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October 30, 1996

EG&G MOUND-30-01-03---9611260075

Ms. Debra White
Environmental Protection Specialist
U.S. Department of Energy
Miamisburg Environmental Management Project
P.O. Box 66
Miamisburg, OH 45343-0066

Dear Debbie:

RE: Updates To Soil Gas Confirmation Report

Please accept ten copies of updates to the Soil Gas Confirmation Report. I have added Section 4 Summary and Conclusion and made several minor corrections in Appendix A. Those include removing non-detect values mistakenly included, adding zinc values for sample numbers 3 and 61, correcting PAH results for Samples 21 and 34, and removing J qualifiers on inorganic results for samples 12, 13, 26, 92 and 95. None of the corrections result in any new values exceeding background or guideline criteria.

Please call if you have any questions or comments please call me at extension 3853.

Yours truly,

Jim Rigano
OU9 Program Manager

JR/nr
Enclosures (10 copies)

cc: Art Kleinrath, DOE/MB

MOUND

Environmental
Restoration
Program

Further Assessment

Soil Gas Confirmation Sampling

Mound Plant
Miamisburg, Ohio

October 1996

Revision 1

Department of Energy

EG&G Mound Applied Technologies

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The soil gas confirmation sampling team consisted of personnel from EG&G Mound Applied Technologies (program management, technical assistance and radiological analyses), Terran Corporation (project management, field sampling, laboratory liaison, data validation and reporting), Innovative Probing Solutions (core drilling), Weston Analytics Division (chemical analyses), Quanterra Environmental Services (radiological analyses) and The Labyrinth Group (radiological data validation).

Mr. Roger W. McCready was the Project Manager for Terran Corporation during the sampling and analysis program, and during the reporting phase. Ms. Amy D. Lamborg was the field team leader. Ms. Amy D. Lamborg, Ms. Joenelle Hora, and Mr. James Rigano were the report authors.

1.0 INTRODUCTION

1.1. BACKGROUND

In 1994 and 1995 as part of the Operable Unit 5 Investigations, the Mound ER Program conducted an extensive soil gas survey to search for possible organic chemical contamination in the soils. The survey was conducted on the southern portion of the plant property and identified a number of areas where elevated concentrations of organic chemicals exist. Based on these results, the Mound ER Program identified 49 potential release sites due to the possible organic chemical contamination.

Potential Release Sites (PRSs) Identified from Soil Gas Survey Results

346	356	363	370	381	389	396
347	357	364	372	382	390	397
348	358	365	374	383	391	398
351	359	366	375	384	392	399
352	360	367	377	386	393	402
353	361	368	378	387	394	403
355	362	369	380	388	395	404

While the soil gas survey identified areas where concentrations of organic chemicals were elevated in comparison to other soils, it did not quantify the results in terms that could be directly compared to clean-up guidelines. The ER Program, in conjunction with US EPA and Ohio EPA developed the Soil Gas Confirmation Sampling Plan to examine the locations with the highest soil gas measurements so that the hazard associated with the elevated measurements could be assessed. In addition, these results may be useful in addressing the risks associated with potential release sites other than those listed above.

A secondary, and unrelated, objective of this investigation was to perform a number of interlaboratory comparisons between contracted wet radiochemistry laboratories, the Mound Plant Environmental Wet Radiochemistry Laboratory, and the Mound Plant Soil Screening Laboratory. Thirty-one locations, selected by Ohio EPA, were used in the laboratory intercomparison study.

This report documents the results of Soil Gas Confirmation sampling and analysis and the results of the laboratory intercomparison study. These data will supplement Potential Release Site (PRS) data packages and be considered in determining the final disposition of the sites identified above. The Mound ER Program, US EPA, and Ohio EPA will evaluate the results of laboratory intercomparisons.

Terran Corporation of Beavercreek, Ohio, with assistance from Innovative Probing Solutions of Mt. Vernon, Illinois, sampled 100 locations in adherence to the Soil Gas Confirmation Sampling Plan (see appendix) which was consistent with the Operable Unit 9, Site-Wide, Quality Assurance Project Plan (QAPP) and Standard Operating Procedures (SOPs). Samples were collected from February 5 to February 21, 1996.

The parameters analyzed at each sampling location include:

Volatile Organic Compounds (VOCs) by CLP Method OLM01.8 including Modification D
Semivolatile Organic Compounds (SVOCs) by CLP Method OLM01.8 including Modification D
Pesticides/Polychlorinated Biphenyls (PCB's) by CLP Method OLM01.8
USATHAMA and PETN Explosives by Weston OP 21-16L-8330.1
Target Analyte List (TAL) Inorganics by CLP Method ILM03.0 including Modification A
Nitrate/Nitrite by CLP Method ILM04.4
Radionuclides screening by Mound Method MD--80030 operation #1355
Quantitative radionuclides by several contract laboratory and Mound SOPs

Table I.1 presents the complete analyte list.

Table I.1 Soil Analyte List

Volatile Organic Compounds

Acetone	Dibromochloromethane	4-Methyl-2-Pentanone
Benzene	1,1-Dichloroethane	Styrene
Bromodichloromethane	1,2-Dichloroethane	1,1,2,2-Tetrachloroethane
Bromoform	1,1-Dichloroethene	Tetrachloroethene
Bromomethane	1,2-Dichloroethene (total)	1,1,1-Trichloroethane
2-Butanone	1,2-Dichloropropane	1,1,2-Trichloroethane-
Carbon Disulfide	cis-1,3-Dichloropropene	Trichloroethene
Carbon Tetrachloride	trans-1,3-Dichloropropene	Toluene
Chlorobenzene	Ethylbenzene	Vinyl Acetate
Chloroethane	2-Hexanone	Vinyl Chloride
Chloroform	Methylene Chloride	Xylenes (total)
Chloromethane		

Semivolatile Organic Compounds

Acenaphthene	Chrysene	Hexachlorobenzene
Acenaphthylene	Dibenz(a,h)anthracene	Hexachlorobutadiene
Anthracene	Dibenzofuran	Hexachlorocyclopentadiene
Benzo(a)anthracene	1,2-Dichlorobenzene	Hexachloroethane
Benzo(a)pyrene	1,3-Dichlorobenzene	Indeno(1,2,3-cd)pyrene
Benzo(b)fluoranthene	1,4-Dichlorobenzene	Isophorone
Benzo(g,h,i)perylene	3,3-Dichlorobenzidine	2-Methylnaphthalene
Benzo(k)fluoranthene	2,4-Dichlorophenol	2-Methylphenol
bis(2-Chloroethoxy)methane	Diethylphthalate	4-Methylphenol
bis(2-Chloroethyl)ether	2,4-Dimethylphenol	Naphthalene
bis(2-Ethylhexyl)phthalate	Dimethyphthalate	2-Nitroaniline
4-Bromophenyl-phenylether	Di-n-butylphthalate	3-Nitroaniline
Butylbenzylphthalate	Di-n-octylphthalate	4-Nitroaniline
Carbazole	4,6-Dinitro-2-methylphenol	Nitrobenzene
4-Chloroaniline	2,4-Dinitrophenol	2-Nitrophenol
4-Chloro-3-methylphenol	2,4-Dinitrotoluene	4-Nitrophenol
2-Chloronaphthalene	2,6-Dinitrotoluene	N-Nitroso-di-n-propylamine
2-Chlorophenol	Fluoranthene	N-Nitroso-diphenylamine
4-Chlorophenyl-phenylether	Fluorene	2,2-oxybis(1-Chloropropane)
Pentachlorophenol	Pyrene	2,4,5-Trichlorobenzene
Phenanthrene	1,2,4-Trichlorobenzene	2,4,6-Trichlorobenzene
Phenol		

Table I.1 Soil Analyte List (Continued)

Pesticides/PCB's		
Aroclor-1016	Delta-BHC	Endosulfan II
Aroclor-1221	Gamma-BHC	Endosulfan sulfate
Aroclor-1232	alpha-Chlordane	Endrin
Aroclor-1242	gamma-Chlordane	Endrin aldehyde
Aroclor-1248	4,4'-DDD	Endrin ketone
Aroclor-1254	4,4'-DDE	Heptachlor
Aroclor-1260	4,4'-DDT	Heptachlor epoxide
Aldrin	Dieldrin	Methoxychlor
Alpha-BHC	Endosulfan I	Toxaphene
Beta-BHC		
Inorganics		
Aluminum	Copper	Potassium
Antimony	Cyanide	Selenium
Arsenic	Iron	Silver
Barium	Lead	Sodium
Beryllium	Lithium	Thallium
Bismuth	Magnesium	Tin
Cadmium	Manganese	Vanadium
Calcium	Mercury	Zinc
Chromium	Molybdenum	Nitrate/Nitrite
Cobalt	Nickel	Explosives (USATHAMA,PETN)
Radionuclides		
Americium-241	Plutonium-238	Thorium-230
Bismuth-207	Plutonium-239/240	Thorium-232
Bismuth-210	Potassium-40	Uranium-234
Cesium-137	Radium-226	Uranium-235
Cobalt-60	Thorium-228	Uranium-238

1.2. SAMPLE NUMBERING SCHEME

The sample identification numbers were assigned by Mound to each location in the following format: XXX-AAA-######. For each location, the first three characters were SGC, identifying the sample as part of the soil gas confirmation study. The next three characters represented the area from which each sample was taken:

A03 = Area 3
A07 = Area 7
A13 = Area 13
A21 = Area 21
A22 = Area 22
SDB = Area SDB
AOJ = Area AOJ
NAC = Non-AOC areas (Area of Concern)
SAN = Sanitary area

The final six digits were a sequential number beginning with 000001. The samples related to this study begin with 000001 and end with 000102. Due to an error in surveying, samples 000099 and 000100 were taken from the wrong locations. The sites were resurveyed and the samples were taken again, renamed as 000101 and 000102. No other problems arose with the sample identification.

1.3 SURVEYING

Prior to this sampling event, surveying relocated each of the 100 sites based on coordinates from a previous soil gas sampling event. Surveyors from Barge, Waggoner, Sumner and Cannon, of Miamisburg, Ohio, completed the task, using a benchmark map of approximately 50 locations with state plane coordinates provided by EG&G. Each point was relocated with an accuracy of ±6 inches and identified with either a 3-foot stake with orange flagging tape and the sample identification number or a pin driven into the ground through orange flagging with the sample identification number written on the flagging. The surveyed sampling locations are shown on Figure 1.1.

1.4 UTILITIES CLEARANCE/VARIANCES

After surveying, all sites were checked for the presence of underground utilities by EG&G personnel. The requirement states that sample sites must be located five feet or more from utilities. Situations in which the 5-foot rule was not met were handled in one of three ways: 1) **relocations** - sample sites were placed 5 feet or more from utility markings and normal sampling procedures were followed; 2) **hand-digging** - the VOC sample soil was collected using the core sampler, which was driven only to the depth necessary to collect the VOC sample, and the remaining soil was collected using a hand auger; or 3) **variances to the 5-foot clearance requirement** - some sites were located near visible utilities, so after safe clearance was established, normal sampling procedures were followed. Alternatively, some locations had underground utilities at relatively deeper depths. At these locations, normal sampling procedures were followed except that digging/coring was limited to two feet instead of the established three feet. No utilities were damaged during the sampling event.

Some locations had no utility interference but still could not be sampled to three feet due to "refusal"--an inability to drive the sampler deeper. This usually indicates that bedrock or large gravel has been reached. In such cases, multiple shallow cores were taken.

A complete list of sites with variances to the original soil gas sampling location or depth can be found in Table I.2.

1.5 SOIL SAMPLING METHODOLOGY

Soil was collected at each location using either a van-mounted Geoprobe® rig equipped with a core sampler, an electric hammer equipped with a core sampler, or a hand auger. The device chosen depended upon the particulars of the location. Acetate liners were used in the Geoprobe® core barrel and the hand-held core sampler. The liners were cut open with utility knives, using a new blade at each site.

The first six inches of the core, designated for radionuclide analysis, were removed using a clean, stainless steel scoop and placed in a clean stainless steel bowl to be homogenized. Soil was cut from between the 6-inch and 1-1/2 foot depth and placed directly into jars appropriate for volatile organic compound (VOC) analysis, leaving as little headspace as possible. The remaining soil was then placed into another clean stainless steel bowl. If necessary to obtain sufficient sample volume, another core was taken, and the above process was repeated. When enough soil was collected to fill all the sample jars, the contents of both bowls were individually homogenized and used to fill their respective containers. The jars were labeled prior to being filled. Each sample was then secured with a custody seal, sealed in a plastic bag and stored in a refrigerator in Building 19. Radiological samples were delivered to the Mound Environmental Laboratory for screening. Several duplicate radiological samples were collected and set aside for later analysis by the Mound wet chemistry laboratory. After screening clearance was obtained from the Mound Environmental Laboratory, the samples were sealed in coolers and shipped to off-site contract laboratories for analysis. The contract laboratory for radionuclide analysis was Quanterra Environmental Services in Richland, Washington. All other analyses were completed by Roy F. Weston, Incorporated Laboratory in Lionville, Pennsylvania.

Table I.2. Variance From 3-Foot Sampling Depth Specification

Location	Description of Variance
SGC-NAC-000001	Core sampler hit refusal at 2 feet.
SGC-NAC-000002	Relocated due to utilities.
SGC-NAC-000003	Core sampler hit refusal at 2 feet.
SGC-NAC-000004	Core sampler hit refusal at 18 inches.
SGC-NAC-000005	Drilled to 1 foot, hand-augered rest due to utilities.
SGC-NAC-000006	Drilled to 1 foot, hand-augered rest due to utilities.
SGC-NAC-000007	Core sampler hit refusal at 18 inches.
SGC-NAC-000008	Drilled to 2 feet due to utilities.
SGC-NAC-000010	Drilled to 1 foot; hand-augered rest due to utilities; flag against building, so sample taken 6 feet from flag.
SGC-NAC-000012	Drilled to 2 feet due to utilities.
SGC-SAN-000018	Core sampler hit refusal at 2 feet; relocated from inside clarifier.
SGC-NAC-000029	Core sampler hit refusal at 18 inches.
SGC-A61-000043	Sampled 1 foot from flag.
SGC-A61-000047	Drilled to 2 feet due to utilities.
SGC-A61-000048	Drilled to 2 feet due to utilities.
SGC-A61-000049	Relocated due to utilities.
SGC-A61-000051	Core sampler hit refusal at 18 inches.
SGC-A61-000052	Relocated due to utilities; core sampler hit refusal at 18 inches.
SGC-A61-000053	Core sampler hit refusal at 2 feet.
SGC-A13-000056	Core sampler hit refusal at 18 inches
SGC-A13-000058	Drilled to 1 foot, hand-augered rest due to utilities.
SGC-A13-000060	Core sampler hit refusal at 1 foot.
SGC-AOJ-000064	Core sampler hit refusal at 2 - 3 inches.
SGC-AOJ-000066	Core sampler hit refusal at 4 inches.
SGC-AOJ-000067	Core sampler hit refusal at 6 inches.
SGC-AOJ-000069	Core sampler hit refusal at 2 feet.
SGC-A03-000080	Core sampler hit refusal at 20 inches
SGC-A03-000081	Drilled to 2 feet due to utilities.
SGC-A03-000082	Drilled to 1 foot, hand-augered rest due to utilities.
SGC-A03-000083	Sampled 25 feet from original location due to storm sewer; core sampler hit refusal at 18 inches.
SGC-A03-000087	Core sampler hit refusal at 2 feet.
SGC-A21-000088	Core sampler hit refusal at 18 inches.
SGC-A21-000090	Core sampler hit refusal at 20 inches.
SGC-SDB-000097	Relocated due to utilities.
SGC-SDB-000098	Relocated from inside a building.
SGC-SDB-000101	Relocation of SGC-SDB-000099; first location surveyed incorrectly.
SGC-SDB-000102	Relocation of SGC-SDB-000100; first location surveyed incorrectly.

2.0 HEALTH AND SAFETY

2.1 TERRAN CORPORATION

Strict health and safety protocol was followed throughout the sampling event. Special attention was paid to cold stress, noise and worker protection in radiological areas. Only workers with Rad. II Training were permitted to sample in areas that potentially or have had above background levels of radionuclides. Organic vapors were monitored at every location by each sampling team. No problems were encountered. Health and Safety meetings were held each morning in Building 19, attended by all samplers, drillers and Health - Physics personnel. Potential safety hazards were discussed and precautions against them were identified and explained.

2.2 MOUND HEALTH - PHYSICS

Mound Health - Physics personnel were present at all times during drilling and sampling. Monitoring for radiation was done prior to drilling and as each core was brought up. No problems were encountered.

3.0 RESULTS OF SOIL ANALYSES

3.1. LABORATORY DATA VALIDATION

The analytical results were reviewed for compliance with the OU-9 QAPP QA/QC (Quality Assurance/Quality Control) requirements. At least 10% of all laboratory data packages were validated in accordance with Appendix H of the OU-9 QAPP (April 1995, Final). The remaining data packages were reviewed for completeness and QC compliance. No data were rejected as unusable. A summary of the validation report and of QA/QC protocols are presented in Appendix A. The complete set of laboratory results for each monitoring location may be found on Form 1 of the respective laboratory batch. Electronic Data Deliverables, in the format required by the OU-9 QAPP, were provided by the laboratory. The electronic data was entered into the Mound MEIMS database.

3.2. ANALYTICAL RESULTS ABOVE DETECTION LIMITS

3.2.1. Volatile Organic Compounds

Soil samples were analyzed for VOCs, and the following compounds were detected: acetone, 1,2-dichloroethene (total), 2-butanone, benzene, carbon disulfide, chloroform, chloromethane, ethylbenzene, methylene chloride, tetrachloroethene, toluene, trichloroethene, and xylene (total). The detected concentrations are listed in Table A.1.

3.2.2. Semivolatile Organic Compounds

Soil samples were analyzed for SVOCs. The compounds detected were: acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, carbazole, chrysene, di-n-butyl phthalate, di-n-octyl phthalate, dibenz(a,h)anthracene, dibenzofuran, diethyl phthalate, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, phenol, and pyrene. The detected concentrations are listed in Table A.2.

3.2.3. Pesticides/PCB's

Pesticides and PCB compounds were analyzed for, and those above detection limits were: aroclor-1248, aroclor-1254, alpha-chlordane, gamma-chlordane, 4,4'DDT, dieldrin, endosulfan I, endosulfan II, endrin, and heptachlor. The concentrations of these detected compounds can be found in Table A.3.

3.2.4. Explosives

Explosives (USATHAMA and PETN) were analyzed for but not detected in any of the soil samples.

3.2.5. Target Analyte List (TAL) Inorganics

TAL Inorganics (metals and cyanide) were analyzed. Each sampling location contained at least one analyte above detection limits. All the detected concentrations of the investigative samples can be found in Table A.4. In several samples, the measured concentrations of some analytes were higher in QC samples than in investigative samples. These instances are listed in Table III.1, and include 1) when the QC sample showed a value higher than the detection limits and the investigative sample did not, or 2) when the concentration of the QC sample was much higher than that of the investigative sample concentration.

Table III.1. Inorganic Results Differences

Location	Analyte	Sample Result	QC Result	Type of QC
SGC-NAC-000002	Aluminum	4190	9100	duplicate
	Arsenic	2.1 B	2.7	duplicate
	Beryllium	0.04 U	0.3	duplicate
	Chromium	6.7	12.8	duplicate
	Lithium	9.9	20.2	duplicate
	Nickel	12.5 B	25.5	duplicate
SGC-NAC-000007	Sodium	246 B	246000	rinsate
SGC-NAC-000008	Sodium	341 B	251000	rinsate
SGC-A61-000049	Barium	34.7 B	53.5	duplicate
	Mercury	0.06 U	0.08 B	duplicate
SGC-A0J-000077	Cobalt	11.1 B	13.0	duplicate
SGC-A03-000081	Antimony	0.2 U	0.24 B	duplicate
SGC-A03-000085	Cyanide	0.56 U	0.96	duplicate
	Lithium	19 B	23.9	duplicate

U - Analyte was not detected. Value listed is detection limit.
B - Analyte was detected below Contract Required Detection Limit (CRDL), but above instrument detection limit.
mg/kg - milligrams per kilogram

3.2.6. Nitrate/Nitrite

Soil samples were analyzed for nitrate/nitrite concentrations, and results were reported as nitrogen (N). Concentrations of nitrate/nitrite were found at each location, and the results are located in Table A.5.

3.2.7. Radionuclides

Soil from each location was analyzed for radionuclides, and the following isotopes were detected: Americium(Am)-241, Bismuth(Bi)-207, Bismuth(Bi)-210, Cesium(Cs)-137, Cobalt (Co)-60, Plutonium (Pu)-238, Plutonium(Pu) 239/240, Potassium(K)-40, Radium(Ra)-226, Thorium (Th)-228, Thorium (Th)-230, Thorium(Th)-232, Uranium(U)-234, Uranium(U)-235, and Uranium(U)-238. In some results, the sample concentration was below the 10^{-6} Construction Worker Guidelines, but duplicates of those samples showed results above the Guideline values. Table III.2. compares the results. All detected isotope values can be found in table A.6. Potassium-40 was detected at high concentrations in all rinsate blanks and at low concentrations in several soil samples. Upon closer look, it was discovered that the rinsate blanks were analyzed in water-only batches due to the differences between analytical methods for water and soil. Laboratory blanks from the rinsate batches revealed high concentrations of Potassium-40, while the laboratory blanks from the soil batches revealed little or no Potassium-40. It was, therefore, determined that the rinsate blanks were contaminated by the laboratory analytical method and not by the sampling team field decontamination process.

Table III.2. Radionuclide Results Differences

Location	Analyte	Sample Result	QC Result (pCi/g)	Guideline
SGC-A61-000051	Cs-137	0.182 U	0.688	0.46
	Ra-226	0.964	0.642	0.14
	Th-228	0.634	0.909	0.85
SGC-A03-000084	Th-228	0.690	5.720	0.85

pCi/g - picocuries per gram
U - Analyte was not detected. Value listed is detection limit.

3.2.8. Analytical Data Comparisons

Tables and graphs are provided in Appendix B which make comparisons between radiological data from several sources. Table B.1 provides comparisons for samples which were analyzed by the contract laboratory Quanterra, the Mound Wet Chemistry Laboratory and the Mound Screening Laboratory. Although all radiological sample collected during this program were sent to both Quanterra and the Mound Screening Laboratory only selected samples were sent to the Mound Wet Chemistry laboratory. Only those samples sent to all three labs appear on this table. Table B.2 contains comparisons between Quanterra and the Mound Screening laboratory for all other samples. When using these tables for comparison, it should be kept in mind that the screening lab method detection limit is 25 pCi/g. For Quanterra and the Mound Wet Chemistry Laboratory method detection limits are generally less than 1.0 pCi/g. The graphs illustrate the data presented in the tables.

4.0 SUMMARY AND CONCLUSIONS

In 1994 as part of Operable Unit 5 (OU5) investigations, the Mound ER Program conducted a PETREX soil gas survey of the southern portion of the plant property. The investigation was designed to screen soils for evidence of organic chemical contamination. PETREX is a qualitative technique where carbon elements in open-ended glass tubes are placed approximately 18 inches under the soil's surface. The carbon is allowed to absorb chemicals for about a month before it is retrieved and analyzed. The PETREX samplers were installed in the north, east, south, and west quadrants of OU5. In addition, a number of specific areas were targeted.

The analytical results were presented in four chemical categories: petroleum hydrocarbons, semivolatile organic compounds, halogenated hydrocarbons, and aromatic hydrocarbons. The PETREX investigation identified numerous areas where organic chemical concentrations were elevated compared to surrounding soils. Having identified elevated areas, this Soil Gas Confirmation Sampling project was designed to determine if hazardous levels of chemicals exist.

The Soil Gas Confirmation project targeted the five highest PETREX detections in each quadrant or area for each chemical category. Where PETREX data showed contiguous areas with elevated chemical concentrations, only the point with the maximum PETREX level was sampled from that contiguous area.

The Soil Gas Confirmation data assesses contamination levels in three different ways. In some cases, locations previously identified as a potential release site (PRS) were sampled directly. In these cases, the results obtained from those locations will be incorporated directly into the appropriate PRS data packages. In other cases, several samples were collected near, or within, a PRS. The relevant results will be incorporated into the PRS data packages.

In the third case, no direct or nearby Soil Gas Confirmation samples exist for a PRS. Since Soil Gas Confirmation sampling targeted the highest PETREX results, samplers placed in similar soils for the same amount of time can be compared against these highest results. The following example illustrates this.

The table below lists the PETREX and Soil Gas Confirmation Sampling results for the locations with the highest PETREX results, and also compares these results to the relative ion counts for PRSs 389 and 392:

PETREX Soil Gas Contaminant Family	Maximum PETREX Result (Ion Counts)	Confirm Sample #	Confirmation Sample Results that Exceed Guideline Criteria (GC)	Ion Counts at PRSs 389 and 392	
Total Aromatic Hydrocarbons	6,078,070	(#000005)	None	1,727,811 38,590	PRS 389 PRS 392
Total Semivolatile Hydrocarbons	744,700	(#000009)	None	158,310 No Detect	PRS 389 PRS 392
Total C5-C11 Petroleum Hydrocarbons	11,565,340	(#000005)	None	4,845,396 103,682	PRS 389 PRS 392
Total Halogenated Hydrocarbons	89,852	(#000006)	450 ug/kg Benzo(a)pyrene (GC = 410 ug/kg)	No Result 40,930	PRS 389 PRS 392

The above table makes no conclusions about individual contaminant concentrations at PRSs 389 and 392 only that the overall health risk from PRSs 389 and 392 is expected to be similar to or less that of the PETREX locations with the highest measured ion counts.

APPENDIX A

SOIL GAS CONFIRMATION DETECTED TABLES

Table A.1

Detected Volatile Organic Compounds (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000002	SGC-NAC-000003	SGC-NAC-000004	SGC-NAC-000005	SGC-NAC-000006
PETREX Sample Area			NORTH	NORTH	NORTH	EAST	EAST
Acetone	NA	21000000	36				
1,2-Dichloroethene (total)	NA	43000000					
2-Butanone	NA	93000000	12				
Benzene	NA	8.90E+03	1 J				
Carbon Disulfide	NA	280000					
Chloroform	NA	3100			67		
Chloromethane	NA	NA					
Ethylbenzene	NA	480					
Methylene Chloride	NA	3.95E+05	6			7	8
Tetrachloroethene	NA	21000000					
Toluene	NA	250000	1 J	1 J			
Trichloroethene	NA	41000					
Xylene (total)	NA	430000000					

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.1

Detected Volatile Organic Compounds (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000007	SGC-NAC-000010	SGC-NAC-000011	SGC-NAC-000012	SGC-NAC-000013
PETREX Sample Area			WEST	EAST	WEST	EAST	EAST
Acetone	NA	21000000					
1,2-Dichloroethene (total)	NA	43000000					
2-Butanone	NA	93000000				8 J	10 J
Benzene	NA	8.90E+03					
Carbon Disulfide	NA	280000					4 J
Chloroform	NA	3100					
Chloromethane	NA	NA		4 J			
Ethylbenzene	NA	480					
Methylene Chloride	NA	3.95E+05		8			
Tetrachloroethene	NA	21000000					
Toluene	NA	250000			2 J		
Trichloroethene	NA	41000	7				
Xylene (total)	NA	430000000					

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.1

Detected Volatile Organic Compounds (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000014	SGC-NAC-000015	SGC-NAC-000016	SGC-NAC-000017	SGC-NAC-000018
PETREX Sample Area			SOUTH	SOUTH	SOUTH	SOUTH	WEST
Acetone	NA	21000000					
1,2-Dichloroethene (total)	NA	43000000		96			
2-Butanone	NA	93000000					
Benzene	NA	8.90E+03		2 J			
Carbon Disulfide	NA	280000					
Chloroform	NA	3100					
Chloromethane	NA	NA					
Ethylbenzene	NA	480		1 J			
Methylene Chloride	NA	3.95E+05			21 B		10
Tetrachloroethene	NA	21000000					
Toluene	NA	250000		28			
Trichloroethene	NA	41000		3 J			
Xylene (total)	NA	430000000	1 J	4 J			

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.1

Detected Volatile Organic Compounds (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000019	SGC-NAC-000020	SGC-NAC-000022	SGC-NAC-000023	SGC-NAC-000025
PETREX Sample Area			WEST	WEST	WEST	SOUTH	SOUTH
Acetone	NA	21000000		36			
1,2-Dichloroethene (total)	NA	43000000					
2-Butanone	NA	93000000		6 J			
Benzene	NA	8.90E+03					
Carbon Disulfide	NA	280000					
Chloroform	NA	3100					
Chloromethane	NA	NA					
Ethylbenzene	NA	480					
Methylene Chloride	NA	3.95E+05		17	10		
Tetrachloroethene	NA	21000000					
Toluene	NA	250000	1 J	2 J		4 J	2 J
Trichloroethene	NA	41000	7				
Xylene (total)	NA	430000000					

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.1

Detected Volatile Organic Compounds (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000030	SGC-NAC-000031	SGC-NAC-000032	SGC-NAC-000034	SGC-NAC-000036
PETREX Sample Area			EAST	NORTH	WEST	SOUTH	New Propty
Acetone	NA	21000000	39		29		
1,2-Dichloroethene (total)	NA	43000000					
2-Butanone	NA	93000000	9 J		6 J		
Benzene	NA	8.90E+03					
Carbon Disulfide	NA	280000					
Chloroform	NA	3100					
Chloromethane	NA	NA					
Ethylbenzene	NA	480					
Methylene Chloride	NA	3.95E+05	12	14	10		17
Tetrachloroethene	NA	21000000					
Toluene	NA	250000		2 J	1 J	2 J	
Trichloroethene	NA	41000					
Xylene (total)	NA	430000000		2 J			

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.1

Detected Volatile Organic Compounds (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000037	SGC-NAC-000038	SGC-NAC-000039	SGC-A66-000040	SGC-A66-000041
PETREX Sample Area			New Propty	New Propty	New Propty	NORTH	NORTH
Acetone	NA	21000000					88
1,2-Dichloroethene (total)	NA	43000000					
2-Butanone	NA	93000000					7 J
Benzene	NA	8.90E+03					
Carbon Disulfide	NA	280000					
Chloroform	NA	3100					
Chloromethane	NA	NA					
Ethylbenzene	NA	480					
Methylene Chloride	NA	3.95E+05	12	12		8	7
Tetrachloroethene	NA	21000000					
Toluene	NA	250000	1 J		1 J		
Trichloroethene	NA	41000					
Xylene (total)	NA	430000000					

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.1

Detected Volatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A61-000042	SGC-A61-000043	SGC-A61-000045	SGC-A61-000046	SGC-A61-000053
PETREX Sample Area			AREA 61	AREA 61	AREA 61	AREA 7	AREA 7
Acetone	NA	21000000			8 J	17	
1,2-Dichloroethene (total)	NA	43000000					
2-Butanone	NA	93000000		5 J-C	5 J		
Benzene	NA	8.90E+03					
Carbon Disulfide	NA	280000					
Chloroform	NA	3100					
Chloromethane	NA	NA					
Ethylbenzene	NA	480					
Methylene Chloride	NA	3.95E+05	6	9	8	9	4 J
Tetrachloroethene	NA	21000000					
Toluene	NA	250000		2 J	3 J		
Trichloroethene	NA	41000					
Xylene (total)	NA	430000000					

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.1

Detected Volatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A61-000054	SGC-A61-000055	SGC-A13-000057	SGC-A13-000058	SGC-A13-000059
PETREX Sample Area			AREA 7	AREA 7	AREA 13	AREA 13	AREA 13
Acetone	NA	21000000					
1,2-Dichloroethene (total)	NA	43000000					
2-Butanone	NA	93000000					
Benzene	NA	8.90E+03					
Carbon Disulfide	NA	280000					
Chloroform	NA	3100					
Chloromethane	NA	NA					
Ethylbenzene	NA	480					
Methylene Chloride	NA	3.95E+05	7			7	
Tetrachloroethene	NA	21000000					
Toluene	NA	250000		1 J			3 J
Trichloroethene	NA	41000			3 J		
Xylene (total)	NA	430000000					1 J

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.1

Detected Volatile Organic Compounds (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A13-000061	SGC-AOJ-000063	SGC-AOJ-000065	SGC-AOJ-000072	SGC-AOJ-000073
PETREX Sample Area			AREA 13	AREA J	AREA J	AREA J	AREA J
Acetone	NA	21000000					
1,2-Dichloroethene (total)	NA	43000000	36				
2-Butanone	NA	93000000					10
Benzene	NA	8.90E+03					
Carbon Disulfide	NA	280000					
Chloroform	NA	3100					
Chloromethane	NA	NA					
Ethylbenzene	NA	480					
Methylene Chloride	NA	3.95E+05			35	11	
Tetrachloroethene	NA	21000000	1 J				
Toluene	NA	250000		1 J		2 J	
Trichloroethene	NA	41000	43000 D				
Xylene (total)	NA	430000000					

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.1

Detected Volatile Organic Compounds (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-AOJ-000074	SGC-AOJ-000075	SGC-AOJ-000076	SGC-A03-000079	SGC-A03-000081
PETREX Sample Area			AREA J	AREA J	AREA J	AREA 3	AREA 3
Acetone	NA	21000000		7 J			
1,2-Dichloroethene (total)	NA	43000000					
2-Butanone	NA	93000000					
Benzene	NA	6.90E+03					
Carbon Disulfide	NA	280000					
Chloroform	NA	3100					
Chloromethane	NA	NA					
Ethylbenzene	NA	480					
Methylene Chloride	NA	3.95E+05	10	12	11		6
Tetrachloroethene	NA	21000000					
Toluene	NA	250000			1 J	1 J	
Trichloroethene	NA	41000					
Xylene (total)	NA	430000000					

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.1

Detected Volatile Organic Compounds (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A03-000082	SGC-A03-000083	SGC-A03-000084	SGC-A03-000085	SGC-A03-000086
PETREX Sample Area			AREA 3	AREA 3	AREA 3	AREA 3	AREA 3
Acetone	NA	21000000		67			
1,2-Dichloroethene (total)	NA	43000000					
2-Butanone	NA	93000000		21			
Benzene	NA	8.90E+03					
Carbon Disulfide	NA	280000					
Chloroform	NA	3100					
Chloromethane	NA	NA					
Ethylbenzene	NA	480					
Methylene Chloride	NA	3.95E+05	5	7	5 J		9
Tetrachloroethene	NA	21000000					
Toluene	NA	250000				1 J	
Trichloroethene	NA	41000					
Xylene (total)	NA	430000000					

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.1

Detected Volatile Organic Compounds (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A03-000087	SGC-A21-000088	SGC-A22-000093	SGC-SDB-000097	SGC-SDB-000098
PETREX Sample Area			WEST	AREA 21	AREA 22	SDB	SDB
Acetone	NA	21000000	13				11
1,2-Dichloroethene (total)	NA	43000000					
2-Butanone	NA	93000000	4 J				
Benzene	NA	8.90E+03					
Carbon Disulfide	NA	280000					
Chloroform	NA	3100					
Chloromethane	NA	NA					
Ethylbenzene	NA	480					
Methylene Chloride	NA	3.95E+05	11			12	21
Tetrachloroethene	NA	21000000					
Toluene	NA	250000		2 J	1 J		70
Trichloroethene	NA	41000	26				
Xylene (total)	NA	430000000			1 J		

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.1

Detected Volatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-SDB-000101	SGC-SDB-000102
PETREX Sample Area			SDB	SDB
Acetone	NA	21000000		12
1,2-Dichloroethene (total)	NA	43000000		
2-Butanone	NA	93000000		4 J
Benzene	NA	8.90E+03		
Carbon Disulfide	NA	280000		
Chloroform	NA	3100		
Chloromethane	NA	NA		
Ethylbenzene	NA	480		
Methylene Chloride	NA	3.95E+05	7	18
Tetrachloroethene	NA	21000000		
Toluene	NA	250000		2 J
Trichloroethene	NA	41000		
Xylene (total)	NA	430000000		

No entry - not detected
J - Numerical value is an estimated quantity
C - Identification confirmed by GC/MS
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.2.

Detected Semivolatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000001	SGC-NAC-000002	SGC-NAC-000003	SGC-NAC-000004	SGC-NAC-000005	SGC-NAC-000006	SGC-NAC-000008
PETREX Sample Area			NORTH	NORTH	NORTH	NORTH	EAST	EAST	WEST
Acenaphthene	NA	NA		190 J	63 J				
Acenaphthylene	NA	NA		730				42 J	
Anthracene	NA	64000000		1300	66 J		25 J	55 J	
Benzo(a)anthracene	NA	4.10E+03		1500	180 J		160 J	350 J	57
Benzo(a)pyrene	NA	410		**1300**	180 J		200 J	**450**	65
Benzo(b)fluoranthene	NA	4100		1000	180 J		190 J	460	67
Benzo(g,h,i)perylene	NA	NA		550	110 J		100 J	260 J	26
Benzo(k)fluoranthene	NA	41000		1000	160 J		190 J	440	58
Bis(2-ethylhexyl)phthalate	NA	2.15E+05							
Butylbenzylphthalate	NA	43000000							
Carbazole	NA	NA		600	62 J			34 J	
Chrysene	NA	410000		1500	220 J		240 J	490	68
Di-n-butyl phthalate	NA	21000000	120 J			280 J			
Di-n-octyl phthalate	NA	4300000							
Dibenz(a,h)anthracene	NA	410		180 J	40 J		37 J	87 J	
Dibenzofuran	NA	NA		1100	23 J				
Diethyl phthalate	NA	NA							
Fluoranthene	NA	8500000		3400 D	480		400 J	800	110
Fluorene	NA	NA		1500	42 J				
Indeno(1,2,3-cd)pyrene	NA	4.10E+03		690	120 J		130 J	320 J	36
2-Methylnaphthalene	NA	NA		970					
Naphthalene	NA	NA		4000 D	24 J				
Phenanthrene	NA	NA		4700 D	380		150 J	280 J	53
Phenol	NA	130000000							
Pyrene	NA	6400000	24 J	2700 D	440		340 J	730	120

No entry - not detected
J - Value is an est. quantity
D - Sample was diluted
NA - Value not available
H - Analyzed outside holding time
* - Unconfirmed due to interference
mg/kg - micrograms per kilogram

Table A.2.
Detected Semivolatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000009	SGC-NAC-000010	SGC-NAC-000011	SGC-NAC-000012	SGC-NAC-000015	SGC-NAC-000016
PETREX Sample Area			EAST	EAST	WEST	EAST	SOUTH	SOUTH
Acenaphthene	NA	NA						
Acenaphthylene	NA	NA						
Anthracene	NA	64000000						
Benzo(a)anthracene	NA	4.10E+03 J				18 J		47 J
Benzo(a)pyrene	NA	410 J				21 J		42 J
Benzo(b)fluoranthene	NA	4100 J				22 J		39 J
Benzo(g,h,i)perylene	NA	NA J						33 J
Benzo(k)fluoranthene	NA	41000 J				17 J		46 J
Bis(2-ethylhexyl)phthalate	NA	2.15E+05	71 J		36 J	35 J		100 J
Butylbenzylphthalate	NA	43000000						
Carbazole	NA	NA						
Chrysene	NA	410000 J		20 J		22 J		51 J
Di-n-butyl phthalate	NA	21000000						
Di-n-octyl phthalate	NA	4300000						
Dibenz(a,h)anthracene	NA	410						
Dibenzofuran	NA	NA						
Diethyl phthalate	NA	NA						
Fluoranthene	NA	8500000 J		31 J		38 J		100 J
Fluorene	NA	NA						
Indeno(1,2,3-cd)pyrene	NA	4.10E+03 J						27 J
2-Methylnaphthalene	NA	NA						
Naphthalene	NA	NA					61 J	
Phenanthrene	NA	NA J						63 J
Phenol	NA	130000000						
Pyrene	NA	6400000 J		31 J	20 J	37 J		87 J

No entry - not detected
J - Value is an est. quantity
D - Sample was diluted
NA - Value not available
H - Analyzed outside holding time
* - Unconfirmed due to interference
mg/kg - micrograms per kilogram

Table A.2.
Detected Semivolatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000017	SGC-NAC-000018	SGC-NAC-000020	SGC-NAC-000021	SGC-NAC-000024	SGC-NAC-000027	SGC-NAC-000028
PETREX Sample Area			SOUTH	WEST	WEST	WEST	SOUTH	SOUTH	SOUTH
Acenaphthene	NA	NA			21 J				
Acenaphthylene	NA	NA							
Anthracene	NA	64000000				44 J			
Benzo(a)anthracene	NA	4.10E+03		48 J	130 J	130 J			
Benzo(a)pyrene	NA	410		68 J	150 J	110 J			
Benzo(b)fluoranthene	NA	4100		59 J	67 J	130 J			
Benzo(g,h,i)perylene	NA	NA		49 J	100 J	88 J			
Benzo(k)fluoranthene	NA	41000		62 J	37 J	100 J			
Bis(2-ethylhexyl)phthalate	NA	2.15E+05		1000			26 J	24 J	26
Butylbenzylphthalate	NA	43000000							
Carbazole	NA	NA				21 J			
Chrysene	NA	410000		54 J	220 J	170 J			
Di-n-butyl phthalate	NA	21000000							
Di-n-octyl phthalate	NA	4300000					89 J		
Dibenz(a,h)anthracene	NA	410		40 J	24 J	28 J			
Dibenzofuran	NA	NA							
Diethyl phthalate	NA	NA							
Fluoranthene	NA	8500000	28 J	84 J	180 J	320 J			
Fluorene	NA	NA				26 J			
Indeno(1,2,3-cd)pyrene	NA	4.10E+03		53 J	46 J	73 J			
2-Methylnaphthalene	NA	NA							
Naphthalene	NA	NA							
Phenanthrene	NA	NA		27 J		220 J			
Phenol	NA	130000000							
Pyrene	NA	6400000	26 J	91 J	1400	310 J			

No entry - not detected
J - Value is an est. quantity
D - Sample was diluted
NA - Value not available
H - Analyzed outside holding time
* - Unconfirmed due to interference
mg/kg - micrograms per kilogram

Table A.2.

Detected Semivolatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000029	SGC-NAC-000031	SGC-NAC-000033	SGC-NAC-000034	SGC-NAC-000038	SGC-A66-000040
PETREX Sample Area			SOUTH	NORTH	SOUTH	SOUTH	New Propty	NORTH
Acenaphthene	NA	NA		570		130 J		130 J
Acenaphthylene	NA	NA		40 J				
Anthracene	NA	64000000		1600		360 J		150 J
Benzo(a)anthracene	NA	4.10E+03		3900 D		500		550
Benzo(a)pyrene	NA	410		**2800**		**470 J***		**570**
Benzo(b)fluoranthene	NA	4100		2400		370 J*		540
Benzo(g,h,i)perylene	NA	NA		1500		220 J*		400
Benzo(k)fluoranthene	NA	41000		2200		420 J*		550
Bis(2-ethylhexyl)phthalate	NA	2.15E+05 J	25 J		27 J	19 J		
Butylbenzylphthalate	NA	43000000						
Carbazole	NA	NA		830		160 J		180 J
Chrysene	NA	410000		4000 D		500		680
Di-n-butyl phthalate	NA	21000000					240	
Di-n-octyl phthalate	NA	4300000						
Dibenz(a,h)anthracene	NA	410		**630**		70 J*		120 J
Dibenzofuran	NA	NA		550		95 J		48 J
Diethyl phthalate	NA	NA						
Fluoranthene	NA	8500000		8400 D		1300		1500
Fluorene	NA	NA		740		160 J		74 J
Indeno(1,2,3-cd)pyrene	NA	4.10E+03		1600		210 J*		370 J
2-Methylnaphthalene	NA	NA		160 J				
Naphthalene	NA	NA		270 J		28 J		26 J
Phenanthrene	NA	NA		7400 D		1200		1100
Phenol	NA	130000000						
Pyrene	NA	6400000		7000 D		1000		1200

No entry - not detected
J - Value is an est. quantity
D - Sample was diluted
NA - Value not available
H - Analyzed outside holding time
* - Unconfirmed due to interference
mg/kg - micrograms per kilogram

Table A.2.
Detected Semivolatile Organic Compounds (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A66-000041	SGC-A61-000042	SGC-A61-000043	SGC-A61-000044	SGC-A61-000047	SGC-A61-000048	SGC-A61-000049
PETREX Sample Area			NORTH	AREA 61	AREA 61	AREA 61	AREA 7	AREA 7	AREA 7
Acenaphthene	NA	NA	97 J					19 J	27
Acenaphthylene	NA	NA							
Anthracene	NA	64000000	110 J					33 J	36
Benzo(a)anthracene	NA	4.10E+03	420				18 J	62 J	77
Benzo(a)pyrene	NA	410	**430**				23 J	55 J	76
Benzo(b)fluoranthene	NA	4100	380				23 J	53 J	69
Benzo(g,h,i)perylene	NA	NA	310 J					52 J	32
Benzo(k)fluoranthene	NA	41000	360 J				23 J	46 J	63
Bis(2-ethylhexyl)phthalate	NA	2.15E+05	4400 D				43 J		34
Butylbenzylphthalate	NA	43000000							
Carbazole	NA	NA	97 J						
Chrysene	NA	410000	490		23 J		29 J	86 J	90
Di-n-butyl phthalate	NA	21000000				34 J			
Di-n-octyl phthalate	NA	4300000							
Dibenz(a,h)anthracene	NA	410	92 J						20
Dibenzofuran	NA	NA	35 J						
Diethyl phthalate	NA	NA							
Fluoranthene	NA	8500000	1000	26 J	25 J		45 J	150 J	230
Fluorene	NA	NA	60 J					27 J	26
Indeno(1,2,3-cd)pyrene	NA	4.10E+03	290 J					30 J	43
2-Methylnaphthalene	NA	NA							
Naphthalene	NA	NA	26 J						
Phenanthrene	NA	NA	720		25 J		25 J	170 J	220
Phenol	NA	130000000							
Pyrene	NA	6400000	880	21 J	30 J		50 J	180 J	200

No entry - not detected
J - Value is an est. quantity
D - Sample was diluted
NA - Value not available
H - Analyzed outside holding time
* - Unconfirmed due to interference
mg/kg - micrograms per kilogram

Table A.2.

Detected Semivolatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A61-000050	SGC-A61-000051	SGC-A61-000052	SGC-A61-000053	SGC-A13-000056	SGC-A13-000057
PETREX Sample Area			AREA 7	AREA 7	AREA 7	AREA 7	AREA 13	AREA 13
Acenaphthene	NA	NA J						
Acenaphthylene	NA	NA						
Anthracene	NA	64000000 J	26 J			79 J		
Benzo(a)anthracene	NA	4.10E+03 J	130 J		20 J	210 J		
Benzo(a)pyrene	NA	410 J	130 J		20 J	190 J		
Benzo(b)fluoranthene	NA	4100 J	110 J		22 J	140 J		
Benzo(g,h,i)perylene	NA	NA J	96 J			120 J		
Benzo(k)fluoranthene	NA	41000 J	130 J		19 J	150 J		
Bis(2-ethylhexyl)phthalate	NA	2.15E+05 J					27 J	28 J
Butylbenzylphthalate	NA	43000000						
Carbazole	NA	NA				24 J		
Chrysene	NA	410000 J	150 J		26 J	210 J		
Di-n-butyl phthalate	NA	21000000						
Di-n-octyl phthalate	NA	4300000						
Dibenz(a,h)anthracene	NA	410 J	29 J			35 J		
Dibenzofuran	NA	NA						
Diethyl phthalate	NA	NA						
Fluoranthene	NA	8500000 J	290 J	30 J	47 J	480	22 J	
Fluorene	NA	NA J						
Indeno(1,2,3-cd)pyrene	NA	4.10E+03 J	79 J			100 J		
2-Methylnaphthalene	NA	NA						
Naphthalene	NA	NA						
Phenanthrene	NA	NA J	140 J		31 J	290 J		
Phenol	NA	130000000						
Pyrene	NA	6400000 J	260 J	26 J	45 J	390	18 J	

No entry - not detected
J - Value is an est. quantity
D - Sample was diluted
NA - Value not available
H - Analyzed outside holding time
* - Unconfirmed due to interference
mg/kg - micrograms per kilogram

Table A.2.

Detected Semivolatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A13-000058	SGC-A13-000060	SGC-A13-000061	SGC-AOJ-000062	SGC-AOJ-000063	SGC-AOJ-000064	SGC-AOJ-000065
PETREX Sample Area			AREA 13	AREA 13	AREA 13	AREA J	AREA J	AREA J	AREA J
Acenaphthene	NA	NA							
Acenaphthylene	NA	NA				31 J			
Anthracene	NA	64000000		30 J		25 J			
Benzo(a)anthracene	NA	4.10E+03	29 J	71 J		160 J	66 J	69 J	
Benzo(a)pyrene	NA	410	28 J	67 J		220 J	81 J	71 J	
Benzo(b)fluoranthene	NA	4100	17 J	55 J		190 J	75 J	72 J	
Benzo(g,h,i)perylene	NA	NA	13 J	60 J		160 J	59 J	56 J	
Benzo(k)fluoranthene	NA	41000	22 J	63 J		200 J	75 J	65 J	
Bis(2-ethylhexyl)phthalate	NA	2.15E+05		36 J	28 J	53 J	31 J	21 J	
Butylbenzylphthalate	NA	43000000							
Carbazole	NA	NA							
Chrysene	NA	410000	32 J	81 J		170 J	82 J	79 J	
Di-n-butyl phthalate	NA	21000000							
Di-n-octyl phthalate	NA	4300000							
Dibenz(a,h)anthracene	NA	410				44 J			
Dibenzofuran	NA	NA							
Diethyl phthalate	NA	NA							22
Fluoranthene	NA	8500000	65 J	190 J		270 J	140 J	180 J	22
Fluorene	NA	NA							
Indeno(1,2,3-cd)pyrene	NA	4.10E+03	17 J	48 J		140 J	50 J	48 J	
2-Methylnaphthalene	NA	NA							
Naphthalene	NA	NA							
Phenanthrene	NA	NA	35 J	140 J		79 J	59 J	97 J	
Phenol	NA	130000000							
Pyrene	NA	6400000	57 J	140 J		260 J	130 J	140 J	19

No entry - not detected
J - Value is an est. quantity
D - Sample was diluted
NA - Value not available
H - Analyzed outside holding time
* - Unconfirmed due to interference
mg/kg - micrograms per kilogram

Table A.2.
Detected Semivolatile Organic Compounds (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-AOJ-000066	SGC-AOJ-000067	SGC-AOJ-000068	SGC-AOJ-000069	SGC-AOJ-000070	SGC-AOJ-000071
PETREX Sample Area			AREA J	AREA J	AREA J	AREA J	AREA J	AREA J
Acenaphthene	NA	NA	150 J	160 J			770	120 J
Acenaphthylene	NA	NA						
Anthracene	NA	64000000	320 J	250 J			1100	200 J
Benzo(a)anthracene	NA	4.10E+03	910	620	36 J	21 J	2400	610
Benzo(a)pyrene	NA	410	**880**	**630**	38 J	24 J	**2400**	**620**
Benzo(b)fluoranthene	NA	4100	800	580	35 J	22 J	2200	560
Benzo(g,h,i)perylene	NA	NA	580	420	50 J		1400	420
Benzo(k)fluoranthene	NA	41000	750	560	43 J	20 J	2000	530
Bis(2-ethylhexyl)phthalate	NA	2.15E+05	36 J	51 J			39 J	33 J
Butylbenzylphthalate	NA	43000000						
Carbazole	NA	NA	200 J	160 J			570 J	120 J
Chrysene	NA	410000	930	670	50 J	25 J	2600	660
Di-n-butyl phthalate	NA	21000000			41 J			
Di-n-octyl phthalate	NA	4300000						
Dibenz(a,h)anthracene	NA	410	170 J	130 J			**410** J	120 J
Dibenzofuran	NA	NA	56 J	90 J			300 J	42 J
Diethyl phthalate	NA	NA J						
Fluoranthene	NA	8500000 J	2100	1500	94 J	48 J	5400	1500
Fluorene	NA	NA	130 J	150 J			520 J	89 J
Indeno(1,2,3-cd)pyrene	NA	4.10E+03	520	370 J	28 J		1300	360 J
2-Methylnaphthalene	NA	NA		33 J			75 J	
Naphthalene	NA	NA	27 J	38 J			260 J	
Phenanthrene	NA	NA	1400	1100	34 J	21 J	4000	970
Phenol	NA	130000000						
Pyrene	NA	6400000 J	1700	1200	85 J	39 J	4400	1200

No entry - not detected
J - Value is an est. quantity
D - Sample was diluted
NA - Value not available
H - Analyzed outside holding time
* - Unconfirmed due to interference
mg/kg - micrograms per kilogram

Table A.2.
Detected Semivolatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-AOJ-000072	SGC-AOJ-000073	SGC-AOJ-000074	SGC-AOJ-000075	SGC-AOJ-000076	SGC-AOJ-000077	SGC-AOJ-000078
PETREX Sample Area			AREA J	AREA J	AREA J	AREA J	AREA J	AREA J	AREA J
Acenaphthene	NA	NA		56 J					
Acenaphthylene	NA	NA							
Anthracene	NA	64000000		68 J	30 J		35 J		29
Benzo(a)anthracene	NA	4.10E+03		200 J	96 J	26 J	280 J	210 J	150
Benzo(a)pyrene	NA	410		210 J	96 J	31 J	92 J	260 J	160
Benzo(b)fluoranthene	NA	4100		190 J	96 J	35 J	250 J	200 J	150
Benzo(g,h,i)perylene	NA	NA		160 J	66 J	25 J	30 J	170 J	100
Benzo(k)fluoranthene	NA	41000		180 J	85 J	31 J	200 J	200 J	150
Bis(2-ethylhexyl)phthalate	NA	2.15E+05		28 J				22 J	35
Butylbenzylphthalate	NA	43000000			58 J				
Carbazole	NA	NA		52 J	19 J		35 J		23
Chrysene	NA	410000		230 J	110 J	38 J	630	220 J	170
Di-n-butyl phthalate	NA	21000000							
Di-n-octyl phthalate	NA	4300000							
Dibenz(a,h)anthracene	NA	410		45 J	22 J			47 J	31
Dibenzofuran	NA	NA		18 J					
Diethyl phthalate	NA	NA	23 J						
Fluoranthene	NA	8500000		500	250 J	65 J	2100	280 J	320
Fluorene	NA	NA		31 J					
Indeno(1,2,3-cd)pyrene	NA	4.10E+03		130 J	60 J	24 J	45 J	140 J	91
2-Methylnaphthalene	NA	NA							
Naphthalene	NA	NA							
Phenanthrene	NA	NA		340 J	150 J	29 J	130 J	45 J	170
Phenol	NA	130000000							150
Pyrene	NA	6400000		440	200 J	53 J	1700	300 J	300

No entry - not detected
J - Value is an est. quantity
D - Sample was diluted
NA - Value not available
H - Analyzed outside holding time
* - Unconfirmed due to interference
mg/kg - micrograms per kilogram

Table A.2.
Detected Semivolatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A03-000080	SGC-A03-000081	SGC-A03-000082	SGC-A03-000083	SGC-A03-000085	SGC-A03-000086
PETREX Sample Area			AREA 3	AREA 3	AREA 3	AREA 3	AREA 3	AREA 3
Acenaphthene	NA	NA		89 J				
Acenaphthylene	NA	NA	280 J	220 J				
Anthracene	NA	64000000 J	150 J	150 J				
Benzo(a)anthracene	NA	4.10E+03 J	480	560		25 J	55 J	76 J
Benzo(a)pyrene	NA	410 J	**850**	**660**		28 J	54 J	70 J
Benzo(b)fluoranthene	NA	4100 J	640	580		25 J	53 J	55 J
Benzo(g,h,i)perylene	NA	NA J	590	310 J		26 J	29 J	47 J
Benzo(k)fluoranthene	NA	41000 J	630	580		27 J	56 J	64 J
Bis(2-ethylhexyl)phthalate	NA	2.15E+05 J						
Butylbenzylphthalate	NA	43000000						
Carbazole	NA	NA J	19 J	45 J				
Chrysene	NA	410000 J	500	690		32 J	65 J	83 J
Di-n-butyl phthalate	NA	21000000						
Di-n-octyl phthalate	NA	4300000						
Dibenz(a,h)anthracene	NA	410 J	180 J	110 J				23 J
Dibenzofuran	NA	NA	56 J	84 J				
Diethyl phthalate	NA	NA						
Fluoranthene	NA	8500000 J	780	890	110 J	52 J		150 J
Fluorene	NA	NA	89 J	81 J				
Indeno(1,2,3-cd)pyrene	NA	4.10E+03 J	580	440		16 J	33 J	39 J
2-Methylnaphthalene	NA	NA	25 J	79 J				
Naphthalene	NA	NA	79 J	45 J				
Phenanthrene	NA	NA J	370 J	520		18 J	28 J	70 J
Phenol	NA	130000000 J						
Pyrene	NA	6400000 J	690	930	92 J	50 J	98 J	130 J

No entry - not detected
J - Value is an est. quantity
D - Sample was diluted
NA - Value not available
H - Analyzed outside holding time
* - Unconfirmed due to interference
mg/kg - micrograms per kilogram

Table A.2.
Detected Semivolatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A03-000087	SGC-A21-000088	SGC-A22-000092	SGC-A22-000093	SGC-A22-000094	SGC-SDB-000097	SGC-SDB-000098
PETREX Sample Area			WEST	AREA 21	AREA 22	AREA 22	AREA 22	SDB	SDB
Acenaphthene	NA	NA							19
Acenaphthylene	NA	NA						40 J	
Anthracene	NA	64000000						33 J	39
Benzo(a)anthracene	NA	4.10E+03			23 J		51 J	160 J	100
Benzo(a)pyrene	NA	410			23 J		65 J	180 J	92
Benzo(b)fluoranthene	NA	4100			28 J		62 J	170 J	96
Benzo(g,h,i)perylene	NA	NA					48 J	65 J	46
Benzo(k)fluoranthene	NA	41000			21 J		69 J	160 J	95
Bis(2-ethylhexyl)phthalate	NA	2.15E+05		26 J		19 J			
Butylbenzylphthalate	NA	43000000							
Carbazole	NA	NA							50
Chrysene	NA	410000			25 J		76 J	170 J	130
Di-n-butyl phthalate	NA	21000000							
Di-n-octyl phthalate	NA	4300000							
Dibenz(a,h)anthracene	NA	410						35 J	22
Dibenzofuran	NA	NA							28
Diethyl phthalate	NA	NA						20 J	
Fluoranthene	NA	8500000	24 J		59 J		140 J	330 J	350
Fluorene	NA	NA							27
Indeno(1,2,3-cd)pyrene	NA	4.10E+03					42 J	110 J	62
2-Methylnaphthalene	NA	NA							
Naphthalene	NA	NA							
Phenanthrene	NA	NA	21 J		42 J		96 J	150 J	340
Phenol	NA	130000000							
Pyrene	NA	6400000	19 J		48 J		120 J	280 J	240

No entry - not detected
J - Value is an est. quantity
D - Sample was diluted
NA - Value not available
H - Analyzed outside holding time
* - Unconfirmed due to interference
mg/kg - micrograms per kilogram

Table A.2.

Detected Semivolatile Organic Compounds (µg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-SDB-000101
PETREX Sample Area			SDB
Acenaphthene	NA	NA J	1200 J-H
Acenaphthylene	NA	NA	
Anthracene	NA	64000000 J	2000 J-H
Benzo(a)anthracene	NA	4.10E+03 J	**5700** J-H
Benzo(a)pyrene	NA	410 J	**5900** J-H
Benzo(b)fluoranthene	NA	4100 J	**5200** J-H
Benzo(g,h,i)perylene	NA	NA J	4200 J-H
Benzo(k)fluoranthene	NA	41000 J	5200 J-H
Bis(2-ethylhexyl)phthalate	NA	2.15E+05	
Butylbenzylphthalate	NA	43000000	
Carbazole	NA	NA J	1600 J-H
Chrysene	NA	410000 J	6400 J-H
Di-n-butyl phthalate	NA	21000000	
Di-n-octyl phthalate	NA	4300000	240 J-H
Dibenz(a,h)anthracene	NA	410 J	**1400** J-H
Dibenzofuran	NA	NA J	590 J-H
Diethyl phthalate	NA	NA	
Fluoranthene	NA	8500000 J	13000 J-H
Fluorene	NA	NA J	1000 J-H
Indeno(1,2,3-cd)pyrene	NA	4.10E+03 J	3900 J-H
2-Methylnaphthalene	NA	NA	
Naphthalene	NA	NA	360 J-H
Phenanthrene	NA	NA J	11000 J-H
Phenol	NA	130000000	
Pyrene	NA	6400000 J	12000 J-H

No entry - not detected
J - Value is an est. quantity
D - Sample was diluted
NA - Value not available
H - Analyzed outside holding time
* - Unconfirmed due to interference
mg/kg - micrograms per kilogram

Table A.3.

Detected Pesticides/PCB's (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000008	SGC-NAC-000010	SGC-NAC-000031	SGC-A66-000041	SGC-A61-000044
PETREX Sample Area			WEST	EAST	NORTH	NORTH	AREA 61
Aroclor-1248	ND	380	48			110	98
Aroclor-1254	ND	4300	43				55
Alpha-Chlordane	ND	NA					
Gamma-Chlordane	ND	NA					
4,4'-DDT	9000	13000					
Dieldrin	ND	185		4.4	5 *		
Endosulfan I	ND	NA				3.4 *	2.4
Endosulfan II	NA	NA					
Endrin	ND	NA			11 *		
Heptachlor	ND	NA					

No entry - not detected
* - Unconfirmed due to interference
NA - Value not available
ND - No detections in background samples
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.3.

Detected Pesticides/PCB's (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A13-000060	SGC-AOJ-000067	SGC-AOJ-000071	SGC-A03-000081
PETREX Sample Area			AREA 13	AREA J	AREA J	AREA 3
Aroclor-1248	ND	380				
Aroclor-1254	ND	4300		52	44	
Alpha-Chlordane	ND	NA			14 *	
Gamma-Chlordane	ND	NA	3.7		12 *	
4,4'-DDT	9000	13000				3.7
Dieldrin	ND	185				
Endosulfan I	ND	NA *				
Endosulfan II	NA	NA				4.4
Endrin	ND	NA				
Heptachlor	ND	NA	2.9			

No entry - not detected
* - Unconfirmed due to interference
NA - Value not available
ND - No detections in background samples
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.3.

Detected Pesticides/PCB's (μg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-SDB-000101
PETREX Sample Area			SDB
Aroclor-1248	ND	380	
Aroclor-1254	ND	4300	140
Alpha-Chlordane	ND	NA	
Gamma-Chlordane	ND	NA	
4,4'-DDT	9000	13000	
Dieldrin	ND	185	
Endosulfan I	ND	NA	
Endosulfan II	NA	NA	
Endrin	ND	NA	
Heptachlor	ND	NA	

No entry - not detected
* - Unconfirmed due to interference
NA - Value not available
ND - No detections in background samples
mg/kg - micrograms per kilogram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.4.
Detected TAL Inorganics (mg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000001	SGC-NAC-000002	SGC-NAC-000003	SGC-NAC-000004	SGC-NAC-000005	SGC-NAC-000006	SGC-NAC-000007	SGC-NAC-000008	SGC-NAC-000009	SGC-NAC-000010
PETREX Sample Area			NORTH	NORTH	NORTH	NORTH	EAST	EAST	WEST	WEST	EAST	EAST
TAL INORGANICS (mg/kg)												
Aluminum	19000	NA	11000	4190	1910	11400	7970	7780	10200	2820	18700	7300
Antimony	NA	85		0.23 B		0.24 B	0.41 B			0.27 B	0.91 B	0.21 B
Arsenic	8.6	64	1.5 B	2.1 B	2.9 B	1.4 B	7	7.2	1.9 B	3.2	11.1	7.2
Barium	180	1.50E+04	48.6	20.7 B	23.7 B	47.1 B	73.6	86.4	26.2 B	23.2 B	163	64.7
Beryllium	1.3	0.7	0.56		0.12 B	0.65	0.38	0.28	0.28		0.9 B	0.34
Bismuth	NA	NA									0.85 B	
Cadmium	2.1	210		0.25 B	0.19 B		0.36 B	0.5 B	0.33 B	0.22 B	6	0.62 B
Calcium	310000	NA	162000	159000	95500	152000	13600	86200	83900	113000	5940	41500
Chromium	20	1.10E+05	13.2	6.7	3.8	15.2	13	11.6	14.3	5.7	20.3	12
Cobalt	19	NA	9.8 B	4.5 B	2.3 B	10.1 B	7.6 B	7.6 B	11 B	3.3 B	13	7.9 B
Copper	26	NA	16.2	11.9	9.9	17.1	14.5	15.2	16.2	13.9	19.2	17.4
Cyanide	ND	4300										
Iron	35000	NA	21300	10600	5680	21800	17200	17700	23000	7660	29400	17300
Lead	48	NA	6.7	5.2	11.2	8.6	30.9	25.1	7.2	5.9	22.2	16.5
Lithium	26	NA	21 B	12.5 B	6.2 B	23 B	7.7 B	10.3 B	3.2 B	8.2 B	14.7 B	9.2 B
Magnesium	40000	NA	6160	57800	27900	5670	5210	35600	21600	47900	4500	16700
Manganese	1400	27000	695	384	270	612	383	589	493	256	728	604
Mercury	ND	64			0.13							
Molybdenum	27	NA	0.43 B	1.2 B	0.77 B		1.7 B	1.5 B	0.63 B	1.4 B	1.8 B	2.3 B
Nickel	32	4.30E+03	18.4	9.9	6.4 B	20.6	11.1	16.1	22.6	8.1 B	24.5	16.5
Potassium	1900	NA	1780	742 B	346 B	2080	574 B	744 B	1590	463 B	1420	794 B
Selenium	NA	NA										
Silver	1.7	1100			0.24 B							
Sodium	240	NA	228 B	888 B	150 B	137 B	411 B	348 B	246 B	341 B	1010 B	82 B
Thallium	0.46	NA										
Tin	20	NA	1.1 B			1.4 B	1 B			4.5 B	1.5 B	
Vanadium	25	1500	14.9	8.3	4.7	16.3	23.1	18.9	14.2	7.4	42.7	19.2
Zinc	140	64000	53.3	29.5	72.4	67	59	69.2	53.8	36.6	71.8	299
OTHER INORGANICS												
% Solids (%)	NA	NA	83.9	93.8	88.5	83.3	78.4	75	83.9	95	78.9	83.9
Nitrate/Nitrite (mg-N/kg)	NA	NA	2	1.8	1.2	2.1	7.2	4.8	1.6	26.5	2.2	5.9

No entry - not detected
mg/kg - milligrams/kilogram
NA - Value not available
NC - Background not comp
ND - No detections in background samples
mg-N/kg - milligrams per kilogram, reported as nitrogen
J - Numerical value is an estimated quantity
B - Analyte detected in blanks associated with this sample
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.4.
Detected TAL Inorganics (mg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000011	SGC-NAC-000012	SGC-NAC-000013	SGC-NAC-000014	SGC-NAC-000015	SGC-NAC-000016	SGC-NAC-000017	SGC-NAC-000018	SGC-NAC-000019	SGC-NAC-000020
PETREX Sample Area			WEST	EAST	EAST	SOUTH	SOUTH	SOUTH	SOUTH	WEST	WEST	WEST
TAL INORGANICS (mg/kg)												
Aluminum	19000	NA	10300	13100	8460	17700	7370	14100	20000	5130	7820	13400
Antimony	NA	85	1.2 B									
Arsenic	8.6	64	2.2 B	1.9 B	1.2 B	2.7	3.6	3.4	2.4 B	4.1	6.8	3
Barium	180	1.50E+04	13.5 B	78.4	53.4	110	51.3 B	68.7	119	21.4 B	56.1	17.9 B
Beryllium	1.3	0.7	0.36 B	0.44	0.2 B	0.68	0.24 B	0.46	0.96	0.28	0.22 B	0.77
Bismuth	NA	NA	0.99 B					0.82 B	1.2 B			
Cadmium	2.1	210	5.2	6	4.6	7.7	3.7	5.7	8.6		3.4	
Calcium	310000	NA	90800	127000	222000	94200	342000	133690	23800	157000	76400	64400
Chromium	20	1.10E+05	11.9	17.3	10.8	22.3	9.1	17.7	24.5	9.3	8.9	18.6
Cobalt	19	NA	13.7	12.7	7.5 B	13.9	5.8 B	11.6 B	18.5	5.5 B	8.4 B	12.9
Copper	26	NA	16.6	21.3	13.5	22.4	12.2	19.3	26.9	11.6	14.2	17.3
Cyanide	ND	4300				1.8		1				
Iron	35000	NA	25600	27900	21100	36300	16600	26600	40000	13600	16000	25500
Lead	48	NA	5.7	9.3	29.4	12.9	14.3	14.1	27.5	8.2	14.2	5.3
Lithium	26	NA	27.3	25.3	17.8 B	30.7	15 B	25.1	34.1	18.1 B	9.7 B	39.5
Magnesium	40000	NA	12300	19900	7250	8190	4760	14600	6250	47700	29800	16300
Manganese	1400	27000	908	658	543	939	689	641	1360	381	539	505
Mercury	ND	64							0.07 B			
Molybdenum	27	NA	0.58 B	1.3 B	0.81 B	1.3 B	0.51 B	1.3 B	0.76 B	0.82 B	2.2 B	
Nickel	32	4.30E+03	21.6	26.4	17.6	31.4	13.8	23.9	34.4	13.5	13.3	27.3
Potassium	1900	NA	2210 B	1630	1100 B	2250 B	1010 B	2090 B	3680	1040 B	1090 B	3590
Selenium	NA	NA	0.31 B									
Silver	1.7	1100								0.41 B		
Sodium	240	NA	288 B	2490	328 B	142 B	248 B	398 B	209 B	398 B	155 B	383 B
Thallium	0.46	NA										
Tin	20	NA		1.6 B	1.1 B	0.98 B		1.7 B	3.3 B		1.3 B	1.6 B
Vanadium	25	1500	15.8	22.4	12.9	29.4	10.7	23.8	30.2	10.3	17.5	17.7
Zinc	140	64000	59.9	68.5	44.9	92.5	67.7	70.5	103	41.2	56.1	84.9
OTHER INORGANICS												
% Solids (%)	NA	NA	90.1	84.7	81.7	80.9	74	85.3	72.8	84.2	85.3	87.6
Nitrate/Nitrite (mg-N/kg)	NA	NA	5.3	1.8	2.1	4.9	3	2.4	6.4	13.7	6.5	2.1

No entry - not detected
mg/kg - milligrams/kilogram
NA - Value not available
NC - Background not comp
ND - No detections in background samples
mg-N/kg - milligrams per kilogram, reported as nitrogen
J - Numerical value is an estimated quantity
B - Analyte detected in blanks associated with this sample
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.4.
Detected TAL Inorganics (mg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000021	SGC-NAC-000022	SGC-NAC-000023	SGC-NAC-000024	SGC-NAC-000025	SGC-NAC-000026	SGC-NAC-000027	SGC-NAC-000028	SGC-NAC-000029	SGC-NAC-000030
PETREX Sample Area			*WEST*	*WEST*	*SOUTH*	*SOUTH*	*SOUTH*	*SOUTH*	*SOUTH*	*SOUTH*	*SOUTH*	*EAST*
TAL INORGANICS (mg/kg)												
Aluminum	19000	NA	7720	8030	12200	5410	6830	7120	11500	15300	10700	5550
Antimony	NA	85		0.66 B							0.61 B	
Arsenic	8.6	64	4.3	13.3	2 BJ	0.83 BJ	1.9 BJ	0.61 B	3.6 J	2 BJ	1.8 BJ	5.6
Barium	180	1.50E+04	24.2 B	65.8 J	90.3	28.4 B	49.2	34.1 B	87.6	111	59.1	47.8
Beryllium	1.3	0.7	0.19 B	0.49	0.91	0.29	0.4	0.11 B	0.81	0.96	0.64	0.27
Bismuth	NA	NA										
Cadmium	2.1	210						2.9				
Calcium	310000	NA	58300	42200	35400 J	210000 J	162000 J	315000	68800 J	48400 J	87300 J	158000
Chromium	20	1.10E+05	13.9	14.4 J	16.2	7.9	18.1	8.1	16.2	20.6	14.8	9.7
Cobalt	19	NA	10.3 B	11.5 B	13.1	5.9 B	8.7 B	5.4 B	11.6 B	11.8 B	12	5.6 B
Copper	26	NA	26.5	26.3 J	18.9	8.2	30.5	8.7	19.2	16.1	15.3	11.9
Cyanide	ND	4300	0.65 B									
Iron	35000	NA	20600	22300 J	29300	14600	24200	16300	30800	35200	25400	13500
Lead	48	NA	14	14.9 J	16.4 J	5.2 J	6.9 J	4.9	14.3 J	5.6 J	6.2 J	8.4
Lithium	26	NA	25.8	15.3 B	18.8 B	12.8 B	16.3 B	16.7 B	17 B	21.4 B	22.5 B	13.4 B
Magnesium	40000	NA	15800	22000 J	4640	15700	14900	4380	9760	5190	5910	52600
Manganese	1400	27000	577	522 J	1030 J	393 J	429 J	417	659 J	593 J	637 J	307
Mercury	ND	64			0.07 BJ				0.13 J			
Molybdenum	27	NA	0.53 B	5.7	0.87 B	0.63 B	2.3 B	0.88 B	1.9 B	0.8 B	0.77 B	1.3 B
Nickel	32	4.30E+03	21.3	27.4	42.3	12.3	22.2	12.2	25.9	28.2	24.6	14
Potassium	1900	NA	1300	641 B	1760	874 B	443 B	1200	757 B	1400	800 B	873 B
Selenium	NA	NA										
Silver	1.7	1100	0.33 B									
Sodium	240	NA	357 B	101 BJ	174 BJ	172 BJ	157 BJ	228 B	126 BJ	119 BJ	125 BJ	626 B
Thallium	0.46	NA										
Tin	20	NA	1.7 B	1 B	0.97 B		0.89 B	1.3 B	1.1 B	0.67 B		
Vanadium	25	1500	12.6 B	22.4 J	18	7.3	10.5	8.1	21.3	22.4	15.4	12.2
Zinc	140	64000	68.9	72.5 J	66.6	28.9	64.6	32.7	109	80.8	58.4	37.4
OTHER INORGANICS												
% Solids (%)	NA	NA	77.4	78.3	77.5	89.5	89.3	85.7	85.3	82	84.6	89.8
Nitrate/Nitrite (mg-N/kg)	NA	NA	6.1	2.2	11.6	2.2	2	3.4	2.6	3.6	3.5	3.7

No entry - not detected
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Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.4.
Detected TAL Inorganics (mg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000031	SGC-NAC-000032	SGC-NAC-000033	SGC-NAC-000034	SGC-NAC-000035	SGC-NAC-000036	SGC-NAC-000037	SGC-NAC-000038	SGC-NAC-000039	SGC-A66-000040
PETREX Sample Area			NORTH	WEST	SOUTH	SOUTH	SOUTH	New Propty	New Propty	New Propty	New Propty	NORTH
TAL INORGANICS (mg/kg)												
Aluminum	19000	NA	9730	11200	5720	6450	12400	11300	15700	7900	15400	5600
Antimony	NA	85									0.27 B	
Arsenic	8.6	64	3.4	4	1.3 BJ	4.9 J	2.1 B	3.4	4.5	8.3	3.1	7.3
Barium	180	1.50E+04	106	52.8	29.3 B	51	58.1	45.8 B	97.1	58.4	122	71.1
Beryllium	1.3	0.7	0.63	0.69	0.44	0.43	0.37	0.59	0.99	0.46	0.92	0.13 B
Bismuth	NA	NA	3.8 B						1.7 B	1.4 B		
Cadmium	2.1	210					4.2					
Calcium	310000	NA	51200	80800	164000 J	106000 J	73500	117000	10100	81900	3980	158000
Chromium	20	1.10E+05	14.6	15.3	7.4	11.6	14.4	14.9	20.8	11.1	19	7.7
Cobalt	19	NA	9 B	10.4 B	6.5 B	7.7 B	9.8 B	10.9 B	13.2 B	7.7 B	13.5	4.9 B
Copper	26	NA	31	15.4	7.3	13	14	13.4	19.4	14.2	20.8	9.7
Cyanide	ND	4300										0.59 B
Iron	35000	NA	18000	22100	12600	16100	23800	24500	30900	18100	26900	13800
Lead	48	NA	88.7	7.4	3.5 J	14.9 J	12.8	8.3	11.1	11.2	12.8	23
Lithium	26	NA	11.3 B	21.7 B	13.6 B	9.6 B	18.9 B	26.8	24.6 B	14.2 B	15.8 B	12.3 B
Magnesium	40000	NA	19900	31700	8520	25000	3930	17400	4430	29800	3790	81600
Manganese	1400	27000	550	503	359 J	513 J	553	549	1120	799	1400	596
Mercury	ND	64	1.8			0.1 BJ						
Molybdenum	27	NA	1.4 B	1.2 B	0.34 B	1.6 B	1.1 B		0.7 B	1.1 B	1.3 B	0.9 B
Nickel	32	4.30E+03	18.1	23.4	12.5	15.5	18.9	22	26.5	18.1	25.8	9.8
Potassium	1900	NA	1540	2210 B	396 B	851 B	1390	3230	2650 B	1160 B	2320 B	536 B
Selenium	NA	NA										
Silver	1.7	1100										
Sodium	240	NA	132 B	463 B	197 BJ	245 BJ	97.7 B	844 B	305 B	165 B	99.8 B	698 B
Thallium	0.46	NA						0.44 B				
Tin	20	NA		1.7 B	1.4 B	1.2 B	1.2 B				1.6 B	
Vanadium	25	1500	22.2	19.4	7.7	14.9	19.4	13.7	25.9	17	29.3	12.2
Zinc	140	64000	192	51	29.3	50.3	52.2	53.8	71.3	47.8	71.8	34
OTHER INORGANICS												
% Solids (%)	NA	NA	87	81.2	84.4	88.1	84.6	81.2	75.3	84.6	81.8	84.4
Nitrate/Nitrite (mg-N/kg)	NA	NA	4.8	4.2	1.1	3.7	3.5	2.2	1.7	2.4	1.4	3.9

No entry - not detected
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Blue = above Background (no GC)

