590108-0605040015

CH2M HILL Mound, Inc.
1075 Mound Road
P.O. Box 750
Miamisburg, OH 45343-0750

CH2MHILL

SMO-082/06
February 1, 2006

Mr. Don Pfister, Director
Miamisburg Closure Project
U. S. Department of Energy
175 Tri-County Parkway
Springdale, OH 45246

ATTENTION: Paul Lucas

SUBJECT: **Contract No. DE-AC24-03OH20152:** Deliverable #39 Potential release site and removal action documentation; Section C.2.3.1.3 Remaining Response Actions; UGL Partial I OSC Report, Final

Dear Mr. Pfister:

Attached is the following Final document for your records:

- UGL Partial I OSC Report, Final

If you or members of your staff have any questions regarding the document, or if additional support is needed, please contact Dave Rakel at 937-865-4203.

Sincerely,

Michael D. Ebben
Site Manager

JL/jg

Enclosures

cc: T. Fischer, USEPA, (1) w/attachments
B. Nickel, OEPA, (1) w/attachments
R. Vandegrift, ODH, (1) w/attachments
J. Webb, ODH, (1) w/attachments
M. Wojciechowski, Tetra Tech, (1) w/attach
G. Gorsuch, DOE/MCP, (1) w/attachments
R. Tormey, DOE/OH, (1) w/attachments
G. Desai, DOE/HQ, (1) w/attachments
R. Ransbottom, CH2M Hill, (1) w/attachments
C. Kline, CH2M Hill, (1) w/attachments
F. Bullock, MMCIC (2) w/attachments
Public Reading Room (1) w/attachments
Admin Records, CH2M Hill, (2) w/attachs
ER Records, CH2M Hill, (1) w/attachs
DCC (1) w/attachments
M. Ebben, CH2M Hill, w/o attachments
K. Armstrong, CH2M Hill, w/o attachments
D. Rakel, CH2M Hill, w/o attachments
D. Kramer, CH2M Hill, w/o attachments
J. Fontaine, CH2M Hill, w/o attachments
MOAT Coordinator, CH2M Hill, w/o attachs
S. Barr, CH2M Hill, w/o attachments
M. McDougal, CH2M Hill, w/o attachments
file, CH2M Hill, w/o attachments

UGL PARTIAL I OSC REPORT

REMOVAL ACTION OF SOIL & UNDERGROUND WASTE TRANSFER LINES LEADING TO WD BUILDING

This Report Closes PRSs 423, 424, and 426

January 2006

Final

Department of Energy
Miamisburg Closure Project

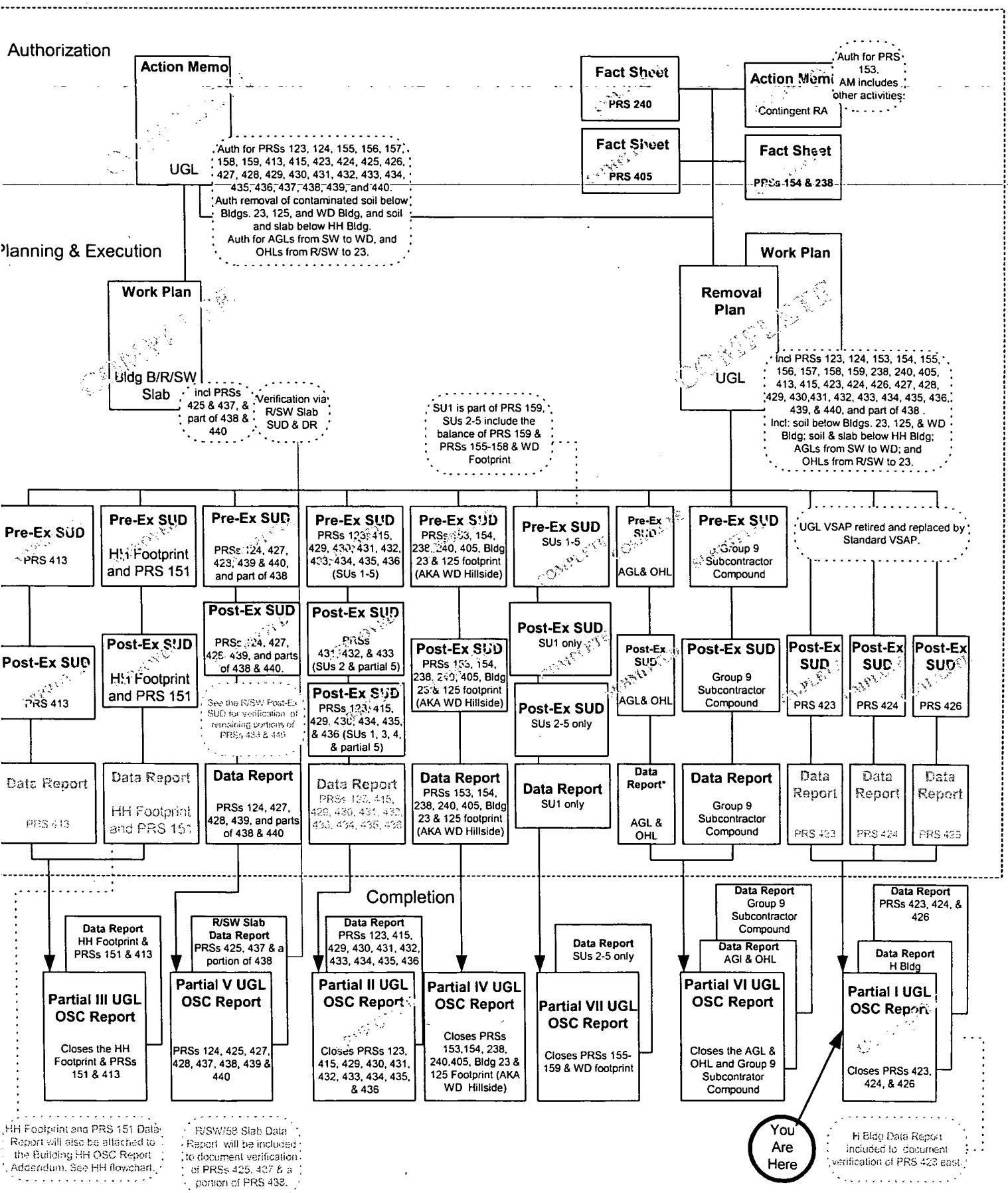
CH2MHILL

K:\SHARED\ER\All UGLs\Partial I PRS 431-433\PRS 423-424-426 Partial I\UGL Partial OSC 423-424-426 Final 01-26-06.doc
01/26/06 @ 1:39 PM

UGL (Underground Waste Transfer Lines) (AKA Group 9):

PRSs 123, 124, 153, 154, 155, 156, 157, 158, 159, 238, 240, 405, 413, 415, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, and 440

Includes soil below Bldgs 23, 125, HH, and WD.



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Acronyms

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CO	cleanup objective
COC	contaminant of concern
DCE	cis-, 1,2, dichloroethene
DOE	Department of Energy
FOSRA	Fuel Oil Storage Removal Action
HI	hazard index
MCL	maximum contaminant level
MCP	Miamisburg Closure Project
MEIMS	Mound Environmental Information Management System
mg/kg	milligrams per kilogram
N	Number of calculated MARSSIM samples
OEPA	Ohio Environmental Protection Agency
OSC	On-Scene Coordinator
PCE	tetrachloroethene
pCi/g	Picocuries per gram
PQL	Practical Quantitation Limits
PRS	Potential Release Site
RA	Removal Action
RCRA	Resource Conservation and Recovery Act
SUD	Survey Unit Design
SSL	Soil Screening Level
TCE	trichloroethene
TPH-DRO	Total Petroleum Hydrocarbons – Diesel Range Organics
TSD	treatment, storage, and disposal
USEPA	United States Environmental Protection Agency
VC	vinyl chloride
VOC	volatile organic compound

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RECOMMENDATION

This Removal Action (RA) removed the underground waste transfer lines (UGLs) that previously transferred waste to WD Building from H, R, and SW Buildings. The UGLs included the Potential Release Sites (PRSs) 423, 424, and 426.

Per the associated Action Memorandum (UGL Action Memo, Removal Action of Soil & Underground Waste Transfer Lines Leading to WD Building, authorized August 11, 2003, Final, September 2003), the contaminated lines and soil associated with PRSs 423, 424, and 426 were excavated. Verification sampling was performed in accordance with the PRS 423, 424, and 426 Removal Action Post-Excavation Survey Unit Designs (SUDs). This portion of the RA was successfully completed and resulted in the excavation and disposal of approximately 709 cubic yards of soil from May 2004 to July 2004. The material was shipped via rail to Envirocare in Utah for disposition. The contaminants of concern (COCs) for the UGL RA and associated cleanup objectives (COs) that apply to PRSs 423, 424, and 426 were Actinium-227+D at 4.6 pCi/g, Americium-241 at 63 pCi/g, Cesium-137+D at 3.8 pCi/g, Cobalt-60 at 0.7 pCi/g, Plutonium-238 at 55 pCi/g, Radium-226+D at 2.9 pCi/g, Thorium-230+D at 2.8 pCi/g, and Th-232+D at 2.1 pCi/g. All final verification results for this portion of the UGL RA were below the COs.

After a thorough review of this partial UGL On-Scene Coordinator (OSC) Report, the Core Team agrees that the Removal Action for PRSs 423, 424, and 426 is complete, and that all previously existing environmental issues associated with the UGL Removal Action for PRSs 423, 424, and 426 have been resolved.

Paul Lucas 9/27/05

Paul Lucas, OSC
U.S. Department of Energy
Springdale, Ohio

Timothy J. Fischer 9/27/05

Timothy J. Fischer, Remedial Project Manager
USEPA
Chicago, Illinois

Brian K. Nickel 9/27/05

Brian K. Nickel, Project Manager
OEPA
Dayton, Ohio

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1.0 SUMMARY OF EVENTS

This section describes the site background and events leading up to the Removal Action (RA), parties involved in responding to the RA, COC determination, chronological narrative of the RA, and resources committed to complete the project.

1.1 Site Conditions and Background

Background. The locations of the UGL PRSs 423, 424, and 426 are highlighted in gray on Figure A1 of Appendix A. Other PRSs not included in this partial OSC Report, but associated with the UGL RA, are also shown.

The UGL RA was authorized by the Core Team (August 11, 2003), as documented in the associated Action Memo (UGL Action Memo, Removal Action of Soil & Underground Waste Transfer Lines Leading to WD Building, Final, September 2003). The RA for PRS 153 was authorized by the associated Action Memo (Action Memorandum/Engineering Evaluation/Cost Analysis, Contingent Removal Action (CRA) for Contaminated Soil, June 2002, Final). The RA for PRSs 154 and 238 was authorized by Fact Sheet (PRS 154 and 238: Area 23 and Potential Hot Spot S1092, Final, October 2003). The RA for PRS 240 was authorized by Fact Sheet (PRS 240: Potential Hot Spot Location S0472, Final, October 2003). The RA for PRS 405 was authorized by Fact Sheet (PRS 405: Soil Contamination – Building 23, Final, March 2004).

The level of soil radiological and VOC contamination present warranted a RA under CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act). This OSC Report documents the completion of the RA activities authorized via the Action Memo for PRS 423, 424, and 426, including removal of soil contaminated above the CO. Verification sampling and analysis demonstrated that the remaining soil meets the Cleanup Criteria.

Removal Action. The UGLs were used to connect sumps and process lines from within T, R, SW, and H Buildings to the WD process treatment facility for treatment of generated radiologically contaminated liquid and sediment waste. See tables A1 through A4 in Appendix A for a listing of PRSs and Non-PRS RAs associated with these lines. PRSs 423, 424, and 426 lines were removed, soil was remediated, and the surface verified, as required, and are closed by this OSC Report.

1.2 Organization of the Removal Actions

Table 1 lists the parties responding to the removal action, and their responsibilities.

Table 1: Organization of the Removal Action

US Environmental Protection Agency SFR-5J 77 W. Jackson Street Chicago, IL 60604 312-353-2000	Timothy J. Fischer	Federal agency responsible for oversight
Ohio Environmental Protection Agency 401 E. Fifth Street Dayton, OH 45402-2911 937-285-6357	Brian K. Nickel	State agency responsible for oversight
Department of Energy, Miamisburg Closure Project 175 Tri-County Parkway Springdale, OH 45246 513-246-0071	Paul Lucas	On-scene Coordinator (OSC) responsible for oversight and success
CH2M HILL Mound, Inc., Environmental Restoration Project 1 Mound Road, P. O. Box 3030 Miamisburg, OH 45342-3030 937-608-8220	Jim Fontaine	Provide OSC with technical assistance, administrative support, field oversight, sample management, site safety, photo, site documentation, and preparation of the OSC Report

1.3 Objectives

Documentation Objective. The objectives of this OSC Report are to describe the RA fieldwork and document successful completion of the project. Material quantities and disposition locations are presented in Table 2. Because this is a partial OSC Report, complete costs are not available to report. Total project cost for the UGL Removal Action will be reported in the last of the OSC reports associated with the UGL Removal Action.

Table 2: Materials and Disposition

Type of Material	Date	Quantity	Disposal Method	Disposal Location
Contaminated soil and asphalt (waste code D043)	5-1-04 to 7-6-04	709 yd^3	Rail shipments to Envirocare	Clive, Utah

Cleanup Objective. Contaminants and COs identified in the UGL Action Memo, the CRA for PRS 153, and Fact Sheets for PRSs 154, 238, 240, and 405 are as follows:

Table 3: Soil Cleanup Objectives (pCi/g unless otherwise specified)

Contaminant (per PRS Package)	**Bkgd.**	**Screening Level**[(2)]	**Cleanup Objective**[(3)]	**PRSs**
Actinium-227 +D	0.11	0.56	4.6	154, 238, 423-428, 440
Americium-241	ND	6.3	63	423-428, 440
Beryllium (mg/kg)	1.3	43.4[(5)]	43.4[(5)]	437-439
Bismuth-207	ND	.16	1.6	440
Cesium-137 +D	0.42	.76	3.8	123, 423-436, 440

Contaminant (per PRS Package)	**Bkgd.**	**Screening Level**[2]	**Cleanup Objective**[3]	**PRSs**
Cobalt-60	NC	0.07	0.7	123, 423-436
Lead-210 +D	1.2	1.8	7.4	440
Plutonium-238	0.13	6.2	55[1]	123, 124, 153, 154, 240, 405, 415, 423-440
Plutonium-239/240	0.18	6.3	61.2	440
Protactinium-231 +D	0.11	0.5	4.1	440
Radium-226 +D	2.0	2.1	2.9	154, 238, 240, 423-428, 440
Strontium-90 +D	0.72	10.1	94.72	440
Thorium-228 +D	1.5	1.6	2.6	429-433, 440
Thorium-230 +D	1.9	2[6]	2.8	124, 153, 154, 238, 423-428, 440
Thorium-232 +D	1.4	1.5	2.1	123, 124, 153, 154, 238, 240, 405, 415, 423-440
Tritium	1.6	7582	See note (4)	437-440
Uranium-233 +D	NE	0.48	4.8	440
Uranium-234	1.1	11.6[7]	106.1	440
Uranium-238 +D	1.2	1.3	2.2	154, 238, 240, 440
Arsenic (mg/kg)	8.6	10.6	28.5	240
Ethyl benzene (mg/kg)	NE	0.48[5]	0.48[5]	413
Benzo(a)anthracene (mg/kg)	NE	4.10	41	413
Benzo(b)fluoranthene (mg/kg)	NE	4.10	41	413
Benzo(a)pyrene (mg/kg)	NE	0.41	4.1	413
Indene(1,2,3-c,d)pyrene (mg/kg)	NE	4.10	41	413
Dibenz(a,h)anthracene (mg/kg)	NE	0.41	4.1	413
TPH (ppm)	N/a	N/a	105	405

Radionuclides labeled with a "+D" indicate that pertinent daughters are included within the risk calculation.
ND – non detect NC – not calculated
NE – not evaluated as part of the OU9 Background Soils Investigation
(1) Value of 55 pCi/g was based on Core Team decision.
(2) more stringent of 10^{-6} RBGV + background or HI=1 value
(3) more stringent of 10^{-5} RBGV + background or HI=1 value

(4) The 10^{-6} RBGV is 7580 pCi/g. This value represents the cleanup objective for tritium in soil. A conservative model was developed to account for the potential for tritium in soil to "leach" to groundwater at unacceptable levels. The model used is described in draft information shared with Ohio EPA, i.e. Draft Soil Screening Level for Tritium Migration to Groundwater at the Mound Facility, facsimile dated 3 December 2002 (Darnell to Nickel). The resulting value of 75 pCi/g is comparable to a screening level that represents the activity of tritium in soil that, if transported via groundwater to the Buried Valley Aquifer (BVA), could pose unacceptable risk (exceed the MCL). If the 95% upper confidence limit (UCL) of the measurements of tritium in soil is less than the screening level of 75 pCi/g, removal is not required. If the 95% UCL is greater than 75 pCi/g, further evaluation is required.

(5) based on HI = 1

(6)In areas where Th-230 is not a contaminant of potential concern, Mound will use our normal sample analysis process through gamma spectroscopy and will assure that the result and MDA are less than 10pCi/g. If the detected value for Th-230 is greater than MDA, Mound will reanalyze the sample. If Th-230 is a contaminant of potential concern the detection limits of the analysis will be at or below the listed guideline value of 0.09 pCi/g above background.

(7)The screening level is reflective of onsite Gamma Spec Laboratory capabilities and will be used to determine if additional characterization or removal may be necessary. Soil Screening is not an appropriate technique for U-234. However, detection of U-235 or U-238 is anticipated in conjunction with U-234 contamination. Positive detection of either U-235 or U-238 (above guideline values) will trigger alpha spectroscopic analysis of the sample.

All final verification results (see Appendix A) for PRSs 423, 424, and 426 were below their respective CO.

Removal Action Objectives: The objectives of the removal action included:

- Project Planning,
- Public Notification,
- Establish Work Zones,
- Removal of UGLs and Soil,
- Verification/Confirmation,
- Site Restoration, and
- Documentation of Completion.

1.4 Chronological Narrative of the Removal Actions

The following is a chronological narrative of events involving the UGL RA for PRSs 423, 424, and 426:

Table 4: Chronology of RA

Timeframe	Activity
June 2003	PRS 423 East Removal Action (RA) authorized (as part of H Building RA)
July 2003	Work Plan approved for PRS 423 East (as part of H Bldg. Demo Work Plan)
September 2003	UGL RA authorized.
November 2003-August 2004	PRS 423 East soil RA activities, and verification sampling and analysis (as part of H Soils RA and verification).
April 2004	Work Plan approved for PRSs 423, 424, and 426.
May 2004 - June 2004	RA for PRSs 423, 424, and 426 performed.
September 2004	Post-Excavation SUD for PRSs 423, 424, and 426 approved.
September 2004	Verification sampling for PRSs 423, 424, and 426 performed.
October 2004	PRS 423, 424, and 426 Backfill Packages submitted to regulators.
November 2004	Backfill of PRSs 423, 424, and 426 performed.
July 2005	UGL Partial I OSC Report for PRSs 423, 424, and 426 issued.

2.0 EFFECTIVENESS OF THE REMOVAL ACTION

Verification sample results for the UGL RA for PRSs 423, 424, and 426 are presented in Appendix A. All results are below their respective COs. All results are below hot spot criteria.

2.1 Actions Taken by Site Contractor

CH2M Hill Mound, Inc. performed oversight, monitoring, validation, and documentation. Site restoration will be performed at a later date and will be documented in the last of the OSC reports associated with the UGL RA.

Photographic documentation is presented in Appendix C.

The project met the removal action objectives as outlined in the Core Team approved Action Memo (Final dated September 2003) and as performed per the Work Plan for Underground Lines and Soils Removal prepared by Earthline Technologies, Inc. Water runoff and run-on was controlled per the Erosion Control Plan for Underground and Soils Removal Project prepared by Earthline Technologies, Inc. CH2M Hill Mound, Inc. personnel prepared this OSC Report, which shows that the Removal Action objectives for PRSs 423, 424, and 426 were achieved, except for site restoration, which we be performed and documented at a later date.

2.2 Actions Taken by Local, State, and Federal Agencies

The Department of Energy (DOE)/MCP, the United States Environmental Protection Agency (USEPA), and Ohio EPA (OEPA) had oversight responsibility for the removal action. The DOE/MCP was the lead agency for the RA and provided the funding and oversight for the RA. The USEPA and OEPA had oversight responsibility for the RA and review of the Action Memorandum and OSC Report to ensure that the objectives were met.

2.3 Actions Taken by Subcontractors

Subcontractors involved in the project included the following:

- Earthline Technologies, Inc. (Ashtabula, OH) performed the excavation, staging (adjacent to dig site), and transportation of contaminated soil and debris to the onsite rail spur.
- Severn Trent (STL St. Louis) (St. Louis, MO) performed analysis of verification samples.
- Envirocare (Clive, UT) received contaminated waste.

3.0 DIFFICULTIES ENCOUNTERED

3.1 Items that Affect the Removal Actions

No difficulties were encountered during the removal.

3.2 Issues of Intergovernmental Coordination

All DOE/USEPA/OEPA interactions were good. The agencies were updated informally on a regular basis, and formally at monthly Core Team meetings. The Mound 2000 Process worked well.

4.0 RECOMMENDATIONS

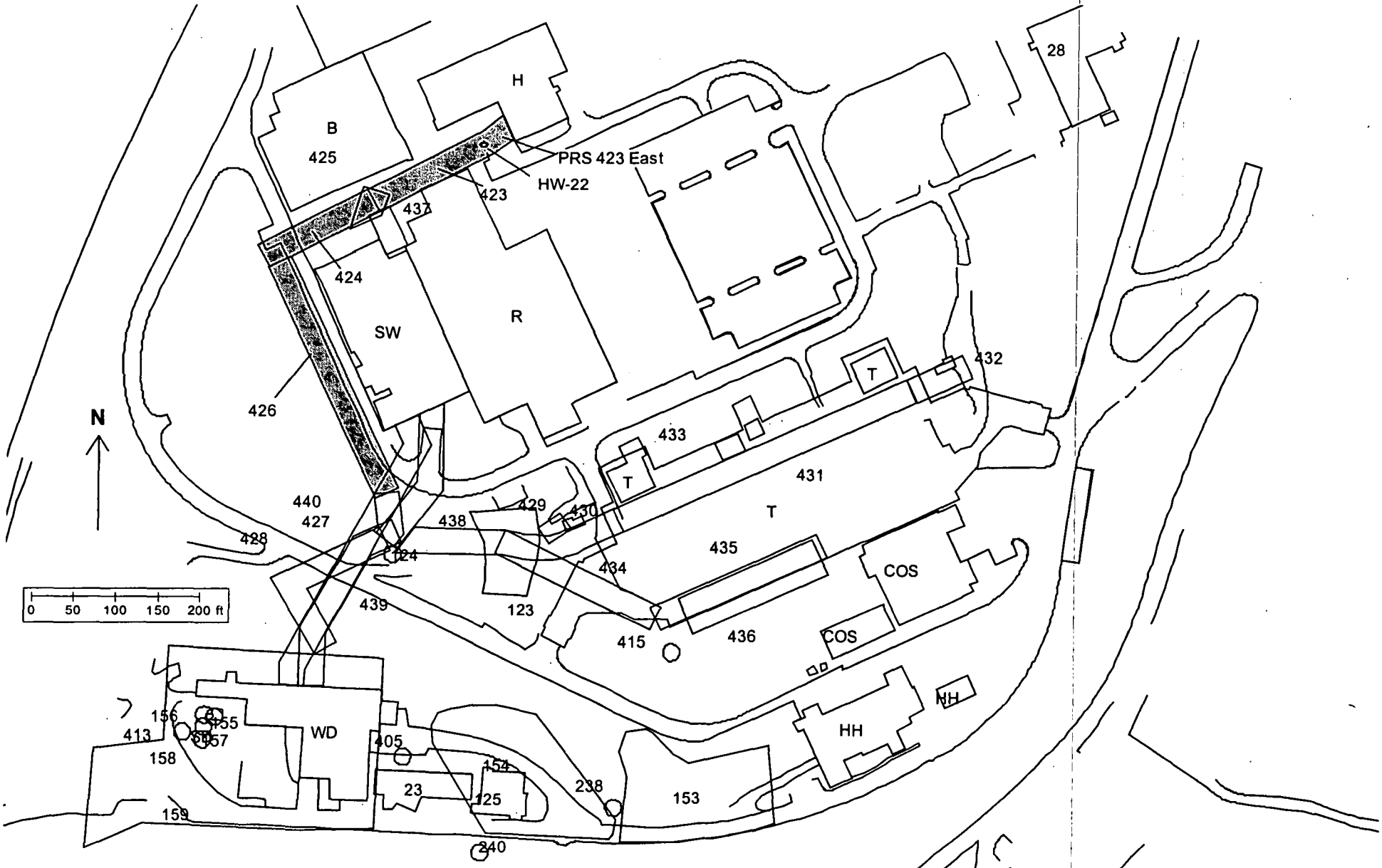
4.1 Means to Prevent a Recurrence

The waste and contaminated soil were removed. Mound Removal Actions (RA) have regulator approved work plans, each of which has a section that addresses run-on/runoff controls. In addition, the site Storm Water Pollution Prevention Plan applies to the entire site and is monitored by the Environmental Compliance and Analytical Services group.

As a result of the removal and runoff/runoff protection, spread of contamination is prevented. After the removal action is complete, the requirements of CERCLA 120(h) are met, and USEPA has given its approval, the area will be transferred from Federal to private ownership. All State and Federal disposal rules will apply.

APPENDIX A

PRS INFORMATION AND DATA REPORTS



A1/98

PRSs 423, 424, and 426 Locations

Figure A1

Table A1 – PRSs with RA & Sampling

PRS	Description
123	Area 5, radioactive waste line break
124	Building 48 hillside
415	Soil contamination – Radiological SCR 307
423*	Hot waste line, segment 1A
424*	Hot waste line, segment 1B
425	Hot waste line, segment 2
426*	Hot waste line, segment 5
427	Hot waste line, segment 6
428	Hot waste line, segment 7
429	Hot waste line, segment 9
430	Hot waste line, segment 9b
431	Hot waste line, segment 10
432	Hot waste line, segment 11
433	Hot waste line, segment 12
434	Hot waste line, segment 13A
435	Hot waste line, segment 13B
436	Hot waste line, segment 14
437	Hot waste line, segment 3
438	Hot waste line, segment 4
439	Hot waste line, segment 4A
440	Hot waste line, segment 8
	Note: This AM includes removal of other waste lines that may be identified during the course of the UGL RAs. *PRSs 423, 424, and 426 are the only PRSs included in this partial OSC Report.

Table A2 – PRSs with Sampling Only (Removal Previously Performed)

Description/Comment
Old sanitary disposal (SD) plant (aka Old Sanitary Wastewater treatment Plant) / Removed 1997
Old SD Plant Tank (Tank 205) / Removed 1997
Old SD Plant Tank (Tank 206) / Removed 1997
Old SD Plant Tank (Tank 207) / Removed 1997
Area 4A, Sewage Sludge Drying Pits / Removed 1997
Soil Contamination – Creosote / Removed 1996
*removal of soil occurred previously but verification sampling was incomplete

Table A3 – Non-PRS RA & Sampling

Bldg.	Description
WD	soil only, verification
HH	soil & concrete slab, confirmation
23	soil only, confirmation
125	soil only, confirmation
SW-WD AGLs	Ground level lines (abandoned) (see Figure 1)
R-SW to 23 area AGLs	Overhead line suspended from stanchion to be removed with Bldgs 23/125 demolition activities.

FROM: ACTION MEMORANDUM, ENGINEERING EVALUATION/COST ANALYSIS, UGL ACTION MEMO,REMOVAL ACTION OF SOIL & UNDERGROUND WASTE TRANSFER LINES LEADING TO WD BUILDING, September 2003, Final

Table A4 – Associated PRSs in CRA and Fact Sheets

PRS	Description
153	Area 20, Radioactive Waste Line Break
154	Area 23, Th Contaminated Soils
238	Potential Hot Spot Location S1092
240	Potential Hot Spot Location S0472
405	Building 23 Oil Contaminated Soil

FROM: Action Memorandum/Engineering Evaluation/Cost Analysis, Contingent Removal Action (CRA) for Contaminated Soil, June 2002, Final; Fact Sheet, PRS 154 and 238: Area 23 and Potential Hot Spot S1092, Final, October 2003; Fact Sheet, PRS 240: Potential Hot Spot Location S0472, Final, October 2003; Fact Sheet, PRS 405: Soil Contamination – Building 23, Final, March 2004.

PRS 423 VERIFICATION DATA

AND

BACKFILL REPORT

Notes :

The backfill report was previously submitted to the regulators in September 2004. It is presented here for reference purposes only.

The data report for the H Building Soils RA is presented because it contains verification data for PRS 423 East, which was removed east of manhole HW-22 as part of the H Building demolition. (See Figure 1 map). This data report also was previously submitted to the regulators in August 2004 and is presented here for reference purposes only.

PRS 423 Verification Sampling Results

Date Collected	Sample Id*	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	Depth Units	X Coord	Y Coord
09/01/2004	423-B-010	Actinium-227	0.500000	PCI/G	4.64	PCI/G	0.50	U		NA	1464701.687	599120.193
09/01/2004	423-NS-015	Actinium-227	0.480000	PCI/G	4.64	PCI/G	0.48	U		NA	1464747.651	599141.826
09/01/2004	423-NS-014	Actinium-227	0.470000	PCI/G	4.64	PCI/G	0.47	U		NA	1464770.585	599153.914
09/01/2004	423-SS-019	Actinium-227	0.430000	PCI/G	4.64	PCI/G	0.43	U		NA	1464687.007	599115.675
09/01/2004	423-SS-025	Actinium-227	0.410000	PCI/G	4.64	PCI/G	0.41	U		NA	1464790.715	599170.073
09/01/2004	423-B-001	Actinium-227	0.400000	PCI/G	4.64	PCI/G	0.40	U		NA	1464820.532	599183.563
09/01/2004	423-B-002	Actinium-227	0.400000	PCI/G	4.64	PCI/G	0.40	U		NA	1464807.517	599176.308
09/01/2004	423-B-004	Actinium-227	0.400000	PCI/G	4.64	PCI/G	0.40	U		NA	1464780.206	599162.013
09/01/2004	423-B-009	Actinium-227	0.400000	PCI/G	4.64	PCI/G	0.40	U		NA	1464714.702	599127.021
09/01/2004	423-NS-017	Actinium-227	0.370000	PCI/G	4.64	PCI/G	0.37	U		NA	1464701.681	599117.602
09/01/2004	423-SS-021	Actinium-227	0.370000	PCI/G	4.64	PCI/G	0.37	U		NA	1464721.819	599133.858
09/01/2004	423-SS-023	Actinium-227	0.370000	PCI/G	4.64	PCI/G	0.37	U		NA	1464732.344	599133.827
09/01/2004	423-NS-013	Actinium-227	0.360000	PCI/G	4.64	PCI/G	0.36	U		NA	1464793.522	599166.124
09/01/2004	423-NS-016	Actinium-227	0.340000	PCI/G	4.64	PCI/G	0.34	U		NA	1464724.618	599129.77
09/01/2004	423-GN-028	Actinium-227	0.340000	PCI/G	4.64	PCI/G	0.34	U		NA	1464732.297	599141.184
09/01/2004	423-GN-029	Actinium-227	0.330000	PCI/G	4.64	PCI/G	0.33	U		NA	1464744.781	599145.985
09/01/2004	423-B-005	Actinium-227	0.320000	PCI/G	4.64	PCI/G	0.32	U		NA	1464767.617	599155.185
09/01/2004	423-B-008	Actinium-227	0.320000	PCI/G	4.64	PCI/G	0.32	U		NA	1464727.504	599133.422
09/01/2004	423-GN-027FD	Actinium-227	0.310000	PCI/G	4.64	PCI/G	0.31	U		NA	1464717.297	599141.184
09/01/2004	423-B-007	Actinium-227	0.300000	PCI/G	4.64	PCI/G	0.30	U		NA	1464740.733	599140.889
09/01/2004	423-B-011	Actinium-227	0.290000	PCI/G	4.64	PCI/G	0.29	U		NA	1464689.525	599113.792
09/01/2004	423-NS-018	Actinium-227	0.290000	PCI/G	4.64	PCI/G	0.29	U		NA	1464689.965	599111.41
09/01/2004	423-SS-026	Actinium-227	0.290000	PCI/G	4.64	PCI/G	0.29	U		NA	1464813.55	599182.206
09/01/2004	423-B-012	Actinium-227	0.270000	PCI/G	4.64	PCI/G	0.27	U		NA	1464680.563	599109.311
09/01/2004	423-SS-022	Actinium-227	0.270000	PCI/G	4.64	PCI/G	0.27	U		NA	1464744.781	599145.985
09/01/2004	423-SS-024	Actinium-227	0.270000	PCI/G	4.64	PCI/G	0.27	U		NA	1464767.707	599158.049
09/01/2004	423-GN-027	Actinium-227	0.260000	PCI/G	4.64	PCI/G	0.26	U		NA	1464717.297	599141.184
09/01/2004	423-B-006	Actinium-227	0.250000	PCI/G	4.64	PCI/G	0.25	U		NA	1464753.748	599147.717
09/01/2004	423-B-003	Actinium-227	0.240000	PCI/G	4.64	PCI/G	0.24	U		NA	1464793.861	599169.267
09/01/2004	423-SS-020	Actinium-227	0.240000	PCI/G	4.64	PCI/G	0.24	U		NA	1464698.798	599121.806
09/01/2004	423-SS-026FD	Actinium-227	0.240000	PCI/G	4.64	PCI/G	0.24	U		NA	1464813.55	599182.206
09/01/2004	423-NS-012	Actinium-227	0.230000	PCI/G	4.64	PCI/G	0.23	U		NA	1464816.573	599178.169
09/01/2004	423-GN-030	Actinium-227	0.210000	PCI/G	4.64	PCI/G	0.21	U		NA	1464754.797	599154.174
09/01/2004	423-NS-016	Actinium-228	0.640000	PCI/G	1.93	PCI/G	0.31			NA	1464724.618	599129.77
09/01/2004	423-B-004	Actinium-228	0.590000	PCI/G	1.93	PCI/G	0.27			NA	1464780.206	599162.013
09/01/2004	423-SS-023	Actinium-228	0.580000	PCI/G	1.93	PCI/G	0.24			NA	1464732.344	599133.827
09/01/2004	423-B-008	Actinium-228	0.500000	PCI/G	1.93	PCI/G	0.23			NA	1464727.504	599133.422
09/01/2004	423-SS-021	Actinium-228	0.440000	PCI/G	1.93	PCI/G	0.29			NA	1464721.819	599133.858
09/01/2004	423-B-005	Actinium-228	0.400000	PCI/G	1.93	PCI/G	0.27			NA	1464767.617	599155.185
09/01/2004	423-NS-014	Actinium-228	0.360000	PCI/G	1.93	PCI/G	0.32			NA	1464770.585	599153.914
09/01/2004	423-SS-020	Actinium-228	0.300000	PCI/G	1.93	PCI/G	0.21			NA	1464698.798	599121.806
09/01/2004	423-B-001	Americium-241	0.220000	PCI/G	63.1	PCI/G	0.22	U		NA	1464820.532	599183.563
09/01/2004	423-B-004	Americium-241	0.180000	PCI/G	63.1	PCI/G	0.18	U		NA	1464780.206	599162.013
09/01/2004	423-NS-014	Americium-241	0.180000	PCI/G	63.1	PCI/G	0.18	U		NA	1464770.585	599153.914

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*Due to space limitations, the letter "V" , as designated in SUD, was stripped from sample labels to facilitate input into MEIMS

PRS 423 Verification Sampling Results

Date Collected	Sample Id*	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	Depth Units	X Coord	Y Coord
09/01/2004	423-NS-015	Americium-241	0.180000	PCI/G	63.1	PCI/G	0.18	U		NA	1464747.651	599141.826
09/01/2004	423-B-009	Americium-241	0.170000	PCI/G	63.1	PCI/G	0.17	U		NA	1464714.702	599127.021
09/01/2004	423-B-010	Americium-241	0.170000	PCI/G	63.1	PCI/G	0.17	U		NA	1464701.687	599120.193
09/01/2004	423-NS-013	Americium-241	0.160000	PCI/G	63.1	PCI/G	0.16	U		NA	1464793.522	599166.124
09/01/2004	423-NS-016	Americium-241	0.150000	PCI/G	63.1	PCI/G	0.15	U		NA	1464724.618	599129.77
09/01/2004	423-NS-017	Americium-241	0.150000	PCI/G	63.1	PCI/G	0.15	U		NA	1464701.681	599117.602
09/01/2004	423-NS-018	Americium-241	0.150000	PCI/G	63.1	PCI/G	0.15	U		NA	1464689.965	599111.41
09/01/2004	423-SS-019	Americium-241	0.150000	PCI/G	63.1	PCI/G	0.15	U		NA	1464687.007	599115.675
09/01/2004	423-B-005	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		NA	1464767.617	599155.185
09/01/2004	423-B-008	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		NA	1464727.504	599133.422
09/01/2004	423-SS-025	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		NA	1464790.715	599170.073
09/01/2004	423-B-002	Americium-241	0.130000	PCI/G	63.1	PCI/G	0.13	U		NA	1464807.517	599176.308
09/01/2004	423-SS-021	Americium-241	0.130000	PCI/G	63.1	PCI/G	0.13	U		NA	1464721.819	599133.858
09/01/2004	423-SS-023	Americium-241	0.130000	PCI/G	63.1	PCI/G	0.13	U		NA	1464732.344	599133.827
09/01/2004	423-GN-028	Americium-241	0.130000	PCI/G	63.1	PCI/G	0.13	U		NA	1464732.297	599141.184
09/01/2004	423-B-006	Americium-241	0.120000	PCI/G	63.1	PCI/G	0.12	U		NA	1464753.748	599147.717
09/01/2004	423-SS-022	Americium-241	0.120000	PCI/G	63.1	PCI/G	0.12	U		NA	1464744.781	599145.985
09/01/2004	423-SS-024	Americium-241	0.120000	PCI/G	63.1	PCI/G	0.12	U		NA	1464767.707	599158.049
09/01/2004	423-B-007	Americium-241	0.110000	PCI/G	63.1	PCI/G	0.11	U		NA	1464740.733	599140.889
09/01/2004	423-GN-027FD	Americium-241	0.110000	PCI/G	63.1	PCI/G	0.11	U		NA	1464717.297	599141.184
09/01/2004	423-GN-029	Americium-241	0.110000	PCI/G	63.1	PCI/G	0.11	U		NA	1464744.781	599145.985
09/01/2004	423-B-011	Americium-241	0.100000	PCI/G	63.1	PCI/G	0.10	U		NA	1464689.525	599113.792
09/01/2004	423-SS-026FD	Americium-241	0.100000	PCI/G	63.1	PCI/G	0.10	U		NA	1464813.55	599182.206
09/01/2004	423-GN-027	Americium-241	0.100000	PCI/G	63.1	PCI/G	0.10	U		NA	1464717.297	599141.184
09/01/2004	423-B-012	Americium-241	0.098000	PCI/G	63.1	PCI/G	0.098	U		NA	1464680.563	599109.311
09/01/2004	423-GN-030	Americium-241	0.098000	PCI/G	63.1	PCI/G	0.098	U		NA	1464754.797	599154.174
09/01/2004	423-NS-012	Americium-241	0.097000	PCI/G	63.1	PCI/G	0.097	U		NA	1464816.573	599178.169
09/01/2004	423-SS-020	Americium-241	0.096000	PCI/G	63.1	PCI/G	0.096	U		NA	1464698.798	599121.806
09/01/2004	423-SS-026	Americium-241	0.094000	PCI/G	63.1	PCI/G	0.094	U		NA	1464813.55	599182.206
09/01/2004	423-B-003	Americium-241	0.093000	PCI/G	63.1	PCI/G	0.093	U		NA	1464793.861	599169.267
09/01/2004	423-NS-015	Bismuth-214	0.630000	PCI/G	1.17	PCI/G	0.22			NA	1464747.651	599141.826
09/01/2004	423-B-010	Bismuth-214	0.620000	PCI/G	1.17	PCI/G	0.14			NA	1464701.687	599120.193
09/01/2004	423-NS-014	Bismuth-214	0.530000	PCI/G	1.17	PCI/G	0.20			NA	1464770.585	599153.914
09/01/2004	423-NS-012	Bismuth-214	0.510000	PCI/G	1.17	PCI/G	0.09			NA	1464816.573	599178.169
09/01/2004	423-SS-019	Bismuth-214	0.500000	PCI/G	1.17	PCI/G	0.15			NA	1464687.007	599115.675
09/01/2004	423-NS-018	Bismuth-214	0.480000	PCI/G	1.17	PCI/G	0.15			NA	1464689.965	599111.41
09/01/2004	423-B-012	Bismuth-214	0.470000	PCI/G	1.17	PCI/G	0.10			NA	1464680.563	599109.311
09/01/2004	423-NS-016	Bismuth-214	0.470000	PCI/G	1.17	PCI/G	0.15			NA	1464724.618	599129.77
09/01/2004	423-SS-026FD	Bismuth-214	0.470000	PCI/G	1.17	PCI/G	0.12			NA	1464813.55	599182.206
09/01/2004	423-B-002	Bismuth-214	0.450000	PCI/G	1.17	PCI/G	0.16			NA	1464807.517	599176.308
09/01/2004	423-SS-023	Bismuth-214	0.430000	PCI/G	1.17	PCI/G	0.12			NA	1464732.344	599133.827
09/01/2004	423-B-004	Bismuth-214	0.400000	PCI/G	1.17	PCI/G	0.15			NA	1464780.206	599162.013
09/01/2004	423-B-005	Bismuth-214	0.400000	PCI/G	1.17	PCI/G	0.14			NA	1464767.617	599155.185
09/01/2004	423-B-007	Bismuth-214	0.390000	PCI/G	1.17	PCI/G	0.10			NA	1464740.733	599140.889

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PRS 423 Verification Sampling Results

Date Collected	Sample Id*	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	Depth Units	X Coord	Y Coord
09/01/2004	423-B-001	Bismuth-214	0.380000	PCI/G	1.17	PCI/G	0.21			NA	1464820.532	599183.563
09/01/2004	423-B-008	Bismuth-214	0.380000	PCI/G	1.17	PCI/G	0.14			NA	1464727.504	599133.422
09/01/2004	423-B-006	Bismuth-214	0.370000	PCI/G	1.17	PCI/G	0.12			NA	1464753.748	599147.717
09/01/2004	423-B-003	Bismuth-214	0.350000	PCI/G	1.17	PCI/G	0.09			NA	1464793.861	599169.267
09/01/2004	423-SS-024	Bismuth-214	0.350000	PCI/G	1.17	PCI/G	0.13			NA	1464767.707	599158.049
09/01/2004	423-SS-026	Bismuth-214	0.350000	PCI/G	1.17	PCI/G	0.12			NA	1464813.55	599182.206
09/01/2004	423-GN-029	Bismuth-214	0.350000	PCI/G	1.17	PCI/G	0.10			NA	1464744.781	599145.985
09/01/2004	423-GN-030	Bismuth-214	0.350000	PCI/G	1.17	PCI/G	0.12			NA	1464754.797	599154.174
09/01/2004	423-SS-020	Bismuth-214	0.340000	PCI/G	1.17	PCI/G	0.11			NA	1464698.798	599121.806
09/01/2004	423-SS-021	Bismuth-214	0.340000	PCI/G	1.17	PCI/G	0.13			NA	1464721.819	599133.858
09/01/2004	423-GN-028	Bismuth-214	0.330000	PCI/G	1.17	PCI/G	0.14			NA	1464732.297	599141.184
09/01/2004	423-B-011	Bismuth-214	0.320000	PCI/G	1.17	PCI/G	0.12			NA	1464689.525	599113.792
09/01/2004	423-GN-027	Bismuth-214	0.300000	PCI/G	1.17	PCI/G	0.12			NA	1464717.297	599141.184
09/01/2004	423-B-009	Bismuth-214	0.290000	PCI/G	1.17	PCI/G	0.17			NA	1464714.702	599127.021
09/01/2004	423-SS-022	Bismuth-214	0.290000	PCI/G	1.17	PCI/G	0.12			NA	1464744.781	599145.985
09/01/2004	423-SS-025	Bismuth-214	0.280000	PCI/G	1.17	PCI/G	0.17			NA	1464790.715	599170.073
09/01/2004	423-NS-017	Bismuth-214	0.250000	PCI/G	1.17	PCI/G	0.16			NA	1464701.681	599117.602
09/01/2004	423-NS-013	Bismuth-214	0.220000	PCI/G	1.17	PCI/G	0.13			NA	1464793.522	599166.124
09/01/2004	423-B-001	Cesium-137	0.140000	PCI/G	3.84	PCI/G	0.14	U		NA	1464820.532	599183.563
09/01/2004	423-B-010	Cesium-137	0.130000	PCI/G	3.84	PCI/G	0.13	U		NA	1464701.687	599120.193
09/01/2004	423-NS-014	Cesium-137	0.130000	PCI/G	3.84	PCI/G	0.13	U		NA	1464770.585	599153.914
09/01/2004	423-NS-017	Cesium-137	0.110000	PCI/G	3.84	PCI/G	0.11	U		NA	1464701.681	599117.602
09/01/2004	423-SS-025	Cesium-137	0.110000	PCI/G	3.84	PCI/G	0.11	U		NA	1464790.715	599170.073
09/01/2004	423-B-009	Cesium-137	0.100000	PCI/G	3.84	PCI/G	0.10	U		NA	1464714.702	599127.021
09/01/2004	423-B-005	Cesium-137	0.099000	PCI/G	3.84	PCI/G	0.099	U		NA	1464767.617	599155.185
09/01/2004	423-NS-018	Cesium-137	0.098000	PCI/G	3.84	PCI/G	0.098	U		NA	1464689.965	599111.41
09/01/2004	423-SS-024	Cesium-137	0.095000	PCI/G	3.84	PCI/G	0.095	U		NA	1464767.707	599158.049
09/01/2004	423-SS-021	Cesium-137	0.093000	PCI/G	3.84	PCI/G	0.093	U		NA	1464721.819	599133.858
09/01/2004	423-NS-013	Cesium-137	0.089000	PCI/G	3.84	PCI/G	0.089	U		NA	1464793.522	599166.124
09/01/2004	423-NS-015	Cesium-137	0.089000	PCI/G	3.84	PCI/G	0.089	U		NA	1464747.651	599141.826
09/01/2004	423-NS-016	Cesium-137	0.087000	PCI/G	3.84	PCI/G	0.087	U		NA	1464724.618	599129.77
09/01/2004	423-B-008	Cesium-137	0.086000	PCI/G	3.84	PCI/G	0.086	U		NA	1464727.504	599133.422
09/01/2004	423-B-002	Cesium-137	0.083000	PCI/G	3.84	PCI/G	0.083	U		NA	1464807.517	599176.308
09/01/2004	423-B-004	Cesium-137	0.083000	PCI/G	3.84	PCI/G	0.083	U		NA	1464780.206	599162.013
09/01/2004	423-SS-022	Cesium-137	0.082000	PCI/G	3.84	PCI/G	0.082	U		NA	1464744.781	599145.985
09/01/2004	423-GN-029	Cesium-137	0.081000	PCI/G	3.84	PCI/G	0.081	U		NA	1464744.781	599145.985
09/01/2004	423-GN-027	Cesium-137	0.079000	PCI/G	3.84	PCI/G	0.079	U		NA	1464717.297	599141.184
09/01/2004	423-GN-030	Cesium-137	0.078000	PCI/G	3.84	PCI/G	0.078	U		NA	1464754.797	599154.174
09/01/2004	423-B-012	Cesium-137	0.077000	PCI/G	3.84	PCI/G	0.077	U		NA	1464680.563	599109.311
09/01/2004	423-SS-023	Cesium-137	0.075000	PCI/G	3.84	PCI/G	0.075	U		NA	1464732.344	599133.827
09/01/2004	423-GN-027FD	Cesium-137	0.074000	PCI/G	3.84	PCI/G	0.074	U		NA	1464717.297	599141.184
09/01/2004	423-B-006	Cesium-137	0.073000	PCI/G	3.84	PCI/G	0.073	U		NA	1464753.748	599147.717
09/01/2004	423-GN-028	Cesium-137	0.073000	PCI/G	3.84	PCI/G	0.073	U		NA	1464732.297	599141.184
09/01/2004	423-SS-026	Cesium-137	0.071000	PCI/G	3.84	PCI/G	0.071	U		NA	1464813.55	599182.206

*Due to space limitations, the letter "V" , as designated in SUD, was stripped from sample labels to facilitate input into MEIMS

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PRS 423 Verification Sampling Results

Date Collected	Sample Id*	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	Depth Units	X Coord	Y Coord
09/01/2004	423-B-011	Cesium-137	0.070000	PCI/G	3.84	PCI/G	0.070	U		NA	1464689.525	599113.792
09/01/2004	423-B-003	Cesium-137	0.066000	PCI/G	3.84	PCI/G	0.066	U		NA	1464793.861	599169.267
09/01/2004	423-SS-020	Cesium-137	0.066000	PCI/G	3.84	PCI/G	0.066	U		NA	1464698.798	599121.806
09/01/2004	423-SS-019	Cesium-137	0.062000	PCI/G	3.84	PCI/G	0.062	U		NA	1464687.007	599115.675
09/01/2004	423-NS-012	Cesium-137	0.061000	PCI/G	3.84	PCI/G	0.061	U		NA	1464816.573	599178.169
09/01/2004	423-B-007	Cesium-137	0.058000	PCI/G	3.84	PCI/G	0.058	U		NA	1464740.733	599140.889
09/01/2004	423-SS-026FD	Cesium-137	0.051000	PCI/G	3.84	PCI/G	0.051	U		NA	1464813.55	599182.206
09/01/2004	423-NS-015	Cobalt-60	0.150000	PCI/G	0.76	PCI/G	0.15	U		NA	1464747.651	599141.826
09/01/2004	423-NS-014	Cobalt-60	0.140000	PCI/G	0.76	PCI/G	0.14	U		NA	1464770.585	599153.914
09/01/2004	423-B-001	Cobalt-60	0.130000	PCI/G	0.76	PCI/G	0.13	U		NA	1464820.532	599183.563
09/01/2004	423-B-005	Cobalt-60	0.130000	PCI/G	0.76	PCI/G	0.13	U		NA	1464767.617	599155.185
09/01/2004	423-B-002	Cobalt-60	0.110000	PCI/G	0.76	PCI/G	0.11	U		NA	1464807.517	599176.308
09/01/2004	423-B-010	Cobalt-60	0.110000	PCI/G	0.76	PCI/G	0.11	U		NA	1464701.687	599120.193
09/01/2004	423-NS-017	Cobalt-60	0.110000	PCI/G	0.76	PCI/G	0.11	U		NA	1464701.681	599117.602
09/01/2004	423-NS-018	Cobalt-60	0.110000	PCI/G	0.76	PCI/G	0.11	U		NA	1464689.965	599111.41
09/01/2004	423-GN-028	Cobalt-60	0.110000	PCI/G	0.76	PCI/G	0.11	U		NA	1464732.297	599141.184
09/01/2004	423-SS-022	Cobalt-60	0.100000	PCI/G	0.76	PCI/G	0.10	U		NA	1464744.781	599145.985
09/01/2004	423-SS-025	Cobalt-60	0.100000	PCI/G	0.76	PCI/G	0.10	U		NA	1464790.715	599170.073
09/01/2004	423-NS-016	Cobalt-60	0.096000	PCI/G	0.76	PCI/G	0.096	U		NA	1464724.618	599129.77
09/01/2004	423-SS-023	Cobalt-60	0.092000	PCI/G	0.76	PCI/G	0.092	U		NA	1464732.344	599133.827
09/01/2004	423-B-011	Cobalt-60	0.090000	PCI/G	0.76	PCI/G	0.090	U		NA	1464689.525	599113.792
09/01/2004	423-SS-024	Cobalt-60	0.088000	PCI/G	0.76	PCI/G	0.088	U		NA	1464767.707	599158.049
09/01/2004	423-B-004	Cobalt-60	0.087000	PCI/G	0.76	PCI/G	0.087	U		NA	1464780.206	599162.013
09/01/2004	423-B-006	Cobalt-60	0.085000	PCI/G	0.76	PCI/G	0.085	U		NA	1464753.748	599147.717
09/01/2004	423-SS-019	Cobalt-60	0.084000	PCI/G	0.76	PCI/G	0.084	U		NA	1464687.007	599115.675
09/01/2004	423-SS-021	Cobalt-60	0.084000	PCI/G	0.76	PCI/G	0.084	U		NA	1464721.819	599133.858
09/01/2004	423-B-003	Cobalt-60	0.082000	PCI/G	0.76	PCI/G	0.082	U		NA	1464793.861	599169.267
09/01/2004	423-B-009	Cobalt-60	0.082000	PCI/G	0.76	PCI/G	0.082	U		NA	1464714.702	599127.021
09/01/2004	423-GN-029	Cobalt-60	0.081000	PCI/G	0.76	PCI/G	0.081	U		NA	1464744.781	599145.985
09/01/2004	423-NS-012	Cobalt-60	0.078000	PCI/G	0.76	PCI/G	0.078	U		NA	1464816.573	599178.169
09/01/2004	423-B-008	Cobalt-60	0.077000	PCI/G	0.76	PCI/G	0.077	U		NA	1464727.504	599133.422
09/01/2004	423-GN-030	Cobalt-60	0.075000	PCI/G	0.76	PCI/G	0.075	U		NA	1464754.797	599154.174
09/01/2004	423-SS-020	Cobalt-60	0.074000	PCI/G	0.76	PCI/G	0.074	U		NA	1464698.798	599121.806
09/01/2004	423-B-007	Cobalt-60	0.072000	PCI/G	0.76	PCI/G	0.072	U		NA	1464740.733	599140.889
09/01/2004	423-SS-026	Cobalt-60	0.071000	PCI/G	0.76	PCI/G	0.071	U		NA	1464813.55	599182.206
09/01/2004	423-GN-027	Cobalt-60	0.071000	PCI/G	0.76	PCI/G	0.071	U		NA	1464717.297	599141.184
09/01/2004	423-B-012	Cobalt-60	0.070000	PCI/G	0.76	PCI/G	0.070	U		NA	1464680.563	599109.311
09/01/2004	423-SS-026FD	Cobalt-60	0.065000	PCI/G	0.76	PCI/G	0.065	U		NA	1464813.55	599182.206
09/01/2004	423-GN-027FD	Cobalt-60	0.045000	PCI/G	0.76	PCI/G	0.045	U		NA	1464717.297	599141.184
09/01/2004	423-NS-013	Cobalt-60	0.022000	PCI/G	0.76	PCI/G	0.022	U		NA	1464793.522	599166.124
09/01/2004	423-B-010	Lead-212	0.660000	PCI/G	16.6	PCI/G	0.17			NA	1464701.687	599120.193
09/01/2004	423-B-001	Lead-212	0.650000	PCI/G	16.6	PCI/G	0.12			NA	1464820.532	599183.563
09/01/2004	423-NS-014	Lead-212	0.640000	PCI/G	16.6	PCI/G	0.16			NA	1464770.585	599153.914
09/01/2004	423-SS-019	Lead-212	0.600000	PCI/G	16.6	PCI/G	0.17			NA	1464687.007	599115.675

*Due to space limitations, the letter "V" , as designated in SUD, was stripped from sample labels to facilitate input into MEIMS

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PRS 423 Verification Sampling Results

Date Collected	Sample Id*	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	Depth Units	X Coord	Y Coord
09/01/2004	423-B-004	Lead-212	0.590000	PCI/G	16.6	PCI/G	0.14			NA	1464780.206	599162.013
09/01/2004	423-NS-016	Lead-212	0.590000	PCI/G	16.6	PCI/G	0.13			NA	1464724.618	599129.77
09/01/2004	423-SS-025	Lead-212	0.550000	PCI/G	16.6	PCI/G	0.14			NA	1464790.715	599170.073
09/01/2004	423-NS-015	Lead-212	0.540000	PCI/G	16.6	PCI/G	0.19			NA	1464747.651	599141.826
09/01/2004	423-NS-018	Lead-212	0.530000	PCI/G	16.6	PCI/G	0.12			NA	1464689.965	599111.41
09/01/2004	423-NS-017	Lead-212	0.500000	PCI/G	16.6	PCI/G	0.12			NA	1464701.681	599117.602
09/01/2004	423-B-009	Lead-212	0.440000	PCI/G	16.6	PCI/G	0.12			NA	1464714.702	599127.021
09/01/2004	423-B-005	Lead-212	0.420000	PCI/G	16.6	PCI/G	0.11			NA	1464767.617	599155.185
09/01/2004	423-SS-021	Lead-212	0.410000	PCI/G	16.6	PCI/G	0.12			NA	1464721.819	599133.858
09/01/2004	423-B-002	Lead-212	0.390000	PCI/G	16.6	PCI/G	0.16			NA	1464807.517	599176.308
09/01/2004	423-NS-013	Lead-212	0.390000	PCI/G	16.6	PCI/G	0.13			NA	1464793.522	599166.124
09/01/2004	423-B-006	Lead-212	0.370000	PCI/G	16.6	PCI/G	0.10			NA	1464753.748	599147.717
09/01/2004	423-B-008	Lead-212	0.370000	PCI/G	16.6	PCI/G	0.11			NA	1464727.504	599133.422
09/01/2004	423-SS-024	Lead-212	0.370000	PCI/G	16.6	PCI/G	0.09			NA	1464767.707	599158.049
09/01/2004	423-SS-022	Lead-212	0.350000	PCI/G	16.6	PCI/G	0.1			NA	1464744.781	599145.985
09/01/2004	423-GN-028	Lead-212	0.310000	PCI/G	16.6	PCI/G	0.12			NA	1464732.297	599141.184
09/01/2004	423-SS-023	Lead-212	0.290000	PCI/G	16.6	PCI/G	0.13			NA	1464732.344	599133.827
09/01/2004	423-SS-020	Lead-212	0.278000	PCI/G	16.6	PCI/G	0.078			NA	1464698.798	599121.806
09/01/2004	423-GN-027FD	Lead-212	0.266000	PCI/G	16.6	PCI/G	0.11			NA	1464717.297	599141.184
09/01/2004	423-B-007	Lead-212	0.243000	PCI/G	16.6	PCI/G	0.10			NA	1464740.733	599140.889
09/01/2004	423-SS-026	Lead-212	0.240000	PCI/G	16.6	PCI/G	0.10			NA	1464813.55	599182.206
09/01/2004	423-B-012	Lead-212	0.231000	PCI/G	16.6	PCI/G	0.089			NA	1464680.563	599109.311
09/01/2004	423-NS-012	Lead-212	0.224000	PCI/G	16.6	PCI/G	0.068			NA	1464816.573	599178.169
09/01/2004	423-GN-029	Lead-212	0.224000	PCI/G	16.6	PCI/G	0.11			NA	1464744.781	599145.985
09/01/2004	423-SS-026FD	Lead-212	0.219000	PCI/G	16.6	PCI/G	0.090			NA	1464813.55	599182.206
09/01/2004	423-B-003	Lead-212	0.196000	PCI/G	16.6	PCI/G	0.078			NA	1464793.861	599169.267
09/01/2004	423-B-011	Lead-212	0.166000	PCI/G	16.6	PCI/G	0.098			NA	1464689.525	599113.792
09/01/2004	423-GN-030	Lead-212	0.156000	PCI/G	16.6	PCI/G	0.085			NA	1464754.797	599154.174
09/01/2004	423-GN-027	Lead-212	0.146000	PCI/G	16.6	PCI/G	0.077			NA	1464717.297	599141.184
09/01/2004	423-NS-015	Lead-214	0.690000	PCI/G	8.92	PCI/G	0.13			NA	1464747.651	599141.826
09/01/2004	423-B-010	Lead-214	0.680000	PCI/G	8.92	PCI/G	0.16			NA	1464701.687	599120.193
09/01/2004	423-NS-014	Lead-214	0.540000	PCI/G	8.92	PCI/G	0.20			NA	1464770.585	599153.914
09/01/2004	423-B-009	Lead-214	0.520000	PCI/G	8.92	PCI/G	0.15			NA	1464714.702	599127.021
09/01/2004	423-B-008	Lead-214	0.480000	PCI/G	8.92	PCI/G	0.11			NA	1464727.504	599133.422
09/01/2004	423-SS-021	Lead-214	0.480000	PCI/G	8.92	PCI/G	0.11			NA	1464721.819	599133.858
09/01/2004	423-GN-029	Lead-214	0.480000	PCI/G	8.92	PCI/G	0.14			NA	1464744.781	599145.985
09/01/2004	423-NS-018	Lead-214	0.470000	PCI/G	8.92	PCI/G	0.14			NA	1464689.965	599111.41
09/01/2004	423-GN-027FD	Lead-214	0.470000	PCI/G	8.92	PCI/G	0.11			NA	1464717.297	599141.184
09/01/2004	423-B-004	Lead-214	0.460000	PCI/G	8.92	PCI/G	0.17			NA	1464780.206	599162.013
09/01/2004	423-SS-024	Lead-214	0.460000	PCI/G	8.92	PCI/G	0.12			NA	1464767.707	599158.049
09/01/2004	423-NS-016	Lead-214	0.450000	PCI/G	8.92	PCI/G	0.13			NA	1464724.618	599129.77
09/01/2004	423-NS-017	Lead-214	0.450000	PCI/G	8.92	PCI/G	0.11			NA	1464701.681	599117.602
09/01/2004	423-B-001	Lead-214	0.430000	PCI/G	8.92	PCI/G	0.17			NA	1464820.532	599183.563
09/01/2004	423-B-002	Lead-214	0.420000	PCI/G	8.92	PCI/G	0.14			NA	1464807.517	599176.308

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PRS 423 Verification Sampling Results

