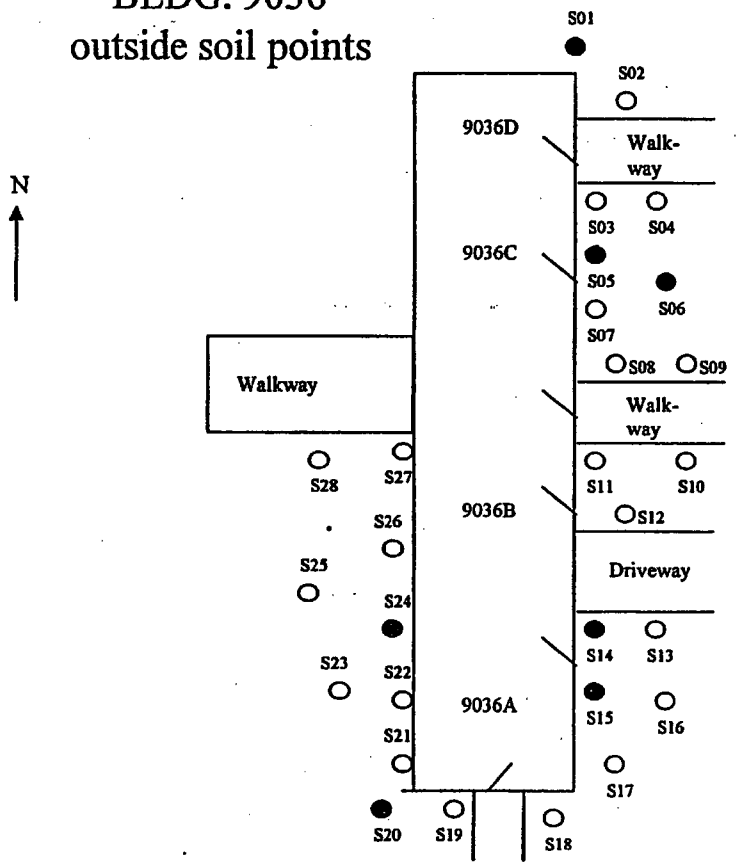
ZONE 3 SUBZONE NA BUILDING 9010

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S28	-1	1.966	0.804	9.145	0.629	Sum	5.056E+00
						CS-137	1.678E+00
						K-40	2.199E+00
						RA-226	4.953E-01
						TH-232	5.068E-01
						U-235	1.774E-01
S29	3	1.606	0.578	2.790	0.554	Sum	7.656E+00
						CS-137	4.149E-01
						K-40	6.533E+00
						RA-226	8.809E-01
						TH-232	7.771E-01
						U-235	4.997E-02
S30	1	0.625	0.433	1.701	0.489	Sum	7.630E+00
						CS-137	5.192E-01
						K-40	5.292E+00
						RA-226	9.485E-01
						TH-232	7.707E-01

	Alpha		Beta		Gamma (Sum)
Minimum	-1	0.625	0.433	1.701	0.489	3.259E+00
Maximum	4	5.895	1.869	21.410	1.640	9.205E+00
Average	1	2.156	0.739	6.010	0.671	6.362E+00

ZONE 3 SUBZONE NA BUILDING 9010

BLDG. 9036
outside soil points



14-Oct-98

FIELD TECHNICAL SUPPORT DATA

LOCATION	SOIL		
	ZONE: 3	SUBZONE: NA	BUILDING: 9036

FIELD SURVEY

GRIDS	LEAD TECH	SURVEY DATE	INST #	PROBE #	ALPHA BKG	ALPHA MDA (dpm/100cm²)	ALPHA EFF. %	BETA BKG	BETA MDA (dpm/100cm²)	BETA EFF. %	GAMMA BKG (µR/hr)	PROBE AREA
S01 - S28	ELLIOTT	13-Aug-97	00914	723415							9.00	N/A

ZONE 3 SUB ZON NA BUILDING 9036

14-Oct-98

FIELD TECHNICAL SUPPORT DATA (2)

LOCATION

SOIL		
ZONE: 3	SUBZONE: NA	BUILDING: 9036

FIELD SURVEY

GRIDS	SURVEY NUMBER	SAMPLE NUMBER	
S01 - S28	1644	.01 - .38	

ZONE 3 SUBZONE NA BUILDING 9036

14-Oct-98

RADIOLOGICAL SURVEY DATA REPORT

LOCATION	SOIL			
	ZONE: 3	SUBZONE: NA	BUILDING: 9036	

All field data in this report are background corrected; all lab data are corrected values using an empty container or planchet for background.

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S01	2	3.647	1.669	21.844	1.640	Sum	6.851E+00
						CS-137	9.426E-01
						K-40	4.050E+00
						RA-226	9.648E-01
						TH-232	7.731E-01
						U-235	1.304E-01
S02	-2	0.067	0.601	6.254	0.563	Sum	5.678E+00
						CS-137	5.121E-01
						K-40	3.474E+00
						RA-226	8.446E-01
						TH-232	1.047E+00
S03	-3	3.798	0.854	8.458	0.655	Sum	9.271E+00
						CS-137	1.278E+00
						K-40	6.216E+00
						RA-226	7.879E-01
						TH-232	9.209E-01
						U-235	6.824E-02
S04	-1	2.110	0.678	8.377	0.589	Sum	9.400E+00
						CS-137	2.839E+00
						K-40	4.130E+00
						RA-226	8.807E-01
						TH-232	9.993E-01
						U-235	5.513E-01
S05	0	2.783	1.732	10.122	1.588	Sum	1.057E+01
						CS-137	3.258E+00
						K-40	5.077E+00
						RA-226	1.006E+00
						TH-232	9.839E-01
						U-235	2.486E-01
S06	2	5.467	1.732	21.786	1.588	Sum	8.478E+00
						CS-137	2.413E+00
						K-40	4.671E+00
						RA-226	5.838E-01
						TH-232	6.810E-01
						U-235	1.294E-01
S07	-1	2.756	0.885	7.591	0.665	Sum	7.184E+00
						CS-137	2.130E+00
						K-40	3.080E+00
						RA-226	9.957E-01
						TH-232	8.383E-01
						U-235	1.403E-01

ZONE 3 SUBZONE NA BUILDING 9036

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S08	0	3.913	1.035	4.556	0.708	Sum	1.134E+01
						CS-137	2.102E-01
						K-40	8.706E+00
						RA-226	1.229E+00
						TH-232	1.073E+00
						U-235	1.259E-01
S09	1	4.488	1.442	6.504	0.814	Sum	1.160E+01
						CS-137	1.433E-01
						K-40	8.656E+00
						RA-226	1.414E+00
						TH-232	1.245E+00
						U-235	1.306E-01
S10	1	1.235	0.855	6.785	0.657	Sum	1.218E+01
						CS-137	2.048E+00
						K-40	8.677E+00
						RA-226	1.330E+00
						U-235	1.296E-01
S11	0	2.570	0.680	5.573	0.593	Sum	5.665E+00
						CS-137	8.384E-01
						K-40	3.488E+00
						RA-226	6.315E-01
						TH-232	6.501E-01
						U-235	5.727E-02
S12	-1	2.081	0.851	5.328	0.654	Sum	8.852E+00
						CS-137	2.843E-01
						K-40	5.456E+00
						RA-226	1.520E+00
						TH-232	1.416E+00
						U-235	1.636E-01
S13	-2	2.110	0.759	3.032	0.622	Sum	7.159E+00
						K-40	4.903E+00
						RA-226	1.028E+00
						TH-232	9.917E-01
						U-235	2.362E-01
S14	1	3.637	2.534	21.253	1.864	Sum	1.550E+01
						CS-137	4.117E+00
						K-40	4.196E+00
						RA-226	6.986E+00
						U-235	2.011E-01
S15	1	5.578	1.869	18.480	1.640	Sum	4.104E+00
						CS-137	1.684E+00
						RA-226	1.105E+00
						TH-232	1.227E+00
						U-235	8.776E-02
S16	2	2.416	0.776	6.811	0.631	Sum	7.400E+00
						CS-137	1.731E+00
						K-40	3.860E+00
						RA-226	8.246E-01
						TH-232	8.376E-01
						U-235	1.463E-01
S17	1	2.733	0.878	8.057	0.661	Sum	7.020E+00
						CS-137	6.566E-01
						K-40	4.684E+00
						RA-226	8.099E-01
						TH-232	7.560E-01
						U-235	1.131E-01

ZONE 3 SUBZONE NA BUILDING 9036

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S18	0	2.576	1.220	5.589	0.759	Sum	2.305E+00
						CS-137	3.950E-01
						RA-226	8.378E-01
						TH-232	8.401E-01
						U-235	2.321E-01
S19	-1	2.984	0.959	4.544	0.690	Sum	7.460E+00
						CS-137	2.471E-01
						K-40	6.020E+00
						RA-226	1.051E+00
						U-235	1.422E-01
S20	2	3.969	1.869	12.730	1.640	Sum	1.048E+01
						CS-137	1.167E+00
						K-40	7.286E+00
						RA-226	1.088E+00
						TH-232	7.999E-01
						U-235	1.349E-01
S21	2	1.932	1.086	7.977	0.718	Sum	8.924E+00
						CS-137	6.408E-01
						K-40	6.107E+00
						RA-226	8.608E-01
						TH-232	1.013E+00
						U-235	2.824E-01
S22	1	2.329	1.612	7.833	0.848	Sum	1.077E+01
						CS-137	9.024E-01
						K-40	7.363E+00
						RA-226	1.238E+00
						TH-232	1.109E+00
						U-235	1.602E-01
S23	-1	2.227	1.252	4.551	0.763	Sum	1.091E+01
						CS-137	3.663E-01
						K-40	6.828E+00
						RA-226	6.389E-01
						TH-232	7.067E-01
						U-235	1.695E-01
S24	1	7.250	2.180	15.700	1.750	Sum	6.958E+00
						CS-137	1.846E+00
						K-40	3.719E+00
						RA-226	6.120E-01
						TH-232	6.874E-01
						U-235	9.392E-02
S25	0	2.452	0.712	2.770	0.607	Sum	7.807E+00
						CS-137	1.237E-01
						K-40	5.882E+00
						RA-226	9.164E-01
						TH-232	7.713E-01
						U-235	1.132E-01
S26	0	0.735	0.509	2.480	0.525	Sum	1.014E+01
						CS-137	4.953E-01
						K-40	7.758E+00
						RA-226	6.773E-01
						TH-232	7.085E-01
						U-235	4.995E-01
S27	1	1.780	1.001	5.099	0.692	Sum	1.046E+01
						CS-137	7.419E-01
						K-40	7.292E+00
						RA-226	1.032E+00
						TH-232	1.270E+00
						U-235	1.210E-01