Table A.4.
Detected TAL Inorganics (mg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A66-000041	SGC-A61-000042	SGC-A61-000043	SGC-A61-000044	SGC-A61-000045	SGC-A61-000046	SGC-A61-000047	SGC-A61-000048	SGC-A61-000049	SGC-A61-000050
PETREX Sample Area			NORTH	AREA 61	AREA 61	AREA 61	AREA 61	AREA 7	AREA 7	AREA 7	AREA 7	AREA 7
TAL INORGANICS (mg/kg)												
Aluminum	19000	NA	3030	4860	3600	1540	1900	14700	8630	1230	7040	2690
Antimony	NA	85		0.79 B		0.23 B						
Arsenic	8.6	64	3.2	6.4	3	5.1	3.7	2.1 B	3.6	3.6	3.6	5.3
Barium	180	1.50E+04	19.1 B	37.3 BJ	23.8 BJ	23.8 B	16.7 B	45 B	45.4 B	16.7 B	34.7 B	19 B
Beryllium	1.3	0.7		0.13 B		0.1 B	0.12 B	0.86	0.25		0.13 B	0.14 B
Bismuth	NA	NA						1.5 B				
Cadmium	2.1	210				0.1 B			0.42 B	0.19 B	0.32 B	0.3 B
Calcium	310000	NA	189000	189000	161000	152000	148000	58000	124000	193000	168000	217000
Chromium	20	1.10E+05	6.7	8 J	8.2 J	4.2	4.6	20.8	12.3	4.8	11.4	5.4
Cobalt	19	NA	3.3 B	6.1 B	4.4 B	2.8 B	2.4 B	19.4	9.1 B	1.5 B	7.8 B	3 B
Copper	26	NA	22.1	13.1 J	10.7 J	10	8.1	24.4	17.5	5.1 B	14	29.1
Cyanide	ND	4300	0.56 B									
Iron	35000	NA	8300	14500 J	10300 J	8100	6910	30400	19900	4910	17100	6510
Lead	48	NA	11.3	9.2 J	5.9 J	6.3	5	2.6	11.5	5	7.7	26.7
Lithium	26	NA	11.7 B	14.3 B	12.6 B	7.4 B	5.6 B	38.6	19 B	4.6 B	20.9 B	10.3 B
Magnesium	40000	NA	68600	23400 J	61000 J	55600	65800	10500	33700	108000	30400	102000
Manganese	1400	27000	273	784 J	388 J	261	235	1080	518	221	570	264
Mercury	ND	64							0.13			
Molybdenum	27	NA	0.62 B	1.6 B	1.3 B	2.5 B	1.7 B		2.1 B	1.7 B	1.4 B	0.51 B
Nickel	32	4.30E+03	7.6 B	14.8	10.4	7.3 B	6.7 B	34.6	19.6	8.9	16.8	6.4 B
Potassium	1900	NA	562 B	600 B	572 B	287 B	441 B	3280	1210	297 B	1170	555 B
Selenium	NA	NA		0.45 BJ								
Silver	1.7	1100	0.3 B					0.21 B				0.21 B
Sodium	240	NA	329 B	1540 J	818 BJ	218 B	566 B	216 B	439 B	998 B	1030 B	616 B
Thallium	0.46	NA		0.67 BJ								
Tin	20	NA		4.4 B	1.1 B		1.2 B	1.2 B				0.89 B
Vanadium	25	1500	7.1 B	10.4 J	12.4 J	5.5	7.1	19.7	15.5	7.6	10.8	6.7
Zinc	140	64000	46.8	39.1 J	25.9 J	29.5	25.7	66.6	57.4	13.1	46.6	254
OTHER INORGANICS												
% Solids (%)	NA	NA	89.4	83.6	94.8	96.2	93	81.8	85.6	94.8	86.3	85
Nitrate/Nitrite (mg-N/kg)	NA	NA	2	1.4	0.84	0.58	2.1	1.6	7.9	1.6	1.5	1.8

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Magenta = above Background and Below GC
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Table A.4.
Detected TAL Inorganics (mg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A61-000051	SGC-A61-000052	SGC-A61-000053	SGC-A61-000054	SGC-A61-000055	SGC-A13-000056	SGC-A13-000057	SGC-A13-000058	SGC-A13-000059	SGC-A13-000060
PETREX Sample Area			AREA 7	AREA 7	AREA 7	AREA 7	AREA 7	AREA 13	AREA 13	AREA 13	AREA 13	AREA 13
TAL INORGANICS (mg/kg)												
Aluminum	19000	NA	9810	6900	3890	10200	11300	1610	5660	1260	4400	4700
Antimony	NA	85			0.23 B			0.61 B	0.79 B			0.84 B
Arsenic	8.6	64	5	3.2	3.3	1.2 B	6.7	3.5 B	4.3 B	3.1	4.7	5
Barium	180	1.50E+04	52.4	26.6 B	30.2 BJ	39.5 B	77.4	14.7 B	44.8 B	13.3 B	65.1	40.7 B
Beryllium	1.3	0.7	0.53	0.12 B		0.66	0.8		0.09 B			
Bismuth	NA	NA	1.3 B									
Cadmium	2.1	210	0.27 B	0.28 B				1.1	2.6	0.16 B	2.4	2.6
Calcium	310000	NA	98100	264000	181000	205000	15500	149000	174000	157000	137000	139000
Chromium	20	1.10E+05	16.4	9	7.8 J	12.9	15.5	2.4	5.8	4.2	5	5
Cobalt	19	NA	9.8 B	7.3 B	4.3 B	10.5 B	13	1.9 B	5.6 B	1.7 B	4.8 B	5.7 B
Copper	26	NA	25.3	12.2	13.9 J	13.7	15.5	9.2	7.7	11	11.5	12.4
Cyanide	ND	4300										
Iron	35000	NA	21900	16500	11400 J	20600	24400	5180	12300	4560	11200	11700
Lead	48	NA	16.7	12.7	11.2 J	4	22.1	6.3	9.9	4.4	6	9.4
Lithium	26	NA	24.5	19.6 B	14 B	20.8 B	15.5 B	3.6 B	7.5 B	4.6 B	8.9 B	7.3 B
Magnesium	40000	NA	18400	11600	47900 J	5290	4720	64200	45500	79100	65100	33700
Manganese	1400	27000	684	728	471 J	886	933	233	885	199	215	574
Mercury	ND	64			0.06 B							
Molybdenum	27	NA	1.9 B	0.62 B	0.96 B		1.1 B	1.3 B	1.1 B	1.2 B	2.5 B	1.8 B
Nickel	32	4.30E+03	20.8	14.1	10.5	19.1	19.1	4.4 B	9.9	4.3 B	10.7	9.6
Potassium	1900	NA	1770	1010 B	565 B	1700	1450	374 B	904 B	250 B	985 B	776 B
Selenium	NA	NA										
Silver	1.7	1100	0.3 B		0.19 B							
Sodium	240	NA	875 B	199 B	911 BJ	268 B	94.8 B	227 B	265 B	220 B	248 B	268 B
Thallium	0.46	NA										
Tin	20	NA	1.5 B		0.9 B				1.2 B		1.2 B	0.9 B
Vanadium	25	1500	17.1	9.6	8.6 J	14.1	21.6	5.7 B	12.4	5.4	10.1 B	11.6
Zinc	140	64000	120	66.1	73 J	40	54.6	21.5	29.3	37.7	35.7	39
OTHER INORGANICS												
% Solids (%)	NA	NA	82.6	83	85.3	84.6	77.3	95.3	88.9	93.7	92.8	91
Nitrate/Nitrite (mg-N/kg)	NA	NA	1.6	4.6	2.3	2.6	2.1	1.9	3.8	1.9	3.3	2.4

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Table A.4.
Detected TAL Inorganics (mg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A13-000061	SGC-AOJ-000062	SGC-AOJ-000063	SGC-AOJ-000064	SGC-AOJ-000065	SGC-AOJ-000066	SGC-AOJ-000067	SGC-AOJ-000068	SGC-AOJ-000069	SGC-AOJ-000070
PETREX Sample Area			AREA 13	AREA J	AREA J	AREA J	AREA J	AREA J	AREA J	AREA J	AREA J	AREA J
TAL INORGANICS (mg/kg)												
Aluminum	19000	NA	5670	9860	7380	890	5690	2910	6510	10500	14300	10100
Antimony	NA	85		0.55 B	0.67 B			0.55 B	0.94 B			
Arsenic	8.6	64	5.4	4.2 B	3.6 B	2 B	2.9	3.7 B	6.2	3.5	2.4 B	4.4
Barium	180	1.50E+04	49.3	66.7	43.1	6.1 B	44.9 B	19.5 B	44.2 B	32.9 B	86.8	70.1
Beryllium	1.3	0.7	0.1 B	0.25 B	0.14 B		0.38		0.13 B	0.49	0.81	0.33
Bismuth	NA	NA										
Cadmium	2.1	210	2.9	3.9	3.2	0.49 B		1.4	2.8			4.7
Calcium	310000	NA	138000	93600	96600	231000	116000	171000	91500	132000	36100	128000
Chromium	20	1.10E+05	6.3	9.6	8	1.3 B	9	2.4	8.6	57.8	18.1	14
Cobalt	19	NA	6.4 B	7.1 B	6.4 B	0.85 B	6 B	2.6 B	5.5 B	9.7 B	12.8	8.6 B
Copper	26	NA	14.3	13.2	12.9	1.8 B	12.5	10.5	21.2	21.6	17.3	31.9
Cyanide	ND	4300										
Iron	35000	NA	13800	18100	15300	2330	13500	6330	12900	21600	28900	21300
Lead	48	NA	7.6	10.3	28.7	4	10	9.4	19.6	10.6	14.1	17.2
Lithium	26	NA	14.6 B	11.5 B	12.2 B	1.9 B	13.3 B	3.9 B	8.3 B	28.3	17.7 B	16.5 B
Magnesium	40000	NA	51800	23700	23000	146000	48800	85800	26800	12700	5000	31100
Manganese	1400	27000	328	419	399	163	345	240	441	794	976	483
Mercury	ND	64							0.06 B			
Molybdenum	27	NA	3.2 B	1.5 B	1.2 B	0.42 B	2.2 B	0.59 B	1.5 B	0.73 B	1 B	1.7 B
Nickel	32	4.30E+03	13.8	14.2	12.9	1.4 B	14.3	4.8 B	11.6	21	25.7	19.9
Potassium	1900	NA	1380	1450	628 B	423 B	1400	666 B	1120 B	2670	1860	1340 B
Selenium	NA	NA										
Silver	1.7	1100							0.45 B			
Sodium	240	NA	245 B	833 B	406 B	483 B	186 B	287 B	142 B	192 B	177 B	352 B
Thallium	0.46	NA										
Tin	20	NA	1 B	1.4 B	1.5 B	0.96 B	0.98 B	0.64 B	1.4 B		1.4 B	1.6 B
Vanadium	25	1500	12.2	17.8	13.5	3.4 B	12.6	7.9 B	13.8	14.6	23	20.5
Zinc	140	64000	43.9	46	48.6	8.6	44	21.9	57.2	59.1	63.6	73.2
OTHER INORGANICS												
% Solids (%)	NA	NA	90.5	86.6	94.9	91.2	85.5	86.5	80.7	84	82	88.2
Nitrate/Nitrite (mg-N/kg)	NA	NA	2.2	6.2	2.2	1.2	4.2	3.4	9.3	1.7	3.2	2

No entry - not detected
mg/kg - milligrams/kilogram
NA - Value not available
NC - Background not comp
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mg-N/kg - milligrams per kilogram, reported as nitrogen
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B - Analyte detected in blanks associated with this sample
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.4.
Detected TAL Inorganics (mg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-AOJ-000071	SGC-AOJ-000072	SGC-AOJ-000073	SGC-AOJ-000074	SGC-AOJ-000075	SGC-AOJ-000076	SGC-AOJ-000077	SGC-AOJ-000078	SGC-A03-000079	SGC-A03-000080
PETREX Sample Area			AREA J	AREA J	AREA J	AREA J	AREA J	AREA J	AREA J	AREA J	AREA 3	AREA 3
TAL INORGANICS (mg/kg)												
Aluminum	19000	NA	7000	10900	11800	9220	7660	7730	12700	5570	4090	7450
Antimony	NA	85	0.93 B		0.77 B	0.25 B	0.26 B				0.93 B	
Arsenic	8.6	64	5.1	1.7 B	5	2 B	4.7	2 B	2.8	3 B	5.5	3.3
Barium	180	1.50E+04	44 B	48.5	66.7	49.9	45.4 B	53	85.8	38.7 B	34.4 BJ	21 B
Beryllium	1.3	0.7	0.13 B	0.68	0.41 B	0.49	0.47	0.43	0.42		0.13 B	0.16 B
Bismuth	NA	NA	1.1 B						1 B			
Cadmium	2.1	210	3.3		4.6				6.3	2.1		
Calcium	310000	NA	140000	73500	45800	99300	102000	88100	174000	143000	126000	133000
Chromium	20	1.10E+05	7.8	14.7	13.4	13.3	11.4	12.2	17	9.2	7.3 J	10.4
Cobalt	19	NA	6.2 B	9.6 B	9.9 B	8 B	8 B	6.8 B	11.1 B	4.1 B	6.8 B	7.7 B
Copper	26	NA	17.5	16.7	23.5	14.6	17.2	13.9	22.4	10.5	15 J	11.2
Cyanide	ND	4300										0.58 B
Iron	35000	NA	15200	23300	21900	17600	16400	16700	28700	9480	13400 J	20400
Lead	48	NA	16.9	9.7	26	19.9	12	8.2	8.8	5.6	9.4 J	9.6
Lithium	26	NA	11.5 B	20.1 B	15.8 B	19.9 B	15.2 B	13.1 B	22.9 B	5.6 B	13.6 B	26.6
Magnesium	40000	NA	44200	15300	14500	33900	33000	32300	37500	47400	49400 J	25300
Manganese	1400	27000	400	654	508	411	481	437	598	372	340 J	445
Mercury	ND	64		0.06 B		0.09 B		0.29				
Molybdenum	27	NA	1.4 B	1.3 B	1.6 B	0.86 B	1.2 B	2.3 B	2.8 B	1.6 B	2.1 B	
Nickel	32	4.30E+03	12	22.7	18.7	17.8	17.7	16.6	26	8.9 B	17.1	17
Potassium	1900	NA	1110 B	1890	1600	1760	1430	1290	1420	678 B	829 B	1400
Selenium	NA	NA										
Silver	1.7	1100										
Sodium	240	NA	482 B	228 B	171 B	182 B	164 B	236 B	1450 B	415 B	171 BJ	347 B
Thallium	0.46	NA										
Tin	20	NA	1.2 B	1 B	2.3 B	1.3 B	0.94 B	0.99 B	1.8 B	0.88 B	3.7 B	0.98 B
Vanadium	25	1500	12.7	18.5	24.1	16.4	15.8	18.5	24.2	12.6	10.8 J	8.8 B
Zinc	140	64000	50.9	51.1	67.6	58.8	60.7	48	75.2	38.7	43.6 J	39.6
OTHER INORGANICS												
% Solids (%)	NA	NA	86.1	87.6	94	88.5	85.3	86.8	85.8	89.4	88.1	86.6
Nitrate/Nitrite (mg-N/kg)	NA	NA	2.7	6.3	2.3	1.8	3.5	2.2	0.64	2.9	2.2	3.7

No entry - not detected
mg/kg - milligrams/kilogram
NA - Value not available
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B - Analyte detected in blanks associated with this sample
Red = above Guideline Criteria (GC)
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Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.4.
Detected TAL Inorganics (mg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A03-000081	SGC-A03-000082	SGC-A03-000083	SGC-A03-000084	SGC-A03-000085	SGC-A03-000086	SGC-A03-000087	SGC-A21-000088	SGC-A21-000089	SGC-A21-000090
PETREX Sample Area			AREA 3	AREA 3	AREA 3	AREA 3	AREA 3	AREA 3	WEST	AREA 21	AREA 21	AREA 21
TAL INORGANICS (mg/kg)												
Aluminum	19000	NA	4850	2070	3710	8760	5830	7860	3670	11100	14800	16500
Antimony	NA	85			0.39 B	0.4 B				0.65 B		
Arsenic	8.6	64	4.5	3.6 B	4.5	6.8	3.6	7.7	3.8 B	3.7 J	3.4	3.5
Barium	180	1.50E+04	34.9 B	26.9 B	29.6 B	72.6	39.7 B	68	30.4 B	95.5	77.3	128
Beryllium	1.3	0.7	0.16 B		0.13 B	0.45 B	0.32	0.41 B	0.12 B	0.81	0.42	0.88
Bismuth	NA	NA										1 B
Cadmium	2.1	210	0.28 B	0.21 B	0.17 B				0.1 B		6.1	7.1
Calcium	310000	NA	132000	164000	144000	61300	169000	62400	135000	6570 J	92800	7820
Chromium	20	1.10E+05	7.9	6	6	14	10.8	14.4	4.7	15.6	17.8	20.6
Cobalt	19	NA	5.1 B	2.1 B	4.7 B	9 B	6.5 B	8.2 B	3.1 B	12.9	12 B	13.4
Copper	26	NA	13.6	6.1	12.1	20.1	11.9	18.5	5.8	14.1	16.7	21.7
Cyanide	ND	4300				0.59 B		0.58 B				
Iron	35000	NA	12900	6180	8960	22500	15500	18600	6540	25600	29300	33200
Lead	48	NA	7.8	6.8	14.3	8.1	12.4	12	7	21.3 J	16.9	35.4
Lithium	26	NA	8.6 B	4.7 B	5.3 B	12.3 B	19 B	13.9 B	11.8 B	8.7 B	15.4 B	18.5 B
Magnesium	40000	NA	47500	85100	86000	20100	39900	12700	27700	2510	3530	3830
Manganese	1400	27000	305	279	267	466	430	594	289	804 J	649	982
Mercury	ND	64	0.06 B							0.06 BJ	0.07 B	0.1 B
Molybdenum	27	NA	1.9 B	1.4 B	2.2 B	2.7 B	1.3 B	1.8 B	0.68 B	1.7 B	1.9 B	1.4 B
Nickel	32	4.30E+03	13.2	6.1 B	8.4 B	22.5	14.6	17.3	6.6 B	17.9	20.4	28.5
Potassium	1900	NA	674 B	306 B	476 B	742 B	1150	1080 B	503 B	1060 B	1170 B	2420 B
Selenium	NA	NA										
Silver	1.7	1100				0.46 B			0.22 B			
Sodium	240	NA	218 B	464 B	318 B	124 B	355 B	142 B	282 B	95.6 BJ	121 B	95.4 B
Thallium	0.46	NA							0.84 B			
Tin	20	NA				1.4 B					2 B	2.4 B
Vanadium	25	1500	10.9	8	11.6	22.1	9.8	20.8	5.8	23.6	29.3	32
Zinc	140	64000	43.2	27	58.6	53.9	37.8	53	18	55.4	75.4	101
OTHER INORGANICS												
% Solids (%)	NA	NA	90.2	92.3	82	84.9	88.8	86	87.9	79.9	83.2	78.5
Nitrate/Nitrite (mg-N/kg)	NA	NA	2.2	1.4	1.6	13.1	6.8	8.6	0.93	3.4	1.9	5.2

No entry - not detected
mg/kg - milligrams/kilogram
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Table A.4.
Detected TAL Inorganics (mg/kg)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A22-000091	SGC-A22-000092	SGC-A22-000093	SGC-A22-000094	SGC-A22-000095	SGC-A22-000096	SGC-SDB-000097	SGC-SDB-000098	SGC-SDB-000101	SGC-SDB-000102
PETREX Sample Area			AREA 22	AREA 22	AREA 22	AREA 22	AREA 22	AREA 22	SDB	SDB	SDB	SDB
TAL INORGANICS (mg/kg)												
Aluminum	19000	NA	5800	13700	8520	8970	13100	16400	3100	11500	8360	8960
Antimony	NA	85		0.48 B			0.52 B		0.25 B			
Arsenic	8.6	64	0.8 B	5.4	1 B	4.2	5.5 J	1.1 B	8.6	3.6 B	2.9	5.4
Barium	180	1.50E+04	35.3 B	102	64.2	55	75.1	86	24.4 B	16 B	28.1 B	47.9 B
Beryllium	1.3	0.7	0.05 B	0.4	0.2 B	0.09 B	0.9	0.48	0.17 B	0.57	0.4	0.45
Bismuth	NA	NA				0.98 B				1.2 B		
Cadmium	2.1	210	3.1	6.1	3.8	3.6		5.2	0.16 B		0.23 B	
Calcium	310000	NA	217000	188000	160000	124000	4190 J	137000	164000	89400	89500	95900
Chromium	20	1.10E+05	7.1	16.8	10.5	13.8	20.2	17.2	9.4	16.4	30.9	12.2
Cobalt	19	NA	5.6 B	11 B	6 B	6.7 B	13	9.6 B	3.6 B	14.8	8.6 B	7.8 B
Copper	26	NA	8.6	20.1	10.8	17.8	22.4	16.8	15.4	19.3	44.2	12.8
Cyanide	ND	4300										
Iron	35000	NA	14500	27100	16900	15900	32000	29400	9690	27200	20400	18100
Lead	48	NA	7.6	10.4	5.5	20.4	17.6 J	8.5	11.1	5.8	12.7	14.2
Lithium	26	NA	18 B	19.5 B	14.4 B	13 B	8.7 B	22.8 B	11 B	39.3	26.8	20.8 B
Magnesium	40000	NA	13600	33000	24700	72600	2940	5320	58600	24600	26200	16400
Manganese	1400	27000	347	788	402	503	600 J	553	319	788	451	472
Mercury	ND	64				0.08 B	0.08 BJ		0.06 B		0.44	
Molybdenum	27	NA	0.22 B	1.7 B	0.91 B	2 B	2.4 B	1.3 B	0.97 B		1 B	0.53 B
Nickel	32	4.30E+03	12.6	27.9	15.4	12	26	22.6	9.4	28.2	20.5	17.7
Potassium	1900	NA	831 B	1190 B	873 B	852 B	820 B	1510	562 B	1120 B	1600	1360
Selenium	NA	NA										
Silver	1.7	1100							1 B		0.25 B	
Sodium	240	NA	163 B	319 B	212 B	276 B	1760 J	667 B	212 B	276 B	440 B	149 B
Thallium	0.46	NA										
Tin	20	NA		1.4 B	0.67 B	1.7 B	1.2 B	1.2 B				
Vanadium	25	1500	6.7	25.7	16.9	21.1	34.8	23.7	7.4	14.7	12.5	13.5
Zinc	140	64000	63.5	69.6	61.7	58.7	74.8	53.7	66.7	59.2	590	47.1
OTHER INORGANICS												
% Solids (%)	NA	NA	90.3	83.3	89.3	85.7	80	84.7	94.3	88.6	86.7	81.1
Nitrate/Nitrite (mg-N/kg)	NA	NA	2	2.8	4.4	3.1	3.3	4	2.7	0.94	1.9	3

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Magenta = above Background and Below GC
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Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000001	SGC-NAC-000002	SGC-NAC-000003	SGC-NAC-000004	SGC-NAC-000005
PETREX Sample Area			NORTH	NORTH	NORTH	NORTH	EAST
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01					
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**1.42**	0.069	**0.833**	0.087	**0.543**
Plutonium-239/240	0.18	5.5			0.0252		
Potassium-40	37	NA	21.7	2.95	6.53	27.4	15.1
Radium-226+D	2	1.40E-01	**1.03**	**0.478**	**0.508**	**1.16**	**1.22**
Thorium-228+D	1.5	0.85	**1.52**	0.277	0.37	**1.24**	**1.05**
Thorium-230	1.9	44	0.814	0.374	0.621	0.98	1.19
Thorium-232	1.4	50	1.3	0.184	0.315	1.17	0.95
Uranium-234	1.1	37.5	**2.19**	0.401	0.419	0.934	0.874
Uranium-235+D	0.11	3.35	0.0974		0.04	0.0349	0.0328
Uranium-238+D	1.2	11	**2.35**	0.392	0.512	0.918	0.913

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000006	SGC-NAC-000007	SGC-NAC-000008	SGC-NAC-000009	SGC-NAC-000010
PETREX Sample Area			EAST	WEST	WEST	EAST	EAST
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01	**0.861**				
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**4.32**	**0.537**	0.0826	0.0233	0.107
Plutonium-239/240	0.18	5.5					
Potassium-40	37	NA	14.3	10.8	7.72	12.9	15
Radium-226+D	2	1.40E-01	**0.87**	**0.537**	**0.571**	**0.764**	**0.917**
Thorium-228+D	1.5	0.85	**1.06**	0.431	0.678	0.779	**0.914**
Thorium-230	1.9	44	1.18	0.582	0.541	1.09	1.27
Thorium-232	1.4	50	1.18	0.328	0.554	0.838	0.708
Uranium-234	1.1	37.5	0.761	0.551	0.361	0.712	0.897
Uranium-235+D	0.11	3.35					0.0459
Uranium-238+D	1.2	11	0.815	0.574	0.414	0.774	1.06

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.
Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000011	SGC-NAC-000012	SGC-NAC-000013	SGC-NAC-000014	SGC-NAC-000015
PETREX Sample Area			WEST	EAST	EAST	SOUTH	SOUTH
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01				**0.826**	
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	0.0718	0.101	0.0107	**0.671**	0.0118
Plutonium-239/240	0.18	5.5		0.00154		0.0206	
Potassium-40	37	NA	17.8	15.5	4.65	22.5	19.2
Radium-226+D	2	1.40E-01	**0.778**	**0.592**	**0.263**	**1.1**	**1.4**
Thorium-228+D	1.5	0.85	**0.913**	0.697	0.247	**1.18**	**1.37**
Thorium-230	1.9	44	0.902	0.803	0.359	1.09	1.48
Thorium-232	1.4	50	0.83	0.769	0.21	1.08	1.43
Uranium-234	1.1	37.5	0.882	0.693	0.378	0.866	1.01
Uranium-235+D	0.11	3.35		0.0231	0.0183	0.0548	0.0927
Uranium-238+D	1.2	11	0.871	0.681	0.424	1.01	0.955

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000016	SGC-NAC-000017	SGC-NAC-000018	SGC-NAC-000019	SGC-NAC-000020
PETREX Sample Area			SOUTH	SOUTH	WEST	WEST	WEST
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01		**0.582**			
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**0.253**	**0.2**	**0.684**	0.121	**0.721**
Plutonium-239/240	0.18	5.5	0.00413	0.0166	0.00487		
Potassium-40	37	NA	15.2	29.1	10.1	7.9	24.7
Radium-226+D	2	1.40E-01	**0.934**	**0.96**	**0.677**	**0.528**	**0.841**
Thorium-228+D	1.5	0.85	**1.04**	**1.1**	0.465	0.378	**0.892**
Thorium-230	1.9	44	1.36	1.01	0.582	0.749	1.08
Thorium-232	1.4	50	0.894	1.26	0.508	0.375	0.843
Uranium-234	1.1	37.5	0.765	0.698	0.523	0.44	0.751
Uranium-235+D	0.11	3.35	0.0394	0.0403			0.0362
Uranium-238+D	1.2	11	0.993	0.852	0.496	0.691	0.825

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000021	SGC-NAC-000022	SGC-NAC-000023	SGC-NAC-000024	SGC-NAC-000025
PETREX Sample Area			WEST	WEST	SOUTH	SOUTH	SOUTH
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01	0.193		**0.423**	0.383	
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**0.772**	0.03688	0.119	**0.523**	**0.288**
Plutonium-239/240	0.18	5.5	0.00579		0.0162	0.0142	0.00665
Potassium-40	37	NA	**41.8**	17.6	36.6	12	18.1
Radium-226+D	2	1.40E-01	**1.03**	**1.36**	**0.987**	**0.714**	**1.22**
Thorium-228+D	1.5	0.85	**1.19**	0.766	**1.32**	0.775	**1.16**
Thorium-230	1.9	44	0.701	1.66	1.08	0.988	1.49
Thorium-232	1.4	50	0.97	0.782	1.18	0.938	1
Uranium-234	1.1	37.5	0.861	**1.14**	0.955	0.718	1.07
Uranium-235+D	0.11	3.35	0.0374	0.0253		0.0276	0.0467
Uranium-238+D	1.2	11	0.822	**1.28**	1.1	0.839	1.14

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000026	SGC-NAC-000027	SGC-NAC-000028	SGC-NAC-000029	SGC-NAC-000030
PETREX Sample Area			SOUTH	SOUTH	SOUTH	SOUTH	EAST
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01	0.401		0.28	**0.493**	
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**0.15**	**0.259**	0.116	**0.151**	**1.38**
Plutonium-239/240	0.18	5.5	0.00705		0.00773	0.0107	
Potassium-40	37	NA	25.7	21.7	24.2	29.1	3.23
Radium-226+D	2	1.40E-01	**1**	**1.5**	**0.805**	**0.932**	
Thorium-228+D	1.5	0.85	**0.911**	**0.986**	0.665	**1.31**	0.0928
Thorium-230	1.9	44	1.2	1.57	0.611	0.843	0.14
Thorium-232	1.4	50	0.966	0.915	0.567	1.11	0.11
Uranium-234	1.1	37.5	0.775	1.07	0.435	0.774	0.171
Uranium-235+D	0.11	3.35	0.0463	0.0592		0.0418	
Uranium-238+D	1.2	11	0.862	0.869	0.508	0.968	0.0922

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
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Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000031	SGC-NAC-000032	SGC-NAC-000033	SGC-NAC-000034	SGC-NAC-000035
PETREX Sample Area			NORTH	WEST	SOUTH	SOUTH	SOUTH
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01	0.393		**0.602**		
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**0.586**	**29.1**	0.109	**0.574**	0.0569
Plutonium-239/240	0.18	5.5	0.00822	0.0744	0.0143	0.00369	
Potassium-40	37	NA	12.2	21.3	31.4	16.5	24.8
Radium-226+D	2	1.40E-01	**1.35**	**0.901**	**1.3**	**0.872**	**0.8**
Thorium-228+D	1.5	0.85	0.792	**0.977**	**1.11**	**0.884**	**1.07**
Thorium-230	1.9	44	1.48	0.848	0.907	1.34	0.881
Thorium-232	1.4	50	0.823	1.08	0.963	0.963	1.03
Uranium-234	1.1	37.5	0.811	0.738	0.796	0.977	0.827
Uranium-235+D	0.11	3.35	0.034		0.055	0.0563	0.0267
Uranium-238+D	1.2	11	0.936	0.851	0.938	0.978	0.768

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-NAC-000036	SGC-NAC-000037	SGC-NAC-000038	SGC-NAC-000039	SGC-A66-000040
PETREX Sample Area			New Propty	New Propty	New Propty	New Propty	NORTH
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01		0.305	**0.6**		
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**0.195**	**1.53**	0.0754	**0.144**	**0.264**
Plutonium-239/240	0.18	5.5		0.00848	0.00898		
Potassium-40	37	NA	18.7	19.8	17.7	24.4	9.55
Radium-226+D	2	1.40E-01	**1.26**	**1.29**	**0.983**	**1.06**	**0.432**
Thorium-228+D	1.5	0.85	**1.5**	**1.08**	**1.05**	**0.987**	0.319
Thorium-230	1.9	44	1.27	1.12	1.23	1.24	0.416
Thorium-232	1.4	50	**1.5**	1.06	1.01	1.08	0.38
Uranium-234	1.1	37.5	1.02	1.02	0.999	0.853	0.477
Uranium-235+D	0.11	3.35	0.0656	0.0504	0.0493	0.0316	
Uranium-238+D	1.2	11	1.05	1.15	1.13	1.02	0.444

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
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Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A66-000041	SGC-A61-000042	SGC-A61-000043	SGC-A61-000044	SGC-A61-000045
PETREX Sample Area			NORTH	AREA 61	AREA 61	AREA 61	AREA 61
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01		0.201			
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	0.0496	0.937	0.104	0.109	0.0344
Plutonium-239/240	0.18	5.5				0.00343	
Potassium-40	37	NA	18.2	7.05	10.9	12.9	4.87
Radium-226+D	2	1.40E-01	**0.834**	**0.635**	**0.64**	**0.964**	**0.66**
Thorium-228+D	1.5	0.85	0.755	**1.01**	0.681	0.634	0.196
Thorium-230	1.9	44	1.1	0.578	0.791	1.1	0.689
Thorium-232	1.4	50	0.873	1.11	0.592	0.593	0.287
Uranium-234	1.1	37.5	0.811	0.417	0.581	0.682	0.892
Uranium-235+D	0.11	3.35			0.044	0.0417	
Uranium-238+D	1.2	11	0.918	0.602	0.606	0.876	0.605

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
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Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.
Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A61-000046	SGC-A61-000047	SGC-A61-000048	SGC-A61-000049	SGC-A61-000050
PETREX Sample Area			AREA 7	AREA 7	AREA 7	AREA 7	AREA 7
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01					
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**0.173**	0.0549	0.00517	0.0318	**0.138**
Plutonium-239/240	0.18	5.5					
Potassium-40	37	NA	20.9	18	2.93	3.55	23.2
Radium-226+D	2	1.40E-01	**0.69**	**0.727**	**0.325**	**0.549**	**0.794**
Thorium-228+D	1.5	0.85	0.786	0.79	0.116	0.204	0.796
Thorium-230	1.9	44	0.729	0.729	0.249	0.426	0.763
Thorium-232	1.4	50	0.883	0.627	0.114	0.158	0.835
Uranium-234	1.1	37.5	0.707	0.705	0.201	0.357	0.723
Uranium-235+D	0.11	3.35	0.0475	0.024			
Uranium-238+D	1.2	11	0.87	0.853	0.16	0.302	0.885

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A61-000051	SGC-A61-000052	SGC-A61-000053	SGC-NAC-000054	SGC-A61-000055
PETREX Sample Area			AREA 7	AREA 7	AREA 7		AREA 7
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01	**0.718**				
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**2.25**	0.0678	**0.756**	**0.147**	**0.215**
Plutonium-239/240	0.18	5.5	0.0221	0.00605	0.00562	0.00291	
Potassium-40	37	NA	20.2	30.2	9.48	22	18.6
Radium-226+D	2	1.40E-01	**1.01**	**0.81**	**0.532**	**0.629**	**1.02**
Thorium-228+D	1.5	0.85	**0.928**	**0.879**	0.419	**0.948**	**1.35**
Thorium-230	1.9	44	0.833	0.835	0.594	0.867	1.14
Thorium-232	1.4	50	0.718	0.976	0.0346	0.896	1.16
Uranium-234	1.1	37.5	0.675	0.653	0.467	0.645	1.02
Uranium-235+D	0.11	3.35	0.0565			0.0541	0.0428
Uranium-238+D	1.2	11	0.734	0.648	0.387	0.816	1.02

No entry - not detected
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NA - Data not available
NC - Background value not computed
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Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A13-000056	SGC-A13-000057	SGC-A13-000058	SGC-A13-000059	SGC-A13-000060
PETREX Sample Area			AREA 13	AREA 13	AREA 13	AREA 13	AREA 13
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01		0.169			
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	0.0451	**1.79**	0.102	0.0392	**0.37**
Plutonium-239/240	0.18	5.5		0.0388			
Potassium-40	37	NA	9.27	18.1	6.93	12.6	9.18
Radium-226+D	2	1.40E-01		**0.695**	**0.6**	**0.982**	**0.649**
Thorium-228+D	1.5	0.85	0.283	**0.983**	0.26	0.667	0.494
Thorium-230	1.9	44	0.606	0.982	0.735	0.984	0.698
Thorium-232	1.4	50	0.384	0.755	0.151	0.663	0.529
Uranium-234	1.1	37.5	0.374	0.771	0.619	0.723	0.493
Uranium-235+D	0.11	3.35		0.0422			
Uranium-238+D	1.2	11	0.576	0.772	0.737	0.784	0.649

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
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Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A13-000061	SGC-AOJ-000062	SGC-AOJ-000063	SGC-AOJ-000064	SGC-AOJ-000065
PETREX Sample Area			AREA 13	AREA J	AREA J	AREA J	AREA J
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01					
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	0.0845	**0.258**	**1.33**	0.0526	**2.06**
Plutonium-239/240	0.18	5.5		0.00226	0.0208		0.0057
Potassium-40	37	NA	7.99	7.38	5.18	2.65	17.7
Radium-226+D	2	1.40E-01	**0.584**	**0.492**	**0.574**		**0.892**
Thorium-228+D	1.5	0.85	0.332	0.25	0.44	0.0957	0.703
Thorium-230	1.9	44	0.758	0.618	0.525	0.194	0.921
Thorium-232	1.4	50	0.347	0.316	0.437	0.104	0.667
Uranium-234	1.1	37.5	0.461	0.64	0.612	0.222	0.882
Uranium-235+D	0.11	3.35					
Uranium-238+D	1.2	11	0.564	0.623	0.713	0.253	0.787

No entry - not detected
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NA - Data not available
NC - Background value not computed
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Magenta = above Background and Below GC
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Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-AOJ-000066	SGC-AOJ-000067	SGC-AOJ-000068	SGC-AOJ-000069	SGC-AOJ-000070
PETREX Sample Area			AREA J	AREA J	AREA J	AREA J	AREA J
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01					
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**3.28**	**28.1**	**6.27**	**0.272**	**7.57**
Plutonium-239/240	0.18	5.5	0.00978	0.0975	0.021		0.0666
Potassium-40	37	NA	6.12	15	14.4	25.9	14.4
Radium-226+D	2	1.40E-01	**0.443**	**0.971**	**0.996**	**0.713**	**0.842**
Thorium-228+D	1.5	0.85	0.341	**0.904**	0.721	**1.07**	**0.87**
Thorium-230	1.9	44	0.359	1	1.04	0.95	1.07
Thorium-232	1.4	50	0.252	0.885	0.566	1.05	0.786
Uranium-234	1.1	37.5	0.27	0.617	0.762	0.69	0.659
Uranium-235+D	0.11	3.35			0.0322		0.0259
Uranium-238+D	1.2	11	0.258	0.881	0.822	0.765	0.827

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
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Magenta = above Background and Below GC
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Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-AOJ-000071	SGC-AOJ-000072	SGC-AOJ-000073	SGC-AOJ-000074	SGC-AOJ-000075
PETREX Sample Area			AREA J	AREA J	AREA J	AREA J	AREA J
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01					
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**4**	**0.131**	**4.52**	0.0909	**0.261**
Plutonium-239/240	0.18	5.5	0.0183	0.00359	0.0165		0.00519
Potassium-40	37	NA	19.9	32.3	17.6	15.8	14.7
Radium-226+D	2	1.40E-01	**0.842**	**0.797**	**0.668**	**0.63**	**0.985**
Thorium-228+D	1.5	0.85	0.616	**1.05**	0.827	0.503	0.773
Thorium-230	1.9	44	1.15	0.771	0.928	0.595	0.89
Thorium-232	1.4	50	0.815	1.11	0.572	0.466	0.743
Uranium-234	1.1	37.5	0.613	0.89	0.606	0.537	0.713
Uranium-235+D	0.11	3.35			0.0375	0.0391	0.0244
Uranium-238+D	1.2	11	0.592	1.05	0.712	0.512	0.92

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-AOJ-000076	SGC-AOJ-000077	SGC-AOJ-000078	SGC-A03-000079	SGC-A03-000080
PETREX Sample Area			AREA J	AREA J	AREA J	AREA 3	AREA 3
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01			0.0687	0.244	
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	0.0855	**0.834**	**1.06**	**1.84**	0.0388
Plutonium-239/240	0.18	5.5	0.00207		0.00383	0.0107	
Potassium-40	37	NA	16.7	15.2	21.5	14.8	10.1
Radium-226+D	2	1.40E-01	**0.658**	**0.861**	**0.765**	**0.879**	**0.519**
Thorium-228+D	1.5	0.85		0.846	**1.21**	0.515	0.343
Thorium-230	1.9	44	1.18	1.14	0.837	1.01	0.63
Thorium-232	1.4	50	0.744	0.77	1.07	0.716	0.304
Uranium-234	1.1	37.5	0.814	0.679	0.702	0.819	0.523
Uranium-235+D	0.11	3.35	0.0345	0.0399	0.0361	0.0393	
Uranium-238+D	1.2	11	0.914	0.842	0.718	0.912	0.605

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A03-000081	SGC-A03-000082	SGC-A03-000083	SGC-A03-000084	SGC-A03-000085
PETREX Sample Area			AREA 3	AREA 3	AREA 3	AREA 3	AREA 3
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01					
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**0.219**	0.039	0.0969	0.0456	0.118
Plutonium-239/240	0.18	5.5	0.0121				
Potassium-40	37	NA	8.51	12.4	3.49	4.46	8.21
Radium-226+D	2	1.40E-01	**0.692**	**0.498**	**0.341**	**0.372**	**0.552**
Thorium-228+D	1.5	0.85	0.464	0.647	0.133	0.69	**1.18**
Thorium-230	1.9	44	0.768	0.618	0.346	0.513	0.575
Thorium-232	1.4	50	0.445	0.659	0.114	0.438	0.89
Uranium-234	1.1	37.5	0.616	0.578	0.319	0.546	0.536
Uranium-235+D	0.11	3.35			0.0246		0.0371
Uranium-238+D	1.2	11	0.584	0.551	0.289	0.579	0.666

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A03-000086	SGC-A03-000087	SGC-A21-000088	SGC-A21-000089	SGC-A212-000090
PETREX Sample Area			AREA 3	WEST	AREA 21	AREA 21	
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01		0.333	**0.691**	**0.589**	**0.563**
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**3.11**	**0.914**	**0.508**	**0.444**	**0.284**
Plutonium-239/240	0.18	5.5	0.00943	0.0111	0.0216	0.0132	0.00901
Potassium-40	37	NA	15.9	6.28	23.3	17.5	26.6
Radium-226+D	2	1.40E-01	**1.02**	**0.478**	**1.26**	**1.03**	**1.14**
Thorium-228+D	1.5	0.85	0.773	0.35	**0.954**	**0.855**	**1.27**
Thorium-230	1.9	44	1.07	0.653	1.3	1.2	1.16
Thorium-232	1.4	50	0.806	0.455	1.01	0.826	1.07
Uranium-234	1.1	37.5	0.799	0.572	0.86	0.767	0.79
Uranium-235+D	0.11	3.35	0.0617			0.0591	
Uranium-238+D	1.2	11	0.966	0.596	0.897	0.803	1.16

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A22-000091	SGC-A22-000092	SGC-A22-000093	SGC-A22-000094	SGC-A22-000095
PETREX Sample Area			AREA 22	AREA 22	AREA 22	AREA 22	AREA 22
Americium-241	ND	4.95					
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01		0.207			0.131
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**0.449**	**13.2**	**0.465**	**23.5**	**11**
Plutonium-239/240	0.18	5.5	0.00434	0.0624	0.00367	0.082	0.0405
Potassium-40	37	NA	21.2	14.6	16.6	12	7.18
Radium-226+D	2	1.40E-01	**1.31**	**0.742**	**1.27**	**1**	**0.559**
Thorium-228+D	1.5	0.85	**1.13**	0.746	**1.02**	0.591	0.556
Thorium-230	1.9	44	1.5	1.28	1.63	1.23	0.705
Thorium-232	1.4	50	1.1	0.846	1.08	0.527	0.567
Uranium-234	1.1	37.5	**1.19**	0.925	0.931	0.59	0.375
Uranium-235+D	0.11	3.35	0.0472		0.0524	0.046	
Uranium-238+D	1.2	11	**1.22**	1	0.967	0.882	0.408

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

Table A.5.

Detected Radionuclides (pCi/g)

ANALYTE	Background Value	Industrial Scenario Guideline Criteria	SGC-A22-000096	SGC-SDB-000097	SGC-SDB-000098	SGC-SDB-000101	SGC-SDB-000102
PETREX Sample Area			AREA 22	SDB	SDB	SDB	SDB
Americium-241	ND	4.95		0.521		1.39	
Bismuth-207	ND	0.175					
Bismuth-210	ND	NA					
Cesium-137	0.42	4.60E-01					
Cobalt-60	NC	0.1					
Plutonium-238	0.13	5.5	**0.614**	**27.5**	**0.501**	**118**	**2.11**
Plutonium-239/240	0.18	5.5		0.0977		**0.364**	0.0121
Potassium-40	37	NA	3.76	14	19.8	7.86	16.8
Radium-226+D	2	1.40E-01	**0.362**	**0.626**	**0.485**	**0.552**	**0.661**
Thorium-228+D	1.5	0.85	0.254	0.704	0.789	0.295	0.695
Thorium-230	1.9	44	0.214	0.767	0.64	0.232	0.808
Thorium-232	1.4	50	0.214	0.622	0.601	0.167	0.668
Uranium-234	1.1	37.5	0.381	0.57	0.5	0.904	0.617
Uranium-235+D	0.11	3.35		0.035	0.0519		0.0293
Uranium-238+D	1.2	11	0.333	0.591	0.651	0.511	0.642

No entry - not detected
ND -No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram
Red = above Guideline Criteria (GC)
Green = above GC and below Background
Magenta = above Background and Below GC
Blue = above Background (no GC)

APPENDIX B

RADIONUCLIDE COMPARISON TABLES

Table B.1. Comparison Table for Mound Screening Laboratory Results, Quanterra Analytical Laboratory Results Mound Wet Chemistry Laboratory Results

Sample No.	Isotope	Quanterra Results pCi/g	Mound Wet Chemistry Lab Results pCi/g	Mound Screening Laboratory Results pCi/g
SGC-NAC-000008	Pu-238	0.0826	0.180	7 (Q); 7 (M)
	Th-228	0.678	0.604	---
	Th-230	0.541	0.596	---
	Th-232	0.554	0.557	0.8 (Q); 0.5 (M)
SGC-SAN-000018	Pu-238	0.684	0.831	8 (Q); 9 (M)
	Th-228	0.465	0.452	---
	Th-230	0.582	0.651	---
	Th-232	0.508	0.467	0.6 (Q); 0.6 (M)
SGC-NAC-000019	Pu-238	0.121	0.115	1 (Q); 12 (M)
	Th-228	0.378	0.700	---
	Th-230	0.749	1.133	---
	Th-232	0.375	0.722	0.4 (Q); 0.6 (M)
SGC-NAC-000020	Pu-238	0.721	0.345	12 (Q); 17 (M)
	Th-228	0.892	0.967	---
	Th-230	1.08	1.001	---
	Th-232	0.843	0.999	0.9 (Q); 0.7 (M)
SGC-NAC-000021	Pu-238	0.772	27.280	27 (Q); 39 (M)
	Th-228	1.19	0.971	---
	Th-230	0.701	0.757	---
	Th-232	0.970	0.931	1.4 (Q); 0.9 (M)
SGC-NAC-000022	Pu-238	0.0368	0.073	16 (Q); 19 (M)
	Th-228	0.766	0.763	---
	Th-230	1.66	1.743	---
	Th-232	0.782	0.760	1.3 (Q); 1.4 (M)
SGC-NAC-000023	Pu-238	0.119	0.271	24 (Q); 23 (M)
	Th-228	1.32	1.333	---
	Th-230	1.08	1.094	---
	Th-232	1.18	1.259	0.9 (Q); 0.8 (M)
SGC-NAC-000024	Pu-238	0.523	0.698	5 (Q); 10 (M)
	Th-228	0.775	0.976	---
	Th-230	0.988	0.902	---
	Th-232	0.938	0.989	0.6 (Q); 0.6 (M)
SGC-NAC-000025	Pu-238	0.288	0.203	8 (Q); 21 (M)
	Th-228	1.16	0.988	---
	Th-230	1.49	1.354	---
	Th-232	1.00	0.923	1.3 (Q); 1.3 (M)

Table B.1. Comparison Table for Mound Screening Laboratory Results, Quanterra Analytical Laboratory Results Mound Wet Chemistry Laboratory Results (cont.)

Sample No.	Isotope	Quanterra Results pCi/g	Mound Wet Chemistry Lab Results pCi/g	Mound Screening Laboratory Results pCi/g
SGC-NAC-000026	Pu-238	0.150	0.147	14 (Q); 18 (M)
	Th-228	0.911	0.908	—
	Th-230	1.20	1.040	—
	Th-232	0.966	0.921	0.8 (Q); 0.8 (M)
SGC-NAC-000027	Pu-238	0.259	0.158	18 (Q); 20 (M)
	Th-228	0.986	1.048	—
	Th-230	1.57	1.516	—
	Th-232	0.915	0.981	1.1 (Q); 1.0 (M)
SGC-NAC-000028	Pu-238	0.116	0.183	13 (Q);18 (M)
	Th-228	0.665	1.212	—
	Th-230	0.611	1.162	—
	Th-232	0.567	1.163	1.1 (Q); 1.1 (M)
SGC-NAC-000029	Pu-238	0.151	0.357	15 (Q); 23 (M)
	Th-228	1.31	1.181	—
	Th-230	0.843	1.000	—
	Th-232	1.11	1.194	0.9 (Q); 0.9 (M)
SGC-NAC-000030	Pu-238	1.38	1.772	0 (Q); 0 (M)
	Th-228	0.0928	0.099	—
	Th-230	0.140	0.162	—
	Th-232	0.110	0.098	0.1 (Q); 0.0 (M)
SGC-NAC-000031	Pu-238	0.586	0.683	22 (Q); 27 (M)
	Th-228	0.792	0.782	—
	Th-230	1.48	1.282	—
	Th-232	0.823	0.685	1.0 (Q); 0.8 (M)
SGC-NAC-000032	Pu-238	29.1	24.320	23 (Q); 35 (M)
	Th-228	0.977	1.173	—
	Th-230	0.848	1.124	—
	Th-232	1.08	1.072	1.1 (Q); 1.1 (M)
SGC-NAC-000033	Pu-238	0.109	0.117	18 (Q); 21 (M)
	Th-228	1.11	1.107	—
	Th-230	0.907	1.039	—
	Th-232	0.963	1.175	0.8 (Q); 0.8 (M)
SGC-NAC-000034	Pu-238	0.574	0.732	12 (Q); 5 (M)
	Th-228	0.884	0.986	—
	Th-230	1.34	1.286	—
	Th-232	0.963	0.905	0.9 (Q); 1.0 (M)

Table B.1. Comparison Table for Mound Screening Laboratory Results, Quanterra Analytical Laboratory Results Mound Wet Chemistry Laboratory Results (cont.)

Sample No.	Isotope	Quanterra Results pCi/g	Mound Wet Chemistry Lab Results pCi/g	Mound Screening Laboratory Results pCi/g
SGC-NAC-000035	Pu-238	0.0569	0.066	16 (Q); 20 (M)
	Th-228	1.07	1.054	---
	Th-230	0.881	1.057	---
	Th-232	1.03	1.153	1.0 (Q); 1.2 (M)
SGC-NAC-000036	Pu-238	0.195	0.208	14 (Q); 23 (M)
	Th-228	1.50	1.417	---
	Th-230	1.27	1.236	---
	Th-232	1.50	1.314	1.0 (Q); 1.0 (M)
SGC-NAC-000037	Pu-238	1.53	1.428	21 (Q); 26 (M)
	Th-228	1.08	1.250	---
	Th-230	1.12	1.421	---
	Th-232	1.06	1.150	0.9 (Q); 0.9 (M)
SGC-NAC-000038	Pu-238	0.0754	0.107	18 (Q); 14 (M)
	Th-228	1.05	1.203	---
	Th-230	1.23	1.343	---
	Th-232	1.01	1.160	1.0 (Q); 0.7 (M)
SGC-NAC-000039	Pu-238	0.144	0.176	28 (Q); 28 (M)
	Th-228	0.987	1.067	---
	Th-230	1.24	1.325	---
	Th-232	1.08	1.034	1.2 (Q); 1.2 (M)
SGC-A61-000042	Pu-238	0.937	1.267	5 (Q); 7 (M)
	Th-228	1.01	1.103	---
	Th-230	0.578	0.665	---
	Th-232	1.11	1.054	0.9 (Q); 1.0 (M)
SGC-A61-000045	Pu-238	0.0344	0.002	7 (Q); 3 (M)
	Th-228	0.196	0.258	---
	Th-230	0.689	0.808	---
	Th-232	0.287	0.219	0.5 (Q); 0.4 (M)
SGC-A13-000057	Pu-238	1.79	1.021	14 (Q); 18 (M)
	Th-228	0.983	0.835	---
	Th-230	0.982	1.000	---
	Th-232	0.755	0.775	1.0 (Q); 0.9 (M)
SGC-AOJ-000063	Pu-238	1.33	1.519	5 (Q); 4 (M)
	Th-228	0.440	0.381	---
	Th-230	0.525	0.539	---
	Th-232	0.437	0.397	0.5 (Q); 0.4 (M)

Table B.1. Comparison Table for Mound Screening Laboratory Results, Quanterra Analytical Laboratory Results Mound Wet Chemistry Laboratory Results (cont.)

Sample No.	Isotope	Quanterra Results pCi/g	Mound Wet Chemistry Lab Results pCi/g	Mound Screening Laboratory Results pCi/g
SGC-AOJ-000071	Pu-238	4.00	3.522	15 (Q); 16 (M)
	Th-228	0.616	0.838	---
	Th-230	1.15	1.421	---
	Th-232	0.815	0.935	0.9 (Q); 1.0 (M)
SGC-A21-000088	Pu-238	0.508	0.255	12 (Q); 15 (M)
	Th-228	0.954	1.213	---
	Th-230	1.30	1.388	---
	Th-232	1.01	1.089	0.9 (Q); 0.9 (M)
SGC-A22-000091	Pu-238	0.449	0.427	17 (Q); 19 (M)
	Th-228	1.13	1.095	---
	Th-230	1.50	1.540	---
	Th-232	1.10	1.141	1.1 (Q); 1.2 (M)
SGC-A22-000095	Pu-238	11.0	12.270	9 (Q); 18 (M)
	Th-228	0.556	0.690	---
	Th-230	0.705	0.786	---
	Th-232	0.567	0.690	0.6 (Q); 0.6 (M)

M - Mound Wet Chemistry Laboratory Screening Sample
Q - Screen Sample for Quanterra Laboratory

Table B.2. Comparison Table for Mound Screening Laboratory Results and Quanterra Analytical Laboratory Results

Sample No.	Isotope	Quanterra Results pCi/g	Mound Screening Laboratory Results pCi/g
SGC-NAC-000001	Pu-238	1.42	25
	Th-232	1.30	1.5
SGC-NAC-000002	Pu-238	0.0690	0
	Th-232	0.184	0.3
SGC-NAC-000003	Pu-238	0.833	5
	Th-232	0.315	0.4
SGC-NAC-000004	Pu-238	0.0870	28
	Th-232	1.17	1.0
SGC-NAC-000005	Pu-238	0.543	19
	Th-232	0.950	1.0
SGC-NAC-000006	Pu-238	4.32	23
	Th-232	1.18	0.9
SGC-NAC-000007	Pu-238	0.537	10
	Th-232	0.328	0.4
SGC-NAC-000009	Pu-238	0.0233	26
	Th-232	0.838	1.2
SGC-NAC-000010	Pu-238	0.107	20
	Th-232	0.708	1.1
SGC-NAC-000011	Pu-238	0.0718	16
	Th-232	0.830	0.5
SGC-NAC-000012	Pu-238	0.101	15
	Th-232	0.769	1.0
SGC-NAC-000013	Pu-238	0.0107	0
	Th-232	0.210	0.4
SGC-NAC-000014	Pu-238	0.671	23
	Th-232	1.08	0.7
SGC-NAC-000015	Pu-238	0.0118	11
	Th-232	1.43	1.4
SGC-NAC-000016	Pu-238	0.253	3
	Th-232	0.894	0.9
SGC-NAC-000017	Pu-238	0.200	26
	Th-232	1.26	1.0
SGC-A66-000040	Pu-238	0.264	1
	Th-232	0.380	0.3
SGC-A66-000041	Pu-238	0.0496	25
	Th-232	0.873	1.0

Table B.2. Comparison Table for Mound Screening Laboratory Results and Quanterra Analytical Laboratory Results (cont.)

Sample No.	Isotope	Quanterra Results pCi/g	Mound Screening Laboratory Results pCi/g
SGC-A61-000043	Pu-238	0.104	6
	Th-232	0.592	0.7
SGC-A61-000044	Pu-238	0.109	12
	Th-232	0.593	0.6
SGC-A61-000046	Pu-238	0.173	6
	Th-232	0.883	0.9
SGC-A61-000047	Pu-238	0.0549	18
	Th-232	0.627	0.7
SGC-A61-000048	Pu-238	0.00517	1
	Th-232	0.114	0.1
SGC-A61-000049	Pu-238	0.0318	1
	Th-232	0.158	0.4
SGC-A61-000050	Pu-238	0.138	11
	Th-232	0.835	0.9
SGC-A61-000051	Pu-238	2.25	25
	Th-232	0.718	0.9
SGC-A61-000052	Pu-238	0.0678	18
	Th-232	0.976	1.3
SGC-A61-000053	Pu-238	0.756	5
	Th-232	0.346	0.4
AGC-A61-000054	Pu-238	0.147	11
	Th-232	0.896	0.7
SGC-A61-000055	Pu-238	0.215	26
	Th-232	1.16	0.9
SGC-A13-000056	Pu-238	0.0451	3
	Th-232	0.384	0.3
SGC-A13-000058	Pu-238	0.102	3
	Th-232	0.151	0.5
SGC-A13-000059	Pu-238	0.0392	23
	Th-232	0.663	0.9
SGC-A13-000060	Pu-238	0.370	9
	Th-232	0.529	0.4
SGC-A13-000061	Pu-238	0.0845	13
	Th-232	0.347	0.5
SGC-AOJ-000062	Pu-238	0.258	9
	Th-232	0.316	0.3
SGC-AOJ-000064	Pu-238	0.0526	0
	Th-232	0.104	0.1

Table B.2. Comparison Table for Mound Screening Laboratory Results and Quanterra Analytical Laboratory Results (cont.)

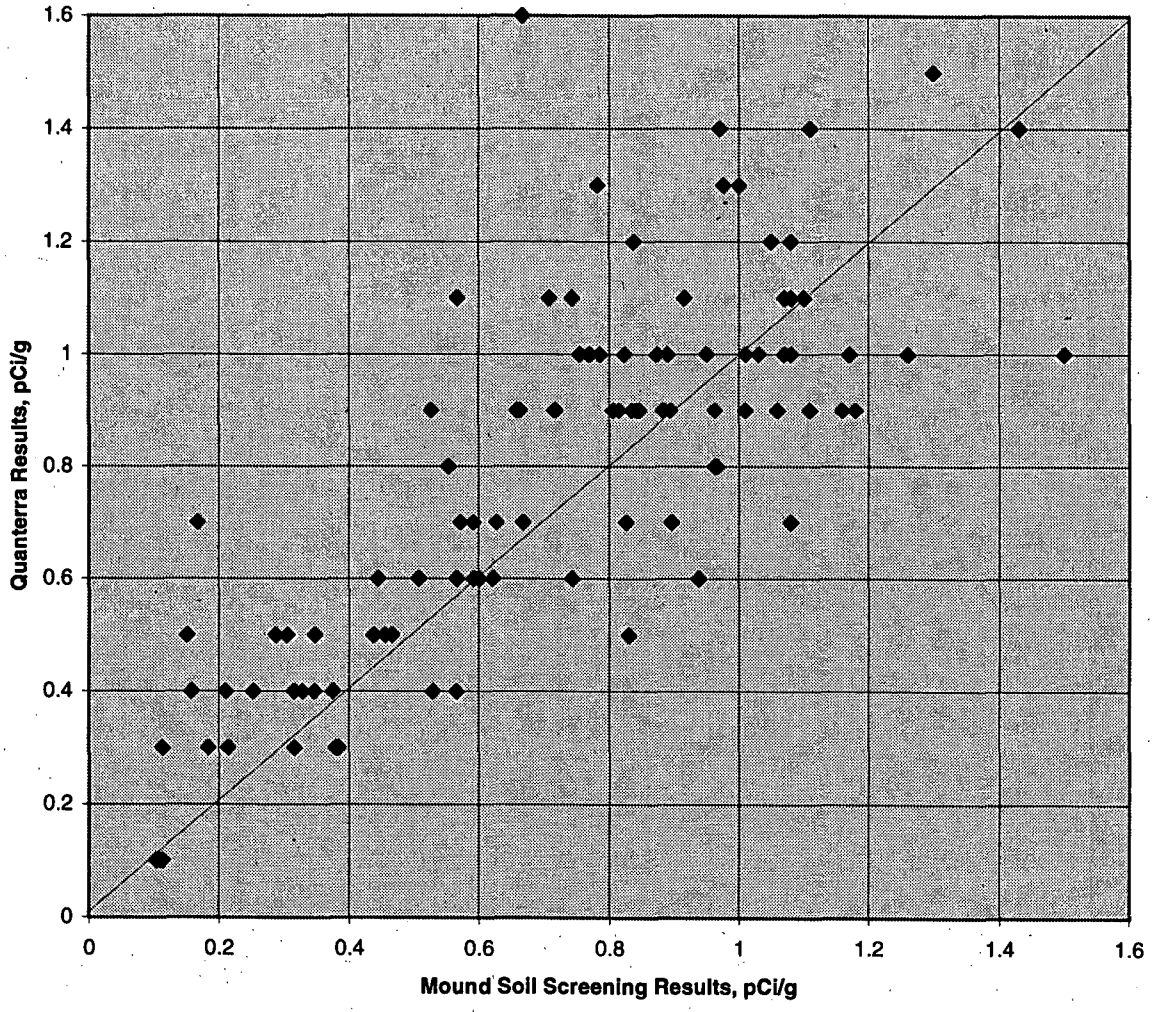
Sample No.	Isotope	Quanterra Results pCi/g	Mound Screening Laboratory Results pCi/g
SGC-AOJ-000065	Pu-238	2.06	14
	Th-232	0.667	1.6
SGC-AOJ-000066	Pu-238	3.28	4
	Th-232	0.252	0.4
SGC-AOJ-000067	Pu-238	28.1	31
	Th-232	0.885	0.9
SGC-AOJ-000068	Pu-238	6.27	10
	Th-232	0.566	0.4
SGC-AOJ-000069	Pu-238	0.272	19
	Th-232	1.05	1.2
SGC-AOJ-000070	Pu-238	7.57	20
	Th-232	0.786	1.0
SGC-AOJ-000072	Pu-238	0.131	31
	Th-232	1.11	1.4
SGC-AOJ-000073	Pu-238	4.52	11
	Th-232	0.572	0.7
SGC-AOJ-000074	Pu-238	0.0909	3
	Th-232	0.466	0.5
SGC-AOJ-000075	Pu-238	0.261	7
	Th-232	0.743	1.1
SGC-AOJ-000076	Pu-238	0.0855	11
	Th-232	0.744	0.6
SGC-AOJ-000077	Pu-238	0.834	14
	Th-232	0.770	1.0
SGC-AOJ-000078	Pu-238	1.06	16
	Th-232	1.07	1.0
SGC-AO3-000079	Pu-238	1.84	16
	Th-232	0.716	0.9
SGC-AO3-000080	Pu-238	0.0388	6
	Th-232	0.304	0.5
SGC-AO3-000081	Pu-238	0.219	5
	Th-232	0.445	0.6
SGC-AO3-000082	Pu-238	0.0390	18
	Th-232	0.659	0.9
SGC-AO3-000083	Pu-238	0.0969	5
	Th-232	0.114	0.3
SGC-AO3-000084	Pu-238	0.0456	4
	Th-232	0.438	0.5

Table B.2. Comparison Table for Mound Screening Laboratory Results and Quanterra Analytical Laboratory Results (cont.)

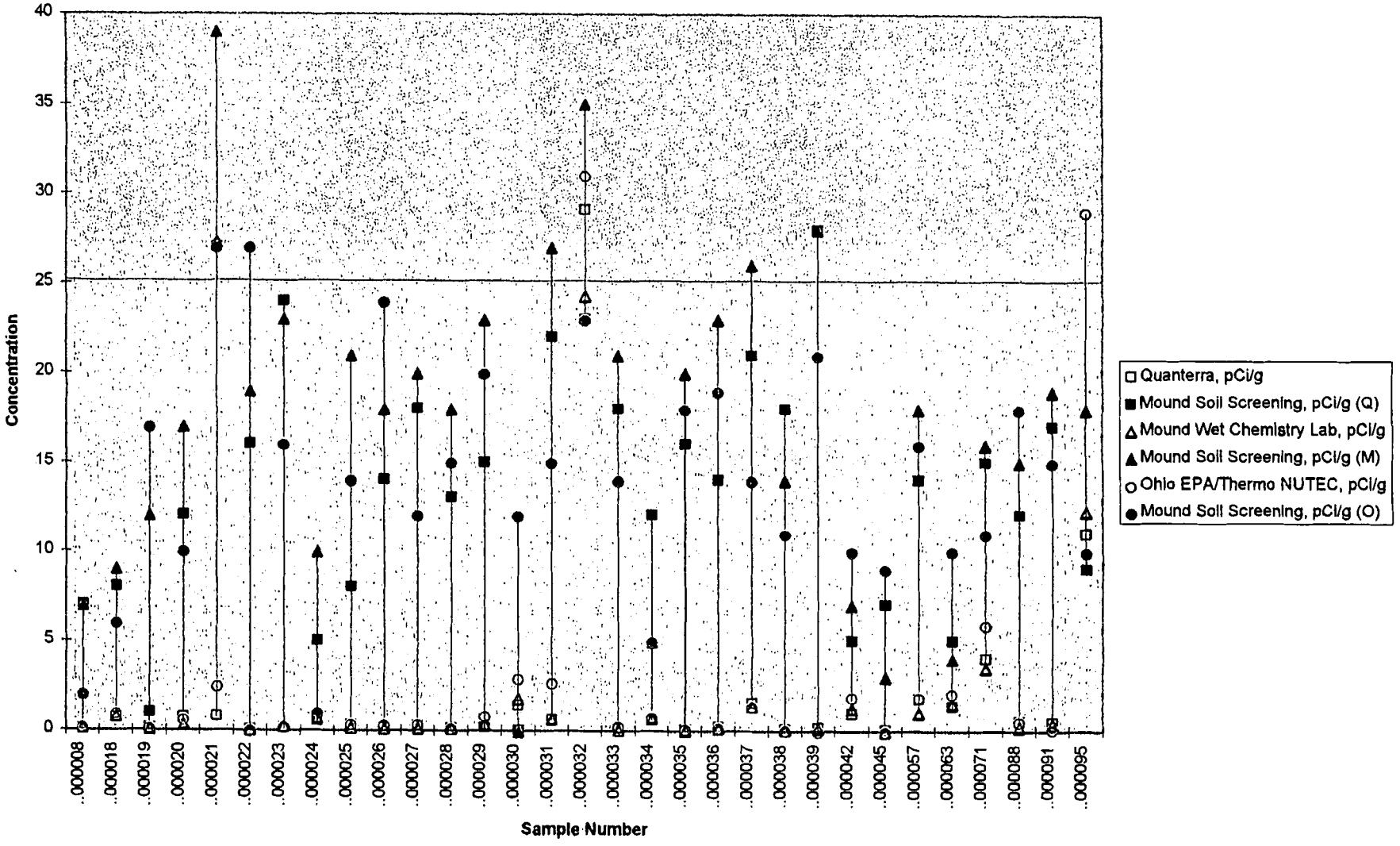
Sample No.	Isotope	Quanterra Results pCi/g	Mound Screening Laboratory Results pCi/g
SGC-AO3-000085	Pu-238	0.118	11
	Th-232	0.890	1.0
SGC-AO3-000086	Pu-238	3.11	12
	Th-232	0.806	0.9
SGC-AO3-000087	Pu-238	0.914	0
	Th-232	0.455	0.5
SGC-A21-000089	Pu-238	0.444	14
	Th-232	0.826	0.7
SGC-A21-000090	Pu-238	0.284	34
	Th-232	1.07	1.1
SGC-A22-000092	Pu-238	13.2	23
	Th-232	0.846	0.9
SGC-A22-000093	Pu-238	0.465	10
	Th-232	1.08	1.0
SGC-A22-000094	Pu-238	23.5	23
	Th-232	0.527	0.9
SGC-A22-000096	Pu-238	0.614	0
	Th-232	0.214	0.3
SGC-SDB-000097	Pu-238	27.5	33
	Th-232	0.622	0.6
SGC-SDB-000098	Pu-238	0.501	12
	Th-232	0.601	0.6
SGC-SDB-000101	Pu-238	118.0	71
	Th-232	0.167	0.7
SGC-SDB-000102	Pu-238	2.11	14
	Th-232	0.668	0.7

Interlaboratory Comparisons
Mound Soil Screening vs. Quanterra

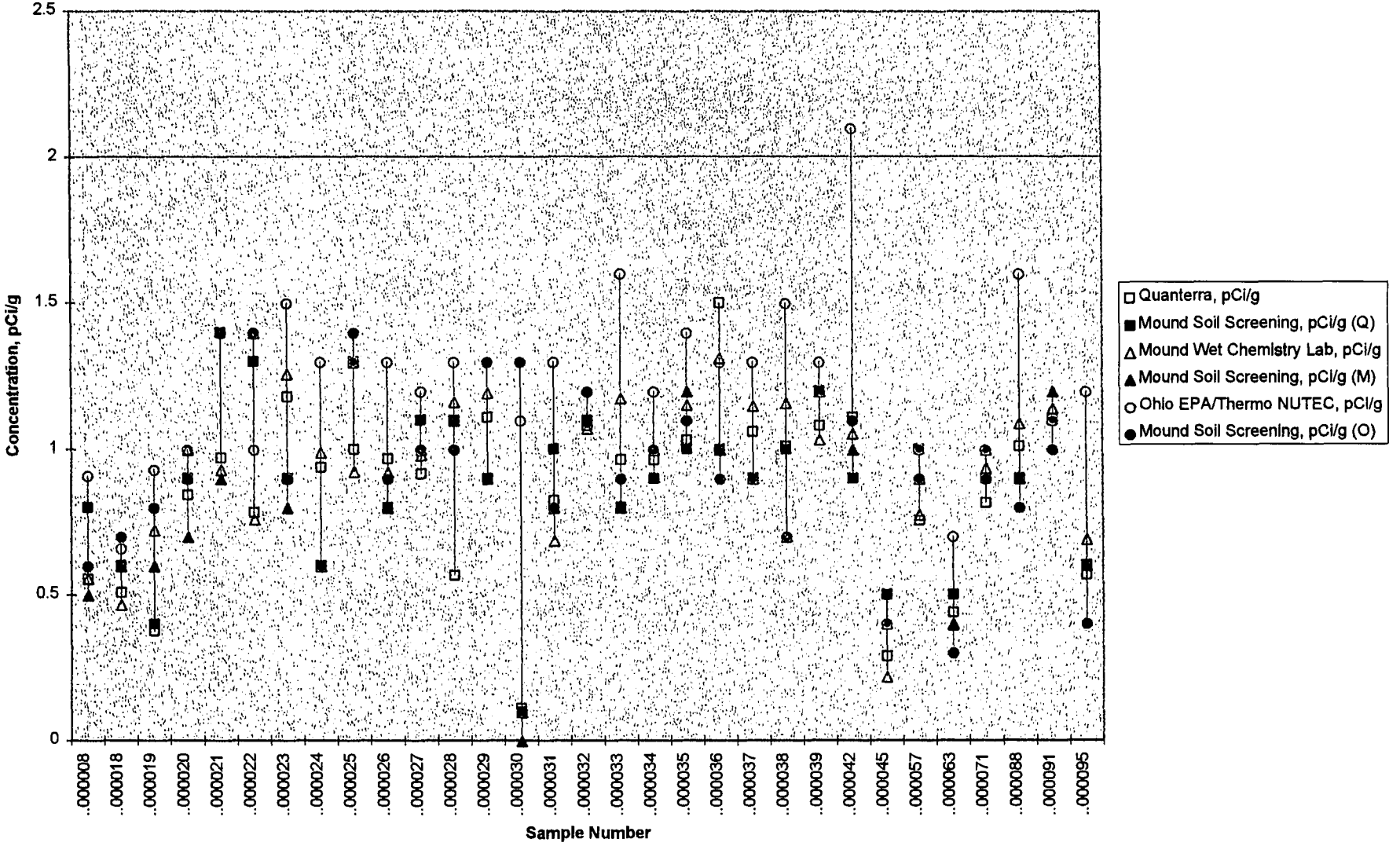
Th-232

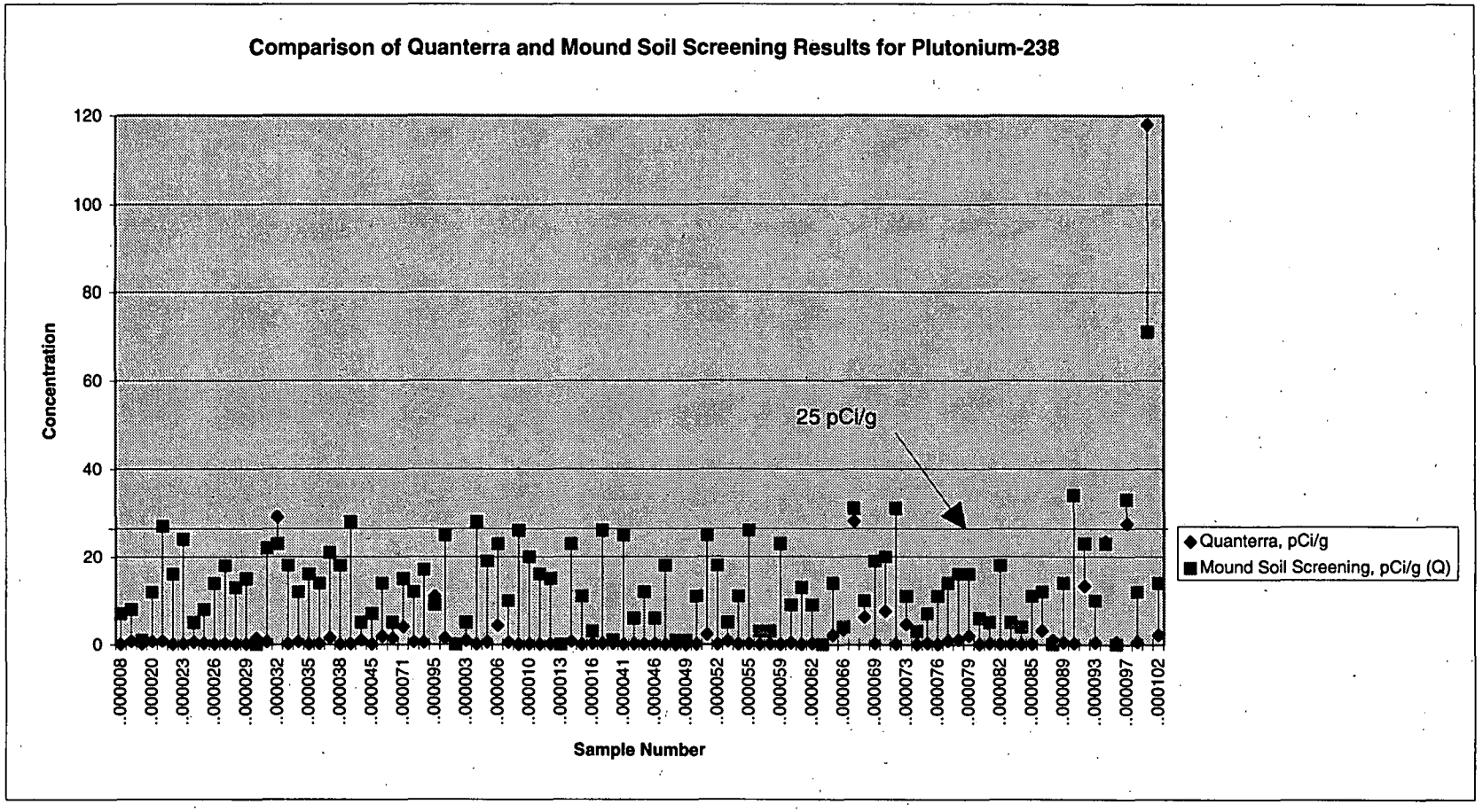


Interlaboratory Comparison of Plutonium-238 Results

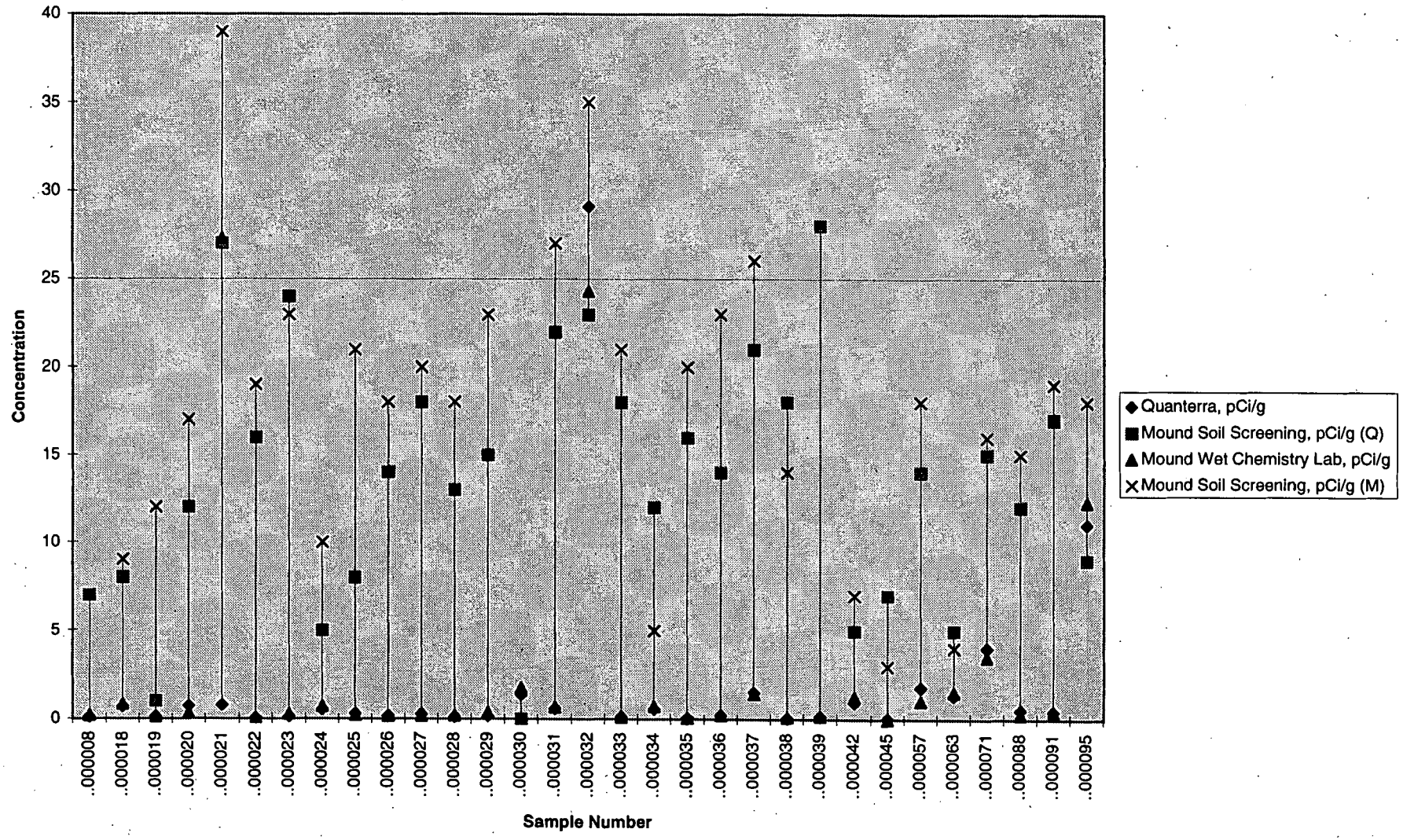


Interlaboratory Comparison of Thorium-232 Results

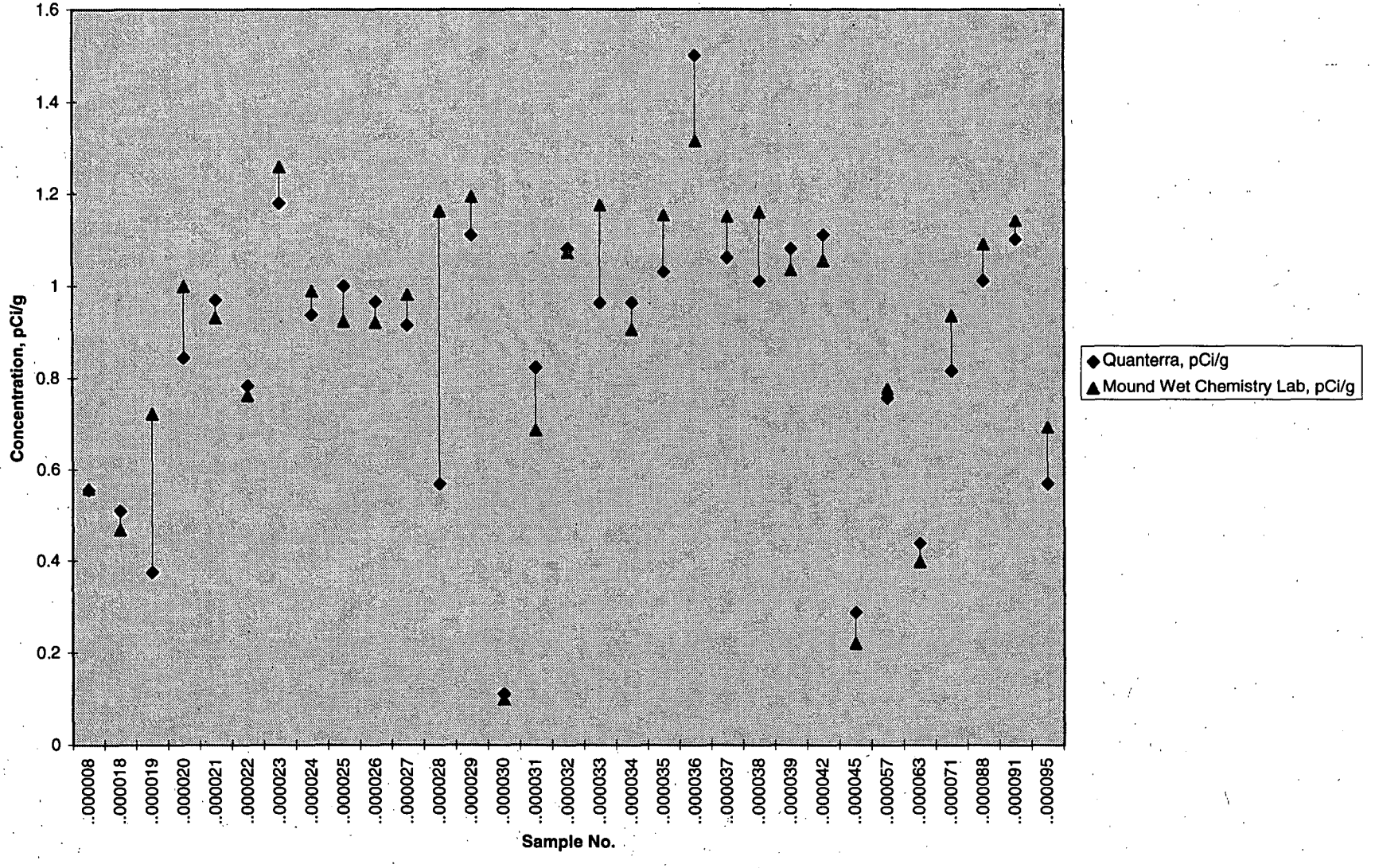



Comparison of Quanterra and Mound Soil Screening Results for Plutonium-238
Concentration
120
100
80
60
40
20
0
25 pCi/g
Sample Number
.000008
.000020
.000023
.000026
.000029
.000032
.000035
.000038
.000045
.000071
.000095
.000003
.000006
.000010
.000013
.000016
.000041
.000046
.000049
.000052
.000055
.000059
.000062
.000066
.000069
.000073
.000076
.000079
.000082
.000085
.000089
.000093
.000097
.000102
Quanterra, pCi/g
Mound Soil Screening, pCi/g (Q)

