MOUND

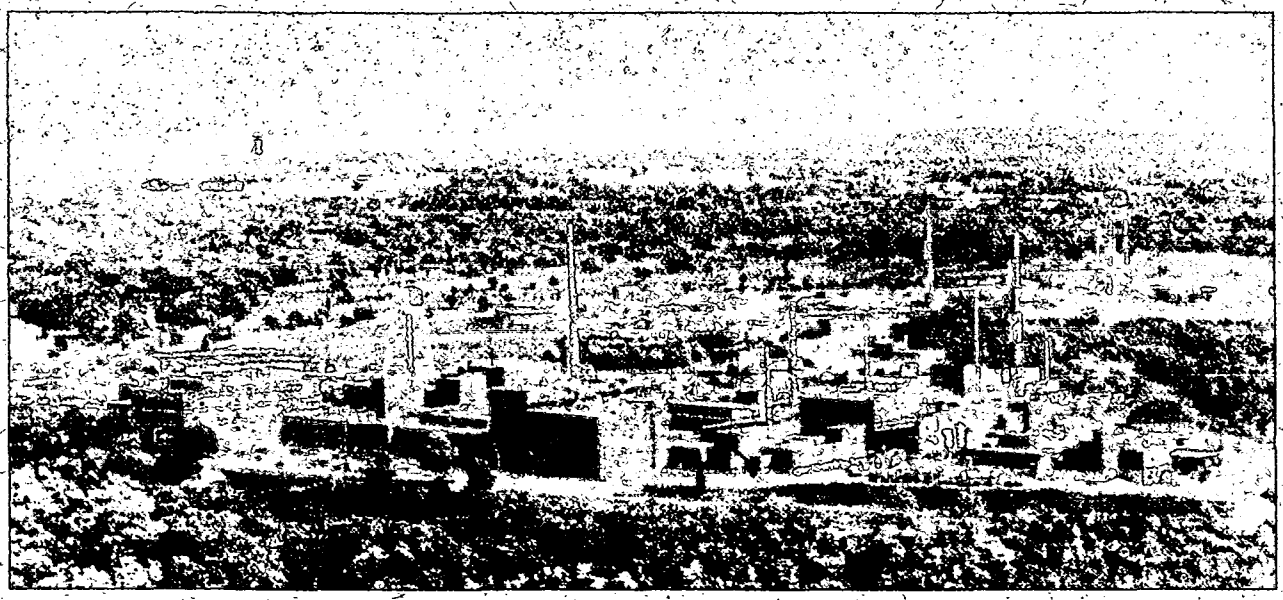
Environmental
Restoration
Program

MOUND PLANT

Potential Release Site Package

PRS 437, 438, 439

PUBLIC REVIEW DRAFT
NOVEMBER 2002



3001 0406090008

BWX Technologies, Inc.
a McDermott company

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

ER-317/02
November 13, 2002

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

ATTENTION: Robert S. Rothman

SUBJECT: Contract No. DE-AC24-97OH20044
VARIOUS DOCUMENTS

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

Dear Mr. Provencher:

Rob Rothman from your office has approved the release of the following document to the regulators and the public for their review:

- PRS 423-428 Package – Public Review Draft
- √ PRS 437-439 Package – Public Review Draft
- PRS 440 - Public Review Draft

The public review period will be from November 13 until December 13, 2002 and BWXTO will respond to any comments received and incorporate the responses into the final document.

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,

Monte A. Williams
Project Manager, Environmental Restoration

MAW/DAR:jdg

Enclosures

cc: Tim Fischer, USEPA, (2) w/attachments
Brian Nickel, OEPA, (4) w/attachments
Ruth Vandegrift, ODH, (1) w/attachments
Paul Lucas, DOE/MCP, (1) w/attachments
Randy Tormey, DOE/OH, (1) w/attachments
Dann Bird, MMCIC, (3) w/attachments
J. D. Bonfiglio, MESH, (1) w/attachments
Craig Hansen, BWXT of Ohio, (1) w/attachments
Public Reading Room, (4) w/attachments
DCC

PRS 437, 438, 439

REV	DESCRIPTION	DATE
WORKING DRAFT		15 May 2001
DRAFT	DOE review on 29 May 2001. Adjustments incorporated. Distribute for Core Team review for July binning.	30 May 2001
DRAFT PROPOSED FINAL	Revised in response to OEPA comments of July 17, 2001	October 2002
PUBLIC REVIEW DRAFT	No changes from Draft Proposed Final	November 2002
FINAL		

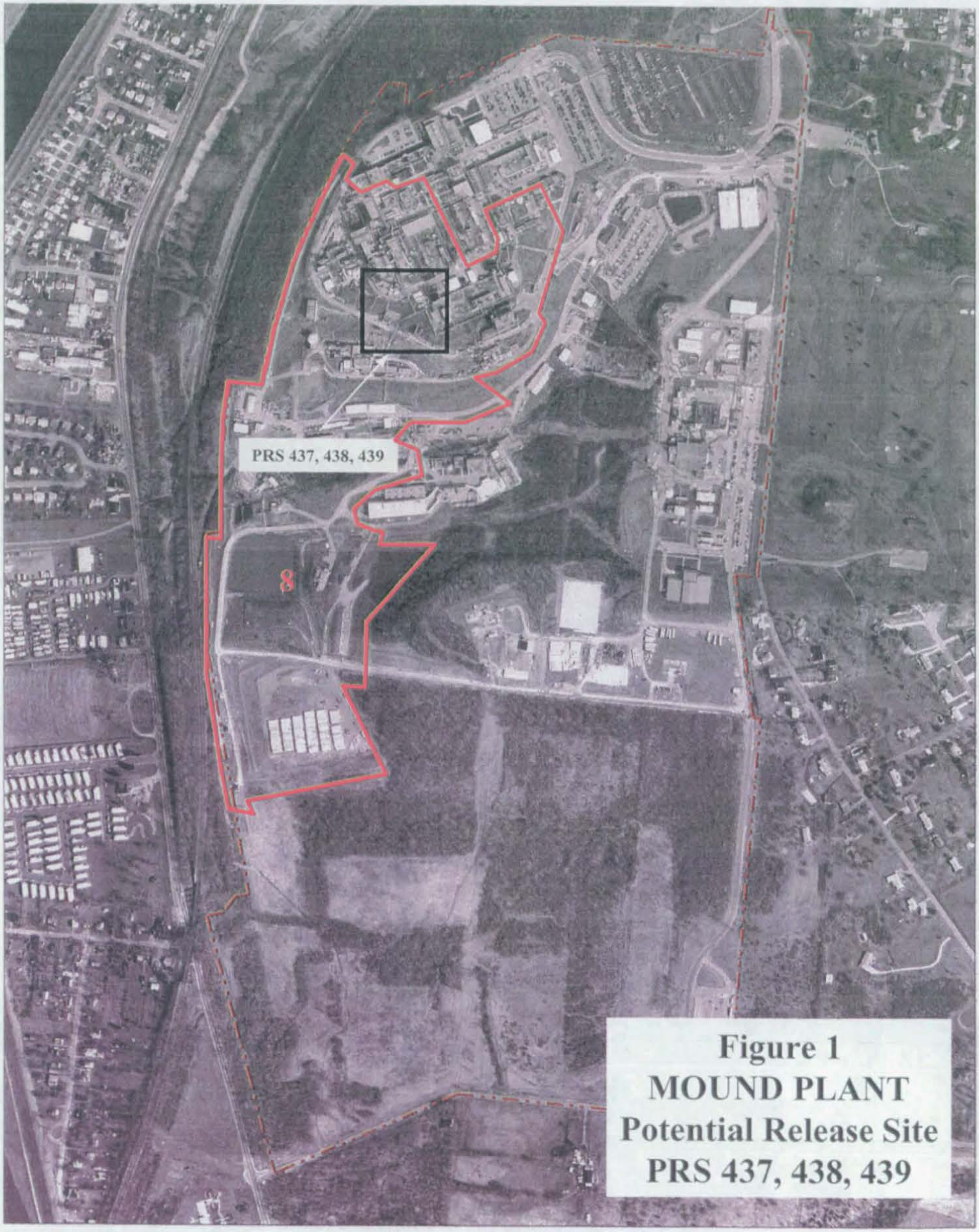
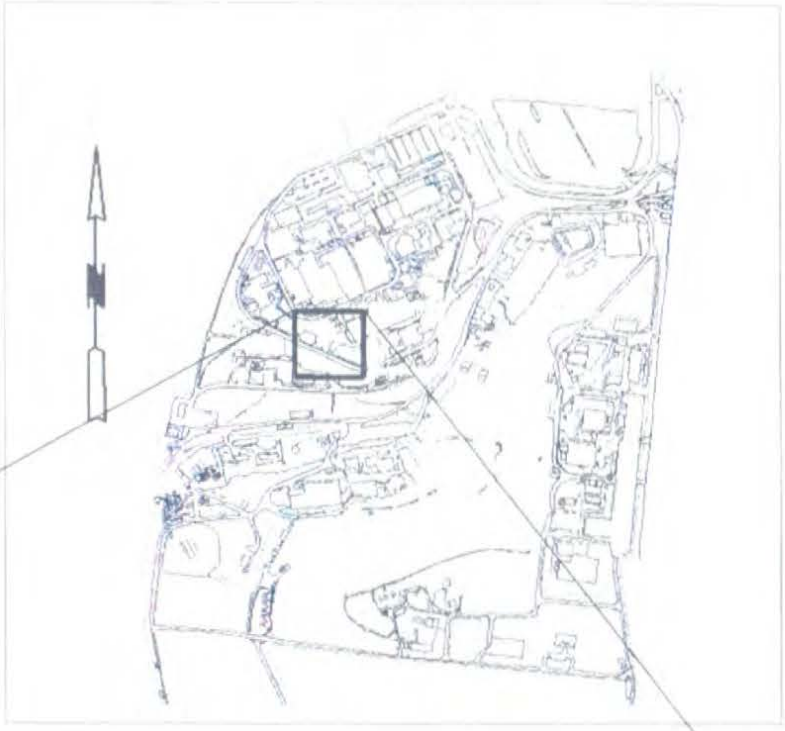
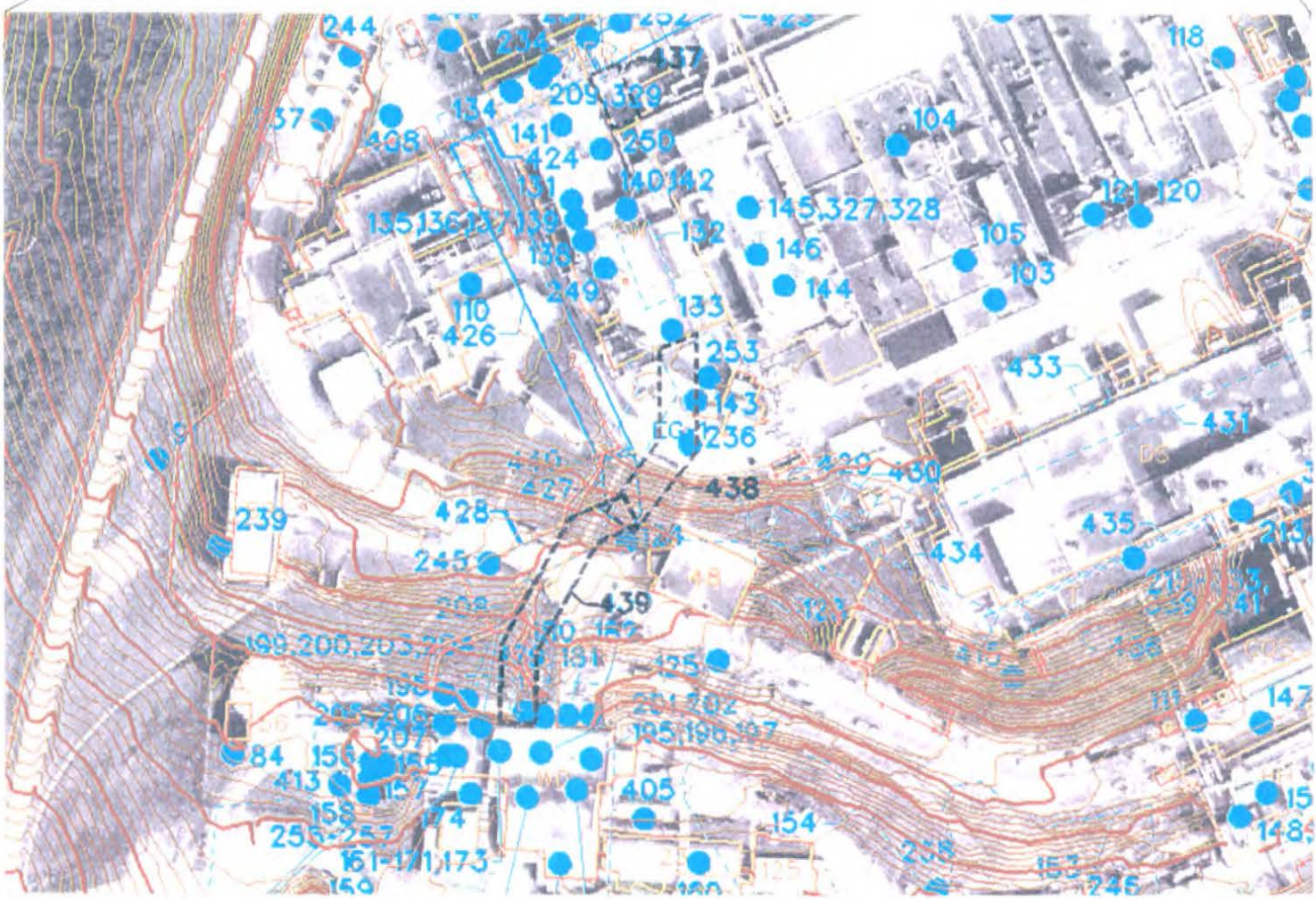


Figure 1
MOUND PLANT
Potential Release Site
PRS 437, 438, 439

Figure 2.
Mound Plant
PRS 437, 438, 439
Man Hole 20 to WD Building

On the map below:
- PRS number and location shown in black
- Fencing shown in red
- Elevation contours shown in brown
- Other PRS's shown in blue





PRS 437-439

Main Hill Underground Lines

Manhole 20 to SW Building to WD Building

PRS HISTORY:

The majority of Mound Plant Main Hill Underground Waste Lines (Underground Lines/UGLys) were originally grouped as one Potential Release Site (PRS), PRS 122. The document, *Operable Unit 9 Site Scoping Report: Volume 12 - Site Summary Report*, (Reference A), defines PRS 122 to include waste lines from B, H, R, and SW Buildings.

In preparation for review and binning of PRS 122, it became obvious that the grouping of almost 4,000 feet of such line under one PRS was not the most opportune position from which to begin the evaluation process. It was decided that the UGLys could be better studied and recommendation decisions made if the lines were defined to exist in segments. PRS 122 was segmented into PRSs 423 through 440.

PRSs 437, 438 and 439 identify one group of UGLy segments associated with radioactively contaminated wastes *transiting Manhole 20 enroute to WD Building.* Approximately 450 linear feet of waste line is addressed in this PRS group.

BACKGROUND:

Potential Release Sites 437-439 identifies Underground Line segments that served to carry radioactively contaminated wastes from R (Research) Building and SW (Operations Labs/Tritium Development/Surveillance) Buildings operations en-route to the Waste Disposal (WD) Building. Note Figures 2 and 3. Wastes from operations in R and SW Buildings were discharged through tanks and sumps to the subject PRSs. R and SW Building tanks and sumps are addressed, in part, by other Potential Release Site Data Packages and are not the subject of this data package other than the contaminants carried. Reference F identifies the contaminants of concern and clean-up objectives for the SW/R Building Removal Action.

PRS 437-9 carried radioactively contaminated wastes from R and SW Buildings south to WD Building. Reference B provides a physical description of the subject PRSs.

CONTAMINATION:

R Building and SW Building operations provide insight into the contaminants potentially resident in UGLy PRSs 437, 438, and 439. Note References C and D. Reference D presents potential contaminants of concern as a function of specific programs and room locations. A briefing presentation (Reference E) given by BWXT of Ohio Soils Project

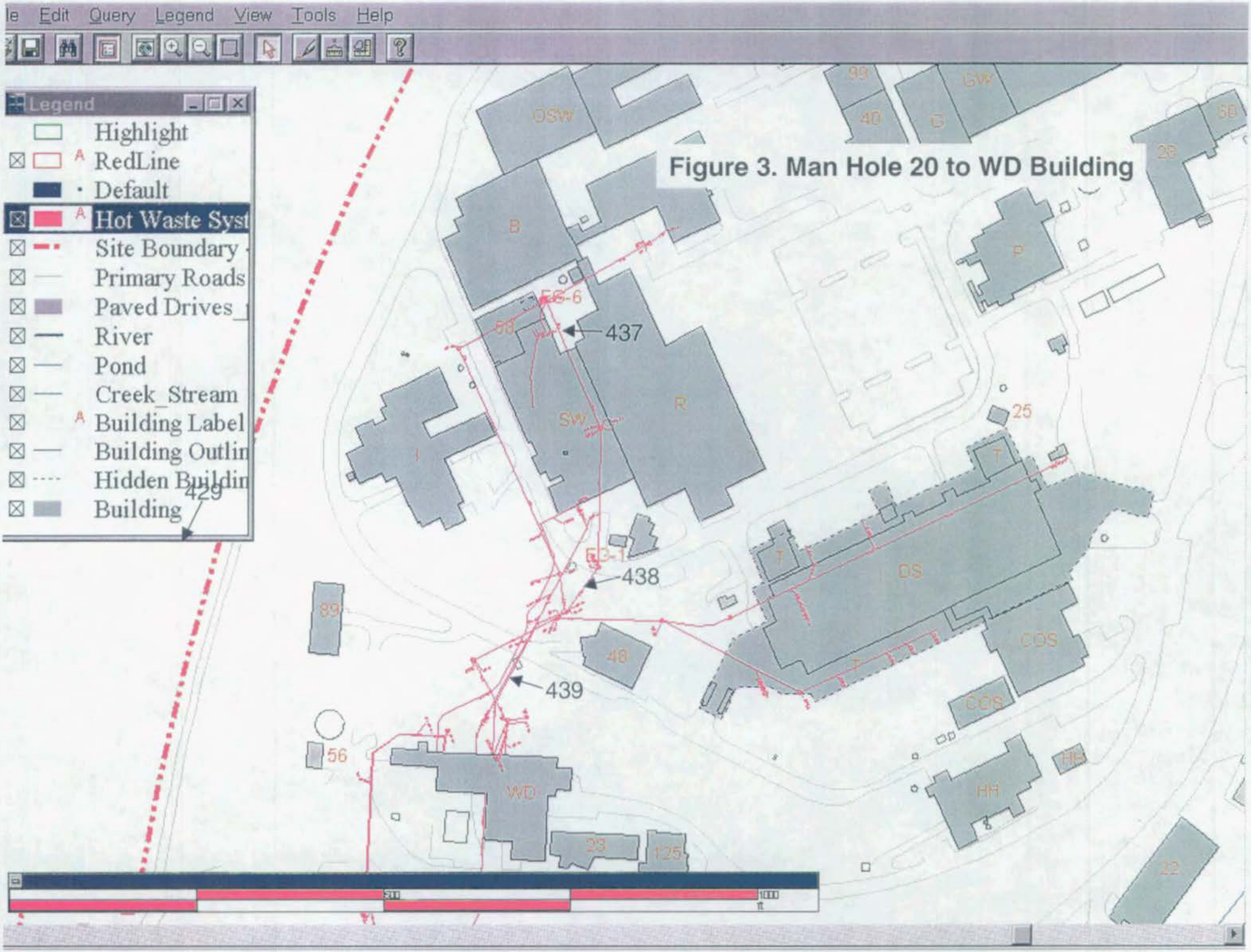


Figure 3. Man Hole 20 to WD Building

personnel further illuminates contamination concerns potentially affecting the subject Potential Release Sites.

Reference G and Table 1 present GIS mapping and sampling information in proximity to PRSs 437, 438 and 440. PRS 124 presents supporting contamination information (Reference H).

Table 1: Selected GIS Mapping/Sampling Information

Contaminant	Maximum Concentration Detected	Guideline Criteria	Background Value
Beryllium	0.78 mg/kg	0.70 mg/kg (10-6)	1.3 mg/kg
Pu-238	225 pCi/g	55 pCi/g (10-5)	0.13 pCi/g
Th-232+D	2.2 pCi/g	0.07pCi/g (10-6)	1.4pCi/g
Tritium	324996 pCi/g	20000 pCi/L (MCL)	1485 pCi/L

+D indicates decay products are included in calculation of risk guideline criteria

READING ROOM REFERENCES:

A) Operable Unit 9 Site Scoping Report: Volume 12 - Site Summary Report (Excerpt)

C) Mound Facility Physical Characterization (MLM-3791), December 1, 1993 (Excerpt)

D) Mound Technical Manual, MD-22153, Issue 2, Mound Site Radionuclides By Location (Excerpt)

F) Action Memorandum/Engineering Evaluation/Cost Analysis, Buildings R, SW, 58 and 68 Slab, Removal Action, Mound Plant, Miamisburg, Ohio, Public Review Draft, November 2000

H) Potential Release Site Data Package (PRS) 124

OTHER REFERENCES:

B) Cost Estimate Assumptions and Ground Rules, B&W Services, Inc.

E) Technical Presentation, Main Hill Underground Lines, PRS 122-124

G) GIS Mapping/Sampling Information

PREPARED BY:

Mary Beth England, Member of BWXT of Ohio Technical Staff

Joseph C. Geneczko, Member of BWXT of Ohio Technical Staff
Steven S. Pawel, Member of BWXT of Ohio Technical Staff

CONTRIBUTORS:

Richard Neff, Department of Energy/MEMP

HISTORICAL/TECHNICAL REVIEWER:

Dan Carfagno, Contractor to Ohio Environmental Protection Agency

MOUND PLANT
PRS #437, 438, 439
MAIN HILL UNDERGROUND LINES
Man Hole 20 to WD Building

RECOMMENDATION:

PRS 437, 438, and 439 were identified because the underground line segments carried radioactively contaminated effluent from R and SW Building operations to the Waste Disposal building (WD).

Therefore, a RESPONSE ACTION is recommended for PRS 437, 438, and 439.

CONCURRENCE:

DOE/MEMP: _____ 7/18/01
Robert S. Rothman, Remedial Project Manager (date)

USEPA: _____ 7/18/01
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: _____ 7/18/01
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from _____ to _____

☐ No comments were received during the comment period.

☐ Comment responses can be found on page _____ of this package.