ZONE 3 SUBZONE NA BUILDING 9036

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm	GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S28	2	2.774	0.675	2.784	0.690	Sum	8.098E+00								
						CS-137	3.181E-01								
						K-40	5.914E+00								
						RA-226	9.345E-01								
						TH-232	7.998E-01								
						U-235	1.320E-01								

			Alpha		Beta		Gamma (Sum)
Minimum	-3	0.067	0.509	2.480	0.525	2.305E+00	
Maximum	2	7.250	2.534	21.844	1.884	1.550E+01	
Average	0	2.943	1.182	8.602	0.918	8.671E+00	

ZONE 3 SUBZONE NA BUILDING 9036

14-Oct-98

FIELD TECHNICAL SUPPORT DATA

(RETAKES)

LOCATION

SOIL

ZONE: 3 SUBZONE: NA BUILDING: 9010

FIELD SURVEY

GRIDS	LEAD TECH	SURVEY DATE	INST #	PROBE #	ALPHA BKG	ALPHA MDA (dpm/100cm²)	ALPHA EFF. %	BETA BKG	BETA MDA (dpm/100cm²)	BETA EFF. %	GAMMA BKG (µR/hr)	PROBE AREA
S17R - S23W	MILLER	15-Sep-98	00916	723416							10.00	N/A

ZONE 3 SUB ZON NA BUILDING 9010

14-Oct-98

FIELD TECHNICAL SUPPORT DATA (2)

(RETAKES)

LOCATION	SOIL		
	ZONE: 3	SUBZONE: NA	BUILDING: 9010

FIELD SURVEY

GRIDS	SURVEY NUMBER	SAMPLE NUMBER	
S17R - S23W	4455	.01 - .20	

ZONE 3 SUBZONE NA BUILDING 9010

RADIOLOGICAL SURVEY DATA REPORT

(RETAKES)

LOCATION

SOIL

ZONE: 3 SUBZONE: NA BUILDING: 9010

All field data in this report are background corrected; all lab data are corrected values using an empty container or planchet for background.

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S17E	1	2.515	1.184	2.139	1.516	Sum	7.503E+00
						CS-137	1.502E-01
						K-40	5.667E+00
						RA-226	7.241E-01
						TH-232	8.522E-01
						U-235	1.096E-01
S17N	1	3.976	1.414	4.091	1.656	Sum	7.708E+00
						CS-137	3.197E-01
						K-40	5.625E+00
						RA-226	8.212E-01
						TH-232	8.530E-01
						U-235	8.901E-02
S17R	0	3.489	1.414	3.324	1.656	Sum	6.845E+00
						CS-137	1.440E-01
						K-40	5.053E+00
						RA-226	7.442E-01
						TH-232	7.919E-01
						U-235	1.117E-01
S17S	0	2.941	1.114	2.497	1.490	Sum	7.092E+00
						CS-137	2.898E-01
						K-40	5.165E+00
						RA-226	8.056E-01
						TH-232	7.429E-01
						U-235	8.894E-02
S17W	0	2.787	1.214	4.659	1.554	Sum	6.910E+00
						CS-137	2.300E-01
						K-40	5.073E+00
						RA-226	7.210E-01
						TH-232	7.987E-01
						U-235	8.762E-02
S20E	1	1.288	0.561	0.542	1.117	Sum	4.407E+00
						CS-137	3.311E-01
						K-40	2.764E+00
						RA-226	5.642E-01
						TH-232	6.645E-01
						U-235	8.364E-02
S20N	0	1.290	0.523	1.534	1.087	Sum	4.441E+00
						CS-137	2.724E-01
						K-40	2.827E+00
						RA-226	5.871E-01
						TH-232	6.882E-01
						U-235	6.596E-02

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S20R	1	1.899	1.742	2.996	1.788	Sum	3.186E+00
						CS-137	2.640E-01
						K-40	1.862E+00
						RA-226	4.345E-01
						TH-232	5.295E-01
						U-235	9.551E-02
S20S	2	0.930	0.523	0.599	1.087	Sum	3.644E+00
						CS-137	2.441E-01
						K-40	2.378E+00
						RA-226	4.598E-01
						TH-232	4.782E-01
						U-235	8.361E-02
S20W	1	1.839	0.525	1.903	1.092	Sum	3.127E+00
						CS-137	3.785E-01
						K-40	1.842E+00
						RA-226	4.037E-01
						TH-232	4.417E-01
						U-235	6.062E-02
S21E	-1	2.709	1.097	2.948	1.468	Sum	6.812E+00
						CS-137	2.214E-01
						K-40	4.825E+00
						RA-226	8.310E-01
						TH-232	8.076E-01
						U-235	1.272E-01
S21N	0	1.509	0.612	1.566	1.164	Sum	7.056E+00
						CS-137	2.195E-01
						K-40	5.194E+00
						RA-226	7.962E-01
						TH-232	7.707E-01
						U-235	7.526E-02

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S21R	1	0.523	0.570	1.150	1.133	Sum	6.618E+00
						CS-137	2.567E-01
						K-40	4.714E+00
						RA-226	7.885E-01
						TH-232	7.468E-01
						U-235	1.120E-01
S21S	0	0.910	1.220	3.133	1.561	Sum	7.326E+00
						CS-137	2.667E-01
						K-40	5.398E+00
						RA-226	8.005E-01
						TH-232	7.598E-01
						U-235	1.007E-01
S21W	2	1.310	1.037	3.005	1.450	Sum	5.679E+00
						CS-137	2.234E-01
						K-40	4.077E+00
						RA-226	6.207E-01
						TH-232	6.388E-01
						U-235	1.189E-01
S23E	2	3.953	1.661	5.361	1.828	Sum	9.691E+00
						CS-137	1.915E-01
						K-40	7.673E+00
						RA-226	8.685E-01
						TH-232	8.274E-01
						U-235	1.303E-01
S23N	1	3.748	1.518	3.865	1.702	Sum	9.052E+00
						CS-137	2.740E-01
						K-40	6.957E+00
						RA-226	8.453E-01
						TH-232	8.391E-01
						U-235	1.363E-01

ZONE 3 SUBZONE NA BUILDING 9010

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S23R	0	3.992	2.244	3.781	2.017	Sum	9.280E+00
						CS-137	1.907E-01
						K-40	7.392E+00
						RA-226	8.678E-01
						TH-232	7.169E-01
						U-235	1.129E-01
S23S	0	4.282	1.622	4.182	1.740	Sum	1.033E+01
						CS-137	2.352E-01
						K-40	8.291E+00
						RA-226	8.949E-01
						TH-232	7.663E-01
						U-235	1.425E-01
S23W	1	2.272	1.414	2.995	1.656	Sum	8.869E+00
						CS-137	2.080E-01
						K-40	7.015E+00
						RA-226	7.773E-01
						TH-232	7.528E-01
						U-235	1.160E-01

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm

	Alpha		Beta		Gamma (Sum)
Minimum	-1	0.523	0.523	0.542	1.087	3.127E+00
Maximum	2	4.282	2.244	5.361	2.017	1.033E+01
Average	1	2.408	1.170	2.813	1.488	6.779E+00

ZONE 3 SUBZONE NA BUILDING 9010

Soil 9-10

Grid Number	Gross Alpha pCi/gm	Net Alpha pCi/gm	Gross Beta pCi/gm	Net Beta pCi/gm	Gross Gamma pCi/gm	Net Gamma pCi/gm	Alpha	Beta	Gamma
							2.601	5.241	8.166
S17E	2.515	-0.086	2.139	-3.102	7.503	-0.663			
S17N	3.976	1.375	4.091	-1.150	7.708	-0.458			
S17R	3.489	0.888	3.324	-1.917	6.845	-1.321			
S17S	2.941	0.340	2.497	-2.744	7.092	-1.074			
S17W	2.787	0.186	4.659	-0.582	6.910	-1.256			
S20E	1.288	-1.313	0.542	-4.699	4.407	-3.759			
S20N	1.290	-1.311	1.534	-3.707	4.441	-3.725			
S20R	1.899	-0.702	2.996	-2.245	3.186	-4.980			
S20S	0.930	-1.671	0.599	-4.642	3.644	-4.522			
S20W	1.839	-0.762	1.903	-3.338	3.127	-5.039			
S21E	2.709	0.108	2.946	-2.295	6.812	-1.354			
S21N	1.509	-1.092	1.566	-3.675	7.056	-1.110			
S21R	0.523	-2.078	1.150	-4.091	6.618	-1.548			
S21S	0.910	-1.691	3.133	-2.108	7.326	-0.840			
S21W	1.310	-1.291	3.005	-2.236	5.679	-2.487			
S23E	3.953	1.352	5.361	0.120	9.691	1.525			
S23N	3.746	1.145	3.865	-1.376	9.052	0.886			
S23R	3.992	1.391	3.781	-1.460	9.280	1.114			
S23S	4.282	1.681	4.182	-1.059	1.033	-7.133			
S23W	2.272	-0.329	2.995	-2.246	8.869	0.703			

FIELD TECHNICAL SUPPORT DATA

(RETAKES)

LOCATION	SOIL		
	ZONE: 3	SUBZONE: NA	BUILDING: 9036

FIELD SURVEY

GRIDS	LEAD TECH	SURVEY DATE	INST #	PROBE #	ALPHA BKG	ALPHA MDA (dpm/100cm²)	ALPHA EFF. %	BETA BKG	BETA MDA (dpm/100cm²)	BETA EFF. %	GAMMA BKG (µR/hr)	PROBE AREA
S01R - S24W	MILLER	16-Sep-98	00916	723416							10.00	N/A

ZONE 3 SUB ZON NA BUILDING 9036

14-Oct-98

FIELD TECHNICAL SUPPORT DATA (2)

(RETAKES)

LOCATION	SOIL		
	ZONE: 3	SUBZONE: NA	BUILDING: 9036

FIELD SURVEY

GRIDS	SURVEY NUMBER	SAMPLE NUMBER	
S01R - S24W	4456	.01 - .32	

ZONE 3 SUBZONE NA BUILDING 9036

14-Oct-98

RADIOLOGICAL SURVEY DATA REPORT

(RETAKES)

LOCATION	SOIL					
	ZONE:	3	SUBZONE:	NA	BUILDING:	9036

All field data in this report are background corrected; all lab data are corrected values using an empty container or planchet for background.

