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MOUND

Environmental
Restoration
Program

Further Assessment

Soil Gas Confirmation Sampling

Mound Plant
Miamisburg, Ohio

May 1996

Revision 0

Department of Energy

EG&G Mound Applied Technologies

EG&G MOUND APPLIED TECHNOLOGIES
P.O. BOX 3000 MIAMISBURG, OHIO 45343-3000 • TEL (513) 865-4020

May 16, 1996

Ms. Debbie A. White
Environmental Specialist, MB
U. S. Department of Energy
Miamisburg Area Office
P. O. Box 66
Miamisburg, OH 45343

Dear Debbie:

I know you are anxious to incorporate results from our recently completed Soil Gas Confirmation sampling into the PRS process. In that regard, I have developed the attached report to disseminate the information about the soil samples we collected at the OU5 soil gas sites. I plan to examine the laboratory intercomparison results separately once we receive a copy of results from Ohio EPA's split sampling.

I am providing you with copies for U.S. and Ohio EPA so that you may transmit them under your cover letter. Since this report is different than others we have transmitted, I am unclear as to who should receive copies. Please examine the distribution list and let me know if others should receive this report.

Very truly yours,

James N. Rigano
Sr. Program Manager

JNR:mlr
Enclosure

cc: Debbie White, DOE/MB, (2)
U.S. EPA, (2)
Ohio EPA, (3)

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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.

APPENDIX A

SOIL GAS CONFIRMATION DETECTED TABLES

Table A.1. Soil Gas Confirmation Detected Volatile Organic Compounds

ANALYTE	SGC NAC 000002	SGC NAC 000003	SGC NAC 000004	SGC NAC 000005	SGC NAC 000006	SGC NAC 000007	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone	36						NA	105000000
1,2-Dichloroethene (total)							NA	21500000
2-Butanone	12						NA	46500000
Benzene	1 J						NA	8900
Carbon Disulfide							NA	1400000
Chloroform			67				NA	NA
Chloromethane							NA	NA
Ethylbenzene							NA	480
Methylene Chloride	6			7	8		NA	NA
Tetrachloroethene							NA	10500000
Toluene	1 J	1 J					NA	1250000
Trichloroethene						7	NA	41000
Xylene (total)							NA	2150000000

Table A.1. Soil Gas Confirmation Detected Volatile Organic Compounds (cont.)

ANALYTE	SGC NAC 000010	SGC NAC 000011	SGC NAC 000012	SGC NAC 000013	SGC NAC 000014	SGC NAC 000015	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone							NA	105000000
1,2-Dichloroethene (total)						96	NA	21500000
2-Butanone			8 J	10 J			NA	46500000
Benzene						2 J	NA	8900
Carbon Disulfide				4 J			NA	1400000
Chloroform							NA	NA
Chloromethane	4 J						NA	NA
Ethylbenzene						1 J	NA	480
Methylene Chloride	8						NA	NA
Tetrachloroethene							NA	10500000
Toluene		2 J				28	NA	1250000
Trichloroethene				7		3 J	NA	41000
Xylene (total)					1 J	4 J	NA	2150000000

Table A.1. Soil Gas Confirmation Detected Volatile Organic Compounds (cont.)

ANALYTE	SGC NAC 000016	SGC NAC 000017	SGC SAN 000018	SGC NAC 000019	SGC NAC 000020	SGC NAC 000022	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone					36		NA	105000000
1,2-Dichloroethene (total)							NA	21500000
2-Butanone					6 J		NA	46500000
Benzene							NA	8900
Carbon Disulfide							NA	1400000
Chloroform							NA	NA
Chloromethane							NA	NA
Ethylbenzene							NA	480
Methylene Chloride	8		10		17	10	NA	NA
Tetrachloroethene							NA	10500000
Toluene		2 J		1 J	2 J		NA	1250000
Trichloroethene				7			NA	41000
Xylene (total)							NA	2150000000

Table A.1. Soil Gas Confirmation Detected Volatile Organic Compounds (cont.)

ANALYTE	SGC NAC 000023	SGC NAC 000025	SGC NAC 000030	SGC NAC 000031	SGC NAC 000032	SGC NAC 000034	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone			39		29		NA	105000000
1,2-Dichloroethene (total)							NA	21500000
2-Butanone			9 J		6 J		NA	46500000
Benzene							NA	8900
Carbon Disulfide							NA	1400000
Chloroform							NA	NA
Chloromethane							NA	NA
Ethylbenzene							NA	480
Methylene Chloride			12	14	10		NA	NA
Tetrachloroethene							NA	10500000
Toluene	4 J	2 J		2 J	1 J	2 J	NA	1250000
Trichloroethene							NA	41000
Xylene (total)				2 J			NA	2150000000

Table A.1. Soil Gas Confirmation Detected Volatile Organic Compounds (cont.)

ANALYTE	SGC NAC 000036	SGC NAC 000037	SGC NAC 000038	SGC NAC 000039	SGC A66 000040	SGC A66 000041	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone						88	NA	105000000
1,2-Dichloroethene (total)							NA	21500000
2-Butanone						7 J	NA	46500000
Benzene							NA	8900
Carbon Disulfide							NA	1400000
Chloroform							NA	NA
Chloromethane							NA	NA
Ethylbenzene							NA	480
Methylene Chloride	17	12	12		8	7	NA	NA
Tetrachloroethene							NA	10500000
Toluene		1 J		1 J			NA	1250000
Trichloroethene							NA	41000
Xylene (total)							NA	2150000000

Table A.1. Soil Gas Confirmation Detected Volatile Organic Compounds (cont.)

ANALYTE	SGC A61 000042	SGC A61 000043	SGC A61 000045	SGC A61 000046	SGC A61 000053	SGC A61 000054	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone			8 J	17			NA	105000000
1,2-Dichloroethene (total)							NA	21500000
2-Butanone		5 J-C	5 J				NA	46500000
Benzene							NA	8900
Carbon Disulfide							NA	1400000
Chloroform							NA	NA
Chloromethane							NA	NA
Ethylbenzene							NA	480
Methylene Chloride	6	9	8	9	4 J	7	NA	NA
Tetrachloroethene							NA	10500000
Toluene		2 J	3 J				NA	1250000
Trichloroethene							NA	41000
Xylene (total)							NA	2150000000

Table A.1. Soil Gas Confirmation Detected Volatile Organic Compounds (cont.)

ANALYTE	SGC A61 000055	SGC A13 000057	SGC A13 000058	SGC A13 000059	SGC A61 000061	SGC AOJ 000063	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone							NA	105000000
1,2-Dichloroethene (total)					36		NA	21500000
2-Butanone							NA	46500000
Benzene							NA	8900
Carbon Disulfide							NA	1400000
Chloroform							NA	NA
Chloromethane							NA	NA
Ethylbenzene							NA	480
Methylene Chloride			7				NA	NA
Tetrachloroethene					1 J		NA	10500000
Toluene	1 J			3 J		1 J	NA	1250000
Trichloroethene		3 J			43000 D		NA	41000
Xylene (total)				1 J			NA	2150000000

Table A.1. Soil Gas Confirmation Detected Volatile Organic Compounds (cont.)

ANALYTE	SGC AOJ 000065	SGC AOJ 000072	SGC AOJ 000073	SGC AOJ 000074	SGC AOJ 000075	SGC AOJ 000076	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone					7 J		NA	105000000
1,2-Dichloroethene (total)							NA	21500000
2-Butanone			10				NA	46500000
Benzene							NA	8900
Carbon Disulfide							NA	1400000
Chloroform							NA	NA
Chloromethane							NA	NA
Ethylbenzene							NA	480
Methylene Chloride	35	11		10	12	11	NA	NA
Tetrachloroethene							NA	10500000
Toluene		2 J				1 J	NA	1250000
Trichloroethene							NA	41000
Xylene (total)							NA	2150000000

Table A.1. Soil Gas Confirmation Detected Volatile Organic Compounds (cont.)

ANALYTE	SGC AO3 000079	SGC AO3 000081	SGC AO3 000082	SGC AO3 000083	SGC AO3 000084	SGC AO3 000085	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone				67			NA	105000000
1,2-Dichloroethene (total)							NA	21500000
2-Butanone				21			NA	46500000
Benzene							NA	8900
Carbon Disulfide							NA	1400000
Chloroform							NA	NA
Chloromethane							NA	NA
Ethylbenzene							NA	480
Methylene Chloride		6	5	7	5 J		NA	NA
Tetrachloroethene							NA	10500000
Toluene	1 J					1 J	NA	1250000
Trichloroethene							NA	41000
Xylene (total)							NA	2150000000

Table A.1. Soil Gas Confirmation Detected Volatile Organic Compounds (cont.)

ANALYTE	SGC AO3 000086	SGC AO3 000087	SGC A21 000088	SGC A22 000093	SGC SDB 000097	SGC SDB 000098	Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone		13				11	NA	105000000
1,2-Dichloroethene (total)							NA	21500000
2-Butanone		4 J					NA	46500000
Benzene							NA	8900
Carbon Disulfide							NA	1400000
Chloroform							NA	NA
Chloromethane							NA	NA
Ethylbenzene							NA	480
Methylene Chloride	9	11			12	21	NA	NA
Tetrachloroethene						70	NA	10500000
Toluene			2 J	1 J			NA	1250000
Trichloroethene		26					NA	41000
Xylene (total)				1 J			NA	2150000000

Table A.1. Soil Gas Confirmation Detected Volatile Organic Compounds (cont.)

ANALYTE	SGC SDB 000101	SGC SDB 000102					Background	10^{-6} Construction Worker Guidelines
VOLATILES (µg/Kg)								
Acetone		12					NA	105000000
1,2-Dichloroethene (total)							NA	21500000
2-Butanone		4	J				NA	46500000
Benzene							NA	8900
Carbon Disulfide							NA	1400000
Chloroform							NA	NA
Chloromethane							NA	NA
Ethylbenzene							NA	480
Methylene Chloride	7	18					NA	NA
Tetrachloroethene							NA	10500000
Toluene		2	J				NA	1250000
Trichloroethene							NA	41000
Xylene (total)							NA	2150000000

J - Numerical value is an estimated quantity
NA - Value not available
D - Sample was diluted
C - Estimated due to error in calibration
µg/kg - micrograms per kilogram