R

REFERENCE MATERIAL FOR PRS 437-439

Reference A

Classification Code 29-01-01-07-2
Accession No. 9506325001.5

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

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
118	M Building Soils	E-7	Grounds	Copper cyanide, Silver cyanide Machine oils, Solvents	4	Oils, Copper cyanide, Silver cyanide	S	10	1 14	SGS[b] Table B.4 Locations 1050, 1051, 1062 Table B.9 RSS[c] Locations S0162, S0163, S0252 (Appendix E in Ref. 6)	12 6
119	Room M-38 Metal Plating Rinse Water Sump (Tank 225)	E-7	Surplus	Rinse waters from metal plating operations. Possible contaminants include nickel, cadmium, silver, gold, manganese, cyanide, and aluminum. Sodium hydroxide solution Potassium permanganate	3, 4	None Suspected			No Data		
120	Room M-108 Metal Plating Rinse Water Tank (Tank 119)	E-7	In service	Rinse waters from metal plating operations. copper, gold, silver, nickel, aluminum, and uranium	3, 4	Silver cyanide	SW	10	No Data		
121	Vapor Degreasers	E-7	In service	Perclene D (perchloroethylene)	4, 5, 18	None Suspected			No Data		
122	Underground Radioactive Waste Lines (Main Hill)	E-6 F-6	Inactive	Alpha wastes from SW Bldg., R Bldg., and H Bldg. Wastewater from B Building Plutonium-238, Cobalt-60	4, 18	Suspected	S	4, 10	No Data		
123	Area 5, Radioactive Waste Line Break	F-6 F-7	Grounds	Cobalt-60, Cesium-137, Plutonium-238	1, 5, 18	Cobalt-60	S	1, 18	2, 14, 16	Table B.1 (Table III.3 in Ref. 6)	6
124	Building 48 Hillside	F-6	Inactive	Plutonium-238		Plutonium-238	S	6	14	Table B.1	6
125	Underground Sanitary Sewer Line G24	F-6	In service	Organic solvents, Plating Solutions, Laboratory chemicals, Nitric acid, Hydrochloric acid, Methylene chloride, Strong acids and bases		Suspected	S	5, 18	3, 4, 5, 6, 14, 16	Tables B.6, B.7, and B.8	7
126	Building 28 Solvent Storage Area	E-8	Grounds	Organic solvents (including alcohol, methylene chloride, and acetone)	4, 5, 9, 18	Suspected	S	4	1	SGS[b] Table B.4 Location 1054	12

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
127	Building 28 Solvent Storage Shed	E-8	In Service	Organic solvents (including alcohol, methylene chloride, and acetone)	4, 5, 18	Suspected	S	4	1	SGS[b] Table B.4 Locations 1190 and 1231	12
128	DS Building Solvent Storage Shed	F-7	In service	Organic solvents (including 1,1,1-trichloroethane, trichlorofluoromethane, ethanol, and trichloroethane)	4, 5, 18	Suspected	S	4	1 14	SGS[b] Table B.4 Location 1194 No Hits Table B.9 RSS[c] Location S0128 (Appendix E in Ref. 6)	12 6
129	B Building Solvent Storage Shed	E-6	Inactive	Organic solvents (including trichloroethene, trichlorofluoromentane, ethanol, methonal, isopropanol, acetone, methylene chloride, toluelene) Oils	4, 5, 18	Suspected	S	4	1 14	SGS[b] Table B.4 Locations 1202, 1203 Table B.9 RSS[c] Location S0146 (Appendix E in Ref. 6)	12 6
130	B Building Temporary Drum Storage Area	E-6	Inactive	Waste solvents, waste oil, and trash from E and B Bldgs.	4						
131	SW Building Soils	E-6 F-6	Grounds	Tritium, Radium-226, Actinium-227, Thorium-232	4, 6, 18	Tritium beneath the building	S	1, 18	14, 16	Table B.1 RSS[c] Locations S0154 and S0180 (Appendix E in Ref. 6)	6
132	Area 15, Entombed SW Cave (Room SW 1-B)	F-6	Historical	Radon-222, Radium-226, Actinium-227, Thorium-228	1, 4, 6, 18	Radon-222	A	1, 6	No Data		
133	SW Building Room 1-A	F-6	Historical	High-activity wastewater from radium and actinium processing, reactor waste including Radium-226, Actinium-227, Cesium-137, Plutonium-238, and Uranium-238.	4	Cesium-137 (sealed in concrete in building floor)		4	No Data		
134	SW Building Drum Storage Area	E-6	In service	Hazardous wastes Asbestos, Waste oils, Antifreeze	4, 5, 18				14	Table B.9 RSS[c] Location S0180 (Appendix E in Ref. 6)	6
135	Room SW-8 Beta Wastewater Tank (Tank 20)	F-6	In service	Tritium	3, 4				No Data		

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
136	Room SW-125 Beta Wastewater Tank (Tank 21)	F-6	In service	Tritium	3, 4	Suspected historical leaks			No Data		
137	Room SW-143 Beta Wastewater Tank (Tank 22)	F-6	In service	Tritium	3, 4	Tanks lined			No Data		
138	Room SW-137 Alpha Wastewater Sump (Tank 23)	E-6 F-6	Inactive	Alpha wastewater from drains, sinks, and processes in SW Bldg - Uranium-238.	3, 4	Suspected uranium-233			No Data		
139	Room SW-10 Beta Wastewater Sump (Tank 226)	F-6	Inactive	tritium	3, 4	Suspected historical leaks, tank lined			No Data		
140	Beta Waste Solidification Facility - SW Building	E-6 F-6	In service	tritium Waste oils including vacuum pump, gear box, and diffusion pump oils.	4				No Data		
141	Tritium Effluent Removal System	E-6	In service	Vacuum pump oils Organic solvents Tritium wastewater		Tritium	A	4, 10	No Data		
142	SW/R Building Solid Radioactive Waste Compactor	E-6 F-6	In service	Tritium	4				No Data		
143	R/SW/T Building Stack Diesel Fuel Storage Tank (Tank 117)	F-6	In service	Diesel fuel	3				1	SGS[b] Table B.5 Location 1021	12
144	R Building Sanitary Waste Collection Tank (Tank 120)	F-6	In service	Sanitary wastes	3, 4				No Data		
145	Room R-128 Alpha Wastewater Tank (Tank 19)	E-6	In service	Alpha wastewater generated in R Bldg. Possible contaminants include Pu-238,-239, Ra-226, and Ac-227	3, 4				No Data		
146	R Building Rooms 121, 144, 146, and 148 entombed drains	F-6	Historical	Radium-226, Actinium-227	4	Sealed in concrete in building floor drains		4	No Data		

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*	Results	Ref
321	Dayton Unit II	Dayton	Historical	Explosives (including ammonium picrate and ammonium nitrate) Rocket propellant	1, 4	None Suspected			No Data		
322	Dayton Unit III	Dayton	Historical	Polonium-210, Tellurium, Bismuth, Cobalt, Nickel, Beryllium, Thorium	1, 4	Suspected Cobalt-60	S	4	No Data		
323	Dayton Unit IV	Dayton	Historical	Contaminants listed under Dayton Unit III	1, 4	Suspected Cobalt-60	S	4	No Data		
324	Dayton Warehouse	Dayton	Historical	Polonium-210	4	None Suspected			No Data		
325	Scioto Facility (Marion)	Scioto	Historical	Facility never used	4	None Suspected			No Data		
326	Building 38 Sanitary Sump (Tank 254)	G-9	In Service	Sanitary wastewater	25	None Suspected			No Data		
327	R-111 Calorimetry Bath (Tank 255)	E-6	Inactive	Deionized water with potential alpha contamination	25	None Suspected			No Data		
328	R-111 Calorimetry Bath (Tank 266)										
329	Building 62 Hot Waste Sump (Tank 258)	E-6	In Service	Sanitary wastewater with potential alpha contamination	25	None Suspected Tank removed			No Data		
330	Building 2 Fuel Oil Tank (Tank 260)	H-7	Historical	Fuel oil	25	Unknown			No Data		
331	Building 2 Tank (Tank 261)	H-7	Historical	Sanitary Wastes	25	Unknown Closed in place			No Data		
332	Building G Waste Oil Tank (Tank 262)	E-7	Inactive	Waste oils	25	Unknown			No Data		
333	Building 87 Explosive Surge Tank (Tank 263)	H-7	In Service	Exhaust air from explosives testing	25	None Suspected			No Data		
334	Building 87 Explosive Surge Tank (Tank 264)										
335	Building 87 Explosive Surge Tank (Tank 265)										

- Soil Gas Survey - Freon 11, Freon 113, Trans-1,2-Dichloroethylene, Cis-1,2-Dichloroethylene, 1,1,1-Trichloroethane, Perchloroethylene, Trichloroethylene, Toluene
- Gamma Spectroscopy - Thorium-228, -230, Cobalt-60, Cesium-137, Radium-224, -226, -228, Americium-241, Actinium-227, Bismuth-207, Bismuth-210m, Potassium-40
- Target Analyte List
- Target Compound List (VOC)
- Target Compound List (SVOC)
- Target Compound List (Pesticides/Polychlorinated Biphenyl)
- Dioxins/Furans
- Extractable Petroleum Hydrocarbons (EPH)/Total Petroleum Hydrocarbons (TPH)
- Lithium
- Nitrate/Nitrite
- Chloride
- Explosives
- Plutonium-238
- Plutonium-238, Thorium-232
- Cobalt-60, Cesium-137, Radium-226, Americium-241
- Tritium

eference List

. DOE 1986 "Phase I: Installation Assessment Mound [DRAFT]."
. DOE 1992a "Remedial Investigation/Feasibility Study, Operable Unit 9, Site-Wide Work Plan (Final)."
. DOE 1992c "Mound Plant Underground Storage Tank Program Plan & Regulatory Status Review (Final)."
. DOE 1993a "Site Scoping Report: Vol. 7 - Waste Management (FINAL)."
. EPA 1988a "Preliminary Review/Visual Site Inspection for RCRA Facility Assessment of Mound Plant"
. DOE 1993d "Operable Unit 9, Site Scping Report: Vol. 3 - Radiological Site Survey (FINAL)."
. DOE 1993c "Operable Unit 3, Misc. Sites Limited Field Investigation Report."
. DOE 1992d "Reconnaissance Sampling Report Decontamination & Decommissioning Areas, OU6, (FINAL)."
. Fentiman 1990 "Characterization of Mound's Hazardous, Radioactive and Mixed Wastes."
0. DOE 1992f "Operable Unit 9, Site Scpoing Report: Vol. 9 - Spills and Response Actions (FINAL)."
1. Styron and Meyer 1981"Potable Water Standards Project: Final Report."
2. DOE 1993b "Reconnaissance Sampling Report - Soil Gas Survey & Geophysical Investigations, Mound Plant Main Hill and SM/PP Hill (FINAL)."
3. DOE 1993d "Operable Unit 9, Site Scoping Report: Vol. 3 - Radiological Site Survey (FINAL)."
4. DOE 1991b "Main Hill Seeps, Operable Unit 2, On-Scene Coordinator Report for CERCLA Section 104 Remedial Action, West Powerhouse PCB Site."
5. Halford 1990 "Results of South Pond Sampling."
6. DOE 1993e "Operable Unit 4, Special Canal Sampling Report, Miami Erie Canal."
7. DOE 1990 "Preliminary Results of Reconnaissance Magnetic Survey of Mound Plant Areas 2, 6, 7, and C."
8. DOE 1992a "Remedial Investigation/Feasibility Study, Operable Unit 9, Site-Wide Work Plan (FINAL)."
9. Rogers 1975 "Mound Laboratory Environmental Plutonium Study, 1974."
0. DOE 1992h "Ground Water and Seep Water Quality Data Report Through First Quarter, FY92."
1. Dames and Moore 1976a, b "Potable Water Standards Project Mound Laboratory" and "Evaluation of the Buried Valley Aquifer Adjacent to Mound Laboratory."
2. DOE 1992i "Closure Report, Building 34 - Aviation Fuel Storage Tank."
3. DOE 1992j "Closure Report, Building 51 - Waste Storage Tank."
4. DOE 1994 "Operable Unit 1, Remedial Investigation Report."
5. EG&G 1994 "Active Underground Storage Tank Plan."

Reference B

PRS #	UGLy Subsystem	Line Designation (prelim cost est.)	Linear Feet (LF)
	Bldg H to Bldg WD	1a	180
	Bldg H to Bldg WD	1b	132
	Bldg H to Bldg WD	2	20
	Bldg H to Bldg WD	5	321
	Bldg H to Bldg WD	6	223
	Bldg H to Bldg WD	7	223
	East Exhaust Tower to Manhole 6	9	285
	East Exhaust Tower to Manhole 6	9a	60
	East Exhaust Tower to Manhole 6	10a	390
	East Exhaust Tower to Manhole 6	11	53
	East Exhaust Tower to Manhole 6	12	56
	South Side of Bldg T to Manhole 8	13a	208
	South Side of Bldg T to Manhole 8	13b	185
	South Side of Bldg T to Manhole 8	14	114
437	Manhole 20 to Bldg WD	3	65
438	Manhole 20 to Bldg WD	4	150
439	Manhole 20 to Bldg WD	4a	223
	Bldg SW to Bldg WD	8	337

See pages 7-10.

B&W SERVICES, INC.

BWX Technologies, Inc. *a McDermott company*

To: **Distribution**	
From: **R. S. Kingsley**	*File No.:*
Subject: **Cost Estimate Assumptions and Ground Rules**	*Date:*

Distribution

A Task Force was formed to develop a cost estimate for the remediation of the hot waste sewers at the Mound site. The hot waste sewer lines transported radioactively contaminated hot waste from site research and development, operating, and site support buildings to a waste treatment complex located in the WD Building. Characterization information indicates that several segments of this hot waste sewer system are extensively contaminated with radioactive materials (i.e. >700,000 pCi Co^{60} /100 cm^2 and > 400 nCi Pu^{238}. A series of alternative actions for the disposition of these lines is being developed. The objective of the task force was the estimation of the remediation costs for removal of the lines as one of the options to be considered for treatment action of these lines. This task force was composed of William Crisswell (Roy F Weston construction engineer), Chuck Finkenbein (BWXO radiation protection), Richard Kingsley (BWSI senior supervisory engineer), and Roger Murray (Morrison Knudsen Estimating Manager).

The task force met on March 13, 14, and 15 to develop the work scope and define the assumptions to be used in completing this cost estimate. The meeting:

- Described the underground lines (which the Mound project refers to as the UGLy (Underground Lines),
- Completed two site walk downs of the UGLy lines,
- Described current conditions of the UGLy lines,
- Grouped the underground lines into discrete segments for estimating convenience,
- Identified and defined cost study assumptions, and
- Identified additional information required completing a cost estimate.

Appendix A contains a copy of the view graphs used during the meeting by R. S. Kingsley to kick-off the meeting and describes the problems involved in the remediation of the UGLy lines.

This memo will:

- Describe follow-up actions items required to initiate the cost estimate study,
- Summarize guidance provided by John Price for preparing the UGLy line cost estimate,
- Document the underground line groupings to be used during the cost estimate, and
- Summarize cost study assumptions and ground rules developed by the Task Force for the completion of the Cost Study.

A. Follow-up Action Items

During the course of the three-day Task Force meeting, a series of action items were identified that were to be completed by R. S. Kingsley. These action items include:

1. Identifying the location, number and routing of vertical riser/horizontal lateral lines connecting the T Building to the 8-inch diameter hot waste sewer trunk lines below and adjacent to the DS Building. In addition, it should be determined if these lines are encased in the T Building concrete walls (second priority). This action was completed and drawing sets forwarded to William Murray. The lines are not encased in the T Building walls.

2. Obtaining addition copies of the overall underground utility site plans for William Crisswell and John Murray (first priority). This action was completed.

3. Establishing the disposition of the 8-inch diameter hot waste sewer line along the south side of the DS Building at the present location of the COS Building (included with the second priority). Was this section of hot waste line rerouted, removed, or left in place during construction of the COS building? In addition, the design/construction drawings for the COS building should be located and forwarded to Task Force members. This action was completed. As-built drawings of the COS Building indicate that all effected hot waste sewer risers were removed during COS Building construction. The COS construction drawings were forwarded to Task Force members.

4. Obtaining a set of photographs of the surface above the UGLy lines should be obtained and sent to Roger Murray (third priority). This activity was completed and a set of photographs was forwarded to Roger Murray. In addition, a set of photographs will be placed in the soils group library along with a copy of this memo.

5. Obtaining a set of the original site construction drawings showing the layout of the site and the UGLy pipe trenches should be obtained and sent to Roger Murray. This action item was completed and a set of the original site underground line construction drawings was obtained and forwarded to Roger Murray.

6. In order to develop a remediation schedule, a number of questions must be answered including:

- What happens to Building 48 and when is it scheduled to happen?

- What happens to the T Building ventilation heads houses and when are they scheduled to happen?

- What happens to the pipe bridges and their supported utility systems located south of the DS Building between manhole 8 and 8A and when are they scheduled to happen?

- What happens to the pipe bridges and their supported utility systems located south of DS Building and when are they scheduled to happen?

- What is the disposition of I Building and when is it scheduled to happen?

- What is the color-coding on the hydrants on the west side of the DS Building (i.e. red, red/yellow, and green)?

- What is the disposition of the liquid N_2 system supporting TERF and when is it scheduled to happen?

- What is the disposition of the DS Building emergency generator and when is it scheduled to occur?

The above is a fourth priority in importance. The task force did not complete this action. Answering these questions requires extensive integration with a master site closure plan. A detailed site master closure plan does not exist in sufficient detail to answer these questions. Thus a schedule for remediation of these underground lines cannot be developed at this time.

7. Cost study waste management ground rules and guidelines will be developed in consultation with BWXO waste management personnel (i.e. John Kruger's staff). This discussion should define ground rules for establishing waste packaging, waste disposal, and waste transportation costs. In addition, reference waste disposal sites should be identified by type of contaminated waste produced during UGLy line remediation. Roger Murray completed this action and the results reflected in the cost estimate report.

8. Develop an analysis and sampling plan for excavated waste. This plan should define assumptions for waste characterization during remediation and disposal. In addition the plan should include assumption for the frequency and cost for worker bioassay. Roger Murray completed this action and the results reflected in the cost estimate.

9. Roger Murray will meet with xxx Hall to discuss project cost estimating guidelines.

10. The cost estimate report must include a discussion of the current baseline cost estimate for the remediation of the UGLy lines (directive received from ?? Hall). Guidance provided during this conversation on March 15 includes:

    - John Price will have to provide site support cost estimates

B. Cost Estimate Study Guidance

John Price (BWXO soils project manager) provided guidance for the preparation of a cost estimate for the remediation of the UGLy system. This guidance included:

1. The cost estimate should be organized in the following three categories:

   - Work planning (i.e. engineering planning for UGLy line remediation, etc.),

   - Fieldwork. Fieldwork should include all of the work activities completed in the field to remediate the lines. Fieldwork should include all phase including field mobilization, field execution, line grouting, remediation, bottom-of-hole sampling, sampling and characterization of remediated soils, demobilization etc. The field work cost estimate should contain assumption for the size of the field crew (based upon past experience), number of samples taken per day, assumed ft^3 of soil excavated per day, assumed liner ft. of UGLy line remediated per day, assumed liner ft. of line grouted per day, etc., and

   - Reporting. This activity will include the preparation of final reports documenting the completion of the UGLy line remediation.

2. The Corps of Engineers reviews all project remediation cost estimates. Thus, this cost estimate must be defended to the Corps. For this reason, it is essential that all assumptions etc. used in developing this cost estimate must be documented.

3. The cost estimate should be developed assuming that the work is subcontracted to an outside firm. This includes all aspects of the job including supporting functions such as radiation control technicians, field labor, etc. Two exceptions to guidance include radiochemical laboratory support and project oversight, which will be provided by the Soils Project. In addition, the subcontractor will utilize DOE site equipment.

4. The cost estimate should develop:

   - A low estimate,

   - A medium (i.e. most likely estimate), and

   - Worst estimate.

   These three estimates can be based upon differing remediation assumptions, differing assumptions on the quantities of contaminated soils, differing remediation methodologies, or on combinations of these assumptions. The selection of these conditions is up to the task force. A matrix of the various alternative field conditions (i.e. differing levels of overburden contamination) could be developed and the likely hood that this assumed condition encountered estimated. Than a weighted average cost estimate calculated.

5. The UGLy remediation schedule should be connected to the remediation schedule for:

- TERF (i.e. Tritium Environmental Recovery System),
- Above ground utility system remediation (as shown in the current Primavera schedule),
- Remediation of buildings R, SW, and H, and
- Stack deconstruction

6. UGLy line remediation is a fourth level WBS (i.e. WBS number 1.2.7.25) The three UGLy system activities (i.e. work planning, fieldwork, and reporting) are WBS level 5 activities. Segment remediation (i.e. Mound labor as $/hr., subcontract cost, etc.) is a level 6 activity, and the details backing up these totals are a WBS level 7 activity.

C. Definition of Underground Line Segments

During the site walk down, the Task Force concluded that it was more efficient to break the UGLy lines down into segments for cost estimating purposes. The following discussions define those segments and summarize the assumptions made for the remediation of each segment. Throughout this discussion, the basic assumptions describe below concerning the UGLy lines and their remediation is applicable. These general assumptions include:

- The UGLy line is bedded in concrete,
- The dimensions of the concrete are 48 inches wide and 12 inches deep,
- A 20 inch wide bucket will be used to excavate the overburden and expose the line,
- The interior of all lines will be grouted prior to remediation, and
- The lines will be cut into segments and removed from the trench.

1. UGLy Line Segment 1A. This UGLy sewer line segment starts 5 ft. from H Building wall, runs ~ 23 ft. in a westerly direction to Manhole HW -22 (which is buried under asphalt) and then on another ~ 157 ft. to Manhole HW -20. During this traverse between the H Building and Manhole HW -22, this UGLy line segment cross beneath a number of other underground utilities including:

   - A 6 inch diameter cast iron (i.e. CIP) water line,
   - A 4 inch diameter CIP sanitary waste line,
   - An 8 inch diameter CIP fire line,
   - A 15 inch diameter concrete (CONC) storm sewer,
   - A second 5 inch diameter CIP water line,

- An ADT cable,
- A 1-4" electrical tile
- Three 4 inch condensate lines, and
- A second 6-inch diameter vitreous clay (VCP) storm sewer

In addition, segment 1A crosses beneath the breezeway that also supports a pipe bridge carrying a number of other utility lines.

Assumptions made about UGLy segment 1A include:

- This UGLy segment can be removed following removal of the breezeway and the utility lines that are supported on the pipe bridge attached to it's roof,
- H Building will be removed prior to the remediation of the UGLy line segment,
- Soils surrounding 1 ft. the UGLy line pipe trench contain low level waste,
- This UGLy line segment is 8 inch diameter VCP encased in concrete,
- A 10% excess will be added to the soil excavated from the pipe trench as a contingency for segment structural failure, and
- Overburden above this UGLy line segment is uncontaminated and will be used as backfill.

2. UGLy Line Segment 1B. This UGLy sewer line segment runs ~ 132 ft. in a westerly direction from Manhole HW -20 to Manhole HW 18. During this traverse, this UGLy line segment cross beneath a number of other underground utilities including:

   - An abandoned 8 inch diameter CIP line,
   - An 8 inch diameter VCP storm sewer,
   - A second 8 inch diameter VCP storm sewer,
   - A 4 inch diameter CIP water line,
   - An abandoned 6 inch diameter CIP water line, and
   - An 8-inch diameter ACP fire waterline.

   In addition, ~ 87 ft. of segment 1B crosses beneath the elevated Building 58 that house the SW Building ventilation fans and filters. Filtered SW Building room air is discharged from this building directly to an adjacent exhaust stack. Thus, Building 58 must remain active as long as the SW Building contains radioactive contamination. In addition, ~ 20 ft. of this UGLy segment crosses a main Mound site north south roadway.

Assumptions made about UGLy segment 1B include:

- This UGLy segment cannot be removed until after the SW Building has been remediated and Building 58 dismantled.
- This UGLy line segment is 8 in. diameter VCP encased in concrete,
- Soils surrounding 1 ft. the UGLy line pipe trench contain low level waste,
- A 10% excess will be added to the soil excavated from the pipe trench as a contingency for segment structural failure, and
- Overburden above this UGLy line segment is uncontaminated and will be used as backfill.

3. UGLy Line Segment 3. This UGLy sewer line segment runs ~ 65 ft. from Manhole HW-20 in a southerly direction to the northern edge of the SW Building. (NOTE: This sewer segment is part of the hot waste drain line that runs ~ 180 ft. from Manhole HW -20 to Manhole HW -14. Approximately 115 ft. of the line lies beneath the SW building and the remainder lies outside the building. Manhole HW -14 lies inside of the SW Building. This line segment is part of a total ~ 358 ft. hot waste line section that formerly ran from Manhole MH-20 through Manhole MH-12 to Manhole MH-6. This latter hot waste sewer section has been capped and abandoned in place. Remediation of the sections of this UGLy line lying beneath the SW building are the responsibility of the building manager and are not the responsibility of John Price's Soils Group. Thus, the remediation cost for the hot waste sewer segment beneath the SW Building is not included in this cost estimate. The Soils Group will only be responsible for the remediation of the ~65 ft. of this UGLy line segment that runs between Manhole HW-20 and the north outer wall of the SW Building as defined by segment 3.)

   During this traverse of this UGLy line segment between the Manhole HW -20 and the northern wall of the SW Building, this UGLy line segment cross beneath a number of other underground utilities including:

   - A telephone cable,
   - An ADT line,
   - A 24 inch diameter CONC storm sewer,
   - A 8 inch diameter CIP abandoned line, and
   - A 4-inch diameter CIP water line.

   In addition, segment 3 ends at an ~ 18 thick concrete foundation outside of an access door into the SW Building. Formerly, this area was an ~ 10 ft, wide north south alley that ran between the R and SW Buildings. In order to increase the SW Building floor space, a roof was added over the alley along with north and south walls enclosing this alley

creating the addition SW Building floor space. In the process of enclosing this space, Manhole HW-14 was also enclosed within the building.

Assumptions made about UGLy segment 3 include:

- Remediation of this UGLy line segment is not constrained by the presence of the SW Building. Remediation however is constrained by the presence of the other underground utility lines.
- This UGLy line segment is 8 in. diameter VCP encased in concrete.
- Soils surrounding 1 ft. the UGLy line pipe trench contain low level waste.
- A 10% excess will be added to the soil excavated from the pipe trench as a contingency for segment structural failure, and
- Overburden above this UGLy line segment is uncontaminated and will be used as backfill.
- Soils surrounding 1 ft. the UGLy line pipe trench contain low level waste.
- A 10% excess will be added to the soil excavated from the pipe trench as a contingency for segment structural failure, and
- Overburden above this UGLy line segment is uncontaminated and will be used as backfill.

4. UGLy Line Segment 4: This UGLy sewer line segment runs ~ 88 ft. in a south southwesterly direction from the southern outside wall of the SW Building to Manhole HW-12. From Manhole HW-12, this UGLy sewer segment proceeds ~ 64 ft. in a southwesterly direction towards Manhole HW-6. This sewer segment terminates in a blank at ~ 20 ft. before Manhole HW-6 and does not actually enter Manhole HW-6. However, a two inch diameter line continues from the blanked off main 8 inch diameter VCP line to the WD Building. (The 2-inch diameter line will be described as Segment 4-A below). Details of this latter piping logic can be found in Monsanto Research Corp. drawing 5-1398 (reference insert for Manhole HW-6. (NOTE: This sewer segment is part of the hot waste drain line that runs ~ 178 ft. from Manhole HW -14 to Manhole HW -12. Approximately 90 ft. of the line lies beneath the SW building and the remainder lies outside the building. Manhole HW -14 lies inside of the SW Building. This line segment is part of a total ~ 358 ft. hot waste line section that formerly ran from Manhole MH-20 through Manhole MH-12 to Manhole MH-6. This latter hot waste sewer section has been capped and abandoned in place. Remediation of the sections of this UGLy line lying beneath the SW building are the responsibility of the building manager and are not the responsibility of John Price's Soils Group. The Soils Group will only be responsible for the remediation of the ~88 ft. of this UGLy line segment that runs between the south outer wall of the SW Building and Manhole HW-12 and beyond to the line termination as defined by segment 4. The cost estimate does not include the remediation of the hot waste sewer running beneath the SW Building.)

During this traverse between SW Building southern wall and the segments termination at a blank, this UGLy line segment cross beneath a number of other underground utilities including:

- An 8 inch diameter fire line, and
- A 33-inch diameter CONC storm sewer.

Significantly, this sewer segment does not cross over any underground utilities between the south outer wall of the SW Building and Manhole HW-12. However, in this section of the site, this UGLy sewer segment does cross beneath ~ 93 ft. of Mound roadway and SW Building Driveway.

Assumptions made about UGLy segment 4 include:

- Remediation of this UGLy line segment is not constrained by the presence of the SW Building or, in a significant way, by the presence of the other underground utility lines.
- This UGLy line segment is 8 in. diameter VCP encased in concrete,
- Manhole HW-12 is filled with concrete (completed by the waste management group in October 1999.
- Soils surrounding 1 ft. the UGLy line pipe trench contain low level waste,
- A 10% excess will be added to the soil excavated from the pipe trench as a contingency for segment structural failure, and
- Fifty percent of the overburden above this UGLy line segment is contaminated. It is assumed that:
  - 5 % of the overburden is TRU waste,
  - 5 % of the overburden is mixed waste, and
  - 40% of the overburden is low-level waste.

  It is assumed that the balance of the overburden is clean and can be recycled and used as fill.