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S01E	1	2.222	0.790	2.309	1.277	Sum	6.225E+00
						CS-137	3.591E-01
						K-40	4.520E+00
						RA-226	6.545E-01
						TH-232	5.957E-01
						U-235	9.571E-02
S01N	2	1.895	0.718	2.111	1.212	Sum	6.270E+00
						CS-137	2.766E-01
						K-40	4.628E+00
						RA-226	6.466E-01
						TH-232	6.451E-01
						U-235	7.405E-02
S01R	1	1.412	0.665	2.588	1.174	Sum	5.753E+00
						CS-137	3.570E-01
						K-40	4.142E+00
						RA-226	5.591E-01
						TH-232	5.950E-01
						U-235	1.000E-01
S01S	1	1.940	0.786	4.902	1.270	Sum	7.090E+00
						CS-137	1.236E+00
						K-40	4.368E+00
						RA-226	6.948E-01
						TH-232	7.037E-01
						U-235	8.790E-02
S01W	0	2.554	1.035	4.203	1.402	Sum	8.433E+00
						CS-137	4.754E-01
						K-40	4.536E+00
						RA-226	7.199E-01
						TH-232	6.337E-01
						U-235	6.809E-02
S05E	1	1.485	0.563	1.531	1.085	Sum	7.532E+00
						CS-137	6.393E-01
						K-40	5.214E+00
						RA-226	6.487E-01
						TH-232	7.231E-01
						U-235	1.090E-01
S05N	0	1.995	0.668	2.367	1.180	Sum	8.246E+00
						CS-137	6.750E-01
						K-40	6.284E+00
						RA-226	6.172E-01
						TH-232	5.850E-01
						U-235	8.495E-02

ZONE 3 SUBZONE NA BUILDING 9036

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S05R	0	3.712	1.320	5.628	1.566	Sum	6.812E+00
						CS-137	5.181E-01
						K-40	4.806E+00
						RA-226	7.269E-01
						TH-232	6.307E-01
						U-235	1.304E-01
S05S	1	1.747	0.662	1.107	1.168	Sum	5.672E+00
						CS-137	6.327E-01
						K-40	3.668E+00
						RA-226	5.913E-01
						TH-232	6.773E-01
						U-235	1.029E-01
S05W	2	2.971	0.655	3.774	1.158	Sum	7.154E+00
						CS-137	6.461E-01
						K-40	4.853E+00
						RA-226	7.151E-01
						TH-232	7.756E-01
						U-235	1.642E-01
S06R	0	1.619	0.613	1.746	1.131	Sum	7.472E+00
						CS-137	6.017E-01
						K-40	5.020E+00
						RA-226	7.841E-01
						TH-232	8.368E-01
						U-235	2.298E-01
S06W	0	1.780	0.721	2.122	1.218	Sum	6.257E+00
						CS-137	2.493E-01
						K-40	4.578E+00
						RA-226	6.663E-01
						TH-232	6.249E-01
						U-235	1.361E-01

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S14E	1	6.837	2.054	7.092	1.870	Sum	7.996E+00
						CS-137	4.996E-01
						K-40	5.740E+00
						RA-226	8.170E-01
						TH-232	8.374E-01
						U-235	1.024E-01
S14N	2	1.685	1.545	4.366	1.678	Sum	7.153E+00
						CS-137	4.291E-01
						K-40	5.206E+00
						RA-226	6.917E-01
						TH-232	7.372E-01
						U-235	8.916E-02
S14R	1	2.999	1.537	4.565	1.670	Sum	6.925E+00
						CS-137	4.131E-01
						K-40	4.948E+00
						RA-226	7.811E-01
						TH-232	6.828E-01
						U-235	9.993E-02
S14S	1	4.634	1.755	6.157	1.745	Sum	8.397E+00
						CS-137	5.401E-01
						K-40	6.258E+00
						RA-226	7.324E-01
						TH-232	7.355E-01
						U-235	1.306E-01
S14W	1	8.481	2.205	15.294	1.921	Sum	9.160E+00
						CS-137	2.367E+00
						K-40	5.248E+00
						RA-226	7.187E-01
						TH-232	7.079E-01
						U-235	1.187E-01

ZONE 3 SUBZONE NA BUILDING 9036

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S15E	1	6.797	1.941	5.417	1.847	Sum	8.691E+00
						CS-137	2.718E-01
						K-40	6.681E+00
						RA-226	8.070E-01
						TH-232	7.413E-01
						U-235	8.949E-02
S15N	1	4.331	1.755	9.390	1.745	Sum	8.956E+00
						CS-137	9.763E-01
						K-40	6.105E+00
						RA-226	9.256E-01
						TH-232	7.962E-01
						U-235	1.510E-01
S15R	0	8.523	2.216	7.067	1.931	Sum	8.226E+00
						CS-137	2.993E-01
						K-40	6.174E+00
						RA-226	8.520E-01
						TH-232	7.232E-01
						U-235	1.775E-01
S15S	2	2.249	1.781	6.014	1.771	Sum	8.525E+00
						CS-137	3.517E-01
						K-40	6.327E+00
						RA-226	8.802E-01
						TH-232	8.292E-01
						U-235	1.368E-01
S15W	0	10.055	3.020	9.678	2.205	Sum	7.645E+00
						CS-137	4.059E-01
						K-40	5.695E+00
						RA-226	7.368E-01
						TH-232	7.116E-01
						U-235	9.516E-02

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S20E	2	8.317	1.592	9.764	1.730	Sum	1.203E+01
						CS-137	1.495E+00
						K-40	8.705E+00
						RA-226	9.209E-01
						TH-232	8.108E-01
						U-235	9.547E-02
S20N	1	4.902	1.642	6.022	1.707	Sum	7.536E+00
						CS-137	2.774E-01
						K-40	5.728E+00
						RA-226	7.914E-01
						TH-232	6.780E-01
						U-235	6.163E-02
S20R	1	7.095	1.931	6.120	1.838	Sum	8.748E+00
						CS-137	2.800E-01
						K-40	6.686E+00
						RA-226	8.833E-01
						TH-232	7.608E-01
						U-235	1.379E-01
S20S	1	7.319	1.903	7.467	1.811	Sum	1.066E+01
						AM-241	5.801E-02
						CS-137	3.679E-01
						K-40	8.191E+00
						RA-226	1.052E+00
						TH-232	8.159E-01
						U-235	1.752E-01

ZONE 3 SUBZONE NA BUILDING 9036

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S20W	0	4.416	1.326	4.615	1.574	Sum	7.197E+00
						CS-137	1.969E-01
						K-40	5.513E+00
						RA-226	7.355E-01
						TH-232	7.127E-01
						U-235	3.907E-02
S24E	1	5.988	1.799	7.968	1.789	Sum	8.599E+00
						CS-137	1.629E+00
						K-40	5.562E+00
						RA-226	6.851E-01
						TH-232	6.165E-01
						U-235	1.063E-01
S24N	0	3.947	1.403	3.724	1.593	Sum	8.160E+00
						CS-137	4.902E-01
						K-40	6.073E+00
						RA-226	7.343E-01
						TH-232	7.612E-01
						U-235	1.016E-01
S24R	0	5.794	1.835	6.319	1.825	Sum	7.369E+00
						CS-137	5.068E-01
						K-40	5.558E+00
						RA-226	6.347E-01
						TH-232	5.890E-01
						U-235	7.903E-02
S24S	1	7.760	2.216	4.896	1.931	Sum	9.260E+00
						CS-137	3.605E-01
						K-40	7.174E+00
						RA-226	8.215E-01
						TH-232	7.614E-01
						U-235	1.224E-01

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	ALPHA MDA (pCi/gm)	BETA pCi/gm	BETA MDA (pCi/gm)	GAMMA Nuclide	GAMMA pCi/gm
S24W	1	6.714	2.249	6.136	1.960	Sum	8.842E+00
						CS-137	4.504E-01
						K-40	6.970E+00
						RA-226	7.346E-01
						TH-232	6.007E-01
						U-235	8.593E-02

ZONE 3 SUBZONE NA BUILDING 9036

GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	MDA (pCi/gm)	LAB BETA pCi/gm	MDA (pCi/gm)	LAB GAMMA Nuclide	pCi/gm	GRIDS	FIELD GAMMA (µR/hr)	LAB ALPHA pCi/gm	MDA (pCi/gm)	LAB BETA pCi/gm	MDA (pCi/gm)	LAB GAMMA Nuclide	pCi/gm
				Alpha						Beta				Gamma (Sum)	
Minimum		0		1.412		0.563		1.107		1.085				5.672E+00	
Maximum		2		10.055		3.020		15.294		2.205				1.203E+01	
Average		1		4.505		1.466		5.389		1.593				7.843E+00	

ZONE 3 SUBZONE NA BUILDING 9036

Soil 9050

Grid Number	Gross Alpha pCi/gm	Net Alpha pCi/gm	Gross Beta pCi/gm	Net Beta pCi/gm	Gross Gamma pCi/gm	Net Gamma pCi/gm	Alpha 2.601	Beta 5.241	Gamma 8.166
S01E	2.222	-0.379	2.309	-2.932	6.225	-1.941			
S01N	1.895	-0.706	2.111	-3.130	6.270	-1.896			
S01R	1.412	-1.189	2.588	-2.653	5.753	-2.413			
S01S	1.940	-0.661	4.902	-0.339	7.090	-1.076			
S01W	2.554	-0.047	4.203	-1.038	6.433	-1.733			
S05E	1.485	-1.116	1.531	-3.710	7.532	-0.634			
S05N	1.995	-0.606	2.367	-2.874	8.246	0.080			
S05R	3.712	1.111	5.628	0.387	6.812	-1.354			
S05S	1.747	-0.854	1.107	-4.134	5.672	-2.494			
S05W	2.971	0.370	3.774	-1.467	7.154	-1.012			
S06R	1.619	-0.982	1.746	-3.495	7.472	-0.694			
S06W	1.780	-0.821	2.122	-3.119	6.257	-1.909			
S14E	6.837	4.236	7.092	1.851	7.996	-0.170			
S14N	1.685	-0.916	4.366	-0.875	7.153	-1.013			
S14R	2.999	0.398	4.565	-0.676	6.925	-1.241			
S14S	4.634	2.033	6.157	0.916	8.397	0.231			
S14W	8.481	5.880	15.294	10.053	9.160	0.994			
S15E	6.797	4.196	5.417	0.176	8.691	0.525			
S15N	4.331	1.730	9.390	4.149	8.956	0.790			
S15R	8.523	5.922	7.067	1.826	8.226	0.060			
S15S	2.249	-0.352	6.014	0.773	8.525	0.359			
S15W	10.055	7.454	9.678	4.437	7.645	-0.521			
S20E	8.317	5.716	9.764	4.523	1.203	-6.963			
S20N	4.902	2.301	6.022	0.781	7.536	-0.630			
S20R	7.095	4.494	6.120	0.879	8.748	0.582			
S20S	7.319	4.718	7.467	2.226	1.066	-7.100			
S20W	4.416	1.815	4.615	-0.626	7.197	-0.969			
S24E	5.988	3.387	7.968	2.727	8.599	0.433			
S24N	3.947	1.346	3.724	-1.517	8.160	-0.006			
S24R	5.794	3.193	6.319	1.078	7.369	-0.797			
S24S	7.760	5.159	4.896	-0.345	9.260	1.094			
S24W	6.714	4.113	6.136	0.895	8.842	0.676			