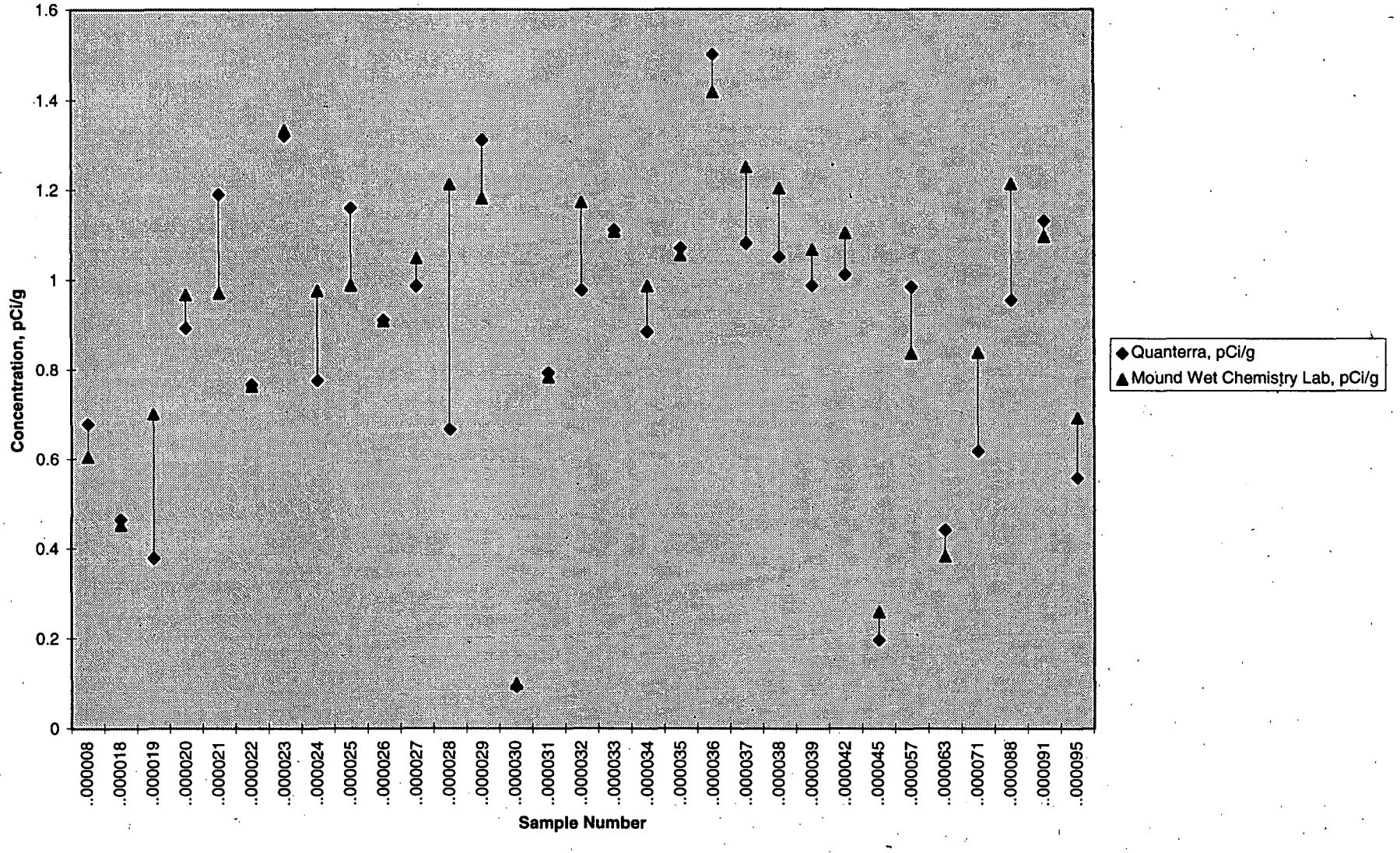
Interlaboratory Comparison of Plutonium-238 Results



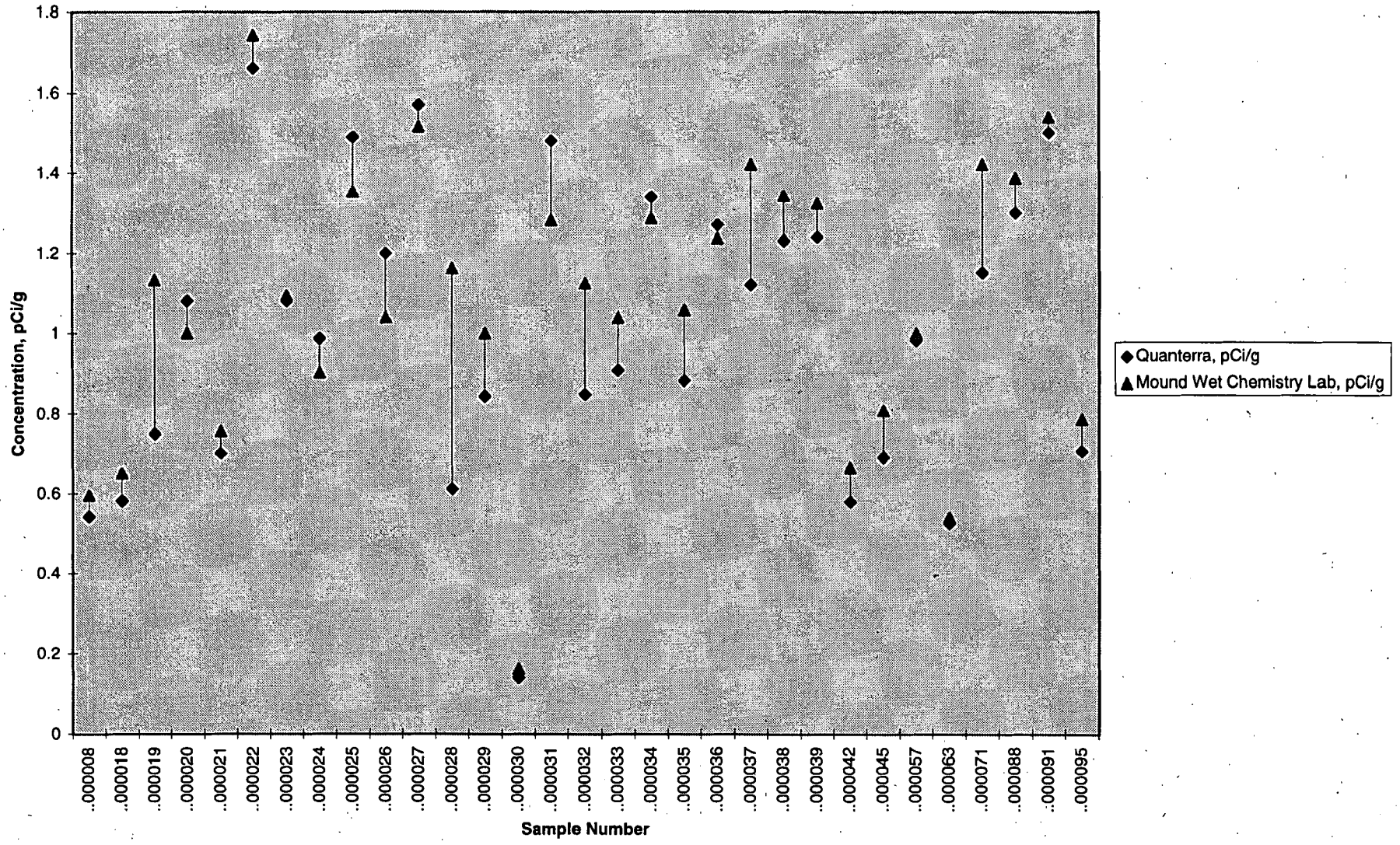
Interlaboratory Comparison of Thorium-232 Results



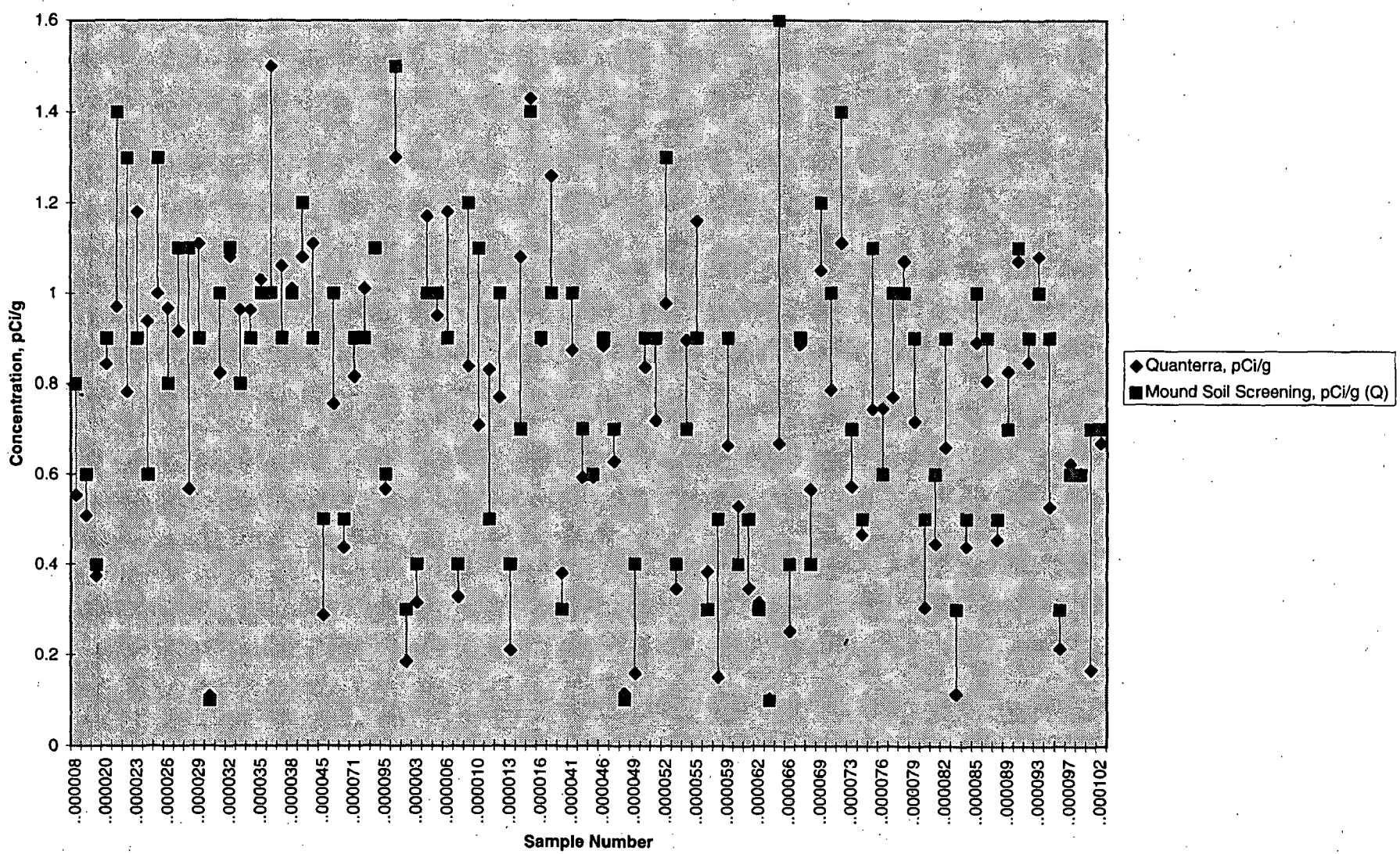
Interlaboratory Comparison of Thorium-228 Results



Interlaboratory Comparisons of Thorium-230 Results



Interlaboratory Comparison of Thorium-232 Results



APPENDIX C

DATA VALIDATION AND QA/QC SUMMARIES

DATA VALIDATION CASE SUMMARY

Volatiles

All samples were analyzed for volatile organic compounds using SW846 Method 8420. The samples were analyzed using a gas chromatograph equipped with a mass spectrometer. The ion abundance criteria for instrument tuning was expanded for bromofluorobenzene during the analyses. However, the percent relative abundance met both the expanded criteria, as well as the USEPA required criteria. The internal standard performance of chlorobenzene-d5 failed to meet the required criteria for one sample. The sample was reanalyzed and reported.

A few of the VOC results were given a J qualifier to indicate that the results were considered to be estimated values. The results were estimated based on an evaluation the calibration procedures and surrogate spike analyses that exceeded control limits. Affected sample results were qualified using J-C and J-S. The J qualifier reflected the degree of analytical precision outside of the OU-9 QAPP— specified control limits for the qualified analytes, but the qualified results were regarded as usable.

Methylene chloride and acetone were detected in the laboratory method blanks. Positive methylene chloride and acetone results were reported in several environmental samples. The concentrations in the samples were < 10 times the concentrations detected in the associated method blanks. Therefore, affected sample results were qualified as nondetected (U).

The practical quantitation limits required by the OU-9 QAPP and Method 8240 for soil analyses were adjusted to account for dry weight factors. The practical quantitation limits achieved by laboratory for water analyses met the OU-9 QAPP requirements for Method 8240. Methylene chloride was reported at concentrations above the CRQL in three of the soil samples. In addition, toluene was reported at concentrations less than the CRQL in three soil samples. The toluene reported concentrations were qualified as estimated (J).

All remaining OU-9 QAPP required quality control criteria were met.

Semivolatiles

All samples were analyzed for semivolatile compounds using Modification D of the CLP SOW. The samples were analyzed using a gas chromatograph equipped with a mass spectrometer. The ion abundance criteria for instrument tuning was expanded for decafluorotriphenylphosphine during the analyses. However, control limits met both the expanded criteria, as well as the USEPA required criteria. The internal standard performance of perylene-d12 failed to meet the required criteria for the matrix spike duplicate sample. However, the matrix spike analysis fulfilled the reanalysis requirements, so no reanalysis was required.

Initial and continuing calibration procedures did not meet the required criteria for the compound hexachlorocyclopentadiene. However, no environmental samples reported detectable concentrations of the compound and no qualifiers were applied.

Bis(2-ethylhexyl)phthalate was detected in the laboratory method blank. Positive results were reported in the environmental samples. Affected sample results were qualified as nondetected (U) because concentrations were < 10 times the concentration detected in the method blank.

A total of two of the eleven blank spike recoveries were outside the OU-9 QAPP control limits. The sample results affected by the analyses were qualified as estimated (J). The J qualifier reflected the degree of analytical precision outside of the OU-9 QAPP—specified control limits for the qualified analytes, but the qualified results were regarded as usable.

The practical quantitation limits required by the OU-9 QAPP and CLP SOW for soil analyses were adjusted to account for dry weight factors. Fluoranthene and pyrene were reported at concentrations above the CRQLs in one sample. In addition to fluoranthene and pyrene, phenanthrene, chrysene, anthracene, carbazole, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene and benzo(g,h,i)perylene were reported at concentrations less than the CRQLs in three samples. These sample results were qualified as

estimated (J).

All remaining OU-9 QAPP required quality control criteria were met.

Pesticides/PCBs

All samples were analyzed for TAL pesticides and PCB's of the CLP SOW. The samples were analyzed using a gas chromatograph equipped with an electron capture system. The performance check and evaluation met the acceptance criteria required by the OU-9 QAPP.

Calibration criteria differ between the CLP SOW and the Functional Guidelines for Evaluation of Organic Analyses (FGEOA). When these cases occurred, the SOW was used as the validation criteria. In calculating the %RSD of calibration factors, the criteria (% RSD < 20%) from CLP SOW was used rather than %RSD < 10% from the FGEOA. All OU-9 QAPP acceptance criteria for the initial and continuing calibration procedures were met.

One of forty surrogate recoveries was outside the OU-9 QAPP control limits. No positive results were identified, therefore no sample results were qualified.

The practical quantitation limits required by the OU-9 QAPP and CLP SOW for soil analyses were adjusted to account for dry weight factors. No pesticides or PCB compounds were detected in any of the environmental samples.

All remaining OU-9 QAPP required quality control criteria were met.

PETN Explosives

All samples were analyzed for PETN explosive using SW846 Method 8330. The samples were analyzed using a gas chromatograph. The system was calibrated by conducting 6-point curves for 1,2-dinitrobenzene and PETN. All OU-9 QAPP acceptance criteria were met for the calibration procedures.

The surrogates requested by the CLP SOW, 4-nitrobutene and 4-nitrotoluene, were substituted by the laboratory with 1,2-dinitrobenzene. The substitution was verified, and was requested because 4-nitrobutene was not available, and 4-nitrotoluene was present in the laboratory's explosives matrix spike. All surrogate recoveries met the acceptance criteria and were within the control limits provided by the laboratory.

PETN was not detected in any of the environmental samples.

All remaining OU-9 QAPP required quality control criteria were met.

USATHAMA Explosives

All samples were analyzed for USATHAMA explosives using SW846 Method 8330. The samples were analyzed using a gas chromatograph. The system was calibrated by conducting 6-point curves. Some interference was present during one of the continuing calibration procedures. Quantitation of 2,6-dinitrotoluene and 2,4-dinitrotoluene biased high, but were within 15% despite the interference. All OU-9 QAPP acceptance criteria were met for the calibration procedures.

The surrogates requested by the CLP SOW, 4-nitrobutene and 4-nitrotoluene, was substituted by the laboratory with 1,2-dinitrobenzene. The substitution was verified, and was requested because 4-nitrobutene was not available, and 4-nitrotoluene was present in the laboratory's explosives matrix spike. All surrogate recoveries met the acceptance criteria and were within the control limits provided by the laboratory.

No explosive compounds detected in any of the environmental samples.

All remaining OU-9 QAPP required quality control criteria were met.

Target Analyte List Metals

All samples were analyzed for TAL metals using Modification B of CLP SOW.

Several of the inorganic results were given a J qualifier to indicate that the results were considered to be estimated values. They were regarded as estimated based on an evaluation of duplicate sample, matrix spike/matrix spike duplicate and ICP serial dilution analyses that exceeded the control limits. Affected samples were qualified using J-D, J-S and J-I, respectively. The J qualifier reflected the degree of analytical precision outside the OU-9 QAPP specified control limits for the qualified analytes, but the qualified results were regarded as usable.

Aluminum, arsenic, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, vanadium and zinc were reported at concentrations above the CRQLs in all of the environmental samples. In addition to these twelve metals, antimony, barium, beryllium, cobalt, mercury, potassium, selenium, sodium, thallium, molybdenum, tin and lithium were reported at concentrations less than the CRQLs but greater than the IDLs in at least one of the samples. The concentration of lead in sample SGC-A61-000053 was determined using the method of standard additions.

All remaining OU-9 QAPP required quality control criteria were met.

Nitrate/Nitrite
All samples were analyzed for nitrate/nitrite using method EPA600 353.2.

Results from the field duplicate sample analyses failed to meet the acceptance criteria. Affected sample results were qualified as estimated (J-D). The J qualifier reflected the degree of analytical precision outside the OU-9 QAPP specified control limits for the qualified analytes, but the qualified results were regarded as usable.

Nitrate/Nitrite was detected in all of the environmental samples above the CRQL.

All remaining OU-9 QAPP required quality control criteria were met.

QA/QC SUMMARY

As part of this sampling episode, Quality Assurance/Quality Control (QA/QC) protocols were implemented. These QA/QC protocol samples consisted of trip blanks, ambient blanks, sample bank blanks, matrix spikes, matrix spike duplicates, temperature blanks, field duplicates, and rinsate blanks sample analyzed for the same parameters as the soil samples. Summary definitions and explanations for these QA/QC samples are as follows:

Trip Blank 40-ml glass vials filled with deionized water were prepared by the laboratory and shipped to the sample site. They were stored, unopened, in refrigerators along with the soil samples. With each cooler of samples containing VOC samples shipped back to the laboratory, one set of trip blanks (three vials) was included. The trip blank serves as a check on VOC sample contamination originating anywhere along this route, and analysis revealed no detectable VOCS that could have contaminated the samples.

Ambient Blank Volatile-free water provided by the analytical laboratory was added to 40-ml glass vials at random sample sites and sent to the laboratory for analysis. The purpose of the ambient blanks was to detect any VOC contamination being introduced to the soil samples from the environment. One set of ambient blanks (three vials) was collected for every ten VOC samples collected.

Sample Bank Blank Volatile-free water was added to 40-ml glass vials during sample preparation and packing. Left open until the end of packing, these sample bank blanks served the purpose of detecting any VOC contamination being introduced to the soil samples from the preparation and packing area. One set of sample bank blanks (three vials) was collected for every ten VOC samples collected. No detectable VOC concentrations were found which could have affected the samples.

Matrix Spike This QA/QC is performed by the analytical laboratory. A sample is spiked with a specific compound and subjected to the entire analytical procedure to indicate the appropriateness of the method for the matrix by measuring spike recovery. Extra sample volume was collected for the performance of this QA/QC. One matrix spike was collected for every ten samples collected.

Matrix Spike Duplicate This QA/QC is a duplication of the matrix spike procedure, performed to determine the precision of the method. Enough extra volume was collected to allow for the completion of both the matrix spikes and the matrix spike duplicates.

Temperature Blank A glass vial of water was included in every cooler containing refrigerated samples to indicate the holding temperature of the samples upon arrival at the analytical laboratory. A temperature of 4°C is the ideal goal, and if it is not between 1° and 12°C, the site manager is notified. The temperatures of all shipments were acceptable.

Duplicate Sample A second set of sample jars is filled from the same source as a soil sample and analyzed. This duplicate sample checks the precision of both the analysis and sampling methods. One duplicate sample was collected for every ten investigative samples. Some discrepancies were noted in the TAL Inorganics and Radionuclides sample results, but all other analyses were acceptable.

Rinsate Blank A stainless steel bowl and scoop are decontaminated, the bowl is filled with deionized water, and sample containers are filled with the water. The bowl is then marked with the rinsate blank number and used to collect an investigative sample. Both the rinsate blank and the investigative sample are sent to the laboratory for analysis. This serves as a check of the decontamination procedures of the sampling crew. Small discrepancies were noted in two TAL Inorganic rinsate blanks, which reflected high sodium concentrations. Additionally, all Radionuclide rinsate blanks possessed high Potassium-40 concentrations, which were found to be the result of laboratory contamination. All other rinsate blanks showed acceptable results.

Soil Gas Confirmation Sampling Plan

Background Information

As part of the OU5 New Property and Operational Area investigations, samples were collected for soil gas and Mound soil screening analysis. FIDLER measurements were also made. The OU5 investigation identified approximately 80 sites with elevated levels of aromatic, semivolatile, petrochemical, or halogenated hydrocarbons. This soil gas data provides only a relative indication of chemical concentration. This investigation will collect soil samples from the sites of elevated organic concentration, perform chemical analysis for a broad range of constituents. Additional samples for soil screening will be analyzed and these results will be compared to the corresponding radiochemical results. Data from the original OU5 investigation is available for Health and Safety Planning.

In addition, 22 locations are identified where samples will be collected on behalf of Ohio EPA. DOE will split samples with Ohio EPA and replicate all analyses as a quality assurance check on Ohio EPA's laboratory.

Sampling Objectives

1. Using survey coordinates from the OU5 investigation, locate the original soil gas sampling site +/- 2 ft. Obtain a near surface soil sample for chemical and radiochemical analysis. The core team will compare the data to background values and risk-based guideline values to determine if no action, further assessment, or remediation is required.
2. Develop a set of VOC and SVOC results for comparison to soil gas concentrations. This may provide a general relationship between soil gas ion count measurements and actual soil concentrations.
3. Collect 22 samples for Ohio EPA. Soil screening results will be compared with OEPA and DOE radiochemical results. Remaining data will be tabulated for comparision to OEPA results.

Sample Locations And Frequency

The attached maps show the sample locations. Survey coordinates and sample numbers will be provided by EG&G prior to start of work. At DOE locations there is one soil screening sample and one sample for laboratory analysis per location. At each OEPA location there is one soil screening sample, one sample for DOE laboratory analysis, and one sample for OEPA laboratory analysis. Note that one OEPA locations coincides with one DOE location. Only one soil screening and one DOE laboratory sample need be obtained.

The laboratory turnaround time will be 2 weeks for <u>all analyses</u> for samples at locations 7W2N, 3W8N, 6W9N. Laboratory turnaround times for <u>VOC and SVOC analyses</u> will be 2 weeks for locations 14W4N, 18W2N, 13W7N; Area 21: B6 and H7; Area 22: F9, G5, J3, J8, L4, and M2; and associated QC samples. In addition, these locations will be sampled before areas where expedited analysis is not required. EG&G shall be notified upon receipt of these results from the laboratory.

Sampling Specifications

<u>Environmental Samples</u>

Near Surface soil samples

Number: 79 DOE and 22 OEPA

Depth: 1 to 3 ft

Analytical parameters: All samples will be analyzed for all parameters in the analytical list.

<u>Quality Control Samples</u>

Field Duplicates

Number: 1 for every 10 samples collected

Analytical parameters: All samples will be analyzed for all parameters in the analytical list.

Trip Blanks

Number: 1 per cooler containing VOC samples

Analytical parameters: TCL VOCs

Matrix Spike/Matrix Spike Duplicate

Number: 1 for every 20 samples collected
Analytical parameters: All samples will be analyzed for all parameters in the analytical list. (Double volume for most parameters, triple volume for VOCs)

Equipment Rinsate Blanks
Number: 1 for every 10 samples collected
Analytical parameters: All samples will be analyzed for all parameters in the analytical list.

Field Ambient Blanks
Number: 1 for every 10 samples collected
Analytical parameters: TCL VOCs

Analytical List
VOCs (excluding OU9 additional analytes)
Semi-VOCs (excluding OU9 additional analytes)
TCL pesticides/PCBs
TAL inorganics (including OU9 additional analytes)
USATHAMA explosives
Gamma spectrometry
Nitrate/Nitrite
Isotopic Plutonium (238, 239/240)
Isotopic Thorium (228, 230, 232)
Isotopic Uranium (234/235, 238)
Mound Soil Screening (Pu-238, Th-232)

PCBs = polychlorinated biphenyls USATHAMA = U.S. Army Toxic and Hazardous Materials Agency
TAL = Target Analyte ListVOC = volatile organic compound
TCL = Target Compound List

Sample Designation
Samples shall be identified by a xxx-AAA-###### (3 x 3 x 6) sample id number where
xxx= SGC (Soil Gas Confirmation)
AAA = A03 for Area 3
AAA = A07 for Area 7
AAA = A13 for Area 13
AAA = A21 for Area 21
AAA = A22 for Area 22
AAA = SDB for Area SDB
AAA = A0J for Area J
AAA = NAC for Non-AOC areas
is a 6 digit sequential number beginning at 000001. The 6 digit sequential number shall be provided to the laboratory on the chain of custody form.

Sampling Equipment And Procedures
Soil sampling will be performed according to Mound Plant ER Program SOP 5.3, Subsurface Solid Sampling with Hand Auger and Thin-Wall Sampler. In addition the sampling team may use a gas powered auger or geoprobe to assist in achieving the desired sampling depth. All soil samples will be collected according to the procedures identified in the ER Program SOPs described in the Operable Unit 9 QAPP.

The SOPs specific to this study include
-SOP 1.1, General Instructions for Field Personnel;
-SOP 1.3, Sample Control and Documentation;
-SOP 1.4, Sample Containers and Preservation;

-SOP 1.5, Guide to the Handling, Packaging, and Shipping of Samples;
-SOP 1.6, General Equipment Decontamination;
-SOP 1.8, Personnel Decontamination--Level D Protection;
-SOP 5.3, Subsurface Solid Sampling with Hand Auger and Thin-Wall Sampler; and
-SOP 5.8, Soil Sampling with a Stainless Steel Surface Soil Sampler (revision 0).

Survey coordinates of the original soil gas sampling locations are specified herein. The original grids were established by locating a starting point via survey and measuring grid distances with a tape measure. The coordinates for the surveyed points were loaded into CAD software and the coordinates for other grid points were established by drawing the grid and allowing the CAD software to produce the easting and northing. In this investigation a professional surveyor shall use the coordinates from CAD software to locate the sampling location to within 6 inches of survey coordinates specified. Every attempt will be made to sample at the survey coordinates specified. Sampling locations may be relocated with approval of the EG&G Program Manager. If a sampling location is relocated it shall be staked and resurveyed to +/- 6 inches.

During sample collection, care will be taken to exclude vegetation and organic debris. Geochemical samples will be collected with a stainless steel spade and placed in appropriate containers. Samples collected for VOC analyses will be placed directly into the appropriate laboratory containers, without homogenization, to minimize volatilization. Soils collected for other requested analyses will be homogenized in a stainless steel pan and then placed in the appropriate containers. Samples will be collected at the prescribed subsurface intervals at each location for the analytical parameters as shown above. In the event that addition sample volume is required additional soil may be taken from the same interval at a second hole within 6 inches of the first.

Collect soil for radiochemical analyses just below the ground surface. Remove organic material and homogenize sufficient soil to fill a Mound Sodium Iodide soil screening dish. Submit the soil screening dish for analysis by EG&G at the soil screening facility. At Ohio EPA locations transfer 1/2 of the soil in the dish to a labeled bottle for analysis at the DOE laboratory and transfer the remaining half of the sample into an Ohio EPA bottle for analysis at their laboratory. Take precautions so as not to cross-contaminate samples from different locations. Keep the work area, hands, and equipment clean. In the field log book, record the soil screening results and the OEPA and DOE sample numbers as completed on the laboratory chain of custody forms.

Sample Handling And Analysis
Preservative and container requirements of the surface and subsurface soil samples are outlined in Table I.5. When a sample is collected, a chain-of-custody record will be started for that sample following the procedures in Mound Plant ER Program SOP 1.3, Sample Control and Documentation (revision 0) (DOE 1991a). A custody seal will be placed on each sample container, and the samples will be packed on ice. When the samples are packaged for shipment, enough ice will be used so that they will be maintained at a temperature of 4°C during shipment. Samples will be shipped by Federal Express* overnight service. Packaging and shipment will follow Mound Plant ER Program SOP 1.5, Guide to Handling, Packaging, and Shipping of Samples.

The samples collected as part of this investigation will be analyzed for the analytical parameters shown above. The laboratory will follow approved method guidelines for requested parameter analyses, as specified in the Operable Unit 9 QAPP.

Data Validation
90/10 data validation shall be performed per section 9 of the OU9 QAPP.

Data Reduction
- VOC and SVOC concentations will be compared to Ion Counts from the corresponding OU5 Petrex Soil Gas analyses.
- Mound Soil Screening results will be compared to the corresponding Plutonium-238 and Thorium-232 results.
- Chemical concentrations from other locations will be tabulated by location sampled.
- All data collected will be entered into the Mound Environmental Information Management System.

Soil Gas Confirmation Sampling
Sampling Location Coordinates and Sample Numbers

Area	OU5 Point Number	Coordinates (1983 NAD) Easting	Northing	Sample Number Prefix	Serial
Non-AOC	20N 7W	1466073.04	598744.64	SGC-NAC-	000001
	27N 5W	1466351.77	599373.89	SGC-NAC-	000002
	20N 10W	1465784.08	598777.13	SGC-NAC-	000003
	18N 8W	1465954.76	598556.95	SGC-NAC-	000004
	17N 1W	1466638.71	598389.9	SGC-NAC-	000005
	13N 1W	1466600.36	597993.61	SGC-NAC-	000006
	13N 26W	1464124.35	598233.21	SGC-NAC-	000007
OEPA (T,TX)	12N 21W	1464610.13	598086.2	SGC-NAC-	000008
	11N 2W	1466482.12	597805.05	SGC-NAC-	000009
	11N 4W	1466277.95	597808.32	SGC-NAC-	000010
	10N 13W	1465382.79	597803.77	SGC-NAC-	000011
	9N 6W	**1466066.65**	**597645.26**	**SGC-NAC-**	**000012**
	8N 3W	**1466354.28**	**597517.42**	**SGC-NAC-**	**000013**
	7N 13W	**1465354.77**	**597514.14**	**SGC-NAC-**	**000014**
	4N 14W	**1465226.93**	**597226.51**	**SGC-NAC-**	**000015**
	2N 7W	**1465901.27**	**596961.26**	**SGC-NAC-**	**000016**
	2N 18W	**1464811.47**	**597066.72**	**SGC-NAC-**	**000017**
(san area)	(1093)	1464106.93	597834.77	SGC-NAC-	000018
OEPA (T)	12N 15W	1465204.56	598028.68	SGC-NAC-	000019
OEPA (T)	11N 20W	1464699.61	597977.54	SGC-NAC-	000020
OEPA	10N 22W	1464491.05	597898.59	SGC-NAC-	000021
OEPA	9N 22W	1464481.46	597799.52	SGC-NAC-	000022
OEPA	**4N 18W**	**1464830.65**	**597264.86**	**SGC-NAC-**	**000023**
OEPA	**3N 1W**	**1466505.29**	**597002.81**	**SGC-NAC-**	**000024**
OEPA	**3N 2W**	**1466406.22**	**597012.4**	**SGC-NAC-**	**000025**
OEPA	**3N 15W**	**1465118.28**	**597137.03**	**SGC-NAC-**	**000026**
OEPA (X)	**6N 7W**	**1465941.49**	**597357.37**	**SGC-NAC-**	**000027**
OEPA (X)	**6N 14W**	**1465246.11**	**597424.66**	**SGC-NAC-**	**000028**
OEPA (X)	**6N 18W**	**1464849.82**	**597463.01**	**SGC-NAC-**	**000029**
OEPA (X)	16N 4W	1466331.91	598319.59	SGC-NAC-	000030
OEPA	15N 8W	1465926.83	598258.79	SGC-NAC-	000031
OEPA	14N 10W	1465719.09	598178.89	SGC-NAC-	000032
OEPA	**2N 19W**	**1464712.4**	**597076.3**	**SGC-NAC-**	**000033**
OEPA (X)	**1N 3W**	**1466287.97**	**596823.84**	**SGC-NAC-**	**000034**
OEPA	**1N 14W**	**1465198.17**	**596929.3**	**SGC-NAC-**	**000035**
OEPA (new property, X)	0S 11W	1465487.42	596801.39	SGC-NAC-	000036
OEPA (new property, T)	1S 14W	1465179.18	596730.75	SGC-NAC-	000037
OEPA (new property, T, TX)	12S 14W	1465073.23	595635.87	SGC-NAC-	000038
OEPA (new property, T)	14S 22W	1464257.69	595513.85	SGC-NAC-	000039
AREA 66	N(1072)	1465672.83	598634.56	SGC-A66-	000040
	S(1073)	1465696.22	598599.5	SGC-A66-	000041
AREA 61	1 B	1466648.54	599320.27	SGC-A61-	000042
	1 C	1466623.61	599318.45	SGC-A61-	000043
	1 D	1466598.67	599316.63	SGC-A61-	000044
	4 E	1466579.2	599240.01	SGC-A61-	000045
AREA 7	6 J	1465761.1	599089.	SGC-A61-	000046
	8 K	1465715.94	599056.06	SGC-A61-	000047
	8 I	1465760.36	599033.1	SGC-A61-	000048
	10 H	1465757.42	598979.31	SGC-A61-	000049
	14 M	1465602.65	598945.76	SGC-A61-	000050
	14 K	1465646.24	598923.76	SGC-A61-	000051
	14 J	1465670.49	598900.09	SGC-A61-	000052
	15 G	1465724.43	598854.68	SGC-A61-	000053
	17 Q	1466103.29	598972.	SGC-A61-	000054
	20 O	1466153.29	598897.	SGC-A61-	000055
AREA 13	1 F	1465325.75	598030.78	SGC-A13-	000056

16 Jan 96
(updated 5/8/96)

Soil Gas Confirmation Sampling
Sampling Location Coordinates and Sample Numbers

Area	OU5 Point Number		Coordinates (1983 NAD) Easting	Northing	Sample Number Prefix	Serial
	1	C	1465390.26	598068.55	SGC-A13-	000057
	2	F	1465338.02	598009	SGC-A13-	000058
	4	F	1465362.57	597965.44	SGC-A13-	000059
	4	C	1465427.91	598002.26	SGC-A13-	000060
	6	F	1465387.11	597921.88	SGC-A13-	000061
AREA J	1	B	1466055.47	597984.93	SGC-A0J-	000062
	2	C	1466028.59	597961.66	SGC-A0J-	000063
	2	D	1466003.62	597963.01	SGC-A0J-	000064
	2	F	1465953.7	597965.72	SGC-A0J-	000065
	4	E	1465975.95	597914.44	SGC-A0J-	000066
	5	F	1465949.64	597890.83	SGC-A0J-	000067
	5	H	1465899.71	597893.54	SGC-A0J-	000068
	5	J	1465849.78	597896.25	SGC-A0J-	000069
	6	B	1466048.13	597860.45	SGC-A0J-	000070
	8	C	1466020.46	597811.88	SGC-A0J-	000071
	8	M	1465770.83	597825.42	SGC-A0J-	000072
	9	F	1465944.22	597790.98	SGC-A0J-	000073
	9	K	1465819.4	597797.75	SGC-A0J-	000074
	9	H	1465894.29	597793.68	SGC-A0J-	000075
	10	L	1465793.08	597774.14	SGC-A0J-	000076
	11	A	1466066.33	597734.28	SGC-A0J-	000077
	12	C	1466015.04	597712.02	SGC-A0J-	000078
AREA 3	23	B	1464399.42	597840.51	SGC-A03-	000079
	15	G	1464179.29	597977.27	SGC-A03-	000080
	13	G	1464162.4	598024.34	SGC-A03-	000081
	12	K	1464060.67	598017.13	SGC-A03-	000082
	11	L	1464018.92	598016.32	SGC-A03-	000083
	10	F	1464174.63	598107.82	SGC-A03-	000084
	10	J	1464079.8	598076.09	SGC-A03-	000085
	8	N	1463988.91	598097.63	SGC-A03-	000086
	2	N	1464022.74	598245.16	SGC-A03-	000087
AREA 21	1	G	1465642.42	597574.05	SGC-A21-	000088
	6	B	1465805.72	597506.34	SGC-A21-	000089
	7	H	1465676.67	597425.89	SGC-A21-	000090
AREA 22	**2**	**M**	**1465421.58**	**597246.25**	**SGC-A22-**	**000091**
	3	**J**	**1465496.58**	**597221.25**	**SGC-A22-**	**000092**
	4	**L**	**1465446.58**	**597196.25**	**SGC-A22-**	**000093**
	5	**G**	**1465571.58**	**597171.25**	**SGC-A22-**	**000094**
	8	**J**	**1465496.58**	**597096.25**	**SGC-A22-**	**000095**
	9	**F**	**1465596.58**	**597071.25**	**SGC-A22-**	**000096**
AREA SBD	1	J	1464291.34	597920.8	SGC-SDB-	000097
	4	H	1464294.89	597900.39	SGC-SDB-	000098
	7	I	1464307.47	597889.66	SGC-SDB-	000101
	10	F	1464290.15	597850.91	SGC-SDB-	000102

Bold = Priority Sample
OEPA = Surface Sample by OEPA
X = Core sample in addition to surface sample by OEPA
T = Tritium analysis by OEPA
TX = Tritium analysis by OEPA on core sample
Note: Samples 000099 and 000100 were not analyzed at the laboratory. Instead samples 000101 and 000102 were collected from the staked, original OU5 locations.

16 Jan 96
(updated 5/8/96)

Data Supplemental

Report of Data Validation Results
Soil Gas Confirmation Sampling
March 1996
BOA #52263, Task Order #68290

MOUND PLANT
MIAMISBURG, OHIO

April 1996

Revision 0

Department Of Energy

EG&G Mound Applied Technologies

1. CASE SUMMARY

1.1. BATCH NUMBER: 9602L070 (9602L069 field duplicate only)

1.2. NUMBER OF SAMPLES AND TYPE OF MATRIX

Soil Samples - 5
Field Duplicate - 1
Quality Control Blanks - 1

1.3. DATE OF COLLECTION

2/13/96

1.4. CHAIN OF CUSTODY IDENTIFIER

The chains-of-custody submitted to R. F. Weston were designated as #9602L070 and #9602L069.

1.5. TYPE OF ANALYSIS

Volatile Organic Compounds by SW846 Method 8240
Semivolatile Organic Compounds by CLP SOW Modification D (OLM01.8)
Target Compound List Pesticides/PCBs by CLP SOW (OLM01.8)
PETN Explosives by SW846 Method 8330
USATHAMA Explosives by SW846 Method 8330
Target Analyte List Inorganics and Cyanide by CLP SOW Modification B (ILM 03.0)
Nitrate/Nitrite EPA600 353.2

1.6. CONDITION OF SAMPLES WHEN RECEIVED BY THE LABORATORY

All soil and water samples were received in good condition. The temperature of the cooler for batch #9602L070 was 5.3°C. All water samples were preserved to a pH $\leq$2, as required. No sample containers were broken or damaged during shipping.

1.7. CLIENT SAMPLE IDS APPLICABLE TO THIS REPORT

Field Sample Number	Laboratory Sample Number
SGC-A03-000137 (field duplicate)*	9602L070-001
SGC-A61-000042	9602L070-002
SGC-A61-000043	9602L070-003
SGC-A61-000053	9602L070-005
SGC-A03-000079	9602L070-006
SGC-NAC-000022	9602L070-008
SGC-NAC-000144 (trip blank)	9602L070-010
SGC-A03-000084*	9602L069-003

2. HOLDING TIMES

All analyses were conducted within the required holding times.

3. RESULTS OF LABORATORY QUALITY CONTROL CHECKS

3.1. VOLATILES AND SEMIVOLATILES

3.1.1. GC/MS TUNING

Volatiles
Instrument tuning of the GC/MS was conducted after each 12-hour period of sample analysis. The ion abundance criteria were expanded for bromofluorobenzene during the analyses. However, the percent relative abundance met the acceptance criteria.

Semivolatiles
Instrument tuning of the GC/MS was conducted after each 12-hour period of sample analysis. The ion abundance criteria were expanded for decafluorotriphenylphosphine during the analyses. However, the percent relative abundance met the acceptance criteria.

3.1.2. CALIBRATION

Volatiles
Initial calibration of the GC/MS met the criteria for all standards, except acetone, carbon disulfide, 1,1-dichloroethene and 2-butanone for instrument #5970X. The percent relative standard deviation (%RSD) for these compounds was >30%. Positive quantities were qualified as estimated (J-C).

Acetone, 2-butanone and 2-hexanone did not meet the percent difference (%D) criteria for the continuing calibration of instrument #5970X. 2-Butanone, 4-methyl-2-pentanone, 2-hexanone and 1,1,2,2-tetrachloroethane did not meet the %D criteria, and 1,1,2,2-tetrachloroethane did not meet the relative response factor (RRF) criteria for the continuing calibration of instrument #5970K. However, no samples were qualified.

Semivolatiles
Initial calibration of the GC/MS met the RRF and %RSD criteria for all standards, except hexachlorocyclopentadiene (%RSD >30%). The compound was not detected in any of the environmental samples, therefore, no results were qualified.

Continuing calibrations met the RRF and %D criteria for all standards, except hexachlorocyclopentadiene (%D >35%). The compound was not detected in any of the environmental samples, therefore, no results were qualified.

3.1.3. BLANKS

Volatiles
Methylene chloride and acetone were detected in the laboratory method blanks. Positive methylene chloride and acetone results were also reported in the environmental samples. The concentrations in the samples were <10 times the concentrations detected in the associated method blanks. Therefore, affected sample results were qualified as non-detected (U).

Semivolatiles
Bis(2-ethylhexyl)phthalate was detected in the laboratory method blank. Positive results were reported in the environmental samples. Affected sample results were

qualified as non-detected (U) because concentrations were <10 times the concentration detected in the method blank.

3.1.4. SURROGATE SPIKE RECOVERIES

Volatiles
All surrogate recoveries were within the control limits required by the OU-9 QAPP, except for 1,2-dichloroethane-d4 for sample SGC-A61-000042. All positive quantities were qualified as estimated (J-S). Sample SGC-A61-000042 was reanalyzed and reported.

Semivolatiles
All surrogate recoveries were within the control limits required by the OU-9 QAPP.

3.1.5. MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES

Volatiles
The matrix spike/matrix spike duplicate recoveries met the acceptance criteria for spike recovery and result precision.

Semivolatiles
The matrix spike/matrix spike duplicate recoveries met the acceptance criteria for spike recovery and result precision.

3.1.6. INTERNAL STANDARDS PERFORMANCE

Volatiles
The internal standard area of chlorobenzene-d5 was outside the control limits for sample SGC-A61-000042. The sample was reanalyzed and reported. All remaining internal standard performances met the acceptance criteria.

Semivolatiles
The internal standard area of perylene-d12 was outside the control limits for sample SGC-A61-000053MSD. The matrix spike analysis fulfilled the reanalysis requirements. All remaining internal standard performances met the acceptance criteria.

3.1.7. COMPOUND IDENTIFICATION

Volatiles
Methylene chloride and toluene were detected in three of the environmental samples. All compounds met the retention time and characteristic ion criteria required by the USEPA. Positive results detected below the contract required quantitation limits (CRLQs) were qualified as estimated (J).

Semivolatiles
Fluoranthene, pyrene, phenanthrene, chrysene, anthracene, carbazole, benzo(a)anthraecne, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene and benzo(g,h,i)perylene were detected in three environmental samples. All compounds met the retention times and characteristic ion criteria required by the USEPA. Positive results detected below the CRLQs were qualified as estimated (J).

3.1.8. SYSTEM PERFORMANCE

Volatiles
Chromatogram peaks were generally well defined, without leading or trailing peaks or abrupt baseline shifts.

Semivolatiles
Chromatogram peaks were generally well defined, without leading or trailing peaks or abrupt baseline shifts.

3.1.9. COMPOUND QUANTITATION AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQLS)

Volatiles
The practical quantitation limits achieved by the laboratory for soil analyses met the OU-9 QAPP requirements for Method 8240 accounting for dry weight factors. The practical quantitation limits achieved by the laboratory for water analyses met the OU-9 QAPP requirements for Method 8240.

Semivolatiles
The practical quantitation limits achieved by the laboratory for soil analyses met the OU-9 QAPP requirements for CLP SOW accounting for dry weight factors and gel permeation chromatograph (GPC) clean up.

3.1.10. TENTATIVELY IDENTIFIED COMPOUNDS

Volatiles
One tentatively identified compound was detected in the environmental sample SGC-A03-000137. The mass spectrum indicates that the compound was an unknown (possibly cis-3-decene). The compound was qualified as estimated (J).

Semivolatiles
Several tentatively identified compounds were detected in the environmental samples. The mass spectra indicate that all compounds were unknown, but many were categorized as aldol condensates, alkanes or cycloalkanes. All compounds were qualified as estimated (J) or (JA) for aldol condensates.

3.1.11. LABORATORY CONTROL SAMPLE

Volatiles
All blank spike recoveries met the control limits required by the OU-9 QAPP.

Semivolatiles
Two of the eleven blank spike recoveries were outside the control limits required by the OU-9 QAPP. All non-detected compounds were qualified as estimated (J).

3.2. PESTICIDES/PCBs

3.2.1. GC/EC PERFORMANCE CHECK

The DDT retention times fell within the control limits of greater than twelve minutes for all analyses.

The standard retention times for tetrachloro-m-xylene (TCX) and decachlorobiphenyl (DCB) were within the established retention time windows.

The standard retention times for single component analytes were within the established retention time windows.

3.2.2. PERFORMANCE EVALUATION MIXTURE (PEM)

3.2.2.1. RESOLUTION

All pesticide and surrogate peaks met the 90% resolution criteria on each column.

3.2.2.2. RETENTION TIME

The PEM retention times were within the established retention time windows.

3.2.2.3. RECOVERY

The relative percent difference (RPD) for each single component pesticide and surrogate met the recovery criteria ≤25.0%

3.2.2.4. DDT/ENDRIN BREAKDOWN

The percent breakdown of DDT and endrin met the acceptance criteria of ≤20.0% and ≤30.0% combined breakdown.

3.2.3. CALIBRATION

Calibration criteria differ between CLP Statement of Work (SOW) and Functional Guidelines for Evaluation of Organic Analyses. When these cases occurred, the SOW was used as validation criteria as noted:

The SOW requires the %RSD of calibration factors to be <20%, not <10%.

The resolution between adjacent peaks in the resolution check mixture met the resolution criteria of ≥60.0%.

Reconstructed ion chromatograms were plotted off scale. However, the peak height data on the quantitation sheets did not appear clipped. Retention time windows should not be affected.

The %D of sample results reported for two GC columns met the acceptance criteria.

Calibration factors and %RSD were recalculated and met the acceptance criteria.

3.2.4. BLANKS

Method Blank
All method blank samples met acceptance criteria required by OU-9 QAPP.

Sulfur Clean-up Blank
Sulfur clean-up was not performed on this batch.

3.2.5. SURROGATE SPIKE RECOVERIES

One of forty surrogate recoveries was outside of the QC limits required by the OU-9 QAPP:

SGC-A61-000053MS TCX-2

Low recovery was obtained, but no positive results were identified and no samples were affected. No sample qualifiers were required.

3.2.6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES

The matrix spike/matrix spike duplicate samples met acceptance criteria for spike recovery and result precision.

3.2.7. COMPOUND IDENTIFICATION

No target compounds were detected in any of the environmental samples.

3.2.8. PESTICIDE CLEAN-UP CHECKS

3.2.8.1. GPC RECOVERIES

GPC clean-up was performed for all samples. Percent recoveries for all components met acceptance criteria. Calibration peaks were symmetrical and met peak resolution criteria. Retention times of calibration standards met acceptance criteria.

3.2.8.2. FLORISIL CARTRIDGE CLEAN-UP

All percent recoveries were within the control limits required by USEPA.

3.2.9 SYSTEM PERFORMANCE

Primary and confirmation analyses were conducted on capillary columns. Chromatogram peaks were generally well defined without leading or trailing peaks or abrupt baseline shifts. No peaks were present in method blanks at target compound retention times.

3.2.10. COMPOUND QUANTITATION AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQLs)

The practical quantitation limits achieved by laboratory for soil analyses met the OU-9 QAPP requirements for CLP SOW accounting for dry weight factors.

3.2.11. LABORATORY CONTROL SAMPLE

All laboratory control sample results met the acceptance criteria required by the OU-9 QAPP.

3.3 PETN EXPLOSIVES

3.3.1. CALIBRATION

Initial calibration of the GC column was conducted using a 6-point curve for the 1,2-dinitrobenzene and PETN compounds. The laboratory used correlation coefficients as the acceptance criteria for the initial calibration. The criteria were met for both compounds. All the %RSD results met the OU-9 QAPP acceptance criteria.

Continuing calibrations were performed for every ten samples. All the %D results met the acceptance criteria required by the OU-9 QAPP.

3.3.2. BLANKS

PETN was not detected in any of the laboratory method blanks.

3.3.3. SURROGATE SPIKE RECOVERIES

The surrogate 4-nitrobutene was substituted by 1,2-dinitrobenzene, because 4-nitrobutene was not obtainable. All surrogate recoveries were acceptable and were within the control limits provided by the laboratory (50% - 150%).

3.3.4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES

The matrix spike/matrix spike duplicate recoveries met the acceptance criteria for spike recovery and result precision, provided by the laboratory (50% - 150%).

3.3.5. COMPOUND IDENTIFICATION

PETN was not detected in any of the environmental samples.

3.3.6. SYSTEM PERFORMANCE

Chromatogram peaks were generally well defined, without leading or trailing peaks or abrupt baseline shifts.

3.3.7. COMPOUND QUANTITATION AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQLS)

The practical quantitation limit achieved by the laboratory, for soil samples, met the requirements for Method 8330 and the SW846 method criteria.

3.3.8. LABORATORY CONTROL SAMPLE

The blank spike recovery met the acceptance criteria provided by the laboratory (50% - 150%).

3.4 USATHAMA EXPLOSIVES

3.4.1. CALIBRATION

Initial calibration of the GC column was conducted using a 6-point curve for all target compounds. The laboratory used the correlation coefficient as the acceptance criterion for the initial calibration. The criterion ($R^2 > 0.992$) was met for all compounds.

Continuing calibration was conducted for every ten samples. All %D results met the acceptance criteria required by the OU-9 QAPP.

3.4.2. BLANKS

No target compounds were detected in any of the laboratory method blanks.

3.4.3. SURROGATE SPIKE RECOVERIES

The surrogate 4-nitrotoluene was substituted with 1,2-dinitrobenzene, since 4-nitrotoluene was present in the laboratory explosives matrix spike solution. All surrogate recoveries were acceptable and met the acceptance criteria provided by the laboratory.

3.4.4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES

The matrix spike/matrix spike duplicate recoveries met the acceptance criteria for spike recovery and result precision provided by the laboratory.

3.4.5. COMPOUND IDENTIFICATION

No target compounds were detected in any of the environmental samples.

3.4.6. SYSTEM PERFORMANCE

Some interference was present during the continuing calibration run 2/22/96 at 2104. Quantitation of 2,6-dinitrotoluene and 2,4-dinitrotoluene were biased high, but were within 15% despite the interference. Remaining chromatogram peaks were generally well defined, without leading or trailing peaks or abrupt baseline shifts.

3.4.7. COMPOUND QUANTITATION AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQLS)

The practical quantitation limits achieved by the laboratory, for soil samples, met the requirements for Method 8330 and the SW846 method criteria.

3.4.8. LABORATORY CONTROL SAMPLE

All blank spike recoveries met the acceptance criteria provided by the laboratory.

3.5. TARGET ANALYTE LIST METALS

3.5.1. CALIBRATION

The initial calibration was conducted for Flame AA, Furnace AA, Mercury and Cyanide analyses using a 4-point curve. All correlation coefficients were $\geq$ 0.995 and met the acceptance criteria for CLP SOW.

The initial and continuing calibration verifications were within control limits for ICP, Flame AA, Furnace AA, Mercury and Cyanide analyses.

3.5.2. BLANKS

The initial and continuing calibration blanks were within control limits for ICP, Flame AA, Furnace AA, Mercury and Cyanide analyses. Preparation blank 96L0364 reported aluminum concentration at 12.24 mg/kg. However, all environmental soil samples contained aluminum at concentrations > 10x the blank amount. No sample results were qualified.

3.5.3. INTERFERENCE CHECK SAMPLE

Results of the interference check samples (ICSA and ICSAB) were within the control limits and met the acceptance criteria required by CLP SOW.

3.5.4. LABORATORY CONTROL SAMPLE

All laboratory control samples met the acceptance criteria required for the OU-9 QAPP.

3.5.5. DUPLICATE SAMPLE ANALYSIS

Results of the duplicate sample analysis met acceptance criteria for OU-9 QAPP except for lead, magnesium, manganese and zinc. All associated samples of the same matrix for the analytes were qualified as estimated (J-D).

3.5.6. MATRIX SPIKE SAMPLE ANALYSIS

All matrix spike/matrix spike duplicate results were within the control limits required by the OU-9 QAPP, except for lead, selenium and thallium. Reported sample results were qualified as followed:

Estimated (J-S)	lead
Estimated non-detect (UJ)	selenium, thallium

3.5.7. FURNACE ATOMIC ABSORPTION

The Furnace Atomic Absorption analyses were not required.

3.5.8. STANDARD ADDITION RESULTS

The Method of Standard Additions (MSA) analyses met the acceptance criteria required by the CLP SOW.

3.5.9. SERIAL DILUTION RESULTS

The ICP serial dilution results did not meet the acceptance criteria for barium, chromium, copper, iron, manganese, sodium, vanadium and zinc. Associated sample results were qualified as estimated (J-I). All remaining results met the acceptance criteria required by the OU-9 QAPP.

3.5.10. SAMPLE RESULT VERIFICATION

All sample results met acceptance criteria required for the OU-9 QAPP.

3.6. NITRATE/NITRITE

3.6.1. Calibration

Initial calibration was conducted using a 9-point curve. Correlation coefficients were ≥0.995 and met the OU-9 QAPP acceptance criteria.

Continuing calibration checks were run within every twenty samples analyzed. All responses were within 15% of the true value.

3.6.2. Blanks

Method blanks were analyzed within every twenty samples analyzed. Concentrations were less than the PQL of 0.2 mg/L. All method blank results met the acceptance criteria.

3.6.3. Matrix Spike/Matrix Spike Duplicate Recoveries

The matrix spike/matrix spike duplicate results met the OU-9 QAPP acceptance criteria for spike recovery and result precision.

3.6.4. Laboratory Control Sample

The blank spike and spike duplicate results met the OU-9 QAPP acceptance criteria for spike recovery and result precision.

4. RESULTS OF ASSOCIATED FIELD QUALITY CONTROL CHECKS

4.1. FIELD DUPLICATES

Sample SGC-A03-000137 was collected as field duplicate of SGC-A03-000084.

Volatiles
No target compounds were detected in either sample.

Semivolatiles
No target compounds were defected in either sample.

Pesticides/PCBs
No target compounds were detected in either sample.

PETN Explosives
PETN was not detected in either sample.

USATHAMA Explosives
No target compounds were detected in either samples.

Target Analyte List Metals
Field duplicate results met the OU-9 QAPP criteria for approximately a third of the metals. The %RPD for aluminum, antimony, barium, beryllium, calcium, chromium, cobalt, copper, iron, magnesium, molybdenum, nickel, vanadium and zinc were all > 25%. However, no sample results were qualified.

Nitrate/Nitrite
The % RPD for nitrate/nitrite was > 50%. Samples associated with the duplicate were qualified as estimated (J-D). All remaining OU-9 acceptance criteria was met.

4.2. FIELD BLANKS (EQUIPMENT BLANKS, ETC.)

Volatiles
No volatile compounds were detected in the trip blank (SGC-NAC-000144).

Semivolatiles
No field blanks were analyzed for semivolatiles.

Pesticides/PCBs
No field blanks were analyzed for pesticides/PCBs.

PETN Explosives
No field blanks were analyzed for PETN explosives.

USATHAMA Explosives
No field blanks were analyzed for USATHAMA explosives.

Target Analyte List Metals
No field blanks were analyzed for TAL metals.

Nitrate/Nitrite
No field blanks were analyzed for nitrate/nitrite.

5. OVERALL ASSESSMENT OF DATA

Volatiles

All samples were analyzed for volatile organic compounds using SW846 Method 8240. The samples were analyzed using a gas chromatograph equipped with a mass spectrometer. The ion bundance criteria for instrument tuning was expanded for bromofluorobenzene during the analyses. However, the percent relative abundance met both the expanded criteria, as well as the USEPA required criteria. The internal standard performance of chlorobenzene-d5 failed to meet the required criteria for one sample. The sample was reanalyzed and reported.

A few of the VOC results were given a J qualifier to indicate that the results were considered to be estimated values. The results were estimated based on an evaluation the calibration procedures and surrogate spike analyses that exceeded control limits. Affected sample results were qualified using J-C and J-S. The J qualifier reflected the degree of analytical precision outside of the OU-9 QAPP—specified control limits for the qualified analytes, but the qualified results were regarded as usable.

Methylene chloride and acetone were detected in the laboratory method blanks. Positive methylene chloride and acetone results were reported in several environmental samples. The concentrations in the samples were < 10 times the concentrations detected in the associated method blanks. Therefore, affected sample results were qualified as non-detected (U).

The practical quantitation limits required by the OU-9 QAPP and Method 8240 for soil analyses were adjusted to account for dry weight factors. The practical quantitation limits achieved by laboratory for water analyses met the OU-9 QAPP requirements for Method 8240. Methylene chloride was reported at concentrations above the CRQL in three of the soil samples. In addition, toluene was reported at concentrations less than the CRQL in three soil samples. The toluene reported concentrations were qualified as estimated (J).

All remaining OU-9 QAPP required quality control criteria were met.

Semivolatiles

All samples were analyzed for semivolatile compounds using Modification D of the CLP SOW. The samples were analyzed using a gas chromatograph equipped with a mass spectrometer. The ion abundance criteria for instrument tuning was expanded for decafluorotriphenylphosphine during the analyses. However, control limits met both the expanded criteria, as well as the USEPA required criteria. The internal standard performance of perylene-d12 failed to meet the required criteria for the matrix spike duplicate sample. However, the matrix spike analysis fulfilled the reanalysis requirements, so no reanalysis was required.

Initial and continuing calibration procedures did not meet the required criteria for the compound hexachlorocyclopentadiene. However, no environmental samples reported detectable concentrations of the compound and no qualifiers were applied.

Bis(2-ethylhexyl)phthalate was detected in the laboratory method blank. Positive results were reported in the environmental samples. Affected sample results were qualified as non-detected (U) because concentrations were < 10 times the concentration detected in the method blank.

A total of two of the eleven blank spike recoveries were outside the OU-9 QAPP control limits. The sample results affected by the analyses were qualified as estimated (J). The J qualifier reflected the degree of analytical precision outside of the OU-9 QAPP—specified control limits for the qualified analytes, but the qualified results were regarded as usable.

The practical quantitation limits required by the OU-9 QAPP and CLP SOW for soil analyses were adjusted to account for dry weight factors. Fluoranthene and pyrene were reported at concentrations above the CRQLs in one sample. In addition to fluoranthene and pyrene,

phenanthrene, chrysene, anthracene, carbazole, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene and benzo(g,h,i)perylene were reported at concentrations less than the CRQLs in three samples. These sample results were qualified as estimated (J).

All remaining OU-9 QAPP required quality control criteria were met.

Pesticides/PCBs

All samples were analyzed for TCL pesticides and PCBs according to the CLP SOW. The samples were analyzed using a gas chromatograph equipped with an electron capture system. The performance check and evaluation met the acceptance criteria required by the OU-9 QAPP.

Calibration criteria differ between the CLP SOW and the Functional Guidelines for Evaluation of Organic Analyses (FGEOA). When these cases occurred, the SOW was used as the validation criteria. In calculating the %RSD of calibration factors, the criteria (% RSD < 20%) from CLP SOW was used rather than %RSD < 10% from the FGEOA. All OU-9 QAPP acceptance criteria for the initial and continuing calibration procedures were met.

One of forty surrogate recoveries was outside the OU-9 QAPP control limits. No positive results were reported therefore no sample results were qualified.

The practical quantitation limits required by the OU-9 QAPP and CLP SOW for soil analyses were adjusted to account for dry weight factors. No pesticides or PCB compounds were detected in any of the environmental samples.

All remaining OU-9 QAPP required quality control criteria were met.

PETN Explosives

All samples were analyzed for PETN explosive using SW846 Method 8330. The samples were analyzed using a gas chromatograph. The system was calibrated by conducting 6-point curves for 1,2-dinitrobenzene and PETN. All OU-9 QAPP acceptance criteria were met for the calibration procedures.

The surrogates requested by the CLP SOW, 4-nitrobutene and 4-nitrotoluene, were substituted by the laboratory with 1,2-dinitrobenzene. The substitution was verified, and was requested because 4-nitrobutene was not available, and 4-nitrotoluene was present in the laboratory's explosives matrix spike. All surrogate recoveries met the acceptance criteria and were within the control limits provided by the laboratory.

PETN was not detected in any of the environmental samples.

All remaining OU-9 QAPP required quality control criteria were met.

USATHAMA Explosives

All samples were analyzed for USATHAMA explosives using SW846 Method 8330. The samples were analyzed using a gas chromatograph. The system was calibrated by conducting 6-point curves. Some interference was present during one of the continuing calibration procedures. Quantitation of 2,6-dinitrotoluene and 2,4-dinitrotoluene biased high, but were within 15% despite the interference. All OU-9 QAPP acceptance criteria were met for the calibration procedures.

The surrogates requested by the CLP SOW, 4-nitrobutene and 4-nitrotoluene, was substituted by the laboratory with 1,2-dinitrobenzene. The substitution was verified, and was requested because 4-nitrobutene was not available, and 4-nitrotoluene was present in the laboratory's explosives matrix spike. All surrogate recoveries met the acceptance criteria and were within the control limits provided by the laboratory.

No explosive compounds detected in any of the environmental samples.

All remaining OU-9 QAPP required quality control criteria were met.

Target Analyte List Metals

All samples were analyzed for TAL metals using Modification A of CLP SOW.

Several of the inorganic results were given a J qualifier to indicate that the results were considered to be estimated values. They were regarded as estimated based on an evaluation of duplicate sample, matrix spike/matrix spike duplicate and ICP serial dilution analyses that exceeded the control limits. Affected samples were qualified using J-D, J-S and J-I, respectively. The J qualifier reflected the degree of analytical precision outside the OU-9 QAPP specified control limits for the qualified analytes, but the qualified results were regarded as usable.

Aluminum, arsenic, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, vanadium and zinc were reported at concentrations above the CRQLs in all of the environmental samples. In addition to these twelve metals, antimony, barium, beryllium, cobalt, mercury, potassium, selenium, sodium, thallium, molybdenum, tin and lithium were reported at concentrations less than the CRQLs but greater than the IDLs in at least one of the samples. The concentration of lead in sample SGC-A61-000053 was determined using the method of standard additions.

All remaining OU-9 QAPP required quality control criteria were met.

Nitrate/Nitrite

All samples were analyzed for nitrate/nitrite using method EPA600 353.2.

Results from the field duplicate sample analyses failed to meet the acceptance criteria. Affected sample results were qualified as estimated (J-D). The J qualifier reflected the degree of analytical precision outside the OU-9 QAPP specified control limits for the qualified analytes, but the qualified results were regarded as usable.

Nitrate/Nitrite was detected in all of the environmental samples above the CRQL.

All remaining OU-9 QAPP required quality control criteria were met.

ATTACHMENT I

DATA OUTLIER SUMMARY FORMS

DATA SUMMARY TABLE
ANIONS: CL, SO4, NO3-NO2, F

PREPARED BY: Christopher Ruef
MOUND PROJECT: EGG496
DATE: 4/9/96
OPERABLE UNIT NO: NA
LABORATORY BATCH #: 9602L069 / 9602L070
COLLECTION DATE(S): 2/13/96
LABORATORY NAME/LOCATION: Roy F. Weston, Lionville, PA
INSTRUMENT ID FOR:
CHLORIDE: _____ NITRATE-NITRITE: Lachat TOC: _____
SULFATE: _____ FLUORIDE: _____

ANALYTE	CALIBRATION		BLANKS		
	INITIAL COEFF <0.995	CONTINUING %D>15	METHOD ID	METHOD ID	EQUIPMENT ID
CHLORIDE					
SULFATE					
NITRATE-NITRITE					
FLUORIDE					
TOC					
APPLIES TO SAMPLES: (CLIENT ID)					

MATRIX SPIKE/MATRIX SPIKE DUPLICATE/LCS (75-125%R, <20% RPD)

SAMPLE ID	MATRIX	CHLORIDE		SULFATE		NITRATE-NITRITE		FLUORIDE		TOC	
		%R	%RPD	%R	%RPD	%R	%RPD	%R	%RPD	%R	%RPD

FIELD DUPLICATES (SOIL = ≤50%RPD)

ANALYTE	SAMPLE ID	SAMPLE ID	SAMPLE ID	SAMPLE ID
	SGC-AO3-000084			
CHLORIDE				
SULFATE				
NITRATE-NITRITE	51.9%			
FLUORIDE				
TOC				

REVIEWER INITIALS: ADL
DATE: 4/16/96

SYSTEM MONITORING COMPOUND RECOVERY OUTLIERS
VOLATILE ORGANIC COMPOUNDS
CLP SOW - OLM01.8

PREPARED BY: Christopher Ruef

DATE: 3/29/96

LABORATORY BATCH # 9602L070

LABORATORY NAME/LOCATION: Roy F. Weston, Lionville, PA.

MOUND PROJECT EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

SOIL QC LIMITS
TOLUENE-d8 (84-138%)
BROMOFLUOROBENZENE (59-113%)
1,2-DICHLOROETHANE-d4 (70-121%)

WATER QC LILMITS: RECOVERY (RPD)
TOLUENE-d8 (88-110%)
BROMOFLUOROBENZENE (86-115%)
1,2-DICHLOROETHANE-d4 (76-114%)

LABORATORY SAMPLE ID	MOUND SAMPLE ID	SAMPLE MATRIX	TOLUENE-d8	BROMOFLUOROBENZENE	1,2-DICHLOROETHANE-d4
9602L070-002	SGC-A61-000042	Soil			133%

BLANK DATA SUMMARY TABLE
VOLATILE ORGANIC COMPOUNDS
METHOD 8240 - SOIL

LABORATORY BATCH #: 9602L070

LABORATORY NAME/LOCATION: R. F. Weston, Lionville, PA

MOUND PROJECT: EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

ANALYTE	METHOD BLANK ID					ACTION LEVEL
	VBLKTD					
CHLOROMETHANE						
BROMOMETHANE						
VINYL CHLORIDE						
CHLOROETHANE						
METHYLENE CHLORIDE	10 µg/kg					100 µg/kg
ACETONE	10 µg/kg					100 µg/kg
CARBON DISULFIDE						
1,1-DICHLOROETHENE						
1,1-DICHLOROETHANE						
1,2-DICHLOROETHANE (TOTAL)						
CHLOROFORM						
1,2-DICHLOROETHANE						
2-BUTANONE						
1,1,1-TRICHLOROETHANE						
CARBON TETRACHLORIDE						
VINYL ACETATE						
BROMODICHLOROMETHANE						
1,2-DICHLOROPROPANE						
CIS-1,3-DICHLOROPROPENE						
TRICHLOROETHENE						

APPLIES TO SAMPLES (CLIENT ID):

SGC-A03-000137
SGC-A61-000042
SGC-A03-000079

REVIEWER INITIALS: ADC
DATE: 4/16/96

BLANK DATA SUMMARY TABLE
VOLATILE ORGANIC COMPOUNDS
METHOD 8240 - SOIL

LABORATORY BATCH #: 9602L070

LABORATORY NAME/LOCATION: R. F. Weston, Lionville, PA

MOUND PROJECT: EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

ANALYTE	METHOD BLANK ID					ACTION LEVEL
	VBLKTD					
DIBROMOCHLOROMETHANE						
1,1,2-TRICHLOROETHANE						
BENZENE						
TRANS-1,3-DICHLOROPROPENE						
BROMOFORM						
4-METHYL-2-PENTANONE						
2-HEXANONE						
TETRACHLOROETHENE						
TOLUENE						
1,1,2,2-TETRACHLOROETHANE						
CHLOROBENZENE						
ETHYLBENZENE						
STYRENE						
XYLENE (TOTAL)						
VINYL ACETATE						
ACRYLONITRILE						
ACETONITRILE						
DIETHYLBENZENE						
TRICHLOROTRIFLUOROETHANE						
HEXANE						
IODOMETHANE						

APPLIES TO SAMPLES (CLIENT ID):

REVIEWER INITIALS: APL

DATE: 4/16/96

T:\EG&G\EGG496\070_VOC4.TBL

BLANK DATA SUMMARY TABLE
VOLATILE ORGANIC COMPOUNDS
METHOD 8240 - SOIL

LABORATORY BATCH #: 9602L070

LABORATORY NAME/LOCATION: R. F. Weston, Lionville, PA

MOUND PROJECT: EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

ANALYTE	METHOD BLANK ID					ACTION LEVEL
	VBLKUE					
CHLOROMETHANE						
BROMOMETHANE						
VINYL CHLORIDE						
CHLOROETHANE						
METHYLENE CHLORIDE						
ACETONE	4 µg/kg					40 µg/kg
CARBON DISULFIDE						
1,1-DICHLOROETHENE						
1,1-DICHLOROETHANE						
1,2-DICHLOROETHANE (TOTAL)						
CHLOROFORM						
1,2-DICHLOROETHANE						
2-BUTANONE						
1,1,1-TRICHLOROETHANE						
CARBON TETRACHLORIDE						
VINYL ACETATE						
BROMODICHLOROMETHANE						
1,2-DICHLOROPROPANE						
CIS-1,3-DICHLOROPROPENE						
TRICHLOROETHENE						

APPLIES TO SAMPLES (CLIENT ID):

SGC-A61-000043
SGC-A61-000053

REVIEWER INITIALS: ADL
DATE: 4/16/96

BLANK DATA SUMMARY TABLE
VOLATILE ORGANIC COMPOUNDS
METHOD 8240 - SOIL

LABORATORY BATCH #: 9602L070

LABORATORY NAME/LOCATION: R. F. Weston, Lionville, PA

MOUND PROJECT: EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

ANALYTE	METHOD BLANK ID					ACTION LEVEL
	VBLKUE					
DIBROMOCHLOROMETHANE						
1,1,2-TRICHLOROETHANE						
BENZENE						
TRANS-1,3-DICHLOROPROPENE						
BROMOFORM						
4-METHYL-2-PENTANONE						
2-HEXANONE						
TETRACHLOROETHENE						
TOLUENE						
1,1,2,2-TETRACHLOROETHANE						
CHLOROBENZENE						
ETHYLBENZENE						
STYRENE						
XYLENE (TOTAL)						
VINYL ACETATE						
ACRYLONITRILE						
ACETONITRILE						
DIETHYLBENZENE						
TRICHLOROTRIFLUOROETHANE						
HEXANE						
IODOMETHANE						

APPLIES TO SAMPLES (CLIENT ID):

REVIEWER INITIALS: ADL

DATE: 4/16/96

BLANK DATA SUMMARY TABLE
VOLATILE ORGANIC COMPOUNDS
METHOD 8240 - SOIL

LABORATORY BATCH #: 9602L070

LABORATORY NAME/LOCATION: R. F. Weston, Lionville, PA

MOUND PROJECT: EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

ANALYTE	METHOD BLANK ID					ACTION LEVEL
	VBLKUH					
CHLOROMETHANE						
BROMOMETHANE						
VINYL CHLORIDE						
CHLOROETHANE						
METHYLENE CHLORIDE	7 µg/kg					70 µg/kg
ACETONE	10 µg/kg					100 µg/kg
CARBON DISULFIDE						
1,1-DICHLOROETHENE						
1,1-DICHLOROETHANE						
1,2-DICHLOROETHANE (TOTAL)						
CHLOROFORM						
1,2-DICHLOROETHANE						
2-BUTANONE						
1,1,1-TRICHLOROETHANE						
CARBON TETRACHLORIDE						
VINYL ACETATE						
BROMODICHLOROMETHANE						
1,2-DICHLOROPROPANE						
CIS-1,3-DICHLOROPROPENE						
TRICHLOROETHENE						

APPLIES TO SAMPLES (CLIENT ID):

SGC-A61-000053MS

SGC-A61-000053MSD

REVIEWER INITIALS: ADL

DATE: 4/16/96

BLANK DATA SUMMARY TABLE
VOLATILE ORGANIC COMPOUNDS
METHOD 8240 - SOIL

LABORATORY BATCH #: 9602L070

LABORATORY NAME/LOCATION: R. F. Weston, Lionville, PA

MOUND PROJECT: EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

ANALYTE	METHOD BLANK ID					ACTION LEVEL
	VBLKUH					
DIBROMOCHLOROMETHANE						
1,1,2-TRICHLOROETHANE						
BENZENE						
TRANS-1,3-DICHLOROPROPENE						
BROMOFORM						
4-METHYL-2-PENTANONE						
2-HEXANONE						
TETRACHLOROETHENE						
TOLUENE						
1,1,2,2-TETRACHLOROETHANE						
CHLOROBENZENE						
ETHYLBENZENE						
STYRENE						
XYLENE (TOTAL)						
VINYL ACETATE						
ACRYLONITRILE						
ACETONITRILE						
DIETHYLBENZENE						
TRICHLOROTRIFLUOROETHANE						
HEXANE						
IODOMETHANE						

APPLIES TO SAMPLES (CLIENT ID):

REVIEWER INITIALS: ADL

DATE: 4/16/96

BLANK DATA SUMMARY TABLE
VOLATILE ORGANIC COMPOUNDS
METHOD 8240 - WATER

LABORATORY BATCH #: 9602L070

LABORATORY NAME/LOCATION: R. F. Weston, Lionville, PA

MOUND PROJECT: EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

ANALYTE	METHOD BLANK ID					ACTION LEVEL
	VBLKSZ					
CHLOROMETHANE						
BROMOMETHANE						
VINYL CHLORIDE						
CHLOROETHANE						
METHYLENE CHLORIDE	7 µg/kg					70 µg/kg
ACETONE						
CARBON DISULFIDE						
1,1-DICHLOROETHENE						
1,1-DICHLOROETHANE						
1,2-DICHLOROETHANE (TOTAL)						
CHLOROFORM						
1,2-DICHLOROETHANE						
2-BUTANONE						
1,1,1-TRICHLOROETHANE						
CARBON TETRACHLORIDE						
VINYL ACETATE						
BROMODICHLOROMETHANE						
1,2-DICHLOROPROPANE						
CIS-1,3-DICHLOROPROPENE						
TRICHLOROETHENE						

APPLIES TO SAMPLES (CLIENT ID):

SGC-NAC-000144

REVIEWER INITIALS: ADL

DATE: 4/16/96

BLANK DATA SUMMARY TABLE
VOLATILE ORGANIC COMPOUNDS
METHOD 8240 - WATER

LABORATORY BATCH #: 9602L070

LABORATORY NAME/LOCATION: R. F. Weston, Lionville, PA

MOUND PROJECT: EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

ANALYTE	METHOD BLANK ID					ACTION LEVEL
	VBLKSZ					
DIBROMOCHLOROMETHANE						
1,1,2-TRICHLOROETHANE						
BENZENE						
TRANS-1,3-DICHLOROPROPENE						
BROMOFORM						
4-METHYL-2-PENTANONE						
2-HEXANONE						
TETRACHLOROETHENE						
TOLUENE						
1,1,2,2-TETRACHLOROETHANE						
CHLOROBENZENE						
ETHYLBENZENE						
STYRENE						
XYLENE (TOTAL)						
VINYL ACETATE						
ACRYLONITRILE						
ACETONITRILE						
DIETHYLBENZENE						
TRICHLOROTRIFLUOROETHANE						
HEXANE						
IODOMETHANE						

APPLIES TO SAMPLES (CLIENT ID):

REVIEWER INITIALS: ADL

DATE: 4/16/96

CALIBRATION OUTLIERS
VOLATILE TCL COMPOUNDS
CLP - OLM01.8

PREPARED BY: Christopher Ruef

DATE: 3/29/96

LABORATORY BATCH # 9602L070

LABORATORY NAME/LOCATION: Roy F. Weston, Lionville, PA.