5. UGLy Line Segment 4A. This UGLy sewer line segment runs ~ 232 ft. in a southwesterly direction from the blank in the 8 inch diameter VCP line described in Segment 4 to the WD Building. Details of the piping logic between these two hot waste sewer line connections can be found in Monsanto Research Corp. drawing 5-1398 (reference insert for Manhole HW-6. (NOTE: This sewer segment does not actually enter Manhole HW-6, but diverts away from the sewer ~ 20 ft. from the sewer. During this traverse between the blank in the 8 in. VCP line and the WD Building, this UGLy line segment cross beneath a number of other underground utilities including:

- An 8 inch diameter VCP hot waste sewer line (described below as UGLy line segment 7),

- Two ten inch diameter concrete storm sewers, and

- An 8-inch diameter ACP fire line.

In addition, this UGLy sewer segment does cross beneath ~ 27 ft. of Mound roadway.

Assumptions made about UGLy segment 4A include:

- Remediation of this UGLy line segment is not constrained in a significant way by the presence of the other underground utility lines. One of the four lines above this sewer segment is another UGLy line segment of the hot waste sewer.

- This UGLy line segment is 2-in. diameter steel saran lined pipe. The line is assumed not to be encased in concrete and that this sewer segment is bedded in a pipe trench in the ground,

- Soils surrounding 1 ft. the UGLy line pipe trench contain low level waste,

- A 10% excess will be added to the soil excavated from the pipe trench as a contingency for segment structural failure, and

- Fifty percent of the overburden above this UGLy line segment is contaminated. It is further assumed that:

  - 5 % of the overburden is TRU waste,

  - 5 % of the overburden is mixed waste, and

  - 40% of the overburden is low-level waste.

  It is assumed that the balance of the overburden is clean and can be recycled and used as fill

6. UGLy Line Segment 5. This UGLy sewer line segment runs ~ 318 ft. in a southerly direction from Manhole HW-18 to HW-16. This UGLy line segment runs parallel to the west outside wall of the SW Building on the far side of the Mound site road that also parallels this SW Building. During this traverse between Manhole HW 18 and HW16, this UGLy line segment cross beneath a number of other underground utilities including:

   - Two ADT ducts,

   - A 2 inch diameter CIP line,

   - A 2-4 inch CND line,

- A 4-4" electrical duct,
- A 3 inch diameter CIP water line, and
- An 8-inch diameter CIP fire line.

In addition, this UGLy sewer segment crosses beneath the liquid N_2 storage tank farm across from the SW Building. This liquid nitrogen tank farm supplies an inert gas to the Tritium Environmental Recovery system and is an essential utility service to SW Building operations. This UGLy sewer segment also crosses beneath two ~17 ft. wide Mound site roadways. All of these utility systems cover a 136-ft. long section between Manhole 18 and site coordinate STA 5 +00. Thus, approximately 182 ft. of this UGLy line segment does not lie above other site underground utilities and the task force concluded that this ~182 ft. segment between site coordinate STA 5 + 00 and Manhole HW 16 could remediated at any time with limited impact on site operations. Remediation of the remaining ~ 136 ft. of this UGLy line segment must await the final shutdown of the SW Building.

Assumptions made about UGLy segment 5 include:

- This UGLy line segment is 8 inch diameter VCP The line is assumed not to be encased in concrete and that this sewer segment is bedded in a pipe trench in the ground,
- Twenty five percent of the length of this line has failed structurally,
- Ten percent of the overburden is contaminated with low level waste, and
- Twenty five percent of the pipe chase material is contaminated with low-level waste.

7. UGLy Line Segment 6. This 122 ft. long UGLy sewer line segment runs in a southwesterly direction from Manhole HW-16 to HW-6. During this traverse between Manhole HW 16 and HW-6, this UGLy line segment cross beneath a number of other underground utilities including:

- An 1 1/2 inch diameter steel hot waste line described below as UGLy line segment 8, and
- A 2-inch diameter saran lined steel hot waste line described above as UGLy line segment 4-A.

In addition, this UGLy sewer segment crosses beneath a 1-foot wide sidewalk.

Assumptions made about UGLy segment 6 include:

- This UGLy line segment is 8 inch diameter VCP The line is assumed not to be encased in concrete and that this sewer segment is bedded in a pipe trench in the ground,

- This UGLy line segment could be remediated at any time with minimal impact upon site operations,

- Ninety five percent of the overburden above this UGLy line segment is contaminated. It is further assumed that:

  - 5 % of the contaminated overburden is TRU waste,

  - 5 % of the contaminated overburden is mixed waste, and

  - 85% of the overburden is low-level waste.

- Twenty five percent of the length of this line has failed structurally, and

- Twenty five percent of the pipe chase material is contaminated in the same percentages described above for the overburden.

8. UGLy Line Segment 7. This UGLy sewer line segment runs ~ 148 ft. in a westerly direction from Manhole HW 6 to Manhole HW 4. The UGLy segment than runs ~ 98 ft. in a northerly direction from Manhole HW 4 to Manhole HW 2. During this ~ 246 ft. traverse between Manhole HW 6 and HW-2, this UGLy line segment cross beneath a number of other underground utilities including:

   - An 1 1/2 inch diameter steel hot waste line described below as UGLy line segment 8,

   - A 2-inch diameter saran lined steel hot waste line described above as UGLy line segment 4-A,

   - Three separate on-ground hot waste lines,

   - A two inch diameter storm sewer, and

   - An 8-inch diameter fire line.

   In addition, this UGLy sewer segment crosses beneath a 5-ft. wide sidewalk and a 12 ft. wide roadway.

   Assumptions made about UGLy segment 7 include:

   - This UGLy line segment is 8 inch diameter VCP The line is assumed not to be encased in concrete and that this sewer segment is bedded in a pipe trench in the ground,

   - This UGLy line segment could be remediated at any time with minimal impact upon site operations. However, it is assumed that the fire line and the storm water sewer will remain in place after the site is turned over to the sewer. Thus, costs will put in

the study to return these utilities to operations. In addition, costs will be put in the study to maintain these utilities during how waste sewer remediation,

- Sixty percent of the overburden above this UGLy line segment is contaminated. It is further assumed that:
  - 5 % of the contaminated overburden is TRU waste,
  - 5 % of the contaminated overburden is mixed waste, and
  - 90% of the overburden is low-level waste.
- Twenty five percent of the length of this line has failed structurally, and
- Twenty five percent of the pipe chase material is contaminated in the same percentages described above for the overburden.

9. UGLy Line Segment 8. This UGLy sewer line segment runs ~ 540 ft. in a southerly and southwesterly direction from the outside south wall of the SW Building to the WD Building. During much of this run, this UGLy sewer segment runs parallel to the UGLy sewer segment described as segment 4A. The two lines are ~ 2 ft. apart for approximately 181 ft. between site coordinates STA 2 + 00 and STA 0 + 70. During this ~ 540 ft. traverse between the SW Building and the WD Building, this UGLy line segment cross beneath a number of other underground utilities including:

   - A 6 inch diameter CIP line,
   - An electrical junction box,
   - An 8 inch diameter hot waste line described in UGLy line segment 7,
   - A 12 inch diameter storm sewer,
   - A 10 inch diameter storm sewer,
   - A 10 inch diameter concrete storm sewer, and
   - An 8-inch diameter ACP fire line.

   In addition, this UGLy sewer segment crosses beneath a 25-ft. wide roadway and a second 21 ft. wide roadway.

   Assumptions made about UGLy segment 6 include:

   - This UGLy line segment is 2-inch diameter welded steel pipe. It is assumed that this line carried only low-level liquid tritium waste and that there were no insoluble compounds present in this waste. The line is assumed not to be encased in concrete and that this sewer segment is bedded in a pipe trench in the ground,

- This UGLy line segment could be remediated at any time with minimal impact upon site operations. However, it is assumed that the fire line and the three storm water sewers will remain in place after the site is turned over to the sewer. Thus, costs will put in the study to return these utilities to operations. In addition, costs will be put in the study to maintain these utilities during how waste sewer remediation,

- The ~ 100 ft. of line to the immediate south of the SW Building is assumed to have fifty percent of the overburden above this UGLy line segment contaminated. It is further assumed that:

  - 5 % of the contaminated overburden is TRU waste,

  - 5 % of the contaminated overburden is mixed waste, and

  - 90% of the overburden is low-level waste.

- The ~ 180 ft. of line that runs parallel to the UGLy line segment 4 A will be remediated with that segment. Thus, the volume of waste (i.e. due to overburden and trench bed contamination) will not be included in the cost estimate (i.e. these costs will not be double counted). Only the actual volume of the UGLy line 8 steel pipe will be included in the cost estimate.

- Remediation of the UGLy line segment will commence at the SW Building and proceed towards the WD Building down the hillside.

10. UGLy Line Segment 9. This UGLy sewer line segment runs ~ 143 ft. in a southeasterly direction from Manhole HW 6 to Manhole HW 8. The UGLy segment than continues in a southeasterly direction for ~ 97 ft. to Manhole HW 8A. This line segment then continues for an additional ~47 ft. in an easterly direction to the edge of the DS Building. This UGLy line segment also contains an ~ 30 ft. length of 3 inch diameter CIP pipe connecting this hot waste sewer to a sump in the T Building ventilation tower adjacent to this UGLy line section. During this ~ 287 ft. traverse between Manhole HW 6 and the western edge of the DS Building, this UGLy line segment crosses beneath a number of other underground utilities including:

    - Two 4 inch electrical conduits, and

    - A 10-inch diameter VCP line.

    In addition, this UGLy sewer segment crosses beneath an overhead pipe bridge containing a number of other active and inactive utility systems.

    Assumptions made about UGLy segment 6 include:

    - This UGLy line segment is 8-inch diameter VCP pipe. According to the original site drawings for the hot waste sewer system, this line segment is not be encased in concrete. It is assumed that the segment is bedded in a pipe trench in the ground. The site drawings also indicate that there is a second abandoned 8-inch diameter hot waste sewer steel line abandoned in-place beneath this segment. The drawing

indicates that this abandoned line is encased in concrete. It is assumed that the upper line segment is slightly contaminated with low-level waste while the abandoned line is high contaminated with low-level waste. Thus, the volume of remediated line waste must be doubled because of the presence of the abandoned line.

- This UGLY line segment could be remediated at any time with minimal impact upon site operations. The major impediment to line remediation is the pipe bridge and it's overhead utilities. Once this pipe bridge is abandoned, this UGLy section can be remediated. These are minimal below grade utility systems that impact the remediation of this UGLy line segment, and

- Twenty five percent of the overburden above this UGLy line segment is contaminated. It is further assumed that:

  - 5 % of the contaminated overburden is TRU waste,

  - 0 % of the contaminated overburden is mixed waste, and

  - 95% of the contaminated overburden is low-level waste.

11. UGLy Line Segment 10. This UGLy sewer line segment runs ~ 304 ft. in an easterly direction along the north side of the DS Building along it's entire length. During this ~ 304 ft. traverse of the DS Building, this UGLy line segment does not cross any other underground utilities. However, there is on lateral tie in a vertical riser from the T Building.

    Assumptions made about UGLy segment 10 include:

    - This UGLy line segment is 8-inch diameter VCP pipe. It is assumed that the line is encased in concrete and that there are no other abandoned underground hot waste lines beneath the north side of the DS Building.

    - The 3-inch diameter, 30-ft. branch line to the T Building ventilation head house sump will also be remediated as part of this UGLy line segment. This line is assumed to contaminated with low level waste,

    - This UGLy line segment is located ~ 9 ft. below the finish grade elevation of the DS Building floor,

    - Based upon the insitu Co^{60} surveillance study, it is assumed that 100% of this UGLy line segment is highly contaminated with low-level waste. In addition, the line segment is contaminated with other gamma emitting radioisotopes.

    - The cost study will assumed that the interior walls and floor of the north side of the DS Building would be removed to expose this hot waste sewer segment.

    - This UGLY line segment could be remediated at any time with minimal impact upon site operations, and

- Ten percent of the overburden above this UGLy line segment is contaminated. It is further assumed that:

  - 0 % of the contaminated overburden is TRU waste,

  - 0 % of the contaminated overburden is mixed waste, and

  - 100% of the contaminated overburden is low-level waste.

12. UGLy Line Segment 11. This UGLy sewer line segment runs ~ 53 ft. in a westerly direction from the east wall of the DS Building to the T Building Exhaust Tower sump. During this ~ 53 ft. traverse, this UGLy line segment does not cross beneath any other underground utilities.

    Assumptions made about UGLy segment 6 include:

    - This UGLy line segment is 8-inch diameter VCP pipe. The line is assumed to be encased in concrete,

    - This UGLy line segment could be remediated at any time with minimal impact upon site operations. The major impediment to line remediation is the pipe bridge and it's overhead utilities, and

    - Ten percent of the overburden above this UGLy line segment is contaminated. It is further assumed that:

      - 0 % of the contaminated overburden is TRU waste,

      - 0 % of the contaminated overburden is mixed waste, and

      - 100% of the contaminated overburden is low level waste.

13. UGLy Line Segment 12. This UGLy sewer line segment is the lateral riser from the T Building sump that transported that building's hot waste to the main hot waste trunk line described in UGLy line segment 10.

    Assumptions made about UGLy segment 12 include:

    - This UGLy line segment is 3-inch diameter pipe,

    - Details of the placement of this UGLy line segment along the T Building wall and the length of the lateral/riser line are assumed to be present in T Building construction drawings.

    - This UGLy line segment could be remediated at any time with minimal impact upon site operations. The major impediment to the remediation of this line segment is the pipe bridge and it's overhead utilities, and

    - Ten percent of the overburden above this UGLy line segment is contaminated. It is further assumed that:

- 0 % of the contaminated overburden is TRU waste,
- 0 % of the contaminated overburden is mixed waste, and
- 100% of the contaminated overburden is low-level waste.

14. UGLy Line Segment 13. This UGLy sewer line segment runs ~ 217 ft. in a southeasterly direction from Manhole HW 8 to Manhole HW 10. The UGLy segment than continues in an easterly direction for ~ 184 ft. This line segment then continues for an additional ~47 ft. in an easterly direction to the edge of the DS Building. During this ~ 287 ft. traverse between Manhole HW 6 and the eastern end of this hot waste line, this UGLy line segment cross beneath a number of other underground utilities including:

- Two ground wires,
- An 8 inch diameter CIP sanitary sewer line, and
- A 12-inch diameter storm water sewer line.

In addition, this UGLy sewer segment between Manholes HW 8 and HW-10 crosses beneath an overhead pipe bridge containing active and inactive utilities. This UGLY line segment runs parallel to the same pipe bridge for it's entire ~ 184 ft. length.

Assumptions made about UGLy segment 6 include:

- The ~ 217 ft. UGLy line segment between Manhole HW 8 and HW 10 is an 8-inch diameter vitreous clay pipe. This pipe segment replaced a 5-inch diameter cast iron pipe that is abandoned in place adjacent to the 8-inch VCP pipe. It is assumed that the original cast iron is highly contaminated with low-level waste and that the replacement segment is slightly contaminated with low-level waste. It is further assumed that the original cast iron line is encased in concrete while the newer line is not encased in concrete and that this sewer segment is bedded in soil. Thus, the volume of remediated line waste must be doubled because of the presence of the abandoned line,
- The ~ 184 ft. UGLy line segment between Manhole HW 10 and the end of the line is an 8 inch diameter cast iron pipe that is the original line installed at the time of T Building construction.
- This UGLy line segment could be remediated at any time with minimal impact upon site operations. The major impediment to segment remediation is the pipe bridge and it's overhead utilities. Once this pipe bridge is abandoned, this UGLy section can be remediated. These are minimal below grade utility systems that impact the remediation of this UGLy line segment, and
- Ten percent of the overburden above this UGLy line segment is contaminated. It is further assumed that:
  - 0 % of the contaminated overburden is TRU waste,

- 0 % of the contaminated overburden is mixed waste, and
- 100% of the contaminated overburden is low-level waste.

15. UGLy Line Segment 14. This UGLy sewer line segment is the three lateral risers from the T Building sumps that transported that building's hot waste to the main hot waste trunk line described in UGLy line segment 13.

    Assumptions made about UGLy segment 14 include:

    - This UGLy line segment consist of three 3-inch diameter pipe vertical riser that carried low risk and high risk wastes from T Building sumps to the hot waste main sewer trunk line for transport to the WD Building,
    - Details of the placement of this UGLy line segment along the T Building wall and the length of the lateral/riser line are assumed to be present in T Building construction drawings.
    - This UGLy line segment could be remediated at any time with minimal impact upon site operations. The major impediment to segment remediation is the pipe bridge and it's overhead utilities, and
    - Ten percent of the overburden above this UGLy line segment is contaminated. It is further assumed that:
        - 0 % of the contaminated overburden is TRU waste,
        - 0 % of the contaminated overburden is mixed waste, and
        - 100% of the contaminated overburden is low-level waste.

D. Cost Study Assumptions and Ground Rules

During the March 13-15 meeting, the Task Force developed a series of ground rules and assumptions for the completion of the cost study. These included general study assumptions and specific study assumptions. The following describes these assumptions.

General Cost Study Assumptions

1. During the Task Force site walk-downs of the UGLy system, it became clear that the remediation of these lines would be compromised and complicated by all of the underground and aboveground utilities serving the site. The aboveground utilities are run on pipe bridges that crisscross the site while the below ground lines run in individual trenches throughout the site. The task force concluded that it would be cost prohibitive to remediate the UGLy lines if the majority of these above and below ground utility systems remained in place. Thus, before the UGLy lines are remediated, the other utilities serving the site must be abandoned, isolated, and removed by others (i.e. the removal of these other utility systems will not be included in this cost estimate). However, the cost for the excavation of an underground utility to gain access to an UGLy line would be included in

the cost estimate. The Task Force believes that certain essential site utilities (e.g. storm water lines) can be handled (i.e. rerouted) during UGLy line remediation. However, the cost for such rerouting and isolation of these essential utilities will not be included in this cost estimated because a master plan for the eventual configuration of the site has not been developed (i.e. which sanitary storm sewers remain and which will require rerouting etc.?). Some examples of the site utilities that will impact UGLy line remediation include:

- Steam distribution from the central site power plant used for plant heat (distributed throughout the site on pipe bridges throughout the site),
- Condensate return to the site power plant (distributed throughout the site on pipe bridges),
- Glycol supply and return for site cooling (distributed throughout on pipe bridges),
- Plant air (distributed throughout the site in underground main headers),
- Process water (distributed throughout the site in underground main headers),
- Etc.

The coordination of UGLy line remediation with the removal of other Mound site utilities was the main problem identified by the Task Force that could affect the UGLY system remediation cost and schedule. Attempting to remediate the UGLY system without shutting down these other site utilities will be prohibitively expensive.

2. A related interference with UGLy system remediation involves utilities serving the SW Building. On of these utilities includes the liquid N_2 cryogenic storage tanks located on the west side of the SW building. This system is a part of the Tritium Environmental Recovery System, which must remain operational until this building is shut down. An UGLy main trunk line runs in a north south direction beneath this tank farm. A second SW Building utility impacting UGLy line remediation is an elevated building (Building 58) which houses the SW Building's HVAC fans and filter systems and thus must remain operational until this building is shut down. An east west UGLy main trunk line is located beneath Building 58. A third SW Building interference with UGLy line remediation is a large number of underground utility lines that serve the building. As a result of these three major interference's, the Task Force assumed that the UGLy lines to the north and west of the SW Building would not be remediated until SW Building operations were terminated.

3. The overburden above an UGLy line segment will be graded by the Task Force on a case-by-case basis estimating the percentage of soil radiological contamination, chemical contamination, and mixed waste contamination above waste disposal limits (depending upon location within the Mound site). This percentage will be applied to the quantity of overburden required to access the UGLy line at the depth in a sewer segment. The volume of overburden above an UGLy system line will be estimated and the volume of radiologically contaminated, chemically contaminated, and mixed waste contaminated soil calculated for each line segment.

4. Any irregularities in the contamination condition of soil overburden will be handled as an overall contingency assigned to each line segment.

5. Soils containing less than radiological contamination and chemical contamination limits will be returned to the site and used as backfill.

6. Fieldwork productivity's (i.e. ft^3 excavated and loaded per day) will be assigned by the type of contamination assumed (i.e. clean soil, low level radiological contamination, TRU radiological contamination). The estimated man-hours will be completed by line segment and the productivity will be added for each segment reflecting productivity and contamination assumptions for that segment.

7. A 20-inch wide bucket will be assumed for the remediation. It is assumed that all UGLy lines were placed in concrete and that this concrete is 48-inch wide concrete and 12 inches deep. The overburden above the line will be excavated in a 1 to 1 slope.

8. A decontamination/change room trailer will be provided at the site to support the field staff. Capabilities of this trailer complex will include change room with lockers, health physics instrumentation for personnel monitoring, and shower room with waste disposal capability.

9. The battery limit for UGLy line remediation will be five ft. from building. Within this limit, the building manager is responsible for UGLy line remediation. The principle exception to this assumption is the DS Building. The remediation of the UGLy line beneath the DS Building (and above the T Building) will be included in the cost estimate. In addition the remediation of all-UGLy line laterals and vertical risers originating in the T Building will be included in the cost estimate. (NOTE: The remediation of the UGLy main trunk line that runs beneath the SW Building and Manhole MH-xx located inside of the SW Building is the responsibility of the SW Building manager and will not be included in this cost estimate.)

10. General contingencies that will be added to the overall cost estimate include unknown TRU contamination, additional unknown mixed waste contamination, and unknown/unidentified UGLy lines. An across the board 15% will be added to the total cost estimate to cover these unknown/unidentified conditions.

    The cost estimate will not include cost for the final grading of the site and the final drainage of the site. Others will estimate this cost when final disposition plans for the site are completed.

Reference C

MLM-3791
UC-700

Mound Facility Physical Characterization

Prepared by William R. Tonne with contributors Barbara M. Alexander, Matthew R. Cage, Ernest H. Hase, Mark J. Schmidt, Jeanne E. Schneider, William Slusher, and James E. Todd

December 1, 1993

MOUND

operated by
EG&G MOUND APPLIED TECHNOLOGIES
P.O. Box 3000, Miamisburg, Ohio 45343-3000

for the
U. S. DEPARTMENT OF ENERGY
Contract No. DE-AC04-88DP43495

SW BUILDING PHYSICAL CHARACTERIZATION

1) Current Mission Description

a) Facility Capabilities

SW Building is a 43,066-ft^2 building used for tritium component development (CD), component evaluation operations (CEO), tritium recovery (TR), and Material Analysis (MA). Originally constructed in 1950, the SW complex has undergone thirteen major additions.

b) Resources Required to Support Operations

Primary Physical Resources:
- Electricity
- Physical security
- Fire protection, sprinklers, fire department
- Potable water
- Sanitary drains
- HVAC
- Breathing air
- Liquid nitrogen
- Helium, nitrogen, argon gas
- Alpha and beta "hot" drains
- HEPA filtration

Services:
- Human Resources
- Finance and Accounting
- Environmental, Safety, and Health
- Maintenance
- Custodial
- Payroll
- Meal
- Supply

c) Current Safety Envelope

The SW Building operates under the FSAR (Final Safety Analysis Report) MLM-ML-92-42-0001.

d) Current Status

1. No formal CAS review has been done. A quick condition assessment was done in July 1992.

2. No formal CAMP review has been done based on the latest Reconfiguration decision. A CAMP report was submitted on April 1, 1992, which focused on ES&H needs, infrastructure maintenance, and consolidation projects.

2) Future Facility Use

a) Alternate Future Use Scenarios

1. WFO in the same discipline is unknown under recent May 27, 1993, reconfiguration guidance. Probably none.

2. WFO in a new discipline is unknown under recent May 27, 1993, reconfiguration guidance. Probably none.

3. Commercialization possibilities under a lease agreement: Unknown under recent May 27, 1993, reconfiguration guidance. Probably none.

4. Commercialization possibilities under a sale agreement: Unknown under recent May 27, 1993, reconfiguration guidance. Probably none

5. SW Building and equipment is contaminated with radiological materials. A May 1993 Mound Asbestos Survey identified SW as a building that contained asbestos.

b) Facility Modifications Required for Likely Use

None. Tritium recovery facilities could be used for the deactivation of tritium operation areas.

c) Facility Modifications Required for Other Uses

Unknown.

d) Changes to Safety Envelope

Unknown.

e) Cleanup Criteria for Each Future Use Scenario

SW Building is contaminated with radiological materials and asbestos.

f) Disposition of Surplus Equipment

Unknown.

R BUILDING PHYSICAL CHARACTERIZATION

1) Current Mission Description

a) Facility Capabilities

R Building, a 55,003-ft^2 building, is one of the original buildings built at Mound in 1948. The "cold" side of R Building houses the library, offices, respirator fitting facility, and research and development laboratories. The "hot" side is used for tritium recovery and analytical support. R-140, on the "cold" side, is scheduled for D&D. The remainder of the "cold" side is scheduled for deactivation during FY 1994.

b) Resources Required to Support Operations

Primary Physical Resources:
- Electricity
- Physical security
- Fire protection, sprinklers, fire department
- Potable water
- Alpha and beta drains
- Sanitary drains
- HVAC
- Breathing air
- Helium, nitrogen, argon gas

Services:
- Human Resources
- Finance and Accounting
- Environmental, Safety, and Health
- Maintenance
- Custodial
- Payroll
- Meal
- Supply

c) Current Safety Envelope

The "cold" side of R Building operations is classified as standard industrial hazard. The "hot" side operates under the pending FSAR for SW building.

d) Current Status

1. No formal CAS review has been done. A quick condition assessment was done in July 1992.

2. No formal CAMP review has been done based on the latest Reconfiguration decision. A CAMP report was submitted on April 1, 1992, which focused on ES&H needs, infrastructure maintenance, and consolidation projects.

2) Future Facility Use

a) Alternate Future Use Scenarios

1. WFO in the same discipline is unknown under recent May 27, 1993, reconfiguration guidance. Probably none.

2. WFO in a new discipline is unknown under recent May 27, 1993, reconfiguration guidance. Probably none.

3. Commercialization possibilities under a lease agreement are unknown under recent May 27, 1993, reconfiguration guidance. Probably none.

4. Commercialization possibilities under a sale agreement are unknown under recent May 27, 1993, reconfiguration guidance. Probably none.