CECOM RADIOLOGICAL ENGINEERING LABORATORY

Sample Chronicle

Survey Number: 4455

Date	Time	Action/Operation	Technician
9/16/98	1030	LOGIN	TM
9/18/98	0900	GAMMA PREP/OVEN	TM
9/23/98	1000	GAMMA ANALYSIS (.01-.04)	TM
9/24/98	0800	GAMMA ANALYSIS (.05-.14)	TM
9/25/98	0800	GAMMA ANALYSIS (.15-.20)	TM
9/28/98	0800	α/β Prep	BK
9/30/98	1400	α/β ANALYSIS	TM
10/01/98	0800	ARCHIVE	TM

NET WEIGHT REPORT

Survey Number	ID	Maranelli Tare	Maranelli plus Soil	Gamma Soil	Gamma Final	A/B Tare	A/B Gross	A/B Sample Mass	Planchet Tare	Planchet Gross	Residual Mass	Collection Date	Collection Time
4455	.01	136.35	853.24	716.89	714.89	0.0000	2.0000	2.0000	7.5400	7.6800	0.1400	15-Sep-98	11:26:00 AM
4455	.02	135.99	875.41	739.42	737.42	0.0000	2.0000	2.0000	7.5600	7.7000	0.1400	15-Sep-98	11:26:16 AM
4455	.03	136.39	909.40	773.01	770.96	0.0000	2.0500	2.0500	7.5800	7.7000	0.1200	15-Sep-98	11:26:27 AM
4455	.04	135.98	894.78	758.80	756.78	0.0000	2.0200	2.0200	7.5200	7.6300	0.1100	15-Sep-98	11:26:39 AM
4455	.05	135.97	913.27	777.30	775.30	0.0000	2.0000	2.0000	7.5500	7.6700	0.1200	15-Sep-98	11:26:53 AM
4455	.06	136.03	931.77	795.74	793.70	0.0000	2.0400	2.0400	7.5700	7.7400	0.1700	15-Sep-98	11:27:31 AM
4455	.07	136.02	974.46	838.44	836.43	0.0000	2.0100	2.0100	7.6000	7.6100	0.0100	15-Sep-98	11:28:06 AM
4455	.08	135.97	931.46	795.49	793.47	0.0000	2.0200	2.0200	7.5700	7.5900	0.0200	15-Sep-98	11:28:18 AM
4455	.09	135.96	1,072.16	936.20	934.19	0.0000	2.0100	2.0100	7.5500	7.5600	0.0100	15-Sep-98	11:28:30 AM
4455	.10	136.03	967.17	831.14	829.14	0.0000	2.0000	2.0000	7.5900	7.6000	0.0100	15-Sep-98	11:28:42 AM
4455	.11	135.91	915.88	779.97	777.98	0.0000	1.9900	1.9900	7.6100	7.6300	0.0200	15-Sep-98	11:29:59 AM
4455	.12	136.41	933.78	797.37	795.37	0.0000	2.0000	2.0000	7.6100	7.6400	0.0300	15-Sep-98	11:30:11 AM

NET WEIGHT REPORT

Survey Number	ID	Maranelli Tare	Maranelli plus Soil	Gamma Soil	Gamma Final	A/B Tare	A/B Gross	A/B Sample Mass	Planchet Tare	Planchet Gross	Residual Mass	Collection Date	Collection Time
4455	.13	136.28	926.64	790.36	788.31	0.0000	2.0500	2.0500	7.5100	7.6200	0.1100	15-Sep-98	11:30:23 AM
4455	.14	135.97	959.25	823.28	821.29	0.0000	1.9900	1.9900	7.5600	7.6800	0.1200	15-Sep-98	11:30:37 AM
4455	.15	135.98	1,088.07	952.09	950.08	0.0000	2.0100	2.0100	7.6000	7.7000	0.1000	15-Sep-98	11:30:51 AM
4455	.16	136.42	909.25	772.83	770.84	0.0000	1.9900	1.9900	7.5700	7.7700	0.2000	15-Sep-98	11:31:01 AM
4455	.17	136.01	893.01	757.00	754.99	0.0000	2.0100	2.0100	7.5400	7.6900	0.1500	15-Sep-98	11:31:13 AM
4455	.18	136.26	884.30	748.04	745.98	0.0000	2.0600	2.0600	7.5700	7.7500	0.1800	15-Sep-98	11:31:25 AM
4455	.19	136.39	908.65	772.26	770.23	0.0000	2.0300	2.0300	7.6100	7.7700	0.1600	15-Sep-98	11:31:36 AM
4455	.20	135.98	850.06	714.08	712.08	0.0000	2.0000	2.0000	7.5400	7.6800	0.1400	15-Sep-98	11:31:48 AM
4455	.20D	0.00	0.00	0.00	-1.99	0.0000	1.9900	1.9900	7.5500	7.7100	0.1600		
4455	.20S	0.00	0.00	0.00	-2.03	0.0000	2.0300	2.0300	7.5700	7.7600	0.1900		
4455	.20T	0.00	0.00	0.00	-1.99	0.0000	1.9900	1.9900	7.5800	7.7500	0.1700		
4455	.bl					0.0000	0.0000	0.0000	7.5800	7.5900	0.0100		

NET WEIGHT REPORT

Survey Number	ID	Maranelli Tare	Maranelli plus Soil	Gamma Soil	Gamma Final	A/B Tare	A/B Gross	A/B Sample Mass	Planchet Tare	Planchet Gross	Residual Mass	Collection Date	Collection Time
4455	.01	136.35	853.24	716.89								15-Sep-98	11:26:00 AM
4455	.02	135.99	875.41	739.42								15-Sep-98	11:26:16 AM
4455	.03	136.39	909.40	773.01								15-Sep-98	11:26:27 AM
4455	.04	135.98	894.78	758.80								15-Sep-98	11:26:39 AM
4455	.05	135.97	913.27	777.30								15-Sep-98	11:26:53 AM
4455	.06	136.03	931.77	795.74								15-Sep-98	11:27:31 AM
4455	.07	136.02	974.46	838.44								15-Sep-98	11:28:06 AM
4455	.08	135.97	931.46	795.49								15-Sep-98	11:28:18 AM
4455	.09	135.96	1,072.16	936.20								15-Sep-98	11:28:30 AM
4455	.10	136.03	967.17	831.14								15-Sep-98	11:28:42 AM
4455	.11	135.91	915.88	779.97								15-Sep-98	11:29:59 AM
4455	.12	136.41	933.78	797.37								15-Sep-98	11:30:11 AM

NET WEIGHT REPORT

Survey Number	ID	Maranelli Tare	Maranelli plus Soil	Gamma Soil	Gamma Final	A/B Tare	A/B Gross	A/B Sample Mass	Planchet Tare	Planchet Gross	Residual Mass	Collection Date	Collection Time
4455	.13	136.28	926.64	790.36								15-Sep-98	11:30:23 AM
4455	.14	135.97	959.25	823.28								15-Sep-98	11:30:37 AM
4455	.15	135.98	1,088.07	952.09								15-Sep-98	11:30:51 AM
4455	.16	136.42	909.25	772.83								15-Sep-98	11:31:01 AM
4455	.17	136.01	893.01	757.00								15-Sep-98	11:31:13 AM
4455	.18	136.26	884.30	748.04								15-Sep-98	11:31:25 AM
4455	.19	136.39	908.65	772.26								15-Sep-98	11:31:36 AM
4455	.20	135.98	850.06	714.08								15-Sep-98	11:31:48 AM

Chain of Custody

	Sample Description											
Laboratory ID	Bar Cod	Zone	Sub Zone	Building	Room	Location	#	Proximity	Sample Type	Analyses Requested		Collected	Technician
4455.01		3	NA	9010	NA	S17R	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:26:00 AM	MILLER
4455.02		3	NA	9010	NA	S17N	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:26:16 AM	MILLER
4455.03		3	NA	9010	NA	S17E	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:26:27 AM	MILLER
4455.04		3	NA	9010	NA	S17S	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:26:39 AM	MILLER
4455.05		3	NA	9010	NA	S17W	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:26:53 AM	MILLER
4455.06		3	NA	9010	NA	S20R	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:27:31 AM	MILLER
4455.07		3	NA	9010	NA	S20N	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:28:06 AM	MILLER
4455.08		3	NA	9010	NA	S20E	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:28:18 AM	MILLER
4455.09		3	NA	9010	NA	S20S	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:28:30 AM	MILLER
4455.10		3	NA	9010	NA	S20W	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:28:42 AM	MILLER
4455.11		3	NA	9010	NA	S21R	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:29:59 AM	MILLER
4455.12		3	NA	9010	NA	S21N	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:30:11 AM	MILLER
4455.13		3	NA	9010	NA	S21E	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:30:23 AM	MILLER
4455.14		3	NA	9010	NA	S21S	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:30:37 AM	MILLER

Survey Number: 4455

	Sample Description											
Laboratory ID	Bar Cod	Zone	Sub Zone	Building	Room	Location	#	Proximity	Sample Type	Analyses Requested		Collected	Technician
4455.15		3	NA	9010	NA	S21W	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:30:51 AM	MILLER
4455.16		3	NA	9010	NA	S23R	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:31:01 AM	MILLER
4455.17		3	NA	9010	NA	S23N	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:31:13 AM	MILLER
4455.18		3	NA	9010	NA	S23E	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:31:25 AM	MILLER
4455.19		3	NA	9010	NA	S23S	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:31:36 AM	MILLER
4455.20		3	NA	9010	NA	S23W	1	SURFACE	SOIL	GROSS ALPHA/BET	GROSS GAMMA	9/15/98 11:31:48 AM	MILLER

Comments:

Relinquished by: [signature] **Date:** 9/16/98 **Time:** 1030 **Received by:** [signature] **Purpose:** LOGIN

Relinquished by: _____ **Date:** _____ **Time:** _____ **Received by:** _____ **Purpose:** _____

Relinquished by: _____ **Date:** _____ **Time:** _____ **Received by:** _____ **Purpose:** _____

Relinquished by: _____ **Date:** _____ **Time:** _____ **Received by:** _____ **Purpose:** _____

Relinquished by: _____ **Date:** _____ **Time:** _____ **Received by:** _____ **Purpose:** _____

Field Survey Requirements Form

Survey Number:	4455
Date Issued:	9/15/98
Date Completed:	9/15/98

Site information

Zone:	3	Sub Zone:	NA
Bldg. #	9010	Room:	SOILS
Grid:	S17	Thru Grid:	S23

Survey Type:	Affected	Open Land

Work Permit Required: ☐ (If permit required is checked, ensure that the permit is complete and attached before beginning work)