MATRIX (SOIL/WATER): Soil

MOUND PROJECT EG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

INSTRUMENT # 5970X	INIT. CAL.			INIT. CAL. VER.			CONT. CAL.			CONT. CAL.		
DATE/TIME:	2/14/96											
	%RSD	QC LIMITS	•	% REC	QC LIMITS	•	% REC	QC LIMITS	•	% REC	QC LIMITS	•
CHLOROMETHANE												
BROMOMETHANE												
VINYL CHLORIDE												
CHLOROETHANE												
METHYLENE CHLORIDE												
ACETONE												
CARBON DISULFIDE												
1,1-DICHLOROETHENE												
1,1-DICHLOROETHANE												
1,2-DICHLOROETHANE (TOTAL)												
CHLOROFORM												
1,2-DICHLOROETHANE												
2-BUTANONE	39.3%	≤30%	J-C									
1,1,1-TRICHLOROETHANE												
CARBON TETRACHLORIDE												
BROMODICHLOROMETHANE												
1,2-DICHLOROPROPANE												
CIS-1,3-DICHLOROPROPENE												
TRICHLOROETHENE												
DIBROMOCHLOROMETHANE												

AFFECTED SAMPLES: (CLIENT ID)			
	SGC-A61-000043		
	VBLKUE-BS		

REVIEWER INITIALS: ADL

DATE: 4/16/96

• THESE FLAGS SHOULD BE APPLIED TO THE ANALYTES ON THE SAMPLE DATA SHEETS.

CALIBRATION OUTLIERS
VOLATILE TCL COMPOUNDS
METHOD 502.2

PREPARED BY: Christopher Ruef

DATE: 3/29/96

LABORATORY BATCH # 9602L070

LABORATORY NAME/LOCATION: Roy F. Weston, Lionville, PA.

MATRIX (SOIL/WATER): Soil

MOUND PROJECT EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

INSTRUMENT #	INIT. CAL.			INIT. CAL. VER.			CONT. CAL.			CONT. CAL.		
DATE/TIME:												
	%RSD	QC LIMITS	•	% REC	QC LIMITS	•	% REC	QC LIMITS	•	% REC	QC LIMITS	•
1,1,2-TRICHLOROETHANE												
BENZENE												
TRANS-1,3-DICHLOROPROPENE												
BROMOFORM												
4-METHYL-2-PENTANONE												
2-HEXANONE												
TETRACHLOROETHENE												
TOLUENE												
1,1,2,2-TETRACHLOROETHANE												
CHLOROBENZENE												
ETHYLBENZENE												
STYRENE												
XYLENE (TOTAL)												
VINYL ACETATE												
ACRYLONITRILE												
ACETONITRILE												
DIETHYLBENZENE												
TRICHLOROTRIFLUOROETHANE												
HEXANE												
IODOMETHANE												
AFFECTED SAMPLES:												
(CLIENT ID)												

REVIEWER INITIALS: ADC

DATE: 4/16/96

• THESE FLAGS SHOULD BE APPLIED TO THE ANALYTES ON THE SAMPLE DATA SHEETS.

LABORATORY CONTROL SAMPLE RECOVERY OUTLIERS
SEMIVOLATILE ORGANIC COMPOUNDS
CLP SOW - OLM01.8

PREPARED BY: Christopher Ruef

DATE: 4/2/96

LABORATORY BATCH # 9602L070

LABORATORY NAME/LOCATION: R. F. Weston, Lionville, PA

MOUND PROJECT EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

SOIL QC LIMITS: % RECOVERY
phenol (26-90)
2-chlorophenol (25-102)
1,4-dichlorobenzene (28-104)
n-nitroso-di-n-propylamine (41-126)
1,2,4-trichlorobenzene (38-107)
4-chloro-3-methylphenol (26-103)

WATER QC LIMITS: % RECOVERY
phenol (12-110)
2-chlorophenol (27-123)
1,4-dichlorobenzene (36-97)
n-nitroso-di-n-propylamine (41-116)
1,2,4-trichlorobenzene (39-98)
4-chloro-3-methylphenol (23-97)

LABORATORY SAMPLE ID	MOUND SAMPLE ID	SAMPLE MATRIX	PHENOL	2-CHLORO PHENOL	1,4,-DI CHLOROBENZENE	N-NITROSO-DI N-PROPLYAMINE	1,2,4-TRI CHLOROBENZENE	4-CHLORO-3-METHYLPHENOL
96LE0267-MB1 BS	SBLKTN-BS	SOIL				37%	36%	

LABORATORY CONTROL SAMPLE RECOVERY OUTLIERS
SEMIVOLATILE ORGANIC COMPOUNDS
CLP SOW - OLM01.8

PREPARED BY: Christopher Ruef

DATE: 4/2/96

LABORATORY BATCH # 9602L070

LABORATORY NAME/LOCATION: R. F. Weston, Lionville, PA

MOUND PROJECT EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

SOIL QC LIMITS: % RECOVERY
acenaphthene (31-137)
4-nitrophenol (11-114)
2,4-dinitrophenol (28-89)
pentachlorophenol (17-109)
pyrene (35-142)

WATER QC LIMITS: % RECOVERY
acenaphthene (46-118)
4-nitrophenoll (10-80)
2,4-dinitrophenol (24-96)
pentachlorophenol (9-103)
pyrene (26-127)

LABORATORY SAMPLE ID	MOUND SAMPLE ID	SAMPLE MATRIX	ACEN APHTHENE	4-NITRO PHENOL	2,4-DI NITROTOLUENE	PENTA CHLOROPHENOL	PYRENE	

BLANK DATA SUMMARY TABLE
SEMIVOLATILE ORGANIC COMPOUNDS
CLP SOW - OLM01.8

PREPARED BY: Christopher Ruef
DATE: 4/1/96
LABORATORY BATCH #: 9602L070
LABORATORY NAME/LOCATION: Roy F. Weston, Lionville, PA.

MOUND PROJECT: EGG496
OPERABLE UNIT NO.: NA
COLLECTION 2/13/96

ANALYTE	METHOD BLANK ID	EQUIPMENT BLANK ID	ACTION LEVEL
	SBLKTN		
PHENOL			
BIS(2-CHLOROETHYL)ETHER			
2-CHLOROPHENOL			
1,3-DICHLOROBENZENE			
1,4-DICHLOROBENZENE			
BENZYL ALCOHOL			
1,2-DICHLOROBENZENE			
2-METHYLPHENOL			
2,2-OXYBIS(1-CHLOROPROPANE)			
4-METHYLPHENOL			
N-NITROSO-DI-N-PROPYLAMINE			
HEXACHLOROETHANE			
NITROBENZENE			
ISOPHORONE			
2-NITROPHENOL			
2,4-DIMETHYLPHENOL			
BENZOIC ACID			
BIS(2-CHLOROETHOXY)METHANE			
2,4-DICHLOROPHENOL			
1,2,4-TRICHLOROBENZENE			
NAPHTHALENE			
4-CHLOROANILINE			
HEXACHLOROBUTADIENE			
4-CHLORO-3-METHYLPHENOL			
2-METHYLNAPHTHALENE			
HEXACHLOROCYCLOPENTADIENE			
2,4,6-TRICHLOROPHENOL			
2,4,5-TRICHLOROPHENOL			
2-CHLORONAPHTHALENE			
2-NITROANILINE			
DIMETHYL PHTHALATE			
ACENAPHTHYLENE			
2,6-DINITROTOLUENE			
3-NITROANILINE			
ACENAPHTHENE			
2,4-DINITROPHENOL			

BLANK DATA SUMMARY TABLE
SEMIVOLATILE ORGANIC COMPOUNDS (CONT.)

ANALYTE	METHOD BLANK ID	EQUIPMENT BLANK ID	ACTION LEVEL
	SBLKTN		
4-NITROPHENOL			
DIBENZOFURAN			
2,4-DINITROTOLUENE			
DIETHYLPHTHALATE			
4-CHLOROPHENYL-PHENYLETHER			
FLUORENE			
4-NITROANILINE			
4,6-DINITRO-2-METHYLPHENOL			
N-NITROSODIPHENYLAMINE			
4-BROMOPHENYL-PHENYLETHER			
HEXACHLOROBENZENE			
PENTACHLOROPHENOL			
PHENANTHRENE			
ANTHRACENE			
CARBAZOLE			
DI-N-BUTYLPHTHALATE			
FLUORANTHENE			
PYRENE			
BUTYLBENZYLPHTHALATE			
3,3'-DICHLOROBENZIDINE			
BENZO(A)ANTHRACENE			
CHRYSENE			
BIS(2-ETHYLHEXYL)PHTHALATE	29 µg/kg		290 µg/kg
DI-N-OCTYL PHTHALATE			
BENZO(B)FLUORANTHENE			
BENZO(X)FLUORANTHENE			
BENZO(A)PYRENE			
INDENO(1,2,3-DC)PYRENE			
DIBENZ(A,H)ANTHRACENE			
BENZO(G,H,I)PERYLENE			
2-BENZYL-4-CHLOROPHENOL			
ALDOL CONDENSATE	400 µg/kg		2000 µg/kg

APPLIES TO SAMPLES (CLIENT ID:)

SGC-A03-000137
SGC-A61-000042
SGC-A61-000043
SGC-A61-000053
SGC-A61-000053MS
SGC-A61-000053MSD
SGC-A03-000079
SGC-NAC-000022

REVIEWER INITIALS: ADL
DATE: 7/16/96

T:\EG&G\EGG496\070_SV4.TBL

MATRIX SPIKE RECOVERY DATA SUMMARY TABLE
INORGANIC COMPOUNDS
CLP SOW - ILM03.0

PREPARED BY: Christopher Ruef
DATE: 4/10/96
LABORATORY BATCH #: 9602L070
LABORATORY NAME/LOCATION: R. F. Weston, Lionville, PA

MOUND PROJECT: EGG496
OPERABLE UNIT NO.: NA
COLLECTION DATE(S): 2/13/96

ANALYTE	MOUND SAMPLE ID	MOUND SAMPLE ID	MOUND SAMPLE ID	MOUND SAMPLE ID
	SGC-A61-000053MS	SGC-A61-000053MSD		
ALUMINUM				
ANTIMONY				
ARSENIC				
BARIUM				
BERYLLIUM				
CADMIUM				
CALCIUM				
COBALT				
COPPER				
IRON				
[illegible]	390.9%	773.4%		
MAGNESIUM				
MANGANESE				
MERCURY				
NICKEL				
POTASSIUM				
SELENIUM	49.1%	71.1%		
SILVER				
SODIUM				
THALLIUM	62.6%	65.0%		
VANADIUM				
ZINC				
LITHIUM				
BISMUTH				
MOLYBDENUM				
TIN				
CYANIDE				

QC LIMITS
85-115% Water
75-125% Soil

REVIEWER INITIALS: ADL
DATE: 4/16/96

LABORATORY QC DATA SUMMARY TABLE
INORGANIC COMPOUNDS
CLP SOW - ILM03.0

PREPARED BY: Christopher Ruef

DATE: 4/10/96

LABORATORY BATCH #: 9602L070

LABORATORY NAME/LOCATION: R. F. Weston, Lionville, PA

MOUND PROJECT: EGG496

OPERABLE UNIT NO.: NA

COLLECTION DATE(S): 2/13/96

ANALYTE	LCS > +/- 20%	LCS > +/- 20%	ICP SERIAL DILUTION >10%D	QUALIFICATION
ALUMINUM				
ANTIMONY				
ARSENIC				
BARIUM			15.6%	J-I
BERYLLIUM				
CADMIUM				
CALCIUM				
CHROMIUM			12.0%	J-I
COBALT				
COPPER			22.2%	J-I
IRON			12.8%	J-I
LEAD				
MAGNESIUM				
MANGANESE			19.4%	J-I
MERCURY				
NICKEL				
POTASSIUM				
SELENIUM				
SILVER				
SODIUM			19.6%	
THALLIUM				
VANADIUM			14.0%	J-I
ZINC			30.4%	J-I
LITHIUM				
BISMUTH				
MOLYBDENUM				
TIN				
CYANIDE				
APPLIES TO SAMPLES:	SGC-A03-000137	SGC-A03-000079		
(CLIENT ID)	SGC-A61-000042	SGC-NAC-000022		
	SGC-A61-000043			
	SGC-A61-000053			

REVIEWER INITIALS: ADL

DATE: 4/26/96

DUPLICATE SAMPLE (REPLICATE) DATA SUMMARY TABLE
INORGANIC COMPOUNDS
CLP SOW - ILM03.0

PREPARED BY:	Chris Ruef	MOUND PROJECT:	EGG496
DATE:	4/10/96	OPERABLE UNIT	NA
LABORATORY	9602L070	COLLECTION	2/13/96
LABORATORY	R. F. Weston, Lionville, PA		

QC LIMITS
IF RESULT > 5x CRDL, THEN +/- 10% RPD
IF RESULT < 5x CRDL, THEN +/- blank acceptance criteria

ANALYTE	MOUND SAMPLE ID	MOUND SAMPLE ID	MOUND SAMPLE ID	RPD	QUALIFICATION
	SGC-A61-000053	SGC-A61-000053R			
ALUMINUM					
ANTIMONY					
ARSENIC					
BARIUM					
BERYLLIUM					
CADMIUM					
CALCIUM					
CHROMIUM					
COBALT					
COPPER					
IRON					
LEAD	11.2	21.1		61.2	J-D
MAGNESIUM	47900	62100		25.8	J-D
MANGANESE	471	325		36.6	J-D
MERCURY					
NICKEL					
POTASSIUM					
SELENIUM					
SILVER					
SODIUM					
THALLIUM					
VANADIUM					
ZINC	73.0	34.5		71.6	J-D
LITHIUM					
BISMUTH					
MOLYBDENUM					
TIN					
CYANIDE					

REVIEWER INITIALS: ADC
DATE: 4/16/96

ATTACHMENT II

QUALIFIED DATA SUMMARY REPORTS

Roy F. Weston, Inc. [illegible]onville Laboratory
Volatiles by [illegible]C/MS, OLM01.8 Report Date: 03/11/[illegible] 11:28

RFW Batch Number: 9602L070 Client: EG&G MOUND Work Order: 10572004001 Page: 1a

	Cust ID:	SGC-A03-0001 37		SGC-A61-0000 42		SGC-A61-0000 42		SGC-A61-0000 43		SGC-A61-0000 53		SGC-A61-0000 53	
Sample Information	RFW#:	001		002		002		003		005		005 MS	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.04		1.02		1.02		1.04		0.980		0.980	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
						REPREP							
Surrogate Recovery	Toluene-d8	114	% ✓	118	% ✓	124	% ✓	120	% ✓	100	% ✓	103	% ✓
	Bromofluorobenzene	96	% ✓	82	% ✓	116 *	% ✓	88	% ✓	93	% ✓	95	% ✓
	1,2-Dichloroethane-d4	120	% ✓	133 *	% ✓	131 *	% ✓	118	% ✓	102	% ✓	102	% ✓
Chloromethane		13	U	12	U	12	U	11	U	11	U	11	U
Bromomethane		13	U	12	U	12	U	11	U	11	U	11	U
Vinyl Chloride		13	U	12	U	12	U	11	U	11	U	11	U
Chloroethane		13	U	12	U	12	U	11	U	11	U	11	U
Methylene Chloride		8U ~~8~~	~~B~~	8U ~~8~~	~~B~~	6		9		4	J	6U ✓ ~~6~~	~~BW~~
Acetone		10U ~~3~~	~~JB~~	10U ~~4~~	~~JB~~	12	U	32U ~~32~~	~~B~~	10U ~~4~~	~~JB~~	11	U
Carbon Disulfide		6	U	6	U	6	U	6	U	6	U	6	U
1,1-Dichloroethene		6	U	6	U	6	U	6	U	6	U	118	%
1,1-Dichloroethane		6	U	6	U	6	U	6	U	6	U	6	U
1,2-Dichloroethene (total)		6	U	6	U	6	U	6	U	6	U	6	U
Chloroform		6	U	6	U	6	U	6	U	6	U	6	U
1,2-Dichloroethane		6	U	6	U	6	U	6	U	6	U	6	U
2-Butanone		13	U	12	U	12	U	5	J-C	11	U	11	U
1,1,1-Trichloroethane		6	U	6	U	6	U	6	U	6	U	6	U
Carbon Tetrachloride		6	U	6	U	6	U	6	U	6	U	6	U
Vinyl Acetate		13	U	12	U	12	U	11	U	11	U	11	U
Bromodichloromethane		6	U	6	U	6	U	6	U	6	U	6	U
1,2-Dichloropropane		6	U	6	U	6	U	6	U	6	U	6	U
cis-1,3-Dichloropropene		6	U	6	U	6	U	6	U	6	U	6	U
Trichloroethene		6	U	6	U	6	U	6	U	6	U	109	%
Dibromochloromethane		6	U	6	U	6	U	6	U	6	U	6	U
1,1,2-Trichloroethane		6	U	6	U	6	U	6	U	6	U	6	U
Benzene		6	U	6	U	6	U	6	U	6	U	110	%
Trans-1,3-Dichloropropene		6	U	6	U	6	U	6	U	6	U	6	U
Bromoform		6	U	6	U	6	U	6	U	6	U	6	U
4-Methyl-2-pentanone		13	U	12	U	12	U	11	U	11	U	11	U
2-Hexanone		13	U	12	U	12	U	11	U	11	U	11	U
Tetrachloroethene		6	U	6	U	6	U	6	U	6	U	6	U
1,1,2,2-Tetrachloroethane		6	U	6	U	6	U	6	U	6	U	6	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9602L070 Client: EG&G MOUND Work Order: 10572004001 Page: 1b

Cust ID:	SGC-A03-0001 37	SGC-A61-0000 42	SGC-A61-0000 42	SGC-A61-0000 43	SGC-A61-0000 53	SGC-A61-0000 53
RFW#:	001	002	002 REPREP	003	005	005 MS
Toluene	6 U	3 J S	6 U	2 J	6 U	108 %
Chlorobenzene	6 U	6 U	6 U	6 U	6 U	102 %
Ethylbenzene	6 U	6 U	6 U	6 U	6 U	6 U
Styrene	6 U	6 U	6 U	6 U	6 U	6 U
Xylene (total)	6 U	6 U	6 U	6 U	6 U	6 U

*= Outside of EPA CLP QC limits.

✓ CJR 4-1-96

016

Roy F. Weston, Inc. [redacted]ionville Laboratory
Volatiles b[redacted]C/MS, OLM01.8 Report Date: 03/11[redacted] 11:28

RFW Batch Number: 9602L070 Client: EG&G MOUND Work Order: 10572004001 Page: 2a

Sample Information	Cust ID:	SGC-A61-0000 53	SGC-A03-0000 79	SGC-NAC-0000 22	SGC-NAC-0001 44	VBLKTD	VBLKTD BS
	RFW#:	005 MSD	006	008	010	96LVX027-MB1	96LVX027-MB1
	Matrix:	SOIL	SOIL	SOIL	WATER	SOIL	SOIL
	D.F.:	1.02	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	105 %	112 %	110 %	105 %	108 %	101 %
	Bromofluorobenzene	94 %	94 %	102 %	107 %	100 %	96 %
	1,2-Dichloroethane-d4	106 %	117 %	112 %	110 %	106 %	98 %
Chloromethane		12 U	11 U	13 U	10 U	10 U	10 U
Bromomethane		12 U	11 U	13 U	10 U	10 U	10 U
Vinyl Chloride		12 U	11 U	13 U	10 U	10 U	10 U
Chloroethane		12 U	11 U	13 U	10 U	10 U	10 U
Methylene Chloride		8u ~~8 B~~	8u ~~8 B~~	10	14u ~~14 B~~	10	5u ~~2 JB~~
Acetone		12 U	10u ~~7 JB~~	13 U	10 U	10	10u ~~5 JB~~
Carbon Disulfide		6 U	6 U	6 U	5 U	5 U	5 U
1,1-Dichloroethene		126 %	6 U	6 U	5 U	5 U	123 %
1,1-Dichloroethane		6 U	6 U	6 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		6 U	6 U	6 U	5 U	5 U	5 U
Chloroform		6 U	6 U	6 U	5 U	5 U	5 U
1,2-Dichloroethane		6 U	6 U	6 U	5 U	5 U	5 U
2-Butanone		12 U	11 U	13 U	10 U	10 U	10 U
1,1,1-Trichloroethane		6 U	6 U	6 U	5 U	5 U	5 U
Carbon Tetrachloride		6 U	6 U	6 U	5 U	5 U	5 U
Vinyl Acetate		12 U	11 U	13 U	10 U	10 U	10 U
Bromodichloromethane		6 U	6 U	6 U	5 U	5 U	5 U
1,2-Dichloropropane		6 U	6 U	6 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		6 U	6 U	6 U	5 U	5 U	5 U
Trichloroethene		120 %	6 U	6 U	5 U	5 U	106 %
Dibromochloromethane		6 U	6 U	6 U	5 U	5 U	5 U
1,1,2-Trichloroethane		6 U	6 U	6 U	5 U	5 U	5 U
Benzene		128 %	6 U	6 U	5 U	5 U	104 %
Trans-1,3-Dichloropropene		6 U	6 U	6 U	5 U	5 U	5 U
Bromoform		6 U	6 U	6 U	5 U	5 U	5 U
4-Methyl-2-pentanone		12 U	11 U	13 U	10 U	10 U	10 U
2-Hexanone		12 U	11 U	13 U	10 U	10 U	10 U
Tetrachloroethene		6 U	6 U	6 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		6 U	6 U	6 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Cust ID:	SGC-A61-0000 53	SGC-A03-0000 79	SGC-NAC-0000 22	SGC-NAC-0001 44	VBLKTD	VBLKTD BS
RFW#:	005 MSD	006	008	010	96LVX027-MB1	96LVX027-MB1
Toluene	129 %	1 J	6 U	5 U	5 U	105 %
Chlorobenzene	120 %	6 U	6 U	5 U	5 U	103 %
Ethylbenzene	6 U	6 U	6 U	5 U	5 U	5 U
Styrene	6 U	6 U	6 U	5 U	5 U	5 U
Xylene (total)	6 U	6 U	6 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

CJR
4-1-96

618

Roy F. Weston, Inc. [redacted]ionville Laboratory
Volatiles [redacted]C/MS, OLM01.8 Report Date: 03/11[redacted] 11:28

RFW Batch Number: 9602L070 Client: EG&G MOUND Work Order: 10572004001 Page: 3a

	Cust ID:	VBLKUE	VBLKUE BS	VBLKUH	VBLKUH BS	VBLKSZ	VBLKSZ BS
Sample Information	RFW#:	96LVX028-MB1	96LVX028-MB1	96LVX031-MB1	96LVX031-MB1	96LVK038-MB1	96LVK038-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/L
Surrogate Recovery	Toluene-d8	105 %	98 %	102 %	102 %	107 %	106 %
	Bromofluorobenzene	99 %	97 %	91 %	97 %	111 %	106 %
	1,2-Dichloroethane-d4	109 %	97 %	101 %	98 %	106 %	105 %
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		5 U	4 J	7	5U ~~5 B~~	7	8U ~~8 B~~
Acetone		4 J	10U ~~7 JB~~	10	10U ~~7 JB~~	10 U	3 J
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	89 %	5 U	137 %	5 U	111 %
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U	5 U
Chloroform		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone		10 U	17 J-C	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate		10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene		5 U	98 %	5 U	123 %	5 U	116 %
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Benzene		5 U	100 %	5 U	125 %	5 U	118 %
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Cust ID:	VBLKUE		VBLKUE BS		VBLKUH		VBLKUH BS		VBLKSZ		VBLKSZ BS	
RFW#:	96LVX028-MB1		96LVX028-MB1		96LVX031-MB1		96LVX031-MB1		96LVK038-MB1		96LVK038-MB1	
Toluene	5	U	96	%	5	U	123	%	5	U	119	%
Chlorobenzene	5	U	96	%	5	U	120	%	5	U	115	%
Ethylbenzene	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	5	U	5	U	5	U	5	U	5	U	5	U
Xylene (total)	5	U	5	U	5	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

020

✓ CJK 2-1-96

Roy F. Weston, Inc. [redacted] Jonville Laboratory
Semivolatiles [redacted] GC/MS, OLM01.8 Report Date: 02/26/[redacted] 09:16

RFW Batch Number: 9602L070 Client: EG&G MOUND Work Order: 10572004001 Page: 1a

C14

	Cust ID:	SGC-A03-0001	SGC-A61-0000	SGC-A61-0000	SGC-A61-0000	SGC-A61-0000	SGC-A61-0000
		37	42	43	53	53	53
Sample	RFW#:	001	002	003	005	005 MS	005 MSD
Information	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
	Nitrobenzene-d5	53 %	47 %	89 %	47 %	51 %	51 %
Surrogate	2-Fluorobiphenyl	58 %	48 %	91 %	54 %	58 %	57 %
Recovery	Terphenyl-d14	70 %	62 %	105 %	68 %	72 %	62 %
	Phenol-d5	53 %	47 %	87 %	49 %	51 %	50 %
	2-Fluorophenol	50 %	46 %	85 %	46 %	51 %	49 %
	2,4,6-Tribromophenol	70 %	57 %	101 %	59 %	75 %	71 %
	2-Chlorophenol-d4	51 %	47 %	85 %	47 %	51 %	48 %
	1,2-Dichlorobenzene-d4	49 %	45 %	79 %	40 %	48 %	48 %
==========		fl	fl	fl	fl	fl	fl
Phenol		410 U	400 U	350 U	390 U	46 %	47 %
bis(2-Chloroethyl)ether		410 U	400 U	350 U	390 U	390 U	390 U
2-Chlorophenol		410 U	400 U	350 U	390 U	47 %	45 %
1,3-Dichlorobenzene		410 U	400 U	350 U	390 U	390 U	390 U
1,4-Dichlorobenzene		410 U	400 U	350 U	390 U	44 %	44 %
1,2-Dichlorobenzene		410 U	400 U	350 U	390 U	390 U	390 U
2-Methylphenol		410 U	400 U	350 U	390 U	390 U	390 U
2,2'-oxybis(1-Chloropropane)		410 U	400 U	350 U	390 U	390 U	390 U
4-Methylphenol		410 U	400 U	350 U	390 U	390 U	390 U
N-Nitroso-di-n-propylamine		410 UJ	400 UJ	350 UJ	390 UJ	49 %	51 %
Hexachloroethane		410 U	400 U	350 U	390 U	390 U	390 U
Nitrobenzene		410 U	400 U	350 U	390 U	390 U	390 U
Isophorone		410 U	400 U	350 U	390 U	390 U	390 U
2-Nitrophenol		410 U	400 U	350 U	390 U	390 U	390 U
2,4-Dimethylphenol		410 U	400 U	350 U	390 U	390 U	390 U
bis(2-Chloroethoxy)methane		410 U	400 U	350 U	390 U	390 U	390 U
2,4-Dichlorophenol		410 U	400 U	350 U	390 U	390 U	390 U
1,2,4-Trichlorobenzene		410 UJ	400 UJ	350 UJ	390 UJ	49 %	48 %
Naphthalene		410 U	400 U	350 U	390 U	390 U	390 U
4-Chloroaniline		410 U	400 U	350 U	390 U	390 U	390 U
Hexachlorobutadiene		410 U	400 U	350 U	390 U	390 U	390 U
4-Chloro-3-methylphenol		410 U	400 U	350 U	390 U	59 %	61 %
2-Methylnaphthalene		410 U	400 U	350 U	390 U	390 U	390 U
Hexachlorocyclopentadiene		410 U	400 U	350 U	390 U	390 U	390 U

*= Outside of EPA CLP QC limits.

Cust ID:	SGC-A03-0001 37		SGC-A61-0000 42		SGC-A61-0000 43		SGC-A61-0000 53		SGC-A61-0000 53		SGC-A61-0000 53	
RFW#:	001		002		003		005		005 MS		005 MSD	
2,4,6-Trichlorophenol	410	U	400	U	350	U	390	U	390	U	390	U
2,4,5-Trichlorophenol	1000	U	1000	U	880	U	980	U	980	U	980	U
2-Chloronaphthalene	410	U	400	U	350	U	390	U	390	U	390	U
2-Nitroaniline	1000	U	1000	U	880	U	980	U	980	U	980	U
Dimethylphthalate	410	U	400	U	350	U	390	U	390	U	390	U
Acenaphthylene	410	U	400	U	350	U	390	U	390	U	390	U
2,6-Dinitrotoluene	410	U	400	U	350	U	390	U	390	U	390	U
3-Nitroaniline	1000	U	1000	U	880	U	980	U	980	U	980	U
Acenaphthene	410	U	400	U	350	U	390	U	✓58	%	✓58	%
2,4-Dinitrophenol	1000	U	1000	U	880	U	980	U	980	U	980	U
4-Nitrophenol	1000	U	1000	U	880	U	980	U	✓80	%	✓83	%
Dibenzofuran	410	U	400	U	350	U	390	U	390	U	390	U
2,4-Dinitrotoluene	410	U	400	U	350	U	390	U	✓66	%	✓67	%
Diethylphthalate	410	U	400	U	350	U	390	U	390	U	390	U
4-Chlorophenyl-phenylether	410	U	400	U	350	U	390	U	390	U	390	U
Fluorene	410	U	400	U	350	U	390	U	390	U	390	U
4-Nitroaniline	1000	U	1000	U	880	U	980	U	980	U	980	U
4,6-Dinitro-2-methylphenol	1000	U	1000	U	880	U	980	U	980	U	980	U
N-Nitrosodiphenylamine (1)	410	U	400	U	350	U	390	U	390	U	390	U
4-Bromophenyl-phenylether	410	U	400	U	350	U	390	U	390	U	390	U
Hexachlorobenzene	410	U	400	U	350	U	390	U	390	U	390	U
Pentachlorophenol	1000	U	1000	U	880	U	980	U	✓76	%	✓73	%
Phenanthrene	410	U	400	U	✓25	J	✓290	J	✓110	J	✓160	J
Anthracene	410	U	400	U	350	U	✓ 79	J	390	U	✓ 44	J
Carbazole	410	U	400	U	350	U	✓ 24	J	390	U	390	U
Di-n-butylphthalate	410	U	400	U	350	U	390	U	390	U	390	U
Fluoranthene	410	U	✓26	J	✓25	J	✓480		✓230	J	✓330	J
Pyrene	410	U	✓21	J	✓30	J	✓390		✓54	%	✓50	%
Butylbenzylphthalate	410	U	400	U	350	U	390	U	390	U	390	U
3,3'-Dichlorobenzidine	410	U	400	U	350	U	390	U	390	U	390	U
Benzo(a)anthracene	410	U	400	U	350	U	✓210	J	✓ 87	J	✓160	J
Chrysene	410	U	400	U	✓23	J	✓210	J	✓ 99	J	✓180	J
bis(2-Ethylhexyl)phthalate	330U	~~47~~	330U	~~61~~	330U	~~49~~	330U	~~47~~	330U	~~130~~	330U	~~33~~
Di-n-octyl phthalate	410	U	400	U	350	U	390	U	390	U	390	U
Benzo(b)fluoranthene	410	U	400	U	350	U	✓140	J	✓ 79	J	✓140	J
Benzo(k)fluoranthene	410	U	400	U	350	U	✓150	J	✓ 82	J	✓130	J
Benzo(a)pyrene	410	U	400	U	350	U	✓190	J	✓ 87	J	✓150	J
Indeno(1,2,3-cd)pyrene	410	U	400	U	350	U	✓100	J	✓ 55	J	✓ 97	J
Dibenz(a,h)anthracene	410	U	400	U	350	U	✓ 35	J	390	U	✓ 32	J
Benzo(g,h,i)perylene	410	U	400	U	350	U	✓120	J	✓ 67	J	✓120	J

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

✓ CJP 4-2-96

	Cust ID:	SGC-A03-0000 79		SGC-NAC-0000 22		SBLKTN		SBLKTN BS	
Sample Information	RFW#:	006		008		96LE0267-MB1		96LE0267-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	31	%	35	%	50	%	35	%
	2-Fluorobiphenyl	32	%	36	%	50	%	40	%
	Terphenyl-d14	40	%	51	%	68	%	68	%
	Phenol-d5	32	%	35	%	49	%	35	%
	2-Fluorophenol	30	%	33	%	47	%	34	%
	2,4,6-Tribromophenol	32	%	34	%	47	%	48	%
	2-Chlorophenol-d4	31	%	34	%	48	%	34	%
	1,2-Dichlorobenzene-d4	29	%	26	%	49	%	35	%
Phenol		380	U	430	U	330	U	36	%
bis(2-Chloroethyl)ether		380	U	430	U	330	U	330	U
2-Chlorophenol		380	U	430	U	330	U	34	%
1,3-Dichlorobenzene		380	U	430	U	330	U	330	U
1,4-Dichlorobenzene		380	U	430	U	330	U	35	%
1,2-Dichlorobenzene		380	U	430	U	330	U	330	U
2-Methylphenol		380	U	430	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		380	U	430	U	330	U	330	U
4-Methylphenol		380	U	430	U	330	U	330	U
N-Nitroso-di-n-propylamine		380	UJ	430	UJ	330	UJ	37 *	%
Hexachloroethane		380	U	430	U	330	U	330	U
Nitrobenzene		380	U	430	U	330	U	330	U
Isophorone		380	U	430	U	330	U	330	U
2-Nitrophenol		380	U	430	U	330	U	330	U
2,4-Dimethylphenol		380	U	430	U	330	U	330	U
bis(2-Chloroethoxy)methane		380	U	430	U	330	U	330	U
2,4-Dichlorophenol		380	U	430	U	330	U	330	U
1,2,4-Trichlorobenzene		380	UJ	430	UJ	330	UJ	36 *	%
Naphthalene		380	U	430	U	330	U	330	U
4-Chloroaniline		380	U	430	U	330	U	330	U
Hexachlorobutadiene		380	U	430	U	330	U	330	U
4-Chloro-3-methylphenol		380	U	430	U	330	U	42	%
2-Methylnaphthalene		380	U	430	U	330	U	330	U
Hexachlorocyclopentadiene		380	U	430	U	330	U	330	U

*= Outside of EPA CLP QC limits.

Cust ID:	SGC-A03-0000 79		SGC-NAC-0000 22		SBLKTN		SBLKTN BS	
RFW#:	006		008		96LE0267-MB1		96LE0267-MB1	
2,4,6-Trichlorophenol	380	U	430	U	330	U	330	U
2,4,5-Trichlorophenol	940	U	1100	U	840	U	840	U
2-Chloronaphthalene	380	U	430	U	330	U	330	U
2-Nitroaniline	940	U	1100	U	840	U	840	U
Dimethylphthalate	380	U	430	U	330	U	330	U
Acenaphthylene	380	U	430	U	330	U	330	U
2,6-Dinitrotoluene	380	U	430	U	330	U	330	U
3-Nitroaniline	940	U	1100	U	840	U	840	U
Acenaphthene	380	U	430	U	330	U	43	%
2,4-Dinitrophenol	940	U	1100	U	840	U	840	U
4-Nitrophenol	940	U	1100	U	840	U	54	%
Dibenzofuran	380	U	430	U	330	U	330	U
2,4-Dinitrotoluene	380	U	430	U	330	U	53	%
Diethylphthalate	380	U	430	U	330	U	330	U
4-Chlorophenyl-phenylether	380	U	430	U	330	U	330	U
Fluorene	380	U	430	U	330	U	330	U
4-Nitroaniline	940	U	1100	U	840	U	840	U
4,6-Dinitro-2-methylphenol	940	U	1100	U	840	U	840	U
N-Nitrosodiphenylamine (1)	380	U	430	U	330	U	330	U
4-Bromophenyl-phenylether	380	U	430	U	330	U	330	U
Hexachlorobenzene	380	U	430	U	330	U	330	U
Pentachlorophenol	940	U	1100	U	840	U	55	%
Phenanthrene	380	U	430	U	330	U	330	U
Anthracene	380	U	430	U	330	U	330	U
Carbazole	380	U	430	U	330	U	330	U
Di-n-butylphthalate	380	U	430	U	330	U	330	U
Fluoranthene	380	U	430	U	330	U	330	U
Pyrene	380	U	430	U	330	U	67	%
Butylbenzylphthalate	380	U	430	U	330	U	330	U
3,3'-Dichlorobenzidine	380	U	430	U	330	U	330	U
Benzo(a)anthracene	380	U	430	U	330	U	330	U
Chrysene	380	U	430	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	330U ~~64~~	~~JB~~	330U ~~190~~	~~JB~~	29	J	330U ~~43~~	~~JB~~
Di-n-octyl phthalate	380	U	430	U	330	U	330	U
Benzo(b)fluoranthene	380	U	430	U	330	U	330	U
Benzo(k)fluoranthene	380	U	430	U	330	U	330	U
Benzo(a)pyrene	380	U	430	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	380	U	430	U	330	U	330	U
Dibenz(a,h)anthracene	380	U	430	U	330	U	330	U
Benzo(g,h,i)perylene	380	U	430	U	330	U	330	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. Lionville Laboratory

CLP SU[illegible] CLP Low[illegible]centration Report Date: 02/2[illegible] 13:20

RFW Batch Number: 9602L070 Client: EG&G MOUND Work Order: 10572-004-001-9999-00 Page: 1

Sample Information	Cust ID:	SGC-A03-0001	SGC-A61-0000	SGC-A61-0000	SGC-A61-0000	SGC-A61-0000	SGC-A61-0000
		37	42	43	53	53	53
	RFW#:	001	002	003	005	005 MS	005 MSD
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Alpha-BHC		2.0 U	2.0 U	1.8 U	2.0 U	2.0 U	2.0 U
Beta-BHC		2.0 U	2.0 U	1.8 U	2.0 U	2.0 U	2.0 U
Delta-BHC		2.0 U	2.0 U	1.8 U	2.0 U	2.0 U	2.0 U
gamma-BHC (Lindane)		2.0 U	2.0 U	1.8 U	2.0 U	56 %	52 %
Heptachlor		2.0 U	2.0 U	1.8 U	2.0 U	62 %	60 %
Aldrin		2.0 U	2.0 U	1.8 U	2.0 U	66 %	62 %
Heptachlor epoxide		2.0 U	2.0 U	1.8 U	2.0 U	2.0 U	2.0 U
Endosulfan I		2.0 U	2.0 U	1.8 U	2.0 U	2.0 U	2.0 U
Dieldrin		4.1 U	4.0 U	3.5 U	3.9 U	73 %	69 %
4,4'-DDE		4.1 U	4.0 U	3.5 U	3.9 U	3.9 U	3.9 U
Endrin		4.1 U	4.0 U	3.5 U	3.9 U	92 %	89 %
Endosulfan II		4.1 U	4.0 U	3.5 U	3.9 U	3.9 U	3.9 U
4,4'-DDD		4.1 U	4.0 U	3.5 U	3.9 U	3.9 U	3.9 U
Endosulfan sulfate		4.1 U	4.0 U	3.5 U	3.9 U	3.9 U	3.9 U
4,4'-DDT		4.1 U	4.0 U	3.5 U	3.9 U	32 ~~63~~ %P	30 ~~67~~ %
Methoxychlor		20 U	20 U	18 U	20 U	20 U	20 U
Endrin ketone		4.1 U	4.0 U	3.5 U	3.9 U	3.9 U	3.9 U
Endrin aldehyde		4.1 U	4.0 U	3.5 U	3.9 U	3.9 U	3.9 U
alpha-Chlordane		2.0 U	2.0 U	1.8 U	2.0 U	2.0 U	2.0 U
gamma-Chlordane		2.0 U	2.0 U	1.8 U	2.0 U	2.0 U	2.0 U
Toxaphene		200 U	200 U	180 U	200 U	200 U	200 U
Aroclor-1016		41 U	40 U	35 U	39 U	39 U	39 U
Aroclor-1221		81 U	80 U	70 U	78 U	78 U	78 U
Aroclor-1232		41 U	40 U	35 U	39 U	39 U	39 U
Aroclor-1242		41 U	40 U	35 U	39 U	39 U	39 U
Aroclor-1248		41 U	40 U	35 U	39 U	39 U	39 U
Aroclor-1254		41 U	40 U	35 U	39 U	39 U	39 U
Aroclor-1260		41 U	40 U	35 U	39 U	39 U	39 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of Advisory limits.
P= Difference between columns exceeds 25%.

CE 2/28/96

CM 4-4-96

110

Sample Information	Cust ID:	SGC-A03-0000 79		SGC-NAC-0000 22		PBLKXA		PBLKXA BS	
	RFW#:	006		008		96LE0262-MB1		96LE0262-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Alpha-BHC		1.9	U	2.1	U	1.7	U	1.7	U
Beta-BHC		1.9	U	2.1	U	1.7	U	1.7	U
Delta-BHC		1.9	U	2.1	U	1.7	U	1.7	U
gamma-BHC (Lindane)		1.9	U	2.1	U	1.7	U	60	%
Heptachlor		1.9	U	2.1	U	1.7	U	60	%
Aldrin		1.9	U	2.1	U	1.7	U	70	%
Heptachlor epoxide		1.9	U	2.1	U	1.7	U	1.7	U
Endosulfan I		1.9	U	2.1	U	1.7	U	1.7	U
Dieldrin		3.8	U	4.3	U	3.3	U	76	%
4,4'-DDE		3.8	U	4.3	U	3.3	U	3.3	U
Endrin		3.8	U	4.3	U	3.3	U	91	%
Endosulfan II		3.8	U	4.3	U	3.3	U	3.3	U
4,4'-DDD		3.8	U	4.3	U	3.3	U	3.3	U
Endosulfan sulfate		3.8	U	4.3	U	3.3	U	3.3	U
4,4'-DDT		3.8	U	4.3	U	3.3	U	76	%
Methoxychlor		19	U	21	U	17	U	17	U
Endrin ketone		3.8	U	4.3	U	3.3	U	3.3	U
Endrin aldehyde		3.8	U	4.3	U	3.3	U	3.3	U
alpha-Chlordane		1.9	U	2.1	U	1.7	U	1.7	U
gamma-Chlordane		1.9	U	2.1	U	1.7	U	1.7	U
Toxaphene		190	U	210	U	170	U	170	U
Aroclor-1016		38	U	43	U	33	U	33	U
Aroclor-1221		76	U	85	U	67	U	67	U
Aroclor-1232		38	U	43	U	33	U	33	U
Aroclor-1242		38	U	43	U	33	U	33	U
Aroclor-1248		38	U	43	U	33	U	33	U
Aroclor-1254		38	U	43	U	33	U	33	U
Aroclor-1260		38	U	43	U	33	U	33	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of Advisory limits.
P= Difference between columns exceeds 25%.

018

2/28/96

4-4-96

Roy F. Weston, Inc. Jacksonville Laboratory
NG and PETN by HPLC

Report Date: 02/28/96 14:24

RFW Batch Number: 9602L070 Client: EG&G MOUND Work Order: 10572-004-001-9999-00 Page: 1

	Cust ID:	SGC-A03-0001	SGC-A61-0000	SGC-A61-0000	SGC-A61-0000	SGC-A61-0000	SGC-A61-0000
		37	42	43	53	53	53
Sample Information	RFW#:	001	002	003	005	005 MS	005 MSD
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate: 1,2-Dinitrobenzene		123 %	117 %	126 %	120 %	111 %	113 %
PETN		880 U	960 U	970 U	940 U	95 %	99 %

	Cust ID:	SGC-A03-0000	SGC-NAC-0000	BLK	BLK BS
		79	22		
Sample Information	RFW#:	006	008	96LLP031-MB1	96LLP031-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate: 1,2-Dinitrobenzene		116 %	117 %	119 %	117 %
PETN		990 U	1000 U	1000 U	100 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of Advisory limits.

CJR 4-4-96

6 3/4/96

Roy F. Weston, Inc. - Lionville Laboratory
Explosives by HPLC / Method 8330

RFW Batch Number: 9602L070 Client: EG&G MOUND Work Order: 10572-004-001-9999-00 Report Date: 02/29/96 09:49 Page: 1

Sample Information						
Cust ID:	SGC-A03-0001 37	SGC-A61-0000 42	SGC-A61-0000 43	SGC-A61-0000 53	SGC-A61-0000 53	SGC-A61-0000 53
RFW#:	001	002	003	005	005 MS	005 MSD
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Surrogate: 1,2-Dinitrobenzene	83 %	79 %	84 %	81 %	89 %	76 %
==========	fl	fl	fl	fl	fl	fl
HMX	1900 U	2100 U	2100 U	2100 U	85 %	72 %
RDX	880 U	960 U	970 U	940 U	82 %	66 %
1,3,5-Trinitrobenzene	220 U	240 U	240 U	240 U	94 %	83 %
1,3-Dinitrobenzene	220 U	240 U	240 U	230 U	90 %	77 %
Nitrobenzene	230 U	250 U	250 U	240 U	85 %	76 %
Tetryl	660 U	720 U	730 U	700 U	82 %	76 %
Amino-DNTs	440 U	480 U	490 U	470 U	93 %	84 %
2,4,6-Trinitrotoluene	220 U	240 U	240 U	240 U	84 %	79 %
2,6-Dinitrotoluene	230 U	250 U	250 U	240 U	90 %	82 %
2,4-Dinitrotoluene	220 U	240 U	240 U	230 U	90 %	82 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of Advisory limits.

014

CJK 4-4-96

	Cust ID:	SGC-AO3-0000 79		SGC-NAC-0000 22		BLK		BLK BS					
Sample Information	RFW#:	006		008		96LLC031-MB1		96LLC031-MB1					
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	D.F.:	1.00		1.00		1.00		1.00					
	Units:	ug/kg		ug/kg		ug/kg		ug/kg					
Surrogate: 1,2-Dinitrobenzene		78	%	79	%	80	%	79	%				
			fl		fl		fl		fl		fl		fl
HMX		2200	U	2200	U	2200	U	74	%				
RDX		990	U	1000	U	1000	U	69	%				
1,3,5-Trinitrobenzene		250	U	250	U	250	U	83	%				
1,3-Dinitrobenzene		250	U	250	U	250	U	80	%				
Nitrobenzene		260	U	260	U	260	U	81	%				
Tetryl		740	U	750	U	750	U	72	%				
Amino-DNTs		490	U	500	U	500	U	89	%				
2,4,6-Trinitrotoluene		250	U	250	U	250	U	83	%				
2,6-Dinitrotoluene		260	U	260	U	260	U	84	%				
2,4-Dinitrotoluene		250	U	250	U	250	U	86	%				

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of Advisory limits.

015

4-4-96

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000022

Lab Name: ROY F. WESTON INC. Contract: 10572-04-1

Lab Code: WESTON Case No.: SAS No.: SDG No.: 000022

Matrix (soil/water): SOIL Lab Sample ID: 9602L070-008

Level (low/med): LOW Date Received: 02/14/96

% Solids: 78.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	8030			P	
7440-36-0	Antimony	0.66	B		F	
7440-38-2	Arsenic	13.3			F	
7440-39-3	Barium	65.8		E	P	J-I
7440-41-7	Beryllium	0.49			P	
7440-43-9	Cadmium	0.10	U		P	
7440-70-2	Calcium	42200			P	
7440-47-3	Chromium	14.4		E	P	J-I
7440-48-4	Cobalt	11.5	B		P	
7440-50-8	Copper	26.3		E	P	J-I
7439-89-6	Iron	22300		E	P	J-I
7439-92-1	Lead	14.9		N*	F	J-D, J-S
7439-95-4	Magnesium	22000		*	P	J-D
7439-96-5	Manganese	522		E*	P	J-D, J-I
7439-97-6	Mercury	0.06	U		AV	
7440-02-0	Nickel	27.4			P	
7440-09-7	Potassium	641	B		F	
7782-49-2	Selenium	0.31	U	WN	F	UJ
7440-22-4	Silver	0.20	U		P	
7440-23-5	Sodium	101	B	E	P	J-I
7440-28-0	Thallium	0.23	U	N	F	UJ
7440-62-2	Vanadium	22.4		E	P	J-I
7440-66-6	Zinc	72.5		E*	P	J-D, J-I
7439-98-7	Molybdenu	5.7			P	
7440-31-5	Tin	1.0	B		P	
7440-69-9	Bismuth	1.2	U		P	
7439-93-2	Lithium	15.3	B		F	
5955-70-0	Cyanide	0.64	U		C	

CJP 4-10-96

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000042

Lab Name: ROY F. WESTON INC. Contract: 10572-04-1
Lab Code: WESTON Case No.: SAS No.: SDG No.: 000022
Matrix (soil/water): SOIL Lab Sample ID: 9602L070-002
Level (low/med): LOW Date Received: 02/14/96
% Solids: 83.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4860			P	
7440-36-0	Antimony	0.79	B		F	
7440-38-2	Arsenic	6.4			F	
7440-39-3	Barium	37.3	B	E	P	J-I
7440-41-7	Beryllium	0.13	B		P	
7440-43-9	Cadmium	0.10	U		P	
7440-70-2	Calcium	189000			P	
7440-47-3	Chromium	8.0		E	P	J-I
7440-48-4	Cobalt	6.1	B		P	
7440-50-8	Copper	13.1		E	P	J-I
7439-89-6	Iron	14500		E	P	J-I
7439-92-1	Lead	9.2		N*	F	J-D, J-S
7439-95-4	Magnesium	23400		*	P	J-D
7439-96-5	Manganese	784		E*	P	J-D, J-I
7439-97-6	Mercury	0.05	U		AV	
7440-02-0	Nickel	14.8			P	
7440-09-7	Potassium	600	B		F	
7782-49-2	Selenium	0.45	B	WN	F	uJ
7440-22-4	Silver	0.19	U		P	
7440-23-5	Sodium	1540		E	P	J-I
7440-28-0	Thallium	0.67	B	N	F	uJ
7440-62-2	Vanadium	10.4		E	P	J-I
7440-66-6	Zinc	39.1		E*	P	J-D, J-I
7439-98-7	Molybdenu	1.6	B		P	
7440-31-5	Tin	4.4	B		P	
7440-69-9	Bismuth	1.1	U		P	
7439-93-2	Lithium	14.3	B		F	
5955-70-0	Cyanide	0.60	U		C	

CJK 4-10-96

Color Before: Clarity Before: Texture:
Color After: Clarity After: Artifacts:

Comments:

030

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000043

Lab Name: ROY F. WESTON INC. Contract: 10572-04-1

Lab Code: WESTON Case No.: SAS No.: SDG No.: 000022

Matrix (soil/water): SOIL Lab Sample ID: 9602L070-003

Level (low/med): LOW Date Received: 02/14/96

% Solids: 94.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	3600			P	
7440-36-0	Antimony	0.19	U		F	
7440-38-2	Arsenic	3.0			F	
7440-39-3	Barium	23.8	B	E	P	J-I
7440-41-7	Beryllium	0.04	U		P	
7440-43-9	Cadmium	0.08	U		P	
7440-70-2	Calcium	161000			P	
7440-47-3	Chromium	8.2		E	P	J-I
7440-48-4	Cobalt	4.4	B		P	
7440-50-8	Copper	10.7		E	P	J-I
7439-89-6	Iron	10300		E	P	J-I
7439-92-1	Lead	5.9		N*	F	J-D, J-S
7439-95-4	Magnesium	61000		*	P	J-D
7439-96-5	Manganese	388		E*	P	J-D, J-I
7439-97-6	Mercury	0.05	U		AV	
7440-02-0	Nickel	10.4			P	
7440-09-7	Potassium	572	B		F	
7782-49-2	Selenium	0.25	U	WN	F	UJ
7440-22-4	Silver	0.17	U		P	
7440-23-5	Sodium	818	B	E	P	J-I
7440-28-0	Thallium	0.19	U	WN	F	UJ,
7440-62-2	Vanadium	12.4		E	P	J-I
7440-66-6	Zinc	25.9		E*	P	J-D, J-I
7439-98-7	Molybdenu	1.3	B		P	
7440-31-5	Tin	1.1	B		P	
7440-69-9	Bismuth	0.99	U		P	
7439-93-2	Lithium	12.6	B		F	
5955-70-0	Cyanide	0.53	U		C	

CJC 4-10-96

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN ILM03.0

Ba = (112.7446)(0.20 ℓ) / (1.0)(0.948) = 23.78 ✓ (p. 175, p. 542, p. 26, p. 542, p. 31)

Pb = (27.8)(0.20 ℓ) / (1.0)(0.9484) = 5.86 ✓ (p. 368, p. 26)

031

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000053

Lab Name: ROY F. WESTON INC. Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Matrix (soil/water): SOIL Lab Sample ID: 9602L070-005

Level (low/med): LOW Date Received: 02/14/96

% Solids: 85.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	3890			P	
7440-36-0	Antimony	0.23	B		F	
7440-38-2	Arsenic	3.3			F	
7440-39-3	Barium	30.2	B	E	P	J-I
7440-41-7	Beryllium	0.05	U		P	
7440-43-9	Cadmium	0.09	U		P	
7440-70-2	Calcium	181000			P	
7440-47-3	Chromium	7.8		E	P	J-I
7440-48-4	Cobalt	4.3	B		P	
7440-50-8	Copper	13.9		E	P	J-I
7439-89-6	Iron	11400		E	P	J-I
7439-92-1	Lead	11.2		N*	F	J-D, J-S
7439-95-4	Magnesium	47900		*	P	J-D
7439-96-5	Manganese	471		E*	P	J-D, J-I
7439-97-6	Mercury	0.06	B		AV	
7440-02-0	Nickel	10.5			P	
7440-09-7	Potassium	565	B		F	
7782-49-2	Selenium	0.28	U	WN	F	UJ
7440-22-4	Silver	0.19	B		P	
7440-23-5	Sodium	911	B	E	P	J-I
7440-28-0	Thallium	0.21	U	WN	F	UJ
7440-62-2	Vanadium	8.6		E	P	J-I
7440-66-6	Zinc	73.0		E*	P	J-D, J-I
7439-98-7	Molybdenu	0.96	B		P	
7440-31-5	Tin	0.90	B		P	
7440-69-9	Bismuth	1.1	U		P	
7439-93-2	Lithium	14.0	B		F	
5955-70-0	Cyanide	0.59	U		C	

cpr 4-10-96

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN ILM03.0

Hg p.26 = (0.125 p.527)(0.05 p.544) / (0.10 p.544)(0.853 p.32) = 0.0615 ✓

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000079

Lab Name: ROY F. WESTON INC. Contract: 10572-04-1 SDG No.: 000022

Lab Code: WESTON Case No.: SAS No.:

Matrix (soil/water): SOIL Lab Sample ID: 9602L070-006

Level (low/med): LOW Date Received: 02/14/96

% Solids: 88.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4090			P	
7440-36-0	Antimony	0.93	B		F	
7440-38-2	Arsenic	5.5			F	
7440-39-3	Barium	34.4	B	E	P	J-I
7440-41-7	Beryllium	0.13	B		P	
7440-43-9	Cadmium	0.09	U		P	
7440-70-2	Calcium	126000			P	
7440-47-3	Chromium	7.3		E	P	J-I
7440-48-4	Cobalt	6.8	B		P	
7440-50-8	Copper	15.0		E	P	J-I
7439-89-6	Iron	13400		E	P	J-I
7439-92-1	Lead	9.4		N*	F	J-D, J-S
7439-95-4	Magnesium	49400		*	P	J-D
7439-96-5	Manganese	340		E*	P	J-D, J-I
7439-97-6	Mercury	0.06	U		AV	
7440-02-0	Nickel	17.1			P	
7440-09-7	Potassium	829	B		F	
7782-49-2	Selenium	0.27	U	WN	F	UJ
7440-22-4	Silver	0.18	U		P	
7440-23-5	Sodium	171	B	E	P	J-I
7440-28-0	Thallium	0.20	U	WN	F	UJ
7440-62-2	Vanadium	10.8		E	P	J-I
7440-66-6	Zinc	43.6		E*	P	J-D, J-I
7439-98-7	Molybdenu	2.1	B		P	
7440-31-5	Tin	3.7	B		P	
7440-69-9	Bismuth	1.1	U		P	
7439-93-2	Lithium	13.6	B		F	
5955-70-0	Cyanide	0.57	U		C	

3/29 16:46

cjf 4-10-96

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN ILM03.0

033

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

000137

Lab Name: ROY F. WESTON INC. Contract: 10572-04-1

Lab Code: WESTON Case No.: SAS No.: SDG No.: 000022

Matrix (soil/water): SOIL Lab Sample ID: 9602L070-001

Level (low/med): LOW Date Received: 02/14/96

% Solids: 82.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

	CAS No.	Analyte	Concentration	C	Q	M	
*	7429-90-5	Aluminum	5130			P	
*	7440-36-0	Antimony	0.29	B		F	
	7440-38-2	Arsenic	6.5			F	
*	7440-39-3	Barium	35.1	B	E	P	J-I
*	7440-41-7	Beryllium	0.22	B		P	
	7440-43-9	Cadmium	0.10	U		P	
*	7440-70-2	Calcium	117000			P	
*	7440-47-3	Chromium	8.7		E	P	J-I
*	7440-48-4	Cobalt	6.3	B		P	
*	7440-50-8	Copper	14.3		E	P	J-I
*	7439-89-6	Iron	14400		E	P	J-I
	7439-92-1	Lead	9.5		N*	F	J-D, J-S
*	7439-95-4	Magnesium	44400		*	P	J-D
	7439-96-5	Manganese	452		E*	P	J-D, J-I
	7439-97-6	Mercury	0.06	U		AV	
*	7440-02-0	Nickel	14.5			P	
	7440-09-7	Potassium	575	B		F	
	7782-49-2	Selenium	0.29	U	WN	F	UJ
	7440-22-4	Silver	0.19	U		P	
*	7440-23-5	Sodium	192	B	E	P	J-I
	7440-28-0	Thallium	0.22	U	WN	F	UJ
*	7440-62-2	Vanadium	12.7		E	P	J-I
*	7440-66-6	Zinc	41.3		E*	P	J-D, J-I
*	7439-98-7	Molybdenu	1.9	B		P	
	7440-31-5	Tin	0.90	U		P	
	7440-69-9	Bismuth	1.1	U		P	
	7439-93-2	Lithium	12.7	B		F	
	5955-70-0	Cyanide	0.61	U		C	

JMR 4-10-96

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

3
BLANKS

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	13.5	U	13.5	U	13.5	U	13.5	U	12.240		P
Antimony	0.9	U	0.9	U	0.9	U	0.9	U	-0.180	B	F
Arsenic	2.0	U	2.0	U	2.7	B	2.0	U	0.400	U	F
Barium	0.5	B	0.2	U	0.2	U	0.2	B	0.349	B	P
Beryllium	0.2	U	-0.3	B	0.2	U	0.2	U	-0.083	B	P
Cadmium	0.4	U	0.4	U	0.4	U	0.4	U	0.113	B	P
Calcium	85.6	B	17.3	U	17.3	U	20.4	B	24.136	B	P
Chromium	0.6	U	0.6	U	0.6	U	0.8	B	0.120	U	P
Cobalt	0.7	U	0.7	U	0.7	U	0.7	U	0.140	U	P
Copper	0.7	B	0.5	B	0.5	U	0.5	U	0.374	B	P
Iron	20.9	B	3.8	U	3.8	U	3.8	U	1.740	B	P
Lead	-1.0	B	-0.9	B	0.9	U	-1.4	B	0.180	U	F
Magnesium	14.2	B	0.7	U	3.0	B	4.2	B	18.206	B	P
Manganese	0.5	B	0.4	B	0.3	B	0.7	B	0.124	B	P
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.050	U	AV
Nickel	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Potassium	100.0	U	100.0	U	100.0	U	100.0	U	20.000	U	F
Selenium	1.2	U	2.0	B	1.2	U	-2.6	B	-0.320	B	F
Silver	0.8	U	0.8	U	0.9	B	0.8	U	0.160	U	P
Sodium	27.4	B	3.8	U	3.8	U	6.1	B	21.733	B	P
Thallium	-1.8	B	-1.9	B	-1.6	B	-2.5	B	-0.440	B	F
Vanadium	0.6	U	1.4	B	0.7	B	1.4	B	0.274	B	P
Zinc	5.9	B	0.5	U	0.5	B	0.5	B	0.927	B	P
Molybdenu	1.7	U	1.7	U	1.7	U	1.7	U	0.340	U	P
Tin	3.7	U	3.7	U	3.9	B	4.9	B	0.740	U	P
Bismuth	4.7	U	4.7	U	4.7	U	4.7	U	0.940	U	P
Lithium	10.8	U	10.8	U	13.0	B	20.8	B	2.160	U	F
Cyanide	10.0	U	10.0	U	10.0	U	10.0	U	0.005	U	C

FORM III - IN ILM03.0

CJR 4-9-96

U.S. EPA - CLP

3
BLANKS

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			13.5	U	13.5	U					P
Antimony			0.9	U	0.9	U	0.9	U			F
Arsenic			2.0	U							F
Barium			0.2	U	0.2	B					P
Beryllium			0.2	U	0.4	B					P
Cadmium			0.4	U	0.4	U					P
Calcium			17.3	U	17.3	U					P
Chromium			-0.6	B	0.6	U					P
Cobalt			-1.1	B	0.7	U					P
Copper			0.5	U	-0.8	B					P
Iron			3.8	U	3.8	U					P
Lead			-1.2	B	-1.4	B					F
Magnesium			1.2	B	2.5	B					P
Manganese			0.2	U	0.2	U					P
Mercury			0.1	U	0.1	U			0.050	U	AV
Nickel			-1.2	B	-1.0	B					P
Potassium			100.0	U							F
Selenium			-3.1	B							F
Silver			0.8	U	0.8	U					P
Sodium			4.8	B	5.8	B					P
Thallium			-1.9	B	-2.3	B					F
Vanadium			0.6	U	1.2	B					P
Zinc			-0.8	B	0.8	B					P
Molybdenu			1.7	U	1.7	U					P
Tin			3.7	U	3.7	U					P
Bismuth			4.7	U	4.7	U					P
Lithium			20.8	B							F
Cyanide			10.0	U					0.500	U	C

FORM III - IN ILM03.0

CJK 4-9-96

U.S. EPA - CLP

3
BLANKS

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony			-1.4	B	0.9	U	-1.1	B			F
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U			F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium	17.3	U	17.3	U	17.3	U	17.3	U			P
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	-1.1	B	-1.1	B	0.9	U	0.9	U			F
Magnesium											NR
Manganese											NR
Mercury	0.1	U	0.1	U	0.1	U	0.1	U			AV
Nickel											NR
Potassium											NR
Selenium	4.0	B	1.7	B	1.2	U	1.2	U			F
Silver											NR
Sodium											NR
Thallium	-2.7	B	-2.5	B	-2.5	B					F
Vanadium											NR
Zinc											NR
Molybdenu											NR
Tin											NR
Bismuth											NR
Lithium											NR
Cyanide	10.0	U	10.0	U	10.0	U	10.0	U			C

FORM III - IN ILM03.0

cjr 4-9-98

U.S. EPA - CLP

3
BLANKS

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony			0.9	U							F
Arsenic			2.0	U							F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	0.9	U	0.9	U	-1.0	B	-1.0	B			F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium			1.2	U	1.2	U					F
Silver											NR
Sodium											NR
Thallium	-1.6	B	-2.1	B	-1.7	B					F
Vanadium											NR
Zinc											NR
Molybdenu											NR
Tin											NR
Bismuth											NR
Lithium											NR
Cyanide			10.0	U	10.0	U	10.0	U			C

FORM III - IN ILM03.0

✓ CJP 4-96

U.S. EPA - CLP

3
BLANKS

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											N
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	1.2	U	1.2	U	-1.6	B					F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Molybdenu											NR
Tin											NR
Bismuth											NR
Lithium											NR
Cyanide			10.0	U	10.0	U	10.0	U			C

FORM III - IN ILM03.0

CJK 4-9-96

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

000053S

Lab Name: ROY_F._WESTON_INC._____ Contract:10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022
Matrix: SOIL
Level (low/med): LOW
% Solids for Sample: 85.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	113.9508		0.2345	B	117.23	97.0		F
Arsenic	75-125	12.6846		3.3294		9.38	99.7		F
Barium	75-125	479.1515		30.1597	B	468.93	95.7		P
Beryllium	75-125	11.0943		0.0469	U	11.72	94.7		P
Cadmium	75-125	11.1304		0.0938	U	11.72	95.0		P
Calcium									NR
Chromium	75-125	50.2399		7.7526		46.89	90.6		P
Cobalt	75-125	110.1097		4.2556	B	117.23	90.3		P
Copper	75-125	69.6220		13.9156		58.62	95.0		P
Iron									NR
Lead	75-125	29.5428		11.2075		4.69	390.9	N	F
Magnesium									NR
Manganese		373.1301		471.3998		117.23	-83.8		P
Mercury	75-125	0.6038		0.0645	B	0.59	91.4		AV
Nickel	75-125	117.6012		10.4675		117.23	91.4		P
Potassium									NR
Selenium	75-125	1.1489	B	0.2814	U	2.34	49.1	N	F
Silver	75-125	11.9125		0.1883	B	11.72	100.0		P
Sodium									NR
Thallium	75-125	7.3388		0.2110	U	11.72	62.6	N	F
Vanadium	75-125	116.8628		8.6307		117.23	92.3		P
Zinc	75-125	161.7067		73.0490		117.23	75.6		P
Molybdenu	75-125	216.0211		0.9618	B	234.47	91.7		P
Tin	75-125	219.1667		0.9034	B	234.47	93.1		P
Bismuth	75-125	1137.0220		1.1020	U	1172.33	97.0		P
Lithium	75-125	248.5346		14.0445	B	234.47	100.0		F
Cyanide	75-125	5.9666		0.5862	U	5.86	101.8		C

Comments:

FORM V (Part 1) - IN ILM03.0

Ba

$$\%R = \frac{(479.1515 - 30.1597)}{468.93} \times 100$$

$$= 95.7$$

CM 4-10-96

053

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

000053T

Lab Name: ROY_F._WESTON_INC._____ Contract:10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022
Matrix: __SOIL_____ Level (low/med): _LOW_____
% Solids for Sample: _85.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M	
Aluminum									NR	
Antimony	75-125	118.6401		0.2345	B	117.23	101.0		F	
Arsenic	75-125	13.2708		3.3294		9.38	106.0		F	
Barium	75-125	491.0987		30.1597	B	468.93	98.3		P	
Beryllium	75-125	11.2286		0.0469	U	11.72	95.8		P	
Cadmium	75-125	11.1287		0.0938	U	11.72	95.0		P	
Calcium									NR	
Chromium	75-125	53.3226		7.7526		46.89	97.2		P	
Cobalt	75-125	111.3419		4.2556	B	117.23	91.3		P	
Copper	75-125	70.7533		13.9156		58.62	97.0		P	
Iron									NR	
Lead	75-125	47.4795		11.2075		4.69	773.4	N	F	J-S
Magnesium									NR	
Manganese		393.6413		471.3998		117.23	-66.3		P	
Mercury	75-125	0.5979		0.0645	B	0.59	90.4		A	
Nickel	75-125	117.9186		10.4675		117.23	91.7		P	
Potassium									NR	
Selenium	75-125	1.6647		0.2814	U	2.34	71.1	N	F	UJ
Silver	75-125	13.9826		0.1883	B	11.72	117.7		P	
Sodium									NR	
Thallium	75-125	7.6202		0.2110	U	11.72	65.0	N	F	UJ
Vanadium	75-125	119.1676		8.6307		117.23	94.3		P	
Zinc	75-125	162.7536		73.0490		117.23	76.5		P	
Molybdenu	75-125	219.0657		0.9618	B	234.47	93.0		P	
Tin	75-125	221.8145		0.9034	B	234.47	94.2		P	
Bismuth	75-125	1154.4387		1.1020	U	1172.33	98.5		P	
Lithium	75-125	253.2239		14.0445	B	234.47	102.0		F	
Cyanide	75-125	5.6504		0.5862	U	5.86	96.4		C	
		(5.648)								

Comments:

FORM V (Part 1) - IN ILM03.0

Ba

%R = (491.0987 − 30.1597) / 468.93 = 98.3

CJK 4-10-96

C54

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

000053D

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _85.3 % Solids for Duplicate: __85.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M	
Aluminum		*3889.9390		3793.8429		2.5		P	
Antimony		0.2345	B	0.2110	U	200.0		F	
Arsenic	2.3	3.3294		2.9074		13.5		F	
Barium		*30.1597	B	25.6858	B	16.0		P	
Beryllium		0.0469	U	0.0469	U			P	
Cadmium		0.0938	U	0.0938	U			P	
Calcium		*181055.8030		161814.5369		11.2		P	
Chromium	2.3	7.7526		7.5857		2.2		P	
Cobalt		4.2556	B	3.7885	B	11.6		P	
Copper	5.9	13.9156		10.0436		32.3		P	
Iron		* 11415.4326		9582.9097		17.5		P	
Lead		* 11.2075		21.1020		61.2	*	F	J-D
Magnesium		* 47886.8581		62094.2907		25.8	*	P	J-D
Manganese		* 471.3998		325.3998		36.6	*	P	J-D
Mercury		(0.00615) 0.0645	B	0.0586	U	200.0		AV	
Nickel	9.4	10.4675		8.6896	B	18.6		P	
Potassium		565.0645	B	576.7878	B	2.1		F	
Selenium		0.2814	U	0.2814	U			F	
Silver		0.1883	B	0.2204	B	15.7		P	
Sodium		911.4063	B	962.6931	B	5.5		P	
Thallium		0.2110	U	0.2110	U			F	
Vanadium	2.3	8.6307		7.3083		16.6		P	
Zinc		* 73.0490		34.5158		71.6	*	P	J-D
Molybdenu		0.9618	B	0.7435	B	25.6		P	
Tin		0.9034	B	0.8675	U	200.0		P	
Bismuth		1.1020	U	1.1020	U			P	
Lithium		14.0445	B	14.0445	B	0.0		F	
Cyanide		0.5862	U	0.5862	U			C	

FORM VI - IN ILM03.0

Ba.

$$\%RPD = \frac{|30.1597 - 25.6858|}{0.5(30.1597 + 25.6858)} \times 100 = 16.0$$

CJK 4-10-96

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Solid LCS Source: IV_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				1000.0	1023.2		800.0	1200.0	102.3
Antimony				600.0	658.0		480.0	720.0	109.7
Arsenic									
Barium				1000.0	1020.5		800.0	1200.0	102.0
Beryllium				50.0	52.1		40.0	60.0	104.2
Cadmium				50.0	52.3		40.0	60.0	104.6
Calcium				5000.0	5207.2		4000.0	6000.0	104.1
Chromium				100.0	105.3		80.0	120.0	105.3
Cobalt				500.0	522.7		400.0	600.0	104.5
Copper				250.0	257.1		200.0	300.0	102.8
Iron				1000.0	1039.5		800.0	1200.0	104.0
Lead									
Magnesium				5000.0	5167.8		4000.0	6000.0	103.4
Manganese				150.0	159.6		120.0	180.0	106.4
Mercury									
Nickel				400.0	416.5		320.0	480.0	104
Potassium				5000.0	5224.0		4000.0	6000.0	104.5
Selenium									
Silver				100.0	103.7		80.0	120.0	103.7
Sodium				5000.0	4759.2		4000.0	6000.0	95.2
Thallium									
Vanadium				500.0	514.8		400.0	600.0	103.0
Zinc				200.0	208.6		160.0	240.0	104.3
Molybdenu				1000.0	1016.0		800.0	1200.0	101.6
Tin				1000.0	1026.6		800.0	1200.0	102.7
Bismuth				1000.0	1018.4		800.0	1200.0	101.8
Lithium				1000.0	1064.0		800.0	1200.0	106.4
Cyanide									

CJR 4-10-96

FORM VII - IN

CJR 4-10-96 ILM03.0

050

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Solid LCS Source: IV_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic				6.0	6.7		4.8	7.2	111.7
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead				6.0	6.4		4.8	7.2	106.7
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium				6.0	6.3		4.8	7.2	105.0
Silver									
Sodium									
Thallium				6.0	5.6		4.8	7.2	93.3
Vanadium									
Zinc									
Molybdenu									
Tin									
Bismuth									
Lithium									
Cyanide									

cgk 4-10-96

FORM VII - IN

ILM03.0

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Solid LCS Source: IV_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury				1.5	1.6		1.2	1.8	106.7
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Molybdenu									
Tin									
Bismuth									
Lithium									
Cyanide									

cyf 4-10-95

FORM VII - IN

ILM03.0

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Solid LCS Source: IV_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury				1.5	1.5		1.2	1.8	100.0
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Molybdenu									
Tin									
Bismuth									
Lithium									
Cyanide									

FORM VII - IN

CJP 4-10-96

ILM03.0

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Solid LCS Source: IV_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury				1.5	1.5		1.2	1.8	100.0
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Molybdenu									
Tin									
Bismuth									
Lithium									
Cyanide									

CJK 4-10-96

FORM VII - IN

ILM03.0

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Solid LCS Source: IV_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury				1.5	1.4		1.2	1.8	93.3
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Molybdenu									
Tin									
Bismuth									
Lithium									
Cyanide									

cjm 4-10-96

FORM VII - IN

ILM03.0

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Solid LCS Source: IV_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Molybdenu									
Tin									
Bismuth									
Lithium									
Cyanide				2.0	1.9		1.6	2.4	95.0

apk 4-10-96

FORM VII - IN

ILM03.0

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Solid LCS Source: IV_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Molybdenu									
Tin									
Bismuth									
Lithium									
Cyanide				10.0	8.8		8.0	12.0	88.0

FORM VII - IN

4-10-96

ILM03.0

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Solid LCS Source: IV_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Molybdenu									
Tin									
Bismuth									
Lithium									
Cyanide				2.0	1.8		1.6	2.4	90.0

C 4-10-96

FORM VII - IN

ILM03.0

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ROY_F._WESTON_INC._____ Contract: 10572-04-1

Lab Code: WESTON Case No.: _____ SAS No.: _____ SDG No.: 000022

Solid LCS Source: IV_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Molybdenu									
Tin									
Bismuth									
Lithium									
Cyanide				10.0	9.3		8.0	12.0	93.0

FORM VII - IN

CM 4-10-96

ILM03.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/26/96

CLIENT: EG&G MOUND

WESTON BATCH #: 9602L070

WORK ORDER: 10572-004-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	SGC-AO3-000137	% Solids	82.1	%	0.10	1.0
		Nitrate Nitrite	7.7 J-D	MG-N/KG	0.24	1.0
-002	SGC-A61-000042	% Solids	83.6	%	0.10	1.0
		Nitrate Nitrite	1.4	MG-N/KG	0.24	1.0
-003	SGC-A61-000043	% Solids	94.8	%	0.10	1.0
		Nitrate Nitrite	0.84	MG-N/KG	0.21	1.0
-005	SGC-A61-000053	% Solids	85.3	%	0.10	1.0
		Nitrate Nitrite	2.3	MG-N/KG	0.23	1.0
-006	SGC-AO3-000079	% Solids	88.1	%	0.10	1.0
		Nitrate Nitrite	2.2	MG-N/KG	0.23	1.0
-008	SGC-NAC-000022	% Solids	78.3	%	0.10	1.0
		Nitrate Nitrite	2.2	MG-N/KG	0.26	1.0

CPL 4-9-96

SGC-AO3-000084 (Batch #9602L000)

$$\%RPD = \frac{|13.1 - 7.7|}{0.5(13.1 + 7.7)} \times 100$$

$$= 51.9\%$$

ROY F. WESTON INC.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/26/96

CLIENT: EG&G MOUND

WESTON BATCH #: 9602L070

WORK ORDER: 10572-004-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	96LN3025-MB1	Nitrate Nitrite	0.20 u	MG-N/KG	0.20	1.0

CP 4-9-96

ROY F. WESTON INC.