5. R Building and equipment on the "hot" side are contaminated with radiological material. The "cold" side has undergone D&D (except for R-140) but there are probably "warm" spots on the "cold" side. R-140 is on the D&D schedule.

   Both the "hot" and "cold" sides of R Building are contaminated with asbestos.

b) Facility Modifications Required for Likely Use

Unknown for the "cold" side of R Building. None for the "hot" side of R Building. The likely use for the tritium recovery facilities on the "hot" side of R Building would be to recover tritium from the deactivated tritium production areas.

c) Facility Modifications Required for Other Uses

Unknown. Probably none.

d) Changes to Safety Envelope

Unknown.

e) Cleanup Criteria for Each Future Use Scenario

R Building is contaminated with radiological and energetic materials. "Hot" spots also exist on the "cold" side of R Building. Asbestos-containing materials are located in R Building.

f) Disposition of Surplus Equipment

Unknown.

Reference D

Geneczko

MOUND

TECHNICAL MANUAL

MD–22153, ISSUE 1
MOUND SITE RADIONUCLIDES BY LOCATION

Section	Issue
Intro	1
1	1
2	1
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Appen A	1
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TR– Wayne King, BD–91
Paul Lamberger, T–245
Al Ogurek, BD–91
E– M. J. Pacinda
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Terry L. Vaughn. BD–91
Ray Weaver, BD–91
Drawing Control, OSW–3
Technical Manuals

CHANGES INCORPORATED

- ☐ Replace
- ☐ Insert (New Pages)
- ☐ Remove
- ☐ Complete Reprint

All appropriate reviews by senior safety committees were conducted. This issue is authorized for use by Advanced Change Order on file in Technical Manuals.

Terry L. Vaughn, Radiological Control Manager 6–22–95

and all other tables in this document, where the tables are arranged according to rooms and not a process or program.

** The first block in the table identifies rooms and radionuclides involved in the early polonium program. This listing deviates from the organization used in the remainder of this table and in other tables used in this document.

Table 3 - R BUILDING

ROOMS	RADIONUCLIDES AND RELATED COMPOUNDS	DATES USED
Early work in polonium: **(See previous page) Rooms: R-117 120 127 128 129 130 131 133 143 144 151 152 155 159 160 161 162 167	$AlCl_3$, $BiCl_4$, Ag-Po, Te-Po, $PoCl_2$, Po-210, Bi-210, $Po(NO_3)_2$, Fe-55,59, Si-31, Co-60, Pb-209, Sb-124, Sn-121, Zn-65, Cr-55, V-52, Ga-70,72, Cs-137, Sr-90, Se-75, Ag-112, Te-121-->134?, Hg-203	1948-1951
R-105, 106	H-3, HTO ..... H-3, Li(D,T), U-238(D,T)	1958-1965 1965-1978
R-108	Po-208,210, H-3, See Appendix B ..... H-3, Li(D,T), U-238(D,T), Ti(D,T), See Appendix B	1948-1965 1975-PRES
R-110	Po-208,210, ... H-3	1955-1972 1972-PRES
R-111	Ac-227, AcO_2, $Ac(NO_3)_4$, $Ac(C_2O_4)_4$, Ra-223, 224,226, Th-228,229,230, Ac & Ra daughters Po-208,210, H-3	1951-1955 1955-1965
R-112	H-3, Li(D,T), U-238(D,T), See Appendix B	1973-1993

Table 3 - R BUILDING

ROOMS	RADIONUCLIDES AND RELATED COMPOUNDS	DATES USED
R-113, 114, 115	Ac-227, AcO_2, $Ac(NO_3)_4$, $Ac(C_2O_4)_4$, Ra-223, 224,226, Th-228,229,230, (Ac & Ra daughters)	1951-1955
	Po-210, Pu-238,239, Po/Be, PoF_2, Po/B, Pu/Be, PuF_2, Pu/B	1956-1961
	H-3	1978-PRES
R-116	Po-210, Pu-238,239, Po/Be, PoF_2, Po/B, Pu/Be, PuF_2, Pu/B	1956-1961
	Pu-238,239, Pu/Be, Am-241	1956-1962
	H-3, Li(D,T), U-238(D,T)	1960-1965
R-117	Pu-238,239, Pu/Be, PuO_2, Pu-238/Zr, Pa-231, Po-210/Be, Th-230	1948-1990
R-118	Ac-227, AcO_2, $Ac(NO_3)_4$, $Ac(C_2O_4)_4$, Ra-223, 224,226, Th-228,229,230, (Ac & Ra daughters)	1955
	U-234,235,238, Pa-231, Th-230,232 and (Th-232 daughters)	1956-1958
R-120 and (support rooms 119, 121, 123)	Po-210, Bi-210, $AlCl_3$, $BiCl_3$, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1951
	Ac-227, AcO_2, $Ac(NO_3)_4$, $Ac(C_2O_4)_4$, Ra-226,Th-228,229,230, AcF_4, AcI_4, Ac-227 daughters, See Appendix B	1951-1953
	Pa-231, Th-230,232 and (Th-232 daughters), U-234,235,238	1956-1958
	Pu-239, Am-241	1956-1962
	See Appendix B	1960-1962
	Pu-238, $Pu(NO_3)_4$, $Pu(NO_3)_6$, PuO_2, Pu-Cu, $Pu(C_2O_4)_4$, $Pu(O_2).5H_2O$, Pu(OH), PuF_4, $PuCl_4$, Pu-Se, Pu-Zr, H-3, Pu-rare earths, polonium alloys and compounds .	1959-1979

Table 3 - R BUILDING

ROOMS	RADIONUCLIDES AND RELATED COMPOUNDS	DATES USED
R-127	Po-210, Bi-210, $AlCl_3$, $BiCl_3$, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1951
	Fe-55,59	1952-1954
	H-3	1956-1961
	PuO_2, PuF_4, Pu-$MoCl_4$, Pu-MoF_4	1965-1978
	H-3, Pu-239,	1987-PRES
R-128	Po-210, Bi-210, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1954
	PuO_2, PuF_4, Pu-$MoCl_4$, Pu-MoF_4	1965-1978
	H-3, U-238(D,T)	1987-PRES
R-129, 130	Po-210, Bi-210, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1951
	Ac-227, AcO_2, $Ac(NO_3)_4$, $Ac(C_2O_4)_4$, Ra-223, 224,226, Th-228,229,230	1951-1953
	Pu-238, PuO_2, PuF_4, Pu-$MoCl_4$, Pu-MoF_4, $PuCl_4$, (Th-232 compounds replacing Pu-238 compounds for analytical studies)	1965-1978
	See Appendix B	1990-PRES
R-131	Po-210, Bi-210, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1951
	Pu-238, PuO_2, PuF_4, Pu-$MoCl_4$, Pu-MoF_4, $PuCl_4$, Cm-244	1965-1978
R-133	Po-210, Bi-210, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1954
	Ac-227, AcO_2, $Ac(NO_3)_4$, $Ac(C_2O_4)_4$, Ra-226,Th-228,229,230, AcF_4, AcI_4, Ac-227 daught., See Appendix B	1951-1953
	Pa-231, U-234,235,238, Th-230,232 (Also Th-230,232 daughters)	1956-1958
	Pu-238, PuO_2, PuF_4, Pu-$MoCl_4$, Pu-MoF_4, $PuCl_4$, Cm-244	1965-1978
R-134	H-3, U-238, U-238(D,T)	1986-PRES

Table 3 - R BUILDING

ROOMS	RADIONUCLIDES AND RELATED COMPOUNDS	DATES USED
R-137	Ac-227, AcO_2, $Ac(NO_3)_4$, $Ac(C_2O_4)_4$, Ra-226,Th-228,229,230, AcF_4, AcI_4, Ac-227 daughters	1951-1953
R-140	Th-228,230,232, U-234,235,238, Pu-238,239, Po-208,209,210, Cs-137, Pa-231, Ac-227, Ra-223,224,226, Sr-90 .	1950-~1969
	Pu-238,239,240,241 (alloys, compounds, mixtures), $Pu(NO_3)_2$, Ac-227, Am-241 . . .	~1969-PRES
R-142	Ra-226, $Ra(CO_3)$, $Ra(NO_3)_2$, $RaBr_2$, Ac-227,$Ac(C_2O_4)_4$, AcF_2, K-40, $Ba(NO_3)_2$, Th-228, 229,230, radon and daughters, Po-208, 209,210	1949-1953
	Pu-238,239, U-234,235,238, Th-230, Pa-231, Th-230 daughters	1956-1969
	PuO_2 (for Pu-238,239)	1966-1979
R-143, 144	Po-210, Bi-210, $AlCl_3$, $BiCl_3$, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1951
	PuO_2 (for Pu-238)	1972-1976
R-145, 147	Ra-226, $Ra(CO_3)$, $Ba(CO_3)$, $Ac(NO_3)_2$, Ra/Ba, Ac-227, $Ac(C_2O_4)_4$, AcO_2, Th-228,229,230	1949-1954
	Fe-59, Al-26, Ca-45, Co-60, Pa-231, Cu-65	1955-1956
	Pu-239, Am-241, ...	1956-1959
	See Appendix B	1960-1962
	Pu-238,239, PuO_2, U-234,235,238	1968-1975
R-148, 149	Ra-226, $Ra(CO_3)$, $Ba(CO_3)$, $Ac(NO_3)_2$, Ra/Ba, Ac-227, $Ac(C_2O_4)_4$, AcO_2, Th-228,229,230, Po-208, Pa-231	1949-1954
	Fe-59, Al-26, Ca-45, Co-60, Pa-231, Cu-65 Pu-238	1954-1958
	Pu-238, $Pu(C_2O_4)_4$, $Pu(NO_3)_4$,	1960-1968
	Th-230, PuO_2, Pm-146-->149, $U(234)(NO_3)_4$, $U(234)O_2$, Pu/Zr	1970-1980

Table 3 - R BUILDING

ROOMS	RADIONUCLIDES AND RELATED COMPOUNDS	DATES USED
R-151	Po-210, Bi-210, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1951
	Pu-238,239, $Pu(NO_3)_4$, $Pu(NO_3)_6$, PuO_2, Pu(OH) $Pu(C_2O_4)_4$, $Pu(O_2).5H_2O$, $PuCl_4$, PuF_4, $Pu(SO_4)_2$, Np-237, and EDTA, citrates, and other substances acting like chelating agents were present	1958-1983
R-152	Po-210, Bi-210, $AlCl_3$, $BiCl_3$, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1954
	Ac-227, AcO_2, $Ac(NO_3)_4$, $Ac(C_2O_4)_4$, Ra-226,Th-228,229,230, AcF_4, AcI_4, See Appendix B	1951-1953
R-155	Po-210, Bi-210, $AlCl_3$, $BiCl_3$, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1951
	U-235,238, Pu-239, Np-237, Cm-244, Am-241, (The following were tried in combination with those listed: Ni-63, Co-60, Si-31, Zn-65, Bi-210, Pb-210, Zr-95, Al-26 rare earth elements)	1956-1969
R-159	Po-210, Bi-210, $AlCl_3$, $BiCl_3$, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1951
	U-235,238, Pu-239, Np-237, Cm-244, Am-241, (The following were tried in combination with those listed: Ni-63, Co-60, Si-31, Zn-65, Bi-210, Pb-210, Zr-95, Al-26 rare earth elements)	1956-1969
R-160	Po-210, Bi-210, $AlCl_3$, $BiCl_3$, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1951
	Ac-227, AcO_2, $Ac(NO_3)_4$, $Ac(C_2O_4)_4$, Ra-226, Th-228,229,230, See Appendix B	1951-1953
R-161	Po-210, Bi-210, $AlCl_3$, $BiCl_3$, $Po(NO_3)_2$, $PoCl_2$, Po/Ag, Po/Te	1948-1951
	Ac-227, AcO_2, $Ac(NO_3)_4$, $Ac(C_2O_4)_4$, Ra-226,Th-228,229,230, See Appendix B	1951-1953

Table 3 - R BUILDING

ROOMS	RADIONUCLIDES AND RELATED COMPOUNDS	DATES USED
R-162	Ru-106, Cs-137, Sb-125, Te-121,127, Zr-93,95, Nb-94, Sr-90, Pu-238,239, Y-88,90,91, Ce-144 & other rare earths .	1948-1951
	Pu-238,239	1950
	U-233,235,238	1958-1959
R-166	Po-210	1961-1968
R-167	Ru-106, Cs-137, Sb-125, Te-121-->134?, Zr-93,95, Nb-94, Sr-90, Pu-238,239, Y-88,90,91, Ce-144 & other rare earths .	1948-1951
	Pu-239, U-234,235,238, I-131, Cs-137, Ce-144, Sr-90, Tc-99, Xe-133, Y-88,90,91	1949-1952
	Fe-55,59, Al-26, Ca-45, Co-60, Pa-231, Cu-65	1954-1955
	See Appendix B	1955-1957
	U-233, Th-229,230,232	1958
	Sr-90, Y88,90,91, Pa-231	1960-1962
	Pa-231,233, Ce-141,144, Am-241, Cm-244, U-233, Th-230,232, Ra-226, Tl-208	1956-1987
R-168	U-238, UF_4, UO_2	1958
R-169	Th-230,232, U-234,235,238, Pu-238,239, Po-208,209,210, Cs-137, Pa-231, Ac-227, Ra-223, 224,226	1960-1980
	U-235,238, Pm-147, Ca-45	1980-PRES
R-170	U-238, Ca-45	1960-1964
R-171, 172,	Ra-223,224,226, $Ac(NO_3)_2$, Ac-227, $Ac(C_2O_4)_4$, AcO_2, Th-228,229,230, Ac & Ra daughters	1949-1954
	U-235,238, See Appendix B	1961-1963
	Pu-238,239,240,241 (compounds, alloys, mixtures), Am-241, Ac-227, Ra-226	1965-1991
R-174, 176	H-3	1970-PRES

Table 3 - R BUILDING

ROOMS	RADIONUCLIDES AND RELATED COMPOUNDS	DATES USED
R-197A	Pu-238,239, PuO_2, Cm-244	1970-PRES
R-198	Pu-238,239, $Pu(NO_3)_4$, PuO_2, PuF_4, Np-237, Ac-227, Cm-244, H-3, Po-210, PoF_4, Li(D,T),U-234,235,238, U(D,T), Am-241, Pr-146->149	1956-1982
Crawl Space above R-Bldg	Pu-238,239, Ra-226, Ac-227, Po-210, Th-228, 229,230	1948-PRES
R-CORR-5	Ac-222	1948-1984

Note: All references to plutonium-238 was of the mixture ratio identified in the introduction to R Building. This mixture also included trace amounts of americium-241, neptunium-237, and uranium-234. [128]

Plutonium-239 was over 95% pure with trace amounts of plutonium-240,241.

Table 5 - SW BUILDING

ROOMS	RADIONUCLIDES AND RELATED COMPOUNDS	DATE USED
SW-2	H-3	1973-PRES
SW-8	H-3, Xe (all isotopes)	1957-1960
	H-3	1958-PRES
	H-3, U(238)(D,T), Li(D,T), Ba(D,T), Ti(D,T)	1960-1985
	H-3	1963-PRES
SW-9	See Appendix B	1965-PRES
	U(D,T), Li(D,T), U/Al(D,T) See Appendix B	1989-PRES
SW-10	H-3	1967-1972
SW-13, 11, 12, 14, 15, 16	Ru-106, Cs-137, Sb-125, Te-121,127, Zr-93, 95, Nb-94, Sr-90, Pu-238,239, Y-88,90,91, rare earths (especially Ce)	1951-1953
	Th-228,232, U-238, Ra-224,228, Th-232 daughters	1955
	Fe-55,59, Al-26, Ca-45, Co-60, Pa-231, Cu-65.	1956
	See Appendix B.	1959-1965
	H-3, U(D,T), LI(D,T), LiO(D,T), See Appendix B	1959-1978
	See Appendix B.	1964-1967
	H-3, U-238, U(D,T), See Appendix B. .	1968-PRES
	See Appendix B.	1969-1975
	See Appendix B.	1975-1978
SW-19	Ra-226, $Ra(CO_3)$, $Ra(NO_3)_2$, $RaBr_2$, Ac-227, $Ac(C_2O_4)_4$, AcF_2, K-40, Th-228,229,230, radon and daughters	1951-1953
	See Appendix B.	1962-1988
	H-3, Ra daughters, See Appendix B . .	1973-PRES
SW-20, 21	H-3	1961-1973

Table 5 - SW BUILDING

ROOMS	RADIONUCLIDES AND RELATED COMPOUNDS	DATE USED
SW-22	U-232,233, Th-228,229, Ra-224,225, Ac-225, Fr-221, At-217, Th-228 daughters	1966-1975
	Th-230,232, U-234,235,238, Pa-231, Ac-227, Ra-223,224,226, $Ac(NO_3)$, AcO_2.	1970-1979
	Po-208,209,210, Po-210 daughters . . .	1976-1979
	See Appendix B	1984-1986
SW-128, 129, 130,134	Th-230,232, U-234,235,238, Pa-231, Ac-227, Ra-223,224,226	1970-1979
SW-132	Th-230,232, U-234,235,238, Pa-231, Ac-227, Ra-223,224,226, $Ac(NO_3)$, AcO_2.	1970-1979
	Po-208,209,210, Po-210 daughters . . .	1976-1979
SW-136, 137	Th-230,232, U-234,235,238, Pa-231, Ac-227, Ra-223,224,226, $Ac(NO_3)$, AcO_2	1964-1979
SW-140	Ac-227, AcO_2, $Ac(NO_3)_2$, ...	1964-1968
	Th-230,232, U-234,235,238, Pa-231, Ac-227, Ra-223,224,226, $Ac(NO_3)$, AcO_2.	1974-1979
	Po-208,209,210, Po-210 daughters . . .	1976-1979
SW-142	Ra-226, $Ra(CO_3)$, $Ra(NO_3)_2$, $RaBr_2$, Ac-227, $Ac(C_2O_4)_4$, AcF_2, K-40, Th-228,229, 230, Po-208,209,210, radon and daughters	1950-1961
	See Appendix B	1959-1969
	See Appendix B	1962-1967
	H-3, U-238, U(D,T), See Appendix B .	1969-1985
SW-146, 147	H-3, U-238, U(D,T)	1967-1985
	Tritiated stainless steel.	1985-PRES

Table 5 - SW BUILDING

ROOMS	RADIONUCLIDES AND RELATED COMPOUNDS	DATE USED
SW-149, 149A	All radionuclides in SW Building . . . . H-3, HTO, tritiated organics . . . . . . H-3, HTO, tritiated organics	1965-1968 1969-PRES 1980-PRES
SW-150, 152	H-3, U-238(D,T), See Appendix B. . . . See Appendix B	1968-PRES 1973-PRES
SW-200	H-3.	1958-PRES
SW-202	Po-210 . . . . . . H-3.	1958-1962 1963-PRES
SW-205	H-3.	1958-PRES
SW-208	H-3, U-238(D,T), See Appendix B . . . . H-3, U-238(D,T), See Appendix B	1965-1989 1989-PRES
SW-210	H-3, U(238)(D,T), See Appendix B . . .	1968-1989
SW-219	Pu-238/Be, Pu-239/Be, Am-241, Pu-239 . . . . . . Po-210, Pu-238,239 . . . . . . H-3. . . . . . See Appendix B . . . . . . H-3, U-238(D,T), See Appendix B. . . .	 1962-1965 1966-1971 1968-1978 1968-1980 1985-PRES
SW-231	H-3, HTO	1970-PRES
SW-238,240	H-3, U-238(D,T), U-238, See Appendix B	1968-PRES

Note: All references to plutonium-238 was of the mixture ratio identified in the introduction to SW Building above. This mixture also included trace amounts of americium-241, neptunium-237, and uranium-234. Plutonium-239 used in the various projects was over 95% pure with trace amounts of plutonium-240,241. [611]

Reference E

Main Hill Underground Lines

PRSs 122-124

Preview of the PRS Package

Section 5

SW and B Building Service Summaries

HW Sewer Service Summary

- SW Building (Semi-Works Building)
- SW Building was used for the pilot scale testing and demonstration of chemical process technology
  - Tritium Program (1958 to 1998)
    - Radioisotopes include H^3 (95%) and U^{238} (100%)
    - Process operations and HW Sewer issues similar to those described for R Building

HW Sewer Service Summary

- SW Building (contd.)
  - Po^{209} and Pb^{206} Retrieval Program (1976-1979)
    - Po^{209} recovered from old Po^{210} program residues
    - radioisotopes include Po^{208} (0.8%), Po^{209} (87%), and Po^{210} (<0.001%). Pb^{206} in a stable isotope.

HW Sewer Service Summary

- SW Building (contd.)
  - Actinium-227/Radium226 R&D (1951-1953)
    - Pilot scale recovery of Ra^{226} and Ac^{226} recovery and purification pilot scale programs. See R Building discussions for process descriptions.
    - Operations conducted in "old cave"
    - Radioisotopes same as R Building including Ac^{227} (23%), Ra^{226} (98%), Th^{229} (100%), and Po^{209} (74%). In addition, K^{40} (100%) is also reported as a program radionuclide contaminant.

HW Sewer Service Summary

- SW Building (contd.)
  - Pa^{231} Recovery and Purification Program (1956)
    - Radioisotopes include Pa^{231} (100%), Co^{60} (0.4%), and Al^{26} (100%)
    - Processes, chemicals, and HW sewer issues similar to those described for this program conducted in R Building.

HW Sewer Service Summary

- SW Building (contd.)
  - Neutron Source Production (1962-1971)
    - Radioisotopes processed include Pu^{238} (0.8%), Pu^{239} (100%), Am^{241} (95%), and Po^{210} (<.001%).
    - Processes, chemicals, and HW sewer issues similar to those described for this program conducted in R Building.

HW Sewer Service Summary

- SW Building (contd.)
  - Cotter Concentrate Program (Pa^{231} and Th^{230} Recovery From Uranium ore [i.e. Pitch Blend] 1970 to 1979)
    - Radioisotopes include Ra^{226} (99%), Ac^{227} (52%), Th^{230} (100%), Th^{232} (100%), Pa^{231} (100%), U^{233}, U^{234} (100%), U^{235} (100%), and U^{238} (100%).
    - Chemical constituents in ore include Na, Si, V, Pb, Be, Mg, and Ag.

HW Sewer Service Summary

- SW Building (contd.)
  - Cotter Concentrate Program
    - Recover Th^{230} and Pa^{231} from uranium ore refining residues using:
      - HNO_3 dissolution of U refining residues,
      - solvent extraction with di-sec-butylphenyl phosponate/CCl_4 followed by solvent extraction with TOPO/CCl_4,
      - H_2SO_4 striping Th,
      - Pa recovered with di-2-ethylhexyl phosphoric acid/CCl_4.

HW Sewer Service Summary

- SW Building (contd.)
  - Th^{229} Separation Program (1966-1981)
    - Radioisotopes include U^{232} (84%), U^{233} (100%), Th^{228} (0.15%), and Th^{229} (100%)
    - Th^{229} milked from aged U^{233}
      - isotope used to make Francium-221 and Astatine-217 by neutron irradiation

HW Sewer Service Summary

- SW Building (contd.)
  - Th^{229} Separation Program
    - Recovery process includes
      - U^{233} dissolution in HNO_3,
      - Solvent extraction with di-sec-butylphenyl-phosphonate and TOPO in diethylbenzene,
      - Th stripped from organic with $H_2C_2O_4$ and HNO_3

HW Sewer Service Summary

- SW Building (contd.)
  - Th^{232} Refinery Program (Monex Program [1955])
    - Radioisotopes include Th^{232} (100%), U_{238} (100%), and Ra^{228} (0.5%). In addition, Th^{232} daughters are present including Ra^{228}, Ac^{228}, Th^{228}, Ra^{224}, Rn^{220}, Po^{216}, Pb^{214}, Bi^{212}, and Po^{212} are present. Th^{228} daughters are present including Ra^{224}, Rn^{220}, Po^{216}, Pb^{214}, Bi^{212}, Tl^{208}, and Po^{212}.

HW Sewer Service Summary

- SW Building (contd.)
  - Th^{232} Refinery Program (Monex Program)
    - Develop Th recovery flowsheets for the recovery and refining of Th^{232} from Brazilian ore sludge's and other AEC residues. Refinery designed by never built. Process research continued.

HW Sewer Service Summary

- SW Building (contd.)
  - Th^{232} Refinery Program (Monex Program)
    - Process included
      - NaOH leaching of sludge
      - HCl leaching of sludge
      - sludge dissolution in HNO_3,
      - solvent extraction with TBP/kerosene, and
      - Th stripped from organic with HNO_3
      - Th metal (cleaned in trichloroethylene) also used as process feed

HW Sewer Service Summary

- SW Building (contd.)
  - Hanford/Oak Ridge Waste Reduction Program {i.e. spent nuclear fuel reprocessing} (1951-1953)
    - standard fission products [I.e. Cs^{137}(34%), Sr^{90} [31%], Zr^{93}(100%),Nb^{94} (100%), Ce^{144} (<0.01%), Ru^{106} (<0.01%), Tc^{99} (100%), etc.]
    - Pu^{238} (68%), Pu^{239} (100%),
    - Bismuth Phosphate, Purex Process, Redox Processes

HW Sewer Service Summary

- SW Building (contd.)
  - Hanford/Oak Ridge Waste Reduction Program
    - Processes, chemicals, and HW sewer issues similar to those described for this program conducted in R Building.

R Building

- Tritium Program R&D (1956-1998)
  - H^3 (~95%) & U^{238} (100%)
  - H^3 recovery and purification
  - Liquid wastes transferred to WD Building
- Polonium Program R&D (1948-1965)
  - Po^{209} (80%), Co^{60} (3%)
  - mineral acid dissolution (HCl, HNO_3 [aqua regia])
  - neutralized & acid wastes transferred to WD Building

R Building (continued)

- Actinium-227/Radium226 R&D (1949-1955)
  - Ac^{227} (24%), Ra^{226} (98%), Th^{229} (100%), Po^{209} (74%), K^{40} (100%)

R Building (contd.)

