3001-0007250001

BWX Technologies, Inc.
a McDermott company

BWXT of Ohio, Inc.
1 Mound Road
P.O. Box 3030
Miamisburg, Ohio 45343-3030
(937) 865-4020

ESC-109/00
July 25, 2000

00-TC/07-25

Mr. Richard B. Provencher, Director
Miamisburg Environmental Management Project
U.S. Department of Energy
P.O. Box 66
Miamisburg, OH 45343-0066

ATTENTION: Dewain Eckman

SUBJECT: Contract No. DE-AC24-97OH20044
POTENTIAL RELEASE SITE (PRS) 281 DATA PACKAGE - FINAL VERSION

REFERENCE: Statement of Work Requirement C 7.1e -- Regulator Reports

Dear Mr. Provencher:

The final Potential Release Site (PRS) 281 Data Package is attached. The release of this document to USEPA, OEPA, ODH, and the public reading room has been authorized by Art Kleinrath of MEMP.

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

Sincerely,

JSStapleton

Jeffrey S. Stapleton
Manager, Environmental Safeguards & Compliance

JSS/nmg

Enclosures as stated

cc: Tim Fischer, USEPA, (1) w/attachment
Brian Nickel, OEPA, (1) w/attachment
Ruth Vandegrift, ODH, (1) w/attachment
Art Kleinrath, MEMP, (2) w/attachment
Terrence Tracy, DOE/HQ, (1) w/attachment
Dann Bird, MMCIC, (2) w/attachment
John Price, BWXT of Ohio, (2) w/attachment
Public Reading Room, (5) w/attachment
Administrative Record, (2) w/attachment
DCC

3001 – 0007250001

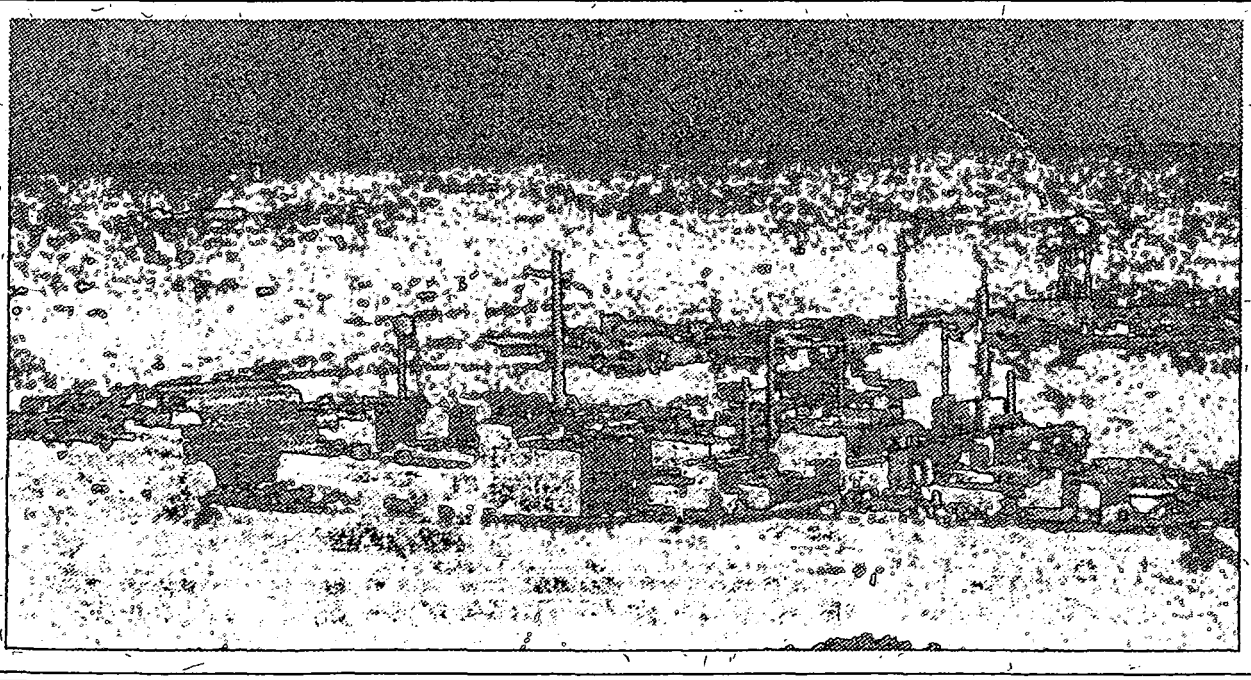
MOUND

Environmental
Restoration
Program

MOUND PLANT

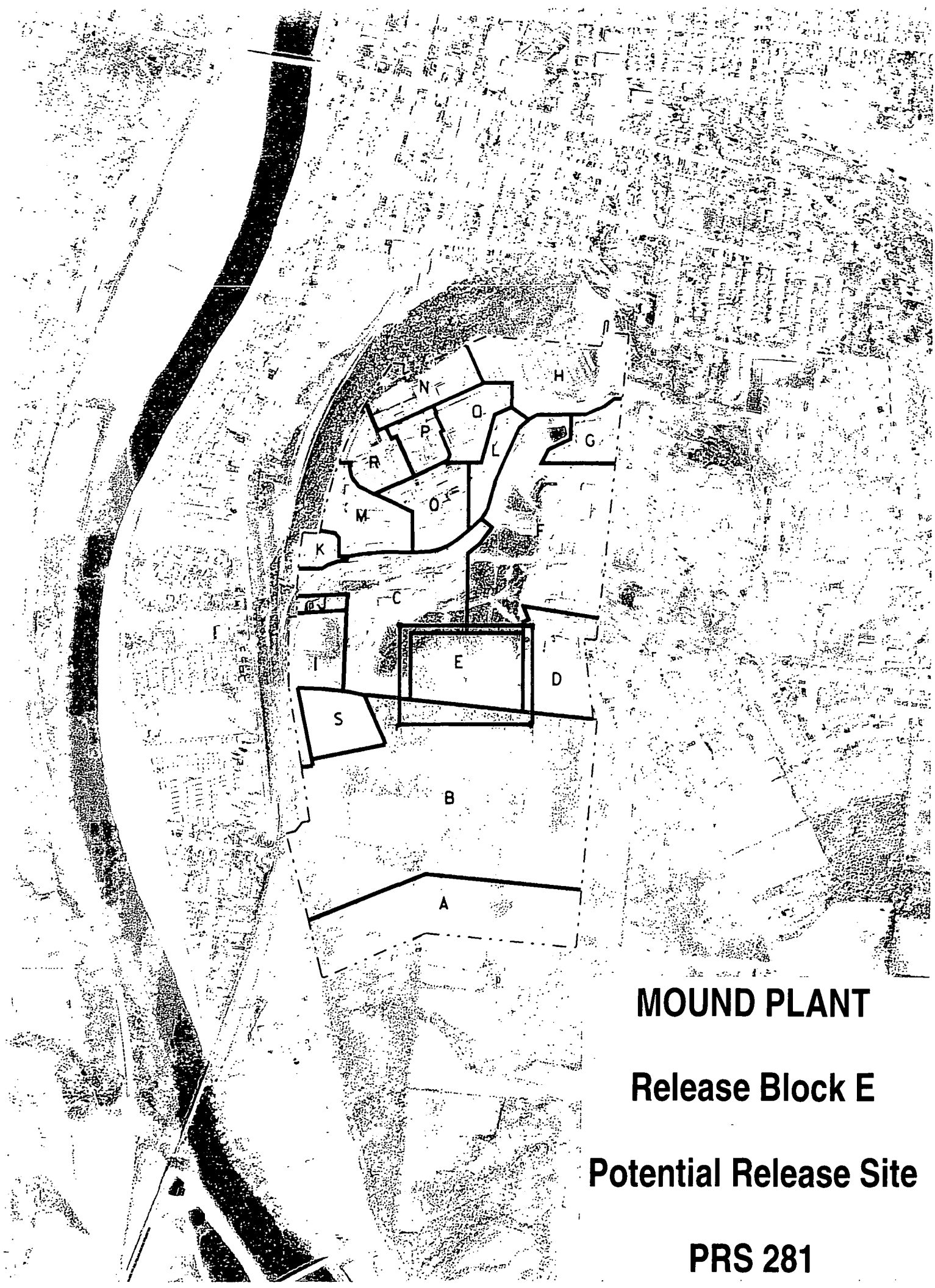
Potential Release Site Package

PRS # 281



PRS 281

REV	DESCRIPTION	DATE
WORKING DRAFT		
DRAFT, REV. 0		**8/14/95**
DRAFT, REV. 1	Draft, Rev. 0, binned FA on 11/2/95. PRS 281 remediated as part of the Building 21 and Associated Soils Decontamination & Decommissioning (D&D) Removal Action.	**2/17/00**
DRAFT PROPOSED FINAL	Additional Building 21 OSC report information incorporated in close out of PRS 281.	**5/10/00**
PUBLIC REVIEW DRAFT	PRS closed out with Building 21 On Scene Coordinator report.	**N/A**
FINAL	OEPA signature - 7/12/2000.	**7/17/00**