Date Collected	Sample Id*	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	Depth Units	X Coord	Y Coord
09/01/2004	423-SS-019	Lead-214	0.420000	PCI/G	8.92	PCI/G	0.14			NA	1464687.007	599115.675
09/01/2004	423-SS-025	Lead-214	0.420000	PCI/G	8.92	PCI/G	0.16			NA	1464790.715	599170.073
09/01/2004	423-B-005	Lead-214	0.410000	PCI/G	8.92	PCI/G	0.10			NA	1464767.617	599155.185
09/01/2004	423-SS-022	Lead-214	0.400000	PCI/G	8.92	PCI/G	0.11			NA	1464744.781	599145.985
09/01/2004	423-SS-026	Lead-214	0.400000	PCI/G	8.92	PCI/G	0.1			NA	1464813.55	599182.206
09/01/2004	423-B-007	Lead-214	0.390000	PCI/G	8.92	PCI/G	0.09			NA	1464740.733	599140.889
09/01/2004	423-GN-027	Lead-214	0.370000	PCI/G	8.92	PCI/G	0.10			NA	1464717.297	599141.184
09/01/2004	423-SS-023	Lead-214	0.360000	PCI/G	8.92	PCI/G	0.14			NA	1464732.344	599133.827
09/01/2004	423-GN-028	Lead-214	0.360000	PCI/G	8.92	PCI/G	0.13			NA	1464732.297	599141.184
09/01/2004	423-GN-030	Lead-214	0.351000	PCI/G	8.92	PCI/G	0.093			NA	1464754.797	599154.174
09/01/2004	423-SS-020	Lead-214	0.350000	PCI/G	8.92	PCI/G	0.10			NA	1464698.798	599121.806
09/01/2004	423-B-003	Lead-214	0.342000	PCI/G	8.92	PCI/G	0.071			NA	1464793.861	599169.267
09/01/2004	423-B-012	Lead-214	0.340000	PCI/G	8.92	PCI/G	0.09			NA	1464680.563	599109.311
09/01/2004	423-SS-026FD	Lead-214	0.330000	PCI/G	8.92	PCI/G	0.12			NA	1464813.55	599182.206
09/01/2004	423-B-006	Lead-214	0.320000	PCI/G	8.92	PCI/G	0.12			NA	1464753.748	599147.717
09/01/2004	423-B-011	Lead-214	0.320000	PCI/G	8.92	PCI/G	0.09			NA	1464689.525	599113.792
09/01/2004	423-NS-012	Lead-214	0.290000	PCI/G	8.92	PCI/G	0.09			NA	1464816.573	599178.169
09/01/2004	423-NS-013	Lead-214	0.290000	PCI/G	8.92	PCI/G	0.12			NA	1464793.522	599166.124
09/01/2004	423-B-003	Plutonium-238	11.100000	PCI/G	55	PCI/G	0.03			NA	1464793.861	599169.267
09/01/2004	423-B-001	Plutonium-238	9.900000	PCI/G	55	PCI/G	0.04			NA	1464820.532	599183.563
09/01/2004	423-B-008	Plutonium-238	1.710000	PCI/G	55	PCI/G	0.03			NA	1464727.504	599133.422
09/01/2004	423-SS-024	Plutonium-238	0.810000	PCI/G	55	PCI/G	0.040	J		NA	1464767.707	599158.049
09/01/2004	423-GN-027FD	Plutonium-238	0.470000	PCI/G	55	PCI/G	0.03			NA	1464717.297	599141.184
09/01/2004	423-B-006	Plutonium-238	0.408000	PCI/G	55	PCI/G	0.030			NA	1464753.748	599147.717
09/01/2004	423-SS-020	Plutonium-238	0.384000	PCI/G	55	PCI/G	0.045			NA	1464698.798	599121.806
09/01/2004	423-B-012	Plutonium-238	0.379000	PCI/G	55	PCI/G	0.024			NA	1464680.563	599109.311
09/01/2004	423-B-007	Plutonium-238	0.369000	PCI/G	55	PCI/G	0.034			NA	1464740.733	599140.889
09/01/2004	423-GN-027	Plutonium-238	0.306000	PCI/G	55	PCI/G	0.045			NA	1464717.297	599141.184
09/01/2004	423-B-005	Plutonium-238	0.299000	PCI/G	55	PCI/G	0.033			NA	1464767.617	599155.185
09/01/2004	423-B-009	Plutonium-238	0.276000	PCI/G	55	PCI/G	0.036			NA	1464714.702	599127.021
09/01/2004	423-NS-017	Plutonium-238	0.247000	PCI/G	55	PCI/G	0.043			NA	1464701.681	599117.602
09/01/2004	423-B-002	Plutonium-238	0.236000	PCI/G	55	PCI/G	0.030			NA	1464807.517	599176.308
09/01/2004	423-GN-030	Plutonium-238	0.203000	PCI/G	55	PCI/G	0.029			NA	1464754.797	599154.174
09/01/2004	423-GN-028	Plutonium-238	0.180000	PCI/G	55	PCI/G	0.046			NA	1464732.297	599141.184
09/01/2004	423-GN-029	Plutonium-238	0.178000	PCI/G	55	PCI/G	0.035			NA	1464744.781	599145.985
09/01/2004	423-NS-013	Plutonium-238	0.150000	PCI/G	55	PCI/G	0.15	U		NA	1464793.522	599166.124
09/01/2004	423-NS-018	Plutonium-238	0.136000	PCI/G	55	PCI/G	0.033			NA	1464689.965	599111.41
09/01/2004	423-SS-022	Plutonium-238	0.136000	PCI/G	55	PCI/G	0.033			NA	1464744.781	599145.985
09/01/2004	423-SS-021	Plutonium-238	0.118000	PCI/G	55	PCI/G	0.035			NA	1464721.819	599133.858
09/01/2004	423-NS-015	Plutonium-238	0.079000	PCI/G	55	PCI/G	0.021	J		NA	1464747.651	599141.826
09/01/2004	423-NS-014	Plutonium-238	0.070000	PCI/G	55	PCI/G	0.029	J		NA	1464770.585	599153.914
09/01/2004	423-B-011	Plutonium-238	0.053000	PCI/G	55	PCI/G	0.040	J		NA	1464689.525	599113.792
09/01/2004	423-SS-026FD	Plutonium-238	0.044000	PCI/G	55	PCI/G	0.044	U		NA	1464813.55	599182.206
09/01/2004	423-NS-012	Plutonium-238	0.040000	PCI/G	55	PCI/G	0.04	U		NA	1464816.573	599178.169

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PRS 423 Verification Sampling Results

Date Collected	Sample Id*	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	Depth Units	X Coord	Y Coord
09/01/2004	423-B-004	Plutonium-238	0.039000	PCI/G	55	PCI/G	0.039	U		NA	1464780.206	599162.013
09/01/2004	423-SS-023	Plutonium-238	0.039000	PCI/G	55	PCI/G	0.039	U		NA	1464732.344	599133.827
09/01/2004	423-SS-026	Plutonium-238	0.037000	PCI/G	55	PCI/G	0.037	U		NA	1464813.55	599182.206
09/01/2004	423-B-010	Plutonium-238	0.035000	PCI/G	55	PCI/G	0.035	U		NA	1464701.687	599120.193
09/01/2004	423-SS-025	Plutonium-238	0.034000	PCI/G	55	PCI/G	0.034	U		NA	1464790.715	599170.073
09/01/2004	423-SS-019	Plutonium-238	0.031000	PCI/G	55	PCI/G	0.031	U		NA	1464687.007	599115.675
09/01/2004	423-NS-016	Plutonium-238	0.025000	PCI/G	55	PCI/G	0.025	U		NA	1464724.618	599129.77
09/01/2004	423-SS-025	Plutonium-239/240	0.530000	PCI/G	62	PCI/G	0.01			NA	1464790.715	599170.073
09/01/2004	423-B-003	Plutonium-239/240	0.203000	PCI/G	62	PCI/G	0.026			NA	1464793.861	599169.267
09/01/2004	423-B-001	Plutonium-239/240	0.118000	PCI/G	62	PCI/G	0.026			NA	1464820.532	599183.563
09/01/2004	423-NS-013	Plutonium-239/240	0.100000	PCI/G	62	PCI/G	0.1	U		NA	1464793.522	599166.124
09/01/2004	423-B-008	Plutonium-239/240	0.041000	PCI/G	62	PCI/G	0.024	J		NA	1464727.504	599133.422
09/01/2004	423-SS-026FD	Plutonium-239/240	0.041000	PCI/G	62	PCI/G	0.041	U		NA	1464813.55	599182.206
09/01/2004	423-GN-027	Plutonium-239/240	0.033000	PCI/G	62	PCI/G	0.033	U		NA	1464717.297	599141.184
09/01/2004	423-B-007	Plutonium-239/240	0.032000	PCI/G	62	PCI/G	0.032	U		NA	1464740.733	599140.889
09/01/2004	423-SS-020	Plutonium-239/240	0.031000	PCI/G	62	PCI/G	0.031	U		NA	1464698.798	599121.806
09/01/2004	423-B-004	Plutonium-239/240	0.030000	PCI/G	62	PCI/G	0.03	U		NA	1464780.206	599162.013
09/01/2004	423-B-011	Plutonium-239/240	0.030000	PCI/G	62	PCI/G	0.030	U		NA	1464689.525	599113.792
09/01/2004	423-NS-017	Plutonium-239/240	0.030000	PCI/G	62	PCI/G	0.03	U		NA	1464701.681	599117.602
09/01/2004	423-SS-023	Plutonium-239/240	0.030000	PCI/G	62	PCI/G	0.03	U		NA	1464732.344	599133.827
09/01/2004	423-SS-026	Plutonium-239/240	0.030000	PCI/G	62	PCI/G	0.030	U		NA	1464813.55	599182.206
09/01/2004	423-SS-022	Plutonium-239/240	0.029000	PCI/G	62	PCI/G	0.029	U		NA	1464744.781	599145.985
09/01/2004	423-NS-018	Plutonium-239/240	0.028000	PCI/G	62	PCI/G	0.028	U		NA	1464689.965	599111.41
09/01/2004	423-SS-021	Plutonium-239/240	0.027000	PCI/G	62	PCI/G	0.027	U		NA	1464721.819	599133.858
09/01/2004	423-GN-029	Plutonium-239/240	0.027000	PCI/G	62	PCI/G	0.027	U		NA	1464744.781	599145.985
09/01/2004	423-B-006	Plutonium-239/240	0.024000	PCI/G	62	PCI/G	0.024	U		NA	1464753.748	599147.717
09/01/2004	423-GN-027FD	Plutonium-239/240	0.024000	PCI/G	62	PCI/G	0.013	J		NA	1464717.297	599141.184
09/01/2004	423-B-002	Plutonium-239/240	0.023000	PCI/G	62	PCI/G	0.023	U		NA	1464807.517	599176.308
09/01/2004	423-NS-015	Plutonium-239/240	0.021000	PCI/G	62	PCI/G	0.021	U		NA	1464747.651	599141.826
09/01/2004	423-SS-024	Plutonium-239/240	0.020000	PCI/G	62	PCI/G	0.02	U		NA	1464767.707	599158.049
09/01/2004	423-B-009	Plutonium-239/240	0.019000	PCI/G	62	PCI/G	0.017	J		NA	1464714.702	599127.021
09/01/2004	423-NS-016	Plutonium-239/240	0.019000	PCI/G	62	PCI/G	0.019	U		NA	1464724.618	599129.77
09/01/2004	423-B-005	Plutonium-239/240	0.016000	PCI/G	62	PCI/G	0.016	U		NA	1464767.617	599155.185
09/01/2004	423-GN-030	Plutonium-239/240	0.016000	PCI/G	62	PCI/G	0.016	U		NA	1464754.797	599154.174
09/01/2004	423-B-012	Plutonium-239/240	0.015000	PCI/G	62	PCI/G	0.014	J		NA	1464680.563	599109.311
09/01/2004	423-NS-012	Plutonium-239/240	0.014000	PCI/G	62	PCI/G	0.014	U		NA	1464816.573	599178.169
09/01/2004	423-NS-014	Plutonium-239/240	0.013000	PCI/G	62	PCI/G	0.013	U		NA	1464770.585	599153.914
09/01/2004	423-SS-019	Plutonium-239/240	0.012000	PCI/G	62	PCI/G	0.012	U		NA	1464687.007	599115.675
09/01/2004	423-B-010	Plutonium-239/240	0.010000	PCI/G	62	PCI/G	0.01	U		NA	1464701.687	599120.193
09/01/2004	423-GN-028	Plutonium-239/240	0.010000	PCI/G	62	PCI/G	0.01	U		NA	1464732.297	599141.184
09/01/2004	423-NS-015	Potassium-40	23.000000	PCI/G	47.8	PCI/G	1.0			NA	1464747.651	599141.826
09/01/2004	423-B-004	Potassium-40	22.200000	PCI/G	47.8	PCI/G	0.9			NA	1464780.206	599162.013
09/01/2004	423-SS-019	Potassium-40	21.100000	PCI/G	47.8	PCI/G	0.2			NA	1464687.007	599115.675
09/01/2004	423-NS-016	Potassium-40	20.600000	PCI/G	47.8	PCI/G	0.5			NA	1464724.618	599129.77

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PRS 423 Verification Sampling Results

Date Collected	Sample Id*	CAS Name	Results	Units of Measure	Cleanup Objecti ve	Units of Measure	Detection Limit	Lab Qual	Data Qual	Depth Units	X Coord	Y Coord
09/01/2004	423-NS-014	Potassium-40	20.500000	PCI/G	47.8	PCI/G	0.8			NA	1464770.585	599153.914
09/01/2004	423-B-010	Potassium-40	18.800000	PCI/G	47.8	PCI/G	0.9			NA	1464701.687	599120.193
09/01/2004	423-SS-025	Potassium-40	17.300000	PCI/G	47.8	PCI/G	0.9			NA	1464790.715	599170.073
09/01/2004	423-NS-018	Potassium-40	16.500000	PCI/G	47.8	PCI/G	0.6			NA	1464689.965	599111.41
09/01/2004	423-NS-017	Potassium-40	16.400000	PCI/G	47.8	PCI/G	0.8			NA	1464701.681	599117.602
09/01/2004	423-B-002	Potassium-40	16.300000	PCI/G	47.8	PCI/G	0.9			NA	1464807.517	599176.308
09/01/2004	423-SS-021	Potassium-40	16.100000	PCI/G	47.8	PCI/G	0.7			NA	1464721.819	599133.858
09/01/2004	423-SS-023	Potassium-40	15.900000	PCI/G	47.8	PCI/G	0.8			NA	1464732.344	599133.827
09/01/2004	423-B-005	Potassium-40	15.200000	PCI/G	47.8	PCI/G	0.5			NA	1464767.617	599155.185
09/01/2004	423-B-009	Potassium-40	15.100000	PCI/G	47.8	PCI/G	1.1			NA	1464714.702	599127.021
09/01/2004	423-B-001	Potassium-40	14.400000	PCI/G	47.8	PCI/G	1			NA	1464820.532	599183.563
09/01/2004	423-NS-013	Potassium-40	13.600000	PCI/G	47.8	PCI/G	0.2			NA	1464793.522	599166.124
09/01/2004	423-SS-024	Potassium-40	13.400000	PCI/G	47.8	PCI/G	0.7			NA	1464767.707	599158.049
09/01/2004	423-GN-028	Potassium-40	12.500000	PCI/G	47.8	PCI/G	0.9			NA	1464732.297	599141.184
09/01/2004	423-SS-022	Potassium-40	11.700000	PCI/G	47.8	PCI/G	0.7			NA	1464744.781	599145.985
09/01/2004	423-B-008	Potassium-40	11.100000	PCI/G	47.8	PCI/G	0.9			NA	1464727.504	599133.422
09/01/2004	423-B-006	Potassium-40	10.500000	PCI/G	47.8	PCI/G	0.7			NA	1464753.748	599147.717
09/01/2004	423-SS-020	Potassium-40	9.600000	PCI/G	47.8	PCI/G	0.4			NA	1464698.798	599121.806
09/01/2004	423-B-007	Potassium-40	8.800000	PCI/G	47.8	PCI/G	0.6			NA	1464740.733	599140.889
09/01/2004	423-NS-012	Potassium-40	8.200000	PCI/G	47.8	PCI/G	0.4			NA	1464816.573	599178.169
09/01/2004	423-B-011	Potassium-40	7.800000	PCI/G	47.8	PCI/G	0.6			NA	1464689.525	599113.792
09/01/2004	423-B-003	Potassium-40	7.600000	PCI/G	47.8	PCI/G	0.5			NA	1464793.861	599169.267
09/01/2004	423-GN-029	Potassium-40	7.600000	PCI/G	47.8	PCI/G	1			NA	1464744.781	599145.985
09/01/2004	423-SS-026	Potassium-40	7.300000	PCI/G	47.8	PCI/G	0.7			NA	1464813.55	599182.206
09/01/2004	423-SS-026FD	Potassium-40	7.300000	PCI/G	47.8	PCI/G	0.5			NA	1464813.55	599182.206
09/01/2004	423-GN-027	Potassium-40	6.200000	PCI/G	47.8	PCI/G	0.7			NA	1464717.297	599141.184
09/01/2004	423-GN-030	Potassium-40	5.500000	PCI/G	47.8	PCI/G	0.5			NA	1464754.797	599154.174
09/01/2004	423-GN-027FD	Potassium-40	5.300000	PCI/G	47.8	PCI/G	0.6			NA	1464717.297	599141.184
09/01/2004	423-B-012	Potassium-40	4.200000	PCI/G	47.8	PCI/G	0.6			NA	1464680.563	599109.311
09/01/2004	423-B-010	Radium-226	0.750000	PCI/G	3.01	PCI/G	0.49			NA	1464701.687	599120.193
09/01/2004	423-NS-015	Radium-226	0.640000	PCI/G	3.01	PCI/G	0.53			NA	1464747.651	599141.826
09/01/2004	423-B-004	Radium-226	0.630000	PCI/G	3.01	PCI/G	0.45			NA	1464780.206	599162.013
09/01/2004	423-B-009	Radium-226	0.500000	PCI/G	3.01	PCI/G	0.43			NA	1464714.702	599127.021
09/01/2004	423-NS-014	Radium-226	0.500000	PCI/G	3.01	PCI/G	0.48			NA	1464770.585	599153.914
09/01/2004	423-SS-021	Radium-226	0.490000	PCI/G	3.01	PCI/G	0.36			NA	1464721.819	599133.858
09/01/2004	423-NS-012	Radium-226	0.480000	PCI/G	3.01	PCI/G	0.14			NA	1464816.573	599178.169
09/01/2004	423-SS-019	Radium-226	0.470000	PCI/G	3.01	PCI/G	0.42			NA	1464687.007	599115.675
09/01/2004	423-SS-020	Radium-226	0.430000	PCI/G	3.01	PCI/G	0.29			NA	1464698.798	599121.806
09/01/2004	423-B-008	Radium-226	0.420000	PCI/G	3.01	PCI/G	0.33			NA	1464727.504	599133.422
09/01/2004	423-B-011	Radium-226	0.420000	PCI/G	3.01	PCI/G	0.30			NA	1464689.525	599113.792
09/01/2004	423-NS-013	Radium-226	0.420000	PCI/G	3.01	PCI/G	0.42			NA	1464793.522	599166.124
09/01/2004	423-GN-027	Radium-226	0.420000	PCI/G	3.01	PCI/G	0.17			NA	1464717.297	599141.184
09/01/2004	423-NS-018	Radium-226	0.410000	PCI/G	3.01	PCI/G	0.39			NA	1464689.965	599111.41
09/01/2004	423-B-002	Radium-226	0.400000	PCI/G	3.01	PCI/G	0.40	U		NA	1464807.517	599176.308

*Due to space limitations, the letter "V" , as designated in SUD, was stripped from sample labels to facilitate input into MEIMS

PRS 423 Verification Sampling Results

Date Collected	Sample Id*	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	Depth Units	X Coord	Y Coord
09/01/2004	423-B-012	Radium-226	0.400000	PCI/G	3.01	PCI/G	0.31			NA	1464680.563	599109.311
09/01/2004	423-SS-025	Radium-226	0.390000	PCI/G	3.01	PCI/G	0.39	U		NA	1464790.715	599170.073
09/01/2004	423-SS-026FD	Radium-226	0.390000	PCI/G	3.01	PCI/G	0.33			NA	1464813.55	599182.206
09/01/2004	423-B-001	Radium-226	0.380000	PCI/G	3.01	PCI/G	0.27			NA	1464820.532	599183.563
09/01/2004	423-SS-026	Radium-226	0.380000	PCI/G	3.01	PCI/G	0.32			NA	1464813.55	599182.206
09/01/2004	423-GN-028	Radium-226	0.370000	PCI/G	3.01	PCI/G	0.34			NA	1464732.297	599141.184
09/01/2004	423-B-003	Radium-226	0.360000	PCI/G	3.01	PCI/G	0.27			NA	1464793.861	599169.267
09/01/2004	423-NS-016	Radium-226	0.360000	PCI/G	3.01	PCI/G	0.36	U		NA	1464724.618	599129.77
09/01/2004	423-SS-022	Radium-226	0.360000	PCI/G	3.01	PCI/G	0.29			NA	1464744.781	599145.985
09/01/2004	423-GN-027FD	Radium-226	0.350000	PCI/G	3.01	PCI/G	0.33			NA	1464717.297	599141.184
09/01/2004	423-NS-017	Radium-226	0.340000	PCI/G	3.01	PCI/G	0.34	U		NA	1464701.681	599117.602
09/01/2004	423-SS-023	Radium-226	0.340000	PCI/G	3.01	PCI/G	0.34	U		NA	1464732.344	599133.827
09/01/2004	423-GN-029	Radium-226	0.340000	PCI/G	3.01	PCI/G	0.34	U		NA	1464744.781	599145.985
09/01/2004	423-B-006	Radium-226	0.330000	PCI/G	3.01	PCI/G	0.31			NA	1464753.748	599147.717
09/01/2004	423-SS-024	Radium-226	0.330000	PCI/G	3.01	PCI/G	0.33	U		NA	1464767.707	599158.049
09/01/2004	423-B-005	Radium-226	0.320000	PCI/G	3.01	PCI/G	0.32	U		NA	1464767.617	599155.185
09/01/2004	423-B-007	Radium-226	0.280000	PCI/G	3.01	PCI/G	0.28	U		NA	1464740.733	599140.889
09/01/2004	423-GN-030	Radium-226	0.260000	PCI/G	3.01	PCI/G	0.26	U		NA	1464754.797	599154.174
09/01/2004	423-NS-016	Radium-228	0.640000	PCI/G	3.06	PCI/G	0.31			NA	1464724.618	599129.77
09/01/2004	423-B-004	Radium-228	0.590000	PCI/G	3.06	PCI/G	0.28			NA	1464780.206	599162.013
09/01/2004	423-SS-023	Radium-228	0.580000	PCI/G	3.06	PCI/G	0.31			NA	1464732.344	599133.827
09/01/2004	423-B-008	Radium-228	0.500000	PCI/G	3.06	PCI/G	0.29			NA	1464727.504	599133.422
09/01/2004	423-SS-021	Radium-228	0.440000	PCI/G	3.06	PCI/G	0.30			NA	1464721.819	599133.858
09/01/2004	423-B-005	Radium-228	0.400000	PCI/G	3.06	PCI/G	0.26			NA	1464767.617	599155.185
09/01/2004	423-NS-014	Radium-228	0.360000	PCI/G	3.06	PCI/G	0.32			NA	1464770.585	599153.914
09/01/2004	423-SS-020	Radium-228	0.300000	PCI/G	3.06	PCI/G	0.21			NA	1464698.798	599121.806
09/01/2004	423-NS-014	Thallium-208	0.272000	PCI/G	0.498	PCI/G	0.10			NA	1464770.585	599153.914
09/01/2004	423-NS-015	Thallium-208	0.270000	PCI/G	0.498	PCI/G	0.11			NA	1464747.651	599141.826
09/01/2004	423-B-002	Thallium-208	0.251000	PCI/G	0.498	PCI/G	0.096			NA	1464807.517	599176.308
09/01/2004	423-SS-025	Thallium-208	0.246000	PCI/G	0.498	PCI/G	0.091			NA	1464790.715	599170.073
09/01/2004	423-SS-019	Thallium-208	0.231000	PCI/G	0.498	PCI/G	0.092			NA	1464687.007	599115.675
09/01/2004	423-NS-017	Thallium-208	0.223000	PCI/G	0.498	PCI/G	0.084			NA	1464701.681	599117.602
09/01/2004	423-NS-018	Thallium-208	0.212000	PCI/G	0.498	PCI/G	0.067			NA	1464689.965	599111.41
09/01/2004	423-B-004	Thallium-208	0.190000	PCI/G	0.498	PCI/G	0.076			NA	1464780.206	599162.013
09/01/2004	423-NS-016	Thallium-208	0.184000	PCI/G	0.498	PCI/G	0.082			NA	1464724.618	599129.77
09/01/2004	423-GN-028	Thallium-208	0.183000	PCI/G	0.498	PCI/G	0.078			NA	1464732.297	599141.184
09/01/2004	423-SS-023	Thallium-208	0.181000	PCI/G	0.498	PCI/G	0.067			NA	1464732.344	599133.827
09/01/2004	423-SS-024	Thallium-208	0.175000	PCI/G	0.498	PCI/G	0.052			NA	1464767.707	599158.049
09/01/2004	423-NS-013	Thallium-208	0.163000	PCI/G	0.498	PCI/G	0.091			NA	1464793.522	599166.124
09/01/2004	423-SS-021	Thallium-208	0.163000	PCI/G	0.498	PCI/G	0.071			NA	1464721.819	599133.858
09/01/2004	423-B-010	Thallium-208	0.150000	PCI/G	0.498	PCI/G	0.09			NA	1464701.687	599120.193
09/01/2004	423-B-005	Thallium-208	0.147000	PCI/G	0.498	PCI/G	0.071			NA	1464767.617	599155.185
09/01/2004	423-B-001	Thallium-208	0.146000	PCI/G	0.498	PCI/G	0.12			NA	1464820.532	599183.563
09/01/2004	423-B-009	Thallium-208	0.136000	PCI/G	0.498	PCI/G	0.093			NA	1464714.702	599127.021

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PRS 423 Verification Sampling Results

Date Collected	Sample Id*	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	Depth Units	X Coord	Y Coord
09/01/2004	423-B-006	Thallium-208	0.126000	PCI/G	0.498	PCI/G	0.073			NA	1464753.748	599147.717
09/01/2004	423-SS-020	Thallium-208	0.113000	PCI/G	0.498	PCI/G	0.045			NA	1464698.798	599121.806
09/01/2004	423-GN-029	Thallium-208	0.112000	PCI/G	0.498	PCI/G	0.065			NA	1464744.781	599145.985
09/01/2004	423-B-008	Thallium-208	0.107000	PCI/G	0.498	PCI/G	0.060			NA	1464727.504	599133.422
09/01/2004	423-B-011	Thallium-208	0.106000	PCI/G	0.498	PCI/G	0.067			NA	1464689.525	599113.792
09/01/2004	423-NS-012	Thallium-208	0.093000	PCI/G	0.498	PCI/G	0.060			NA	1464816.573	599178.169
09/01/2004	423-SS-026	Thallium-208	0.093000	PCI/G	0.498	PCI/G	0.045			NA	1464813.55	599182.206
09/01/2004	423-GN-027	Thallium-208	0.091000	PCI/G	0.498	PCI/G	0.057			NA	1464717.297	599141.184
09/01/2004	423-B-003	Thallium-208	0.072000	PCI/G	0.498	PCI/G	0.051			NA	1464793.861	599169.267
09/01/2004	423-B-012	Thallium-208	0.061000	PCI/G	0.498	PCI/G	0.057			NA	1464680.563	599109.311
09/01/2004	423-NS-016	Thorium-228	0.960000	PCI/G	2.6	PCI/G	0.03			NA	1464724.618	599129.77
09/01/2004	423-B-010	Thorium-228	0.820000	PCI/G	2.6	PCI/G	0.03			NA	1464701.687	599120.193
09/01/2004	423-NS-013	Thorium-228	0.800000	PCI/G	2.6	PCI/G	0.04			NA	1464793.522	599166.124
09/01/2004	423-NS-014	Thorium-228	0.800000	PCI/G	2.6	PCI/G	0.04			NA	1464770.585	599153.914
09/01/2004	423-SS-019	Thorium-228	0.800000	PCI/G	2.6	PCI/G	0.03			NA	1464687.007	599115.675
09/01/2004	423-NS-017	Thorium-228	0.780000	PCI/G	2.6	PCI/G	0.05			NA	1464701.681	599117.602
09/01/2004	423-B-002	Thorium-228	0.750000	PCI/G	2.6	PCI/G	0.04			NA	1464807.517	599176.308
09/01/2004	423-NS-015	Thorium-228	0.750000	PCI/G	2.6	PCI/G	0.04			NA	1464747.651	599141.826
09/01/2004	423-B-004	Thorium-228	0.740000	PCI/G	2.6	PCI/G	0.07			NA	1464780.206	599162.013
09/01/2004	423-SS-021	Thorium-228	0.720000	PCI/G	2.6	PCI/G	0.04			NA	1464721.819	599133.858
09/01/2004	423-B-001	Thorium-228	0.670000	PCI/G	2.6	PCI/G	0.03			NA	1464820.532	599183.563
09/01/2004	423-SS-025	Thorium-228	0.640000	PCI/G	2.6	PCI/G	0.04			NA	1464790.715	599170.073
09/01/2004	423-B-008	Thorium-228	0.630000	PCI/G	2.6	PCI/G	0.03			NA	1464727.504	599133.422
09/01/2004	423-SS-023	Thorium-228	0.600000	PCI/G	2.6	PCI/G	0.05			NA	1464732.344	599133.827
09/01/2004	423-NS-018	Thorium-228	0.560000	PCI/G	2.6	PCI/G	0.03			NA	1464689.965	599111.41
09/01/2004	423-B-005	Thorium-228	0.530000	PCI/G	2.6	PCI/G	0.05			NA	1464767.617	599155.185
09/01/2004	423-B-009	Thorium-228	0.520000	PCI/G	2.6	PCI/G	0.03			NA	1464714.702	599127.021
09/01/2004	423-GN-028	Thorium-228	0.510000	PCI/G	2.6	PCI/G	0.05			NA	1464732.297	599141.184
09/01/2004	423-SS-020	Thorium-228	0.500000	PCI/G	2.6	PCI/G	0.03			NA	1464698.798	599121.806
09/01/2004	423-SS-022	Thorium-228	0.470000	PCI/G	2.6	PCI/G	0.05			NA	1464744.781	599145.985
09/01/2004	423-GN-027FD	Thorium-228	0.470000	PCI/G	2.6	PCI/G	0.03			NA	1464717.297	599141.184
09/01/2004	423-GN-029	Thorium-228	0.460000	PCI/G	2.6	PCI/G	0.05			NA	1464744.781	599145.985
09/01/2004	423-SS-024	Thorium-228	0.440000	PCI/G	2.6	PCI/G	0.06			NA	1464767.707	599158.049
09/01/2004	423-B-003	Thorium-228	0.419000	PCI/G	2.6	PCI/G	0.034			NA	1464793.861	599169.267
09/01/2004	423-GN-027	Thorium-228	0.380000	PCI/G	2.6	PCI/G	0.03			NA	1464717.297	599141.184
09/01/2004	423-B-006	Thorium-228	0.379000	PCI/G	2.6	PCI/G	0.031			NA	1464753.748	599147.717
09/01/2004	423-B-012	Thorium-228	0.360000	PCI/G	2.6	PCI/G	0.05			NA	1464680.563	599109.311
09/01/2004	423-SS-026	Thorium-228	0.360000	PCI/G	2.6	PCI/G	0.03			NA	1464813.55	599182.206
09/01/2004	423-NS-012	Thorium-228	0.330000	PCI/G	2.6	PCI/G	0.05			NA	1464816.573	599178.169
09/01/2004	423-SS-026FD	Thorium-228	0.310000	PCI/G	2.6	PCI/G	0.04			NA	1464813.55	599182.206
09/01/2004	423-B-011	Thorium-228	0.299000	PCI/G	2.6	PCI/G	0.030			NA	1464689.525	599113.792
09/01/2004	423-B-007	Thorium-228	0.292000	PCI/G	2.6	PCI/G	0.032			NA	1464740.733	599140.889
09/01/2004	423-GN-030	Thorium-228	0.290000	PCI/G	2.6	PCI/G	0.05			NA	1464754.797	599154.174
09/01/2004	423-B-010	Thorium-230	1.110000	PCI/G	2.8	PCI/G	0.03			NA	1464701.687	599120.193

*Due to space limitations, the letter "V" , as designated in SUD, was stripped from sample labels to facilitate input into MEIMS

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PRS 423 Verification Sampling Results

Date Collected	Sample Id*	CAS Name	Results	Units of Measure	Cleanup Objecti ve	Units of Measure	Detection Limit	Lab Qual	Data Qual	Depth Units	X Coord	Y Coord
09/01/2004	423-B-008	Thorium-230	0.820000	PCI/G	2.8	PCI/G	0.03			NA	1464727.504	599133.422
09/01/2004	423-NS-014	Thorium-230	0.820000	PCI/G	2.8	PCI/G	0.01			NA	1464770.585	599153.914
09/01/2004	423-NS-018	Thorium-230	0.800000	PCI/G	2.8	PCI/G	0.02			NA	1464689.965	599111.41
09/01/2004	423-NS-015	Thorium-230	0.790000	PCI/G	2.8	PCI/G	0.03			NA	1464747.651	599141.826
09/01/2004	423-B-001	Thorium-230	0.750000	PCI/G	2.8	PCI/G	0.02			NA	1464820.532	599183.563
09/01/2004	423-B-012	Thorium-230	0.740000	PCI/G	2.8	PCI/G	0.04			NA	1464680.563	599109.311
09/01/2004	423-B-009	Thorium-230	0.730000	PCI/G	2.8	PCI/G	0.01			NA	1464714.702	599127.021
09/01/2004	423-NS-016	Thorium-230	0.730000	PCI/G	2.8	PCI/G	0.02			NA	1464724.618	599129.77
09/01/2004	423-SS-022	Thorium-230	0.720000	PCI/G	2.8	PCI/G	0.03			NA	1464744.781	599145.985
09/01/2004	423-GN-028	Thorium-230	0.720000	PCI/G	2.8	PCI/G	0.03			NA	1464732.297	599141.184
09/01/2004	423-SS-025	Thorium-230	0.710000	PCI/G	2.8	PCI/G	0.03			NA	1464790.715	599170.073
09/01/2004	423-GN-029	Thorium-230	0.710000	PCI/G	2.8	PCI/G	0.03			NA	1464744.781	599145.985
09/01/2004	423-B-004	Thorium-230	0.700000	PCI/G	2.8	PCI/G	0.04			NA	1464780.206	599162.013
09/01/2004	423-NS-012	Thorium-230	0.700000	PCI/G	2.8	PCI/G	0.02			NA	1464816.573	599178.169
09/01/2004	423-NS-017	Thorium-230	0.700000	PCI/G	2.8	PCI/G	0.04			NA	1464701.681	599117.602
09/01/2004	423-SS-024	Thorium-230	0.700000	PCI/G	2.8	PCI/G	0.04			NA	1464767.707	599158.049
09/01/2004	423-SS-023	Thorium-230	0.680000	PCI/G	2.8	PCI/G	0.03			NA	1464732.344	599133.827
09/01/2004	423-SS-026	Thorium-230	0.670000	PCI/G	2.8	PCI/G	0.02			NA	1464813.55	599182.206
09/01/2004	423-NS-013	Thorium-230	0.660000	PCI/G	2.8	PCI/G	0.03			NA	1464793.522	599166.124
09/01/2004	423-SS-026FD	Thorium-230	0.660000	PCI/G	2.8	PCI/G	0.03			NA	1464813.55	599182.206
09/01/2004	423-GN-027	Thorium-230	0.660000	PCI/G	2.8	PCI/G	0.03			NA	1464717.297	599141.184
09/01/2004	423-SS-021	Thorium-230	0.650000	PCI/G	2.8	PCI/G	0.02			NA	1464721.819	599133.858
09/01/2004	423-B-006	Thorium-230	0.640000	PCI/G	2.8	PCI/G	0.02			NA	1464753.748	599147.717
09/01/2004	423-B-002	Thorium-230	0.620000	PCI/G	2.8	PCI/G	0.04			NA	1464807.517	599176.308
09/01/2004	423-B-011	Thorium-230	0.620000	PCI/G	2.8	PCI/G	0.02			NA	1464689.525	599113.792
09/01/2004	423-SS-020	Thorium-230	0.620000	PCI/G	2.8	PCI/G	0.02			NA	1464698.798	599121.806
09/01/2004	423-GN-027FD	Thorium-230	0.590000	PCI/G	2.8	PCI/G	0.03			NA	1464717.297	599141.184
09/01/2004	423-GN-030	Thorium-230	0.580000	PCI/G	2.8	PCI/G	0.03			NA	1464754.797	599154.174
09/01/2004	423-SS-019	Thorium-230	0.560000	PCI/G	2.8	PCI/G	0.03			NA	1464687.007	599115.675
09/01/2004	423-B-005	Thorium-230	0.520000	PCI/G	2.8	PCI/G	0.03			NA	1464767.617	599155.185
09/01/2004	423-B-003	Thorium-230	0.500000	PCI/G	2.8	PCI/G	0.02			NA	1464793.861	599169.267
09/01/2004	423-B-007	Thorium-230	0.500000	PCI/G	2.8	PCI/G	0.03			NA	1464740.733	599140.889
09/01/2004	423-NS-015	Thorium-232	0.870000	PCI/G	2.1	PCI/G	0.01			NA	1464747.651	599141.826
09/01/2004	423-NS-014	Thorium-232	0.830000	PCI/G	2.1	PCI/G	0.02			NA	1464770.585	599153.914
09/01/2004	423-SS-019	Thorium-232	0.820000	PCI/G	2.1	PCI/G	0.02			NA	1464687.007	599115.675
09/01/2004	423-B-004	Thorium-232	0.790000	PCI/G	2.1	PCI/G	0.04			NA	1464780.206	599162.013
09/01/2004	423-B-002	Thorium-232	0.770000	PCI/G	2.1	PCI/G	0.03			NA	1464807.517	599176.308
09/01/2004	423-SS-024	Thorium-232	0.740000	PCI/G	2.1	PCI/G	0.02			NA	1464767.707	599158.049
09/01/2004	423-B-010	Thorium-232	0.730000	PCI/G	2.1	PCI/G	0.03			NA	1464701.687	599120.193
09/01/2004	423-SS-025	Thorium-232	0.730000	PCI/G	2.1	PCI/G	0.01			NA	1464790.715	599170.073
09/01/2004	423-NS-017	Thorium-232	0.720000	PCI/G	2.1	PCI/G	0.02			NA	1464701.681	599117.602
09/01/2004	423-B-008	Thorium-232	0.710000	PCI/G	2.1	PCI/G	0.02			NA	1464727.504	599133.422
09/01/2004	423-NS-013	Thorium-232	0.710000	PCI/G	2.1	PCI/G	0.03			NA	1464793.522	599166.124
09/01/2004	423-SS-021	Thorium-232	0.670000	PCI/G	2.1	PCI/G	0.02			NA	1464721.819	599133.858

*Due to space limitations, the letter "V" , as designated in SUD, was stripped from sample labels to facilitate input into MEIMS

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PRS 423 Verification Sampling Results

Date Collected	Sample Id*	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	Depth Units	X Coord	Y Coord
09/01/2004	423-NS-016	Thorium-232	0.650000	PCI/G	2.1	PCI/G	0.01			NA	1464724.618	599129.77
09/01/2004	423-SS-023	Thorium-232	0.640000	PCI/G	2.1	PCI/G	0.02			NA	1464732.344	599133.827
09/01/2004	423-NS-016	Thorium-232	0.640000	PCI/G	2.1	PCI/G	0.31			NA	1464724.618	599129.77
09/01/2004	423-B-001	Thorium-232	0.630000	PCI/G	2.1	PCI/G	0.02			NA	1464820.532	599183.563
09/01/2004	423-NS-018	Thorium-232	0.600000	PCI/G	2.1	PCI/G	0.01			NA	1464689.965	599111.41
09/01/2004	423-B-004	Thorium-232	0.590000	PCI/G	2.1	PCI/G	0.28			NA	1464780.206	599162.013
09/01/2004	423-SS-023	Thorium-232	0.580000	PCI/G	2.1	PCI/G	0.31			NA	1464732.344	599133.827
09/01/2004	423-GN-028	Thorium-232	0.560000	PCI/G	2.1	PCI/G	0.03			NA	1464732.297	599141.184
09/01/2004	423-B-005	Thorium-232	0.550000	PCI/G	2.1	PCI/G	0.03			NA	1464767.617	599155.185
09/01/2004	423-B-009	Thorium-232	0.550000	PCI/G	2.1	PCI/G	0.03			NA	1464714.702	599127.021
09/01/2004	423-B-008	Thorium-232	0.500000	PCI/G	2.1	PCI/G	0.29			NA	1464727.504	599133.422
09/01/2004	423-SS-022	Thorium-232	0.490000	PCI/G	2.1	PCI/G	0.03			NA	1464744.781	599145.985
09/01/2004	423-GN-029	Thorium-232	0.440000	PCI/G	2.1	PCI/G	0.03			NA	1464744.781	599145.985
09/01/2004	423-SS-021	Thorium-232	0.440000	PCI/G	2.1	PCI/G	0.30			NA	1464721.819	599133.858
09/01/2004	423-SS-020	Thorium-232	0.420000	PCI/G	2.1	PCI/G	0.01			NA	1464698.798	599121.806
09/01/2004	423-B-011	Thorium-232	0.404000	PCI/G	2.1	PCI/G	0.024			NA	1464689.525	599113.792
09/01/2004	423-GN-027FD	Thorium-232	0.400000	PCI/G	2.1	PCI/G	0.023			NA	1464717.297	599141.184
09/01/2004	423-B-005	Thorium-232	0.400000	PCI/G	2.1	PCI/G	0.26			NA	1464767.617	599155.185
09/01/2004	423-B-006	Thorium-232	0.361000	PCI/G	2.1	PCI/G	0.020			NA	1464753.748	599147.717
09/01/2004	423-NS-014	Thorium-232	0.360000	PCI/G	2.1	PCI/G	0.32			NA	1464770.585	599153.914
09/01/2004	423-GN-027	Thorium-232	0.341000	PCI/G	2.1	PCI/G	0.025			NA	1464717.297	599141.184
09/01/2004	423-NS-012	Thorium-232	0.314000	PCI/G	2.1	PCI/G	0.037			NA	1464816.573	599178.169
09/01/2004	423-SS-020	Thorium-232	0.300000	PCI/G	2.1	PCI/G	0.21			NA	1464698.798	599121.806
09/01/2004	423-GN-030	Thorium-232	0.289000	PCI/G	2.1	PCI/G	0.032			NA	1464754.797	599154.174
09/01/2004	423-B-003	Thorium-232	0.288000	PCI/G	2.1	PCI/G	0.020			NA	1464793.861	599169.267
09/01/2004	423-B-012	Thorium-232	0.272000	PCI/G	2.1	PCI/G	0.038			NA	1464680.563	599109.311
09/01/2004	423-SS-026	Thorium-232	0.253000	PCI/G	2.1	PCI/G	0.033			NA	1464813.55	599182.206
09/01/2004	423-SS-026FD	Thorium-232	0.246000	PCI/G	2.1	PCI/G	0.033			NA	1464813.55	599182.206
09/01/2004	423-B-007	Thorium-232	0.221000	PCI/G	2.1	PCI/G	0.021			NA	1464740.733	599140.889

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*Due to space limitations, the letter "V" , as designated in SUD, was stripped from sample labels to facilitate input into MEIMS

File Copy

STD VSAP BACKFILL INFO

This information will be represented in the Data Report.

For: PRS 423

Checklist:

(per Section 5.6 of Std VSAP, Final, Aug 04)

- ☑ final Graphic
  (show sample locations & note any >CO and/or >HS)
- ☑ sample results
  (show DLs, HS, COs, and COC std deviation(s))
- ☑ recalc of N
- ☑ Data Review & Validation
- NA Sign test ✓
  (not required if all results <CO, see pg 19/21 of VSAP)
- NA retro curve ✓
  (not required if all results <CO [null hypothesis is rejected, MARSSIM])

From: (sign/date) 29Sep04 Mark Sm 9/30/04

Jim X

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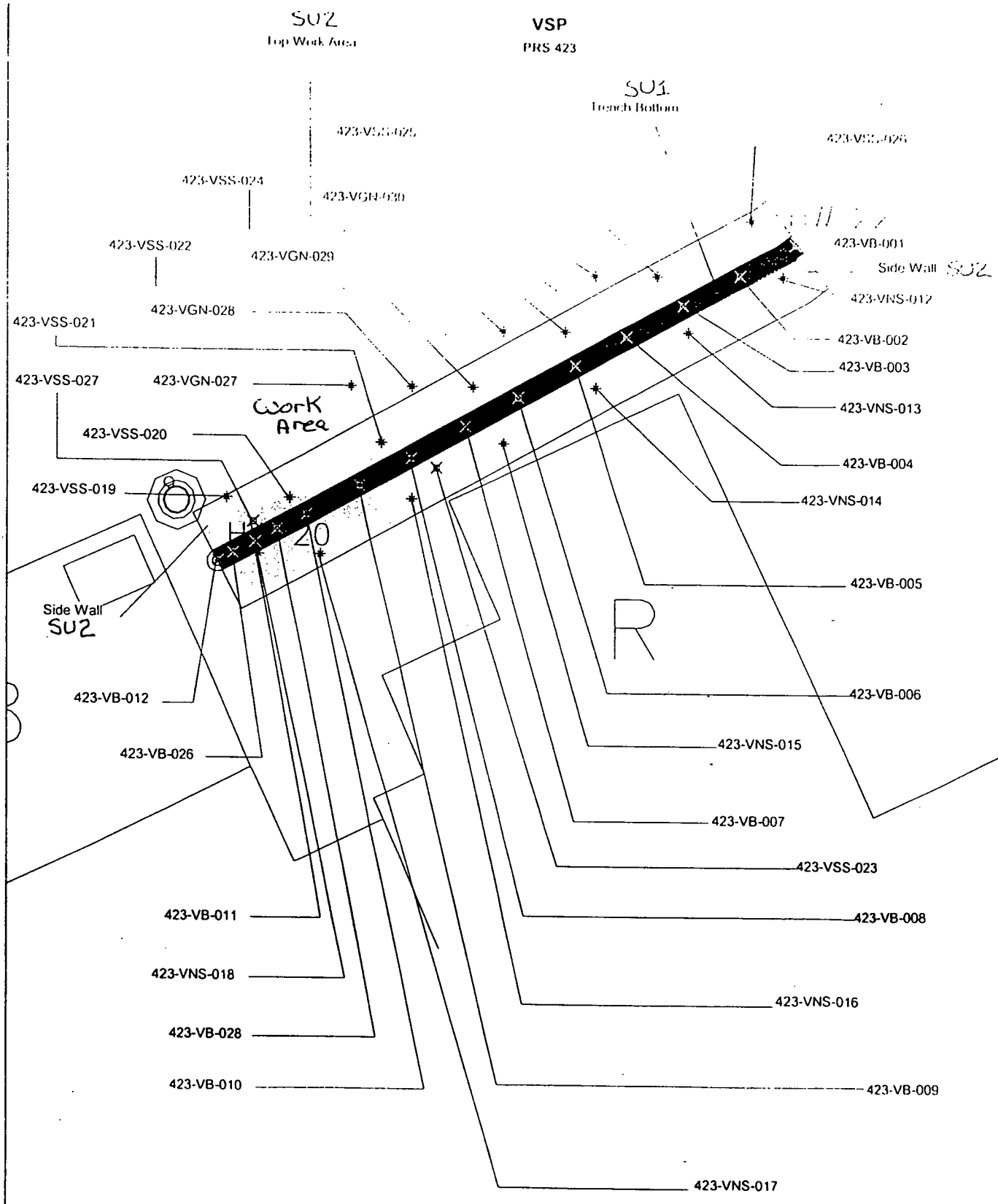

Final Graphic

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FSS PRS 423

SAMPLE RESULTS (1/2)

SU1:	Sample	Th-228	MDC	Th-230	MDC	Th-232	MDC	Pu-238	MDC	Ac-227	MDC	Am-241	MDC	Cs-137	MDC	Co-60	MDC	Ra-226	MDC
423-VB-001	1	0.67	0.03	0.75	0.02	0.63	0.02	9.90	0.04	0.40	0.40	0.22	0.22	0.14	0.14	0.13	0.13	0.38	0.27
423-VB-002	2	0.75	0.04	0.62	0.04	0.77	0.03	0.24	0.03	0.40	0.40	0.13	0.13	0.08	0.08	0.11	0.11	0.40	0.40
423-VB-003	3	0.42	0.03	0.50	0.02	0.29	0.02	11.10	0.03	0.24	0.24	0.09	0.09	0.07	0.07	0.08	0.08	0.36	0.27
423-VB-004	4	0.74	0.07	0.70	0.04	0.79	0.04	0.04	0.04	0.40	0.40	0.18	0.18	0.08	0.08	0.09	0.09	0.63	0.45
423-VB-005	5	0.53	0.05	0.52	0.03	0.55	0.03	0.30	0.03	0.32	0.32	0.14	0.14	0.10	0.10	0.13	0.13	0.32	0.32
423-VB-006	6	0.38	0.03	0.64	0.02	0.36	0.02	0.41	0.03	0.25	0.25	0.12	0.12	0.07	0.07	0.09	0.09	0.33	0.31
423-VB-007	7	0.29	0.03	0.50	0.03	0.22	0.02	0.37	0.03	0.30	0.30	0.11	0.11	0.06	0.06	0.07	0.07	0.28	0.28
423-VB-008	8	0.63	0.03	0.82	0.03	0.71	0.02	1.71	0.03	0.32	0.32	0.14	0.14	0.09	0.09	0.08	0.08	0.42	0.33
423-VB-009	9	0.52	0.03	0.73	0.01	0.55	0.03	0.28	0.04	0.40	0.40	0.17	0.17	0.10	0.10	0.08	0.08	0.50	0.43
423-VB-010	10	0.82	0.03	1.11	0.03	0.73	0.03	0.03	0.04	0.50	0.50	0.17	0.17	0.13	0.13	0.11	0.11	0.75	0.49
423-VB-011	11	0.30	0.03	0.62	0.02	0.40	0.02	0.05	0.04	0.29	0.29	0.10	0.10	0.07	0.07	0.09	0.09	0.42	0.30
423-VB-012	12	0.36	0.05	0.74	0.04	0.27	0.04	0.38	0.02	0.27	0.27	0.10	0.10	0.08	0.08	0.07	0.07	0.40	0.31
Hot Spot:		4.80		4.60		3.50		165.13		13.61		189.00		10.62		2.10		4.70	
Action Level (CO):		2.6		2.8		2.1		55		4.6		63		3.8		0.7		2.9	
Maximum:		0.82		1.11		0.79		11.10		0.50		0.22		0.14		0.13		0.75	
below/ABOVE CO:		below		below		below		below		below		below		below		below		below	
Standar Deviation:		0.19		0.17		0.21		3.97		0.08		0.04		0.02		0.02		0.14	

SU2:	Sample	Th-228	MDC	Th-230	MDC	Th-232	MDC	Pu-238	MDC	Ac-227	MDC	Am-241	MDC	Cs-137	MDC	Co-60	MDC	Ra-226	MDC
423-VNS-012	13	0.33	0.05	0.70	0.02	0.31	0.04	0.04	0.04	0.23	0.23	0.10	0.10	0.06	0.06	0.08	0.08	0.48	0.14
423-VNS-013	14	0.80	0.04	0.66	0.03	0.71	0.03	0.15	0.15	0.36	0.36	0.16	0.16	0.10	0.09	0.02	0.02	0.42	0.42
423-VNS-014	15	0.80	0.04	0.82	0.01	0.83	0.02	0.07	0.03	0.47	0.47	0.18	0.18	0.13	0.13	0.14	0.14	0.50	0.48
423-VNS-015	16	0.75	0.04	0.79	0.03	0.87	0.01	0.08	0.02	0.48	0.48	0.18	0.18	0.09	0.09	0.15	0.15	0.64	0.53
423-VNS-016	17	0.96	0.03	0.73	0.02	0.65	0.01	0.03	0.03	0.34	0.34	0.15	0.15	0.09	0.09	0.10	0.10	0.36	0.36
423-VNS-017	18	0.78	0.05	0.70	0.04	0.72	0.02	0.25	0.04	0.37	0.37	0.15	0.15	0.11	0.11	0.11	0.11	0.34	0.34
423-VNS-018	19	0.56	0.03	0.80	0.02	0.60	0.01	0.14	0.03	0.29	0.29	0.15	0.15	0.10	0.10	0.11	0.11	0.41	0.39
423-VSS-019	20	0.80	0.03	0.56	0.03	0.82	0.02	0.03	0.03	0.43	0.43	0.15	0.15	0.06	0.06	0.08	0.08	0.47	0.42
423-VSS-020	21	0.50	0.03	0.62	0.02	0.42	0.01	0.38	0.05	0.24	0.24	0.10	0.10	0.07	0.07	0.07	0.07	0.43	0.29
423-VSS-021	22	0.72	0.04	0.65	0.02	0.67	0.02	0.12	0.04	0.37	0.37	0.13	0.13	0.09	0.09	0.08	0.08	0.49	0.36
423-VSS-022	23	0.47	0.05	0.72	0.03	0.49	0.03	0.14	0.03	0.27	0.27	0.12	0.12	0.08	0.08	0.10	0.10	0.36	0.29
423-VSS-024	25	0.44	0.06	0.70	0.04	0.74	0.02	0.08	0.04	0.27	0.27	0.12	0.12	0.10	0.10	0.09	0.09	0.33	0.33
423-VSS-025	26	0.64	0.04	0.71	0.03	0.73	0.01	0.03	0.03	0.41	0.41	0.14	0.14	0.11	0.11	0.10	0.10	0.39	0.39
423-VSS-026	27	0.36	0.03	0.67	0.02	0.25	0.03	0.04	0.04	0.29	0.29	0.09	0.09	0.07	0.07	0.07	0.07	0.38	0.32
423-VGN-027	29	0.38	0.03	0.66	0.03	0.34	0.03	0.31	0.05	0.26	0.26	0.10	0.10	0.08	0.08	0.07	0.07	0.42	0.17
423-VGN-028	31	0.51	0.05	0.72	0.03	0.56	0.03	0.18	0.05	0.34	0.34	0.13	0.13	0.07	0.07	0.11	0.11	0.37	0.34
423-VGN-029	32	0.46	0.05	0.71	0.03	0.44	0.03	0.18	0.04	0.33	0.33	0.11	0.11	0.08	0.08	0.08	0.08	0.34	0.34
423-VGN-030	33	0.29	0.05	0.58	0.03	0.29	0.03	0.20	0.03	0.21	0.21	0.10	0.10	0.08	0.08	0.08	0.08	0.26	0.26
Hot Spot:		4.80		4.60		3.50		165.13		13.61		189.00		10.62		2.10		4.70	
Action Level (CO):		2.6		2.8		2.1		55		4.6		63		3.8		0.7		2.9	
Maximum:		0.96		0.82		0.87		0.38		0.48		0.18		0.13		0.15		0.64	
below/ABOVE CO:		below		below		below		below		below		below		below		below		below	
Standard Deviation:		0.20		0.07		0.20		0.10		0.08		0.03		0.02		0.03		0.09	

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Lab/Field Duplicates:	Sample	Th-228	MDC	Th-230	MDC	Th-232	MDC	Pu-238	MDC	Ac-227	MDC	Am-241	MDC	Cs-137	MDC	Co-60	MDC	Ra-226	MDC
423-VB-001 LD	NA	0.61	0.04	0.57	0.03	0.67	0.03	18.9	0.04			0.19	0.19	0.10	0.10	0.13	0.13	0.40	0.40
423-VSS-020 LD	NA	0.48	0.03	0.49	0.03	0.60	0.04	0.44	0.05										
423-VSS-021 LD	NA									0.33	0.33	0.15	0.15	0.08	0.08	0.10	0.10	0.36	0.36
423-VSS-026 FD	28	0.31	0.04	0.66	0.03	0.25	0.03	0.04	0.04	0.24	0.24	0.10	0.10	0.05	0.05	0.07	0.07	0.39	0.33
423-VGN-027 FD	30	0.47	0.03	0.59	0.03	0.40	0.02	0.47	0.03	0.31	0.31	0.11	0.11	0.07	0.07	0.05	0.05	0.35	0.33
Hot Spot:		4.80		4.60		3.50		165.13		13.61		189.00		10.62		2.10		4.70	
Action Level (CO):		2.6		2.8		2.1		55		4.6		63		3.8		0.7		2.9	

Rad Bias:	Sample	Th-228	MDC	Th-230	MDC	Th-232	MDC	Pu-238	MDC	Ac-227	MDC	Am-241	MDC	Cs-137	MDC	Co-60	MDC	Ra-226	MDC
423-VSS-023	24	0.60	0.05	0.68	0.03	0.64	0.02	0.04	0.04	0.37	0.37	0.13	0.13	0.08	0.08	0.09	0.09	0.34	0.34
Hot Spot:		4.80		4.60		3.50		165.13		13.61		189.00		10.62		2.10		4.70	
Action Level (CO):		2.6		2.8		2.1		55		4.6		63		3.8		0.7		2.9	

Chemical Bias:
423-VSS-027
423-VB-026
423-VB-028

SAMPLE RESULTS (R6)

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PRS 423 UGL Verification
Sampled 8/16/04

	PQL	423-VB-026	423-VSS-027	423-VB-028	CO
Analyte	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Napthalene	370				
2-Methylnaphthalene	370				
2-Chloronaphthalene	370				
Acenapththylene	370				
Acenapthene	370				
Fluorene	370				
Phenathrene	370	*100*	*120*		
Anthracene	370				
Fluoranthene	370	*180*	*190*	*130*	
Pyrene	370	*160*	*170*	*130*	
Benzo(a)anthracene	370	*96*	*91*		40800
Chrysene	370	*120*	*110*	*110*	4080000
Benzo(b)fluoranthene	370	*93*		*120*	40800
Benzo(k)fluoranthene	370	*96*	*97*	*110*	408000
Benzo(a)pyrene	370	*110*	*90*	*110*	4080
Indeno(1,2,3-cd)pyrene	370	*86*		*120*	40800
Benzo(ghi)perylene	370			*130*	
Dibenzo(a,h)anthracene	370				
		Note: All results less than PQL			
System Monitoring Cmpds	(% recovery)				
2-Flurophenol	40-103	79	76	65	
Phenol-d5	36-105	70	68	61	
Nitrobenzene-d5	45-114	85	84	71	
2-Fluorobiphenyl	49-120	89	86	78	
2,4,6-Tribromophenol	39-114	75	68	61	
p-Terphenyl-d14	42-108	88	90	79	
	Italic results are detections below Practical Quantitation Level (PQL)				
	Blanks cells are non-detects (i.e., < IDL)				

SAMPLE RESULTS (3/6)

A20/198

PRS 423 UGL
Sampled 8/16/04

	PQL	423-VB-026	423-VSS-027	423-VB-028	CO
Analytes	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Chloromethane	11				
Vinyl chloride	5.6				
Bromomethane	11				
Chloroethane	11				
Acetone	23	*4.0*			
1,1-Dichloroethene	5.6				
Methylene chloride	5.6	*4.2*	*3.9*	*5.4*	
Carbon disulfide	5.6				
1,1-Dichloroethane	5.6				
2-Butanone	23				
1,2-Dichloroethene (total)	11	*0.85*		*1.4*	
Chloroform	5.6				
1,1,1-Trichloroethane	5.6				
Carbon tetrachloride	5.6				
1,2-Dichloroethane	5.6				
Benzene	5.6				
Trichloroethene	5.6	*0.53*		*5.6*	52500
1,2-Dichloropropane	5.6				
Bromodichloromethane	5.6				
4-methyl-2-pentanone	23				
cis-1,3-Dichloropropene	5.6				
Toluene	5.6				
trans-1,3-Dichloropropene	5.6				
1,1,2-Trichloroethane	5.6				
2-Hexanone	23				
Tetrachloroethene	5.6				
Dibromochloromethane	5.6				
Chlorobenzene	5.6				
Ethylbenzene	5.6				
Xylenes (total)	11				
Styrene	5.6				
Bromoform	5.6				
1,1,2,2,-Tetrachloroethane	5.6				
1,2-Dichlorobenzene	5.6				
1,3-Dichlorobenzene	5.6				
1,4-Dichlorobenzene	5.6				
	Note: All results less than PQL with one at PQL				
System Monitoring Cmpd	(% recovery)				
Tolune-d8.	80-130	102	104	105	
Bibromofluoromethane	78-130	109	112	107	
1,,2-Dichloroethane-d4	72-134	108	114	109	
4-Bromofluoroobenzene	68-150	93	99	102	
	Italic results are detections below Practical Quantitation Level (PQL)				
	Blanks cells are non-detects (i.e., < IDL)				

SAMPLE RESULTS 4/6

A21/198

PRS 423 UGL
Sampled 8/16/04

	PQL	423-VB-026	423-VSS-027	423-VB-028	HI0.1+BKGD	CO	BKGD
Analytes	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Aluminum	113	3,840	9,440	12,600	21,300		
Arsenic	1.1	5.3	8.1	2	6.42	28.47	
Lead	0.34	35.0	14.4	10.7	no HI	no CO	48
Antimony	1.1	*0.91*	*0.33*		8.52		
Barium	113	*29.0*	41.4	42.9	1,490		
Selenium	0.56						
Berylium	2.8		0.68	0.72	42.10		
Thallium	1.1						
Cadmium	2.8						
Calcium	2,810	123,000	54,800	31,600	EHN		
Chromium	5.6	10.3	21.7	14	31,900		
Cobalt	5.6	*3.7*	8	7.5	1,280		
Copper	14.1	*5.8*	15.8	10.1	852		
Iron	56.3	9,800	16,000	21,000	EHN		
Magnesium	2,810	46,600	28,400	14,000	EHN		
Manganese	8.4	272	711	290	2,280		
Nickel	22.5		15.4	17.6	426		
Potassium	2,810		1,760	3,230	EHN		
Silver	5.6						
Sodium	2,810	*156*	*149*	*332*	EHN		
Vanadium	28.1	15.3	20.4	16.7	149		
Zinc	11	33.6	53.9	49.7	6,390		
Mercury	0.038	0.049	*0.028*		6.39		
	Italic results are detections below Practical Quantitation Level (PQL)						
	Blanks cells are non-detects (i.e., < IDL)						
	EHN = Essential Human Nutrient (not considered)						

SAMPLE RESULTS (5/6)

A22/198

PRS 423 UGL
Sampled 8/16/04

	PQL	423-VB-026	423-VSS-027	423-VB-028
units	mg/kg	mg/kg	mg/kg	mg/kg
TPH-DRO	28	60		
	Less than FOSRA (105 mg/kg)			
System Monitoring Cmpds	(% recovery)			
Tolune-d8	10-150	51	53	46

Italic results are detections below Practical Quantitation Level (PQL)
Blanks cells are non-detects (i.e., < IDL)

SAMPLE RESULTS (6/6)

A 23/19

recalc. N / SU1

1

Sample Standard Deviation (*s*)	Radionuclide	Cleanup Objective	Units
0.08	Ac-227+D	4.6	(pCi/g)
0.04	Am-241	63	(pCi/g)
	Ce-141	38	(pCi/g)
0.02	Cs-137+D	3.8	(pCi/g)
0.02	Co-60	0.7	(pCi/g)
	Cu-244	92	(pCi/g)
	Pb-210+D	7.4	(pCi/g)
	Np-237+D	10.4	(pCi/g)
	Ni-95	2.5	(pCi/g)
3.97	Pu-238	55	(pCi/g)
	Pu-239/240	62	(pCi/g)
	Pa-231+D	4	(pCi/g)
0.14	Ra-226+D	2.9	(pCi/g)
	Ra-228	2.1	(pCi/g)
0.19	Th-228+D	2.6	(pCi/g)
0.17	Th-230+D	2.8	(pCi/g)
0.21	Th-232+D	2.1	(pCi/g)
	U-233+D	4.8	(pCi/g)
	U-234	106.1	(pCi/g)
	U-234+D	2	(pCi/g)
	U-235	16.11	(pCi/g)
	U-235+D	3.2	(pCi/g)
	U-238	121.2	(pCi/g)
	U-238+D	2.2	(pCi/g)
	Bi-207	1.2	(pCi/g)
	Bi-210m	8.3	(pCi/g)
	Tc-99	2140	(pCi/g)
	Sr-90	94.72	(pCi/g)

FSS Recalculation

2

Type I Error	0.05
$Z_{1\text{-alpha}}$	1.645
Type II Error	0.2
$Z_{1\text{-beta}}$	0.842
Effective	0.17 (*s*)
Sign p	0.993790

3 Calculate the Total Effective (s)

4

Estimate (N) - Sign Test

DCGL	1
LBGR	0.51
Delta	0.49
(s)	0.17
Rel Shift	2.943
(N)	8.00 *

*** 12 Samples were taken 15' apart, area less than 100 sq. m.**

5

Sample Grid Spacing

SU Area	82	m^2
Grid Length	3.0	m
Grid Height	2.6	m

PRS 423

Survey Unit 1

recalc. N / SU2

Sample Standard Deviation (s)	Radionuclide	Cleanup Objective	Units
0.11	Ac-227+D	4.6	(pCi/g)
0.03	Am-241	63	(pCi/g)
	Ce-141	38	(pCi/g)
0.02	Cs-137+D	3.8	(pCi/g)
0.03	Co-60	0.7	(pCi/g)
	Cu-244	92	(pCi/g)
	Pb-210+D	7.4	(pCi/g)
	Np-237+D	10.4	(pCi/g)
	Ni-95	2.5	(pCi/g)
0.1	Pu-238	55	(pCi/g)
	Pu-239/240	62	(pCi/g)
	Pa-231+D	4	(pCi/g)
0.09	Ra-226+D	2.9	(pCi/g)
	Ra-228	2.1	(pCi/g)
0.2	Th-228+D	2.6	(pCi/g)
0.07	Th-230+D	2.8	(pCi/g)
0.2	Th-232+D	2.1	(pCi/g)
	U-233+D	4.8	(pCi/g)
	U-234	106.1	(pCi/g)
	U-234+D	2	(pCi/g)
	U-235	16.11	(pCi/g)
	U-235+D	3.2	(pCi/g)
	U-238	121.2	(pCi/g)
	U-238+D	2.2	(pCi/g)
	Bi-207	1.2	(pCi/g)
	Bi-210m	8.3	(pCi/g)
	Tc-99	2140	(pCi/g)
	Sr-90	94.72	(pCi/g)

FSS Recalculation

		Estimate (N) - Sign Test	
Type I Error	0.05	DCGL	1
$Z_{1\text{-alpha}}$	1.645	LBGR	0.59
Type II Error	0.2	Delta	0.41
$Z_{1\text{-beta}}$	0.842	*(s)*	0.14
		Rel Shift	2.973
Effective	0.14 *(s)*	*(N)*	8.00

Sign p 0.993790

Calculate the Total Effective (s)

Area Factor adjusted (N) 109

Sample Grid Spacing

SU Area	327	m^2
Grid Length	5.9	m
Grid Height	5.2	m

PRS 423 Survey Unit 2

A25/198

1.0 Introduction

Analytical data assessment can be performed on at many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 423 covers a section of the radioactive underground line removal north of R Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met.