- Actinium-227/Radium226 R&D
  - Program Objectives
    - produce Ac^{227} metal as alternative to Po^{210} initiators
    - Ac^{227} prepared by irradiating Ra^{226} metal targets
    - Program involved
      - » Separation and production of Ra^{226} from U milling residues
      - » Separation of Ac^{227} from irradiated Ra^{226}
      - » Purification and conversion of Ac^{227} to metal

R Building (contd.)

- Actinium-227/Radium226 R&D
  - Radium separation chemistry R&D
    - recovery from pitch blend (U) ore (K-65 concentrate)
    - operations conducted in cave
      - » nitric acid dissolution of ore & NaOH neutralization
      - » solvent extraction (diethyl ether) recovery of Ra
      - » neutralization (ppt. called Cotter concentrate)
      - » lead, bismuth, chromate's, and Ra in residues
  - high contamination levels in (SW Bldg.) cave drain trenches

R Building (contd.)

- Actinium-227/Radium226 R&D (1949-1955)
  - Ac^{227} recovery and separation from Ra
    - solvent extraction (TTA & benzyl acetone
    - Oxalate precipitation
      - » fuming HNO_3 dissolution
    - Th^{228} precipitated as iodate
    - Ac^{227} metal preparation
      - » HF to AcF_3 and Li reduction Ac metal

R Building (contd.)

- Actinium-227/Radium226 R&D (1949-1955)
  - all wastes initially transported to WD Building
    - 10% dissolved solids in ore leachate
    - waste drained to floor trenches and sumps
      - » sumps pumped to WD and latter to evaporator
  - evaporator installed in R Building (1952)
    - condensate treated with ion exchange for radiological treatment
    - IX treated waste transferred to sanitary sewer

R Building (contd.)

- Neutron Source Production (1956-1961)
  - Pu^{238} (74%), Pu^{239} (100%), and Po^{210} (0%)
  - Pu^{238}/Be, Pu^{239}/Be, and Po^{210}/Be sources
  - Source manufacturing
    - Po^{210} electroplating in HNO_3 solution
    - Po^{210} volatilization process
    - Pu^{239} source made from metal received from off site
      - » metallurgical operations
      - » machining operations

R Building (contd.)

- Alpha Source Program (1956 to 1962)
  - Am^{241} (95%) and Pu^{239} (100%)
  - Similar to manufacturing techniques used in neutron source manufacturing

R Building (contd..)

- Ionium Program [Th^{230} program] (1956-1958)
  - Th^{230} (100%), Th^{232} (100%), Pa^{231} (100%), U^{234} (100%), U^{235} (100%), andU^{238} (100%)
  - Recover rare isotopes from uranium ores
  - Th^{230} used as tracer in weapons testing diagnostic programs
  - Process Chemistry R&D
    - develop recovery flowsheets

R Building (contd.)

- Ionium Program [Th^{230} program]
  - aqueous raffinate received from U purification
    - HNO_3 acidification
    - centrifugation to remove solids
    - solvent extraction with diethyl ether or pentaether
    - glass pipe equipment
    - waste contained rare earth elements, scandium, Pa, & Th.
    - Waste treated by distillation in R Building
      - » distillate transferred to WD Building

R Building (contd..)

- Pu^{238} Heat Source Program (1960-1978)
  - Pu^{238} (84%), Pu^{239} (100%), Th^{232} (100%), Cm^{244} (44%), U^{234} (100%), U^{235} (100%), and U^{238} (100%)
  - Pu^{238} metal production
    - received oxalate salt or nitrate solution
    - used $NH_4(OH)$ hydroxide precipitation and calcination
    - filtration of salts and calcination to high fired PuO_2
    - powder processing, pressing and source preparation

R Building (contd.)

- Pu^{238} Heat Source Program
  - operations involved
    - HNO_{3e}/HF dissolution,
    - precipitation,
    - filtration,
    - calcination,
    - fluorination with HF gas,
    - bomb reduction with Ca metal and I_2,
    - Pu metal refining.

R Building (contd.)

- Pu^{238} Heat Source Program
  - Other operations included scrap recovery that involved
    - HNO_3, HF, sulfamic acid, NaOH
  - R Building did <u>not</u> have safety features for continuing Pu^{238} processing and operations relocated to new building (SM Building)

R Building (contd.)

- analytical laboratories
  - traditional chemical analytical/radioanalytical laboratories
    - all of the radionuclides processed at Mound
    - supported all programs
    - chemical analytical R&D

R Building (contd.)

- Hanford/Oak Ridge Waste Reduction Program {i.e. spent nuclear fuel reprocessing} (1948-1951)
  - standard fission products [I.e. Cs^{137}(34%), Sr^{90} [31%], Zr^{93}(100%),Nb^{94} (100%), Ce^{144} (<0.01%), Ru^{106} (<0.01%), Tc^{99} (100%), etc.]
  - Pu^{238} (68%), Pu^{239} (100%),
  - Bismuth Phosphate, Purex Process, Redox Processes

R Building (contd.)

- Hanford/Oak Ridge Waste Reduction Program
  - Program goal: develop treatment processes for reprocessing wastes resulting from fuel reprocessing
    - actual second cycle reprocessing waste received at Mound
    - actual first cycle HLW received at Mound
      - » bench scale R&D studies completed in R Building
      - » Pilot scale studies completed in R Building using fission product stand-ins.

R Building (cont.)

- Hanford/Oak Ridge Waste Reduction Program
  - Program terminated with significant spill in SW Building
  - Chemicals handled include
    - TBP/kerosene
    - HNO_3, H_3PO_4, NaOH, bismuth phosphate, H_2SO_4,

R Building (cont.)

- Pa^{231} Recovery (1956-1987)
  - Pa^{231} (100%), Co^{60} (0.3%), Al^{26} (100%), Am^{241} (98%), U^{233} (100%), Ra^{226} (99%), Cm^{244} (62%),Th^{230} (100%), and Th^{232} (100%)
  - Pa^{231} used as a stand-in for Pa^{233} (T 1/2 = 27 days)
    - Process R&D
      - » Pa^{233} produced by irradiation of Th
      - » Pa^{231} a natural product found in uranium ores

R Building (contd.)

- Pa^{231} Recovery
  - Process Chemistry R&D
    - HCl dissolution of solid uranium milling sludge's (Sperry Cake)
    - concentration/precipitation of Pa from solution
    - HCl acidification
    - diisobutyl carbinal solvent extraction
    - H_2SO_4/HNO_3 dissolution

R Building (contd.)

- Pa^{231} Recovery
  - waste treatment HH Building
    - wastes transferred in drums
    - waste drums failed due to acid attack
      - » drum field ground became contaminated
    - impurities include
      - » iron, niobium,
      - » Ra^{228}, Ra^{228} daughter products (Ac^{228}, Th^{228}, Ra^{224}, Rn^{220}, Po^{216}, Pb^{212}, Bi^{212}, Tl^{208}, and Po^{212}).

R Building (contd.)

- Iron (Fe^{56}) Sulfide Process Program (1952-1954)
  - Fe^{56}, Fe^{55} (<0.01%) and Fe^{59} (< 0.01%)

R Building (contd.)

- Reactor Fuels Program (1955-1969)
  - Radionuclides include Am^{241} (96%), Pu^{239} (100%), Np^{237} (100%), Cm^{244} (30%), U^{235} (100%), and U^{238} (100%).
  - Evaluated physical properties for candidate nuclear fuels
    - aircraft nuclear propulsion
    - civilian power reactor program
  - Small scale operations (liquid wastes generated)

Reference F

ACTION MEMORANDUM
ENGINEERING EVALUATION/COST ANALYSIS

BUILDINGS R, SW, 58, AND 68 SLAB REMOVAL ACTION

MOUND PLANT
MIAMISBURG, OHIO

NOVEMBER 2000

Public Review Draft

(Revision 0)

Department of Energy

BWXT of Ohio

Table 5.1 Clean-Up Objectives

Contaminant	Risk Based Guideline Values (10^{-5})(1)	Background Values(4)	Clean-Up Objective
Actinium-227 + decay products in secular equilibrium to Lead-207	10 pCi/g	NA	10 pCi/g
Americium-241	49.5 pCi/g	ND	49.5 pCi/g
Bismuth-207	1.75 pCi/g	ND	1.75 pCi/g
Cesium-137 + decay products in secular equilibrium to Barium-137	4.6 pCi/g	0.42 pCi/g	4.6 pCi/g
Lead-210 + decay products in secular equilibrium to Lead-206	17 pCi/g	NA	17 pCi/g
Protactinium-231 + decay products in secular equilibrium to Lead-207	6.9 pCi/g(6)	NA	6.9 pCi/g
Plutonium-238	55 pCi/g	0.13 pCi/g	55 pCi/g
Plutonium-239/240	55 pCi/g	0.18 pCi/g	55 pCi/g
Radium-226 + decay products in secular equilibrium to Lead-210	1.4 pCi/g	2.0 pCi/g	3.4 pCi/g
Strontium-90 + decay products in secular equilibrium to Zirconium-90	30 pCi/g	0.72 pCi/g	30 pCi/g
Thorium-228 + decay products in secular equilibrium to Lead 208	1 pCi/g(3)	1.5 pCi/g	3.0 pCi/g(5)
Thorium-230 + decay products in secular equilibrium to Lead-206	1.3 pCi/g(2)	1.9 pCi/g	3.2 pCi/g(2)
Thorium-232 + decay products in secular equilibrium to Lead-208	1 pCi/g(3)	1.4 pCi/g	3.0 pCi/g(5)
Tritium	235,000 pCi/g	1.6 pCi/g	235,000 pCi/g
Uranium-233 + decay products in secular equilibrium to Bismuth-209	9.7 pCi/g(6)	NA	9.7 pCi/g
Uranium-234 + decay products in secular equilibrium to Lead-206	1.3 pCi/g(6)	1.1 pCi/g	2.4 pCi/g
Uranium-238 + decay products in secular equilibrium to Lead-206	1.2 pCi/g(2)	1.2 pCi/g	2.4 pCi/g(7)

(1) Mound Plant Construction Worker, 1 x 10^{-5} Risk Based Guideline Value (RBGV) concentrations for soil and sediment (DOE 1997).
(2) Taken from HH Building Action Memo, Draft, July 2000.
(3) Values are presented in "Technical Position Report in Support of the Release Block H Residual Risk Evaluation," Final, Rev. 0, July 1999.
(4) Mound 2000 RREM, Final (DOE 1997).
(5) Core Team approved As Low As Reasonably Achievable (ALARA) concentration value based on the quantification limitations of the Mound on-site screening lab.
(6) Calculations of 10^{-5} Risk Based Guideline Values are attached in Appendix A.
(7) If Uranium-238 is present in concentrations greater than 2.4 pCi/g, evaluate secular equilibrium with daughters. If secular equilibrium exists, use 2.4 pCi/g as clean up goal. If secular equilibrium does not exist, adjust Uranium-238 clean-up goal upward to account for reduced daughter concentrations.
NA = Not Available; ND = Not Detected

9. RECOMMENDATION

This decision document represents the selected removal action for Buildings R, SW, 68 Slab and 58, developed in accordance with CERCLA as amended by SARA, and not inconsistent with the NCP. This decision is based on the administrative record for the site.

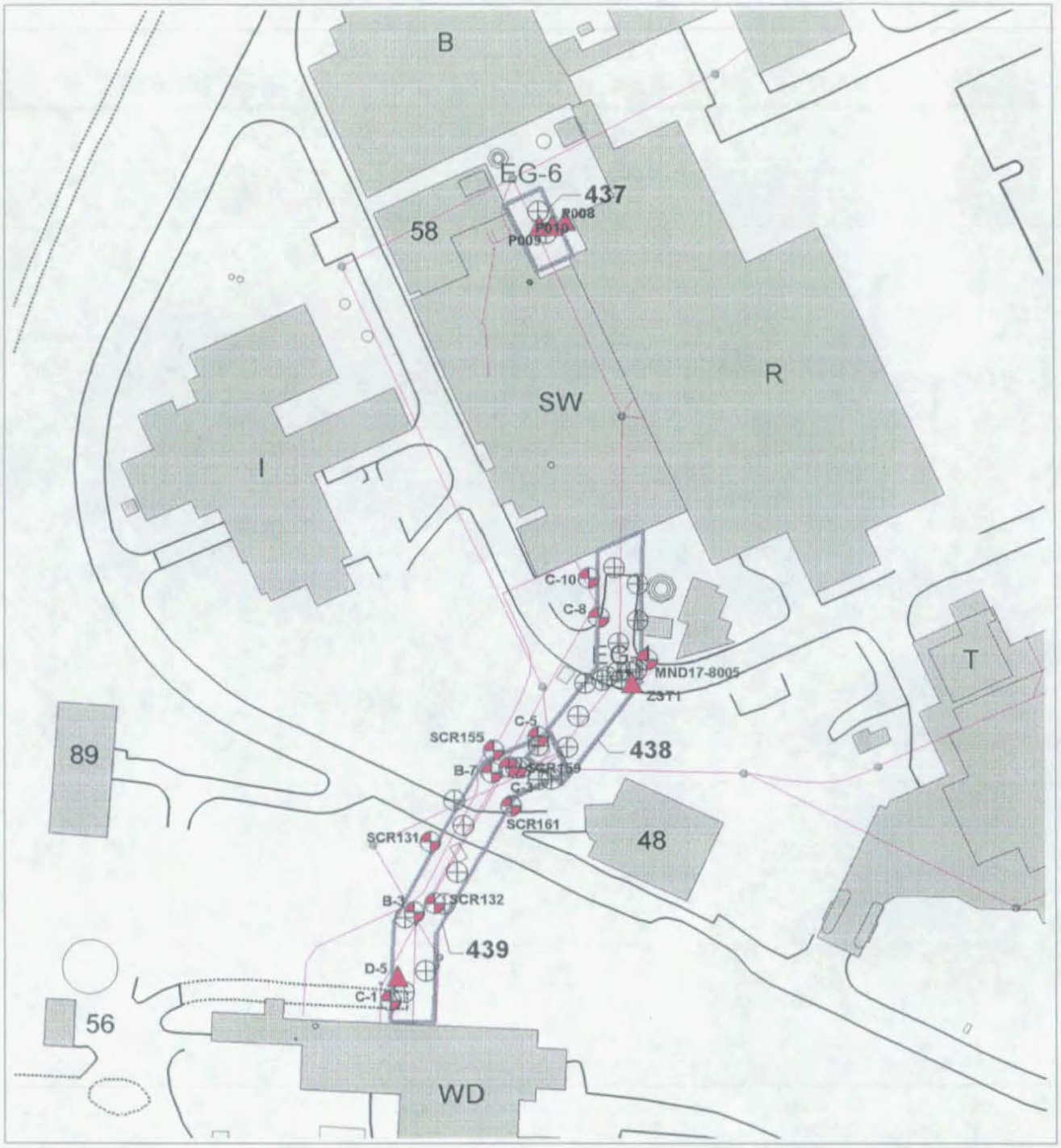
Conditions at the site meet the NCP Section 300.415 (b)(2) criteria for a removal and we recommend initiation of the response action.

Approved:

Art Kleinrath, On Scene Coordinator	DOE/MEMP	10/18/2000 Date
Timothy J. Fischer, Remedial Project Manager	USEPA	11/16/00 Date
Brain K. Nickel, Project Manager	OEPA	10/18/00 Date

Reference G

PRS 437-439 Sample Locations



PRS 437-439 Hits
PRS 437-439 Hits Outline
PRS 437-439 Sample Locations Outline
Soil Boring Outline
Surface Sample Outline
Hot Waste Lines
Line
Manhole
PRS 437-439 Boundary
Building Label
Text Bldg ID
Building Outline
Hidden Building Outline
Building Outline
Building
Color Fill
Transportation Text
TextInformation
Roads
Paved Drives/Parking
Unpaved Drives/Parking

60 0 60 120 180 240 Feet

N
W E
S

Location_n	Sample_id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_c	Start_dept	End_de	CAS_number	Lab	Data_	Project_co	Media	Collection_r	Comments
B-3	4003-0014	Borehole	19930811	Aluminum	9620.000	MG/KG		INORG	12.5	14.5	7429-90-5		J	MND16	Soil		
B-3	4003-0014	Borehole	19930811	Arsenic	4.000	MG/KG		INORG	12.5	14.5	7440-38-2			MND16	Soil		
B-3	4003-0014	Borehole	19930811	Barium	25.000	MG/KG		INORG	12.5	14.5	7440-39-3	B	J	MND16	Soil		
B-3	4003-0014	Borehole	19930811	Beryllium	0.660	MG/KG		INORG	12.5	14.5	7440-41-7	B		MND16	Soil		
B-3	4003-0014	Borehole	19930811	Calcium	167000.000	MG/KG		INORG	12.5	14.5	7440-70-2			MND16	Soil		
B-3	4003-0014	Borehole	19930811	Chromium	12.900	MG/KG		INORG	12.5	14.5	7440-47-3		J	MND16	Soil		
B-3	4003-0014	Borehole	19930811	Cobalt	9.000	MG/KG		INORG	12.5	14.5	7440-48-4	B		MND16	Soil		
B-3	4003-0014	Borehole	19930811	Copper	13.100	MG/KG		INORG	12.5	14.5	7440-50-8			MND16	Soil		
B-3	4003-0014	Borehole	19930811	Iron	17300.000	MG/KG		INORG	12.5	14.5	7439-89-6			MND16	Soil		
B-3	4003-0014	Borehole	19930811	Lead	6.200	MG/KG		INORG	12.5	14.5	7439-92-1			MND16	Soil		
B-3	4003-0014	Borehole	19930811	Magnesium	36100.000	MG/KG		INORG	12.5	14.5	7439-95-4			MND16	Soil		
B-3	4003-0014	Borehole	19930811	Manganese	547.000	MG/KG		INORG	12.5	14.5	7439-96-5			MND16	Soil		
B-3	4002-0014	Borehole	19930811	Methylene Chlorid	22.000	UG/KG		ORVOA	12.5	14.5	75-09-2		J	MND16	Soil		
B-3	4003-0014	Borehole	19930811	pH	7.400	STD UNIT		GENER/	12.5	14.5	1006			MND16	Soil		
B-3	4003-0014	Borehole	19930811	Potassium	**2530.000**	MG/KG		INORG	12.5	14.5	7440-09-7			MND16	Soil		2-Exceeds background value.
B-3	4003-0014	Borehole	19930811	Selenium	**0.860**	MG/KG		INORG	12.5	14.5	7782-49-2	B		MND16	Soil		2-Exceeds background value.
B-3	4003-0014	Borehole	19930811	Sodium	**252.000**	MG/KG		INORG	12.5	14.5	7440-23-5	B		MND16	Soil		2-Exceeds background value.
B-3	4003-0014	Borehole	19930811	Strontium-90	0.200	PCI/G	0.740	RAD	12.5	14.5	10098-97-2			MND16	Soil		
B-3	4003-0014	Borehole	19930811	Thallium	**23.900**	MG/KG		INORG	12.5	14.5	7440-28-0			MND16	Soil		2-Exceeds background value.
B-3	4003-0014	Borehole	19930811	Vanadium	13.400	MG/KG		INORG	12.5	14.5	7440-62-2	B		MND16	Soil		
B-3	4003-0014	Borehole	19930811	Zinc	37.200	MG/KG		INORG	12.5	14.5	7440-66-6			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Aluminum	10400.000	MG/KG		INORG	3.5	5.0	7429-90-5			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Arsenic	3.000	MG/KG		INORG	3.5	5.0	7440-38-2			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Barium	52.600	MG/KG		INORG	3.5	5.0	7440-39-3	B		MND16	Soil		
B-7	4007-0005	Borehole	19930823	Beryllium	**0.780**	MG/KG		INORG	3.5	5.0	7440-41-7	B		MND16	Soil		1-Exceeds soil 10-6 GV.
B-7	4007-0005	Borehole	19930823	Calcium	222000.000	MG/KG		INORG	3.5	5.0	7440-70-2			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Chromium	12.400	MG/KG		INORG	3.5	5.0	7440-47-3		J	MND16	Soil		
B-7	4007-0005	Borehole	19930823	Cobalt	6.800	MG/KG		INORG	3.5	5.0	7440-48-4	B		MND16	Soil		
B-7	4007-0005	Borehole	19930823	Copper	8.500	MG/KG		INORG	3.5	5.0	7440-50-8	B		MND16	Soil		
B-7	4007-0005	Borehole	19930823	Iron	17900.000	MG/KG		INORG	3.5	5.0	7439-89-6			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Lead	8.700	MG/KG		INORG	3.5	5.0	7439-92-1		J	MND16	Soil		
B-7	4007-0005	Borehole	19930823	Magnesium	7150.000	MG/KG		INORG	3.5	5.0	7439-95-4			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Manganese	574.000	MG/KG		INORG	3.5	5.0	7439-96-5			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Neptunium-237	-0.240	PCI/G	0.180	RAD	3.5	5.0	13994-20-2			MND16	Soil		
B-7	4007-0005	Borehole	19930823	pH	6.800	STD UNIT		GENER/	3.5	5.0	1006			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Plutonium-238	**0.680**	PCI/G	0.160	RAD	3.5	5.0	13981-16-3			MND16	Soil		2-Exceeds background value.
B-7	4007-1007	Borehole	19930823	Plutonium-238	**0.690**	PCI/G	0.140	RAD	3.5	5.0	13981-16-3			MND16	Soil		2-Exceeds background value.
B-7	4007-1007	Borehole	19930823	Plutonium-239/24C	0.027	PCI/G	0.100	RAD	3.5	5.0	PU-239/240			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Plutonium-239/24C	0.099	PCI/G	0.120	RAD	3.5	5.0	PU-239/240			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Plutonium-242	-0.077	PCI/G	0.710	RAD	3.5	5.0	13982-10-0			MND16	Soil		
B-7	4007-1007	Borehole	19930823	Plutonium-242	0.240	PCI/G	0.380	RAD	3.5	5.0	13982-10-0			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Potassium	**2960.000**	MG/KG		INORG	3.5	5.0	7440-09-7		J	MND16	Soil		2-Exceeds background value.
B-7	4007-0005	Borehole	19930823	Sodium	176.000	MG/KG		INORG	3.5	5.0	7440-23-5	B		MND16	Soil		
B-7	4007-1007	Borehole	19930823	Strontium-90	0.160	PCI/G	0.510	RAD	3.5	5.0	10098-97-2			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Strontium-90	**0.730**	PCI/G	0.720	RAD	3.5	5.0	10098-97-2	N		MND16	Soil		2-Exceeds background value.
B-7	4007-0005	Borehole	19930823	Thallium	**15.700**	MG/KG		INORG	3.5	5.0	7440-28-0	B		MND16	Soil		2-Exceeds background value.
B-7	4007-1007	Borehole	19930823	Uranium-234	0.510	PCI/G	0.380	RAD	3.5	5.0	13966-29-5			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Uranium-234	0.670	PCI/G	0.260	RAD	3.5	5.0	13966-29-5			MND16	Soil		
B-7	4007-1007	Borehole	19930823	Uranium-238	-0.018	PCI/G	0.310	RAD	3.5	5.0	7440-61-1			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Uranium-238	0.130	PCI/G	0.210	RAD	3.5	5.0	7440-61-1			MND16	Soil		
B-7	4007-1007	Borehole	19930823	Uranium-238	0.280	PCI/G	0.340	RAD	3.5	5.0	7440-61-1			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Uranium-238	1.000	PCI/G	0.230	RAD	3.5	5.0	7440-61-1			MND16	Soil		
B-7	4007-0005	Borehole	19930823	Vanadium	14.700	MG/KG		INORG	3.5	5.0	7440-62-2	B		MND16	Soil		
B-7	4007-0005	Borehole	19930823	Zinc	41.500	MG/KG		INORG	3.5	5.0	7440-66-6			MND16	Soil		
C-1	5001-0003	Borehole	19930805	Acetone	28.000	UG/KG		ORVOA	2.0	4.0	67-64-1		J	MND16	Soil		
C-1	5001-0003	Borehole	19930805	Aluminum	3440.000	MG/KG		INORG	2.0	4.0	7429-90-5		J	MND16	Soil		
C-1	5001-0003	Borehole	19930805	Arsenic	6.000	MG/KG		INORG	2.0	4.0	7440-38-2			MND16	Soil		
C-1	5001-0003	Borehole	19930805	Barium	41.200	MG/KG		INORG	2.0	4.0	7440-39-3	B	J	MND16	Soil		
C-1	5001-0003	Borehole	19930805	Beryllium	0.230	MG/KG		INORG	2.0	4.0	7440-41-7	B		MND16	Soil		
C-1	5001-0003	Borehole	19930805	Calcium	97800.000	MG/KG		INORG	2.0	4.0	7440-70-2			MND16	Soil		
C-1	5001-0003	Borehole	19930805	Chromium	6.500	MG/KG		INORG	2.0	4.0	7440-47-3		J	MND16	Soil		
C-1	5001-0003	Borehole	19930805	Cobalt	3.100	MG/KG		INORG	2.0	4.0	7440-48-4	B		MND16	Soil		
C-1	5001-0003	Borehole	19930805	Fluoranthene	170.000	UG/KG		ORSVO	2.0	4.0	206-44-0	J		MND16	Soil		
C-1	5001-0003	Borehole	19930805	Iron	9010.000	MG/KG		INORG	2.0	4.0	7439-89-6			MND16	Soil		
C-1	5001-0003	Borehole	19930805	Lead	8.700	MG/KG		INORG	2.0	4.0	7439-92-1			MND16	Soil		
C-1	5001-0003	Borehole	19930805	Magnesium	39700.000	MG/KG		INORG	2.0	4.0	7439-95-4			MND16	Soil		
C-1	5001-0003	Borehole	19930805	Manganese	330.000	MG/KG		INORG	2.0	4.0	7439-96-5			MND16	Soil		
C-1	5001-0003	Borehole	19930805	pH	7.200	STD UNIT		GENER/	2.0	4.0	1006			MND16	Soil		
C-1	5001-0003	Borehole	19930805	Potassium	634.000	MG/KG		INORG	2.0	4.0	7440-09-7	B		MND16	Soil		
C-1	5001-0003	Borehole	19930805	Pyrene	160.000	UG/KG		ORSVO	2.0	4.0	129-00-0	J		MND16	Soil		
C-1	5001-0003	Borehole	19930805	Selenium	**0.590**	MG/KG		INORG	2.0	4.0	7782-49-2	B		MND16	Soil		2-Exceeds background value.
C-1	5001-0003	Borehole	19930805	Sodium	150.000	MG/KG		INORG	2.0	4.0	7440-23-5	B		MND16	Soil		
C-1	5001-0003	Borehole	19930805	Thallium	**13.000**	MG/KG		INORG	2.0	4.0	7440-28-0			MND16	Soil		2-Exceeds background value.