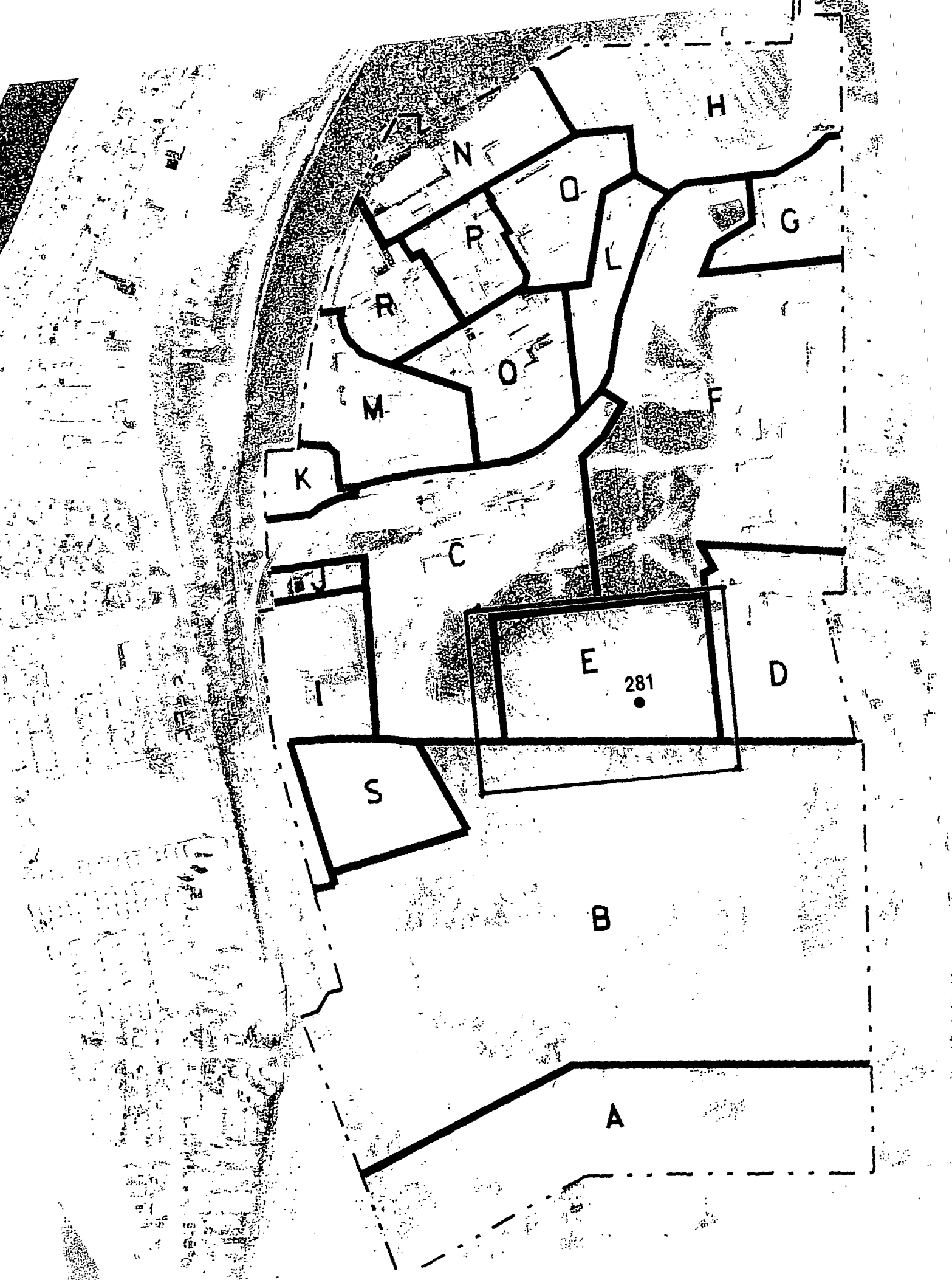


MOUND PLANT

Release Block E

Potential Release Site

PRS 281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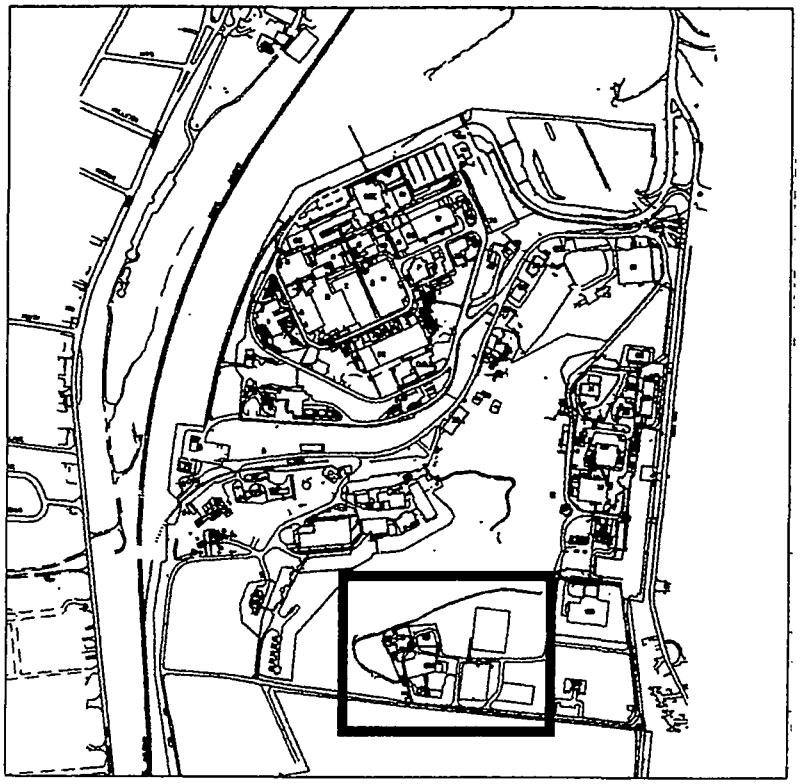
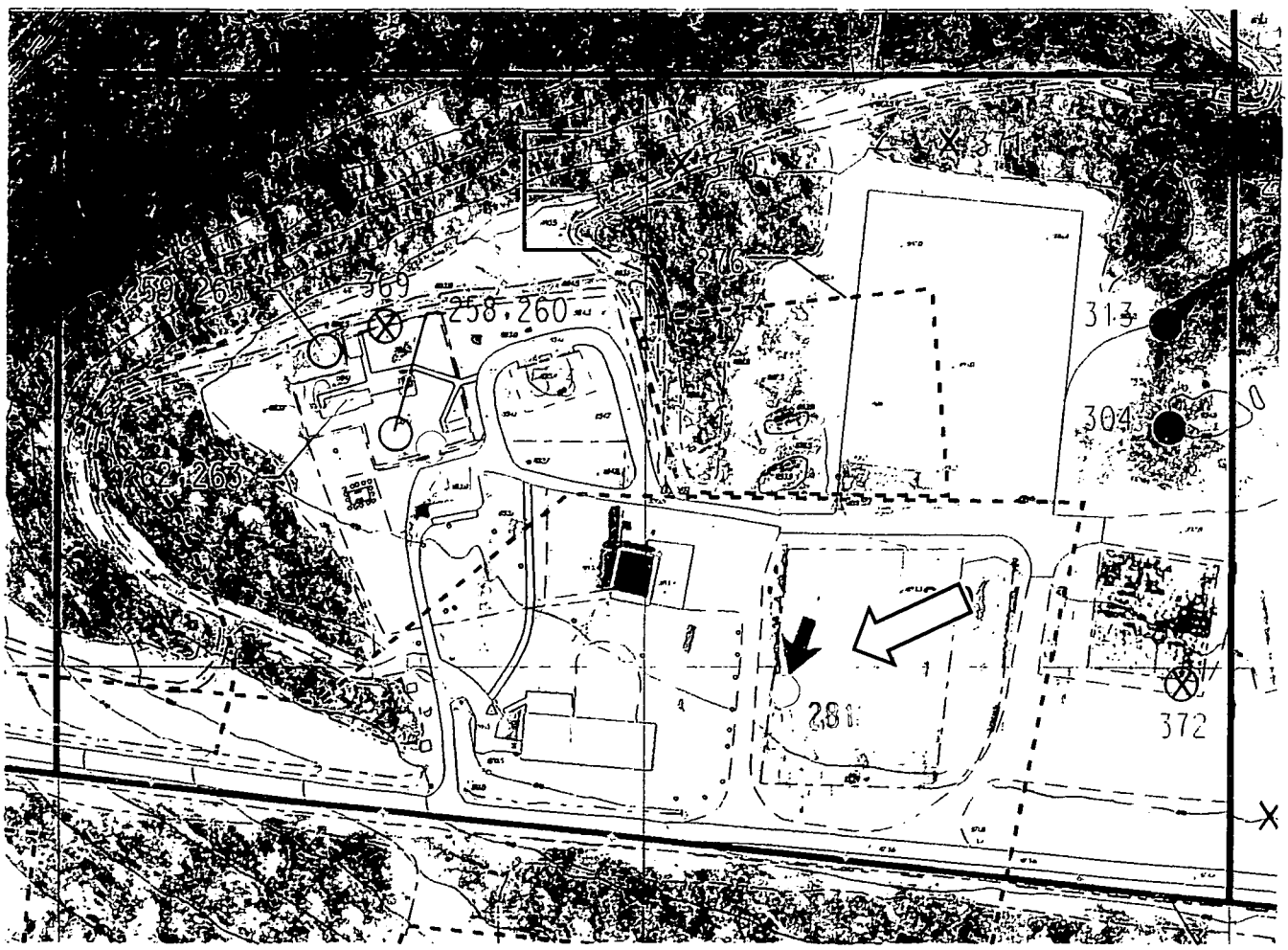
MOUND PLANT

Release Block E

PRS 281

August 14, 1995





281

PRS 281

PRS HISTORY:

PRS 281 was identified as a historical, isolated waste oil spill in the Volume 12 - Site Summary Report.[1]

PROCESS DESCRIPTION:

No radioactive or hazardous waste generating processes are known to have occurred at the location of PRS 281.

CONTAMINATION:

A minor oil spill was reported in OU9 Site Survey Report (Volume 12) [1], however from the Bldg. 21 Investigative Report, there is no evidence of any elevated chemicals of concern.[3]

Several samples produced levels of radiological contamination over Mound soil guidelines for radium (2.95 pCi/g).[4] The concentrations of radium found were 19.9 pCi/g and 22.3 pCi/g.[3]

READING ROOM REFERENCES:

1) OU9 Site Scoping Report, Volume 12 - Site Summary, December 1994.
2) OU9 Site Scoping Report, Volume 3, - Radiological Site Survey, June 1993.

OTHER REFERENCES:

3) Bldg. 21 Investigation Data Report, June 1995.
4) Background Values for Mound Plant Soils, July 1995.

PREPARED BY:

Eric Horstman, Member of EG&G Technical Staff

MOUND

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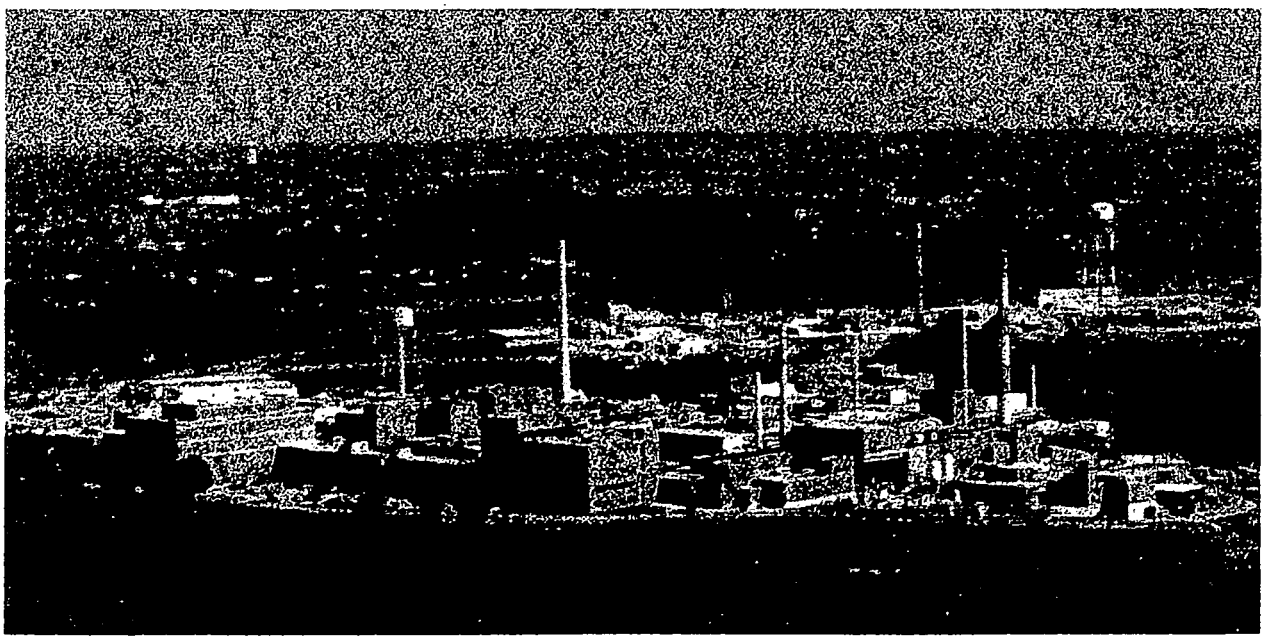
MOUND PLANT
Potential Release Site Package
PRS #281
Addendum 1



ADDENDUM 1 - PRS 281

PRS 281 was binned as requiring Further Assessment (FA) by the Mound 2000 Core Team on November 2, 1995. Geographically located within PRS 407, however, it was remediated as part of the Building 21 and Associated Soils Decontamination & Decommissioning (D&D) Project Removal Action. The Mound 2000 Core Team signed the *On Scene Coordinator (OSC) Report, Building 21 (PRS 284) & Associated Soils (PRS 407 and PRS 281) Decontamination & Decommissioning (D&D) Project*, January 2000, Final, "... attesting that "verification sampling confirms that established cleanup goals were achieved." This Addendum references and presents material from this OSC Report synopsizing D&D activities accomplished.

ON SCENE COORDINATOR (OSC) REPORT

BUILDING 21 (PRS 284) & ASSOCIATED SOILS (PRS 407 AND PRS 281) DECONTAMINATION & DECOMMISSIONING (D&D) PROJECT

REMOVAL ACTION

MOUND PLANT
MIAMISBURG, OHIO

January 2000

Final

(Revision 0)

Department of Energy

BWXT of Ohio

RESPONSE ACTION EXECUTIVE SUMMARY

This On-Scene Coordinator Report briefly summarizes the history of, and serves to document the activities and conclusion of the Building 21 and Associated Soils Decontamination and Decommissioning (D&D) Project Removal Action.

This Removal Action addressed Building 21 and Associated Soils near to and on which the building resided. Building 21 was constructed for the containment of thorium sludge. It served this purpose from its construction in 1964 until 1975 when the thorium constituents were removed. The building then served to store drums of Cotter Concentrate (uranium milling waste). This concentrate was removed in 1987 and the building stood unused until its decontamination and demolition during the period of October 1996 to March 1997. Building 21 was designated as Potential Release Site (PRS) 284 in *Operable Unit 9, Site Scoping Report: Volume 12 - Site Summary Report*, (OU9, Vol. 12), Mound Plant, Miamisburg, Ohio, December 1994.

Associated Soils include PRS 407 and PRS 281. Note Figures 1a and 1b. As noted in Figure 1b, PRS 407 is located north of the east-west road and fence that form the boundary separating the original (northern) and new (southern) Mound Plant properties. PRS 407 was administratively derived from PRS 283. PRS 283 was originally created to address thorium and plutonium contamination issues thought to exist on both the northern and southern portions of the noted Mound Plant areas. The southern area of the original PRS 283 was identified as PRS 406. This administrative action was accomplished to facilitate the release of Mound Plant property to the City of Miamisburg. Core Team evaluation of PRS 406 conducted under the Mound 2000 Plan determined that PRS 406 merited No Further Assessment.

PRS 407 is comprised of approximately four (4) acres of land and surrounds Building 21. It has a complex history of surficial contamination, sampling, and shallow excavation. Contaminated soil removal activities date back to 1975. PRS 407 activities and requirements were jointly reviewed and studied by the Mound 2000 Core Team and Building 21 & Associated Soils D&D Project members. This review resulted in additional investigation and analysis, subsequently culminating in PRS soils excavation and removal during the period June 1997 to March 1998.

This excavation and soil removal included PRS 281, resident within PRS 407. OU9, Volume 12 identifies PRS 281 as a historical, isolated waste oil spill. This PRS was declared by the Core Team to require Further Assessment.

The objectives of the Removal Action included, in part, the dismantlement, demolition, and removal of Building 21 and the removal of immediately adjacent soils; the excavation and removal of contaminated soil as required in PRSs 407 and 281; and, the verification of achievement of cleanup objectives. Building 21 demolition materials and soil were shipped via truck to the Nevada Test Site (NTS). Associated soils were dispositioned via railcar to Envirocare. Verification sampling confirms that established cleanup goals were achieved.