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds

ANALYTE	SGC NAC 000001	SGC NAC 000002	SGC NAC 000003	SGC NAC 000004	SGC NAC 000005	SGC NAC 000006	Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (μg/Kg)								
Acenaphthene		190 J	63 J				NA	NA
Acenaphthylene		730				42 J	NA	NA
Anthracene		1300	66 J		25 J	55 J	NA	320000000
Benzo(a)anthracene		1500	180 J		160 J	350 J	NA	4100
Benzo(a)pyrene		1300	180 J		200 J	450	NA	410
Benzo(b)fluoranthene		1000	180 J		190 J	460	NA	4100
Benzo(g,h,i)perylene		550	110 J		100 J	260 J	NA	NA
Benzo(k)fluoranthene		1000	160 J		190 J	440	NA	41000
Bis(2-ethylhexyl)phthalate							NA	215000
Butylbenzylphthalate							NA	215000000
Carbazole		600	62 J			34 J	NA	NA
Chrysene		1500	220 J		240 J	490	NA	410000
Di-n-butyl phthalate	120 J			280 J			NA	105000000
Di-n-octyl phthalate							NA	21500000
Dibenz(a,h)anthracene		180 J	40 J		37 J	87 J	NA	410
Dibenzofuran		1100	23 J				NA	NA
Diethyl phthalate							NA	NA
Fluoranthene		3400 D	480		400 J	800	NA	42500000
Fluorene		1500	42 J				NA	NA
Indeno(1,2,3-cd)pyrene		690	120 J		130 J	320 J	NA	4100
2-Methylnaphthalene		970					NA	NA
Naphthalene		4000 D	24 J				NA	NA
Phenanthrene		4700 D	380		150 J	280 J	NA	NA
Phenol							NA	650000000
Pyrene	24 J	2700 D	440		340 J	730	NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC NAC 000008		SGC NAC 000009		SGC NAC 000010		SGC NAC 000011		SGC NAC 000012		SGC NAC 000015		Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (µg/Kg)														
Acenaphthene													NA	NA
Acenaphthylene													NA	NA
Anthracene													NA	320000000
Benzo(a)anthracene	57	J							18	J			NA	4100
Benzo(a)pyrene	65	J							21	J			NA	410
Benzo(b)fluoranthene	67	J							22	J			NA	4100
Benzo(g,h,i)perylene	26	J											NA	NA
Benzo(k)fluoranthene	58	J							17	J			NA	41000
Bis(2-ethylhexyl)phthalate			71	J			36	J	35	J			NA	215000
Butylbenzylphthalate													NA	215000000
Carbazole													NA	NA
Chrysene	68	J			20	J			22	J			NA	410000
Di-n-butyl phthalate													NA	105000000
Di-n-octyl phthalate													NA	21500000
Dibenz(a,h)anthracene													NA	410
Dibenzofuran													NA	NA
Diethyl phthalate													NA	NA
Fluoranthene	110	J			31	J			38	J			NA	42500000
Fluorene													NA	NA
Indeno(1,2,3-cd)pyrene	36	J											NA	4100
2-Methylnaphthalene													NA	NA
Naphthalene											61	J	NA	NA
Phenanthrene	53	J											NA	NA
Phenol													NA	650000000
Pyrene	120	J			31	J	20	J	37	J			NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC NAC 000016		SGC NAC 000017		SGC SAN 000018		SGC NAC 000020		SGC NAC 000021		SGC NAC 000024		Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (μg/Kg)														
Acenaphthene							21	J					NA	NA
Acenaphthylene									44	J			NA	NA
Anthracene									130	J			NA	320000000
Benzo(a)anthracene	47	J			48	J	130	J	110	J			NA	4100
Benzo(a)pyrene	42	J			68	J	150	J	130	J			NA	410
Benzo(b)fluoranthene	39	J			59	J	67	J	88	J			NA	4100
Benzo(g,h,i)perylene	33	J			49	J	100	J	100	J			NA	NA
Benzo(k)fluoranthene	46	J			62	J	37	J					NA	41000
Bis(2-ethylhexyl)phthalate	100	J			1000						26	J	NA	215000
Butylbenzylphthalate													NA	215000000
Carbazole									21	J			NA	NA
Chrysene	51	J			54	J	220	J	170	J			NA	410000
Di-n-butyl phthalate													NA	105000000
Di-n-octyl phthalate											89	J	NA	21500000
Dibenz(a,h)anthracene					40	J	24	J	28	J			NA	410
Dibenzofuran													NA	NA
Diethyl phthalate													NA	NA
Fluoranthene	100	J	28	J	84	J	180	J	320	J			NA	42500000
Fluorene									26	J			NA	NA
Indeno(1,2,3-cd)pyrene	27	J			53	J	46	J	73	J			NA	4100
2-Methylnaphthalene													NA	NA
Naphthalene													NA	NA
Phenanthrene	63	J			27	J			220	J			NA	NA
Phenol													NA	650000000
Pyrene	87	J	26	J	91	J	1400		310	J			NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC NAC 000027		SGC NAC 000028		SGC NAC 000029		SGC NAC 000031		SGC NAC 000033		SGC NAC 000034		Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (μg/Kg)														
Acenaphthene							570				130	J	NA	NA
Acenaphthylene							40	J					NA	NA
Anthracene							1600				360	J	NA	320000000
Benzo(a)anthracene							3900	D			500		NA	4100
Benzo(a)pyrene							2800				450	J	NA	410
Benzo(b)fluoranthene							2400				360	J	NA	4100
Benzo(g,h,i)perylene							1500				220	J	NA	NA
Benzo(k)fluoranthene							2200				380	J	NA	41000
Bis(2-ethylhexyl)phthalate	24	J	26	J	25	J			27	J	19	J	NA	215000
Butylbenzylphthalate													NA	215000000
Carbazole							830				160	J	NA	NA
Chrysene							4000	D			500		NA	410000
Di-n-butyl phthalate													NA	105000000
Di-n-octyl phthalate													NA	21500000
Dibenz(a,h)anthracene							630				68	J	NA	410
Dibenzofuran							550				95	J	NA	NA
Diethyl phthalate													NA	NA
Fluoranthene							8400	D			1300		NA	42500000
Fluorene							740				160	J	NA	NA
Indeno(1,2,3-cd)pyrene							1600				210	J	NA	4100
2-Methylnaphthalene							160	J					NA	NA
Naphthalene							270	J			28	J	NA	NA
Phenanthrene							7400	D			1200		NA	NA
Phenol													NA	650000000
Pyrene							7000	D			1000		NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC NAC 000038	SGC A66 000040	SGC A66 000041	SGC A61 000042	SGC A61 000043	SGC A61 000044	Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (μg/Kg)								
Acenaphthene		130 J	97 J				NA	NA
Acenaphthylene							NA	NA
Anthracene		150 J	110 J				NA	320000000
Benzo(a)anthracene		550	420				NA	4100
Benzo(a)pyrene		570	430				NA	410
Benzo(b)fluoranthene		540	380				NA	4100
Benzo(g,h,i)perylene		400	310 J				NA	NA
Benzo(k)fluoranthene		550	360 J				NA	41000
Bis(2-ethylhexyl)phthalate			4400 D				NA	215000
Butylbenzylphthalate							NA	215000000
Carbazole		180 J	97 J				NA	NA
Chrysene		680	490		23 J		NA	410000
Di-n-butyl phthalate	240					34 J	NA	105000000
Di-n-octyl phthalate							NA	21500000
Dibenz(a,h)anthracene		120 J	92 J				NA	410
Dibenzofuran		48 J	35 J				NA	NA
Diethyl phthalate							NA	NA
Fluoranthene		1500	1000	26 J	25 J		NA	42500000
Fluorene		74 J	60 J				NA	NA
Indeno(1,2,3-cd)pyrene		370 J	290 J				NA	4100
2-Methylnaphthalene							NA	NA
Naphthalene		26 J	26 J				NA	NA
Phenanthrene		1100	720		25 J		NA	NA
Phenol							NA	650000000
Pyrene		1200	880	21 J	30 J		NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC A61 000047		SGC A61 000048		SGC A61 000049		SGC A61 000050		SGC A61 000051		SGC A61 000052		Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (μg/Kg)														
Acenaphthene			19	J	27	J							NA	NA
Acenaphthylene													NA	NA
Anthracene			33	J	36	J	26	J					NA	320000000
Benzo(a)anthracene	18	J	62	J	77	J	130	J			20	J	NA	4100
Benzo(a)pyrene	23	J	55	J	76	J	130	J			20	J	NA	410
Benzo(b)fluoranthene	23	J	53	J	69	J	110	J			22	J	NA	4100
Benzo(g,h,i)perylene			52	J	32	J	96	J					NA	NA
Benzo(k)fluoranthene	23	J	46	J	63	J	130	J			19	J	NA	41000
Bis(2-ethylhexyl)phthalate	43	J			34	J							NA	215000
Butylbenzylphthalate													NA	215000000
Carbazole													NA	NA
Chrysene	29	J	86	J	90	J	150	J			26	J	NA	410000
Di-n-butyl phthalate													NA	105000000
Di-n-octyl phthalate													NA	21500000
Dibenz(a,h)anthracene					20	J	29	J					NA	410
Dibenzofuran													NA	NA
Diethyl phthalate													NA	NA
Fluoranthene	45	J	150	J	230	J	290	J	30	J	47	J	NA	42500000
Fluorene			27	J	26	J							NA	NA
Indeno(1,2,3-cd)pyrene			30	J	43	J	79	J					NA	4100
2-Methylnaphthalene													NA	NA
Naphthalene													NA	NA
Phenanthrene	25	J	170	J	220	J	140	J			31	J	NA	NA
Phenol													NA	650000000
Pyrene	50	J	180	J	200	J	260	J	26	J	45	J	NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC A61 000053		SGC A13 000056		SGC A13 000057		SGC A13 000058		SGC A13 000060		SGC A13 000061		Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (μg/Kg)														
Acenaphthene													NA	NA
Acenaphthylene													NA	NA
Anthracene	79	J							30	J			NA	320000000
Benzo(a)anthracene	210	J					29	J	71	J			NA	4100
Benzo(a)pyrene	190	J					28	J	67	J			NA	410
Benzo(b)fluoranthene	140	J					17	J	55	J			NA	4100
Benzo(g,h,i)perylene	120	J					13	J	60	J			NA	NA
Benzo(k)fluoranthene	150	J					22	J	63	J			NA	41000
Bis(2-ethylhexyl)phthalate			27	J	28	J			36	J	28	J	NA	215000
Butylbenzylphthalate													NA	215000000
Carbazole	24	J											NA	NA
Chrysene	210	J					32	J	81	J			NA	410000
Di-n-butyl phthalate													NA	105000000
Di-n-octyl phthalate													NA	21500000
Dibenz(a,h)anthracene	35	J											NA	410
Dibenzofuran													NA	NA
Diethyl phthalate													NA	NA
Fluoranthene	480		22	J			65	J	190	J			NA	42500000
Fluorene													NA	NA
Indeno(1,2,3-cd)pyrene	100	J					17	J	48	J			NA	4100
2-Methylnaphthalene													NA	NA
Naphthalene													NA	NA
Phenanthrene	290	J					35	J	140	J			NA	NA
Phenol													NA	650000000
Pyrene	390		18	J			57	J	140	J			NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC AOJ 000062		SGC AOJ 000063		SGC AOJ 000064		SGC AOJ 000065		SGC AOJ 000066		SGC AOJ 000067		Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (µg/Kg)														
Acenaphthene									150	J	160	J	NA	NA
Acenaphthylene	31	J											NA	NA
Anthracene	25	J							320	J	250	J	NA	320000000
Benzo(a)anthracene	160	J	66	J	69	J			910		620		NA	4100
Benzo(a)pyrene	220	J	81	J	71	J			880		630		NA	410
Benzo(b)fluoranthene	190	J	75	J	72	J			800		580		NA	4100
Benzo(g,h,i)perylene	160	J	59	J	56	J			580		420		NA	NA
Benzo(k)fluoranthene	200	J	75	J	65	J			750		560		NA	41000
Bis(2-ethylhexyl)phthalate	53	J	31	J	21	J			36	J	51	J	NA	215000
Butylbenzylphthalate													NA	215000000
Carbazole									200	J	160	J	NA	NA
Chrysene	170	J	82	J	79	J			930		670		NA	410000
Di-n-butyl phthalate													NA	105000000
Di-n-octyl phthalate													NA	21500000
Dibenz(a,h)anthracene	44	J							170	J	130	J	NA	410
Dibenzofuran									56	J	90	J	NA	NA
Diethyl phthalate							22	J					NA	NA
Fluoranthene	270	J	140	J	180	J	22	J	2100		1500		NA	42500000
Fluorene									130	J	150	J	NA	NA
Indeno(1,2,3-cd)pyrene	140	J	50	J	48	J			520		370	J	NA	4100
2-Methylnaphthalene											33	J	NA	NA
Naphthalene									27	J	38	J	NA	NA
Phenanthrene	79	J	59	J	97	J			1400		1100		NA	NA
Phenol													NA	650000000
Pyrene	260	J	130	J	140	J	19	J	1700		1200		NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC AOJ 000068		SGC AOJ 000069		SGC AOJ 000070		SGC AOJ 000071		SGC AOJ 000072		SGC AOJ 000073		Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (μg/Kg)														
Acenaphthene					770		120	J			56	J	NA	NA
Acenaphthylene													NA	NA
Anthracene					1100		200	J			68	J	NA	320000000
Benzo(a)anthracene	36	J	21	J	2400		610				200	J	NA	4100
Benzo(a)pyrene	38	J	24	J	2400		620				210	J	NA	410
Benzo(b)fluoranthene	35	J	22	J	2200		560				190	J	NA	4100
Benzo(g,h,i)perylene	50	J			1400		420				160	J	NA	NA
Benzo(k)fluoranthene	43	J	20	J	2000		530				180	J	NA	41000
Bis(2-ethylhexyl)phthalate					39	J	33	J			28	J	NA	215000
Butylbenzylphthalate													NA	215000000
Carbazole					570	J	120	J			52	J	NA	NA
Chrysene	50	J	25	J	2600		660				230	J	NA	410000
Di-n-butyl phthalate	41	J											NA	105000000
Di-n-octyl phthalate													NA	21500000
Dibenz(a,h)anthracene					410	J	120	J			45	J	NA	410
Dibenzofuran					300	J	42	J			18	J	NA	NA
Diethyl phthalate									23	J			NA	NA
Fluoranthene	94	J	48	J	5400		1500				500		NA	42500000
Fluorene					520	J	89	J			31	J	NA	NA
Indeno(1,2,3-cd)pyrene	28	J			1300		360	J			130	J	NA	4100
2-Methylnaphthalene					75	J							NA	NA
Naphthalene					260	J							NA	NA
Phenanthrene	34	J	21	J	4000		970				340	J	NA	NA
Phenol													NA	650000000
Pyrene	85	J	39	J	4400		1200				440		NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC AOJ 000074		SGC AOJ 000075		SGC AOJ 000076		SGC AOJ 000077		SGC AOJ 000078		SGC AO3 000080		Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (µg/Kg)														
Acenaphthene													NA	NA
Acenaphthylene											280	J	NA	NA
Anthracene	30	J			35	J			29	J	150	J	NA	320000000
Benzo(a)anthracene	96	J	26	J	280	J	210	J	150	J	480		NA	4100
Benzo(a)pyrene	96	J	31	J	92	J	260	J	160	J	850		NA	410
Benzo(b)fluoranthene	96	J	35	J	250	J	200	J	150	J	640		NA	4100
Benzo(g,h,i)perylene	66	J	25	J	30	J	170	J	100	J	590		NA	NA
Benzo(k)fluoranthene	85	J	31	J	200	J	200	J	150	J	630		NA	41000
Bis(2-ethylhexyl)phthalate							22	J	35	J			NA	215000
Butylbenzylphthalate	58	J											NA	215000000
Carbazole	19	J			35	J			23	J	19	J	NA	NA
Chrysene	110	J	38	J	630		220	J	170	J	500		NA	410000
Di-n-butyl phthalate													NA	105000000
Di-n-octyl phthalate													NA	21500000
Dibenz(a,h)anthracene	22	J					47	J	31	J	180	J	NA	410
Dibenzofuran											56	J	NA	NA
Diethyl phthalate													NA	NA
Fluoranthene	250	J	65	J	2100		280	J	320	J	780		NA	42500000
Fluorene											89	J	NA	NA
Indeno(1,2,3-cd)pyrene	60	J	24	J	45	J	140	J	91	J	580		NA	4100
2-Methylnaphthalene											25	J	NA	NA
Naphthalene											79	J	NA	NA
Phenanthrene	150	J	29	J	130	J	45	J	170	J	370	J	NA	NA
Phenol									150	J			NA	650000000
Pyrene	200	J	53	J	1700		300	J	300	J	690		NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC AO3 000081		SGC AO3 000082		SGC AO3 000083		SGC AO3 000085		SGC AO3 000086		SGC AO3 000087		Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (μg/Kg)														
Acenaphthene	89	J											NA	NA
Acenaphthylene	220	J											NA	NA
Anthracene	150	J											NA	320000000
Benzo(a)anthracene	560				25	J	55	J	76	J			NA	4100
Benzo(a)pyrene	660				28	J	54	J	70	J			NA	410
Benzo(b)fluoranthene	580				25	J	53	J	55	J			NA	4100
Benzo(g,h,i)perylene	310	J			26	J	29	J	47	J			NA	NA
Benzo(k)fluoranthene	580				27	J	56	J	64	J			NA	41000
Bis(2-ethylhexyl)phthalate													NA	215000
Butylbenzylphthalate													NA	215000000
Carbazole	45	J											NA	NA
Chrysene	690				32	J	65	J	83	J			NA	410000
Di-n-butyl phthalate													NA	105000000
Di-n-octyl phthalate													NA	21500000
Dibenz(a,h)anthracene	110	J							23	J			NA	410
Dibenzofuran	84	J											NA	NA
Diethyl phthalate													NA	NA
Fluoranthene	890		110	J	52	J			150	J	24	J	NA	42500000
Fluorene	81	J											NA	NA
Indeno(1,2,3-cd)pyrene	440				16	J	33	J	39	J			NA	4100
2-Methylnaphthalene	79	J											NA	NA
Naphthalene	45	J											NA	NA
Phenanthrene	520				18	J	28	J	70	J	21	J	NA	NA
Phenol													NA	650000000
Pyrene	930		92	J	50	J	98	J	130	J	19	J	NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC A21 000088	SGC A22 000092	SGC A22 000093	SGC A22 000094	SGC SDB 000097	SGC SDB 000098	Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (µg/Kg)								
Acenaphthene						19 J	NA	NA
Acenaphthylene					40 J		NA	NA
Anthracene					33 J	39 J	NA	320000000
Benzo(a)anthracene		23 J		51 J	160 J	100 J	NA	4100
Benzo(a)pyrene		23 J		65 J	180 J	92 J	NA	410
Benzo(b)fluoranthene		28 J		62 J	170 J	96 J	NA	4100
Benzo(g,h,i)perylene				48 J	65 J	46 J	NA	NA
Benzo(k)fluoranthene		21 J		69 J	160 J	95 J	NA	41000
Bis(2-ethylhexyl)phthalate	26 J		19 J				NA	215000
Butylbenzylphthalate							NA	215000000
Carbazole						50 J	NA	NA
Chrysene		25 J		76 J	170 J	130 J	NA	410000
Di-n-butyl phthalate							NA	105000000
Di-n-octyl phthalate							NA	21500000
Dibenz(a,h)anthracene					35 J	22 J	NA	410
Dibenzofuran						28 J	NA	NA
Diethyl phthalate					20 J		NA	NA
Fluoranthene		59 J		140 J	330 J	350 J	NA	42500000
Fluorene						27 J	NA	NA
Indeno(1,2,3-cd)pyrene				42 J	110 J	62 J	NA	4100
2-Methylnaphthalene							NA	NA
Naphthalene							NA	NA
Phenanthrene		42 J		96 J	150 J	340 J	NA	NA
Phenol							NA	650000000
Pyrene		48 J		120 J	280 J	240 J	NA	32000000

Table A.2. Soil Gas Confirmation Detected Semivolatile Organic Compounds (cont.)