Location_n	Sample_id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_cl	Start_dept	End_de	CAS_number	Lab_	Data_	Project_co	Media	Collection_r	Comments
C-1	5001-0003	Borehole	19930805	Tritium	-0.050	PCI/G	0.380	RAD	2.0	4.0	10028-17-8	N		MND16	Soil		
C-1	5001-0003	Borehole	19930805	Vanadium	9.400	MG/KG		INORG	2.0	4.0	7440-62-2	B		MND16	Soil		
C-1	5001-0003	Borehole	19930805	Xylenes, Total	24.000	UG/KG		ORVOA	2.0	4.0	1330-20-7		J	MND16	Soil		
C-1	5001-0003	Borehole	19930805	Zinc	29.400	MG/KG		INORG	2.0	4.0	7440-66-6			MND16	Soil		
C-10	5010-0001	Borehole	19930909	Tritium	0.290	PCI/G	0.330	RAD	1.0	3.0	10028-17-8			MND16	Soil		
C-3	5003-0006	Borehole	19930820	Tritium	0.120	PCI/G	0.360	RAD	5.5	7.5	10028-17-8			MND16	Soil		
C-5	5005-0014	Borehole	19930819	Tritium	0.720	PCI/G	0.360	RAD	13.5	14.7	10028-17-8			MND16	Soil		
C-5	5005-1014	Borehole	19930819	Tritium	0.870	PCI/G	0.360	RAD	13.5	14.7	10028-17-8			MND16	Soil		
C-8	5008-0010	Borehole	19930909	Tritium	90.000	PCI/G	0.410	RAD	9.5	11.5	10028-17-8			MND16	Soil		2-Exceeds background value.
D-5	9207070009	Surface loc	19920707	Tritium	0.000	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9207080009	Surface loc	19920708	Tritium	0.000	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503280021	Surface loc	19950322	Tritium	0.000	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503290009	Surface loc	19950329	Tritium	0.000	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504110009	Surface loc	19950411	Tritium	0.043	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206150009	Surface loc	19920615	Tritium	0.089	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503270009	Surface loc	19950327	Tritium	0.146	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408230008	Surface loc	19940823	Tritium	0.233	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206250009	Surface loc	19920625	Tritium	0.285	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208190020	Surface loc	19920819	Tritium	0.289	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9207090009	Surface loc	19920709	Tritium	0.298	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503280021	Surface loc	19950322	Tritium	0.308	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502270009	Surface loc	19950227	Tritium	0.377	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508020015	Surface loc	19950802	Tritium	0.388	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502230009	Surface loc	19950223	Tritium	0.393	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309010022	Surface loc	19930901	Tritium	0.404	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504060060	Surface loc	19950406	Tritium	0.413	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206170009	Surface loc	19920617	Tritium	0.442	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503160009	Surface loc	19950316	Tritium	0.469	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9207090009	Surface loc	19920709	Tritium	0.480	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503200009	Surface loc	19950320	Tritium	0.550	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9207020009	Surface loc	19920702	Tritium	0.563	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503280009	Surface loc	19950328	Tritium	0.607	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504060046	Surface loc	19950405	Tritium	0.627	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205220009	Surface loc	19920522	Tritium	0.637	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208190008	Surface loc	19920818	Tritium	0.692	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308160009	Surface loc	19930816	Tritium	0.695	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506150015	Surface loc	19950613	Tritium	0.717	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506150007	Surface loc	19950615	Tritium	0.718	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312220009	Surface loc	19931222	Tritium	0.725	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206230009	Surface loc	19920623	Tritium	0.768	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408240008	Surface loc	19940824	Tritium	0.775	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206010022	Surface loc	19920601	Tritium	0.780	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504100009	Surface loc	19950410	Tritium	0.784	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504190009	Surface loc	19950419	Tritium	0.796	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507110009	Surface loc	19950711	Tritium	0.819	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504060060	Surface loc	19950406	Tritium	0.820	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9207010009	Surface loc	19920701	Tritium	0.843	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308300009	Surface loc	19930830	Tritium	0.847	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206240009	Surface loc	19920624	Tritium	0.872	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508160017	Surface loc	19950810	Tritium	0.899	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508160037	Surface loc	19950815	Tritium	0.912	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205050009	Surface loc	19920505	Tritium	0.921	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503150009	Surface loc	19950315	Tritium	0.927	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205070009	Surface loc	19920507	Tritium	0.928	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507170009	Surface loc	19950717	Tritium	0.981	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506200009	Surface loc	19950620	Tritium	0.982	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504190009	Surface loc	19950419	Tritium	1.014	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506150024	Surface loc	19950614	Tritium	1.017	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503300009	Surface loc	19950330	Tritium	1.028	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307270009	Surface loc	19930727	Tritium	1.045	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205140009	Surface loc	19920514	Tritium	1.048	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504060033	Surface loc	19950404	Tritium	1.063	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408230008	Surface loc	19940823	Tritium	1.083	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401260009	Surface loc	19940126	Tritium	1.102	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205180009	Surface loc	19920518	Tritium	1.107	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205060009	Surface loc	19920506	Tritium	1.111	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505090009	Surface loc	19950509	Tritium	1.114	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9310050021	Surface loc	19931004	Tritium	1.132	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209080009	Surface loc	19920903	Tritium	1.150	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309090021	Surface loc	19930902	Tritium	1.160	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507200009	Surface loc	19950720	Tritium	1.166	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506050007	Surface loc	19950605	Tritium	1.178	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508020008	Surface loc	19950801	Tritium	1.190	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	

Location_n	Sample_id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_c	Start_dept	End_de	CAS_number	Lab_	Data_	Project_co	Media	Collection_r	Comments
D-5	9506280009	Surface loc	19950628	Tritium	1.212	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507100009	Surface loc	19950710	Tritium	1.229	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309010009	Surface loc	19930831	Tritium	1.237	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503230009	Surface loc	19950323	Tritium	1.261	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505230008	Surface loc	19950523	Tritium	1.261	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505250009	Surface loc	19950525	Tritium	1.271	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505240009	Surface loc	19950524	Tritium	1.273	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506060008	Surface loc	19950606	Tritium	1.303	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506120017	Surface loc	19950608	Tritium	1.315	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205050009	Surface loc	19920505	Tritium	1.320	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206300009	Surface loc	19920630	Tritium	1.338	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206180009	Surface loc	19920618	Tritium	1.341	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508230007	Surface loc	19950823	Tritium	1.350	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401250009	Surface loc	19940125	Tritium	1.354	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502080007	Surface loc	19950208	Tritium	1.356	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208250008	Surface loc	19920825	Tritium	1.360	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506060008	Surface loc	19950606	Tritium	1.371	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401240007	Surface loc	19940124	Tritium	1.378	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208240008	Surface loc	19920824	Tritium	1.385	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205130009	Surface loc	19920512	Tritium	1.395	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506120028	Surface loc	19950612	Tritium	1.399	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206230009	Surface loc	19920623	Tritium	1.417	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506120009	Surface loc	19950607	Tritium	1.425	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504200009	Surface loc	19950420	Tritium	1.427	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205210009	Surface loc	19920521	Tritium	1.458	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504170009	Surface loc	19950417	Tritium	1.486	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206290009	Surface loc	19920629	Tritium	1.490	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507130009	Surface loc	19950713	Tritium	1.493	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408220009	Surface loc	19940822	Tritium	1.498	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309010009	Surface loc	19930831	Tritium	1.499	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506120028	Surface loc	19950612	Tritium	1.529	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9207140009	Surface loc	19920714	Tritium	1.530	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209080009	Surface loc	19920903	Tritium	1.542	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408090010	Surface loc	19940808	Tritium	1.552	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408180009	Surface loc	19940818	Tritium	1.555	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9207060009	Surface loc	19920706	Tritium	1.561	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504170021	Surface loc	19950412	Tritium	1.571	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412210009	Surface loc	19941221	Tritium	1.576	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503020009	Surface loc	19950302	Tritium	1.580	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507190009	Surface loc	19950719	Tritium	1.588	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205190008	Surface loc	19920519	Tritium	1.588	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308170009	Surface loc	19930817	Tritium	1.594	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508160007	Surface loc	19950809	Tritium	1.601	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309080021	Surface loc	19930907	Tritium	1.603	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9409220009	Surface loc	19940922	Tritium	1.615	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503140009	Surface loc	19950314	Tritium	1.618	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505310009	Surface loc	19950531	Tritium	1.618	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506220009	Surface loc	19950622	Tritium	1.643	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209170008	Surface loc	19920917	Tritium	1.654	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501310008	Surface loc	19950131	Tritium	1.659	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9301250020	Surface loc	19930120	Tritium	1.665	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506190009	Surface loc	19950619	Tritium	1.675	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507180009	Surface loc	19950718	Tritium	1.676	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505170008	Surface loc	19950517	Tritium	1.686	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508080016	Surface loc	19950803	Tritium	1.689	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307130009	Surface loc	19930713	Tritium	1.702	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403220009	Surface loc	19940322	Tritium	1.706	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307150009	Surface loc	19930714	Tritium	1.734	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408090010	Surface loc	19940808	Tritium	1.744	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308040009	Surface loc	19930803	Tritium	1.764	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505300013	Surface loc	19950530	Tritium	1.769	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502070009	Surface loc	19950207	Tritium	1.771	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507120029	Surface loc	19950706	Tritium	1.775	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209140009	Surface loc	19920914	Tritium	1.780	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502280009	Surface loc	19950228	Tritium	1.784	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504180009	Surface loc	19950418	Tritium	1.787	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508220018	Surface loc	19950821	Tritium	1.792	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308120009	Surface loc	19930812	Tritium	1.793	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507310008	Surface loc	19950731	Tritium	1.793	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507310008	Surface loc	19950731	Tritium	1.793	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507100009	Surface loc	19950710	Tritium	1.816	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508160027	Surface loc	19950814	Tritium	1.822	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307220009	Surface loc	19930722	Tritium	1.847	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	

Location_n	Sample_id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_c	Start_dept	End_de	CAS_number	Lab_	Data_	Project_co	Media	Collection_r	Comments
D-5	9301250020	Surface loc	19930120	Tritium	1.850	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306020023	Surface loc	19930602	Tritium	1.865	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403230009	Surface loc	19940323	Tritium	1.879	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401270009	Surface loc	19940127	Tritium	1.881	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205040009	Surface loc	19920504	Tritium	1.887	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408030009	Surface loc	19940803	Tritium	1.919	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307270009	Surface loc	19930727	Tritium	1.925	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507120007	Surface loc	19950712	Tritium	1.931	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306030009	Surface loc	19930603	Tritium	1.935	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209080034	Surface loc	19920908	Tritium	1.942	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502220009	Surface loc	19950222	Tritium	1.946	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208120009	Surface loc	19920812	Tritium	1.946	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209220009	Surface loc	19920921	Tritium	1.962	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308110009	Surface loc	19930810	Tritium	1.982	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308120009	Surface loc	19930812	Tritium	1.988	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504130009	Surface loc	19950413	Tritium	1.995	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507120020	Surface loc	19950705	Tritium	1.997	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505180008	Surface loc	19950518	Tritium	2.000	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9409210009	Surface loc	19940921	Tritium	2.003	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306020023	Surface loc	19930602	Tritium	2.005	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309280009	Surface loc	19930928	Tritium	2.019	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312200009	Surface loc	19931220	Tritium	2.019	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502210007	Surface loc	19950213	Tritium	2.024	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307260009	Surface loc	19930726	Tritium	2.026	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205200011	Surface loc	19920520	Tritium	2.045	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307120009	Surface loc	19930712	Tritium	2.056	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309290009	Surface loc	19930929	Tritium	2.081	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506010009	Surface loc	19950601	Tritium	2.084	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206040009	Surface loc	19920604	Tritium	2.099	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506270009	Surface loc	19950627	Tritium	2.105	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312210009	Surface loc	19931221	Tritium	2.118	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206010009	Surface loc	19920528	Tritium	2.123	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308250009	Surface loc	19930825	Tritium	2.123	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507260009	Surface loc	19950726	Tritium	2.128	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306240009	Surface loc	19930624	Tritium	2.135	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506220009	Surface loc	19950622	Tritium	2.136	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505010009	Surface loc	19950501	Tritium	2.142	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401190007	Surface loc	19940119	Tritium	2.143	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209160008	Surface loc	19920915	Tritium	2.152	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305260009	Surface loc	19930526	Tritium	2.194	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508220029	Surface loc	19950822	Tritium	2.222	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505150008	Surface loc	19950515	Tritium	2.239	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502070009	Surface loc	19950207	Tritium	2.275	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401180007	Surface loc	19940118	Tritium	2.277	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505080009	Surface loc	19950508	Tritium	2.287	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208200009	Surface loc	19920820	Tritium	2.289	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9409210009	Surface loc	19940921	Tritium	2.291	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401200007	Surface loc	19940120	Tritium	2.300	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205130022	Surface loc	19920513	Tritium	2.312	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205200011	Surface loc	19920520	Tritium	2.336	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9409280009	Surface loc	19940928	Tritium	2.337	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508170007	Surface loc	19950816	Tritium	2.343	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505220008	Surface loc	19950522	Tritium	2.387	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506210009	Surface loc	19950621	Tritium	2.391	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205260009	Surface loc	19920526	Tritium	2.393	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308260009	Surface loc	19930826	Tritium	2.399	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9207130009	Surface loc	19920713	Tritium	2.433	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205110009	Surface loc	19920511	Tritium	2.449	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209160021	Surface loc	19920916	Tritium	2.452	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309300009	Surface loc	19930930	Tritium	2.464	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508210007	Surface loc	19950817	Tritium	2.478	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307280009	Surface loc	19930728	Tritium	2.481	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505180008	Surface loc	19950518	Tritium	2.495	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307210009	Surface loc	19930721	Tritium	2.501	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504060009	Surface loc	19950403	Tritium	2.525	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503210009	Surface loc	19950321	Tritium	2.604	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504260009	Surface loc	19950426	Tritium	2.630	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502060009	Surface loc	19950206	Tritium	2.635	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501300008	Surface loc	19950130	Tritium	2.641	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507270009	Surface loc	19950727	Tritium	2.643	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309150009	Surface loc	19930915	Tritium	2.646	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508170007	Surface loc	19950816	Tritium	2.652	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206160009	Surface loc	19920616	Tritium	2.685	PCi/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	

Location_nu	Sample_Id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_c	Start_dept	End_de	CAS_number	Lab_	Data_	Project_coc	Media	Collection_r	Comments
D-5	9506260009	Surface loc	19950626	Tritium	2.693	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312160009	Surface loc	19931216	Tritium	2.707	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507030009	Surface loc	19950703	Tritium	2.762	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502010009	Surface loc	19950201	Tritium	2.768	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505040009	Surface loc	19950504	Tritium	2.778	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309170009	Surface loc	19930916	Tritium	2.793	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312020009	Surface loc	19931202	Tritium	2.798	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308180009	Surface loc	19930818	Tritium	2.805	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307200009	Surface loc	19930720	Tritium	2.829	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208170008	Surface loc	19920817	Tritium	2.857	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307290009	Surface loc	19930729	Tritium	2.859	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305270009	Surface loc	19930527	Tritium	2.902	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209100022	Surface loc	19920910	Tritium	2.914	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206110009	Surface loc	19920611	Tritium	2.924	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505160008	Surface loc	19950516	Tritium	2.931	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312150009	Surface loc	19931215	Tritium	2.934	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306220009	Surface loc	19930622	Tritium	2.942	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503010009	Surface loc	19950301	Tritium	2.943	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505020009	Surface loc	19950502	Tritium	2.948	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501310023	Surface loc	19950125	Tritium	2.988	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307080022	Surface loc	19930708	Tritium	3.004	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502020012	Surface loc	19950202	Tritium	3.014	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9506290009	Surface loc	19950629	Tritium	3.020	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403210051	Surface loc	19940321	Tritium	3.037	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505040009	Surface loc	19950504	Tritium	3.102	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9205270009	Surface loc	19920527	Tritium	3.117	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9310060008	Surface loc	19931006	Tritium	3.153	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306230009	Surface loc	19930623	Tritium	3.175	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305110009	Surface loc	19930511	Tritium	3.210	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9311080009	Surface loc	19931108	Tritium	3.235	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507240009	Surface loc	19950724	Tritium	3.238	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307080022	Surface loc	19930708	Tritium	3.276	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502090007	Surface loc	19950209	Tritium	3.299	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208170008	Surface loc	19920817	Tritium	3.320	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507240009	Surface loc	19950724	Tritium	3.341	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208110009	Surface loc	19920811	Tritium	3.395	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401120009	Surface loc	19940112	Tritium	3.404	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305250009	Surface loc	19930525	Tritium	3.408	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503060009	Surface loc	19950306	Tritium	3.468	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308240009	Surface loc	19930824	Tritium	3.471	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408040021	Surface loc	19940804	Tritium	3.487	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9311080009	Surface loc	19931108	Tritium	3.522	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508080006	Surface loc	19950808	Tritium	3.575	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306210009	Surface loc	19930621	Tritium	3.596	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502200008	Surface loc	19950220	Tritium	3.601	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505100008	Surface loc	19950510	Tritium	3.613	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206090009	Surface loc	19920609	Tritium	3.620	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206100009	Surface loc	19920610	Tritium	3.637	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504240009	Surface loc	19950424	Tritium	3.665	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504270009	Surface loc	19950427	Tritium	3.747	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9404120009	Surface loc	19940412	Tritium	3.750	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305130009	Surface loc	19930512	Tritium	3.803	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308200009	Surface loc	19930819	Tritium	3.808	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401200007	Surface loc	19940120	Tritium	3.901	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502200008	Surface loc	19950220	Tritium	3.923	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9301180008	Surface loc	19930118	Tritium	3.996	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312130009	Surface loc	19931213	Tritium	4.031	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508080024	Surface loc	19950807	Tritium	4.100	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9508080024	Surface loc	19950807	Tritium	4.111	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206220008	Surface loc	19920622	Tritium	4.133	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503130009	Surface loc	19950313	Tritium	4.153	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9507250009	Surface loc	19950725	Tritium	4.181	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309230009	Surface loc	19930923	Tritium	4.229	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407200009	Surface loc	19940720	Tritium	4.231	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9210190006	Surface loc	19921015	Tritium	4.257	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312060009	Surface loc	19931206	Tritium	4.284	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312140009	Surface loc	19931214	Tritium	4.319	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308020009	Surface loc	19930802	Tritium	4.333	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501240022	Surface loc	19950124	Tritium	4.369	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306210009	Surface loc	19930621	Tritium	4.425	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502140007	Surface loc	19950214	Tritium	4.495	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9301250008	Surface loc	19930119	Tritium	4.501	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403240009	Surface loc	19940324	Tritium	4.548	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	

Location_n	Sample_id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_cl	Start_dept	End_de	CAS_number	Lab_	Data_	Project_co	Media	Collection_r	Comments
D-5	9404130009	Surface loc	19940413	Tritium	4.615	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306020009	Surface loc	19930601	Tritium	4.619	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306020009	Surface loc	19930601	Tritium	4.619	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402080009	Surface loc	19940208	Tritium	4.736	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309270024	Surface loc	19930927	Tritium	4.757	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312010009	Surface loc	19931201	Tritium	4.760	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505110008	Surface loc	19950511	Tritium	4.783	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309220009	Surface loc	19930922	Tritium	4.851	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307060009	Surface loc	19930706	Tritium	4.953	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501190037	Surface loc	19950119	Tritium	4.980	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206080009	Surface loc	19920608	Tritium	5.087	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208270009	Surface loc	19920827	Tritium	5.099	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306300022	Surface loc	19930629	Tritium	5.150	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312090009	Surface loc	19931209	Tritium	5.224	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209100009	Surface loc	19920909	Tritium	5.266	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209100009	Surface loc	19920909	Tritium	5.266	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501190022	Surface loc	19950118	Tritium	5.295	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9404140009	Surface loc	19940414	Tritium	5.300	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208130009	Surface loc	19920813	Tritium	5.306	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403210009	Surface loc	19940315	Tritium	5.372	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402080009	Surface loc	19940208	Tritium	5.381	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408150009	Surface loc	19940815	Tritium	5.438	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503070009	Surface loc	19950307	Tritium	5.440	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502150007	Surface loc	19950215	Tritium	5.463	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403210022	Surface loc	19940316	Tritium	5.464	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9504250009	Surface loc	19950425	Tritium	5.493	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402070008	Surface loc	19940207	Tritium	5.566	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408030021	Surface loc	19940801	Tritium	5.671	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312090009	Surface loc	19931209	Tritium	5.709	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408250019	Surface loc	19940811	Tritium	5.712	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412200009	Surface loc	19941220	Tritium	5.801	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309140021	Surface loc	19930914	Tritium	5.830	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408030034	Surface loc	19940802	Tritium	5.931	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9311290009	Surface loc	19931129	Tritium	5.942	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408090023	Surface loc	19940809	Tritium	5.981	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503070009	Surface loc	19950307	Tritium	6.005	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312080009	Surface loc	19931208	Tritium	6.013	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9206080009	Surface loc	19920608	Tritium	6.052	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501170009	Surface loc	19950117	Tritium	6.307	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302090009	Surface loc	19930209	Tritium	6.313	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9307060023	Surface loc	19930701	Tritium	6.347	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403210009	Surface loc	19940315	Tritium	6.378	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403210038	Surface loc	19940317	Tritium	6.448	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208100009	Surface loc	19920810	Tritium	6.625	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401030009	Surface loc	19940103	Tritium	6.716	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9503090009	Surface loc	19950309	Tritium	6.756	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402240009	Surface loc	19940224	Tritium	6.768	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408100009	Surface loc	19940810	Tritium	6.841	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402240009	Surface loc	19940224	Tritium	6.968	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9308240021	Surface loc	19930823	Tritium	6.971	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502210018	Surface loc	19950221	Tritium	7.092	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208060008	Surface loc	19920806	Tritium	7.233	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403090009	Surface loc	19940309	Tritium	7.241	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401060009	Surface loc	19940106	Tritium	7.415	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403140009	Surface loc	19940314	Tritium	7.443	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306170009	Surface loc	19930617	Tritium	7.772	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9505030009	Surface loc	19950503	Tritium	7.927	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411010009	Surface loc	19941101	Tritium	7.948	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403080009	Surface loc	19940308	Tritium	7.957	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402160009	Surface loc	19940216	Tritium	8.346	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305180009	Surface loc	19930518	Tritium	8.413	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306160009	Surface loc	19930616	Tritium	8.450	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501240009	Surface loc	19950123	Tritium	8.560	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501170021	Surface loc	19950116	Tritium	8.632	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402090009	Surface loc	19940209	Tritium	8.841	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401130009	Surface loc	19940113	Tritium	8.948	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9404050009	Surface loc	19940405	Tritium	8.969	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209010009	Surface loc	19920831	Tritium	8.974	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402230009	Surface loc	19940223	Tritium	8.995	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403310009	Surface loc	19940331	Tritium	9.249	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401310009	Surface loc	19940131	Tritium	9.299	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501240009	Surface loc	19950123	Tritium	9.306	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305060009	Surface loc	19930506	Tritium	9.360	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	

Location_n	Sample_id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_c	Start_dept	End_de	CAS_number	Lab_	Data_	Project_co	Media	Collection_r	Comments
D-5	9408040009	Surface loc	19940728	Tritium	9.501	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9502160007	Surface loc	19950216	Tritium	9.518	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403310009	Surface loc	19940331	Tritium	9.585	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401050009	Surface loc	19940105	Tritium	9.616	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408040021	Surface loc	19940804	Tritium	9.654	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309200009	Surface loc	19930920	Tritium	9.712	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401100009	Surface loc	19940110	Tritium	9.949	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305240009	Surface loc	19930524	Tritium	10.033	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402280009	Surface loc	19940228	Tritium	10.110	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411020009	Surface loc	19941102	Tritium	10.158	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9312070009	Surface loc	19931207	Tritium	10.186	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9409280009	Surface loc	19940928	Tritium	10.187	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402070044	Surface loc	19940203	Tritium	10.430	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306150009	Surface loc	19930615	Tritium	10.565	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309200009	Surface loc	19930920	Tritium	10.614	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501110009	Surface loc	19950111	Tritium	10.897	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306280009	Surface loc	19930628	Tritium	10.998	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305050009	Surface loc	19930505	Tritium	11.010	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403070009	Surface loc	19940307	Tritium	11.018	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403100009	Surface loc	19940310	Tritium	11.089	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501120009	Surface loc	19950112	Tritium	11.154	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501030021	Surface loc	19950102	Tritium	11.218	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410270009	Surface loc	19941027	Tritium	11.232	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406220009	Surface loc	19940622	Tritium	11.299	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9310050008	Surface loc	19931005	Tritium	11.374	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403300009	Surface loc	19940330	Tritium	11.385	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401110009	Surface loc	19940111	Tritium	11.451	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408170009	Surface loc	19940817	Tritium	11.456	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401040009	Surface loc	19940104	Tritium	11.600	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9310050008	Surface loc	19931005	Tritium	11.675	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410250009	Surface loc	19941025	Tritium	11.727	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410270009	Surface loc	19941027	Tritium	11.763	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410190047	Surface loc	19941020	Tritium	11.938	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401040009	Surface loc	19940104	Tritium	11.960	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411030009	Surface loc	19941103	Tritium	12.008	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403070022	Surface loc	19940303	Tritium	12.012	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9301140007	Surface loc	19930114	Tritium	12.025	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410260009	Surface loc	19941026	Tritium	12.034	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501040009	Surface loc	19950104	Tritium	12.089	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9309210009	Surface loc	19930921	Tritium	12.111	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402170009	Surface loc	19940217	Tritium	12.114	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9401170009	Surface loc	19940117	Tritium	12.189	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403020009	Surface loc	19940302	Tritium	12.198	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403290009	Surface loc	19940329	Tritium	12.709	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305130023	Surface loc	19930513	Tritium	12.804	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412150009	Surface loc	19941215	Tritium	12.815	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306300009	Surface loc	19930630	Tritium	12.835	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501030034	Surface loc	19941226	Tritium	12.892	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412150009	Surface loc	19941215	Tritium	12.920	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410130009	Surface loc	19941013	Tritium	13.093	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403010009	Surface loc	19940301	Tritium	13.226	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407250009	Surface loc	19940725	Tritium	13.502	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305130023	Surface loc	19930513	Tritium	13.596	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410110009	Surface loc	19941011	Tritium	13.643	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501030009	Surface loc	19950103	Tritium	13.694	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410310009	Surface loc	19941031	Tritium	13.697	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410120009	Surface loc	19941012	Tritium	13.758	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303220023	Surface loc	19930317	Tritium	13.930	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303220023	Surface loc	19930317	Tritium	13.930	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306080023	Surface loc	19930608	Tritium	14.058	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407190009	Surface loc	19940719	Tritium	14.183	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410190033	Surface loc	19941019	Tritium	14.242	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302030032	Surface loc	19930202	Tritium	14.438	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305100009	Surface loc	19930510	Tritium	14.709	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412120009	Surface loc	19941212	Tritium	15.349	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412120009	Surface loc	19941212	Tritium	15.349	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410040009	Surface loc	19941004	Tritium	15.434	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303090009	Surface loc	19930309	Tritium	15.450	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406230009	Surface loc	19940623	Tritium	15.460	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410190009	Surface loc	19941017	Tritium	15.524	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402150009	Surface loc	19940215	Tritium	15.626	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407070009	Surface loc	19940707	Tritium	15.660	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406210009	Surface loc	19940621	Tritium	15.713	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	