The bottom of the trench was excavated just prior to sampling to remove debris and material that had peeled from the sides of the trench. Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

Data R&V (1/40)

Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
9/1/04	F4I030235	33	423-VB-001, 423-VB-002, 423-VB-003, 423-VB-004, 423-VB-005, 423-VB-006, 423-VB-007, 423-VB-008, 423-VB-009, 423-VB-010, 423-VB-011, 423-VB-012, 423-VNS-012, 423-VNS-013, 423-VNS-014, 423-VNS-015, 423-VNS-016, 423-VNS-017, 423-VNS-018, 423-VSS-019, 423-VSS-020, 423-VSS-021, 423-VSS-022, 423-VSS-023, 423-VSS-024, 423-VSS-025, 423-VSS-026, 423-VSS-026FD, 423-VGN-027, 423-VGN-027FD, 423-VGN-028, 423-VGN-029, & 423-VGN-030

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD). The laboratory reported all of the gamma emitting isotopes of interest

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

There were no isotopes of interest measured in the blanks associated with these samples.

4.2 Laboratory Duplicates

A laboratory duplicate (DUP) analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples.

The Relative Percent Differences (RPD%) between the results of the duplicate samples ranged from –536 to 398%; however, since the measured activities are all very small and within one or two times their uncertainties this is not an informative QC criteria.

4.3 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analytes of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

The recoveries of the 3 isotopes in the LCS ranged from 100 to 104%.

4.4 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

4.5 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

Two field duplicates were collected. Agreement between the field duplicates is excellent indicating a high degree of sample homogeneity.

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5.0 Data Validation

The results were further validated by examination of the following items:

1. Instrument Calibration data
2. Daily Instrument performance check
3. Background measurements

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

6.0 Certification

Based upon this review the Gamma Spectroscopy analysis data maybe used as presented with no further qualifications.

Table 3 PRS 423 (UGL) Gamma Spectroscopy Analysis

pCi/g	Ac-227	Am-241	Cs-137	Co-60	Ra-226	Ac-228	Bi-214	Pb-212	Pb-214	Ra-228
Action Level	4.6	63	3.8	0.7	2.9					
423-VB-001	< 0.40	< 0.22	< 0.14	< 0.13	0.38		0.38	0.65	0.43	
423-VB-001 Lab Dup		< 0.19	< 0.10	< 0.13	< 0.40		0.48	0.63	0.41	
423-VB-002	< 0.40	< 0.13	< 0.08	< 0.11	< 0.40		0.45	0.39	0.42	
423-VB-003	< 0.24	< 0.09	< 0.07	< 0.08	0.36		0.35	0.20	0.34	
423-VB-004	< 0.40	< 0.18	< 0.08	< 0.09	0.63	0.59	0.40	0.59	0.46	0.59
423-VB-005	< 0.32	< 0.14	< 0.10	< 0.13	< 0.32	0.40	0.40	0.42	0.41	0.40
423-VB-006	< 0.25	< 0.12	< 0.07	< 0.09	0.33		0.37	0.37	0.32	
423-VB-007	< 0.30	< 0.11	< 0.06	< 0.07	< 0.28		0.39	0.24	0.39	
423-VB-008	< 0.32	< 0.14	< 0.09	< 0.08	0.42	0.50	0.38	0.37	0.48	0.50
423-VB-009	< 0.40	< 0.17	< 0.10	< 0.08	0.50		0.29	0.44	0.52	
423-VB-010	< 0.50	< 0.17	< 0.13	< 0.11	0.75		0.62	0.66	0.68	
423-VB-011	< 0.29	< 0.10	< 0.07	< 0.09	0.42		0.32	0.17	0.32	
423-VB-012	< 0.27	< 0.10	< 0.08	< 0.07	0.40		0.47	0.23	0.34	
423-VNS-012	< 0.23	< 0.10	< 0.06	< 0.08	0.48		0.51	0.22	0.29	
423-VNS-013	< 0.36	< 0.16	< 0.10	< 0.02	0.42		0.22	0.39	0.29	
423-VNS-014	< 0.47	< 0.18	< 0.13	< 0.14	0.50	0.36	0.53	0.64	0.54	0.36
423-VNS-015	< 0.48	< 0.18	< 0.09	< 0.15	0.64		0.63	0.54	0.69	
423-VNS-016	< 0.34	< 0.15	< 0.09	< 0.10	< 0.36	0.64	0.47	0.59	0.45	0.64
423-VNS-017	< 0.37	< 0.15	< 0.11	< 0.11	< 0.34		0.25	0.50	0.45	
423-VNS-018	< 0.29	< 0.15	< 0.10	< 0.11	0.41		0.48	0.53	0.47	
423-VSS-019	< 0.43	< 0.15	< 0.06	< 0.08	0.47		0.50	0.60	0.42	
423-VSS-020	< 0.24	< 0.10	< 0.07	< 0.07	0.43	0.30	0.34	0.28	0.35	0.30
423-VSS-021	< 0.37	< 0.13	< 0.09	< 0.08	0.49	0.44	0.34	0.41	0.48	0.44
423-VSS-021Lab Dup	< 0.33	< 0.15	< 0.08	< 0.10	< 0.36	0.34	0.32	0.47	0.39	0.34
423-VSS-022	< 0.27	< 0.12	< 0.08	< 0.10	0.36		0.29	0.35	0.40	
423-VSS-023	< 0.37	< 0.13	< 0.08	< 0.09	< 0.34	0.58	0.43	0.29	0.36	0.58
423-VSS-024	< 0.27	< 0.12	< 0.10	< 0.09	< 0.33		0.35	0.37	0.46	
423-VSS-025	< 0.41	< 0.14	< 0.11	< 0.10	< 0.39		0.28	0.55	0.42	
423-VSS-026	< 0.29	< 0.09	< 0.07	< 0.07	0.38		0.35	0.24	0.40	
423-VSS-026FD	< 0.24	< 0.10	< 0.05	< 0.07	0.39		0.47	0.22	0.33	
423-VGN-027	< 0.026	< 0.10	< 0.08	< 0.07	0.42		0.30	0.15	0.37	
423-VGN-027FD	< 0.31	< 0.11	< 0.07	< 0.05	0.35			0.27	0.47	
423-VGN-028	< 0.34	< 0.13	< 0.07	< 0.11	0.37		0.33	0.31	0.36	

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pCi/g	Ac-227	Am-241	Cs-137	Co-60	Ra-226	Ac-228	Bi-214	Pb-212	Pb-214	Ra-228
423-VGN-029	< 0.33	< 0.11	< 0.08	< 0.08	< 0.34		0.35	0.22	0.48	
423-VGN-030	< 0.21	< 0.10	< 0.08	< 0.08	< 0.26		0.35	0.16	0.35	
Blank 1	< 0.11	< 0.035	< 0.022	< 0.039	< 0.079					
Blank 2		< 0.10	< 0.065	< 0.052	< 0.21					
LCS 1 % recovery		103	104	100						
LCS 2 % recovery		103	101	104						

"<" Quantities indicate non-detects with stated MDAs
Blank cells indicate non-detects

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4/21/14

1.0 Introduction

Analytical data assessment can be performed on at many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 423 covers a section of the radioactive underground line removal north of R Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met.

The bottom of the trench was excavated just prior to sampling to remove debris and material that had peeled from the sides of the trench. Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

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Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
9/1/04	F4I030235	33	423-VB-001, 423-VB-002, 423-VB-003, 423-VB-004, 423-VB-005, 423-VB-006, 423-VB-007, 423-VB-008, 423-VB-009, 423-VB-010, 423-VB-011, 423-VB-012, 423-VNS-012, 423-VNS-013, 423-VNS-014, 423-VNS-015, 423-VNS-016, 423-VNS-017, 423-VNS-018, 423-VSS-019, 423-VSS-020, 423-VSS-021, 423-VSS-022, 423-VSS-023, 423-VSS-024, 423-VSS-025, 423-VSS-026, 423-VSS-026FD, 423-VGN-027, 423-VGN-027FD, 423-VGN-028, 423-VGN-029, & 423-VGN-030

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD).

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

There was no Pu isotopes of interest were detected in the blanks associated with these samples.

4.2 Tracer Yields

Each sample is spiked with a known amount of an internal standard, Pu-242, prior to sample preparation. The measured recovery percentage (% yield) of this 'tracer' is then used to scale the measured concentrations of the other isotopes. Tracer yields less than 20% or greater than 110% should be recounted and possibly re-prepared. Within a given sample matrix significant yield inconsistencies may be indicative of problems with sample preparation.

Only one tracer yield was below QC standards (423-VB-011). A low tracer yield would be expected to bias the sample results high. No Pu isotopes of interest were detected for this sample so no further action is warranted.

The average tracer yield was an acceptable 71% with a standard deviation of 14.4.

4.3 Laboratory Duplicates

A laboratory duplicate analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples or LSDG. To meet QC criteria the Relative Error Ratio of duplicate samples must be < 3.0.

$$RER = \frac{[\text{Sample Result} - \text{Duplicate Result}]}{[TPU^2_{sample} + TPU^2_{dup}]^{1/2}}$$

where TPU is the Total Propagated Error.

It is known that for Mound soils plutonium contamination is usually distributed non-homogeneously even in dried and ground samples. The divergent results obtained from

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reanalysis of the same sample usually demonstration of this fact and not the laboratory's capability for precision.

Duplicates for Pu-238 failed in one out of the two RER calculations of this LSDG. This failure could normally be attributed to the sample inhomogeneity described above; however, there was good agreement between field duplicates.

Another explanation for the disagreement in the laboratory duplicate is the lower tracer yield achieved for the duplicate sample that tends to bias this sample high.

No qualification of the data was accessed.

4.4 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analytes of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

The isotope recoveries for the LCS ranged from 85 to 97%.

4.5 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

4.6 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

Two field duplicates were collected. Agreement between the field duplicates was good indicating a degree of sample homogeneity.

5.0 Data Validation

The results were further validated by examination of the following items:

1. Instrument calibration
2. Daily Source checks
3. Background and efficiency measurement
4. Proper frequency and use of blanks
5. All calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

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6.0 Certification

Based upon this review the Pu Alpha Spectroscopy analysis data maybe used as presented with no further qualifications.

DRV 11/40

Table 3 PRS 423 (UGL) Pu Alpha Spectroscopy Analysis

pCi/g	Pu-238	Pu-239/240	Pu-242
Action Level	55		% yield
423-VB-001	9.9	0.12	84
423-VB-001 Lab Dup	18.9	0.24	65
423-VB-002	0.24	< 0.018	82
423-VB-003	11.1	0.20	74
423-VB-004	< 0.04	< 0.03	61
423-VB-005	0.30	< 0.02	59
423-VB-006	0.41	< 0.024	79
423-VB-007	0.37	< 0.032	75
423-VB-008	1.71	0.04	80
423-VB-009	0.28	0.02	55
423-VB-010	< 0.03	< 0.01	87
423-VB-011	0.05	< 0.03	72
423-VB-012	0.38	0.02	79
423-VNS-012	< 0.04	< 0.014	64
423-VNS-013	< 0.15	< 0.10	**14**
423-VNS-014	0.07	< 0.013	74
423-VNS-015	0.08	< 0.021	79
423-VNS-016	< 0.025	< 0.019	84
423-VNS-017	0.25	< 0.03	63
423-VNS-018	0.14	< 0.028	74
423-VSS-019	< 0.031	< 0.012	80
423-VSS-020	0.38	< 0.031	77
423-VSS-020 Lab Dup	0.44	< 0.029	56
423-VSS-021	0.12	< 0.027	70
423-VSS-022	0.14	< 0.029	67
423-VSS-023	< 0.04	< 0.03	61
423-VSS-024	0.08	< 0.02	49
423-VSS-025	< 0.03	0.53	71
423-VSS-026	< 0.04	< 0.03	64
423-VSS-026FD	< 0.04	< 0.04	59
423-VGN-027	0.31	< 0.03	59
423-VGN-027FD	0.47	< 0.02	72
423-VGN-028	0.18	< 0.01	65
423-VGN-029	0.18	< 0.03	80
423-VGN-030	0.20	< 0.02	67
Blank 1	< 0.03	< 0.01	94
Blank 2	< 0.03	< 0.01	90
LCS 1 % recovery	97	85	94
LCS 2 % recovery	94	95	84

"<" Quantities indicate non-detects with stated MDAs
Blank cells indicate non-detects
Bold results indicate QC values outside QC criteria.

DRV 12/40

A37/198

1.0 Introduction

Analytical data assessment can be performed on at many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 423 covers a section of the radioactive underground line removal north of R Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met.

The bottom of the trench was excavated just prior to sampling to remove debris and material that had peeled from the sides of the trench. Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

DRV 13/40

A38/198

Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
9/1/04	F4I030235	33	423-VB-001, 423-VB-002, 423-VB-003, 423-VB-004, 423-VB-005, 423-VB-006, 423-VB-007, 423-VB-008, 423-VB-009, 423-VB-010, 423-VB-011, 423-VB-012, 423-VNS-012, 423-VNS-013, 423-VNS-014, 423-VNS-015, 423-VNS-016, 423-VNS-017, 423-VNS-018, 423-VSS-019, 423-VSS-020, 423-VSS-021, 423-VSS-022, 423-VSS-023, 423-VSS-024, 423-VSS-025, 423-VSS-026, 423-VSS-026FD, 423-VGN-027, 423-VGN-027FD, 423-VGN-028, 423-VGN-029, & 423-VGN-030

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD).

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

Trace amounts (0.04 pCi/g) of Th-230 were detected in the blanks associated with these samples. This is a typical amount of laboratory contamination.

4.2 Tracer Yields

Each sample is spiked with a known amount of an internal standard, Th-229, prior to sample preparation. The measured recovery percentage (% yield) of this 'tracer' is then used to scale the measured concentrations of the other isotopes. Tracer yields less than 20% or greater than 110% should be recounted and possibly re-prepared. Within a given sample matrix significant yield inconsistencies may be indicative of problems with sample preparation.

All tracer yields were within acceptable bounds.

The average tracer yield was an acceptable 65.8% with a standard deviation of 14.5.

4.3 Laboratory Duplicates

A laboratory duplicate analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples or LSDG. To meet QC criteria the Relative Error Ratio of duplicate samples must be < 3.0.

$$RER = \frac{[\text{Sample Result} - \text{Duplicate Result}]}{[TPU^2_{sample} + TPU^2_{dup}]^{1/2}}$$

where TPU is the Total Propagated Error.

Lab Duplicates for Th isotopes demonstrated good agreement.

DRV 15/40

4.4 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analytes of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

The Th-230 isotope recoveries for the LCS were 93 and 98%.

4.5 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

4.6 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

Two field duplicates were collected. Agreement between the field duplicates was good indicating a degree of sample homogeneity.

5.0 Data Validation

The results were further validated by examination of the following items:

1. Instrument calibration
2. Daily Source checks
3. Background and efficiency measurement
4. Proper frequency and use of blanks
5. All calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

6.0 Certification

Based upon this review the Th Alpha Spectroscopy analysis data maybe used as presented with no further qualifications.

DRV 16/40

A41/198

Table 3 PRS 423 (UGL) Th Alpha Spectroscopy Analysis

pCi/g	Th-228	Th-230	Th-232	Th-229
Action Level	2.6	2.8	2.1	% yield
423-VB-001	0.67	0.75	0.63	69
423-VB-001 Lab Dup	0.61	0.57	0.67	58
423-VB-002	0.75	0.62	0.77	60
423-VB-003	0.42	0.50	0.29	79
423-VB-004	0.74	0.70	0.79	50
423-VB-005	0.53	0.52	0.55	49
423-VB-006	0.38	0.64	0.36	79
423-VB-007	0.29	0.50	0.22	79
423-VB-008	0.63	0.82	0.71	69
423-VB-009	0.52	0.73	0.55	65
423-VB-010	0.82	1.11	0.73	78
423-VB-011	0.30	0.62	0.40	80
423-VB-012	0.36	0.74	0.27	52
423-VNS-012	0.33	0.70	0.31	59
423-VNS-013	0.80	0.66	0.71	54
423-VNS-014	0.80	0.82	0.83	68
423-VNS-015	0.75	0.79	0.87	75
423-VNS-016	0.96	0.73	0.65	81
423-VNS-017	0.78	0.70	0.72	43
423-VNS-018	0.56	0.80	0.60	72
423-VSS-019	0.80	0.56	0.82	62
423-VSS-020	0.50	0.62	0.42	68
423-VSS-020 Lab Dup	0.48	0.49	0.60	56
423-VSS-021	0.72	0.65	0.67	55
423-VSS-022	0.47	0.72	0.49	53
423-VSS-023	0.60	0.68	0.64	51
423-VSS-024	0.44	0.70	0.74	44
423-VSS-025	0.64	0.71	0.73	62
423-VSS-026	0.36	0.67	0.25	60
423-VSS-026FD	0.31	0.66	0.25	49
423-VGN-027	0.38	0.66	0.34	66
423-VGN-027FD	0.47	0.59	0.40	71
423-VGN-028	0.51	0.72	0.56	52
423-VGN-029	0.46	0.71	0.44	68
423-VGN-030	0.29	0.58	0.29	51
Blank 1	< 0.02	0.04	< 0.02	93
Blank 2	< 0.03	0.04	< 0.02	90
LCS 1 % recovery		93		99
LCS 2 % recovery		98		97

"<" Quantities indicate non-detects with stated MDAs
Blank cells indicate non-detects
Bold results indicate QC values outside QC criteria.

DRV 17/40

A42/198

1.0 Introduction

Analytical data assessment can be performed on many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 423 covers a section of the radioactive underground line removal north of R Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met. In addition, bias samples were collected.

The bottom of the trench was excavated just prior to sampling to remove debris and material that had peeled from the sides of the trench. Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

DRV 18/40

It should be noted that Total Petroleum Hydrocarbons – Diesel Range Organics (TPH-DRO) gives only semi-quantitative results. No specific analytes are identified or measured. TPH-DRO is best suited as a characterization screening test than a final verification test.

Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
8/16/04	F4H1802121	3	423-VB-026, 423-VSS-027, & 423-VB-028

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD). It should be noted that method 8015 of EPA SW-846, a GC/FID procedure, was used over the less precise EPA method 418.1 referenced in the Mound Methods Compendium. Method 418.1 is a UV spectrometer based method. A FREON extraction process was used to extract the TPH-DRO analytes from the soil samples.

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Holding Times

For TPH-DRO the recommended maximum hold time for soil samples is 28 days until analysis.

All samples in this LSDG were analyzed for TPH-DRO within 11 days.

4.2 Initial Calibration

Initial calibration (IC) standards containing 5 DRO stock solution concentrations are analyzed at concentrations of 2, 10, 20, 50, 80, 120, and 160 µg/L at the beginning of each analytical sequence or as necessary if the continuing acceptance criteria are not met. The linearity of the calibration must be assessed. The Percent Relative Standard Deviation (%RSD) the calibration factor must be ≤ 20%.

All RSD%s for analytes of interest were less than 20%. DRV 19/40

4.3 Continuing Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data. The validity of the calibration curve must be measured with a Continuing Calibration Verification (CCV)every 12 hours. If the response obtained for the CCV is within ±15% of the initial calibration, the initial calibration curve may be deemed still valid.

All CCV RFs had D%s that were less than 15%.

4.4 Blanks

The laboratory analyzes one method blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory or field processes are contributing to the detected sample contamination. A method blank must be performed after the calibration standards.

All blanks associated with the verification samples met QC criteria.

4.5 System Monitoring Compounds

Laboratory performance on individual samples is established by means of spiking activities. All samples are spiked with a System Monitoring Compound (SMC), just prior to sample purging. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the evaluation and review of the data based on specific sample results is frequently subjective and demands analytical experience and professional judgment.

There were no problems associated with the SMC recoveries.

4.6 Matrix Spike

A matrix spike (MS) and a matrix spike duplicate (MSD) analysis are performed to assess the precision and accuracy of the laboratory analysis on the sample matrix at the time of the sample analysis. One MS/MSD spike is performed for every 20 samples or LSDG. It also may indicate analysis bias due to sample matrix effects. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, this data should be used in conjunction with other QC information.

The MS/MSD for this LSDG were run on non-Mound samples and are therefore of little use in evaluating the samples submitted by Mound.

4.7 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analyte(s) of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis. One LCS should be analyzed for every 20 samples or each LSDG.

All LCS recoveries were within QC requirements.

DRV 20/40

4.8 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

4.9 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

No field duplicates were collected.

5.0 Data Validation

The results of LSDG F4H1802121 were fully data validated. In addition to the items discussed above, the following items were evaluated:

1. Instrument calibration
2. Spike recovery calculations.
3. Sample run logs
4. Compound quantification calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

6.0 Certification

Based upon this review the TPH-DRO analysis data maybe used as presented with no further qualifications.

DRV 21/40

Table 3 PRS 423 (UGL) TPH-DRO Analysis

	PQL	423-VB-026	423-VSS-027	423-VB-028	Blank	LCS
units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
TPH-DRO	28	60				82
System Monitoring Cmpd	(% recovery)					
Tolune-d8	10-150	51	53	46	85	126

Italics indicate analytes that were detected but are below Practical Quantitation Levels (PQL).
Blanks cells are non-detects (i.e., < Instrument Detection Level)
Bold QC results are outside acceptance criteria

DRV 22/40

1.0 Introduction

Analytical data assessment can be performed on many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed correctly? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 423 covers a section of the radioactive underground line removal north of R Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met. In addition bias samples were collected.

The bottom of the trench was excavated just prior to sampling to remove debris and material that had peeled from the sides of the trench. Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

DRV 23/40

AA8/198

Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
8/16/04	F4H1802121	3	423-VB-026, 423-VSS-027, & 423-VB-028

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD).

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Hold Times

There are no EPA mandated technical hold times for the metals analysis of soils. The recommended maximum hold time for water samples is 180 days until analysis.

All samples in this LSDG were within 7 days.

4.2 Blanks

The laboratory analyzes one method blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample measurements. To meet the QC criteria the method blank must be ≤ 2 times the Practical Quantitation Limit (PQL).

The method blank associated with the verification samples met QC criteria.

The laboratory also analyzes one calibration blank after every 10 samples and before each initial and continuing calibration. Calibration blanks are analyzed to determine if instrument operations are contributing to the detected sample activities. To meet the QC criteria the method blank must be ≤ 2 times the PQL.

All initial and continuing calibration blanks met QC criteria.

DRV 24/40

4.3 Instrument Calibrations

The laboratory must successfully run a set of initial calibration samples each day. Immediately after each initial calibration an initial calibration check sample must be run. To be successful initial calibration verification sample recoveries must be ± 10% of 100% for all metals except mercury. Mercury recovery must be ± 20% of 100%.

In addition a continuing calibration verification sample must be run every after every 10 samples. The same criteria are used as with the initial calibration verification.

All initial and continuing calibration verifications met QC criteria.

4.4 Matrix Spike

A matrix spike (MS) and a matrix spike duplicate (MSD) analysis are performed to assess the precision and accuracy of the laboratory analysis. One MS/MSD spike is performed for every 20 samples or LSDG. It also may indicate analysis bias due to sample matrix effects.

The matrix spike recoveries for Al, Ca, Fe, Mg, & Mn were outside the QC criteria; however, the original sample concentrations for these metals were greater than 4X the amount spiked, making the percent recovery information ineffective.

Sb, Pb, Cr, & Ag all had one more spike recoveries slightly less than the QC criteria indicating a possible negative bias to the measurement of these metals. These elements were not detected or only detected at very low levels.

No qualification of the data was made based on MS/MSD data.

4.5 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analyte(s) of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

All LCS recoveries were within QC requirements.

4.6 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

4.7 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

No field duplicates were collected.

DRV 25/40

5.0 Data Validation

The results of LSDG F4H1802121 were fully data validated. In addition to the items discussed above, the following items were evaluated:

1. Instrument calibration calculations
2. Spike recovery calculations.
3. Sample run logs
4. Standard certifications

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

6.0 Certification

Based upon this review the metal analysis data may be used as presented with no further qualifications.

DRV 26/40

Table 3 PRS 423 (UGL) Metal Analysis

Analytes	PQL	423-VB-026	423-VSS-027	423-VB-028	Blank	LCS	423-VB-026 MS	423-VB-026 MSD
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
Aluminum	113	3,840	9,440	12,600	< 20	109	**150**	81
Arsenic	1.1	5.3	8.1	2	< 1	112	102	102
Lead	0.34	35.0	14.4	10.7	< 0.3	111	**51**	**60**
Antimony	1.1	*0.91*	*0.33*		< 6	76	**40**	**40**
Barium	113	*29.0*	41.4	42.9	< 20	110	94	90
Selenium	0.56				< 0.5	110	100	98
Berylium	2.8		0.68	0.72	< 0.5	110	108	106
Thallium	1.1				< 1	111	96	95
Cadmium	2.8				< 0.5	106	**73**	**57**
Calcium	2,810	123,000	54,800	31,600	*11.5*	106	**0**	**405**
Chromium	5.6	10.3	21.7	14	< 10	109	75	**71**
Cobalt	5.6	*3.7*	8	7.5	< 5	106	93	91
Copper	14.1	*5.8*	15.8	10.1	< 2.5	110	90	92
Iron	56.3	9,800	16,000	21,000	< 10	111	**216**	**1,990**
Magnesium	2,810	46,600	28,400	14,000	< 500	112	**21**	**0**
Manganese	8.4	272	711	290	< 1.5	109	**44**	**156**
Nickel	22.5		15.4	17.6	< 4.0	110	99	100
Potassium	2,810		1,760	3,230	< 500	105	121	103
Silver	5.6				< 1	108	97	**70**
Sodium	2,810	*156*	*149*	*332*	< 500	102	102	100
Vanadium	28.1	15.3	20.4	16.7	< 5	110	99	96
Zinc	11	33.6	53.9	49.7	*0.67*	106	91	99
Mercury	0.038	0.049	*0.028*		< 0.33	94	98	83

Italics indicate analytes that were detected but are below Practical Quantitation Levels (PQL).
Blanks cells are non-detects (i.e., < IDL)
Bold QC results are outside acceptance criteria

DRV 27/40

1.0 Introduction

Analytical data assessment can be performed on many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 423 covers a section of the radioactive underground line removal north of R Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations, on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met. Bias samples were also collected.

The bottom of the trench was excavated just prior to sampling to remove debris and material that had peeled from the sides of the trench. Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

DRV 28/40

Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
8/16/04	F4H1802121	3	423-VB-026, 423-VSS-027, & 423-VB-028

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD).

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Holding Times

There are no EPA mandated technical hold times for VOA analysis of soils. The recommended hold time for water samples is 14 days.

All samples in this LSDG were analyzed for VOA within 12 days.

4.2 GC/MS Instrument Performance Check

The successful analysis of the Instrument Performance Check of Bromofluorobenzene (IPC-BFB) solution must be performed at the beginning of each 12-hour period during which samples or standards are analyzed.

A successful IPC-BFB was run within 12 hours of the samples and associated QC analyses.

4.3 Initial Calibration

Initial calibration (IC) standards containing both volatile target compounds and system monitoring compounds are analyzed at concentrations of 10, 20, 50, 100, and 200 µg/L at the beginning of each analytical sequence or as necessary if the continuing acceptance criteria are not met. The IC must be analyzed within 12 hours of the associated IPC-BFB. All Relative Response Factors (RRF) must be ≥ 0.05. The Percent Relative Standard Deviation (%RSD) for given standard concentration must be ≤ 30%.

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The IC was performed within 12 hours of an IPC-BFB. A continuing calibration was used to compute the measured sample concentrations. All IC RFFs were greater than 0.05 and the RSD%s were less than 30%.

4.4 Continuing Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data. Continuing Calibration Verifications (CCV) establishes the 12-hour RRF on which the quantitations are based and checks the satisfactory performance of the instrument on a day-to-day basis. All Relative Response Factors (RRF) must be ≥ 0.05. The Percent Difference (%D) for between the IC RRF and the CCV RRF must be within $\pm$ 20%.

The CCV was performed within 12 hours of an IPC-BFB. The CCVs were used to compute the measured sample concentrations. All CCV RFFs were greater than 0.05 and the D%s were less than 20% with the exceptions of cyclohexanone and isopropylbenzene. Neither compound was measured in the samples. Both were successfully recovered from the MS/MSD and LCS demonstrating their successful measurements.

4.5 Blanks

The laboratory analyzes one method blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory or field processes are contributing to the detected sample contamination. A method blank must be performed after the calibration standards.

Trace levels (i.e., less than the Practical Quantitation Level) of Methylene Chloride were found in the blank and all of the samples. Methylene Chloride is a common laboratory contaminant. Since significant levels were not identified in either the blank or the samples no qualification of the results is warranted.

For all other analytes the method blank associated with the verification samples met QC criteria.

All initial and continuing calibration blanks met QC criteria.

4.6 System Monitoring Compounds

Laboratory performance on individual samples is established by means of spiking activities. All samples are spiked with system Monitoring Compounds (SMC), just prior to sample purging. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the evaluation and review of the data based on specific sample results is frequently subjective and demands analytical experience and professional judgment.

There were no problems associated with the SMC recoveries.

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4.7 Internal Standards

Internal Standards (IS) are spike compounds added to every sample and used to compute the measured analytes. IS performance criteria ensure that GC/MS sensitivity and response are stable during each analysis. IS area counts must not vary by more than a factor of 2 from the associated 12hr. calibration standard. Retention time of each IS must not vary more than ± 30 seconds from the retention time of the associated 12hr. calibration standard.

All IS passed QC criteria.

4.8 Matrix Spike

A matrix spike (MS) and a matrix spike duplicate (MSD) analysis are performed to assess the precision and accuracy of the laboratory analysis on the sample matrix at the time of the sample analysis. One MS/MSD spike is performed for every 20 samples or LSDG. It also may indicate analysis bias due to sample matrix effects. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, this data should be used in conjunction with other QC information.

Acetone recovery in the MS and MSD was slightly high. Acetone is a common laboratory contaminant, it is not a contaminant of concern, and it was not detected in the samples. No problems in the MS/MSD require qualification of the data.

4.9 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analyte(s) of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis. One LCS should be analyzed for every 20 samples or each LSDG.

All LCS recoveries were within QC requirements.

4.10 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

4.11 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

No field duplicates were collected.

5.0 Data Validation

The results of LSDG F4H1802121 were fully data validated. In addition to the items discussed above, the following items were evaluated:

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1. Instrument calibration calculations
2. Spike recovery calculations.
3. Sample run logs
4. Compound quantification calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

6.0 Certification

Based upon this review the VOA analysis data maybe used as presented with no further qualifications.

Table 3 PRS 423 (UGL) VOA Analysis

Analytes	PQL µg/kg	423-VB-026 µg/kg	423-VSS-027 µg/kg	423-VB-028 µg/kg	Blank µg/kg	LCS %	423-VB-026 MS %	423-VB-026 MSD %
Chloromethane	11					114	83	84
Vinyl chloride	5.6					102	78	75
Bromomethane	11					101	84	86
Chloroethane	11					104	86	86
Acetone	23	*4.0*				98	**171**	**176**
1,1-Dichloroethene	5.6					101	88	88
Methylene chloride	5.6	*4.2*	*3.9*	*5.4*	*4.7*	**121**	104	107
Carbon disulfide	5.6					131	107	109
1,1-Dichloroethane	5.6					99	94	95
2-Butanone	23					116	148	135
1,2-Dichloroethene (total)	11	*0.85*		*1.4*		103	95	96
Chloroform	5.6					103	100	100
1,1,1-Trichloroethane	5.6					99	95	95
Carbon tetrachloride	5.6					97	94	93
1,2-Dichloroethane	5.6					99	102	102
Benzene	5.6					95	91	92
Trichloroethene	5.6	*0.53*		*5.6*		97	99	102
1,2-Dichloropropane	5.6					99	100	102
Bromodichloromethane	5.6					102	102	104
4-methyl-2-pentanone	23					93	108	104
cis-1,3-Dichloropropene	5.6					108	105	108
Toluene	5.6					98	93	94
trans-1,3-Dichloropropene	5.6					124	123	122
1,1,2-Trichloroethane	5.6					103	109	107
2-Hexanone	23					116	138	130
Tetrachloroethene	5.6					95	91	90
Dibromochloromethane	5.6					108	110	111
Chlorobenzene	5.6					104	100	100
Ethylbenzene	5.6					97	94	97
Xylenes (total)	11					104	98	98
Styrene	5.6					107	100	102
Bromoform	5.6					112	113	113
1,1,2,2,-Tetrachloroethane	5.6					110	106	100
1,2-Dichlorobenzene	5.6					105	102	104
1,3-Dichlorobenzene	5.6					104	100	102
1,4-Dichlorobenzene	5.6					96	93	94
System Monitoring Cmpds	(% recovery)							
Tolune-d8	80-130	102	104	105	103	105	104	103
Bibromofluoromethane	78-130	109	112	107	108	102	105	105
1,,2-Dichloroethane-d4	72-134	108	114	109	107	99	108	107
4-Bromofluoroobenzene	68-150	93	99	102	92	102	106	106

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Italics indicate analytes that were detected but are below Practical Quantitation Levels (PQL).
Blanks cells are non-detects (i.e., < Instrument Detection Level)
Bold QC results are outside acceptance criteria

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1.0 Introduction

Analytical data assessment can be performed on many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 423 covers a section of the radioactive underground line removal north of R Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations at statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met. In addition bias samples were selected.

The bottom of the trench was excavated just prior to sampling to remove debris and material that had peeled from the sides of the trench. Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

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Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
8/16/04	F4H1802121	3	423-VB-026, 423-VSS-027, & 423-VB-028

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD).

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Holding Times

The analysis for Polycyclic Aromatic Hydrocarbons (PAH) is a subset of performing a total Semivolatile Organic Analysis (SVOA). There are no EPA mandated technical hold times for the SVOA analysis of soils. The recommended maximum hold time for soil samples is 10 days until extraction and 40 days until analysis.

All samples in this LSDG were extracted within 3 days and analyzed for SVOA within 9 days.

4.2 GC/MS Instrument Performance Check

The successful analysis of the Instrument Performance Check of Bromofluorobenzene (IPC-BFB) solution must be performed at the beginning of each 12-hour period during which samples or standards are analyzed.

A successful IPC-BFB was run within 12 hours of the samples and associated QC analyses.

4.3 Initial Calibration

Initial calibration (IC) standards containing both semivolatile target compounds and system monitoring compounds are analyzed at concentrations of 2, 10, 20, 50, 80, 120, and 160 µg/L at the beginning of each analytical sequence or as necessary if the continuing acceptance criteria are not met. The IC must be analyzed within 12 hours of

the associated IPC-BFB. All Relative Response Factors (RRF) must be ≥ 0.05. The Percent Relative Standard Deviation (%RSD) for each analyte must be ≤ 30%.

The IC was performed within 12 hours of an IPC-BFB. A continuing calibration was used to compute the measured sample concentrations. All IC RFFs were greater than 0.05. All RSD%s for analytes of interest were less than 30%.

4.4 Continuing Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data. Continuing Calibration Verification (CCV) establishes the 12-hour RRF on which the quantitations are based and checks the satisfactory performance of the instrument on a day-to-day basis. All Relative Response Factors (RRF) must be ≥ 0.05. The Percent Difference (%D) for between the IC RRF and the CCV RRF must be within ± 25%.

The CCV was performed within 12 hours of an IPC-BFB. The CCs were used to compute the measured sample concentrations. All IC RFFs were greater than 0.05 and the D%s were less than 25%.

4.5 Blanks

The laboratory analyzes one method blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample contamination. A method blank must be performed after the calibration standards.

All blanks associated with the verification samples met QC criteria.

4.6 System Monitoring Compounds

Laboratory performance on individual samples is established by means of spiking activities. All samples are spiked with System Monitoring Compounds (SMC), just prior to sample purging.

Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the evaluation and review of the data based on specific sample results is frequently subjective and demands analytical experience and professional judgment.

There were no problems associated with the SMC recoveries.

4.7 Internal Standards

Internal Standards (IS) are spike compounds added to every sample and used to compute the measured analytes. IS performance criteria ensure that GC/MS sensitivity and response are stable during each analysis. IS area counts must not vary by more than a factor of 2 from the associated 12hr. calibration standard. Retention time of each IS must not vary more than ± 30 seconds from the retention time of the associated 12hr. calibration standard.

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All IS met QC criteria.

4.8 Matrix Spike

A matrix spike (MS) and a matrix spike duplicate (MSD) analysis are performed to assess the precision and accuracy of the laboratory analysis on the sample matrix at the time of the sample analysis. One MS/MSD spike is performed for every 20 samples or LSDG. It also may indicate analysis bias due to sample matrix effects. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, this data should be used in conjunction with other QC information.

The MS/MSD for this LSDG were run on non-Mound samples and therefore of little use in evaluating the samples submitted by Mound.

4.9 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analyte(s) of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis. One LCS should be analyzed for every 20 samples or each LSDG.

All LCS recoveries were within QC requirements.

4.10 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

4.11 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

No field duplicates were collected.

5.0 Data Validation

The results of LSDG F4H1802121 were fully data validated. In addition to the items discussed above, the following items were evaluated:

1. Instrument calibration calculations
2. Spike recovery calculations.
3. Sample run logs
4. Compound quantification calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

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6.0 Certification

Based upon this review the PAH analysis data maybe used as presented with no further qualifications.

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Table 3 PRS 423 (UGL) PAH Analysis

Analyte	PQL	423-VB-026	423-VSS-027	423-VB-028	Blank	LCS
	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	%
Napthalene	370					89
2-Methylnaphthalene	370					84
2-Chloronaphthalene	370					
Acenapththylene	370					95
Acenapthene	370					92
Fluorene	370					90
Phenathrene	370	*100*	*120*			90
Anthracene	370					92
Fluoranthene	370	*180*	*190*	*130*		90
Pyrene	370	*160*	*170*	*130*		100
Benzo(a)anthracene	370	*96*	*91*			96
Chrysene	370	*120*	*110*	*110*		99
Benzo(b)fluoranthene	370	*93*		*120*		100
Benzo(k)fluoranthene	370	*96*	*97*	*110*		99
Benzo(a)pyrene	370	*110*	*90*	*110*		97
Indeno(1,2,3-cd)pyrene	370	*86*		*120*		98
Benzo(ghi)perylene	370			*130*		96
Dibenzo(a,h)anthracene	370					100
System Monitoring Cmpds	(% recovery)					
2-Flurophenol	40-103	79	76	65	82	82
Phenol-d5	36-105	70	68	61	74	78
Nitrobenzene-d5	45-114	85	84	71	86	88
2-Fluorobiphenyl	49-120	89	86	78	90	95
2,4,6-Tribromophenol	39-114	75	68	61	62	83
p-Terphenyl-d14	42-108	88	90	79	94	93

Italics indicate analytes that were detected but are below Practical Quantitation Levels (PQL).
Blanks cells are non-detects (i.e., < Instrument Detection Levels)
Bold QC results are outside acceptance criteria

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H Building VSAP

Includes PRS 210, 337, and a portion of 423

DATA REPORT

August 23, 2004

Prepared By:	Roderick C. Case /	**Date:**	8/23/04
Reviewed By:	Robert Coblentz /	**Date:**	8/23/04
Approved By:	Dave Rakel /	**Date:**	8/23/04

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Miamisburg Closure Project

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Acronyms

COC	contaminant of concern
CO	Cleanup objective
DQO	Data Quality Objective
MEIMS	Mound Environmental Information Management System
OEPA	Ohio Environmental Protection Agency
PCI/G	Picocuries Per Gram

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PRS	Potential Release Site
QC	quality control
RRE	residual risk evaluation
RSDS	Radiological Survey Data Sheet
USEPA	United States Environmental Protection Agency
VSAP	Verification Sampling and Analysis Plan

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1.0 Historical Overview

Building H was demolished in the Fall of 2003 in accordance with Miamisburg Closure Project goals. The section north of the building corridor (Change House) was surveyed and released for clean demolition in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) (Reference 1). The section south of the corridor (Laundry) was demolished as low level waste. The Penthouse filterbank area and contaminated ventilation and drain systems were segregated and disposed of as low level waste. The remaining debris from the penthouse and corridor areas was surveyed and disposed of in accordance with MD80036, *Radiological Operations Procedures*, Operation 10011, *Debris Pile, Rolloff, and RMMA Deposting Surveys.*

2.0 Survey Objectives

The objective of this Verification Sampling and Analysis Plan (VSAP) was to determine whether residual contamination is present above the cleanup objective (CO) in the remaining soils within the building footprint because of the operation or demolition of this facility. This was accomplished by performing a walkover survey of the entire survey unit and performing isotopic analysis on soil samples collected at biased and systematically placed locations. Biased samples were obtained at locations of elevated activity identified by the walkover survey and at other areas of interest as specified in the VSAP.

To demonstrate compliance with cleanup objectives, the contribution of each radiological contaminant of concern in the survey unit was considered individually and as a whole. Systematically placed sample results were averaged and compared to the cleanup objectives for each contaminant of concern (COC) specified in the HVSAP. Biased sample results were compared directly to the cleanup objectives for each radionuclide. A 95% Upper Confidence Limit (UCL) calculation was performed for any COC that exceeds its cleanup objective.

2.1 Survey Design

The VSAP was designed to evaluate the surface soils at the base of the excavation left by the demolition of H Building. The affected area was the Building H footprint including a 5' perimeter and the hot waste pipe trench up to the access manhole approximately 26' to the west of Building H. Also included are those areas identified as potential release site (PRS) 210, PRS 337, SCR 231, and a portion of PRS 423. This area as shown in Figure 1 is approximately 17,334 square feet and is classified as a single Class 1 survey unit in accordance with Reference 1.

The number of sample points required to satisfy the nonparametric statistical test was determined to be 17 in accordance with the MARSSIM. However, since the field instrument for the detection of low energy radiation (FIDLER) scan sensitivity for Pu-238 is less than the hot spot criteria (165pCi/g) an area multiplier was used to calculate a smaller grid spacing to ensure compliance as described in the VSAP. The result was a triangular pattern with 17ft spacing and a distance between rows of 15ft yielding 70 data points.

2.2 Survey Data

A walkover survey was performed over 100% of the survey unit using a FIDLER probe in accordance with the VSAP. Three locations were observed to be above background (RSDS# 04-TF-0162, Attachment 1). Biased soil samples taken at each of these locations (HVB-008,

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04-TF-0162, Attachment 1). Biased soil samples taken at each of these locations (HVB-008, HVB-009, HVB-010) were found to be less than the CO. Three biased soil samples were taken in the hot waste line trench excavation in accordance with the VSAP (HVB-005, HVB-006, HVB-007). Samples HVB-006 and HVB-007 were less than the CO for all nuclides. Sample HVB-005 showed Th-228 in excess of the cleanup objective. The Th-228 result (3.34 pCi/g) is 2.54 pCi/g greater than Th-232 (0.80 pCi/g). Th-232 decays to Th-228 and reaches equilibrium in approximately 30 years. The risk from the Th-228 that is equal to (in secular equilibrium with) Th-232 has already been accounted for in the derivation of the CO for Th-232 (+Daughters). It is the excess (2.54 pCi/g) that should be compared to the Th-228 CO (2.6 pCi/g).[1] A 95% UCL evaluation was performed for Th-228 and the result is 0.67 pCi/g and is shown in Table 1.

Per the Work Plan, one bucket of soil was removed from historic location SCR 231. The location was subsequently verified by taking four biased samples at and around SCR 231 in accordance with the VSAP (HVB001, HVB-002, HVB-003, HVB-004). Sample HVB-003 Pb-210 result is reported at the analysis LDL of 8.84 pCi/g, which is above the CO (7.4 pCi/g), but less than the Hot Spot criteria (19.8 pCi/g). A 95% UCL was not performed on these data since it did not meet the requirements to perform the test.[2] (The data did not meet the requirements for a 95% UCL calculation because the calculation must be performed using a measured value and the lead-210 sample result was not a measured value but was the measurement system's LDL for lead-210, which is a Non-Detect). The average concentration of Pb-210 associated with SCR 231 is 5.74 ±3.5 pCi/g and the average Pb-210 in the survey unit is 3.99 ±0.42 pCi/g. The results for the remaining COCs were less than the cleanup objective for each COC. Biased sample locations are shown on Figure 1. Individual sample results are given in Table 2. No soil removal beyond that specified in the Work Plan was indicated or performed.

Seventy (70) systematically placed soil samples were taken in accordance with the VSAP (HVS-001 through HVS-070). Since none of the systematic sample results was greater than the cleanup objectives, the Sign test was not required to demonstrate compliance. Sample results that are less than the analysis lower limit of detection (LDL) are considered to be at the LDL. Systematic sample locations are shown on Figure 1. Individual sample results are given in Table 2. A graphical representation of the sample results is shown in Figure 2.

The H Building VSAP included a requirement for the data to pass a sum of ratios (SOR) calculation. However, it was subsequently determined that due to statistical limitations (comparatively high background levels vs. Cleanup Objective, and the existence of multiple COCs) even if the soil were remediated to soil background levels, the data could not pass that statistical calculation. As expected, the SOR calculations for the data do not meet the requirements specified in the H Building VSAP. This information was brought to the Core Team's attention, and with Core Team concurrence, it was decided to deviate from the VSAP and remove the requirement for the data to pass the SOR calculation. In lieu of this, it was decided to use the 95% UCL calculation as the statistical test to confirm the Survey Unit met the Cleanup Objectives. The H Building data passed the 95% UCL calculation.

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[1] GroupWise from John Gill to Robert Ransbottom, 8/5/04

[2] GroupWise from John Lyons to Robert Ransbottom, 8/5/04

2.3 Quality Control

Analytical data assessment can be performed on two quality control levels. Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses. Data validation was performed on Laboratory Sample Delivery Group (LSDG) 116057 and includes 14 samples (17.5%).

All sample data were found to be acceptable. Data Review and Validation Assessments for each COC are included as an attachment to this report.

2.4 Conclusion

The objective of this VSAP was to determine whether residual contamination is present above the cleanup objective in the remaining soils within the building footprint as a result of the operation or demolition of this facility. The data presented in this report has been recorded in the Mound Environmental Information Management System (MEIMS). The data as presented supports the conclusion that the COs have been met for each COC in the survey unit.

3.0 References

1. NUREG 1575, Rev 1, Aug 2000, *Multi-Agency Radiation Survey and Site Investigation Manual*, (MARSSIM)

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TABLES

Table 1
95% UCL Th-228

Project Code	Sample Id	Station	CAS Name	CAS Number	Results	ln(Results)	Units
HBLDGVSAP	HVS-001	HVS-001	14274-82-9	Thorium-228	0.737000	-0.3052	PCI/G
HBLDGVSAP	HVS-002	HVS-002	14274-82-9	Thorium-228	0.656000	-0.4216	PCI/G
HBLDGVSAP	HVS-003	HVS-003	14274-82-9	Thorium-228	0.587000	-0.5327	PCI/G
HBLDGVSAP	HVS-004	HVS-004	14274-82-9	Thorium-228	0.444000	-0.8119	PCI/G
HBLDGVSAP	HVS-005	HVS-005	14274-82-9	Thorium-228	0.435000	-0.8324	PCI/G
HBLDGVSAP	HVS-006	HVS-006	14274-82-9	Thorium-228	0.684000	-0.3798	PCI/G
HBLDGVSAP	HVS-007	HVS-007	14274-82-9	Thorium-228	0.562000	-0.5763	PCI/G
HBLDGVSAP	HVS-008	HVS-008	14274-82-9	Thorium-228	0.551000	-0.5960	PCI/G
HBLDGVSAP	HVS-009	HVS-009	14274-82-9	Thorium-228	0.793000	-0.2319	PCI/G
HBLDGVSAP	HVS-010	HVS-010	14274-82-9	Thorium-228	0.657000	-0.4201	PCI/G
HBLDGVSAP	HVS-011	HVS-011	14274-82-9	Thorium-228	0.441000	-0.8187	PCI/G
HBLDGVSAP	HVS-012	HVS-012	14274-82-9	Thorium-228	0.643000	-0.4416	PCI/G
HBLDGVSAP	HVS-013	HVS-013	14274-82-9	Thorium-228	0.539000	-0.6180	PCI/G
HBLDGVSAP	HVS-014	HVS-014	14274-82-9	Thorium-228	0.627000	-0.4668	PCI/G
HBLDGVSAP	HVS-015	HVS-015	14274-82-9	Thorium-228	0.583000	-0.5396	PCI/G
HBLDGVSAP	HVS-016	HVS-016	14274-82-9	Thorium-228	0.714000	-0.3369	PCI/G
HBLDGVSAP	HVS-018	HVS-018	14274-82-9	Thorium-228	0.743000	-0.2971	PCI/G
HBLDGVSAP	HVS-019	HVS-019	14274-82-9	Thorium-228	0.782000	-0.2459	PCI/G
HBLDGVSAP	HVS-020	HVS-020	14274-82-9	Thorium-228	0.941000	-0.0608	PCI/G
HBLDGVSAP	HVS-021	HVS-021	14274-82-9	Thorium-228	0.833000	-0.1827	PCI/G
HBLDGVSAP	HVS-022	HVS-022	14274-82-9	Thorium-228	0.518000	-0.6578	PCI/G
HBLDGVSAP	HVS-023	HVS-023	14274-82-9	Thorium-228	0.579000	-0.5465	PCI/G
HBLDGVSAP	HVS-024	HVS-024	14274-82-9	Thorium-228	0.514000	-0.6655	PCI/G
HBLDGVSAP	HVS-025	HVS-025	14274-82-9	Thorium-228	0.499000	-0.6951	PCI/G
HBLDGVSAP	HVS-026	HVS-026	14274-82-9	Thorium-228	0.786000	-0.2408	PCI/G
HBLDGVSAP	HVS-028	HVS-028	14274-82-9	Thorium-228	0.606000	-0.5009	PCI/G
HBLDGVSAP	HVS-029	HVS-029	14274-82-9	Thorium-228	0.591000	-0.5259	PCI/G
HBLDGVSAP	HVS-030	HVS-030	14274-82-9	Thorium-228	0.456000	-0.7853	PCI/G
HBLDGVSAP	HVS-031	HVS-031	14274-82-9	Thorium-228	0.454000	-0.7897	PCI/G
HBLDGVSAP	HVS-032	HVS-032	14274-82-9	Thorium-228	0.692000	-0.3682	PCI/G
HBLDGVSAP	HVS-033	HVS-033	14274-82-9	Thorium-228	0.514000	-0.6655	PCI/G
HBLDGVSAP	HVS-034	HVS-034	14274-82-9	Thorium-228	0.614000	-0.4878	PCI/G
HBLDGVSAP	HVS-035	HVS-035	14274-82-9	Thorium-228	0.392000	-0.9365	PCI/G
HBLDGVSAP	HVS-036	HVS-036	14274-82-9	Thorium-228	0.392000	-0.9365	PCI/G

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HVSAP Data Report
Table 1
95% UCL Th-228

Project Code	Sample Id	Station	CAS Name	CAS Number	Results	ln(Results)	Units
HBLDGVSAP	HVS-037	HVS-037	14274-82-9	Thorium-228	0.631000	-0.4604	PCI/G
HBLDGVSAP	HVS-038	HVS-038	14274-82-9	Thorium-228	0.728000	-0.3175	PCI/G
HBLDGVSAP	HVS-039	HVS-039	14274-82-9	Thorium-228	0.447000	-0.8052	PCI/G
HBLDGVSAP	HVS-040	HVS-040	14274-82-9	Thorium-228	1.070000	0.0677	PCI/G
HBLDGVSAP	HVS-041	HVS-041	14274-82-9	Thorium-228	0.653000	-0.4262	PCI/G
HBLDGVSAP	HVS-042	HVS-042	14274-82-9	Thorium-228	0.524000	-0.6463	PCI/G
HBLDGVSAP	HVS-043	HVS-043	14274-82-9	Thorium-228	0.573000	-0.5569	PCI/G
HBLDGVSAP	HVS-044	HVS-044	14274-82-9	Thorium-228	0.455000	-0.7875	PCI/G
HBLDGVSAP	HVS-045	HVS-045	14274-82-9	Thorium-228	0.573000	-0.5569	PCI/G
HBLDGVSAP	HVS-046	HVS-046	14274-82-9	Thorium-228	0.423000	-0.8604	PCI/G
HBLDGVSAP	HVS-047	HVS-047	14274-82-9	Thorium-228	0.834000	-0.1815	PCI/G
HBLDGVSAP	HVS-048	HVS-048	14274-82-9	Thorium-228	0.569000	-0.5639	PCI/G
HBLDGVSAP	HVS-049	HVS-049	14274-82-9	Thorium-228	0.567000	-0.5674	PCI/G
HBLDGVSAP	HVS-050	HVS-050	14274-82-9	Thorium-228	0.312000	-1.1648	PCI/G
HBLDGVSAP	HVS-051	HVS-051	14274-82-9	Thorium-228	0.590000	-0.5276	PCI/G
HBLDGVSAP	HVS-052	HVS-052	14274-82-9	Thorium-228	0.771000	-0.2601	PCI/G
HBLDGVSAP	HVS-053	HVS-053	14274-82-9	Thorium-228	0.866000	-0.1439	PCI/G
HBLDGVSAP	HVS-055	HVS-055	14274-82-9	Thorium-228	0.426000	-0.8533	PCI/G
HBLDGVSAP	HVS-057	HVS-057	14274-82-9	Thorium-228	0.721000	-0.3271	PCI/G
HBLDGVSAP	HVS-059	HVS-059	14274-82-9	Thorium-228	0.517000	-0.6597	PCI/G
HBLDGVSAP	HVS-061	HVS-061	14274-82-9	Thorium-228	0.632000	-0.4589	PCI/G
HBLDGVSAP	HVS-062	HVS-062	14274-82-9	Thorium-228	0.304000	-1.1907	PCI/G
HBLDGVSAP	HVS-063	HVS-063	14274-82-9	Thorium-228	0.615000	-0.4861	PCI/G
HBLDGVSAP	HVS-064	HVS-064	14274-82-9	Thorium-228	0.540000	-0.6162	PCI/G
HBLDGVSAP	HVS-066	HVS-066	14274-82-9	Thorium-228	0.730000	-0.3147	PCI/G
HBLDGVSAP	HVS-069	HVS-069	14274-82-9	Thorium-228	0.552000	-0.5942	PCI/G
HBLDGVSAP	HVS-070	HVS-070	14274-82-9	Thorium-228	0.667000	-0.4050	PCI/G
HBLDGVSAP	HVB-001	HVB_001	14274-82-9	Thorium-228	0.495000	-0.7032	PCI/G
HBLDGVSAP	HVB-002	HVB_002	14274-82-9	Thorium-228	0.698000	-0.3595	PCI/G
HBLDGVSAP	HVB-003	HVB_003	14274-82-9	Thorium-228	0.728000	-0.3175	PCI/G
HBLDGVSAP	HVB-004	HVB_004	14274-82-9	Thorium-228	0.530000	-0.6349	PCI/G
HBLDGVSAP	HVB-006	HVB_006	14274-82-9	Thorium-228	1.320000	0.2776	PCI/G
HBLDGVSAP	HVB-007	HVB_007	14274-82-9	Thorium-228	0.803000	-0.2194	PCI/G
HBLDGVSAP	HVB-008	HVB_008	14274-82-9	Thorium-228	0.342000	-1.0729	PCI/G

Project Code	Sample Id	Station	CAS Name	CAS Number	Results	ln(Results)	Units
HBLDGVSAP	HVB-009	HVB_009	14274-82-9	Thorium-228	0.495000	-0.7032	PCI/G
HBLDGVSAP	HVB-010	HVB_010	14274-82-9	Thorium-228	0.616000	-0.4845	PCI/G
HBLDGVSAP	HVB-005	HVB_005	14274-82-9	Thorium-228	3.340000	1.2060	PCI/G
HBLDGVSAP	HVS-017	HVS-017	14274-82-9	Thorium-228	0.556000	-0.5870	PCI/G
HBLDGVSAP	HVS-027	HVS-027	14274-82-9	Thorium-228	0.342000	-1.0729	PCI/G
HBLDGVSAP	HVS-054	HVS-054	14274-82-9	Thorium-228	0.428000	-0.8486	PCI/G
HBLDGVSAP	HVS-056	HVS-056	14274-82-9	Thorium-228	0.354000	-1.0385	PCI/G
HBLDGVSAP	HVS-058	HVS-058	14274-82-9	Thorium-228	0.196000	-1.6296	PCI/G
HBLDGVSAP	HVS-060	HVS-060	14274-82-9	Thorium-228	0.559000	-0.5816	PCI/G
HBLDGVSAP	HVS-065	HVS-065	14274-82-9	Thorium-228	1.050000	0.0488	PCI/G
HBLDGVSAP	HVS-067	HVS-067	14274-82-9	Thorium-228	0.309000	-1.1744	PCI/G
HBLDGVSAP	HVS-068	HVS-068	14274-82-9	Thorium-228	0.342000	-1.0729	PCI/G

ave	-0.54
sd	0.37
n	80
df	79
H	1.774

95% UCL	0.67	PCI/G

df	sd	H
70	0.30	1.745
	0.37	1.780
	0.40	1.794

80	0.30	1.740
	0.37	1.773
	0.40	1.787

df	sd	H
79		
	0.37	1.774

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Summary for H Building VSAP											
	95 % UCL		Ave(ln)	Std Dev (ln)	n	df	Interpolated H	Max			
Thorium-228	0.67	PCI/G	-0.54	0.37	80	79	1.77	3.34	PCI/G		

Thorium-228	7.082048	PCI/G
Thorium-228+D	1.609581	PCI/G
Thorium-228 long lived decay	1.609581	PCI/G

HVSAP Data Report
Table 2
Sample Results

pCi/g	Gamma Spec						Alpha Spec						LSC	Unity w/<
Sample ID	Am-241	Bi-210m	Cs-137	Co-60	Pb-210	Ra-226	Pu-238	Pu-239/240	Th-228	Th-230	Th-232	Ac-227	H-3	values
Cleanup Objective	63	8.3	3.8	0.7	7.4	2.9	55	62	2.6	2.8	2.1	4.6	2,350,000	included*
HVS-001	0.179	0.089	0.041	0.042	4.67	0.86	0.053	0.018	0.737	1.34	0.877	0.085	2.39	2.21
HVS-002	0.145	0.074	0.037	0.036	3.93	1.72	0.053	0.012	0.656	0.809	0.559	0.081	2.38	2.02
HVS-003	0.149	0.077	0.039	0.034	4.07	1.06	0.088	0.038	0.587	1.37	0.473	0.069	3.33	1.94
HVS-004	0.146	0.076	0.037	0.035	3.68	0.973	0.093	0.051	0.444	1.44	0.521	0.057	5.70	1.85
HVS-005	0.147	0.078	0.035	0.035	3.91	1.27	0.137	0.073	0.435	1.02	0.522	0.056	5.45	1.83
HVS-006	0.194	0.1	0.053	0.039	5.3	2.04	0.100	0.079	0.684	1.39	0.650	0.068	4.83	2.59
HVS-007	0.159	0.079	0.041	0.039	4.19	1.1	0.112	0.044	0.562	1.56	0.542	0.082	5.20	2.08
HVS-008	0.153	0.078	0.04	0.034	3.87	1.42	0.085	0.049	0.551	1.16	0.511	0.073	4.52	1.97
HVS-009	0.257	0.131	0.162	0.063	6.84	1.82	0.170	0.043	0.793	1.85	0.641	0.065	4.91	2.99
HVS-010	0.156	0.078	0.034	0.034	4.24	1.90	0.117	0.037	0.657	0.992	0.537	0.082	4.76	2.18
HVS-011	0.139	0.076	0.082	0.035	3.98	1.03	0.128	0.054	0.441	1.15	0.440	0.189	2.43	1.81
HVS-012	0.176	0.083	0.04	0.041	4.49	1.2	0.079	0.061	0.643	1.45	0.855	0.165	2.42	2.31
HVS-013	0.145	0.074	0.035	0.033	4.00	1.07	0.083	0.043	0.539	1.45	0.527	0.057	6.19	1.97
HVS-014	0.159	0.085	0.041	0.04	4.18	1.09	0.249	0.069	0.627	1.65	0.544	0.050	4.66	2.13
HVS-015	0.059	0.65	0.037	0.034	0.563	1.25	0.157	0.087	0.583	0.855	0.437	0.221	3.96	1.43
HVS-016	0.152	0.08	0.037	0.037	3.95	1.1	0.038	0.029	0.714	1.70	0.517	0.019	2.34	2.12
HVS-017	0.154	0.08	0.041	0.036	4.05	2.14	0.068	0.012	0.556	1.56	0.363	0.023	2.79	2.31
HVS-018	0.152	0.084	0.038	0.038	4.15	2.42	0.054	0.037	0.743	0.918	0.459	0.205	3.86	2.35
HVS-019	0.166	0.086	0.045	0.034	4.41	1.68	0.054	0.042	0.782	2.09	0.521	0.284	1.9	2.61
HVS-020	0.179	0.09	0.043	0.042	4.64	1.46	0.072	0.047	0.941	1.11	0.743	0.113	2.38	2.35
HVS-021	0.197	0.093	0.152	0.05	5.45	2.08	0.077	0.037	0.833	1.60	0.722	0.078	3.70	2.83
HVS-022	0.161	0.079	0.041	0.038	4.25	1.15	0.067	0.052	0.518	1.27	0.517	0.174	4.00	1.99
HVS-023	0.161	0.083	0.034	0.037	4.2	1.13	0.097	0.014	0.579	1.36	0.538	0.148	3.07	2.03
HVS-024	0.149	0.079	0.038	0.028	4.00	1.04	0.093	0.097	0.514	1.26	0.513	0.159	2.80	1.89
HVS-025	0.139	0.07	0.032	0.033	3.69	1.03	0.042	0.049	0.499	1.91	0.436	0.231	1.57	2.05
HVS-026	0.153	0.079	0.037	0.036	4.2	2.34	0.055	0.032	0.786	1.31	0.604	0.219	2.68	2.55
HVS-027	0.156	0.076	0.036	0.037	4.19	1.43	0.095	0.098	0.342	1.49	0.453	0.202	2.98	2.06
HVS-028	0.158	0.08	0.038	0.033	4.25	1.33	0.046	0.017	0.606	2.56	0.819	0.265	2.47	2.70
HVS-029	0.06	0.069	0.034	0.035	0.555	1.79	0.054	0.024	0.591	1.14	0.517	0.051	2.37	1.65
HVS-030	0.15	0.049	0.023	0.023	6.39	1.61	0.066	0.022	0.456	1.27	0.582	0.179	1.85	2.41
HVS-031	0.165	0.082	0.052	0.042	4.36	1.18	0.032	0.013	0.454	1.22	0.556	0.035	4.95	1.97
HVS-032	0.134	0.072	0.032	0.031	3.92	0.7	0.369	0.097	0.692	1.40	0.440	0.167	2.45	1.85
HVS-033	0.165	0.081	0.04	0.041	4.32	1.17	0.068	0.019	0.514	0.665	0.418	0.185	2.50	1.74
HVS-034	0.193	0.094	0.048	0.044	4.91	1.31	0.176	0.071	0.614	1.39	0.811	0.186	2.84	2.37
HVS-035	0.054	0.061	0.031	0.033	0.619	0.928	0.098	0.061	0.392	0.876	0.369	0.116	2.50	1.13

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HVSAP Data Report
Table 2
Sample Results

pCi/g	Gamma Spec						Alpha Spec						LSC	Unity w/<
Sample ID	Am-241	Bi-210m	Cs-137	Co-60	Pb-210	Ra-226	Pu-238	Pu-239/240	Th-228	Th-230	Th-232	Ac-227	H-3	values
Cleanup Objective	63	8.3	3.8	0.7	7.4	2.9	55	62	2.6	2.8	2.1	4.6	2,350,000	included*
HVS-036	0.197	0.096	0.049	0.048	5.43	1.01	0.093	0.066	0.392	1.29	0.346	0.186	4.85	2.00
HVS-037	0.188	0.098	0.046	0.042	4.94	2.23	0.081	0.064	0.631	2.22	0.822	0.277	4.83	3.01
HVS-038	0.121	0.039	0.018	0.019	4.88	1.29	0.014	0.036	0.728	1.48	0.448	0.226	2.44	2.21
HVS-039	0.06	0.068	0.035	0.036	0.921	1.84	0.089	0.049	0.447	1.05	0.424	0.612	1.27	1.71
HVS-040	0.129	0.044	0.02	0.021	5.76	1.85	0.076	0.034	1.07	2.22	1.02	0.181	2.34	3.19
HVS-041	0.064	0.074	0.041	0.035	0.608	2.11	0.130	0.036	0.653	1.33	0.653	0.174	2.64	1.96
HVS-042	0.156	0.078	0.038	0.035	4.25	2.62	0.11	0.074	0.524	1.36	0.643	0.182	3.91	2.59
HVS-043	0.172	0.087	0.041	0.041	4.53	1.24	0.139	0.057	0.854	1.63	0.585	0.265	6.40	2.37
HVS-044	0.151	0.046	0.023	0.023	6.26	2.02	0.098	0.058	0.445	1.16	0.600	0.165	5.22	2.50
HVS-045	0.155	0.079	0.033	0.035	3.94	1.20	0.129	0.134	0.573	1.68	0.636	0.258	5.09	2.20
HVS-046	0.16	0.082	0.04	0.035	4.31	1.87	0.109	0.076	0.423	1.18	0.722	0.267	4.01	2.29
HVS-047	0.172	0.084	0.04	0.042	4.55	2.08	0.14	0.145	0.834	1.50	0.512	0.288	2.85	2.58
HVS-048	0.15	0.074	0.038	0.035	3.98	0.964	0.059	0.026	0.569	1.49	0.693	0.162	2.76	2.06
HVS-049	0.2	0.102	0.063	0.045	5.39	2.26	9.16	1.82	0.567	1.89	0.794	0.191	2.83	3.11
HVS-050	0.185	0.095	0.046	0.047	4.85	1.30	0.067	0.134	0.312	1.30	0.433	0.188	2.87	2.03
HVS-051	0.149	0.075	0.035	0.036	3.84	1.07	0.128	0.075	0.590	1.32	0.489	0.174	2.86	1.93
HVS-052	0.159	0.084	0.038	0.038	4.23	1.62	0.109	0.052	0.771	1.09	0.566	0.213	2.86	2.21
HVS-053	0.153	0.078	0.042	0.04	4.1	0.78	0.136	0.06	0.866	0.897	0.818	0.224	2.87	2.00
HVS-054	0.147	0.072	0.065	0.036	3.78	1.86	0.164	0.101	0.428	1.32	0.205	0.226	2.75	2.02
HVS-055	0.065	0.078	0.037	0.038	0.618	0.688	0.085	0.052	0.426	0.981	0.468	0.314	2.93	1.20
HVS-056	0.163	0.052	0.024	0.026	6.68	1.19	0.078	0.038	0.354	1.05	0.450	0.264	2.89	2.15
HVS-057	0.191	0.101	0.049	0.043	4.89	1.61	0.18	0.1	0.721	0.877	0.580	0.117	2.74	2.20
HVS-058	0.151	0.047	0.02	0.022	6.03	1.45	0.079	0.032	0.196	0.886	0.289	0.212	2.79	1.94
HVS-059	0.069	0.079	0.042	0.035	0.65	2.33	0.120	0.054	0.517	0.803	0.556	0.224	2.88	1.77
HVS-060	0.146	0.05	0.022	0.024	5.77	1.67	0.178	0.063	0.559	0.584	0.478	0.447	2.96	2.16
HVS-061	0.076	0.087	0.049	0.044	0.812	1.38	0.304	0.075	0.632	1.38	0.411	0.209	2.97	1.66
HVS-062	0.176	0.055	0.027	0.028	7.2	1.60	0.109	0.06	0.304	1.23	0.473	0.465	2.91	2.47
HVS-063	0.074	0.086	0.044	0.045	0.979	1.94	0.101	0.06	0.615	1.54	0.577	0.215	2.96	2.00
HVS-064	0.057	0.063	0.036	0.036	0.563	1.97	0.082	0.047	0.540	1.06	0.538	0.195	2.93	1.71
HVS-065	0.166	0.053	0.025	0.024	6.88	1.48	0.177	0.044	1.05	1.04	0.864	0.564	2.9	2.80
HVS-066	0.072	0.083	0.044	0.044	0.956	1.91	0.284	0.037	0.730	1.29	0.636	0.133	2.85	1.95

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HVSAP Data Report
Table 2
Sample Results

pCi/g	Gamma Spec						Alpha Spec						LSC	Unity w/< values included*
Sample ID	Am-241	Bi-210m	Cs-137	Co-60	Pb-210	Ra-226	Pu-238	Pu-239/240	Th-228	Th-230	Th-232	Ac-227	H-3	
Cleanup Objective	63	8.3	3.8	0.7	7.4	2.9	55	62	2.6	2.8	2.1	4.6	2,350,000	
HVS-067	0.15	0.049	0.023	0.025	6.06	1.94	0.311	0.043	0.309	0.954	0.477	0.223	2.99	2.28
HVS-068	0.064	0.073	0.038	0.039	0.847	1.21	0.073	0.065	0.342	1.13	0.333	0.213	2.95	1.35
HVS-069	0.162	0.054	0.024	0.023	6.76	1.80	0.069	0.033	0.552	0.924	0.475	0.272	2.76	2.41
HVS-070	0.066	0.076	0.041	0.038	0.622	1.59	0.279	0.033	0.667	1.04	0.290	0.343	2.88	1.55
MAX	0.26	0.65	0.16	0.06	7.20	2.62	9.16	1.82	1.07	2.56	1.02	0.61	6.40	3.19
MIN	0.05	0.04	0.02	0.02	0.56	0.69	0.01	0.01	0.20	0.58	0.21	0.02	1.27	1.13
AVG	0.14	0.08	0.04	0.04	3.99	1.51	0.24	0.08	0.59	1.31	0.55	0.19	3.30	2.14
Stdev	0.04	0.07	0.02	0.01	1.79	0.46	1.08	0.21	0.17	0.37	0.15	0.11	1.12	0.41
N	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Confidence +/-	0.01	0.02	0.01	0.002	0.42	0.11	0.25	0.05	0.04	0.09	0.04	0.03	0.26	0.10

Note: A graphical representation of the statistical data is shown in Figure 2.