Sampling Plan

Field Readings

Alpha readings: ☐

Beta readings: ☐

Gamma Readings: ☑

Laboratory Samples

Sample Type	Number	Proximity:	Analysis:
Soil	20	Surface	Gross Alpha/Beta
Soil	20	Surface	Gross Gamma
	0		
	0		

Notes: PERFORM SOIL SAMPLING AT S17, S20, S21,AND S23. EACH LOCATION WILL HAVE A SAMPLE TAKEN AT THE STAKE AND ONE NORTH, SOUTH, EAST, AND WEST AOF THE STAKE. NUMBER EACH STAKE ACCORDINGLY (I.E. S1- S1R, S1N, S1E, S1S, S1W) SEE ATTACHED MAP FOR SAMPLE LOC

Prepared by:	Craig Miller	performed by:	CRAIG MILLER
prep date:	9/15/98	performed date:	9/15/98

127060

Sample Log-in Check Sheet

Survey # 4455

	Yes	No
Does the survey number on the requirements form match the laboratory identification number on the Chain-of-Custody?.....	✓	
Do samples correlate with the data listed on the Chain-of-Custody?.....	✓	
Are all samples labeled and intact?.....	✓	
Are the sample labels complete and legible?.....	✓	
Are samples of sufficient volume to complete the analyses required?.....	✓	
Were duplicate soil samples collected at a rate of at least 10%?.....	N/A	
Has the data contained on the Chain-of-Custody been appended to the master log?.....	✓	
Is the Chain-of-Custody complete and signed?.....	✓	

Statement:

I agree that the above information is correct and the sample log-in procedure was completed correctly and in accordance with all corresponding Standard Operating Procedures.

Signature: [signature] Date: 9/16/98

Instructions:

If all of the above questions are answered "YES", attach this form to the other documentation and copy the package. Place the original in a corresponding file and the copy with the samples. If any of the above questions are answered "NO", prepare the non-conformance statement below and see the project manager immediately.

Non-Conformance:

Explain the nature of the non-conformance:

Explain corrective actions taken:

Disposition (circle applicable):

Sample label corrected	Site map amended	Chain-of Custody amended
Additional volume Collected	Additional duplicates collected	Tentative log-in: review pending
Sample recollected/replaced	Samples rejected	Survey package rejected

Supervisory Review complete (y/n):_____ Supervisors Initials:_____

Quality Assurance Log

Survey #: 4455

* CROSSTALK SUBTRACT

Date	Time	QC Type	Instrument Value (dpm)	Expected Value (dpm)	Pass/Fail *	Technician	Comments
9/30/98	1732	ALPHA	2942.81	2024.40	* PASS	TM	—
9/30/98	1732	BETA	3082.51	2024.20	* PASS	TM	—
9/30/98	1742	ALPHA	2875.99	2024.40	* PASS	TM	—
9/30/98	1742	BETA	3021.78	2024.20	* PASS	TM	—

* Per SOP 71-02, the pass criteria is +/- 20% expected value for Tritium and α/β smear analyses, and +/- 2σ from the mean for α/β soil extracts.

Rev. 1, Jan. '98
H:\rer\lab_op\SOP\QA.xls

LB5100-W Low Background Counting System -- Soil Analysis

Date: 10/1/98
Counting Unit id: 2
Data file name: [4455.XLD]SOILAB2
Batch Ended: 9/30/98 17:52
Crosstalk Correction: Not Applied

Batch ID: 4455

Alpha activity action level (pCi/g): 4.50E+00
Beta activity action level (pCi/g): 6.00E+00
Certainty level for MDA and flags: 95.00%
Mass Error: 1.00%
Alpha Beta Voltage Setting: 1500
Application Revision: 2.1.3
Application Version: standard

Alpha efficiency log file: A29G1
Alpha Efficiency: 32.50%
Alpha to Beta Crosstalk: 20.15%
Alpha Background (CPM): 0.07
Alpha Correction Factor: 1.000

Beta efficiency log file: Cs16G1
Beta Efficiency: 32.83%
Beta into Alpha Crosstalk: 14.35%
Beta Background (CPM): 1.07
Beta Correction Factor: 1.000

Carrier		Alpha Activity				Beta Activity				Mass		
Number	ID	pCi/g	2σ	flags	MDA	pCi/g	2σ	flags	MDA	Residual g	Sample g	Completion Date - Time
1	0.01	3.49E+00	2.12E+00	At AL	1.41E+00	3.32E+00	1.62E+00	<AL	1.66E+00	0.14	2.00	9/30/98 13:58
2	0.02	3.98E+00	2.29E+00	At AL	1.41E+00	4.09E+00	1.80E+00	<AL	1.66E+00	0.14	2.00	9/30/98 14:08
3	0.03	2.52E+00	1.61E+00	<AL	1.18E+00	2.14E+00	1.27E+00	<AL	1.52E+00	0.12	2.05	9/30/98 14:18
4	0.04	2.94E+00	1.70E+00	<AL	1.11E+00	2.50E+00	1.33E+00	<AL	1.49E+00	0.11	2.02	9/30/98 14:28
5	0.05	2.79E+00	1.73E+00	<AL	1.21E+00	4.66E+00	1.83E+00	At AL	1.55E+00	0.12	2.00	9/30/98 14:38
6	0.06	1.90E+00	1.71E+00	<AL	1.74E+00	3.00E+00	1.65E+00	<AL	1.79E+00	0.17	2.04	9/30/98 14:49
7	0.07	1.29E+00	7.47E-01	<AL	5.23E-01	1.53E+00	8.87E-01	<AL	1.09E+00	0.01	2.01	9/30/98 14:59
8	0.08	1.29E+00	7.72E-01	<AL	5.61E-01	5.42E-01	6.91E-01	<AL	1.12E+00	0.02	2.02	9/30/98 15:09
9	0.09	9.30E-01	6.30E-01	<AL	5.23E-01	5.99E-01	6.89E-01	<AL	1.09E+00	0.01	2.01	9/30/98 15:19
10	0.1	1.84E+00	9.08E-01	<AL	5.25E-01	1.90E+00	9.62E-01	<AL	1.09E+00	0.01	2.00	9/30/98 15:30
11	0.11	5.23E-01	5.00E-01	<AL	5.70E-01	1.15E+00	8.33E-01	<AL	1.13E+00	0.02	1.99	9/30/98 15:40
12	0.12	1.51E+00	8.76E-01	<AL	6.12E-01	1.57E+00	9.36E-01	<AL	1.16E+00	0.03	2.00	9/30/98 15:50
13	0.13	2.71E+00	1.62E+00	<AL	1.10E+00	2.95E+00	1.41E+00	<AL	1.47E+00	0.11	2.05	9/30/98 16:00
14	0.14	9.10E-01	9.87E-01	<AL	1.22E+00	3.13E+00	1.51E+00	<AL	1.56E+00	0.12	1.99	9/30/98 16:10
15	0.15	1.31E+00	1.07E+00	<AL	1.04E+00	3.01E+00	1.41E+00	<AL	1.46E+00	0.10	2.01	9/30/98 16:21
16	0.16	3.99E+00	2.90E+00	At AL	2.24E+00	3.78E+00	2.01E+00	<AL	2.02E+00	0.20	1.99	9/30/98 16:31
17	0.17	3.75E+00	2.29E+00	At AL	1.52E+00	3.87E+00	1.78E+00	<AL	1.70E+00	0.15	2.01	9/30/98 16:41
18	0.18	3.95E+00	2.63E+00	At AL	1.86E+00	5.36E+00	2.27E+00	At AL	1.83E+00	0.18	2.06	9/30/98 16:51
19	0.19	4.28E+00	2.56E+00	At AL	1.62E+00	4.18E+00	1.89E+00	<AL	1.74E+00	0.16	2.03	9/30/98 17:01
20	0.2	2.27E+00	1.67E+00	<AL	1.41E+00	2.99E+00	1.55E+00	<AL	1.66E+00	0.14	2.00	9/30/98 17:12
21	.20D	1.80E+00	1.62E+00	<AL	1.65E+00	4.50E+00	1.99E+00	At AL	1.77E+00	0.16	1.99	9/30/98 17:22
22	.20S	6.53E+02	2.09E+02	>AL	2.04E+00	6.84E+02	1.75E+02	>AL	1.92E+00	0.19	2.03	9/30/98 17:32
23	.20T	6.51E+02	1.95E+02	>AL	1.79E+00	6.84E+02	1.63E+02	>AL	1.83E+00	0.17	1.99	9/30/98 17:42
24	.bl	1.21E-01	2.71E-01	<MDA	5.25E-01	2.41E-01	6.07E-01	<MDA	1.09E+00	0.01	2.00	9/30/98 17:52

Carrier	Chan 0	Chan 1	Chan 2	Chan 3	Chan 4	Chan 5	Chan 6	Guard	Time	Aquisition	Main Bias	Aux Bias	Date/Time
1	15	41	56	0	0	0	10.0109	1892	10	0	1500	0	9/30/98 13:58:13
2	17	48	65	0	0	0	10.0112	1931	10	0	1500	0	9/30/98 14:08:27
3	13	32	45	0	0	0	10.0109	1889	10	0	1500	0	9/30/98 14:18:40
4	16	36	52	0	0	0	10.0109	1885	10	0	1500	0	9/30/98 14:28:45
5	14	56	70	0	0	0	10.0105	1814	10	0	1500	0	9/30/98 14:38:59
6	7	36	43	0	0	0	10.011	1909	10	0	1500	0	9/30/98 14:49:12
7	15	32	47	0	0	0	10.0105	1823	10	0	1500	0	9/30/98 14:59:25
8	14	18	32	0	0	0	10.0112	1948	10	0	1500	0	9/30/98 15:09:39
9	11	19	30	0	0	0	10.0112	1949	10	0	1500	0	9/30/98 15:19:52
10	21	37	58	0	0	0	10.0111	1924	10	0	1500	0	9/30/98 15:30:06
11	6	26	32	0	0	0	10.0111	1916	10	0	1500	0	9/30/98 15:40:19
12	15	31	46	0	0	0	10.0112	1944	10	0	1500	0	9/30/98 15:50:24
13	15	41	56	0	0	0	10.0111	1914	10	0	1500	0	9/30/98 16:00:37
14	5	41	46	0	0	0	10.0111	1920	10	0	1500	0	9/30/98 16:10:51
15	8	42	50	0	0	0	10.011	1906	10	0	1500	0	9/30/98 16:21:04
16	11	39	50	0	0	0	10.0111	1919	10	0	1500	0	9/30/98 16:31:18
17	15	45	60	0	0	0	10.011	1901	10	0	1500	0	9/30/98 16:41:31
18	13	55	68	0	0	0	10.0105	1817	10	0	1500	0	9/30/98 16:51:45
19	16	47	63	0	0	0	10.0107	1855	10	0	1500	0	9/30/98 17:01:49
20	10	38	48	0	0	0	10.0108	1866	10	0	1500	0	9/30/98 17:12:03
21	7	49	56	0	0	0	10.011	1906	10	0	1500	0	9/30/98 17:22:16
22	1861	5407	7268	0	0	0	10.0176	1803	10	0	1500	0	9/30/98 17:32:30
23	2119	5652	7771	0	0	0	10.0187	1921	10	0	1500	0	9/30/98 17:42:43
24	2	14	16	0	0	0	10.0112	1936	10	0	1500	0	9/30/98 17:52:57