Location_n	Sample_id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_c	Start_dept	End_de	CAS_number	Lab	Data_	Project_co	Media	Collection_r	Comments
D-5	9410190021	Surface loc	19941018	Tritium	15.868	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9311300009	Surface loc	19931130	Tritium	15.933	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306140009	Surface loc	19930614	Tritium	16.141	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411070009	Surface loc	19941107	Tritium	16.319	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410240009	Surface loc	19941024	Tritium	16.578	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9404040009	Surface loc	19940404	Tritium	16.854	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9409270009	Surface loc	19940927	Tritium	16.888	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412080009	Surface loc	19941208	Tritium	17.212	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407270009	Surface loc	19940727	Tritium	17.994	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9501050009	Surface loc	19950105	Tritium	18.004	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306080009	Surface loc	19930607	Tritium	18.030	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407260009	Surface loc	19940726	Tritium	18.261	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303220009	Surface loc	19930318	Tritium	18.450	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305040023	Surface loc	19930504	Tritium	18.799	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303100008	Surface loc	19930310	Tritium	18.964	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412070009	Surface loc	19941207	Tritium	19.273	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406080009	Surface loc	19940608	Tritium	19.660	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306090009	Surface loc	19930609	Tritium	19.781	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412130009	Surface loc	19941213	Tritium	19.857	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412140009	Surface loc	19941214	Tritium	20.043	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303110021	Surface loc	19930311	Tritium	20.154	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9405260009	Surface loc	19940526	Tritium	20.248	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9405260009	Surface loc	19940526	Tritium	20.248	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305200009	Surface loc	19930520	Tritium	20.254	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412190009	Surface loc	19941219	Tritium	20.478	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406300009	Surface loc	19940630	Tritium	20.491	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411220009	Surface loc	19941122	Tritium	20.553	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303100008	Surface loc	19930310	Tritium	20.640	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407060009	Surface loc	19940706	Tritium	20.913	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303080009	Surface loc	19930308	Tritium	21.010	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406300009	Surface loc	19940630	Tritium	21.061	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9404070009	Surface loc	19940407	Tritium	21.100	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302040008	Surface loc	19930204	Tritium	21.323	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9403280009	Surface loc	19940328	Tritium	21.366	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302040008	Surface loc	19930204	Tritium	21.425	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402220009	Surface loc	19940222	Tritium	21.662	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412060009	Surface loc	19941206	Tritium	21.741	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407180009	Surface loc	19940718	Tritium	21.977	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406220025	Surface loc	19940616	Tritium	22.351	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411290009	Surface loc	19941129	Tritium	22.395	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411160009	Surface loc	19941116	Tritium	22.504	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407050009	Surface loc	19940705	Tritium	22.566	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9306100009	Surface loc	19930610	Tritium	22.876	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411230009	Surface loc	19941123	Tritium	23.088	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402100001	Surface loc	19940202	Tritium	23.099	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303040009	Surface loc	19930304	Tritium	23.250	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303170023	Surface loc	19930316	Tritium	23.378	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407130009	Surface loc	19940713	Tritium	24.255	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411280009	Surface loc	19941128	Tritium	24.279	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9404110009	Surface loc	19940411	Tritium	24.279	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406290009	Surface loc	19940629	Tritium	24.718	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402070021	Surface loc	19940201	Tritium	24.822	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302160009	Surface loc	19930216	Tritium	25.188	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411300009	Surface loc	19941130	Tritium	25.424	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407200009	Surface loc	19940720	Tritium	25.548	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406280009	Surface loc	19940628	Tritium	25.722	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406150009	Surface loc	19940615	Tritium	25.840	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410050009	Surface loc	19941005	Tritium	26.124	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406290009	Surface loc	19940629	Tritium	26.201	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411300009	Surface loc	19941130	Tritium	26.294	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302110009	Surface loc	19930210	Tritium	26.761	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407110009	Surface loc	19940711	Tritium	26.852	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9304280009	Surface loc	19930428	Tritium	27.282	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302080008	Surface loc	19930208	Tritium	28.067	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9412050009	Surface loc	19941205	Tritium	28.239	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411170009	Surface loc	19941117	Tritium	28.250	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406220038	Surface loc	19940620	Tritium	28.306	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9404060009	Surface loc	19940406	Tritium	28.490	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407140009	Surface loc	19940714	Tritium	28.789	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305170009	Surface loc	19930517	Tritium	29.114	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303170009	Surface loc	19930315	Tritium	29.346	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305190008	Surface loc	19930519	Tritium	29.419	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9404180009	Surface loc	19940418	Tritium	29.529	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	

Location_n	Sample_id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_c	Start_dept	End_de	CAS_number	Lab_	Data_	Project_co	Media	Collection_r	Comments
D-5	9412010009	Surface loc	19941201	Tritium	29.537	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9405250009	Surface loc	19940525	Tritium	29.725	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406270009	Surface loc	19940627	Tritium	29.942	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410060009	Surface loc	19941006	Tritium	30.449	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406090009	Surface loc	19940609	Tritium	30.557	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302230009	Surface loc	19930223	Tritium	31.080	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9409290009	Surface loc	19940929	Tritium	31.453	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407210009	Surface loc	19940721	Tritium	31.527	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302230009	Surface loc	19930223	Tritium	31.692	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302110021	Surface loc	19930211	Tritium	33.155	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9411210009	Surface loc	19941121	Tritium	33.440	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303020009	Surface loc	19930302	Tritium	34.182	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9210260008	Surface loc	19921026	Tritium	34.486	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410100009	Surface loc	19941010	Tritium	35.120	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303030009	Surface loc	19930303	Tritium	35.215	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305040037	Surface loc	19930429	Tritium	35.267	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410100009	Surface loc	19941010	Tritium	35.319	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9407120009	Surface loc	19940712	Tritium	35.921	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406140009	Surface loc	19940614	Tritium	36.114	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302180009	Surface loc	19930218	Tritium	36.451	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9405190009	Surface loc	19940519	Tritium	36.939	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303010032	Surface loc	19930301	Tritium	37.691	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9304270009	Surface loc	19930427	Tritium	38.332	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9410050009	Surface loc	19941005	Tritium	38.818	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9304270009	Surface loc	19930427	Tritium	38.911	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406060009	Surface loc	19940606	Tritium	41.065	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406010009	Surface loc	19940601	Tritium	41.065	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302170009	Surface loc	19930217	Tritium	41.497	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9304020008	Surface loc	19930323	Tritium	41.650	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9402210009	Surface loc	19940221	Tritium	42.354	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302010019	Surface loc	19930128	Tritium	42.514	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9304260009	Surface loc	19930426	Tritium	43.580	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9408160009	Surface loc	19940816	Tritium	43.916	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9405240009	Surface loc	19940524	Tritium	45.335	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406070009	Surface loc	19940607	Tritium	45.352	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9405240009	Surface loc	19940524	Tritium	45.432	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9212020009	Surface loc	19921202	Tritium	45.758	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303230009	Surface loc	19930322	Tritium	46.504	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9211190009	Surface loc	19921119	Tritium	46.957	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302010031	Surface loc	19930201	Tritium	47.269	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302010031	Surface loc	19930201	Tritium	47.269	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9212020009	Surface loc	19921202	Tritium	47.562	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9405310009	Surface loc	19940531	Tritium	48.653	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9305040009	Surface loc	19930503	Tritium	49.472	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302010007	Surface loc	19930127	Tritium	50.132	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302030008	Surface loc	19930203	Tritium	50.915	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9304220009	Surface loc	19930422	Tritium	52.364	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9212010009	Surface loc	19921201	Tritium	53.126	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302220009	Surface loc	19930222	Tritium	53.742	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9301260007	Surface loc	19930126	Tritium	54.028	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9304210009	Surface loc	19930421	Tritium	54.449	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9210120007	Surface loc	19921012	Tritium	56.018	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9304200009	Surface loc	19930420	Tritium	56.378	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406020009	Surface loc	19940602	Tritium	59.286	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9304190009	Surface loc	19930419	Tritium	59.516	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9304190009	Surface loc	19930419	Tritium	59.516	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9208050009	Surface loc	19920805	Tritium	67.213	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209220023	Surface loc	19920922	Tritium	69.727	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9209220023	Surface loc	19920922	Tritium	70.412	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9301140018	Surface loc	19930113	Tritium	72.774	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9212230009	Surface loc	19921223	Tritium	72.920	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9302150009	Surface loc	19930215	Tritium	74.781	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9405040009	Surface loc	19940504	Tritium	75.068	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9303010008	Surface loc	19930224	Tritium	76.141	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9405030009	Surface loc	19940503	Tritium	77.919	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9405230009	Surface loc	19940523	Tritium	80.417	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9304150009	Surface loc	19930415	Tritium	82.181	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9207160007	Surface loc	19920716	Tritium	83.609	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406060009	Surface loc	19940606	Tritium	83.900	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9301060008	Surface loc	19930106	Tritium	84.214	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9405160009	Surface loc	19940516	Tritium	84.607	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9405120009	Surface loc	19940512	Tritium	86.181	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
D-5	9406130009	Surface loc	19940613	Tritium	89.719	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	

ation_n	Sample_Id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_c	Start_dept	End_de	CAS_number	Lab_	Data_	Project_co	Media	Collection_r	Comments
	9301050008	Surface loc	19930105	Tritium	90.619	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9301050008	Surface loc	19930105	Tritium	91.773	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9406130009	Surface loc	19940613	Tritium	92.100	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9211090008	Surface loc	19921105	Tritium	101.607	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9212080009	Surface loc	19921208	Tritium	104.269	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9207270007	Surface loc	19920727	Tritium	111.162	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9304080019	Surface loc	19930408	Tritium	112.437	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9304080019	Surface loc	19930408	Tritium	112.544	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9405180009	Surface loc	19940518	Tritium	115.751	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9301070008	Surface loc	19930107	Tritium	116.528	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9210190006	Surface loc	19921015	Tritium	129.465	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9211230009	Surface loc	19921123	Tritium	137.682	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9212030009	Surface loc	19921203	Tritium	139.087	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9405020035	Surface loc	19940502	Tritium	139.100	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9405020009	Surface loc	19940427	Tritium	139.955	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9301040020	Surface loc	19921225	Tritium	140.342	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9211240009	Surface loc	19921124	Tritium	146.290	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9212090009	Surface loc	19921209	Tritium	146.616	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9208040007	Surface loc	19920804	Tritium	156.122	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9304120009	Surface loc	19930412	Tritium	156.980	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9405020023	Surface loc	19940428	Tritium	163.634	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9210140017	Surface loc	19921008	Tritium	164.417	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9405110009	Surface loc	19940511	Tritium	167.183	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9404190009	Surface loc	19940419	Tritium	170.601	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9404190009	Surface loc	19940419	Tritium	172.211	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9212220009	Surface loc	19921222	Tritium	175.015	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9405190009	Surface loc	19940519	Tritium	175.511	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9207210008	Surface loc	19920721	Tritium	177.493	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9207200009	Surface loc	19920720	Tritium	177.947	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9301120008	Surface loc	19930112	Tritium	186.275	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9207300009	Surface loc	19920730	Tritium	187.853	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9207280008	Surface loc	19920728	Tritium	195.226	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9207280008	Surface loc	19920728	Tritium	195.915	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9212150009	Surface loc	19921215	Tritium	201.925	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9209280009	Surface loc	19920928	Tritium	208.154	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9304130009	Surface loc	19930413	Tritium	214.763	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9207290009	Surface loc	19920729	Tritium	217.539	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9207220008	Surface loc	19920722	Tritium	219.760	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9211250009	Surface loc	19921125	Tritium	224.216	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9212100009	Surface loc	19921210	Tritium	233.219	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9405100009	Surface loc	19940510	Tritium	249.555	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9405100009	Surface loc	19940510	Tritium	249.555	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9208030009	Surface loc	19920803	Tritium	256.425	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9405050009	Surface loc	19940505	Tritium	261.212	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9304140009	Surface loc	19930414	Tritium	262.014	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9212160009	Surface loc	19921216	Tritium	264.491	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9405050009	Surface loc	19940505	Tritium	265.852	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9301040032	Surface loc	19921228	Tritium	278.903	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9301110008	Surface loc	19930111	Tritium	287.910	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9211300009	Surface loc	19921130	Tritium	301.144	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9212140009	Surface loc	19921214	Tritium	302.265	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9404260009	Surface loc	19940426	Tritium	333.546	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9208030024	Surface loc	19920723	Tritium	362.581	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9301040008	Surface loc	19930104	Tritium	367.340	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9301040044	Surface loc	19921230	Tritium	371.881	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9212070009	Surface loc	19921207	Tritium	376.877	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9301040057	Surface loc	19930102	Tritium	418.086	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9212210009	Surface loc	19921221	Tritium	435.664	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9209300008	Surface loc	19920929	Tritium	462.050	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9209300020	Surface loc	19920930	Tritium	536.981	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9405090009	Surface loc	19940509	Tritium	576.206	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9404250009	Surface loc	19940425	Tritium	1163.424	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9404210009	Surface loc	19940421	Tritium	1171.916	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
	9404200009	Surface loc	19940420	Tritium	2458.234	PCI/L		RAD	0.0	0.0	10028-17-8			MWS	Groundwate	Unknown	
)17-80(	8005-5001	Borehole	19950727	Antimony	21.117	MG/KG		INORG	0.0	0.5	7440-36-0			MND17	Soil	Split spoon	
)17-80(	8005-5001	Borehole	19950727	Arsenic	9.052	MG/KG	100.000	INORG	0.0	0.5	7440-38-2			MND17	Soil	Split spoon	2-Exceeds background value.
)17-80(	8005-5001	Borehole	19950727	Barium	124.670	MG/KG	#######	INORG	0.0	0.5	7440-39-3			MND17	Soil	Split spoon	
)17-80(	8005-5001	Borehole	19950727	Cadmium	-31.226	MG/KG	20.000	INORG	0.0	0.5	7440-43-9			MND17	Soil	Split spoon	
)17-80(	8005-5001	Borehole	19950727	Calcium	216227.000	MG/KG		INORG	0.0	0.5	7440-70-2			MND17	Soil	Split spoon	
)17-80(	8005-5001	Borehole	19950727	Chromium-HI	-669.800	MG/KG	100.000	INORG	0.0	0.5	7440-47-3HI			MND17	Soil	Split spoon	
)17-80(	8005-5001	Borehole	19950727	Chromium-LO	-123.820	MG/KG		INORG	0.0	0.5	7440-47-3LO			MND17	Soil	Split spoon	
)17-80(	8005-5001	Borehole	19950727	Cobalt	79.500	MG/KG		INORG	0.0	0.5	7440-48-4			MND17	Soil	Split spoon	2-Exceeds background value.
)17-80(	8005-5001	Borehole	19950727	Copper	92.262	MG/KG		INORG	0.0	0.5	7440-50-8			MND17	Soil	Split spoon	2-Exceeds background value.

Location_n	Sample_id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_c	Start_dept	End_de	CAS_number	Lab_	Data_	Project_co	Media	Collection_r	Comments
MND17-80	8005-5001	Borehole	19950727	Iron	11062.000	MG/KG		INORG	0.0	0.5	7439-89-6			MND17	Soil	Split spoon	
MND17-80	8005-5001	Borehole	19950727	Lead	9.957	MG/KG	100.000	INORG	0.0	0.5	7439-92-1			MND17	Soil	Split spoon	
MND17-80	8005-5001	Borehole	19950727	Manganese	165.480	MG/KG		INORG	0.0	0.5	7439-96-5			MND17	Soil	Split spoon	
MND17-80	8005-5001	Borehole	19950727	Mercury	**3.800**	MG/KG	4.000	INORG	0.0	0.5	7439-97-6			MND17	Soil	Split spoon	2-Exceeds background value.
MND17-80	8005-5001	Borehole	19950727	Molybdenum	2.436	MG/KG		INORG	0.0	0.5	7439-98-7			MND17	Soil	Split spoon	
MND17-80	8005-5001	Borehole	19950727	Nickel	-10.237	MG/KG		INORG	0.0	0.5	7440-02-0			MND17	Soil	Split spoon	
MND17-80	8005-5001	Borehole	19950727	Potassium	**3434.400**	MG/KG		INORG	0.0	0.5	7440-09-7			MND17	Soil	Split spoon	2-Exceeds background value.
MND17-80	8005-5001	Borehole	19950727	Rubidium	9.131	MG/KG		INORG	0.0	0.5	7440-17-7			MND17	Soil	Split spoon	
MND17-80	8005-5001	Borehole	19950727	Selenium	**16.953**	MG/KG	20.000	INORG	0.0	0.5	7782-49-2			MND17	Soil	Split spoon	2-Exceeds background value.
MND17-80	8005-5001	Borehole	19950727	Silver	**56.621**	MG/KG	100.000	INORG	0.0	0.5	7440-22-4			MND17	Soil	Split spoon	2-Exceeds background value.
MND17-80	8005-5001	Borehole	19950727	Strontium	198.670	MG/KG		INORG	0.0	0.5	7440-24-6			MND17	Soil	Split spoon	
MND17-80	8005-5001	Borehole	19950727	Tin	-52.423	MG/KG		INORG	0.0	0.5	7440-31-5			MND17	Soil	Split spoon	
MND17-80	8005-5001	Borehole	19950727	Titanium	846.620	MG/KG		INORG	0.0	0.5	7440-32-6			MND17	Soil	Split spoon	
MND17-80	8005-5001	Borehole	19950727	Zinc	**161.410**	MG/KG		INORG	0.0	0.5	7440-66-6			MND17	Soil	Split spoon	2-Exceeds background value.
MND17-80	8005-5001	Borehole	19950727	Zirconium	66.130	MG/KG		INORG	0.0	0.5	7440-67-7			MND17	Soil	Split spoon	
P008	19860924P008	Surface loc	19860924	Tritium	4141.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861031P008	Surface loc	19861031	Tritium	5092.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861103P008	Surface loc	19861103	Tritium	6244.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861006P008	Surface loc	19861006	Tritium	6265.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861029P008	Surface loc	19861029	Tritium	7100.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861117P008	Surface loc	19861117	Tritium	7390.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861112P008	Surface loc	19861112	Tritium	7391.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861105P008	Surface loc	19861105	Tritium	7447.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861110P008	Surface loc	19861110	Tritium	7735.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861003P008	Surface loc	19861003	Tritium	7815.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861010P008	Surface loc	19861010	Tritium	8430.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19860825P008	Surface loc	19860825	Tritium	8742.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861114P008	Surface loc	19861114	Tritium	8970.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19860929P008	Surface loc	19860929	Tritium	9281.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861001P008	Surface loc	19861001	Tritium	9556.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19861008P008	Surface loc	19861008	Tritium	10670.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19860926P008	Surface loc	19860926	Tritium	10919.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19860905P008	Surface loc	19860905	Tritium	11398.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19860903P008	Surface loc	19860903	Tritium	11734.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19860820P008	Surface loc	19860820	Tritium	12118.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19860922P008	Surface loc	19860922	Tritium	14412.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19860827P008	Surface loc	19860827	Tritium	15174.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19860822P008	Surface loc	19860822	Tritium	16320.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P008	19860818P008	Surface loc	19860818	Tritium	18483.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19900615P009	Surface loc	19900615	Tritium	0.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19900614P009	Surface loc	19900614	Tritium	0.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19900622P009	Surface loc	19900622	Tritium	118.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19900626P009	Surface loc	19900626	Tritium	142.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19900621P009	Surface loc	19900621	Tritium	175.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19900625P009	Surface loc	19900625	Tritium	264.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19890706P009	Surface loc	19890706	Tritium	1392.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19890712P009	Surface loc	19890712	Tritium	1602.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19890710P009	Surface loc	19890710	Tritium	1737.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19890717P009	Surface loc	19890717	Tritium	2086.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19890713P009	Surface loc	19890713	Tritium	2129.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19890522P009	Surface loc	19890522	Tritium	2453.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19890724P009	Surface loc	19890724	Tritium	2520.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19890418P009	Surface loc	19890418	Tritium	2762.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19890414P009	Surface loc	19890414	Tritium	2774.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19890406P009	Surface loc	19890406	Tritium	2807.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19890602P009	Surface loc	19890602	Tritium	2840.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19890413P009	Surface loc	19890413	Tritium	2947.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19860827P009	Surface loc	19860827	Tritium	9178.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19861008P009	Surface loc	19861008	Tritium	9673.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19861006P009	Surface loc	19861006	Tritium	9799.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19861003P009	Surface loc	19861003	Tritium	10180.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19861010P009	Surface loc	19861010	Tritium	10441.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19861110P009	Surface loc	19861110	Tritium	10864.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19861029P009	Surface loc	19861029	Tritium	10866.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19861114P009	Surface loc	19861114	Tritium	11510.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19860929P009	Surface loc	19860929	Tritium	12652.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19861105P009	Surface loc	19861105	Tritium	13952.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19860926P009	Surface loc	19860926	Tritium	17002.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P009	19861117P009	Surface loc	19861117	Tritium	**21505.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.
P009	19860903P009	Surface loc	19860903	Tritium	**22292.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.
P009	19861031P009	Surface loc	19861031	Tritium	**22642.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.
P009	19861112P009	Surface loc	19861112	Tritium	**25402.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.
P009	19860905P009	Surface loc	19860905	Tritium	**26660.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.