ANALYTE	SGC SDB 000101							Background	10^{-6} Construction Worker Guidelines
SEMIVOLATILES (µg/Kg)									
Acenaphthene	1200	J-H						NA	NA
Acenaphthylene								NA	NA
Anthracene	2000	J-H						NA	320000000
Benzo(a)anthracene	5700	J-H						NA	4100
Benzo(a)pyrene	5900	J-H						NA	410
Benzo(b)fluoranthene	5200	J-H						NA	4100
Benzo(g,h,i)perylene	4200	J-H						NA	NA
Benzo(k)fluoranthene	5200	J-H						NA	41000
Bis(2-ethylhexyl)phthalate								NA	215000
Butylbenzylphthalate								NA	215000000
Carbazole	1600	J-H						NA	NA
Chrysene	6400	J-H						NA	410000
Di-n-butyl phthalate								NA	105000000
Di-n-octyl phthalate	240	J-H						NA	21500000
Dibenz(a,h)anthracene	1400	J-H						NA	410
Dibenzofuran	590	J-H						NA	NA
Diethyl phthalate								NA	NA
Fluoranthene	13000	J-H						NA	42500000
Fluorene	1000	J-H						NA	NA
Indeno(1,2,3-cd)pyrene	3900	J-H						NA	4100
2-Methylnaphthalene								NA	NA
Naphthalene	360	J-H						NA	NA
Phenanthrene	11000	J-H						NA	NA
Phenol								NA	650000000
Pyrene	12000	J-H						NA	32000000

J - Numerical value is an estimated quantity
NA - Value not available
µg/kg - micrograms per kilogram
H - Analyzed outside holding time
D - Sample was diluted

Table A.3. Soil Gas Confirmation Detected Pesticides/PCB's

ANALYTE	SGC NAC 000008	SGC NAC 000010	SGC NAC 000031	SGC A66 000041	SGC A61 000044	SGC A13 000060	Background	10^{-6} Construction Worker Guidelines
PESTICIDES/PCB (μg/kg)								
Aroclor-1248	48			110	98		ND	380
Aroclor-1254	43				55		ND	21500
Alpha-Chlordane							ND	NA
Gamma-Chlordane						3.7	ND	NA
4,4'-DDT							13000	9000
Dieldrin		4.4	5*				ND	185
Endosulfan I				3.4*	2.4*		ND	NA
Endosulfan II							NA	NA
Endrin			11*				ND	NA
Heptachlor						2.9	ND	NA

Table A.3. Soil Gas Confirmation Detected Pesticides/PCB's (cont.)

ANALYTE	SGC AOJ 000067	SGC AOJ 000071	SGC AO3 000081	SGC SDB 000101			Background	10^{-6} Construction Worker Guidelines
PESTICIDES/PCB (µg/kg)								
Aroclor-1248							ND	380
Aroclor-1254	52	44		140			ND	21500
Alpha-Chlordane		14*					ND	NA
Gamma-Chlordane		12*					ND	NA
4,4'-DDT			3.7				13000	9000
Dieldrin							ND	185
Endosulfan I							ND	NA
Endosulfan II			4.4				NA	NA
Endrin							ND	NA
Heptachlor							ND	NA

* - Unconfirmed due to interference
NA - Value not available
ND - No detections in background samples
µg/kg - micrograms per kilogram