CH2M

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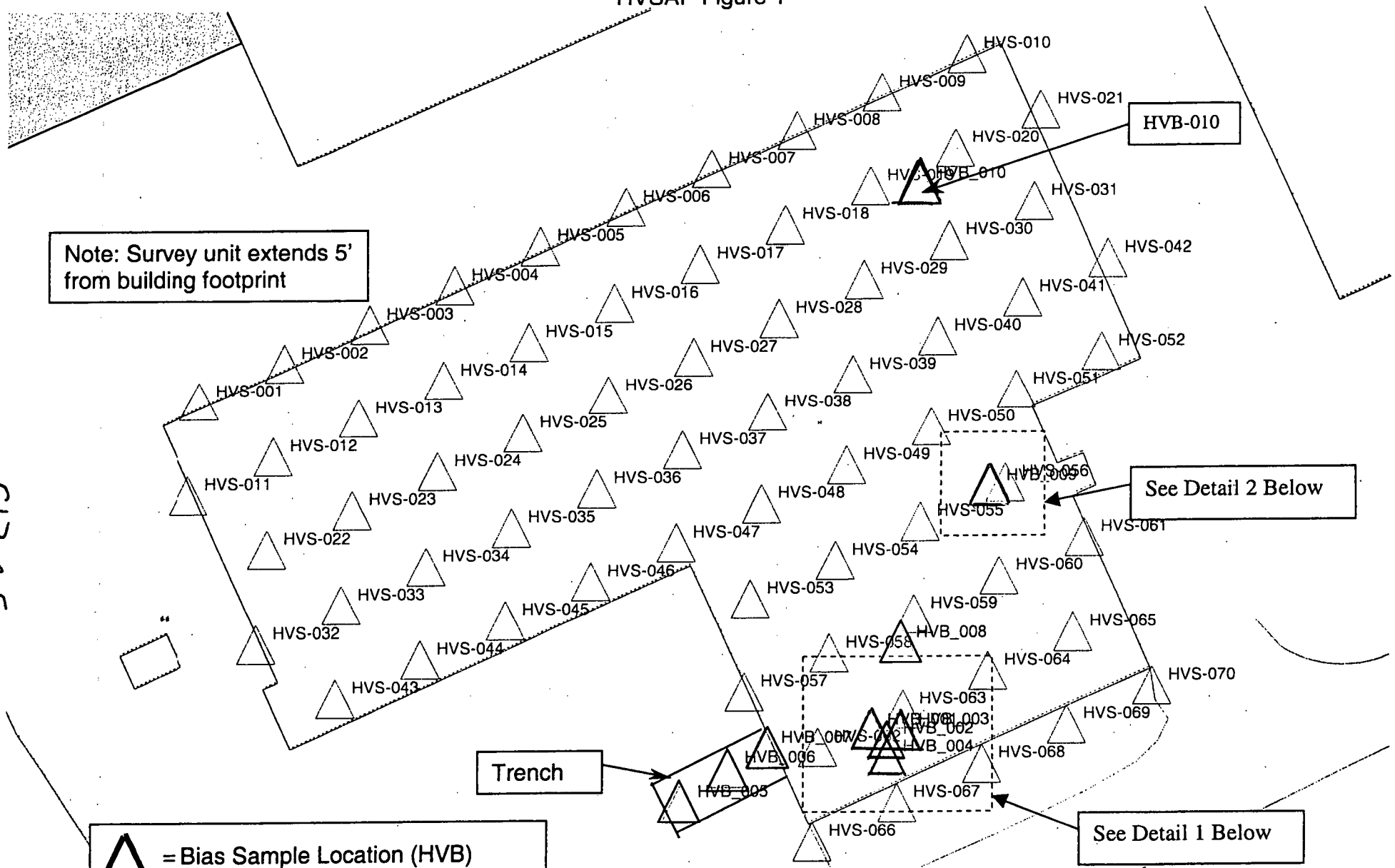
HVSAP Data Report
Table 2
Sample Results

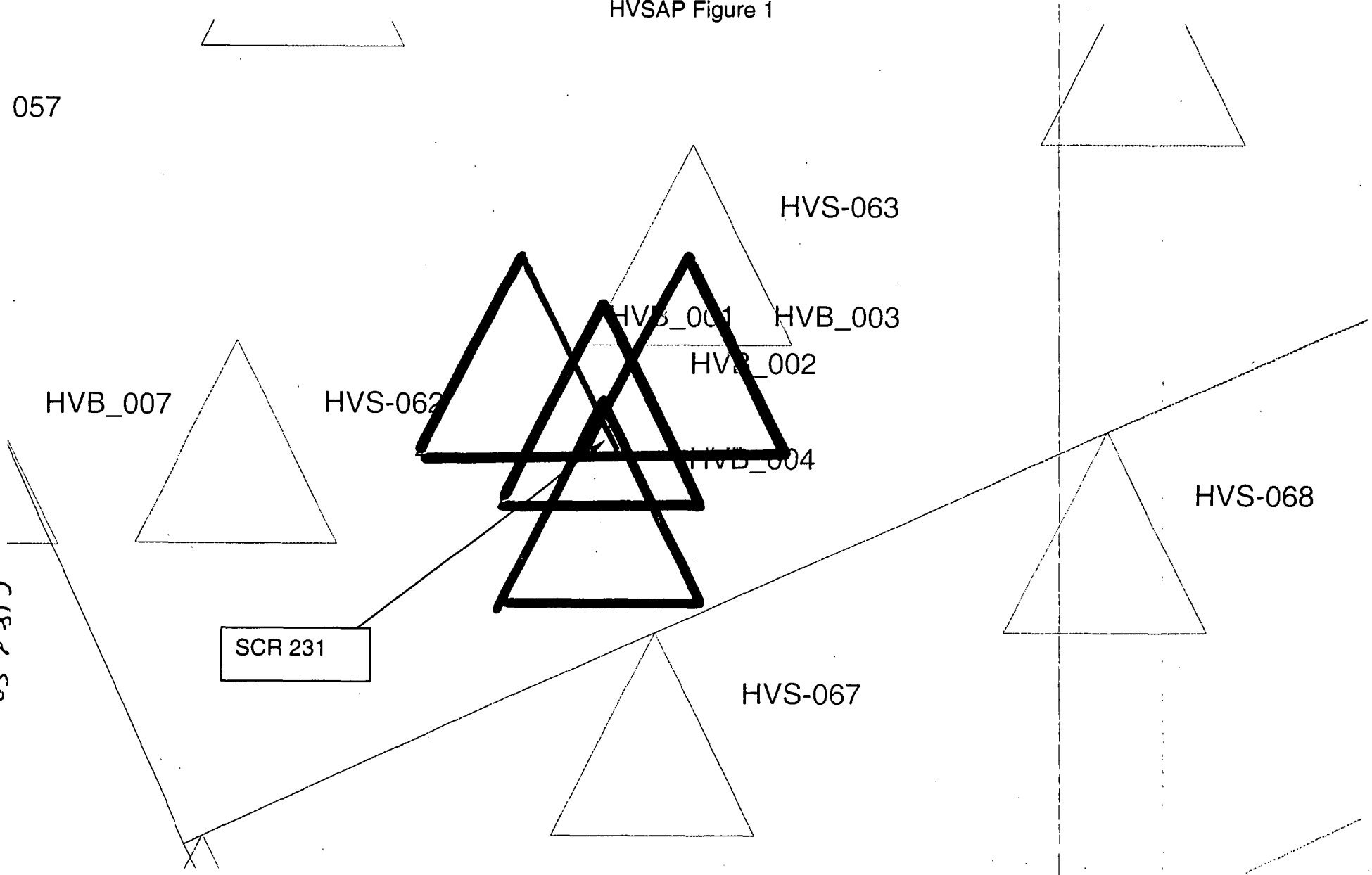
pCi/g	Gamma Spec						Alpha Spec						LSC	Unity w/<
Sample ID	Am-241	Bi-210m	Cs-137	Co-60	Pb-210	Ra-226	Pu-238	Pu-239/240	Th-228	Th-230	Th-232	Ac-227	H-3	values
Cleanup Objective	63	8.3	3.8	0.7	7.4	2.9	55	62	2.6	2.8	2.1	4.6	2,350,000	included*
Biased Sample Results														
HVB-001	0.147	0.047	0.021	0.024	6.41	1.19	0.341	0.09	0.495	1.25	0.427	0.224	3	2.22
HVB-002	0.071	0.079	0.043	0.041	0.656	1.31	0.083	0.039	0.698	1.12	0.497	0.145	3	1.56
HVB-003	0.222	0.07	0.029	0.034	8.84	2.07	0.277	0.098	0.728	1.16	0.553	0.137	3	2.97
HVB-004	0.167	0.053	0.022	0.025	7.06	1.11	0.129	0.106	0.530	1.19	0.529	0.235	3	2.32
HVB-005	0.181	0.091	0.042	0.04	4.7	1.22	39.9	1.10	3.34	1.25	0.801	0.182	3	4.03
HVB-006	0.232	0.12	0.061	0.047	6.05	2.41	6.35	0.09	1.32	1.32	0.662	0.206	3	3.21
HVB-007	0.183	0.093	0.048	0.048	4.83	1.29	0.677	0.079	0.803	1.04	0.991	0.186	3	2.40
HVB-008	0.056	0.064	0.031	0.036	0.848	1.38	0.119	0.047	0.342	0.889	0.260	0.149	3	1.27
HVB-009	0.177	0.058	0.023	0.029	7.22	1.39	0.136	0.089	0.495	0.870	0.358	0.287	3	2.25
HVB-010	0.171	0.08	0.043	0.045	4.43	1.11	0.131	0.064	0.616	1.22	0.616	0.197	3	2.08
MAX	0.232	0.12	0.061	0.048	8.84	2.41	39.9	1.1	3.34	1.32	0.991	0.287	3	4.03
MIN	0.056	0.047	0.021	0.024	0.656	1.11	0.083	0.039	0.342	0.87	0.26	0.137	3	1.27
AVG	0.1607	0.0755	0.0363	0.0369	5.1044	1.448	4.8143	0.1802	0.9367	1.1309	0.5694	0.1948	3	2.43
Stdev	0.05711	0.02198	0.01319	0.0088	2.65523	0.43606	12.4779	0.3239183	0.885268	0.15325	0.21343	0.04626	0	0.80
N	10	10	10	10	10	10	10	10	10	10	10	10	10	10.00
Confidence +/-	0.04	0.01	0.01	0.01	1.65	0.27	7.73	0.20	0.55	0.09	0.13	0.03	0.05	0.50
Field Duplicate Results														
HVB-008 FD	< 0.144	< 0.048	< 0.021	< 0.023	< 5.84	1.36	0.086	0.038	0.276	1.08	0.092	< 0.130	< 2.97	0.39
HVS-025 FD	< 0.139	< 0.070	0.088	< 0.032	< 3.86	< 0.992	< 0.056	0.037	0.715	1.45	0.488	< 0.163	< 2.28	0.47
HVS-031 FD	< 0.165	< 0.084	0.130	< 0.037	< 4.57	1.82	< 0.117	0.048	0.321	1.38	0.464	< 0.174	5.13	0.52
HVS-033 FD	< 0.162	< 0.079	< 0.036	< 0.038	< 4.25	< 1.12	0.085	< 0.051	0.513	0.823	0.402	0.058	< 2.44	0.38
HVS-046 FD	< 0.065	< 0.074	< 0.040	< 0.039	< 0.616	1.81	0.352	< 0.062	0.790	1.33	0.539	< 0.181	4.31	0.50
HVS-054 FD	< 0.146	< 0.048	< 0.022	< 0.021	< 6.42	1.35	< 0.095	< 0.069	0.328	0.953	0.289	0.136	< 2.85	0.42

*Unity is the Sum of Ratios (SOR). The term "w/ < values" indicates measured results less than the LDL are listed in the table at the LDL and included in the SOR.

FIGURES



H Building VSAP Sample Locations


057
HVS-063
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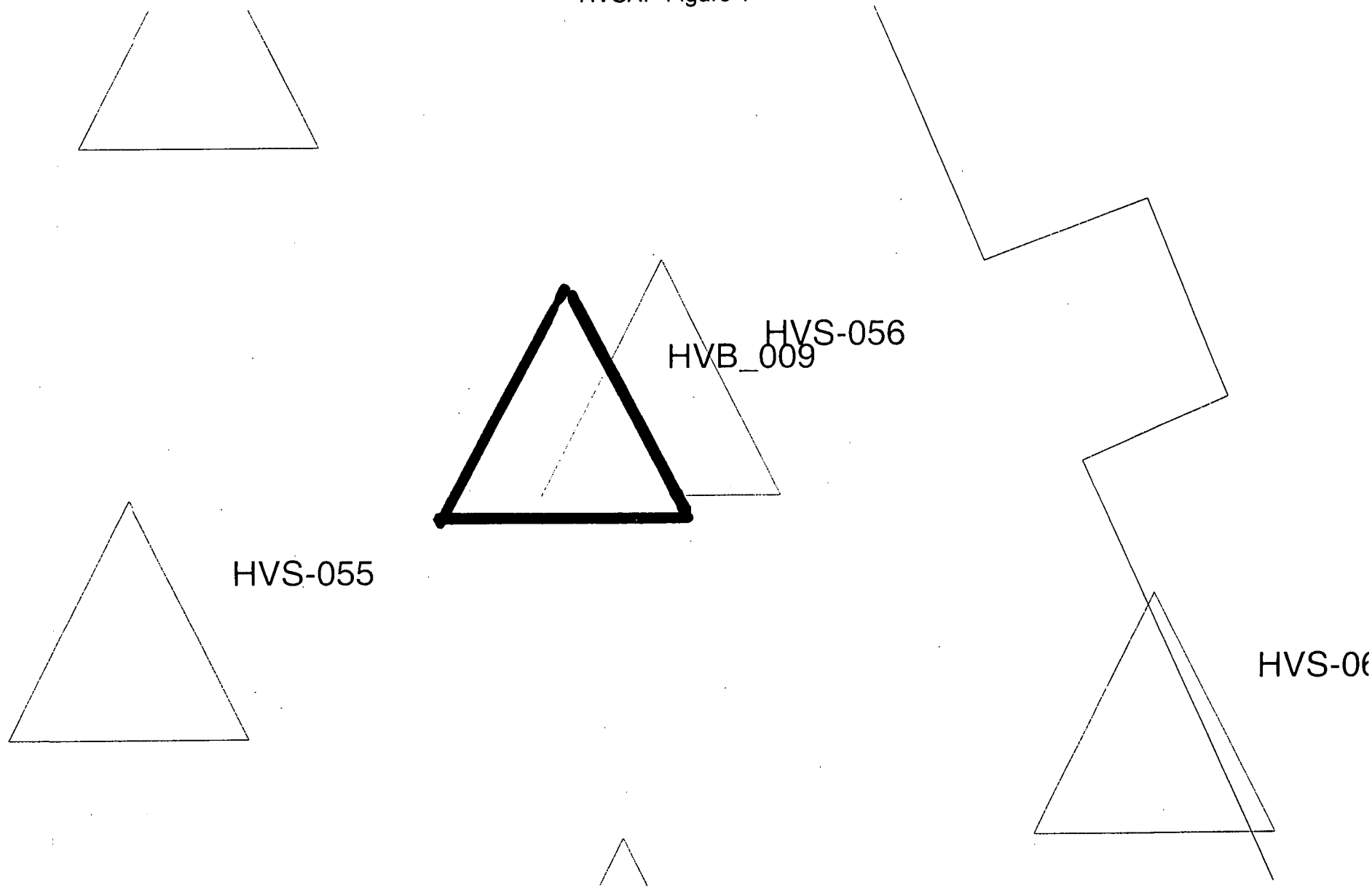
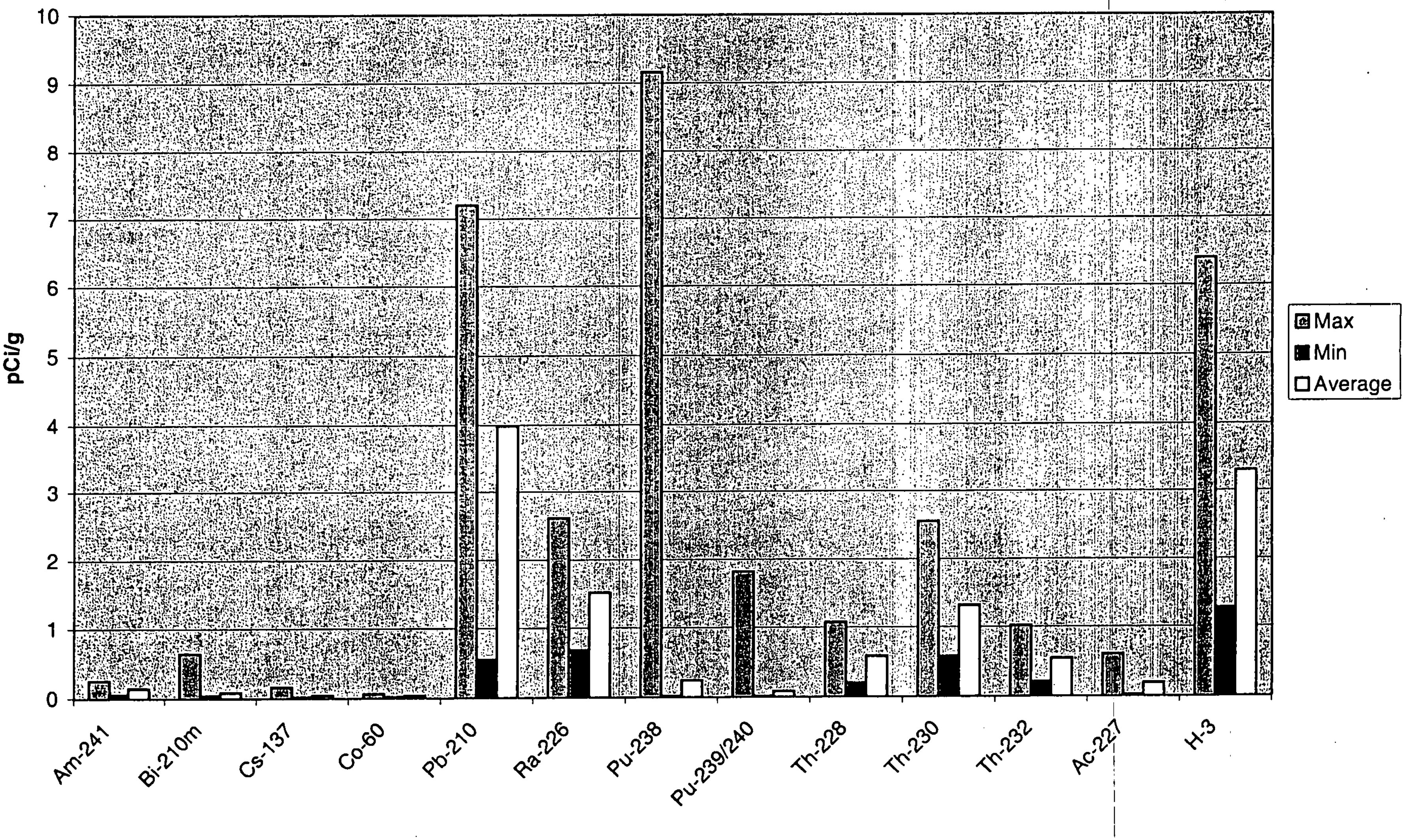
HVB_003
HVB_002
HVB_007
HVS-062
HVB_004
HVS-068
SCR 231
HVS-067

Detail 1



Detail 2

HVSAP Statistical Sample Results
Figure 2



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ATTACHMENTS

C 2106 50

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) H-FOOTPRINT	SURVEY NO. 04-TF-0162
PURPOSE: H-YSAP 100% WALKOVER SCAN SURVEY	RWP NO. N/A
	DATE: 6-1-04
	TIME: 1630

MAP / DRAWING

COPY

SEE ATTACHED

*NOTE: FIDLER USED FOR INDICATION ONLY. LOCATIONS #1, #2 AND #3, WERE INDICATED AS ABOVE BACKGROUND. #4, #5 AND #6 WERE PICKED AS TRENCH SAMPLES

LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
—·—·— = radiological boundary
(#) = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
FIDLER	5872/3964	1-14-05
	N/A	

[redacted]

HP# 6178 Date: 6-21-04

HP# Date:

HP# 7452 Date: 6/28/04

Survey No. 04-TF-0162

RADIOLOGICAL SURVEY DATA SHEET

Removable Contamination					Removable Contamination				
Swipes (dpm/100cm²)					Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments	Sample #	β/γ	Alpha	Tritium	Comments

N/A

COMMENTS: #1 - FOUND ABOVE BKG ON METAL - REMOVED #2 - 2000 cpm
#3 - 1500 cpm

NOTES:
1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If needed, mark N/A.

ML-9620A (4-98)

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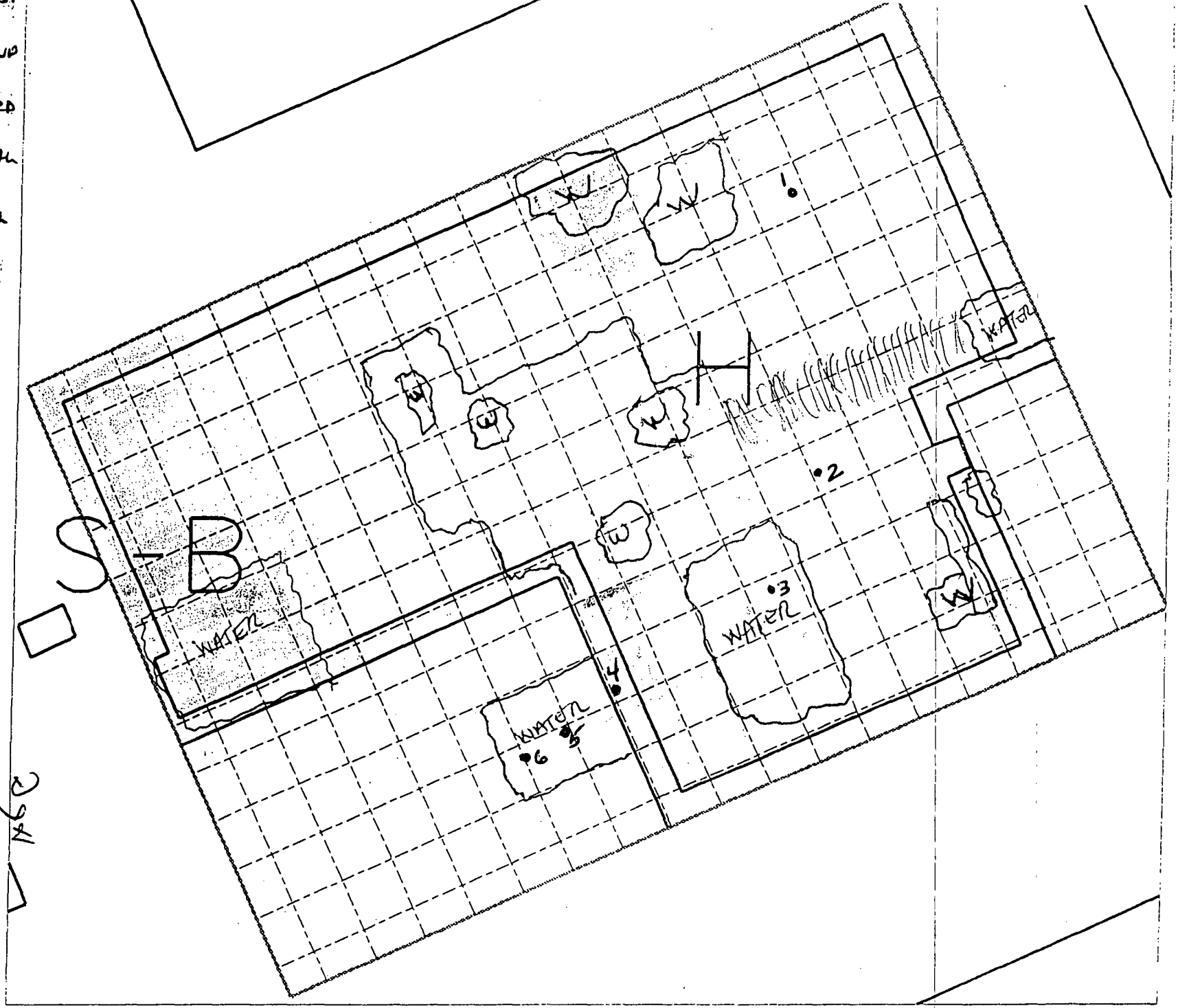
JUNE 2ND

JUNE 3RD

JUNE 7TH

JUNE 8TH

JUNE 9TH



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1.0 Introduction

Analytical data assessment can be performed on two quality control levels. Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

After removal of H Building a verification sampling was performed per the H Building VSAP. Surface soil samples were collected from a total of 80 locations. These include 70 grid samples, 10 bias samples. An additional 6 field duplicate samples were collected. There was no deviation from the VSAP

Samples were screened at the Mound Soil Screening Facility.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

Offsite sample analysis was performed at GEL of Ohio. There were no problems in achieving the analyte detection goals.

Table 1 Laboratory Sample Delivery Groups

LSDG	Number of Samples	Mound Sample IDs
115554	8	HVS-001, 002, 011, 012, 022, 032, 033, & 033FD
115772	20	HVS-016, 017, 018, 019, 020, 023, 024, 025, 025FD, 026, 027, 028, 029, 030, 035, 038, 039, 040, 041, & 044
115854	12	HVS-003, 004, 005, 006, 007, 008, 009, 010, 013, 014, 021, & 031
115934	22	HVS-034, 031FD, 036, 037, 042, 043, 045, 046, 046FD, 047, 048, 049, 050, 051, 052, 053, 054, 057, HVB-005, 006, 007, & 010
116057	14	HVS-055, 056, 058, 059, 060, 061, 062, 064, 065, 066, 067, 068, 069, & 070
116267	10	HVS-015, 054FD, 063, HVB-001, 002, 003, 004, 008, 008FD, & 009

3.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

3.1 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

The method blanks for all LSDGs met QC criteria.

3.2 Laboratory Duplicate

A laboratory duplicate analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples or LSDG.

The Relative Error Ratio of the duplicate analyses for all LSDG's was within QC criteria.

3.3 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analyte of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

The LCS recoveries associated with these samples were all within QC criteria.

3.4 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination. Only isotopes at background levels were found in the four equipment rinsates.

No equipment rinsates were collected.

3.5 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

Agreements between field duplicates were within acceptable range.

4.0 Data Validation

The results of LSDG 116057 were fully data validated. In addition to the items discussed above, the following items were evaluated:

1. Instrument calibration
2. Daily Source checks
3. Background measurement
4. Proper frequency and use of blanks
5. All calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

5.0 Certification

Based upon this review the gamma spectroscopy analysis data maybe used as presented with no further qualifications.

Table 3 H Building Foundation Gamma Spec Results (pCi/g)

Sample ID	Am-241		Bi-210m		Cs-137		Co-60		Pb-210		Ra-226	
Cleanup Goal	63		8.3		3.8		0.7		7.4		2.9	
HVB-001	< 0.147	U	< 0.047	U	< 0.021	U	< 0.024	U	< 6.41	U	1.19	
HVB-002	< 0.071	U	< 0.079	U	< 0.043	U	< 0.041	U	< 0.656	U	1.31	
HVB-003	< 0.222	U	< 0.070	U	< 0.029	U	< 0.034	U	< 8.84	U	2.07	
HVB-004	< 0.167	U	< 0.053	U	< 0.022	U	< 0.025	U	< 7.06	U	1.11	
HVB-005	< 0.181	U	< 0.091	U	< 0.042	U	< 0.040	U	< 4.70	U	< 1.22	U
HVB-006	< 0.232	U	< 0.120	U	< 0.061	U	< 0.047	U	< 6.05	U	2.41	
HVB-007	< 0.183	U	< 0.093	U	< 0.048	U	< 0.048	U	< 4.83	U	< 1.29	U
HVB-008	< 0.056	U	< 0.064	U	< 0.031	U	< 0.036	U	0.848		1.38	
HVB-008 FD	< 0.144	U	< 0.048	U	< 0.021	U	< 0.023	U	< 5.84	U	1.36	
HVB-009	< 0.177	U	< 0.058	U	< 0.023	U	< 0.029	U	< 7.22	U	1.39	
HVB-010	< 0.171	U	< 0.080	U	< 0.043	U	< 0.045	U	< 4.43	U	1.11	
HVS-001	< 0.179	U	< 0.089	U	< 0.041	U	< 0.042	U	< 4.67	U	< 0.86	U
HVS-002	< 0.145	U	< 0.074	U	< 0.037	U	< 0.036	U	< 3.93	U	1.72	
HVS-003	< 0.149	U	< 0.077	U	< 0.039	U	< 0.034	U	< 4.07	U	< 1.06	U
HVS-004	< 0.146	U	< 0.076	U	< 0.037	U	< 0.035	U	< 3.68	U	< 0.973	U
HVS-005	< 0.147	U	< 0.078	U	< 0.035	U	< 0.035	U	< 3.91	U	1.27	
HVS-006	< 0.194	U	< 0.100	U	0.053		< 0.039	U	< 5.30	U	2.04	
HVS-007	< 0.159	U	< 0.079	U	< 0.041	U	< 0.039	U	< 4.19	U	< 1.10	U
HVS-008	< 0.153	U	< 0.078	U	< 0.040	U	< 0.034	U	< 3.87	U	1.42	
HVS-009	< 0.257	U	< 0.131	U	0.162		< 0.063	U	< 6.84	U	< 1.82	U
HVS-010	< 0.156	U	< 0.078	U	< 0.034	U	< 0.034	U	< 4.24	U	1.90	
HVS-011	< 0.139	U	< 0.076	U	0.082		< 0.035	U	< 3.98	U	< 1.03	U
HVS-012	< 0.176	U	< 0.083	U	< 0.040	U	< 0.041	U	< 4.49	U	< 1.20	U
HVS-013	< 0.145	U	< 0.074	U	< 0.035	U	< 0.033	U	< 4.00	U	< 1.07	U
HVS-014	< 0.159	U	< 0.085	U	< 0.041	U	< 0.040	U	< 4.18	U	< 1.09	U
HVS-015	< 0.059	U	< 0.650	U	< 0.037	U	< 0.034	U	< 0.563	U	1.25	
HVS-016	< 0.152	U	< 0.080	U	< 0.037	U	< 0.037	U	< 3.95	U	< 1.10	U
HVS-017	< 0.154	U	< 0.080	U	< 0.041	U	< 0.036	U	< 4.05	U	2.14	
HVS-018	< 0.152	U	< 0.084	U	< 0.038	U	< 0.038	U	< 4.15	U	2.42	
HVS-019	< 0.166	U	< 0.086	U	0.045		< 0.034	U	< 4.41	U	1.68	
HVS-020	< 0.179	U	< 0.090	U	< 0.043	U	< 0.042	U	< 4.64	U	1.46	
HVS-021	< 0.197	U	< 0.093	U	0.152		< 0.050	U	< 5.45	U	2.08	

Sample ID	Am-241		Bi-210m		Cs-137		Co-60		Pb-210		Ra-226	
Cleanup Goal	63		8.3		3.8		0.7		7.4		2.9	
HVS-022	< 0.161	U	< 0.079	U	< 0.041	U	< 0.038	U	< 4.25	U	< 1.15	U
HVS-023	< 0.161	U	< 0.083	U	< 0.034	U	< 0.037	U	< 4.20	U	1.13	
HVS-024	< 0.149	U	< 0.079	U	< 0.038	U	< 0.028	U	< 4.00	U	< 1.04	U
HVS-025	< 0.139	U	< 0.070	U	< 0.032	U	< 0.033	U	< 3.69	U	1.03	
HVS-025 FD	< 0.139	U	< 0.070	U	0.088		< 0.032	U	< 3.86	U	< 0.992	U
HVS-026	< 0.153	U	< 0.079	U	< 0.037	U	< 0.036	U	< 4.20	U	2.34	
HVS-027	< 0.156	U	< 0.076	U	< 0.036	U	< 0.037	U	< 4.19	U	1.43	
HVS-028	< 0.158	U	< 0.080	U	< 0.038	U	< 0.033	U	< 4.25	U	1.33	
HVS-029	< 0.060	U	< 0.069	U	< 0.034	U	< 0.035	U	< 0.555	U	1.79	
HVS-030	< 0.150	U	< 0.049	U	< 0.023	U	< 0.023	U	< 6.39	U	1.61	
HVS-031	< 0.165	U	< 0.082	U	0.052		< 0.042	U	< 4.36	U	< 1.18	U
HVS-031 FD	< 0.165	U	< 0.084	U	0.130		< 0.037	U	< 4.57	U	1.82	
HVS-032	< 0.134	U	< 0.072	U	< 0.032	U	< 0.031	U	< 3.92	U	< 0.700	U
HVS-033	< 0.165	U	< 0.081	U	< 0.040	U	< 0.041	U	< 4.32	U	< 1.17	U
HVS-033 FD	< 0.162	U	< 0.079	U	< 0.036	U	< 0.038	U	< 4.25	U	< 1.12	U
HVS-034	< 0.193	U	< 0.094	U	< 0.048	U	< 0.044	U	< 4.91	U	< 1.31	U
HVS-035	< 0.054	U	< 0.061	U	< 0.031	U	< 0.033	U	0.619		0.928	
HVS-036	< 0.197	U	< 0.096	U	< 0.049	U	< 0.048	U	< 5.43	U	< 1.01	U
HVS-037	< 0.188	U	< 0.098	U	< 0.046	U	< 0.042	U	< 4.94	U	2.23	
HVS-038	< 0.121	U	< 0.039	U	< 0.018	U	< 0.019	U	< 4.88	U	1.29	
HVS-039	< 0.060	U	< 0.068	U	< 0.035	U	< 0.036	U	0.921		1.84	
HVS-040	< 0.129	U	< 0.044	U	< 0.020	U	< 0.021	U	< 5.76	U	1.85	
HVS-041	< 0.064	U	< 0.074	U	< 0.041	U	< 0.035	U	< 0.608	U	2.11	
HVS-042	< 0.156	U	< 0.078	U	0.038		< 0.035	U	< 4.25	U	2.62	
HVS-043	< 0.172	U	< 0.087	U	< 0.041	U	< 0.041	U	< 4.53	U	1.24	
HVS-044	< 0.151	U	< 0.046	U	< 0.023	U	< 0.023	U	< 6.26	U	2.02	
HVS-045	< 0.155	U	< 0.079	U	< 0.033	U	< 0.035	U	< 3.94	U	1.20	
HVS-046	< 0.160	U	< 0.082	U	< 0.040	U	< 0.035	U	< 4.31	U	1.87	
HVS-046 FD	< 0.065	U	< 0.074	U	< 0.040	U	< 0.039	U	< 0.616	U	1.81	
HVS-047	< 0.172	U	< 0.084	U	< 0.040	U	< 0.042	U	< 4.55	U	2.08	
HVS-048	< 0.150	U	< 0.074	U	0.038		< 0.035	U	< 3.98	U	0.964	
HVS-049	< 0.200	U	< 0.102	U	0.063		< 0.045	U	< 5.39	U	2.26	
HVS-050	< 0.185	U	< 0.095	U	< 0.046	U	< 0.047	U	< 4.85	U	1.30	
HVS-051	< 0.149	U	< 0.075	U	< 0.035	U	< 0.036	U	< 3.84	U	< 1.07	U
HVS-052	< 0.159	U	< 0.084	U	< 0.038	U	< 0.038	U	< 4.23	U	1.62	

Sample ID	Am-241		Bi-210m		Cs-137		Co-60		Pb-210		Ra-226	
Cleanup Goal	63		8.3		3.8		0.7		7.4		2.9	
HVS-053	< 0.153	U	< 0.078	U	< 0.042	U	< 0.040	U	< 4.10	U	< 0.780	U
HVS-054	< 0.147	U	< 0.072	U	0.065		< 0.036	U	< 3.78	U	1.86	
HVS-054 FD	< 0.146	U	< 0.048	U	< 0.022	U	< 0.021	U	< 6.42	U	1.35	
HVS-055	< 0.065	U	< 0.078	U	< 0.037	U	< 0.038	U	< 0.618	U	< 0.688	U
HVS-056	< 0.163	U	< 0.052	U	< 0.024	U	< 0.026	U	< 6.68	U	1.19	
HVS-057	< 0.191	U	< 0.101	U	< 0.049	U	< 0.043	U	< 4.89	U	1.61	
HVS-058	< 0.151	U	< 0.047	U	< 0.020	U	< 0.022	U	< 6.03	U	1.45	
HVS-059	< 0.069	U	< 0.079	U	< 0.042	U	0.035		< 0.650	U	2.33	
HVS-060	< 0.146	U	< 0.050	U	< 0.022	U	< 0.024	U	< 5.77	U	1.67	
HVS-061	< 0.076	U	< 0.087	U	< 0.049	U	< 0.044	U	0.812		1.38	
HVS-062	< 0.176	U	< 0.055	U	< 0.027	U	< 0.028	U	< 7.20	U	1.60	
HVS-063	< 0.074	U	< 0.086	U	< 0.044	U	< 0.045	U	0.979		1.94	
HVS-064	< 0.057	U	< 0.063	U	< 0.036	U	< 0.036	U	< 0.563	U	1.97	
HVS-065	< 0.166	U	< 0.053	U	< 0.025	U	< 0.024	U	< 6.88	U	1.48	
HVS-066	< 0.072	U	< 0.083	U	< 0.044	U	< 0.044	U	0.956		1.91	
HVS-067	< 0.150	U	< 0.049	U	< 0.023	U	< 0.025	U	< 6.06	U	1.94	
HVS-068	< 0.064	U	< 0.073	U	< 0.038	U	< 0.039	U	0.847		1.21	
HVS-069	< 0.162	U	< 0.054	U	< 0.024	U	< 0.023	U	< 6.76	U	1.80	
HVS-070	< 0.066	U	< 0.076	U	< 0.041	U	< 0.038	U	< 0.622	U	1.59	

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A "U" qualifier signifies non-detects
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Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

After removal of H Building a verification sampling was performed per the H Building VSAP. Surface soil samples were collected from a total of 80 locations. These include 70 grid samples, 10 bias samples. An additional 6 field duplicate samples were collected. There was no deviation from the VSAP

Samples were screened at the Mound Soil Screening Facility.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

Offsite sample analysis was performed at GEL of Ohio. There were no problems in achieving the analyte detection goals.

Table 1 Laboratory Sample Delivery Groups

LSDG	Number of Samples	Mound Sample IDs
115554	8	HVS-001, 002, 011, 012, 022, 032, 033, & 033FD
115772	20	HVS-016, 017, 018, 019, 020, 023, 024, 025, 025FD, 026, 027, 028, 029, 030, 035, 038, 039, 040, 041, & 044
115854	12	HVS-003, 004, 005, 006, 007, 008, 009, 010, 013, 014, 021, & 031
115934	22	HVS-034, 031FD, 036, 037, 042, 043, 045, 046, 046FD, 047, 048, 049, 050, 051, 052, 053, 054, 057, HVB-005, 006, 007, & 010
116057	14	HVS-055, 056, 058, 059, 060, 061, 062, 064, 065, 066, 067, 068, 069, & 070
116267	10	HVS-015, 054FD, 063, HVB-001, 002, 003, 004, 008, 008FD, & 009

3.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

3.1 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

The method blanks for all LSDGs met QC criteria.

3.2 Laboratory Duplicate

A laboratory duplicate analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples or LSDG.

The Relative Error Ratio of the duplicate analyses for all LSDG's were with QC criteria.

3.3 Matrix Spike

A matrix spike (MS) analysis is performed to assess the precision and accuracy of the laboratory analysis. One matrix spike is performed for every 20 samples or LSDG. It also may indicate analysis bias due to sample matrix effects.

The matrix spike recoveries for all LSDG's were with QC criteria.

3.4 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analyte of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

The LCS recoveries associated with these samples were all within QC criteria.

3.5 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination. Only isotopes at background levels were found in the four equipment rinsates.

No equipment rinsates were collected.

3.6 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

Agreements between field duplicates were within acceptable range.

4.0 Data Validation

The results of LSDG 116057 were fully data validated. In addition to the items discussed above, the following items were evaluated:

1. Instrument calibration
2. Daily Source checks
3. Background and efficiency measurement
4. Proper frequency and use of blanks
5. All calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

5.0 Certification

Based upon this review the tritium analysis data maybe used as presented with no qualifications.

Table 3 H Building Foundation Tritium Results

pCi/g	LSC	Flag
Sample ID	**H-3**	**Qualifier**
Cleanup Goal	2,350,000	
HVB-001	< 3.00	U
HVB-002	< 3.00	U
HVB-003	< 3.00	U
HVB-004	< 2.93	U
HVB-005	< 2.78	U
HVB-006	< 2.88	U
HVB-007	< 2.84	U
HVB-008	< 2.81	U
HVB-008 FD	< 2.97	U
HVB-009	< 2.93	U
HVB-010	< 2.93	U
HVS-001	< 2.39	U
HVS-002	< 2.38	U
HVS-003	3.33	
HVS-004	5.70	
HVS-005	5.45	
HVS-006	4.83	
HVS-007	5.20	
HVS-008	4.52	
HVS-009	4.91	
HVS-010	4.76	
HVS-011	2.43	
HVS-012	< 2.42	U
HVS-013	6.19	
HVS-014	4.66	
HVS-015	3.96	
HVS-016	< 2.34	U
HVS-017	2.79	
HVS-018	3.86	
HVS-019	< 1.90	U
HVS-020	< 2.38	U
HVS-021	3.70	
HVS-022	4.00	
HVS-023	3.07	
HVS-024	2.80	
HVS-025	< 1.57	U
HVS-025 FD	< 2.28	U
HVS-026	2.68	
HVS-027	2.98	
HVS-028	< 2.47	U
HVS-029	< 2.37	U
HVS-030	< 1.85	U
HVS-031	4.95	

pCi/g	LSC	Flag
Sample ID	**H-3**	**Qualifier**
Cleanup Goal	2,350,000	
HVS-031 FD	5.13	
HVS-032	< 2.45	U
HVS-033	2.50	
HVS-033 FD	< 2.44	U
HVS-034	< 2.84	U
HVS-035	2.50	
HVS-036	4.85	
HVS-037	4.83	
HVS-038	2.44	
HVS-039	1.27	
HVS-040	2.34	
HVS-041	2.64	
HVS-042	3.91	
HVS-043	6.40	
HVS-044	5.22	
HVS-045	5.09	
HVS-046	4.01	
HVS-046 FD	4.31	
HVS-047	< 2.85	U
HVS-048	< 2.76	U
HVS-049	< 2.83	U
HVS-050	< 2.87	U
HVS-051	< 2.86	U
HVS-052	< 2.86	U
HVS-053	< 2.87	U
HVS-054	< 2.75	U
HVS-054 FD	< 2.85	U
HVS-055	< 2.93	U
HVS-056	< 2.89	U
HVS-057	< 2.74	U
HVS-058	< 2.79	U
HVS-059	< 2.88	U
HVS-060	< 2.96	U
HVS-061	< 2.97	U
HVS-062	< 2.91	U
HVS-063	< 2.96	U
HVS-064	< 2.93	U
HVS-065	< 2.90	U
HVS-066	< 2.85	U
HVS-067	< 2.99	U
HVS-068	< 2.95	U
HVS-069	< 2.76	U
HVS-070	< 2.88	U

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1.0 Introduction

Analytical data assessment can be performed on two quality control levels. Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

After removal of H Building a verification sampling was performed per the H Building VSAP. Surface soil samples were collected from a total of 80 locations. These include 70 grid samples, 10 bias samples. An additional 6 field duplicate samples were collected. There was no deviation from the VSAP

Samples were screened at the Mound Soil Screening Facility.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

Offsite sample analysis was performed at GEL of Ohio. There were no problems in achieving the analyte detection goals.

Table 1 Laboratory Sample Delivery Groups

LSDG	Number of Samples	Mound Sample IDs
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115854	12	HVS-003, 004, 005, 006, 007, 008, 009, 010, 013, 014, 021, & 031
115934	22	HVS-034, 031FD, 036, 037, 042, 043, 045, 046, 046FD, 047, 048, 049, 050, 051, 052, 053, 054, 057, HVB-005, 006, 007, & 010
116057	14	HVS-055, 056, 058, 059, 060, 061, 062, 064, 065, 066, 067, 068, 069, & 070
116267	10	HVS-015, 054FD, 063, HVB-001, 002, 003, 004, 008, 008FD, & 009

3.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

3.1 Tracer Recovery

The laboratory spikes every sample with Pu-242. The percent recovery of Pu-242 is then used to scale the detected presence of the other Pu isotopes. To fully meet QC criteria the Pu-242 isotope recovery must be between 30 – 110 % and have an accumulated count of at least 200 counts.

Tracer recovery for all LSDGs met QC criteria.

3.2 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

The method blanks for all LSDGs met QC criteria.

3.3 Laboratory Duplicate

A laboratory duplicate analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples or LSDG.

The Relative Error Ratio of the duplicate analyses for all LSDG's were within QC criteria.

3.4 Matrix Spike

A matrix spike (MS) analysis is performed to assess the precision and accuracy of the laboratory analysis. One matrix spike is performed for every 20 samples or LSDG. It also may indicate analysis bias due to sample matrix effects.

The matrix spike recoveries for all LSDG's were with QC criteria.

3.5 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analyte of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

The LCS recovery for all data sets met QC requirements.

3.6 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination. Only isotopes at background levels were found in the four equipment rinsates.

No equipment rinsates were collected.

3.7 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

Agreement between field duplicates was within acceptable range.

4.0 Data Validation

The results of LSDG 116057 were fully data validated. In addition to the items discussed above, the following items were evaluated:

1. Instrument calibration
2. Daily Source checks
3. Background and efficiency measurement
4. Proper frequency and use of blanks
5. All calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

5.0 Certification

Based upon this review the plutonium analysis data maybe used as presented with no further qualifications.

Table 3 H Building Foundation Pu Results (pCi/g)

Sample ID	Pu-238	Flag	Pu-239/240	Flag
Cleanup Goal	55	Qualifier		Qualifier
HVB-001	0.341		< 0.090	U
HVB-002	< 0.083	U	0.039	
HVB-003	0.277		< 0.098	U
HVB-004	< 0.129	U	< 0.106	U
HVB-005	39.9		1.10	
HVB-006	6.35		< 0.090	U
HVB-007	0.677		< 0.079	U
HVB-008	< 0.119	U	0.047	
HVB-008 FD	0.086		0.038	
HVB-009	< 0.136	U	< 0.089	U
HVB-010	< 0.131	U	< 0.064	U
HVS-001	< 0.053	U	0.018	
HVS-002	0.053		< 0.012	U
HVS-003	0.088		< 0.038	U
HVS-004	0.093		< 0.051	U
HVS-005	< 0.137	U	< 0.073	U
HVS-006	0.100		< 0.079	U
HVS-007	< 0.112	U	< 0.044	U
HVS-008	< 0.085	U	< 0.049	U
HVS-009	0.170		< 0.043	U
HVS-010	< 0.117	U	< 0.037	U
HVS-011	0.128		< 0.054	U
HVS-012	0.079		< 0.061	U
HVS-013	< 0.083	U	< 0.043	U
HVS-014	0.249		< 0.069	U
HVS-015	< 0.157	U	< 0.087	U
HVS-016	< 0.038	U	0.029	
HVS-017	< 0.068	U	< 0.012	U
HVS-018	< 0.054	U	< 0.037	U
HVS-019	< 0.054	U	< 0.042	U
HVS-020	< 0.072	U	< 0.047	U
HVS-021	< 0.077	U	0.037	
HVS-022	< 0.067	U	< 0.052	U
HVS-023	0.097		0.014	
HVS-024	< 0.093	U	< 0.097	U
HVS-025	< 0.042	U	< 0.049	U
HVS-025 FD	< 0.056	U	0.037	
HVS-026	< 0.055	U	0.032	
HVS-027	< 0.095	U	< 0.098	U
HVS-028	0.046		0.017	
HVS-029	0.054		0.024	
HVS-030	0.066		0.022	
HVS-031	< 0.032	U	0.013	
HVS-031 FD	< 0.117	U	0.048	

Sample ID	Pu-238	Flag	Pu-239/240	Flag
Cleanup Goal	55	Qualifier		Qualifier
HVS-032	0.369		< 0.097	U
HVS-033	0.068		0.019	
HVS-033 FD	0.085		< 0.051	U
HVS-034	0.176		0.071	
HVS-035	< 0.098	U	< 0.061	U
HVS-036	< 0.093	U	< 0.066	U
HVS-037	< 0.081	U	< 0.064	U
HVS-038	0.014		< 0.036	U
HVS-039	< 0.089	U	< 0.049	U
HVS-040	< 0.076	U	< 0.034	U
HVS-041	0.130		< 0.036	U
HVS-042	< 0.110	U	< 0.074	U
HVS-043	0.139		0.057	
HVS-044	< 0.098	U	< 0.058	U
HVS-045	< 0.129	U	< 0.134	U
HVS-046	0.109		< 0.076	U
HVS-046 FD	0.352		< 0.062	U
HVS-047	< 0.140	U	< 0.145	U
HVS-048	< 0.059	U	< 0.026	U
HVS-049	9.16		1.82	
HVS-050	0.067		< 0.134	U
HVS-051	< 0.128	U	< 0.075	U
HVS-052	< 0.109	U	< 0.052	U
HVS-053	< 0.136	U	< 0.060	U
HVS-054	< 0.164	U	< 0.101	U
HVS-054 FD	< 0.095	U	< 0.069	U
HVS-055	< 0.085	U	< 0.052	U
HVS-056	< 0.078	U	0.038	
HVS-057	< 0.180	U	< 0.100	U
HVS-058	< 0.079	U	< 0.032	U
HVS-059	0.120		< 0.054	U
HVS-060	0.178		< 0.063	U
HVS-061	0.304		< 0.075	U
HVS-062	< 0.109	U	0.06	
HVS-063	< 0.101	U	< 0.060	U
HVS-064	< 0.082	U	< 0.047	U
HVS-065	0.177		< 0.044	U
HVS-066	0.284		< 0.037	U
HVS-067	0.311		< 0.043	U
HVS-068	< 0.073	U	< 0.065	U
HVS-069	< 0.069	U	0.033	
HVS-070	0.279		0.033	

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1.0 Introduction

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115934	22	HVS-034, 031FD, 036, 037, 042, 043, 045, 046, 046FD, 047, 048, 049, 050, 051, 052, 053, 054, 057, HVB-005, 006, 007, & 010
116057	14	HVS-055, 056, 058, 059, 060, 061, 062, 064, 065, 066, 067, 068, 069, & 070
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Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

3.1 Tracer Recovery

The laboratory spikes every sample with Th-229. The percent recovery of Th-229 is then used to scale the detected presence of the other Th isotopes. To fully meet QC criteria the Th-229 isotope recovery must be between 30 – 110 % and have an accumulated count of at least 200 counts.

The laboratory had a persistent, low recovery problem meeting the QC percent tracer recovery criterion. In every instance the total count criterion was met. Even samples that met the tracer recovery criterion tended to be in the low recovery range. Tracer recovery for samples not containing the Mound sample matrix (i.e., blanks and Laboratory Control Samples) did not exhibit low tracer recovery. Low tracer recovery also causes the error associated with each measurement to increase due to scaling effects.

The laboratory's explanation of the low tracer recovery was the presence of something (possible a metal) in the sample matrix, which inhibits tracer recovery. It should be noted that even with low tracer recovery the Th results are not abnormally low (< than background), but about what would be expected from Mound background level soil.

A number of the Th results have been qualified as "estimates" (J) due to low tracer recovery. See Table 3 below.

3.2 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

The method blanks for all LSDGs met QC criteria.

3.3 Laboratory Duplicate

A laboratory duplicate analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples or LSDG.

The laboratory duplicate samples were effected by poor tracer recovery as discussed in section 3.1 above. The Relative Error Ratio of the duplicate analyses for most LSDG's were with QC criteria.

3.4 Matrix Spike

A matrix spike (MS) analysis is performed to assess the precision and accuracy of the laboratory analysis. One matrix spike is performed for every 20 samples or LSDG. It also may indicate analysis bias due to sample matrix effects.

The matrix spike samples were effected by the poor tracer recovery as discussed in section 3.1. The matrix spike recoveries for all LSDG's were with QC criteria.

3.5 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analyte of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

Recoveries from the LCS associated with these samples were all within QC limits.

3.6 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination. Only isotopes at background levels were found in the four equipment rinsates.

No equipment rinsates were collected.

3.7 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

Although some of field duplicates were effected by the poor tracer recovery discussed in section 3.1, the agreement between field duplicates was within acceptable range.

4.0 Data Validation

The results of LSDG 116057 were fully data validated. In addition to the items discussed above, the following items were evaluated:

1. Instrument calibration
2. Daily Source checks
3. Background and efficiency measurement
4. Proper frequency and use of blanks
5. All calculations

No additional qualification resulted from this assessment beyond those already discussed. There was no indication of a systemic deficiency.

5.0 Certification

Sample HVB-005, which had the highest Th-228 result was also run by alpha spectroscopy for uranium isotopes on the same sample in attempt to discover a possible source of the Th-228.

PCi/g	U-233/234	U-235/236	U-238	Th-228	Th-230	Th-232	Ac-227
HVB-005	0.887	0.145	0.841	3.34	1.25	0.801	< 0.182

Base upon this analysis it does not appear that the Th-228 is a result of a uranium decay chain.

Based upon this review the thorium analysis data maybe used as presented with the indicated qualifications.