ARCHIVE SHEET

Survey Number: 4455

Archive Location: BUILDING 9045

Archive Area: STOREROOM

- Are all required analysis completed? Y
- Do the samples to the Chain-of Custody? Y
- Sample labels intact? Y
- Does the data package contain the following?
  - Survey Requirements Form. Y
  - Log-in Check Sheet. Y
  - Sample Chronicle? Y
  - Results and supporting data for the analyses. Y

Comments:

Technician: Date: 10/1/98

Rev. 1, Jan. '98

H:\rer\lab_op\sop\Archive.doc

Gamma Spectroscopy Report generated 23-SEP-1998 12:29:05

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_01_GE3_800GSANDMG20_5171.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .01 Sample Quantity : 7.16890E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5171 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 23-SEP-1998 11:58:43
Decay time : 8 11:58:43.00 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.47

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	5.053E-06	8.366E-07	2.647E-07	2.730E-08
CO-60	0.000E+00	0.000E+00	3.264E-08	3.131E-09
NB-94	0.000E+00	0.000E+00	2.919E-08	3.513E-09
RU-106	0.000E+00	0.000E+00	2.379E-07	3.545E-08
SB-125	0.000E+00	0.000E+00	8.465E-08	1.138E-08
BA-133	0.000E+00	0.000E+00	3.686E-08	6.115E-09
CS-134	0.000E+00	0.000E+00	2.863E-08	3.228E-09
CS-137	1.440E-07	4.274E-08	3.791E-08	3.716E-09
CE-144	0.000E+00	0.000E+00	2.167E-07	3.652E-08
EU-152	0.000E+00	0.000E+00	8.015E-08	9.361E-09

RA-226	7.442E-07	1.334E-07	6.024E-08	6.721E-09				
·232	7.919E-07	1.708E-07	6.197E-08	8.089E-09				
35	1.117E-07	1.271E-07	4.636E-08	5.714E-09				
AM-241	0.000E+00	0.000E+00	9.700E-08	1.307E-08				
Total:	6.845E-06							

V' Gamma Spectroscopy Report generated 23-SEP-1998 13:44:25

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_02_GE3_800GSANDMG20_5173.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .02 Sample Quantity : 7.39420E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5173 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 23-SEP-1998 13:14:04
Decay time : 8 13:14:04.52 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.52

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	5.625E-06	9.441E-07	3.653E-07	3.767E-08
CO-60	0.000E+00	0.000E+00	3.446E-08	3.305E-09
NB-94	0.000E+00	0.000E+00	3.447E-08	3.536E-09
RU-106	0.000E+00	0.000E+00	2.885E-07	4.299E-08
SB-125	0.000E+00	0.000E+00	9.900E-08	1.331E-08
BA-133	0.000E+00	0.000E+00	4.196E-08	6.960E-09
CS-134	0.000E+00	0.000E+00	2.376E-08	2.679E-09
CS-137	3.197E-07	5.885E-08	3.575E-08	3.504E-09
CE-144	0.000E+00	0.000E+00	2.128E-07	3.586E-08
EU-152	0.000E+00	0.000E+00	8.183E-08	9.557E-09

RA-226	8.212E-07	1.301E-07	5.182E-08	5.781E-09				
232	8.530E-07	1.689E-07	5.123E-08	6.686E-09				
35	8.901E-08	1.645E-07	4.331E-08	5.337E-09				
AM-241	0.000E+00	0.000E+00	9.945E-08	1.340E-08				

Total:	7.708E-06							

V[illegible] Gamma Spectroscopy Report generated 23-SEP-1998 13:03:40

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_02_GE3_800GSANDMG20_5172.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .02 Sample Quantity : 7.39420E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5172 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 11:26:16

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 11:26:16 Acquisition date : 23-SEP-1998 12:33:21
Decay time : 8 01:07:05.31 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.52

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

[illegible]channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	4.931E-06	8.771E-07	3.166E-07	3.265E-08
CO-60	0.000E+00	0.000E+00	3.234E-08	2.995E-09
NB-94	0.000E+00	0.000E+00	3.359E-08	3.446E-09
RU-106	1.382E-06	2.602E-07	3.375E-07	5.029E-08
SB-125	0.000E+00	0.000E+00	9.635E-08	1.296E-08
BA-133	0.000E+00	0.000E+00	3.705E-08	6.147E-09
CS-134	0.000E+00	0.000E+00	2.796E-08	3.153E-09
CS-137	3.620E-07	6.393E-08	3.656E-08	3.583E-09
CE-144	0.000E+00	0.000E+00	2.181E-07	3.674E-08
[illegible]52	0.000E+00	0.000E+00	7.973E-08	9.312E-09

RA-226	8.031E-07	1.324E-07	6.544E-08	8.651E-09					
-232	8.119E-07	1.636E-07	5.806E-08	7.578E-09					
35	1.076E-07	1.748E-07	4.274E-08	5.268E-09					
AM-241	0.000E+00	0.000E+00	1.027E-07	1.383E-08					

Total:	8.397E-06								

Gamma Spectroscopy Report generated 23-SEP-1998 14:44:47

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_03_GE3_800GSANDMG20_5174.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .03 Sample Quantity : 7.73010E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5174 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 23-SEP-1998 14:14:25
Decay time : 8 14:14:25.94 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.51

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	5.667E-06	8.843E-07	2.760E-07	2.846E-08
CO-60	0.000E+00	0.000E+00	3.979E-08	3.685E-09
NB-94	0.000E+00	0.000E+00	3.179E-08	3.261E-09
RU-106	0.000E+00	0.000E+00	2.715E-07	4.045E-08
SB-125	0.000E+00	0.000E+00	8.911E-08	1.198E-08
BA-133	0.000E+00	0.000E+00	3.732E-08	6.192E-09
CS-134	0.000E+00	0.000E+00	2.832E-08	3.194E-09
CS-137	1.502E-07	4.300E-08	3.219E-08	3.155E-09
CE-144	0.000E+00	0.000E+00	2.054E-07	3.461E-08
EU-152	0.000E+00	0.000E+00	7.155E-08	8.357E-09

RA-226	7.241E-07	1.214E-07	5.485E-08	6.119E-09				
232	8.522E-07	1.627E-07	4.877E-08	6.366E-09				
35	1.096E-07	4.112E-08	4.389E-08	5.409E-09				
AM-241	0.000E+00	0.000E+00	1.025E-07	1.380E-08				

Total:	7.503E-06							

Gamma Spectroscopy Report generated 23-SEP-1998 15:18:53

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_04_GE3_800GSANDMG20_5175.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .04 Sample Quantity : 7.58800E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5175 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 23-SEP-1998 14:48:32
Decay time : 8 14:48:32.78 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.49

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	5.165E-06	8.295E-07	2.662E-07	2.745E-08
CO-60	0.000E+00	0.000E+00	3.041E-08	2.816E-09
NB-94	0.000E+00	0.000E+00	2.962E-08	3.038E-09
RU-106	0.000E+00	0.000E+00	2.867E-07	4.273E-08
SB-125	0.000E+00	0.000E+00	9.010E-08	1.212E-08
BA-133	0.000E+00	0.000E+00	3.633E-08	6.028E-09
CS-134	0.000E+00	0.000E+00	2.454E-08	2.768E-09
CS-137	2.898E-07	5.404E-08	3.723E-08	3.649E-09
CE-144	0.000E+00	0.000E+00	2.130E-07	3.589E-08
EU-152	0.000E+00	0.000E+00	7.938E-08	1.073E-08

RA-226	8.056E-07	1.375E-07	5.992E-08	6.685E-09				
-232	7.429E-07	1.363E-07	5.282E-08	6.894E-09				
35	8.894E-08	4.880E-08	4.082E-08	5.030E-09				
M-241	0.000E+00	0.000E+00	1.022E-07	1.377E-08				

Total:	7.092E-06							

Gamma Spectroscopy Report generated 24-SEP-1998 09:13:56

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_05_GE3_800GSANDMG20_5176.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .05 Sample Quantity : 7.77300E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5176 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 24-SEP-1998 08:43:37
Decay time : 9 08:43:37.91 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.49

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	5.073E-06	8.368E-07	3.012E-07	3.106E-08
CO-60	0.000E+00	0.000E+00	2.678E-08	2.569E-09
NB-94	0.000E+00	0.000E+00	2.906E-08	3.498E-09
RU-106	0.000E+00	0.000E+00	2.662E-07	3.966E-08
SB-125	0.000E+00	0.000E+00	8.357E-08	1.124E-08
BA-133	0.000E+00	0.000E+00	3.887E-08	6.449E-09
CS-134	0.000E+00	0.000E+00	2.837E-08	3.200E-09
CS-137	2.300E-07	5.404E-08	3.767E-08	3.692E-09
144	0.000E+00	0.000E+00	2.152E-07	3.626E-08
152	0.000E+00	0.000E+00	7.585E-08	8.859E-09

RA-226	7.210E-07	1.179E-07	5.172E-08	5.770E-09				
-232	7.987E-07	1.614E-07	5.006E-08	6.534E-09				
35	8.762E-08	4.337E-08	4.390E-08	5.410E-09				
-241	0.000E+00	0.000E+00	9.518E-08	1.282E-08				

Total:	6.910E-06							

VMS Gamma Spectroscopy Report generated 24-SEP-1998 09:49:42

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_06_GE3_800GSANDMG20_5177.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .06 Sample Quantity : 7.95740E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5177 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 24-SEP-1998 09:19:20
Decay time : 9 09:19:20.25 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.38

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	1.862E-06	4.749E-07	2.681E-07	2.765E-08
CO-60	0.000E+00	0.000E+00	2.670E-08	2.473E-09
NB-94	0.000E+00	0.000E+00	2.126E-08	2.559E-09
RU-106	0.000E+00	0.000E+00	2.353E-07	3.506E-08
SB-125	0.000E+00	0.000E+00	8.260E-08	1.111E-08
BA-133	0.000E+00	0.000E+00	3.369E-08	5.589E-09
CS-134	0.000E+00	0.000E+00	2.805E-08	3.164E-09
CS-137	2.640E-07	4.588E-08	3.177E-08	3.114E-09
CE-144	0.000E+00	0.000E+00	1.723E-07	2.903E-08
EU-152	0.000E+00	0.000E+00	6.338E-08	7.403E-09