Table A.4. Soil Gas Confirmation Detected TAL Inorganics

ANALYTE	SGC NAC 000001		SGC NAC 000002		SGC NAC 000003		SGC NAC 000004		SGC NAC 000005		SGC NAC 000006		Background	10^{-8} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	11000		4190		1910		11400		7970		7780		19000	NA
Antimony			0.23	B			0.24	B	0.41	B			NA	425
Arsenic	1.5	B	2.1	B	2.9	B	1.4	B	7		7.2		8.6	320
Barium	48.6		20.7	B	23.7	B	47.1	B	73.6		86.4		180	75000
Beryllium	0.56				0.12	B	0.65		0.38		0.28		1.3	0.7
Bismuth													NA	NA
Cadmium			0.25	B	0.19	B			0.36	B	0.5	B	2.1	1050
Calcium	162000		159000		95500		152000		13600		86200		310000	NA
Chromium	13.2		6.7		3.8		15.2		13		11.6		20	1050000
Cobalt	9.8	B	4.5	B	2.3	B	10.1	B	7.6	B	7.6	B	19	NA
Copper	16.2		11.9		9.9		17.1		14.5		15.2		26	NA
Cyanide													ND	21400
Iron	21300		10600		5680		21800		17200		17700		35000	NA
Lead	6.7		5.2		11.2		8.6		30.9		25.1		48	NA
Lithium	21	B	12.5	B	6.2	B	23	B	7.7	B	10.3	B	26	NA
Magnesium	6160		57800		27900		5670		5210		35600		40000	NA
Manganese	695		384		270		612		383		589		1400	135000
Mercury					0.13								NC	320
Molybdenum	0.43	B	1.2	B	0.77	B			1.7	B	1.5	B	27	NA
Nickel	18.4		9.9		6.4	B	20.6		11.1		16.1		32	21500
Potassium	1780		742	B	346	B	2080		574	B	744	B	1900	NA
Selenium													NA	NA
Silver					0.24	B							1700	5500000
Sodium	228	B	888	B	150	B	137	B	411	B	348	B	240	NA
Thallium													460	NA
Tin	1.1	B					1.4	B	1	B			20	NA
Vanadium	14.9		8.3		4.7		16.3		23.1		18.9		25	7500
Zinc	53.3		29.5				67		59		69.2		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC NAC 000007		SGC NAC 000008		SGC NAC 000009		SGC NAC 000010		SGC NAC 000011		SGC NAC 000012		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	10200		2820		18700		7300		10300		13100		19000	NA
Antimony			0.27	B	0.91	B	0.21	B	1.2	B			NA	425
Arsenic	1.9	B	3.2		11.1		7.2		2.2	B	1.9	BJ	8.6	320
Barium	26.2	B	23.2	B	163		64.7		13.5	B	78.4		180	75000
Beryllium	0.28				0.9	B	0.34		0.36	B	0.44		1.3	0.7
Bismuth					0.85	B			0.99	B			NA	NA
Cadmium	0.33	B	0.22	B	6		0.62	B	5.2		6.0		2.1	1050
Calcium	83900		113000		5940		41500		90800		127000	J	310000	NA
Chromium	14.3		5.7		20.3		12		11.9		17.3		20	1050000
Cobalt	11	B	3.3	B	13		7.9	B	13.7		12.7	J	19	NA
Copper	16.2		13.9		19.2		17.4		16.6		21.3	J	26	NA
Cyanide													ND	21400
Iron	23000		7660		29400		17300		25600		27900		35000	NA
Lead	7.2		5.9		22.2		16.5		5.7		9.3	J	48	NA
Lithium	3.2	B	8.2	B	14.7	B	9.2	B	27.3		25.3		26	NA
Magnesium	21600		47900		4500		16700		12300		19900	J	40000	NA
Manganese	493		256		728		604		908		658		1400	135000
Mercury													NC	320
Molybdenum	0.63	B	1.4	B	1.8	B	2.3	B	0.58	B	1.3	B	27	NA
Nickel	22.6		8.1	B	24.5		16.5		21.6		26.4		32	21500
Potassium	1590		463	B	1420		794	B	2210	B	1630		1900	NA
Selenium									0.31	B			NA	NA
Silver													1700	5500000
Sodium	246	B	341	B	1010	B	82	B	288	B	2490	J	240	NA
Thallium													460	NA
Tin			4.5	B	1.5	B					1.6	B	20	NA
Vanadium	14.2		7.4		42.7		19.2		15.8		22.4		25	7500
Zinc	53.8		36.6		71.8		[illegible]		59.9		68.5		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC NAC 000013		SGC NAC 000014		SGC NAC 000015		SGC NAC 000016		SGC NAC 000017		SGC NAC 000018		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	8460		17700		7370		14100		20000		5130		19000	NA
Antimony													NA	425
Arsenic	1.2	BJ	2.7		3.6	J	3.4		2.4	B	4.1		8.6	320
Barium	53.4		110		51.3	B	68.7		119		21.4	B	180	75000
Beryllium	0.20	B	0.68		0.24	B	0.46		0.96		0.28		1.3	0.7
Bismuth							0.82	B	1.2	B			NA	NA
Cadmium	4.6		7.7		3.7		5.7		8.6				2.1	1050
Calcium	222000	J	94200		342000		133690		23800		157000		310000	NA
Chromium	10.8		22.3		9.1		17.7		24.5		9.3		20	1050000
Cobalt	7.5	BJ	13.9		5.8	B	11.6	B	18.5		5.5	B	19	NA
Copper	13.5	J	22.4		12.2		19.3		26.9		11.6		26	NA
Cyanide			1.8				1.0						ND	21400
Iron	21100		36300		16600		26600		40000		13600		35000	NA
Lead	29.4	J	12.9		14.3		14.1		27.5		8.2		48	NA
Lithium	17.8	B	30.7		15.0	B	25.1		34.1		18.1	B	26	NA
Magnesium	7250	J	8190		4760		14600		6250		47700		40000	NA
Manganese	543		939		689		641		1360		381		1400	135000
Mercury									0.07	B			NC	320
Molybdenum	0.81	B	1.3	B	0.51	B	1.3	B	0.76	B	0.82	B	27	NA
Nickel	17.6		31.4		13.8		23.9		34.4		13.5		32	21500
Potassium	1100	B	2250	B	1010	B	2090	B	3680		1040	B	1900	NA
Selenium													NA	NA
Silver											0.41	B	1700	5500000
Sodium	328	BJ	142	B	248	B	398	B	209	B	398	B	240	NA
Thallium													460	NA
Tin	1.1	B	0.98	B			1.7	B	3.3	B			20	NA
Vanadium	12.9		29.4		10.7		23.8		30.2		10.3		25	7500
Zinc	44.9		92.5		67.7		70.5		103		41.2		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC NAC 000019		SGC NAC 000020		SGC NAC 000021		SGC NAC 000022		SGC NAC 000023		SGC NAC 000024		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	7820		13400		7720		8030		12200		5410		19000	NA
Antimony							0.66	B					NA	425
Arsenic	6.8		3		4.3		13.3		2.0	BJ	0.83	BJ	8.6	320
Barium	56.1		17.9	B	24.2	B	65.8	J	90.3		28.4	B	180	75000
Beryllium	0.22	B	0.77		0.19	B	0.49		0.91		0.29		1.3	0.7
Bismuth													NA	NA
Cadmium	3.4												2.1	1050
Calcium	76400		64400		58300		42200		35400	J	210000	J	310000	NA
Chromium	8.9		18.6		13.9		14.4	J	16.2		7.9		20	1050000
Cobalt	8.4	B	12.9		10.3	B	11.5	B	13.1		5.9	B	19	NA
Copper	14.2		17.3		26.5		26.3	J	18.9		8.2		26	NA
Cyanide					0.65	B							ND	21400
Iron	16000		25500		20600		22300	J	29300		14600		35000	NA
Lead	14.2		5.3		14		14.9	J	16.4	J	5.2	J	48	NA
Lithium	9.7	B	39.5		25.8		15.3	B	18.8	B	12.8	B	26	NA
Magnesium	29800		16300		15800		22000	J	4640		15700		40000	NA
Manganese	539		505		577		522	J	1030	J	393	J	1400	135000
Mercury									0.07	BJ			NC	320
Molybdenum	2.2	B			0.53	B	5.7		0.87	B	0.63	B	27	NA
Nickel	13.3		27.3		21.3		27.4		42.3		12.3		32	21500
Potassium	1090	B	3590		1300		641	B	1760		874	B	1900	NA
Selenium													NA	NA
Silver					0.33	B							1700	5500000
Sodium	155	B	383	B	357	B	101	BJ	174	BJ	172	BJ	240	NA
Thallium													460	NA
Tin	1.3	B	1.6	B	1.7	B	1	B	0.97	B			20	NA
Vanadium	17.5		17.7		12.6	B	22.4	J	18.0		7.3		25	7500
Zinc	56.1		84.9		68.9		72.5	J	66.6		28.9		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC NAC 000025		SGC NAC 000026		SGC NAC 000027		SGC NAC 000028		SGC NAC 000029		SGC NAC 000030		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	6830		7120		11500		15300		10700		5550		19000	NA
Antimony									0.61	B			NA	425
Arsenic	1.9	BJ	0.61	BJ	3.6	J	2.0	BJ	1.8	BJ	5.6		8.6	320
Barium	49.2		34.1	B	87.6		111		59.1		47.8		180	75000
Beryllium	0.40		0.11	B	0.81		0.96		0.64		0.27		1.3	0.7
Bismuth													NA	NA
Cadmium			2.9										2.1	1050
Calcium	162000	J	315000		68800	J	48400	J	87300	J	158000		310000	NA
Chromium	18.1		8.1		16.2		20.6		14.8		9.7		20	1050000
Cobalt	8.7	B	5.4	B	11.6	B	11.8	B	12.0		5.6	B	19	NA
Copper	30.5		8.7		19.2		16.1		15.3		11.9		26	NA
Cyanide													ND	21400
Iron	24200		16300		30800		35200		25400		13500		35000	NA
Lead	6.9	J	4.9		14.3	J	5.6	J	6.2	J	8.4		48	NA
Lithium	16.3	B	16.7	B	17.0	B	21.4	B	22.5	B	13.4	B	26	NA
Magnesium	14900		4380		9760		5190		5910		52600		40000	NA
Manganese	429	J	417		659	J	593	J	637	J	307		1400	135000
Mercury					0.13	J							NC	320
Molybdenum	2.3	B	0.88	B	1.9	B	0.80	B	0.77	B	1.3	B	27	NA
Nickel	22.2		12.2		25.9		28.2		24.6		14		32	21500
Potassium	443	B	1200		757	B	1400		800	B	873	B	1900	NA
Selenium													NA	NA
Silver													1700	5500000
Sodium	157	BJ	228	B	126	BJ	119	BJ	125	BJ	626	B	240	NA
Thallium													460	NA
Tin	0.89	B	1.3	B	1.1	B	0.67	B					20	NA
Vanadium	10.5		8.1		21.3		22.4		15.4		12.2		25	7500
Zinc	64.6		32.7		109		80.8		58.4		37.4		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC NAC 000031		SGC NAC 000032		SGC NAC 000033		SGC NAC 000034		SGC NAC 000035		SGC NAC 000036		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	9730		11200		5720		6450		12400		11300		19000	NA
Antimony													NA	425
Arsenic	3.4		4		1.3	BJ	4.9	J	2.1	B	3.4		8.6	320
Barium	106		52.8		29.3	B	51.0		58.1		45.8	B	180	75000
Beryllium	0.63		0.69		0.44		0.43		0.37		0.59		1.3	0.7
Bismuth	3.8	B											NA	NA
Cadmium									4.2				2.1	1050
Calcium	51200		80800		164000	J	106000	J	73500		117000		310000	NA
Chromium	14.6		15.3		7.4		11.6		14.4		14.9		20	1050000
Cobalt	9	B	10.4	B	6.5	B	7.7	B	9.8	B	10.9	B	19	NA
Copper	31		15.4		7.3		13.0		14.0		13.4		26	NA
Cyanide													ND	21400
Iron	18000		22100		12600		16100		23800		24500		35000	NA
Lead	88.7		7.4		3.5	J	14.9	J	12.8		8.3		48	NA
Lithium	11.3	B	21.7	B	13.6	B	9.6	B	18.9	B	26.8		26	NA
Magnesium	19900		31700		8520		25000		3930		17400		40000	NA
Manganese	550		503		359	J	513	J	553		549		1400	135000
Mercury	1.8						0.10	BJ					NC	320
Molybdenum	1.4	B	1.2	B	0.34	B	1.6	B	1.1	B			27	NA
Nickel	18.1		23.4		12.5		15.5		18.9		22		32	21500
Potassium	1540		2210	B	396	B	851	B	1390		3230		1900	NA
Selenium													NA	NA
Silver													1700	5500000
Sodium	132	B	453	B	197	BJ	245	BJ	97.7	B	844	B	240	NA
Thallium											0.44	B	460	NA
Tin			1.7	B	1.4	B	1.2	B	1.2	B			20	NA
Vanadium	22.2		19.4		7.7		14.9		19.4		13.7		25	7500
Zinc	192		51		29.3		50.3		52.2		53.8		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC NAC 000037		SGC NAC 000038		SGC NAC 000039		SGC A66 000040		SGC A66 000041		SGC A61 000042		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	15700		7900		15400		5600		3030		4860		19000	NA
Antimony					0.27	B					0.79	B	NA	425
Arsenic	4.5		8.3		3.1		7.3		3.2		6.4		8.6	320
Barium	97.1		58.4		122		71.1		19.1	B	37.3	BJ	180	75000
Beryllium	0.99		0.46		0.92		0.13	B			0.13	B	1.3	0.7
Bismuth	1.7	B	1.4	B									NA	NA
Cadmium													2.1	1050
Calcium	10100		81900		3980		158000		189000		189000		310000	NA
Chromium	20.8		11.1		19		7.7		6.7		8	J	20	1050000
Cobalt	13.2	B	7.7	B	13.5		4.9	B	3.3	B	6.1	B	19	NA
Copper	19.4		14.2		20.8		9.7		22.1		13.1	J	26	NA
Cyanide							0.59	B	0.56	B			ND	21400
Iron	30900		18100		26900		13800		8300		14500	J	35000	NA
Lead	11.1		11.2		12.8		23		11.3		9.2	J	48	NA
Lithium	24.6	B	14.2	B	15.8	B	12.3	B	11.7	B	14.3	B	26	NA
Magnesium	4430		29800		3790		81600		68600		23400	J	40000	NA
Manganese	1120		799		1400		596		273		784	J	1400	135000
Mercury													NC	320
Molybdenum	0.7	B	1.1	B	1.3	B	0.9	B	0.62	B	1.6	B	27	NA
Nickel	26.5		18.1		25.8		9.8		7.6	B	14.8		32	21500
Potassium	2650	B	1160	B	2320	B	536	B	562	B	600	B	1900	NA
Selenium											0.45	BJ	NA	NA
Silver									0.3	B			1700	5500000
Sodium	305	B	165	B	99.8	B	698	B	329	B	1540	J	240	NA
Thallium											0.67	BJ	460	NA
Tin					1.6	B					4.4	B	20	NA
Vanadium	25.9		17		29.3		12.2		7.1	B	10.4	J	25	7500
Zinc	71.3		47.8		71.8		34		46.8		39.1	J	140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC A61 000043		SGC A61 000044		SGC A61 000045		SGC A61 000046		SGC A61 000047		SGC A61 000048		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	3600		1540		1900		14700		8630		1230		19000	NA
Antimony			0.23	B									NA	425
Arsenic	3		5.1		3.7		2.1	B	3.6		3.6		8.6	320
Barium	23.8	BJ	23.8	B	16.7	B	45	B	45.4	B	16.7	B	180	75000
Beryllium			0.1	B	0.12	B	0.86		0.25				1.3	0.7
Bismuth							1.5	B					NA	NA
Cadmium			0.1	B					0.42	B	0.19	B	2.1	1050
Calcium	161000		152000		148000		58000		124000		193000		310000	NA
Chromium	8.2	J	4.2		4.6		20.8		12.3		4.8		20	1050000
Cobalt	4.4	B	2.8	B	2.4	B	19.4		9.1	B	1.5	B	19	NA
Copper	10.7	J	10		8.1		24.4		17.5		5.1	B	26	NA
Cyanide													ND	21400
Iron	10300	J	8100		6910		30400		19900		4910		35000	NA
Lead	5.9	J	6.3		5		2.6		11.5		5		48	NA
Lithium	12.6	B	7.4	B	5.6	B	38.6		19	B	4.6	B	26	NA
Magnesium	61000	J	55600		65800		10500		33700		108000		40000	NA
Manganese	388	J	261		235		1080		518		221		1400	135000
Mercury									0.13				NC	320
Molybdenum	1.3	B	2.5	B	1.7	B			2.1	B	1.7	B	27	NA
Nickel	10.4		7.3	B	6.7	B	34.6		19.6		8.9		32	21500
Potassium	572	B	287	B	441	B	3280		1210		297	B	1900	NA
Selenium													NA	NA
Silver							0.21	B					1700	5500000
Sodium	818	BJ	218	B	566	B	216	B	439	B	998	B	240	NA
Thallium													460	NA
Tin	1.1	B			1.2	B	1.2	B					20	NA
Vanadium	12.4	J	5.5		7.1		19.7		15.5		7.6		25	7500
Zinc	25.9	J	29.5		25.7		66.6		57.4		13.1		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC A61 000049		SGC A61 000050		SGC A61 000051		SGC A61 000052		SGC A61 000053		SGC A61 000054		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	7040		2690		9810		6900		3890		10200		19000	NA
Antimony									0.23	B			NA	425
Arsenic	3.8		5.3		5		3.2		3.3		1.2	B	8.6	320
Barium	34.7	B	19	B	52.4		26.6	B	30.2	BJ	39.5	B	180	75000
Beryllium	0.13	B	0.14	B	0.53		0.12	B			0.66		1.3	0.7
Bismuth					1.3	B							NA	NA
Cadmium	0.32	B	0.3	B	0.27	B	0.28	B					2.1	1050
Calcium	168000		217000		98100		264000		181000		205000		310000	NA
Chromium	11.4		5.4		16.4		9		7.8	J	12.9		20	1050000
Cobalt	7.8	B	3	B	9.8	B	7.3	B	4.3	B	10.5	B	19	NA
Copper	14		29.1		25.3		12.2		13.9	J	13.7		26	NA
Cyanide													ND	21400
Iron	17100		6510		21900		16500		11400	J	20600		35000	NA
Lead	7.7		26.7		16.7		12.7		11.2	J	4		48	NA
Lithium	20.9	B	10.3	B	24.5		19.6	B	14	B	20.8	B	26	NA
Magnesium	30400		102000		18400		11600		47900	J	5290		40000	NA
Manganese	570		264		684		728		471	J	886		1400	135000
Mercury									0.06	B			NC	320
Molybdenum	1.4	B	0.51	B	1.9	B	0.62	B	0.96	B			27	NA
Nickel	16.8		6.4	B	20.8		14.1		10.5		19.1		32	21500
Potassium	1170		555	B	1770		1010	B	565	B	1700		1900	NA
Selenium													NA	NA
Silver			0.21	B	0.3	B			0.19	B			1700	5500000
Sodium	1030	B	616	B	875	B	199	B	911	BJ	268	B	240	NA
Thallium													460	NA
Tin			0.89	B	1.5	B			0.9	B			20	NA
Vanadium	10.8		6.7		17.1		9.6		8.6	J	14.1		25	7500
Zinc	46.6		254		120		66.1		73	J	40		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC A61 00055		SGC A13 000056		SGC A13 000057		SGC A13 000058		SGC A13 000059		SGC A13 000060		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	11300		1610		5660		1260		4400		4700		19000	NA
Antimony			0.61	B	0.79	B					0.84	B	NA	425
Arsenic	6.7		3.5	B	4.3	B	3.1		4.7		5		8.6	320
Barium	77.4		14.7	B	44.8	B	13.3	B	65.1		40.7	B	180	75000
Beryllium	0.8				0.09	B							1.3	0.7
Bismuth													NA	NA
Cadmium			1.1		2.6		0.16	B	2.4		2.6		2.1	1050
Calcium	15500		149000		174000		157000		137000		139000		310000	NA
Chromium	15.5		2.4		5.8		4.2		5		5		20	1050000
Cobalt	13		1.9	B	5.6	B	1.7	B	4.8	B	5.7	B	19	NA
Copper	15.5		9.2		7.7		11		11.5		12.4		26	NA
Cyanide													ND	21400
Iron	24400		5180		12300		4560		11200		11700		35000	NA
Lead	22.1		6.3		9.9		4.4		6		9.4		48	NA
Lithium	15.5	B	3.6	B	7.5	B	4.6	B	8.9	B	7.3	B	26	NA
Magnesium	4720		64200		45500		79100		65100		33700		40000	NA
Manganese	933		233		885		199		215		574		1400	135000
Mercury													NC	320
Molybdenum	1.1	B	1.3	B	1.1	B	1.2	B	2.5	B	1.8	B	27	NA
Nickel	19.1		4.4	B	9.9		4.3	B	10.7		9.6		32	21500
Potassium	1450		374	B	904	B	250	B	985	B	776	B	1900	NA
Selenium													NA	NA
Silver													1700	5500000
Sodium	94.8	B	227	B	265	B	220	B	248	B	268	B	240	NA
Thallium													460	NA
Tin					1.2	B			1.2	B	0.9	B	20	NA
Vanadium	21.6		5.7	B	12.4		5.4		10.1	B	11.6		25	7500
Zinc	54.6		21.5		29.3		37.7		35.7		39		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC A13 000061		SGC A0J 000062		SGC A0J 000063		SGC A0J 000064		SGC A0J 000065		SGC A0J 000066		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	5670		9860		7380		890		5690		2910		19000	NA
Antimony			0.55	B	0.67	B					0.55	B	NA	425
Arsenic	5.4		4.2	B	3.6	B	2	B	2.9		3.7	B	8.6	320
Barium	49.3		66.7		43.1		6.1	B	44.9	B	19.5	B	180	75000
Beryllium	0.1	B	0.25	B	0.14	B			0.38				1.3	0.7
Bismuth													NA	NA
Cadmium	2.9		3.9		3.2		0.49	B			1.4		2.1	1050
Calcium	138000		93600		96600		231000		116000		171000		310000	NA
Chromium	6.3		9.6		8		1.3	B	9		2.4		20	1050000
Cobalt	6.4	B	7.1	B	6.4	B	0.85	B	6	B	2.6	B	19	NA
Copper	14.3		13.2		12.9		1.8	B	12.5		10.5		26	NA
Cyanide													ND	21400
Iron	13800		18100		15300		2330		13500		6330		35000	NA
Lead	7.6		10.3		28.7		4		10		9.4		48	NA
Lithium	14.6	B	11.5	B	12.2	B	1.9	B	13.3	B	3.9	B	26	NA
Magnesium	51800		23700		23000		146000		48800		85800		40000	NA
Manganese	328		419		399		163		345		240		1400	135000
Mercury													NC	320
Molybdenum	3.2	B	1.5	B	1.2	B	0.42	B	2.2	B	0.59	B	27	NA
Nickel	13.8		14.2		12.9		1.4	B	14.3		4.8	B	32	21500
Potassium	1380		1450		628	B	423	B	1400		666	B	1900	NA
Selenium													NA	NA
Silver													1700	5500000
Sodium	245	B	833	B	406	B	483	B	186	B	287	B	240	NA
Thallium													460	NA
Tin	1	B	1.4	B	1.5	B	0.96	B	0.98	B	0.64	B	20	NA
Vanadium	12.2		17.8		13.5		3.4	B	12.6		7.9	B	25	7500
Zinc			46		48.6		8.6		44		21.9		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC A0J 000067		SGC A0J 000068		SGC A0J 0000069		SGC A0J 000070		SGC A0J 000071		SGC A0J 000072		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	6510		10500		14300		10100		7000		10900		19000	NA
Antimony	0.94	B							0.93	B			NA	425
Arsenic	6.2		3.5		2.4	B	4.4		5.1		1.7	B	8.6	320
Barium	44.2	B	32.9	B	86.8		70.1		44	B	48.5		180	75000
Beryllium	0.13	B	0.49		0.81		0.33		0.13	B	0.68		1.3	0.7
Bismuth									1.1	B			NA	NA
Cadmium	2.8						4.7		3.3				2.1	1050
Calcium	91500		132000		36100		128000		140000		73500		310000	NA
Chromium	8.6		~~57.8~~		18.1		14		7.8		14.7		20	1050000
Cobalt	5.5	B	9.7	B	12.8		8.6	B	6.2	B	9.6	B	19	NA
Copper	21.2		21.6		17.3		31.9		17.5		16.7		26	NA
Cyanide													ND	21400
Iron	12900		21600		28900		21300		15200		23300		35000	NA
Lead	19.6		10.6		14.1		17.2		16.9		9.7		48	NA
Lithium	8.3	B	28.3		17.7	B	16.5	B	11.5	B	20.1	B	26	NA
Magnesium	26800		12700		5000		31100		44200		15300		40000	NA
Manganese	441		794		976		483		400		654		1400	135000
Mercury	0.06	B									0.06	B	NC	320
Molybdenum	1.5	B	0.73	B	1	B	1.7	B	1.4	B	1.3	B	27	NA
Nickel	11.6		21		25.7		19.9		12		22.7		32	21500
Potassium	1120	B	2670		1860		1340	B	1110	B	1890		1900	NA
Selenium													NA	NA
Silver	0.45	B											1700	5500000
Sodium	142	B	192	B	177	B	352	B	482	B	228	B	240	NA
Thallium													460	NA
Tin	1.4	B			1.4	B	1.6	B	1.2	B	1	B	20	NA
Vanadium	13.8		14.6		23		20.5		12.7		18.5		25	7500
Zinc	57.2		59.1		63.6		73.2		50.9		51.1		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC A0J 000073		SGC A0J 000074		SGC A0J 000075		SGC A0J 000076		SGC A0J 000077		SGC A0J 000078		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	11800		9220		7660		7730		12700		5570		19000	NA
Antimony	0.77	B	0.25	B	0.26	B							NA	425
Arsenic	5		2	B	4.7		2	B	2.8		3	B	8.6	320
Barium	66.7		49.9		45.4	B	53		85.8		38.7	B	180	75000
Beryllium	0.41	B	0.49		0.47		0.43		0.42				1.3	0.7
Bismuth									1	B			NA	NA
Cadmium	4.6								6.3		2.1		2.1	1050
Calcium	45800		99300		102000		88100		174000		143000		310000	NA
Chromium	13.4		13.3		11.4		12.2		17		9.2		20	1050000
Cobalt	9.9	B	8	B	8	B	6.8	B	11.1	B	4.1	B	19	NA
Copper	23.5		14.6		17.2		13.9		22.4		10.5		26	NA
Cyanide													ND	21400
Iron	21900		17600		16400		16700		28700		9480		35000	NA
Lead	26		19.9		12		8.2		8.8		5.6		48	NA
Lithium	15.8	B	19.9	B	15.2	B	13.1	B	22.9	B	5.6	B	26	NA
Magnesium	14500		33900		33000		32300		37500		47400		40000	NA
Manganese	508		411		481		437		598		372		1400	135000
Mercury			0.09	B			0.29						NC	320
Molybdenum	1.6	B	0.86	B	1.2	B	2.3	B	2.8	B	1.6	B	27	NA
Nickel	18.7		17.8		17.7		16.6		26		8.9	B	32	21500
Potassium	1600		1760		1430		1290		1420		678	B	1900	NA
Selenium													NA	NA
Silver													1700	5500000
Sodium	171	B	182	B	164	B	236	B	1450	B	415	B	240	NA
Thallium													460	NA
Tin	2.3	B	1.3	B	0.94	B	0.99	B	1.8	B	0.88	B	20	NA
Vanadium	24.1		16.4		15.8		18.5		24.2		12.6		25	7500
Zinc	67.6		58.8		60.7		48		75.2		38.7		140	320000