INORGANICS ACCURACY REPORT 02/26/96

CLIENT: EG&G MOUND

WESTON BATCH #: 9602L070

WORK ORDER: 10572-004-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-005	SGC-A61-000053	Nitrate Nitrite	8.2	2.3	5.9	101.0	1.0
		Nitrate Nitrite MSD	8.2	2.3	5.9	101.6	1.0
BLANK10	96LN3025-MB1	Nitrate Nitrite	5.0	0.20u	5.0	99.8	1.0
		Nitrate Nitrite MSD	5.0	0.20u	5.0	99.0	1.0

cyl 4-9-96

ROY F. WESTON INC.

INORGANICS DUPLICATE SPIKE REPORT 02/26/96

CLIENT: EG&G MOUND

WESTON BATCH #: 9602L070

WORK ORDER: 10572-004-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-005	SGC-A61-000053	Nitrate Nitrite	101.0	101.6	0.59
BLANK10	96LN3025-MB1	Nitrate Nitrite	99.8	99.0	0.80

CJK 2-9-96

ROY F. WESTON INC.

INORGANICS PRECISION REPORT 02/26/96

CLIENT: EG&G MOUND

WESTON BATCH #: 9602L070

WORK ORDER: 10572-004-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-005REP	SGC-A61-000053	% Solids	85.3	86.7	1.6	1.0
		Nitrate Nitrite	2.3	1.9	17.8	1.0

cpk 4-9-96

ATTACHMENT III

DATA COMPLETENESS CHECKLIST

GC/MS VOLATILES: COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME:	Roy F. Weston, Inc., Analytics Division
CITY/STATE:	Lionville, PA
CASE/SDG NO.:	
CLIENT NAME:	EG+G Mound
WORK ORDER NO.:	10572-004-001-9999-00
METHOD BASED ON:	OLM01.8 / SW8240 / SW8260 / 624 / NYSDEC ASP (circle)

All documents in the Client's copy of the complete SDG file must be legible, clearly labeled, paginated, single-sided original documents; or of sufficient copy quality to be reproducible to fourth generation copies. (Purge file documents, e.g., original-copy chain-of-custody, etc. assembled per specific contract request only.)

CLIENT: EG+G Mound SDG No.: 9602L070		Page Nos		Check (Initials/date)	
		From	To	Lab	Client
1	Cover Page (Lab Chron)	001	002	MT 3/13/96	JH 3-19-96
2	Table of Contents	003	003		JH 3-19-96
3	Case Narrative	004	009		JH 3-19-96
4	*Shipping, Receiving, and Custody Records* • Lab Chain of Custody/Work Request • Client Custody Reports/Packing Lists • Airbills	010	013	MT 3/13/96 MT MT 3/13/96	JH 3-19-96
5	Volatiles Sample QC/Data Summary • Data Summary (LIMS Summary Report) • System Monitoring Compound Summary (Form II VOA) • MS/MSD Duplicate Summary (Form III VOA) • Method Blank Summary (Form IV VOA) • GC/MS Instrument Performance Check (BFB) (Form V VOA) • Internal Standard Area and RT Summary (Form VIII VOA)	014	041	3/13/96	JH 3-19-96
6	Sample Data, for each Sample: • Target Compound Results - Organic Analysis Data Sheet (Form I VOA) • Tentatively Identified Compounds (TIC) (Form I VOA-TIC) • Reconstructed total ion chromatograms (RIC)/ Quantitation Reports • Raw spectra and background-subtracted mass spectra of target compounds identified • Mass spectra of all reported TICs with three best library matches	042	103		JH 3-19-96
7	Calibration Standard Data	104	158		
	Initial Calibration Data (Form VI VOA) • RICs and Quan Reports for all Standards				JH 3-19-96

CLIENT: EG&G Mound SDG No.: 96021070		Page Nos From	Page Nos To	Check (Initials/date) Lab	Check (Initials/date) Client
	Continuing Calibration Data (Form VII VOA) • Internal Standard Area and RT Summary (Form VIII VOA) • RICs and Quan Reports for all Standards			JBF 3/4	JLH 3-19-96
8	Raw QC Data: Tune, Blank and Matrix Spike Data	159	231		
	GC/MS Instrument Performance Check (BFB) • Bar Graph • Mass Listing • Reconstructed total ion chromatograms (RIC)	160	177		JLH 3-19-96
	Method Blank Data • Target Compound Results (Form I VOA) • Tentatively Identified Compounds (TIC) (Form I VOA-TIC) • Reconstructed total ion chromatograms (RIC)/ Quantitation Reports • Raw spectra and background-subtracted mass spectra of target compounds identified • Mass spectra of all reported TICs with three best library matches	178	223		JLH 3-19-96
	Blank Spike/Blank Spike Duplicate • TCL Results (Form I VOA) • RIC/Quant Report				
	Matrix Spike/Matrix Spike Duplicate • TCL Results (Form I VOA) • RIC/Quant Report	224	231		JLH 3-19-96
9	Analysis Run Logs	232	241		JLH 3-19-96
10	Standards Preparation Records • Surrogate and Target Analyte Spike Solutions • Analysis Standards	242	252		JLH 3-19-96
11	Preparation Logs • Screening Records (Logs, Chromatograms) • % Moisture and/or % Solids Records	253	259	N/A JMF 3/13/96	NA JLH 3-19-96
12	Other/Miscellaneous • MDL / IDL Table (circle one)	260	261	N/A	NA JLH 3-19-96
	end of package		261		JLH 3-19-96

COMMENTS: _____

Checked by: (Laboratory) — Signature: Mary K. Ziegler — Printed Name/Title: Mary K. Ziegler / Data Report Coord IC — Date: 3-13-96

Checked by: (Client) — Signature: Joey L. Hora — Printed Name/Title: Joey L. Hora / Technician — Date: 3-19-96

DATA PACKAGE COMPLETENESS CHECKLIST (CONT.)
EG&G MOUND PROJECT

DATE: 3-13-96 W.O.#: 10572-004-001-9669-02

LABORATORY BATCH #: 96020070 OPERABLE UNIT NO.:

LABORATORY NAME/LOCATION: WESTON/Cincinnati COLLECTION DATE(S): 2-13-96

VOLATILES ORGANIC COMPOUNDS (VOCs)

- [x] IIID. RAW QC DATA
  - [x] BFB / BAR GRAPH SPECTRUM / MASS LISTING
  - [x] BLANK DATA
    - [x] RECONSTRUCTED TOTAL ION CHROMATOGRAM AND QUANTITATION REPORTS
    - [x] TARGET COMPOUND SPECTRA
    - [x] GC/MS LIBRARY SEARCH SPECTRA FOR TIC
    - N/A [ ] QUANTITATION / CALCULATION OF TIC CONCENTRATIONS
  - [x] MATRIX SPIKE DATA
    - [x] TABULATED RESULTS (FORM I VOA)
    - [x] RECONSTRUCTED ION CHROMATOGRAM(S)
  - [x] MATRIX SPIKE DUPLICATE DATA
    - [x] TABULATED RESULTS (FORM I VOA)
    - [x] RECONSTRUCTED ION CHROMATOGRAM(S)
  - [x] INSTRUMENT SETTINGS
  - [x] INSTRUMENT RUN LOGS
  - [x] PERCENT SOLIDS DETERMINATION LOGS

- [x] IIIE. SAMPLE RECEIPT
  - N/A [ ] TRAFFIC REPORTS
  - [x] SAMPLE LOG IN RECORD

- [ ] IIIF. NONCONFORMANCE RECORDS / CORRESPONDENCE / TELEPHONE COMMUNICATIONS RECORDS / ETC.[1]

Laboratory Reviewer: Mary M Zogler Date: 3-13-96

WESTON Verified By: _____ Date: _____

Comments: _____

[1] Any records not specified, but pertaining to the sample analysis

DATA PACKAGE COMPLETENESS CHECKLIST
EG&G MOUND PROJECT

DATE: 3-13-96 W.O.#: 10572-004-001-9999-00

LABORATORY BATCH #: 9602C070 OPERABLE UNIT NO.:

LABORATORY NAME/LOCATION: WESTON/Gunville COLLECTION DATE(S): 2-13-96

VOLATILES ORGANIC COMPOUNDS (VOCs)

- [x] TABLE OF CONTENTS (CHECK LIST)

- [x] IIIA. CASE NARRATIVE
  - [x] COVER PAGE
  - [x] CASE NARRATIVE
  - [x] CROSS REFERENCE OF SAMPLE ID TO LABORATORY ID
  - [x] DESCRIPTION OF ALL QUALIFIERS USED BY THE LABORATORY APPLICABLE LABORATORY SOP AND REVISION DATE

- [x] QC SUMMARY
  - [x] SYSTEM MONITORING COMPOUND SUMMARY (FORM II VOA)
  - [x] MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY (FORM III VOA)
  - [x] METHOD BLANK SUMMARY (FORM IV VOA)
  - [x] GC/MS INSTRUMENT PERFORMANCE CHECK (FORM V VOA)
  - [x] INTERNAL STANDARD AREA AND RT SUMMARY (FORM VIII VOA)
  - [x] LABORATORY CONTROL SAMPLE

- [x] IIIB. SAMPLE DATA
  - [x] EXAMPLE CALCULATION
  - [x] TARGET COMPOUND RESULTS - ORGANIC ANALYSIS DATA SHEET (FORM I VOA)
  - [x] TENTATIVELY IDENTIFIED COMPOUNDS (FORM I VOA - TIC)
  - [x] RECONSTRUCTED TOTAL ION CHROMATOGRAMS (RIC)
  - [x] QUANTITATION REPORT
  - [x] RAW SPECTRA AND BACKGROUND - SUBTRACTED MASS SPECTRA OF TARGET COMPOUNDS IDENTIFIED
  - [x] GC/MS LIBRARY SEARCH SPECTRA FOR TIC (3 BEST LIBRARY MATCHES)
  - [x] QUANTITATION / CALCULATION OF TIC CONCENTRATIONS

- [x] IIIC. STANDARD(S) DATA
  - [x] INITIAL CALIBRATION DATA (FORM VI VOA)
  - [x] VOA STANDARD(S) RECONSTRUCTED ION CHROMATOGRAMS AND QUANTITATION REPORTS
  - [x] CONTINUING CALIBRATION (FORM VII VOA)
  - [x] VOA STANDARD(S) RECONSTRUCTED ION CHROMATOGRAMS AND QUANTITATION REPORTS

GC/MS SEMIVOLATILES: COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME:	Roy F. Weston, Inc., Analytics Division
CITY/STATE:	Lionville, PA
CASE/SDG NO.:	96022070
CLIENT NAME:	EG&G MOUND
WORK ORDER NO.:	10572-004-007-9999-00
METHOD BASED ON:	EPA SOW OLM01.8 (i.e., SOW 3/90) / SW8270 / NYSDEC ASP (circle one)

All documents in the Client's copy of the complete SDG file must be legible, clearly labeled, paginated, single-sided original documents; or of sufficient copy quality to be reproducible to fourth generation copies. (Purge file documents, e.g., original-copy chain-of-custody, etc. assembled per specific contract request only.)

	CLIENT: SDG No.:	Page Nos From	Page Nos To	Check (initials/date) Lab	Check (initials/date) Client
1	Cover Page (Lab Chron)	001	002	[illegible] 3-13-96	JLH 3-19-96
2	Table of Contents (Document Inventory Sheet)	003			JLH 3-19-96
3	Case Narrative	004	005		JLH 3-19-96
4	Shipping, Receiving, and Custody Records • Lab Chain of Custody/Work Request • Client Custody Reports/Packing Lists • Sample Tags, if applicable • Airbills → not included	006	012		JLH 3-19-96
5	Semivolatiles Sample QC/Data Summary • Data Summary (LIMS Summary Report) • System Monitoring Compound Summary (Form II SV) • MS/MSD Duplicate Summary (Form III SV) • Method Blank Summary (Form IV SV) • GC/MS Instrument Performance Check (DFTPP) (Form V SV) • Internal Standard Area and RT Summary (Form VIII SV)	013	031	TAm 3-6-96	JLH 3-19-96
6	Sample Data, for each Sample: • Target Compound Results - Organic Analysis Data Sheet (Form I SV-1, SV-2) • Tentatively Identified Compounds (TIC) (Form I SV-TIC) • Reconstructed total ion chromatograms (RIC)/ Quantitation Reports • Raw spectra and background-subtracted mass spectra of target compounds identified • Mass spectra of all reported TICs with three best library matches	032	156	TAm 3-6-96	JLH 3-19-96
7	Calibration Standard Data	157	210		
	Initial Calibration Data (Form VI SV-1, SV-2) • RICs and Quan Reports for all Standards			TAm 3-6-96	JLH 3-19-96

CLIENT:		Page Nos		Check (initials/date)	
SDG No.:		From	To	Lab	Client
	Continuing Calibration Data (Form VII SV-1, SV-2) • Internal Standard Area and RT Summary (Form VIII SV) • RICs and Quan Reports for all Standards			TMn 3-6-96	JLH 3-19-96
	• GPC Calibration Data: notebook pages and UV detector traces	211	213	AMO 2/20/96	JLH 3-19-96
8	Raw QC Data: Tune, Blank and Matrix Spike Data	214	222		
	GC/MS Instrument Performance Check (DFTPP) • Bar Graph • Mass Listing • Reconstructed total ion chromatograms (RIC)	215	230	MJ 2/26/96	JLH 3-19-96
	Method Blank Data • Target Compound Results (Form I SV-1, SV-2) • Tentatively Identified Compounds (TIC) (Form I SV-TIC) • Reconstructed total ion chromatograms (RIC)/ Quantitation Reports • Raw spectra and background-subtracted mass spectra of target compounds identified • Mass spectra of all reported TICs with three best library matches	231	241	TMn 3-6-96	JLH 3-19-96
	Blank Spike/Blank Spike Duplicate • TCL Results (Form I SV-1, SV-2) • RIC/Quant Report	242	248	TMn 3-6-96	JLH 3-19-96
	Matrix Spike/Matrix Spike Duplicate • TCL Results (Form I SV-1, SV-2) • RIC/Quant Report	249	262	TMn 3-6-96	JLH 3-19-96
9	Analysis Run Logs	263	274	MJ 2/26/96	JLH 3-19-96
10	Standards Preparation Records • Surrogate and Target Analyte Spike Solutions • Analysis Standards	275	282	AMO 2/20/96 MJ 2/26/96	JLH 3-19-96
11	Preparation Logs	282	303		
	• Sample Prep Records (Extraction notebook pages) • Extract Chain of Custody (LIMS record, with COC section signed)			AMO 2/20/96 AMO 2/20/96	JLH 3-19-96
	• Screening Records (Logs, Chromatograms)			TMn 3-6-96	JLH 3-19-96
	• Sample GPC Records and UV traces			AMO 2/20/96	JLH 3-19-96
	• % Moisture and/or % Solids Records				JLH 3-19-96
12	Other	304	305		
	• MDL / IDL Table (circle one)				
	• End of package	305	–		JLH 3-19-96
	•				
	•				

CLIENT:	Page Nos		Check (initials/date)	
SDG No.:	From	To	Lab	Client

COMMENTS: copy of airbill not included

Checked by: (Laboratory)	K. Brittle Signature	K. Spatic Admin Licensee Printed Name/Title	3-13-96 Date
Checked by: (Client)	Joey L. Hora Signature	Joey L. Hora/Technician Printed Name/Title	3-19-96 Date

DATA PACKAGE COMPLETENESS CHECKLIST
EG&G MOUND PROJECT

DATE: 03-13-96 W.O.#: 10572-004-001

LABORATORY BATCH #: 96021070 OPERABLE UNIT NO.: N/A

LABORATORY NAME/LOCATION: EMD Fairville COLLECTION DATE(S): 02-23-96

SEMIVOLATILES ORGANIC COMPOUNDS

- [x] TABLE OF CONTENTS (CHECK LIST)
- [x] IVA. CASE NARRATIVE
  - [x] COVER PAGE
  - [x] CASE NARRATIVE
  - [x] CROSS REFERENCE OF SAMPLE ID TO LABORATORY ID
  - [x] DESCRIPTION OF ALL QUALIFIERS USED BY THE LABORATORY
  - [x] APPLICABLE LABORATORY SOP AND REVISION DATE
- [x] QC SUMMARY
  - [x] SURROGATE PERCENT RECOVERY SUMMARY (FORM II SV)
  - [x] MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY (FORM III SV)
  - [x] METHOD BLANK SUMMARY (FORM IV SV)
  - [x] GC/MS INSTRUMENT PERFORMANCE CHECK (FORM V SV)
  - [x] INTERNAL STANDARD AREA AND RT SUMMARY (FORM VIII SV)
  - [x] LABORATORY CONTROL SAMPLE
- [x] IVB. SAMPLE DATA
  - [x] EXAMPLE CALCULATION
  - [x] TARGET COMPOUND RESULTS - ORGANIC ANALYSIS DATA SHEET (FORM I SV)
  - [x] TENTATIVELY IDENTIFIED COMPOUNDS (FORM I SV - TIC)
  - [x] RECONSTRUCTED TOTAL ION CHROMATOGRAMS (RIC)
  - [x] QUANTITATION REPORT
  - [x] RAW SPECTRA AND BACKGROUND - SUBTRACTED MASS SPECTRA OF TARGET COMPOUNDS IDENTIFIED
  - [x] GC/MS LIBRARY SEARCH SPECTRA FOR TIC (3 BEST LIBRARY MATCHES)
  - [x] QUANTITATION / CALCULATION OF TIC CONCENTRATIONS
- [x] IVC. STANDARD(S) DATA
  - [x] INITIAL CALIBRATION DATA (FORM VI SV-1, SV-2)
  - [x] SV STANDARD(S) RECONSTRUCTED ION CHROMATOGRAMS AND QUANTITATION REPORTS
  - [x] CONTINUING CALIBRATION (FORM VII SV-1, SV-2)
  - [x] SV STANDARD(S) RECONSTRUCTED ION CHROMATOGRAMS AND QUANTITATION REPORTS
  - [x] SEMIVOLATILE GPC CALIBRATION DATA
- [x] IVD. RAW QC DATA
  - [x] DFTPP
    - [x] RECONSTRUCTED TOTAL ION CHROMATOGRAM (RIC)
    - [x] BAR GRAPH SPECTRUM
    - [x] MASS LISTING

DATA PACKAGE COMPLETENESS CHECKLIST (CONT.)
EG&G MOUND PROJECT

DATE: 03-13-96 W.O.#: 10572-004-001

LABORATORY BATCH #: 96020070 OPERABLE UNIT NO.: NA

LABORATORY NAME/LOCATION: EMD - Lawrence COLLECTION DATE(S): 02-23-96

SEMIVOLATILES ORGANIC COMPOUNDS

- [x] BLANK DATA
  - [x] TABULATED RESULTS (FORM I SV-1, SV-2)
  - [x] TIC'S (FORM I SV-TIC)
  - [x] RECONSTRUCTED ION CHROMATOGRAM
  - [x] TARGET COMPOUND SPECTRA
  - [x] GC / MS LIBRARY SEARCH SPECTRA FOR TIC
  - [x] QUANTITATION / CALCULATION OF TIC CONCENTRATIONS
- [x] MATRIX SPIKE DATA
  - [x] TABULATED RESULTS (FORM I)
  - [x] RECONSTRUCTED ION CHROMATOGRAM(S)
- [x] MATRIX SPIKE DUPLICATE DATA
  - [x] TABULATED RESULTS (FORM I SV-1, SC-2)
  - [x] RECONSTRUCTED ION CHROMATOGRAM(S)
- [x] INSTRUMENT SETTINGS
- [x] INSTRUMENT RUN LOGS
- [x] SAMPLE EXTRACTION/PREPARATION LOGS
- [x] PERCENT SOLIDS DETERMINATION LOGS

[x] IVE. SAMPLE RECEIPT

- [x] TRAFFIC REPORTS
- [x] SAMPLE LOG IN RECORD

[ ] IVF. NONCONFORMANCE RECORDS / CORRESPONDENCE / TELEPHONE COMMUNICATIONS RECORDS / ETC.[1]

Laboratory Reviewer: K Spittler Date: 03-13-96

WESTON Verified By: _____ Date: _____

Comments: _____

[1] Any records not specified, but pertaining to the sample analysis

PESTICIDES/PCBs: COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME:	Roy F. Weston, Inc., Analytics Division
CITY/STATE:	Lionville, PA
CASE/SDG NO.:	9602L070
CLIENT NAME:	EG+G Mound
WORK ORDER NO.:	
METHOD BASED ON:	EPA CLP SOW OLM01.8 (i.e., SOW 3/90)

All documents in the Client's copy of the complete SDG file must be legible, clearly labeled, paginated, single-sided original documents; or of sufficient copy quality to be reproducible to fourth generation copies. (Purge file documents, e.g., original-copy chain-of-custody, etc. assembled per specific contract request only.)

CLIENT: EG+G Mound SDG No.: 9602L070		Page Nos		Check (initials/date)	
		From	To	Lab	Client
1	Cover Page (Lab Chron)	i	2	JD 3-12-96	JLH 3-19-96
2	Table of Contents (Document Inventory Sheet)	3	3	JD 3-12-96	JLH 3-19-96
3	Case Narrative	4	11	JD 3-12-96	JLH 3-19-96
4	Shipping, Receiving, and Custody Records	12	15		
	• Lab Chain of Custody/Work Request			JD 3-12-96	JLH 3-19-96
	• Client Custody Reports/Packing Lists			JD 3-12-96	
	• Sample Tags, if applicable			JD 3-12-96	
	• Airbills			JD 3-12-96	
5	Pesticide Sample QC/Data Summary	16	22		
	• Data Summary (LIMS Summary Report)			[illegible]	JLH 3-19-96
	• Surrogate %Recovery Summary (Form II PEST)			[illegible]	
	• MS/MSD Summary (Form III PEST)			[illegible]	
	• Method Blank Summary (Form IV PEST)			[illegible]	
6	Sample Data, for each Sample:	23	74		
	• TCL Results - Organic Analysis Data Sheet (Form I PEST)			[illegible]	JLH 3-19-96
	• Chromatogram/Quant Report, 1° column			[illegible]	
	• Chromatogram/Quant Report, 2° column confirmation			[illegible]	
	• For pesticides/Aroclors confirmed by GC/MS, copies of raw spectra and copies of background-subtracted mass spectra of target compounds (samples & standards)			NA [illegible]	
7	Calibration Standard Data	75	250		
	1° Column Standards Data	76			
	Forms:				
	• Initial Calibration of Single Component Analytes (Form VI PEST-1 and PEST-2)			[illegible]	JLH 3-19-96
	• Initial Calibration of Multicomponent Analytes (Form VI PEST-3)			[illegible]	
	• Analyte Resolution Summary (Form VI PEST-4)			[illegible]	

CLIENT: EG+G Mound	Page Nos		Check (initials/date)	
SDG No.: 9602LC70	From	To	Lab	Client
• Calibration Verification Summary (Form VII PEST-1)			[illegible] 2/26/96	JLH 3-19-96
• Calibration Verification Summary (Form VII PEST-2)			[illegible] 2/26/96	
• Analytical Sequence (Form VIII PEST)			[illegible] 2/26/96	
• Florisil Cartridge Check (Form IX PEST-1)			[illegible] 2/26/96	
• Pesticide GPC Calibration (Form IX PEST-2)			[illegible] 2/26/96	
• Pesticide Identification Summary for Single Component Analytes (Form X PEST-1)			[illegible] 2/26/96	
• Pesticide Identification Summary for Multicomponent Analytes (Form X PEST-2)			NA [illegible] 2/26/96	
Standards Concentration Sheets				
• Surrogate and Spike Concentration Sheet			NA [illegible] 2/26/96	
• Analytical Standard Concentration Sheet			[illegible] 2/26/96	
Chromatograms/Quant Reports			[illegible] 2/26/96	
2° Column Standards Data		216		
Forms:				
• Initial Calibration of Single Component Analytes (Form VI PEST-1 and PEST-2)			[illegible] 2/26/96	JLH 3-19-96
• Initial Calibration of Multicomponent Analytes (Form VI PEST-3)			[illegible] 2/26/96	
• Analyte Resolution Summary (Form VI PEST-4)			[illegible] 2/26/96	
• Calibration Verification Summary (Form VII PEST-2)			[illegible] 2/26/96	
• Calibration Verification Summary (Form VII PEST-2)			[illegible] 2/26/96	
• Analytical Sequence (Form VIII PEST)			[illegible] 2/26/96	
Chromatograms/Quant Reports			[illegible] 2/26/96	
Pesticide GPC calibration data: notebook pages and UV detector traces	217	250	D.O. 2/21/96	JLH 3-19-96
8 Raw QC Data: Blank and Matrix Spike Data	251	308		
Method Blank Data	252			
• TCL Results (Form I PEST)			[illegible] 2/26/96	JLH 3-19-96
• Chromatogram/Quant Report, 1° column			[illegible] 2/26/96	
• Chromatogram/Quant Report, 2° column confirmation			[illegible] 2/26/96	
Blank Spike/Blank Spike Duplicate		290		
• TCL Results (Form I PEST)			[illegible] 2/26/96	JLH 3-19-96
• Chromatogram/Quant Report, 1° column			[illegible] 2/26/96	
• Chromatogram/Quant Report, 2° column confirmation			[illegible] 2/26/96	
Matrix Spike/Matrix Spike Duplicate	291	308		
• TCL Results (Form I PEST)			[illegible] 2/26/96	JLH 3-19-96
• Chromatogram/Quant Report, 1° column			[illegible] 2/26/96	
• Chromatogram/Quant Report, 2° column confirmation			[illegible] 2/26/96	
9 Analysis Run Logs	309	320	[illegible] 2/26/96	JLH 3-19-96
10 Standards Preparation Records	321	357		
• Surrogate and Target Analyte Spike Solutions			D.O. 2/21/96	JLH 3-19-96

CLIENT: EG+G Mound SDG No.: 9602L070		Page Nos		Check (initials/date)	
		From	To	Lab	Client
	• Analysis Standards			1 Dve abbrkic	JLH 3-19-96
11	Preparation Logs	358	362		
	• Sample Prep Records (Extraction notebook pages) • Extract Chain of Custody (LIMS record, with COC section signed)			D.C. 2/21/96 D.C. 2/21/96	JLH 3-19-96
	• Screening Records (Logs, Chromatograms), if applicable			NA Dve abbrkic	JLH 3-19-96
	• % Moisture and/or % Solids Records			D.3-12-96	JLH 3-19-96
12	Other/Miscellaneous	363	384		
	• MDL / IDL Table (circle one)			NA Dve abbrkic	JLH 3-19-96
	FLORISIL CHECK			D.O. 2/21/96	JLH 3-19-96

COMMENTS: _____

Checked by: (Laboratory)	Signature	Janice Driscoll / Data Report Coordinator Printed Name/Title	Date 3-12-96
Checked by: (Client)	Signature	Joey L. Hora / Technician Printed Name/Title	Date 3-19-96

DATA PACKAGE COMPLETENESS CHECKLIST
EG&G MOUND PROJECT

DATE: 3-12-96 W.O.#: 10572-004-001-9999-00

LABORATORY BATCH #: 9602L070 OPERABLE UNIT NO.:

LABORATORY NAME/LOCATION: Roy F. Weston Louisville COLLECTION DATE(S): 2-13-96

208

PESTICIDES AND PCBs

- [ ] TABLE OF CONTENTS (CHECK LIST)

- [ ] VA. CASE NARRATIVE
  - [x] COVER PAGE
  - [x] CASE NARRATIVE
  - [x] CROSS REFERENCE OF SAMPLE ID TO LABORATORY ID
  - [x] DESCRIPTION OF ALL QUALIFIERS USED BY THE LABORATORY
  - [x] APPLICABLE LABORATORY SOP AND REVISION DATE

- [ ] OC SUMMARY
  - [x] SURROGATE PERCENT RECOVERY SUMMARY (FORM II PEST)
  - [x] MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY (FORM III PEST)
  - [x] METHOD BLANK SUMMARY (FORM IV PEST)
  - [x] LABORATORY CONTROL SPIKE

- [ ] VB. SAMPLE DATA
  - [x] EXAMPLE CALCULATION
  - [x] TARGET COMPOUND RESULTS - ORGANIC ANALYSIS DATA SHEET (FORM I PEST)
  - [x] PESTICIDE CHROMATOGRAMS
  - [x] GC INTEGRATION REPORT
  - [x] PESTICIDE CHROMATOGRAMS SECOND GC COLUMN
  - [x] GC INTEGRATION REPORT
  - [ ] MANUAL WORK SHEETS

- [ ] VC. STANDARD(S) DATA
  - [x] INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES (FORM VI PEST-1, PEST-2)
  - [x] INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES (FORM VI PEST-3)
  - [x] ANALYTE RESOLUTION SUMMARY (FORM VI PEST-4)
  - [x] CALIBRATION VERIFICATION SUMMARY (FORM VII PEST-1)
  - [x] CALIBRATION VERIFICATION SUMMARY (FORM VII PEST-2)
  - [x] ANALYTICAL SEQUENCE (FORM VIII PEST)
  - [x] FLORISIL CARTRIDGE CHECK (FORM IX PEST-1)
  - [x] PESTICIDE GPC CALIBRATION (FORM IX PEST-2)
  - [x] PESTICIDE IDENTIFICATION SUMMARY SINGLE COMPONENT ANALYTES (FORM X PEST-1)
  - [ ] PESTICIDE IDENTIFICATION SUMMARY MULTICOMPONENT ANALYTES (FOR X PEST-2)
  - [x] CHROMATOGRAMS AND DATA SYSTEM PRINTOUTS
  - [x] RETENTION TIMES AND CORRESPONDING PEAK AREAS PRINTOUTS
  - [x] PESTICIDE GPC CALIBRATION DATA

DATA PACKAGE COMPLETENESS CHECKLIST (CONT.)
EG&G MOUND PROJECT

DATE: 3-12-96 W.O.#: 10572-004-001-9999-00

LABORATORY BATCH #: 96021070 OPERABLE UNIT NO.:

LABORATORY NAME/LOCATION: Roy F Weston Linoville 208 COLLECTION DATE(S): 2-13-96

PESTICIDES AND PCBs

- [ ] VD. RAW QC DATA
  - [x] BLANK DATA
    - [x] TABULATION RESULTS (FORM I PEST)
    - [x] CHROMATOGRAMS AND DATA SYSTEM PRINTOUTS
    - [x] RETENTION TIMES AND CORRESPONDING PEAK AREAS PRINTOUTS
  - [x] MATRIX SPIKE DATA
    - [x] CHROMATOGRAMS AND DATA SYSTEM PRINTOUTS
  - [x] MATRIX SPIKE DUPLICATE DATA
    - [x] CHROMATOGRAMS AND DATA SYSTEM PRINTOUTS
  - [x] INSTRUMENT SETTINGS
  - [x] INSTRUMENT RUN LOGS
  - [x] SAMPLE EXTRACTION/PREPARATION LOGS
  - [x] PERCENT SOLIDS DETERMINATION LOGS
- [ ] VE. SAMPLE RECEIPT
  - [ ] TRAFFIC REPORTS
  - [x] SAMPLE LOG IN RECORD
- [ ] VF. NONCONFORMANCE RECORDS / CORRESPONDENCE / TELEPHONE COMMUNICATIONS RECORDS / ETC.*

Laboratory Reviewer: [signature] Date: 3-12-96

WESTON Verified By: [signature] Date:

Comments:

*Any records not specified, but pertaining to the sample analysis

DATA PACKAGE COMPLETENESS CHECKLIST
EG&G MOUND PROJECT

DATE: 2/28/96
LABORATORY BATCH: 9602070
LABORATORY NAME/LOCATION: WESTON-LIONVILLE

W.O.#: 10572-004-001-9999-00
OPERABLE UNIT NO.:
COLLECTION DATE(S): 2/13/96

EXPLOSIVES (USATHAMA AND PETN)

- [ ] TABLE OF CONTENTS (Checklist) ✓ 3-19-96

- [ ] I. CASE NARRATIVE
  - [x] COVER PAGE ✓ 3-19-96
  - [x] CASE NARRATIVE ✓ 3-19-96
  - [x] CROSS REFERENCE OF SAMPLE ID TO LABORATORY ID ✓ 3-19-96
  - [x] DESCRIPTION OF DATA QUALIFIERS USED IN THE REPORT ✓ 3-19-96
  - [x] APPLICABLE LABORATORY SOP AND REVISION DATE ✓ 3-19-96
  - [x] SUMMARY OF SAMPLE RESULTS ✓ 3-19-96
  - [x] SUMMARY OF QUALITY CONTROL RESULTS ✓ 3-19-96
  - [x] SUMMARY OF ANALYSIS AND PREPARATION DATES ✓ 3-19-96

- [ ] IIA. SAMPLE DATA
  - [x] EXAMPLE CALCULATION ✓ 3-19-96
  - [x] INSTRUMENT SETTINGS ✓ 3-19-96
  - [x] ANALYTICAL RAW DATA (BEHIND EACH RESULT) ✓ 3-19-96

- [ ] IIB. STANDARDS DATA
  - [x] STANDARDS PREPARATION DATA ✓ 3-19-96
  - [x] INITIAL AND CONTINUING CALIBRATION ✓ 3-19-96
  - [x] RETENTION TIME WINDOWS ✓ 3-19-96
  - [x] INSTRUMENT CALIBRATION/TUNING ✓ 3-19-96
  - [x] RAW DATA BEHIND EACH RESULT ✓ 3-19-96

- [ ] IIC. RAW QC DATA
  - [x] QUALITY CONTROL RESULTS (BLANKS, LCSs, MS / MSDs) ✓ 3-19-96
  - [x] QUALITY CONTROL RAW DATA (BEHIND EACH RESULT) ✓ 3-19-96
  - [x] INSTRUMENT RUN LOG ✓ 3-19-96
  - [x] SAMPLE PREPARATION / EXTRACTION / DIGESTION LOGS ✓ 3-19-96
  - [ ] PERCENT SOLIDS DETERMINATION LOGS

- [ ] III. SAMPLE RECEIPT
  - [ ] TRAFFIC REPORTS ✓ 3-19-96
  - [x] SAMPLE LOG IN RECORD ✓ 3-19-96

DATA PACKAGE COMPLETENESS CHECKLIST
EG&G MOUND PROJECT

DATE: 2/28/96

LABORATORY BATCH: 96021070

LABORATORY NAME/LOCATION: WESTON-LIONVILLE

W.O.#: 10572-004-001-9999-00

OPERABLE UNIT NO.:

COLLECTION DATE(S): 2/13/96

EXPLOSIVES (USATHAMA AND PETN)

☐ IV. NONCONFORMANCE RECORDS/CORRESPONDENCE/TELEPHONE COMMUNICATIONS RECORDS/ETC.[1] 3-19-96

Laboratory Reviewer: [signature] Date: 2/28/96

TERRAN ~~WESTON~~ Verified By: [signature] Date: 3-19-96

Comments:

[1] Any records not specified, but pertaining to the sample analysis

DATA PACKAGE COMPLETENESS CHECKLIST
EG&G MOUND PROJECT

DATE: 3/4/96
LABORATORY BATCH: 96-2W07U
LABORATORY NAME/LOCATION: WESTON-LIONVILLE

W.O.#: 10572-004-001-9999-00
OPERABLE UNIT NO.:
COLLECTION DATE(S): 2/13/96

EXPLOSIVES (USATHAMA AND PETN)

- [ ] TABLE OF CONTENTS (Checklist) ✓ JLH 3-19-96

- [ ] I. CASE NARRATIVE
  - [x] COVER PAGE ✓ JLH 3-19-96
  - [x] CASE NARRATIVE ✓ JLH 3-19-96
  - [x] CROSS REFERENCE OF SAMPLE ID TO LABORATORY ID ✓ JLH 3-19-96
  - [x] DESCRIPTION OF DATA QUALIFIERS USED IN THE REPORT ✓ JLH 3-19-96
  - [x] APPLICABLE LABORATORY SOP AND REVISION DATE ✓ JLH 3-19-96
  - [x] SUMMARY OF SAMPLE RESULTS ✓ JLH 3-19-96
  - [x] SUMMARY OF QUALITY CONTROL RESULTS ✓ JLH 3-19-96
  - [x] SUMMARY OF ANALYSIS AND PREPARATION DATES ✓ JLH 3-19-96

- [ ] IIA. SAMPLE DATA
  - [x] EXAMPLE CALCULATION ✓ JLH 3-19-96
  - [x] INSTRUMENT SETTINGS ✓ JLH 3-19-96
  - [x] ANALYTICAL RAW DATA (BEHIND EACH RESULT) ✓ JLH 3-19-96

- [ ] IIB. STANDARDS DATA
  - [x] STANDARDS PREPARATION DATA ✓ JLH 3-19-96
  - [x] INITIAL AND CONTINUING CALIBRATION ✓ JLH 3-19-96
  - [x] RETENTION TIME WINDOWS ✓ JLH 3-19-96
  - [x] INSTRUMENT CALIBRATION/TUNING ✓ JLH 3-19-96
  - [x] RAW DATA BEHIND EACH RESULT ✓ JLH 3-19-96

- [ ] IIC. RAW QC DATA
  - [x] QUALITY CONTROL RESULTS (BLANKS, LCSs, MS / MSDs) ✓ JLH 3-19-96
  - [x] QUALITY CONTROL RAW DATA (BEHIND EACH RESULT) ✓ JLH 3-19-96
  - [x] INSTRUMENT RUN LOG ✓ JLH 3-19-96
  - [x] SAMPLE PREPARATION / EXTRACTION / DIGESTION LOGS ✓ JLH 3-19-96
  - [ ] PERCENT SOLIDS DETERMINATION LOGS

- [ ] III. SAMPLE RECEIPT
  - [ ] TRAFFIC REPORTS ✓ JLH 3-19-96
  - [x] SAMPLE LOG IN RECORD ✓ JLH 3-19-96

DATA PACKAGE COMPLETENESS CHECKLIST
EG&G MOUND PROJECT

DATE: 3/4/96

W.O.#: 10572-004-001-9999-00

LABORATORY BATCH: 96C2L070

OPERABLE UNIT NO.:

LABORATORY NAME/LOCATION: WESTON-LIONVILLE

COLLECTION DATE(S): 2/13/96

EXPLOSIVES (USATHAMA AND PETN)

☐ IV. NONCONFORMANCE RECORDS/CORRESPONDENCE/TELEPHONE COMMUNICATIONS RECORDS/ETC.[1] ✓ JH 3-19-96

Laboratory Reviewer: [signature] Date: 3/4/96

TERRAN ~~WESTON~~ Verified By: [signature] Date: 3-19-96

Comments: This package includes pages 084A, 101A and 101B.

[1] Any records not specified, but pertaining to the sample analysis

INORGANIC (METALS) COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME: Roy F. Weston, Inc., Analytics Division
CITY/STATE: Lionville, PA
CASE/SDG NO.: 000022
CLIENT NAME: EG+G Mound
WORK ORDER NO.: 10572-004-001-9999-00
METHOD BASED ON: SW-846 / CLP SOW 3/90 / MCAWW (200 Series)

All documents in the Client's copy of the complete SDG file must be legible, clearly labeled, paginated, single-sided original documents; or of sufficient copy quality to be reproducible to fourth generation copies. (Purge file documents, e.g., original-copy chain-of-custody, etc. assembled per specific contract request only.)

CLIENT: EG+G Mound RFW No.: 96021070		Page Nos		Check (initials/date)		
		From	To	Lab	Data	Client
0	Inventory Sheet (do not number)				MLU	JH 3-19-96
1	Cover Page (Lab Chron)	001	010		MLU	JH 3-19-96
2	Table of Contents	011	012		MLU	JH 3-19-96
3	Shipping, Receiving, and Custody Records • Lab Chain of Custody/Work Request • Client Custody Reports/Packing Lists • Airbills → not included	013	015		MLU	JH 3-19-96
4	Case Narrative/Qualifier Page	016	026		MLU	JH 3-19-96
5	Data/QC Summary	Na	—	NA	MLU	JH 3-19-96
6	Inorganic Analysis Data Package (divider sheet)	027	—		MLU	JH 3-19-96
7	Cover Page with Lab Manager Signature	028	—		MLU	JH 3-19-96
8	Inorganic Analysis Data Sheet (Form I-IN)	029	034		MLU	JH 3-19-96
9	Initial & Continuing Calibration Verification (Form IIA-IN)	035	041		MLU	JH 3-19-96
10	CRDL Standards For AA and ICP (Form IIB-IN)	042	044		MLU	JH 3-19-96
11	Blanks (Form III-IN)	045	049		MLU	JH 3-19-96
12	ICP Interference Check Sample (Form IV-IN)	050	052		MLU	JH 3-19-96
13	Spike Sample Recovery (Form VA-IN)	053	054		MLU	JH 3-19-96
14	Post Digest Spike Sample Recovery (Form VB-IN)	Na	—	NA	MLU	JH 3-19-96
15	Duplicates (Form VI-IN) 055 to 055	~~055~~	~~065~~		MLU	JH 3-19-96
16	Laboratory Control Sample (Form VII-IN) 056 to 065	~~056~~	—		MLU	JH 3-19-96
17	Standard Addition Results (Form VIII-IN) 066	~~067~~	—	3/26	MLU	JH 3-19-96
18	ICP Serial Dilutions (Form IX-IN) 067	~~068~~	~~075~~		MLU	JH 3-19-96
19	Instrument Detection Limits (Form X-IN) 068	~~069~~	075		MLU	JH 3-19-96
20	ICP Interelement Correction Factors (Form XIA-IN)	076	—		MLU	JH 3-19-96
21	ICP Interelement Correction Factors (Form XIB-IN)	Na	—		MLU	JH 3-19-96

Inorganic (Metals) Complete SDG File (CSF) Inventory Sheet (continued)

CLIENT: EG+G Mound		Page Nos		Check (Initials/date)		
RFW No.: 9602L070		From	To	Lab	Data	Client
22	ICP Linear Ranges (Form XII-IN)	077	—			3-19-96
23	Preparation Log (Form XIII-IN)	078	083			3-19-96
24	Analysis Run Log (Form XIV-IN)	084	123			3-19-96
25	ICP Raw Data	124	310			3-19-96
26	Furnace AA Raw Data	320	516			3-19-96
27	Mercury Raw Data	517	530			3-19-96
28	Cyanide Raw Data	531	539			3-19-96
29	Preparation Logs Raw Data, In Order: ICP, AA, Mercury, Cyanide Distillation	540	549			3-19-96
30	Percent Solids Determination Log	550	551			3-19-96
31	Analysis Logbook Pages	552	560			3-19-96
32	Standards Preparation Records	561	565			3-19-96
	• ICP Standard Solutions	561	—			3-19-96
	• AA Standard Solutions (Hg in header of bench sheet) Flame	562 563	565 —			3-19-96
33	Other/Miscellaneous Flame Data	311	319			3-19-96
	End of pkg	566	—			3-19-96

COMMENTS: Copy of airbill not included

Checked by: (Laboratory)	Signature	Frank J. Scrusher Printed Name/Title	3/6/96 Date
Checked by: (Data Reporting)	Signature	Mary L. Reichner/Data Reporter	3/12/96 Date
Checked by: (Client)	Signature	Joey L. Hora/Technician	3-19-96 Date

DATA PACKAGE COMPLETENESS CHECKLIST
EG&G MOUND PROJECT

DATE: March 6, 96 W.O.#: 10572-004-001-9999-00
LABORATORY BATCH #: 96021070 OPERABLE UNIT NO.: 7231
LABORATORY NAME/LOCATION: Lionville Analytics COLLECTION DATE(S): 2/13/96

METALS/CYANIDE

- [x] TABLE OF CONTENTS (Checklist)
- [x] I. CASE NARRATIVE
  - [x] COVER PAGE
  - [x] CASE NARRATIVE
  - [x] CROSS REFERENCE OF SAMPLE I.D TO LABORATORY I.D.
  - [x] DESCRIPTION OF ALL QUALIFIERS USED BY THE LABORATORY
  - [x] APPLICABLE LABORATORY SOP AND REVISION DATE
- [x] IIA. SAMPLE DATA
  - [x] RESULTS FORM I - IN
- [x] IIB. QUALITY CONTROL DATA
  - [x] INITIAL AND CONTINUING CALIBRATION VERIFICATION [FORM II (PART 1) - IN]
  - [x] CRDL STANDARD FOR AA AND ICP [FORM II (PART 2) - IN]
  - [x] BLANKS [FORM III - IN]
  - [x] ICP INTERFERENCE CHECK SAMPLE [FORM IV - IN]
  - [x] SPIKE SAMPLE RECOVERY [FORM VA (PART 1) - IN]
  - [x] POST DIGEST SPIKE SAMPLE RECOVERY [FORM VB (PART 2) - IN]
  - [x] DUPLICATES [FORM VI - IN]
  - [x] LABORATORY CONTROL SAMPLE [FORM VII - IN]
  - [x] STANDARD ADDITION RESULTS [FORM VIII - IN]
  - [x] ICP SERIAL DILUTIONS [FORM IX - IN]
  - [x] INSTRUMENT DETECTION LIMITS (QUARTERLY) [FORM X - IN]
  - [x] ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY) [FORM XI (PART 1) - IN]
  - [x] ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY) [FORM XI (PART 2) - IN]
  - [x] ICP LINEAR RANGES (QUARTERLY) [FORM XII - IN]
  - [x] PREPARATION LOG [FORM XIII - IN]
  - [x] ANALYSIS RUN LOG [FORM XIV - IN]
- [x] IIC. RAW DATA
  - [x] EXAMPLE CALCULATION
  - [x] INSTRUMENT SETTINGS
  - [x] ICP RAW DATA
  - [x] FURNACE AA RAW DATA
  - [x] MERCURY RAW DATA
  - [x] CYANIDE RAW DATA
  - [x] PREPARATION AND DISTILLATION LOGS RAW DATA
  - [x] PERCENT SOLIDS DETERMINATION LOGS

DATA PACKAGE COMPLETENESS CHECKLIST (CONT.)
EG&G MOUND PROJECT

DATE: March 6, 96 W.O.#: 10572-004-001-9999-00

LABORATORY BATCH #: 9602L070 OPERABLE UNIT NO.: 7231

LABORATORY NAME/LOCATION: Louisville Analytics COLLECTION DATE(S): 2/13/96

METALS/CYANIDE

- [x] IID. STANDARDS
  - [x] PREPARATION RECORDS
  - [x] ANALYSIS RECORDS AA AND ICP LOGS
- [x] IIE. SAMPLE RECEIPT
  - [ ] TRAFFIC REPORTS
  - [x] SAMPLE LOG IN RECORD
- [ ] IIF. NONCONFORMANCE RECORDS / CORRESPONDENCE / TELEPHONE COMMUNICATIONS RECORDS / ETC.[1]

Laboratory Reviewer: [signature] Date: 3/6/96

WESTON Verified By: [signature] Date: 3/12/96

Comments:

[1] Any records not specified, but pertaining to the sample analysis

DATA PACKAGE COMPLETENESS CHECKLIST
EG&G MOUND PROJECT

DATE: 3/2/96 W.O.#: 10572-004-001-9999-00

LABORATORY BATCH #: 9602L070 OPERABLE UNIT NO.: N/A

LABORATORY NAME/LOCATION: EMD/Lionville COLLECTION DATE(S): 2/13/96

ANION (circle): NO_2-NO_3 SO4 Cl F TOC

NITRATE-NITRITE, SULFATE, CHLORIDE, FLOURIDE, TOTAL ORGANIC CARBON

VO

TABLE OF CONTENTS (CHECK LIST) ✓ 3-19-96

I. CASE NARRATIVE
- [x] COVER PAGE ✓ 3-19-96
- [x] CASE NARRATIVE ✓ 3-19-96
- [x] CROSS REFERENCE OF SAMPLE ID TO LABORATORY ID ✓ 3-19-96
- [x] DESCRIPTION OF ALL QUALIFIERS USED BY THE LABORATORY ✓ 3-19-96
- [x] APPLICABLE LABORATORY SOP AND REVISION DATE (analysis log) ✓ 3-19-96
- [x] SUMMARY OF SAMPLE RESULTS ✓ 3-16-96
- [x] SUMMARY OF QUALITY CONTROL RESULTS ✓ 3-19-96
- [x] SUMMARY OF ANALYSIS AND PREPARATION DATES ✓ 3-19-96

IIA. SAMPLE DATA
- [x] EXAMPLE CALCULATION SHEET (analysis log) ✓ 3-19-96
- [x] INSTRUMENT SETTINGS ✓ 3-19-96
- [x] ANALYTICAL RAW DATA (BEHIND EACH RESULT) ✓ 3-19-96

IIB. STANDARDS DATA
- [x] STANDARDS PREPARATION DATA ✓ 3-19-96
- [x] INITIAL AND CONTINUING CALIBRATION ✓ 3-19-96

IIC. RAW QC DATA
- [x] QUALITY CONTROL RESULTS (BLANKS, LCS, MS/MSD, REPLICATE (TOC ONLY)) ✓ 3-19-96
- [x] QUALITY CONTROL RAW DATA (BEHIND EACH RESULT) ✓ 3-19-96
- [x] INSTRUMENT RUN LOGS/INSTRUMENT CALIBRATION/TUNING ✓ 3-19-96
- [x] SAMPLE PREPARATION/EXTRACTION/DISGESTION LOGS ✓ 3-19-96
- [x] PERCENT SOLIDS DETERMINATION LOGS ✓ 3-19-96

DATA PACKAGE COMPLETENESS CHECKLIST (CONT.)
EG&G MOUND PROJECT

DATE: 3/2/96

W.O.#: 10572-004-001-9999-00

LABORATORY BATCH #: 96021070

OPERABLE UNIT NO.: N/A

LABORATORY NAME/LOCATION: EMD/Lionville

COLLECTION DATE(S): 2/13/96

ANION (circle): NO_2-NO_3 SO4 Cl F TOC

NITRATE-NITRITE, SULFATE, CHLORIDE, FL~~OUR~~ORIDE, TOTAL ORGANIC CARBON

UO 3/12/96

☐ III. SAMPLE RECEIPT

- ☑ TRAFFIC REPORTS ✓ JH 3-19-96
- ☑ SAMPLE LOG IN RECORD ✓ JH 3-19-96

☐ IV. NONCONFORMANCE RECORDS / CORRESPONDENCE / TELEPHONE COMMUNICATIONS RECORDS / ETC. NA JH 3-19-96

Laboratory Reviewer: Vicki J. Peterson Date: 3/2/96

WESTON Verified By: [signature] Date: 3/4/96

Terran Verified By: [signature] 3-19-96

Comments:

[1] Any records not specified, but pertaining to the sample analysis

ATTACHMENT IV

LABORATORY CASE NARRATIVE

Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, Pennsylvania 19341-1333
610-701-6100 • Fax 610-701-6140

MANAGERS DESIGNERS/CONSULTANTS

LIONVILLE LABORATORY ANALYTICAL REPORT

Client : EG&G MOUND
RFW# : 9602L070

W.O. #: 10572-004-001-9999-00
Date Received: 02-14-96

GC/MS VOLATILE

The set of samples consisted of one (1) water sample and six (6) soil samples collected on 02-13-96.

The samples and their associated QC samples were analyzed according to criteria set forth in OLM01.8 (SOP #21-20-027, Rev. 01, 04/93) for TCL Volatile target compounds on 02-18,19,20,23-96.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. The required holding time for analysis was met.
2. A non-target compound was detected in sample SGC-AO3-000137.
3. Three (3) of fifty-four (54) system monitoring compound (surrogate) recoveries were outside EPA QC limits. Sample SGC-A61-000042 was reanalyzed on 02-20-96 and reported.
4. All matrix spike recoveries were within EPA QC limits.
5. All blank spike recoveries were within EPA QC limits.
6. The method blanks contained the common contaminants Methylene Chloride and/or Acetone at levels less than 3x the CRQL.
7. An internal standard area was outside QC limits for sample SGC-AG1-000042. The sample was reanalyzed on 02-20-96 and reported.
8. Sample pH information has been reported in Section XI (Preparation Logs).

Bruce C. Griffiths unit leader

J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

3.13.96
Date

004

mmz/voa/02-070.cn

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 261 pages.

Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, Pennsylvania 19341-1333
610-701-6100 • Fax 610-701-6140

MANAGERS DESIGNERS/CONSULTANTS

LIONVILLE LABORATORY ANALYTICAL REPORT

Client : EG&G MOUND
RFW# : 9602L070

W.O. #: 10572-004-001-9999-00
Date Received: 02-14-96

SEMIVOLATILE

The set of samples consisted of six (6) soil samples collected on 02-13-96.

The samples and their associated QC samples were extracted on 02-19-96 and analyzed according to criteria set forth in OLM01.8 (SOP #21-20-028, Rev. 01, 04/93) for TCL Semivolatile target compounds on 02-23,24,25-96.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. All required holding times for extraction and analysis were met.
2. Non-target compounds were detected in these samples.
3. All surrogate recoveries were within EPA QC limits.
4. Two (2) of eleven (11) blank spike recoveries were outside EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. The method blank contained the common contaminant bis(2-Ethylhexyl)phthalate at a level less than the CRQL.
7. An internal standard area was outside the QC limits for SGC-A61-000053 MSD. The matrix spike analyis fulfills the reanalysis requirement.

Bruce C. Miller unit leader
FOR J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

3.13.96
Date

kms/bna/02-070b.cn

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 305 pages.

Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, Pennsylvania 19341-1333
® 610-701-6100 • Fax 610-701-6140

MANAGERS DESIGNERS/CONSULTANTS

LIONVILLE LABORATORY ANALYTICAL REPORT

Client: EG&G MOUND
RFW #: 9602L070

W.O. #: 10572-004-001-9999-00
Date Received: 02-14-96

PESTICIDE/PCB

The set of samples consisted of six (6) soil samples collected on 02-13-96.

The samples were extracted on 02-18-96 and analyzed according to criteria set forth in OLM01.8 (SOP #21-20-029, Rev. 01, 04/93) for Pesticide and PCB target compounds on 02-21-96.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. Linearity and breakdown criteria were met for each of the analytical columns.

2. Retention time criteria were met for all compounds on both analytical columns.

3. Resolution of all pesticides in the Resolution Check Standard were within EPA QC limits.

4. The RPDs of the pesticides in the Individual Mixes analyzed for calibration verification were within 25% for both analytical columns.

5. The RPDs of the pesticides in the Performance Evaluation Mixes analyzed for calibration verification were within 25% for both analytical columns.

6. One (1) of forty (40) surrogate recoveries were outside the advisory EPA QC limits. Surrogate recoveries are summarized on the Form 2 included in the data package.

7. All blank spike recoveries were within EPA QC limits. Blank spike recoveries are summarized on the Form 3 included in the data package.

8. All matrix spike recoveries were within EPA QC limits. Matrix spike recoveries are summarized on the Form 3 included in the data package.

9. Recoveries of pesticides for the Florisil Cartridge Check were within EPA QC limits.

10. Recoveries of pesticides for the GPC Calibration Check were within EPA QC limits.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 384 pages.

11. The Instrument Blank (96LP0T04-MBK) run on 02-21-96 at 0255 contained carryover peaks. It was determined that the carryover was isolated to the Instrument Blank; therefore, no further action was taken.

Bruce C. Spitler unit leader

FOR J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

3-12-96
Date

jkd/pcb/02-112pp.cn

Initiator: G DeRuzzo RFW Batch: 96021070 Parameter: See below
Date: 2/16/96 Samples: 007 + 009 Matrix: Soil
Client: EG+G MaINO Method: SW846/MCAWW/CLP/ Prep Batch: _____

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error X Client Request __ Sampler Error on C-O-C
__ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy
__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. QC Problem (Include all relevant specific results; attach data if necessary)

Per Amy Lamborg, Cancel all analyses for Sample SGC-SDB-000099 (009)
SGC-SDB-000100 (007)

2. Known or Probable Causes(s)

Samples will be recollected.

3. Discussion and Proposed Action Other Description:
__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

4. Project Manager Instructions...signature/date: [signature] 2/16/96
__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
X Client Contacted:
Date/Person 2/16/96 Amy Lamborg
__ Add
__ Cancel

5. Final Action...signature/date: [signature] 2/17/96 Other Explanation:
__ Verified re-[log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
✓ Hard Copy COC Revised
✓ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	X Metals: Reichner/Doughty
__	X Lab Manager: J. Michael Taylor	__	X Inorganic: Perrone/Leonards
__	X Project Mgr: J. Stone	__	X GC/LC: Jarvis/Skrzat/Schnell
__	X Section Mgr: Siery/Durke/Daniels	__	X MS: LeMin/McIntyre/Taylor/Kasdras/Steele
__	X QA Section Mgr: Dianne Therry	(1)	__ Log-in: Geiger
__	X QA File: Feldman/Racioppi/Shaffer	__	__ EDD: Miller
__	X Data Reporting: Som Basuthakur	__	X Admin: Brewer/Keehn/Edgington
__	X Sample Prep: Osei-Mensah/Swisher	__	X Other: Jim Daniels

RFW 21-21-006/E-03/95

Initiator: Judy Stone RFW Batch: 9602L070 Parameter: all
Date: 2/15/96 Samples: 004, 005 Matrix: soil
Client: Fitz + Co Mound Terrace Method: SW846/MCAWW/CLP/ Prep Batch:

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request ✓ Sampler Error on C-O-C
__ Transcription Error __ Wrong Test Code ✓ Other

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date:

c. QC Problem (Include all relevant specific results; attach data if necessary)

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

__ Re-log
__ Entire Batch
__ Following Samples:
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to
__ Place On/Take Off Hold (circle)

4. Project Manager Instructions...signature/date: 2/15/96

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person
__ Add 004
✓ Cancel ~~005~~ this is extra volume for ~~004~~ 005 MS MSD

5. Final Action...signature/date: 2/16/96 Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
✓ Hard Copy COC Revised
✓ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Reichner/Doughty
__	X Lab Manager: J. Michael Taylor	__	__ Inorganic: Perrone/Leonards
__	X Project Mgr:	__	__ GC/LC: Jarvis/Skrzat/Schnell
__	X Section Mgr: Siery/Durke/Daniels		__ MS: LeMin/McIntyre/Taylor/Kasdras/Steele
__	X QA Section Mgr: Dianne Therry	(1)	✓ Log-in: Geiger
__	X QA File: Feldman/Racioppi/Shaffer	__	__ EDD: Miller
__	X Data Reporting: Som Basuthakur	__	__ Admin: Brewer/Keehn/Edgington
__	__ Sample Prep: Osei-Mensah/Swisher	__	__ Other:

RFW 21-21-006/E-03/95

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MANAGERS DESIGNERS/CONSULTANTS

LIONVILLE LABORATORY ANALYTICAL REPORT

Client : EG&G MOUND
RFW# : 9602L070

W.O #: 10572-004-001-9999-00
Date Received: 02-14-96

PETN

1. The set of samples consisted of six (6) soil samples collected on 02-13-96.

2. The samples were prepared on 02-20-96 and analyzed for PETN using WESTON OP 21-16L-0025.1 on 02-22,23-96.

3. All required holding times for extraction and analysis were met.

4. All initial calibrations associated with this data set were within acceptance criteria.

5. All continuing calibration standards analyzed prior to the sample extracts were within acceptance criteria.

6. The blank spike recovery was within the advisory control limits of 50%-150%.

7. All matrix spike recoveries were within the advisory control limits of 50%-150%.

8 All surrogate recoveries were within the advisory control limits of 50%-150%.

Bruce C. Miller unit leader
FOR J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

3-11-96
Date

cs/jkd/misc/02-070.pe

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 103 pages.

WESTON: Sample Discrepancy Report (SDR) SDR #: [illegible]

Initiator: G DeRuzzo RFW Batch: 96021070 Parameter: see below
Date: 2/16/96 Samples: 007 + 009 Matrix: Soil
Client: EG+G MAIND Method: SW846/MCAWW/CLP/ Prep Batch: ____

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error X Client Request __ Sampler Error on C-O-C
__ Transcription Error __ Wrong Test Code __ Other ____

b. General Discrepancy
__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: ____

c. QC Problem (Include all relevant specific results; attach data if necessary)

Per Amy Lamborg, Cancel all analyses for
Sample SGC-SDB-000099 (009)
SGC-SDB-000100 (007)

2. Known or Probable Causes(s)

Samples will be recollected.

3. Discussion and Proposed Action Other Description:
__ Re-log
__ Entire Batch
__ Following Samples: ____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to ____
__ Place On/Take Off Hold (circle)

4. Project Manager Instructions...signature/date: [signature] 2/16/96
__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
X Client Contacted:
Date/Person 2/16/96 Amy Lamborg
__ Add
__ Cancel

5. Final Action...signature/date: [signature] 2/17/96 Other Explanation:
__ Verified re-[log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
__ Hard Copy COC Revised
✓ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	X Metals: Reichner/Doughty
__	X Lab Manager: J. Michael Taylor	__	X Inorganic: Perrone/Leonards
__	X Project Mgr: T. Stone	__	X GC/LC: Jarvis/Skrzat/Schnell
__	X Section Mgr: Siery/Durke/Daniels	__	X MS: LeMin/McIntyre/Taylor/Kasdras/Steele
__	X QA Section Mgr: Dianne Therry	(1)	__ Log-in: Geiger
__	X QA File: Feldman/Racioppi/Shaffer	__	__ EDD: Miller
__	X Data Reporting: Som Basuthakur	__	X Admin: Brewer/Keehn/Edgington
__	X Sample Prep: Osei-Mensah/Swisher	__	X Other: Jim Daniels

RFW 21-21-006/E-03/95

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MANAGERS DESIGNERS/CONSULTANTS

LIONVILLE LABORATORY ANALYTICAL REPORT

Client : EG&G MOUND
RFW# : 9602L070

W.O #: 10572-004-001-9999-00
Date Received: 02-14-96

EXPLOSIVE

1. The set of samples consisted of six (6) soil samples collected on 02-13-96.
2. The samples were prepared on 02-20-96 and analyzed for Explosives using WESTON OP 21-16L-8330.1 (Rev. 03) on 02-22,23,28-96.
3. All required holding times for extraction and analysis were met.
4. All initial calibrations associated with this data set were within acceptance criteria.
5. All continuing calibration standards analyzed prior to the sample extracts were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All surrogate recoveries were within acceptance criteria.

Bruce C. Krulle with Permission

FOR J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

3-11-96
Date

cs/jkd/misc/02-070.ex

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 135 pages.

WESTON: Sample Discrepancy Report (SDR) SDR #: [illegible]

Initiator: G DeRuzzo RFW Batch: 96021070 Parameter: see below
Date: 2/16/96 Samples: 007 + 009 Matrix: Soil
Client: EG+G MOUND Method: SW846/MCAWW/CLP/ Prep Batch: _____

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error X Client Request __ Sampler Error on C-O-C
__ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy
__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. QC Problem (Include all relevant specific results; attach data if necessary)

Per Amy Lamborg, Cancel all analyses for sample SGC-SDB-000099 (009)
SGC-SDB-000100 (007)

2. Known or Probable Causes(s)

Samples will be recollected.

3. Discussion and Proposed Action Other Description:
__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

4. Project Manager Instructions...signature/date: [signature] 2/16/96
__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
X Client Contacted:
Date/Person 2/16/96 Amy Lamborg
__ Add
__ Cancel

5. Final Action...signature/date: [signature] 2/17/96 Other Explanation:
__ Verified re-[log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
✓ Hard Copy COC Revised
✓ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	X Metals: Reichner/Doughty
__	X Lab Manager: J. Michael Taylor	__	X Inorganic: Perrone/Leonards
__	X Project Mgr: T. Stone	__	X GC/LC: Jarvis/Skrzat/Schnell
__	X Section Mgr: Siery/Durke/Daniels	__	X MS: LeMin/McIntyre/Taylor/Kasdras/Steele
__	X QA Section Mgr: Dianne Therry	(1)	__ Log-in: Geiger
__	X QA File: Feldman/Racioppi/Shaffer	__	__ EDD: Miller
__	X Data Reporting: Som Basuthakur	__	X Admin: Brewer/Keehn/Edgington
__	X Sample Prep: Osei-Mensah/Swisher	__	X Other: Jim Daniels

008

RFW 21-21-006/E-03/95

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MANAGERS DESIGNERS/CONSULTANTS

LIONVILLE LABORATORY ANALYTICAL REPORT

Client : EG&G MOUND
RFW# : 9602L070

W.O. #: 10572-004-001-9999-00
Date Received: 02-14-96

CLP/ILM03.0 METALS

1. This narrative covers the analyses of 6 soil samples.

2. The samples were prepared and analyzed in accordance with CLP/ILM03.0 protocol and the MOUND PLANT, O.U. 9, site wide QAPP.

3. ICVs, CCVs, and LCSs stock standards were purchased from Inorganic Ventures and High Purity.

4. All analyses were performed within the required holding times.

5. All Initial and Continuing Calibration Verifications (ICV/CCV's) were within control limits.

6. All Initial and Continuing Calibration Blanks (ICB/CCB's) were within control limits.

7. All samples in preparation batch 96L0364 were found to contain Aluminum at concentrations greater than 10X the preparation blank.

8. All ICP Interference Check Samples (ICSA and ICSAB) were within control limits.

9. All Laboratory Control Samples (LCS) were within the 80-120% control limits.

10. All Serial Dilution percent differences were within CLP control limits except for:

Sample ID	Element	%Difference
SGC-A61-000053	Barium	15.6
SGC-A61-000053	Chromium	12.0
SGC-A61-000053	Copper	22.2
SGC-A61-000053	Iron	12.8
SGC-A61-000053	Manganese	19.4
SGC-A61-000053	Sodium	19.6
SGC-A61-000053	Vanadium	14.0
SGC-A61-000053	Zinc	30.4

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 566 pages.

11. All matrix spike recoveries were within the 75-125% control limits (exception allowed when sample concentration exceeds the spike added concentration by a factor of 4 or more) except for:

Sample ID	Element	MS %Recovery	MSD %Recovery
SGC-A61-000053	Lead	390.9	773.4
SGC-A61-000053	Selenium	49.1	71.1
SGC-A61-000053	Thallium	62.6	65.0

12. All matrix spike duplicates were within the 20% Relative Percent Difference (RPD) control limits except for:

Sample ID#	Element	RPD (%)
SGC-A61-000053	Aluminum	121.8
SGC-A61-000053	Calcium	52.9
SGC-A61-000053	Magnesium	197.2
SGC-A61-000053	Manganese	200.0
SGC-A61-000053	Lead	65.9
SGC-A61-000053	Selenium	42.9

13. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits except for:

Sample ID	Element	%RPD
SGC-A61-000053	Lead	61.2
SGC-A61-000053	Magnesium	25.8
SGC-A61-000053	Manganese	36.6
SGC-A61-000053	Zinc	71.6

14. Method of Standard Additions (MSA) analysis was performed on the following sample:

Sample ID	Element
SGC-A61-000053	Lead

15. The code AV is currently in use by the laboratory for both mercury instruments in operation (HG1 and HG2). HG1 and HG2 are complete with autosampler and software, but still require manual digestion.

16. HG1 and HG2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionally scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 ml. For soils, 0.1 gram of sample is taken to a final volume of 50 ml (including all reagents).

17. All sample IDs were changed to accommodate the EPA naming convention which allows a maximum of 6 characters on all CLP Forms. Refer below to correlate modified IDs to original client IDs:

Original ID#s	Modified ID#s
SGC-A03-000137	000137
SGC-A61-000042	000042
SGC-A61-000043	000043
SGC-A61-000053	000053
SGC-A03-000079	000079
SGC-NAC-000022	000022

18. A discrepancy exists between raw data and Form XIVs analytical spikes recovery calculations performed for graphite furnace AA analytes. Instrument software calculates spike recoveries based on absolute values below the IDL for sample results. This is hard-coded by the vendor and is currently not correctable. CLP convention (SOW ILM03.0, Exhibit E, Section V, Item 6, page E-21) requires that when values fall below the IDL, the sample result is equal to zero (0) for the purposes of calculating the percent recovery. The Form XIVs contain the correct calculation.

19. I certify that this data package is in compliance with the terms and conditions of the Statement of Work for this project, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Bruce C. Fuller unit leader — 3-12-96

FOR J. Michael Taylor — Date
Vice President and Laboratory Manager
Lionville Analytical Laboratory

skl\m02-070

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MANAGERS DESIGNERS/CONSULTANTS

LIONVILLE LABORATORY ANALYTICAL REPORT

Client : EG & G MOUND
RFW# : 9602L070

W.O. #: 10572-004-001-9999-00
Date Received: 02-14-96

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 6 soil samples.

2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.

3. Sample holding times as required by the method and/or contract were met.

4. The method blank was within method criteria.

5. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS was within the 20% Relative Percent Difference (RPD) control limit.

6. The matrix spike recoveries for Nitrate Nitrite sample SGC-A61-000053 were within the 75-125% control limits. The matrix spike duplicate was within the 20% RPD control limit.

7. The replicate analyses for Nitrate Nitrite and Percent Solids sample SGC-A61-000053 were within the 20% RPD control limit.

8. Results for Nitrate Nitrite solid samples are reported on a dry weight basis.

J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

3.4.96
Date

njp\i02-070

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 45 pages.

ATTACHMENT V

CHAIN-OF-CUSTODY

WESTON Analytics Use Only

7602L070

FED EX AIRBILL # ~~1040 3419 5~~ 748594786 6

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: EG&G MOUND

Est. Final Proj. Sampling Date:

Work Order #: ~~EG8496~~ 10572-004001-9999-00

Project Contact/Phone #: Amy Lamborg/320-3601

AD Project Manager: Roger McCready (513)

QC Special Del Special TAT 30 DAY

Date Rec'd 2-14-96 Date Due 3/15/96

Account #: 29SMalkin

Refrigerator #		1	2	3					2							
#/Type Container	Liquid	G														
	Solid	3G	G	G					G							
Volume	Liquid	40														
	Solid	120	250	250					250							
Preservatives		HCL	—	—					—							
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Total Metal	CN						

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

WESTON Analytics Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624	0625	Kpar.	0625			CN NH3 NS							
001	SGC-A03-000037	(MS)	(MSD)	S	2/13/96	1000	2	1	1				1							
002	SGC-A01-000042	(MS)	(MSD)	S	2/13/96	1110	2	1	1				1							
003	SGC-A01-000043	(MS)	(MSD)	S	2/13/96	1035	2	1	1				1							
~~004~~	~~SGC-A01-000053~~	~~(MS)~~	~~(MSD)~~	~~S~~	~~2/13/96~~	~~0930~~	~~2~~	~~1~~	~~1~~				~~1~~							
005	SGC-A01-000053	(MS)	(MSD)	S	2/13/96	0930	4	2	2				2							
006	SGC-A03-000079	(MS)	(MSD)	S	2/13/96	1015	2	1	1				1							
~~007~~	~~SGC-SPB-000100~~	~~(MS)~~	~~(MSD)~~	~~S~~	~~2/13/96~~	~~1030~~	~~2~~	~~1~~	~~1~~				~~1~~							
008	SGC-NAC-000022	(MS)	(MSD)	S	2/13/96	0950	2	1	1				1							
~~009~~	~~SGC-SPB-000099~~	~~(MS)~~	~~(MSD)~~	~~S~~	~~2/13/96~~	~~1100~~	~~2~~	~~1~~	~~1~~				~~1~~							
010	SGC-NAC-000144			W	2/13/96	1645	3													

cancelled per Client

cancel per Client

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

metals = HSL + Mo, B, Sn, Li

NSA# Terran-062

NMSC = CSI / SNM

DATE/REVISIONS:

1. TEMP.
2. PM - Judy Stone
3. ~~2/14/96~~ ms/msd on #005
4. 2/15/96 Run ms/msd on 005
5. 004 cancelled - this ms/msd
6. 005 ~~2/15/96~~ 96PM2106

WESTON Analytics Use Only

Samples were: 1) Shipped or Hand Delivered; Airbill # 748594786; 2) Ambient or Chilled; 3) Received in Good Condition Y or N; 4) Labels Indicate Properly Preserved Y or N; 5) Received Within Holding Times Y or N

COC Tape was: 1) Present on Outer Package Y or N; 2) Unbroken on Outer Package Y or N; 3) Present on Sample Y or N; 4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec'd Y or N

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

Relinquished by	Received by	Date	Time
[illegible]		2/13/96	1800
Fed Ex	I Bennis	2-14-96	9:30

Relinquished by	Received by	Date	Time

L372 L373 L375 L377 L378 Ref# Cooler# 738 [illegible]

2/20/96 [illegible] OK subsample from A008 [illegible] CN [illegible] 125 ml plastic screw top.

2/17/96 cancel [illegible] d all analyses on # 007, 009 per SPR# [illegible]

LABYRINTH Group
A Division of PATHFINDER Corp.

April 22, 1996

Amy Lamborg
Terran Corporation
4080 Executive Drive
Beavercreek, OH 45430-1061

Dear Ms. Lamborg:

Attached is the recalculation of the U-234 recovery for SDG 6291. As I stated in my letter dated April 15, 1996, Quanterra provided me with the U-234 abundance of the tracer added to allow me to complete the calculation. Andy Kopriva of Quanterra also stated that the Matrix Spike discrepancy has been resolved and no further action is required. Finally, after careful review of the gamma spectroscopy documentation provided by Quanterra, I have determined that no manual recalculations can be accomplished. This is due to the software driven detection equipment utilizing peak/energy searches with a user defined tolerance and established reference library. I would suggest that Terran and/or EG&G Mound perform a software verification/validation to ensure acceptable tolerances are used by Quanterra and the library contains the correct information for the radioisotopes of concern. I hope this letter and attachment resolve all outstanding discrepancies associated with SDG 6291 and SDG6298. If you determine that any additional information or documentation is needed please contact me at your earliest convenience. Additionally, please provide a written acknowledgment if all requirements have been resolved. Thank you for your attention.

Sincerely,

Michael J. Jernigan
Health Physicist

Attachment (Recovery Recalculation U-234 SDG 6291)

P.O. Box 750155, Dayton, OH 45475 ; (513) 436-9922

RECALCULATION | SDG 6291

RECOVERY

U-234

$$\text{RECOVERY} = \frac{\text{ACTIVITY FOUND}}{\text{ACTIVITY EXPECTED}}$$

$$\text{ACTIVITY FOUND} = \frac{\text{Net cpm (efficiency)}}{\text{Yield (Sample size) (2.22)}}$$

Sample size = 2g
Yield = 0.6555
Efficiency = 3.584

Net cpm = 0.4072

$$\text{ACTIVITY FOUND} = \frac{0.4072\ (3.584)}{(0.6555)(2)(2.22)} = 0.50144\ \text{pCi/g}$$

ACTIVITY OF TRACER ADDED = 4.5071 dpm

Abundances
U-234 = 0.4778
U-235 = 0.0218
U-238 = 0.5004

$$\text{ACTIVITY EXPECTED} = \frac{(\text{Activity Added})(\text{Abundance})}{(\text{Sample size})\ (2.22)}$$

$$\text{ACTIVITY EXPECTED} = \frac{(4.5071)(0.4778)}{(2)\ (2.22)} = 0.48502\ \text{pCi/g}$$

$$\text{RECOVERY} = \frac{0.50144}{0.48502} = 1.0338$$

$$1.0338 \times 100 = \underline{103.38\%}$$

Reported 103.4%

4/22/96

Radiological Validation

LABYRINTH Group
A Division of PATHFINDER Corp.

April 15, 1996

Amy Lamborg
Terran Corporation
4080 Executive Drive
Beavercreek, OH 45430-1061

Dear Ms. Lamborg:

Labyrinth Group respectfully submits the attached data validation report in support of EG&G Mound, OU 9 activities. A QC problem was encountered. A Matrix Spike appears to be analyzed with this SDG, however it is not clear and a separate Form II is not provided. Quanterra has been notified of this discrepancy as well as the Chain of Custody discrepancy we discussed earlier. The recalculation for gamma spectroscopy is not included pending some clarification from Quanterra. After careful review the gamma spectroscopy data appears to be all computer generated based on user defined tolerances and an established library of defined energy values for specific radionuclides. Upon resolution with Quanterra, recalculation and/or discussion of gamma spectroscopy will be submitted to Terran under separate cover for this SDG 6291 and 6298. In addition, a minor discrepancy developed in the recovery recalculation, all other recalculations were acceptable, upon resolution this will also be submitted separately. The data validation package submitted is based on the information provided by Quanterra at this time, it is my opinion that resolution of the outstanding discrepancies will result in no substantial change in the overall qualification/validation of this SDG. This is based on the previous submissions by Quanterra. If you determine that any required information or documents are missing please contact me at your earliest convenience. Thank you for your attention.

Sincerely,

Michael J. Jernigan
Health Physicist

1 Attachment (Data Validation Report for SDG# 6291)

P.O. Box 750155, Dayton, OH 45475 ; (513) 436-9922

Report of Data Validation Results

EG&G Mound Applied Technologies Inc.
Work Order # 602110
SDG# 6291

CASE SUMMARY

SDG# 6291, Report Number 1144
Seven (7) soil samples collected February 6 & 7 1996.
Analysis for Isotopic Uranium, Isotopic Thorium, and Isotopic Plutonium by alpha spectroscopy. Gamma spectroscopy for Am-241, Bi-207, Bi-210m, Co-60, Cs-137, K-40, and Ra-226.
Laboratory conducting analysis: Quanterra Environmental Services (QES).