Table 3 H Building Foundation Th Results (pCi/g)

Sample ID	Th-228	Flag	Th-230	Flag	Th-232	Flag	Ac-227	Flag
Cleanup Goal			2.8		2.1		4.6	
HVB-001	0.495		1.25		0.427		0.224	
HVB-002	0.698		1.12		0.497		0.145	
HVB-003	0.728		1.16		0.553		0.137	
HVB-004	0.530	J	1.19	J	0.529	J	0.235	J
HVB-005	3.34		1.25		0.801		< 0.182	
HVB-006	1.32		1.32		0.662		< 0.206	
HVB-007	0.803		1.04		0.991		< 0.186	
HVB-008	0.342		0.889		0.260		< 0.149	
HVB-008 FD	0.276		1.08		0.092		< 0.130	
HVB-009	0.495		0.870		0.358		< 0.287	
HVB-010	0.616		1.22		0.616		< 0.197	
HVS-001	0.737		1.34		0.877		0.085	
HVS-002	0.656	J	0.809	J	0.559	J	0.081	J
HVS-003	0.587		1.37		0.473		0.069	
HVS-004	0.444		1.44		0.521		0.057	
HVS-005	0.435		1.02		0.522		0.056	
HVS-006	0.684		1.39		0.650		0.068	
HVS-007	0.562		1.56		0.542		< 0.082	U
HVS-008	0.551		1.16		0.511		< 0.073	U
HVS-009	0.793		1.85		0.641		< 0.065	U
HVS-010	0.657		0.992		0.537		0.082	
HVS-011	0.441	J	1.15	J	0.440	J	< 0.189	U J
HVS-012	0.643	J	1.45	J	0.855	J	< 0.165	U J
HVS-013	0.539		1.45		0.527		< 0.057	U
HVS-014	0.627		1.65		0.544		0.050	
HVS-015	0.583		0.855		0.437		< 0.221	U
HVS-016	0.714		1.70		0.517		< 0.019	U
HVS-017	< 0.556	U J	1.56	J	0.363	J	< 0.023	UJ
HVS-018	0.743	J	0.918	J	0.459	J	< 0.205	UJ
HVS-019	0.782	J	2.09	J	0.521	J	< 0.284	UJ
HVS-020	0.941		1.11		0.743		< 0.113	U
HVS-021	0.833		1.60		0.722		0.078	
HVS-022	0.518		1.27		0.517		< 0.174	U
HVS-023	0.579	J	1.36	J	0.538	J	< 0.148	UJ
HVS-024	0.514	J	1.26	J	0.513	J	< 0.159	UJ
HVS-025	0.499	J	1.91	J	0.436	J	0.231	J
HVS-025 FD	0.715	J	1.45	J	0.488	J	< 0.163	UJ
HVS-026	0.786	J	1.31	J	0.604	J	< 0.219	UJ
HVS-027	< 0.342	UJ	1.49	J	0.453	J	< 0.202	UJ
HVS-028	0.606	J	2.56	J	0.819	J	< 0.265	UJ
HVS-029	0.591		1.14		0.517		< 0.051	U
HVS-030	0.456	J	1.27	J	0.582	J	0.179	J
HVS-031	0.454		1.22		0.556		< 0.035	U
HVS-031 FD	0.321		1.38		0.464		< 0.174	U

Sample ID	Th-228	Flag	Th-230	Flag	Th-232	Flag	Ac-227	Flag
Cleanup Goal			2.8		2.1		4.6	
HVS-032	0.692	J	1.40	J	0.440	J	< 0.167	UJ
HVS-033	0.514	J	0.665	J	0.418	J	< 0.185	UJ
HVS-033 FD	0.513	J	0.823	J	0.402	J	0.058	J
HVS-034	0.614	J	1.39	J	0.811	J	< .186	UJ
HVS-035	0.392	J	0.876	J	0.369	J	0.116	J
HVS-036	0.392	J	1.29	J	0.346	J	0.186	J
HVS-037	0.631	J	2.22	J	0.822	J	0.277	J
HVS-038	0.728	J	1.48	J	0.448	J	0.226	J
HVS-039	0.447	J	1.05	J	0.424	J	< 0.612	UJ
HVS-040	1.07	J	2.22	J	1.02	J	< 0.181	UJ
HVS-041	0.653	J	1.33	J	0.653	J	< 0.174	UJ
HVS-042	0.524		1.36		0.643		< 0.182	U
HVS-043	0.854	J	1.63	J	0.585	J	< 0.265	UJ
HVS-044	0.445	J	1.16	J	0.600	J	< 0.165	UJ
HVS-045	0.573	J	1.68	J	0.636	J	< 0.258	UJ
HVS-046	0.423		1.18		0.722		0.267	
HVS-046 FD	0.790	J	1.33	J	0.539	J	< 0.181	UJ
HVS-047	0.834	J	1.50	J	0.512	J	< 0.288	UJ
HVS-048	0.569		1.49		0.693		0.162	
HVS-049	0.567		1.89		0.794		0.191	
HVS-050	0.312		1.30		0.433		< 0.188	U
HVS-051	0.590		1.32		0.489		0.174	
HVS-052	0.771	J	1.09	J	0.566	J	< 0.213	UJ
HVS-053	0.866		0.897		0.818		< 0.224	U
HVS-054	< 0.428	U	1.32		0.205		< 0.226	U
HVS-054 FD	0.328		0.953		0.289		0.136	
HVS-055	0.426	J	0.981	J	0.468	J	0.314	J
HVS-056	< 0.354	UJ	1.05	J	0.450	J	< 0.264	UJ
HVS-057	0.721		0.877		0.580		< 0.117	U
HVS-058	< 0.196	U	0.886		0.289		0.212	
HVS-059	0.517	J	0.803	J	0.556	J	< 0.224	UJ
HVS-060	< 0.559	UJ	0.584	J	< 0.478	UJ	< 0.447	UJ
HVS-061	0.632	J	1.38	J	0.411	J	< 0.209	UJ
HVS-062	0.304		1.23		0.473		0.465	
HVS-063	0.615		1.54		0.577		0.215	
HVS-064	0.540		1.06		0.538		< 0.195	U
HVS-065	< 1.05	UJ	1.04	J	< 0.864	UJ	< 0.564	UJ
HVS-066	0.730	J	1.29	J	0.636	J	0.133	J
HVS-067	< 0.309	UJ	0.954	J	0.477	J	< 0.223	UJ
HVS-068	< 0.342	UJ	1.13	J	0.333	J	< 0.213	UJ
HVS-069	0.552	J	0.924	J	0.475	J	< 0.272	UJ
HVS-070	0.667	J	1.04	J	0.290	J	< 0.343	UJ

Values listed as "<" are below the Minimum Detectable Activity (MDA)

GroupWise message from John Gill to Robert Ransbottom:

>>> John Gill 08/04/04 06:56PM >>>

See attached. I hope it makes sense.

>>> Robert Ransbottom 08/05/04 05:52AM >>>

Thanks, John. That was very clear to me. The only question I have is with point 5. In your previous points you basically say we are below clean-up objectives for those scenarios, and therefore I would assume no action is required. Does point 5 lead us into any issues that would require a remedial action?

No. Point 5 interprets the result as stand-alone excess Th-228.

Interestingly, the Th-228 result is 2.54 pCi/g greater than Th-232 (3.34-0.80). It is really this excess that should be compared (favorably!) to the Th-228 CO (2.6 pCi/g). This is because the risk from that portion of the Th-228 result that is equal to (in secular equilibrium with) Th-232 has already been accounted for in the derivation of the CO for Th-232(+Daughters). This is why the CO for Th-232 is so damn conservative.

You could use this as another argument with the regulators.

(Attachment to GroupWise message from John Gill to Robert Ransbottom, 8/4/04)

Th-228 concentration in excess of Th-232 concentration

Th-232 decays through Th-228 via the following scheme:

Th-232 (1.4E10 years) → Ra-228 (6.7 years) → Ac-228 (6.1 hours) →
Th-228 (1.91 years) → → → → → → → Pb-208

If completely separated from its daughters and then stored, Th-232 begins to give rise to those same daughters in the above decay scheme. Within 30 years (4.5 half-lives of Ra-228), daughters attain 95% of the concentration of Th-232 (all given in dpm/g or pCi/g). Almost all Thorium ores stored historically at Mound were never separated. Equal concentrations of Th-228 and Th-232 are thus virtually assured when the Th-228 is the daughter of Th-232. When Th-228 concentration is observed in excess of Th-232 concentration, a number of causes are possible.

1. Analytical data are of poor quality.

   Check carefully the analytical QA/QC report. Perform data validation if possible.

2. Analytical data are of different quality.

   Th-228 reported by gamma spectroscopy can have a many-fold higher MDA than Th-232. When values of 50% of MDA are adapted for use in risk evaluations, Th-228 can appear to be of a higher concentration than Th-232 in a sample. Thorium analysis by alpha spectroscopy does not typically have this problem.

3. The difference is a product of statistical fluctuation.

   Variability (standard deviations) of Th-228 and Th-232 analysis results from a cohort of samples can provide an indication of the significance of a given difference.

4. Th-228 is derived from a different parent than Th-232.

   a. Th-228 is derived from U-232, which is a contaminant in U-233.

      U-232 was present at roughly 16 ppmw in U-233 that was handled at Mound. Th-228 is the immediate daughter of U-232. The short half-life of U-232 (69 years) and the long half-life of U-233 (1.6E5 years), causes about 3% of the Uranium decays in a typical U-232/233 mixture to be from U-232. Material of 30 years age exhibits a ratio of dpm(U-233)/dpm(U-232) = 36.

      Because Th-228 has a short half-life, U-232 and Th-228 attain equilibrium in material derived from a U-233 source within 5-10 years. If an excess of Th-228 over Th-232 is observed in a sample, the excess may be due to U-232 (and U-233) present. The

excess, expressed in pCi/g, gives the amount of U-232 possibly present. In addition, the excess multiplied by 36, will give a reasonable estimate of the possible concentration of U-233 in the sample.

When a (Th-228 - Th-232) difference of 2.5 pCi/g is observed, as is the case with sample HVB-005, a U-232 concentration of 2.5 pCi/g may be present. This value is below the Cleanup Objective of U-232 (not including daughters, since they are already evaluated via the Th-228 concentration) of 29 pCi/g. A U-233 concentration of 2.5 x 36 = 90 pCi/g may also be present. This value is below the Cleanup Objective of U-233 (not including daughters, since they are long-lived) of 103 pCi/g.

Measuring samples for Uranium isotopes by alpha spectrometry, specifically for U-233/234, can eliminate the possibility of the U-232 / U-233 mixture being present and giving rise to excess Th-228.

b. Th-228 is derived from U-232, which is a daughter of Pu-236, which was a contaminant in Pu-238.

Small amounts of Pu-236 were present in the Pu-238 source material shipped to Mound historically. The Pu-236 decays as follows:

Pu-236 (2.87 years) → U-232 (69 years) → Th-228 (1.91 years)

The Pu-236 has long ago decayed away from Mound Pu-238 residues. It has been replaced by U-232, which is in equilibrium with Th-228. Excess Th-228 (versus Th-232) can indicate an equal amount of U-232, as noted above.

In sample HVB-005, the amount of U-232 possibly present due to Pu-236 contaminant is well below its Cleanup Objective. No other attendant contaminants are present from this source.

5. Th-228 is present because of environmental separation effects.

Secular equilibrium in any decay chain can be disrupted by isotopic or chemical separation effects. In the case of contaminated Mound soils, chemical separation could have been environmentally induced, where intermediate daughters are removed from the vicinity of a parent by differential solubility in migrating groundwater. Ra-228 is more soluble than its parent Th-232 in water, and more soluble than its sequential daughters Ac-228 and Th-228. The dissolution of Ra-228 from soils and the re-precipitation of it or its daughters on other soils (perhaps more alkaline or more ion-exchangeable) can be the cause of an increased concentration of Th-228 over Th-232 in the "recipient" soils. In this case the excess Th-228 must be viewed simply as a soil/water solubility effect, without the attendant concerns of Uranium isotopes.

GroupWise message from John Lyons to Robert Ransbottom sent 8/5/04:

Attached is the new H Building

The new dataset and new 95%UCL, please discard the ones previously sent on 07/26/2004.

New in that while researching your Pb-210 question I was able to determine two things.

One good

One Bad, almost

The good, the reason Pb-210 does not show up in what was provided you on 07/26/2004 and NOW is because the value you are concerned about *(the 8.84 pCi/g Pb-210)* is U qualified. While U qualified data is used in the 95% UCL calculation, it is not used to determine if the 95% UCL should be performed. There are no Pb-210 values which exceed the 7.45 cleanup objective + background value that are not U qualified, therefore, I can not do the calculation. The decision to perform the calculation is based on non U qualified data only.

The Bad, almost. I ran a RRE data reduction for you just like I ran for Gill. This was incorrect so I rerun it as a Superceded data reduction. RREs adjust the result based on lab qualifications. So the values used in the 95% UCL calculation were increased slightly. This could have changed the final 95% UCL value, but it did not. That is the Bad, almost.

I am sure you will have other questions concerning this so please do not hesitate to stop in and we can discuss it.

John Lyons

MEIMS / GIS Databases

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PRS 424 VERIFICATION DATA

AND

BACKFILL REPORT

Note:

The backfill report was previously submitted to the regulators in September 2004. It is presented here for reference purposes only.

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PRS 424 Verification Sampling Results

Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/16/2004	424-NS-002	Actinium-227	0.440000	PCI/G	4.64	PCI/G	0.44	U		1464579.091	599058.889
09/16/2004	424-B-004	Actinium-227	0.440000	PCI/G	4.64	PCI/G	0.44	U		1464587.827	599061.269
09/16/2004	424-SS-005	Actinium-227	0.430000	PCI/G	4.64	PCI/G	0.43	U		1464592.746	599061.477
09/16/2004	424-NS-016	Actinium-227	0.420000	PCI/G	4.64	PCI/G	0.42	U		1464648.181	599094.801
09/16/2004	424-B-018FD	Actinium-227	0.420000	PCI/G	4.64	PCI/G	0.42	U		1464660.684	599099.606
09/16/2004	424-B-010	Actinium-227	0.390000	PCI/G	4.64	PCI/G	0.39	U		1464615.684	599073.625
09/16/2004	424-SS-008	Actinium-227	0.370000	PCI/G	4.64	PCI/G	0.37	U		1464604.545	599067.61
09/16/2004	424-SS-012	Actinium-227	0.370000	PCI/G	4.64	PCI/G	0.37	U		1464627.585	599079.586
09/16/2004	424-B-007	Actinium-227	0.360000	PCI/G	4.64	PCI/G	0.36	U		1464598.846	599066.969
09/16/2004	424-B-018	Actinium-227	0.360000	PCI/G	4.64	PCI/G	0.36	U		1464660.684	599099.606
09/16/2004	424-B-003	Actinium-227	0.350000	PCI/G	4.64	PCI/G	0.35	U		1464583.929	599059.265
09/16/2004	424-NS-011	Actinium-227	0.350000	PCI/G	4.64	PCI/G	0.35	U		1464625.151	599082.83
09/16/2004	424-NT-015	Actinium-227	0.350000	PCI/G	4.64	PCI/G	0.35	U		1464641.873	599105.498
09/16/2004	424-NS-009	Actinium-227	0.320000	PCI/G	4.64	PCI/G	0.32	U		1464602.121	599070.859
09/16/2004	424-SS-017	Actinium-227	0.300000	PCI/G	4.64	PCI/G	0.30	U		1464650.615	599091.557
09/16/2004	424-SS-001	Actinium-227	0.290000	PCI/G	4.64	PCI/G	0.29	U		1464569.716	599049.507
09/16/2004	424-B-006	Actinium-227	0.280000	PCI/G	4.64	PCI/G	0.28	U		1464592.289	599063.527
09/16/2000	424-SS-019	Actinium-227	0.250000	PCI/G	4.64	PCI/G	0.25	U		1464673.645	599103.528
09/16/2004	424-B-014	Actinium-227	0.240000	PCI/G	4.64	PCI/G	0.24	U		1464638.184	599086.615
09/16/2004	424-NS-020	Actinium-227	0.240000	PCI/G	4.64	PCI/G	0.24	U		1464671.212	599106.771
09/16/2004	424-NT-013	Actinium-227	0.220000	PCI/G	4.64	PCI/G	0.22	U		1464634.373	599092.508
09/16/2004	424-NS-011	Actinium-228	0.670000	PCI/G	1.93	PCI/G	0.30			1464625.151	599082.83
09/16/2004	424-B-010	Actinium-228	0.620000	PCI/G	1.93	PCI/G	0.38			1464615.684	599073.625
09/16/2004	424-B-003	Actinium-228	0.600000	PCI/G	1.93	PCI/G	0.36			1464583.929	599059.265
09/16/2004	424-NS-002	Actinium-228	0.520000	PCI/G	1.93	PCI/G	0.39			1464579.091	599058.889
09/16/2004	424-NS-016	Actinium-228	0.470000	PCI/G	1.93	PCI/G	0.36			1464648.181	599094.801
09/16/2004	424-SS-012	Actinium-228	0.460000	PCI/G	1.93	PCI/G	0.29			1464627.585	599079.586
09/16/2004	424-B-018FD	Actinium-228	0.410000	PCI/G	1.93	PCI/G	0.31			1464660.684	599099.606
09/16/2004	424-NS-002	Americium-241	0.170000	PCI/G	63.1	PCI/G	0.17	U		1464579.091	599058.889
09/16/2004	424-B-010	Americium-241	0.170000	PCI/G	63.1	PCI/G	0.17	U		1464615.684	599073.625
09/16/2004	424-B-004	Americium-241	0.160000	PCI/G	63.1	PCI/G	0.16	U		1464587.827	599061.269
09/16/2004	424-B-006	Americium-241	0.160000	PCI/G	63.1	PCI/G	0.16	U		1464592.289	599063.527
09/16/2004	424-B-003	Americium-241	0.150000	PCI/G	63.1	PCI/G	0.15	U		1464583.929	599059.265
09/16/2004	424-SS-005	Americium-241	0.150000	PCI/G	63.1	PCI/G	0.15	U		1464592.746	599061.477
09/16/2004	424-NS-009	Americium-241	0.150000	PCI/G	63.1	PCI/G	0.15	U		1464602.121	599070.859
09/16/2004	424-SS-012	Americium-241	0.150000	PCI/G	63.1	PCI/G	0.15	U		1464627.585	599079.586
09/16/2004	424-B-007	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		1464598.846	599066.969
09/16/2004	424-SS-008	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		1464604.545	599067.61
09/16/2004	424-NS-011	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		1464625.151	599082.83
09/16/2004	424-NT-015	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		1464641.873	599105.498
09/16/2004	424-NS-016	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		1464648.181	599094.801
09/16/2004	424-B-018	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		1464660.684	599099.606
09/16/2004	424-B-018FD	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		1464660.684	599099.606
09/16/2004	424-SS-017	Americium-241	0.120000	PCI/G	63.1	PCI/G	0.12	U		1464650.615	599091.557
09/16/2004	424-SS-001	Americium-241	0.110000	PCI/G	63.1	PCI/G	0.11	U		1464569.716	599049.507
09/16/2004	424-NT-013	Americium-241	0.092000	PCI/G	63.1	PCI/G	0.092	U		1464634.373	599092.508
09/16/2000	424-SS-019	Americium-241	0.089000	PCI/G	63.1	PCI/G	0.089	U		1464673.645	599103.528
09/16/2004	424-NS-020	Americium-241	0.088000	PCI/G	63.1	PCI/G	0.088	U		1464671.212	599106.771
09/16/2004	424-B-014	Americium-241	0.078000	PCI/G	63.1	PCI/G	0.078	U		1464638.184	599086.615
09/16/2004	424-NS-002	Bismuth-214	0.580000	PCI/G	1.17	PCI/G	0.15			1464579.091	599058.889

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PRS 424 Verification Sampling Results

Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/16/2004	424-B-010	Bismuth-214	0.550000	PCI/G	1.17	PCI/G	0.14			1464615.684	599073.625
09/16/2004	424-NS-016	Bismuth-214	0.540000	PCI/G	1.17	PCI/G	0.17			1464648.181	599094.801
09/16/2004	424-B-018FD	Bismuth-214	0.510000	PCI/G	1.17	PCI/G	0.18			1464660.684	599099.606
09/16/2004	424-NS-020	Bismuth-214	0.480000	PCI/G	1.17	PCI/G	0.1			1464671.212	599106.771
09/16/2004	424-NT-015	Bismuth-214	0.470000	PCI/G	1.17	PCI/G	0.12			1464641.873	599105.498
09/16/2004	424-NS-009	Bismuth-214	0.460000	PCI/G	1.17	PCI/G	0.13			1464602.121	599070.859
09/16/2004	424-SS-012	Bismuth-214	0.460000	PCI/G	1.17	PCI/G	0.17			1464627.585	599079.586
09/16/2004	424-B-003	Bismuth-214	0.440000	PCI/G	1.17	PCI/G	0.18			1464583.929	599059.265
09/16/2004	424-SS-008	Bismuth-214	0.440000	PCI/G	1.17	PCI/G	0.14			1464604.545	599067.61
09/16/2004	424-SS-001	Bismuth-214	0.400000	PCI/G	1.17	PCI/G	0.15			1464569.716	599049.507
09/16/2004	424-SS-017	Bismuth-214	0.390000	PCI/G	1.17	PCI/G	0.15			1464650.615	599091.557
09/16/2004	424-B-006	Bismuth-214	0.370000	PCI/G	1.17	PCI/G	0.13			1464592.289	599063.527
09/16/2004	424-B-018	Bismuth-214	0.360000	PCI/G	1.17	PCI/G	0.16			1464660.684	599099.606
09/16/2004	424-SS-005	Bismuth-214	0.340000	PCI/G	1.17	PCI/G	0.17			1464592.746	599061.477
09/16/2004	424-B-014	Bismuth-214	0.340000	PCI/G	1.17	PCI/G	0.08			1464638.184	599086.615
09/16/2004	424-NS-011	Bismuth-214	0.290000	PCI/G	1.17	PCI/G	0.18			1464625.151	599082.83
09/16/2004	424-NT-013	Bismuth-214	0.290000	PCI/G	1.17	PCI/G	0.08			1464634.373	599092.508
09/16/2000	424-SS-019	Bismuth-214	0.286000	PCI/G	1.17	PCI/G	0.10			1464673.645	599103.528
09/16/2004	424-B-018FD	Cesium-137	0.120000	PCI/G	3.84	PCI/G	0.12	U		1464660.684	599099.606
09/16/2004	424-NS-002	Cesium-137	0.110000	PCI/G	3.84	PCI/G	0.11	U		1464579.091	599058.889
09/16/2004	424-NS-009	Cesium-137	0.110000	PCI/G	3.84	PCI/G	0.11	U		1464602.121	599070.859
09/16/2004	424-B-010	Cesium-137	0.110000	PCI/G	3.84	PCI/G	0.11	U		1464615.684	599073.625
09/16/2004	424-B-003	Cesium-137	0.100000	PCI/G	3.84	PCI/G	0.10	U		1464583.929	599059.265
09/16/2004	424-B-004	Cesium-137	0.100000	PCI/G	3.84	PCI/G	0.10	U		1464587.827	599061.269
09/16/2004	424-B-006	Cesium-137	0.099000	PCI/G	3.84	PCI/G	0.099	U		1464592.289	599063.527
09/16/2004	424-NS-011	Cesium-137	0.096000	PCI/G	3.84	PCI/G	0.096	U		1464625.151	599082.83
09/16/2004	424-SS-012	Cesium-137	0.096000	PCI/G	3.84	PCI/G	0.096	U		1464627.585	599079.586
09/16/2004	424-B-007	Cesium-137	0.092000	PCI/G	3.84	PCI/G	0.092	U		1464598.846	599066.969
09/16/2004	424-NS-016	Cesium-137	0.091000	PCI/G	3.84	PCI/G	0.091	U		1464648.181	599094.801
09/16/2004	424-SS-017	Cesium-137	0.091000	PCI/G	3.84	PCI/G	0.091	U		1464650.615	599091.557
09/16/2004	424-SS-008	Cesium-137	0.090000	PCI/G	3.84	PCI/G	0.090	U		1464604.545	599067.61
09/16/2004	424-B-018	Cesium-137	0.090000	PCI/G	3.84	PCI/G	0.090	U		1464660.684	599099.606
09/16/2004	424-SS-005	Cesium-137	0.083000	PCI/G	3.84	PCI/G	0.083	U		1464592.746	599061.477
09/16/2004	424-NT-015	Cesium-137	0.079000	PCI/G	3.84	PCI/G	0.079	U		1464641.873	599105.498
09/16/2004	424-NT-013	Cesium-137	0.072000	PCI/G	3.84	PCI/G	0.072	U		1464634.373	599092.508
09/16/2004	424-SS-001	Cesium-137	0.068000	PCI/G	3.84	PCI/G	0.068	U		1464569.716	599049.507
09/16/2004	424-NS-020	Cesium-137	0.064000	PCI/G	3.84	PCI/G	0.064	U		1464671.212	599106.771
09/16/2004	424-B-014	Cesium-137	0.060000	PCI/G	3.84	PCI/G	0.060	U		1464638.184	599086.615
09/16/2000	424-SS-019	Cesium-137	0.045000	PCI/G	3.84	PCI/G	0.045	U		1464673.645	599103.528
09/16/2004	424-NS-009	Cobalt-60	0.130000	PCI/G	0.76	PCI/G	0.13	U		1464602.121	599070.859
09/16/2004	424-SS-012	Cobalt-60	0.130000	PCI/G	0.76	PCI/G	0.13	U		1464627.585	599079.586
09/16/2004	424-B-003	Cobalt-60	0.120000	PCI/G	0.76	PCI/G	0.12	U		1464583.929	599059.265
09/16/2004	424-B-007	Cobalt-60	0.120000	PCI/G	0.76	PCI/G	0.12	U		1464598.846	599066.969
09/16/2004	424-SS-008	Cobalt-60	0.120000	PCI/G	0.76	PCI/G	0.12	U		1464604.545	599067.61
09/16/2004	424-SS-017	Cobalt-60	0.120000	PCI/G	0.76	PCI/G	0.12	U		1464650.615	599091.557
09/16/2004	424-SS-005	Cobalt-60	0.110000	PCI/G	0.76	PCI/G	0.11	U		1464592.746	599061.477
09/16/2004	424-B-018	Cobalt-60	0.100000	PCI/G	0.76	PCI/G	0.10	U		1464660.684	599099.606
09/16/2004	424-B-010	Cobalt-60	0.099000	PCI/G	0.76	PCI/G	0.099	U		1464615.684	599073.625
09/16/2004	424-B-004	Cobalt-60	0.098000	PCI/G	0.76	PCI/G	0.098	U		1464587.827	599061.269
09/16/2004	424-B-006	Cobalt-60	0.095000	PCI/G	0.76	PCI/G	0.095	U		1464592.289	599063.527

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/16/2004	424-NS-011	Cobalt-60	0.092000	PCI/G	0.76	PCI/G	0.092	U		1464625.151	599082.83
09/16/2004	424-SS-001	Cobalt-60	0.087000	PCI/G	0.76	PCI/G	0.087	U		1464569.716	599049.507
09/16/2004	424-NS-002	Cobalt-60	0.083000	PCI/G	0.76	PCI/G	0.083	U		1464579.091	599058.889
09/16/2004	424-NT-015	Cobalt-60	0.083000	PCI/G	0.76	PCI/G	0.083	U		1464641.873	599105.498
09/16/2004	424-B-018FD	Cobalt-60	0.083000	PCI/G	0.76	PCI/G	0.083	U		1464660.684	599099.606
09/16/2004	424-NS-016	Cobalt-60	0.080000	PCI/G	0.76	PCI/G	0.080	U		1464648.181	599094.801
09/16/2004	424-NS-020	Cobalt-60	0.069000	PCI/G	0.76	PCI/G	0.069	U		1464671.212	599106.771
09/16/2004	424-NT-013	Cobalt-60	0.062000	PCI/G	0.76	PCI/G	0.062	U		1464634.373	599092.508
09/16/2004	424-B-014	Cobalt-60	0.059000	PCI/G	0.76	PCI/G	0.059	U		1464638.184	599086.615
09/16/2000	424-SS-019	Cobalt-60	0.057000	PCI/G	0.76	PCI/G	0.057	U		1464673.645	599103.528
09/16/2004	424-B-003	Lead-212	0.770000	PCI/G	16.6	PCI/G	0.13			1464583.929	599059.265
09/16/2004	424-SS-005	Lead-212	0.680000	PCI/G	16.6	PCI/G	0.12			1464592.746	599061.477
09/16/2004	424-B-010	Lead-212	0.680000	PCI/G	16.6	PCI/G	0.13			1464615.684	599073.625
09/16/2004	424-NS-002	Lead-212	0.610000	PCI/G	16.6	PCI/G	0.17			1464579.091	599058.889
09/16/2004	424-NS-016	Lead-212	0.560000	PCI/G	16.6	PCI/G	0.12			1464648.181	599094.801
09/16/2004	424-NS-009	Lead-212	0.540000	PCI/G	16.6	PCI/G	0.12			1464602.121	599070.859
09/16/2004	424-SS-017	Lead-212	0.540000	PCI/G	16.6	PCI/G	0.14			1464650.615	599091.557
09/16/2004	424-NS-011	Lead-212	0.530000	PCI/G	16.6	PCI/G	0.11			1464625.151	599082.83
09/16/2004	424-NT-015	Lead-212	0.530000	PCI/G	16.6	PCI/G	0.09			1464641.873	599105.498
09/16/2004	424-B-006	Lead-212	0.520000	PCI/G	16.6	PCI/G	0.11			1464592.289	599063.527
09/16/2004	424-SS-012	Lead-212	0.510000	PCI/G	16.6	PCI/G	0.14			1464627.585	599079.586
09/16/2004	424-B-018	Lead-212	0.480000	PCI/G	16.6	PCI/G	0.15			1464660.684	599099.606
09/16/2004	424-SS-008	Lead-212	0.470000	PCI/G	16.6	PCI/G	0.13			1464604.545	599067.61
09/16/2004	424-B-004	Lead-212	0.440000	PCI/G	16.6	PCI/G	0.14			1464587.827	599061.269
09/16/2004	424-B-018FD	Lead-212	0.420000	PCI/G	16.6	PCI/G	0.14			1464660.684	599099.606
09/16/2004	424-B-007	Lead-212	0.380000	PCI/G	16.6	PCI/G	0.13			1464598.846	599066.969
09/16/2004	424-SS-001	Lead-212	0.270000	PCI/G	16.6	PCI/G	0.1			1464569.716	599049.507
09/16/2000	424-SS-019	Lead-212	0.186000	PCI/G	16.6	PCI/G	0.081			1464673.645	599103.528
09/16/2004	424-NT-013	Lead-212	0.165000	PCI/G	16.6	PCI/G	0.073			1464634.373	599092.508
09/16/2004	424-B-014	Lead-212	0.136000	PCI/G	16.6	PCI/G	0.091			1464638.184	599086.615
09/16/2004	424-NS-020	Lead-212	0.079000	PCI/G	16.6	PCI/G	0.079	U		1464671.212	599106.771
09/16/2004	424-NT-015	Lead-214	0.630000	PCI/G	8.92	PCI/G	0.12			1464641.873	599105.498
09/16/2004	424-NS-002	Lead-214	0.560000	PCI/G	8.92	PCI/G	0.15			1464579.091	599058.889
09/16/2004	424-B-010	Lead-214	0.550000	PCI/G	8.92	PCI/G	0.14			1464615.684	599073.625
09/16/2004	424-B-006	Lead-214	0.530000	PCI/G	8.92	PCI/G	0.14			1464592.289	599063.527
09/16/2004	424-B-003	Lead-214	0.500000	PCI/G	8.92	PCI/G	0.14			1464583.929	599059.265
09/16/2004	424-SS-005	Lead-214	0.500000	PCI/G	8.92	PCI/G	0.15			1464592.746	599061.477
09/16/2004	424-NS-009	Lead-214	0.470000	PCI/G	8.92	PCI/G	0.14			1464602.121	599070.859
09/16/2004	424-B-018FD	Lead-214	0.470000	PCI/G	8.92	PCI/G	0.14			1464660.684	599099.606
09/16/2004	424-SS-012	Lead-214	0.450000	PCI/G	8.92	PCI/G	0.16			1464627.585	599079.586
09/16/2004	424-NS-016	Lead-214	0.420000	PCI/G	8.92	PCI/G	0.16			1464648.181	599094.801
09/16/2000	424-SS-019	Lead-214	0.410000	PCI/G	8.92	PCI/G	0.08			1464673.645	599103.528
09/16/2004	424-SS-008	Lead-214	0.410000	PCI/G	8.92	PCI/G	0.11			1464604.545	599067.61
09/16/2004	424-SS-001	Lead-214	0.400000	PCI/G	8.92	PCI/G	0.11			1464569.716	599049.507
09/16/2004	424-NS-020	Lead-214	0.390000	PCI/G	8.92	PCI/G	0.09			1464671.212	599106.771
09/16/2004	424-B-007	Lead-214	0.370000	PCI/G	8.92	PCI/G	0.12			1464598.846	599066.969
09/16/2004	424-B-004	Lead-214	0.360000	PCI/G	8.92	PCI/G	0.14			1464587.827	599061.269
09/16/2004	424-NS-011	Lead-214	0.360000	PCI/G	8.92	PCI/G	0.15			1464625.151	599082.83
09/16/2004	424-B-018	Lead-214	0.340000	PCI/G	8.92	PCI/G	0.15			1464660.684	599099.606
09/16/2004	424-SS-017	Lead-214	0.330000	PCI/G	8.92	PCI/G	0.13			1464650.615	599091.557

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/16/2004	424-NT-013	Lead-214	0.290000	PCI/G	8.92	PCI/G	0.072			1464634.373	599092.508
09/16/2004	424-B-014	Lead-214	0.270000	PCI/G	8.92	PCI/G	0.07			1464638.184	599086.615
09/16/2004	424-B-007	Plutonium-238	1.460000	PCI/G	55	PCI/G	0.07			1464598.846	599066.969
09/16/2004	424-SS-001	Plutonium-238	0.410000	PCI/G	55	PCI/G	0.09			1464569.716	599049.507
09/16/2004	424-SS-008	Plutonium-238	0.141000	PCI/G	55	PCI/G	0.068			1464604.545	599067.61
09/16/2004	424-B-003	Plutonium-238	0.132000	PCI/G	55	PCI/G	0.082			1464583.929	599059.265
09/16/2004	424-B-006	Plutonium-238	0.129000	PCI/G	55	PCI/G	0.083			1464592.289	599063.527
09/16/2000	424-SS-019	Plutonium-238	0.100000	PCI/G	55	PCI/G	0.10	U		1464673.645	599103.528
09/16/2004	424-SS-005	Plutonium-238	0.100000	PCI/G	55	PCI/G	0.1	U		1464592.746	599061.477
09/16/2004	424-SS-012	Plutonium-238	0.100000	PCI/G	55	PCI/G	0.10	U		1464627.585	599079.586
09/16/2004	424-NT-015	Plutonium-238	0.100000	PCI/G	55	PCI/G	0.10	U		1464641.873	599105.498
09/16/2004	424-NS-002	Plutonium-238	0.098000	PCI/G	55	PCI/G	0.098	U		1464579.091	599058.889
09/16/2004	424-NT-013	Plutonium-238	0.098000	PCI/G	55	PCI/G	0.098	U		1464634.373	599092.508
09/16/2004	424-NS-020	Plutonium-238	0.094000	PCI/G	55	PCI/G	0.094	U		1464671.212	599106.771
09/16/2004	424-B-004	Plutonium-238	0.090000	PCI/G	55	PCI/G	0.090	U		1464587.827	599061.269
09/16/2004	424-B-014	Plutonium-238	0.089000	PCI/G	55	PCI/G	0.089	U		1464638.184	599086.615
09/16/2004	424-NS-016	Plutonium-238	0.081000	PCI/G	55	PCI/G	0.081	U		1464648.181	599094.801
09/16/2004	424-NS-011	Plutonium-238	0.080000	PCI/G	55	PCI/G	0.08	U		1464625.151	599082.83
09/16/2004	424-B-010	Plutonium-238	0.078000	PCI/G	55	PCI/G	0.078	U		1464615.684	599073.625
09/16/2004	424-NS-009	Plutonium-238	0.075000	PCI/G	55	PCI/G	0.075	U		1464602.121	599070.859
09/16/2004	424-B-018	Plutonium-238	0.074000	PCI/G	55	PCI/G	0.074	U		1464660.684	599099.606
09/16/2004	424-SS-017	Plutonium-238	0.073000	PCI/G	55	PCI/G	0.073	U		1464650.615	599091.557
09/16/2004	424-B-018FD	Plutonium-238	0.070000	PCI/G	55	PCI/G	0.070	U		1464660.684	599099.606
09/16/2004	424-NT-013	Plutonium-239/240	0.070000	PCI/G	62	PCI/G	0.07	U		1464634.373	599092.508
09/16/2004	424-SS-012	Plutonium-239/240	0.066000	PCI/G	62	PCI/G	0.066	U		1464627.585	599079.586
09/16/2004	424-B-006	Plutonium-239/240	0.061000	PCI/G	62	PCI/G	0.061	U		1464592.289	599063.527
09/16/2004	424-NS-002	Plutonium-239/240	0.060000	PCI/G	62	PCI/G	0.06	U		1464579.091	599058.889
09/16/2004	424-B-003	Plutonium-239/240	0.060000	PCI/G	62	PCI/G	0.06	U		1464583.929	599059.265
09/16/2004	424-NS-016	Plutonium-239/240	0.060000	PCI/G	62	PCI/G	0.06	U		1464648.181	599094.801
09/16/2000	424-SS-019	Plutonium-239/240	0.059000	PCI/G	62	PCI/G	0.059	U		1464673.645	599103.528
09/16/2004	424-NT-015	Plutonium-239/240	0.051000	PCI/G	62	PCI/G	0.051	U		1464641.873	599105.498
09/16/2004	424-SS-005	Plutonium-239/240	0.050000	PCI/G	62	PCI/G	0.05	U		1464592.746	599061.477
09/16/2004	424-B-010	Plutonium-239/240	0.050000	PCI/G	62	PCI/G	0.05	U		1464615.684	599073.625
09/16/2004	424-NS-020	Plutonium-239/240	0.048000	PCI/G	62	PCI/G	0.048	U		1464671.212	599106.771
09/16/2004	424-SS-001	Plutonium-239/240	0.040000	PCI/G	62	PCI/G	0.04	U		1464569.716	599049.507
09/16/2004	424-NS-009	Plutonium-239/240	0.040000	PCI/G	62	PCI/G	0.040	U		1464602.121	599070.859
09/16/2004	424-B-018FD	Plutonium-239/240	0.040000	PCI/G	62	PCI/G	0.04	U		1464660.684	599099.606
09/16/2004	424-NS-011	Plutonium-239/240	0.035000	PCI/G	62	PCI/G	0.035	U		1464625.151	599082.83
09/16/2004	424-B-007	Plutonium-239/240	0.030000	PCI/G	62	PCI/G	0.030	U		1464598.846	599066.969
09/16/2004	424-SS-008	Plutonium-239/240	0.030000	PCI/G	62	PCI/G	0.03	U		1464604.545	599067.61
09/16/2004	424-SS-017	Plutonium-239/240	0.030000	PCI/G	62	PCI/G	0.03	U		1464650.615	599091.557
09/16/2004	424-B-018	Plutonium-239/240	0.030000	PCI/G	62	PCI/G	0.03	U		1464660.684	599099.606
09/16/2004	424-B-004	Plutonium-239/240	0.029000	PCI/G	62	PCI/G	0.029	U		1464587.827	599061.269
09/16/2004	424-B-014	Plutonium-239/240	0.029000	PCI/G	62	PCI/G	0.029	U		1464638.184	599086.615
09/16/2004	424-SS-012	Potassium-40	21.300000	PCI/G	47.8	PCI/G	1.2			1464627.585	599079.586
09/16/2004	424-B-010	Potassium-40	20.400000	PCI/G	47.8	PCI/G	1.1			1464615.684	599073.625
09/16/2004	424-SS-005	Potassium-40	20.000000	PCI/G	47.8	PCI/G	0.6			1464592.746	599061.477
09/16/2004	424-NS-011	Potassium-40	17.600000	PCI/G	47.8	PCI/G	0.5			1464625.151	599082.83
09/16/2004	424-B-006	Potassium-40	17.300000	PCI/G	47.8	PCI/G	0.8			1464592.289	599063.527
09/16/2004	424-B-003	Potassium-40	17.200000	PCI/G	47.8	PCI/G	0.7			1464583.929	599059.265

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/16/2004	424-NS-016	Potassium-40	17.100000	PCI/G	47.8	PCI/G	1			1464648.181	599094.801
09/16/2004	424-SS-017	Potassium-40	17.000000	PCI/G	47.8	PCI/G	1			1464650.615	599091.557
09/16/2004	424-B-018	Potassium-40	17.000000	PCI/G	47.8	PCI/G	1			1464660.684	599099.606
09/16/2004	424-NS-009	Potassium-40	16.900000	PCI/G	47.8	PCI/G	0.9			1464602.121	599070.859
09/16/2004	424-NS-002	Potassium-40	16.300000	PCI/G	47.8	PCI/G	1.1			1464579.091	599058.889
09/16/2004	424-B-004	Potassium-40	15.100000	PCI/G	47.8	PCI/G	1.1			1464587.827	599061.269
09/16/2004	424-SS-008	Potassium-40	14.100000	PCI/G	47.8	PCI/G	0.8			1464604.545	599067.61
09/16/2004	424-B-018FD	Potassium-40	14.000000	PCI/G	47.8	PCI/G	0.2			1464660.684	599099.606
09/16/2004	424-B-007	Potassium-40	13.600000	PCI/G	47.8	PCI/G	0.9			1464598.846	599066.969
09/16/2004	424-NT-015	Potassium-40	9.800000	PCI/G	47.8	PCI/G	0.2			1464641.873	599105.498
09/16/2004	424-SS-001	Potassium-40	8.400000	PCI/G	47.8	PCI/G	0.6			1464569.716	599049.507
09/16/2000	424-SS-019	Potassium-40	5.700000	PCI/G	47.8	PCI/G	0.5			1464673.645	599103.528
09/16/2004	424-B-014	Potassium-40	5.400000	PCI/G	47.8	PCI/G	0.6			1464638.184	599086.615
09/16/2004	424-NT-013	Potassium-40	5.100000	PCI/G	47.8	PCI/G	0.6			1464634.373	599092.508
09/16/2004	424-NS-020	Potassium-40	4.700000	PCI/G	47.8	PCI/G	0.5			1464671.212	599106.771
09/16/2004	424-NT-015	Radium-226	0.700000	PCI/G	3.01	PCI/G	0.20	J		1464641.873	599105.498
09/16/2004	424-NS-002	Radium-226	0.620000	PCI/G	3.01	PCI/G	0.44	J		1464579.091	599058.889
09/16/2004	424-B-018	Radium-226	0.510000	PCI/G	3.01	PCI/G	0.42	J		1464660.684	599099.606
09/16/2004	424-B-003	Radium-226	0.500000	PCI/G	3.01	PCI/G	0.39	J		1464583.929	599059.265
09/16/2004	424-NS-016	Radium-226	0.490000	PCI/G	3.01	PCI/G	0.43	J		1464648.181	599094.801
09/16/2004	424-SS-001	Radium-226	0.480000	PCI/G	3.01	PCI/G	0.33	J		1464569.716	599049.507
09/16/2004	424-NS-009	Radium-226	0.450000	PCI/G	3.01	PCI/G	0.37	J		1464602.121	599070.859
09/16/2004	424-SS-012	Radium-226	0.440000	PCI/G	3.01	PCI/G	0.44	J		1464627.585	599079.586
09/16/2004	424-B-018FD	Radium-226	0.410000	PCI/G	3.01	PCI/G	0.41	U		1464660.684	599099.606
09/16/2004	424-B-006	Radium-226	0.390000	PCI/G	3.01	PCI/G	0.36	J		1464592.289	599063.527
09/16/2004	424-B-004	Radium-226	0.380000	PCI/G	3.01	PCI/G	0.38	U		1464587.827	599061.269
09/16/2004	424-SS-008	Radium-226	0.380000	PCI/G	3.01	PCI/G	0.34	J		1464604.545	599067.61
09/16/2004	424-SS-017	Radium-226	0.380000	PCI/G	3.01	PCI/G	0.35	J		1464650.615	599091.557
09/16/2000	424-SS-019	Radium-226	0.360000	PCI/G	3.01	PCI/G	0.27	J		1464673.645	599103.528
09/16/2004	424-NS-011	Radium-226	0.360000	PCI/G	3.01	PCI/G	0.36	U		1464625.151	599082.83
09/16/2004	424-B-010	Radium-226	0.350000	PCI/G	3.01	PCI/G	0.35	U		1464615.684	599073.625
09/16/2004	424-SS-005	Radium-226	0.340000	PCI/G	3.01	PCI/G	0.34	U		1464592.746	599061.477
09/16/2004	424-B-007	Radium-226	0.340000	PCI/G	3.01	PCI/G	0.34	U		1464598.846	599066.969
09/16/2004	424-NT-013	Radium-226	0.340000	PCI/G	3.01	PCI/G	0.26	J		1464634.373	599092.508
09/16/2004	424-NS-020	Radium-226	0.320000	PCI/G	3.01	PCI/G	0.27	J		1464671.212	599106.771
09/16/2004	424-B-014	Radium-226	0.310000	PCI/G	3.01	PCI/G	0.25	J		1464638.184	599086.615
09/16/2004	424-NS-011	Radium-228	0.670000	PCI/G	3.06	PCI/G	0.29			1464625.151	599082.83
09/16/2004	424-B-010	Radium-228	0.620000	PCI/G	3.06	PCI/G	0.38			1464615.684	599073.625
09/16/2004	424-B-003	Radium-228	0.600000	PCI/G	3.06	PCI/G	0.35			1464583.929	599059.265
09/16/2004	424-NS-002	Radium-228	0.520000	PCI/G	3.06	PCI/G	0.34			1464579.091	599058.889
09/16/2004	424-NS-016	Radium-228	0.470000	PCI/G	3.06	PCI/G	0.38			1464648.181	599094.801
09/16/2004	424-SS-012	Radium-228	0.460000	PCI/G	3.06	PCI/G	0.33			1464627.585	599079.586
09/16/2004	424-B-018FD	Radium-228	0.410000	PCI/G	3.06	PCI/G	0.29			1464660.684	599099.606
09/16/2004	424-B-003	Thallium-208	0.347000	PCI/G	0.498	PCI/G	0.070			1464583.929	599059.265
09/16/2004	424-B-018	Thallium-208	0.261000	PCI/G	0.498	PCI/G	0.083			1464660.684	599099.606
09/16/2004	424-NS-009	Thallium-208	0.260000	PCI/G	0.498	PCI/G	0.078			1464602.121	599070.859
09/16/2004	424-SS-005	Thallium-208	0.248000	PCI/G	0.498	PCI/G	0.097			1464592.746	599061.477
09/16/2004	424-B-006	Thallium-208	0.235000	PCI/G	0.498	PCI/G	0.077			1464592.289	599063.527
09/16/2004	424-B-010	Thallium-208	0.214000	PCI/G	0.498	PCI/G	0.087			1464615.684	599073.625
09/16/2004	424-NS-002	Thallium-208	0.193000	PCI/G	0.498	PCI/G	0.076			1464579.091	599058.889

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PRS 424 Verification Sampling Results

Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/16/2004	424-SS-012	Thallium-208	0.187000	PCI/G	0.498	PCI/G	0.10			1464627.585	599079.586
09/16/2004	424-NT-015	Thallium-208	0.179000	PCI/G	0.498	PCI/G	0.077			1464641.873	599105.498
09/16/2004	424-NS-011	Thallium-208	0.165000	PCI/G	0.498	PCI/G	0.087			1464625.151	599082.83
09/16/2004	424-NS-016	Thallium-208	0.162000	PCI/G	0.498	PCI/G	0.082			1464648.181	599094.801
09/16/2004	424-SS-017	Thallium-208	0.148000	PCI/G	0.498	PCI/G	0.069			1464650.615	599091.557
09/16/2004	424-B-007	Thallium-208	0.142000	PCI/G	0.498	PCI/G	0.078			1464598.846	599066.969
09/16/2004	424-SS-001	Thallium-208	0.141000	PCI/G	0.498	PCI/G	0.072			1464569.716	599049.507
09/16/2004	424-SS-008	Thallium-208	0.133000	PCI/G	0.498	PCI/G	0.088			1464604.545	599067.61
09/16/2004	424-B-014	Thallium-208	0.073000	PCI/G	0.498	PCI/G	0.051			1464638.184	599086.615
09/16/2000	424-SS-019	Thallium-208	0.061000	PCI/G	0.498	PCI/G	0.050			1464673.645	599103.528
09/16/2004	424-NS-002	Thorium-228	0.960000	PCI/G	2.6	PCI/G	0.03			1464579.091	599058.889
09/16/2004	424-B-006	Thorium-228	0.900000	PCI/G	2.6	PCI/G	0.05			1464592.289	599063.527
09/16/2004	424-B-003	Thorium-228	0.820000	PCI/G	2.6	PCI/G	0.04			1464583.929	599059.265
09/16/2004	424-NS-009	Thorium-228	0.820000	PCI/G	2.6	PCI/G	0.04			1464602.121	599070.859
09/16/2004	424-SS-012	Thorium-228	0.800000	PCI/G	2.6	PCI/G	0.03			1464627.585	599079.586
09/16/2004	424-SS-008	Thorium-228	0.750000	PCI/G	2.6	PCI/G	0.03			1464604.545	599067.61
09/16/2004	424-B-010	Thorium-228	0.730000	PCI/G	2.6	PCI/G	0.03			1464615.684	599073.625
09/16/2004	424-B-018	Thorium-228	0.720000	PCI/G	2.6	PCI/G	0.03			1464660.684	599099.606
09/16/2004	424-SS-005	Thorium-228	0.650000	PCI/G	2.6	PCI/G	0.1			1464592.746	599061.477
09/16/2004	424-B-007	Thorium-228	0.650000	PCI/G	2.6	PCI/G	0.04			1464598.846	599066.969
09/16/2004	424-B-004	Thorium-228	0.600000	PCI/G	2.6	PCI/G	0.04			1464587.827	599061.269
09/16/2004	424-NS-011	Thorium-228	0.570000	PCI/G	2.6	PCI/G	0.03			1464625.151	599082.83
09/16/2004	424-SS-001	Thorium-228	0.560000	PCI/G	2.6	PCI/G	0.05			1464569.716	599049.507
09/16/2004	424-B-018FD	Thorium-228	0.550000	PCI/G	2.6	PCI/G	0.04			1464660.684	599099.606
09/16/2004	424-NT-015	Thorium-228	0.530000	PCI/G	2.6	PCI/G	0.03			1464641.873	599105.498
09/16/2004	424-NS-016	Thorium-228	0.450000	PCI/G	2.6	PCI/G	0.03			1464648.181	599094.801
09/16/2004	424-SS-017	Thorium-228	0.450000	PCI/G	2.6	PCI/G	0.03			1464650.615	599091.557
09/16/2000	424-SS-019	Thorium-228	0.265000	PCI/G	2.6	PCI/G	0.027			1464673.645	599103.528
09/16/2004	424-NS-020	Thorium-228	0.227000	PCI/G	2.6	PCI/G	0.028			1464671.212	599106.771
09/16/2004	424-B-014	Thorium-228	0.220000	PCI/G	2.6	PCI/G	0.033			1464638.184	599086.615
09/16/2004	424-NT-013	Thorium-228	0.204000	PCI/G	2.6	PCI/G	0.028			1464634.373	599092.508
09/16/2004	424-NS-002	Thorium-230	1.040000	PCI/G	2.8	PCI/G	0.03			1464579.091	599058.889
09/16/2004	424-SS-008	Thorium-230	0.970000	PCI/G	2.8	PCI/G	0.03			1464604.545	599067.61
09/16/2004	424-B-006	Thorium-230	0.940000	PCI/G	2.8	PCI/G	0.01			1464592.289	599063.527
09/16/2004	424-NS-020	Thorium-230	0.930000	PCI/G	2.8	PCI/G	0.03			1464671.212	599106.771
09/16/2004	424-NT-015	Thorium-230	0.910000	PCI/G	2.8	PCI/G	0.03			1464641.873	599105.498
09/16/2004	424-B-003	Thorium-230	0.850000	PCI/G	2.8	PCI/G	0.03			1464583.929	599059.265
09/16/2004	424-B-010	Thorium-230	0.820000	PCI/G	2.8	PCI/G	0.02			1464615.684	599073.625
09/16/2004	424-B-004	Thorium-230	0.810000	PCI/G	2.8	PCI/G	0.01			1464587.827	599061.269
09/16/2004	424-SS-001	Thorium-230	0.800000	PCI/G	2.8	PCI/G	0.03			1464569.716	599049.507
09/16/2004	424-SS-012	Thorium-230	0.770000	PCI/G	2.8	PCI/G	0.01			1464627.585	599079.586
09/16/2004	424-NS-011	Thorium-230	0.730000	PCI/G	2.8	PCI/G	0.02			1464625.151	599082.83
09/16/2004	424-B-007	Thorium-230	0.720000	PCI/G	2.8	PCI/G	0.03			1464598.846	599066.969
09/16/2004	424-NS-009	Thorium-230	0.710000	PCI/G	2.8	PCI/G	0.02			1464602.121	599070.859
09/16/2004	424-SS-017	Thorium-230	0.700000	PCI/G	2.8	PCI/G	0.03			1464650.615	599091.557
09/16/2004	424-SS-005	Thorium-230	0.650000	PCI/G	2.8	PCI/G	0.04			1464592.746	599061.477
09/16/2000	424-SS-019	Thorium-230	0.630000	PCI/G	2.8	PCI/G	0.02			1464673.645	599103.528
09/16/2004	424-B-014	Thorium-230	0.630000	PCI/G	2.8	PCI/G	0.03			1464638.184	599086.615
09/16/2004	424-B-018	Thorium-230	0.630000	PCI/G	2.8	PCI/G	0.01			1464660.684	599099.606
09/16/2004	424-NS-016	Thorium-230	0.620000	PCI/G	2.8	PCI/G	0.02			1464648.181	599094.801

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PRS 424 Verification Sampling Results

Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/16/2004	424-B-018FD	Thorium-230	0.550000	PCI/G	2.8	PCI/G	0.03			1464660.684	599099.606
09/16/2004	424-NT-013	Thorium-230	0.324000	PCI/G	2.8	PCI/G	0.023			1464634.373	599092.508
09/16/2004	424-NS-002	Thorium-232	0.860000	PCI/G	2.1	PCI/G	0.02			1464579.091	599058.889
09/16/2004	424-B-006	Thorium-232	0.850000	PCI/G	2.1	PCI/G	0.02			1464592.289	599063.527
09/16/2004	424-SS-008	Thorium-232	0.840000	PCI/G	2.1	PCI/G	0.02			1464604.545	599067.61
09/16/2004	424-B-010	Thorium-232	0.830000	PCI/G	2.1	PCI/G	0.01			1464615.684	599073.625
09/16/2004	424-B-003	Thorium-232	0.780000	PCI/G	2.1	PCI/G	0.03			1464583.929	599059.265
09/16/2004	424-SS-012	Thorium-232	0.730000	PCI/G	2.1	PCI/G	0.03			1464627.585	599079.586
09/16/2004	424-B-007	Thorium-232	0.720000	PCI/G	2.1	PCI/G	0.01			1464598.846	599066.969
09/16/2004	424-B-018FD	Thorium-232	0.710000	PCI/G	2.1	PCI/G	0.03			1464660.684	599099.606
09/16/2004	424-SS-005	Thorium-232	0.680000	PCI/G	2.1	PCI/G	0.02			1464592.746	599061.477
09/16/2004	424-NS-011	Thorium-232	0.670000	PCI/G	2.1	PCI/G	0.29			1464625.151	599082.83
09/16/2004	424-NS-009	Thorium-232	0.660000	PCI/G	2.1	PCI/G	0.01			1464602.121	599070.859
09/16/2004	424-B-004	Thorium-232	0.640000	PCI/G	2.1	PCI/G	0.03			1464587.827	599061.269
09/16/2004	424-B-010	Thorium-232	0.620000	PCI/G	2.1	PCI/G	0.38			1464615.684	599073.625
09/16/2004	424-NS-011	Thorium-232	0.610000	PCI/G	2.1	PCI/G	0.02			1464625.151	599082.83
09/16/2004	424-B-003	Thorium-232	0.600000	PCI/G	2.1	PCI/G	0.35			1464583.929	599059.265
09/16/2004	424-B-018	Thorium-232	0.580000	PCI/G	2.1	PCI/G	0.02			1464660.684	599099.606
09/16/2004	424-NT-015	Thorium-232	0.540000	PCI/G	2.1	PCI/G	0.02			1464641.873	599105.498
09/16/2004	424-SS-001	Thorium-232	0.520000	PCI/G	2.1	PCI/G	0.03			1464569.716	599049.507
09/16/2004	424-NS-002	Thorium-232	0.520000	PCI/G	2.1	PCI/G	0.34			1464579.091	599058.889
09/16/2004	424-NS-016	Thorium-232	0.480000	PCI/G	2.1	PCI/G	0.02			1464648.181	599094.801
09/16/2004	424-SS-017	Thorium-232	0.480000	PCI/G	2.1	PCI/G	0.02			1464650.615	599091.557
09/16/2004	424-NS-016	Thorium-232	0.470000	PCI/G	2.1	PCI/G	0.38			1464648.181	599094.801
09/16/2004	424-SS-012	Thorium-232	0.460000	PCI/G	2.1	PCI/G	0.33			1464627.585	599079.586
09/16/2004	424-B-018FD	Thorium-232	0.410000	PCI/G	2.1	PCI/G	0.29			1464660.684	599099.606
09/16/2000	424-SS-019	Thorium-232	0.348000	PCI/G	2.1	PCI/G	0.013			1464673.645	599103.528
09/16/2004	424-NT-013	Thorium-232	0.254000	PCI/G	2.1	PCI/G	0.023			1464634.373	599092.508
09/16/2004	424-B-014	Thorium-232	0.227000	PCI/G	2.1	PCI/G	0.025			1464638.184	599086.615
09/16/2004	424-NS-020	Thorium-232	0.189000	PCI/G	2.1	PCI/G	0.033			1464671.212	599106.771
09/16/2004	424-NS-016	Total C5 TO C11 Petroleum Hydrocarbons	29.000000	MG/KG	105	MG/KG	29	U		1464648.181	599094.801
09/16/2004	424-B-018FD	Total C5 TO C11 Petroleum Hydrocarbons	29.000000	MG/KG	105	MG/KG	29	U		1464660.684	599099.606
09/16/2004	424-NS-009	Total C5 TO C11 Petroleum Hydrocarbons	28.000000	MG/KG	105	MG/KG	28	U		1464602.121	599070.859
09/16/2004	424-B-010	Total C5 TO C11 Petroleum Hydrocarbons	27.000000	MG/KG	105	MG/KG	27	U		1464615.684	599073.625
09/16/2004	424-NS-011	Total C5 TO C11 Petroleum Hydrocarbons	27.000000	MG/KG	105	MG/KG	27	U		1464625.151	599082.83
09/16/2004	424-B-014	Total C5 TO C11 Petroleum Hydrocarbons	27.000000	MG/KG	105	MG/KG	27	U		1464638.184	599086.615
09/16/2004	424-B-018	Total C5 TO C11 Petroleum Hydrocarbons	27.000000	MG/KG	105	MG/KG	27	U		1464660.684	599099.606

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STD VSAP BACKFILL INFO

This information will be represented in the Data Report.

This fax constitutes submittal of BackPack
↓

For: PRS 424

PER SECTION 5.6 OF STD VSAP BACKFILL CAN PROCEED UPON SUBMITTAL OF A RAW DATA PKG (BackPack) WITH ALL RESULTS<CO.