Table III.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC A03 000079		SGC A03 000080		SGC A03 000081		SGC A03 000082		SGC A03 000083		SGC A03 000084		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	4090		7450		4850		2070		3710		8760		19000	NA
Antimony	0.93	B							0.39	B	0.4	B	NA	425
Arsenic	5.5		3.3		4.5		3.6	B	4.5		6.8		8.6	320
Barium	34.4	BJ	21	B	34.9	B	26.9	B	29.6	B	72.6		180	75000
Beryllium	0.13	B	0.16	B	0.16	B			0.13	B	0.45	B	1.3	0.7
Bismuth													NA	NA
Cadmium					0.28	B	0.21	B	0.17	B			2.1	1050
Calcium	126000		133000		132000		164000		144000		61300		310000	NA
Chromium	7.3	J	10.4		7.9		6		6		14		20	1050000
Cobalt	6.8	B	7.7	B	5.1	B	2.1	B	4.7	B	9	B	19	NA
Copper	15	J	11.2		13.6		6.1		12.1		20.1		26	NA
Cyanide			0.58	B							0.59	B	ND	21400
Iron	13400	J	20400		12900		6180		8960		22500		35000	NA
Lead	9.4	J	9.6		7.8		6.8		14.3		8.1		48	NA
Lithium	13.6	B	26.6		8.6	B	4.7	B	5.3	B	12.3	B	26	NA
Magnesium	49400	J	25300		47500		85100		86000		20100		40000	NA
Manganese	340	J	445		305		279		267		466		1400	135000
Mercury					0.06	B							NC	320
Molybdenum	2.1	B			1.9	B	1.4	B	2.2	B	2.7	B	27	NA
Nickel	17.1		17		13.2		6.1	B	8.4	B	22.5		32	21500
Potassium	829	B	1400		674	B	306	B	476	B	742	B	1900	NA
Selenium													NA	NA
Silver											0.46	B	1700	5500000
Sodium	171	BJ	347	B	218	B	464	B	318	B	124	B	240	NA
Thallium													460	NA
Tin	3.7	B	0.98	B							1.4	B	20	NA
Vanadium	10.8	J	8.8	B	10.9		8		11.6		22.1		25	7500
Zinc	43.6	J	39.6		43.2		27		58.6		53.9		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC A03 000085		SGC A03 000086		SGC A03 000087		SGC A21 000088		SGC A21 000089		SGC A21 000090		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	5830		7860		3670		11100		14800		16500		19000	NA
Antimony							0.65	B					NA	425
Arsenic	3.6		7.7		3.8	B	3.7	J	3.4		3.5		8.6	320
Barium	39.7	B	68		30.4	B	95.5		77.3		128		180	75000
Beryllium	0.32		0.41	B	0.12	B	0.81		0.42		0.88		1.3	0.7
Bismuth											1.0	B	NA	NA
Cadmium					0.1	B			6.1		7.1		2.1	1050
Calcium	169000		62400		135000		6570	J	92800		7820		310000	NA
Chromium	10.8		14.4		4.7		15.6		17.8		20.6		20	1050000
Cobalt	6.5	B	8.2	B	3.1	B	12.9		12.0	B	13.4		19	NA
Copper	11.9		18.5		5.8		14.1		16.7		21.7		26	NA
Cyanide			0.58	B									ND	21400
Iron	15500		18600		6540		25600		29300		33200		35000	NA
Lead	12.4		12		7		21.3	J	16.9		35.4		48	NA
Lithium	19	B	13.9	B	11.8	B	8.7	B	15.4	B	18.5	B	26	NA
Magnesium	39900		12700		27700		2510		3530		3830		40000	NA
Manganese	430		594		289		804	J	649		982		1400	135000
Mercury							0.06	BJ	0.07	B	0.10	B	NC	320
Molybdenum	1.3	B	1.8	B	0.68	B	1.7	B	1.9	B	1.4	B	27	NA
Nickel	14.6		17.3		6.6	B	17.9		20.4		28.5		32	21500
Potassium	1150		1080	B	503	B	1060	B	1170	B	2420	B	1900	NA
Selenium													NA	NA
Silver					0.22	B							1700	5500000
Sodium	355	B	142	B	282	B	95.6	BJ	121	B	95.4	B	240	NA
Thallium					0.84	B							460	NA
Tin									2.0	B	2.4	B	20	NA
Vanadium	9.8		20.8		5.8		23.6		29.3		32.0		25	7500
Zinc	37.8		53		18		55.4		75.4		101		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC A22 000091		SGC A22 000092		SGC A22 000093		SGC A22 000094		SGC A22 000095		SGC A22 000096		Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)														
Aluminum	5800		13700		8520		8970		13100		16400		19000	NA
Antimony			0.48	BJ					0.52	BJ			NA	425
Arsenic	0.80	B	5.4		1.0	B	4.2		5.5	J	1.1	B	8.6	320
Barium	35.3	B	102		64.2		55.0		75.1		86.0		180	75000
Beryllium	0.05	B	0.40		0.20	B	0.09	B	0.90		0.48		1.3	0.7
Bismuth							0.98	B					NA	NA
Cadmium	3.1		6.1		3.8		3.6				5.2		2.1	1050
Calcium	217000		188000		160000		124000		4190	J	137000		310000	NA
Chromium	7.1		16.8		10.5		13.8		20.2		17.2		20	1050000
Cobalt	5.6	B	11.0	B	6.0	B	6.7	B	13.0		9.6	B	19	NA
Copper	8.6		20.1		10.8		17.8		22.4		16.8		26	NA
Cyanide													ND	21400
Iron	14500		27100		16900		15900		32000		29400		35000	NA
Lead	7.6		10.4		5.5		20.4		17.6	J	8.5		48	NA
Lithium	18.0	B	19.5	B	14.4	B	13.0	B	8.7	B	22.8	B	26	NA
Magnesium	13600		33000		24700		72600		2940		5320		40000	NA
Manganese	347		788		402		503		600	J	553		1400	135000
Mercury							0.08	B	0.08	BJ			NC	320
Molybdenum	0.22	B	1.7	B	0.91	B	2.0	B	2.4	B	1.3	B	27	NA
Nickel	12.6		27.9		15.4		12.0		26.0		22.6		32	21500
Potassium	831	B	1190	B	873	B	852	B	820	B	1510		1900	NA
Selenium													NA	NA
Silver													1700	5500000
Sodium	163	B	319	B	212	B	276	B	1760	J	667	B	240	NA
Thallium													460	NA
Tin			1.4	B	0.67	B	1.7	B	1.2	B	1.2	B	20	NA
Vanadium	6.7		25.7		16.9		21.1		34.8		23.7		25	7500
Zinc	63.5		69.6		61.7		58.7		74.8		53.7		140	320000

Table A.4. Soil Gas Confirmation Detected TAL Inorganics (cont.)

ANALYTE	SGC A22 000097		SGC A22 000098		SGC A22 000101		SGC A22 000102				Background	10^{-6} Construction Worker Guidelines
INORGANICS (mg/kg)												
Aluminum	3100		11500		8360		8960				19000	NA
Antimony	0.25	B									NA	425
Arsenic	8.6		3.6	B	2.9		5.4				8.6	320
Barium	24.4	B	16	B	28.1	B	47.9	B			180	75000
Beryllium	0.17	B	0.57		0.4		0.45				1.3	0.7
Bismuth			1.2	B							NA	NA
Cadmium	0.16	B			0.23	B					2.1	1050
Calcium	164000		89400		89500		95900				310000	NA
Chromium	9.4		16.4		30.9		12.2				20	1050000
Cobalt	3.6	B	14.8		8.6	B	7.8	B			19	NA
Copper	15.4		19.3		44.2		12.8				26	NA
Cyanide											ND	21400
Iron	9690		27200		20400		18100				35000	NA
Lead	11.1		5.8		12.7		14.2				48	NA
Lithium	11	B	39.3		26.8		20.8	B			26	NA
Magnesium	58600		24600		26200		16400				40000	NA
Manganese	319		768		451		472				1400	135000
Mercury	0.06	B			0.44						NC	320
Molybdenum	0.97	B			1	B	0.53	B			27	NA
Nickel	9.4		28.2		20.5		17.7				32	21500
Potassium	562	B	1120	B	1600		1360				1900	NA
Selenium											NA	NA
Silver	1	B			0.25	B					1700	5500000
Sodium	212	B	276	B	440	B	149	B			240	NA
Thallium											460	NA
Tin											20	NA
Vanadium	7.4		14.7		12.5		13.5				25	7500
Zinc	66.7		59.2		590		47.1				140	320000

J - Numerical value is an estimated quantity
NA - Value not available
ND - No detections in background samples
B - Analyte detected below CRDL but above instrument detection limit
NC - Background value not computed
mg/kg - milligrams per kilogram

Table A.5. Soil Gas Confirmation Detected Nitrate-Nitrite

ANALYTE	SGC NAC 000001	SGC NAC 000002	SGC NAC 000003	SGC NAC 000004	SGC NAC 000005	SGC NAC 000006	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	83.9	93.8	88.5	83.3	78.4	75.0	NA	NA
Nitrate/Nitrite (MG-N/KG)	2.0	1.8	1.2	2.1	7.2	4.8	26	NA

ANALYTE	SGC NAC 000007	SGC NAC 000008	SGC NAC 000009	SGC NAC 000010	SGC NAC 000011	SGC NAC 000012	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	83.9	95.0	78.9	83.9	90.1	84.7	NA	NA
Nitrate/Nitrite (MG-N/KG)	1.6	26.5	2.2	5.9	5.3	1.8	26	NA

ANALYTE	SGC NAC 000013	SGC NAC 000014	SGC NAC 000015	SGC NAC 000016	SGC NAC 000017	SGC SAN 000018	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	81.7	80.9	74.0	85.3	72.8	84.2	NA	NA
Nitrate/Nitrite (MG-N/KG)	2.1	4.9	3.0	2.4	6.4	13.7	26	NA

ANALYTE	SGC NAC 000019	SGC NAC 000020	SGC NAC 000021	SGC NAC 000022	SGC NAC 000023	SGC NAC 000024	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	85.3	87.6	77.4	78.3	77.5	89.5	NA	NA
Nitrate/Nitrite (MG-N/KG)	6.5	2.1	6.1	2.2	11.6	2.2	26	NA

Table A.5. Soil Gas Confirmation Detected Nitrate-Nitrite (cont.)

ANALYTE	SGC NAC 000025	SGC NAC 000026	SGC NAC 000027	SGC NAC 000028	SGC NAC 000029	SGC NAC 000030	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	89.3	85.7	85.3	82.0	84.8	89.8	NA	NA
Nitrate/Nitrite (MG-N/KG)	2.0	3.4	2.6	3.6	3.5	3.7	26	NA

ANALYTE	SGC NAC 000031	SGC NAC 000032	SGC NAC 000033	SGC NAC 000034	SGC NAC 000035	SGC NAC 000036	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	87.0	81.2	84.4	88.1	84.6	81.2	NA	NA
Nitrate/Nitrite (MG-N/KG)	4.8	4.2	1.1	3.7	3.5	2.2	26	NA

ANALYTE	SGC NAC 000037	SGC NAC 000038	SGC NAC 000039	SGC A66 000040	SGC A66 000041	SGC A61 000042	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	75.3	84.6	81.8	84.4	89.4	83.6	NA	NA
Nitrate/Nitrite (MG-N/KG)	1.7	2.4	1.4	3.9	2.0	1.4	26	NA

ANALYTE	SGC A61 000043	SGC A61 000044	SGC A61 000045	SGC A61 000046	SGC A61 000047	SGC A61 000048	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	94.8	96.2	93.0	81.8	85.6	94.8	NA	NA
Nitrate/Nitrite (MG-N/KG)	0.84	0.58	2.1	1.6	7.9	1.6	26	NA

Table A.5. Soil Gas Confirmation Detected Nitrate-Nitrite (cont.)

ANALYTE	SGC A61 000049	SGC A61 000050	SGC A61 000051	SGC A61 000052	SGC A61 000053	SGC A61 000054	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	86.3	85.0	82.6	83.0	85.3	84.6	NA	NA
Nitrate/Nitrite (MG-N/KG)	1.5	1.8	1.6	4.6	2.3	2.6	26	NA

ANALYTE	SGC A61 000055	SGC A13 000056	SGC A13 000057	SGC A13 000058	SGC A13 000059	SGC A13 000060	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	77.3	95.3	88.9	93.7	92.8	91.0	NA	NA
Nitrate/Nitrite (MG-N/KG)	2.1	1.9	3.8	1.9	3.3	2.4	26	NA

ANALYTE	SGC A13 000061	SGC AOJ 000062	SGC AOJ 000063	SGC AOJ 000064	SGC AOJ 000065	SGC AOJ 000066	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	90.5	86.6	94.9	91.2	85.5	86.5	NA	NA
Nitrate/Nitrite (MG-N/KG)	2.2	6.2	2.2	1.2	4.2	3.4	26	NA

ANALYTE	SGC AOJ 000067	SGC AOJ 000068	SGC AOJ 000069	SGC AOJ 000070	SGC AOJ 000071	SGC AOJ 000072	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	80.7	84.0	82.0	88.2	86.1	87.6	NA	NA
Nitrate/Nitrite (MG-N/KG)	9.3	1.7	3.2	2.0	2.7	6.3	26	NA

Table A.5. Soil Gas Confirmation Detected Nitrate-Nitrite (cont.)

ANALYTE	SGC AOJ 000073	SGC AOJ 000074	SGC AOJ 000075	SGC AOJ 000076	SGC AOJ 000077	SGC AOJ 000078	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	94.0	88.5	85.3	86.8	85.8	89.4	NA	NA
Nitrate/Nitrite (MG-N/KG)	2.3	1.8	3.5	2.2	0.64	2.9	26	NA

ANALYTE	SGC AO3 000079	SGC AO3 000080	SGC AO3 000081	SGC AO3 000082	SGC AO3 000083	SGC AO3 000084	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	88.1	86.6	90.2	92.3	82.0	84.9	NA	NA
Nitrate/Nitrite (MG-N/KG)	2.2	3.7	2.2	1.4	1.6	13.1	26	NA

ANALYTE	SGC AO3 000085	SGC AO3 000086	SGC AO3 000087	SGC A21 000088	SGC A21 000089	SGC A21 000090	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	88.8	86.0	87.9	79.9	83.2	78.5	NA	NA
Nitrate/Nitrite (MG-N/KG)	6.8	8.6	0.93	3.4	1.9	5.2	26	NA

ANALYTE	SGC A22 000091	SGC A22 000092	SGC A22 000093	SGC A22 000094	SGC A22 000095	SGC A22 000096	Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	90.3	83.3	89.3	85.7	80.0	84.7	NA	NA
Nitrate/Nitrite (MG-N/KG)	2.0	2.8	4.4	3.1	3.3	4.0	26	NA

Table A.5. Soil Gas Confirmation Detected Nitrate-Nitrite (cont.)