Art Kleinrath, On-Scene Coordinator
U.S. Department of Energy
Miamisburg, Ohio

Timothy Fischer, Remedial Project Manager
U.S. EPA
Chicago, Illinois

Brian Nickel, Project Manager
Ohio EPA
Dayton, Ohio

STATED OBJECTIVES OF THE RESPONSE ACTION

The objectives of this Removal Action were: the dismantlement, demolition, and removal of Building 21, and the removal of immediately adjacent soils; the excavation and removal of associated contaminated soil as required in PRSs 407 and 281; the attainment of cleanup objectives (1×10^{-5} risk based guideline values plus background) for the radionuclides of concern (Th-228, Th-230, Th-232, and Pu-238); the verification of the presence or absence of soil contamination at PRS 281 (including Ra-226); the verification that oil contamination discovered in one area (Grids B7 and B8) of PRS 407 was remediated; and, the determination if soil in PRS 407 contained chemical contaminants. A Verification Sampling Analysis Plan was developed to support accomplishment of these objectives.

SUMMARY RESULTS OF VERIFICATION SAMPLING

Radionuclide Analysis Summary

PRS	Contaminant	Concentration Detected (pCi/g) (95% UCL Value)	Cleanup Standard (pCi/g)
407	Th-228 (+ daughters)	1.20	3.1
407	Th-230 (+ daughters)	1.02	3.2
407	Th-232 (+ daughters)	1.37	2.4
407	Pu-238	5.05	55.1
PRS	**Contaminant**	**Maximum Concentration Detected (pCi/g)**	**Cleanup Standard (pCi/g)**
281	Th-228 (+ daughters)	1.09	3.1
281	Th-230 (+ daughters)	1.07	3.2
281	Th-232 (+ daughters)	1.10	2.4
281	Pu-238	0.07	55.1
281	Ra-226	2.68	3.4

Chemical Analysis Summary

PRS	Analyte	Summary Results	Comments
407	Semi-Volatiles	Below Risk Based Guideline Values	
407	Inorganics (metals)	Below Risk Based Guideline Values	
407	Inorganics (anions)	Results within natural background	
407	TPH	Less than 904 parts per million	BUSTR Guideline
281	Lead	Below Risk Based Guideline Values & within natural background	
281	PCBs	Below method detection levels	
281	TPH	Less than 904 parts per million	BUSTR Guideline

CONCLUSIONS AS PRESENTED BY THE VERIFICATION SAMPLING REPORT*

The objective of the verification sampling is to provide high-quality data that confirms the removal action was successful. This was accomplished through sampling and analysis that is comparable in quality to Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Remedial Investigations using regulatory agency approved procedures. For the removal action to be complete, the verification sampling must meet the established cleanup goals as stated in the Verification Sampling and Analysis Plan.

Attainment of the established cleanup goals was fulfilled for the upper one-sided 95% confidence interval for all constituents with 20 or more samples. For constituents with less than 20 samples (PRS 281 evaluation), the maximum value was used for comparison to cleanup goals. Radionuclides at I19 had plutonium-238, thorium-228 and throium-232 activity, which was more than 3 times the cleanup goal. Location J8 had thorium-232 activity that was greater than 3 times the cleanup guideline. All other results were within acceptable ranges. BWXT of Ohio revisited I19 and J8 for soil removal that exceeded 3 times the cleanup guidelines. The results of the verification samples collected after additional removal at I19 and J8 were below cleanup guidelines except for thorium-232 at IJ8/9 which was 3.82 pCi/g versus cleanup guideline of 2.4 pCi/g. The 95% UCL for thorium-232 was 1.01 pCi/g and below the cleanup guideline.

An additional objective of the verification sampling was to determine whether other chemical contaminants associated with mound Plant activities were present within PRS 407. Based on the data collected for semi-volatile, TAL metals, and common anions constituents throughout PRS 407, there is no evidence that there is the presence of such contaminants. In addition, there is total remediation of oil contamination present with PRS 281. Based on the approved methodology, analytical results and data evaluation, the PRS 407 removal action is complete.

*Verification Sampling Report, Potential Release Site 407, Mound Plant, Miamisburg, Ohio, December 1999, Final, Revision 0. (Terran Corporation)

PREPARED BY:

Richard L. Bauer, BWXT of Ohio Technical Staff
Joseph C. Geneczko, BWXT of Ohio Technical Staff

Page Redacted

Contains Proprietary Information

MOUND PLANT
PRS 281
Area E, Waste Oil Spill

RECOMMENDATION:

PRS 281 was identified as a historical, isolated waste oil spill. Although no radioactive waste generating processes are known to have occurred at the location of PRS 281, several sampling events produced levels of radiological contamination over Mound soil guidelines for radium-226. Concentrations of radium-226 found were 19.9 pCi/g and 22.3 pCi/g. Sampling results failed to verify the presence of an oil spill at PRS 281.

The Core Team originally recommended Further Assessment (FA) for PRS 281. Subsequent FA versus Response Action (RA) cost analysis did not alter this original recommendation.

Because PRS 281 resides within PRS 407, PRS 281 was subject to the RA associated with the Building 21 demolition. Verification sampling conducted after the RA indicates that clean-up criteria for radium-226 (3.4 pCi/g) and all other potential contaminants were achieved for PRS 281. This is documented in the *On Scene Coordinator (OSC) Report, Building 21 (PRS 284) & Associated Soils (PRS 407 and PRS 281) Decontamination & Decommissioning (D&D) Project, Removal Action*, Mound Plant, January 2000, Final, Revision 0.

Therefore, the Core Team recommends NO FURTHER ASSESSMENT for PRS 281.

CONCURRENCE:

DOE/MEMP: Art Kleinrath 5/18/2000
Art Kleinrath, Remedial Project Manager (date)

DOE/MEMP: Timothy J. Fischer 4/13/00
Timothy J. Fischer, Remedial Project Manager (date)

DOE/MEMP: Brian K. Nickel 7/12/00
Brian K. Nickel, Project Manager (date)

REFERENCE MATERIAL

FOR

PRS 281

ENVIRONMENTAL RESTORATION PROGRAM

OPERABLE UNIT 9
SITE SCOPING REPORT:
VOLUME 12 - SITE SUMMARY REPORT

MOUND PLANT
MIAMISBURG, OHIO

December 1994

U.S. DEPARTMENT OF ENERGY
OHIO FIELD OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
EG&G MOUND APPLIED TECHNOLOGIES

FINAL

Table V.1. (page 4 of 5)

No.	Site Name	Evidence of Release[a]	Further Action Recommended[a]	FFA OU
58	Dredge Spoil Drying Beds	Yes	Yes	5
59	Contaminated Soil Box Storage Area	No	Yes	5
63	Building 19 Soils	Yes	Yes	5
64	Building 19 Historic Gasoline Tank (Tank 238)	No	Yes	5
65	Building 61 Area, Former Heavy Equipment Area	Yes	Yes	5
66	Area 7, Throium and Polonium Wastes (AKA old septic tank)	Yes	Yes	5
71	Building 85 Waste Solvent Tank (Tank 136)	No	No	5
72	Area 13, Polonium-Contaminated Wood from Dayton Unit IV	Yes	Yes	5
73	Evaporator Storage Area	No	No	5
74	Quonset Hut (former)	No	No	5
76	Warehouse 9	Yes	Yes	5
77	Warehouse 10	Yes	Yes	5
79	Warehouse 15	Yes	Yes	5
80	Warehouse 15A	Yes	Yes	5
81	Drilling Mud Drum Storage Areas (3 locations)	No	No	5
261	Trash Burner	No	No	5
269	Building 36 Historic Gasoline Tanks (Tanks 239 and 240)	No	No	5
274	Area 21 Old Bunker	Yes	Yes	5
275	Area 21 Detonator Shack	Yes	Yes	5
276	Area 22, Orphan Soil from Other Areas	Yes	Yes	5
277	Area J, Hillside Disposal Area (AKA Dredged Material Disposal Area 11a)	Yes	Yes	5
278	Area J, Hillside catch basin	No	Yes	5
279	Old Firing Range Drum Storage Area	Yes	Yes	5
280	Waste Oil Drum Field Area	Yes	Yes	5
281	Area E, Waste Oil Spill	Yes	No	5
282	Spoils Disposal Area/Construction Spoils Area	Yes	Yes	5
304	Excavated Materials Disposal Area (AKA Rader's Hill)	No	Yes	5
306	SM/PP Hill Seep 0609	No	Yes	5

←PRS

Description of History and Nature of Waste Handling						Hazardous Conditions and Incidents			Environmental Data		
No.	Site Name	Location	Status	Potential Hazardous Substances	Ref	Releases	Media	Ref	Analytes[a]	Results	Ref
280	Waste Oil Drum Field Area PRS	I-8	Historical	Waste oil Plating Operations waste Explosive/solvent waste Herbicides Waste chemicals Photo-processing waste Batteries Kitchen grease Epoxy resins Ethylene glycol Scintillation vials	4, 5, 18	Confirmed VOCs	S	4	3, 4, 5, 6, 8, 12 PRS	Tables B.6, B.7, and B.8 RSS[c] Locations S0263, S0164, S0265, and S0266 (Appendix E in Ref.6) Table B.9	7 6
281	Area E, Waste Oil Spill	J-8	Historical	Waste oil	1	Minor oil	S	1	No Data		
282	Spoils Disposal Area/Construction Spoils Area	J-5 K-5	In service	Plutonium-238, Thorium Gasoline contaminated soils from G Building	4, 5, 18	Plutonium-238 < 25 pci/gm Thorium < 5 pci/gm	S	6	14, 15, 16	Table B.1 (Table X.3 in Ref. 6)	6
283	Area 1, Bulk Transfer of Thorium Drums (AKA, Plutonium Recoverable Waste Storage)	I to L 6 to 8	Grounds	Thorium sludge constituents, Plutonium-238	1, 4, 5, 18	Thorium dust, Plutonium-238	S	6	3, 4 14, 15, 16	Tables B.6, B.7, and B.8 Table B.1 (Table IV.2 in Ref. 6)	8 6
284	Building 21, Thorium Sludge Storage Facility	J-7 J-8	Surplus	Thorium sludge constituents	4	Thorium dust	S	4, 6	See Area 1		
285	Area 11, Contamination from SM Building Operations	G-9	Surplus	Plutonium-238	1, 4, 5, 18	Plutonium-238	S	6	3, 4, 5, 6 14, 16	Tables B.6, B.7, and B.8 Table B.1 (Table IV.3 in Ref. 6)	8 6
286	Area 16, SM Building Sanitary Sewage Septic Tank Leach Field	F-9 G-9	Surplus	Plutonium-238, Thorium Sanitary wastes from SM Building	1, 4, 5, 18	Plutonium-238	S	6	3, 4, 6 14, 15, 16	Tables B.6, B.7, and B.8 Table B.1 (Table IV.5 in Ref. 6)	8 6

Document Control No. DGC
W.P. DAVIS

Environmental Restoration Program

OPERABLE UNIT 9, SITE SCOPING REPORT
VOLUME 3 - RADIOLOGICAL SITE SURVEY

MOUND PLANT
MIAMISBURG, OHIO

June 1993

FINAL

Department of Energy
Albuquerque Field Office

Environmental Restoration Program
EG&G Mound Applied Technologies

The drilling and sampling were performed using an auger drill rig and a 2-ft, split-barrel sampler. As the split-barrel sampler was removed from the borehole, it was monitored for radioactivity contamination by Mound Plant health physics personnel using a FIDLER to detect radioactivity contamination that would pose a hazard to the workers present. After the soil was removed from the sampler and placed in sample containers, field team members wearing gloves brushed the remaining soil out of the sampler. The gloves were then monitored with an alpha scintillometer before the split-barrel sampler was used again. However, no standard decontamination was performed.

The core locations are shown in Plate 1. The core locations were surveyed by a licensed surveyor after drilling was completed. The available reports submitted to Mound Plant by the drilling subcontractors are presented in Appendix B.

2.1.4. Sample Analyses

2.1.4.1. FIDLER Screening

In order to identify samples with concentrations of plutonium-238 exceeding 25 pCi/g and total thorium exceeding 2 pCi/g, all of the soil samples collected were pulverized and then screened using a Bicron® FIDLER at the Mound Plant Soil Screening Facility, known as trailer 15 at the time of the Site Survey Project. The Soil Screening Facility is now located in the H Building at Mound Plant (Plate 1). The minimum detectable activity at which plutonium-238 can be reliably detected at the Mound Plant screening facility is estimated to be 25 pCi/g (Draper 1986b). The detection of plutonium-238 at lesser concentrations (12-25 pCi/g) was unreliable and had an estimated error of ±75 percent. The estimated error decreased with increasing sample activity; for samples with 25 to 100 pCi/g of plutonium-238, the estimated error was ±35 percent, and for samples with >100 pCi/g, the estimated error was ±30 percent (Casella and Bishop 1984). The minimum detectable activity for thorium from FIDLER screening was estimated to be about 2 pCi/g (Stought et al. 1988). The Mound Plant procedure for screening soil samples is provided in Appendix A.