Checklist:

(per Section 5.6 of Std VSAP, Final, Aug 04)

- ✓ ☒ final Graphic
  (show sample locations & note any >CO and/or >HS)
- ✓ ☒ sample results
  (show DLs, HS, COs, and COC std deviation(s))
- ✓ ☒ recalc of N
- ✓ ☒ Data Review & Validation
- N/A ☐ Sign test
  (not required if all results <CO see pg 19/21 of VSAP)
- N/A ☐ retro curve
  (not required if all results <CO [null hypothesis is rejected, MARSSIM])

From: (sign/date) [signature] 10-7-04 [initials] 7 Oct 04

[signature]

TOTAL PGS (INCL. THIS COVER SHEET) = 27

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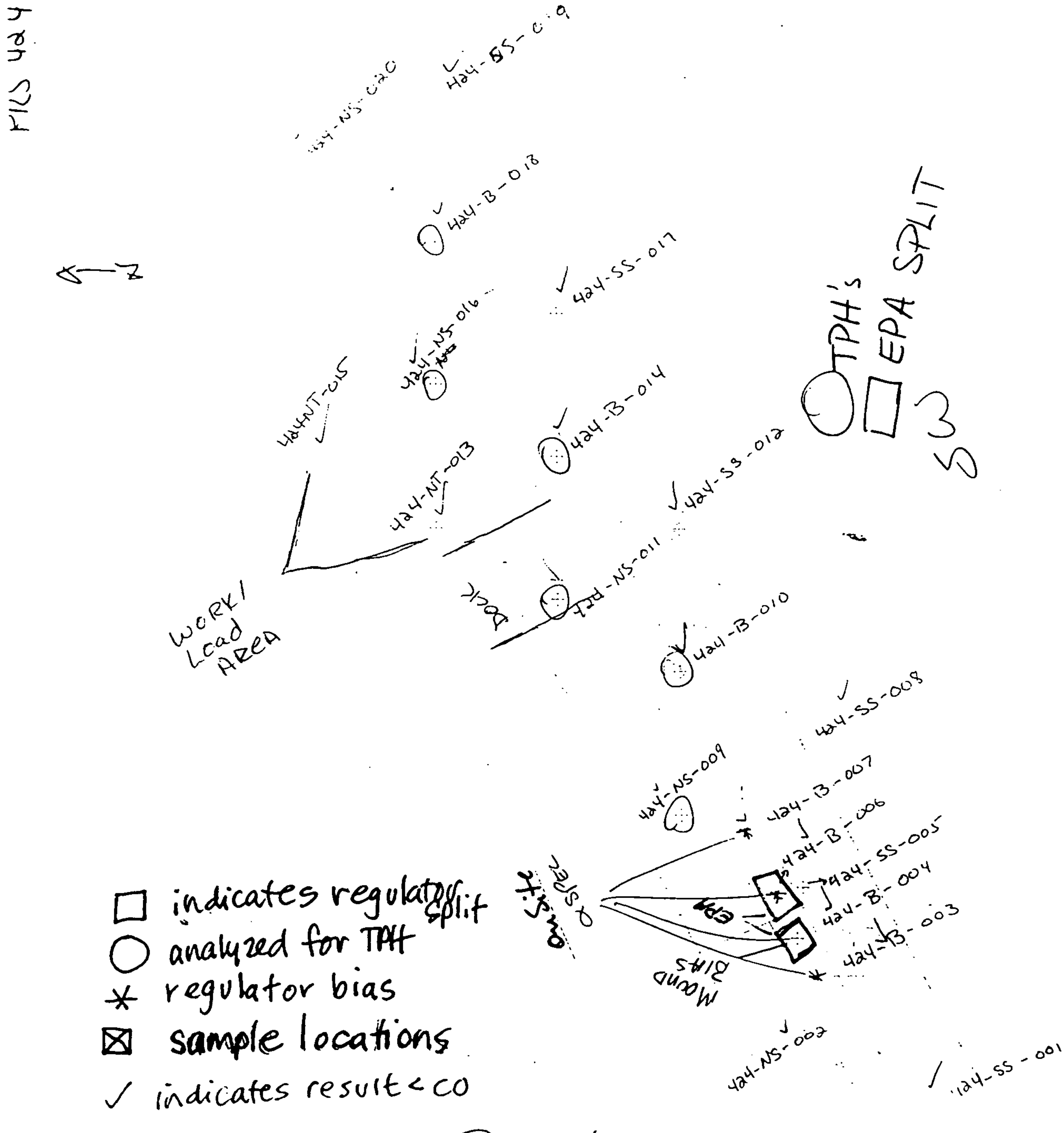

□ indicates regulator split
○ analyzed for TPH
✱ regulator bias
⊠ sample locations
✓ indicates result < CO

All results < CO [signature]

Final Graphic

BKPK

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FSS PRS 424 (pCi/g)

SU1:	Sample #	Ac-227	MDC	Am-241	MDC	Cs-137	MDC	Co-60	MDC	Ra-226	MDC
424-SS-001	1	0.29	0.29	0.11	0.11	0.07	0.07	0.09	0.09	*0.48*	*0.33*
424-NS-002	2	0.44	0.44	0.17	0.17	0.11	0.11	0.08	0.08	*0.62*	*0.44*
424-SS-005	5	0.43	0.43	0.15	0.15	0.08	0.08	0.11	0.11	0.34	0.34
424-SS-008	8	0.37	0.37	0.14	0.14	0.09	0.09	0.12	0.12	*0.38*	*0.34*
424-NS-009	9	0.32	0.32	0.15	0.15	0.11	0.11	0.13	0.13	*0.45*	*0.37*
424-B-010	10	0.39	0.39	0.17	0.17	0.11	0.11	0.10	0.10	0.35	0.35
424-NS-011	11	0.35	0.35	0.14	0.14	0.10	0.10	0.09	0.09	0.36	0.36
424-SS-012	12	0.37	0.37	0.15	0.15	0.10	0.10	0.13	0.13	*0.44*	*0.44*
424-NT-013	13	0.22	0.22	0.09	0.09	0.07	0.07	0.06	0.06	*0.34*	*0.26*
424-B-014	14	0.24	0.24	0.08	0.08	0.06	0.06	0.06	0.06	*0.31*	*0.25*
424-NT-015	15	0.35	0.35	0.14	0.14	0.08	0.08	0.08	0.08	*0.70*	*0.20*
424-NS-016	16	0.42	0.42	0.14	0.14	0.09	0.09	0.08	0.08	*0.49*	*0.43*
424-SS-017	17	0.30	0.30	0.12	0.12	0.09	0.09	0.12	0.12	*0.38*	*0.35*
424-B-018	18	0.36	0.36	0.14	0.14	0.09	0.09	0.10	0.10	*0.51*	*0.42*
424-SS-019	20	0.25	0.25	0.09	0.09	0.05	0.05	0.06	0.06	*0.36*	*0.27*
424-NS-020	21	0.24	0.24	0.09	0.09	0.06	0.06	0.07	0.07	*0.32*	*0.27*
Hot Spot:		13.61		189.00		10.62		2.10		4.70	
Action Level (CO):		4.6		63		3.8		0.7		2.9	
Maximum:		0.44		0.17		0.11		0.13		0.70	
below/ABOVE CO:		below		below		below		below		below	
Standard Deviation:		0.07		0.03		0.02		0.02		0.11	

Lab/Field Duplicates:	Sample #	Ac-227	MDC	Am-241	MDC	Cs-137	MDC	Co-60	MDC	Ra-226	MDC
424-SS-001 Lab Dup	NA	0.30	0.30	0.13	0.13	0.09	0.09	0.13	0.13	*0.62*	*0.42*
424-NT-013 Lab Dup	NA	0.27	0.27	0.08	0.08	0.06	0.07	0.08	0.08	*0.24*	*0.13*
424-B-018FD	19	0.42	0.42	0.14	0.14	0.12	0.12	0.08	0.08	0.41	0.41
Hot Spot:		13.61		189.00		10.62		2.10		4.70	
Action Level (CO):		4.6		63		3.8		0.7		2.9	

Rad Bias:	Sample #	Ac-227	MDC	Am-241	MDC	Cs-137	MDC	Co-60	MDC	Ra-226	MDC
424-B-003	3	0.35	0.35	0.15	0.15	0.1	0.1	0.12	0.12	*0.50*	*0.39*
424-B-004	4	0.44	0.44	0.16	0.16	0.10	0.10	0.10	0.10	0.38	0.38
424-B-006	6	0.28	0.28	0.16	0.16	0.10	0.10	0.10	0.10	*0.39*	*0.36*
424-B-007	7	0.36	0.36	0.14	0.14	0.09	0.09	0.12	0.12	0.34	0.34
Hot Spot:		13.61		189.00		10.62		2.10		4.70	
Action Level (CO):		4.6		63		3.8		0.7		2.9	

A129/198

BKPK2/3c

PRS 424 UGL
Sampled 9/15-16/04
Alpha Spec Pu

FSS PRS 424 (pCi/g)

SU1:	Sample #	Pu-238	MDC	Th-228	MDC	Th-230	MDC	Th-232	MDC
424-SS-001	1	0.41	0.09	0.56	0.05	0.80	0.03	0.52	0.03
424-NS-002	2	0.10	0.10	0.96	0.03	1.04	0.03	0.86	0.02
424-SS-005	5	*0.10*	*0.10*	0.65	0.10	0.65	0.04	0.68	0.02
424-SS-008	8	0.14	0.07	0.75	0.03	0.97	0.03	0.84	0.02
424-NS-009	9	0.08	0.08	0.82	0.04	0.71	0.02	0.66	0.01
424-B-010	10	0.08	0.08	0.73	0.03	0.82	0.02	0.83	0.01
424-NS-011	11	0.08	0.08	0.57	0.03	0.73	0.02	0.61	0.02
424-SS-012	12	0.10	0.10	0.80	0.03	0.77	0.01	0.73	0.03
424-NT-013	13	0.10	0.10	0.20	0.03	0.32	0.02	0.25	0.02
424-B-014	14	0.09	0.09	0.22	0.03	0.63	0.03	0.23	0.03
424-NT-015	15	0.10	0.10	0.53	0.03	0.91	0.03	0.54	0.02
424-NS-016	16	0.08	0.08	0.45	0.03	0.62	0.02	0.48	0.02
424-SS-017	17	0.07	0.07	0.45	0.03	0.70	0.03	0.48	0.02
424-B-018	18	0.07	0.07	0.72	0.03	0.63	0.01	0.58	0.02
424-SS-019	20	0.10	0.10	0.27	0.03	0.63	0.02	0.35	0.01
424-NS-020	21	0.09	0.09	0.23	0.03	0.93	0.03	0.19	0.03
Hot Spot:		165.13		4.80		4.60		3.50	
Action Level (CO):		55		2.6		2.8		2.1	
Maximum:		0.41		0.96		1.04		0.86	
below/ABOVE CO:		below		below		below		below	
Standard Deviation:		0.08		0.24		0.17		0.22	

Lab/Field Duplicates:	Sample #	Pu-238	MDC	Th-228	MDC	Th-230	MDC	Th-232	MDC
424-SS-001 Lab Dup	NA	0.38	0.11	0.53	0.03	0.78	0.02	0.47	0.02
424-NS-011 Lab Dup	NA	0.10	0.10	0.60	0.03	0.69	0.02	0.67	0.01
424-B-018FD	19	0.07	0.07	0.55	0.04	0.55	0.03	0.71	0.03
Hot Spot:		165.13		4.80		4.60		3.50	
Action Level (CO):		55		2.6		2.8		2.1	

Rad Bias:	Sample #	Pu-238	MDC	Th-228	MDC	Th-230	MDC	Th-232	MDC
424-B-003	3	0.13	0.08	0.82	0.04	0.85	0.03	0.78	0.03
424-B-004	4	0.09	0.09	0.60	0.04	0.81	0.01	0.64	0.03
424-B-006	6	0.13	0.08	0.90	0.05	0.94	0.01	0.85	0.02
424-B-007	7	1.46	0.07	0.65	0.04	0.72	0.03	0.72	0.01
Hot Spot:		165.13		4.80		4.60		3.50	
Action Level (CO):		55		2.6		2.8		2.1	

RKPR 3

A130/198

PRS 424 UGL
TPH-DRO
Sampled 9/15-16/04

	TPH-DRO
	mg/kg
PQL	28
424-NS-009	
424-B-010	
424-NS-011	
424-B-014	
424-NS-016	
424-B-018	
424-B-018FD	
424-NS-009 MS	83
424-NS-009 MSD	**33**

Less than FOSRA (105 mg/kg)

Blanks cells indicate analyses below the detection limit
Bold results indicate QC value outside acceptable criteria

RKPK 2/3

A131/198

Sample Standard Deviation (s)	Radionuclide	Cleanup Objective	Units
0.07	Ac-227+D	4.6	(pCi/g)
0.03	Am-241	63	(pCi/g)
	Ce-141	38	(pCi/g)
0.02	Cs-137+D	3.8	(pCi/g)
0.02	Co-60	0.7	(pCi/g)
	Cu-244	92	(pCi/g)
	Pb-210+D	7.4	(pCi/g)
	Np-237+D	10.4	(pCi/g)
	Ni-95	2.5	(pCi/g)
0.08	Pu-238	55	(pCi/g)
	Pu-239/240	62	(pCi/g)
	Pa-231+D	4	(pCi/g)
0.11	Ra-226+D	2.9	(pCi/g)
	Ra-228	2.1	(pCi/g)
	Th-228+D	2.6	(pCi/g)
0.17	Th-230+D	2.8	(pCi/g)
0.22	Th-232+D	2.1	(pCi/g)
	U-233+D	4.8	(pCi/g)
	U-234	106.1	(pCi/g)
	U-234+D	2	(pCi/g)
	U-235	16.11	(pCi/g)
	U-235+D	3.2	(pCi/g)
	U-238	121.2	(pCi/g)
	U-238+D	2.2	(pCi/g)
	Bi-207	1.2	(pCi/g)
	Bi-210m	8.3	(pCi/g)
	Tc-99	2140	(pCi/g)
	Sr-90	94.72	(pCi/g)

FSS CALCULATIONS

Type I Error	0.05	*Estimate (N) - Sign Test*	
$Z_{1-alpha}$	1.645	DCGL	1
Type II Error	0.2	LBGR	0.61
Z_{1-beta}	0.842	Delta	0.39
		(s)	0.13
		Rel Shift	2.976
Effective	0.13 *(s)*	*(N)* =	8.00 (actual = 20) ✓

Sign p 0.993790

Calculate the Total Effective (s)

Sample Grid Spacing

Area Factor adjusted (N) 94

SU Area	281	m^2
Grid Length	5.5	m
Grid Height	4.8	m

PRS 424 Survey Unit 1

A132/198

RKF

1.0 Introduction

Analytical data assessment can be performed on many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 424 covers a section of the radioactive underground line removal north of SW Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met. Bias Samples were also collected.

The bottom of the trench was excavated just prior to sampling to remove debris and material that had peeled from the sides of the trench. Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

BKPK 6/26

A133/ 198

Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
9/15-16/04	F4I210142	21	424-SS-001, 424-NS-002, 424-B-003, 424-B-004, 424-SS-005, 424-B-006, 424-B-007, 424-SS-008, 424-NS-009, 424-B-010, 424-NS-011, 424-SS-012, 424-NT-013, 424-B-014, 424-NT-015, 424-NS-016, 424-SS-017, 424-B-018, 424-B-018FD, 424-SS-019, & 424-NS-020

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD). The laboratory reported all of the gamma emitting isotopes of interest

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

BKPK

A134/198

There were no isotopes of interest measured in the blanks associated with these samples.

4.2 Laboratory Duplicates

A laboratory duplicate (DUP) analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples.

Quantitative interpretation of the duplicate sample has little meaning here since almost all measurements were less than the Minimum Detectable Activity (MDA). Those isotopes detected were less than the Practical Quantitation Limit (PQL). It should be noted that all non-detects were non-detects in the duplicate sample. All the detected isotopes in the original sample were also detected in the duplicate.

4.3 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analytes of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

The recoveries of the 2 isotopes in the LCS ranged from 100 to 103%. This is well within the acceptable 90 – 111% range.

4.4 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

4.5 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

One field duplicates was collected. There was good agreement between the original and duplicate sample.

5.0 Data Validation

The results were further validated by examination of the following items:

1. Instrument Calibration data
2. Daily Instrument performance check
3. Background measurements

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

BKPK 8/26

A135/ 198

6.0 Certification

Based upon this review the Gamma Spectroscopy analysis data maybe used as presented with no further qualifications.

BKPK9/

A136/198

Table 3 PRS 424 (UGL) Gamma Spectroscopy Analysis

pCi/g	Ac-227	Am-241	Cs-137	Co-60	Ra-226	Ac-228	Bi-214	Pb-212	Pb-214	Ra-228
Action Level	4.6	63	3.8	0.7	2.9					
424-SS-001	< 0.29	< 0.11	< 0.07	< 0.09	*0.48*		*0.40*	*0.27*	*0.40*	
424-SS-001 Lab Dup	< 0.30	< 0.13	< 0.09	< 0.13	*0.62*		*0.46*	*0.24*	*0.53*	
424-NS-002	< 0.44	< 0.17	< 0.11	< 0.08	*0.62*	*0.52*	*0.58*	*0.61*	*0.56*	*0.52*
424-B-003	< 0.35	< 0.15	< 0.10	< 0.12	*0.50*	*0.60*	*0.44*	*0.77*	*0.50*	0.60
424-B-004	< 0.44	< 0.16	< 0.10	< 0.10	< 0.38			*0.44*	*0.36*	
424-SS-005	< 0.43	< 0.15	< 0.08	< 0.11	< 0.34		*0.34*	*0.68*	*0.50*	
424-B-006	< 0.28	< 0.16	< 0.10	< 0.10	*0.39*		*0.37*	*0.52*	*0.53*	
424-B-007	< 0.36	< 0.14	< 0.09	< 0.12	< 0.34			*0.38*	*0.37*	
424-SS-008	< 0.37	< 0.14	< 0.09	< 0.12	*0.38*		*0.44*	*0.47*	*0.41*	
424-NS-009	< 0.32	< 0.15	< 0.11	< 0.13	*0.45*		*0.46*	*0.54*	*0.47*	
424-B-010	< 0.39	< 0.17	< 0.11	< 0.10	< 0.35	*0.62*	*0.55*	*0.68*	*0.55*	*0.62*
424-NS-011	< 0.35	< 0.14	< 0.10	< 0.09	< 0.36	*0.67*	*0.29*	*0.53*	*0.36*	*0.67*
424-SS-012	< 0.37	< 0.15	< 0.10	< 0.13	*0.44*	*0.46*	*0.46*	*0.51*	*0.45*	*0.46*
424-NT-013	< 0.22	< 0.09	< 0.07	< 0.06	*0.34*		*0.29*	*0.17*	*0.29*	
424-NT-013 Lab Dup	< 0.27	< 0.08	< 0.06	< 0.08	*0.24*		*0.30*	*0.14*	*0.29*	
424-B-014	< 0.24	< 0.08	< 0.06	< 0.06	*0.31*		*0.34*	*0.14*	*0.27*	
424-NT-015	< 0.35	< 0.14	< 0.08	< 0.08	*0.70*		*0.47*	*0.53*	*0.63*	
424-NS-016	< 0.42	< 0.14	< 0.09	< 0.08	*0.49*	*0.47*	*0.54*	*0.56*	*0.42*	*0.47*
424-SS-017	< 0.30	< 0.12	< 0.09	< 0.12	*0.38*		*0.39*	*0.54*	*0.33*	
424-B-018	< 0.36	< 0.14	< 0.09	< 0.10	*0.51*		*0.36*	*0.48*	*0.34*	
424-B-018FD	< 0.42	< 0.14	< 0.12	< 0.08	< 0.41	*0.41*	*0.51*	*0.42*	*0.47*	*0.41*
424-SS-019	< 0.25	< 0.09	< 0.05	< 0.06	*0.36*		*0.29*	*0.19*	*0.41*	
424-NS-020	< 0.24	< 0.09	< 0.06	< 0.07	*0.32*		*0.48*		*0.39*	
Blank 1	< 0.20	< 0.07	< 0.06	< 0.07	< 0.18					
Blank 2	< 0.20	< 0.07	< 0.05	< 0.05	< 0.17					
LCS 1 % recovery			102	102						

AC37/198

RARA 10/24

pCi/g	Ac-227	Am-241	Cs-137	Co-60	Ra-226	Ac-228	Bi-214	Pb-212	Pb-214	Ra-228
Action Level	4.6	63	3.8	0.7	2.9					
LCS 2 % recovery			103	100						

"<" Quantities indicate non-detects with stated MDAs
Italic results are detects below the Practical Quantitation Level (PQL)
Blank cells indicate non-detects

A138/198

BKPK11

1.0 Introduction

Analytical data assessment can be performed on many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 424 covers a section of the radioactive underground line removal north of SW Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met. Bias samples were also collected.

The bottom of the trench was excavated just prior to sampling to remove debris and material that had peeled from the sides of the trench. Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

BKPK 12/2

A139/198

Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
9/15-16/04	F4I210142	21	424-SS-001, 424-NS-002, 424-B-003, 424-B-004, 424-SS-005, 424-B-006, 424-B-007, 424-SS-008, 424-NS-009, 424-B-010, 424-NS-011, 424-SS-012, 424-NT-013, 424-B-014, 424-NT-015, 424-NS-016, 424-SS-017, 424-B-018, 424-B-018FD, 424-SS-019, & 424-NS-020

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD).

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

BKPK 13

A140/198

No Pu isotopes of interest were detected in the blanks associated with these samples.

4.2 Tracer Yields

Each sample is spiked with a known amount of an internal standard, Pu-242, prior to sample preparation. The measured recovery percentage (% yield) of this 'tracer' is then used to scale the measured concentrations of the other isotopes. Tracer yields less than 20% or greater than 110% should be recounted and possibly re-prepared. Within a given sample matrix significant yield inconsistencies may be indicative of problems with sample preparation.

No sample tracer yields were below 64%.

The average tracer yield was an acceptable 85% with a standard deviation of 9.

4.3 Laboratory Duplicates

A laboratory duplicate analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples or LSDG. For very small detection levels the Relative Error Ratio (RER) is a more meaningful metric the % Difference. To meet QC criteria the of duplicate samples must be < 3.0.

$$RER = \frac{[\text{Sample Result} - \text{Duplicate Result}]}{[TPU^2_{sample} + TPU^2_{dup}]^{1/2}}$$

where TPU is the Total Propagated Error.

It is known that for Mound soils plutonium contamination is usually distributed non-homogeneously even in dried and ground samples. The divergent results obtained from reanalysis of the same sample usually demonstration of this fact and not the laboratory's capability for precision.

Only the Pu-238 isotope was detected in the laboratory duplicate pair. Agreement met QC criteria.

4.4 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the isotopes of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

The isotope recoveries for the LCS ranged from 84 to 109%.

4.5 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

BKPK 14/2

A142/198

No equipment rinsates were collected.

4.6 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

One field duplicates was collected. No Pu isotopes of interest were detected in the field duplicates.

5.0 Data Validation

The results were further validated by examination of the following items:

1. Instrument calibration
2. Daily Source checks
3. Background and efficiency measurement
4. Proper frequency and use of blanks
5. All calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

6.0 Certification

Based upon this review the Pu Alpha Spectroscopy analysis data maybe used as presented with no further qualifications.

BKPK15

A142/198

Table 3 PRS 424 (UGL) Pu Alpha Spectroscopy Analysis

pCi/g	Pu-238	Pu-239/240	Pu-242
Action Level	55		% Yield
424-SS-001	0.41	< 0.04	96
424-SS-001 Lab Dup	0.38	< 0.05	94
424-NS-002	< 0.10	< 0.06	92
424-B-003	0.13	< 0.06	86
424-B-004	< 0.09	< 0.02	75
424-SS-005	*< 0.10*	< 0.05	78
424-B-006	0.13	< 0.06	80
424-B-007	1.46	< 0.03	91
424-SS-008	0.14	< 0.03	83
424-NS-009	< 0.08	< 0.02	96
424-B-010	< 0.08	< 0.05	83
424-NS-011	< 0.08	< 0.04	101
424-NS-011 Lab Dup	< 0.10	< 0.05	92
424-SS-012	< 0.10	< 0.07	87
424-NT-013	< 0.10	< 0.07	72
424-B-014	< 0.09	< 0.03	77
424-NT-015	< 0.10	< 0.05	79
424-NS-016	< 0.08	< 0.06	83
424-SS-017	< 0.07	< 0.03	91
424-B-018	< 0.07	< 0.03	76
424-B-018FD	< 0.07	< 0.04	103
424-SS-019	< 0.10	< 0.06	64
424-NS-020	< 0.09	< 0.05	83
Blank 1	< 0.08	< 0.04	82
Blank 2	< 0.09	< 0.04	75
LCS 1 % recovery	84	101	77
LCS 2 % recovery	109	98	93

"<" Quantities indicate non-detects with stated MDAs.
Blank cells indicate non-detects.
Bold results indicate QC values outside QC criteria.
Italic results are detection less than the Practical Quantitation Limit (PQL).

RKPK 16/26

A143/198

1.0 Introduction

Analytical data assessment can be performed on many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 424 covers a section of the radioactive underground line removal north of SW Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met. Biased samples were also collected.

The bottom of the trench was excavated just prior to sampling to remove debris and material that had peeled from the sides of the trench. Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

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Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
9/15-16/04	F4I210142	21	424-SS-001, 424-NS-002, 424-B-003, 424-B-004, 424-SS-005, 424-B-006, 424-B-007, 424-SS-008, 424-NS-009, 424-B-010, 424-NS-011, 424-SS-012, 424-NT-013, 424-B-014, 424-NT-015, 424-NS-016, 424-SS-017, 424-B-018, 424-B-018FD, 424-SS-019, & 424-NS-020

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD).

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

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Trace amounts (0.04 to 0.6 pCi/g) of Th-230 were detected in the blanks associated with these samples. This is a typical amount of laboratory contamination.

4.2 Tracer Yields

Each sample is spiked with a known amount of an internal standard, Th-229, prior to sample preparation. The measured recovery percentage (% yield) of this 'tracer' is then used to scale the measured concentrations of the other isotopes. Tracer yields less than 20% or greater than 110% should be recounted and possibly re-prepared. Within a given sample matrix significant yield inconsistencies may be indicative of problems with sample preparation.

All tracer yields were within acceptable bounds.

The average tracer yield was an acceptable 72% with a standard deviation of 9.

4.3 Laboratory Duplicates

A laboratory duplicate analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples or LSDG. For very small detection levels the Relative Error Ratio (RER) is a more meaningful metric the % Difference. To meet QC criteria the Relative Error Ratio of duplicate samples must be < 3.0.

$$RER = \frac{[\text{Sample Result} - \text{Duplicate Result}]}{[TPU^2_{sample} + TPU^2_{dup}]^{1/2}}$$

where TPU is the Total Propagated Error.

Lab Duplicates for Th isotopes demonstrated good agreement.

4.4 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the isotopes of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

The Th-230 isotope recoveries for the LCS were 97 and 100%.

4.5 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

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4.6 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

There was one field duplicate collected. Agreement between the field duplicates was good for all isotopes of interest.

5.0 Data Validation

The results were further validated by examination of the following items:

1. Instrument calibration
2. Daily Source checks
3. Background and efficiency measurement
4. Proper frequency and use of blanks
5. All calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

6.0 Certification

Based upon this review the Th Alpha Spectroscopy analysis data maybe used as presented with no further qualifications.

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Table 3 PRS 424 (UGL) Th Alpha Spectroscopy Analysis

pCi/g	Th-228	Th-230	Th-232	Th-229
Action Level	2.6	2.8	2.1	% yield
424-SS-001	0.56	0.80	0.52	71
424-SS-001 Lab Dup	0.53	0.78	0.47	80
424-NS-002	0.96	1.04	0.86	76
424-B-003	0.82	0.85	0.78	65
424-B-004	0.60	0.81	0.64	68
424-SS-005	0.65	0.65	0.68	61
424-B-006	0.90	0.94	0.85	64
424-B-007	0.65	0.72	0.72	76
424-SS-008	0.75	0.97	0.84	62
424-NS-009	0.82	0.71	0.66	64
424-B-010	0.73	0.82	0.83	69
424-NS-011	0.57	0.73	0.61	72
424-NS-011 Lab Dup	0.60	0.69	0.67	66
424-SS-012	0.80	0.77	0.73	77
424-NT-013	0.20	0.32	0.25	69
424-B-014	0.22	0.63	0.23	66
424-NT-015	0.53	0.91	0.54	86
424-NS-016	0.45	0.62	0.48	77
424-SS-017	0.45	0.70	0.48	72
424-B-018	0.72	0.63	0.58	69
424-B-018FD	0.55	0.55	0.71	64
424-SS-019	0.27	0.63	0.35	72
424-NS-020	0.23	0.93	0.19	60
Blank 1	< 0.03	*0.04*	< 0.01	79
Blank 2	< 0.01	*0.06*	< 0.01	92
LCS 1 % recovery		97		78
LCS 2 % recovery		100		91

"<" Quantities indicate non-detects with stated MDAs.
Blank cells indicate non-detects.
Bold results indicate QC values outside QC criteria.
Italic results are detections above MDA but below Practical Quantitation Limits (PQL)

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1.0 Introduction

Analytical data assessment can be performed on many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 424 covers a section of the radioactive underground line removal north of SW Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met. In addition, bias samples were collected.

The bottom of the trench was excavated just prior to sampling to remove debris and material that had peeled from the sides of the trench. Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

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It should be noted that Total Petroleum Hydrocarbons – Diesel Range Organics (TPH-DRO) gives only semi-quantitative results. No specific analytes are identified or measured. TPH-DRO is best suited as a characterization screening test than a final verification test.

Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
9/15-16/04	F4I210142	7	424-NS-009, 424-B-010, 424-NS-011, 424-B-014, 424-NS-016, 424-B-018, & 424-B-018FD,

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD). It should be noted that method 8015 of EPA SW-846, a GC/FID procedure, was used over the less precise EPA method 418.1 referenced in the Mound Methods Compendium. Method 418.1 is a UV spectrometer based method. A FREON extraction process was used to extract the TPH-DRO analytes from the soil samples.

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Holding Times

For TPH-DRO the recommended maximum hold time for soil samples is 28 days until analysis.

All samples in this LSDG were analyzed for TPH-DRO within 11 days.

4.2 Initial Calibration

Initial calibration (IC) standards containing 5 DRO stock solution concentrations are analyzed at concentrations of 2, 10, 20, 50, 80, 120, and 160 µg/L at the beginning of

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each analytical sequence or as necessary if the continuing acceptance criteria are not met. The linearity of the calibration must be assessed. The Percent Relative Standard Deviation (%RSD) the calibration factor must be ≤ 20%.

All RSD%s for analytes of interest were less than 20%.

4.3 Continuing Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data. The validity of the calibration curve must be measured with a Continuing Calibration Verification (CCV)every 12 hours. If the response obtained for the CCV is within ±15% of the initial calibration, the initial calibration curve may be deemed still valid.

All CCV RFs had D%s that were less than 15%.

4.4 Blanks

The laboratory analyzes one method blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory or field processes are contributing to the detected sample contamination. A method blank must be performed after the calibration standards.

The Method Blank System Monitoring Compound (SMC) recovery was below acceptance criteria (65% versus 78%). Samples associated with this method blank demonstrate satisfactory SMC recovery suggesting that the SMC excursion is isolated to the method blank and not indicative of the batch.

4.5 System Monitoring Compounds

Laboratory performance on individual samples is established by means of spiking activities. All samples are spiked with a System Monitoring Compound (SMC), just prior to sample purging. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the evaluation and review of the data based on specific sample results is frequently subjective and demands analytical experience and professional judgment.

There were no problems associated with the SMC recoveries except for the Method Blank discussed above.

4.6 Matrix Spike

A matrix spike (MS) and a matrix spike duplicate (MSD) analysis are performed to assess the precision and accuracy of the laboratory analysis on the sample matrix at the time of the sample analysis. One MS/MSD spike is performed for every 20 samples or LSDG. It also may indicate analysis bias due to sample matrix effects. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgment, this data should be used in conjunction with other QC information.

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The Relative Percent Difference (RPD) for the MS/MSD of this batch is larger than the acceptance criteria (32% vs. < 30%). Individually the MS and MSD recoveries are within QC criteria. No qualification action is warranted.

4.7 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the analyte(s) of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis. One LCS should be analyzed for every 20 samples or each LSDG.

All LCS recoveries were within QC requirements.

4.8 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

4.9 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

The Field Duplicates were both less than the detection level.

5.0 Data Validation

The results of LSDG F4H1802121 were fully data validated. In addition to the items discussed above, the following items were evaluated:

1. Instrument calibration
2. Spike recovery calculations.
3. Sample run logs
4. Compound quantification calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

6.0 Certification

Based upon this review the TPH-DRO analysis data maybe used as presented with no further qualifications.

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Table 3 PRS 424 (UGL) TPH-DRO Analysis

	TPH-DRO	Tolune-d8
	mg/kg	SMC
PQL	28	10-150
424-NS-009		33
424-B-010		35
424-NS-011		32
424-B-014		46
424-NS-016		34
424-B-018		35
424-B-018FD		31
Blank 1		**65**
LCS 1 % recovery	66	106
424-NS-009 MS	83	86
424-NS-009 MSD	33	72

Italics indicate analytes that were detected but are below Practical Quantitation Levels (PQL).
Blanks cells are non-detects (i.e., < Instrument Detection Level)
Bold QC results are outside acceptance criteria

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PRS 426 VERIFICATION DATA

AND

BACKFILL REPORT

Note:

The backfill report was previously submitted to the regulators in September 2004. It is presented here for reference purposes only.

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PRS 426 Verification Sampling Results

Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/14/2004	426-B-033	Actinium-227	0.640000	PCI/G	4.64	PCI/G	0.64	U		1464663.241	598833.995
09/14/2004	426-ES-018	Actinium-227	0.630000	PCI/G	4.64	PCI/G	0.63	U		1464619.682	598931.563
09/14/2004	426-ES-032	Actinium-227	0.610000	PCI/G	4.64	PCI/G	0.61	U		1464661.358	598842.583
09/14/2004	426-B-015	Actinium-227	0.580000	PCI/G	4.64	PCI/G	0.58	U		1464608.839	598950.052
09/15/2004	426-ES-039	Actinium-227	0.570000	PCI/G	4.64	PCI/G	0.57	U		1464686.617	598788.404
09/14/2004	426-ET-029	Actinium-227	0.560000	PCI/G	4.64	PCI/G	0.56	U		1464655.017	598865.599
09/14/2004	426-ET-027	Actinium-227	0.550000	PCI/G	4.64	PCI/G	0.55	U		1464647.517	598878.589
09/14/2004	426-ET-027FD	Actinium-227	0.550000	PCI/G	4.64	PCI/G	0.55	U		1464647.517	598878.589
09/14/2004	426-ET-031	Actinium-227	0.550000	PCI/G	4.64	PCI/G	0.55	U		1464662.517	598852.609
09/15/2004	426-ET-045	Actinium-227	0.550000	PCI/G	4.64	PCI/G	0.55	U		1464699.276	598761.329
09/14/2004	426-ES-014	Actinium-227	0.530000	PCI/G	4.64	PCI/G	0.53	U		1464607.023	598958.638
09/14/2004	426-B-033FD	Actinium-227	0.530000	PCI/G	4.64	PCI/G	0.53	U		1464663.241	598833.995
09/14/2004	426-B-030	Actinium-227	0.520000	PCI/G	4.64	PCI/G	0.52	U		1464653.858	598855.574
09/15/2004	426-WS-041	Actinium-227	0.510000	PCI/G	4.64	PCI/G	0.51	U		1464687.538	598779.325
09/15/2004	426-WS-043	Actinium-227	0.510000	PCI/G	4.64	PCI/G	0.51	U		1464693.868	598765.814
09/14/2004	426-B-012	Actinium-227	0.500000	PCI/G	4.64	PCI/G	0.5	U		1464596.954	598977.229
09/14/2004	426-WS-026	Actinium-227	0.490000	PCI/G	4.64	PCI/G	0.49	U		1464639.592	598881.897
09/15/2004	426-ES-042	Actinium-227	0.490000	PCI/G	4.64	PCI/G	0.49	U		1464692.946	598774.867
09/14/2004	426-WS-023	Actinium-227	0.480000	PCI/G	4.64	PCI/G	0.48	U		1464633.262	598895.435
09/15/2004	426-B-040	Actinium-227	0.470000	PCI/G	4.64	PCI/G	0.47	U		1464688.372	598780.427
09/15/2004	426-WS-038	Actinium-227	0.460000	PCI/G	4.64	PCI/G	0.46	U		1464681.208	598792.889
09/15/2004	426-ES-034	Actinium-227	0.440000	PCI/G	4.64	PCI/G	0.44	U		1464667.628	598829.017
09/14/2004	426-ES-016	Actinium-227	0.430000	PCI/G	4.64	PCI/G	0.43	U		1464613.352	598945.101
09/14/2004	426-ES-020	Actinium-227	0.430000	PCI/G	4.64	PCI/G	0.43	U		1464626.011	598918.025
09/15/2004	426-WS-036	Actinium-227	0.430000	PCI/G	4.64	PCI/G	0.43	U		1464674.879	598806.427
09/14/2004	426-WS-007	Actinium-227	0.420000	PCI/G	4.64	PCI/G	0.42	U		1464578.986	599011.518
09/14/2004	426-WS-017	Actinium-227	0.420000	PCI/G	4.64	PCI/G	0.42	U		1464614.273	598936.047
09/14/2004	426-WS-021	Actinium-227	0.400000	PCI/G	4.64	PCI/G	0.40	U		1464626.932	598908.972
09/14/2004	426-B-024	Actinium-227	0.400000	PCI/G	4.64	PCI/G	0.40	U		1464636.947	598891.117
09/14/2004	426-B-011	Actinium-227	0.390000	PCI/G	4.64	PCI/G	0.39	U		1464593.858	598985.477
09/14/2004	426-ES-013	Actinium-227	0.390000	PCI/G	4.64	PCI/G	0.39	U		1464600.693	598972.176
09/14/2004	426-WS-019	Actinium-227	0.390000	PCI/G	4.64	PCI/G	0.39	U		1464620.603	598922.51
09/15/2004	426-ES-037	Actinium-227	0.390000	PCI/G	4.64	PCI/G	0.39	U		1464680.287	598801.942
09/14/2004	426-ES-001	Actinium-227	0.380000	PCI/G	4.64	PCI/G	0.38	U		1464565.406	599047.646
09/15/2004	426-ET-008	Actinium-227	0.380000	PCI/G	4.64	PCI/G	0.38	U		1464587.517	599008.493
09/14/2004	426-ET-022	Actinium-227	0.380000	PCI/G	4.64	PCI/G	0.38	U		1464632.517	598904.57
09/15/2004	426-ES-035	Actinium-227	0.380000	PCI/G	4.64	PCI/G	0.38	U		1464673.957	598815.48
09/14/2004	426-WS-002	Actinium-227	0.350000	PCI/G	4.64	PCI/G	0.35	U		1464566.326	599038.593
09/14/2004	426-WS-004	Actinium-227	0.350000	PCI/G	4.64	PCI/G	0.35	U		1464572.656	599025.055
09/14/2004	426-B-028	Actinium-227	0.330000	PCI/G	4.64	PCI/G	0.33	U		1464646.358	598868.564
09/14/2004	426-B-005	Actinium-227	0.320000	PCI/G	4.64	PCI/G	0.32	U		1464575.744	599022.135

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PRS 426 Verification Sampling Results

Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/14/2004	426-B-009	Actinium-227	0.320000	PCI/G	4.64	PCI/G	0.32	U		1464586.358	598998.468
09/15/2004	426-B-044	Actinium-227	0.300000	PCI/G	4.64	PCI/G	0.30	U		1464694.522	598767.353
09/15/2004	426-ET-006	Actinium-227	0.290000	PCI/G	4.64	PCI/G	0.29	U		1464580.017	599021.484
09/14/2004	426-ET-025	Actinium-227	0.280000	PCI/G	4.64	PCI/G	0.28	U		1464640.017	598891.58
09/15/2004	426-ET-010	Actinium-227	0.270000	PCI/G	4.64	PCI/G	0.27	U		1464595.017	598995.503
09/14/2004	426-ET-003	Actinium-227	0.230000	PCI/G	4.64	PCI/G	0.23	U		1464572.517	599034.474
09/14/2004	426-ET-027	Actinium-228	1.290000	PCI/G	1.93	PCI/G	0.46			1464647.517	598878.589
09/14/2004	426-B-033	Actinium-228	1.230000	PCI/G	1.93	PCI/G	0.41			1464663.241	598833.995
09/14/2004	426-ET-027FD	Actinium-228	1.150000	PCI/G	1.93	PCI/G	0.39			1464647.517	598878.589
09/14/2004	426-ES-018	Actinium-228	1.130000	PCI/G	1.93	PCI/G	0.34			1464619.682	598931.563
09/14/2004	426-B-015	Actinium-228	1.010000	PCI/G	1.93	PCI/G	0.61			1464608.839	598950.052
09/14/2004	426-B-012	Actinium-228	1.000000	PCI/G	1.93	PCI/G	0.38			1464596.954	598977.229
09/14/2004	426-ES-032	Actinium-228	0.930000	PCI/G	1.93	PCI/G	0.45			1464661.358	598842.583
09/14/2004	426-B-030	Actinium-228	0.900000	PCI/G	1.93	PCI/G	0.34			1464653.858	598855.574
09/15/2004	426-WS-038	Actinium-228	0.880000	PCI/G	1.93	PCI/G	0.42			1464681.208	598792.889
09/14/2004	426-ET-029	Actinium-228	0.820000	PCI/G	1.93	PCI/G	0.47			1464655.017	598865.599
09/14/2004	426-ES-013	Actinium-228	0.810000	PCI/G	1.93	PCI/G	0.42			1464600.693	598972.176
09/15/2004	426-B-040	Actinium-228	0.750000	PCI/G	1.93	PCI/G	0.38			1464688.372	598780.427
09/15/2004	426-WS-041	Actinium-228	0.650000	PCI/G	1.93	PCI/G	0.52			1464687.538	598779.325
09/15/2004	426-B-044	Actinium-228	0.640000	PCI/G	1.93	PCI/G	0.23			1464694.522	598767.353
09/14/2004	426-WS-004	Actinium-228	0.550000	PCI/G	1.93	PCI/G	0.27			1464572.656	599025.055
09/14/2004	426-WS-023	Actinium-228	0.550000	PCI/G	1.93	PCI/G	0.45			1464633.262	598895.435
09/14/2004	426-B-005	Actinium-228	0.530000	PCI/G	1.93	PCI/G	0.26			1464575.744	599022.135
09/15/2004	426-ET-045	Actinium-228	0.530000	PCI/G	1.93	PCI/G	0.47			1464699.276	598761.329
09/14/2004	426-B-011	Actinium-228	0.470000	PCI/G	1.93	PCI/G	0.35			1464593.858	598985.477
09/14/2004	426-B-033	Americium-241	0.260000	PCI/G	63.1	PCI/G	0.26	U		1464663.241	598833.995
09/14/2004	426-ET-029	Americium-241	0.230000	PCI/G	63.1	PCI/G	0.23	U		1464655.017	598865.599
09/14/2004	426-B-033FD	Americium-241	0.230000	PCI/G	63.1	PCI/G	0.23	U		1464663.241	598833.995
09/14/2004	426-ES-014	Americium-241	0.220000	PCI/G	63.1	PCI/G	0.22	U		1464607.023	598958.638
09/14/2004	426-ES-018	Americium-241	0.220000	PCI/G	63.1	PCI/G	0.22	U		1464619.682	598931.563
09/14/2004	426-ET-027	Americium-241	0.220000	PCI/G	63.1	PCI/G	0.22	U		1464647.517	598878.589
09/14/2004	426-ET-027FD	Americium-241	0.220000	PCI/G	63.1	PCI/G	0.22	U		1464647.517	598878.589
09/14/2004	426-ET-031	Americium-241	0.220000	PCI/G	63.1	PCI/G	0.22	U		1464662.517	598852.609
09/14/2004	426-ES-032	Americium-241	0.200000	PCI/G	63.1	PCI/G	0.20	U		1464661.358	598842.583
09/15/2004	426-ES-039	Americium-241	0.200000	PCI/G	63.1	PCI/G	0.20	U		1464686.617	598788.404
09/15/2004	426-ET-045	Americium-241	0.200000	PCI/G	63.1	PCI/G	0.20	U		1464699.276	598761.329
09/14/2004	426-B-012	Americium-241	0.190000	PCI/G	63.1	PCI/G	0.19	U		1464596.954	598977.229
09/14/2004	426-ES-013	Americium-241	0.190000	PCI/G	63.1	PCI/G	0.19	U		1464600.693	598972.176
09/14/2004	426-B-015	Americium-241	0.190000	PCI/G	63.1	PCI/G	0.19	U		1464608.839	598950.052
09/14/2004	426-WS-023	Americium-241	0.190000	PCI/G	63.1	PCI/G	0.19	U		1464633.262	598895.435
09/15/2004	426-B-040	Americium-241	0.190000	PCI/G	63.1	PCI/G	0.19	U		1464688.372	598780.427

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/15/2004	426-WS-043	Americium-241	0.190000	PCI/G	63.1	PCI/G	0.19	U		1464693.868	598765.814
09/14/2004	426-ES-016	Americium-241	0.180000	PCI/G	63.1	PCI/G	0.18	U		1464613.352	598945.101
09/14/2004	426-WS-026	Americium-241	0.180000	PCI/G	63.1	PCI/G	0.18	U		1464639.592	598881.897
09/14/2004	426-B-030	Americium-241	0.180000	PCI/G	63.1	PCI/G	0.18	U		1464653.858	598855.574
09/15/2004	426-ES-034	Americium-241	0.180000	PCI/G	63.1	PCI/G	0.18	U		1464667.628	598829.017
09/15/2004	426-WS-038	Americium-241	0.180000	PCI/G	63.1	PCI/G	0.18	U		1464681.208	598792.889
09/15/2004	426-WS-041	Americium-241	0.180000	PCI/G	63.1	PCI/G	0.18	U		1464687.538	598779.325
09/14/2004	426-WS-021	Americium-241	0.170000	PCI/G	63.1	PCI/G	0.17	U		1464626.932	598908.972
09/14/2004	426-B-024	Americium-241	0.170000	PCI/G	63.1	PCI/G	0.17	U		1464636.947	598891.117
09/15/2004	426-ET-008	Americium-241	0.160000	PCI/G	63.1	PCI/G	0.16	U		1464587.517	599008.493
09/14/2004	426-WS-017	Americium-241	0.160000	PCI/G	63.1	PCI/G	0.16	U		1464614.273	598936.047
09/15/2004	426-ES-035	Americium-241	0.160000	PCI/G	63.1	PCI/G	0.16	U		1464673.957	598815.48
09/15/2004	426-WS-036	Americium-241	0.160000	PCI/G	63.1	PCI/G	0.16	U		1464674.879	598806.427
09/15/2004	426-ES-042	Americium-241	0.160000	PCI/G	63.1	PCI/G	0.16	U		1464692.946	598774.867
09/14/2004	426-WS-007	Americium-241	0.150000	PCI/G	63.1	PCI/G	0.15	U		1464578.986	599011.518
09/14/2004	426-B-011	Americium-241	0.150000	PCI/G	63.1	PCI/G	0.15	U		1464593.858	598985.477
09/14/2004	426-ES-020	Americium-241	0.150000	PCI/G	63.1	PCI/G	0.15	U		1464626.011	598918.025
09/14/2004	426-ET-022	Americium-241	0.150000	PCI/G	63.1	PCI/G	0.15	U		1464632.517	598904.57
09/14/2004	426-ES-001	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		1464565.406	599047.646
09/15/2004	426-ES-037	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		1464680.287	598801.942
09/15/2004	426-B-044	Americium-241	0.140000	PCI/G	63.1	PCI/G	0.14	U		1464694.522	598767.353
09/14/2004	426-WS-002	Americium-241	0.130000	PCI/G	63.1	PCI/G	0.13	U		1464566.326	599038.593
09/14/2004	426-B-009	Americium-241	0.130000	PCI/G	63.1	PCI/G	0.13	U		1464586.358	598998.468
09/14/2004	426-WS-019	Americium-241	0.130000	PCI/G	63.1	PCI/G	0.13	U		1464620.603	598922.51
09/14/2004	426-B-028	Americium-241	0.130000	PCI/G	63.1	PCI/G	0.13	U		1464646.358	598868.564
09/14/2004	426-WS-004	Americium-241	0.120000	PCI/G	63.1	PCI/G	0.12	U		1464572.656	599025.055
09/14/2004	426-B-005	Americium-241	0.110000	PCI/G	63.1	PCI/G	0.11	U		1464575.744	599022.135
09/15/2004	426-ET-006	Americium-241	0.095000	PCI/G	63.1	PCI/G	0.095	U		1464580.017	599021.484
09/14/2004	426-ET-025	Americium-241	0.094000	PCI/G	63.1	PCI/G	0.094	U		1464640.017	598891.58
09/14/2004	426-ET-003	Americium-241	0.092000	PCI/G	63.1	PCI/G	0.092	U		1464572.517	599034.474
09/15/2004	426-ET-010	Americium-241	0.092000	PCI/G	63.1	PCI/G	0.092	U		1464595.017	598995.503
09/14/2004	426-WS-023	Bismuth-212	0.910000	PCI/G	1.17	PCI/G	0.78			1464633.262	598895.435
09/14/2004	426-B-033	Bismuth-214	1.060000	PCI/G	1.17	PCI/G	0.25			1464663.241	598833.995
09/14/2004	426-ES-018	Bismuth-214	0.910000	PCI/G	1.17	PCI/G	0.18			1464619.682	598931.563
09/14/2004	426-ET-027FD	Bismuth-214	0.890000	PCI/G	1.17	PCI/G	0.19			1464647.517	598878.589
09/14/2004	426-ET-027	Bismuth-214	0.850000	PCI/G	1.17	PCI/G	0.22			1464647.517	598878.589
09/14/2004	426-WS-023	Bismuth-214	0.830000	PCI/G	1.17	PCI/G	0.13			1464633.262	598895.435
09/14/2004	426-ET-029	Bismuth-214	0.800000	PCI/G	1.17	PCI/G	0.16			1464655.017	598865.599
09/15/2004	426-ES-039	Bismuth-214	0.770000	PCI/G	1.17	PCI/G	0.24			1464686.617	598788.404
09/14/2004	426-B-012	Bismuth-214	0.700000	PCI/G	1.17	PCI/G	0.18			1464596.954	598977.229
09/15/2004	426-ET-008	Bismuth-214	0.700000	PCI/G	1.17	PCI/G	0.13			1464587.517	599008.493

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/14/2004	426-ES-013	Bismuth-214	0.700000	PCI/G	1.17	PCI/G	0.15			1464600.693	598972.176
09/14/2004	426-B-033FD	Bismuth-214	0.700000	PCI/G	1.17	PCI/G	0.19			1464663.241	598833.995
09/15/2004	426-WS-038	Bismuth-214	0.690000	PCI/G	1.17	PCI/G	0.21			1464681.208	598792.889
09/15/2004	426-ET-045	Bismuth-214	0.690000	PCI/G	1.17	PCI/G	0.25			1464699.276	598761.329
09/15/2004	426-ES-034	Bismuth-214	0.660000	PCI/G	1.17	PCI/G	0.20			1464667.628	598829.017
09/15/2004	426-B-040	Bismuth-214	0.660000	PCI/G	1.17	PCI/G	0.19			1464688.372	598780.427
09/15/2004	426-ES-037	Bismuth-214	0.640000	PCI/G	1.17	PCI/G	0.16			1464680.287	598801.942
09/14/2004	426-ES-014	Bismuth-214	0.630000	PCI/G	1.17	PCI/G	0.20			1464607.023	598958.638
09/14/2004	426-ET-031	Bismuth-214	0.630000	PCI/G	1.17	PCI/G	0.25			1464662.517	598852.609
09/15/2004	426-WS-036	Bismuth-214	0.610000	PCI/G	1.17	PCI/G	0.17			1464674.879	598806.427
09/14/2004	426-WS-007	Bismuth-214	0.600000	PCI/G	1.17	PCI/G	0.16			1464578.986	599011.518
09/14/2004	426-ES-020	Bismuth-214	0.600000	PCI/G	1.17	PCI/G	0.18			1464626.011	598918.025
09/14/2004	426-B-024	Bismuth-214	0.600000	PCI/G	1.17	PCI/G	0.17			1464636.947	598891.117
09/14/2004	426-ET-022	Bismuth-214	0.580000	PCI/G	1.17	PCI/G	0.18			1464632.517	598904.57
09/14/2004	426-B-015	Bismuth-214	0.570000	PCI/G	1.17	PCI/G	0.21			1464608.839	598950.052
09/14/2004	426-WS-021	Bismuth-214	0.570000	PCI/G	1.17	PCI/G	0.18			1464626.932	598908.972
09/14/2004	426-WS-026	Bismuth-214	0.570000	PCI/G	1.17	PCI/G	0.25			1464639.592	598881.897
09/14/2004	426-B-030	Bismuth-214	0.570000	PCI/G	1.17	PCI/G	0.19			1464653.858	598855.574
09/14/2004	426-ES-001	Bismuth-214	0.560000	PCI/G	1.17	PCI/G	0.13			1464565.406	599047.646
09/14/2004	426-B-028	Bismuth-214	0.560000	PCI/G	1.17	PCI/G	0.16			1464646.358	598868.564
09/14/2004	426-ES-032	Bismuth-214	0.560000	PCI/G	1.17	PCI/G	0.24			1464661.358	598842.583
09/14/2004	426-WS-004	Bismuth-214	0.520000	PCI/G	1.17	PCI/G	0.1			1464572.656	599025.055
09/14/2004	426-B-009	Bismuth-214	0.480000	PCI/G	1.17	PCI/G	0.15			1464586.358	598998.468
09/15/2004	426-ES-042	Bismuth-214	0.480000	PCI/G	1.17	PCI/G	0.19			1464692.946	598774.867
09/14/2004	426-ES-016	Bismuth-214	0.470000	PCI/G	1.17	PCI/G	0.23			1464613.352	598945.101
09/14/2004	426-WS-017	Bismuth-214	0.430000	PCI/G	1.17	PCI/G	0.16			1464614.273	598936.047
09/15/2004	426-WS-043	Bismuth-214	0.420000	PCI/G	1.17	PCI/G	0.21			1464693.868	598765.814
09/15/2004	426-B-044	Bismuth-214	0.420000	PCI/G	1.17	PCI/G	0.14			1464694.522	598767.353
09/14/2004	426-ET-025	Bismuth-214	0.410000	PCI/G	1.17	PCI/G	0.09			1464640.017	598891.58
09/15/2004	426-ES-035	Bismuth-214	0.400000	PCI/G	1.17	PCI/G	0.14			1464673.957	598815.48
09/15/2004	426-WS-041	Bismuth-214	0.390000	PCI/G	1.17	PCI/G	0.26			1464687.538	598779.325
09/14/2004	426-B-005	Bismuth-214	0.380000	PCI/G	1.17	PCI/G	0.13			1464575.744	599022.135
09/14/2004	426-B-011	Bismuth-214	0.380000	PCI/G	1.17	PCI/G	0.17			1464593.858	598985.477
09/15/2004	426-ET-006	Bismuth-214	0.370000	PCI/G	1.17	PCI/G	0.10			1464580.017	599021.484
09/15/2004	426-ET-010	Bismuth-214	0.370000	PCI/G	1.17	PCI/G	0.12			1464595.017	598995.503
09/14/2004	426-WS-019	Bismuth-214	0.350000	PCI/G	1.17	PCI/G	0.16			1464620.603	598922.51
09/14/2004	426-ET-003	Bismuth-214	0.280000	PCI/G	1.17	PCI/G	0.07			1464572.517	599034.474
09/14/2004	426-B-033	Cesium-137	0.210000	PCI/G	3.84	PCI/G	0.21	U		1464663.241	598833.995
09/14/2004	426-ET-027	Cesium-137	0.200000	PCI/G	3.84	PCI/G	0.20	U		1464647.517	598878.589
09/14/2004	426-ET-031	Cesium-137	0.190000	PCI/G	3.84	PCI/G	0.19	U		1464662.517	598852.609
09/14/2004	426-ET-029	Cesium-137	0.180000	PCI/G	3.84	PCI/G	0.11	J		1464655.017	598865.599

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/14/2004	426-B-015	Cesium-137	0.170000	PCI/G	3.84	PCI/G	0.17	U		1464608.839	598950.052
09/14/2004	426-ET-027FD	Cesium-137	0.160000	PCI/G	3.84	PCI/G	0.16	U		1464647.517	598878.589
09/14/2004	426-ES-032	Cesium-137	0.160000	PCI/G	3.84	PCI/G	0.16	U		1464661.358	598842.583
09/14/2004	426-B-033FD	Cesium-137	0.160000	PCI/G	3.84	PCI/G	0.16	U		1464663.241	598833.995
09/14/2004	426-ES-014	Cesium-137	0.150000	PCI/G	3.84	PCI/G	0.15	U		1464607.023	598958.638
09/14/2004	426-ES-016	Cesium-137	0.140000	PCI/G	3.84	PCI/G	0.14	U		1464613.352	598945.101
09/14/2004	426-WS-026	Cesium-137	0.140000	PCI/G	3.84	PCI/G	0.14	U		1464639.592	598881.897
09/14/2004	426-B-030	Cesium-137	0.140000	PCI/G	3.84	PCI/G	0.14	U		1464653.858	598855.574
09/14/2004	426-ET-022	Cesium-137	0.130000	PCI/G	3.84	PCI/G	0.13	U		1464632.517	598904.57
09/14/2004	426-B-024	Cesium-137	0.130000	PCI/G	3.84	PCI/G	0.13	U		1464636.947	598891.117
09/15/2004	426-ES-034	Cesium-137	0.130000	PCI/G	3.84	PCI/G	0.13	U		1464667.628	598829.017
09/15/2004	426-WS-036	Cesium-137	0.130000	PCI/G	3.84	PCI/G	0.13	U		1464674.879	598806.427
09/15/2004	426-WS-038	Cesium-137	0.130000	PCI/G	3.84	PCI/G	0.13	U		1464681.208	598792.889
09/15/2004	426-ES-039	Cesium-137	0.130000	PCI/G	3.84	PCI/G	0.13	U		1464686.617	598788.404
09/15/2004	426-WS-041	Cesium-137	0.130000	PCI/G	3.84	PCI/G	0.13	U		1464687.538	598779.325
09/15/2004	426-WS-043	Cesium-137	0.130000	PCI/G	3.84	PCI/G	0.13	U		1464693.868	598765.814
09/15/2004	426-ET-045	Cesium-137	0.130000	PCI/G	3.84	PCI/G	0.13	U		1464699.276	598761.329
09/14/2004	426-B-012	Cesium-137	0.120000	PCI/G	3.84	PCI/G	0.12	U		1464596.954	598977.229
09/14/2004	426-ES-013	Cesium-137	0.120000	PCI/G	3.84	PCI/G	0.12	U		1464600.693	598972.176
09/14/2004	426-WS-017	Cesium-137	0.120000	PCI/G	3.84	PCI/G	0.12	U		1464614.273	598936.047
09/14/2004	426-ES-018	Cesium-137	0.120000	PCI/G	3.84	PCI/G	0.12	U		1464619.682	598931.563
09/15/2004	426-B-040	Cesium-137	0.120000	PCI/G	3.84	PCI/G	0.12	U		1464688.372	598780.427
09/15/2004	426-ES-042	Cesium-137	0.120000	PCI/G	3.84	PCI/G	0.12	U		1464692.946	598774.867
09/15/2004	426-ET-008	Cesium-137	0.110000	PCI/G	3.84	PCI/G	0.11	U		1464587.517	599008.493
09/15/2004	426-ES-035	Cesium-137	0.110000	PCI/G	3.84	PCI/G	0.11	U		1464673.957	598815.48
09/14/2004	426-WS-007	Cesium-137	0.100000	PCI/G	3.84	PCI/G	0.10	U		1464578.986	599011.518
09/14/2004	426-WS-021	Cesium-137	0.100000	PCI/G	3.84	PCI/G	0.10	U		1464626.932	598908.972
09/14/2004	426-WS-004	Cesium-137	0.099000	PCI/G	3.84	PCI/G	0.099	U		1464572.656	599025.055
09/14/2004	426-B-011	Cesium-137	0.098000	PCI/G	3.84	PCI/G	0.098	U		1464593.858	598985.477
09/14/2004	426-WS-023	Cesium-137	0.097000	PCI/G	3.84	PCI/G	0.097	U		1464633.262	598895.435
09/14/2004	426-WS-002	Cesium-137	0.096000	PCI/G	3.84	PCI/G	0.096	U		1464566.326	599038.593
09/15/2004	426-B-044	Cesium-137	0.092000	PCI/G	3.84	PCI/G	0.092	U		1464694.522	598767.353
09/14/2004	426-B-009	Cesium-137	0.091000	PCI/G	3.84	PCI/G	0.091	U		1464586.358	598998.468
09/14/2004	426-B-028	Cesium-137	0.091000	PCI/G	3.84	PCI/G	0.091	U		1464646.358	598868.564
09/14/2004	426-WS-019	Cesium-137	0.090000	PCI/G	3.84	PCI/G	0.090	U		1464620.603	598922.51
09/14/2004	426-ET-025	Cesium-137	0.086000	PCI/G	3.84	PCI/G	0.086	U		1464640.017	598891.58
09/14/2004	426-ES-020	Cesium-137	0.085000	PCI/G	3.84	PCI/G	0.085	U		1464626.011	598918.025
09/15/2004	426-ES-037	Cesium-137	0.084000	PCI/G	3.84	PCI/G	0.084	U		1464680.287	598801.942
09/14/2004	426-ES-001	Cesium-137	0.082000	PCI/G	3.84	PCI/G	0.082	U		1464565.406	599047.646
09/15/2004	426-ET-006	Cesium-137	0.071000	PCI/G	3.84	PCI/G	0.071	U		1464580.017	599021.484
09/14/2004	426-B-005	Cesium-137	0.068000	PCI/G	3.84	PCI/G	0.068	U		1464575.744	599022.135

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objecti ve	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/15/2004	426-ET-010	Cesium-137	0.061000	PCI/G	3.84	PCI/G	0.061	U		1464595.017	598995.503
09/14/2004	426-ET-003	Cesium-137	0.059000	PCI/G	3.84	PCI/G	0.059	U		1464572.517	599034.474
09/15/2004	426-ET-045	Cobalt-60	0.180000	PCI/G	0.76	PCI/G	0.18	U		1464699.276	598761.329
09/14/2004	426-B-015	Cobalt-60	0.170000	PCI/G	0.76	PCI/G	0.17	U		1464608.839	598950.052
09/14/2004	426-B-030	Cobalt-60	0.170000	PCI/G	0.76	PCI/G	0.17	U		1464653.858	598855.574
09/14/2004	426-ET-027	Cobalt-60	0.160000	PCI/G	0.76	PCI/G	0.16	U		1464647.517	598878.589
09/14/2004	426-ET-031	Cobalt-60	0.160000	PCI/G	0.76	PCI/G	0.16	U		1464662.517	598852.609
09/14/2004	426-ES-016	Cobalt-60	0.150000	PCI/G	0.76	PCI/G	0.15	U		1464613.352	598945.101
09/14/2004	426-WS-026	Cobalt-60	0.150000	PCI/G	0.76	PCI/G	0.15	U		1464639.592	598881.897
09/14/2004	426-B-033	Cobalt-60	0.150000	PCI/G	0.76	PCI/G	0.15	U		1464663.241	598833.995
09/15/2004	426-ES-034	Cobalt-60	0.150000	PCI/G	0.76	PCI/G	0.15	U		1464667.628	598829.017
09/15/2004	426-ES-039	Cobalt-60	0.150000	PCI/G	0.76	PCI/G	0.15	U		1464686.617	598788.404
09/15/2004	426-B-040	Cobalt-60	0.150000	PCI/G	0.76	PCI/G	0.15	U		1464688.372	598780.427
09/15/2004	426-WS-041	Cobalt-60	0.150000	PCI/G	0.76	PCI/G	0.15	U		1464687.538	598779.325
09/15/2004	426-WS-043	Cobalt-60	0.150000	PCI/G	0.76	PCI/G	0.15	U		1464693.868	598765.814
09/14/2004	426-WS-021	Cobalt-60	0.140000	PCI/G	0.76	PCI/G	0.14	U		1464626.932	598908.972
09/14/2004	426-B-033FD	Cobalt-60	0.140000	PCI/G	0.76	PCI/G	0.14	U		1464663.241	598833.995
09/14/2004	426-WS-007	Cobalt-60	0.130000	PCI/G	0.76	PCI/G	0.13	U		1464578.986	599011.518
09/14/2004	426-B-012	Cobalt-60	0.130000	PCI/G	0.76	PCI/G	0.13	U		1464596.954	598977.229
09/14/2004	426-ES-013	Cobalt-60	0.130000	PCI/G	0.76	PCI/G	0.13	U		1464600.693	598972.176
09/14/2004	426-ES-018	Cobalt-60	0.130000	PCI/G	0.76	PCI/G	0.13	U		1464619.682	598931.563
09/14/2004	426-ET-027FD	Cobalt-60	0.130000	PCI/G	0.76	PCI/G	0.13	U		1464647.517	598878.589
09/14/2004	426-ES-014	Cobalt-60	0.120000	PCI/G	0.76	PCI/G	0.12	U		1464607.023	598958.638
09/14/2004	426-WS-017	Cobalt-60	0.120000	PCI/G	0.76	PCI/G	0.12	U		1464614.273	598936.047
09/14/2004	426-WS-019	Cobalt-60	0.120000	PCI/G	0.76	PCI/G	0.12	U		1464620.603	598922.51
09/14/2004	426-ET-022	Cobalt-60	0.120000	PCI/G	0.76	PCI/G	0.12	U		1464632.517	598904.57
09/14/2004	426-B-024	Cobalt-60	0.120000	PCI/G	0.76	PCI/G	0.12	U		1464636.947	598891.117
09/14/2004	426-B-028	Cobalt-60	0.120000	PCI/G	0.76	PCI/G	0.12	U		1464646.358	598868.564
09/14/2004	426-ET-029	Cobalt-60	0.120000	PCI/G	0.76	PCI/G	0.12	U		1464655.017	598865.599
09/15/2004	426-ES-035	Cobalt-60	0.120000	PCI/G	0.76	PCI/G	0.12	U		1464673.957	598815.48
09/14/2004	426-B-011	Cobalt-60	0.110000	PCI/G	0.76	PCI/G	0.11	U		1464593.858	598985.477
09/14/2004	426-ES-020	Cobalt-60	0.110000	PCI/G	0.76	PCI/G	0.11	U		1464626.011	598918.025
09/14/2004	426-WS-023	Cobalt-60	0.110000	PCI/G	0.76	PCI/G	0.11	U		1464633.262	598895.435
09/15/2004	426-ES-037	Cobalt-60	0.110000	PCI/G	0.76	PCI/G	0.11	U		1464680.287	598801.942
09/15/2004	426-WS-038	Cobalt-60	0.110000	PCI/G	0.76	PCI/G	0.11	U		1464681.208	598792.889
09/15/2004	426-B-044	Cobalt-60	0.110000	PCI/G	0.76	PCI/G	0.11	U		1464694.522	598767.353
09/14/2004	426-B-005	Cobalt-60	0.100000	PCI/G	0.76	PCI/G	0.10	U		1464575.744	599022.135
09/14/2004	426-B-009	Cobalt-60	0.100000	PCI/G	0.76	PCI/G	0.10	U		1464586.358	598998.468
09/15/2004	426-WS-036	Cobalt-60	0.100000	PCI/G	0.76	PCI/G	0.10	U		1464674.879	598806.427
09/15/2004	426-ET-008	Cobalt-60	0.097000	PCI/G	0.76	PCI/G	0.097	U		1464587.517	599008.493
09/14/2004	426-WS-002	Cobalt-60	0.095000	PCI/G	0.76	PCI/G	0.095	U		1464566.326	599038.593