Sample IDs:	EG&G	QES	Analysis Requested
	NAC-000033D	60211001	Iso-U, Iso-Th, Iso-Pu, Gamma Spec
	NAC-000023D	60211002	Iso-U, Iso-Th, Iso-Pu, Gamma Spec
	A21-000088D	60211003	Iso-U, Iso-Th, Iso-Pu, Gamma Spec
	NAC-000029D	60211004	Iso-U, Iso-Th, Iso-Pu, Gamma Spec
	NAC-000028D	60211005	Iso-U, Iso-Th, Iso-Pu, Gamma Spec
	A22-000095D	60211006	Iso-U, Iso-Th, Iso-Pu, Gamma Spec
	A22-000121	60211007	Iso-U, Iso-Th, Iso-Pu, Gamma Spec

Holding Times

Tables IV.3 and IV.4 of the QAPP do not specify a holding time for Radiological Analyses. All samples were analyzed within 30 days of receipt.

Results of Laboratory Quality Control Checks

Table III.2 of the QAPP summarizes the laboratory quality control check. Background, pulse check, blank, LCS, and replicate were all within acceptance criteria.

Results of Associated Field Quality Control Checks

There were no field quality control samples (duplicate, blank) associated with this SDG.

Calculations

In accordance with QAPP section 2.2, one calculation per batch is required. Recalculation values were within acceptable criteria. Sample P021101S data was used in the alpha spec recalculations. See Attachment II for recalculation results. The recovery recalculation is not included due to a minor unresolved discrepancy. Upon completion the recalculation will be submitted. This does not affect the data validation effort assuming that Quanterra's automated calculations and manual

recheck are accurate. Gamma spectroscopy recalculation was not performed due to the apparent energy/peak search method utilized by the software. Upon clarification from Quanterra and further evaluation, recalculation or discussion of gamma spectroscopy will be submitted later under separate cover.

General Comments/Observations

Matrix Spike analysis for alpha spectroscopy was included, but a Form II was not submitted identifying the results of this laboratory QC. Quanterra needs to provide a this form for inclusion with this SDG. This discrepancy should not affect the data validation of the samples.

Overall Assessment of Data

The data associated with SDG# 6291 had a few minor problems. Some results were qualified as nondetect estimated 'UJ' due to exceeding the MDA quantitation limit Table VI.1. No nonconformances were identified by Quanterra. Overall assessment of the data is usable. The laboratory quality control samples utilized exhibited acceptable results and substantiate the validation based on the submitted information/results for this SDG.

ATTACHMENTS

I	Sample Result Forms
II	Recalculation
III	Data Outlier Summary Forms
IV	Data Completeness Checklist
V	Laboratory Case Narrative
VI	Chain-of-Custody

4/15/96

ATTACHMENT I

SAMPLE RESULTS FORM

Lab Name: QUANTERRA, Richland
SDG: 6291
Lab Sample ID: 60211001
EG&G ID: NAC000033D

Date: 4/15/96
Collection Date: 2/6/96
Analysis Date: 2/20/96-3/7/96
Matrix: Soil

Isotope	Result	Total Error	Units	Qualifier	Comments
Th-228	1.11	2.2E-01	pCi/g	-	
Th-230	9.07E-01	1.9E-01	pCi/g	-	
Th-232	9.63E-01	2.0E-01	pCi/g	-	
U-234	7.96E-01	1.9E-01	pCi/g	-	
U-235	5.50E-01	3.7E-02	pCi/g	-	
U-238	9.38E-01	2.1E-01	pCi/g	-	
Pu-238	1.09E-01	2.6E-02	pCi/g	-	
Pu-239/40	1.43E-02	7.7E-03	pCi/g	-	
Am-241	4.74E-01	3.1E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
Bi-207	1.77E-01	9.1E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
Bi-210m	2.25E-01	1.2E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
Co-60	2.05E-01	1.1E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
Cs-137	6.02E-01	2.6E-01	pCi/g	-	
K-40	3.14E+01	5.5E+00	pCi/g	-	
Ra-226	1.30	3.6E-01	pCi/g	-	

Validator Signature: _____

SAMPLE RESULTS FORM

Lab Name: QUANTERRA, Richland
SDG: 6291
Lab Sample ID: 60211002
EG&G ID: NAC000023D

Date: 4/15/96
Collection Date: 2/6/96
Analysis Date: 2/20/96-3/7/96
Matrix: Soil

Isotope	Result	Total Error	Units	Qualifier	Comments
Th-228	1.32	2.3E-01	pCi/g	-	
Th-230	1.08	2.0E-01	pCi/g	-	
Th-232	1.18	2.1E-01	pCi/g	-	
U-234	9.55E-01	2.2E-01	pCi/g	-	
U-235	2.82E-02	1.8E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
U-238	1.10	2.5E-01	pCi/g	-	
Pu-238	1.19E-01	2.5E-02	pCi/g	-	
Pu-239/40	1.62E-02	7.4E-03	pCi/g	-	
Am-241	5.39E-01	3.1E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
Bi-207	1.78E-01	1.0E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
Bi-210m	2.18E-01	1.4E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
Co-60	2.45E-01	1.7E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
Cs-137	4.23E-01	2.1E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
K-40	3.66E+01	6.1E+00	pCi/g	-	
Ra-226	9.87E-01	3.7E-01	pCi/g	-	

Validator Signature: _____

SAMPLE RESULTS FORM

Lab Name: QUANTERRA, Richland
SDG: 6291
Lab Sample ID: 60211006
EG&G ID: A22000095D

Date: 4/15/96
Collection Date: 2/7/96
Analysis Date: 2/20/96-3/7/96
Matrix: Soil

Isotope	Result	Total Error	Units	Qualifier	Comments
Th-228	5.56E-01	1.2E-01	pCi/g	-	
Th-230	7.05E-01	1.4E-01	pCi/g	-	
Th-232	5.67E-01	1.2E-01	pCi/g	-	
U-234	3.75E-01	9.5E-02	pCi/g	-	
U-235	1.98E-02	1.8E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
U-238	4.08E-01	1.0E-01	pCi/g	-	
Pu-238	1.10E+01	1.5E+00	pCi/g	-	
Pu-239/40	4.05E-02	1.2E-02	pCi/g	-	
Am-241	1.08	6.3E-01	pCi/g	UJ	Result < MDA, nondetect. MDA reported. MDA > Quantitation Limit Table VI.1
Bi-207	1.27E-01	6.7E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
Bi-210m	1.42E-01	9.9E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
Co-60	1.76E-01	7.2E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
Cs-137	1.31E-01	9.8E-02	pCi/g	-	
K-40	7.18	2.0E+00	pCi/g	-	
Ra-226	5.59E-01	2.4E-01	pCi/g	-	

Validator Signature: _____

SAMPLE RESULTS FORM

Lab Name: QUANTERRA, Richland
SDG: 6291
Lab Sample ID: 60211003
EG&G ID: A21000088D

Date: 4/15/96
Collection Date: 2/7/96
Analysis Date: 2/20/96-3/7/96
Matrix: Soil

Isotope	Result	Total Error	Units	Qualifier	Comments
Th-228	9.54E-01	1.8E-01	pCi/g	-	
Th-230	1.30	2.3E-01	pCi/g	-	
Th-232	1.01	1.9E-01	pCi/g	-	
U-234	8.60E-01	2.1E-01	pCi/g	-	
U-235	3.48E-02	1.8E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
U-238	8.97E-01	2.1E-01	pCi/g	-	
Pu-238	5.08-01	7.7E-02	pCi/g	-	
Pu-239/40	2.16E-02	8.0E-03	pCi/g	-	
Am-241	9.57E-01	5.8E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
Bi-207	1.37E-01	8.5E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
Bi-210m	1.98E-01	1.3E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
Co-60	1.30E-01	1.1E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
Cs-137	6.91E-01	2.7E-01	pCi/g	-	
K-40	2.33E+01	4.5E+00	pCi/g	-	
Ra-226	1.26	4.1E-01	pCi/g	-	

Validator Signature: _____

SAMPLE RESULTS FORM

Lab Name: QUANTERRA, Richland
SDG: 6291
Lab Sample ID: 60211004
EG&G ID: NAC000029D

Date: 4/15/96
Collection Date: 2/7/96
Analysis Date: 2/20/96-3/7/96
Matrix: Soil

Isotope	Result	Total Error	Units	Qualifier	Comments
Th-228	1.31	2.3E-01	-	pCi/g	
Th-230	8.43E-01	1.6E-01	-	pCi/g	
Th-232	1.11	2.0E-01	-	pCi/g	
U-234	7.74E-01	1.8E-01	-	pCi/g	
U-235	4.18E-02	3.1E-02	-	pCi/g	
U-238	9.68E-01	2.1E-01	-	pCi/g	
Pu-238	1.51E-01	3.0E-02	-	pCi/g	
Pu-239/40	1.07E-02	5.8E-03	-	pCi/g	
Am-241	1.37	9.3E-01	UJ	pCi/g	Result < MDA, nondetect. MDA reported. MDA > Quantitation Limit Table VI.1
Bi-207	1.79E-01	1.0E-01	U	pCi/g	Result < MDA, nondetect. MDA reported.
Bi-210m	1.81E-01	1.1E-01	U	pCi/g	Result < MDA, nondetect. MDA reported.
Co-60	1.87E-01	6.5E-02	U	pCi/g	Result < MDA, nondetect. MDA reported.
Cs-137	4.93E-01	1.7E-01	-	pCi/g	
K-40	2.91E+01	5.1E+00	-	pCi/g	
Ra-226	9.32E-01	3.0E-01	-	pCi/g	

Validator Signature: _____

SAMPLE RESULTS FORM

Lab Name: QUANTERRA, Richland
SDG: 6291
Lab Sample ID: 60211005
EG&G ID: NAC000028D

Date: 4/15/96
Collection Date: 2/6/96
Analysis Date: 2/20/96-3/7/96
Matrix: Soil

Isotope	Result	Total Error	Units	Qualifier	Comments
Th-228	6.65E-01	1.4E-01	pCi/g	-	
Th-230	6.11E-01	1.3E-01	pCi/g	-	
Th-232	5.67E-01	1.3E-01	pCi/g	-	
U-234	4.35E-01	1.3E-01	pCi/g	-	
U-235	3.40E-02	2.1E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
U-238	5.08E-01	1.4E-01	pCi/g	-	
Pu-238	1.16E-01	3.7E-02	pCi/g	-	
Pu-239/40	7.73E-03	9.0E-03	pCi/g	-	
Am-241	1.02	5.8E-01	pCi/g	UJ	Result < MDA, nondetect. MDA reported. MDA > Quantitation Limit Table VI.1
Bi-207	1.64E-01	9.3E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
Bi-210m	1.87E-01	1.3E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
Co-60	1.75E-01	8.5E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
Cs-137	2.80E-01	1.9E-01	pCi/g	-	
K-40	2.42E+01	4.6E+00	pCi/g	-	
Ra-226	8.05E-01	3.1E-01	pCi/g	-	

Validator Signature: _____

SAMPLE RESULTS FORM

Lab Name: QUANTERRA, Richland
SDG: 6291
Lab Sample ID: 60211007
EG&G ID: A22000121

Date: 4/15/96
Collection Date: 2/6/96
Analysis Date: 2/20/96-3/7/96
Matrix: Soil

Isotope	Result	Total Error	Units	Qualifier	Comments
Th-228	3.68E-01	9.8E-02	pCi/g	-	
Th-230	3.95E-01	1.0E-01	pCi/g	-	
Th-232	2.47E-01	7.6E-02	pCi/g	-	
U-234	2.89E-01	9.1E-02	pCi/g	-	
U-235	2.38E-02	1.1E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
U-238	3.48E-01	1.0E-01	pCi/g	-	
Pu-238	6.80E-01	1.1E-01	pCi/g	-	
Pu-239/40	9.67E-03	6.2E-03	pCi/g	-	
Am-241	5.69E-01	3.4E-01	pCi/g	U	Result < MDA, nondetect. MDA reported.
Bi-207	1.09E-01	6.3E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
Bi-210m	1.18E-01	8.8E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
Co-60	1.50E-01	7.9E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
Cs-137	1.31E-01	7.1E-02	pCi/g	U	Result < MDA, nondetect. MDA reported.
K-40	2.59E+00	1.7E+00	pCi/g	-	
Ra-226	4.86E-01	1.8E-01	pCi/g	-	

Validator Signature:

ATTACHMENT II

CALCULATIONS | SDG 6291

Sample ID P0211015

TRACER YIELD

U-232

$$\frac{\text{Counts}}{\text{Count time}} - \frac{\text{Bkg Counts}}{\text{Count time}} = \text{Net counts per minute}$$

$$\frac{191}{200} - \frac{96}{2500} = 0.9166 \text{ Net cpm}$$

Efficiency = 3.584

Activity of tracer = 5.0113 dpm/alqt

$$\frac{0.9166\,(3.584)}{5.0113} = \underline{0.6555}$$

Reported value = 0.656

U-234 Activity

Net counts per minute = 0.4072

$$\frac{\text{Net cpm (efficiency)}}{\text{(yield)(sample size)(2.22)}} = \text{Activity in pCi/g}$$

$$\frac{0.4072\,(3.584)}{(0.6555)(2.0)(2.22)} = 0.50144 \text{ pCi/g}$$

Reported value = 0.5014

U-234 TPU

$$\frac{\sqrt{(\text{Ran Error})^2 + (\text{Sy Error})^2}}{100}\,(\text{Activity}) = \text{TPU}$$

$$\frac{\sqrt{(13.8)^2 + (2.8)^2}}{100}\,(0.50144) = 0.\underline{07061}$$

Reported value = 0.0705

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MDA

$$\left[4.65\left(\frac{\text{bkg c/m}}{\text{count time}}\right)^{\frac{1}{2}} + \frac{2.71}{\text{count time}}\right] * K = MDA$$

$$K = \frac{(\text{Efficiency})}{(\text{Yield})(\text{Sample size})(2.22)}$$

$$K = \frac{3.584}{(0.6555)(2.0)(2.22)} = 1.2314$$

$$\left[4.65\left(\frac{0.0028}{200}\right)^{\frac{1}{2}} + \frac{2.71}{200}\right](1.2314) = MDA$$

$$(0.03095)(1.2314) = \underline{0.03811}$$

Reported value = 0.0381

4/15/96

13-782 500 SHEETS, FILLER 5 SQUARE
42-381 50 SHEETS EYE-EASE® 5 SQUARE
42-382 100 SHEETS EYE-EASE® 5 SQUARE
42-389 200 SHEETS EYE-EASE® 5 SQUARE
42-3989 100 RECYCLED WHITE 5 SQUARE
42-3999 200 RECYCLED WHITE 5 SQUARE
Made in U.S.A.
National® Brand

ATTACHMENT III

BACKGROUND SUMMARY
ALPHA ISOTOPIC ANALYSES

PREPARED BY: MICHAEL JERNIGAN
DATE: 04/15/96
LABORATORY BATCH #: 602110
LABORATORY NAME/LOCATION: QUANTERRA RICHLAND, WA

OPERABLE UNIT NO: 9
COLLECTION DATE(S): 02/06/96-02/07/96
QC Limits: <MDA for the Sample

		PLUTONIUM			AMERICIUM		
Lab Sample ID	Mound ID	Sample Ct. Date	Bkgd Ct Date	Comment	Sample Ct. Date	Bkgd Ct Date	Comment
NONE							

BACKGROUND SUMMARY
ALPHA ISOTOPIC ANALYSES

PREPARED BY: MICHAEL JERNIGAN
DATE: 04/15/96
LABORATORY BATCH #: 602110
LABORATORY NAME/LOCATION: QUANTERRA RICHLAND, WA

OPERABLE UNIT NO: 9
COLLECTION DATE(S): 02/06/96-02/07/96
QC Limits: <MDA for the Sample

		THORIUM			URANIUM		
Lab Sample ID	Mound ID	Sample Ct. Date	Bkgd Ct Date	Comment	Sample Ct. Date	Bkgd Ct Date	Comment
NONE							

YIELD SUMMARY
ALPHA ISOTOPIC ANALYSES

PREPARED BY: MICHAEL JERNIGAN
DATE: 04/15/96
LABORATORY BATCH #: 602110
LABORATORY NAME/LOCATION: QUANTERRA RICHLAND, WA

OPERABLE UNIT NO: 9
COLLECTION DATE(S): 02/06/96-02/07/96
QC Limits: %

		PLUTONIUM		URANIUM		THORIUM		AMERICIUM	
Lab Sample ID	Mound ID	Yield	Comment	Yield	Comment	Yield	Comment	Yield	Comment
NONE									

REPLICATES SUMMARY
ALPHA ISOTOPIC ANALYSES

PREPARED BY: MICHAEL JERNIGAN
DATE: 04/15/96
LABORATORY BATCH #: 602110
LABORATORY NAME/LOCATION: QUANTERRA RICHLAND, WA

OPERABLE UNIT NO: 9
COLLECTION DATE(S): 02/06/96-02/07/96
QC Limits: +/- 4 SD of Normalized Range

		PLUTONIUM				AMERICIUM			
Lab Sample ID	Mound ID	Org Result pCi/g	Rep Result pCi/g	Std Dev	Comment	Org Result pCi/g	Rep Result pCi/g	Std Dev	Comment
NONE									

REPLICATES SUMMARY
ALPHA ISOTOPIC ANALYSES

PREPARED BY: MICHAEL JERNIGAN
DATE: 04/15/96
LABORATORY BATCH #: 602110
LABORATORY NAME/LOCATION: QUANTERRA RICHLAND, WA

OPERABLE UNIT NO: 9
COLLECTION DATE(S): 02/06/96-02/07/96
QC Limits: +/- 4 SD of Normalized Range

		THORIUM				URANIUM			
Lab Sample ID	Mound ID	Org Result pCi/g	Rep Result pCi/g	Std Dev	Comment	Org Result pCi/g	Rep Result pCi/g	Std Dev	Comment
NONE									

METHOD SPIKE SUMMARY
ALPHA ISOTOPIC ANALYSES

PREPARED BY: MICHAEL JERNIGAN
DATE: 04/15/96
LABORATORY BATCH #: 602110
LABORATORY NAME/LOCATION: QUANTERRA RICHLAND, WA

OPERABLE UNIT NO: 9
COLLECTION DATE(S): 02/06/96-02/07/96
QC Limits: %

		PLUTONIUM				AMERICIUM			
Lab Sample ID	Mound ID	Amt Added pCi/g	Amt Found pCi/g	Std Dev	Comment	Amt Added pCi/g	Amt Found pCi/g	Std Dev	Comment
NONE									

METHOD SPIKE SUMMARY
ALPHA ISOTOPIC ANALYSES

PREPARED BY: MICHAEL JERNIGAN
DATE: 04/15/96
LABORATORY BATCH #: 602110
LABORATORY NAME/LOCATION: QUANTERRA RICHLAND, WA

OPERABLE UNIT NO: 9
COLLECTION DATE(S): 02/06/96-02/07/96
QC Limits: %

		THORIUM				URANIUM			
Lab Sample ID	Mound ID	Amt Added pCi/g	Amt Found pCi/g	Std Dev	Comment	Amt Added pCi/g	Amt Found pCi/g	Std Dev	Comment
NONE									

REPLICATES SUMMARY
GAMMA ANALYSES

PREPARED BY: MICHAEL JERNIGAN
DATE: 04/15/96
LABORATORY BATCH #: 602110
LABORATORY NAME/LOCATION: QUANTERRA RICHLAND, WA

OPERABLE UNIT NO: 9
COLLECTION DATE(S): 02/06/96-02/07/96
QC Limits: +/- 4 SD of Normalized Range

Lab Sample ID	Mound ID	Org Result pCi/g	Rep Result pCi/g	Std Dev	Comment	Org Result pCi/g	Rep Result pCi/g	Std Dev	Comment
NONE									

ATTACHMENT IV

DATA PACKAGE COMPLETENESS CHECKLIST
EG&G MOUND PROJECT

DATE: April 15, 1996 W.O. #: 602110
LABORATORY BATCH #: 1144 SDG NO: 6291
LABORATORY NAME/LOCATION: Quanterra COLLECTION DATE(S): 2/6-2/7/96

RADIOISOTOPES

YES	NO	N/A	
☒	☐	☐	TABLE OF CONTENTS
			I. CASE NARRATIVE
☒	☐	☐	COVER PAGE
☒	☐	☐	CASE NARRATIVE
☒	☐	☐	CROSS REFERENCE OF SAMPLE ID TO LABORATORY ID
☒	☐	☐	DESCRIPTION OF DATA QUALIFIERS USED IN THE REPORT
☒	☐	☐	SUMMARY OF SAMPLE RESULTS
☒	☐	☐	SUMMARY OF QUALITY CONTROL RESULTS
☒	☐	☐	SUMMARY OF ANALYSIS AND PREPARATION DATES
☒	☐	☐	APPLICABLE LABORATORY SOP AND REVISION DATE
			II. SAMPLE DATA
☒	☐	☐	EXAMPLE CALCULATION PAGE (Alpha Spec Only)
☐	☐	☒	TRITIUM CALCULATION AND RESULT SHEET (RAW DATA PART OF STANDARD DATA)
☒	☐	☐	GAMMA-SPECTROMETRY (RESULTS FOLLOWED BY RAW DATA)
☒	☐	☐	ALPHA-SPECTROMETRY (RESULTS FOLLOWED BY RAW DATA)
☐	☐	☒	Sr-90 (RAW DATA PART OF STANDARDS DATA)
☐	☐	☒	Ra-226 (RAW DATA PART OF STANDARDS DATA)
☐	☐	☒	Am-241 (RAW DATA PART OF STANDARDS DATA)
☒	☐	☐	SAMPLE PREPARATION/EXTRACTION/DIGESTION LOGS
☐	☐	☒	PERCENT SOLIDS DETERMINATION
☒	☐	☐	INSTRUMENT RUN LOGS
			IIB. STANDARDS DATA
☐	☐	☒	MONTHLY COMPILATION PROVIDED SEPARATELY
			IIC. RAW QC DATA
☒	☐	☐	QUALITY CONTROL RESULTS (BLANKS, MS/MSD, REPLICATE)
☒	☐	☐	QUALITY CONTROL RAW DATA (BEHIND EACH RESULT)
			III. SAMPLE RECEIPT
☒	☐	☐	CHAIN OF CUSTODY
☒	☐	☐	SAMPLE LOG IN RECORD
☐	☒	☐	IV. NONCONFORMANCE RECORDS/CORRESPONDENCE/TELEPHONE RECORDS/ETC.

DATA PACKAGE COMPLETENESS CHECKLIST
EG&G MOUND PROJECT

RADIOISOTOPES

DATE: April 15, 1996 W.O. #: 602110
LABORATORY BATCH #: 1144 SDG NO: 6291
LABORATORY NAME/LOCATION: Quanterra COLLECTION DATE(S): 2/6-2/7/96

LABORATORY REVIEWER: Andy Kopriva DATE: 03/11/96
VERIFIED BY: DATE:
COMMENTS: Chain of Custody shows eleven (11) samples delivered to Quanterra. This SDG 6291 only includes seven (7) samples. Quanterra included no nonconformance records with this SDG. Terran (Amy Lamborg) indicated that the missing sample analysis is included in SDG6232. Quanterra should have included this information in this SDG either as a nonconformance, or in the case narrative.

Completed by: Michael J. Jernigan
Health Physicist

ATTACHMENT V

Quanterra Environmental Services

Quanterra Incorporated
2800 George Washington Way
Richland, Washington 99352

509 375-3131 Telephone
509 375-5590 Fax

March 11, 1996

Terran Corporation
4080 Executive Drive
Beavercreek, OH 45430-1051

Attention: Roger McCready

Date Received In Lab	:	February 8, 1995
Sample Type	:	Soil
SDG Number	:	6291

I. Introduction

On February 8, 1995, processing of seven soil samples was initiated by the Quanterra Environmental Services Richland (QTESRL) laboratory for radiochemical analysis. Upon receipt, the samples were assigned laboratory ID numbers to correspond with Terran Corporation specific ID numbers that are described on the cover page of the Analytical Data Package report forms. These samples were assigned to work order 602110.

II. Analytical Results/Methodology

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

The analyses requested were:

Alpha Spectroscopy

Plutonium-238, -239/240 (PUISO) by method QUANTERRA RICHRC5010 (NAS-NS-3058)
Uranium-234, -235, -238 (UISO) by method QUANTERRA RICHRC5030(NAS-NS-3050)
Thorium-228, -230, -232 (THISO) by method QUANTERRA RICHRC5011

Gamma Spectroscopy

Gamma Scan (GAMMA) by method QUANTERRA RICHRC5017

III. Comments

Alpha Spectroscopy

Plutonium-238, -239/240

*The LCS, batch blank, sample and sample replicate results are within contractual requirements.

Uranium-234, -235, -238

*The LCS, batch blank, sample and sample replicate results are within contractual requirements.

Thorium-228, -230, -232

*The LCS, batch blank, sample and sample replicate results are within contractual requirements.

Gamma Spectroscopy

Gamma Scan

*The sample replicate result is within the contractual requirement. Many of the Ra-226 MDA results did not meet the contractual requirement of 0.3 pCi/gram since the Nuclear Data Gamma Software did not detect Ra-226, therefore, the environmental background was not subtracted from the sample result.

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

Reviewed and approved:

Andy Kopriva
Project Manager

ATTACHMENT VI

[redacted]

Chain of Custody Record

ARGILL # 7485[redacted]9726

SDG 6291

QUA-4124-1

Quanterra Environmental Services

Client: TERRAN CORPORATION.	Project Manager: ROGER McCready.	Date: 2/7/96	Chain Of Custody Number: 43772
Address: 4080 EXECUTIVE DRIVE	Telephone Number (Area Code)/Fax Number: (513) 320-3601 / 320-3620	Lab Number:	Page 1 of 1
City: BEAVERCREEK; State: OH; Zip Code: 45430	Site Contact: AMY LAMBORG	Lab Contact:	
Project Name: CONFIRMATION SOIL SAMPLING	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: EGG496 602110			

Analysis (Attach list if more space is needed)

	Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Gamma Spec.	Iso. Pluto.	Iso. Thor.	Iso. Uranium	Special Instructions/ Conditions of Receipt
01	SGC-NAC-000033-D	2/6/96	1420			X	X						✓	✓	✓	✓	
	~~(*) SGC-NAC-000025-D~~	~~2/6/96~~	~~1405~~														~~14-DAY TAT~~
02	SGC-NAC-000023-D	2/6/96	1115														
	~~(*) SGC-NAC-000024-D~~	~~2/6/96~~	~~1445~~														~~14-DAY TAT~~
	~~(*) SGC-NAC-000027-D~~	~~2/7/96~~	~~0840~~														~~14-DAY TAT~~
03	SGC-A21-000088-D	2/7/96	1045														
04	SGC-NAC-000029-D	2/7/96	0845														
05	SGC-NAC-000028-D	2/6/96	1600														
06	SGC-A22-000095-D	2/7/96	0935														
	~~(*) SGC-NAC-000031-D~~	~~2/6/96~~	~~1050~~														~~14-DAY TAT~~

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [✓] Other ~~ALL OTHERS~~ 30-DAY TAT (ADL, 2/7)

QC Requirements (Specify): Leachate 100 ppm

	Date	Time		Date	Time
1. Relinquished By: Amy Lamborg	2/7/96	1645	1. Received By: Karen Stutenberg	2-8-96	1030
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

000822

[redacted]

ain of Custody
cord

Quanterra Environmental Services

1124-1

000823

ERRAN CORPORATION / 666 MOUND	Project Manager: Amy Lambers	Date: 2/6/96	Chain Of Custody Number: 43705
580 Executive Drive	Telephone Number (Area Code)/Fax Number: (513) 320-3601 (513) 320-3620 - FAX	Lab Number	Page 2 of 2
Beavercreek — State: OH — Zip Code: 45430	Site Contact: Jim Rigano	Lab Contact	
Name: il Gas Confirmation Soil Sampling	Carrier/Waybill Number		
ect/Purchase Order/Quote No.: C2110 ~~002069~~ DH 2/9/96			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Aqueous	Sed.	Soil		Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Gross Alpha Sec	Iso. Pluto.	Iso. Thor.	Iso. Uranium	Special Instructions/ Conditions of Receipt
																	2/6/96 2/9/96
GC-A22-000121	2/6/96	0900			X		1						✓	✓	✓	✓	~~Should be 14 day TAT for sample SGC-A22-000121~~
GC-NAC-000035-D	2/6/96	0950			X		1						↓	↓	↓	↓	
GC-A22-000096	2/6/96	0845			X		1										
GC-NAC-000017	2/6/96	1030			X		1										
C-NAC-000026-D	2/6/96	1010			X		1										
~~[illegible]~~ ADL 2/10	1245																

ible Hazard Identification: Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 3 months)

Around Time Required: 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other 30 DAY TAT

QC Requirements (Specify): Less than 100 CPM

elinquished By: Amy Lambers	Date: 2/6/96	Time: 1430	1. Received By: [signature]	Date: 2-7-96	Time: 11:00
elinquished By	Date	Time	2. Received By	Date	Time
elinquished By	Date	Time	3. Received By	Date	Time

mments

STRIBUTION: WHITE - Ays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Quanterra Rad Form 1s

FORM I

Date: 4/12/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6368	COLLECTION DATE:	2/20/96 9:00:00 AM
LAB SAMPLE ID:	60231402	REPORT NBR:	1352	RECEIVED DATE:	2/23/96 11:00:00 AM
CLIENT ID:	NAC000008D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	6.78E-01	1.1E-01	1.4E-01	2.67E-02	pCi/g	91.20%	(25.4)	(6.1)	3/22/96	2.0	G	ALPHA-SPEC	RICHRC50
TH-230	5.41E-01	9.7E-02	1.2E-01	1.76E-02	pCi/g	91.20%	(30.8)	(5.6)	3/22/96	2.0	G	ALPHA-SPEC	RICHRC50
TH-232	5.54E-01	9.8E-02	1.2E-01	1.76E-02	pCi/g	91.20%	(31.5)	(5.6)	3/22/96	2.0	G	ALPHA-SPEC	RICHRC50
U-234	3.61E-01	8.7E-02	1.1E-01	2.97E-02	pCi/g	86.30%	(12.1)	(4.1)	3/23/96	2.0	G	ALPHA-SPEC	RICHRC50
U-235	2.97E-02U	2.1E-02	2.1E-02	2.97E-02	pCi/g	86.30%	0.64	0.9	3/23/96	2.0	G	ALPHA-SPEC	RICHRC50
U-238	4.14E-01	9.4E-02	1.1E-01	2.62E-02	pCi/g	86.30%	(15.8)	(4.4)	3/23/96	2.0	G	ALPHA-SPEC	RICHRC50
PU-238	8.26E-02	1.6E-02	1.8E-02	3.48E-03	pCi/g	55.60%	(23.8)	(5.3)	4/9/96	6.12	G	ALPHA-SPEC	RICHRC50
PU239/40	4.10E-03U	2.9E-03	2.9E-03	4.10E-03	pCi/g	55.60%	0.64	0.89	4/9/96	6.12	G	ALPHA-SPEC	RICHRC50
AM-241.	3.16E-01U	2.1E-01	2.1E-01	3.16E-01	pCi/g	N/A	-0.58	-0.87	3/15/96	136.8	G	GAMMA	RICHRC50
BI-207.	8.20E-02U	4.7E-02	4.7E-02	8.20E-02	pCi/g	N/A	0.	0.	3/15/96	136.8	G	GAMMA	RICHRC50
BI-210M.	1.20E-01U	8.0E-02	8.0E-02	1.20E-01	pCi/g	N/A	-0.68	-(1.)	3/15/96	136.8	G	GAMMA	RICHRC50
CO-60.	1.06E-01U	5.8E-02	5.8E-02	1.06E-01	pCi/g	N/A	-0.21	-0.39	3/15/96	136.8	G	GAMMA	RICHRC50
CS-137DA.	1.35E-01U	6.6E-02	6.7E-02	1.35E-01	pCi/g	N/A	0.53	(1.1)	3/15/96	136.8	G	GAMMA	RICHRC50
K-40.	7.72E+00	2.0E+00	2.1E+00	N/A	pCi/g	N/A	N/A	(3.9)	3/15/96	136.8	G	GAMMA	RICHRC50
RA-226DA.	5.71E-01	1.7E-01	1.8E-01	3.77E-01	pCi/g	N/A	(1.5)	(3.3)	3/15/96	136.8	G	GAMMA	RICHRC50

Number of Results: 15

Comments:

FORM I

Date: 3/26/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6344	COLLECTION DATE:	2/15/96 1:45:00 PM
LAB SAMPLE ID:	60224011	REPORT NBR:	1242	RECEIVED DATE:	2/20/96 7:30:00 AM
CLIENT ID:	SAN000018D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	4.65E-01	9.5E-02	1.1E-01	3.07E-02	pCi/g	81.90%	(15.1)	(4.9)	3/19/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	5.82E-01	1.0E-01	1.3E-01	1.86E-02	pCi/g	81.90%	(31.3)	(5.6)	3/19/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	5.08E-01	9.7E-02	1.2E-01	1.86E-02	pCi/g	81.90%	(27.3)	(5.2)	3/19/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	5.23E-01	9.8E-02	1.3E-01	2.10E-02	pCi/g	90.00%	(24.9)	(5.3)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	2.29E-02U	2.1E-02	2.1E-02	2.29E-02	pCi/g	90.00%	0.95	(1.1)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	4.96E-01	9.6E-02	1.2E-01	1.85E-02	pCi/g	90.00%	(26.8)	(5.2)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	6.84E-01	6.7E-02	1.3E-01	7.78E-03	pCi/g	26.00%	(87.9)	(10.3)	3/19/96	6.0	G	ALPHA-SPEC	RICHRC5010
PU239/40	4.87E-03	5.6E-03	5.7E-03	4.39E-03	pCi/g	26.00%	(1.1)	0.87	3/19/96	6.0	G	ALPHA-SPEC	RICHRC5010
AM-241.	2.42E-01U	1.6E-01	1.6E-01	2.42E-01	pCi/g	N/A	-0.62	-0.92	3/11/96	129.6	G	GAMMA	RICHRC5017
BI-207.	1.04E-01U	4.8E-02	4.8E-02	1.04E-01	pCi/g	N/A	0.46	(1.)	3/11/96	129.6	G	GAMMA	RICHRC5017
BI-210M.	1.19E-01U	7.4E-02	7.4E-02	1.19E-01	pCi/g	N/A	-0.45	-0.73	3/11/96	129.6	G	GAMMA	RICHRC5017
CO-60.	1.38E-01U	7.1E-02	7.1E-02	1.38E-01	pCi/g	N/A	-0.04	-0.09	3/11/96	129.6	G	GAMMA	RICHRC5017
CS-137DA.	1.30E-01U	6.4E-02	6.4E-02	1.30E-01	pCi/g	N/A	0.24	0.48	3/11/96	129.6	G	GAMMA	RICHRC5017
K-40.	1.01E+01	2.2E+00	2.4E+00	N/A	pCi/g	N/A	N/A	(4.5)	3/11/96	129.6	G	GAMMA	RICHRC5017
RA-226DA.	6.77E-01	1.8E-01	1.9E-01	4.25E-01	pCi/g	N/A	(1.6)	(3.8)	3/11/96	129.6	G	GAMMA	RICHRC5017

Number of Results: 15

910000016

Comments:

FORM I

Date: 3/18/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6308	COLLECTION DATE:	2/8/96 10:50:00 AM
LAB SAMPLE ID:	60214612	REPORT NBR:	1199	RECEIVED DATE:	2/9/96 11:30:00 AM
CLIENT ID:	NAC000019D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	3.78E-01	8.9E-02	1.0E-01	2.78E-02	pCi/g	74.90%	(13.6)	(4.3)	3/8/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	7.49E-01	1.2E-01	1.6E-01	1.37E-02	pCi/g	74.90%	(54.7)	(6.1)	3/8/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	3.75E-01	8.7E-02	9.9E-02	1.37E-02	pCi/g	74.90%	(27.3)	(4.3)	3/8/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	4.40E-01	1.4E-01	1.7E-01	4.80E-02	pCi/g	39.30%	(9.2)	(3.2)	3/5/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	4.80E-02U	2.1E-02	2.1E-02	4.80E-02	pCi/g	39.30%	0.18	0.42	3/5/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	6.91E-01	1.7E-01	2.3E-01	5.24E-02	pCi/g	39.30%	(13.2)	(4.)	3/5/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.21E-01	1.8E-02	2.3E-02	3.17E-03	pCi/g	80.80%	(38.2)	(6.8)	3/12/96	6.01	G	ALPHA-SPEC	RICHRC5010
PU239/40	3.17E-03U	1.9E-03	1.9E-03	3.17E-03	pCi/g	80.80%	0.38	0.63	3/12/96	6.01	G	ALPHA-SPEC	RICHRC5010
AM-241.	3.73E-01U	2.1E-01	2.1E-01	3.73E-01	pCi/g	N/A	0.08	0.14	2/26/96	130.4	G	GAMMA	RICHRC5017
BI-207.	7.46E-02U	3.4E-02	3.4E-02	7.46E-02	pCi/g	N/A	0.34	0.76	2/26/96	130.4	G	GAMMA	RICHRC5017
BI-210M.	1.14E-01U	6.3E-02	6.4E-02	1.14E-01	pCi/g	N/A	0.3	0.54	2/26/96	130.4	G	GAMMA	RICHRC5017
CO-60.	1.42E-01U	7.6E-02	7.6E-02	1.42E-01	pCi/g	N/A	-0.08	-0.16	2/26/96	130.4	G	GAMMA	RICHRC5017
CS-137DA.	1.04E-01U	4.3E-02	4.4E-02	1.04E-01	pCi/g	N/A	0.59	(1.4)	2/26/96	130.4	G	GAMMA	RICHRC5017
K-40.	7.90E+00	2.1E+00	2.3E+00	N/A	pCi/g	N/A	N/A	(3.7)	2/26/96	130.4	G	GAMMA	RICHRC5017
RA-226DA.	5.28E-01	1.7E-01	1.7E-01	3.67E-01	pCi/g	N/A	(1.4)	(3.2)	2/26/96	130.4	G	GAMMA	RICHRC5017

Number of Results: 15

00017

Comments:

FORM I

Date: 3/28/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6344	COLLECTION DATE:	2/14/96 10:00:00 AM
LAB SAMPLE ID:	60224210	REPORT NBR:	1255	RECEIVED DATE:	2/20/96 7:30:00 AM
CLIENT ID:	NAC000020D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	8.92E-01	1.3E-01	1.7E-01	2.87E-02	pCi/g	80.40%	(31.1)	(6.6)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.08E+00	1.5E-01	2.0E-01	2.77E-02	pCi/g	80.40%	(38.9)	(7.4)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	8.43E-01	1.3E-01	1.7E-01	2.24E-02	pCi/g	80.40%	(37.6)	(6.6)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	7.51E-01	1.2E-01	1.6E-01	2.30E-02	pCi/g	88.50%	(32.6)	(6.4)	3/22/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	3.62E-02	2.6E-02	2.7E-02	2.11E-02	pCi/g	88.50%	(1.7)	(1.4)	3/22/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	8.25E-01	1.2E-01	1.8E-01	2.30E-02	pCi/g	88.50%	(35.9)	(6.7)	3/22/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	7.21E-01	4.2E-02	9.4E-02	3.00E-03	pCi/g	65.20%	(240.8)	(17.)	3/20/96	6.05	G	ALPHA-SPEC	RICHRC5010
PU239/40	3.53E-03U	3.1E-03	3.1E-03	3.53E-03	pCi/g	65.20%	0.99	(1.1)	3/20/96	6.05	G	ALPHA-SPEC	RICHRC5010
AM-241.	6.40E-01U	3.7E-01	3.7E-01	6.40E-01	pCi/g	N/A	0.08	0.13	3/15/96	114.9	G	GAMMA	RICHRC5017
BI-207.	1.17E-01U	6.6E-02	6.6E-02	1.17E-01	pCi/g	N/A	-0.11	-0.2	3/15/96	114.9	G	GAMMA	RICHRC5017
BI-210M.	1.69E-01U	9.7E-02	9.7E-02	1.69E-01	pCi/g	N/A	0.06	0.1	3/15/96	114.9	G	GAMMA	RICHRC5017
CO-60.	1.82E-01U	9.2E-02	9.2E-02	1.82E-01	pCi/g	N/A	0.25	0.49	3/15/96	114.9	G	GAMMA	RICHRC5017
CS-137DA.	1.89E-01U	8.8E-02	8.9E-02	1.89E-01	pCi/g	N/A	0.68	(1.4)	3/15/96	114.9	G	GAMMA	RICHRC5017
K-40.	2.47E+01	3.7E+00	4.4E+00	N/A	pCi/g	N/A	N/A	(6.7)	3/15/96	114.9	G	GAMMA	RICHRC5017
RA-226DA.	8.41E-01	2.6E-01	2.7E-01	5.60E-01	pCi/g	N/A	(1.5)	(3.3)	3/15/96	114.9	G	GAMMA	RICHRC5017

Number of Results: 15

C000015

Comments:

FORM I

Date: 3/22/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6340	COLLECTION DATE:	2/13/96 9:30:00 AM
LAB SAMPLE ID:	60223001	REPORT NBR:	1217	RECEIVED DATE:	2/15/96 10:30:00 AM
CLIENT ID:	NAC000021D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	1.19E+00	2.0E-01	2.7E-01	5.95E-02	pCi/g	46.40%	(20.)	(5.9)	3/15/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	7.01E-01	1.5E-01	1.8E-01	3.28E-02	pCi/g	46.40%	(21.4)	(4.6)	3/15/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	9.70E-01	1.8E-01	2.3E-01	3.28E-02	pCi/g	46.40%	(29.6)	(5.5)	3/15/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	8.61E-01	1.5E-01	2.1E-01	3.72E-02	pCi/g	68.90%	(23.1)	(5.7)	3/15/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	3.74E-02	3.2E-02	3.3E-02	3.52E-02	pCi/g	68.90%	(1.1)	(1.2)	3/15/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	8.22E-01	1.5E-01	2.1E-01	3.29E-02	pCi/g	68.90%	(25.)	(5.6)	3/15/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	7.72E-01	5.1E-02	1.1E-01	4.08E-03	pCi/g	46.40%	(189.)	(15.)	3/15/96	6.02	G	ALPHA-SPEC	RICHRC5010
PU239/40	5.79E-03	4.5E-03	4.6E-03	4.08E-03	pCi/g	46.40%	(1.4)	(1.3)	3/15/96	6.02	G	ALPHA-SPEC	RICHRC5010
AM-241.	1.13E+00U	6.7E-01	6.7E-01	1.13E+00	pCi/g	N/A	0.13	0.22	3/19/96	91.5	G	GAMMA	RICHRC5017
BI-207.	1.02E-01U	6.0E-02	6.0E-02	1.02E-01	pCi/g	N/A	-0.08	-0.14	3/19/96	91.5	G	GAMMA	RICHRC5017
BI-210M.	1.44E-01U	8.8E-02	8.8E-02	1.44E-01	pCi/g	N/A	-0.28	-0.46	3/19/96	91.5	G	GAMMA	RICHRC5017
CO-60.	1.42E-01U	6.9E-02	6.9E-02	1.42E-01	pCi/g	N/A	0.28	0.58	3/19/96	91.5	G	GAMMA	RICHRC5017
CS-137DA.	1.93E-01	1.1E-01	1.2E-01	N/A	pCi/g	N/A	N/A	(1.7)	3/19/96	91.5	G	GAMMA	RICHRC5017
K-40.	4.18E+01	3.5E+00	5.5E+00	N/A	pCi/g	N/A	N/A	(11.8)	3/19/96	91.5	G	GAMMA	RICHRC5017
RA-226DA.	1.03E+00	2.5E-01	2.7E-01	N/A	pCi/g	N/A	N/A	(4.1)	3/19/96	91.5	G	GAMMA	RICHRC5017

Number of Results: 15

Comments:

FORM I

e: 3/22/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6340	COLLECTION DATE:	2/13/96 9:50:00 AM
LAB SAMPLE ID:	60223005	REPORT NBR:	1217	RECEIVED DATE:	2/15/96 10:30:00 AM
CLIENT ID:	NAC000022D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	7.66E-01	1.2E-01	1.6E-01	2.80E-02	pCi/g	82.20%	(27.4)	(6.2)	3/15/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.66E+00	1.8E-01	2.7E-01	2.71E-02	pCi/g	82.20%	(61.4)	(9.3)	3/15/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	7.82E-01	1.2E-01	1.6E-01	2.19E-02	pCi/g	82.20%	(35.7)	(6.4)	3/15/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	1.14E+00	1.5E-01	2.4E-01	2.56E-02	pCi/g	79.50%	(44.5)	(7.4)	3/19/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	2.53E-02	2.3E-02	2.3E-02	2.07E-02	pCi/g	79.50%	(1.2)	(1.1)	3/19/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	1.28E+00	1.6E-01	2.6E-01	2.56E-02	pCi/g	79.50%	(50.1)	(7.9)	3/19/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	3.68E-02	1.3E-02	1.4E-02	3.21E-03	pCi/g	46.40%	(11.5)	(2.8)	3/15/96	6.05	G	ALPHA-SPEC	RICHRC5010
PU239/40	8.73E-03U	1.1E-03	1.1E-03	8.73E-03	pCi/g	46.40%	-0.14	-(1.1)	3/15/96	6.05	G	ALPHA-SPEC	RICHRC5010
AM-241.	3.90E-01U	2.4E-01	2.4E-01	3.90E-01	pCi/g	N/A	0.1	0.16	3/11/96	125.5	G	GAMMA	RICHRC5017
BI-207.	1.08E-01U	5.4E-02	5.4E-02	1.08E-01	pCi/g	N/A	0.21	0.42	3/11/96	125.5	G	GAMMA	RICHRC5017
BI-210M.	1.35E-01U	9.1E-02	9.1E-02	1.35E-01	pCi/g	N/A	-0.67	-1.	3/11/96	125.5	G	GAMMA	RICHRC5017
CO-60.	1.44E-01U	7.3E-02	7.3E-02	1.44E-01	pCi/g	N/A	-0.04	-0.09	3/11/96	125.5	G	GAMMA	RICHRC5017
CS-137DA.	1.17E-01U	7.6E-02	7.6E-02	1.17E-01	pCi/g	N/A	-0.53	-0.81	3/11/96	125.5	G	GAMMA	RICHRC5017
K-40.	1.76E+01	3.2E+00	3.7E+00	N/A	pCi/g	N/A	N/A	(5.5)	3/11/96	125.5	G	GAMMA	RICHRC5017
RA-226DA.	1.36E+00	2.7E-01	3.1E-01	6.21E-01	pCi/g	N/A	(2.2)	(5.)	3/11/96	125.5	G	GAMMA	RICHRC5017

Number of Results: 15

Comments:

FORM I

Date: 3/11/96

SAMPLE RESULTS

LAB NAME: QUANTERRA, Richland
SDG: 6291
COLLECTION DATE: 2/6/96 11:15:00 AM
LAB SAMPLE ID: 60211002
REPORT NBR: 1144
RECEIVED DATE: 2/8/96 10:30:00 AM
CLIENT ID: NAC000023D
ORDER NBR:
MATRIX: SOIL

ISOTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	1.32E+00	1.6E-01	2.3E-01	2.00E-02	pCi/g	83.40%	(66.1)	(8.2)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.08E+00	1.4E-01	2.0E-01	1.95E-02	pCi/g	83.40%	(55.2)	(7.4)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.18E+00	1.5E-01	2.1E-01	1.31E-02	pCi/g	83.40%	(89.8)	(7.8)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	9.55E-01	1.5E-01	2.2E-01	3.49E-02	pCi/g	66.10%	(27.4)	(6.2)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	2.82E-02U	1.8E-02	1.8E-02	2.82E-02	pCi/g	66.10%	0.4	0.65	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	1.10E+00	1.7E-01	2.5E-01	3.08E-02	pCi/g	66.10%	(35.9)	(6.7)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.19E-01	1.9E-02	2.5E-02	2.03E-03	pCi/g	44.00%	(58.4)	(6.3)	2/22/96	10.08	G	ALPHA-SPEC	RICHRC5010
PU239/40	1.62E-02	7.1E-03	7.4E-03	4.24E-03	pCi/g	44.00%	(3.8)	(2.3)	2/22/96	10.08	G	ALPHA-SPEC	RICHRC5010
AM-241.	5.39E-01U	3.1E-01	3.1E-01	5.39E-01	pCi/g	N/A	0.18	0.31	2/20/96	79.9	G	GAMMA	RICHRC5017
BI-207.	1.78E-01U	1.0E-01	1.0E-01	1.78E-01	pCi/g	N/A	0.01	0.02	2/20/96	79.9	G	GAMMA	RICHRC5017
BI-210M.	2.18E-01U	1.4E-01	1.4E-01	2.18E-01	pCi/g	N/A	-0.45	-0.71	2/20/96	79.9	G	GAMMA	RICHRC5017
CO-60.	2.45E-01U	1.7E-01	1.7E-01	2.45E-01	pCi/g	N/A	-0.8	-(1.1)	2/20/96	79.9	G	GAMMA	RICHRC5017
CS-137DA.	4.23E-01	2.0E-01	2.1E-01	N/A	pCi/g	N/A	N/A	(2.1)	2/20/96	79.9	G	GAMMA	RICHRC5017
K-40.	3.66E+01	4.9E+00	6.1E+00	N/A	pCi/g	N/A	N/A	(7.5)	2/20/96	79.9	G	GAMMA	RICHRC5017
RA-226DA.	9.87E-01	3.6E-01	3.7E-01	7.64E-01	pCi/g	N/A	(1.3)	(2.7)	2/20/96	79.9	G	GAMMA	RICHRC5017

Number of Results: 15

0007

Comments:

FORM I

Date: 2/26/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6298	COLLECTION DATE:	2/6/96 2:45:00 PM
LAB SAMPLE ID:	60211803	REPORT NBR:	1087	RECEIVED DATE:	2/12/96 12:00:00 PM
CLIENT ID:	NAC000024D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	7.75E-01	1.2E-01	1.6E-01	2.97E-02	pCi/g	81.40%	(26.1)	(6.2)	2/21/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	9.88E-01	1.4E-01	1.9E-01	1.34E-02	pCi/g	81.40%	(73.9)	(7.1)	2/21/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	9.38E-01	1.4E-01	1.8E-01	1.34E-02	pCi/g	81.40%	(70.2)	(6.9)	2/21/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	7.18E-01	1.3E-01	1.7E-01	2.61E-02	pCi/g	72.50%	(27.6)	(5.6)	2/26/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	2.76E-02	2.6E-02	2.6E-02	2.61E-02	pCi/g	72.50%	(1.1)	(1.1)	2/26/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	8.39E-01	1.4E-01	2.0E-01	1.54E-02	pCi/g	72.50%	(54.3)	(6.1)	2/26/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	5.23E-01	3.4E-02	7.5E-02	3.26E-03	pCi/g	59.40%	(160.2)	(15.5)	2/21/96	10.01	G	ALPHA-SPEC	RICHRC5010
PU239/40	1.42E-02	5.6E-03	5.8E-03	1.47E-03	pCi/g	59.40%	(9.6)	(2.5)	2/21/96	10.01	G	ALPHA-SPEC	RICHRC5010
AM-241.	1.06E-01	1.5E-01	1.5E-01	2.74E-01	pCi/g	N/A	0.39	0.71	2/18/96	125.4	G	GAMMA	RICHRC5017
BI-207.	1.67E-02	5.1E-02	5.1E-02	1.00E-01	pCi/g	N/A	0.17	0.32	2/18/96	125.4	G	GAMMA	RICHRC5017
BI-210M.	-1.63E-02	6.1E-02	6.1E-02	1.06E-01	pCi/g	N/A	-0.15	-0.27	2/18/96	125.4	G	GAMMA	RICHRC5017
CO-60.	-1.31E-02	8.1E-02	8.1E-02	1.49E-01	pCi/g	N/A	-0.09	-0.16	2/18/96	125.4	G	GAMMA	RICHRC5017
CS-137DA.	3.83E-01	1.0E-01	1.1E-01	N/A	pCi/g	N/A	N/A	(3.8)	2/18/96	125.4	G	GAMMA	RICHRC5017
K-40.	1.20E+01	2.3E+00	2.6E+00	N/A	pCi/g	N/A	N/A	(5.3)	2/18/96	125.4	G	GAMMA	RICHRC5017
RA-226DA.	7.14E-01	1.8E-01	1.9E-01	4.19E-01	pCi/g	N/A	(1.7)	(4.1)	2/18/96	125.4	G	GAMMA	RICHRC5017

Number of Results: 15

600000

Comments:

FORM I

Date: 2/26/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6298	COLLECTION DATE:	2/6/96 2:05:00 PM
LAB SAMPLE ID:	60211802	REPORT NBR:	1087	RECEIVED DATE:	2/12/96 12:00:00 PM
CLIENT ID:	NAC000025D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	1.16E+00	1.7E-01	2.2E-01	3.35E-02	pCi/g	68.10%	(34.5)	(7.)	2/21/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.49E+00	1.9E-01	2.7E-01	2.35E-02	pCi/g	68.10%	(63.4)	(8.)	2/21/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.00E+00	1.5E-01	2.0E-01	2.92E-02	pCi/g	68.10%	(34.4)	(6.5)	2/21/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	1.07E+00	1.6E-01	2.5E-01	3.47E-02	pCi/g	73.90%	(30.9)	(6.6)	2/26/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	4.67E-02	3.5E-02	3.6E-02	3.47E-02	pCi/g	73.90%	(1.3)	(1.3)	2/26/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	1.14E+00	1.7E-01	2.6E-01	3.06E-02	pCi/g	73.90%	(37.3)	(6.8)	2/26/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	2.88E-01	2.5E-02	4.4E-02	3.03E-03	pCi/g	62.80%	(95.)	(11.6)	2/20/96	10.14	G	ALPHA-SPEC	RICHRC5010
PU239/40	6.65E-03	3.9E-03	4.0E-03	3.38E-03	pCi/g	62.80%	(2.)	(1.7)	2/20/96	10.14	G	ALPHA-SPEC	RICHRC5010
AM-241.	-1.10E-01	3.7E-01	3.7E-01	6.39E-01	pCi/g	N/A	-0.17	-0.29	2/18/96	123.5	G	GAMMA	RICHRC5017
BI-207.	7.02E-03	6.8E-02	6.8E-02	1.24E-01	pCi/g	N/A	0.06	0.1	2/18/96	123.5	G	GAMMA	RICHRC5017
BI-210M.	-2.58E-02	8.7E-02	8.7E-02	1.52E-01	pCi/g	N/A	-0.17	-0.3	2/18/96	123.5	G	GAMMA	RICHRC5017
CO-60.	9.74E-02	8.1E-02	8.2E-02	1.92E-01	pCi/g	N/A	0.51	(1.2)	2/18/96	123.5	G	GAMMA	RICHRC5017
CS-137DA.	5.21E-02	9.9E-02	9.9E-02	1.85E-01	pCi/g	N/A	0.28	0.53	2/18/96	123.5	G	GAMMA	RICHRC5017
K-40.	1.81E+01	2.9E+00	3.5E+00	N/A	pCi/g	N/A	N/A	(6.1)	2/18/96	123.5	G	GAMMA	RICHRC5017
RA-226DA.	1.22E+00	2.6E-01	2.8E-01	5.90E-01	pCi/g	N/A	(2.1)	(4.7)	2/18/96	123.5	G	GAMMA	RICHRC5017

Number of Results: 15

000008

FORM I

e: 3/14/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6232	COLLECTION DATE:	2/6/96 10:10:00 AM
LAB SAMPLE ID:	60206913	REPORT NBR:	1176	RECEIVED DATE:	2/7/96 11:00:00 AM
CLIENT ID:	NAC000026D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	9.11E-01	1.6E-01	2.0E-01	3.55E-02	pCi/g	75.50%	(25.6)	(5.6)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.20E+00	1.8E-01	2.5E-01	1.88E-02	pCi/g	75.50%	(63.6)	(6.6)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	9.66E-01	1.6E-01	2.1E-01	2.80E-02	pCi/g	75.50%	(34.5)	(5.9)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	7.75E-01	1.2E-01	1.7E-01	2.86E-02	pCi/g	83.60%	(27.1)	(6.3)	3/4/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	4.63E-02	3.1E-02	3.1E-02	2.73E-02	pCi/g	83.60%	(1.7)	(1.5)	3/4/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	8.62E-01	1.3E-01	1.9E-01	2.73E-02	pCi/g	83.60%	(31.6)	(6.7)	3/4/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.50E-01	1.9E-02	2.7E-02	2.86E-03	pCi/g	53.80%	(52.4)	(7.9)	2/22/96	10.01	G	ALPHA-SPEC	RICHRC5010
PU239/40	7.05E-03	4.1E-03	4.2E-03	2.86E-03	pCi/g	53.80%	(2.5)	(1.7)	2/22/96	10.01	G	ALPHA-SPEC	RICHRC5010
AM-241.	4.31E-01U	2.5E-01	2.5E-01	4.31E-01	pCi/g	N/A	0.24	0.42	2/20/96	95.8	G	GAMMA	RICHRC5017
BI-207.	1.35E-01U	6.9E-02	6.9E-02	1.35E-01	pCi/g	N/A	0.13	0.25	2/20/96	95.8	G	GAMMA	RICHRC5017
BI-210M.	1.69E-01U	9.6E-02	9.6E-02	1.69E-01	pCi/g	N/A	-0.09	-0.16	2/20/96	95.8	G	GAMMA	RICHRC5017
CO-60.	2.08E-01U	1.0E-01	1.0E-01	2.08E-01	pCi/g	N/A	0.08	0.16	2/20/96	95.8	G	GAMMA	RICHRC5017
CS-137DA.	4.01E-01	1.4E-01	1.4E-01	3.10E-01	pCi/g	N/A	(1.3)	(2.9)	2/20/96	95.8	G	GAMMA	RICHRC5017
K-40.	2.57E+01	3.8E+00	4.6E+00	N/A	pCi/g	N/A	N/A	(6.8)	2/20/96	95.8	G	GAMMA	RICHRC5017
RA-226DA.	1.00E+00	2.8E-01	3.0E-01	6.35E-01	pCi/g	N/A	(1.6)	(3.6)	2/20/96	95.8	G	GAMMA	RICHRC5017

Number of Results: 15

0015

Comments:

FORM I

Date: 2/26/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6298	COLLECTION DATE:	2/7/96 8:40:00 AM
LAB SAMPLE ID:	60211804	REPORT NBR:	1087	RECEIVED DATE:	2/12/96 12:00:00 PM
CLIENT ID:	NAC000027D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	9.86E-01	1.5E-01	2.0E-01	2.36E-02	pCi/g	69.90%	(41.7)	(6.5)	2/21/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.57E+00	1.9E-01	2.8E-01	2.33E-02	pCi/g	69.90%	(67.4)	(8.2)	2/21/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	9.15E-01	1.5E-01	1.9E-01	1.57E-02	pCi/g	69.90%	(58.4)	(6.3)	2/21/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	1.07E+00	1.5E-01	2.4E-01	3.46E-02	pCi/g	72.30%	(30.9)	(6.9)	2/26/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	5.92E-02	3.7E-02	3.8E-02	3.15E-02	pCi/g	72.30%	(1.9)	(1.6)	2/26/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	8.69E-01	1.4E-01	2.0E-01	3.15E-02	pCi/g	72.30%	(27.5)	(6.2)	2/26/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	2.59E-01	2.6E-02	4.3E-02	3.82E-03	pCi/g	55.00%	(67.8)	(10.1)	2/21/96	10.03	G	ALPHA-SPEC	RICHRC5010
PU239/40	1.59E-03	2.3E-03	2.3E-03	3.81E-03	pCi/g	55.00%	0.42	0.69	2/21/96	10.03	G	ALPHA-SPEC	RICHRC5010
AM-241.	1.41E-01	2.2E-01	2.2E-01	3.84E-01	pCi/g	N/A	0.37	0.65	2/18/96	128.1	G	GAMMA	RICHRC5017
BI-207.	2.61E-02	4.9E-02	4.9E-02	1.01E-01	pCi/g	N/A	0.26	0.53	2/18/96	128.1	G	GAMMA	RICHRC5017
BI-210M.	6.83E-03	8.0E-02	8.0E-02	1.41E-01	pCi/g	N/A	0.05	0.09	2/18/96	128.1	G	GAMMA	RICHRC5017
CO-60.	-2.18E-02	1.0E-01	1.0E-01	1.82E-01	pCi/g	N/A	-0.12	-0.22	2/18/96	128.1	G	GAMMA	RICHRC5017
CS-137DA.	1.50E-01	7.2E-02	7.4E-02	1.69E-01	pCi/g	N/A	0.89	(2.1)	2/18/96	128.1	G	GAMMA	RICHRC5017
K-40.	2.17E+01	3.2E+00	3.9E+00	N/A	pCi/g	N/A	N/A	(6.8)	2/18/96	128.1	G	GAMMA	RICHRC5017
RA-226DA.	1.50E+00	2.9E-01	3.2E-01	N/A	pCi/g	N/A	N/A	(5.2)	2/18/96	128.1	G	GAMMA	RICHRC5017

Number of Results: 15

000010

Comments:

FORM I

Date: 3/11/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6291	COLLECTION DATE:	2/6/96 4:00:00 PM
LAB SAMPLE ID:	60211005	REPORT NBR:	1144	RECEIVED DATE:	2/8/96 10:30:00 AM
CLIENT ID:	NAC000028D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	6.65E-01	1.2E-01	1.4E-01	2.70E-02	pCi/g	78.50%	(24.7)	(5.7)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	6.11E-01	1.1E-01	1.3E-01	1.98E-02	pCi/g	78.50%	(30.8)	(5.6)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	5.67E-01	1.1E-01	1.3E-01	1.33E-02	pCi/g	78.50%	(42.5)	(5.4)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	4.35E-01	1.0E-01	1.3E-01	3.72E-02	pCi/g	67.20%	(11.7)	(4.2)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	3.40E-02U	2.1E-02	2.1E-02	3.40E-02	pCi/g	67.20%	0.46	0.75	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	5.08E-01	1.1E-01	1.4E-01	3.40E-02	pCi/g	67.20%	(15.)	(4.6)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.16E-01	3.5E-02	3.7E-02	1.90E-02	pCi/g	59.80%	(6.1)	(3.3)	3/5/96	1.05	G	ALPHA-SPEC	RICHRC5010
PU239/40	7.73E-03	8.9E-03	9.0E-03	6.97E-03	pCi/g	59.80%	(1.1)	0.87	3/5/96	1.05	G	ALPHA-SPEC	RICHRC5010
AM-241.	1.02E+00U	5.8E-01	5.8E-01	1.02E+00	pCi/g	N/A	0.36	0.63	2/20/96	90.0	G	GAMMA	RICHRC5017
BI-207.	1.64E-01U	9.3E-02	9.3E-02	1.64E-01	pCi/g	N/A	0.2	0.35	2/20/96	90.0	G	GAMMA	RICHRC5017
BI-210M.	1.87E-01U	1.3E-01	1.3E-01	1.87E-01	pCi/g	N/A	-0.49	-0.71	2/20/96	90.0	G	GAMMA	RICHRC5017
CO-60.	1.75E-01U	8.5E-02	8.5E-02	1.75E-01	pCi/g	N/A	0.14	0.29	2/20/96	90.0	G	GAMMA	RICHRC5017
CS-137DA.	2.80E-01	1.9E-01	1.9E-01	N/A	pCi/g	N/A	N/A	(1.5)	2/20/96	90.0	G	GAMMA	RICHRC5017
K-40.	2.42E+01	3.9E+00	4.6E+00	N/A	pCi/g	N/A	N/A	(6.2)	2/20/96	90.0	G	GAMMA	RICHRC5017
RA-226DA.	8.05E-01	3.0E-01	3.1E-01	6.19E-01	pCi/g	N/A	(1.3)	(2.7)	2/20/96	90.0	G	GAMMA	RICHRC5017

Number of Results: 15

0010

Comments:

FORM I

Date: 3/11/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6291	COLLECTION DATE:	2/7/96 8:45:00 AM
LAB SAMPLE ID:	60211004	REPORT NBR:	1144	RECEIVED DATE:	2/8/96 10:30:00 AM
CLIENT ID:	NAC000029D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	1.31E+00	1.6E-01	2.3E-01	3.25E-02	pCi/g	79.60%	(40.3)	(8.2)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	8.43E-01	1.3E-01	1.6E-01	1.29E-02	pCi/g	79.60%	(65.4)	(6.7)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.11E+00	1.5E-01	2.0E-01	1.29E-02	pCi/g	79.60%	(86.4)	(7.6)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	7.74E-01	1.3E-01	1.8E-01	2.69E-02	pCi/g	76.80%	(28.8)	(6.)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	4.18E-02	3.1E-02	3.1E-02	2.69E-02	pCi/g	76.80%	(1.6)	(1.4)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	9.68E-01	1.4E-01	2.1E-01	2.88E-02	pCi/g	76.80%	(33.7)	(6.7)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.51E-01	2.1E-02	3.0E-02	3.47E-03	pCi/g	46.10%	(43.6)	(7.2)	2/22/96	10.0	G	ALPHA-SPEC	RICHRC5010
PU239/40	1.07E-02	5.6E-03	5.8E-03	3.46E-03	pCi/g	46.10%	(3.1)	(1.9)	2/22/96	10.0	G	ALPHA-SPEC	RICHRC5010
AM-241.	1.37E+00U	9.3E-01	9.3E-01	1.37E+00	pCi/g	N/A	-0.05	-0.08	2/20/96	89.3	G	GAMMA	RICHRC5017
BI-207.	1.79E-01U	1.0E-01	1.0E-01	1.79E-01	pCi/g	N/A	0.03	0.05	2/20/96	89.3	G	GAMMA	RICHRC5017
BI-210M.	1.81E-01U	1.1E-01	1.1E-01	1.81E-01	pCi/g	N/A	-0.04	-0.06	2/20/96	89.3	G	GAMMA	RICHRC5017
CO-60.	1.87E-01U	6.5E-02	6.5E-02	1.87E-01	pCi/g	N/A	0.43	(1.2)	2/20/96	89.3	G	GAMMA	RICHRC5017
CS-137DA.	4.93E-01	1.6E-01	1.7E-01	N/A	pCi/g	N/A	N/A	(3.1)	2/20/96	89.3	G	GAMMA	RICHRC5017
K-40.	2.91E+01	4.2E+00	5.1E+00	N/A	pCi/g	N/A	N/A	(7.)	2/20/96	89.3	G	GAMMA	RICHRC5017
RA-226DA.	9.32E-01	2.9E-01	3.0E-01	6.36E-01	pCi/g	N/A	(1.5)	(3.2)	2/20/96	89.3	G	GAMMA	RICHRC5017

Number of Results: 15

0009

Comments:

FORM I

Date: 3/28/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6344	COLLECTION DATE:	2/14/96 12:30:00 PM
LAB SAMPLE ID:	60224212	REPORT NBR:	1255	RECEIVED DATE:	2/20/96 7:30:00 AM
CLIENT ID:	NAC000030D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	9.28E-02	4.4E-02	4.6E-02	2.38E-02	pCi/g	79.60%	(3.9)	(2.1)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.40E-01	5.3E-02	5.6E-02	2.30E-02	pCi/g	79.60%	(6.1)	(2.6)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.10E-01	4.7E-02	4.9E-02	2.02E-02	pCi/g	79.60%	(5.5)	(2.3)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	1.71E-01	5.8E-02	6.4E-02	2.46E-02	pCi/g	83.90%	(7.)	(2.9)	3/22/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	2.25E-02U	1.7E-02	1.7E-02	2.25E-02	pCi/g	83.90%	0.62	0.82	3/22/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	9.22E-02	4.3E-02	4.5E-02	2.63E-02	pCi/g	83.90%	(3.5)	(2.1)	3/22/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.38E+00	9.5E-02	2.3E-01	9.83E-03	pCi/g	32.90%	(140.7)	(14.5)	3/20/96	6.0	G	ALPHA-SPEC	RICHRC5010
PU239/40	4.43E-03U	0.0E+00	4.9E-03	4.43E-03	pCi/g	32.90%	0.	N/A	3/20/96	6.0	G	ALPHA-SPEC	RICHRC5010
AM-241.	1.90E-01U	1.0E-01	1.0E-01	1.90E-01	pCi/g	N/A	0.19	0.35	3/15/96	134.8	G	GAMMA	RICHRC5017
BI-207.	6.15E-02U	3.4E-02	3.4E-02	6.15E-02	pCi/g	N/A	-0.21	-0.38	3/15/96	134.8	G	GAMMA	RICHRC5017
BI-210M.	9.38E-02U	5.6E-02	5.6E-02	9.38E-02	pCi/g	N/A	-0.24	-0.41	3/15/96	134.8	G	GAMMA	RICHRC5017
CO-60.	8.83E-02U	2.8E-02	2.9E-02	8.83E-02	pCi/g	N/A	0.28	0.87	3/15/96	134.8	G	GAMMA	RICHRC5017
CS-137DA.	8.47E-02U	4.6E-02	4.6E-02	8.47E-02	pCi/g	N/A	-0.14	-0.26	3/15/96	134.8	G	GAMMA	RICHRC5017
K-40.	3.23E+00	1.1E+00	1.2E+00	2.74E+00	pCi/g	N/A	(1.2)	(2.9)	3/15/96	134.8	G	GAMMA	RICHRC5017
RA-226DA.	2.52E-01U	1.1E-01	1.1E-01	2.52E-01	pCi/g	N/A	0.81	(1.8)	3/15/96	134.8	G	GAMMA	RICHRC5017

Number of Results: 15

C000017

Comments:

FORM I

Date: 3/27/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6344	COLLECTION DATE:	2/14/96 9:15:00 AM
LAB SAMPLE ID:	60224111	REPORT NBR:	1245	RECEIVED DATE:	2/20/96 7:30:00 AM
CLIENT ID:	NAC000031D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	7.92E-01	1.3E-01	1.6E-01	2.52E-02	pCi/g	82.40%	(31.4)	(6.3)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.48E+00	1.7E-01	2.5E-01	1.96E-02	pCi/g	82.40%	(75.3)	(8.7)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	8.23E-01	1.3E-01	1.6E-01	1.96E-02	pCi/g	82.40%	(42.)	(6.5)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	8.11E-01	1.3E-01	1.6E-01	3.19E-02	pCi/g	78.40%	(25.4)	(6.3)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	3.40E-02	2.7E-02	2.8E-02	2.91E-02	pCi/g	78.40%	(1.2)	(1.2)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	9.36E-01	1.4E-01	2.0E-01	2.75E-02	pCi/g	78.40%	(34.)	(6.7)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	5.86E-01	3.9E-02	7.9E-02	4.19E-03	pCi/g	81.00%	(139.9)	(14.8)	3/22/96	6.02	G	ALPHA-SPEC	RICHRC5010
PU239/40	8.22E-03	4.8E-03	4.9E-03	4.18E-03	pCi/g	81.00%	(2.)	(1.7)	3/22/96	6.02	G	ALPHA-SPEC	RICHRC5010
AM-241.	3.05E-01U	1.6E-01	1.8E-01	3.05E-01	pCi/g	N/A	0.	0.	3/13/96	124.0	G	GAMMA	RICHRC5017
BI-207.	8.93E-02U	4.8E-02	4.8E-02	8.93E-02	pCi/g	N/A	-0.05	-0.09	3/13/96	124.0	G	GAMMA	RICHRC5017
BI-210M.	1.37E-01U	8.0E-02	8.0E-02	1.37E-01	pCi/g	N/A	0.02	0.03	3/13/96	124.0	G	GAMMA	RICHRC5017
CO-60.	1.60E-01U	7.6E-02	7.6E-02	1.60E-01	pCi/g	N/A	0.22	0.47	3/13/96	124.0	G	GAMMA	RICHRC5017
CS-137DA.	3.93E-01	1.0E-01	1.1E-01	N/A	pCi/g	N/A	N/A	(3.8)	3/13/96	124.0	G	GAMMA	RICHRC5017
K-40.	1.22E+01	2.4E+00	2.7E+00	N/A	pCi/g	N/A	N/A	(5.)	3/13/96	124.0	G	GAMMA	RICHRC5017
RA-226DA.	1.35E+00	2.4E-01	2.7E-01	5.65E-01	pCi/g	N/A	(2.4)	(5.6)	3/13/96	124.0	G	GAMMA	RICHRC5017

Number of Results: 15

C000016

Comments:

FORM I

Date: 3/27/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6344	COLLECTION DATE:	2/14/96 9:45:00 AM
LAB SAMPLE ID:	60224108	REPORT NBR:	1245	RECEIVED DATE:	2/20/96 7:30:00 AM
CLIENT ID:	NAC000032D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	9.77E-01	1.5E-01	2.0E-01	4.06E-02	pCi/g	68.30%	(24.1)	(6.5)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	8.48E-01	1.4E-01	1.8E-01	2.23E-02	pCi/g	68.30%	(38.)	(6.2)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.08E+00	1.5E-01	2.1E-01	2.23E-02	pCi/g	68.30%	(48.5)	(7.)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	7.38E-01	1.2E-01	1.7E-01	2.56E-02	pCi/g	79.60%	(28.8)	(6.)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	2.07E-02U	1.8E-02	1.8E-02	2.07E-02	pCi/g	79.60%	0.73	0.84	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	8.51E-01	1.3E-01	1.9E-01	2.56E-02	pCi/g	79.60%	(33.3)	(6.4)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	2.91E+01	2.4E-01	3.2E+00	2.34E-03	pCi/g	81.00%	(12471.5)	(122.2)	3/21/96	6.02	G	ALPHA-SPEC	RICHRC5010
PU239/40	7.44E-02	1.2E-02	1.5E-02	2.76E-03	pCi/g	81.00%	(27.)	(6.2)	3/21/96	6.02	G	ALPHA-SPEC	RICHRC5010
AM-241.	5.13E-01U	3.0E-01	3.0E-01	5.13E-01	pCi/g	N/A	0.29	0.51	3/13/96	103.8	G	GAMMA	RICHRC5017
BI-207.	1.31E-01U	7.8E-02	7.8E-02	1.31E-01	pCi/g	N/A	-0.37	-0.62	3/13/96	103.8	G	GAMMA	RICHRC5017
BI-210M.	1.69E-01U	9.3E-02	9.3E-02	1.69E-01	pCi/g	N/A	0.13	0.24	3/13/96	103.8	G	GAMMA	RICHRC5017
CO-60.	1.39E-01U	6.4E-02	6.4E-02	1.39E-01	pCi/g	N/A	0.11	0.23	3/13/96	103.8	G	GAMMA	RICHRC5017
CS-137DA.	1.82E-01U	1.1E-01	1.1E-01	1.82E-01	pCi/g	N/A	-0.2	-0.34	3/13/96	103.8	G	GAMMA	RICHRC5017
K-40.	2.13E+01	3.3E+00	3.9E+00	N/A	pCi/g	N/A	N/A	(6.5)	3/13/96	103.8	G	GAMMA	RICHRC5017
RA-226DA.	9.01E-01	2.4E-01	2.6E-01	5.32E-01	pCi/g	N/A	(1.7)	(3.8)	3/13/96	103.8	G	GAMMA	RICHRC5017

Number of Results: 15

C000013

Comments:

FORM I

Date: 3/11/96

SAMPLE RESULTS

LAB NAME: QUANTERRA, Richland
SDG: 6291
COLLECTION DATE: 2/6/96 2:20:00 PM
LAB SAMPLE ID: 60211001
REPORT NBR: 1144
RECEIVED DATE: 2/8/96 10:30:00 AM
CLIENT ID: NAC000033D
ORDER NBR:
MATRIX: SOIL

ISOTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	1.11E+00	1.7E-01	2.2E-01	3.42E-02	pCi/g	82.80%	(32.4)	(6.6)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	9.07E-01	1.5E-01	1.9E-01	2.52E-02	pCi/g	82.80%	(36.)	(6.)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	9.63E-01	1.6E-01	2.0E-01	1.69E-02	pCi/g	82.80%	(56.9)	(6.2)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	7.96E-01	1.3E-01	1.9E-01	3.72E-02	pCi/g	75.50%	(21.4)	(5.9)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	5.50E-02	3.5E-02	3.7E-02	2.55E-02	pCi/g	75.50%	(2.2)	(1.6)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	9.38E-01	1.5E-01	2.1E-01	2.99E-02	pCi/g	75.50%	(31.4)	(6.5)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.09E-01	2.0E-02	2.6E-02	2.48E-03	pCi/g	36.10%	(44.)	(5.5)	2/26/96	10.06	G	ALPHA-SPEC	RICHRC5010
PU239/40	1.43E-02	7.3E-03	7.7E-03	5.18E-03	pCi/g	36.10%	(2.8)	(1.9)	2/26/96	10.06	G	ALPHA-SPEC	RICHRC5010
AM-241.	4.74E-01U	3.1E-01	3.1E-01	4.74E-01	pCi/g	N/A	-0.54	-0.84	2/20/96	79.9	G	GAMMA	RICHRC5017
BI-207.	1.77E-01U	9.1E-02	9.1E-02	1.77E-01	pCi/g	N/A	0.17	0.32	2/20/96	79.9	G	GAMMA	RICHRC5017
BI-210M.	2.25E-01U	1.2E-01	1.2E-01	2.25E-01	pCi/g	N/A	0.32	0.6	2/20/96	79.9	G	GAMMA	RICHRC5017
CO-60.	2.05E-01U	1.1E-01	1.1E-01	2.05E-01	pCi/g	N/A	-0.12	-0.23	2/20/96	79.9	G	GAMMA	RICHRC5017
CS-137DA.	6.02E-01	2.6E-01	2.6E-01	N/A	pCi/g	N/A	N/A	(2.4)	2/20/96	79.9	G	GAMMA	RICHRC5017
K-40.	3.14E+01	4.5E+00	5.5E+00	N/A	pCi/g	N/A	N/A	(6.9)	2/20/96	79.9	G	GAMMA	RICHRC5017
RA-226DA.	1.30E+00	3.4E-01	3.6E-01	7.68E-01	pCi/g	N/A	(1.7)	(3.8)	2/20/96	79.9	G	GAMMA	RICHRC5017

Number of Results: 15

9000

Comments:

FORM I

Date: 2/26/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6298	COLLECTION DATE:	2/6/96 10:50:00 AM
LAB SAMPLE ID:	60211805	REPORT NBR:	1087	RECEIVED DATE:	2/12/96 12:00:00 PM
CLIENT ID:	NAC000034D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	8.84E-01	1.5E-01	1.9E-01	2.81E-02	pCi/g	65.20%	(31.5)	(6.)	2/21/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.34E+00	1.8E-01	2.5E-01	2.44E-02	pCi/g	65.20%	(55.2)	(7.4)	2/21/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	9.63E-01	1.5E-01	2.0E-01	1.64E-02	pCi/g	65.20%	(58.8)	(6.3)	2/21/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	9.77E-01	1.6E-01	2.3E-01	3.94E-02	pCi/g	66.30%	(24.8)	(6.2)	2/26/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	5.63E-02	3.8E-02	3.9E-02	2.91E-02	pCi/g	66.30%	(1.9)	(1.5)	2/26/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	9.78E-01	1.6E-01	2.3E-01	3.40E-02	pCi/g	66.30%	(28.8)	(6.2)	2/26/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	5.74E-01	3.3E-02	7.8E-02	3.48E-03	pCi/g	68.00%	(165.)	(17.4)	2/21/96	10.05	G	ALPHA-SPEC	RICHRC5010
PU239/40	3.69E-03	2.7E-03	2.7E-03	2.26E-03	pCi/g	68.00%	(1.6)	(1.4)	2/21/96	10.05	G	ALPHA-SPEC	RICHRC5010
AM-241.	9.33E-03	2.3E-01	2.3E-01	3.99E-01	pCi/g	N/A	0.02	0.04	2/18/96	121.8	G	GAMMA	RICHRC5017
BI-207.	1.91E-02	6.1E-02	6.1E-02	1.14E-01	pCi/g	N/A	0.17	0.31	2/18/96	121.8	G	GAMMA	RICHRC5017
BI-210M.	1.68E-02	6.2E-02	6.2E-02	1.17E-01	pCi/g	N/A	0.14	0.27	2/18/96	121.8	G	GAMMA	RICHRC5017
CO-60.	-6.28E-02	7.4E-02	7.4E-02	1.10E-01	pCi/g	N/A	-0.57	-0.85	2/18/96	121.8	G	GAMMA	RICHRC5017
CS-137DA.	-7.85E-03	9.1E-02	9.1E-02	1.62E-01	pCi/g	N/A	-0.05	-0.09	2/18/96	121.8	G	GAMMA	RICHRC5017
K-40.	1.65E+01	2.9E+00	3.3E+00	N/A	pCi/g	N/A	N/A	(5.7)	2/18/96	121.8	G	GAMMA	RICHRC5017
RA-226DA.	8.72E-01	2.4E-01	2.5E-01	5.08E-01	pCi/g	N/A	(1.7)	(3.7)	2/18/96	121.8	G	GAMMA	RICHRC5017

Number of Results: 15

000011

Comments:

FORM I

Date: 3/14/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6232	COLLECTION DATE:	2/6/96 9:50:00 AM
LAB SAMPLE ID:	60206910	REPORT NBR:	1176	RECEIVED DATE:	2/7/96 11:00:00 AM
CLIENT ID:	NAC000035D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	1.07E+00	1.5E-01	2.0E-01	2.95E-02	pCi/g	82.20%	(36.2)	(7.3)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	8.81E-01	1.3E-01	1.7E-01	1.95E-02	pCi/g	82.20%	(45.2)	(6.7)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.03E+00	1.4E-01	1.9E-01	2.42E-02	pCi/g	82.20%	(42.7)	(7.3)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	8.27E-01	1.2E-01	1.8E-01	2.87E-02	pCi/g	91.10%	(28.8)	(6.7)	3/3/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	2.67E-02	2.3E-02	2.3E-02	2.31E-02	pCi/g	91.10%	(1.2)	(1.2)	3/3/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	7.68E-01	1.2E-01	1.7E-01	2.48E-02	pCi/g	91.10%	(31.)	(6.4)	3/3/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	5.69E-02	1.1E-02	1.3E-02	3.04E-03	pCi/g	69.20%	(18.8)	(5.3)	2/22/96	10.03	G	ALPHA-SPEC	RICHRC5010
PU239/40	3.03E-03U	1.8E-03	1.8E-03	3.03E-03	pCi/g	69.20%	0.42	0.69	2/22/96	10.03	G	ALPHA-SPEC	RICHRC5010
AM-241.	4.24E-01U	2.6E-01	2.6E-01	4.24E-01	pCi/g	N/A	-0.13	-0.21	2/20/96	100.5	G	GAMMA	RICHRC5017
BI-207.	1.24E-01U	6.6E-02	6.6E-02	1.24E-01	pCi/g	N/A	0.13	0.25	2/20/96	100.5	G	GAMMA	RICHRC5017
BI-210M.	1.86E-01U	1.1E-01	1.1E-01	1.86E-01	pCi/g	N/A	-0.06	-0.11	2/20/96	100.5	G	GAMMA	RICHRC5017
CO-60.	2.37E-01U	1.3E-01	1.3E-01	2.37E-01	pCi/g	N/A	-0.07	-0.12	2/20/96	100.5	G	GAMMA	RICHRC5017
CS-137DA.	1.71E-01U	9.3E-02	9.3E-02	1.71E-01	pCi/g	N/A	0.04	0.08	2/20/96	100.5	G	GAMMA	RICHRC5017
K-40.	2.48E+01	4.0E+00	4.7E+00	N/A	pCi/g	N/A	N/A	(6.3)	2/20/96	100.5	G	GAMMA	RICHRC5017
RA-226DA.	8.00E-01	2.5E-01	2.7E-01	5.68E-01	pCi/g	N/A	(1.4)	(3.2)	2/20/96	100.5	G	GAMMA	RICHRC5017

Number of Results: 15

0012

Comments:

FORM I

Date: 3/27/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6344	COLLECTION DATE:	2/15/96 1:00:00 PM
LAB SAMPLE ID:	60224104	REPORT NBR:	1245	RECEIVED DATE:	2/20/96 7:30:00 AM
CLIENT ID:	NAC000036D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	1.50E+00	2.1E-01	2.9E-01	4.92E-02	pCi/g	54.70%	(30.5)	(7.2)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.27E+00	1.9E-01	2.6E-01	2.79E-02	pCi/g	54.70%	(45.5)	(6.8)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.50E+00	2.0E-01	2.9E-01	3.17E-02	pCi/g	54.70%	(47.5)	(7.4)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	1.02E+00	1.6E-01	2.3E-01	3.02E-02	pCi/g	68.30%	(33.9)	(6.5)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	6.56E-02	4.0E-02	4.2E-02	2.77E-02	pCi/g	68.30%	(2.4)	(1.6)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	1.05E+00	1.6E-01	2.4E-01	2.77E-02	pCi/g	68.30%	(37.8)	(6.6)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.95E-01	2.4E-02	3.3E-02	1.95E-03	pCi/g	77.90%	(100.1)	(8.2)	3/21/96	6.0	G	ALPHA-SPEC	RICHRC5010
PU239/40	3.44E-03U	2.1E-03	2.1E-03	3.44E-03	pCi/g	77.90%	0.38	0.63	3/21/96	6.0	G	ALPHA-SPEC	RICHRC5010
AM-241.	5.73E-01U	3.8E-01	3.8E-01	5.73E-01	pCi/g	N/A	-0.32	-0.48	3/13/96	119.1	G	GAMMA	RICHRC5017
BI-207.	1.19E-01U	5.7E-02	5.7E-02	1.19E-01	pCi/g	N/A	0.48	1.	3/13/96	119.1	G	GAMMA	RICHRC5017
BI-210M.	1.54E-01U	9.2E-02	9.2E-02	1.54E-01	pCi/g	N/A	-0.18	-0.3	3/13/96	119.1	G	GAMMA	RICHRC5017
CO-60.	1.41E-01U	4.9E-02	4.9E-02	1.41E-01	pCi/g	N/A	0.43	(1.2)	3/13/96	119.1	G	GAMMA	RICHRC5017
CS-137DA.	1.39E-01U	8.6E-02	8.6E-02	1.39E-01	pCi/g	N/A	-0.52	-0.84	3/13/96	119.1	G	GAMMA	RICHRC5017
K-40.	1.87E+01	2.9E+00	3.5E+00	N/A	pCi/g	N/A	N/A	(6.4)	3/13/96	119.1	G	GAMMA	RICHRC5017
RA-226DA.	1.26E+00	2.7E-01	3.0E-01	6.15E-01	pCi/g	N/A	(2.1)	(4.7)	3/13/96	119.1	G	GAMMA	RICHRC5017

Number of Results: 15

C000009

Comments:

FORM I

Date: 3/27/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6344	COLLECTION DATE:	2/15/96 1:45:00 PM
LAB SAMPLE ID:	60224105	REPORT NBR:	1245	RECEIVED DATE:	2/20/96 7:30:00 AM
CLIENT ID:	NAC000037D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	1.08E+00	1.9E-01	2.5E-01	4.22E-02	pCi/g	47.20%	(25.6)	(5.6)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.12E+00	1.9E-01	2.5E-01	2.22E-02	pCi/g	47.20%	(50.6)	(5.9)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.06E+00	1.9E-01	2.4E-01	3.29E-02	pCi/g	47.20%	(32.1)	(5.7)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	1.02E+00	1.6E-01	2.3E-01	3.77E-02	pCi/g	68.90%	(27.1)	(6.6)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	5.04E-02	3.5E-02	3.6E-02	3.31E-02	pCi/g	68.90%	(1.5)	(1.4)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	1.15E+00	1.6E-01	2.5E-01	3.31E-02	pCi/g	68.90%	(34.8)	(7.)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.53E+00	6.9E-02	2.0E-01	3.69E-03	pCi/g	71.90%	(413.6)	(22.2)	3/21/96	6.02	G	ALPHA-SPEC	RICHRC5010
PU239/40	8.48E-03	5.1E-03	5.2E-03	2.09E-03	pCi/g	71.90%	(4.1)	(1.7)	3/21/96	6.02	G	ALPHA-SPEC	RICHRC5010
AM-241.	2.00E-01U	1.2E-01	1.2E-01	2.00E-01	pCi/g	N/A	0.09	0.14	3/13/96	107.3	G	GAMMA	RICHRC5017
BI-207.	1.13E-01U	5.5E-02	5.5E-02	1.13E-01	pCi/g	N/A	0.26	0.53	3/13/96	107.3	G	GAMMA	RICHRC5017
BI-210M.	1.59E-01U	9.2E-02	9.2E-02	1.59E-01	pCi/g	N/A	-0.14	-0.25	3/13/96	107.3	G	GAMMA	RICHRC5017
CO-60.	1.97E-01U	9.2E-02	9.3E-02	1.97E-01	pCi/g	N/A	0.22	0.47	3/13/96	107.3	G	GAMMA	RICHRC5017
CS-137DA.	3.05E-01	1.2E-01	1.3E-01	N/A	pCi/g	N/A	N/A	(2.5)	3/13/96	107.3	G	GAMMA	RICHRC5017
K-40.	1.98E+01	3.1E+00	3.7E+00	N/A	pCi/g	N/A	N/A	(6.4)	3/13/96	107.3	G	GAMMA	RICHRC5017
RA-226DA.	1.29E+00	3.1E-01	3.3E-01	6.67E-01	pCi/g	N/A	(1.9)	(4.2)	3/13/96	107.3	G	GAMMA	RICHRC5017

Number of Results: 15

C000010

Comments:

Note: The "SGC" should be added to the front of each sample number (client ID). Also, wherever there's a "D" at the end of the number, take it off. Thanks!