ANALYTE	SGC SDB 000097	SGC SDB 000098	SGC SDB 000101	SGC SDB 000102			Background	10^{-6} Construction Worker Guidelines
GENERAL ANALYTES								
% Solids (%)	94.3	88.6	86.7	81.1			NA	NA
Nitrate/Nitrite (MG-N/KG)	2.7	0.94	1.9	3.0			26	NA

NA - Data not available
MG-N/KG - milligrams per kilogram, reported as nitrogen

Table A.6. Soil Gas Confirmation Detected Radionuclides

ANALYTE	SGC NAC 000001	SGC NAC 000002	SGC NAC 000003	SGC NAC 000004	SGC NAC 000005	SGC NAC 000006	SGC NAC 000007	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241								ND	4.95
Bismuth-207								ND	0.175
Bismuth-210								ND	NA
Cesium-137						0.861		0.42	0.46
Cobalt-60								NC	0.1
Plutonium-238	1.42	0.0690	0.833	0.0870	0.543	4.32	0.537	0.13	5.5
Plutonium-239/240			0.0252					0.18	5.5
Potassium-40	21.7	2.95	6.53	27.4	15.1	14.3	10.8	37	NA
Radium-226	1.03	0.478	0.508	1.16	1.22	0.870	0.537	2	0.14
Thorium-228	1.52	0.277	0.370	1.24	1.05	1.06	0.431	1.5	0.85
Thorium-230	0.814	0.374	0.621	0.980	1.19	1.18	0.582	1.9	44
Thorium-232	1.30	0.184	0.315	1.17	0.950	1.18	0.328	1.4	50
Uranium-234	2.19	0.401	0.419	0.934	0.874	0.761	0.551	1.1	37.5
Uranium-235	0.0974		0.0400	0.0349	0.0328			0.11	3.35
Uranium-238	2.35	0.392	0.512	0.918	0.913	0.815	0.574	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC NAC 000008	SGC NAC 000009	SGC NAC 000010	SGC NAC 000011	SGC NAC 000012	SGC NAC 000013	SGC NAC 000014	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241					-0.238	0.0694		ND	4.95
Bismuth-207					0.0292	-0.0304		ND	0.175
Bismuth-210					0.0355	0.0297		ND	NA
Cesium-137					0.0371	0.0175	0.826	0.42	0.46
Cobalt-60					0.0547	-0.0280		NC	0.1
Plutonium-238	0.0826	0.0233	0.107	0.0718	0.101	0.0107	0.671	0.13	5.5
Plutonium-239/240					0.00154	-0.000127	0.0206	0.18	5.5
Potassium-40	7.72	12.9	15.0	17.8	15.5	4.65	22.5	37	NA
Radium-226	0.571	0.764	0.917	0.778	0.592	0.263	1.10	2	0.14
Thorium-228	0.678	0.779	0.914	0.913	0.697	0.247	1.18	1.5	0.85
Thorium-230	0.541	1.09	1.27	0.902	0.803	0.359	1.09	1.9	44
Thorium-232	0.554	0.838	0.708	0.830	0.769	0.210	1.08	1.4	50
Uranium-234	0.361	0.712	0.897	0.882	0.693	0.378	0.866	1.1	37.5
Uranium-235			0.0459		0.0231	0.0183	0.0548	0.11	3.35
Uranium-238	0.414	0.774	1.06	0.871	0.681	0.424	1.01	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC NAC 000015	SGC NAC 000016	SGC NAC 000017	SGC SAN 000018	SGC NAC 000019	SGC NAC 000020	SGC NAC 000021	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241		0.162						ND	4.95
Bismuth-207		0.0183						ND	0.175
Bismuth-210		-0.00477						ND	NA
Cesium-137		0.0763	0.582				0.193	0.42	0.46
Cobalt-60		0.0142						NC	0.1
Plutonium-238	0.0118	0.253	0.200	0.684	0.121	0.721	0.772	0.13	5.5
Plutonium-239/240		0.00413	0.0166	0.00487			0.00579	0.18	5.5
Potassium-40	19.2	15.2	29.1	10.1	7.90	24.7	41.8	37	NA
Radium-226	1.40	0.934	0.960	0.677	0.528	0.841	1.03	2	0.14
Thorium-228	1.37	1.04	1.10	0.465	0.378	0.892	1.19	1.5	0.85
Thorium-230	1.48	1.36	1.01	0.582	0.749	1.08	0.701	1.9	44
Thorium-232	1.43	0.894	1.26	0.508	0.375	0.843	0.970	1.4	50
Uranium-234	1.01	0.765	0.698	0.523	0.440	0.751	0.861	1.1	37.5
Uranium-235	0.0927	0.0394	0.0403			0.0362	0.0374	0.11	3.35
Uranium-238	0.955	0.993	0.852	0.496	0.691	0.825	0.822	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC NAC 000022	SGC NAC 000023	SGC NAC 000024	SGC NAC 000025	SGC NAC 000026	SGC NAC 000027	SGC NAC 000028	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241			0.106	-0.110		0.141		ND	4.95
Bismuth-207			0.0167	0.00702		0.0261		ND	0.175
Bismuth-210			-0.0163	-0.0258		0.00683		ND	NA
Cesium-137		0.423	0.383	0.0521	0.401	0.150	0.280	0.42	0.46
Cobalt-60			-0.0131	0.0974		-0.0218		NC	0.1
Plutonium-238	0.0368	0.119	0.523	0.288	0.150	0.259	0.116	0.13	5.5
Plutonium-239/240		0.0162	0.0142	0.00665	0.00705	0.00159	0.00773	0.18	5.5
Potassium-40	17.6	36.6	12.0	18.1	25.7	21.7	24.2	37	NA
Radium-226	1.36	0.987	0.714	1.22	1.00	1.50	0.805	2	0.14
Thorium-228	0.766	1.32	0.775	1.16	0.911	0.986	0.665	1.5	0.85
Thorium-230	1.66	1.08	0.988	1.49	1.20	1.57	0.611	1.9	44
Thorium-232	0.782	1.18	0.938	1.00	0.966	0.915	0.567	1.4	50
Uranium-234	1.14	0.955	0.718	1.07	0.775	1.07	0.435	1.1	37.5
Uranium-235	0.0253		0.0276	0.0467	0.0463	0.0592		0.11	3.35
Uranium-238	1.28	1.10	0.839	1.14	0.862	0.869	0.508	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC NAC 000029	SGC NAC 000030	SGC NAC 000031	SGC NAC 000032	SGC NAC 000033	SGC NAC 000034	SGC NAC 000035	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241						0.00933		ND	4.95
Bismuth-207						0.0191		ND	0.175
Bismuth-210						0.0168		ND	NA
Cesium-137	0.493		0.393		0.602	-0.00785		0.42	0.46
Cobalt-60						-0.0628		NC	0.1
Plutonium-238	0.151	1.38	0.586	29.1	0.109	0.574	0.0569	0.13	5.5
Plutonium-239/240	0.0107		0.00822	0.0744	0.0143	0.00369		0.18	5.5
Potassium-40	29.1	3.23	12.2	21.3	31.4	16.5	24.8	37	NA
Radium-226	0.932		1.35	0.901	1.30	0.872	0.800	2	0.14
Thorium-228	1.31	0.0928	0.792	0.977	1.11	0.884	1.07	1.5	0.85
Thorium-230	0.843	0.140	1.48	0.848	0.907	1.34	0.881	1.9	44
Thorium-232	1.11	0.110	0.823	1.08	0.963	0.963	1.03	1.4	50
Uranium-234	0.774	0.171	0.811	0.738	0.796	0.977	0.827	1.1	37.5
Uranium-235	0.0418		0.0340		0.0550	0.0563	0.0267	0.11	3.35
Uranium-238	0.968	0.0922	0.936	0.851	0.938	0.978	0.768	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC NAC 000036	SGC NAC 000037	SGC NAC 000038	SGC NAC 000039	SGC A66 000040	SGC A66 000041	SGC A61 000042	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241								ND	4.95
Bismuth-207								ND	0.175
Bismuth-210								ND	NA
Cesium-137		0.305	0.600				0.201	0.42	0.46
Cobalt-60								NC	0.1
Plutonium-238	0.195	1.53	0.0754	0.144	0.264	0.0496	0.937	0.13	5.5
Plutonium-239/240		0.00848	0.00898					0.18	5.5
Potassium-40	18.7	19.8	17.7	24.4	9.55	18.2	7.05	37	NA
Radium-226	1.26	1.29	0.983	1.06	0.432	0.834	0.635	2	0.14
Thorium-228	1.50	1.08	1.05	0.987	0.319	0.755	1.01	1.5	0.85
Thorium-230	1.27	1.12	1.23	1.24	0.416	1.10	0.578	1.9	44
Thorium-232	1.50	1.06	1.01	1.08	0.380	0.873	1.11	1.4	50
Uranium-234	1.02	1.02	0.999	0.853	0.477	0.811	0.417	1.1	37.5
Uranium-235	0.0656	0.0504	0.0493	0.0316				0.11	3.35
Uranium-238	1.05	1.15	1.13	1.02	0.444	0.918	0.602	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC A61 000043	SGC A61 000044	SGC A61 000045	SGC A61 000046	SGC A61 000047	SGC A61 000048	SGC A61 000049	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES									
Americium-241								ND	4.95
Bismuth-207								ND	0.175
Bismuth-210								ND	NA
Cesium-137								0.42	0.46
Cobalt-60								NC	0.1
Plutonium-238	0.104	0.109	0.0344	0.173	0.0549	0.00517	0.0318	0.13	5.5
Plutonium-239/240		0.00343						0.18	5.5
Potassium-40	10.9	12.9	4.87	20.9	18.0	2.93	3.55	37	NA
Radium-226	0.640	0.964	0.660	0.690	0.727	0.325	0.549	2	0.14
Thorium-228	0.681	0.634	0.196	0.786	0.790	0.116	0.204	1.5	0.85
Thorium-230	0.791	1.10	0.689	0.729	0.729	0.249	0.426	1.9	44
Thorium-232	0.592	0.593	0.287	0.883	0.627	0.114	0.158	1.4	50
Uranium-234	0.581	0.682	0.892	0.707	0.705	0.201	0.357	1.1	37.5
Uranium-235	0.0440	0.0417		0.0475	0.0240			0.11	3.35
Uranium-238	0.606	0.876	0.605	0.870	0.853	0.160	0.302	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC A61 000050	SGC A61 000051	SGC A61 000052	SGC A61 000053	SGC NAC 000054	SGC A61 000055	SGC A13 000056	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241								ND	4.95
Bismuth-207								ND	0.175
Bismuth-210								ND	NA
Cesium-137		0.718						0.42	0.46
Cobalt-60								NC	0.1
Plutonium-238	0.138	2.25	0.0678	0.756	0.147	0.215	0.0451	0.13	5.5
Plutonium-239/240		0.0221	0.00605	0.00562	0.00291			0.18	5.5
Potassium-40	23.2	20.2	30.2	9.48	22.0	18.6	9.27	37	NA
Radium-226	0.794	1.01	0.810	0.532	0.629	1.02		2	0.14
Thorium-228	0.796	0.928	0.879	0.419	0.948	1.35	0.283	1.5	0.85
Thorium-230	0.763	0.833	0.835	0.594	0.867	1.14	0.606	1.9	44
Thorium-232	0.835	0.718	0.976	0.0346	0.896	1.16	0.384	1.4	50
Uranium-234	0.723	0.675	0.653	0.467	0.645	1.02	0.374	1.1	37.5
Uranium-235		0.0565			0.0541	0.0428		0.11	3.35
Uranium-238	0.885	0.734	0.648	0.387	0.816	1.02	0.576	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC A13 000057	SGC A13 000058	SGC A13 000059	SGC A13 000060	SGC A13 000061	SGC AOJ 000062	SGC AOJ 000063	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241								ND	4.95
Bismuth-207								ND	0.175
Bismuth-210								ND	NA
Cesium-137	0.169							0.42	0.46
Cobalt-60								NC	0.1
Plutonium-238	1.79	0.102	0.0392	0.370	0.0845	0.258	1.33	0.13	5.5
Plutonium-239/240	0.0388					0.00226	0.0208	0.18	5.5
Potassium-40	18.1	6.93	12.6	9.18	7.99	7.38	5.18	37	NA
Radium-226	0.695	0.600	0.982	0.649	0.584	0.492	0.574	2	0.14
Thorium-228	0.983	0.260	0.667	0.494	0.332	0.250	0.440	1.5	0.85
Thorium-230	0.982	0.735	0.984	0.698	0.758	0.618	0.525	1.9	44
Thorium-232	0.755	0.151	0.663	0.529	0.347	0.316	0.437	1.4	50
Uranium-234	0.771	0.619	0.723	0.493	0.461	0.640	0.612	1.1	37.5
Uranium-235	0.0422							0.11	3.35
Uranium-238	0.772	0.737	0.784	0.649	0.564	0.623	0.713	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC AOJ 000064	SGC AOJ 000065	SGC AOJ 000066	SGC AOJ 000067	SGC AOJ 000068	SGC AOJ 000069	SGC AOJ 000070	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241							-0.0282	ND	4.95
Bismuth-207							0.0169	ND	0.175
Bismuth-210							0.0209	ND	NA
Cesium-137							0.0486	0.42	0.46
Cobalt-60							0.0266	NC	0.1
Plutonium-238	0.0526	2.06	3.28	28.1	6.27	0.272	7.57	0.13	5.5
Plutonium-239/240		0.00570	0.00978	0.0975	0.0210		0.0666	0.18	5.5
Potassium-40	2.65	17.7	6.12	15.0	14.4	25.9	14.4	37	NA
Radium-226		0.892	0.443	0.971	0.996	0.713	0.842	2	0.14
Thorium-228	0.0957	0.703	0.341	0.904	0.721	1.07	0.870	1.5	0.85
Thorium-230	0.194	0.921	0.359	1.00	1.04	0.950	1.07	1.9	44
Thorium-232	0.104	0.667	0.252	0.885	0.566	1.05	0.786	1.4	50
Uranium-234	0.222	0.882	0.270	0.617	0.762	0.690	0.659	1.1	37.5
Uranium-235					0.0322		0.0259	0.11	3.35
Uranium-238	0.253	0.787	0.258	0.881	0.822	0.765	0.827	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC AOJ 000071	SGC AOJ 000072	SGC AOJ 000073	SGC AOJ 000074	SGC AOJ 000075	SGC AOJ 000076	SGC AOJ 000077	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241							0.109	ND	4.95
Bismuth-207							0.0348	ND	0.175
Bismuth-210							0.0285	ND	NA
Cesium-137							0.0351	0.42	0.46
Cobalt-60							0.0864	NC	0.1
Plutonium-238	4.00	0.131	4.52	0.0909	0.261	0.0855	0.834	0.13	5.5
Plutonium-239/240	0.0183	0.00359	0.0165		0.00519	0.00207	0.00205	0.18	5.5
Potassium-40	19.9	32.3	17.6	15.8	14.7	16.7	15.2	37	NA
Radium-226	0.842	0.797	0.668	0.630	0.985	0.658	0.861	2	0.14
Thorium-228	0.616	1.05	0.827	0.503	0.773		0.846	1.5	0.85
Thorium-230	1.15	0.771	0.928	0.595	0.890	1.18	1.14	1.9	44
Thorium-232	0.815	1.11	0.572	0.466	0.743	0.744	0.770	1.4	50
Uranium-234	0.613	0.890	0.606	0.537	0.713	0.814	0.679	1.1	37.5
Uranium-235			0.0375	0.0391	0.0244	0.0345	0.0399	0.11	3.35
Uranium-238	0.592	1.05	0.712	0.512	0.920	0.914	0.842	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC AOJ 000078	SGC AO3 000079	SGC AO3 000080	SGC AO3 000081	SGC AO3 000082	SGC AO3 000083	SGC AO3 000084	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241								ND	4.95
Bismuth-207								ND	0.175
Bismuth-210								ND	NA
Cesium-137	0.0687	0.244						0.42	0.46
Cobalt-60								NC	0.1
Plutonium-238	1.06	1.84	0.0388	0.219	0.0390	0.0969	0.0456	0.13	5.5
Plutonium-239/240	0.00383	0.0107		0.0121				0.18	5.5
Potassium-40	21.5	14.8	10.1	8.51	12.4	3.49	4.46	37	NA
Radium-226	0.765	0.879	0.519	0.692	0.498	0.341	0.372	2	0.14
Thorium-228	1.21	0.515	0.343	0.464	0.647	0.133	0.690	1.5	0.85
Thorium-230	0.837	1.01	0.630	0.768	0.618	0.346	0.513	1.9	44
Thorium-232	1.07	0.716	0.304	0.445	0.659	0.114	0.438	1.4	50
Uranium-234	0.702	0.819	0.523	0.616	0.578	0.319	0.546	1.1	37.5
Uranium-235	0.0361	0.0393				0.0246		0.11	3.35
Uranium-238	0.718	0.912	0.605	0.584	0.551	0.289	0.579	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC AO3 000085	SGC AO3 000086	SGC AO3 000087	SGC A21 000088	SGC A21 000089	SGC A212 000090	SGC A22 000091	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241								ND	4.95
Bismuth-207								ND	0.175
Bismuth-210								ND	NA
Cesium-137			0.333	0.691	0.589	0.563		0.42	0.46
Cobalt-60								NC	0.1
Plutonium-238	0.118	3.11	0.914	0.508	0.444	0.284	0.449	0.13	5.5
Plutonium-239/240		0.00943	0.0111	0.0216	0.0132	0.00901	0.00434	0.18	5.5
Potassium-40	8.21	15.9	6.28	23.3	17.5	26.6	21.2	37	NA
Radium-226	0.552	1.02	0.478	1.26	1.03	1.14	1.31	2	0.14
Thorium-228	1.18	0.773	0.350	0.954	0.855	1.27	1.13	1.5	0.85
Thorium-230	0.575	1.07	0.653	1.30	1.20	1.16	1.50	1.9	44
Thorium-232	0.890	0.806	0.455	1.01	0.826	1.07	1.10	1.4	50
Uranium-234	0.536	0.799	0.572	0.860	0.767	0.790	1.19	1.1	37.5
Uranium-235	0.0371	0.0617			0.0591		0.0472	0.11	3.35
Uranium-238	0.666	0.966	0.596	0.897	0.803	1.16	1.22	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC A22 000092	SGC A22 000093	SGC A22 000094	SGC A22 000095	SGC A22 000096	SGC SDB 000097	SGC SDB 000098	Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241						0.521		ND	4.95
Bismuth-207								ND	0.175
Bismuth-210								ND	NA
Cesium-137	0.207			0.131				0.42	0.46
Cobalt-60								NC	0.1
Plutonium-238	13.2	0.465	23.5	11.0	0.614	27.5	0.501	0.13	5.5
Plutonium-239/240	0.0624	0.00367	0.0820	0.0405		0.0977		0.18	5.5
Potassium-40	14.6	16.6	12.0	7.18	3.76	14.0	19.8	37	NA
Radium-226	0.742	1.27	1.00	0.559	0.362	0.626	0.485	2	0.14
Thorium-228	0.746	1.02	0.591	0.556	0.254	0.704	0.789	1.5	0.85
Thorium-230	1.28	1.63	1.23	0.705	0.214	0.767	0.640	1.9	44
Thorium-232	0.846	1.08	0.527	0.567	0.214	0.622	0.601	1.4	50
Uranium-234	0.925	0.931	0.590	0.375	0.381	0.570	0.500	1.1	37.5
Uranium-235		0.0524	0.0460			0.0350	0.0519	0.11	3.35
Uranium-238	1.00	0.967	0.882	0.408	0.333	0.591	0.651	1.2	11

Table A.6. Soil Gas Confirmation Detected Radionuclides (cont.)