2.1.4.2. Radiochemical Analysis for Plutonium-238

Because of the high error (±75 percent) involved in the FIDLER screening of samples containing less than 25 pCi/g of plutonium-238, all soil samples were radiochemically analyzed by Mound Plant for plutonium-238. The lower detection limit (LDL) for plutonium-238 by this method was estimated to be 0.01 pCi/g, with a relative precision (two standard deviations) of 25 percent. The overall precision of the plutonium-238 measurements was reported to be about 18 percent (DOE 1991b). The Mound

Plant procedure for the radiochemical analysis of soil samples for plutonium-238 is provided in Appendix A.

2.1.4.3. Radiochemical Analysis for Thorium

Samples with thorium concentrations in excess of 2 pCi/g by FIDLER screening were also radiochemically analyzed for thorium, resulting in the radiochemical analysis of about 12 percent of the samples. The LDLs for the thorium isotopes using radiochemical procedures were estimated to be

- 0.3 pCi/g for thorium-228, with a relative precision of 60 percent;
- 0.3 pCi/g for thorium-230, with a relative precision of 30 percent; and
- 0.1 pCi/g for thorium-232, with a relative precision of 70 percent.

The overall precision for the thorium measurement was reported to be about 25 percent. The thorium results were reported in pCi of total thorium per gram of soil, isotopes were not identified. The Mound Plant procedure for the radiochemical analysis of soil samples for thorium is provided in Appendix A.

2.1.4.4. Gamma Spectroscopy

Gamma spectroscopy was performed by Mound Plant on approximately 350 (18 percent) of the soil samples in order to verify the identity of the radionuclides present when screening indicated the presence of gamma-emitting radionuclides, but little excess plutonium or thorium was identified by radiochemical analysis. Gamma spectroscopy is capable of detecting a variety of gamma-emitting radionuclides; the radionuclides detected in samples collected during the Site Survey Project included cobalt-60, cesium-137, radium-226, actinium-227, and americium-241. No other gamma-emitting radionuclides with gamma energies below 1.5 millielectron volts (MeV) were detected, although the project report stated that subsequent sampling and analysis in some areas indicated bismuth-207 and bismuth 210m. No polonium-210 peaks were detected in the Site Survey Project samples, confirming that polonium-210, which was used at Mound Plant in the 1950s, is no longer present due to radioactive decay (half-life of 138.4 days). The LDLs for cesium-137, cobalt-60, and americium-241 were given with the original data, and were estimated to be 0.5 pCi/g for each. The LDLs for radium-226 and actinium-227 were estimated to be 1.0 pCi/g for both (Stought 1990). The Mound Plant procedure for gamma spectroscopy is provided in Appendix A.

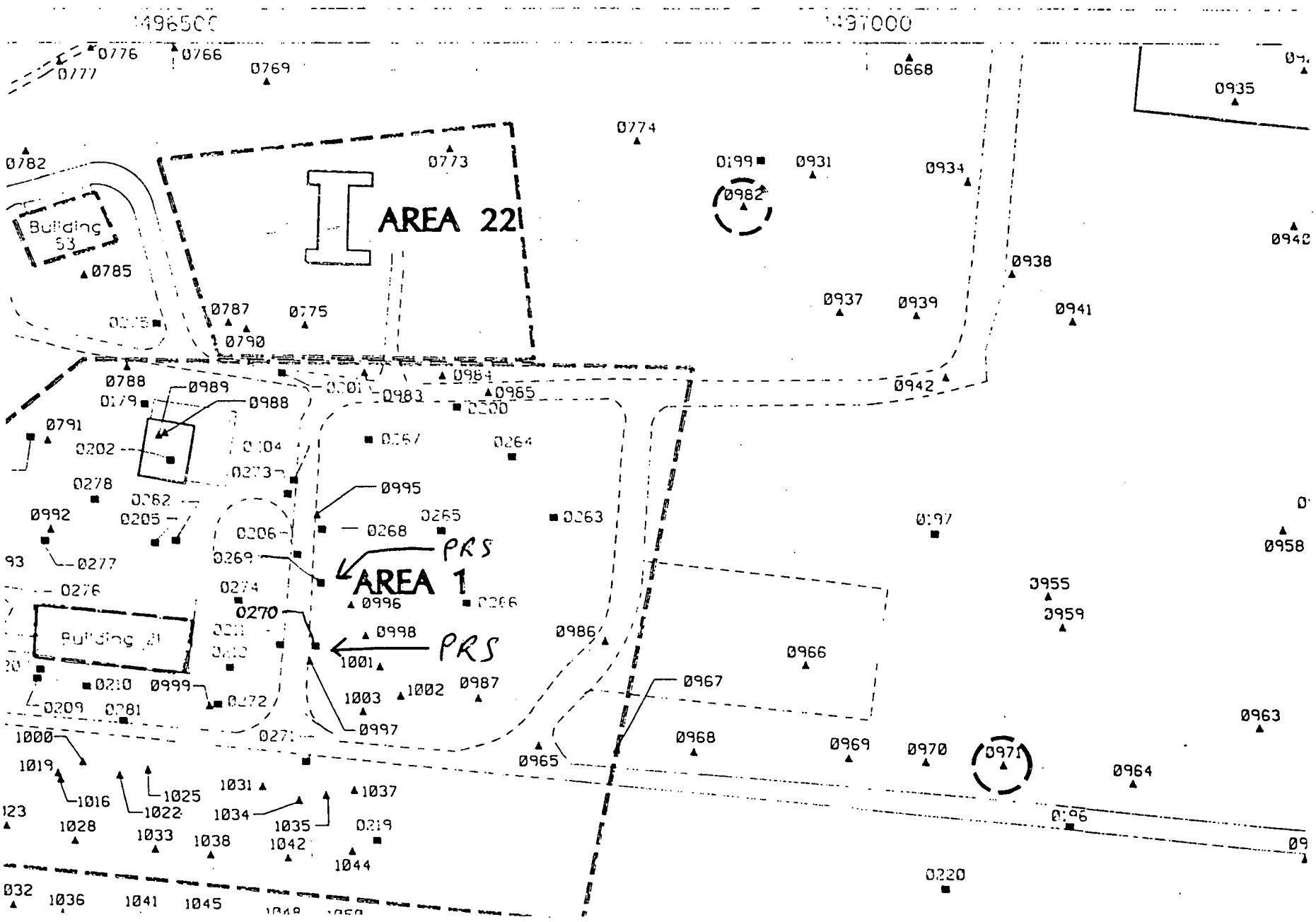


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Table IV.2. (page 9 of 12)

Plate 1 Location[a]	Coordinates South	Coordinates West	MRC ID No.	Mo-Yr	Depth (inch)	Plutonium-238 (pCi/g)	Thorium[b] (pCi/g)	Tritium (pCi/mL)	Cobalt-60 (pCi/g)	Cesium-137 (pCi/g)	Radium-226 (pCi/g)	Americium-241 (pCi/g)
C0264	3724.8	3254.3	None	04-84	0	NR	9.2					
			None	04-84	12	NR	1.7					
			None	04-84	24	NR	0.8					
			None	04-84	36	NR	0.5					
			None	04-84	48	NR	0.3					
C0265	3752.4	3322.9	None	04-84	0	NR	1.7					
			None	04-84	12	NR	1.3					
			None	04-84	24	NR	0.3					
			None	04-84	36	NR	0.3					
C0266	3808.2	3328.7	None	04-84	0	NR	1.0					
			None	04-84	12	NR	0.6					
			None	04-84	24	NR	0.4					
			None	04-84	36	NR	0.3					
			None	04-84	48	NR	0.4					
C0267	3670.8	3342.9	None	04-84	0	NR	0.4					
			None	04-84	12	NR	0.5					
			None	04-84	24	NR	0.4					
			None	04-84	36	NR	0.3					
C0268	3716.1	3400.6	None	04-84	0	NR	0.9					
			None	04-84	12	NR	0.4					
			None	04-84	24	NR	0.4					
			None	04-84	36	NR	0.4					
C0269	3751.3	3418.2	None	04-84	0	NR	0.6					
			None	04-84	12	NR	0.5					
			None	04-84	24	NR	0.2					
			None	04-84	36	NR	0.2					
			None	04-84	48	NR	0.3					

PRS

Table IV.2. (page 10 of 12)

Plate 1 Location[a]	Coordinates South	Coordinates West	MRC ID No.	Mo-Yr	Depth (inch)	Plutonium-238 (pCi/g)	Thorium[b] (pCi/g)	Tritium (pCi/mL)	Cobalt-60 (pCi/g)	Cesium-137 (pCi/g)	Radium-226 (pCi/g)	Americium-241 (pCi/g)
C0270	3791.9	3441.5	None	04-84	0	NR	0.3					
			None	04-84	12	NR	0.5					
			None	04-84	24	NR	0.5					
			None	04-84	36	NR	0.3					
			None	04-84	48	NR	0.3					
C0271	3865.9	3483.1	None	04-84	0	NR	0.6					
			None	04-84	12	NR	2.6					
			None	04-84	24	NR	0.5					
			None	04-84	36	NR	0.6					
			None	04-84	48	NR	0.3					
			None	04-84	60	NR	0.4					
			None	04-84	72	NR	0.3					
			None	04-84	96	NR	0.4					
			None	04-84	120	NR	0.4					
C0272	3801.1	3524.0	None	04-84	0	NR	0.6					
			None	04-84	12	NR	0.4					
			None	04-84	24	NR	0.5					
			None	04-84	36	NR	0.5					
			None	04-84	48	NR	<0.2					
C0273	3682.1	3413.3	None	04-84	0	NR	0.5					
			None	04-84	12	NR	0.9					
			None	04-84	24	NR	0.6					
			None	04-84	36	NR	0.4					
			None	04-84	48	NR	0.4					
			None	04-84	60	NR	0.3					

PRS

Table V.3. Mound Site Survey Project - Area 8

Plate 1 Location[a]	Coordinates South	Coordinates West	MRC ID No.	Mo-Yr	Depth (inch)	Plutonium-238 (pCi/g)	Thorium[b] (pCi/g)	Tritium (pCi/mL)	Cobalt-60 (pCi/g)	Cesium-137 (pCi/g)	Radium-226 (pCi/g)	Americium-241 (pCi/g)
C0026	2362.7	2142.4	None	07-84	0	NR	13					
			None	07-84	12	NR	17					
			None	07-84	24	NR	33					
			None	07-84	36	NR	37					
			None	07-84	48	NR	30					
			None	07-84	60	NR	34					
			None	07-84	72	NR	37					
			None	07-84	84	NR	36					
			None	07-84	96	NR	39					
			None	07-84	108	NR	39					
			None	07-84	120	NR	34					
			None	07-84	132	NR	29					
C0027	2371.9	2104.9	None	07-84	0	NR	8.3					
			None	07-84	12	NR	29					
			None	07-84	24	NR	35					
			None	07-84	36	NR	53					
			None	07-84	48	NR	43					
			None	07-84	60	NR	34					
			None	07-84	72	NR	18					
			None	07-84	84	NR	12					
			None	07-84	96	NR	12					
			None	07-84	108	NR	10					
			None	07-84	120	NR	5.3					

[a]Map locations are given using a "C" to designate core locations and an "S" to designate surface locations.

[b]A "b" indicates that the total thorium concentration was less than the background level of 2.0 pCi/g, using FIDLER screening. Therefore, radiochemical analysis was not performed.

FIDLER - field instrument for the detection of low-energy radiation

LDL - The measured concentration was below the lower detection limit, estimated to be 0.5 pCi/g for cobalt-60, cesium-137, and americium-241; and 1 pCi/g for radium-226.

MRC ID - Monsanto Research Corporation Identification

None - No MRC ID was assigned because *in situ* gamma spectroscopy for thorium-232 was performed. The report on this procedure is provided in Appendix C.