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/14/2004	426-ES-032	Cobalt-60	0.089000	PCI/G	0.76	PCI/G	0.089	U		1464661.358	598842.583
09/15/2004	426-ES-042	Cobalt-60	0.089000	PCI/G	0.76	PCI/G	0.089	U		1464692.946	598774.867
09/15/2004	426-ET-006	Cobalt-60	0.088000	PCI/G	0.76	PCI/G	0.088	U		1464580.017	599021.484
09/14/2004	426-ES-001	Cobalt-60	0.077000	PCI/G	0.76	PCI/G	0.077	U		1464565.406	599047.646
09/14/2004	426-ET-003	Cobalt-60	0.071000	PCI/G	0.76	PCI/G	0.071	U		1464572.517	599034.474
09/14/2004	426-ET-025	Cobalt-60	0.070000	PCI/G	0.76	PCI/G	0.070	U		1464640.017	598891.58
09/15/2004	426-ET-010	Cobalt-60	0.064000	PCI/G	0.76	PCI/G	0.064	U		1464595.017	598995.503
09/14/2004	426-WS-004	Cobalt-60	0.063000	PCI/G	0.76	PCI/G	0.063	U		1464572.656	599025.055
09/14/2004	426-ET-027	Lead-212	1.080000	PCI/G	16.6	PCI/G	0.24			1464647.517	598878.589
09/14/2004	426-ET-027FD	Lead-212	1.030000	PCI/G	16.6	PCI/G	0.14			1464647.517	598878.589
09/14/2004	426-ES-013	Lead-212	1.020000	PCI/G	16.6	PCI/G	0.11			1464600.693	598972.176
09/14/2004	426-WS-023	Lead-212	0.920000	PCI/G	16.6	PCI/G	0.12			1464633.262	598895.435
09/14/2004	426-ES-018	Lead-212	0.910000	PCI/G	16.6	PCI/G	0.19			1464619.682	598931.563
09/14/2004	426-B-030	Lead-212	0.880000	PCI/G	16.6	PCI/G	0.16			1464653.858	598855.574
09/14/2004	426-B-033FD	Lead-212	0.860000	PCI/G	16.6	PCI/G	0.20			1464663.241	598833.995
09/14/2004	426-B-012	Lead-212	0.840000	PCI/G	16.6	PCI/G	0.17			1464596.954	598977.229
09/14/2004	426-ES-014	Lead-212	0.820000	PCI/G	16.6	PCI/G	0.14			1464607.023	598958.638
09/14/2004	426-B-033	Lead-212	0.810000	PCI/G	16.6	PCI/G	0.25			1464663.241	598833.995
09/14/2004	426-ES-016	Lead-212	0.800000	PCI/G	16.6	PCI/G	0.18			1464613.352	598945.101
09/14/2004	426-ES-032	Lead-212	0.780000	PCI/G	16.6	PCI/G	0.21			1464661.358	598842.583
09/15/2004	426-ES-039	Lead-212	0.780000	PCI/G	16.6	PCI/G	0.21			1464686.617	598788.404
09/14/2004	426-ET-031	Lead-212	0.770000	PCI/G	16.6	PCI/G	0.18			1464662.517	598852.609
09/15/2004	426-B-040	Lead-212	0.740000	PCI/G	16.6	PCI/G	0.17			1464688.372	598780.427
09/15/2004	426-ET-045	Lead-212	0.740000	PCI/G	16.6	PCI/G	0.20			1464699.276	598761.329
09/14/2004	426-ET-029	Lead-212	0.710000	PCI/G	16.6	PCI/G	0.18			1464655.017	598865.599
09/14/2004	426-WS-017	Lead-212	0.690000	PCI/G	16.6	PCI/G	0.17			1464614.273	598936.047
09/14/2004	426-B-015	Lead-212	0.680000	PCI/G	16.6	PCI/G	0.19			1464608.839	598950.052
09/14/2004	426-WS-021	Lead-212	0.680000	PCI/G	16.6	PCI/G	0.15			1464626.932	598908.972
09/15/2004	426-ES-042	Lead-212	0.680000	PCI/G	16.6	PCI/G	0.16			1464692.946	598774.867
09/14/2004	426-WS-007	Lead-212	0.650000	PCI/G	16.6	PCI/G	0.15			1464578.986	599011.518
09/15/2004	426-WS-043	Lead-212	0.630000	PCI/G	16.6	PCI/G	0.18			1464693.868	598765.814
09/15/2004	426-WS-038	Lead-212	0.610000	PCI/G	16.6	PCI/G	0.18			1464681.208	598792.889
09/14/2004	426-ES-001	Lead-212	0.600000	PCI/G	16.6	PCI/G	0.11			1464565.406	599047.646
09/14/2004	426-B-024	Lead-212	0.600000	PCI/G	16.6	PCI/G	0.11			1464636.947	598891.117
09/14/2004	426-WS-026	Lead-212	0.600000	PCI/G	16.6	PCI/G	0.18			1464639.592	598881.897
09/15/2004	426-WS-036	Lead-212	0.590000	PCI/G	16.6	PCI/G	0.16			1464674.879	598806.427
09/14/2004	426-WS-002	Lead-212	0.580000	PCI/G	16.6	PCI/G	0.13			1464566.326	599038.593
09/14/2004	426-B-011	Lead-212	0.580000	PCI/G	16.6	PCI/G	0.09			1464593.858	598985.477
09/14/2004	426-B-028	Lead-212	0.580000	PCI/G	16.6	PCI/G	0.12			1464646.358	598868.564
09/15/2004	426-ES-034	Lead-212	0.510000	PCI/G	16.6	PCI/G	0.16			1464667.628	598829.017
09/15/2004	426-ES-037	Lead-212	0.510000	PCI/G	16.6	PCI/G	0.17			1464680.287	598801.942

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/14/2004	426-WS-004	Lead-212	0.500000	PCI/G	16.6	PCI/G	0.15			1464572.656	599025.055
09/14/2004	426-B-009	Lead-212	0.490000	PCI/G	16.6	PCI/G	0.08			1464586.358	598998.468
09/14/2004	426-WS-019	Lead-212	0.490000	PCI/G	16.6	PCI/G	0.18			1464620.603	598922.51
09/15/2004	426-WS-041	Lead-212	0.470000	PCI/G	16.6	PCI/G	0.20			1464687.538	598779.325
09/14/2004	426-ES-020	Lead-212	0.450000	PCI/G	16.6	PCI/G	0.15			1464626.011	598918.025
09/14/2004	426-ET-022	Lead-212	0.450000	PCI/G	16.6	PCI/G	0.14			1464632.517	598904.57
09/15/2004	426-B-044	Lead-212	0.450000	PCI/G	16.6	PCI/G	0.12			1464694.522	598767.353
09/15/2004	426-ES-035	Lead-212	0.420000	PCI/G	16.6	PCI/G	0.11			1464673.957	598815.48
09/14/2004	426-B-005	Lead-212	0.380000	PCI/G	16.6	PCI/G	0.13			1464575.744	599022.135
09/15/2004	426-ET-008	Lead-212	0.230000	PCI/G	16.6	PCI/G	0.13			1464587.517	599008.493
09/14/2004	426-ET-003	Lead-212	0.189000	PCI/G	16.6	PCI/G	0.074			1464572.517	599034.474
09/15/2004	426-ET-006	Lead-212	0.180000	PCI/G	16.6	PCI/G	0.081			1464580.017	599021.484
09/14/2004	426-ET-025	Lead-212	0.178000	PCI/G	16.6	PCI/G	0.083			1464640.017	598891.58
09/15/2004	426-ET-010	Lead-212	0.160000	PCI/G	16.6	PCI/G	0.094			1464595.017	598995.503
09/14/2004	426-ET-027	Lead-214	0.990000	PCI/G	8.92	PCI/G	0.15			1464647.517	598878.589
09/14/2004	426-ES-018	Lead-214	0.980000	PCI/G	8.92	PCI/G	0.23			1464619.682	598931.563
09/14/2004	426-ET-027FD	Lead-214	0.950000	PCI/G	8.92	PCI/G	0.21			1464647.517	598878.589
09/14/2004	426-ET-029	Lead-214	0.940000	PCI/G	8.92	PCI/G	0.20			1464655.017	598865.599
09/14/2004	426-ET-031	Lead-214	0.860000	PCI/G	8.92	PCI/G	0.17			1464662.517	598852.609
09/14/2004	426-B-033	Lead-214	0.860000	PCI/G	8.92	PCI/G	0.27			1464663.241	598833.995
09/14/2004	426-B-015	Lead-214	0.820000	PCI/G	8.92	PCI/G	0.20			1464608.839	598950.052
09/14/2004	426-WS-023	Lead-214	0.780000	PCI/G	8.92	PCI/G	0.18			1464633.262	598895.435
09/14/2004	426-B-033FD	Lead-214	0.760000	PCI/G	8.92	PCI/G	0.19			1464663.241	598833.995
09/14/2004	426-ES-032	Lead-214	0.750000	PCI/G	8.92	PCI/G	0.21			1464661.358	598842.583
09/15/2004	426-WS-038	Lead-214	0.740000	PCI/G	8.92	PCI/G	0.12			1464681.208	598792.889
09/15/2004	426-ES-034	Lead-214	0.710000	PCI/G	8.92	PCI/G	0.15			1464667.628	598829.017
09/14/2004	426-ES-016	Lead-214	0.690000	PCI/G	8.92	PCI/G	0.17			1464613.352	598945.101
09/14/2004	426-ES-014	Lead-214	0.680000	PCI/G	8.92	PCI/G	0.19			1464607.023	598958.638
09/14/2004	426-WS-017	Lead-214	0.680000	PCI/G	8.92	PCI/G	0.18			1464614.273	598936.047
09/15/2004	426-B-040	Lead-214	0.670000	PCI/G	8.92	PCI/G	0.16			1464688.372	598780.427
09/14/2004	426-B-012	Lead-214	0.660000	PCI/G	8.92	PCI/G	0.15			1464596.954	598977.229
09/14/2004	426-WS-007	Lead-214	0.640000	PCI/G	8.92	PCI/G	0.17			1464578.986	599011.518
09/14/2004	426-B-030	Lead-214	0.620000	PCI/G	8.92	PCI/G	0.18			1464653.858	598855.574
09/15/2004	426-WS-043	Lead-214	0.620000	PCI/G	8.92	PCI/G	0.16			1464693.868	598765.814
09/14/2004	426-ET-022	Lead-214	0.610000	PCI/G	8.92	PCI/G	0.15			1464632.517	598904.57
09/14/2004	426-ES-013	Lead-214	0.600000	PCI/G	8.92	PCI/G	0.20			1464600.693	598972.176
09/14/2004	426-WS-026	Lead-214	0.600000	PCI/G	8.92	PCI/G	0.19			1464639.592	598881.897
09/15/2004	426-B-044	Lead-214	0.600000	PCI/G	8.92	PCI/G	0.12			1464694.522	598767.353
09/14/2004	426-B-024	Lead-214	0.570000	PCI/G	8.92	PCI/G	0.14			1464636.947	598891.117
09/15/2004	426-WS-036	Lead-214	0.570000	PCI/G	8.92	PCI/G	0.14			1464674.879	598806.427
09/15/2004	426-ET-045	Lead-214	0.540000	PCI/G	8.92	PCI/G	0.19			1464699.276	598761.329

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/15/2004	426-ES-037	Lead-214	0.530000	PCI/G	8.92	PCI/G	0.14			1464680.287	598801.942
09/15/2004	426-ES-039	Lead-214	0.520000	PCI/G	8.92	PCI/G	0.21			1464686.617	598788.404
09/14/2004	426-ES-020	Lead-214	0.500000	PCI/G	8.92	PCI/G	0.15			1464626.011	598918.025
09/14/2004	426-WS-021	Lead-214	0.490000	PCI/G	8.92	PCI/G	0.15			1464626.932	598908.972
09/15/2004	426-ES-042	Lead-214	0.490000	PCI/G	8.92	PCI/G	0.16			1464692.946	598774.867
09/14/2004	426-ES-001	Lead-214	0.460000	PCI/G	8.92	PCI/G	0.14			1464565.406	599047.646
09/14/2004	426-WS-004	Lead-214	0.440000	PCI/G	8.92	PCI/G	0.13			1464572.656	599025.055
09/14/2004	426-B-005	Lead-214	0.440000	PCI/G	8.92	PCI/G	0.12			1464575.744	599022.135
09/15/2004	426-ES-035	Lead-214	0.440000	PCI/G	8.92	PCI/G	0.15			1464673.957	598815.48
09/14/2004	426-B-009	Lead-214	0.420000	PCI/G	8.92	PCI/G	0.11			1464586.358	598998.468
09/14/2004	426-ET-003	Lead-214	0.410000	PCI/G	8.92	PCI/G	0.07			1464572.517	599034.474
09/15/2004	426-ET-006	Lead-214	0.410000	PCI/G	8.92	PCI/G	0.09			1464580.017	599021.484
09/14/2004	426-B-011	Lead-214	0.400000	PCI/G	8.92	PCI/G	0.14			1464593.858	598985.477
09/14/2004	426-WS-019	Lead-214	0.400000	PCI/G	8.92	PCI/G	0.15			1464620.603	598922.51
09/15/2004	426-ET-008	Lead-214	0.370000	PCI/G	8.92	PCI/G	0.14			1464587.517	599008.493
09/14/2004	426-B-028	Lead-214	0.340000	PCI/G	8.92	PCI/G	0.14			1464646.358	598868.564
09/14/2004	426-WS-002	Lead-214	0.330000	PCI/G	8.92	PCI/G	0.14			1464566.326	599038.593
09/14/2004	426-ET-025	Lead-214	0.330000	PCI/G	8.92	PCI/G	0.1			1464640.017	598891.58
09/15/2004	426-ET-010	Lead-214	0.320000	PCI/G	8.92	PCI/G	0.10			1464595.017	598995.503
09/14/2004	426-B-028	Plutonium-238	0.940000	PCI/G	55	PCI/G	0.14	J		1464646.358	598868.564
09/15/2004	426-B-044	Plutonium-238	0.690000	PCI/G	55	PCI/G	0.11	J		1464694.522	598767.353
09/15/2004	426-WS-043	Plutonium-238	0.570000	PCI/G	55	PCI/G	0.09	J		1464693.868	598765.814
09/14/2004	426-ET-029	Plutonium-238	0.460000	PCI/G	55	PCI/G	0.12	J		1464655.017	598865.599
09/15/2004	426-ET-045	Plutonium-238	0.430000	PCI/G	55	PCI/G	0.07	J		1464699.276	598761.329
09/14/2004	426-ET-031	Plutonium-238	0.390000	PCI/G	55	PCI/G	0.16	J		1464662.517	598852.609
09/14/2004	426-B-033	Plutonium-238	0.380000	PCI/G	55	PCI/G	0.06	J		1464663.241	598833.995
09/14/2004	426-WS-004	Plutonium-238	0.350000	PCI/G	55	PCI/G	0.18	J		1464572.656	599025.055
09/15/2004	426-WS-038	Plutonium-238	0.350000	PCI/G	55	PCI/G	0.18	J		1464681.208	598792.889
09/14/2004	426-ET-027FD	Plutonium-238	0.280000	PCI/G	55	PCI/G	0.15	J		1464647.517	598878.589
09/14/2004	426-ET-027	Plutonium-238	0.270000	PCI/G	55	PCI/G	0.19	J		1464647.517	598878.589
09/14/2004	426-B-033FD	Plutonium-238	0.260000	PCI/G	55	PCI/G	0.07	J		1464663.241	598833.995
09/14/2004	426-WS-023	Plutonium-238	0.230000	PCI/G	55	PCI/G	0.23	U		1464633.262	598895.435
09/14/2004	426-ES-016	Plutonium-238	0.220000	PCI/G	55	PCI/G	0.14	J		1464613.352	598945.101
09/15/2004	426-ET-008	Plutonium-238	0.210000	PCI/G	55	PCI/G	0.21	U		1464587.517	599008.493
09/14/2004	426-ES-020	Plutonium-238	0.200000	PCI/G	55	PCI/G	0.2	U		1464626.011	598918.025
09/14/2004	426-WS-021	Plutonium-238	0.200000	PCI/G	55	PCI/G	0.2	U		1464626.932	598908.972
09/14/2004	426-B-030	Plutonium-238	0.200000	PCI/G	55	PCI/G	0.15	J		1464653.858	598855.574
09/15/2004	426-WS-036	Plutonium-238	0.194000	PCI/G	55	PCI/G	0.081	J		1464674.879	598806.427
09/14/2004	426-ES-001	Plutonium-238	0.190000	PCI/G	55	PCI/G	0.19	U		1464565.406	599047.646
09/14/2004	426-B-005	Plutonium-238	0.190000	PCI/G	55	PCI/G	0.19	U		1464575.744	599022.135
09/14/2004	426-B-011	Plutonium-238	0.190000	PCI/G	55	PCI/G	0.19	U		1464593.858	598985.477

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/15/2004	426-ES-034	Plutonium-238	0.188000	PCI/G	55	PCI/G	0.064	J		1464667.628	598829.017
09/14/2004	426-ES-032	Plutonium-238	0.184000	PCI/G	55	PCI/G	0.068	J		1464661.358	598842.583
09/14/2004	426-ES-014	Plutonium-238	0.180000	PCI/G	55	PCI/G	0.18	U		1464607.023	598958.638
09/14/2004	426-ES-018	Plutonium-238	0.180000	PCI/G	55	PCI/G	0.18	U		1464619.682	598931.563
09/14/2004	426-B-024	Plutonium-238	0.180000	PCI/G	55	PCI/G	0.18	U		1464636.947	598891.117
09/14/2004	426-ET-025	Plutonium-238	0.180000	PCI/G	55	PCI/G	0.17	J		1464640.017	598891.58
09/14/2004	426-WS-007	Plutonium-238	0.170000	PCI/G	55	PCI/G	0.17	U		1464578.986	599011.518
09/15/2004	426-B-040	Plutonium-238	0.164000	PCI/G	55	PCI/G	0.073	J		1464688.372	598780.427
09/15/2004	426-ET-006	Plutonium-238	0.160000	PCI/G	55	PCI/G	0.16	U		1464580.017	599021.484
09/14/2004	426-B-015	Plutonium-238	0.160000	PCI/G	55	PCI/G	0.16	U		1464608.839	598950.052
09/14/2004	426-WS-026	Plutonium-238	0.160000	PCI/G	55	PCI/G	0.16	U		1464639.592	598881.897
09/14/2004	426-ET-003	Plutonium-238	0.150000	PCI/G	55	PCI/G	0.15	U		1464572.517	599034.474
09/14/2004	426-B-009	Plutonium-238	0.150000	PCI/G	55	PCI/G	0.15	U		1464586.358	598998.468
09/14/2004	426-B-012	Plutonium-238	0.150000	PCI/G	55	PCI/G	0.15	U		1464596.954	598977.229
09/15/2004	426-ET-010	Plutonium-238	0.150000	PCI/G	55	PCI/G	0.15	U		1464595.017	598995.503
09/14/2004	426-ET-022	Plutonium-238	0.150000	PCI/G	55	PCI/G	0.15	U		1464632.517	598904.57
09/14/2004	426-ES-013	Plutonium-238	0.140000	PCI/G	55	PCI/G	0.14	U		1464600.693	598972.176
09/14/2004	426-WS-017	Plutonium-238	0.130000	PCI/G	55	PCI/G	0.13	U		1464614.273	598936.047
09/14/2004	426-WS-019	Plutonium-238	0.130000	PCI/G	55	PCI/G	0.13	U		1464620.603	598922.51
09/14/2004	426-WS-002	Plutonium-238	0.100000	PCI/G	55	PCI/G	0.10	U		1464566.326	599038.593
09/15/2004	426-ES-039	Plutonium-238	0.079000	PCI/G	55	PCI/G	0.079	U		1464686.617	598788.404
09/15/2004	426-WS-041	Plutonium-238	0.073000	PCI/G	55	PCI/G	0.073	U		1464687.538	598779.325
09/15/2004	426-ES-035	Plutonium-238	0.061000	PCI/G	55	PCI/G	0.061	U		1464673.957	598815.48
09/15/2004	426-ES-037	Plutonium-238	0.056000	PCI/G	55	PCI/G	0.056	U		1464680.287	598801.942
09/15/2004	426-ES-042	Plutonium-238	0.054000	PCI/G	55	PCI/G	0.050	J		1464692.946	598774.867
09/14/2004	426-ET-025	Plutonium-239/240	0.410000	PCI/G	62	PCI/G	0.12	J		1464640.017	598891.58
09/15/2004	426-ET-008	Plutonium-239/240	0.130000	PCI/G	62	PCI/G	0.13	U		1464587.517	599008.493
09/15/2004	426-WS-038	Plutonium-239/240	0.120000	PCI/G	62	PCI/G	0.12	U		1464681.208	598792.889
09/14/2004	426-ES-001	Plutonium-239/240	0.110000	PCI/G	62	PCI/G	0.11	U		1464565.406	599047.646
09/14/2004	426-WS-007	Plutonium-239/240	0.110000	PCI/G	62	PCI/G	0.11	U		1464578.986	599011.518
09/14/2004	426-WS-023	Plutonium-239/240	0.110000	PCI/G	62	PCI/G	0.11	U		1464633.262	598895.435
09/14/2004	426-B-005	Plutonium-239/240	0.100000	PCI/G	62	PCI/G	0.1	U		1464575.744	599022.135
09/14/2004	426-B-012	Plutonium-239/240	0.100000	PCI/G	62	PCI/G	0.1	U		1464596.954	598977.229
09/15/2004	426-ET-010	Plutonium-239/240	0.100000	PCI/G	62	PCI/G	0.1	U		1464595.017	598995.503
09/14/2004	426-B-015	Plutonium-239/240	0.100000	PCI/G	62	PCI/G	0.1	U		1464608.839	598950.052
09/14/2004	426-B-024	Plutonium-239/240	0.100000	PCI/G	62	PCI/G	0.1	U		1464636.947	598891.117
09/14/2004	426-ET-027FD	Plutonium-239/240	0.100000	PCI/G	62	PCI/G	0.1	U		1464647.517	598878.589
09/15/2004	426-B-044	Plutonium-239/240	0.100000	PCI/G	62	PCI/G	0.1	U		1464694.522	598767.353
09/14/2004	426-B-011	Plutonium-239/240	0.095000	PCI/G	62	PCI/G	0.095	U		1464593.858	598985.477
09/14/2004	426-ET-027	Plutonium-239/240	0.095000	PCI/G	62	PCI/G	0.095	U		1464647.517	598878.589
09/14/2004	426-ES-018	Plutonium-239/240	0.094000	PCI/G	62	PCI/G	0.094	U		1464619.682	598931.563

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/14/2004	426-ES-014	Plutonium-239/240	0.091000	PCI/G	62	PCI/G	0.091	U		1464607.023	598958.638
09/14/2004	426-WS-021	Plutonium-239/240	0.090000	PCI/G	62	PCI/G	0.09	U		1464626.932	598908.972
09/14/2004	426-WS-004	Plutonium-239/240	0.086000	PCI/G	62	PCI/G	0.086	U		1464572.656	599025.055
09/14/2004	426-ES-020	Plutonium-239/240	0.078000	PCI/G	62	PCI/G	0.078	U		1464626.011	598918.025
09/14/2004	426-B-033FD	Plutonium-239/240	0.075000	PCI/G	62	PCI/G	0.075	U		1464663.241	598833.995
09/14/2004	426-ET-031	Plutonium-239/240	0.074000	PCI/G	62	PCI/G	0.074	U		1464662.517	598852.609
09/14/2004	426-ET-029	Plutonium-239/240	0.071000	PCI/G	62	PCI/G	0.071	U		1464655.017	598865.599
09/14/2004	426-WS-019	Plutonium-239/240	0.070000	PCI/G	62	PCI/G	0.07	U		1464620.603	598922.51
09/14/2004	426-ET-022	Plutonium-239/240	0.070000	PCI/G	62	PCI/G	0.07	U		1464632.517	598904.57
09/14/2004	426-B-030	Plutonium-239/240	0.070000	PCI/G	62	PCI/G	0.07	U		1464653.858	598855.574
09/15/2004	426-ET-006	Plutonium-239/240	0.068000	PCI/G	62	PCI/G	0.068	U		1464580.017	599021.484
09/14/2004	426-ET-003	Plutonium-239/240	0.065000	PCI/G	62	PCI/G	0.065	U		1464572.517	599034.474
09/15/2004	426-ES-039	Plutonium-239/240	0.065000	PCI/G	62	PCI/G	0.065	U		1464686.617	598788.404
09/14/2004	426-B-028	Plutonium-239/240	0.064000	PCI/G	62	PCI/G	0.059	J		1464646.358	598868.564
09/14/2004	426-ES-016	Plutonium-239/240	0.060000	PCI/G	62	PCI/G	0.060	U		1464613.352	598945.101
09/14/2004	426-WS-017	Plutonium-239/240	0.060000	PCI/G	62	PCI/G	0.060	U		1464614.273	598936.047
09/15/2004	426-WS-043	Plutonium-239/240	0.060000	PCI/G	62	PCI/G	0.06	U		1464693.868	598765.814
09/15/2004	426-ET-045	Plutonium-239/240	0.060000	PCI/G	62	PCI/G	0.060	U		1464699.276	598761.329
09/14/2004	426-WS-002	Plutonium-239/240	0.058000	PCI/G	62	PCI/G	0.058	U		1464566.326	599038.593
09/15/2004	426-WS-041	Plutonium-239/240	0.057000	PCI/G	62	PCI/G	0.057	U		1464687.538	598779.325
09/14/2004	426-ES-032	Plutonium-239/240	0.053000	PCI/G	62	PCI/G	0.053	U		1464661.358	598842.583
09/14/2004	426-WS-026	Plutonium-239/240	0.052000	PCI/G	62	PCI/G	0.052	U		1464639.592	598881.897
09/15/2004	426-B-040	Plutonium-239/240	0.050000	PCI/G	62	PCI/G	0.05	U		1464688.372	598780.427
09/15/2004	426-ES-042	Plutonium-239/240	0.050000	PCI/G	62	PCI/G	0.050	U		1464692.946	598774.867
09/14/2004	426-B-009	Plutonium-239/240	0.049000	PCI/G	62	PCI/G	0.049	U		1464586.358	598998.468
09/15/2004	426-ES-037	Plutonium-239/240	0.048000	PCI/G	62	PCI/G	0.048	U		1464680.287	598801.942
09/15/2004	426-ES-034	Plutonium-239/240	0.046000	PCI/G	62	PCI/G	0.046	U		1464667.628	598829.017
09/14/2004	426-ES-013	Plutonium-239/240	0.045000	PCI/G	62	PCI/G	0.045	U		1464600.693	598972.176
09/15/2004	426-WS-036	Plutonium-239/240	0.045000	PCI/G	62	PCI/G	0.045	U		1464674.879	598806.427
09/15/2004	426-ES-035	Plutonium-239/240	0.040000	PCI/G	62	PCI/G	0.04	U		1464673.957	598815.48
09/14/2004	426-B-033	Plutonium-239/240	0.029000	PCI/G	62	PCI/G	0.029	U		1464663.241	598833.995
09/14/2004	426-B-033	Potassium-40	23.400000	PCI/G	47.8	PCI/G	1.2			1464663.241	598833.995
09/14/2004	426-ES-032	Potassium-40	23.100000	PCI/G	47.8	PCI/G	1.2			1464661.358	598842.583
09/15/2004	426-B-040	Potassium-40	22.400000	PCI/G	47.8	PCI/G	0.9			1464688.372	598780.427
09/14/2004	426-ES-013	Potassium-40	22.000000	PCI/G	47.8	PCI/G	0.7			1464600.693	598972.176
09/14/2004	426-B-012	Potassium-40	21.600000	PCI/G	47.8	PCI/G	1.1			1464596.954	598977.229
09/14/2004	426-B-015	Potassium-40	21.400000	PCI/G	47.8	PCI/G	1.1			1464608.839	598950.052
09/14/2004	426-B-030	Potassium-40	20.600000	PCI/G	47.8	PCI/G	0.2			1464653.858	598855.574
09/14/2004	426-B-033FD	Potassium-40	20.300000	PCI/G	47.8	PCI/G	1.3			1464663.241	598833.995
09/14/2004	426-ET-029	Potassium-40	19.600000	PCI/G	47.8	PCI/G	0.9			1464655.017	598865.599
09/14/2004	426-WS-021	Potassium-40	19.500000	PCI/G	47.8	PCI/G	1.4			1464626.932	598908.972

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/14/2004	426-ET-027FD	Potassium-40	18.900000	PCI/G	47.8	PCI/G	1.2			1464647.517	598878.589
09/15/2004	426-ES-039	Potassium-40	18.900000	PCI/G	47.8	PCI/G	1.4			1464686.617	598788.404
09/14/2004	426-ES-014	Potassium-40	18.800000	PCI/G	47.8	PCI/G	1.5			1464607.023	598958.638
09/15/2004	426-WS-043	Potassium-40	18.100000	PCI/G	47.8	PCI/G	1.1			1464693.868	598765.814
09/15/2004	426-ET-045	Potassium-40	18.000000	PCI/G	47.8	PCI/G	1.5			1464699.276	598761.329
09/14/2004	426-ET-027	Potassium-40	17.700000	PCI/G	47.8	PCI/G	1.7			1464647.517	598878.589
09/14/2004	426-ES-016	Potassium-40	17.400000	PCI/G	47.8	PCI/G	1.2			1464613.352	598945.101
09/14/2004	426-WS-002	Potassium-40	17.300000	PCI/G	47.8	PCI/G	0.7			1464566.326	599038.593
09/14/2004	426-ET-031	Potassium-40	17.000000	PCI/G	47.8	PCI/G	1.0			1464662.517	598852.609
09/14/2004	426-ES-018	Potassium-40	16.500000	PCI/G	47.8	PCI/G	1.5			1464619.682	598931.563
09/14/2004	426-WS-007	Potassium-40	16.300000	PCI/G	47.8	PCI/G	1.0			1464578.986	599011.518
09/14/2004	426-WS-026	Potassium-40	16.200000	PCI/G	47.8	PCI/G	0.9			1464639.592	598881.897
09/14/2004	426-B-011	Potassium-40	15.600000	PCI/G	47.8	PCI/G	0.8			1464593.858	598985.477
09/14/2004	426-WS-023	Potassium-40	15.300000	PCI/G	47.8	PCI/G	1.6			1464633.262	598895.435
09/14/2004	426-WS-017	Potassium-40	15.000000	PCI/G	47.8	PCI/G	1.3			1464614.273	598936.047
09/15/2004	426-WS-041	Potassium-40	14.900000	PCI/G	47.8	PCI/G	1			1464687.538	598779.325
09/14/2004	426-B-024	Potassium-40	14.800000	PCI/G	47.8	PCI/G	0.8			1464636.947	598891.117
09/15/2004	426-WS-036	Potassium-40	14.700000	PCI/G	47.8	PCI/G	1.2			1464674.879	598806.427
09/14/2004	426-B-028	Potassium-40	14.100000	PCI/G	47.8	PCI/G	0.8			1464646.358	598868.564
09/14/2004	426-WS-019	Potassium-40	13.900000	PCI/G	47.8	PCI/G	0.8			1464620.603	598922.51
09/14/2004	426-ES-001	Potassium-40	13.800000	PCI/G	47.8	PCI/G	0.7			1464565.406	599047.646
09/15/2004	426-WS-038	Potassium-40	13.800000	PCI/G	47.8	PCI/G	0.2			1464681.208	598792.889
09/15/2004	426-ES-042	Potassium-40	13.800000	PCI/G	47.8	PCI/G	1.1			1464692.946	598774.867
09/14/2004	426-ES-020	Potassium-40	13.600000	PCI/G	47.8	PCI/G	1.2			1464626.011	598918.025
09/15/2004	426-ES-034	Potassium-40	13.100000	PCI/G	47.8	PCI/G	1.1			1464667.628	598829.017
09/14/2004	426-ET-022	Potassium-40	12.600000	PCI/G	47.8	PCI/G	0.7			1464632.517	598904.57
09/14/2004	426-B-005	Potassium-40	12.000000	PCI/G	47.8	PCI/G	0.6			1464575.744	599022.135
09/15/2004	426-ES-035	Potassium-40	12.000000	PCI/G	47.8	PCI/G	0.7			1464673.957	598815.48
09/14/2004	426-WS-004	Potassium-40	11.700000	PCI/G	47.8	PCI/G	0.7			1464572.656	599025.055
09/15/2004	426-B-044	Potassium-40	11.700000	PCI/G	47.8	PCI/G	0.7			1464694.522	598767.353
09/15/2004	426-ES-037	Potassium-40	11.500000	PCI/G	47.8	PCI/G	1			1464680.287	598801.942
09/14/2004	426-B-009	Potassium-40	9.600000	PCI/G	47.8	PCI/G	0.5			1464586.358	598998.468
09/15/2004	426-ET-008	Potassium-40	7.500000	PCI/G	47.8	PCI/G	0.9			1464587.517	599008.493
09/15/2004	426-ET-006	Potassium-40	6.400000	PCI/G	47.8	PCI/G	0.6			1464580.017	599021.484
09/15/2004	426-ET-010	Potassium-40	5.500000	PCI/G	47.8	PCI/G	0.5			1464595.017	598995.503
09/14/2004	426-ET-003	Potassium-40	5.100000	PCI/G	47.8	PCI/G	0.4			1464572.517	599034.474
09/14/2004	426-ET-025	Potassium-40	5.000000	PCI/G	47.8	PCI/G	0.5			1464640.017	598891.58
09/14/2004	426-ET-027FD	Radium-226	1.020000	PCI/G	3.01	PCI/G	0.64	J		1464647.517	598878.589
09/14/2004	426-ES-018	Radium-226	0.980000	PCI/G	3.01	PCI/G	0.65	J		1464619.682	598931.563
09/14/2004	426-ET-029	Radium-226	0.850000	PCI/G	3.01	PCI/G	0.62	J		1464655.017	598865.599
09/14/2004	426-ET-027	Radium-226	0.830000	PCI/G	3.01	PCI/G	0.57	J		1464647.517	598878.589

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/15/2004	426-ES-039	Radium-226	0.820000	PCI/G	3.01	PCI/G	0.59	J		1464686.617	598788.404
09/15/2004	426-WS-043	Radium-226	0.810000	PCI/G	3.01	PCI/G	0.53	J		1464693.868	598765.814
09/14/2004	426-B-033	Radium-226	0.800000	PCI/G	3.01	PCI/G	0.72	J		1464663.241	598833.995
09/14/2004	426-ES-032	Radium-226	0.790000	PCI/G	3.01	PCI/G	0.62	J		1464661.358	598842.583
09/15/2004	426-ES-042	Radium-226	0.770000	PCI/G	3.01	PCI/G	0.48	J		1464692.946	598774.867
09/14/2004	426-B-024	Radium-226	0.730000	PCI/G	3.01	PCI/G	0.26	J		1464636.947	598891.117
09/15/2004	426-WS-038	Radium-226	0.730000	PCI/G	3.01	PCI/G	0.49	J		1464681.208	598792.889
09/14/2004	426-ES-016	Radium-226	0.720000	PCI/G	3.01	PCI/G	0.53	J		1464613.352	598945.101
09/14/2004	426-ET-031	Radium-226	0.710000	PCI/G	3.01	PCI/G	0.62	J		1464662.517	598852.609
09/14/2004	426-ES-014	Radium-226	0.700000	PCI/G	3.01	PCI/G	0.33	J		1464607.023	598958.638
09/14/2004	426-ET-022	Radium-226	0.640000	PCI/G	3.01	PCI/G	0.48	J		1464632.517	598904.57
09/15/2004	426-B-040	Radium-226	0.640000	PCI/G	3.01	PCI/G	0.49	J		1464688.372	598780.427
09/14/2004	426-B-012	Radium-226	0.630000	PCI/G	3.01	PCI/G	0.48	J		1464596.954	598977.229
09/14/2004	426-WS-023	Radium-226	0.610000	PCI/G	3.01	PCI/G	0.31	J		1464633.262	598895.435
09/14/2004	426-ES-001	Radium-226	0.590000	PCI/G	3.01	PCI/G	0.20	J		1464565.406	599047.646
09/14/2004	426-WS-021	Radium-226	0.580000	PCI/G	3.01	PCI/G	0.46	J		1464626.932	598908.972
09/15/2004	426-ES-035	Radium-226	0.580000	PCI/G	3.01	PCI/G	0.28	J		1464673.957	598815.48
09/15/2004	426-B-044	Radium-226	0.580000	PCI/G	3.01	PCI/G	0.39	J		1464694.522	598767.353
09/14/2004	426-ES-013	Radium-226	0.570000	PCI/G	3.01	PCI/G	0.33	J		1464600.693	598972.176
09/14/2004	426-B-033FD	Radium-226	0.550000	PCI/G	3.01	PCI/G	0.55	U		1464663.241	598833.995
09/15/2004	426-WS-041	Radium-226	0.550000	PCI/G	3.01	PCI/G	0.55	U		1464687.538	598779.325
09/15/2004	426-ET-045	Radium-226	0.550000	PCI/G	3.01	PCI/G	0.55	U		1464699.276	598761.329
09/14/2004	426-ES-020	Radium-226	0.540000	PCI/G	3.01	PCI/G	0.46	J		1464626.011	598918.025
09/14/2004	426-B-009	Radium-226	0.530000	PCI/G	3.01	PCI/G	0.20	J		1464586.358	598998.468
09/14/2004	426-B-030	Radium-226	0.530000	PCI/G	3.01	PCI/G	0.49	J		1464653.858	598855.574
09/15/2004	426-ES-034	Radium-226	0.520000	PCI/G	3.01	PCI/G	0.52	U		1464667.628	598829.017
09/15/2004	426-WS-036	Radium-226	0.510000	PCI/G	3.01	PCI/G	0.44	J		1464674.879	598806.427
09/14/2004	426-WS-007	Radium-226	0.500000	PCI/G	3.01	PCI/G	0.45	J		1464578.986	599011.518
09/14/2004	426-B-015	Radium-226	0.500000	PCI/G	3.01	PCI/G	0.50	U		1464608.839	598950.052
09/14/2004	426-WS-019	Radium-226	0.490000	PCI/G	3.01	PCI/G	0.41	J		1464620.603	598922.51
09/14/2004	426-WS-026	Radium-226	0.490000	PCI/G	3.01	PCI/G	0.49	U		1464639.592	598881.897
09/14/2004	426-WS-004	Radium-226	0.470000	PCI/G	3.01	PCI/G	0.39	J		1464572.656	599025.055
09/14/2004	426-B-028	Radium-226	0.470000	PCI/G	3.01	PCI/G	0.37	J		1464646.358	598868.564
09/15/2004	426-ES-037	Radium-226	0.460000	PCI/G	3.01	PCI/G	0.46	U		1464680.287	598801.942
09/15/2004	426-ET-008	Radium-226	0.450000	PCI/G	3.01	PCI/G	0.41	J		1464587.517	599008.493
09/15/2004	426-ET-010	Radium-226	0.440000	PCI/G	3.01	PCI/G	0.30	J		1464595.017	598995.503
09/14/2004	426-WS-017	Radium-226	0.410000	PCI/G	3.01	PCI/G	0.39	J		1464614.273	598936.047
09/15/2004	426-ET-006	Radium-226	0.390000	PCI/G	3.01	PCI/G	0.19	J		1464580.017	599021.484
09/14/2004	426-WS-002	Radium-226	0.380000	PCI/G	3.01	PCI/G	0.35	J		1464566.326	599038.593
09/14/2004	426-B-005	Radium-226	0.370000	PCI/G	3.01	PCI/G	0.32	J		1464575.744	599022.135
09/14/2004	426-B-011	Radium-226	0.330000	PCI/G	3.01	PCI/G	0.25	J		1464593.858	598985.477

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/14/2004	426-ET-003	Radium-226	0.310000	PCI/G	3.01	PCI/G	0.25	J		1464572.517	599034.474
09/14/2004	426-ET-025	Radium-226	0.260000	PCI/G	3.01	PCI/G	0.26	U		1464640.017	598891.58
09/14/2004	426-ET-027	Radium-228	1.290000	PCI/G	3.06	PCI/G	0.46			1464647.517	598878.589
09/14/2004	426-B-033	Radium-228	1.230000	PCI/G	3.06	PCI/G	0.52			1464663.241	598833.995
09/14/2004	426-ET-027FD	Radium-228	1.150000	PCI/G	3.06	PCI/G	0.39			1464647.517	598878.589
09/14/2004	426-ES-018	Radium-228	1.130000	PCI/G	3.06	PCI/G	0.38			1464619.682	598931.563
09/14/2004	426-B-015	Radium-228	1.010000	PCI/G	3.06	PCI/G	0.59			1464608.839	598950.052
09/14/2004	426-B-012	Radium-228	1.000000	PCI/G	3.06	PCI/G	0.41			1464596.954	598977.229
09/14/2004	426-ES-032	Radium-228	0.930000	PCI/G	3.06	PCI/G	0.46			1464661.358	598842.583
09/14/2004	426-B-030	Radium-228	0.900000	PCI/G	3.06	PCI/G	0.36			1464653.858	598855.574
09/15/2004	426-WS-038	Radium-228	0.880000	PCI/G	3.06	PCI/G	0.47			1464681.208	598792.889
09/14/2004	426-ET-029	Radium-228	0.820000	PCI/G	3.06	PCI/G	0.47			1464655.017	598865.599
09/14/2004	426-ES-013	Radium-228	0.800000	PCI/G	3.06	PCI/G	0.43			1464600.693	598972.176
09/15/2004	426-B-040	Radium-228	0.750000	PCI/G	3.06	PCI/G	0.38			1464688.372	598780.427
09/15/2004	426-WS-041	Radium-228	0.650000	PCI/G	3.06	PCI/G	0.48			1464687.538	598779.325
09/15/2004	426-B-044	Radium-228	0.640000	PCI/G	3.06	PCI/G	0.23			1464694.522	598767.353
09/14/2004	426-WS-004	Radium-228	0.550000	PCI/G	3.06	PCI/G	0.28			1464572.656	599025.055
09/14/2004	426-WS-023	Radium-228	0.550000	PCI/G	3.06	PCI/G	0.45			1464633.262	598895.435
09/14/2004	426-B-005	Radium-228	0.530000	PCI/G	3.06	PCI/G	0.25			1464575.744	599022.135
09/15/2004	426-ET-045	Radium-228	0.530000	PCI/G	3.06	PCI/G	0.47			1464699.276	598761.329
09/14/2004	426-B-011	Radium-228	0.470000	PCI/G	3.06	PCI/G	0.37			1464593.858	598985.477
09/14/2004	426-B-015	Thallium-208	0.410000	PCI/G	0.498	PCI/G	0.11			1464608.839	598950.052
09/14/2004	426-B-033FD	Thallium-208	0.390000	PCI/G	0.498	PCI/G	0.08			1464663.241	598833.995
09/14/2004	426-ET-027	Thallium-208	0.370000	PCI/G	0.498	PCI/G	0.12			1464647.517	598878.589
09/14/2004	426-ET-027FD	Thallium-208	0.350000	PCI/G	0.498	PCI/G	0.13			1464647.517	598878.589
09/14/2004	426-ES-018	Thallium-208	0.320000	PCI/G	0.498	PCI/G	0.11			1464619.682	598931.563
09/14/2004	426-B-012	Thallium-208	0.316000	PCI/G	0.498	PCI/G	0.079			1464596.954	598977.229
09/14/2004	426-B-033	Thallium-208	0.310000	PCI/G	0.498	PCI/G	0.15			1464663.241	598833.995
09/14/2004	426-ES-013	Thallium-208	0.300000	PCI/G	0.498	PCI/G	0.1			1464600.693	598972.176
09/14/2004	426-ES-032	Thallium-208	0.300000	PCI/G	0.498	PCI/G	0.12			1464661.358	598842.583
09/14/2004	426-ES-016	Thallium-208	0.290000	PCI/G	0.498	PCI/G	0.12			1464613.352	598945.101
09/14/2004	426-ET-029	Thallium-208	0.290000	PCI/G	0.498	PCI/G	0.09			1464655.017	598865.599
09/14/2004	426-ET-031	Thallium-208	0.290000	PCI/G	0.498	PCI/G	0.15			1464662.517	598852.609
09/14/2004	426-WS-023	Thallium-208	0.260000	PCI/G	0.498	PCI/G	0.07			1464633.262	598895.435
09/14/2004	426-B-030	Thallium-208	0.260000	PCI/G	0.498	PCI/G	0.099			1464653.858	598855.574
09/15/2004	426-ES-039	Thallium-208	0.260000	PCI/G	0.498	PCI/G	0.12			1464686.617	598788.404
09/15/2004	426-WS-043	Thallium-208	0.260000	PCI/G	0.498	PCI/G	0.10			1464693.868	598765.814
09/14/2004	426-WS-026	Thallium-208	0.250000	PCI/G	0.498	PCI/G	0.12			1464639.592	598881.897
09/15/2004	426-WS-038	Thallium-208	0.250000	PCI/G	0.498	PCI/G	0.10			1464681.208	598792.889
09/15/2004	426-ES-042	Thallium-208	0.232000	PCI/G	0.498	PCI/G	0.097			1464692.946	598774.867
09/14/2004	426-WS-021	Thallium-208	0.228000	PCI/G	0.498	PCI/G	0.075			1464626.932	598908.972

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/14/2004	426-WS-019	Thallium-208	0.223000	PCI/G	0.498	PCI/G	0.068			1464620.603	598922.51
09/14/2004	426-B-011	Thallium-208	0.218000	PCI/G	0.498	PCI/G	0.078			1464593.858	598985.477
09/15/2004	426-WS-036	Thallium-208	0.216000	PCI/G	0.498	PCI/G	0.093			1464674.879	598806.427
09/14/2004	426-WS-007	Thallium-208	0.210000	PCI/G	0.498	PCI/G	0.10			1464578.986	599011.518
09/14/2004	426-ES-014	Thallium-208	0.200000	PCI/G	0.498	PCI/G	0.10			1464607.023	598958.638
09/14/2004	426-WS-017	Thallium-208	0.200000	PCI/G	0.498	PCI/G	0.096			1464614.273	598936.047
09/14/2004	426-B-028	Thallium-208	0.196000	PCI/G	0.498	PCI/G	0.064			1464646.358	598868.564
09/14/2004	426-ES-001	Thallium-208	0.194000	PCI/G	0.498	PCI/G	0.078			1464565.406	599047.646
09/14/2004	426-WS-002	Thallium-208	0.194000	PCI/G	0.498	PCI/G	0.086			1464566.326	599038.593
09/15/2004	426-B-040	Thallium-208	0.193000	PCI/G	0.498	PCI/G	0.078			1464688.372	598780.427
09/15/2004	426-WS-041	Thallium-208	0.190000	PCI/G	0.498	PCI/G	0.082			1464687.538	598779.325
09/15/2004	426-ES-035	Thallium-208	0.186000	PCI/G	0.498	PCI/G	0.090			1464673.957	598815.48
09/14/2004	426-ET-022	Thallium-208	0.174000	PCI/G	0.498	PCI/G	0.098			1464632.517	598904.57
09/14/2004	426-B-009	Thallium-208	0.170000	PCI/G	0.498	PCI/G	0.082			1464586.358	598998.468
09/14/2004	426-WS-004	Thallium-208	0.168000	PCI/G	0.498	PCI/G	0.080			1464572.656	599025.055
09/14/2004	426-B-024	Thallium-208	0.164000	PCI/G	0.498	PCI/G	0.089			1464636.947	598891.117
09/15/2004	426-ES-037	Thallium-208	0.156000	PCI/G	0.498	PCI/G	0.092			1464680.287	598801.942
09/14/2004	426-B-005	Thallium-208	0.148000	PCI/G	0.498	PCI/G	0.062			1464575.744	599022.135
09/15/2004	426-B-044	Thallium-208	0.145000	PCI/G	0.498	PCI/G	0.070			1464694.522	598767.353
09/14/2004	426-ET-025	Thallium-208	0.051000	PCI/G	0.498	PCI/G	0.051	U		1464640.017	598891.58
09/14/2004	426-ES-013	Thorium-228	1.130000	PCI/G	2.6	PCI/G	0.14			1464600.693	598972.176
09/14/2004	426-WS-007	Thorium-228	1.100000	PCI/G	2.6	PCI/G	0.16			1464578.986	599011.518
09/14/2004	426-B-012	Thorium-228	1.080000	PCI/G	2.6	PCI/G	0.15			1464596.954	598977.229
09/14/2004	426-B-015	Thorium-228	1.080000	PCI/G	2.6	PCI/G	0.16			1464608.839	598950.052
09/14/2004	426-WS-023	Thorium-228	1.050000	PCI/G	2.6	PCI/G	0.11			1464633.262	598895.435
09/14/2004	426-ET-027	Thorium-228	1.050000	PCI/G	2.6	PCI/G	0.05			1464647.517	598878.589
09/14/2004	426-B-033FD	Thorium-228	1.020000	PCI/G	2.6	PCI/G	0.09			1464663.241	598833.995
09/14/2004	426-WS-026	Thorium-228	0.980000	PCI/G	2.6	PCI/G	0.07	J		1464639.592	598881.897
09/14/2004	426-ES-018	Thorium-228	0.970000	PCI/G	2.6	PCI/G	0.14	J		1464619.682	598931.563
09/14/2004	426-ET-031	Thorium-228	0.910000	PCI/G	2.6	PCI/G	0.05	J		1464662.517	598852.609
09/15/2004	426-ES-039	Thorium-228	0.910000	PCI/G	2.6	PCI/G	0.06	J		1464686.617	598788.404
09/14/2004	426-ET-027FD	Thorium-228	0.890000	PCI/G	2.6	PCI/G	0.06	J		1464647.517	598878.589
09/15/2004	426-ET-045	Thorium-228	0.840000	PCI/G	2.6	PCI/G	0.08	J		1464699.276	598761.329
09/14/2004	426-B-011	Thorium-228	0.820000	PCI/G	2.6	PCI/G	0.13	J		1464593.858	598985.477
09/14/2004	426-WS-004	Thorium-228	0.810000	PCI/G	2.6	PCI/G	0.16	J		1464572.656	599025.055
09/14/2004	426-B-033	Thorium-228	0.810000	PCI/G	2.6	PCI/G	0.06	J		1464663.241	598833.995
09/15/2004	426-B-040	Thorium-228	0.810000	PCI/G	2.6	PCI/G	0.07	J		1464688.372	598780.427
09/14/2004	426-WS-021	Thorium-228	0.800000	PCI/G	2.6	PCI/G	0.16	J		1464626.932	598908.972
09/14/2004	426-B-009	Thorium-228	0.790000	PCI/G	2.6	PCI/G	0.13	J		1464586.358	598998.468
09/14/2004	426-B-030	Thorium-228	0.790000	PCI/G	2.6	PCI/G	0.06	J		1464653.858	598855.574
09/15/2004	426-WS-041	Thorium-228	0.790000	PCI/G	2.6	PCI/G	0.05	J		1464687.538	598779.325

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objecti ve	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/15/2004	426-ES-042	Thorium-228	0.790000	PCI/G	2.6	PCI/G	0.06	J		1464692.946	598774.867
09/15/2004	426-WS-043	Thorium-228	0.790000	PCI/G	2.6	PCI/G	0.09	J		1464693.868	598765.814
09/14/2004	426-ES-014	Thorium-228	0.770000	PCI/G	2.6	PCI/G	0.18	J		1464607.023	598958.638
09/14/2004	426-B-024	Thorium-228	0.770000	PCI/G	2.6	PCI/G	0.07	J		1464636.947	598891.117
09/14/2004	426-B-028	Thorium-228	0.770000	PCI/G	2.6	PCI/G	0.09	J		1464646.358	598868.564
09/14/2004	426-ET-029	Thorium-228	0.760000	PCI/G	2.6	PCI/G	0.08	J		1464655.017	598865.599
09/15/2004	426-WS-038	Thorium-228	0.730000	PCI/G	2.6	PCI/G	0.07	J		1464681.208	598792.889
09/14/2004	426-B-005	Thorium-228	0.720000	PCI/G	2.6	PCI/G	0.19	J		1464575.744	599022.135
09/14/2004	426-ES-032	Thorium-228	0.720000	PCI/G	2.6	PCI/G	0.08	J		1464661.358	598842.583
09/14/2004	426-WS-017	Thorium-228	0.710000	PCI/G	2.6	PCI/G	0.14	J		1464614.273	598936.047
09/14/2004	426-ES-001	Thorium-228	0.690000	PCI/G	2.6	PCI/G	0.16	J		1464565.406	599047.646
09/14/2004	426-WS-002	Thorium-228	0.670000	PCI/G	2.6	PCI/G	0.21	J		1464566.326	599038.593
09/14/2004	426-ET-022	Thorium-228	0.670000	PCI/G	2.6	PCI/G	0.14	J		1464632.517	598904.57
09/14/2004	426-ES-016	Thorium-228	0.620000	PCI/G	2.6	PCI/G	0.19	J		1464613.352	598945.101
09/15/2004	426-ES-035	Thorium-228	0.620000	PCI/G	2.6	PCI/G	0.07	J		1464673.957	598815.48
09/15/2004	426-ES-034	Thorium-228	0.610000	PCI/G	2.6	PCI/G	0.07	J		1464667.628	598829.017
09/15/2004	426-B-044	Thorium-228	0.600000	PCI/G	2.6	PCI/G	0.1	J		1464694.522	598767.353
09/15/2004	426-WS-036	Thorium-228	0.550000	PCI/G	2.6	PCI/G	0.06	J		1464674.879	598806.427
09/14/2004	426-WS-019	Thorium-228	0.480000	PCI/G	2.6	PCI/G	0.12	J		1464620.603	598922.51
09/15/2004	426-ES-037	Thorium-228	0.420000	PCI/G	2.6	PCI/G	0.09	J		1464680.287	598801.942
09/15/2004	426-ET-008	Thorium-228	0.380000	PCI/G	2.6	PCI/G	0.17	J		1464587.517	599008.493
09/14/2004	426-ES-020	Thorium-228	0.360000	PCI/G	2.6	PCI/G	0.14	J		1464626.011	598918.025
09/14/2004	426-ET-025	Thorium-228	0.340000	PCI/G	2.6	PCI/G	0.06	J		1464640.017	598891.58
09/14/2004	426-ET-003	Thorium-228	0.330000	PCI/G	2.6	PCI/G	0.18	J		1464572.517	599034.474
09/15/2004	426-ET-006	Thorium-228	0.250000	PCI/G	2.6	PCI/G	0.15	J		1464580.017	599021.484
09/15/2004	426-ET-010	Thorium-228	0.240000	PCI/G	2.6	PCI/G	0.20	J		1464595.017	598995.503
09/14/2004	426-WS-007	Thorium-230	1.850000	PCI/G	2.8	PCI/G	0.1			1464578.986	599011.518
09/14/2004	426-ET-029	Thorium-230	1.730000	PCI/G	2.8	PCI/G	0.05			1464655.017	598865.599
09/14/2004	426-B-012	Thorium-230	1.650000	PCI/G	2.8	PCI/G	0.08			1464596.954	598977.229
09/14/2004	426-ET-031	Thorium-230	1.620000	PCI/G	2.8	PCI/G	0.05			1464662.517	598852.609
09/14/2004	426-B-033FD	Thorium-230	1.570000	PCI/G	2.8	PCI/G	0.05			1464663.241	598833.995
09/14/2004	426-ET-027	Thorium-230	1.490000	PCI/G	2.8	PCI/G	0.04			1464647.517	598878.589
09/14/2004	426-B-015	Thorium-230	1.450000	PCI/G	2.8	PCI/G	0.09			1464608.839	598950.052
09/14/2004	426-B-028	Thorium-230	1.430000	PCI/G	2.8	PCI/G	0.06			1464646.358	598868.564
09/15/2004	426-ES-039	Thorium-230	1.430000	PCI/G	2.8	PCI/G	0.03			1464686.617	598788.404
09/14/2004	426-ES-013	Thorium-230	1.420000	PCI/G	2.8	PCI/G	0.05			1464600.693	598972.176
09/14/2004	426-B-024	Thorium-230	1.420000	PCI/G	2.8	PCI/G	0.03			1464636.947	598891.117
09/15/2004	426-ET-010	Thorium-230	1.400000	PCI/G	2.8	PCI/G	0.09			1464595.017	598995.503
09/14/2004	426-B-005	Thorium-230	1.370000	PCI/G	2.8	PCI/G	0.08			1464575.744	599022.135
09/14/2004	426-ET-022	Thorium-230	1.360000	PCI/G	2.8	PCI/G	0.06			1464632.517	598904.57
09/14/2004	426-WS-023	Thorium-230	1.360000	PCI/G	2.8	PCI/G	0.05			1464633.262	598895.435

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Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/14/2004	426-ES-016	Thorium-230	1.350000	PCI/G	2.8	PCI/G	0.09			1464613.352	598945.101
09/15/2004	426-ES-042	Thorium-230	1.350000	PCI/G	2.8	PCI/G	0.05			1464692.946	598774.867
09/14/2004	426-ES-018	Thorium-230	1.340000	PCI/G	2.8	PCI/G	0.07			1464619.682	598931.563
09/14/2004	426-ET-027FD	Thorium-230	1.310000	PCI/G	2.8	PCI/G	0.07			1464647.517	598878.589
09/14/2004	426-ES-001	Thorium-230	1.300000	PCI/G	2.8	PCI/G	0.10			1464565.406	599047.646
09/15/2004	426-B-040	Thorium-230	1.260000	PCI/G	2.8	PCI/G	0.05			1464688.372	598780.427
09/14/2004	426-B-009	Thorium-230	1.230000	PCI/G	2.8	PCI/G	0.07			1464586.358	598998.468
09/14/2004	426-WS-004	Thorium-230	1.220000	PCI/G	2.8	PCI/G	0.07			1464572.656	599025.055
09/15/2004	426-WS-038	Thorium-230	1.190000	PCI/G	2.8	PCI/G	0.03			1464681.208	598792.889
09/14/2004	426-WS-017	Thorium-230	1.180000	PCI/G	2.8	PCI/G	0.06			1464614.273	598936.047
09/14/2004	426-ES-032	Thorium-230	1.160000	PCI/G	2.8	PCI/G	0.04			1464661.358	598842.583
09/15/2004	426-ET-045	Thorium-230	1.130000	PCI/G	2.8	PCI/G	0.04			1464699.276	598761.329
09/14/2004	426-WS-002	Thorium-230	1.110000	PCI/G	2.8	PCI/G	0.09			1464566.326	599038.593
09/14/2004	426-B-011	Thorium-230	1.110000	PCI/G	2.8	PCI/G	0.06			1464593.858	598985.477
09/14/2004	426-WS-019	Thorium-230	1.100000	PCI/G	2.8	PCI/G	0.06			1464620.603	598922.51
09/14/2004	426-WS-021	Thorium-230	1.080000	PCI/G	2.8	PCI/G	0.08			1464626.932	598908.972
09/14/2004	426-WS-026	Thorium-230	1.080000	PCI/G	2.8	PCI/G	0.03			1464639.592	598881.897
09/15/2004	426-ES-035	Thorium-230	1.070000	PCI/G	2.8	PCI/G	0.05			1464673.957	598815.48
09/14/2004	426-ES-014	Thorium-230	1.050000	PCI/G	2.8	PCI/G	0.07			1464607.023	598958.638
09/15/2004	426-WS-043	Thorium-230	1.030000	PCI/G	2.8	PCI/G	0.05			1464693.868	598765.814
09/15/2004	426-WS-041	Thorium-230	0.990000	PCI/G	2.8	PCI/G	0.05	J		1464687.538	598779.325
09/15/2004	426-ET-006	Thorium-230	0.980000	PCI/G	2.8	PCI/G	0.1	J		1464580.017	599021.484
09/14/2004	426-ET-003	Thorium-230	0.920000	PCI/G	2.8	PCI/G	0.1	J		1464572.517	599034.474
09/14/2004	426-ES-020	Thorium-230	0.890000	PCI/G	2.8	PCI/G	0.07	J		1464626.011	598918.025
09/14/2004	426-ET-025	Thorium-230	0.870000	PCI/G	2.8	PCI/G	0.05	J		1464640.017	598891.58
09/15/2004	426-ET-008	Thorium-230	0.800000	PCI/G	2.8	PCI/G	0.07	J		1464587.517	599008.493
09/15/2004	426-WS-036	Thorium-230	0.710000	PCI/G	2.8	PCI/G	0.04	J		1464674.879	598806.427
09/15/2004	426-B-044	Thorium-230	0.630000	PCI/G	2.8	PCI/G	0.05	J		1464694.522	598767.353
09/15/2004	426-ES-034	Thorium-230	0.580000	PCI/G	2.8	PCI/G	0.05	J		1464667.628	598829.017
09/14/2004	426-B-033	Thorium-230	0.480000	PCI/G	2.8	PCI/G	0.03	J		1464663.241	598833.995
09/14/2004	426-B-030	Thorium-230	0.370000	PCI/G	2.8	PCI/G	0.03	J		1464653.858	598855.574
09/15/2004	426-ES-037	Thorium-230	0.198000	PCI/G	2.8	PCI/G	0.062	J		1464680.287	598801.942
09/14/2004	426-ET-027	Thorium-232	1.290000	PCI/G	2.1	PCI/G	0.46			1464647.517	598878.589
09/14/2004	426-B-033	Thorium-232	1.230000	PCI/G	2.1	PCI/G	0.52			1464663.241	598833.995
09/14/2004	426-B-033FD	Thorium-232	1.170000	PCI/G	2.1	PCI/G	0.03			1464663.241	598833.995
09/14/2004	426-ES-013	Thorium-232	1.150000	PCI/G	2.1	PCI/G	0.05			1464600.693	598972.176
09/14/2004	426-ET-027FD	Thorium-232	1.150000	PCI/G	2.1	PCI/G	0.39			1464647.517	598878.589
09/14/2004	426-ES-018	Thorium-232	1.130000	PCI/G	2.1	PCI/G	0.38			1464619.682	598931.563
09/14/2004	426-WS-007	Thorium-232	1.090000	PCI/G	2.1	PCI/G	0.09			1464578.986	599011.518
09/14/2004	426-B-011	Thorium-232	1.050000	PCI/G	2.1	PCI/G	0.06			1464593.858	598985.477
09/14/2004	426-B-012	Thorium-232	1.030000	PCI/G	2.1	PCI/G	0.06			1464596.954	598977.229

PRS 426 Verification Sampling Results

Date Collected	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objective	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/14/2004	426-ET-027	Thorium-232	1.010000	PCI/G	2.1	PCI/G	0.03			1464647.517	598878.589
09/14/2004	426-B-015	Thorium-232	1.010000	PCI/G	2.1	PCI/G	0.59			1464608.839	598950.052
09/14/2004	426-B-012	Thorium-232	1.000000	PCI/G	2.1	PCI/G	0.41			1464596.954	598977.229
09/14/2004	426-B-028	Thorium-232	1.000000	PCI/G	2.1	PCI/G	0.05			1464646.358	598868.564
09/14/2004	426-B-033	Thorium-232	0.930000	PCI/G	2.1	PCI/G	0.05	J		1464663.241	598833.995
09/14/2004	426-ES-032	Thorium-232	0.930000	PCI/G	2.1	PCI/G	0.46			1464661.358	598842.583
09/14/2004	426-ET-031	Thorium-232	0.910000	PCI/G	2.1	PCI/G	0.05	J		1464662.517	598852.609
09/14/2004	426-ET-029	Thorium-232	0.900000	PCI/G	2.1	PCI/G	0.05	J		1464655.017	598865.599
09/15/2004	426-ES-039	Thorium-232	0.900000	PCI/G	2.1	PCI/G	0.03	J		1464686.617	598788.404
09/14/2004	426-B-030	Thorium-232	0.900000	PCI/G	2.1	PCI/G	0.36			1464653.858	598855.574
09/14/2004	426-B-015	Thorium-232	0.890000	PCI/G	2.1	PCI/G	0.08	J		1464608.839	598950.052
09/14/2004	426-ET-027FD	Thorium-232	0.890000	PCI/G	2.1	PCI/G	0.05	J		1464647.517	598878.589
09/15/2004	426-WS-038	Thorium-232	0.880000	PCI/G	2.1	PCI/G	0.47			1464681.208	598792.889
09/14/2004	426-WS-021	Thorium-232	0.860000	PCI/G	2.1	PCI/G	0.05	J		1464626.932	598908.972
09/14/2004	426-B-030	Thorium-232	0.850000	PCI/G	2.1	PCI/G	0.04	J		1464653.858	598855.574
09/14/2004	426-ES-001	Thorium-232	0.840000	PCI/G	2.1	PCI/G	0.07	J		1464565.406	599047.646
09/15/2004	426-ES-042	Thorium-232	0.840000	PCI/G	2.1	PCI/G	0.05	J		1464692.946	598774.867
09/15/2004	426-ET-045	Thorium-232	0.840000	PCI/G	2.1	PCI/G	0.05	J		1464699.276	598761.329
09/15/2004	426-B-040	Thorium-232	0.830000	PCI/G	2.1	PCI/G	0.03	J		1464688.372	598780.427
09/14/2004	426-ET-029	Thorium-232	0.820000	PCI/G	2.1	PCI/G	0.47			1464655.017	598865.599
09/14/2004	426-ES-018	Thorium-232	0.810000	PCI/G	2.1	PCI/G	0.05	J		1464619.682	598931.563
09/14/2004	426-ES-013	Thorium-232	0.800000	PCI/G	2.1	PCI/G	0.43			1464600.693	598972.176
09/14/2004	426-ES-032	Thorium-232	0.790000	PCI/G	2.1	PCI/G	0.03	J		1464661.358	598842.583
09/14/2004	426-ES-014	Thorium-232	0.780000	PCI/G	2.1	PCI/G	0.06	J		1464607.023	598958.638
09/14/2004	426-ES-016	Thorium-232	0.770000	PCI/G	2.1	PCI/G	0.09	J		1464613.352	598945.101
09/14/2004	426-WS-017	Thorium-232	0.760000	PCI/G	2.1	PCI/G	0.07	J		1464614.273	598936.047
09/15/2004	426-WS-041	Thorium-232	0.760000	PCI/G	2.1	PCI/G	0.05	J		1464687.538	598779.325
09/15/2004	426-B-040	Thorium-232	0.750000	PCI/G	2.1	PCI/G	0.38			1464688.372	598780.427
09/14/2004	426-WS-002	Thorium-232	0.740000	PCI/G	2.1	PCI/G	0.11	J		1464566.326	599038.593
09/14/2004	426-WS-023	Thorium-232	0.730000	PCI/G	2.1	PCI/G	0.03	J		1464633.262	598895.435
09/15/2004	426-WS-038	Thorium-232	0.730000	PCI/G	2.1	PCI/G	0.06	J		1464681.208	598792.889
09/15/2004	426-WS-043	Thorium-232	0.730000	PCI/G	2.1	PCI/G	0.03	J		1464693.868	598765.814
09/14/2004	426-B-005	Thorium-232	0.680000	PCI/G	2.1	PCI/G	0.07	J		1464575.744	599022.135
09/14/2004	426-ET-022	Thorium-232	0.670000	PCI/G	2.1	PCI/G	0.02	J		1464632.517	598904.57
09/14/2004	426-WS-026	Thorium-232	0.670000	PCI/G	2.1	PCI/G	0.03	J		1464639.592	598881.897
09/15/2004	426-WS-041	Thorium-232	0.650000	PCI/G	2.1	PCI/G	0.48			1464687.538	598779.325
09/14/2004	426-WS-019	Thorium-232	0.640000	PCI/G	2.1	PCI/G	0.06	J		1464620.603	598922.51
09/15/2004	426-B-044	Thorium-232	0.640000	PCI/G	2.1	PCI/G	0.23			1464694.522	598767.353
09/14/2004	426-B-024	Thorium-232	0.630000	PCI/G	2.1	PCI/G	0.03	J		1464636.947	598891.117
09/14/2004	426-WS-004	Thorium-232	0.620000	PCI/G	2.1	PCI/G	0.06	J		1464572.656	599025.055
09/15/2004	426-WS-036	Thorium-232	0.620000	PCI/G	2.1	PCI/G	0.04	J		1464674.879	598806.427

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Date Collectec	Sample Id	CAS Name	Results	Units of Measure	Cleanup Objecti ve	Units of Measure	Detection Limit	Lab Qual	Data Qual	X Coord	Y Coord
09/15/2001	426-ES-034	Thorium-232	0.610000	PCI/G	2.1	PCI/G	0.06	J		1464667.628	598829.017
09/15/2001	426-ES-035	Thorium-232	0.580000	PCI/G	2.1	PCI/G	0.03	J		1464673.957	598815.48
09/14/2001	426-B-009	Thorium-232	0.550000	PCI/G	2.1	PCI/G	0.06	J		1464586.358	598998.468
09/14/2001	426-WS-004	Thorium-232	0.550000	PCI/G	2.1	PCI/G	0.28			1464572.656	599025.055
09/14/2001	426-WS-023	Thorium-232	0.550000	PCI/G	2.1	PCI/G	0.45			1464633.262	598895.435
09/15/2001	426-B-044	Thorium-232	0.550000	PCI/G	2.1	PCI/G	0.05	J		1464694.522	598767.353
09/14/2001	426-B-005	Thorium-232	0.530000	PCI/G	2.1	PCI/G	0.25			1464575.744	599022.135
09/15/2001	426-ET-045	Thorium-232	0.530000	PCI/G	2.1	PCI/G	0.47			1464699.276	598761.329
09/14/2001	426-ES-020	Thorium-232	0.480000	PCI/G	2.1	PCI/G	0.04	J		1464626.011	598918.025
09/14/2001	426-B-011	Thorium-232	0.470000	PCI/G	2.1	PCI/G	0.37			1464593.858	598985.477
09/15/2001	426-ES-037	Thorium-232	0.430000	PCI/G	2.1	PCI/G	0.05	J		1464680.287	598801.942
09/15/2001	426-ET-008	Thorium-232	0.420000	PCI/G	2.1	PCI/G	0.09	J		1464587.517	599008.493
09/14/2001	426-ET-003	Thorium-232	0.370000	PCI/G	2.1	PCI/G	0.12	J		1464572.517	599034.474
09/15/2001	426-ET-006	Thorium-232	0.290000	PCI/G	2.1	PCI/G	0.06	J		1464580.017	599021.484
09/14/2001	426-ET-025	Thorium-232	0.260000	PCI/G	2.1	PCI/G	0.05	J		1464640.017	598891.58
09/15/2001	426-ET-010	Thorium-232	0.240000	PCI/G	2.1	PCI/G	0.12	J		1464595.017	598995.503

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STD VSAP BACKFILL INFO

This information will be represented in the Data Report.