ANALYTE	SGC SDB 000101	SGC SDB 000102						Background	10^{-6} Construction Worker Guidelines
RADIONUCLIDES (pCi/g)									
Americium-241	1.39							ND	4.95
Bismuth-207								ND	0.175
Bismuth-210								ND	NA
Cesium-137								0.42	0.46
Cobalt-60								NC	0.1
Plutonium-238	118.0	2.11						0.13	5.5
Plutonium-239/240	0.364	0.0121						0.18	5.5
Potassium-40	7.86	16.8						37	NA
Radium-226	0.552	0.661						2	0.14
Thorium-228	0.295	0.695						1.5	0.85
Thorium-230	0.232	0.808						1.9	44
Thorium-232	0.167	0.668						1.4	50
Uranium-234	0.904	0.617						1.1	37.5
Uranium-235		0.0293						0.11	3.35
Uranium-238	0.511	0.642						1.2	11

ND - No detections in background samples
NA - Data not available
NC - Background value not computed
pCi/g - picocuries per gram

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.)

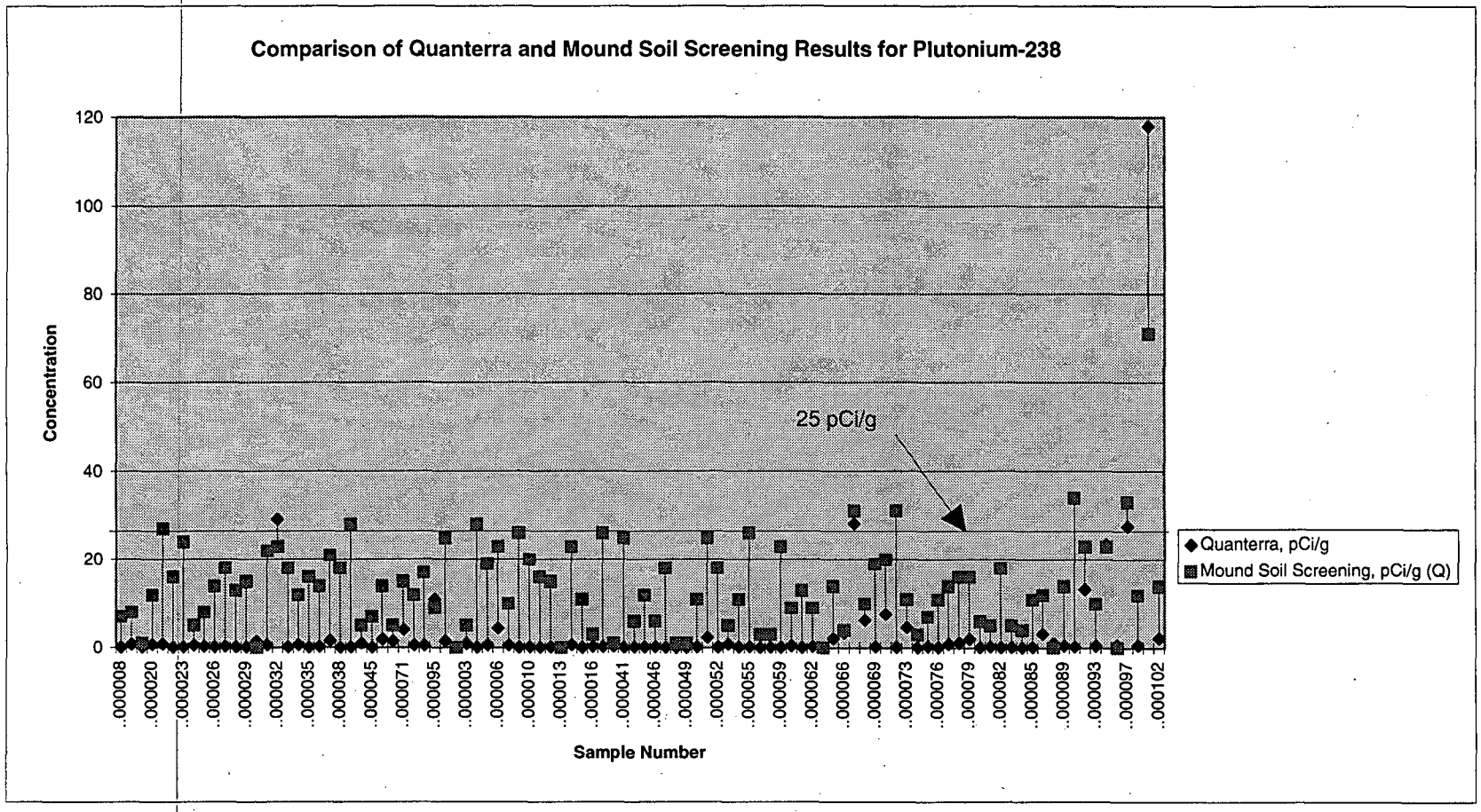
Sample No.	Isotope	Quanterra Results pCi/g	Mound Screening Laboratory Results pCi/g
SGC-A61-000043	Pu-238	0.104	6
	Th-232	0.592	0.7
SGC-A61-000044	Pu-238	0.109	12
	Th-232	0.593	0.6
SGC-A61-000046	Pu-238	0.173	6
	Th-232	0.883	0.9
SGC-A61-000047	Pu-238	0.0549	18
	Th-232	0.627	0.7
SGC-A61-000048	Pu-238	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


Comparison of Quanterra and Mound Soil Screening Results for Plutonium-238
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80
60
40
20
0
25 pCi/g
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..000023
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..000082
..000085
..000089
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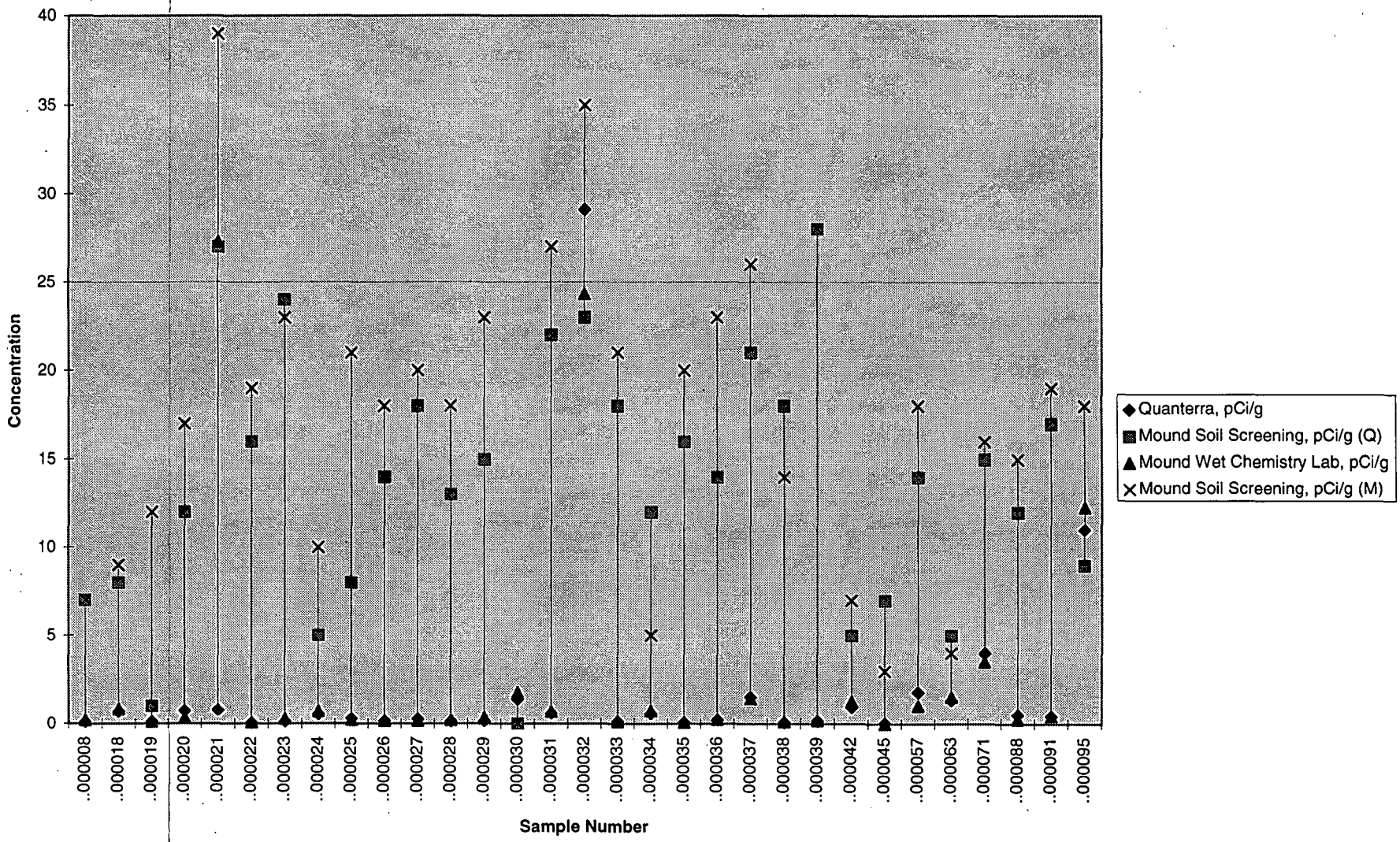
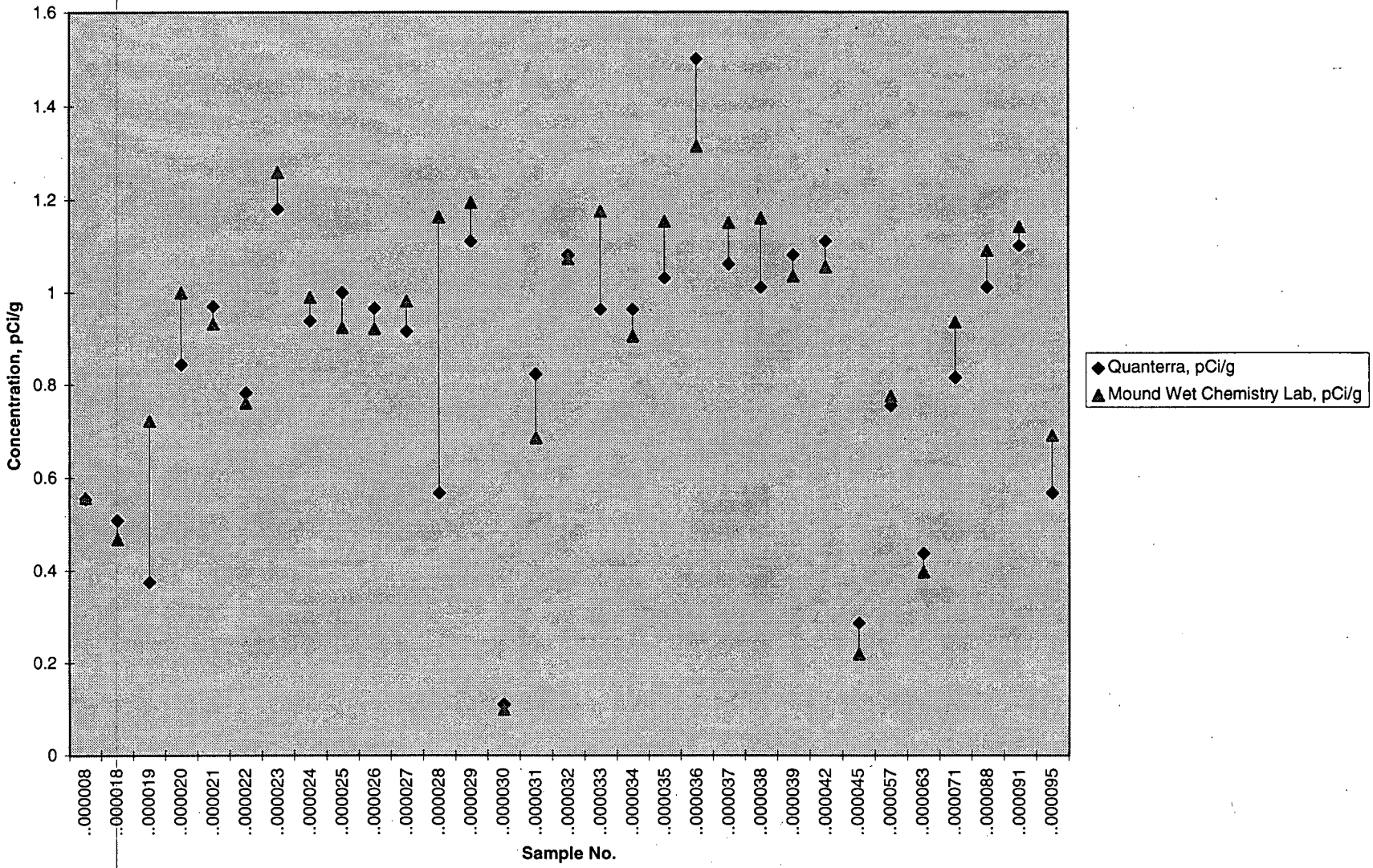
..000102
Quanterra, pCi/g
Mound Soil Screening, pCi/g (Q)