NR - No result given

pCi/g - picocuries per gram

pCi/mL - picocuries per milliliter

ENVIRONMENTAL RESTORATION PROGRAM

BUILDING 21 AND SURROUNDING SOILS INVESTIGATION DATA REPORT

MOUND PLANT
MIAMISBURG, OHIO

June 1995

U.S. DEPARTMENT OF ENERGY
OHIO FIELD OFFICE

DECONTAMINATION AND DECOMMISSIONING PROGRAM
EG&G MOUND APPLIED TECHNOLOGIES

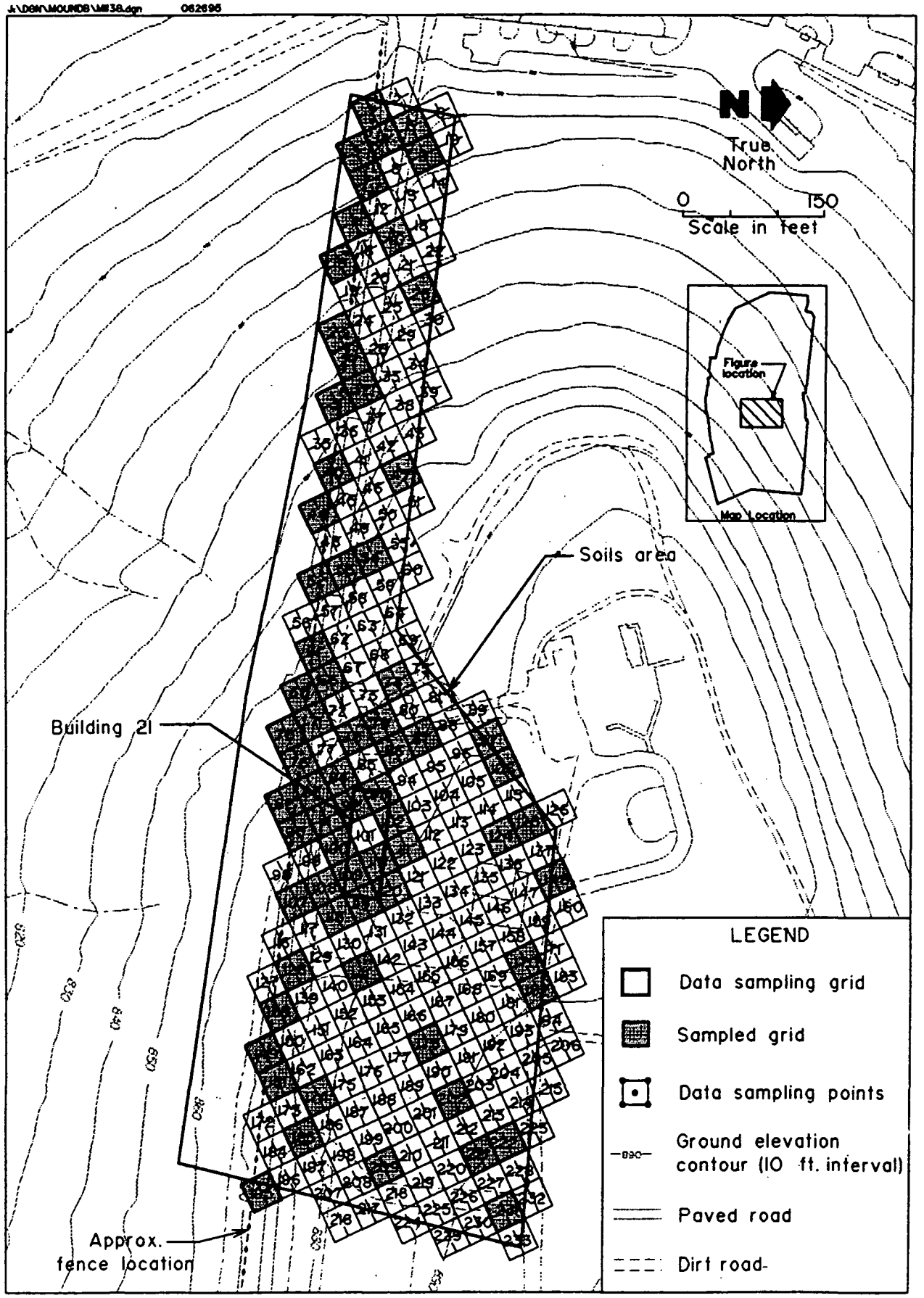

Figure 2.1. Location of soil sampling grid.

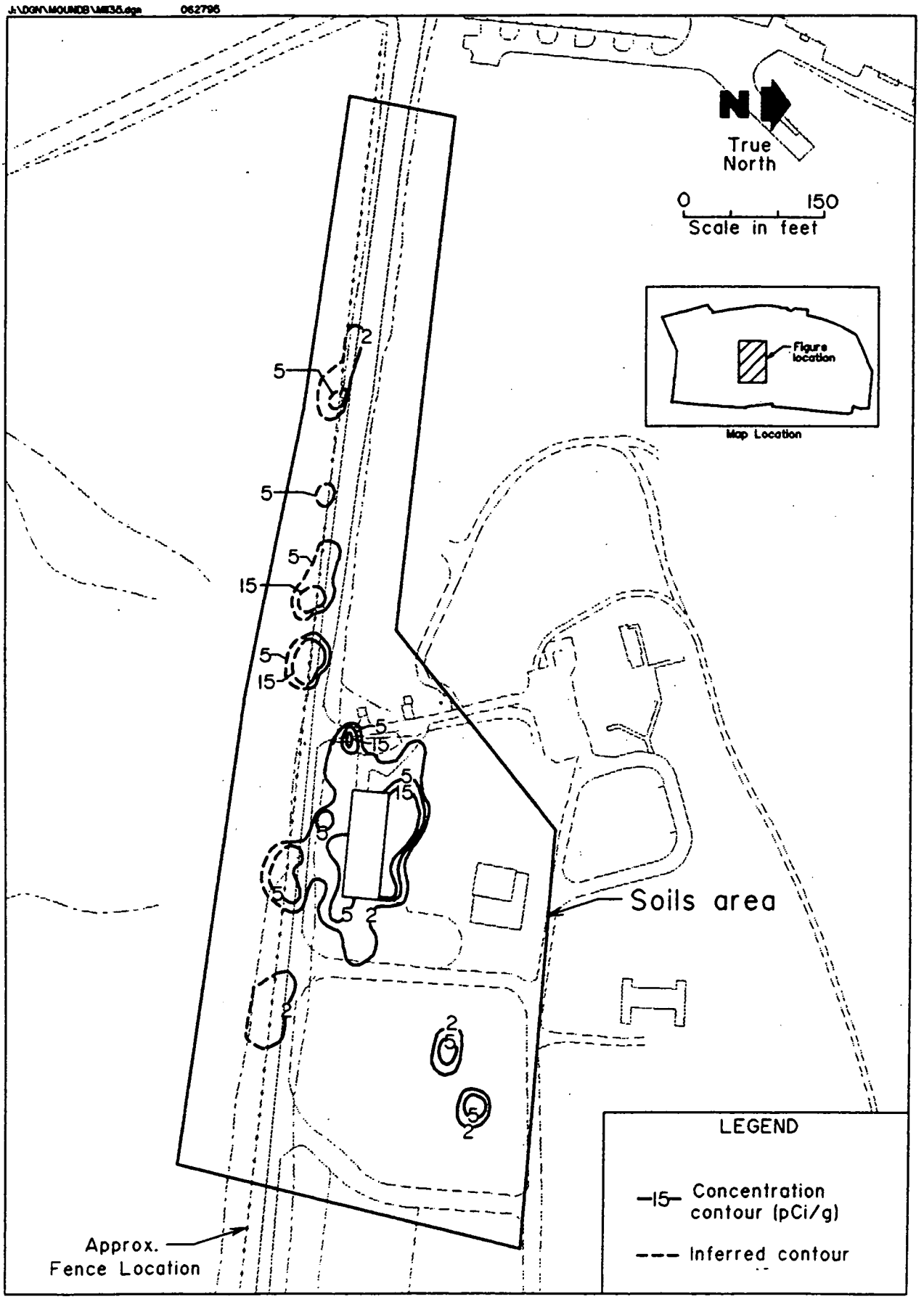

Figure 3.7. Distirbution of thorium-232 0"-12" depth.

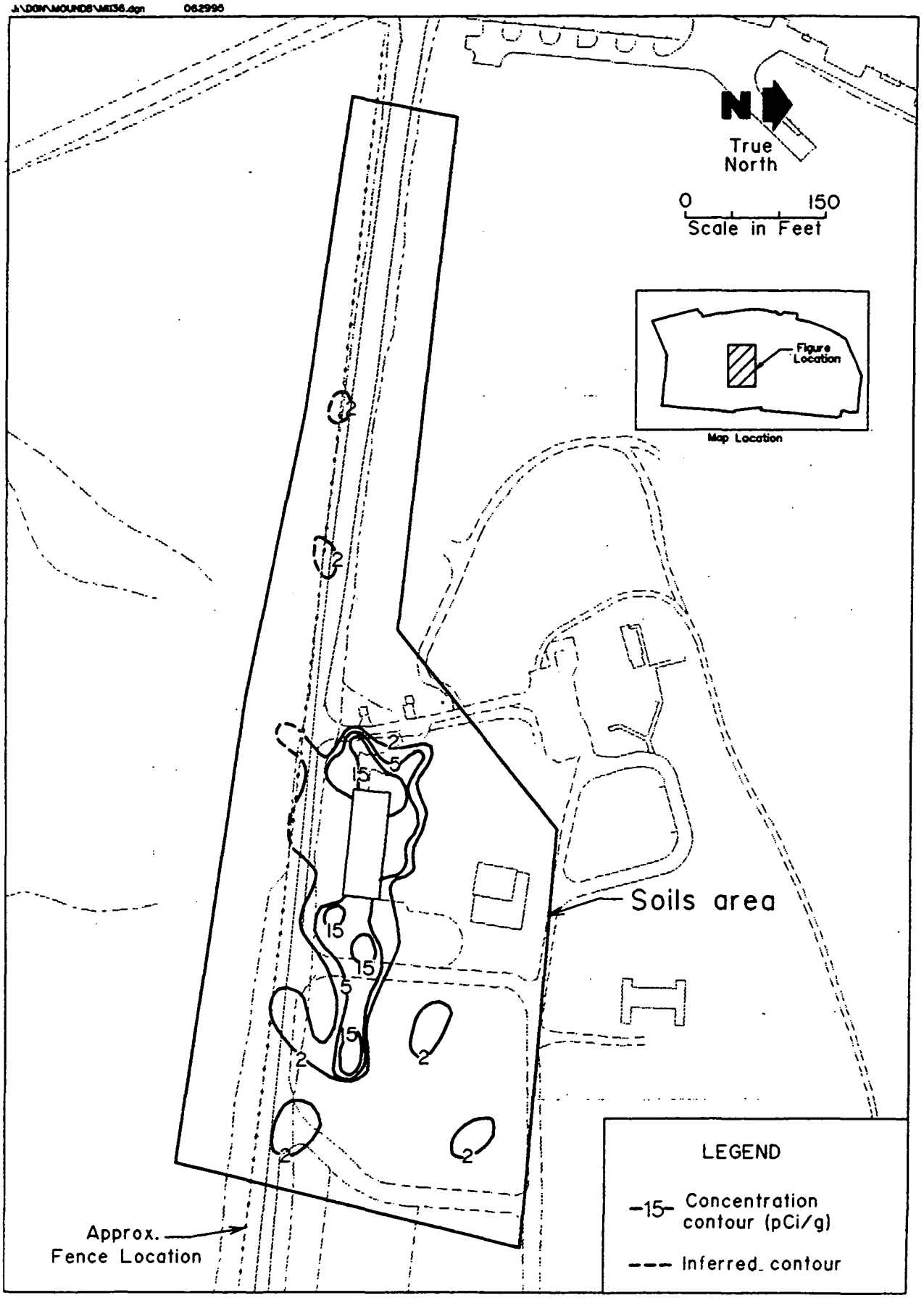

Figure 3.8. Distirbution of thorium-232 12"-24" depth.