FORM I

SAMPLE RESULTS

: 3/27/96

LAB NAME: QUANTERRA, Richland
SDG: 6344
COLLECTION DATE: 2/15/96 2:15:00 PM

LAB SAMPLE ID: 60224101
REPORT NBR: 1245
RECEIVED DATE: 2/20/96 7:30:00 AM

CLIENT ID: SGC-NAC000038D
ORDER NBR:
MATRIX: SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	1.05E+00	1.6E-01	2.2E-01	4.55E-02	pCi/g	60.90%	(23.1)	(6.4)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.23E+00	1.8E-01	2.4E-01	2.50E-02	pCi/g	60.90%	(49.2)	(7.)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.01E+00	1.6E-01	2.1E-01	2.84E-02	pCi/g	60.90%	(35.4)	(6.4)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	9.99E-01	1.6E-01	2.4E-01	4.22E-02	pCi/g	66.50%	(23.6)	(6.3)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	4.93E-02	3.6E-02	3.7E-02	3.17E-02	pCi/g	66.50%	(1.6)	(1.4)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	1.13E+00	1.7E-01	2.6E-01	3.39E-02	pCi/g	66.50%	(33.3)	(6.7)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	7.54E-02	1.4E-02	1.7E-02	4.23E-03	pCi/g	79.90%	(17.8)	(5.3)	3/21/96	6.0	G	ALPHA-SPEC	RICHRC5010
PU239/40	8.98E-03	5.0E-03	5.1E-03	4.23E-03	pCi/g	79.90%	(2.1)	(1.8)	3/21/96	6.0	G	ALPHA-SPEC	RICHRC5010
AM-241.	4.85E-01U	2.8E-01	2.8E-01	4.85E-01	pCi/g	N/A	0.27	0.47	3/13/96	112.6	G	GAMMA	RICHRC5017
BI-207.	1.16E-01U	6.4E-02	6.4E-02	1.16E-01	pCi/g	N/A	0.03	0.05	3/13/96	112.6	G	GAMMA	RICHRC5017
BI-210M.	1.59E-01U	9.5E-02	9.5E-02	1.59E-01	pCi/g	N/A	-0.32	-0.53	3/13/96	112.6	G	GAMMA	RICHRC5017
CO-60.	1.54E-01U	6.9E-02	7.0E-02	1.54E-01	pCi/g	N/A	0.33	0.72	3/13/96	112.6	G	GAMMA	RICHRC5017
CS-137DA.	6.00E-01	1.4E-01	1.5E-01	N/A	pCi/g	N/A	N/A	(4.3)	3/13/96	112.6	G	GAMMA	RICHRC5017
K-40.	1.77E+01	3.1E+00	3.5E+00	N/A	pCi/g	N/A	N/A	(5.8)	3/13/96	112.6	G	GAMMA	RICHRC5017
RA-226DA.	9.83E-01	2.9E-01	3.1E-01	5.92E-01	pCi/g	N/A	(1.7)	(3.4)	3/13/96	112.6	G	GAMMA	RICHRC5017

Number of Results: 15

C000006

Comments:

FORM I

Date: 3/26/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6344	COLLECTION DATE:	2/14/96 2:15:00 PM
LAB SAMPLE ID:	60224002	REPORT NBR:	1242	RECEIVED DATE:	2/20/96 7:30:00 AM
CLIENT ID:	NAC000039D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	9.87E-01	1.5E-01	1.9E-01	2.85E-02	pCi/g	77.80%	(34.6)	(6.8)	3/19/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.24E+00	1.6E-01	2.2E-01	2.08E-02	pCi/g	77.80%	(59.9)	(7.8)	3/19/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.08E+00	1.5E-01	2.0E-01	2.08E-02	pCi/g	77.80%	(51.9)	(7.2)	3/19/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	8.53E-01	1.4E-01	1.9E-01	2.70E-02	pCi/g	76.50%	(31.6)	(6.3)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	3.16E-02	2.7E-02	2.7E-02	2.47E-02	pCi/g	76.50%	(1.3)	(1.2)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	1.02E+00	1.5E-01	2.2E-01	2.70E-02	pCi/g	76.50%	(37.9)	(6.9)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.44E-01	2.9E-02	3.7E-02	4.05E-03	pCi/g	35.20%	(35.5)	(4.9)	3/19/96	6.14	G	ALPHA-SPEC	RICHRC5010
PU239/40	4.05E-03U	4.2E-03	4.3E-03	4.05E-03	pCi/g	35.20%	0.74	0.71	3/19/96	6.14	G	ALPHA-SPEC	RICHRC5010
AM-241.	5.77E-01U	3.7E-01	3.7E-01	5.77E-01	pCi/g	N/A	-0.54	-0.83	3/11/96	118.2	G	GAMMA	RICHRC5017
BI-207.	9.85E-02U	5.2E-02	5.2E-02	9.85E-02	pCi/g	N/A	-0.01	-0.02	3/11/96	118.2	G	GAMMA	RICHRC5017
BI-210M.	1.47E-01U	8.3E-02	8.3E-02	1.47E-01	pCi/g	N/A	0.04	0.08	3/11/96	118.2	G	GAMMA	RICHRC5017
CO-60.	1.75E-01U	9.3E-02	9.3E-02	1.75E-01	pCi/g	N/A	-0.09	-0.16	3/11/96	118.2	G	GAMMA	RICHRC5017
CS-137DA.	2.23E-01U	1.2E-01	1.2E-01	2.23E-01	pCi/g	N/A	0.5	0.96	3/11/96	118.2	G	GAMMA	RICHRC5017
K-40.	2.44E+01	3.3E+00	4.1E+00	N/A	pCi/g	N/A	N/A	(7.4)	3/11/96	118.2	G	GAMMA	RICHRC5017
RA-226DA.	1.06E+00	2.8E-01	3.0E-01	6.02E-01	pCi/g	N/A	(1.8)	(3.8)	3/11/96	118.2	G	GAMMA	RICHRC5017

Number of Results: 15

000007

Comments:

FORM I

Date: 3/22/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6340	COLLECTION DATE:	2/13/96 11:10:00 AM
LAB SAMPLE ID:	60223013	REPORT NBR:	1217	RECEIVED DATE:	2/15/96 10:30:00 AM
CLIENT ID:	A61000042D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	1.01E+00	1.4E-01	1.9E-01	2.42E-02	pCi/g	82.30%	(41.7)	(7.2)	3/16/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	5.78E-01	1.0E-01	1.3E-01	1.27E-02	pCi/g	82.30%	(45.5)	(5.5)	3/16/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.11E+00	1.4E-01	2.0E-01	1.89E-02	pCi/g	82.30%	(58.9)	(7.7)	3/16/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	4.17E-01	9.4E-02	1.2E-01	3.25E-02	pCi/g	80.40%	(12.8)	(4.4)	3/19/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	2.11E-02U	1.5E-02	1.5E-02	2.11E-02	pCi/g	80.40%	0.48	0.68	3/19/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	6.02E-01	1.1E-01	1.5E-01	2.80E-02	pCi/g	80.40%	(21.5)	(5.3)	3/19/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	9.37E-01	7.1E-02	1.5E-01	3.64E-03	pCi/g	31.00%	(257.6)	(13.2)	3/15/96	6.09	G	ALPHA-SPEC	RICHRC5010
PU239/40	3.64E-03U	3.8E-03	3.8E-03	3.64E-03	pCi/g	31.00%	0.74	0.71	3/15/96	6.09	G	ALPHA-SPEC	RICHRC5010
AM-241.	6.80E-01U	4.0E-01	4.0E-01	6.80E-01	pCi/g	N/A	0.15	0.26	3/11/96	126.7	G	GAMMA	RICHRC5017
BI-207.	1.06E-01U	6.1E-02	6.1E-02	1.06E-01	pCi/g	N/A	-0.1	-0.17	3/11/96	126.7	G	GAMMA	RICHRC5017
BI-210M.	1.43E-01U	9.2E-02	9.2E-02	1.43E-01	pCi/g	N/A	0.12	0.19	3/11/96	126.7	G	GAMMA	RICHRC5017
CO-60.	1.53E-01U	7.3E-02	7.3E-02	1.53E-01	pCi/g	N/A	0.14	0.3	3/11/96	126.7	G	GAMMA	RICHRC5017
CS-137DA.	2.01E-01	1.1E-01	1.1E-01	N/A	pCi/g	N/A	N/A	(1.8)	3/11/96	126.7	G	GAMMA	RICHRC5017
K-40.	7.05E+00	2.0E+00	2.2E+00	N/A	pCi/g	N/A	N/A	(3.5)	3/11/96	126.7	G	GAMMA	RICHRC5017
RA-226DA.	6.35E-01	2.0E-01	2.1E-01	4.32E-01	pCi/g	N/A	(1.5)	(3.2)	3/11/96	126.7	G	GAMMA	RICHRC5017

Number of Results: 15

Comments:

000018

FORM I

D[illegible] 3/27/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6344	COLLECTION DATE:	2/14/96 8:45:00 AM
LAB SAMPLE ID:	60224109	REPORT NBR:	1245	RECEIVED DATE:	2/20/96 7:30:00 AM
CLIENT ID:	A61000045D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	1.96E-01	6.0E-02	6.5E-02	2.28E-02	pCi/g	87.60%	(8.6)	(3.3)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	6.89E-01	1.1E-01	1.4E-01	1.20E-02	pCi/g	87.60%	(57.7)	(6.2)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	2.87E-01	7.1E-02	7.9E-02	1.78E-02	pCi/g	87.60%	(16.1)	(4.)	3/20/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	8.92E-01	2.0E-01	2.7E-01	6.03E-02	pCi/g	42.50%	(14.8)	(4.6)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	6.03E-02U	4.8E-02	4.9E-02	6.03E-02	pCi/g	42.50%	0.81	(1.)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	6.05E-01	1.6E-01	2.1E-01	5.70E-02	pCi/g	42.50%	(10.6)	(3.8)	3/21/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	3.44E-02	8.7E-03	9.5E-03	3.10E-03	pCi/g	73.80%	(11.1)	(3.9)	3/21/96	6.04	G	ALPHA-SPEC	RICHRC5010
PU239/40	2.63E-03U	1.1E-03	1.1E-03	2.63E-03	pCi/g	73.80%	0.17	0.39	3/21/96	6.04	G	ALPHA-SPEC	RICHRC5010
AM-241.	8.09E-01U	5.2E-01	5.2E-01	8.09E-01	pCi/g	N/A	-0.13	-0.2	3/13/96	143.5	G	GAMMA	RICHRC5017
BI-207.	8.00E-02U	4.0E-02	4.0E-02	8.00E-02	pCi/g	N/A	0.34	0.68	3/13/96	143.5	G	GAMMA	RICHRC5017
BI-210M.	1.18E-01U	6.4E-02	6.4E-02	1.18E-01	pCi/g	N/A	0.18	0.33	3/13/96	143.5	G	GAMMA	RICHRC5017
CO-60.	8.93E-02U	3.8E-02	3.8E-02	8.93E-02	pCi/g	N/A	0.08	0.18	3/13/96	143.5	G	GAMMA	RICHRC5017
CS-137DA.	1.15E-01U	4.9E-02	4.9E-02	1.15E-01	pCi/g	N/A	0.68	(1.6)	3/13/96	143.5	G	GAMMA	RICHRC5017
K-40.	4.87E+00	1.6E+00	1.7E+00	N/A	pCi/g	N/A	N/A	(3.)	3/13/96	143.5	G	GAMMA	RICHRC5017
RA-226DA.	6.60E-01	2.0E-01	2.1E-01	N/A	pCi/g	N/A	N/A	(3.4)	3/13/96	143.5	G	GAMMA	RICHRC5017

Number of Results: 15

C000014

Comments:

FORM I

Date: 3/18/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6308	COLLECTION DATE:	2/8/96 10:30:00 AM
LAB SAMPLE ID:	60214614	REPORT NBR:	1199	RECEIVED DATE:	2/9/96 11:30:00 AM
CLIENT ID:	A13000057D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	9.83E-01	1.6E-01	2.0E-01	3.72E-02	pCi/g	65.20%	(26.4)	(6.2)	3/8/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	9.82E-01	1.5E-01	2.0E-01	2.46E-02	pCi/g	65.20%	(40.)	(6.3)	3/8/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	7.55E-01	1.4E-01	1.7E-01	3.04E-02	pCi/g	65.20%	(24.8)	(5.6)	3/8/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	7.71E-01	1.2E-01	1.7E-01	2.96E-02	pCi/g	88.40%	(26.1)	(6.3)	3/5/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	4.22E-02	2.9E-02	2.9E-02	2.18E-02	pCi/g	88.40%	(1.9)	(1.5)	3/5/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	7.72E-01	1.2E-01	1.7E-01	2.55E-02	pCi/g	88.40%	(30.3)	(6.4)	3/5/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.79E+00	1.3E-01	3.5E-01	1.34E-02	pCi/g	23.90%	(133.8)	(13.7)	3/12/96	6.03	G	ALPHA-SPEC	RICHRC5010
PU239/40	3.88E-02	2.0E-02	2.1E-02	1.49E-02	pCi/g	23.90%	(2.6)	(2.)	3/12/96	6.03	G	ALPHA-SPEC	RICHRC5010
AM-241.	3.28E-01U	1.9E-01	1.9E-01	3.28E-01	pCi/g	N/A	0.25	0.42	2/26/96	130.0	G	GAMMA	RICHRC5017
BI-207.	1.22E-01U	6.2E-02	6.2E-02	1.22E-01	pCi/g	N/A	0.27	0.52	2/26/96	130.0	G	GAMMA	RICHRC5017
BI-210M.	1.23E-01U	6.7E-02	6.7E-02	1.23E-01	pCi/g	N/A	0.22	0.4	2/26/96	130.0	G	GAMMA	RICHRC5017
CO-60.	1.30E-01U	6.8E-02	6.8E-02	1.30E-01	pCi/g	N/A	-0.12	-0.23	2/26/96	130.0	G	GAMMA	RICHRC5017
CS-137DA.	1.69E-01	1.1E-01	1.1E-01	N/A	pCi/g	N/A	N/A	(1.5)	2/26/96	130.0	G	GAMMA	RICHRC5017
K-40.	1.81E+01	2.7E+00	3.2E+00	N/A	pCi/g	N/A	N/A	(6.7)	2/26/96	130.0	G	GAMMA	RICHRC5017
RA-226DA.	6.95E-01	2.2E-01	2.3E-01	4.81E-01	pCi/g	N/A	(1.4)	(3.1)	2/26/96	130.0	G	GAMMA	RICHRC5017

Number of Results: 15

000019

Comments:

FORM I

Date 3/18/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6308	COLLECTION DATE:	2/8/96 8:50:00 AM
LAB SAMPLE ID:	60214601	REPORT NBR:	1199	RECEIVED DATE:	2/9/96 11:30:00 AM
CLIENT ID:	A0J000063D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	4.40E-01	8.7E-02	1.0E-01	2.14E-02	pCi/g	91.00%	(20.6)	(5.1)	3/8/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	5.25E-01	9.3E-02	1.1E-01	1.13E-02	pCi/g	91.00%	(46.5)	(5.6)	3/8/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	4.37E-01	8.5E-02	1.0E-01	1.13E-02	pCi/g	91.00%	(38.8)	(5.1)	3/8/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	6.12E-01	1.2E-01	1.5E-01	2.80E-02	pCi/g	73.60%	(21.8)	(5.2)	3/5/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	2.57E-02U	1.1E-02	1.1E-02	2.57E-02	pCi/g	73.60%	0.18	0.42	3/5/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	7.13E-01	1.3E-01	1.7E-01	2.57E-02	pCi/g	73.60%	(27.8)	(5.6)	3/5/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.33E+00	5.9E-02	1.7E-01	4.16E-03	pCi/g	80.30%	(319.8)	(22.5)	3/9/96	6.06	G	ALPHA-SPEC	RICHRC5010
PU239/40	2.08E-02	7.5E-03	7.9E-03	3.72E-03	pCi/g	80.30%	(5.6)	(2.8)	3/9/96	6.06	G	ALPHA-SPEC	RICHRC5010
AM-241.	3.20E-01U	1.9E-01	1.9E-01	3.20E-01	pCi/g	N/A	-0.23	-0.4	2/26/96	128.6	G	GAMMA	RICHRC5017
BI-207.	8.71E-02U	4.3E-02	4.3E-02	8.71E-02	pCi/g	N/A	0.24	0.48	2/26/96	128.6	G	GAMMA	RICHRC5017
BI-210M.	1.30E-01U	6.6E-02	6.7E-02	1.30E-01	pCi/g	N/A	0.57	(1.1)	2/26/96	128.6	G	GAMMA	RICHRC5017
CO-60.	1.20E-01U	5.3E-02	5.3E-02	1.20E-01	pCi/g	N/A	0.19	0.42	2/26/96	128.6	G	GAMMA	RICHRC5017
CS-137DA.	1.14E-01U	5.5E-02	5.5E-02	1.14E-01	pCi/g	N/A	0.41	0.86	2/26/96	128.6	G	GAMMA	RICHRC5017
K-40.	5.18E+00	1.8E+00	1.9E+00	N/A	pCi/g	N/A	N/A	(2.8)	2/26/96	128.6	G	GAMMA	RICHRC5017
RA-226DA.	5.74E-01	1.9E-01	2.0E-01	4.05E-01	pCi/g	N/A	(1.4)	(3.)	2/26/96	128.6	G	GAMMA	RICHRC5017

Number of Results: 15

000006

Comments:

FORM I

Dat /18/96

SAMPLE RESULTS

LAB NAME: QUANTERRA, Richland

SDG: 6308

COLLECTION DATE: 2/7/96 11:10:00 AM

LAB SAMPLE ID: 60214605

REPORT NBR: 1199

RECEIVED DATE: 2/9/96 11:30:00 AM

CLIENT ID: A0J000071D

ORDER NBR:

MATRIX: SOIL

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	6.16E-01	1.1E-01	1.3E-01	2.26E-02	pCi/g	89.50%	(27.2)	(5.8)	3/8/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.15E+00	1.4E-01	2.0E-01	1.77E-02	pCi/g	89.50%	(64.6)	(8.1)	3/8/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	8.15E-01	1.2E-01	1.6E-01	1.19E-02	pCi/g	89.50%	(68.3)	(6.8)	3/8/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	6.13E-01	1.1E-01	1.5E-01	3.02E-02	pCi/g	84.90%	(20.3)	(5.3)	3/5/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	3.02E-02U	2.4E-02	2.4E-02	3.02E-02	pCi/g	84.90%	0.81	(1.)	3/5/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	5.92E-01	1.1E-01	1.5E-01	2.86E-02	pCi/g	84.90%	(20.7)	(5.3)	3/5/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	4.00E+00	1.0E-01	4.8E-01	1.77E-03	pCi/g	80.30%	(2262.3)	(39.1)	3/11/96	6.18	G	ALPHA-SPEC	RICHRC5010
PU239/40	1.83E-02	6.9E-03	7.2E-03	1.77E-03	pCi/g	80.30%	(10.3)	(2.6)	3/11/96	6.18	G	ALPHA-SPEC	RICHRC5010
AM-241.	1.84E-01U	1.0E-01	1.0E-01	1.84E-01	pCi/g	N/A	0.66	(1.2)	2/26/96	119.1	G	GAMMA	RICHRC5017
BI-207.	1.07E-01U	5.0E-02	5.1E-02	1.07E-01	pCi/g	N/A	0.46	0.97	2/26/96	119.1	G	GAMMA	RICHRC5017
BI-210M.	1.47E-01U	8.6E-02	8.6E-02	1.47E-01	pCi/g	N/A	-0.23	-0.4	2/26/96	119.1	G	GAMMA	RICHRC5017
CO-60.	1.28E-01U	4.4E-02	4.4E-02	1.28E-01	pCi/g	N/A	0.38	(1.1)	2/26/96	119.1	G	GAMMA	RICHRC5017
CS-137DA.	1.36E-01U	7.2E-02	7.2E-02	1.36E-01	pCi/g	N/A	0.23	0.43	2/26/96	119.1	G	GAMMA	RICHRC5017
K-40.	1.99E+01	3.2E+00	3.8E+00	N/A	pCi/g	N/A	N/A	(6.1)	2/26/96	119.1	G	GAMMA	RICHRC5017
RA-226DA.	8.42E-01	2.1E-01	2.3E-01	4.86E-01	pCi/g	N/A	(1.7)	(4.)	2/26/96	119.1	G	GAMMA	RICHRC5017

Number of Results: 15

000010

Comments:

FORM I

Date: 3/11/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6291	COLLECTION DATE:	2/7/96 10:45:00 AM
LAB SAMPLE ID:	60211003	REPORT NBR:	1144	RECEIVED DATE:	2/8/96 10:30:00 AM
CLIENT ID:	A21000088D	ORDER NBR:		MATRIX:	SOIL

OTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	9.54E-01	1.4E-01	1.8E-01	2.62E-02	pCi/g	82.50%	(36.5)	(7.)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.30E+00	1.6E-01	2.3E-01	2.18E-02	pCi/g	82.50%	(59.5)	(8.2)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.01E+00	1.4E-01	1.9E-01	1.92E-02	pCi/g	82.50%	(52.4)	(7.3)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	8.60E-01	1.5E-01	2.1E-01	3.48E-02	pCi/g	73.70%	(24.7)	(5.9)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	3.48E-02U	1.8E-02	1.8E-02	3.48E-02	pCi/g	73.70%	0.28	0.56	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	8.97E-01	1.5E-01	2.1E-01	3.29E-02	pCi/g	73.70%	(27.3)	(6.)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	5.08E-01	3.6E-02	7.7E-02	4.91E-03	pCi/g	53.30%	(103.7)	(14.2)	2/22/96	10.03	G	ALPHA-SPEC	RICHRC5010
PU239/40	2.16E-02	7.4E-03	8.0E-03	3.97E-03	pCi/g	53.30%	(5.5)	(2.9)	2/22/96	10.03	G	ALPHA-SPEC	RICHRC5010
AM-241.	9.57E-01U	5.8E-01	5.8E-01	9.57E-01	pCi/g	N/A	-0.03	-0.05	2/20/96	91.7	G	GAMMA	RICHRC5017
BI-207.	1.37E-01U	8.5E-02	8.5E-02	1.37E-01	pCi/g	N/A	-0.27	-0.44	2/20/96	91.7	G	GAMMA	RICHRC5017
BI-210M.	1.98E-01U	1.3E-01	1.3E-01	1.98E-01	pCi/g	N/A	-0.06	-0.09	2/20/96	91.7	G	GAMMA	RICHRC5017
CO-60.	1.30E-01U	1.1E-01	1.1E-01	1.30E-01	pCi/g	N/A	-0.83	-0.98	2/20/96	91.7	G	GAMMA	RICHRC5017
CS-137DA.	6.91E-01	2.6E-01	2.7E-01	N/A	pCi/g	N/A	N/A	(2.7)	2/20/96	91.7	G	GAMMA	RICHRC5017
K-40.	2.33E+01	3.9E+00	4.5E+00	N/A	pCi/g	N/A	N/A	(6.)	2/20/96	91.7	G	GAMMA	RICHRC5017
RA-226DA.	1.26E+00	3.9E-01	4.1E-01	N/A	pCi/g	N/A	N/A	(3.2)	2/20/96	91.7	G	GAMMA	RICHRC5017

umber of Results: 15

0008

omments:

FORM I

Date: 3/14/96

SAMPLE RESULTS

LAB NAME: QUANTERRA, Richland
SDG: 6232
COLLECTION DATE: 2/5/96 11:00:00 AM
LAB SAMPLE ID: 60206903
REPORT NBR: 1176
RECEIVED DATE: 2/7/96 11:00:00 AM
CLIENT ID: A22000091D
ORDER NBR:
MATRIX: SOIL

ISOTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	1.13E+00	1.7E-01	2.2E-01	3.05E-02	pCi/g	87.00%	(37.1)	(6.8)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	1.50E+00	1.9E-01	2.7E-01	2.40E-02	pCi/g	87.00%	(62.6)	(7.9)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	1.10E+00	1.6E-01	2.2E-01	1.61E-02	pCi/g	87.00%	(68.4)	(6.8)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	1.19E+00	1.7E-01	2.6E-01	3.00E-02	pCi/g	68.70%	(39.7)	(7.)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	4.72E-02	3.4E-02	3.5E-02	2.75E-02	pCi/g	68.70%	(1.7)	(1.4)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	1.22E+00	1.7E-01	2.7E-01	3.22E-02	pCi/g	68.70%	(38.)	(7.1)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	4.49E-01	2.9E-02	6.2E-02	2.61E-03	pCi/g	73.80%	(172.)	(15.6)	2/22/96	10.02	G	ALPHA-SPEC	RICHRC5010
PU239/40	4.34E-03	2.9E-03	3.0E-03	2.91E-03	pCi/g	73.80%	(1.5)	(1.5)	2/22/96	10.02	G	ALPHA-SPEC	RICHRC5010
AM-241.	4.08E-01U	2.3E-01	2.3E-01	4.08E-01	pCi/g	N/A	0.41	0.73	2/20/96	110.5	G	GAMMA	RICHRC5017
BI-207.	1.44E-01U	8.2E-02	8.2E-02	1.44E-01	pCi/g	N/A	0.06	0.11	2/20/96	110.5	G	GAMMA	RICHRC5017
BI-210M.	1.59E-01U	9.5E-02	9.5E-02	1.59E-01	pCi/g	N/A	-0.15	-0.25	2/20/96	110.5	G	GAMMA	RICHRC5017
CO-60.	1.53E-01U	5.3E-02	5.4E-02	1.53E-01	pCi/g	N/A	0.43	(1.2)	2/20/96	110.5	G	GAMMA	RICHRC5017
CS-137DA.	1.69E-01U	8.2E-02	8.2E-02	1.69E-01	pCi/g	N/A	0.45	0.94	2/20/96	110.5	G	GAMMA	RICHRC5017
K-40.	2.12E+01	3.4E+00	4.0E+00	N/A	pCi/g	N/A	N/A	(6.2)	2/20/96	110.5	G	GAMMA	RICHRC5017
RA-226DA.	1.31E+00	2.6E-01	2.9E-01	N/A	pCi/g	N/A	N/A	(5.1)	2/20/96	110.5	G	GAMMA	RICHRC5017

Number of Results: 15

0006

Comments:

FORM I

Date: 3/11/96

SAMPLE RESULTS

LAB NAME:	QUANTERRA, Richland	SDG:	6291	COLLECTION DATE:	2/7/96 9:35:00 AM
LAB SAMPLE ID:	60211006	REPORT NBR:	1144	RECEIVED DATE:	2/8/96 10:30:00 AM
CLIENT ID:	A22000095D	ORDER NBR:		MATRIX:	SOIL

ISOTOPE	RESULT	COUNTING ERROR (s)	TOTAL ERROR (s)	MDA	REPORT UNIT	YIELD	RST/MDA	RST/CNTERR	ANALYSIS DATE	ALIQUOT SIZE	ALQ UNIT	DETECTOR ID	METHOD NUMBER
TH-228	5.56E-01	1.0E-01	1.2E-01	2.78E-02	pCi/g	87.00%	(20.)	(5.4)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-230	7.05E-01	1.1E-01	1.4E-01	1.84E-02	pCi/g	87.00%	(38.3)	(6.2)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
TH-232	5.67E-01	1.0E-01	1.2E-01	2.28E-02	pCi/g	87.00%	(24.8)	(5.6)	3/2/96	2.0	G	ALPHA-SPEC	RICHRC5011
U-234	3.75E-01	7.7E-02	9.5E-02	2.46E-02	pCi/g	106.40%	(15.3)	(4.8)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-235	1.98E-02U	1.8E-02	1.8E-02	1.98E-02	pCi/g	106.40%	0.95	(1.1)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
U-238	4.08E-01	8.1E-02	1.0E-01	1.98E-02	pCi/g	106.40%	(20.6)	(5.1)	3/7/96	2.0	G	ALPHA-SPEC	RICHRC5030
PU-238	1.10E+01	1.7E-01	1.5E+00	3.58E-03	pCi/g	53.70%	(3070.9)	(65.8)	2/23/96	10.04	G	ALPHA-SPEC	RICHRC5010
PU239/40	4.05E-02	1.0E-02	1.2E-02	1.72E-03	pCi/g	53.70%	(23.6)	(4.)	2/23/96	10.04	G	ALPHA-SPEC	RICHRC5010
AM-241.	1.08E+00U	6.3E-01	6.3E-01	1.08E+00	pCi/g	N/A	0.45	0.77	2/20/96	112.2	G	GAMMA	RICHRC5017
BI-207.	1.27E-01U	6.7E-02	6.7E-02	1.27E-01	pCi/g	N/A	0.23	0.44	2/20/96	112.2	G	GAMMA	RICHRC5017
BI-210M.	1.42E-01U	9.9E-02	9.9E-02	1.42E-01	pCi/g	N/A	-0.82	-(1.2)	2/20/96	112.2	G	GAMMA	RICHRC5017
CO-60.	1.76E-01U	7.2E-02	7.2E-02	1.76E-01	pCi/g	N/A	0.39	0.96	2/20/96	112.2	G	GAMMA	RICHRC5017
CS-137DA.	1.31E-01	9.7E-02	9.8E-02	N/A	pCi/g	N/A	N/A	(1.3)	2/20/96	112.2	G	GAMMA	RICHRC5017
K-40.	7.18E+00	1.9E+00	2.0E+00	N/A	pCi/g	N/A	N/A	(3.8)	2/20/96	112.2	G	GAMMA	RICHRC5017
RA-226DA.	5.59E-01	2.3E-01	2.4E-01	4.80E-01	pCi/g	N/A	(1.2)	(2.4)	2/20/96	112.2	G	GAMMA	RICHRC5017

Number of Results: 15

0011

Comments:

Mound Radiochemical Results

Environmental Restoration/Terran Soil Analysis Results

March 1996

Sample I.D.	Pu-238, pCi/g	Error, pCi/g	LDL, pCi/g
SGC-NAC-000019-W	0.115	0.006	0.002
SGC-NAC-000023-W	0.271	0.009	0.002
SGC-NAC-000024-W	0.698	0.013	0.002
SGC-NAC-000025-W	0.203	0.008	0.002
SGC-NAC-000026-W	0.147	0.006	0.002
SGC-NAC-000027-W	0.158	0.008	0.002
SGC-NAC-000028-W	0.183	0.012	0.002
SGC-NAC-000029-W	0.357	0.020	0.002
SGC-NAC-000033-W	0.117	0.012	0.002
Duplicate of 000033-W	0.112	0.009	0.002
SGC-NAC-000034-W	0.732	0.028	0.002
SGC-NAC-000035-W	0.066	0.008	0.002
SGC-A13-000057-W	1.021	0.028	0.002
SGC-AOJ-000063-W	1.519	0.033	0.002
SGC-AOJ-000071-W	3.522	0.048	0.002
SGC-A21-000088-W	0.255	0.013	0.002
SGC-A22-000091-W	0.427	0.021	0.002
SGC-A22-000095-W	12.270	0.091	0.002
SGC-NAC-000020-W	0.345	0.016	0.002
SGC-NAC-000021-W	27.280	0.127	0.002
SGC-NAC-000022-W	0.073	0.009	0.002

SGC-NAC-000030-W	1.772	0.038	0.002
SGC-NAC-000030-CORE-W	0.230	0.014	0.002
SGC-NAC-000031-W	0.683	0.024	0.002
SGC-NAC-000032-W	24.320	0.141	0.002
SGC-NAC-000039-W	0.176	0.004	0.002
SGC-A61-000042-W	1.267	0.031	0.002
SGC-A61-000045-W	0.002	0.002	0.002
SGC-A61-000111-W	<LDL		0.002
SGC-NAC-000008-W	0.180	0.011	0.002
SGC-NAC-000008-CORE-W	0.145	0.012	0.002
SGC-SAN-000018-W	0.831	0.025	0.002
SGC-SAN-000018MS-W	1.056	0.031	0.002
SGC-NAC-000036-W	0.208	0.013	0.002
SGC-NAC-000037-W	1.428	0.040	0.002
SGC-NAC-000038-W	0.107	0.009	0.002

Environmental Restoration/Terran Soil Analysis Results

March 1996

Sample I.D.	ISOTOPE	RESULT	Error, pCi/g	LDL, pCi/g
SGC-NAC-000019-W	Th-228, pCi/g	0.700	0.048	0.020
	Th-230, pCi/g	1.133	0.061	0.040
	Th-232, pCi/g	0.722	0.049	0.010
SGC-NAC-000023-W	Th-228, pCi/g	1.333	0.070	0.020
	Th-230, pCi/g	1.094	0.064	0.040
	Th-232, pCi/g	1.259	0.068	0.010
SGC-NAC-000024-W	Th-228, pCi/g	0.976	0.056	0.020
	Th-230, pCi/g	0.902	0.054	0.040
	Th-232, pCi/g	0.989	0.056	0.010
SGC-NAC-000025-W	Th-228, pCi/g	0.988	0.054	0.020
	Th-230, pCi/g	1.354	0.064	0.040
	Th-232, pCi/g	0.923	0.053	0.010
SGC-NAC-000026-W	Th-228, pCi/g	0.908	0.057	0.020
	Th-230, pCi/g	1.040	0.061	0.040
	Th-232, pCi/g	0.921	0.057	0.010
SGC-NAC-000027-W	Th-228, pCi/g	1.048	0.062	0.020
	Th-230, pCi/g	1.516	0.074	0.040
	Th-232, pCi/g	0.981	0.060	0.010
SGC-NAC-000028-W	Th-228, pCi/g	1.212	0.076	0.020
	Th-230, pCi/g	1.162	0.075	0.040
	Th-232, pCi/g	1.163	0.075	0.010
SGC-NAC-000029-W	Th-228, pCi/g	1.181	0.067	0.020
	Th-230, pCi/g	1.000	0.062	0.040
	Th-232, pCi/g	1.194	0.067	0.010
SGC-NAC-000033-W	Th-228, pCi/g	1.107	0.066	0.020
	Th-230, pCi/g	1.039	0.064	0.040
	Th-232, pCi/g	1.175	0.068	0.010
SGC-NAC-000034-W	Th-228, pCi/g	0.986	0.064	0.020
	Th-230, pCi/g	1.286	0.073	0.040
	Th-232, pCi/g	0.905	0.061	0.010
SGC-NAC-000035-W	Th-228, pCi/g	1.054	0.070	0.020
	Th-230, pCi/g	1.057	0.071	0.040
	Th-232, pCi/g	1.153	0.074	0.010
SGC-A13-000057-W	Th-228, pCi/g	0.835	0.060	0.020
	Th-230, pCi/g	1.000	0.066	0.040
	Th-232, pCi/g	0.775	0.058	0.010

SGC-AOJ-000063-W	Th-228, pCi/g	0.381	0.047	0.030
	Th-230, pCi/g	0.539	0.056	0.070
	Th-232, pCi/g	0.397	0.048	0.020
SGC-AOJ-000071-W	Th-228, pCi/g	0.838	0.078	0.030
	Th-230, pCi/g	1.421	0.102	0.070
	Th-232, pCi/g	0.935	0.083	0.020
SGC-A21-000088-W	Th-228, pCi/g	1.213	0.103	0.030
	Th-230, pCi/g	1.388	0.111	0.070
	Th-232, pCi/g	1.089	0.098	0.020
SGC-A22-000091-W	Th-228, pCi/g	1.095	0.100	0.030
	Th-230, pCi/g	1.540	0.119	0.070
	Th-232, pCi/g	1.141	0.102	0.020
SGC-A22-000095-W	Th-228, pCi/g	0.690	0.070	0.030
	Th-230, pCi/g	0.786	0.074	0.070
	Th-232, pCi/g	0.690	0.070	0.020
SGC-NAC-000020-W	Th-228, pCi/g	0.967	0.092	0.030
	Th-230, pCi/g	1.001	0.094	0.070
	Th-232, pCi/g	0.999	0.094	0.020
SGC-NAC-000021-W	Th-228, pCi/g	0.971	0.064	0.020
	Th-230, pCi/g	0.757	0.057	0.040
	Th-232, pCi/g	0.931	0.063	0.010
SGC-NAC-000022-W	Th-228, pCi/g	0.763	0.076	0.020
	Th-230, pCi/g	1.743	0.085	0.040
	Th-232, pCi/g	0.760	0.056	0.010
SGC-NAC-000030-W	Th-228, pCi/g	0.099	0.019	0.020
	Th-230, pCi/g	0.162	0.023	0.040
	Th-232, pCi/g	0.098	0.019	0.010
SGC-NAC-000030-CORE-W	Th-228, pCi/g	0.895	0.055	0.020
	Th-230, pCi/g	1.252	0.065	0.040
	Th-232, pCi/g	0.906	0.056	0.010
SGC-NAC-000031-W	Th-228, pCi/g	0.782	0.050	0.020
	Th-230, pCi/g	1.282	0.064	0.040
	Th-232, pCi/g	0.685	0.047	0.010
SGC-NAC-000032-W	Th-228, pCi/g	1.173	0.067	0.020
	Th-230, pCi/g	1.124	0.065	0.040
	Th-232, pCi/g	1.072	0.063	0.010
SGC-NAC-000039-W	Th-228, pCi/g	1.067	0.082	0.030
	Th-230, pCi/g	1.325	0.092	0.070
	Th-232, pCi/g	1.034	0.081	0.020

SGC-A61-000042-W	Th-228, pCi/g	1.103	0.084	0.030
	Th-230, pCi/g	0.665	0.066	0.070
	Th-232, pCi/g	1.054	0.083	0.020
SGC-A61-000045-W	Th-228, pCi/g	0.258	0.042	0.030
	Th-230, pCi/g	0.808	0.074	0.070
	Th-232, pCi/g	0.219	0.039	0.020
SGC-A61-000111-W	Th-228, pCi/g	0.319	0.049	0.030
	Th-230, pCi/g	0.630	0.069	0.070
	Th-232, pCi/g	0.341	0.051	0.020
SGC-NAC-000008-W	Th-228, pCi/g	0.604	0.067	0.030
	Th-230, pCi/g	0.596	0.066	0.070
	Th-232, pCi/g	0.557	0.064	0.020
SGC-NAC-000008-CORE-W	Th-228, pCi/g	0.487	0.060	0.030
	Th-230, pCi/g	0.824	0.078	0.070
	Th-232, pCi/g	0.420	0.056	0.020
SGC-SAN-000018-W	Th-228, pCi/g	0.452	0.056	0.030
	Th-230, pCi/g	0.651	0.067	0.070
	Th-232, pCi/g	0.467	0.057	0.020
SGC-SAN-000018MS-W	Th-228, pCi/g	0.439	0.055	0.030
	Th-230, pCi/g	0.642	0.067	0.070
	Th-232, pCi/g	0.416	0.054	0.020
SGC-NAC-000036-W	Th-228, pCi/g	1.417	0.100	0.030
	Th-230, pCi/g	1.236	0.094	0.070
	Th-232, pCi/g	1.314	0.097	0.020
SGC-NAC-000037-W	Th-228, pCi/g	1.250	0.094	0.030
	Th-230, pCi/g	1.421	0.100	0.070
	Th-232, pCi/g	1.150	0.090	0.020
SGC-NAC-000038-W	Th-228, pCi/g	1.203	0.091	0.030
	Th-230, pCi/g	1.343	0.096	0.070
	Th-232, pCi/g	1.160	0.090	0.020

Mound Soil Screening Results

Soil Screening Sample Suffixes

Some sample in this investigation were split 3 ways. Three soil samples were collected from the same location, homogenized, and placed in three soil screening containers. All containers were analyzed by Bicron (NaI) detector. The containers were then sent to three separate wet radiochemistry laboratories, Quanterra, Ross Analytical (who subcontracted to Thermo NuTech) who is OEPA's laboratory, and the Mound Wet Radiochemistry Laboratory. These suffixes were used to designate samples shipped to the three radiochemistry laboratories and the corresponding soil screening samples.

- O = Ohio EPA sample at surface
- O - CORE = OEPA core sample (subsurface)
- MS - O = OEPA Matrix Spike
- W = Mound Wet Radiochem Lab
- D = Quanterra

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

02/13/96

SODIUM IODIDE SOIL SCREEN, 400 SECOND COUNT
PREPARED BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504717	02/13/96	02/13/96	[redacted] 5349	CONT	25	1.0	N	TERRAN SGC-A66-000041	C
9504718	02/13/96	02/13/96	[redacted] 5349	CONT	1	0.3	N	TERRAN SGC-A66-000040	C
9504719	02/13/96	02/13/96	[redacted] 5520	CONT	27	1.4	N	TERRAN SGC-NAC-000021-D	C
9504720	02/13/96	02/13/96	[redacted] 5520	CONT	27	1.4	N	TERRAN SGC-NAC-000021-O	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

02/08/96

SODIUM IODIDE SOIL SCREEN 400 SECOND COUNT
PREPARED BY BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504689	02/08/96	02/08/96	[redacted] 5520	CONT	23	0.9	N	TERRAN SGC-A13-000059	C
9504690	02/08/96	02/08/96	[redacted] 5520	CONT	17	0.8	N	TERRAN SGC-NAC-000019-0	C
9504691	02/08/96	02/08/96	[redacted] 5520	CONT	13	0.5	N	TERRAN SGC-A13-000061	C
9504692	02/08/96	02/08/96	[redacted] 5520	CONT	1	0.4	N	TERRAN SGC-NAC-000019-D	C
9504693	02/08/96	02/08/96	[redacted] 5349	CONT	14	1.0	N	TERRAN SGC-A13-000057	C
9504694	02/08/96	02/08/96	[redacted] 5349	CONT	26	1.2	N	TERRAN SGC-NAC-000009	C
9504695	02/08/96	02/08/96	[redacted] 5349	CONT	16	0.9	N	TERRAN SGC-A13-000057-0	C
9504696	02/08/96	02/08/96	[redacted] 5520	CONT	3	0.3	N	TERRAN SGC-A13-000056	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

SODIUM IODIDE SOIL SCREEN, 480 SECOND COUNT
PREPARED BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504640	02/06/96	02/07/96	[redacted] 5349	CONT	14	1.4	N	TERRAN SGC-NAC-000025-0	C
9504641	02/06/96	02/07/96	[redacted] 5349	CONT	12	0.9	N	TERRAN SGC-NAC-000034-D	C
9504642	02/06/96	02/07/96	[redacted] 5520	CONT	18	0.8	N	TERRAN SGC-NAC-000033-D	C
9504643	02/06/96	02/07/96	[redacted] 5349	CONT	8	1.3	N	TERRAN SGC-NAC-000025-D	C
9504644	02/06/96	02/07/96	[redacted] 5520	CONT	24	0.9	N	TERRAN SGC-NAC-000023-D	C
9504645	02/06/96	02/07/96	[redacted] 5349	CONT	5	1.0	N	TERRAN SGC-NAC-000034-0	C
9504646	02/06/96	02/07/96	[redacted] 5520	CONT	16	0.9	N	TERRAN SGC-NAC-000023-0	C
9504647	02/06/96	02/07/96	[redacted] 5349	CONT	19	1.3	N	TERRAN SGC-NAC-000110-0	C
9504648	02/06/96	02/07/96	[redacted] 5349	CONT	5	0.6	N	TERRAN SGC-NAC-000024-D	C
9504649	02/06/96	02/07/96	[redacted] 5349	CONT	1	0.6	N	TERRAN SGC-NAC-000024-0	C
9504650	02/06/96	02/07/96	[redacted] 5520	CONT	14	0.9	N	TERRAN SGC-NAC-000033-0	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

e No. 1
15/96

SODIUM IODIDE SOIL SCREEN, 400 SECOND COUNT
PREPARED BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504790	02/15/96	02/15/96	[redacted]5349	CONT	0	0.1	N	TERRAN SGC-NAC-000030-D	C
9504791	02/15/96	02/15/96	[redacted]5349	CONT	23	1.3	N	TERRAN SGC-NAC-000030-0-CORE	C
9504792	02/15/96	02/15/96	[redacted]5349	CONT	12	0.1	N	TERRAN SGC-NAC-000030-0	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

SODIUM IODIDE SOIL SCREEN, 400 SECOND COUNT
PREPARED BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504887	02/20/96	02/20/96	[redacted] 5349	CONT	14	0.6	N	TERRAN SGC-NAC-000008-CORE	C
9504888	02/20/96	02/20/96	[redacted] 5349	CONT	2	0.7	N	TERRAN SGC-NAC-000008-O	C
9504889	02/20/96	02/20/96	[redacted] 5349	CONT	7	0.8	N	TERRAN SGC-NAC-000008-D	C
9504890	02/20/96	02/20/96	[redacted] 5349	CONT	10	0.4	N	TERRAN SGC-NAC-000007	C
9504891	02/20/96	02/20/96	[redacted] 5349	CONT	18	1.3	N	TERRAN SGC-A61-000052	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

SODIUM IODIDE SOIL SCREEN, 400 SECOND COUNT
PREPARED BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504817	02/15/96	02/16/96	[redacted]5349	CONT	0	0.4	N	TERRAN SGC-A03-000087-MS	C
9504818	02/15/96	02/16/96	[redacted]5520	CONT	71	0.7	N	TERRAN SGC-SDB-000101	C
9504819	02/15/96	02/16/96	[redacted]5349	CONT	3	0.6	N	TERRAN SGC-SAN-000018-MS-0	C
9504820	02/15/96	02/16/96	[redacted]5520	CONT	14	0.7	N	TERRAN SGC-NAC-000038-W	C
9504821	02/15/96	02/16/96	[redacted]5349	CONT	8	0.6	N	TERRAN SGC-SAN-000018-D	C
9504822	02/15/96	02/16/96	[redacted]5520	CONT	23	1.0	N	TERRAN SGC-NAC-000036-W	C
9504823	02/15/96	02/16/96	[redacted]5520	CONT	23	0.9	N	TERRAN SGC-NAC-000036-0-CORE	C
9504824	02/15/96	02/16/96	[redacted]5520	CONT	26	0.9	N	TERRAN SGC-NAC-000037-W	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

02/16/96

SODIUM IODIDE SOIL SCREEN, 400 SECOND COUNT
PREPARED BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504825	02/15/96	02/16/96	[redacted] 5520	CONT	12	0.6	N	TERRAN SGC-SDB-000098	C
9504826	02/15/96	02/16/96	[redacted] 5520	CONT	33	0.6	N	TERRAN SGC-SDB-000097	C
9504827	02/15/96	02/16/96	[redacted] 5520	CONT	14	0.7	N	TERRAN SGC-SDB-000102	C
9504828	02/15/96	02/16/96	[redacted] 5349	CONT	8	0.7	N	TERRAN SGC-SAN-000018-MS-W	C
9504829	02/15/96	02/16/96	[redacted] 5349	CONT	0	0.5	N	TERRAN SGC-A03-000087	C
9504830	02/15/96	02/16/96	[redacted] 5520	CONT	19	1.1	N	TERRAN SGC-NAC-000036-0	C
9504831	02/15/96	02/16/96	[redacted] 5349	CONT	9	0.6	N	TERRAN SGC-SAN-000018-W	C
9504832	02/15/96	02/16/96	[redacted] 5349	CONT	6	0.7	N	TERRAN SGC-SAN-000018-0	C
9504833	02/15/96	02/16/96	[redacted] 5520	CONT	11	0.9	N	TERRAN SGC-SAN-000038-0	C
9504834	02/15/96	02/16/96	[redacted] 5520	CONT	14	0.9	N	TERRAN SGC-NAC-000037-0	C
9504835	02/15/96	02/16/96	[redacted] 5520	CONT	14	1.0	N	TERRAN SGC-NAC-000036-D	C
9504836	02/15/96	02/16/96	[redacted] 5520	CONT	21	0.9	N	TERRAN SGC-NAC-000037-D	C
9504837	02/15/96	02/16/96	[redacted] 5520	CONT	19	0.7	N	TERRAN SGC-NAC-000038-0-CORE	C
9504838	02/15/96	02/16/96	[redacted] 5520	CONT	18	1.0	N	TERRAN SGC-NAC-000038-D	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

SODIUM IODIDE SOIL SCREEN, 100 SECOND COUNT
PREPARED BY _____

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504772	02/14/96	02/15/96	[redacted] 5520	CONT	10	0.9	N	TERRAN SGC-NAC-000020-0	C
9504773	02/14/96	02/15/96	[redacted] 5520	CONT	12	0.9	Y	TERRAN SGC-NAC-000020-D	C
9504774	02/14/96	02/15/96	[redacted] 5520	CONT	31	1.4	N	TERRAN SGC-AOJ-000072	C
9504775	02/14/96	02/15/96	[redacted] 5520	CONT	6	0.9	N	TERRAN SGC-AOJ-000046	C
9504776	02/14/96	02/15/96	[redacted] 5520	CONT	7	1.1	N	TERRAN SGC-AOJ-000075	C
9504777	02/14/96	02/15/96	[redacted] 5520	CONT	19	1.2	Y	TERRAN SGC-AOJ-000069	C
9504778	02/14/96	02/15/96	[redacted] 5520	CONT	11	0.6	Y	TERRAN SGC-AOJ-000076	C
9504779	02/14/96	02/15/96	[redacted] 5520	CONT	10	0.4	Y	TERRAN SGC-AOJ-000068	C
9504780	02/14/96	02/15/96	[redacted] 5520	CONT	33	1.6	Y	TERRAN SGC-AOJ-000147	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

02/15/96

SODIUM IODIDE SOIL SCREEN, 400 SECOND COUNT
PREPARED BY BP

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504782	02/14/96	02/15/96	[redacted] 5520	CONT	28	1.0	N	TERRAN SGC-NAC-000004	C
9504783	02/14/96	02/15/96	[redacted] 5349	CONT	27	1.4	N	TERRAN SGC-NAC-000039 MS	C
9504784	02/14/96	02/15/96	[redacted] 5349	CONT	28	1.2	N	TERRAN SGC-NAC-000039-D	C
9504785	02/14/96	02/15/96	[redacted] 5520	CONT	14	1.6	N	TERRAN SGC-AOJ-000065	C
9504786	02/14/96	02/15/96	[redacted] 5349	CONT	21	1.2	N	TERRAN SGC-NAC-000039-O	C
9504787	02/14/96	02/15/96	[redacted] 5520	CONT	25	1.5	N	TERRAN SGC-NAC-000001	C
9504788	02/14/96	02/15/96	[redacted] 5520	CONT	3	0.5	N	TERRAN SGC-AOJ-000074	C
9504789	02/14/96	02/15/96	[redacted] 5520	CONT	11	0.7	N	TERRAN SGC-NAC-000054	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

SODIUM IODIDE SOIL SCREEN, 400 SECOND COUNT
PREPARED BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504763	02/14/96	02/14/96	[redacted] 5349	CONT	7	0.5	N	TERRAN SGC-A61-000045-D	C
9504764	02/14/96	02/14/96	[redacted] 5349	CONT	9	0.5	N	TERRAN SGC-A61-000045-0	C
9504765	02/14/96	02/14/96	[redacted] 5349	CONT	6	0.6	N	TERRAN SGC-A61-000111-0	C
9504766	02/14/96	02/14/96	[redacted] 5520	CONT	22	1.0	N	TERRAN SGC-NAC-000031-D	C
9504767	02/14/96	02/14/96	[redacted] 5520	CONT	15	0.8	N	TERRAN SGC-NAC-000031-0	C
9504768	02/14/96	02/14/96	[redacted] 5520	CONT	26	0.9	N	TERRAN SGC-NAC-000201-0	C
9504769	02/14/96	02/14/96	[redacted] 5520	CONT	23	1.1	N	TERRAN SGC-NAC-000032-D	C
9504770	02/14/96	02/14/96	[redacted] 5520	CONT	23	1.2	N	TERRAN SGC-NAC-000032-0	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

02/13/96

SODIUM IODIDE SOIL SCREEN - 400 SECOND COUNT
PREPARED BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504725	02/13/96	02/13/96	[redacted] 5520	CONT	44	5.9	N	TERRAN SGC-NAC-000137	C
9504726	02/13/96	02/13/96	[redacted] 5349	CONT	10	1.1	N	TERRAN SGC-A61-000042-0	C
9504727	02/13/96	02/13/96	[redacted] 5349	CONT	5	0.9	N	TERRAN SGC-A61-000042-D	C
9504728	02/13/96	02/13/96	[redacted] 5349	CONT	6	0.7	N	TERRAN SGC-A61-000043	C
9504729	02/13/96	02/13/96	[redacted] 5349	CONT	0	0.4	N	TERRAN SGC-A61-000053-MS	C
9504730	02/13/96	02/13/96	[redacted] 5349	CONT	5	0.4	N	TERRAN SGC-A61-000053	C
9504731	02/13/96	02/13/96	[redacted] 5520	CONT	16	0.9	N	TERRAN SGC-A03-000079	C
9504732	02/13/96	02/13/96	[redacted] 5520	CONT	12	0.8	N	TERRAN SGC-SDB-000100	C
9504733	02/13/96	02/13/96	[redacted] 5520	CONT	27	1.4	N	TERRAN SGC-NAC-000022-0	C
9504734	02/13/96	02/13/96	[redacted] 5520	CONT	19	1.3	N	TERRAN SGC-NAC-000200-0	C
9504735	02/13/96	02/13/96	[redacted] 5520	CONT	16	1.3	N	TERRAN SGC-NAC-000022-D	C
9504736	02/13/96	02/13/96	[redacted] 5520	CONT	28	1.1	N	TERRAN SGC-SDB-000099	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

SODIUM IODIDE SOIL SCREEN, 400 SECOND COUNT
PREPARED BY BB

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504682	02/08/96	02/08/96	[redacted] 5349	CONT	10	0.3	N	TERRAN SGC-AOJ-000063-0	C
9504683	02/08/96	02/08/96	[redacted] 5349	CONT	5	0.5	N	TERRAN SGC-AOJ-000063-D	C
9504684	02/08/96	02/08/96	[redacted] 5520	CONT	16	0.5	N	TERRAN SGC-NAC-000011	C
9504685	02/07/96	02/08/96	[redacted] 5520	CONT	0	0.4	N	TERRAN SGC-NAC-000013	C
9504686	02/08/96	02/08/96	[redacted] 5520	CONT	9	0.4	N	TERRAN SGC-A13-000060	C
9504687	02/07/96	02/08/96	[redacted] 5349	CONT	9	0.3	N	TERRAN SGC-AOJ-000062	C
9504688	02/08/96	02/08/96	[redacted] 5349	CONT	15	1.0	N	TERRAN SGC-NAC-000012	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

02/08/96

SODIUM IODIDE SOIL SCREEN, 400 SECOND COUNT
PREPARED BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504669	02/07/96	02/08/96	[redacted] 5349	CONT	26	1.0	N	TERRAN SGC-AOJ-000070 MSD	C
9504670	02/07/96	02/08/96	[redacted] 5349	CONT	15	0.9	N	TERRAN SGC-AOJ-000071-D	C
9504671	02/07/96	02/08/96	[redacted] 5520	CONT	31	0.9	N	TERRAN SGC-AOJ-000067	C
9504672	02/07/96	02/08/96	[redacted] 5520	CONT	4	0.4	N	TERRAN SGC-AOJ-000066	C
9504673	02/07/96	02/08/96	[redacted] 5349	CONT	21	0.9	N	TERRAN SGC-AOJ-000070 MS	C
9504674	02/07/96	02/08/96	[redacted] 5349	CONT	13	1.2	N	TERRAN SGC-AOJ-000124	C
9504675	02/07/96	02/08/96	[redacted] 5349	CONT	20	1.0	N	TERRAN SGC-AOJ-000070	C
9504676	02/07/96	02/08/96	[redacted] 5349	CONT	14	1.0	N	TERRAN SGC-AOJ-000077	C
9504677	02/07/96	02/08/96	[redacted] 5349	CONT	11	0.9	N	TERRAN SGC-AOJ-000071-O	C
9504678	02/07/96	02/08/96	[redacted] 5349	CONT	16	1.0	N	TERRAN SGC-AOJ-000078	C
9504679	02/07/96	02/08/96	[redacted] 5520	CONT	0	0.1	N	TERRAN SGC-AOJ-000064	C
9504680	02/07/96	02/08/96	[redacted] 5349	CONT	11	0.7	N	TERRAN SGC-AOJ-000073	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

SODIUM IODIDE SOIL SCREEN, 400 SECOND COUNT
PREPARED BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504651	02/07/96	02/07/96	[redacted] 5349	CONT	10	0.4	N	TERRAN SGC-A22-000095-0	C
9504652	02/07/96	02/07/96	[redacted] 5349	CONT	18	1.1	N	TERRAN SGC-NAC-000027-D	C
9504653	02/07/96	02/07/96	[redacted] 5520	CONT	18	0.8	N	TERRAN SGC-A21-000088-0	C
9504654	02/06/96	02/07/96	[redacted] 5520	CONT	15	0.9	N	TERRAN SGC-NAC-000028-0	C
9504655	02/07/96	02/07/96	[redacted] 5349	CONT	13	1.0	N	TERRAN SGC-NAC-000027-0-CORE	C
9504656	02/07/96	02/07/96	[redacted] 5520	CONT	12	0.9	N	TERRAN SGC-A21-000088-D	C
9504657	02/07/96	02/07/96	[redacted] 5520	CONT	20	0.9	N	TERRAN SGC-NAC-000029-0	C
9504658	02/07/96	02/07/96	[redacted] 5520	CONT	15	0.9	N	TERRAN SGC-NAC-000029-D	C
9504659	02/06/96	02/07/96	[redacted] 5520	CONT	16	1.0	N	TERRAN SGC-NAC-000028-0-CORE	C
9504660	02/07/96	02/07/96	[redacted] 5520	CONT	22	1.3	N	TERRAN SGC-NAC-000029-0-CORE	C
9504661	02/06/96	02/07/96	[redacted] 5520	CONT	13	1.1	N	TERRAN SGC-NAC-000028-D	C
9504662	02/07/96	02/07/96	[redacted] 5349	CONT	9	0.6	N	TERRAN SGC-A22-000095-D	C
9504663	02/07/96	02/07/96	[redacted] 5349	CONT	12	1.2	N	TERRAN SGC-NAC-000027-0	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

SODIUM IODIDE SOIL SCREEN, 400 SECOND COUNT
PREPARED BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504629	02/06/96	02/06/96	[redacted] 5520	CONT	26	1.0	N	TERRAN SGC-NAC-000017	C
9504630	02/06/96	02/06/96	[redacted] 5349	CONT	14	0.8	N	TERRAN SGC-NAC-000026-D	C
9504631	02/06/96	02/06/96	[redacted] 5349	CONT	0	0.3	N	TERRAN SGC-A22-000096	C
9504632	02/06/96	02/06/96	[redacted] 5349	CONT	0	0.4	N	TERRAN SGC-A22-000121	C
9504633	02/06/96	02/06/96	[redacted] 5520	CONT	16	1.0	N	TERRAN SGC-NAC-000035-D	C
9504634	02/06/96	02/06/96	[redacted] 5349	CONT	24	0.9	N	TERRAN SGC-NAC-000026-0	C
9504635	02/06/96	02/06/96	[redacted] 5520	CONT	18	1.1	N	TERRAN SGC-NAC-000035-0	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

Plutonium-238 and Thorium-232 Soil Screening Results

****DO NOT USE FOR EXPOSURE ASSESSMENT OR SITE CHARACTERIZATION****

SODIUM IODIDE SOIL SCREEN, 480 SECOND COUNT
PREPARED BY

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	REGION 1(a)	REGION 2(a)	MORE ISO-TOPES	GRID LOCATION	WELL
9504616	02/05/96	02/06/96	[redacted] 5349	CONT	3	0.9	N	TERRAN SGC-NAC-000016	C
9504617	02/05/96	02/06/96	[redacted] 5349	CONT	10	1.0	N	TERRAN SGC-A22-000093	C
9504618	02/05/96	02/06/96	[redacted] 5520	CONT	23	0.7	N	TERRAN SGC-NAC-000014	C
9504619	02/05/96	02/06/96	[redacted] 5520	CONT	34	1.1	N	TERRAN SGC-A21-000090	C
9504620	02/05/96	02/06/96	[redacted] 5349	CONT	11	1.4	N	TERRAN SGC-NAC-000015-D	C
9504621	02/05/96	02/06/96	[redacted] 5349	CONT	14	1.6	N	TERRAN SGC-NAC-000015-O	C
9504622	02/05/96	02/06/96	[redacted] 5520	CONT	14	0.7	N	TERRAN SGC-A21-000089	C
9504623	02/05/96	02/06/96	[redacted] 5520	CONT	23	0.9	N	TERRAN SGC-A22-000094	C
9504624	02/05/96	02/06/96	[redacted] 5520	CONT	23	0.9	N	TERRAN SGC-A22-000092	C
9504625	02/05/96	02/06/96	[redacted] 5349	CONT	17	1.1	N	TERRAN SGC-A22-000091-D	C
9504626	02/05/96	02/06/96	[redacted] 5349	CONT	15	1.0	N	TERRAN SGC-A22-000091-O	C

a The historically reported units for this technique were pCi/g. Numbers reported herein were generated via a user specified detector configuration and analysis protocol. The data user assumes all risks associated with the assumptions and limitations specified below.

Assumptions and Limitations: All counts in Regions 1 and 2 are assumed to be Pu-238 and Th-232 respectively. The calibration standard used is not NIST traceable; the geometry of the standard differs from the sample geometry. No corrections have been made for self-absorption or non-homogeneity of the sample.