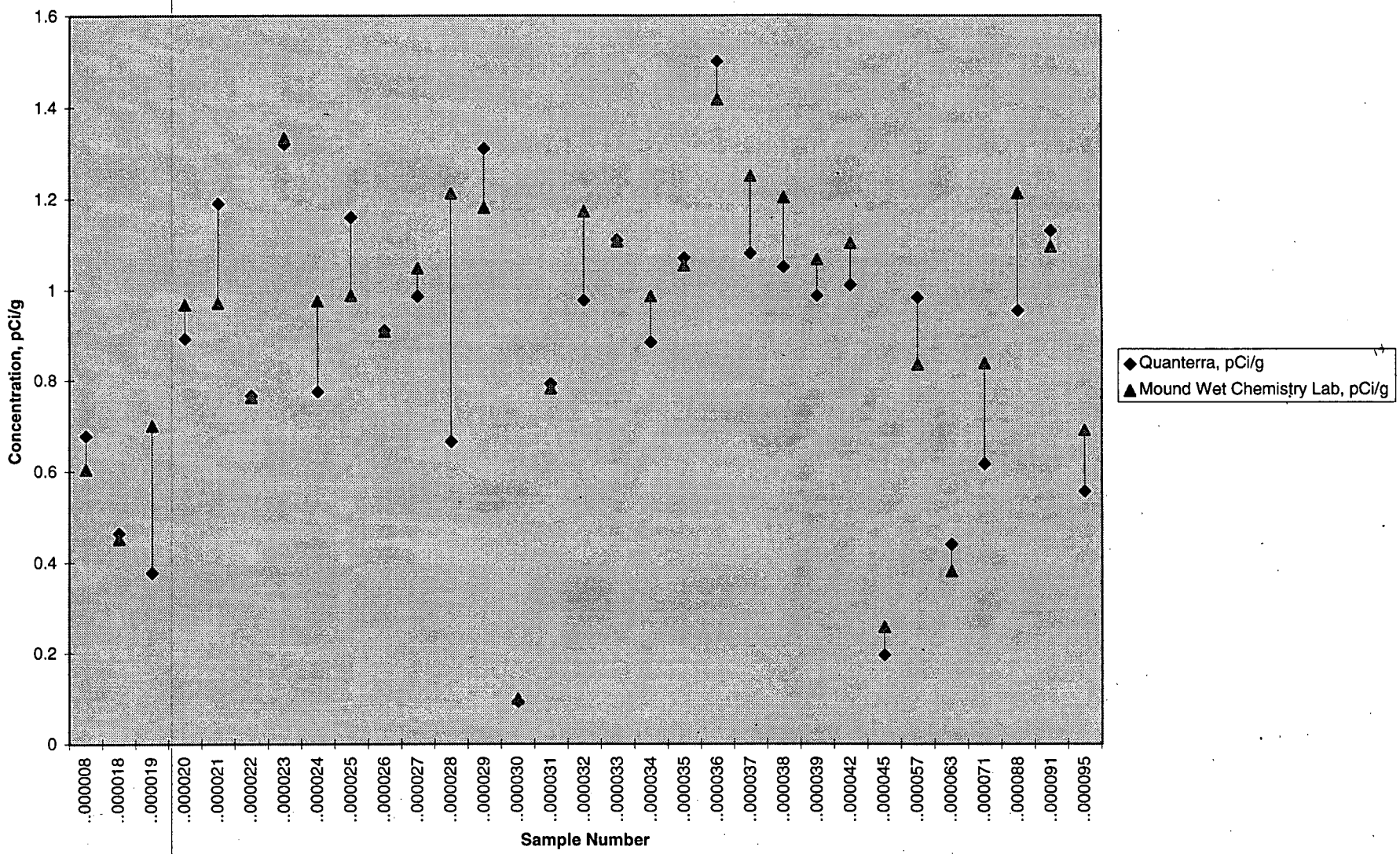
Interlaboratory Comparison of Plutonium-238 Results



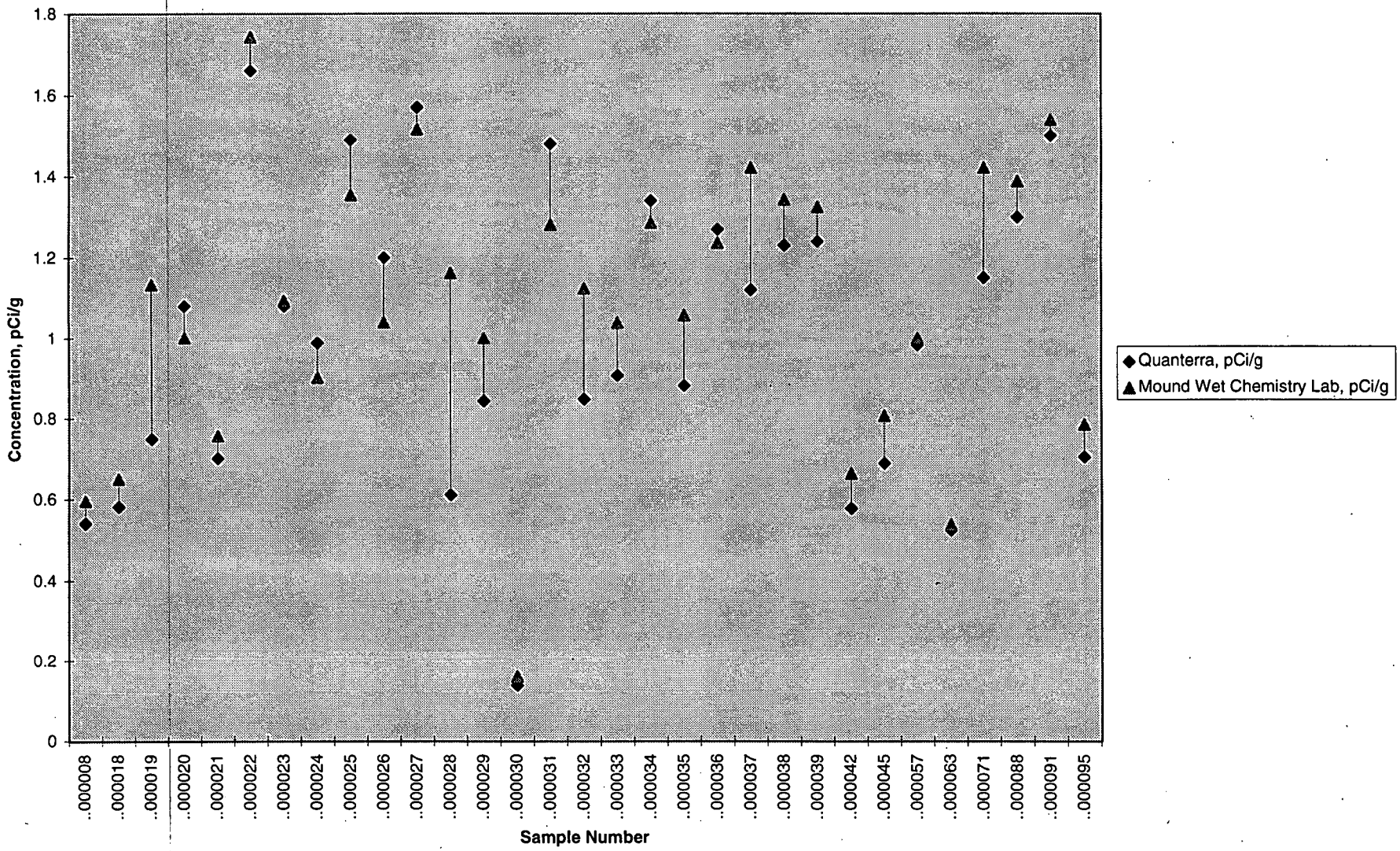
Interlaboratory Comparison of Thorium-232 Results



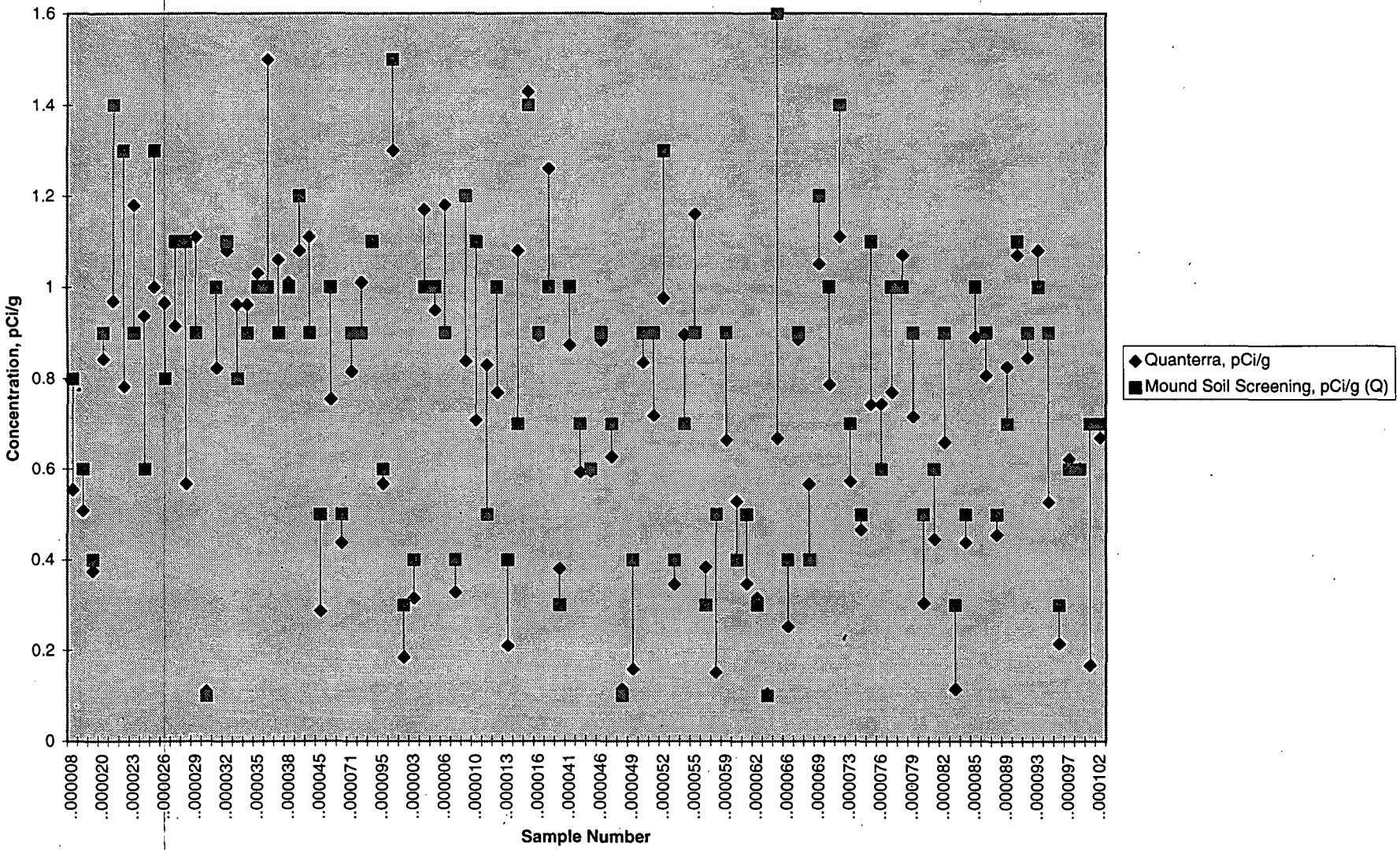
Interlaboratory Comparison of Thorium-228 Results



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

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Soil Gas Confirmation Sampling
Sampling Location Coordinates and Sample Numbers

Area	OU5 Point Number		Coordinates (1983 NAD) Easting	Northing	Sample Number Prefix	Serial
	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
	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**

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Soil Gas Confirmation Sampling
Sampling Location Coordinates and Sample Numbers

Area	OU5 Point Number		Coordinates (1983 NAD) Easting	Northing	Sample Number Prefix	Serial
	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-	000099
	10	F	1464290.15	597850.91	SGC-SDB-	000100

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

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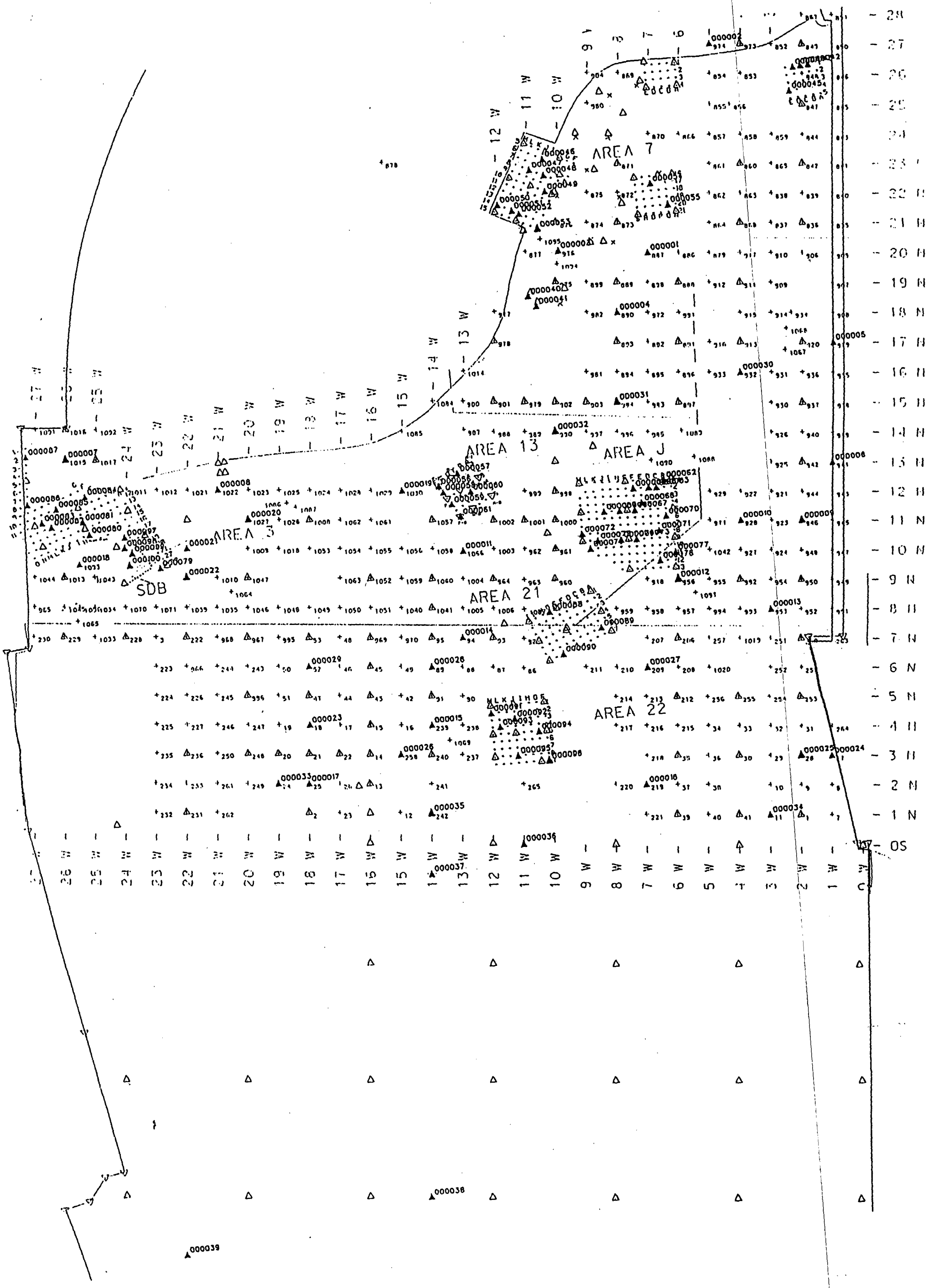

Figure 1.1. Locations of soil sampling sites.