Building 21 Report: Soil Gamma Spectroscopy Results

Sample ID	Isotope	Total Error	Result	Q	MDA	Unit
NW0/1(118)	EU-152		4.96E-02	U	4.96E-02	PCI/G
NW0/1(118)	EU-154		6.82E-02	U	6.82E-02	PCI/G
NW0/1(118)	RA-224DA	8.65E-02	7.24E-01		0.00E+00	PCI/G
NW0/1(118)	RA-226DA	5.00E-02	2.99E-01		8.80E-02	PCI/G
NW0/1(118)	TH-232DA	1.14E-01	6.48E-01		0.00E+00	PCI/G
NW0/1(124)	AC-227DA		1.24E-01	U	1.24E-01	PCI/G
NW0/1(124)	AM-241	1.67E-01	4.15E-01		0.00E+00	PCI/G
NW0/1(124)	BI-210M		2.52E-02	U	2.52E-02	PCI/G
NW0/1(124)	CO-60		2.35E-02	U	2.35E-02	PCI/G
NW0/1(124)	CS-137DA	1.96E-02	2.26E-02		0.00E+00	PCI/G
NW0/1(124)	EU-152		5.82E-02	U	5.82E-02	PCI/G
NW0/1(124)	EU-154		6.79E-02	U	6.79E-02	PCI/G
NW0/1(124)	RA-224DA	5.23E-02	3.74E-01		0.00E+00	PCI/G
NW0/1(124)	RA-226DA	6.18E-02	2.61E-01		0.00E+00	PCI/G
NW0/1(124)	TH-232DA	1.09E-01	4.96E-01		0.00E+00	PCI/G
NW0/1(125)	AC-227DA		1.70E-01	U	1.70E-01	PCI/G
NW0/1(125)	AM-241		1.22E-01	U	1.22E-01	PCI/G
NW0/1(125)	BI-210M		3.15E-02	U	3.15E-02	PCI/G
NW0/1(125)	CO-60		2.97E-02	U	2.97E-02	PCI/G
NW0/1(125)	CS-137DA		3.42E-02	U	3.42E-02	PCI/G
NW0/1(125)	EU-152		6.66E-02	U	6.66E-02	PCI/G
NW0/1(125)	EU-154		9.01E-02	U	9.01E-02	PCI/G
NW0/1(125)	RA-224DA	6.74E-02	5.09E-01		0.00E+00	PCI/G
NW0/1(125)	RA-226DA	1.02E-01	6.74E-01		0.00E+00	PCI/G
NW0/1(125)	TH-232DA	1.29E-01	5.17E-01		0.00E+00	PCI/G
NW0/1(138)	AC-227DA		1.34E-01	U	1.34E-01	PCI/G
NW0/1(138)	AM-241		1.01E-01	U	1.01E-01	PCI/G
NW0/1(138)	BI-210M		2.71E-02	U	2.71E-02	PCI/G
NW0/1(138)	CO-60		2.12E-02	U	2.12E-02	PCI/G
NW0/1(138)	CS-137DA		2.40E-02	U	2.40E-02	PCI/G
NW0/1(138)	EU-152		5.56E-02	U	5.56E-02	PCI/G
NW0/1(138)	EU-154		6.91E-02	U	6.91E-02	PCI/G
NW0/1(138)	RA-224DA	5.30E-02	2.96E-01		0.00E+00	PCI/G
NW0/1(138)	RA-226DA	5.46E-02	3.28E-01		9.65E-02	PCI/G
NW0/1(138)	TH-232DA	9.13E-02	2.78E-01		0.00E+00	PCI/G
NW0/1(141)	AC-227DA		4.53E-01	U	4.53E-01	PCI/G
NW0/1(141)	AC-227DA		5.68E-01	U	5.68E-01	PCI/G
NW0/1(141)	AM-241		4.05E-01	U	4.05E-01	PCI/G
NW0/1(141)	AM-241		3.83E-01	U	3.83E-01	PCI/G
NW0/1(141)	BI-210M		1.01E-01	U	1.01E-01	PCI/G
NW0/1(141)	BI-210M		7.52E-02	U	7.52E-02	PCI/G
NW0/1(141)	CO-60		5.69E-02	U	5.69E-02	PCI/G
NW0/1(141)	CO-60		6.81E-02	U	6.81E-02	PCI/G
NW0/1(141)	CS-137DA	9.10E-02	1.93E-01		0.00E+00	PCI/G
NW0/1(141)	CS-137DA	5.91E-02	1.58E-01		0.00E+00	PCI/G
NW0/1(141)	EU-152		2.00E-01	U	2.00E-01	PCI/G
NW0/1(141)	EU-152		1.55E-01	U	1.55E-01	PCI/G
NW0/1(141)	EU-154		1.91E-01	U	1.91E-01	PCI/G
NW0/1(141)	EU-154		1.53E-01	U	1.53E-01	PCI/G
NW0/1(141)	RA-224DA	2.01E+00	1.99E+01		0.00E+00	PCI/G

PRS

Building 21 Report: Soil Gamma Spectroscopy Results

PRS

Sample ID	Isotope	Total Error	Result	Q	MDA	Unit
NW0/1(141)	RA-224DA	2.24E+00	2.23E+01		0.00E+00	PCI/G
NW0/1(141)	RA-226DA	1.99E-01	1.01E+00		0.00E+00	PCI/G
NW0/1(141)	RA-226DA	1.70E-01	1.19E+00		0.00E+00	PCI/G
NW0/1(141)	TH-232DA	2.16E+00	2.12E+01		0.00E+00	PCI/G
NW0/1(141)	TH-232DA	1.96E+00	1.87E+01		0.00E+00	PCI/G
NW0/1(148)	AC-227DA		2.17E-01	U	2.17E-01	PCI/G
NW0/1(148)	AC-227DA		2.35E-01	U	2.35E-01	PCI/G
NW0/1(148)	AM-241		2.25E-01	U	2.25E-01	PCI/G
NW0/1(148)	AM-241		1.87E-01	U	1.87E-01	PCI/G
NW0/1(148)	BI-210M		4.61E-02	U	4.61E-02	PCI/G
NW0/1(148)	BI-210M		4.03E-02	U	4.03E-02	PCI/G
NW0/1(148)	CO-60		3.67E-02	U	3.67E-02	PCI/G
NW0/1(148)	CO-60		3.62E-02	U	3.62E-02	PCI/G
NW0/1(148)	CS-137DA	2.56E-02	7.61E-02		5.00E-02	PCI/G
NW0/1(148)	CS-137DA	3.99E-02	8.30E-02		0.00E+00	PCI/G
NW0/1(148)	EU-152		9.19E-02	U	9.19E-02	PCI/G
NW0/1(148)	EU-152		8.52E-02	U	8.52E-02	PCI/G
NW0/1(148)	EU-154		1.11E-01	U	1.11E-01	PCI/G
NW0/1(148)	EU-154		1.42E-01	U	1.42E-01	PCI/G
NW0/1(148)	RA-224DA	1.41E-01	1.23E+00		0.00E+00	PCI/G
NW0/1(148)	RA-224DA	1.38E-01	1.19E+00		0.00E+00	PCI/G
NW0/1(148)	RA-226DA	1.49E-01	1.09E+00		0.00E+00	PCI/G
NW0/1(148)	RA-226DA	1.61E-01	1.08E+00		0.00E+00	PCI/G
NW0/1(148)	TH-232DA	2.01E-01	1.15E+00		0.00E+00	PCI/G
NW0/1(148)	TH-232DA	2.21E-01	1.41E+00		0.00E+00	PCI/G
NW0/1(151)	AC-227DA		1.72E-01	U	1.72E-01	PCI/G
NW0/1(151)	AM-241		1.90E-01	U	1.90E-01	PCI/G
NW0/1(151)	BI-210M		3.52E-02	U	3.52E-02	PCI/G
NW0/1(151)	CO-60		3.44E-02	U	3.44E-02	PCI/G
NW0/1(151)	CS-137DA	2.23E-02	6.59E-02		4.37E-02	PCI/G
NW0/1(151)	EU-152		7.45E-02	U	7.45E-02	PCI/G
NW0/1(151)	EU-154		7.52E-02	U	7.52E-02	PCI/G
NW0/1(151)	RA-224DA	1.49E-01	1.33E+00		0.00E+00	PCI/G
NW0/1(151)	RA-226DA	8.49E-02	5.04E-01		0.00E+00	PCI/G
NW0/1(151)	TH-232DA	1.99E-01	1.18E+00		0.00E+00	PCI/G
NW0/1(161)	AC-227DA		1.34E-01	U	1.34E-01	PCI/G
NW0/1(161)	AM-241		1.02E-01	U	1.02E-01	PCI/G
NW0/1(161)	BI-210M		2.80E-02	U	2.80E-02	PCI/G
NW0/1(161)	CO-60		2.36E-02	U	2.36E-02	PCI/G
NW0/1(161)	CS-137DA		3.62E-02	U	3.62E-02	PCI/G
NW0/1(161)	EU-152		5.92E-02	U	5.92E-02	PCI/G
NW0/1(161)	EU-154		8.96E-02	U	8.96E-02	PCI/G
NW0/1(161)	RA-224DA	5.75E-02	4.11E-01		0.00E+00	PCI/G
NW0/1(161)	RA-226DA	5.77E-02	3.87E-01		1.06E-01	PCI/G
NW0/1(161)	TH-232DA	1.13E-01	3.98E-01		0.00E+00	PCI/G
NW0/1(170)	AC-227DA		1.61E-01	U	1.61E-01	PCI/G
NW0/1(170)	AM-241		1.49E-01	U	1.49E-01	PCI/G
NW0/1(170)	BI-210M		3.28E-02	U	3.28E-02	PCI/G
NW0/1(170)	CO-60		3.91E-02	U	3.91E-02	PCI/G
NW0/1(170)	CS-137DA	2.64E-02	4.52E-02		0.00E+00	PCI/G

Building 21 Report: pH RESULTS

PRS

Sample ID			Matrix	Analyte Name	Reported Conc.	Units
CC	0/1	-124	SOIL	pH	8.42	pH Units
CC	0/2	-124	SOIL	pH	7.67	pH Units
CC	0/1	-125	SOIL	pH	9.09	pH Units
CC	0/2	-125	SOIL	pH	7.58	pH Units
CC	0/2	-138	SOIL	pH	7.69	pH Units
CC	0/1	-138	SOIL	pH	8.77	pH Units
CC	0/1	-141	SOIL	pH	8.81	pH Units
CC	0/2	-141	SOIL	pH	8.49	pH Units
CC	0/1	-148	SOIL	pH	7.81	pH Units
CC	0/2	-148	SOIL	pH	7.46	pH Units
CC	0/2	-151	SOIL	pH	7.66	pH Units
CC	0/1	-151	SOIL	pH	8.78	pH Units
CC	0/2	-161	SOIL	pH	7.84	pH Units
CC	0/1	-161	SOIL	pH	8.83	pH Units
CC	0/2	-163	SOIL	pH	7.31	pH Units
CC	0/1	-163	SOIL	pH	7.64	pH Units
CC	0/1	-170	SOIL	pH	8.31	pH Units
CC	0/2	-170	SOIL	pH	6.79	pH Units
CC	0/1	-174	SOIL	pH	8.57	pH Units
CC	0/1	-178	SOIL	pH	8.68	pH Units
CC	0/2	-178	SOIL	pH	7.69	pH Units
CC	0/1	-182	SOIL	pH	8.75	pH Units
CC	0/2	-182	SOIL	pH	8.69	pH Units
CC	0/1	-185	SOIL	pH	8.52	pH Units
CC	0/1	-187	SOIL	pH	8.43	pH Units
CC	0/2	-187	SOIL	pH	7.64	pH Units
CC	0/1	-196	SOIL	pH	8.79	pH Units
CC	0/1	-202	SOIL	pH	8.52	pH Units
CC	0/2	-202	SOIL	pH	7.58	pH Units
CC	1/2	-202	SOIL	pH	7.39	pH Units
CC	0/1	-209	SOIL	pH	8.24	pH Units
CC	0/2	-209	SOIL	pH	7.74	pH Units
CC	0/1	-221	SOIL	pH	8.88	pH Units
CC	0/2	-221	SOIL	pH	8.29	pH Units
CC	1/1	-221	SOIL	pH	8.78	pH Units
CC	0/1	-222	SOIL	pH	8.79	pH Units
CC	0/2	-222	SOIL	pH	7.95	pH Units
CC	0/1	-231	SOIL	pH	8.86	pH Units
CC	0/2	-231	SOIL	pH	7.74	pH Units

Building 21 Report: PCB RESULTS

Sampe ID	Matrix	Analyte Name	Concentration	Lab Qualifier	Units
CC 0/2 124	SOIL	AROCLOR-1016	39	U	mg/kg
CC 0/2 124	SOIL	AROCLOR-1221	78	U	mg/kg
CC 0/2 124	SOIL	AROCLOR-1232	39	U	mg/kg
CC 0/2 124	SOIL	AROCLOR-1242	39	U	mg/kg
CC 0/2 124	SOIL	AROCLOR-1248	39	U	mg/kg
CC 0/2 124	SOIL	AROCLOR-1254	39	U	mg/kg
CC 0/2 124	SOIL	AROCLOR-1260	39	U	mg/kg
CC 0/2 125	SOIL	AROCLOR-1254	33	U	mg/kg
CC 0/2 125	SOIL	AROCLOR-1254	33	U	mg/kg
CC 0/2 125	SOIL	AROCLOR-1016	33	U	mg/kg
CC 0/2 125	SOIL	AROCLOR-1221	66	U	mg/kg
CC 0/2 125	SOIL	AROCLOR-1232	33	U	mg/kg
CC 0/2 125	SOIL	AROCLOR-1242	33	U	mg/kg
CC 0/2 125	SOIL	AROCLOR-1248	33	U	mg/kg
CC 0/2 125	SOIL	AROCLOR-1254	33	U	mg/kg
CC 0/2 125	SOIL	AROCLOR-1260	33	U	mg/kg
CC 0/2 138	SOIL	AROCLOR-1016	40	U	mg/kg
CC 0/2 138	SOIL	AROCLOR-1221	81	U	mg/kg
CC 0/2 138	SOIL	AROCLOR-1232	40	U	mg/kg
CC 0/2 138	SOIL	AROCLOR-1242	40	U	mg/kg
CC 0/2 138	SOIL	AROCLOR-1248	40	U	mg/kg
CC 0/2 138	SOIL	AROCLOR-1254	40	U	mg/kg
CC 0/2 138	SOIL	AROCLOR-1260	40	U	mg/kg
CC 0/2 141	SOIL	AROCLOR-1016	35	U	mg/kg
CC 0/2 141	SOIL	AROCLOR-1221	70	U	mg/kg
CC 0/2 141	SOIL	AROCLOR-1232	35	U	mg/kg
CC 0/2 141	SOIL	AROCLOR-1242	35	U	mg/kg
CC 0/2 141	SOIL	AROCLOR-1248	35	U	mg/kg
CC 0/2 141	SOIL	AROCLOR-1254	35	U	mg/kg
CC 0/2 141	SOIL	AROCLOR-1260	35	U	mg/kg
CC 0/2 148	SOIL	AROCLOR-1016	39	U	mg/kg
CC 0/2 148	SOIL	AROCLOR-1221	77	U	mg/kg
CC 0/2 148	SOIL	AROCLOR-1232	39	U	mg/kg
CC 0/2 148	SOIL	AROCLOR-1242	39	U	mg/kg
CC 0/2 148	SOIL	AROCLOR-1248	39	U	mg/kg
CC 0/2 148	SOIL	AROCLOR-1254	39	U	mg/kg
CC 0/2 148	SOIL	AROCLOR-1260	39	U	mg/kg
CC 0/2 151	SOIL	AROCLOR-1016	42	U	mg/kg
CC 0/2 151	SOIL	AROCLOR-1221	84	U	mg/kg
CC 0/2 151	SOIL	AROCLOR-1232	42	U	mg/kg
CC 0/2 151	SOIL	AROCLOR-1242	42	U	mg/kg
CC 0/2 151	SOIL	AROCLOR-1248	42	U	mg/kg
CC 0/2 151	SOIL	AROCLOR-1254	42	U	mg/kg
CC 0/2 151	SOIL	AROCLOR-1260	42	U	mg/kg
CC 0/2 161	SOIL	AROCLOR-1016	40	U	mg/kg
CC 0/2 161	SOIL	AROCLOR-1221	81	U	mg/kg
CC 0/2 161	SOIL	AROCLOR-1232	40	U	mg/kg
CC 0/2 161	SOIL	AROCLOR-1242	40	U	mg/kg
CC 0/2 161	SOIL	AROCLOR-1248	40	U	mg/kg
CC 0/2 161	SOIL	AROCLOR-1254	40	U	mg/kg