RA-226	4.345E-07	9.472E-08	5.440E-08	7.191E-09					
-232	5.295E-07	1.240E-07	4.098E-08	5.349E-09					
35	9.551E-08	4.235E-08	3.494E-08	4.306E-09					
M-241	0.000E+00	0.000E+00	8.602E-08	1.159E-08					

Total:	3.185E-06								

Gamma Spectroscopy Report generated 24-SEP-1998 10:23:19

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_07_GE3_800GSANDMG20_5178.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .07 Sample Quantity : 8.38440E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5178 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 24-SEP-1998 09:53:01
Decay time : 9 09:53:01.40 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.48

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	2.827E-06	5.608E-07	2.544E-07	2.624E-08
CO-60	0.000E+00	0.000E+00	2.915E-08	2.700E-09
NB-94	0.000E+00	0.000E+00	2.517E-08	2.582E-09
RU-106	0.000E+00	0.000E+00	2.397E-07	3.571E-08
SB-125	0.000E+00	0.000E+00	7.370E-08	9.911E-09
BA-133	0.000E+00	0.000E+00	3.377E-08	5.602E-09
CS-134	0.000E+00	0.000E+00	2.571E-08	2.899E-09
CS-137	2.724E-07	5.885E-08	3.427E-08	3.359E-09
144	0.000E+00	0.000E+00	1.878E-07	3.164E-08
152	0.000E+00	0.000E+00	6.817E-08	7.962E-09

RA-226	5.871E-07	1.151E-07	5.313E-08	7.023E-09				
-232	6.882E-07	1.366E-07	4.661E-08	6.083E-09				
35	6.596E-08	3.218E-08	3.694E-08	4.552E-09				
M-241	0.000E+00	0.000E+00	8.976E-08	1.209E-08				

Total:	4.441E-06							

Gamma Spectroscopy Report generated 24-SEP-1998 10:58:07

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_08_GE3_800GSANDMG20_5179.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .08 Sample Quantity : 7.95490E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5179 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 24-SEP-1998 10:27:49
Decay time : 9 10:27:49.88 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.43

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	2.764E-06	5.346E-07	2.035E-07	2.098E-08
CO-60	0.000E+00	0.000E+00	2.899E-08	2.685E-09
NB-94	0.000E+00	0.000E+00	2.798E-08	3.368E-09
RU-106	0.000E+00	0.000E+00	2.027E-07	3.020E-08
SB-125	0.000E+00	0.000E+00	6.865E-08	9.232E-09
BA-133	0.000E+00	0.000E+00	3.036E-08	5.037E-09
CS-134	0.000E+00	0.000E+00	2.782E-08	3.137E-09
CS-137	3.311E-07	6.382E-08	3.077E-08	3.016E-09
[illegible]-144	0.000E+00	0.000E+00	1.966E-07	3.313E-08
[illegible]152	0.000E+00	0.000E+00	6.731E-08	7.861E-09

RA-226	5.642E-07	1.017E-07	4.845E-08	6.405E-09				
H-232	6.645E-07	1.379E-07	4.762E-08	6.215E-09				
35	8.364E-08	4.378E-08	3.812E-08	4.698E-09				
-241	0.000E+00	0.000E+00	9.003E-08	1.213E-08				

Total:	4.408E-06							

Gamma Spectroscopy Report generated 24-SEP-1998 11:29:39

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_09_GE3_800GSANDMG20_5180.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .09 Sample Quantity : 9.36200E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5180 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 24-SEP-1998 10:59:19
Decay time : 9 10:59:19.10 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.43

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	2.378E-06	4.682E-07	2.603E-07	2.684E-08
CO-60	0.000E+00	0.000E+00	2.726E-08	2.525E-09
NB-94	0.000E+00	0.000E+00	1.997E-08	2.404E-09
RU-106	0.000E+00	0.000E+00	2.025E-07	3.018E-08
SB-125	0.000E+00	0.000E+00	6.333E-08	8.516E-09
BA-133	0.000E+00	0.000E+00	2.726E-08	4.522E-09
CS-134	0.000E+00	0.000E+00	2.242E-08	2.529E-09
CS-137	2.441E-07	4.286E-08	2.404E-08	2.356E-09
[illegible]-144	0.000E+00	0.000E+00	1.710E-07	2.881E-08
[illegible]152	0.000E+00	0.000E+00	5.968E-08	6.971E-09

RA-226	4.598E-07	8.837E-08	4.750E-08	5.299E-09				
-232	4.782E-07	1.043E-07	3.612E-08	4.714E-09				
35	8.361E-08	1.476E-07	3.168E-08	3.904E-09				
AM-241	0.000E+00	0.000E+00	7.904E-08	1.065E-08				

Total:	3.644E-06							

Gamma Spectroscopy Report generated 24-SEP-1998 12:02:12

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_10_GE3_800GSANDMG20_5181.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .10 Sample Quantity : 8.31140E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5181 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 24-SEP-1998 11:31:52
Decay time : 9 11:31:52.70 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.38

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	1.842E-06	4.204E-07	2.850E-07	2.939E-08
CO-60	0.000E+00	0.000E+00	2.557E-08	2.368E-09
NB-94	0.000E+00	0.000E+00	2.359E-08	2.840E-09
RU-106	0.000E+00	0.000E+00	2.255E-07	3.360E-08
SB-125	0.000E+00	0.000E+00	6.840E-08	9.198E-09
BA-133	0.000E+00	0.000E+00	2.680E-08	4.446E-09
CS-134	0.000E+00	0.000E+00	2.275E-08	2.565E-09
CS-137	3.785E-07	6.264E-08	2.631E-08	2.579E-09
144	0.000E+00	0.000E+00	1.633E-07	2.753E-08
152	0.000E+00	0.000E+00	5.973E-08	6.977E-09

RA-226	4.037E-07	8.075E-08	4.505E-08	5.955E-09				
-232	4.417E-07	1.085E-07	4.230E-08	5.521E-09				
35	6.062E-08	3.338E-08	3.360E-08	4.141E-09				
AM-241	0.000E+00	0.000E+00	8.326E-08	1.122E-08				

Total:	3.127E-06							

Gamma Spectroscopy Report generated 24-SEP-1998 12:51:49

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_11_GE3_800GSANDMG20_5182.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .11 Sample Quantity : 7.79970E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5182 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 24-SEP-1998 12:21:30
Decay time : 9 12:21:30.43 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.51

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	4.714E-06	8.196E-07	3.568E-07	3.679E-08
CO-60	0.000E+00	0.000E+00	3.344E-08	3.208E-09
NB-94	0.000E+00	0.000E+00	2.515E-08	3.027E-09
RU-106	0.000E+00	0.000E+00	2.777E-07	4.137E-08
SB-125	0.000E+00	0.000E+00	8.693E-08	1.169E-08
BA-133	0.000E+00	0.000E+00	3.742E-08	6.207E-09
CS-134	0.000E+00	0.000E+00	2.727E-08	3.075E-09
CS-137	2.567E-07	4.702E-08	3.485E-08	3.415E-09
144	0.000E+00	0.000E+00	2.093E-07	3.527E-08
152	0.000E+00	0.000E+00	7.382E-08	8.622E-09

RA-226	7.885E-07	1.224E-07	5.367E-08	5.987E-09				
232	7.468E-07	1.639E-07	5.243E-08	6.843E-09				
35	1.120E-07	5.298E-08	4.274E-08	5.268E-09				
AM-241	0.000E+00	0.000E+00	9.669E-08	1.303E-08				

Total:	6.618E-06							

Gamma Spectroscopy Report generated 24-SEP-1998 13:25:31

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_12_GE3_800GSANDMG20_5183.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .12 Sample Quantity : 7.97370E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5183 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 24-SEP-1998 12:55:11
Decay time : 9 12:55:11.08 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.52

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	5.194E-06	8.130E-07	2.380E-07	2.455E-08
CO-60	0.000E+00	0.000E+00	3.361E-08	3.113E-09
NB-94	0.000E+00	0.000E+00	2.604E-08	3.134E-09
RU-106	0.000E+00	0.000E+00	2.888E-07	4.303E-08
SB-125	0.000E+00	0.000E+00	8.071E-08	1.085E-08
BA-133	0.000E+00	0.000E+00	3.785E-08	6.280E-09
CS-134	0.000E+00	0.000E+00	2.859E-08	3.224E-09
CS-137	2.196E-07	5.490E-08	3.454E-08	3.385E-09
CE-144	0.000E+00	0.000E+00	1.886E-07	3.179E-08
EU-152	0.000E+00	0.000E+00	7.086E-08	8.276E-09

RA-226	7.962E-07	1.235E-07	5.317E-08	5.932E-09				
-232	7.707E-07	1.511E-07	5.006E-08	6.533E-09				
35	7.526E-08	3.503E-08	4.206E-08	5.183E-09				
-241	0.000E+00	0.000E+00	9.412E-08	1.268E-08				

Total:	7.056E-06							

Gamma Spectroscopy Report generated 24-SEP-1998 13:57:17

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_13_GE3_800GSANDMG20_5184.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .13 Sample Quantity : 7.90360E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5184 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 24-SEP-1998 13:27:00
Decay time : 9 13:27:00.85 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.54

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	4.825E-06	8.229E-07	3.903E-07	4.025E-08
CO-60	0.000E+00	0.000E+00	3.115E-08	2.988E-09
NB-94	0.000E+00	0.000E+00	2.880E-08	3.466E-09
RU-106	0.000E+00	0.000E+00	2.458E-07	3.662E-08
SB-125	0.000E+00	0.000E+00	8.883E-08	1.195E-08
BA-133	0.000E+00	0.000E+00	3.523E-08	5.844E-09
CS-134	0.000E+00	0.000E+00	2.528E-08	2.851E-09
CS-137	2.214E-07	5.797E-08	3.789E-08	3.713E-09
-144	0.000E+00	0.000E+00	2.246E-07	3.785E-08
152	0.000E+00	0.000E+00	7.898E-08	9.225E-09

RA-226	8.310E-07	1.285E-07	5.546E-08	6.187E-09				
TH-232	8.076E-07	1.515E-07	4.923E-08	6.426E-09				
U-235	1.272E-07	5.280E-08	4.116E-08	5.073E-09				
AM-241	0.000E+00	0.000E+00	1.015E-07	1.367E-08				

Total:	6.812E-06							

VMS Gamma Spectroscopy Report generated 24-SEP-1998 14:34:17

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_14_GE3_800GSANDMG20_5185.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .14 Sample Quantity : 8.23280E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5185 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 24-SEP-1998 14:03:57
Decay time : 9 14:03:57.17 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.53