THIS FAX CONSTITUTES SUBMITTAL OF BACKPACK

For: PRS 426

PER SECTION 5.6 OF STD VSAP... BACKFILL CAN PROCEED UPON SUBMITTAL OF A BACKPACK (RAW DATA PKG) WITH ALL RESULTS < CO.

Checklist:

(per Section 5.6 of Std VSAP, Final, Aug 04)

- [x] OK final Graphic
  (show sample locations & note any >CO and/or >HS)
- [x] OK sample results
  (show DLs, HS, COs, and COC std deviation(s))
- [x] OK recalc of N
- [x] OK Data Review & Validation
- [x] N/A Sign test
  (not required if all results <CO) see pg 19/21 of VSAP)
- [x] N/A retro curve
  (not required if all results <CO) [null hypothesis is rejected, MARSSIM])

From: (sign/date) 10-7-04

TOTAL PGS (INCL. THIS COVER SHEET) = 28

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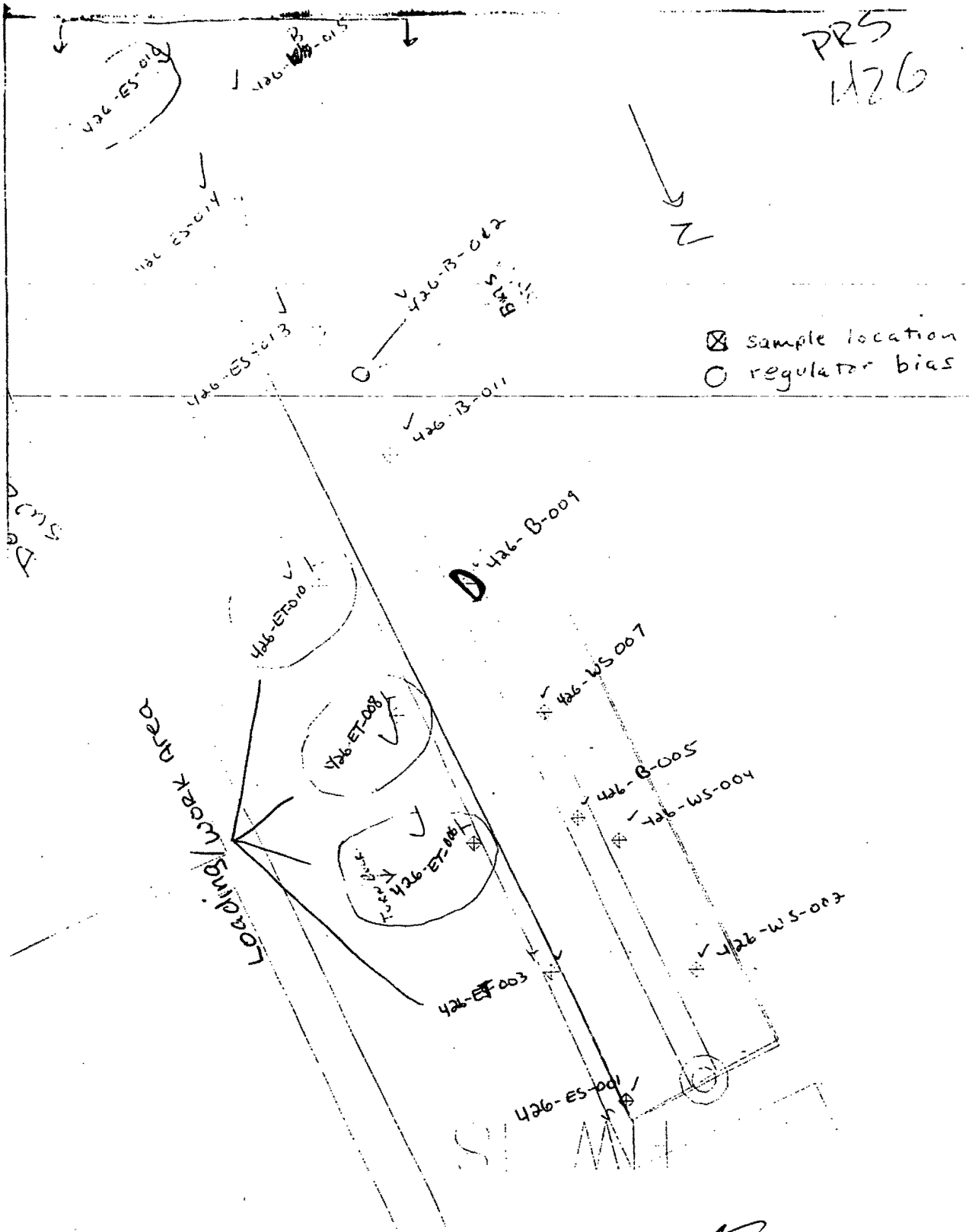

All results < CO

BAKPAK 1 of 27

Final Graphic

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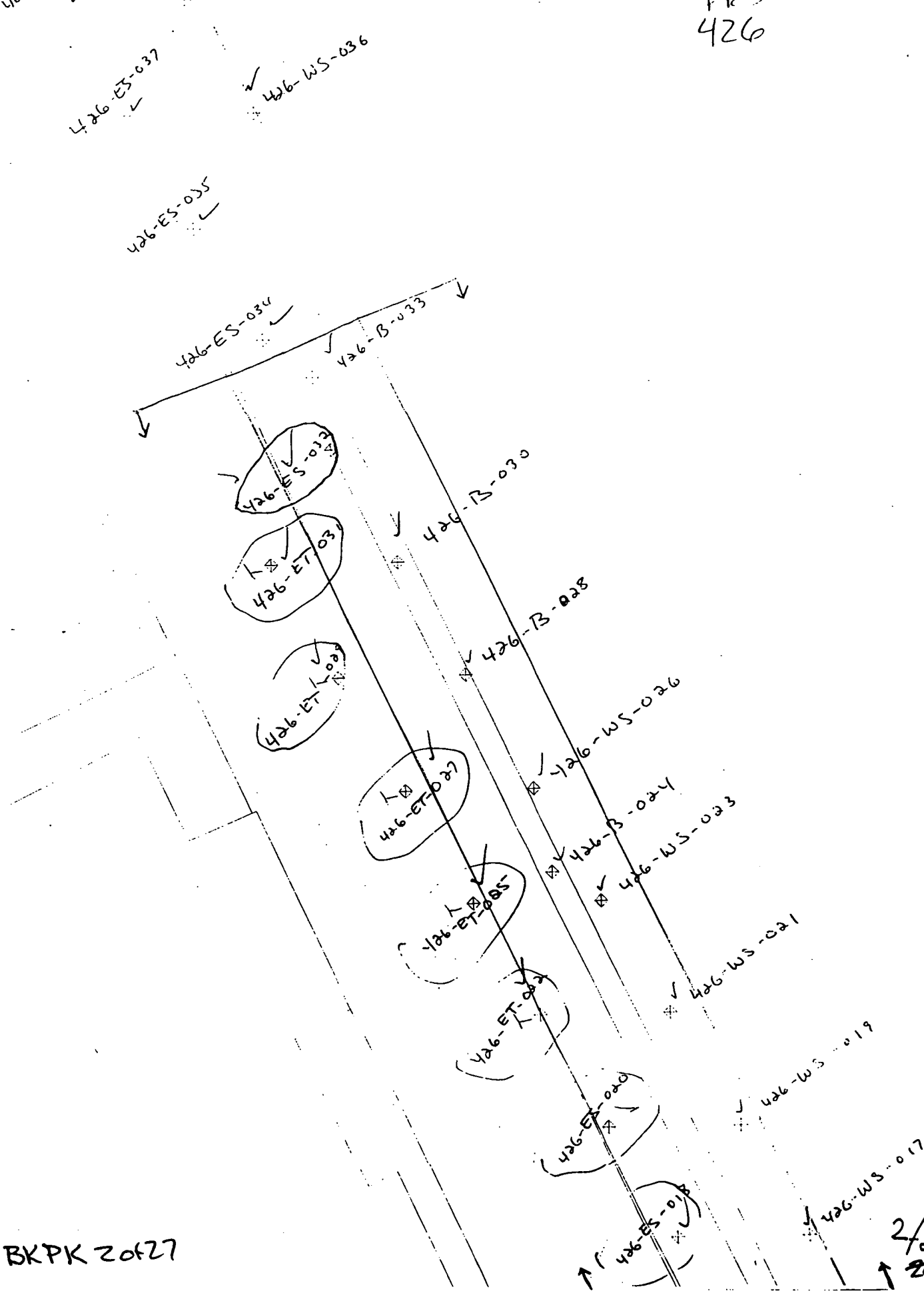

BKPK 20f27

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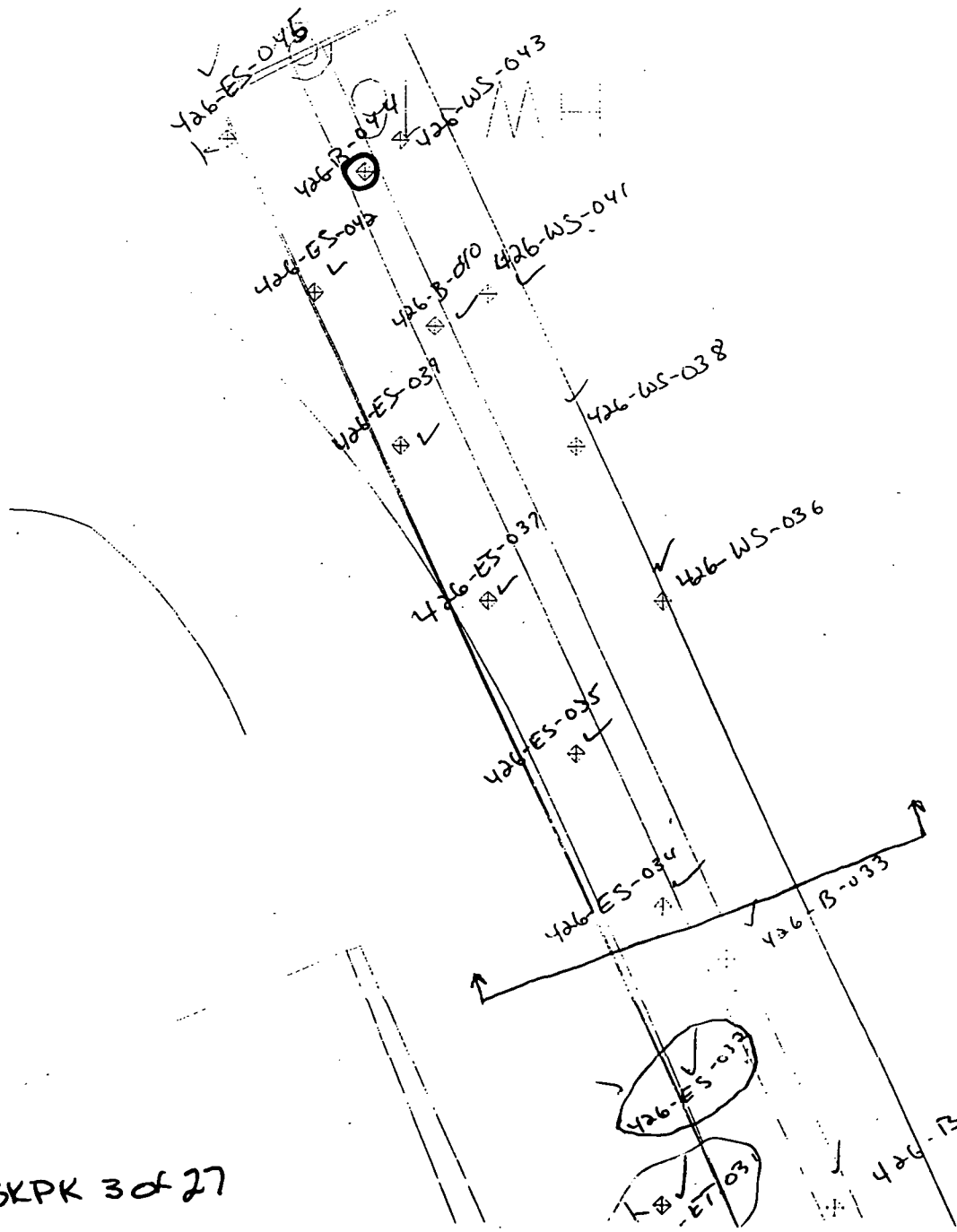

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FSS PRS 426																		
SU1:	Sample #	Ac-227	MDC	Am-241	MDC	Cs-137	MDC	Co-60	MDC	Ra-226	MDC	Pu-238	MDC	Th-228	MDC	Th-230	MDC	Th-232	MDC
426-ES-001	1.1	0.38	0.38	0.14	0.14	0.08	0.08	0.08	0.08	0.59	0.20	0.19	0.19	*0.69*	*0.16*	1.30	0.10	*0.84*	0.0
426-WS-002	2.1	0.35	0.35	0.13	0.13	0.10	0.10	0.10	0.10	*0.38*	*0.35*	0.10	0.10	*0.67*	*0.21*	1.11	0.09	*0.74*	0.1
426-ET-003	3.1	0.23	0.23	0.09	0.09	0.06	0.06	0.07	0.07	*0.31*	*0.25*	0.15	0.15	*0.33*	*0.18*	*0.92*	*0.10*	*0.37*	0.1
426-WS-004	4.1	0.35	0.35	0.12	0.12	0.10	0.10	0.06	0.06	*0.47*	*0.39*	*0.35*	*0.18*	*0.81*	*0.16*	1.22	0.07	*0.62*	0.0
426-B-005	5.1	0.32	0.32	0.11	0.11	0.07	0.07	0.10	0.10	*0.37*	*0.32*	0.19	0.19	*0.72*	*0.19*	1.37	0.08	*0.68*	0.0
426-ET-006	1.2	0.29	0.29	0.10	0.10	0.07	0.07	0.09	0.09	*0.39*	*0.19*	0.16	0.16	*0.25*	*0.15*	*0.98*	*0.10*	*0.29*	0.0
426-WS-007	6.1	0.42	0.42	0.15	0.15	0.10	0.10	0.13	0.13	*0.50*	*0.45*	0.17	0.17	1.10	0.16	1.85	0.10	1.09	0.0
426-ET-008	2.2	0.38	0.38	0.16	0.16	0.11	0.11	0.10	0.10	*0.45*	*0.41*	0.21	0.21	*0.38*	*0.17*	*0.80*	*0.07*	*0.42*	0.0
426-B-009	7.1	0.32	0.32	0.13	0.13	0.09	0.09	0.01	0.10	*0.53*	*0.20*	0.15	0.15	*0.79*	*0.13*	1.23	0.07	*0.55*	0.0
426-ET-010	3.2	0.27	0.27	0.09	0.09	0.06	0.06	0.06	0.06	*0.44*	*0.30*	0.15	0.15	*0.24*	*0.20*	1.40	0.09	*0.24*	0.1
426-B-011	8.1	0.39	0.39	0.15	0.15	0.10	0.10	0.11	0.11	*0.33*	*0.25*	0.19	0.19	*0.82*	*0.13*	1.11	0.06	1.05	0.0
426-ES-013	4.2	0.39	0.39	0.19	0.19	0.12	0.12	0.13	0.13	*0.53*	*0.33*	0.14	0.14	1.13	0.14	1.42	0.05	1.15	0.0
426-ES-014	5.2	0.53	0.53	0.22	0.22	0.15	0.15	0.12	0.12	*0.70*	*0.33*	0.18	0.18	*0.77*	*0.18*	1.05	0.07	*0.78*	0.0
426-B-015	6.2	0.58	0.58	0.19	0.19	0.17	0.17	0.17	0.17	0.50	0.50	0.16	0.16	1.08	0.16	1.45	0.09	*0.89*	0.0
424-NS-016	7.2	0.43	0.43	0.18	0.18	0.14	0.14	0.15	0.15	*0.72*	*0.53*	*0.22*	*0.14*	*0.62*	*0.19*	1.35	0.09	*0.77*	0.0
426-WS-017	8.2	0.42	0.42	0.16	0.16	0.12	0.12	0.12	0.12	*0.41*	*0.39*	0.13	0.13	*0.71*	*0.14*	1.18	0.06	*0.76*	0.0
426-ES-018	9.2	0.63	0.63	0.22	0.22	0.12	0.12	0.13	0.13	*0.98*	*0.65*	0.18	0.18	*0.97*	*0.14*	1.34	0.07	*0.81*	0.0
426-WS-019	10.2	0.39	0.39	0.13	0.13	0.09	0.09	0.12	0.12	*0.49*	*0.41*	0.13	0.13	*0.48*	*0.12*	1.10	0.06	*0.64*	0.0
426-ES-020	11.2	0.43	0.43	0.15	0.15	0.09	0.09	0.11	0.11	*0.54*	*0.46*	0.20	0.20	*0.36*	*0.14*	*0.89*	*0.07*	*0.48*	0.0
426-WS-021	12.2	0.40	0.40	0.17	0.17	0.10	0.10	0.14	0.14	*0.58*	*0.46*	0.20	0.20	*0.80*	*0.16*	1.08	0.08	*0.86*	0.0
426-ET-022	13.2	0.38	0.38	0.15	0.15	0.13	0.13	0.12	0.12	*0.64*	*0.48*	0.15	0.15	*0.67*	*0.14*	1.36	0.06	*0.67*	0.0
426-WS-023	14.2	0.48	0.48	0.19	0.19	0.10	0.10	0.11	0.11	*0.61*	*0.31*	0.23	0.23	1.05	0.11	1.36	0.05	*0.73*	0.0
426-B-024	15.2	0.40	0.40	0.17	0.17	0.13	0.13	0.12	0.12	*0.73*	*0.26*	0.18	0.18	*0.77*	*0.07*	1.42	0.03	*0.63*	0.0
426-ET-025	16.2	0.28	0.28	0.09	0.09	0.09	0.09	0.07	0.07	0.26	0.26	*0.18*	*0.17*	*0.34*	*0.06*	*0.87*	*0.05*	*0.26*	0.0
426-WS-026	17.2	0.49	0.49	0.18	0.18	0.14	0.14	0.15	0.15	0.49	0.49	0.16	0.16	*0.98*	*0.07*	1.08	0.03	*0.67*	0.0
426-ET-027	18.2	0.55	0.55	0.22	0.22	0.20	0.20	0.16	0.16	*0.83*	*0.57*	*0.27*	*0.19*	1.05	0.05	1.49	0.04	1.01	0.0
426-B-028	20.2	0.33	0.33	0.13	0.13	0.09	0.09	0.12	0.12	*0.47*	*0.37*	*0.94*	*0.14*	*0.77*	*0.09*	1.43	0.06	1.00	0.0
426-ET-029	1.3	0.56	0.56	0.23	0.23	*0.18*	0.11	0.12	0.12	*0.85*	0.62	*0.46*	0.12	*0.76*	0.08	1.73	0.05	*0.90*	0.0
426-B-030	2.3	0.52	0.52	0.18	0.18	0.14	0.14	0.17	0.17	*0.53*	0.49	*0.20*	0.15	*0.79*	0.06	*0.37*	0.03	*0.85*	0.0
426-ET-031	3.3	0.55	0.55	0.22	0.22	0.19	0.19	0.16	0.16	*0.62*	0.62	*0.39*	0.16	*0.91*	0.05	1.62	0.05	*0.91*	0.0
426-ES-032	4.3	0.61	0.61	0.20	0.20	0.16	0.16	0.09	0.09	*0.79*	0.62	*0.18*	0.07	*0.72*	0.08	1.16	0.04	*0.79*	0.0
426-B-033	5.3	0.64	0.64	0.26	0.26	0.21	0.21	0.15	0.15	*0.80*	0.72	*0.38*	0.06	*0.81*	0.06	*0.48*	0.03	*0.93*	0.0
426-ES-034	7.3	0.44	0.44	0.18	0.18	0.13	0.13	0.15	0.15	0.52	0.52	*0.19*	0.06	*0.61*	0.07	*0.58*	0.05	*0.61*	0.0
426-ES-035	8.3	0.38	0.38	0.16	0.16	0.11	0.11	0.12	0.12	*0.58*	0.28	0.06	0.06	*0.62*	0.07	1.07	0.05	*0.58*	0.0
426-WS-036	9.3	0.43	0.43	0.16	0.16	0.13	0.13	0.10	0.10	*0.51*	0.44	*0.19*	0.08	*0.55*	0.06	*0.71*	0.04	*0.62*	0.0
426-ES-037	10.3	0.39	0.39	0.14	0.14	0.08	0.08	0.11	0.11	0.46	0.46	0.06	0.06	*0.42*	0.09	*0.20*	0.06	*0.43*	0.0

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Sample Result Missing from Original Backfill Package

	Sample #	Ac-227	MDC	Am-241	MDC	Cs-137	MDC	Co-60	MDC	Ra-226	MDC	Pu-238	MDC	Th-228	MDC	Th-230	MDC	Th-232	MDC
426-B-012		< 0.50	0.50	< 0.19	0.19	< 0.12	0.12	< 0.13	0.13	*0.63*	0.48	< 0.15	0.15	1.08	0.15	1.65	0.08	1.03	0.06

SU1:	Sample #	Ac-227	MDC	Am-241	MDC	Cs-137	MDC	Co-60	MDC	Ra-226	MDC	Pu-238	MDC	Th-228	MDC	Th-230	MDC	Th-232	MDC
426-WS-038	11.3	0.46	0.46	0.18	0.18	0.13	0.13	0.11	0.11	*0.73*	0.49	*0.35*	0.18	*0.73*	0.07	1.19	0.03	*0.73*	0.0
426-ES-039	12.3	0.47	0.57	0.20	0.20	0.13	0.13	0.15	0.15	*0.82*	0.59	0.08	0.08	*0.91*	0.06	1.43	0.03	*0.90*	0.0
426-B-040	13.3	0.47	0.47	0.19	0.19	0.12	0.12	0.15	0.15	*0.64*	0.49	*0.16*	0.07	*0.81*	0.07	1.26	0.05	*0.83*	0.0
426-WS-041	14.3	0.51	0.51	0.18	0.18	0.13	0.13	0.15	0.15	*0.55*	0.55	0.07	0.07	*0.79*	0.05	*0.99*	0.05	*0.76*	0.0
426-ES-042	15.3	0.49	0.49	0.16	0.16	0.12	0.12	0.09	0.09	*0.77*	0.48	*0.05*	0.05	*0.79*	0.06	1.35	0.05	*0.84*	0.0
426-WS-043	16.3	0.51	0.51	0.19	0.19	0.13	0.13	0.15	0.15	*0.81*	0.53	*0.57*	0.09	*0.79*	0.09	1.03	0.05	*0.73*	0.0
426-B-044	17.3	0.30	0.30	0.14	0.14	0.09	0.09	0.11	0.11	*0.58*	0.39	*0.69*	0.11	*0.60*	0.10	*0.63*	0.05	*0.55*	0.0
426-ET-045	18.3	0.55	0.55	0.20	0.20	0.13	0.13	0.18	0.18	0.55	0.55	*0.43*	0.07	*0.84*	0.08	1.13	0.04	*0.84*	0.0
Hot Spot:		13.61		189.00		10.62		2.10		4.70		165.13		4.80		4.60		3.50	
Action Level (CO):		4.60		63.00		3.80		0.70		2.90		55.00		2.60		2.80		2.10	
Maximum:		0.64		0.26		0.21		0.18		0.98		0.94		1.13		1.85		1.15	
below/ABOVE CO:		below		below		below		below		below		below		below		below		below	
Standard Deviation:		0.10		0.04		0.04		0.03		0.16		0.17		0.22		0.34		0.22	

Lab/Field Duplicates:	Sample #	Ac-227	MDC	Am-241	MDC	Cs-137	MDC	Co-60	MDC	Ra-226	MDC	Pu-238	MDC	Th-228	MDC	Th-230	MDC	Th-232	MDC
426-ES-001 Lab Dup		0.31	0.31	0.12	0.12	0.08	0.08	0.08	0.08	*0.43*	*0.32*	0.15	0.15	*0.59*	*0.19*	*0.88*	*0.09*	*0.83*	0.0
426-ET-006 Lab Dup		0.30	0.30	0.10	0.10	0.07	0.07	0.05	0.05	*0.32*	*0.32*	0.20	0.20	0.39	0.20	0.94	0.10	0.23	0.0
426-ET-027 FD	19.2	0.55	0.55	0.22	0.22	0.16	0.16	0.13	0.13	*1.02*	*0.64*	*0.28*	*0.15*	*0.89*	*0.06*	1.31	0.07	*0.89*	0.0
426-ET-029 Lab Dup		0.53	0.53	0.21	0.21	*0.19*	0.13	0.13	0.13	*0.65*	0.51	*0.59*	0.15	*0.93*	0.07	1.37	0.05	*0.89*	0.0
426-B-033 FD	6.3	0.53	0.53	0.23	0.23	0.16	0.16	0.14	0.14	0.55	0.55	*0.26*	0.07	1.02	0.09	1.57	0.05	1.17	0.0
Hot Spot:		13.61		189.00		10.62		2.10		4.70		165.13		4.80		4.60		3.50	
Action Level (CO):		4.60		63.00		3.80		0.70		2.90		55.00		2.60		2.80		2.10	

Rad Bias:	Sample #	Ac-227	MDC	Am-241	MDC	Cs-137	MDC	Co-60	MDC	Ra-226	MDC	Pu-238	MDC	Th-228	MDC	Th-230	MDC	Th-232	MDC
426-B-012	9.1	0.50	0.50	0.19	0.19	0.12	0.12	0.13	0.13	*0.63*	*0.48*	0.15	0.15	*0.24*	*0.15*	1.40	0.08	*0.24*	0.0
Hot Spot:		13.61		189.00		10.62		2.10		4.70		165.13		4.80		4.60		3.50	
Action Level (CO):		4.60		63.00		3.80		0.70		2.90		55.00		2.60		2.80		2.10	

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Sample Standard Deviation (s)	Radionuclide	Cleanup Objective	Units
0.10	Ac-227+D	4.6	(pCi/g)
0.04	Am-241	63	(pCi/g)
	Ce-141	38	(pCi/g)
0.04	Cs-137+D	3.8	(pCi/g)
0.03	Co-60	0.7	(pCi/g)
	Cu-244	92	(pCi/g)
	Pb-210+D	7.4	(pCi/g)
	Np-237+D	10.4	(pCi/g)
	NI-95	2.5	(pCi/g)
0.17	Pu-238	55	(pCi/g)
	Pu-239/240	62	(pCi/g)
	Pa-231+D	4	(pCi/g)
0.16	Ra-226+D	2.9	(pCi/g)
	Ra-228	2.1	(pCi/g)
	Th-228+D	2.6	(pCi/g)
0.34	Th-230+D	2.8	(pCi/g)
0.22	Th-232+D	2.1	(pCi/g)
	U-233+D	4.8	(pCi/g)
	U-234	106.1	(pCi/g)
	U-234+D	2	(pCi/g)
	U-235	16.11	(pCi/g)
	U-235+D	3.2	(pCi/g)
	U-238	121.2	(pCi/g)
	U-238+D	2.2	(pCi/g)
	Bi-207	1.2	(pCi/g)
	Bi-210m	8.3	(pCi/g)
	Tc-99	2140	(pCi/g)
	Sr-90	94.72	(pCi/g)

FSS CALCULATIONS

Type I Error	0.05	*Estimate (N) - Sign Test*	
$Z_{1-alpha}$	1.645	DCGL	1
Type II Error	0.2	LBGR	0.50
Z_{1-beta}	0.842	Delta	0.50
		(s)	0.18
		Rel Shift	2.831
Effective	0.18 *(s)*	*(N)* =	8.00

(we had 45) ✓

Sign p 0.993790

Calculate the Total Effective (s)

Sample Grid Spacing

Area Factor adjusted (N) 228

SU Area	684	m^2
Grid Length	8.6	m
Grid Height	7.5	m

PRS 426

Survey Unit 1

A179/196

1.0 Introduction

Analytical data assessment can be performed on many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 426 covers a section of the radioactive underground line removal west of SW Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met. Bias Samples were also collected.

Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

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Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
9/14/04	F4I170217	9	426-ES-001, 426-WS-002, 426-ET-003, 426-WS-004, 426-B-005, 426-WS-007, 426-B-009, 426-VB-010, & 426-B-012
9/14-15/04	F4I220182	20	426-ET-006, 426-ET-008, 426-ET-010, 426-ES-013, 426-ES-014, 426-B-015, 426-NS-016, 426-WS-017, 426-ES-018, 426-WS-019, 426-ES-020, 426-WS-021, 426-ET-022, 426-WS-023, 426-B-024, 426-ET-025, 426-WS-026, 426-ET-027, 426-ET-027FD, & 426-B-028,
9/14-15/04	F4I220172	18	426-ET-029, 426-B-030, 426-ET-031, 426-ES-032, 426-B-033, 426-B-033 FD, 426-ES-034, 426-ES-035, 426-WS-036, 426-ES-037, 426-WS-038, 426-ES-039, 426-B-040, 426-WS-041, 426-ES-042, 426-WS-043, 426-B-044, & 426-ET-045

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3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD). The laboratory reported all of the gamma emitting isotopes of interest

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

There were no isotopes of interest measured in the blanks associated with these samples.

4.2 Laboratory Duplicates

A laboratory duplicate (DUP) analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples.

Quantitative interpretation of the duplicate sample has little meaning here since almost all measurements were less than the Minimum Detectable Activity (MDA). Those isotopes detected were less than the Practical Quantitation Limit (PQL). It should be noted that all non-detects were non-detects in the duplicate sample. All the detected isotopes in the original sample were also detected in the duplicate.

4.3 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the isotopes of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

The recoveries of the 3 isotopes in the LCS ranged from 97 to 106%. This is well within the acceptable 90 – 111% range.

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4.4 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

4.5 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

Two field duplicates were collected. Agreement between field duplicates was good; however, the concentration of the isotopes detected was very low.

5.0 Data Validation

The results were further validated by examination of the following items:

1. Instrument Calibration data
2. Daily Instrument performance check
3. Background measurements

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

6.0 Certification

Based upon this review the Gamma Spectroscopy analysis data maybe used as presented with no further qualifications.

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Table 3 PRS 426 (UGL) Gamma Spectroscopy Analysis

pCi/g	Ac-227	Am-241	Cs-137	Co-60	Ra-226	Ac-228	Bi-214	Pb-212	Pb-214	Ra-228
Action Level	4.6	63	3.8	0.7	2.9					
426-ES-001	< 0.38	< 0.14	< 0.08	< 0.08	0.59		0.56	0.60	0.46	
426-ES-001 Lab Dup	< 0.31	< 0.12	< 0.08	< 0.08	0.43		0.42	0.48	0.44	
426-WS-002	< 0.35	< 0.13	< 0.10	< 0.10	0.38			0.58	0.33	
426-ET-003	< 0.23	< 0.09	< 0.06	< 0.07	0.31		0.28	0.19	0.41	
426-WS-004	< 0.35	< 0.12	< 0.10	< 0.06	0.47	0.55	0.52	0.50	0.44	0.55
426-B-005	< 0.32	< 0.11	< 0.07	< 0.10	0.37	0.53	0.38	0.38	0.44	0.53
426-ET-006	< 0.29	< 0.10	< 0.07	< 0.09	0.39		0.37	0.18	0.41	
426-ET-006 Lab Dup	< 0.30	< 0.10	< 0.07	< 0.05	< 0.32		0.41	0.17	0.52	
426-WS-007	< 0.42	< 0.15	< 0.10	< 0.13	0.50		0.60	0.65	0.64	
426-ET-008	< 0.38	< 0.16	< 0.11	< 0.10	0.45		0.70	0.23	0.37	
426-B-009	< 0.32	< 0.13	< 0.09	< 0.01	0.53		0.48	0.49	0.42	
426-ET-010	< 0.27	< 0.09	< 0.06	< 0.06	0.44		0.37	0.16	0.32	
426-B-011	< 0.39	< 0.15	< 0.10	< 0.11	0.33	0.47	0.38	0.58	0.40	0.47
426-B-012	< 0.50	< 0.19	< 0.12	< 0.13	0.63	1.00	0.70	0.84	0.66	1.00
426-ES-013	< 0.39	< 0.19	< 0.12	< 0.13	0.53	0.81	0.70	1.02	0.60	0.80
426-ES-014	< 0.53	< 0.22	< 0.15	< 0.12	0.70		0.63	0.82	0.68	
426-B-015	< 0.58	< 0.19	< 0.17	< 0.17	< 0.50	1.01	0.57	0.68	0.82	1.01
424-NS-016	< 0.43	< 0.18	< 0.14	< 0.15	0.72		0.47	0.80	0.69	
426-WS-017	< 0.42	< 0.16	< 0.12	< 0.12	0.41		0.43	0.69	0.69	
426-ES-018	< 0.63	< 0.22	< 0.12	< 0.13	0.98	1.13	0.91	0.91	0.98	1.13
426-WS-019	< 0.39	< 0.13	< 0.09	< 0.12	0.49		0.35	0.49	0.40	
426-ES-020	< 0.43	< 0.15	< 0.09	< 0.11	0.54		0.60	0.45	0.50	
426-WS-021	< 0.40	< 0.17	< 0.10	< 0.14	0.58		0.57	0.68	0.49	
426-ET-022	< 0.38	< 0.15	< 0.13	< 0.12	0.64		0.58	0.45	0.61	
426-WS-023	< 0.48	< 0.19	< 0.10	< 0.11	0.61	0.55	0.83	0.92	0.78	0.55
426-B-024	< 0.40	< 0.17	< 0.13	< 0.12	0.73		0.60	0.60	0.57	

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pCi/g	Ac-227	Am-241	Cs-137	Co-60	Ra-226	Ac-228	Bi-214	Pb-212	Pb-214	Ra-228
Action Level	4.6	63	3.8	0.7	2.9					
426-ET-025	< 0.28	< 0.09	< 0.09	< 0.07	< 0.26		*0.41*	*0.18*	*0.33*	
426-WS-026	< 0.49	< 0.18	< 0.14	< 0.15	< 0.49		*0.57*	*0.60*	*0.60*	
426-ET-027	< 0.55	< 0.22	< 0.20	< 0.16	*0.83*	1.29	*0.85*	1.08	*0.99*	1.29
426-ET-027 FD	< 0.55	< 0.22	< 0.16	< 0.13	*1.02*	1.15	*0.89*	1.03	*0.95*	1.15
426-B-028	< 0.33	< 0.13	< 0.09	< 0.12	*0.47*		*0.56*	*0.58*	*0.34*	
426-ET-029	< 0.56	< 0.23	*0.18*	< 0.12	*0.85*	*0.82*	*0.80*	*0.71*	*0.94*	*0.82*
426-ET-029 Lab Dup	< 0.53	< 0.21	*0.19*	< 0.13	*0.65*	1.05	*0.70*	*0.81*	*0.87*	1.05
426-B-030	< 0.52	< 0.18	< 0.14	< 0.17	*0.53*	*0.90*	*0.57*	*0.88*	*0.62*	*0.90*
426-ET-031	< 0.55	< 0.22	< 0.19	< 0.16	*0.62*		*0.63*	*0.77*	*0.86*	
426-ES-032	< 0.61	< 0.20	< 0.16	< 0.09	*0.79*	*0.93*	*0.56*	*0.78*	*0.75*	*0.93*
426-B-033	< 0.64	< 0.26	< 0.21	< 0.15	*0.80*	1.23	1.03	*0.81*	*0.86*	1.23
426-B-033 FD	< 0.53	< 0.23	< 0.16	< 0.14	< 0.55		*0.70*	*0.86*	*0.76*	
426-ES-034	< 0.44	< 0.18	< 0.13	< 0.15	< 0.52		*0.66*	*0.51*	*0.71*	
426-ES-035	< 0.38	< 0.16	< 0.11	< 0.12	*0.58*		*0.40*	*0.42*	*0.44*	
426-WS-036	< 0.43	< 0.16	< 0.13	< 0.10	*0.51*		*0.61*	*0.59*	*0.57*	
426-ES-037	< 0.39	< 0.14	< 0.08	< 0.11	< 0.46		*0.64*	*0.51*	*0.53*	
426-WS-038	< 0.46	< 0.18	< 0.13	< 0.11	*0.73*	*0.88*	*0.69*	*0.61*	*0.74*	*0.88*
426-ES-039	< 0.47	< 0.20	< 0.13	< 0.15	*0.82*		*0.77*	*0.78*	*0.52*	
426-B-040	< 0.47	< 0.19	< 0.12	< 0.15	*0.64*	*0.75*	*0.66*	*0.74*	*0.67*	*0.75*
426-WS-041	< 0.51	< 0.18	< 0.13	< 0.15	< 0.55	*0.65*	*0.39*	*0.47*		*0.65*
426-ES-042	< 0.49	< 0.16	< 0.12	< 0.09	*0.77*		*0.48*	*0.68*	*0.49*	
426-WS-043	< 0.51	< 0.19	< 0.13	< 0.15	*0.81*		*0.42*	*0.63*	*0.62*	
426-B-044	< 0.30	< 0.14	< 0.09	< 0.11	*0.58*	*0.64*	*0.42*	*0.45*	*0.60*	*0.64*
426-ET-045	< 0.55	< 0.20	< 0.13	< 0.18	< 0.55	*0.53*	*0.69*	*0.74*	*0.54*	*0.53*
Blank 1	< 0.18	< 0.07	< 0.05	< 0.08	< 0.16					
Blank 2	< 0.22	< 0.09	< 0.07	< 0.02	< 0.19					
Blank 3	< 0.22	< 0.07	< 0.05	< 0.06	< 0.18					
LCS 1 % recovery		103	103	103						

A184/198

RKPK 2

pCi/g	Ac-227	Am-241	Cs-137	Co-60	Ra-226	Ac-228	Bi-214	Pb-212	Pb-214	Ra-228
Action Level	4.6	63	3.8	0.7	2.9					
LCS 2 % recovery		101	101	97						
LCS 3 % recovery		106	110	100						

"<" Quantities indicate non-detects with stated MDAs
Italic results are detects below the Practical Quantitation Level (PQL)
Blank cells indicate non-detects

A164a/198

BKPK 13/2

1.0 Introduction

Analytical data assessment can be performed on many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 426 covers a section of the radioactive underground line removal west of SW Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met.

Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

BKPK 14/27

A185/198

Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
9/14/04	F4I170217	9	426-ES-001, 426-WS-002, 426-ET-003, 426-WS-004, 426-B-005, 426-WS-007, 426-B-009, 426-VB-010, & 426-B-012
9/14-15/04	F4I220182	20	426-ET-006, 426-ET-008, 426-ET-010, 426-ES-013, 426-ES-014, 426-B-015, 426-NS-016, 426-WS-017, 426-ES-018, 426-WS-019, 426-ES-020, 426-WS-021, 426-ET-022, 426-WS-023, 426-B-024, 426-ET-025, 426-WS-026, 426-ET-027, 426-ET-027FD, & 426-B-028,
9/14-15/04	F4I220172	18	426-ET-029, 426-B-030, 426-ET-031, 426-ES-032, 426-B-033, 426-B-033 FD, 426-ES-034, 426-ES-035, 426-WS-036, 426-ES-037, 426-WS-038, 426-ES-039, 426-B-040, 426-WS-041, 426-ES-042, 426-WS-043, 426-B-044, & 426-ET-045

BKPK 5/27

A186/198

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD).

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process..

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

No Pu isotopes of interest were detected in the blanks associated with these samples.

4.2 Tracer Yields

Each sample is spiked with a known amount of an internal standard, Pu-242, prior to sample preparation. The measured recovery percentage (% yield) of this 'tracer' is then used to scale the measured concentrations of the other isotopes. Tracer yields less than 20% or greater than 110% should be recounted and possibly re-prepared. Within a given sample matrix significant yield inconsistencies may be indicative of problems with sample preparation.

No sample tracer yields were below 20%. The lowest tracer yield was 34% for sample 426-WS-038. A low tracer yield would be expected to bias the sample results high. No Pu isotopes of interest above the Practical Quantitation Limit (PQL) were detected for this sample so no further action is warranted.

The tracer recovery was outside acceptance limits for 1 of the 3 Laboratory Control Samples (LCS). The LCS spike recoveries are within QC limits suggesting acceptable sample preparation and instrument performance. The excessive tracer recovery was an apparent anomaly in the sample preparation, isolated to the LCS and not indicative of the batch.

The average tracer yield was an acceptable 90% with a standard deviation of 13.5.

BKPK 16/27

A187/198

4.3 Laboratory Duplicates

A laboratory duplicate analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples or LSDG. For very small detection levels the Relative Error Ratio (RER) is a more meaningful metric the % Difference. To meet QC criteria the of duplicate samples must be < 3.0.

$$RER = \frac{[\text{Sample Result} - \text{Duplicate Result}]}{[TPU^2_{sample} + TPU^2_{dup}]^{1/2}}$$

where TPU is the Total Propagated Error.

It is known that for Mound soils plutonium contamination is usually distributed non-homogeneously even in dried and ground samples. The divergent results obtained from reanalysis of the same sample usually demonstration of this fact and not the laboratory's capability for precision.

Only the Pu-238 isotope was detected in the duplicate pair. Agreement met QC criteria.

4.4 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the isotopes of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

The isotope recoveries for the LCS ranged from 88 to 100%. This meets QC criteria.

4.5 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

4.6 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

Two field duplicates were collected. Agreement between field duplicates was good; however, with only low concentrations measured it is not reasonable to make a comment about sample homogeneity.

5.0 Data Validation

The results were further validated by examination of the following items:

1. Instrument calibration

BKPK 17/27

A188/198

2. Daily Source checks
3. Background and efficiency measurement
4. Proper frequency and use of blanks
5. All calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

6.0 Certification

Based upon this review the Pu Alpha Spectroscopy analysis data maybe used as presented with no further qualifications.

BKPK 18/

A189/ 193

Table 3 PRS 426 (UGL) Pu Alpha Spectroscopy Analysis

pCi/g	Pu-238	Pu-239/240	Pu-242
Action Level	55		% yield
426-ES-001	< 0.19	< 0.11	67
426-ES-001 Lab Dup	< 0.15	< 0.08	100
426-WS-002	< 0.10	< 0.06	91
426-ET-003	< 0.15	< 0.06	109
426-WS-004	*0.35*	< 0.09	110
426-B-005	< 0.19	< 0.10	94
426-ET-006	< 0.16	< 0.07	104
426-ET-006 Lab Dup	< 0.20	< 0.08	116
426-WS-007	< 0.17	< 0.11	84
426-ET-008	< 0.21	< 0.13	88
426-B-009	< 0.15	< 0.05	115
426-ET-010	< 0.15	< 0.10	92
426-B-011	< 0.19	< 0.10	84
426-B-012	< 0.15	< 0.10	93
426-ES-013	< 0.14	< 0.05	97
426-ES-014	< 0.18	< 0.09	87
426-B-015	< 0.16	< 0.10	84
424-NS-016	*0.22*	< 0.06	92
426-WS-017	< 0.13	< 0.06	87
426-ES-018	< 0.18	< 0.09	82
426-WS-019	< 0.13	< 0.07	103
426-ES-020	< 0.20	< 0.05	84
426-WS-021	< 0.20	< 0.09	90
426-ET-022	< 0.15	< 0.07	89
426-WS-023	< 0.23	< 0.11	87
426-B-024	< 0.18	< 0.10	101
426-ET-025	*0.18*	*0.41*	83
426-WS-026	< 0.16	< 0.05	83
426-ET-027	*0.27*	< 0.10	84
426-ET-027 FD	*0.28*	< 0.10	88
426-B-028	*0.94*	*0.06*	93
426-ET-029	*0.46*	< 0.04	107
426-ET-029 Lab Dup	*0.59*	< 0.08	86
426-B-030	*0.20*	< 0.07	106
426-ET-031	*0.39*	< 0.07	82
426-ES-032	*0.18*	< 0.03	90
426-B-033	*0.38*	< 0.03	85
426-B-033 FD	*0.26*	< 0.04	83
426-ES-034	*0.19*	< 0.03	89

BKPK 19/27

A190/198

pCi/g	Pu-238	Pu-239/240	Pu-242
Action Level	55		% yield
426-ES-035	< 0.06	< 0.04	94
426-WS-036	*0.19*	< 0.04	90
426-ES-037	< 0.06	< 0.05	87
426-WS-038	*0.35*	< 0.12	**34**
426-ES-039	< 0.08	< 0.07	82
426-B-040	*0.16*	< 0.05	91
426-WS-041	< 0.07	< 0.06	84
426-ES-042	*0.05*	< 0.05	89
426-WS-043	*0.57*	< 0.06	82
426-B-044	*0.69*	< 0.10	51
426-ET-045	*0.43*	< 0.06	93
Blank 1	< 0.14	< 0.06	104
Blank 2	< 0.10	< 0.03	87
Blank 3	< 0.06	< 0.03	89
LCS 1 % recovery	98	96	86
LCS 2 % recovery	88	93	115
LCS 3 % recovery	91	100	93

"<" Quantities indicate non-detects with stated MDAs.
Blank cells indicate non-detects.
Bold results indicate QC values outside QC criteria.
Italic results are detection less than the Practical Quantitation Limit (PQL).

BKPK20

A191/198

1.0 Introduction

Analytical data assessment can be performed on many quality control levels. On the most basic level the data can be reviewed for completeness. Does the reported data cover the intended samples? Were the samples analyzed for the planned analyses? Does the data package contain all the information called for by the SOW and/or SAP?

A Data Review involves an assessment of the quality controls used by the laboratory during the performance of the analysis. These include such things as laboratory blanks, system monitoring compound (surrogate) recoveries, matrix spikes, etc. Were the correct QC controls used, and does the QC data indicate the analyses were performed acceptably? Which controls are assessed and what criteria are applied depend on the analysis performed. The results of field quality control measures such as field duplicates and trip blanks may also be evaluated. Data Review is normally performed on 100% of the analytical data.

A full Data Validation is a much more detailed review of the entire laboratory data package. It includes all the elements of the Data Review plus verification of such things as proper instrument calibration, proper use of standards and correct performance of data calculations. Data Validation is used to identify systemic problems with the way the laboratory performs and reports analyses.

2.0 Description of the Data Set

PRS 426 covers a section of the radioactive underground line removal west of SW Building. The removal of the underground line left a trench 6 to 12 feet in width and approximately 15 feet deep. Surface soil samples were collected from locations on statistically selected grid locations on the bottom, walls and shoulders of the trench to verify that cleanup objectives were met.

Samples were collected using the bucket of an excavator for reasons of safety.

All samples were collected and analyzed as planned.

Since no equipment was field decontaminated, no equipment rinsates samples were collected.

All samples were run for a long count screening at the Mound Soil Screening Laboratory (Gamma Spec) prior to off site analysis. Offsite sample analyses were performed at Severn Trent Laboratories, St. Louis.

There were no problems associated with the documentation, shipment, or chain of custody of the samples. There were no problems in achieving the analyte detection goals.

BKPK 21/27

A192/198

Table 1 Sampling Event

Sample Date	LSDG	Number of Samples	Mound Sample IDs
9/14/04	F4I170217	9	426-ES-001, 426-WS-002, 426-ET-003, 426-WS-004, 426-B-005, 426-WS-007, 426-B-009, 426-VB-010, & 426-B-012
9/14-15/04	F4I220182	20	426-ET-006, 426-ET-008, 426-ET-010, 426-ES-013, 426-ES-014, 426-B-015, 426-NS-016, 426-WS-017, 426-ES-018, 426-WS-019, 426-ES-020; 426-WS-021, 426-ET-022, 426-WS-023, 426-B-024, 426-ET-025, 426-WS-026, 426-ET-027, 426-ET-027FD, & 426-B-028,
9/14-15/04	F4I220172	18	426-ET-029, 426-B-030, 426-ET-031, 426-ES-032, 426-B-033, 426-B-033 FD, 426-ES-034, 426-ES-035, 426-WS-036, 426-ES-037, 426-WS-038, 426-ES-039, 426-B-040, 426-WS-041, 426-ES-042, 426-WS-043, 426-B-044, & 426-ET-045

BKPK 72

A193/198

3.0 Data Completeness

The correct samples were submitted and analyzed for the analyses requested in the Survey Unit Design (SUD).

4.0 Data Review

The quality control data submitted with the analytical data packages were reviewed and assessed. The results of the assessment are presented in this section. The following qualification flags are used to indicate data quality problems identified during the data review process.

Table 2 Data Review Qualifications

Flag	Description
J	Estimated sample result
U	Non-detect sample result
UJ	Estimated non-detected sample result
R	Rejected (unusable) sample result

4.1 Blanks

The laboratory analyzes one blank for every 20 samples or LSDG. Laboratory blanks are analyzed to determine if laboratory processes are contributing to the detected sample activities.

Trace amounts (0.11 to 0.26 pCi/g) of Th-230 were detected in the blanks associated with these samples. This is a typical amount of laboratory contamination.

4.2 Tracer Yields

Each sample is spiked with a known amount of an internal standard, Th-229, prior to sample preparation. The measured recovery percentage (% yield) of this 'tracer' is then used to scale the measured concentrations of the other isotopes. Tracer yields less than 20% or greater than 110% should be recounted and possibly re-prepared. Within a given sample matrix significant yield inconsistencies may be indicative of problems with sample preparation.

All tracer yields were within acceptable bounds.

The average tracer yield was an acceptable 87% with a standard deviation of 12.

4.3 Laboratory Duplicates

A laboratory duplicate analysis is performed to assess the precision and accuracy of the laboratory analysis. One duplicate is performed for every 20 samples or LSDG. For very small detection levels the Relative Error Ratio (RER) is a more meaningful metric the % Difference. To meet QC criteria the Relative Error Ratio of duplicate samples must be < 3.0.

BKPK 23/27

A194/198

$$RER = \frac{[\text{Sample Result} - \text{Duplicate Result}]}{[TPU^2_{sample} + TPU^2_{dup}]^{1/2}}$$

where TPU is the Total Propagated Error.

Lab Duplicates for Th isotopes demonstrated good agreement.

4.4 Laboratory Control Sample

The Laboratory Control Sample (LCS) is a standard sample with a known quantity of the isotopes of concern. The LCS recovery is an indication of whether the analytical process was in control during the analysis.

The Th-230 isotope recoveries for the LCS ranged from 89 and 119%. This meets QC criteria.

4.5 Equipment Rinsates

Equipment rinsates are used to ensure efficacy of equipment field decontamination procedures, and that the sample collection process is not causing cross contamination.

No equipment rinsates were collected.

4.6 Field Duplicates

Field Duplicates give an indication of the degree of homogeneity within the sample material. As with Laboratory duplicates they are reported as RPD.

There were two Field Duplicate collected. Agreement between field duplicates was good for Th-228 and Th-232. The RER for Th-230 was slightly high suggesting there might be some degree of sample non-homogeneity.

5.0 Data Validation

The results were further validated by examination of the following items:

1. Instrument calibration
2. Daily Source checks
3. Background and efficiency measurement
4. Proper frequency and use of blanks
5. All calculations

No additional qualification resulted from this assessment. There was no indication of a systemic deficiency.

BKPK 24/

A195/196

6.0 Certification

Based upon this review the Th Alpha Spectroscopy analysis data maybe used as presented with no further qualifications.

BKPK 25/27
A196/198

Table 3 PRS 426 (UGL) Th Alpha Spectroscopy Analysis

pCi/g	Th-228	Th-230	Th-232	Th-229
Action Level	2.6	2.8	2.1	% yield
426-ES-001	*0.69*	1.30	*0.84*	102
426-ES-001 Lab Dup	*0.59*	*0.88*	*0.83*	108
426-WS-002	*0.67*	1.11	*0.74*	91
426-ET-003	*0.33*	*0.92*	*0.37*	80
426-WS-004	*0.81*	1.22	*0.62*	110
426-B-005	*0.72*	1.37	*0.68*	83
426-ET-006	*0.25*	*0.98*	*0.29*	97
426-ET-006 Lab Dup	0.39	0.94	0.23	92
426-WS-007	1.10	1.85	1.09	89
426-ET-008	*0.38*	*0.80*	*0.42*	100
426-B-009	*0.79*	1.23	*0.55*	107
426-ET-010	*0.24*	1.40	*0.24*	64
426-B-011	*0.82*	1.11	1.05	87
426-B-012	*0.24*	1.40	*0.24*	64
426-ES-013	1.13	1.42	1.15	87
426-ES-014	*0.77*	1.05	*0.78*	78
426-B-015	1.08	1.45	*0.89*	73
424-NS-016	*0.62*	1.35	*0.77*	58
426-WS-017	*0.71*	1.18	*0.76*	70
426-ES-018	*0.97*	1.34	*0.81*	92
426-WS-019	*0.48*	1.10	*0.64*	96
426-ES-020	*0.36*	*0.89*	*0.48*	86
426-WS-021	*0.80*	1.08	*0.86*	88
426-ET-022	*0.67*	1.36	*0.67*	82
426-WS-023	1.05	1.36	*0.73*	80
426-B-024	*0.77*	1.42	*0.63*	85
426-ET-025	*0.34*	*0.87*	*0.26*	87
426-WS-026	*0.98*	1.08	*0.67*	91
426-ET-027	1.05	1.49	1.01	94
426-ET-027 FD	*0.89*	1.31	*0.89*	92
426-B-028	*0.77*	1.43	1.00	81
426-ET-029	*0.76*	1.73	*0.90*	90
426-ET-029 Lab Dup	*0.93*	1.37	*0.89*	92
426-B-030	*0.79*	*0.37*	*0.85*	95
426-ET-031	*0.91*	1.62	*0.91*	82
426-ES-032	*0.72*	1.16	*0.79*	95
426-B-033	*0.81*	*0.48*	*0.93*	103
426-B-033 FD	1.02	1.57	1.17	76
426-ES-034	*0.61*	*0.58*	*0.61*	76

BKPK 2

A197/198

pCi/g	Th-228	Th-230	Th-232	Th-229
Action Level	2.6	2.8	2.1	% yield
426-ES-035	*0.62*	1.07	*0.58*	88
426-WS-036	*0.55*	*0.71*	*0.62*	101
426-ES-037	*0.42*	*0.20*	*0.43*	87
426-WS-038	*0.73*	1.19	*0.73*	86
426-ES-039	*0.91*	1.43	*0.90*	87
426-B-040	*0.81*	1.26	*0.83*	84
426-WS-041	*0.79*	*0.99*	*0.76*	82
426-ES-042	*0.79*	1.35	*0.84*	88
426-WS-043	*0.79*	1.03	*0.73*	76
426-B-044	*0.60*	*0.63*	*0.55*	50
426-ET-045	*0.84*	1.13	*0.84*	91
Blank 1	< 0.08	*0.17*	< 0.05	85
Blank 2	< 0.06	*0.26*	< 0.05	90
Blank 3	< 0.08	0.11	*0.04*	92
LCS 1 % recovery		106		84
LCS 2 % recovery		89		99
LCS 3 % recovery		119		81

"<" Quantities indicate non-detects with stated MDAs.
Blank cells indicate non-detects.
Bold results indicate QC values outside QC criteria.
Italic results are detections above MDA but below Practical Quantitation Limits (PQL)

BKPK27
A198/198

APPENDIX B

GENERAL MEDIA INFORMATION

(There was no information released to the media regarding PRSs 423, 424, and 426)

APPENDIX C

PHOTOGRAPH DOCUMENTATION

PRS 423 Looking West
During Excavation

PRS 424 Looking East
During Excavation

C1/2

PRS 426 Looking North During Excavation

PRS 426 Looking South During Excavation

C2/2