PRS

Building 21 Report: VOA RESULTS

Sample ID			Matrix	Analyte	Analyte Name	Reported Conc.	Lab Qualifier
CC	0/2	138	SOIL	VOC	1,2,4-trimethylbenzene	6	U
CC	0/2	138	SOIL	VOC	sec-butylbenzene	6	U
CC	0/2	138	SOIL	VOC	4-isopropyltoluene	6	U
CC	0/2	138	SOIL	VOC	1,3-Dichlorobenzene	6	U
CC	0/2	138	SOIL	VOC	1,4-Dichlorobenzene	6	U
CC	0/2	138	SOIL	VOC	n-butylbenzene	6	U
CC	0/2	138	SOIL	VOC	1,2-Dichlorobenzene	6	U
CC	0/2	138	SOIL	VOC	1,2-dibromo-3-chloropropane	6	U
CC	0/2	138	SOIL	VOC	1,2,4-Trichlorobenzene	6	U
CC	0/2	138	SOIL	VOC	1,2,3-trichloropropane	6	U
CC	0/2	138	SOIL	VOC	Hexachlorobutadiene	6	U
CC	0/2	138	SOIL	VOC	Naphthalene	6	U
CC	0/2	138	SOIL	VOC	1,2,3-trichlorobenzene	6	U
CC	0/2	138	SOIL	VOC	n-propylbenzene	6	U
CC	0/2	141	SOIL	VOC	Dichlorodifluoromethane	5	U
CC	0/2	141	SOIL	VOC	Chloromethane	5	U
CC	0/2	141	SOIL	VOC	Vinyl Chloride	5	U
CC	0/2	141	SOIL	VOC	Bromomethane	5	U
CC	0/2	141	SOIL	VOC	Chloroethane	5	U
CC	0/2	141	SOIL	VOC	Trichlorofluoromethane	5	U
CC	0/2	141	SOIL	VOC	1,1-Dichloroethene	5	U
CC	0/2	141	SOIL	VOC	Methylene Chloride	110	B
CC	0/2	141	SOIL	VOC	trans-1,2-dichloroethene	5	U
CC	0/2	141	SOIL	VOC	1,1-Dichloroethane	5	U
CC	0/2	141	SOIL	VOC	2,2-dichloropropane	5	U
CC	0/2	141	SOIL	VOC	cis-1,2-dichloroethene	5	U
CC	0/2	141	SOIL	VOC	Chloroform	5	U
CC	0/2	141	SOIL	VOC	Bromochloromethane	5	U
CC	0/2	141	SOIL	VOC	1,1,1-Trichloroethane	5	U
CC	0/2	141	SOIL	VOC	1,1-dichloropropene	5	U
CC	0/2	141	SOIL	VOC	Carbon Tetrachloride	5	U
CC	0/2	141	SOIL	VOC	Benzene	5	U
CC	0/2	141	SOIL	VOC	1,2-Dichloroethane	5	U
CC	0/2	141	SOIL	VOC	Trichloroethene	5	U
CC	0/2	141	SOIL	VOC	1,2-Dichloropropane	5	U
CC	0/2	141	SOIL	VOC	Bromodichloromethane	5	U
CC	0/2	141	SOIL	VOC	Dibromomethane	5	U
CC	0/2	141	SOIL	VOC	cis-1,3-Dichloropropene	5	U
CC	0/2	141	SOIL	VOC	Toluene	5	U
CC	0/2	141	SOIL	VOC	trans-1,3-Dichloropropene	5	U
CC	0/2	141	SOIL	VOC	1,1,2-Trichloroethane	5	U
CC	0/2	141	SOIL	VOC	Tetrachloroethene	5	U
CC	0/2	141	SOIL	VOC	1,3-dichloropropane	5	U
CC	0/2	141	SOIL	VOC	Dibromochloromethane	5	U
CC	0/2	141	SOIL	VOC	1,2-dibromoethane	5	U
CC	0/2	141	SOIL	VOC	Chlorobenzene	5	U
CC	0/2	141	SOIL	VOC	Ethylbenzene	5	U
CC	0/2	141	SOIL	VOC	1,1,1,2-tetrachloroethane	5	U
CC	0/2	141	SOIL	VOC	m-&p-xylene	5	U
CC	0/2	141	SOIL	VOC	O-xylene	5	U
CC	0/2	141	SOIL	VOC	Styrene	5	U
CC	0/2	141	SOIL	VOC	isopropylbenzene	5	U

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Building 21 Report: TOC RESULTS

Sample ID	Matrix	Analyte Name	Concentration	Units
CC 0/1 -108	SOIL	Total Organic Carbon	78800	mg/kg
CC 0/2 -108	SOIL	Total Organic Carbon	18600	mg/kg
CC 0/1 -111	SOIL	Total Organic Carbon	22700	mg/kg
CC 0/2 -111	SOIL	Total Organic Carbon	63800	mg/kg
CC 0/1 -118	SOIL	Total Organic Carbon	47200	mg/kg
CC 0/2 -118	SOIL	Total Organic Carbon	30700	mg/kg
CC 0/1 -119	SOIL	Total Organic Carbon	31700	mg/kg
CC 0/2 -119	SOIL	Total Organic Carbon	15700	mg/kg
CC 0/1 -120	SOIL	Total Organic Carbon	42600	mg/kg
CC 0/2 -120	SOIL	Total Organic Carbon	38600	mg/kg
CC 0/1 -124	SOIL	Total Organic Carbon	60600	mg/kg
CC 0/2 -124	SOIL	Total Organic Carbon	8790	mg/kg
CC 0/2 -125	SOIL	Total Organic Carbon	46600	mg/kg
CC 0/2 -125	SOIL	Total Organic Carbon	6380	mg/kg
CC 0/1 -138	SOIL	Total Organic Carbon	122000	mg/kg
CC 0/2 -138	SOIL	Total Organic Carbon	11300	mg/kg
CC 0/1 -141	SOIL	Total Organic Carbon	87800	mg/kg
CC 0/2 -141	SOIL	Total Organic Carbon	79800	mg/kg
CC 0/1 -148	SOIL	Total Organic Carbon	13400	mg/kg
CC 0/2 -148	SOIL	Total Organic Carbon	6550	mg/kg
CC 0/1 -151	SOIL	Total Organic Carbon	88700	mg/kg
CC 0/2 -151	SOIL	Total Organic Carbon	4580	mg/kg
CC 0/1 -161	SOIL	Total Organic Carbon	99700	mg/kg
CC 0/2 -161	SOIL	Total Organic Carbon	1420	mg/kg
CC 0/1 -163	SOIL	Total Organic Carbon	79300	mg/kg
CC 0/2 -163	SOIL	Total Organic Carbon	58400	mg/kg
CC 0/1 -170	SOIL	Total Organic Carbon	49200	mg/kg
CC 0/2 -170	SOIL	Total Organic Carbon	12300	mg/kg
CC 0/1 -174	SOIL	Total Organic Carbon	70400	mg/kg
CC 0/1 -178	SOIL	Total Organic Carbon	57100	mg/kg
CC 0/2 -178	SOIL	Total Organic Carbon	7570	mg/kg
CC 0/1 -182	SOIL	Total Organic Carbon	67800	mg/kg
CC 0/2 -182	SOIL	Total Organic Carbon	16500	mg/kg
CC 0/1 -185	SOIL	Total Organic Carbon	105000	mg/kg
CC 0/1 -187	SOIL	Total Organic Carbon	99100	mg/kg
CC 0/2 -187	SOIL	Total Organic Carbon	5900	mg/kg
CC 0/1 -196	SOIL	Total Organic Carbon	175000	mg/kg
CC 0/1 -202	SOIL	Total Organic Carbon	116000	mg/kg
CC 0/2 -202	SOIL	Total Organic Carbon	8600	mg/kg
CC 1/2 -202	SOIL	Total Organic Carbon	5870	mg/kg
CC 0/1 -209	SOIL	Total Organic Carbon	86300	mg/kg
CC 0/2 -209	SOIL	Total Organic Carbon	21400	mg/kg
CC 0/1 -221	SOIL	Total Organic Carbon	136000	mg/kg
CC 0/2 -221	SOIL	Total Organic Carbon	109000	mg/kg
CC 1/1 -221	SOIL	Total Organic Carbon	127000	mg/kg
CC 0/1 -222	SOIL	Total Organic Carbon	160000	mg/kg
CC 0/2 -222	SOIL	Total Organic Carbon	39800	mg/kg
CC 0/1 -231	SOIL	Total Organic Carbon	100000	mg/kg
CC 0/1 -47	SOIL	Total Organic Carbon	36600	mg/kg

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Building 21 Report: TOX RESULTS

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Sample ID	Matrix	Analyte Name	Laboratory Reporting Limit	Conc./Lab Qualifier	Units
~~CC 0/2 -138~~	~~SOIL~~	~~Total Organic Halides~~	~~6.02~~	~~6.79~~	~~mg/kg~~
CC 0/1 -141	SOIL	Total Organic Halides	5.3	U	mg/kg
CC 0/2 -141	SOIL	Total Organic Halides	5.96	9.1	mg/kg
CC 0/1 -148	SOIL	Total Organic Halides	6.17	11.4	mg/kg
CC 0/2 -148	SOIL	Total Organic Halides	6.32	19	mg/kg
CC 0/1 -151	SOIL	Total Organic Halides	5.49	U	mg/kg
CC 0/2 -151	SOIL	Total Organic Halides	6.25	8.66	mg/kg
CC 0/1 -161	SOIL	Total Organic Halides	6.12	6.54	mg/kg
CC 0/2 -161	SOIL	Total Organic Halides	6.22	U	mg/kg
CC 0/1 -163	SOIL	Total Organic Halides	6.15	U	mg/kg
CC 0/2 -163	SOIL	Total Organic Halides	6.17	U	mg/kg
CC 0/1 -170	SOIL	Total Organic Halides	5.77	U	mg/kg
CC 0/2 -170	SOIL	Total Organic Halides	5.76	52.7	mg/kg
CC 0/1 -174	SOIL	Total Organic Halides	5.42	73.1	mg/kg
CC 0/1 -178	SOIL	Total Organic Halides	5.44	U	mg/kg
CC 0/2 -178	SOIL	Total Organic Halides	5.77	U	mg/kg
CC 0/1 -182	SOIL	Total Organic Halides	5.35	73.7	mg/kg
CC 0/2 -182	SOIL	Total Organic Halides	5.23	81.1	mg/kg
CC 0/1 -185	SOIL	Total Organic Halides	5.47	7.07	mg/kg
CC 0/1 -187	SOIL	Total Organic Halides	5.54	16.2	mg/kg
CC 0/2 -187	SOIL	Total Organic Halides	6.17	16.2	mg/kg
CC 0/1 -196	SOIL	Total Organic Halides	5.79	26.7	mg/kg
CC 0/1 -202	SOIL	Total Organic Halides	5.37	74	mg/kg
CC 0/2 -202	SOIL	Total Organic Halides	5.73	12.1	mg/kg
CC 1/2 -202	SOIL	Total Organic Halides	5.85	U	mg/kg
CC 0/1 -209	SOIL	Total Organic Halides	6.04	6.91	mg/kg
CC 0/2 -209	SOIL	Total Organic Halides	5.79	U	mg/kg
CC 0/1 -221	SOIL	Total Organic Halides	5.45	11.9	mg/kg
CC 0/2 -221	SOIL	Total Organic Halides	5.8	8.01	mg/kg
CC 1/1 -221	SOIL	Total Organic Halides	5.46	15.7	mg/kg
CC 0/1 -222	SOIL	Total Organic Halides	5.46	10.2	mg/kg
CC 0/2 -222	SOIL	Total Organic Halides	5.48	U	mg/kg
CC 0/1 -231	SOIL	Total Organic Halides	5.82	15.8	mg/kg
CC 0/2 -231	SOIL	Total Organic Halides	5.89	23.6	mg/kg