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	5.398E-06	8.933E-07	2.591E-07	2.673E-08
CO-60	0.000E+00	0.000E+00	3.149E-08	3.021E-09
NB-94	0.000E+00	0.000E+00	2.820E-08	3.394E-09
RU-106	0.000E+00	0.000E+00	2.585E-07	3.852E-08
SB-125	0.000E+00	0.000E+00	8.571E-08	1.153E-08
BA-133	0.000E+00	0.000E+00	3.818E-08	6.334E-09
CS-134	0.000E+00	0.000E+00	2.598E-08	2.929E-09
CS-137	2.667E-07	5.558E-08	3.345E-08	3.279E-09
CE-144	0.000E+00	0.000E+00	2.053E-07	3.459E-08
[illegible]52	0.000E+00	0.000E+00	7.157E-08	8.359E-09

RA-226	8.005E-07	1.286E-07	6.050E-08	6.749E-09				
TH-232	7.598E-07	1.538E-07	5.288E-08	6.902E-09				
U-235	1.007E-07	4.452E-08	4.226E-08	5.208E-09				
AM-241	0.000E+00	0.000E+00	9.358E-08	1.261E-08				
Total:	7.326E-06							

VMS Gamma Spectroscopy Report generated 25-SEP-1998 08:20:39

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_15_GE3_800GSANDMG20_5186.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .15 Sample Quantity : 9.52090E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5186 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 25-SEP-1998 07:50:16
Decay time : 10 07:50:16.93 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.55

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
Effic. cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	4.077E-06	6.877E-07	2.241E-07	2.311E-08
CO-60	0.000E+00	0.000E+00	2.847E-08	2.731E-09
NB-94	0.000E+00	0.000E+00	2.779E-08	3.345E-09
RU-106	0.000E+00	0.000E+00	2.190E-07	3.263E-08
SB-125	0.000E+00	0.000E+00	7.435E-08	9.998E-09
BA-133	0.000E+00	0.000E+00	3.231E-08	5.360E-09
CS-134	0.000E+00	0.000E+00	2.244E-08	2.531E-09
CS-137	2.234E-07	4.037E-08	3.345E-08	3.278E-09
CE-144	0.000E+00	0.000E+00	1.787E-07	3.010E-08
EU-152	0.000E+00	0.000E+00	6.737E-08	7.869E-09

RA-226	6.207E-07	1.032E-07	4.467E-08	4.983E-09				
TH-232	6.388E-07	1.426E-07	3.904E-08	5.096E-09				
U-235	1.189E-07	4.580E-08	3.634E-08	4.479E-09				
AM-241	0.000E+00	0.000E+00	9.029E-08	1.216E-08				

Total:	5.679E-06							

VMS Gamma Spectroscopy Report generated 25-SEP-1998 09:02:34

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_16_GE3_800GSANDMG20_5187.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .16 Sample Quantity : 7.72830E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5187 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 25-SEP-1998 08:32:17
Decay time : 10 08:32:17.64 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.53

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	7.392E-06	1.088E-06	2.898E-07	2.989E-08
CO-60	0.000E+00	0.000E+00	2.915E-08	2.796E-09
NB-94	0.000E+00	0.000E+00	3.199E-08	3.850E-09
RU-106	0.000E+00	0.000E+00	2.878E-07	4.288E-08
SB-125	0.000E+00	0.000E+00	9.269E-08	1.246E-08
BA-133	0.000E+00	0.000E+00	3.796E-08	6.298E-09
CS-134	0.000E+00	0.000E+00	2.887E-08	3.256E-09
CS-137	1.907E-07	4.233E-08	3.917E-08	3.839E-09
CE-144	0.000E+00	0.000E+00	2.180E-07	3.674E-08
152	0.000E+00	0.000E+00	7.733E-08	9.031E-09

RA-226	8.678E-07	1.367E-07	5.602E-08	7.404E-09				
TH-232	7.169E-07	1.556E-07	6.448E-08	8.417E-09				
U-235	1.129E-07	5.798E-08	4.377E-08	5.395E-09				
AM-241	0.000E+00	0.000E+00	1.067E-07	1.437E-08				

Total:	9.280E-06							

VMS Gamma Spectroscopy Report generated 25-SEP-1998 09:35:45

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_17_GE3_800GSANDMG20_5188.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .17 Sample Quantity : 7.57000E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5188 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 25-SEP-1998 09:05:25
Decay time : 10 09:05:25.01 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.56

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
[illegible]al. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	6.957E-06	1.041E-06	3.219E-07	3.320E-08
CO-60	0.000E+00	0.000E+00	2.932E-08	2.813E-09
NB-94	0.000E+00	0.000E+00	2.720E-08	3.274E-09
RU-106	0.000E+00	0.000E+00	2.900E-07	4.321E-08
SB-125	0.000E+00	0.000E+00	7.893E-08	1.061E-08
BA-133	0.000E+00	0.000E+00	3.588E-08	5.952E-09
CS-134	0.000E+00	0.000E+00	3.347E-08	3.774E-09
CS-137	2.740E-07	4.903E-08	3.542E-08	3.472E-09
CE-144	0.000E+00	0.000E+00	2.135E-07	3.597E-08
[illegible]52	0.000E+00	0.000E+00	8.484E-08	9.909E-09

RA-226	8.453E-07	1.379E-07	6.355E-08	8.400E-09			
TH-232	8.391E-07	1.605E-07	5.651E-08	7.375E-09			
U-235	1.363E-07	5.052E-08	4.683E-08	5.771E-09			
AM-241	0.000E+00	0.000E+00	1.078E-07	1.452E-08			
Total:	9.052E-06						

VMS Gamma Spectroscopy Report generated 25-SEP-1998 10:27:43

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_18_GE3_800GSANDMG20_5189.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .18 Sample Quantity : 7.48040E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5189 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 25-SEP-1998 09:57:26
Decay time : 10 09:57:26.31 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.50

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
F cal. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	7.673E-06	1.113E-06	2.360E-07	2.434E-08
CO-60	0.000E+00	0.000E+00	3.890E-08	3.603E-09
NB-94	0.000E+00	0.000E+00	3.131E-08	3.769E-09
RU-106	0.000E+00	0.000E+00	2.985E-07	4.448E-08
SB-125	0.000E+00	0.000E+00	7.865E-08	1.058E-08
BA-133	0.000E+00	0.000E+00	3.647E-08	6.051E-09
CS-134	0.000E+00	0.000E+00	2.824E-08	3.185E-09
CS-137	1.915E-07	4.319E-08	3.284E-08	3.218E-09
CE-144	0.000E+00	0.000E+00	2.181E-07	3.676E-08
152	0.000E+00	0.000E+00	8.174E-08	1.105E-08

RA-226	8.685E-07	1.401E-07	6.354E-08	8.399E-09				
TH-232	8.274E-07	1.589E-07	4.700E-08	6.135E-09				
U-235	1.303E-07	1.881E-07	4.295E-08	5.293E-09				
AM-241	0.000E+00	0.000E+00	9.567E-08	1.289E-08				
Total:	9.691E-06							

VMS Gamma Spectroscopy Report generated 25-SEP-1998 11:06:37

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_19_GE3_800GSANDMG20_5190.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : .19 Sample Quantity : 7.72260E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5190 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 25-SEP-1998 10:36:18
Decay time : 10 10:36:18.16 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.54

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
[illegible]al. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	8.291E-06	1.182E-06	2.901E-07	2.991E-08
CO-60	0.000E+00	0.000E+00	3.336E-08	3.200E-09
NB-94	0.000E+00	0.000E+00	2.899E-08	3.490E-09
RU-106	0.000E+00	0.000E+00	2.806E-07	4.181E-08
SB-125	0.000E+00	0.000E+00	9.284E-08	1.248E-08
BA-133	0.000E+00	0.000E+00	3.883E-08	6.442E-09
CS-134	0.000E+00	0.000E+00	2.662E-08	3.002E-09
CS-137	2.352E-07	5.586E-08	3.472E-08	3.403E-09
CE-144	0.000E+00	0.000E+00	2.199E-07	3.705E-08
[illegible]152	0.000E+00	0.000E+00	8.097E-08	9.457E-09

RA-226	8.949E-07	1.390E-07	5.421E-08	6.047E-09				
TH-232	7.663E-07	1.638E-07	4.814E-08	6.283E-09				
U-235	1.425E-07	4.414E-08	4.079E-08	5.027E-09				
AM-241	0.000E+00	0.000E+00	1.046E-07	1.409E-08				
Total:	1.033E-05							

VMS Gamma Spectroscopy Report generated 25-SEP-1998 11:37:43

Configuration : SYS$SYSDEVICE:[GAMMA.SCUSR.ARCHIVE]SMP_20_GE3_800GSANDMG20_5191.CNF;1

---- Sample Information ----

Sample Title : 4455
Sample ID : 20 Sample Quantity : 7.14080E+02 G
Sample Type : Soil Sample Geometry : Soil
Sample Number : 5191 Spctrm Collector :
Sample Collector : Sample Analyst :

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 15-SEP-1998 00:00:00

---- Sample Decay/Count Information ----

Sample Date : 15-SEP-1998 00:00:00 Acquisition date : 25-SEP-1998 11:07:25
Decay time : 10 11:07:25.95 % dead time : 0.0%
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.49

---- Detector Parameters ----

Energy cal. time : 23-SEP-1998 09:59:35 Energy cal. oper.:
Detector name : GE3 Counting geometry: 800G_sand_mg20
E[illegible]al. time : 23-SEP-1998 09:57:56 Effic. cal. oper.:

---- Processing Parameters ----

Start channel : 50 End channel : 4096
Sensitivity : 3.00000 Gaussian Sens. : 5.00000
Critical level? : No Propagate Errors?: Yes
Empirical Eff? : Yes Library-based eff: Yes
Energy tolerance : 1.50000 Half life ratio : 8.00000
Abundance limit : 60.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Nuclide	Activity (uCi/G)	Activity 2-Sigma Error	MDA (uCi/G)	MDA 2-Sigma Error
K-40	7.015E-06	1.036E-06	3.278E-07	3.381E-08
CO-60	0.000E+00	0.000E+00	4.125E-08	3.957E-09
NB-94	0.000E+00	0.000E+00	2.969E-08	3.574E-09
RU-106	0.000E+00	0.000E+00	3.481E-07	5.187E-08
SB-125	0.000E+00	0.000E+00	8.311E-08	1.118E-08
BA-133	0.000E+00	0.000E+00	3.933E-08	6.524E-09
CS-134	0.000E+00	0.000E+00	3.077E-08	3.470E-09
CS-137	2.080E-07	4.399E-08	3.650E-08	3.577E-09
CE-144	0.000E+00	0.000E+00	2.100E-07	3.538E-08
[illegible]52	0.000E+00	0.000E+00	8.337E-08	1.127E-08