OEPA Radiochemical Results

S = SURFACE

C = CORE

No Suffix = SURFACE

THERMO NUTECH

ROSS ANALYTICAL SERVICES

9602125-01

DATA SHEET

000042

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-01 Client sample id 000042
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected 02/13/96
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			1.9	0.21	0.081	1.0		PU
Plutonium 239/240			0.027	0.017	0.007	1.0	J	PU
Uranium 233/234			0.90	0.077	0.013	0.50	B	U
Uranium 235			0.052	0.017	0.004	0.50	JB	U
Uranium 238			1.0	0.091	0.010	0.50	B	U
Thorium 228			1.9	0.16	0.083	1.0		TH
Thorium 230			1.1	0.13	0.033	1.0		TH
Thorium 232			2.1	0.17	0.021	1.0		TH
Actinium 227	Gamma				2.8		U	GM1
Americium 241	Gamma				0.20	1.0	U	GM1
Bismuth 207	Gamma				0.069	1.0	U	GM1
Bismuth 210	Gamma				0.24	1.0	U	GM1
Cobalt 60	Gamma				0.098	1.0	U	GM1
Cesium 137	Gamma		0.18	0.12	0.15	1.0	J	GM1
Cesium 134	Gamma				0.072		U	GM1
Potassium 40	Gamma		5.9	2.0	1.7	10	J	GM1
Radium 226	Gamma		0.43	0.22	0.27	0.30		GM1
Radium 228	Gamma		0.86	0.38	0.21			GM1
Actinium 228	Gamma	01-00021	0.86	0.38	0.21			GM1
Bismuth 212	Gamma	14913-49-6	2.2	1.1	1.2			GM1
Lead 212	Gamma	15092-94-1	0.95	0.19	0.20			GM1
Lead 214	Gamma	01-00002	0.51	0.20	0.25			GM1
Thorium 228	Gamma	14274-82-9	0.85	0.38	0.47			GM1
Thorium 232	Gamma	7440-29-1	0.86	0.38	0.21			GM1
Thallium 208	Gamma	01-00004	0.79	0.36	0.44			GM1

Lab id ABQ
Protocol -
Version 1
Form DVD-DS
Version 3.08
Report date 04/12/96

9602125-02

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000110

duplicate of #25

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-02 Client sample id 000110
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/06/96 445 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.23	0.14	0.19	1.0	J	PU
Plutonium 239/240			0.024	0.036	0.059	1.0	U	PU
Uranium 233/234			1.2	0.11	0.020	0.50	B	U
Uranium 235			0.063	0.021	0.012	0.50	J	U
Uranium 238			1.4	0.12	0.015	0.50	B	U
Thorium 228			1.5	0.16	0.057	1.0		TH
Thorium 230			1.8	0.17	0.025	1.0		TH
Thorium 232			1.4	0.15	0.020	1.0		TH
Actinium 227	Gamma				3.6		U	GM1
Americium 241	Gamma				0.23	1.0	U	GM1
Bismuth 207	Gamma				0.084	1.0	U	GM1
Bismuth 210	Gamma				0.27	1.0	U	GM1
Cobalt 60	Gamma				0.096	1.0	U	GM1
Cesium 137	Gamma				0.14	1.0	U	GM1
Cesium 134	Gamma				0.073		U	GM1
Potassium 40	Gamma		15	2.8	1.2	10		GM1
Radium 226	Gamma		1.5	0.34	0.33	0.30		GM1
Radium 228	Gamma		1.5	0.68	0.68			GM1
Actinium 228	Gamma	01-00021	1.5	0.68	0.68			GM1
Bismuth 214	Gamma	01-00020	1.6	0.35	0.34			GM1
Lead 212	Gamma	15092-94-1	1.2	0.21	0.19			GM1
Lead 214	Gamma	01-00002	1.3	0.40	0.49			GM1
Thorium 228	Gamma	14274-82-9	0.99	0.48	0.62			GM1
Thorium 232	Gamma	7440-29-1	1.5	0.68	0.68			GM1
Thallium 208	Gamma	01-00004	0.92	0.45	0.57			GM1

Lab id ABQ
Protocol -
Version 1
Form DVD-DS
Version 3.08
Report date 04/12/96

THERMO NUTECH
ROSS ANALYTICAL SERVICES

9602125-03

DATA SHEET

000091

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-03 Client sample id 000091
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/05/96 390 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.15	0.057	0.056	1.0	J	PU
Plutonium 239/240			0.008	0.020	0.037	1.0	U	PU
Uranium 233/234			1.0	0.095	0.020	0.50	B	U
Uranium 235			0.043	0.017	0.011	0.50	J	U
Uranium 238			1.1	0.10	0.014	0.50	B	U
Thorium 228			1.0	0.13	0.070	1.0		TH
Thorium 230			1.5	0.16	0.031	1.0		TH
Thorium 232			1.1	0.13	0.019	1.0		TH
Actinium 227	Gamma				3.6		U	GM1
Americium 241	Gamma				0.25	1.0	U	GM1
Bismuth 207	Gamma				0.071	1.0	U	GM1
Bismuth 210	Gamma				0.30	1.0	U	GM1
Cobalt 60	Gamma				0.14	1.0	U	GM1
Cesium 137	Gamma				0.095	1.0	U	GM1
Cesium 134	Gamma				0.081		U	GM1
Potassium 40	Gamma		16	2.8	0.79	10		GM1
Radium 226	Gamma		1.3	0.34	0.34	0.30		GM1
Radium 228	Gamma		0.70	0.50	0.61			GM1
Actinium 228	Gamma	01-00021	0.70	0.50	0.61			GM1
Bismuth 214	Gamma	01-00020	1.3	0.35	0.35			GM1
Lead 212	Gamma	15092-94-1	0.93	0.18	0.18			GM1
Lead 214	Gamma	01-00002	1.3	0.30	0.31			GM1
Thorium 228	Gamma	14274-82-9	0.78	0.47	0.59			GM1
Thorium 232	Gamma	7440-29-1	0.70	0.50	0.61			GM1
Thallium 208	Gamma	01-00004	0.72	0.44	0.55			GM1

Lab id ABQ
Protocol -
Version 1
Form DVD-DS
Version 3.08
Report date 04/12/96

9602125-04

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000026

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-04 Client sample id 000026
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/06/96 344 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Plutonium 238			0.34	0.084	0.076	1.0	J	PU
Plutonium 239/240			0.17	0.052	0.036	1.0	J	PU
Uranium 233/234			1.2	0.11	0.005	0.50	B	U
Uranium 235			0.049	0.019	0.013	0.50	J	U
Uranium 238			1.3	0.12	0.013	0.50	B	U
Thorium 228			1.3	0.16	0.072	1.0		TH
Thorium 230			1.4	0.16	0.038	1.0		TH
Thorium 232			1.3	0.16	0.029	1.0		TH
Actinium 227	Gamma				3.7		U	GM1
Americium 241	Gamma				0.26	1.0	U	GM1
Bismuth 207	Gamma				0.080	1.0	U	GM1
Bismuth 210	Gamma				0.32	1.0	U	GM1
Cobalt 60	Gamma				0.17	1.0	U	GM1
Cesium 137	Gamma		0.41	0.16	0.17	1.0	J	GM1
Cesium 134	Gamma				0.10		U	GM1
Potassium 40	Gamma		20	3.2	1.2	10		GM1
Radium 226	Gamma		1.0	0.32	0.32	0.30		GM1
Radium 228	Gamma		0.65	0.59	0.83		U	GM1
Bismuth 214	Gamma	01-00020	1.1	0.33	0.33			GM1
Lead 212	Gamma	15092-94-1	0.96	0.24	0.30			GM1
Lead 214	Gamma	01-00002	0.96	0.33	0.42			GM1
Thorium 228	Gamma	14274-82-9	1.1	0.56	0.66			GM1
Thallium 208	Gamma	01-00004	1.0	0.51	0.61			GM1

Lab id ABQ
Protocol -
Version 1
Form DVD-DS
Version 3.08
Report date 04/12/96

9602125-05

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000034S

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-05 Client sample id 000034S
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/06/96 353 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.78	0.14	0.069	1.0	J	PU
Plutonium 239/240			0.11	0.048	0.048	1.0	J	PU
Uranium 233/234			1.1	0.10	0.004	0.50	B	U
Uranium 235			0.041	0.017	0.012	0.50	J	U
Uranium 238			1.3	0.11	0.012	0.50	B	U
Thorium 228			1.1	0.14	0.085	1.0		TH
Thorium 230			1.5	0.16	0.030	1.0		TH
Thorium 232			1.2	0.14	0.008	1.0		TH
Actinium 227	Gamma				3.3		U	GM1
Americium 241	Gamma				0.22	1.0	U	GM1
Bismuth 207	Gamma				0.062	1.0	U	GM1
Bismuth 210	Gamma				0.27	1.0	U	GM1
Cobalt 60	Gamma				0.12	1.0	U	GM1
Cesium 137	Gamma		0.12	0.15	0.22	1.0	U	GM1
Cesium 134	Gamma				0.074		U	GM1
Potassium 40	Gamma		17	2.9	0.91	10		GM1
Radium 226	Gamma		1.2	0.31	0.27	0.30		GM1
Radium 228	Gamma		1.0	0.50	0.50			GM1
Actinium 228	Gamma	01-00021	1.0	0.50	0.50			GM1
Bismuth 214	Gamma	01-00020	1.2	0.32	0.27			GM1
Lead 212	Gamma	15092-94-1	0.76	0.31	0.44			GM1
Lead 214	Gamma	01-00002	1.2	0.31	0.33			GM1
Thorium 228	Gamma	14274-82-9	1.0	0.58	0.74			GM1
Thorium 232	Gamma	7440-29-1	1.0	0.50	0.50			GM1
Thallium 208	Gamma	01-00004	0.97	0.54	0.68			GM1

Lab id ABQ
Protocol -
Version 1
Form DVD-DS
Version 3.08
Report date 04/12/96

9602125-06

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

0000285

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-06 Client sample id 000028
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/06/96 369 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.13	0.058	0.070	1.0	J	PU
Plutonium 239/240			0.015	0.021	0.035	1.0	U	PU
Uranium 233/234			1.1	0.095	0.010	0.50	B	U
Uranium 235			0.031	0.013	0.004	0.50	JB	U
Uranium 238			1.2	0.10	0.017	0.50	B	U
Thorium 228			1.3	0.14	0.056	1.0		TH
Thorium 230			1.4	0.14	0.007	1.0		TH
Thorium 232			1.4	0.14	0.007	1.0		TH
Actinium 227	Gamma				5.2		U	GM1
Americium 241	Gamma				0.28	1.0	U	GM1
Bismuth 207	Gamma				0.11	1.0	U	GM1
Bismuth 210	Gamma				0.39	1.0	U	GM1
Cobalt 60	Gamma				0.21	1.0	U	GM1
Cesium 137	Gamma		0.29	0.21	0.28	1.0	J	GM1
Cesium 134	Gamma				0.13		U	GM1
Potassium 40	Gamma		27	4.5	2.7	10		GM1
Radium 226	Gamma		1.3	0.45	0.50	0.30		GM1
Radium 228	Gamma		1.8	1.0	0.98			GM1
Actinium 228	Gamma	01-00021	1.8	1.0	0.98			GM1
Bismuth 214	Gamma	01-00020	1.3	0.46	0.52			GM1
Lead 212	Gamma	15092-94-1	1.6	0.36	0.42			GM1
Lead 214	Gamma	01-00002	1.0	0.42	0.55			GM1
Thorium 228	Gamma	14274-82-9	1.8	0.61	0.67			GM1
Thorium 232	Gamma	7440-29-1	1.8	1.0	0.98			GM1
Thallium 208	Gamma	01-00004	1.7	0.56	0.62			GM1

Lab id ABQ
Protocol -
Version 1
Form DVD-DS
Version 3.08
Report date 04/12/96

9602125-07

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000033

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-07 Client sample id 000033
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/06/96 332 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.29	0.073	0.072	1.0	J	PU
Plutonium 239/240			0.073	0.032	0.030	1.0	J	PU
Uranium 233/234			1.1	0.094	0.004	0.50	B	U
Uranium 235			0.058	0.019	0.015	0.50	J	U
Uranium 238			1.3	0.10	0.015	0.50	B	U
Thorium 228			1.6	0.17	0.087	1.0		TH
Thorium 230			1.5	0.16	0.009	1.0		TH
Thorium 232			1.6	0.17	0.040	1.0		TH
Actinium 227	Gamma				3.9		U	GM1
Americium 241	Gamma				0.30	1.0	U	GM1
Bismuth 207	Gamma				0.10	1.0	U	GM1
Bismuth 210	Gamma				0.32	1.0	U	GM1
Cobalt 60	Gamma				0.17	1.0	U	GM1
Cesium 137	Gamma		0.61	0.20	0.22	1.0	J	GM1
Cesium 134	Gamma				0.097		U	GM1
Potassium 40	Gamma		25	3.8	1.0	10		GM1
Radium 226	Gamma		0.99	0.35	0.41	0.30		GM1
Radium 228	Gamma				0.83		U	GM1
Bismuth 214	Gamma	01-00020	1.0	0.37	0.42			GM1
Lead 212	Gamma	15092-94-1	1.3	0.24	0.23			GM1
Lead 214	Gamma	01-00002	1.2	0.35	0.40			GM1
Thorium 228	Gamma	14274-82-9	1.1	0.60	0.76			GM1
Thallium 208	Gamma	01-00004	1.0	0.56	0.70			GM1

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THERMO NUTECH

ROSS ANALYTICAL SERVICES

9602125-08

DATA SHEET

000027C

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-08 Client sample id 000027C
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/07/96 449 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.070	0.049	0.066	1.0	J	PU
Plutonium 239/240			0.018	0.022	0.032	1.0	U	PU
Uranium 233/234			1.0	0.10	0.005	0.50	B	U
Uranium 235			0.033	0.015	0.005	0.50	JB	U
Uranium 238			1.2	0.11	0.005	0.50	B	U
Thorium 228			1.3	0.22	0.15	1.0		TH
Thorium 230			1.6	0.24	0.072	1.0		TH
Thorium 232			1.2	0.21	0.072	1.0		TH
Actinium 227	Gamma				4.1		U	GM1
Americium 241	Gamma				0.27	1.0	U	GM1
Bismuth 207	Gamma				0.085	1.0	U	GM1
Bismuth 210	Gamma				0.32	1.0	U	GM1
Cobalt 60	Gamma				0.16	1.0	U	GM1
Cesium 137	Gamma				0.12	1.0	U	GM1
Cesium 134	Gamma				0.11		U	GM1
Potassium 40	Gamma		26	4.3	2.6	10		GM1
Radium 226	Gamma		1.2	0.32	0.28	0.30		GM1
Radium 228	Gamma		1.2	0.82	1.0			GM1
Actinium 228	Gamma	01-00021	1.2	0.82	1.0			GM1
Bismuth 212	Gamma	14913-49-6	5.3	2.8	2.7			GM1
Lead 212	Gamma	15092-94-1	1.3	0.24	0.22			GM1
Lead 214	Gamma	01-00002	1.4	0.41	0.48			GM1
Thorium 228	Gamma	14274-82-9	1.1	0.56	0.68			GM1
Thorium 232	Gamma	7440-29-1	1.2	0.82	1.0			GM1
Thallium 208	Gamma	01-00004	1.0	0.51	0.63			GM1

Lab id ABQ
Protocol -
Version 1
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Version 3.08
Report date 04/12/96

9602125-09

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000027S

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-09 Client sample id 000027S
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/07/96 372 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.36	0.062	0.043	1.0	J	PU
Plutonium 239/240			0.11	0.031	0.021	1.0	J	PU
Uranium 233/234			1.5	0.13	0.014	0.50	B	U
Uranium 235			0.062	0.022	0.005	0.50	JB	U
Uranium 238			1.8	0.15	0.014	0.50	B	U
Thorium 228			1.2	0.40	0.47	1.0		TH
Thorium 230			1.7	0.37	0.10	1.0		TH
Thorium 232			1.3	0.32	0.13	1.0		TH
Actinium 227	Gamma				4.2		U	GM1
Americium 241	Gamma				0.22	1.0	U	GM1
Bismuth 207	Gamma				0.088	1.0	U	GM1
Bismuth 210	Gamma				0.31	1.0	U	GM1
Cobalt 60	Gamma				0.14	1.0	U	GM1
Cesium 137	Gamma				0.15	1.0	U	GM1
Cesium 134	Gamma				0.098		U	GM1
Potassium 40	Gamma		18	3.1	1.3	10		GM1
Radium 226	Gamma		1.6	0.37	0.36	0.30		GM1
Radium 228	Gamma		0.92	0.57	0.66			GM1
Actinium 228	Gamma	01-00021	0.92	0.57	0.66			GM1
Bismuth 214	Gamma	01-00020	1.6	0.38	0.37			GM1
Lead 212	Gamma	15092-94-1	1.2	0.22	0.22			GM1
Lead 214	Gamma	01-00002	1.8	0.37	0.36			GM1
Thorium 228	Gamma	14274-82-9	1.3	0.46	0.50			GM1
Thorium 232	Gamma	7440-29-1	0.92	0.57	0.66			GM1
Thallium 208	Gamma	01-00004	1.2	0.43	0.47			GM1

Lab id ABQ
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9602125-10

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000029S

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-10 Client sample id 000029S
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/07/96 436 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.84	0.13	0.081	1.0	J	PU
Plutonium 239/240			30	2.5	0.009	1.0		PU
Uranium 233/234			1.7	0.15	0.031	0.50	B	U
Uranium 235			0.083	0.026	0.005	0.50	JB	U
Uranium 238			1.8	0.15	0.005	0.50	B	U
Thorium 228			1.4	0.16	0.068	1.0		TH
Thorium 230			1.4	0.16	0.035	1.0		TH
Thorium 232			1.6	0.17	0.024	1.0		TH
Actinium 227	Gamma				4.5		U	GM1
Americium 241	Gamma		0.60	0.41	0.62	1.0	U	GM1
Bismuth 207	Gamma				0.11	1.0	U	GM1
Bismuth 210	Gamma				0.34	1.0	U	GM1
Cobalt 60	Gamma				0.16	1.0	U	GM1
Cesium 137	Gamma		0.69	0.24	0.29	1.0	J	GM1
Cesium 134	Gamma				0.10		U	GM1
Potassium 40	Gamma		24	4.0	1.5	10		GM1
Radium 226	Gamma		0.98	0.37	0.42	0.30		GM1
Radium 228	Gamma		0.71	0.61	0.78		U	GM1
Lead 212	Gamma	15092-94-1	1.2	0.24	0.26			GM1
Lead 214	Gamma	01-00002	1.1	0.39	0.48			GM1
Thorium 228	Gamma	14274-82-9	1.4	0.62	0.72			GM1
Thallium 208	Gamma	01-00004	1.3	0.58	0.67			GM1

Lab id ABQ
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9602125-11

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000095

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-11 Client sample id 000095
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/07/96 382 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			29	2.8	0.16	1.0		PU
Plutonium 239/240			0.061	0.033	0.012	1.0	J	PU
Uranium 233/234			0.97	0.095	0.023	0.50	B	U
Uranium 235			0.027	0.016	0.018	0.50	J	U
Uranium 238			0.91	0.091	0.014	0.50	B	U
Thorium 228			1.1	0.13	0.074	1.0		TH
Thorium 230			1.2	0.13	0.022	1.0		TH
Thorium 232			1.2	0.13	0.006	1.0		TH
Actinium 227	Gamma				3.5		U	GM1
Americium 241	Gamma				0.24	1.0	U	GM1
Bismuth 207	Gamma				0.079	1.0	U	GM1
Bismuth 210	Gamma				0.28	1.0	U	GM1
Cobalt 60	Gamma				0.12	1.0	U	GM1
Cesium 137	Gamma		0.14	0.13	0.16	1.0	U	GM1
Cesium 134	Gamma				0.083		U	GM1
Potassium 40	Gamma		8.8	2.4	1.7	10	J	GM1
Radium 226	Gamma		0.66	0.25	0.31	0.30		GM1
Radium 228	Gamma		0.52	0.42	0.53		U	GM1
Lead 212	Gamma	15092-94-1	0.47	0.18	0.24			GM1
Lead 214	Gamma	01-00002	0.82	0.27	0.33			GM1
Thorium 228	Gamma	14274-82-9	0.63	0.42	0.55			GM1
Thallium 208	Gamma	01-00004	0.58	0.39	0.51			GM1

Lab id ABQ
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9602125-12

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000028C

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-12 Client sample id 000028C
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/06/96 396 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.22	0.081	0.10	1.0	J	PU
Plutonium 239/240			0.043	0.025	0.010	1.0	J	PU
Uranium 233/234			1.2	0.12	0.014	0.50	B	U
Uranium 235			0.042	0.019	0.018	0.50	J	U
Uranium 238			1.4	0.13	0.014	0.50	B	U
Thorium 228			1.4	0.16	0.083	1.0		TH
Thorium 230			1.4	0.15	0.020	1.0		TH
Thorium 232			1.3	0.15	0.025	1.0		TH
Actinium 227	Gamma				4.7		U	GM1
Americium 241	Gamma				0.34	1.0	U	GM1
Bismuth 207	Gamma				0.12	1.0	U	GM1
Bismuth 210	Gamma				0.41	1.0	U	GM1
Cobalt 60	Gamma				0.14	1.0	U	GM1
Cesium 137	Gamma		0.47	0.19	0.22	1.0	J	GM1
Cesium 134	Gamma				0.12		U	GM1
Potassium 40	Gamma		20	4.1	3.5	10		GM1
Radium 226	Gamma		1.1	0.33	0.35	0.30		GM1
Radium 228	Gamma		1.2	0.81	1.0			GM1
Actinium 228	Gamma	01-00021	1.2	0.81	1.0			GM1
Bismuth 214	Gamma	01-00020	1.2	0.34	0.36			GM1
Lead 212	Gamma	15092-94-1	1.1	0.35	0.46			GM1
Lead 214	Gamma	01-00002	1.3	0.38	0.43			GM1
Thorium 228	Gamma	14274-82-9	1.5	0.54	0.59			GM1
Thorium 232	Gamma	7440-29-1	1.2	0.81	1.0			GM1
Thallium 208	Gamma	01-00004	1.4	0.50	0.55			GM1

Lab id ABQ
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9602125-13

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000071

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-13 Client sample id 000071
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/07/96 429 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			5.9	0.52	0.077	1.0		PU
Plutonium 239/240			0.027	0.018	0.008	1.0	J	PU
Uranium 233/234			1.1	0.11	0.014	0.50	B	U
Uranium 235			0.036	0.018	0.018	0.50	J	U
Uranium 238			1.1	0.11	0.014	0.50	B	U
Thorium 228			1.2	0.14	0.049	1.0		TH
Thorium 230			3.3	0.25	0.028	1.0		TH
Thorium 232			1.0	0.12	0.019	1.0		TH
Actinium 227	Gamma				3.3		U	GM1
Americium 241	Gamma				0.20	1.0	U	GM1
Bismuth 207	Gamma				0.065	1.0	U	GM1
Bismuth 210	Gamma				0.25	1.0	U	GM1
Cobalt 60	Gamma				0.12	1.0	U	GM1
Cesium 137	Gamma				0.11	1.0	U	GM1
Cesium 134	Gamma				0.071		U	GM1
Potassium 40	Gamma		14	2.7	1.2	10		GM1
Radium 226	Gamma		0.66	0.22	0.23	0.30		GM1
Radium 228	Gamma		1.3	0.50	0.44			GM1
Actinium 228	Gamma	01-00021	1.3	0.50	0.44			GM1
Lead 212	Gamma	15092-94-1	0.74	0.18	0.20			GM1
Lead 214	Gamma	01-00002	0.97	0.28	0.31			GM1
Thorium 228	Gamma	14274-82-9	0.74	0.32	0.37			GM1
Thorium 232	Gamma	7440-29-1	1.3	0.50	0.44			GM1
Thallium 208	Gamma	01-00004	0.69	0.30	0.34			GM1

Lab id ABQ
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9602125-14

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000023

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602125-14 Client sample id 000023
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/06/96 274 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.22	0.057	0.029	1.0	J	PU
Plutonium 239/240			0.057	0.029	0.023	1.0	J	PU
Uranium 233/234			1.2	0.11	0.012	0.50	B	U
Uranium 235			0.054	0.020	0.016	0.50	J	U
Uranium 238			1.3	0.12	0.016	0.50	B	U
Thorium 228			1.7	0.17	0.098	1.0		TH
Thorium 230			1.2	0.14	0.038	1.0		TH
Thorium 232			1.5	0.15	0.025	1.0		TH
Actinium 227	Gamma				4.2		U	GM1
Americium 241	Gamma				0.29	1.0	U	GM1
Bismuth 207	Gamma				0.11	1.0	U	GM1
Bismuth 210	Gamma				0.35	1.0	U	GM1
Cobalt 60	Gamma				0.16	1.0	U	GM1
Cesium 137	Gamma		0.50	0.18	0.18	1.0	J	GM1
Cesium 134	Gamma				0.11		U	GM1
Potassium 40	Gamma		30	4.2	1.1	10		GM1
Radium 226	Gamma		1.2	0.39	0.39	0.30		GM1
Radium 228	Gamma		0.85	0.75	1.0		U	GM1
Lead 212	Gamma	15092-94-1	1.6	0.25	0.22			GM1
Lead 214	Gamma	01-00002	1.3	0.45	0.56			GM1
Thorium 228	Gamma	14274-82-9	1.2	0.58	0.69			GM1
Thallium 208	Gamma	01-00004	1.1	0.54	0.64			GM1

Lab id ABQ
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9602126-01

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000029C

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-01 Client sample id 000029C
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/07/96 510 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.14	0.034	0.021	1.0	J	PU
Plutonium 239/240			0.014	0.015	0.023	1.0	U	PU
Uranium 233/234			0.93	0.12	0.023	0.50	B	U
Uranium 235			0.041	0.024	0.023	0.50	J	U
Uranium 238			1.0	0.14	0.008	0.50	B	U
Thorium 228			1.1	0.21	0.19	1.0		TH
Thorium 230			1.2	0.19	0.064	1.0		TH
Thorium 232			1.3	0.20	0.016	1.0		TH
Actinium 227	Gamma				4.3		U	GM1
Americium 241	Gamma				0.27	1.0	U	GM1
Bismuth 210	Gamma				0.27	1.0	U	GM1
Cobalt 60	Gamma				0.14	1.0	U	GM1
Cesium 137	Gamma		0.13	0.12	0.17	1.0	U	GM1
Cesium 134	Gamma				0.10		U	GM1
Potassium 40	Gamma		26	3.5	1.8	10		GM1
Radium 226	Gamma		0.78	0.27	0.29	0.30		GM1
Radium 228	Gamma		1.5	0.61	0.67			GM1
Lead 212	Gamma	15092-94-1	1.2	0.24	0.29			GM1
Lead 214	Gamma	01-00002	0.97	0.34	0.43			GM1
Thorium 228	Gamma	14274-82-9	1.2	0.47	0.55			GM1
Thorium 232	Gamma	7440-29-1	1.5	0.61	0.67			GM1
Thallium 208	Gamma	01-00004	1.1	0.43	0.51			GM1

Lab id ABQ
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Version 1
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9602126-02

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000025

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-02 Client sample id 000025
Dept sample id - Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/06/96 439 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.36	0.074	0.036	1.0	J	PU
Plutonium 239/240			0.015	0.020	0.032	1.0	U	PU
Uranium 233/234			1.0	0.13	0.020	0.50	B	U
Uranium 235			0.042	0.023	0.020	0.50	J	U
Uranium 238			1.2	0.14	0.026	0.50	B	U
Thorium 228			1.2	0.13	0.049	1.0		TH
Thorium 230			1.7	0.15	0.006	1.0		TH
Thorium 232			1.3	0.13	0.006	1.0	B	TH
Actinium 227	Gamma				4.4		U	GM1
Americium 241	Gamma				0.26	1.0	U	GM1
Bismuth 210	Gamma				0.24	1.0	U	GM1
Cobalt 60	Gamma				0.13	1.0	U	GM1
Cesium 137	Gamma		0.13	0.15	0.23	1.0	U	GM1
Cesium 134	Gamma				0.096		U	GM1
Potassium 40	Gamma		17	2.9	1.5	10		GM1
Radium 226	Gamma		0.97	0.32	0.40	0.30		GM1
Radium 228	Gamma		1.4	0.64	0.72			GM1
Actinium 228	Gamma	01-00021	1.4	0.64	0.72			GM1
Lead 212	Gamma	15092-94-1	1.3	0.25	0.27			GM1
Lead 214	Gamma	01-00002	1.5	0.32	0.34			GM1
Thorium 228	Gamma	14274-82-9	1.3	0.50	0.59			GM1
Thorium 232	Gamma	7440-29-1	1.4	0.64	0.72			GM1
Thallium 208	Gamma	01-00004	1.2	0.46	0.55			GM1

Lab id ABQ
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9602126-03

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000057

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-03 Client sample id 000057
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/08/96 547 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			1.9	0.22	0.048	1.0		PU
Plutonium 239/240			0.003	0.011	0.022	1.0	U	PU
Uranium 233/234			1.0	0.13	0.025	0.50	B	U
Uranium 235			0.048	0.023	0.007	0.50	J	U
Uranium 238			1.0	0.12	0.007	0.50	B	U
Thorium 228			1.1	0.21	0.17	1.0		TH
Thorium 230			1.4	0.22	0.045	1.0		TH
Thorium 232			1.0	0.18	0.074	1.0		TH
Actinium 227	Gamma				3.1		U	GM1
Americium 241	Gamma				0.20	1.0	U	GM1
Bismuth 210	Gamma				0.18	1.0	U	GM1
Cobalt 60	Gamma				0.096	1.0	U	GM1
Cesium 137	Gamma		0.18	0.15	0.21	1.0	U	GM1
Cesium 134	Gamma				0.072		U	GM1
Potassium 40	Gamma		7.5	1.9	1.9	10	J	GM1
Radium 226	Gamma		0.54	0.22	0.28	0.30		GM1
Radium 228	Gamma				0.44		U	GM1
Lead 212	Gamma	15092-94-1	0.53	0.18	0.25			GM1
Lead 214	Gamma	01-00002	0.72	0.22	0.28			GM1
Thorium 228	Gamma	14274-82-9	0.53	0.37	0.51			GM1
Thallium 208	Gamma	01-00004	0.50	0.34	0.48			GM1

Lab id ABQ
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9602126-04

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000015

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-04 Client sample id 000015
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/05/96 432 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.003	0.006	0.008	1.0	U	PU
Plutonium 239/240			0	0	0.008	1.0	U	PU
Uranium 233/234			1.5	0.16	0.030	0.50	B	U
Uranium 235			0.055	0.027	0.009	0.50	J	U
Uranium 238			1.4	0.16	0.009	0.50	B	U
Thorium 228			1.7	0.28	0.18	1.0		TH
Thorium 230			2.0	0.31	0.082	1.0		TH
Thorium 232			1.6	0.27	0.082	1.0		TH
Actinium 227	Gamma				4.8		U	GM1
Americium 241	Gamma				0.31	1.0	U	GM1
Bismuth 210	Gamma				0.29	1.0	U	GM1
Cobalt 60	Gamma				0.14	1.0	U	GM1
Cesium 137	Gamma				0.15	1.0	U	GM1
Cesium 134	Gamma				0.13		U	GM1
Potassium 40	Gamma		19	3.1	1.6	10		GM1
Radium 226	Gamma		1.2	0.33	0.37	0.30		GM1
Radium 228	Gamma		1.4	0.80	1.0			GM1
Actinium 228	Gamma	01-00021	1.4	0.80	1.0			GM1
Lead 212	Gamma	15092-94-1	1.7	0.26	0.24			GM1
Lead 214	Gamma	01-00002	2.0	0.40	0.42			GM1
Thorium 228	Gamma	14274-82-9	1.3	0.56	0.69			GM1
Thorium 232	Gamma	7440-29-1	1.4	0.80	1.0			GM1
Thorium 234	Gamma	15065-10-8	3.8	2.1	3.1			GM1
Thallium 208	Gamma	01-00004	1.2	0.52	0.64			GM1

Lab id ABQ
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9602126-05

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000024

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-05 Client sample id 000024
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/06/96 387 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.96	0.13	0.008	1.0	J	PU
Plutonium 239/240			0.015	0.016	0.022	1.0	U	PU
Uranium 233/234			0.74	0.069	0.015	0.50	B	U
Uranium 235			0.039	0.016	0.015	0.50	J	U
Uranium 238			0.78	0.071	0.018	0.50	B	U
Thorium 228			1.4	0.15	0.066	1.0		TH
Thorium 230			1.4	0.14	0.017	1.0		TH
Thorium 232			1.3	0.14	0.022	1.0		TH
Actinium 227	Gamma				3.3		U	GM1
Americium 241	Gamma				0.21	1.0	U	GM1
Bismuth 210	Gamma				0.21	1.0	U	GM1
Cobalt 60	Gamma				0.092	1.0	U	GM1
Cesium 137	Gamma		0.38	0.11	0.11	1.0	J	GM1
Cesium 134	Gamma				0.078		U	GM1
Potassium 40	Gamma		9.9	2.0	0.94	10	J	GM1
Radium 226	Gamma		0.49	0.20	0.24	0.30		GM1
Radium 228	Gamma		0.94	0.47	0.39			GM1
Actinium 228	Gamma	01-00021	0.94	0.47	0.39			GM1
Lead 212	Gamma	15092-94-1	0.54	0.21	0.30			GM1
Lead 214	Gamma	01-00002	0.74	0.24	0.29			GM1
Thorium 228	Gamma	14274-82-9	0.63	0.35	0.44			GM1
Thorium 232	Gamma	7440-29-1	0.94	0.47	0.39			GM1
Thallium 208	Gamma	01-00004	0.59	0.32	0.41			GM1

Lab id ABQ
Protocol -
Version 1
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9602126-06

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000088

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-06 Client sample id 000088
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/07/96 279 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.55	0.080	0.029	1.0	J	PU
Plutonium 239/240			0.022	0.015	0.016	1.0	J	PU
Uranium 233/234			1.3	0.11	0.004	0.50	B	U
Uranium 235			0.058	0.019	0.004	0.50	J	U
Uranium 238			1.2	0.11	0.004	0.50	B	U
Thorium 228			1.5	0.16	0.068	1.0		TH
Thorium 230			1.8	0.18	0.033	1.0		TH
Thorium 232			1.6	0.16	0.023	1.0		TH
Actinium 227	Gamma				5.3		U	GM1
Americium 241	Gamma				0.31	1.0	U	GM1
Bismuth 210	Gamma				0.30	1.0	U	GM1
Cobalt 60	Gamma				0.16	1.0	U	GM1
Cesium 137	Gamma		0.65	0.24	0.30	1.0	J	GM1
Cesium 134	Gamma				0.23		U	GM1
Potassium 40	Gamma		21	3.3	2.0	10		GM1
Radium 226	Gamma		1.2	0.44	0.53	0.30		GM1
Radium 228	Gamma		1.5	0.90	1.1			GM1
Actinium 228	Gamma	01-00021	1.5	0.90	1.2			GM1
Lead 212	Gamma	15092-94-1	1.6	0.31	0.33			GM1
Lead 214	Gamma	01-00002	1.4	0.46	0.59			GM1
Thorium 228	Gamma	14274-82-9	1.4	0.76	0.98			GM1
Thorium 232	Gamma	7440-29-1	1.5	0.90	1.1			GM1
Thallium 208	Gamma	01-00004	1.3	0.70	0.91			GM1

Lab id ABQ
Protocol -
Version 1
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9602126-07

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000035

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-07 Client sample id 000035
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/06/96 463 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.13	0.034	0.015	1.0	J	PU
Plutonium 239/240			0.002	0.007	0.015	1.0	U	PU
Uranium 233/234			0.92	0.079	0.013	0.50	B	U
Uranium 235			0.037	0.015	0.004	0.50	J	U
Uranium 238			1.0	0.094	0.004	0.50	B	U
Thorium 228			1.3	0.14	0.071	1.0		TH
Thorium 230			1.3	0.13	0.022	1.0		TH
Thorium 232			1.4	0.14	0.006	1.0	B	TH
Actinium 227	Gamma				4.2		U	GM1
Americium 241	Gamma				0.25	1.0	U	GM1
Bismuth 210	Gamma				0.26	1.0	U	GM1
Cobalt 60	Gamma				0.14	1.0	U	GM1
Cesium 137	Gamma				0.13	1.0	U	GM1
Cesium 134	Gamma				0.10		U	GM1
Potassium 40	Gamma		22	3.4	2.0	10		GM1
Radium 226	Gamma		1.0	0.28	0.28	0.30		GM1
Radium 228	Gamma		1.0	0.62	0.79			GM1
Actinium 228	Gamma	01-00021	1.0	0.62	0.79			GM1
Lead 212	Gamma	15092-94-1	1.0	0.26	0.32			GM1
Lead 214	Gamma	01-00002	1.4	0.33	0.35			GM1
Thorium 228	Gamma	14274-82-9	1.4	0.44	0.47			GM1
Thorium 232	Gamma	7440-29-1	1.0	0.62	0.79			GM1
Thallium 208	Gamma	01-00004	1.3	0.40	0.43			GM1

Lab id ABQ
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9602126-08

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000019

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-08 Client sample id 000019
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/08/96 485 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.13	0.038	0.022	1.0	J	PU
Plutonium 239/240			0	0.010	0.022	1.0	U	PU
Uranium 233/234			0.82	0.075	0.016	0.50	B	U
Uranium 235			0.035	0.015	0.004	0.50	J	U
Uranium 238			0.91	0.080	0.018	0.50	B	U
Thorium 228			1.4	0.31	0.28	1.0		TH
Thorium 230			1.4	0.27	0.073	1.0		TH
Thorium 232			0.93	0.22	0.092	1.0	J	TH
Actinium 227	Gamma				2.9		U	GM1
Americium 241	Gamma				0.19	1.0	U	GM1
Bismuth 210	Gamma				0.18	1.0	U	GM1
Cobalt 60	Gamma				0.10	1.0	U	GM1
Cesium 137	Gamma				0.10	1.0	U	GM1
Cesium 134	Gamma				0.064		U	GM1
Potassium 40	Gamma		9.5	1.9	1.2	10	J	GM1
Radium 226	Gamma		0.70	0.21	0.22	0.30		GM1
Radium 228	Gamma				0.45		U	GM1
Lead 212	Gamma	15092-94-1	0.33	0.19	0.27			GM1
Lead 214	Gamma	01-00002	0.74	0.22	0.27			GM1
Thorium 228	Gamma	14274-82-9	0.56	0.32	0.42			GM1
Thallium 208	Gamma	01-00004	0.52	0.30	0.39			GM1

Lab id ABQ
Protocol -
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9602126-09

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000063

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-09 Client sample id 000063
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/08/96 489 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			2.1	0.19	0.006	1.0		PU
Plutonium 239/240			0.007	0.008	0.006	1.0	J	PU
Uranium 233/234			0.70	0.066	0.004	0.50	B	U
Uranium 235			0.034	0.014	0.010	0.50	J	U
Uranium 238			0.86	0.074	0.004	0.50	B	U
Thorium 228			0.71	0.084	0.038	1.0	J	TH
Thorium 230			0.96	0.098	0.024	1.0	J	TH
Thorium 232			0.70	0.081	0.019	1.0	J	TH
Actinium 227	Gamma				3.2		U	GM1
Americium 241	Gamma				0.19	1.0	U	GM1
Bismuth 210	Gamma				0.20	1.0	U	GM1
Cobalt 60	Gamma				0.094	1.0	U	GM1
Cesium 137	Gamma				0.099	1.0	U	GM1
Cesium 134	Gamma				0.069		U	GM1
Potassium 40	Gamma		6.0	1.8	1.4	10	J	GM1
Radium 226	Gamma		0.37	0.21	0.28	0.30		GM1
Radium 228	Gamma				0.47		U	GM1
Lead 212	Gamma	15092-94-1	0.43	0.17	0.23			GM1
Lead 214	Gamma	01-00002	0.52	0.21	0.27			GM1

Lab id ABQ
Protocol -
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9602126-10

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000200

duplicate of #22

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-10 Client sample id 000200
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/13/96 471 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.043	0.023	0.024	1.0	J	PU
Plutonium 239/240			-0.005	0.006	0.021	1.0	U	PU
Uranium 233/234			1.3	0.11	0.004	0.50	B	U
Uranium 235			0.068	0.020	0.004	0.50	J	U
Uranium 238			1.5	0.12	0.004	0.50	B	U
Thorium 228			1.1	0.15	0.11	1.0		TH
Thorium 230			2.3	0.20	0.037	1.0		TH
Thorium 232			1.1	0.13	0.024	1.0		TH
Actinium 227	Gamma				4.2		U	GM1
Americium 241	Gamma				0.24	1.0	U	GM1
Bismuth 210	Gamma				0.27	1.0	U	GM1
Cobalt 60	Gamma				0.15	1.0	U	GM1
Cesium 137	Gamma				0.12	1.0	U	GM1
Cesium 134	Gamma				0.090		U	GM1
Potassium 40	Gamma		13	2.6	2.0	10		GM1
Radium 226	Gamma		1.3	0.31	0.31	0.30		GM1
Radium 228	Gamma		0.59	0.54	0.76		U	GM1
Bismuth 214	Gamma	01-00020	1.4	0.32	0.32			GM1
Lead 212	Gamma	15092-94-1	0.82	0.22	0.27			GM1
Lead 214	Gamma	01-00002	1.8	0.35	0.34			GM1
Thorium 228	Gamma	14274-82-9	1.2	0.45	0.48			GM1
Thallium 208	Gamma	01-00004	1.1	0.42	0.44			GM1

Lab id ABQ
Protocol -
Version 1
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9602126-11

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000022

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-11 Client sample id 000022
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/13/96 543 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.032	0.018	0.020	1.0	J	PU
Plutonium 239/240			0.002	0.007	0.016	1.0	U	PU
Uranium 233/234			1.2	0.10	0.004	0.50	B	U
Uranium 235			0.056	0.019	0.011	0.50	J	U
Uranium 238			1.4	0.11	0.016	0.50	B	U
Thorium 228			1.2	0.16	0.074	1.0		TH
Thorium 230			2.2	0.21	0.029	1.0		TH
Thorium 232			1.0	0.14	0.023	1.0		TH
Actinium 227	Gamma				4.0		U	GM1
Americium 241	Gamma				0.27	1.0	U	GM1
Bismuth 210	Gamma				0.23	1.0	U	GM1
Cobalt 60	Gamma				0.13	1.0	U	GM1
Cesium 137	Gamma				0.12	1.0	U	GM1
Cesium 134	Gamma				0.081		U	GM1
Potassium 40	Gamma		14	2.5	1.5	10		GM1
Radium 226	Gamma		1.5	0.26	0.18	0.30		GM1
Radium 228	Gamma		1.0	0.62	0.73			GM1
Lead 212	Gamma	15092-94-1	0.94	0.20	0.22			GM1
Lead 214	Gamma	01-00002	2.0	0.42	0.44			GM1
Thorium 228	Gamma	14274-82-9	0.94	0.45	0.58			GM1
Thorium 232	Gamma	7440-29-1	1.0	0.62	0.73			GM1
Thallium 208	Gamma	01-00004	0.87	0.42	0.54			GM1

Lab id ABQ
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9602126-12

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000021

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-12 Client sample id 000021
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/13/96 484 GR
Chain of custody id

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238		2.5	0.27	0.043	1.0		PU
Plutonium 239/240		0.010	0.017	0.031	1.0	U	PU
Uranium 233/234		0.87	0.076	0.010	0.50	B	U
Uranium 235		0.031	0.014	0.010	0.50	J	U
Uranium 238		0.94	0.079	0.004	0.50	B	U
Thorium 228		1.4	0.15	0.067	1.0		TH
Thorium 230		0.95	0.11	0.026	1.0	J	TH
Thorium 232		1.4	0.14	0.018	1.0		TH
Actinium 227	Gamma			5.7		U	GM1
Americium 241	Gamma			0.38	1.0	U	GM1
Bismuth 210	Gamma			0.37	1.0	U	GM1
Cobalt 60	Gamma			0.22	1.0	U	GM1
Cesium 137	Gamma	0.32	0.24	0.31	1.0	J	GM1
Cesium 134	Gamma			0.13		U	GM1
Potassium 40	Gamma	38	5.1	2.6	10		GM1
Radium 226	Gamma	0.82	0.47	0.61	0.30		GM1
Radium 228	Gamma	2.0	1.1	1.2			GM1
Actinium 228	Gamma 01-00021	2.0	1.1	1.2			GM1
Lead 212	Gamma 15092-94-1	1.7	0.32	0.32			GM1
Lead 214	Gamma 01-00002	1.5	0.45	0.51			GM1
Thorium 232	Gamma 7440-29-1	2.0	1.1	1.2			GM1

Lab id ABQ
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THERMO NUTECH
ROSS ANALYTICAL SERVICES

9602126-13

DATA SHEET

000019

SDG 9602125 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602126-13 Client sample id 000019
Dept sample id Location/Matrix SOIL
Received 02/16/96 Collected/Amount 02/08/96 680 GR
Chain of custody id

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium		0.088	0.028	0.041	50	J	H3

Lab id ABQ
Protocol -
Version 1
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9602160-01

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000031

SDG 9602160 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602160-01 Client sample id 000031
Dept sample id Location/Matrix SOIL
Received 02/20/96 Collected/Amount 02/14/96 415 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			2.7	0.29	0.037	1.0		PU
Plutonium 239/240			0.19	0.054	0.025	1.0	J	PU
Uranium 233/234			0.99	0.11	0.006	0.50	B	U
Uranium 235			0.055	0.022	0.006	0.50	J	U
Uranium 238			1.2	0.13	0.006	0.50	B	U
Thorium 228			1.3	0.16	0.082	1.0		TH
Thorium 230			1.9	0.18	0.024	1.0		TH
Thorium 232			1.3	0.14	0.019	1.0		TH
Actinium 227	Gamma				2.0		U	GM1
Americium 241	Gamma				0.12	1.0	U	GM1
Bismuth 207	Gamma				0.043	1.0	U	GM1
Bismuth 210	Gamma				0.12	1.0	U	GM1
Cobalt 60	Gamma				0.057	1.0	U	GM1
Cesium 137	Gamma		0.088	0.068	0.10	1.0	U	GM1
Cesium 134	Gamma				0.044		U	GM1
Potassium 40	Gamma		8.5	1.2	0.67	10	J	GM1
Radium 226	Gamma		1.1	0.16	0.14	0.30		GM1
Radium 228	Gamma		0.43	0.29	0.43			GM1
Actinium 228	Gamma	01-00021	0.43	0.29	0.43			GM1
Bismuth 214	Gamma	01-00020	1.1	0.16	0.14			GM1
Lead 210	Gamma	14255-04-0	5.7	2.9	4.5			GM1
Lead 212	Gamma	15092-94-1	0.56	0.10	0.12			GM1
Lead 214	Gamma	01-00002	1.2	0.20	0.22			GM1
Thorium 228	Gamma	14274-82-9	0.58	0.27	0.39			GM1
Thorium 232	Gamma	7440-29-1	0.43	0.29	0.43			GM1
Thallium 208	Gamma	01-00004	0.54	0.25	0.36			GM1

Lab id ABQ
Protocol -
Version 1
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9602160-02

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000201

duplicate of #31

SDG 9602160 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602160-02 Client sample id 000201
Dept sample id Location/Matrix SOIL
Received 02/20/96 Collected/Amount 02/14/96 516 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			1.2	0.16	0.044	1.0		PU
Plutonium 239/240			0.027	0.019	0.009	1.0	J	PU
Uranium 233/234			1.1	0.12	0.019	0.50	B	U
Uranium 235			0.037	0.017	0.006	0.50	J	U
Uranium 238			1.1	0.12	0.015	0.50	B	U
Thorium 228			1.2	0.12	0.047	1.0	B	TH
Thorium 230			1.9	0.15	0.016	1.0		TH
Thorium 232			1.1	0.11	0.018	1.0		TH
Actinium 227	Gamma				2.1		U	GM1
Americium 241	Gamma				0.13	1.0	U	GM1
Bismuth 207	Gamma				0.046	1.0	U	GM1
Bismuth 210	Gamma				0.13	1.0	U	GM1
Cobalt 60	Gamma				0.059	1.0	U	GM1
Cesium 137	Gamma		0.21	0.092	0.13	1.0	J	GM1
Cesium 134	Gamma				0.051		U	GM1
Potassium 40	Gamma		9.5	1.4	0.96	10	J	GM1
Radium 226	Gamma		0.98	0.17	0.18	0.30		GM1
Radium 228	Gamma		0.75	0.37	0.49			GM1
Actinium 228	Gamma	01-00021	0.75	0.37	0.49			GM1
Bismuth 212	Gamma	14913-49-6	1.2	0.65	0.85			GM1
Bismuth 214	Gamma	01-00020	1.0	0.17	0.19			GM1
Lead 210	Gamma	14255-04-0	4.8	2.8	4.3			GM1
Lead 212	Gamma	15092-94-1	0.68	0.11	0.12			GM1
Lead 214	Gamma	01-00002	1.3	0.19	0.19			GM1
Thorium 228	Gamma	14274-82-9	0.57	0.23	0.30			GM1
Thorium 232	Gamma	7440-29-1	0.75	0.37	0.49			GM1
Thallium 208	Gamma	01-00004	0.53	0.21	0.28			GM1

Lab id ABQ
Protocol -
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9602160-03

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000045

SDG 9602160 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602160-03 Client sample id 000045
Dept sample id Location/Matrix SOIL
Received 02/20/96 Collected/Amount 02/14/96 609 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.008	0.018	0.032	1.0	U	PU
Plutonium 239/240			0.008	0.009	0.007	1.0	J	PU
Uranium 233/234			0.70	0.099	0.046	0.50		U
Uranium 235			0.038	0.021	0.008	0.50	J	U
Uranium 238			0.83	0.11	0.008	0.50	B	U
Thorium 228			0.63	0.075	0.049	1.0	JB	TH
Thorium 230			1.2	0.11	0.015	1.0		TH
Thorium 232			0.40	0.055	0.022	1.0	J	TH
Actinium 227	Gamma				1.4		U	GM1
Americium 241	Gamma				0.079	1.0	U	GM1
Bismuth 207	Gamma				0.029	1.0	U	GM1
Bismuth 210	Gamma				0.088	1.0	U	GM1
Cobalt 60	Gamma				0.038	1.0	U	GM1
Cesium 137	Gamma				0.044	1.0	U	GM1
Cesium 134	Gamma				0.031		U	GM1
Potassium 40	Gamma		4.4	0.85	0.64	10	J	GM1
Radium 226	Gamma		0.48	0.12	0.16	0.30		GM1
Radium 228	Gamma		0.31	0.19	0.25			GM1
Actinium 228	Gamma	01-00021	0.31	0.19	0.25			GM1
Bismuth 214	Gamma	01-00020	0.49	0.13	0.16			GM1
Lead 212	Gamma	15092-94-1	0.28	0.071	0.10			GM1
Lead 214	Gamma	01-00002	0.51	0.11	0.15			GM1
Thorium 232	Gamma	7440-29-1	0.31	0.19	0.25			GM1

Lab id ABQ
Protocol -
Version 1
Form DVD-DS
Version 3.08
Report date 03/27/96

9602160-04

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000039

SDG 9602160 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602160-04 Client sample id 000039
Dept sample id Location/Matrix SOIL
Received 02/20/96 Collected/Amount 02/14/96 413 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.008	0.062	0.12	1.0	U	PU
Plutonium 239/240			0.023	0.040	0.070	1.0	U	PU
Uranium 233/234			1.1	0.12	0.028	0.50		U
Uranium 235			0.048	0.022	0.017	0.50	J	U
Uranium 238			1.1	0.12	0.017	0.50	B	U
Thorium 228			1.3	0.13	0.040	1.0	B	TH
Thorium 230			1.5	0.14	0.014	1.0		TH
Thorium 232			1.3	0.12	0.017	1.0		TH
Actinium 227	Gamma				2.6		U	GM1
Americium 241	Gamma				0.16	1.0	U	GM1
Bismuth 207	Gamma				0.052	1.0	U	GM1
Bismuth 210	Gamma				0.15	1.0	U	GM1
Cobalt 60	Gamma				0.072	1.0	U	GM1
Cesium 137	Gamma		0.30	0.12	0.16	1.0	J	GM1
Cesium 134	Gamma				0.061		U	GM1
Potassium 40	Gamma		21	2.2	1.3	10		GM1
Radium 226	Gamma		1.4	0.25	0.27	0.30		GM1
Radium 228	Gamma		1.3	0.40	0.49			GM1
Actinium 228	Gamma	01-00021	1.3	0.40	0.49			GM1
Bismuth 212	Gamma	14913-49-6	2.6	1.3	1.9			GM1
Bismuth 214	Gamma	01-00020	1.4	0.26	0.28			GM1
Lead 212	Gamma	15092-94-1	1.3	0.16	0.15			GM1
Lead 214	Gamma	01-00002	1.5	0.21	0.23			GM1
Thorium 228	Gamma	14274-82-9	1.1	0.36	0.47			GM1
Thorium 232	Gamma	7440-29-1	1.3	0.40	0.49			GM1
Thallium 208	Gamma	01-00004	1.0	0.33	0.43			GM1

Lab id ABQ
Protocol -
Version 1
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Report date 03/27/96

9602160-05

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000020

SDG 9602160 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602160-05 Client sample id 000020
Dept sample id Location/Matrix SOIL
Received 02/20/96 Collected/Amount 02/14/96 415 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.62	0.093	0.028	1.0	J	PU
Plutonium 239/240			0	0	0.007	1.0	U	PU
Uranium 233/234			0.95	0.098	0.016	0.50	B	U
Uranium 235			0.036	0.019	0.020	0.50	J	U
Uranium 238			1.1	0.12	0.016	0.50	B	U
Thorium 228			1.2	0.14	0.080	1.0		TH
Thorium 230			1.0	0.12	0.023	1.0		TH
Thorium 232			1.0	0.12	0.006	1.0		TH
Actinium 227	Gamma				1.9		U	GM1
Americium 241	Gamma				0.11	1.0	U	GM1
Bismuth 207	Gamma				0.042	1.0	U	GM1
Bismuth 210	Gamma				0.11	1.0	U	GM1
Cobalt 60	Gamma				0.058	1.0	U	GM1
Cesium 137	Gamma		0.099	0.079	0.12	1.0	U	GM1
Cesium 134	Gamma				0.044		U	GM1
Potassium 40	Gamma		16	1.7	0.91	10		GM1
Radium 226	Gamma		0.58	0.12	0.15	0.30		GM1
Radium 228	Gamma		0.75	0.30	0.39			GM1
Actinium 228	Gamma	01-00021	0.75	0.30	0.39			GM1
Bismuth 212	Gamma	14913-49-6	1.3	0.73	1.0			GM1
Lead 212	Gamma	15092-94-1	0.64	0.12	0.15			GM1
Lead 214	Gamma	01-00002	0.73	0.14	0.17			GM1
Thorium 228	Gamma	14274-82-9	0.77	0.26	0.35			GM1
Thorium 232	Gamma	7440-29-1	0.75	0.30	0.39			GM1
Thallium 208	Gamma	01-00004	0.71	0.24	0.33			GM1

Lab id ABQ
Protocol -
Version 1
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Version 3.08
Report date 03/27/96

9602160-06

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000032

SDG 9602160 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602160-06 Client sample id 000032
Dept sample id Location/Matrix SOIL
Received 02/20/96 Collected/Amount 02/14/96 515 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			31	2.6	0.041	1.0		PU
Plutonium 239/240			0.086	0.035	0.009	1.0	J	PU
Uranium 233/234			0.89	0.091	0.015	0.50	B	U
Uranium 235			0.049	0.021	0.018	0.50	J	U
Uranium 238			1.2	0.12	0.015	0.50	B	U
Thorium 228			1.4	0.17	0.091	1.0		TH
Thorium 230			1.3	0.16	0.030	1.0		TH
Thorium 232			1.2	0.16	0.035	1.0		TH
Actinium 227	Gamma				2.3		U	GM1
Americium 241	Gamma				0.13	1.0	U	GM1
Bismuth 207	Gamma				0.047	1.0	U	GM1
Bismuth 210	Gamma		0.097	0.13	0.20	1.0	U	GM1
Cobalt 60	Gamma				0.064	1.0	U	GM1
Cesium 137	Gamma				0.072	1.0	U	GM1
Cesium 134	Gamma				0.049		U	GM1
Potassium 40	Gamma		19	2.0	1.2	10		GM1
Radium 226	Gamma		1.0	0.17	0.19	0.30		GM1
Radium 228	Gamma		1.3	0.35	0.41			GM1
Actinium 228	Gamma	01-00021	1.3	0.35	0.41			GM1
Bismuth 214	Gamma	01-00020	1.1	0.19	0.20			GM1
Lead 212	Gamma	15092-94-1	1.2	0.14	0.13			GM1
Lead 214	Gamma	01-00002	1.3	0.20	0.23			GM1
Radium 223	Gamma	15623-45-7	1.5	0.28	0.35			GM1
Radon 219	Gamma		1.9	0.35	0.45			GM1
Thorium 228	Gamma	14274-82-9	1.0	0.30	0.39			GM1
Thorium 232	Gamma	7440-29-1	1.3	0.35	0.41			GM1
Thorium 234	Gamma	15065-10-8	1.1	0.65	1.0			GM1
Thallium 208	Gamma	01-00004	0.96	0.28	0.36			GM1

Lab id ABQ
Protocol -
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9602160-07

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000111

duplicate of #45

SDG 9602160 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602160-07 Client sample id 000111
Dept sample id Location/Matrix SOIL
Received 02/20/96 Collected/Amount 02/14/96 633 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Plutonium 238			0.044	0.021	0.006	1.0	J	PU
Plutonium 239/240			0.74	0.097	0.017	1.0	J	PU
Uranium 233/234			0.80	0.078	0.012	0.50	B	U
Uranium 235			0.031	0.016	0.015	0.50	J	U
Uranium 238			0.90	0.084	0.015	0.50	B	U
Thorium 228			0.55	0.10	0.084	1.0	J	TH
Thorium 230			1.2	0.16	0.030	1.0		TH
Thorium 232			0.43	0.080	0.024	1.0	J	TH
Actinium 227	Gamma				1.2		U	GM1
Americium 241	Gamma				0.062	1.0	U	GM1
Bismuth 207	Gamma				0.026	1.0	U	GM1
Bismuth 210	Gamma				0.070	1.0	U	GM1
Cobalt 60	Gamma				0.033	1.0	U	GM1
Cesium 137	Gamma				0.036	1.0	U	GM1
Cesium 134	Gamma				0.026		U	GM1
Potassium 40	Gamma		5.0	0.72	0.50	10	J	GM1
Radium 226	Gamma		0.41	0.087	0.11	0.30		GM1
Radium 228	Gamma		0.25	0.17	0.24			GM1
Actinium 228	Gamma	01-00021	0.25	0.17	0.24			GM1
Bismuth 214	Gamma	01-00020	0.42	0.090	0.11			GM1
Lead 212	Gamma	15092-94-1	0.25	0.067	0.094			GM1
Lead 214	Gamma	01-00002	0.52	0.084	0.095			GM1
Thorium 232	Gamma	7440-29-1	0.25	0.17	0.24			GM1

Lab id ABQ
Protocol -
Version 1
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9602160-08

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000039

SDG	9602160	Client	Ross Analytical
Contact	Chandra Bales	Case no	MOUND
Lab sample id	9602160-08	Client sample id	000039
Dept sample id		Location/Matrix	SOIL
Received	02/20/96	Collected/Amount	02/14/96 372 GR
		Chain of custody id	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium		0.33	0.19	0.32	50	J	H3

Lab id	ABQ
Protocol	-
Version	1
Form	DVD-DS
Version	3.08
Report date	03/27/96

9602160-09

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000020

SDG 9602160 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602160-09 Client sample id 000020
Dept sample id Location/Matrix SOIL
Received 02/20/96 Collected/Amount 02/14/96 400 GR
Chain of custody id

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium		0.19	0.027	0.027	50	J	H3

Lab id ABQ
Protocol -
Version 1
Form DVD-DS
Version 3.08
Report date 03/27/96

9602161-01

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000008C

SDG 9602161 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602161-01 Client sample id 000008C
Dept sample id Location/Matrix SOIL
Received 02/22/96 Collected/Amount 02/20/96 442 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.12	0.065	0.070	1.0	J	PU
Plutonium 239/240			-0.020	0.035	0.086	1.0	U	PU
Uranium 233/234			0.87	0.079	0.022	0.50	B	U
Uranium 235			0.040	0.016	0.011	0.50	J	U
Uranium 238			0.94	0.082	0.018	0.50	B	U
Thorium 228			1.0	0.12	0.071	1.0		TH
Thorium 230			1.3	0.12	0.014	1.0		TH
Thorium 232			0.91	0.091	0.014	1.0	J	TH
Actinium 227	Gamma				2.7		U	GM1
Americium 241	Gamma				0.16	1.0	U	GM1
Bismuth 207	Gamma				0.057	1.0	U	GM1
Bismuth 210	Gamma				0.15	1.0	U	GM1
Cobalt 60	Gamma				0.070	1.0	U	GM1
Cesium 137	Gamma				0.084	1.0	U	GM1
Cesium 134	Gamma				0.048		U	GM1
Potassium 40	Gamma		6.3	1.5	0.89	10	J	GM1
Radium 226	Gamma		0.39	0.20	0.26	0.30		GM1
Radium 228	Gamma				0.39		U	GM1
Lead 212	Gamma	15092-94-1	0.20	0.094	0.13			GM1
Lead 214	Gamma	01-00002	0.48	0.18	0.24			GM1

Lab id ABQ
Protocol -
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9602161-02

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000008S

SDG 9602161 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602161-02 Client sample id 000008S
Dept sample id Location/Matrix SOIL
Received 02/22/96 Collected/Amount 02/20/96 698 GR
Chain of custody id

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238		0.20	0.040	0.020	1.0	J	PU
Plutonium 239/240		0.093	0.026	0.012	1.0	J	PU
Uranium 233/234		0.67	0.067	0.011	0.50	B	U
Uranium 235		0.032	0.014	0.004	0.50	J	U
Uranium 238		0.64	0.065	0.011	0.50	B	U
Thorium 228		1.1	0.18	0.13	1.0		TH
Thorium 230		0.96	0.15	0.041	1.0	J	TH
Thorium 232		0.97	0.15	0.048	1.0	J	TH
Actinium 227	Gamma			2.8		U	GM1
Americium 241	Gamma			0.13	1.0	U	GM1
Bismuth 207	Gamma			0.057	1.0	U	GM1
Bismuth 210	Gamma			0.14	1.0	U	GM1
Cobalt 60	Gamma			0.066	1.0	U	GM1
Cesium 137	Gamma			0.091	1.0	U	GM1
Cesium 134	Gamma			0.059		U	GM1
Potassium 40	Gamma	4.9	1.5	1.4	10	J	GM1
Radium 226	Gamma	0.24	0.16	0.22	0.30	J	GM1
Radium 228	Gamma	0.53	0.38	0.45			GM1
Lead 212	Gamma 15092-94-1	0.35	0.16	0.23			GM1
Thorium 232	Gamma 7440-29-1	0.53	0.38	0.45			GM1

Lab id ABQ
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Version 1
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9602161-03

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000030S

SDG 9602161 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602161-03 Client sample id 000030S
Dept sample id Location/Matrix SOIL
Received 02/22/96 Collected/Amount 02/15/96 631 GR
Chain of custody id

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238		2.9	0.27	0.034	1.0		PU
Plutonium 239/240		0.010	0.013	0.019	1.0	U	PU
Uranium 233/234		0.22	0.039	0.017	0.50	JB	U
Uranium 235		0.008	0.009	0.015	0.50	U	U
Uranium 238		0.22	0.038	0.015	0.50	JB	U
Thorium 228		0.16	0.039	0.040	1.0	J	TH
Thorium 230		0.21	0.038	0.014	1.0	J	TH
Thorium 232		0.13	0.029	0.011	1.0	J	TH
Actinium 227	Gamma			3.6		U	GM1
Americium 241	Gamma			0.19	1.0	U	GM1
Bismuth 207	Gamma			0.085	1.0	U	GM1
Bismuth 210	Gamma			0.25	1.0	U	GM1
Cobalt 60	Gamma			0.095	1.0	U	GM1
Cesium 137	Gamma			0.11	1.0	U	GM1
Cesium 134	Gamma			0.096		U	GM1
Potassium 40	Gamma			0	10	J	GM1
Radium 226	Gamma			0.27	0.30	U	GM1
Radium 228	Gamma	0.28	0.51	0.65		U	GM1

Lab id ABQ
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9602161-04

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000030C

SDG 9602161 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602161-04 Client sample id 000030C
Dept sample id Location/Matrix SOIL
Received 02/22/96 Collected/Amount 02/15/96 465 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			2.0	0.25	0.037	1.0		PU
Plutonium 239/240			0.008	0.016	0.029	1.0	U	PU
Uranium 233/234			0.94	0.085	0.021	0.50	B	U
Uranium 235			0.039	0.016	0.012	0.50	J	U
Uranium 238			0.97	0.085	0.004	0.50	B	U
Thorium 228			1.2	0.14	0.061	1.0		TH
Thorium 230			1.4	0.15	0.018	1.0		TH
Thorium 232			1.1	0.13	0.023	1.0		TH
Actinium 227	Gamma				3.7		U	GM1
Americium 241	Gamma				0.22	1.0	U	GM1
Bismuth 207	Gamma				0.082	1.0	U	GM1
Bismuth 210	Gamma				0.22	1.0	U	GM1
Cobalt 60	Gamma				0.11	1.0	U	GM1
Cesium 137	Gamma				0.11	1.0	U	GM1
Cesium 134	Gamma				0.086		U	GM1
Potassium 40	Gamma		11	2.1	1.4	10		GM1
Radium 226	Gamma		1.0	0.25	0.24	0.30		GM1
Radium 228	Gamma		0.91	0.51	0.63			GM1
Actinium 228	Gamma	01-00021	0.91	0.51	0.63			GM1
Lead 212	Gamma	15092-94-1	0.84	0.17	0.18			GM1
Lead 214	Gamma	01-00002	0.96	0.24	0.27			GM1
Thorium 228	Gamma	14274-82-9	0.78	0.37	0.46			GM1
Thorium 232	Gamma	7440-29-1	0.91	0.51	0.63			GM1
Thallium 208	Gamma	01-00004	0.72	0.34	0.43			GM1

Lab id ABQ
Protocol -
Version 1
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9602161-05

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000038S

SDG 9602161 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602161-05 Client sample id 000038S
Dept sample id Location/Matrix SOIL
Received 02/22/96 Collected/Amount 02/15/96 266 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.097	0.049	0.045	1.0	J	PU
Plutonium 239/240			0.010	0.024	0.045	1.0	U	PU
Uranium 233/234			1.1	0.095	0.017	0.50	B	U
Uranium 235			0.048	0.017	0.010	0.50	J	U
Uranium 238			1.1	0.096	0.013	0.50	B	U
Thorium 228			1.4	0.13	0.059	1.0		TH
Thorium 230			1.6	0.14	0.013	1.0		TH
Thorium 232			1.4	0.12	0.013	1.0		TH
Actinium 227	Gamma				5.6		U	GM1
Americium 241	Gamma				0.36	1.0	U	GM1
Bismuth 207	Gamma				0.11	1.0	U	GM1
Bismuth 210	Gamma				0.34	1.0	U	GM1
Cobalt 60	Gamma				0.13	1.0	U	GM1
Cesium 137	Gamma		0.44	0.21	0.24	1.0	J	GM1
Cesium 134	Gamma				0.12		U	GM1
Potassium 40	Gamma		23	3.8	2.4	10		GM1
Radium 226	Gamma		1.8	0.43	0.37	0.30		GM1
Radium 228	Gamma		1.5	0.92	1.2			GM1
Actinium 228	Gamma	01-00021	1.5	0.92	1.2			GM1
Bismuth 214	Gamma	01-00020	1.9	0.44	0.38			GM1
Lead 212	Gamma	15092-94-1	1.5	0.35	0.43			GM1
Lead 214	Gamma	01-00002	2.4	0.48	0.48			GM1
Thorium 228	Gamma	14274-82-9	1.8	0.71	0.80			GM1
Thorium 232	Gamma	7440-29-1	1.5	0.92	1.2			GM1
Thallium 208	Gamma	01-00004	1.7	0.66	0.74			GM1

Lab id ABQ
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9602161-06

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000018

SDG 9602161 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602161-06 Client sample id 000018
Dept sample id Location/Matrix SOIL
Received 02/22/96 Collected/Amount 02/15/96 680 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.95	0.11	0.027	1.0	J	PU
Plutonium 239/240			0.002	0.010	0.021	1.0	U	PU
Uranium 233/234			0.76	0.069	0.010	0.50	B	U
Uranium 235			0.031	0.013	0.004	0.50	J	U
Uranium 238			0.72	0.067	0.010	0.50	B	U
Thorium 228			0.78	0.083	0.043	1.0	J	TH
Thorium 230			0.87	0.086	0.020	1.0	J	TH
Thorium 232			0.66	0.073	0.012	1.0	J	TH
Actinium 227	Gamma				3.6		U	GM1
Americium 241	Gamma				0.22	1.0	U	GM1
Bismuth 207	Gamma				0.088	1.0	U	GM1
Bismuth 210	Gamma				0.22	1.0	U	GM1
Cobalt 60	Gamma				0.10	1.0	U	GM1
Cesium 137	Gamma		0.15	0.17	0.26	1.0	U	GM1
Cesium 134	Gamma				0.089		U	GM1
Potassium 40	Gamma		13	2.4	1.7	10		GM1
Radium 226	Gamma		0.90	0.29	0.33	0.30		GM1
Radium 228	Gamma		0.84	0.47	0.58			GM1
Actinium 228	Gamma	01-00021	0.84	0.47	0.58			GM1
Lead 212	Gamma	15092-94-1	0.69	0.22	0.30			GM1
Lead 214	Gamma	01-00002	1.2	0.30	0.32			GM1
Thorium 228	Gamma	14274-82-9	0.75	0.49	0.67			GM1
Thorium 232	Gamma	7440-29-1	0.84	0.47	0.58			GM1
Thorium 234	Gamma	15065-10-8	2.1	1.2	1.8			GM1
Thallium 208	Gamma	01-00004	0.69	0.45	0.62			GM1
Uranium 235	Gamma	15117-96-1	0.22	0.14	0.20			GM1

Lab id ABQ
Protocol -
Version 1
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9602161-07

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000037

SDG 9602161 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602161-07 Client sample id 000037
Dept sample id Location/Matrix SOIL
Received 02/22/96 Collected/Amount 02/15/96 267 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			1.4	0.23	0.049	1.0		PU
Plutonium 239/240			0.005	0.018	0.039	1.0	U	PU
Uranium 233/234			0.99	0.082	0.013	0.50	B	U
Uranium 235			0.032	0.013	0.004	0.50	J	U
Uranium 238			1.1	0.095	0.010	0.50	B	U
Thorium 228			1.3	0.14	0.060	1.0		TH
Thorium 230			1.5	0.14	0.016	1.0		TH
Thorium 232			1.3	0.13	0.027	1.0		TH
Actinium 227	Gamma				5.9		U	GM1
Americium 241	Gamma				0.36	1.0	U	GM1
Bismuth 207	Gamma				0.13	1.0	U	GM1
Bismuth 210	Gamma				0.36	1.0	U	GM1
Cobalt 60	Gamma				0.19	1.0	U	GM1
Cesium 137	Gamma		0.24	0.27	0.39	1.0	U	GM1
Cesium 134	Gamma				0.13		U	GM1
Potassium 40	Gamma		19	3.5	1.6	10		GM1
Radium 226	Gamma		0.98	0.39	0.49	0.30		GM1
Radium 228	Gamma		1.1	0.91	1.2		U	GM1
Lead 212	Gamma	15092-94-1	1.1	0.35	0.46			GM1
Lead 214	Gamma	01-00002	1.5	0.46	0.54			GM1
Thorium 228	Gamma	14274-82-9	1.5	0.63	0.73			GM1
Thallium 208	Gamma	01-00004	1.4	0.58	0.67			GM1

Lab id ABQ
Protocol -
Version 1
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Report date 03/29/96

9602161-08

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000038C

SDG 9602161 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602161-08 Client sample id 000038C
Dept sample id Location/Matrix SOIL
Received 02/22/96 Collected/Amount 02/15/96 338 GR
Chain of custody id

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238		0.068	0.072	0.11	1.0	U	PU
Plutonium 239/240		-0.011	0.023	0.083	1.0	U	PU
Uranium 233/234		1.1	0.10	0.019	0.50	B	U
Uranium 235		0.052	0.019	0.005	0.50	J	U
Uranium 238		1.0	0.10	0.019	0.50	B	U
Thorium 228		1.4	0.15	0.051	1.0		TH
Thorium 230		1.6	0.16	0.019	1.0		TH
Thorium 232		1.5	0.16	0.028	1.0		TH
Actinium 227	Gamma			3.6		U	GM1
Americium 241	Gamma			0.24	1.0	U	GM1
Bismuth 207	Gamma			0.073	1.0	U	GM1
Bismuth 210	Gamma			0.25	1.0	U	GM1
Cobalt 60	Gamma			0.11	1.0	U	GM1
Cesium 137	Gamma			0.11	1.0	U	GM1
Cesium 134	Gamma			0.087		U	GM1
Potassium 40	Gamma	14	2.9	2.5	10		GM1
Radium 226	Gamma	1.1	0.34	0.35	0.30		GM1
Radium 228	Gamma	0.95	0.46	0.47			GM1
Actinium 228	Gamma 01-00021	0.95	0.46	0.47			GM1
Lead 212	Gamma 15092-94-1	0.67	0.20	0.27			GM1
Lead 214	Gamma 01-00002	1.1	0.35	0.44			GM1
Thorium 228	Gamma 14274-82-9	0.82	0.46	0.60			GM1
Thorium 232	Gamma 7440-29-1	0.95	0.46	0.47			GM1
Thallium 208	Gamma 01-00004	0.76	0.43	0.55			GM1

Lab id ABQ
Protocol -
Version 1
Form DVD-DS
Version 3.08
Report date 03/29/96

9602161-09

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000036S

SDG 9602161 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602161-09 Client sample id 000036S
Dept sample id Location/Matrix SOIL
Received 02/22/96 Collected/Amount 02/15/96 312 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.21	0.050	0.041	1.0	J	PU
Plutonium 239/240			0.004	0.006	0.006	1.0	U	PU
Uranium 233/234			1.0	0.097	0.012	0.50	B	U
Uranium 235			0.046	0.017	0.004	0.50	J	U
Uranium 238			1.2	0.10	0.004	0.50	B	U
Thorium 228			1.8	0.16	0.061	1.0		TH
Thorium 230			1.7	0.16	0.006	1.0		TH
Thorium 232			1.7	0.16	0.027	1.0		TH
Actinium 227	Gamma				4.4		U	GM1
Americium 241	Gamma				0.28	1.0	U	GM1
Bismuth 207	Gamma				0.092	1.0	U	GM1
Bismuth 210	Gamma				0.25	1.0	U	GM1
Cobalt 60	Gamma				0.13	1.0	U	GM1
Cesium 137	Gamma				0.14	1.0	U	GM1
Cesium 134	Gamma				0.10		U	GM1
Potassium 40	Gamma		14	2.7	1.7	10		GM1
Radium 226	Gamma		1.0	0.29	0.29	0.30		GM1
Radium 228	Gamma		1.3	0.79	1.0			GM1
Actinium 228	Gamma	01-00021	1.3	0.79	1.0			GM1
Lead 212	Gamma	15092-94-1	1.6	0.25	0.26			GM1
Lead 214	Gamma	01-00002	1.2	0.29	0.32			GM1
Thorium 228	Gamma	14274-82-9	1.3	0.55	0.68			GM1
Thorium 232	Gamma	7440-29-1	1.3	0.79	1.0			GM1
Thallium 208	Gamma	01-00004	1.2	0.51	0.63			GM1

Lab id ABQ
Protocol -
Version 1
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Version 3.08
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9602161-10

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000036C

SDG 9602161 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602161-10 Client sample id 000036C
Dept sample id Location/Matrix SOIL
Received 02/22/96 Collected/Amount 02/15/96 347 GR
Chain of custody id

ANALYTE		CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238			0.075	0.036	0.037	1.0	J	PU
Plutonium 239/240			0	0.010	0.025	1.0	U	PU
Uranium 233/234			1.0	0.10	0.016	0.50	B	U
Uranium 235			0.061	0.021	0.013	0.50	J	U
Uranium 238			1.2	0.11	0.016	0.50	B	U
Thorium 228			1.4	0.15	0.073	1.0		TH
Thorium 230			1.5	0.15	0.022	1.0		TH
Thorium 232			1.3	0.14	0.017	1.0		TH
Actinium 227	Gamma				4.1		U	GM1
Americium 241	Gamma				0.26	1.0	U	GM1
Bismuth 207	Gamma				0.089	1.0	U	GM1
Bismuth 210	Gamma				0.26	1.0	U	GM1
Cobalt 60	Gamma				0.15	1.0	U	GM1
Cesium 137	Gamma				0.14	1.0	U	GM1
Cesium 134	Gamma				0.099		U	GM1
Potassium 40	Gamma		21	3.1	1.8	10		GM1
Radium 226	Gamma		1.1	0.28	0.27	0.30		GM1
Radium 228	Gamma		1.1	0.61	0.81			GM1
Actinium 228	Gamma	01-00021	1.1	0.61	0.81			GM1
Lead 212	Gamma	15092-94-1	1.3	0.29	0.36			GM1
Lead 214	Gamma	01-00002	1.2	0.27	0.29			GM1
Thorium 228	Gamma	14274-82-9	1.1	0.48	0.59			GM1
Thorium 232	Gamma	7440-29-1	1.1	0.61	0.81			GM1
Thallium 208	Gamma	01-00004	1.1	0.45	0.54			GM1

Lab id ABQ
Protocol -
Version 1
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9602161-11

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000036C

SDG	9602161	Client	Ross Analytical
Contact	Chandra Bales	Case no	MOUND
Lab sample id	9602161-11	Client sample id	000036C
Dept sample id		Location/Matrix	SOIL
Received	02/22/96	Collected/Amount	02/15/96 509 GR
		Chain of custody id	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium		0.38	0.16	0.26	50	JB	H3

Lab id	ABQ
Protocol	-
Version	1
Form	DVD-DS
Version	3.08
Report date	03/29/96

9602161-12

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000038C

SDG 9602161 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602161-12 Client sample id 000038C
Dept sample id Location/Matrix SOIL
Received 02/22/96 Collected/Amount 02/15/96 680 GR
Chain of custody id

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium		0.26	0.13	0.21	50	JB	H3

Lab id ABQ
Protocol -
Version 1
Form DVD-DS
Version 3.08
Report date 03/29/96

9602161-13

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000036S

SDG	9602161	Client	Ross Analytical
Contact	Chandra Bales	Case no	MOUND
Lab sample id	9602161-13	Client sample id	000036S
Dept sample id		Location/Matrix	SOIL
Received	02/22/96	Collected/Amount	02/15/96 601 GR
		Chain of custody id	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium		0.66	0.19	0.28	50	JB	H3

Lab id	ABQ
Protocol	-
Version	1
Form	DVD-DS
Version	3.08
Report date	03/29/96

9602161-14

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000038S

SDG	9602161	Client	Ross Analytical
Contact	Chandra Bales	Case no	MOUND
Lab sample id	9602161-14	Client sample id	000038S
Dept sample id		Location/Matrix	SOIL
Received	02/22/96	Collected/Amount	02/15/96 567 GR
		Chain of custody id	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium		0.39	0.15	0.23	50	JB	H3

Lab id	ABQ
Protocol	-
Version	1
Form	DVD-DS
Version	3.08
Report date	03/29/96

9602161-15

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000037

SDG	9602161	Client	Ross Analytical
Contact	Chandra Bales	Case no	MOUND
Lab sample id	9602161-15	Client sample id	000037
Dept sample id		Location/Matrix	SOIL
Received	02/22/96	Collected/Amount	02/15/96 608 GR
		Chain of custody id	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium		1.3	0.34	0.52	50	J	H3

Lab id	ABQ
Protocol	-
Version	1
Form	DVD-DS
Version	3.08
Report date	03/29/96

9602161-16

THERMO NUTECH

ROSS ANALYTICAL SERVICES

DATA SHEET

000008S

SDG	9602161	Client	Ross Analytical
Contact	Chandra Bales	Case no	MOUND
Lab sample id	9602161-16	Client sample id	000008S
Dept sample id		Location/Matrix	SOIL
Received	02/22/96	Collected/Amount	02/20/96 706 GR
		Chain of custody id	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium		0.27	0.055	0.069	50	JB	H3

Lab id	ABQ
Protocol	-
Version	1
Form	DVD-DS
Version	3.08
Report date	03/29/96

9602161-17

THERMO NUTECH
ROSS ANALYTICAL SERVICES

DATA SHEET

000008C

SDG 9602161 Client Ross Analytical
Contact Chandra Bales Case no MOUND

Lab sample id 9602161-17 Client sample id 000008C
Dept sample id Location/Matrix SOIL
Received 02/22/96 Collected/Amount 02/20/96 1065 GR
Chain of custody id

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (TOTAL)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium		0.24	0.067	0.092	50	JB	H3

Lab id ABQ
Protocol -
Version 1
Form DVD-DS
Version 3.08
Report date 03/29/96

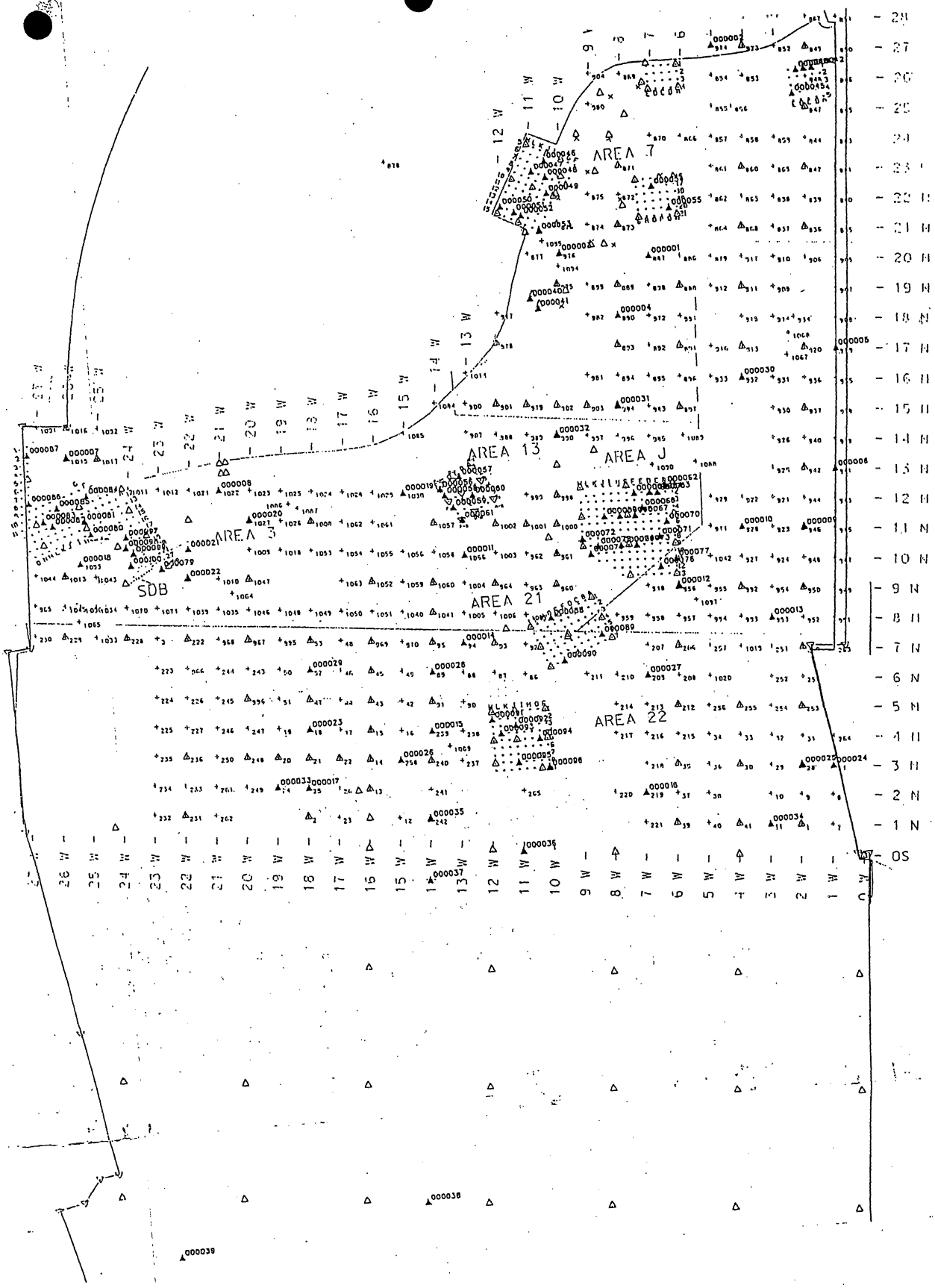

Figure 1.1. Locations of soil sampling sites.