Building 21 Report: CYANIDE RESULTS

Sample ID	Analyte Name	Laboratory Reporting Limit	Conc./Lab Qualifier	Units
CC 0/2 -76	Cyanide Analysis - Solid	0.55	U	mg/kg
CC 0/3 -76	Cyanide Analysis - Solid	0.68	U	mg/kg
CC 0/1 -78	Cyanide Analysis - Solid	0.57	U	mg/kg
CC 0/2 -78	Cyanide Analysis - Solid	0.59	U	mg/kg
CC 0/1 -79	Cyanide Analysis - Solid	0.53	U	mg/kg
CC 0/2 -79	Cyanide Analysis - Solid	0.53	U	mg/kg
CC 0/1 -83	Cyanide Analysis - Solid	0.77	U	mg/kg
CC 0/2 -83	Cyanide Analysis - Solid	0.68	U	mg/kg
CC 0/1 -84	Cyanide Analysis - Solid	0.52	U	mg/kg
CC 0/2 -84	Cyanide Analysis - Solid	0.56	U	mg/kg
CC 0/1 -86	Cyanide Analysis - Solid	0.59	U	mg/kg
CC 0/2 -86	Cyanide Analysis - Solid	0.57	U	mg/kg
CC 0/1 -87	Cyanide Analysis - Solid	0.57	U	mg/kg
CC 0/2 -87	Cyanide Analysis - Solid	0.55	U	mg/kg
CC 0/1 -90	Cyanide Analysis - Solid	0.59	U	mg/kg
CC 0/2 -90	Cyanide Analysis - Solid	0.58	1.67	mg/kg
CC 0/1 -91	Cyanide Analysis - Solid	0.53	U	mg/kg
CC 0/2 -91	Cyanide Analysis - Solid	0.56	U	mg/kg
CC 0/1 -92	Cyanide Analysis - Solid	0.55	U	mg/kg
CC 0/2 -92	Cyanide Analysis - Solid	0.56	U	mg/kg
CC 0/1 -93	Cyanide Analysis - Solid	0.66	U	mg/kg
CC 0/1 -97	Cyanide Analysis - Solid	0.58	U	mg/kg
CC 0/2 -97	Cyanide Analysis - Solid	0.6	U	mg/kg
CC 0/1 -100	Cyanide Analysis - Solid	0.54	U	mg/kg
CC 0/2 -100	Cyanide Analysis - Solid	0.54	U	mg/kg
CC 0/1 -102	Cyanide Analysis - Solid	0.54	U	mg/kg
CC 0/2 -102	Cyanide Analysis - Solid	0.56	U	mg/kg
CC 0/1 -106	Cyanide Analysis - Solid	0.6	U	mg/kg
CC 0/2 -106	Cyanide Analysis - Solid	0.62	U	mg/kg
CC 0/1 -107	Cyanide Analysis - Solid	0.56	U	mg/kg
CC 0/2 -107	Cyanide Analysis - Solid	0.59	U	mg/kg
CC 0/1 -108	Cyanide Analysis - Solid	0.61	U	mg/kg
CC 0/2 -108	Cyanide Analysis - Solid	0.58	U	mg/kg
CC 0/1 -111	Cyanide Analysis - Solid	0.54	U	mg/kg
CC 0/2 -111	Cyanide Analysis - Solid	0.6	U	mg/kg
CC 0/1 -118	Cyanide Analysis - Solid	0.56	U	mg/kg
CC 0/2 -118	Cyanide Analysis - Solid	0.53	U	mg/kg
CC 0/1 -119	Cyanide Analysis - Solid	0.6	U	mg/kg
CC 0/2 -119	Cyanide Analysis - Solid	0.6	U	mg/kg
CC 0/1 -120	Cyanide Analysis - Solid	0.63	U	mg/kg
CC 0/2 -120	Cyanide Analysis - Solid	0.58	U	mg/kg
CC 0/1 -124	Cyanide Analysis - Solid	0.54	U	mg/kg
CC 0/2 -124	Cyanide Analysis - Solid	0.79	U	mg/kg
CC 0/1 -125	Cyanide Analysis - Solid	0.51	U	mg/kg
CC 0/2 -125	Cyanide Analysis - Solid	0.55	U	mg/kg
CC 0/1 -138	Cyanide Analysis - Solid	0.57	U	mg/kg
CC 0/2 -138	Cyanide Analysis - Solid	0.57	U	mg/kg
CC 0/1 -141	Cyanide Analysis - Solid	0.5	U	mg/kg
CC 0/2 -141	Cyanide Analysis - Solid	0.55	U	mg/kg

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Building 21 Report: SULFIDE RESULTS

Sample ID	Matrix	Analyte Name	Laboratory Reporting Limit	Conc./Lab Qualifier	Units
CC 0/2 -75	SOIL	Sulfide in Solid	28.7	U	mg/kg
CC 0/3 -76	SOIL	Sulfide in Solid	28.7	U	mg/kg
CC 0/1 -78	SOIL	Sulfide in Solid	13.7	U	mg/kg
CC 0/2 -78	SOIL	Sulfide in Solid	14.4	U	mg/kg
CC 0/1 -79	SOIL	Sulfide in Solid	21.5	25.5	mg/kg
CC 0/2 -79	SOIL	Sulfide in Solid	21.5	25.8	mg/kg
CC 0/1 -83	SOIL	Sulfide in Solid	19.1	25.4	mg/kg
CC 0/2 -83	SOIL	Sulfide in Solid	17.1	U	mg/kg
CC 0/1 -84	SOIL	Sulfide in Solid	13.2	17.5	mg/kg
CC 0/2 -84	SOIL	Sulfide in Solid	13.9	23.1	mg/kg
CC 0/1 -86	SOIL	Sulfide in Solid	39.3	U	mg/kg
CC 0/2 -86	SOIL	Sulfide in Solid	38.3	U	mg/kg
CC 0/1 -87	SOIL	Sulfide in Solid	38.4	U	mg/kg
CC 0/2 -87	SOIL	Sulfide in Solid	37.9	U	mg/kg
CC 0/1 -90	SOIL	Sulfide in Solid	24.3	28.9	mg/kg
CC 0/2 -90	SOIL	Sulfide in Solid	24.4	U	mg/kg
CC 0/1 -91	SOIL	Sulfide in Solid	34.8	U	mg/kg
CC 0/2 -91	SOIL	Sulfide in Solid	38.7	U	mg/kg
CC 0/1 -92	SOIL	Sulfide in Solid	13.5	U	mg/kg
CC 0/2 -92	SOIL	Sulfide in Solid	14.2	U	mg/kg
CC 0/1 -93	SOIL	Sulfide in Solid	42.6	U	mg/kg
CC 0/1 -97	SOIL	Sulfide in Solid	19.9	U	mg/kg
CC 0/2 -97	SOIL	Sulfide in Solid	20.8	U	mg/kg
CC 0/1 -100	SOIL	Sulfide in Solid	37.2	U	mg/kg
CC 0/2 -100	SOIL	Sulfide in Solid	36.7	U	mg/kg
CC 0/1 -102	SOIL	Sulfide in Solid	37	U	mg/kg
CC 0/2 -102	SOIL	Sulfide in Solid	14.6	19.4	mg/kg
CC 0/1 -106	SOIL	Sulfide in Solid	19.3	U	mg/kg
CC 0/2 -106	SOIL	Sulfide in Solid	19.9	U	mg/kg
CC 0/1 -107	SOIL	Sulfide in Solid	22.5	27	mg/kg
CC 0/2 -107	SOIL	Sulfide in Solid	23.8	28.5	mg/kg
CC 0/1 -108	SOIL	Sulfide in Solid	40.5	U	mg/kg
CC 0/2 -108	SOIL	Sulfide in Solid	40.5	U	mg/kg
CC 0/1 -111	SOIL	Sulfide in Solid	36.3	U	mg/kg
CC 0/2 -111	SOIL	Sulfide in Solid	38.5	U	mg/kg
CC 0/1 -118	SOIL	Sulfide in Solid	38.4	U	mg/kg
CC 0/2 -118	SOIL	Sulfide in Solid	36.9	59.9	mg/kg
CC 0/1 -119	SOIL	Sulfide in Solid	38.8	U	mg/kg
CC 0/2 -119	SOIL	Sulfide in Solid	38.7	U	mg/kg
CC 0/1 -120	SOIL	Sulfide in Solid	40.7	U	mg/kg
CC 0/2 -120	SOIL	Sulfide in Solid	37.3	U	mg/kg
CC 0/1 -124	SOIL	Sulfide in Solid	18.5	U	mg/kg
CC 0/2 -124	SOIL	Sulfide in Solid	25.7	U	mg/kg
CC 0/1 -125	SOIL	Sulfide in Solid	17.4	21.6	mg/kg
CC 0/2 -125	SOIL	Sulfide in Solid	18.4	27.4	mg/kg
CC 0/1 -138	SOIL	Sulfide in Solid	25.1	U	mg/kg
CC 0/2 -138	SOIL	Sulfide in Solid	24.1	U	mg/kg
CC 0/1 -141	SOIL	Sulfide in Solid	12.7	16.9	mg/kg
CC 0/2 -141	SOIL	Sulfide in Solid	14.3	19.1	mg/kg

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Building 21 Report: METALS RESULTS

Sample ID	Matrix	Analyte Name	Laboratory Reporting Limit	Concentration	Lab Qualiifier	Units
CC 0/2 -138	SED	Manganese	15	751		mg/kg
CC 0/2 -138	SED	Mercury	0.2	0.057	U	mg/kg
CC 0/2 -138	SED	Nickel	40	16.8		mg/kg
CC 0/2 -138	SED	Potassium	5000	1280		mg/kg
CC 0/2 -138	SED	Selenium	5	0.69		mg/kg
CC 0/2 -138	SED	Silver	10	2.1		mg/kg
CC 0/2 -138	SED	Sodium	5000	2830		mg/kg
CC 0/2 -138	SED	Thallium	10	0.4	U	mg/kg
CC 0/2 -138	SED	Vanadium	50	27.7		mg/kg
CC 0/2 -138	SED	Zinc	20	50.1		mg/kg
CC 0/2 -141	SED	Aluminum	200	11900		mg/kg
CC 0/2 -141	SED	Antimony	60	2.7	U	mg/kg
CC 0/2 -141	SED	Arsenic	10	18.5		mg/kg
CC 0/2 -141	SED	Barium	200	96.1		mg/kg
CC 0/2 -141	SED	Beryllium	5	0.85		mg/kg
CC 0/2 -141	SED	Cadmium	5	0.33	U	mg/kg
CC 0/2 -141	SED	Calcium	5000	10300		mg/kg
CC 0/2 -141	SED	Chromium	10	15.2		mg/kg
CC 0/2 -141	SED	Cobalt	50	11.2		mg/kg
CC 0/2 -141	SED	Copper	25	16.7		mg/kg
CC 0/2 -141	SED	Iron	100	23800		mg/kg
CC 0/2 -141	SED	Lead	3	20.5	I	mg/kg
CC 0/2 -141	SED	Magnesium	5000	3900		mg/kg
CC 0/2 -141	SED	Manganese	15	561		mg/kg
CC 0/2 -141	SED	Mercury	0.2	0.06	U	mg/kg
CC 0/2 -141	SED	Nickel	40	17.7		mg/kg
CC 0/2 -141	SED	Potassium	5000	1220		mg/kg
CC 0/2 -141	SED	Selenium	5	0.6	U	mg/kg
CC 0/2 -141	SED	Silver	10	0.57	U	mg/kg
CC 0/2 -141	SED	Sodium	5000	1050		mg/kg
CC 0/2 -141	SED	Thallium	10	0.41	U	mg/kg
CC 0/2 -141	SED	Vanadium	50	26.1		mg/kg
CC 0/2 -141	SED	Zinc	20	59.3		mg/kg
CC 0/2 -148	SED	Aluminum	200	12500		mg/kg
CC 0/2 -148	SED	Antimony	60	2.6	U	mg/kg
CC 0/2 -148	SED	Arsenic	10	8.6		mg/kg
CC 0/2 -148	SED	Barium	200	89.3		mg/kg
CC 0/2 -148	SED	Beryllium	5	0.66		mg/kg
CC 0/2 -148	SED	Cadmium	5	0.33	U	mg/kg
CC 0/2 -148	SED	Calcium	5000	5790		mg/kg
CC 0/2 -148	SED	Chromium	10	15.3		mg/kg
CC 0/2 -148	SED	Cobalt	50	16.2		mg/kg
CC 0/2 -148	SED	Copper	25	15.9		mg/kg
CC 0/2 -148	SED	Iron	100	23500		mg/kg
CC 0/2 -148	SED	Lead	3	18.2		mg/kg
CC 0/2 -148	SED	Magnesium	5000	3980		mg/kg
CC 0/2 -148	SED	Manganese	15	907		mg/kg
CC 0/2 -148	SED	Mercury	0.2	0.2		mg/kg
CC 0/2 -148	SED	Nickel	40	19.9		mg/kg
CC 0/2 -148	SED	Potassium	5000	904		mg/kg
CC 0/2 -148	SED	Selenium	5	0.59	U	mg/kg

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