Location_n	Sample_id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_cl	Start_dept	End_de	CAS_number	Lab_	Data_	Project_co	Media	Collection_r	Comments
P009	19861001P009	Surface loc	19861001	Tritium	28925.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.
P009	19860924P009	Surface loc	19860924	Tritium	48746.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.
P009	19861103P009	Surface loc	19861103	Tritium	84668.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.
P009	19860922P009	Surface loc	19860922	Tritium	134012.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.
P009	19860825P009	Surface loc	19860825	Tritium	148165.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.
P009	19860818P009	Surface loc	19860818	Tritium	206084.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.
P009	19860820P009	Surface loc	19860820	Tritium	256188.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.
P009	19860822P009	Surface loc	19860822	Tritium	257486.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		4-Exceeds MCL.
P010	19861009P010	Surface loc	19861009	Tritium	613.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P010	19861010P010	Surface loc	19861010	Tritium	1733.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P010	19861112P010	Surface loc	19861112	Tritium	1932.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P010	19861117P010	Surface loc	19861117	Tritium	2104.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P010	19861114P010	Surface loc	19861114	Tritium	2432.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P010	19861105P010	Surface loc	19861105	Tritium	2751.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P010	19861110P010	Surface loc	19861110	Tritium	2858.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P010	19861031P010	Surface loc	19861031	Tritium	3094.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P010	19861029P010	Surface loc	19861029	Tritium	3445.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
P010	19861103P010	Surface loc	19861103	Tritium	4654.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Groundwater		
SCR131	9311161-M3	Borehole	19931116	Plutonium-238	25.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value.
SCR131	93111092	Borehole	19931110	Plutonium-238	25.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value.
SCR131	9311125-M	Borehole	19931111	Plutonium-238	25.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value.
SCR131	9311167	Borehole	19931116	Plutonium-238	26.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	93111219	Borehole	19931112	Plutonium-238	26.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	9311161-M1	Borehole	19931116	Plutonium-238	26.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	9311164-M5	Borehole	19931116	Plutonium-238	26.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	9311169	Borehole	19931116	Plutonium-238	26.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	9311124-M	Borehole	19931111	Plutonium-238	27.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	93111518	Borehole	19931115	Plutonium-238	27.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	93111140	Borehole	19931111	Plutonium-238	27.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	9311168	Borehole	19931116	Plutonium-238	28.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	9311126	Borehole	19931111	Plutonium-238	28.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	93111520	Borehole	19931115	Plutonium-238	28.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	93111519	Borehole	19931115	Plutonium-238	28.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	93111220	Borehole	19931112	Plutonium-238	29.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	9311155-M1	Borehole	19931115	Plutonium-238	30.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	9311162-M2	Borehole	19931116	Plutonium-238	31.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	93111515	Borehole	19931115	Plutonium-238	34.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	9311123-M	Borehole	19931111	Plutonium-238	34.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR131	93111141	Borehole	19931111	Plutonium-238	35.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR132	88022529	Borehole	19880224	Plutonium-238	25.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value.
SCR132	88022546	Borehole	19880224	Plutonium-238	26.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR132	88022534	Borehole	19880224	Plutonium-238	30.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR132	88022531	Borehole	19880224	Plutonium-238	32.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR132	88022548	Borehole	19880224	Plutonium-238	33.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR132	88022545	Borehole	19880224	Plutonium-238	33.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR132	88022528	Borehole	19880224	Plutonium-238	33.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR132	88022550	Borehole	19880224	Plutonium-238	34.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR132	88022533	Borehole	19880224	Plutonium-238	79.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR132	88022533	Borehole	19880224	Thorium-232	3.100	PCI/G		RAD	0.0	0.0	7440-29-1			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	8802256	Borehole	19880224	Plutonium-238	26.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	8802255	Borehole	19880224	Plutonium-238	26.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	8802251	Borehole	19880224	Plutonium-238	27.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	88022523	Borehole	19880224	Plutonium-238	28.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	88022517	Borehole	19880224	Plutonium-238	31.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	88022525	Borehole	19880224	Plutonium-238	35.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	88022511	Borehole	19880224	Plutonium-238	37.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	8802253	Borehole	19880224	Plutonium-238	74.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	8802253	Borehole	19880224	Thorium-232	2.200	PCI/G		RAD	0.0	0.0	7440-29-1			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value.
SCR159	90072559	Borehole	19900725	Plutonium-238	26.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR159	90072554	Borehole	19900725	Plutonium-238	27.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR159	90072555	Borehole	19900725	Plutonium-238	29.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR159	90072560	Borehole	19900725	Plutonium-238	30.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR159	90072561	Borehole	19900725	Plutonium-238	31.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR159	90072557	Borehole	19900725	Plutonium-238	225.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR161	9312024-Q	Borehole	19931202	Plutonium-238	26.000	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
ZST1	19871121ZST1	Surface loc	19871121	Tritium	2757.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871114ZST1	Surface loc	19871114	Tritium	2935.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871206ZST1	Surface loc	19871206	Tritium	3149.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871113ZST1	Surface loc	19871113	Tritium	3254.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871205ZST1	Surface loc	19871205	Tritium	3321.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871115ZST1	Surface loc	19871115	Tritium	4411.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871124ZST1	Surface loc	19871124	Tritium	4794.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871122ZST1	Surface loc	19871122	Tritium	5601.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		

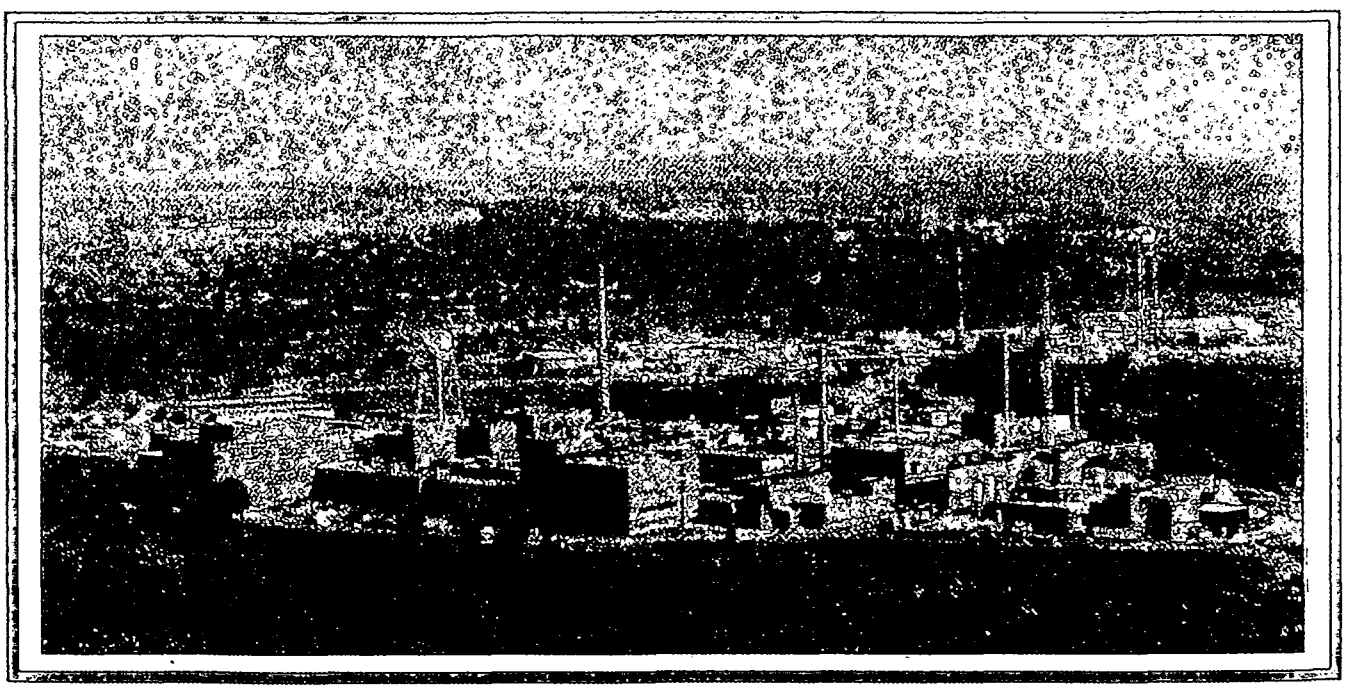
Location_n	Sample_id	Location_ty	Collection_d	Value_name	Measured_value	Value_unit	Detection	Chem_c	Start_dept	End_de	CAS_number	Lab_	Data_	Project_co	Media	Collection_r	Comments
ZST1	19871129ZST1	Surface loc	19871129	Tritium	5620.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871127ZST1	Surface loc	19871127	Tritium	5747.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871128ZST1	Surface loc	19871128	Tritium	6002.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871118ZST1	Surface loc	19871118	Tritium	7089.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871117ZST1	Surface loc	19871117	Tritium	7557.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871125ZST1	Surface loc	19871125	Tritium	15286.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871111ZST1	Surface loc	19871111	Tritium	19451.000	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		
ZST1	19871204ZST1	Surface loc	19871204	Tritium	**33164.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.
ZST1	19871207ZST1	Surface loc	19871207	Tritium	**57578.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.
ZST1	19871112ZST1	Surface loc	19871112	Tritium	**62761.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.
ZST1	19871120ZST1	Surface loc	19871120	Tritium	**80201.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.
ZST1	19871130ZST1	Surface loc	19871130	Tritium	**100542.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.
ZST1	19871209ZST1	Surface loc	19871209	Tritium	**116113.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.
ZST1	19871119ZST1	Surface loc	19871119	Tritium	**155950.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.
ZST1	19871116ZST1	Surface loc	19871116	Tritium	**159150.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.
ZST1	19871208ZST1	Surface loc	19871208	Tritium	**162727.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.
ZST1	19871201ZST1	Surface loc	19871201	Tritium	**241232.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.
ZST1	19871203ZST1	Surface loc	19871203	Tritium	**241280.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.
ZST1	19871123ZST1	Surface loc	19871123	Tritium	**297348.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.
ZST1	19871202ZST1	Surface loc	19871202	Tritium	**324996.000**	PCI/L		RAD	0.0	0.0	10028-17-8			SPRFLG	Surface Water		4-Exceeds MCL.

Reference H

MOUND

Environmental
Restoration
Program

MOUND PLANT
Potential Release Site Package
PRS #124



PRS 124

REV	DESCRIPTION	DATE
WORKING DRAFT		Apr. 11, 2001
DRAFT	DOE / BWXTO review of Working Draft on April 16, 2001. Distribute for Core Team evaluation (binning) in May 2001.	Apr. 16, 2001
DRAFT PROPOSED FINAL		
PUBLIC REVIEW DRAFT		
FINAL		

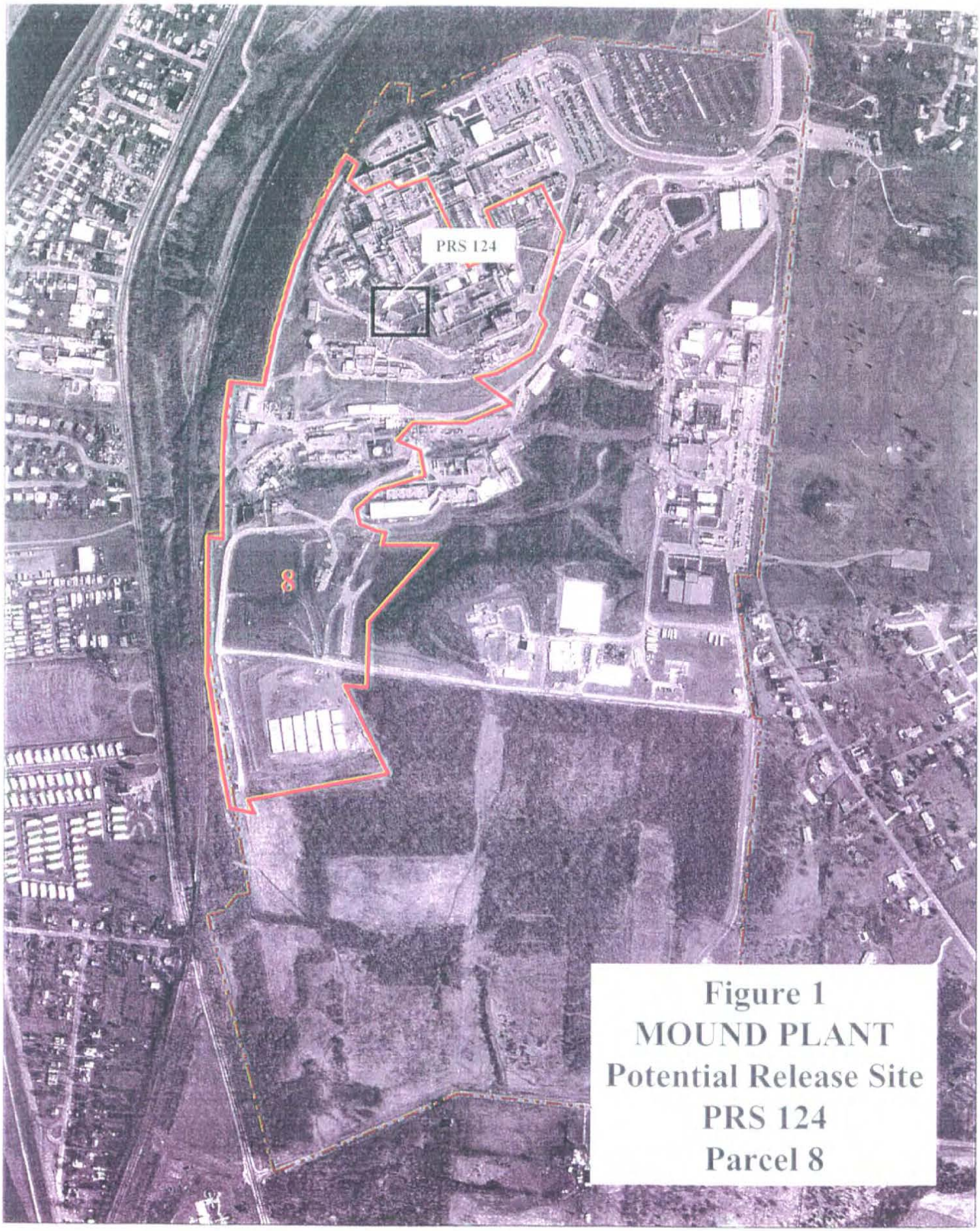


Figure 1
MOUND PLANT
Potential Release Site
PRS 124
Parcel 8

MOUND PLANT
PRS 124

Building 48 Hillside

RECOMMENDATION:

CONCURRENCE:

DOE/MEMP: _____
Robert S. Rothman, Remedial Project Manager (date)

USEPA: _____
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: _____
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES

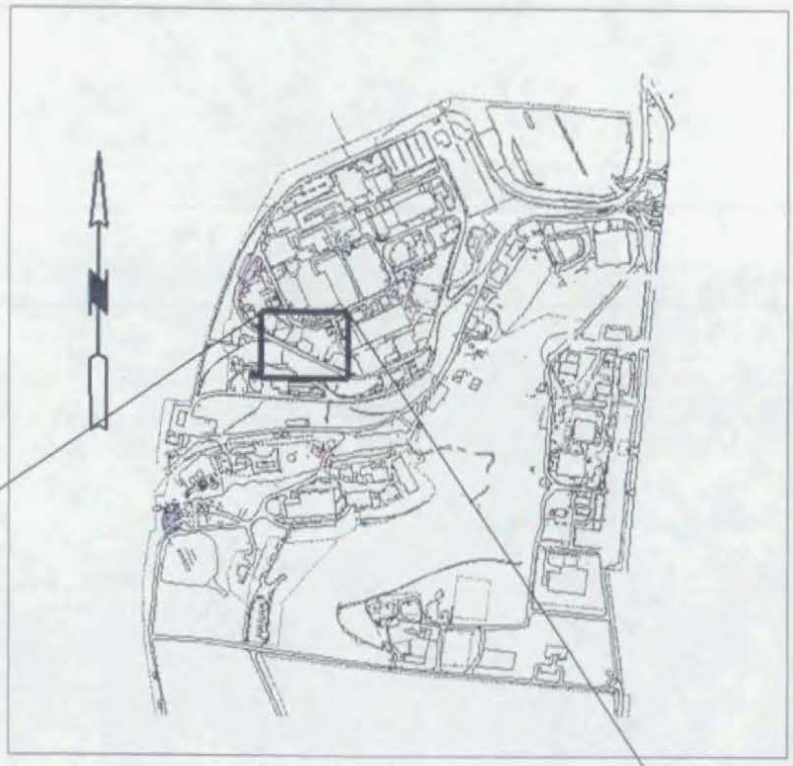
Comment period from _____ to _____

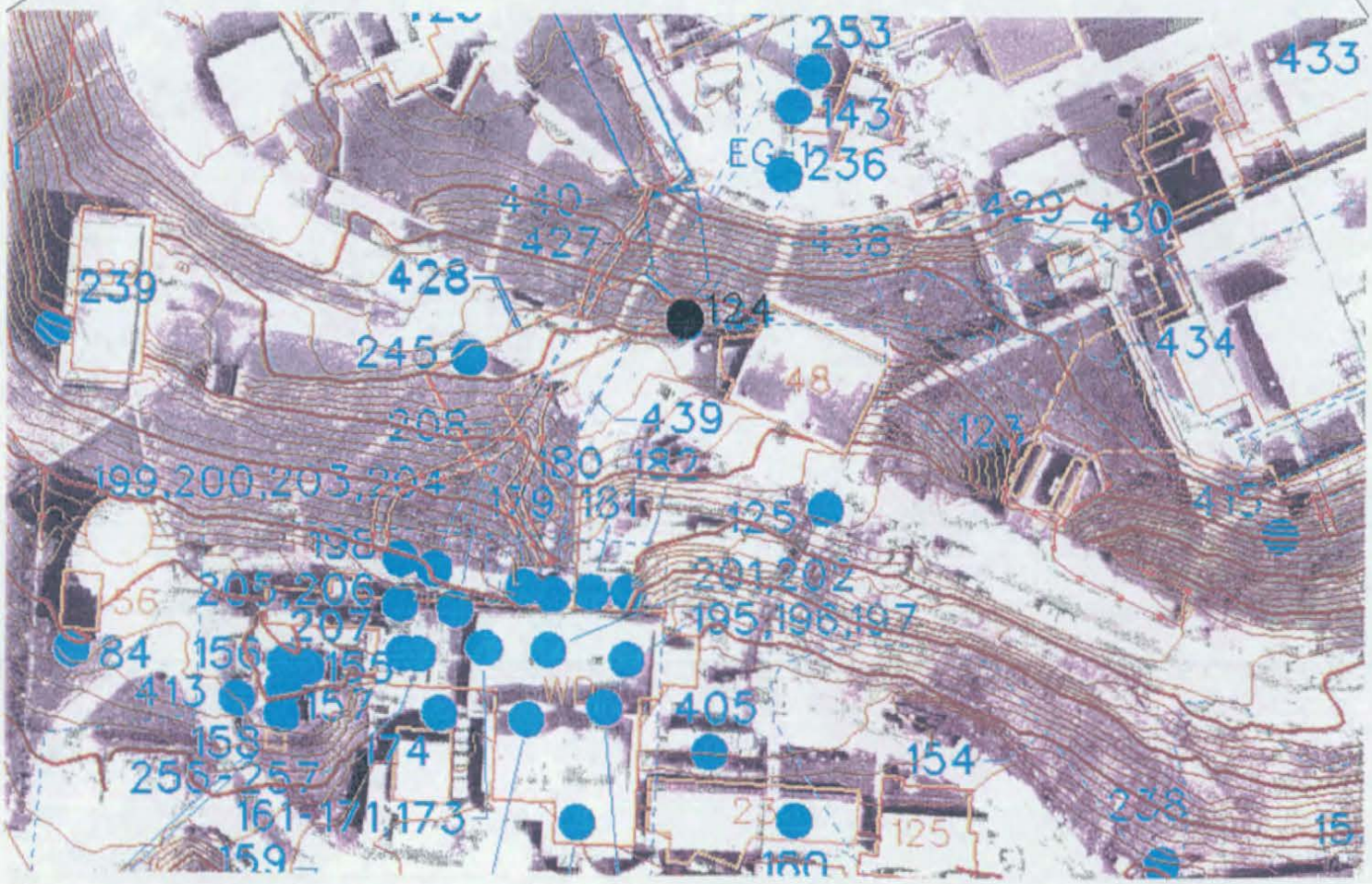
___ No comments were received during the comment period.

___ Comment responses can be found on page _____ of this package.

Figure 2
Mound Plant
PRS 124
Building 48 Hillside

On the map below:
- PRS number and location shown in black
- Fencing shown in red
- Elevation contours shown in brown
- Other PRS's shown in blue





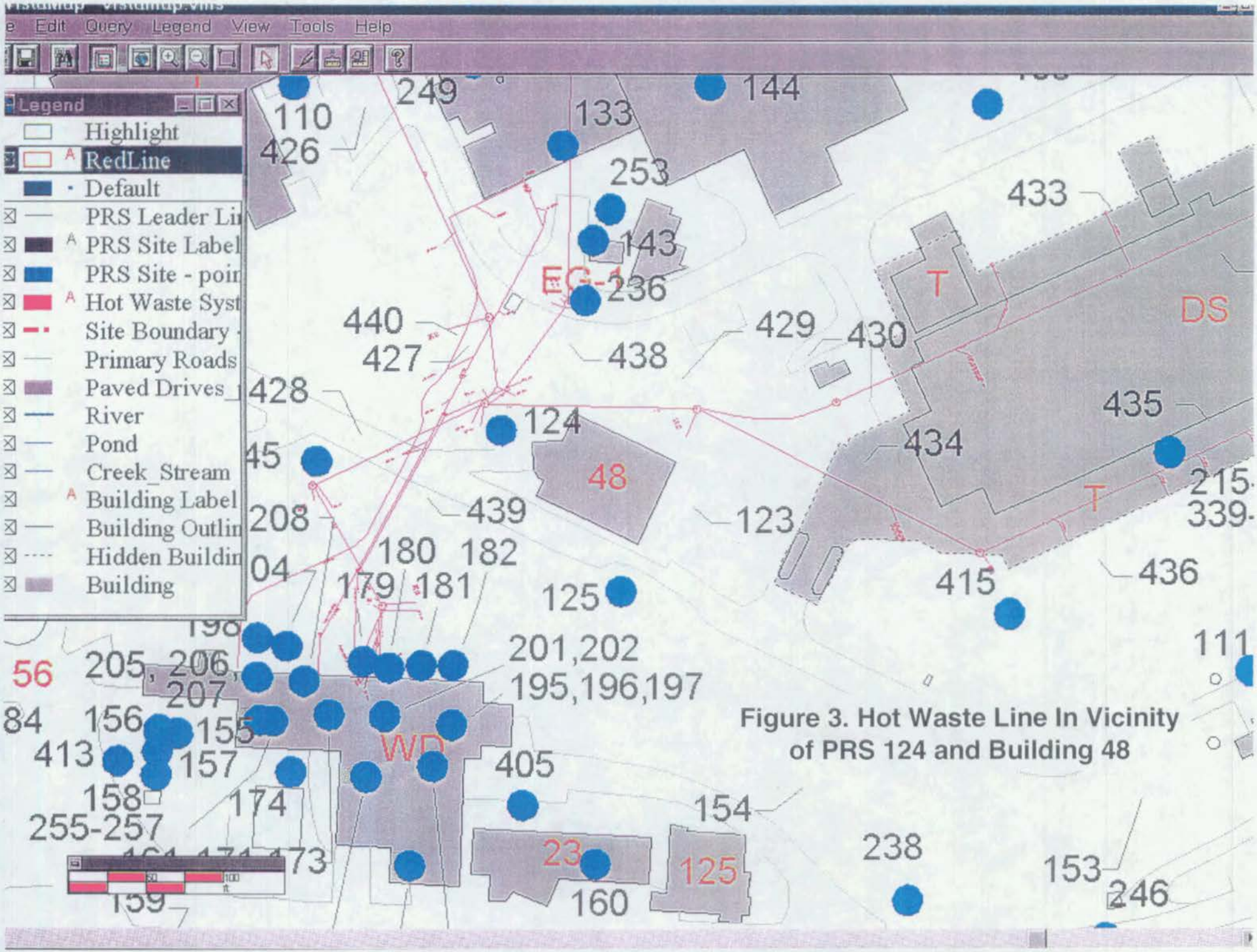


Figure 3. Hot Waste Line In Vicinity of PRS 124 and Building 48

Figure 4
Building 48 Hillside

PRS 124

PRS HISTORY:

The document, Operable Unit 9, Site Scoping Report: Volume 12 - Site Summary Report [1], identifies PRS 124 as the Mound Plant *Building 48 Hillside.* This reference also declares that plutonium-238 in soil is the suspected contaminant of concern. GIS [2] mapping / sampling information indicates that the area of concern is located adjacent to a radiological process line manhole northwest of Building 48. Several Main Hill radiological process waste lines join near this location and continue to the Waste Disposal (WD) Building. Note Figure 3 and also Reference 3. This reference declares that "The contamination encountered at the Building 48 hillside is attributed to a release of 7.64 mCi of plutonium-238 in November 1967." It is also noted that the incident is documented in the Site Scoping Report, Volume 11: Spills and Response Actions [4].

BACKGROUND:

On November 9, 1967, 1500 - 2000 gallons of low-level radioactive wastewater was accidentally released during waste line repair[4]. Soil sampling accomplished in support of a construction project (Circa 1986) indicated plutonium-238 concentrations as high as 32 nCi/g. These concentrations required that the construction project be abandoned. Construction borings were backfilled and contamination was left in place for future D&D activities [3].

CONTAMINATION:

Table 1: Soil Analysis Report, Soils Identified With PRS 124[2]

Contaminant	Maximum Level (pCi/g)	Guideline Value (10^{-6}) (pCi/g)	Background Value (pCi/g)
Plutonium 238 (SCR191)	2902.0	55.0 (10^{-5})	0.13
Plutonium 238 (SCR159)	225.0	55.0 (10^{-5})	0.13
Plutonium 238 (SCR155)	74.0	55.0 (10^{-5})	0.13
Thorium 230 (MND17-5001)	5.23	0.13	1.90
Thorium 232 (SCR191)	182.2	0.11	1.40
Thorium 232 (SCR155)	2.20	0.11	1.40

READING ROOM REFERENCES:

1) Operable Unit 9, Site Scoping Report: Volume 12 - Site Summary Report, December 1994

3) Operable Unit 9, Site Scoping Report: Volume 3 - Radiological Site Survey, June 1993

4) Operable Unit 9, Site Scoping Report: Volume 11 - Spills and Response Actions, March 1992

OTHER REFERENCES:

2) GIS Mapping / Sampling Information

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CONTRIBUTORS:

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Richard Neff, Department of Energy / MEMP

REFERENCE MATERIAL FOR PRS 124

Reference 1

DOE/OR/21548-1212
Classification Code
Accession No.

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

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
118	M Building Soils	E-7	Grounds	Copper cyanide, Silver cyanide Machine oils, Solvents	4	Oils, Copper cyanide, Silver cyanide	S	10	1 14	SGS[b] Table B.4 Locations 1050, 1051, 1062 Table B.9 RSS[c] Locations S0162, S0163, S0252 (Appendix E in Ref. 6)	12 6
119	Room M-38 Metal Plating Rinse Water Sump (Tank 226)	E-7	Surplus	Rinse waters from metal plating operations. Possible contaminants include nickel, cadmium, silver, gold, manganese, cyanide, and aluminum. Sodium hydroxide solution Potassium permanganate	3, 4	None Suspected			No Data		
120	Room M-108 Metal Plating Rinse Water Tank (Tank 119)	E-7	In service	Rinse waters from metal plating operations. copper, gold, silver, nickel, aluminum, and uranium	3, 4	Silver cyanide	SW	10	No Data		
121	Vapor Degreasers	E-7	In service	Perclene D (perchloroethylene)	4, 5, 18	None Suspected			No Data		
122	Underground Radioactive Waste Lines (Main Hill)	E-6 F-6	Inactive	Alpha wastes from SW Bldg., R Bldg., and H Bldg. Wastewater from B Building Plutonium-238, Cobalt-60	4, 18	Suspected	S	4, 10	No Data		
123	Area 5, Radioactive Waste Line Break	F-6 F-7	Grounds	Cobalt-60, Cesium-137, Plutonium-238	1, 5, 18	Cobalt-60	S	1, 18	2, 14, 16	Table B.1 (Table III.3 in Ref. 6)	6
124	Building 48 Hillside	F-6	Inactive	Plutonium-238		Plutonium-238	S	6	14	Table B.1	6
125	Underground Sanitary Sewer Line G24	F-6	In service	Organic solvents, Plating Solutions, Laboratory chemicals, Nitric acid, Hydrochloric acid, Methylene chloride, Strong acids and bases		Suspected	S	5, 18	3, 4, 5, 6, 14, 16	Tables B.6, B.7, and B.8	7
126	Building 28 Solvent Storage Area	E-8	Grounds	Organic solvents (including alcohol, methylene chloride, and acetone)	4, 5, 9, 18	Suspected	S	4	1	SGS[b] Table B.4 Location 1054	12

Scoping Report
Vol. 12

Table A.1

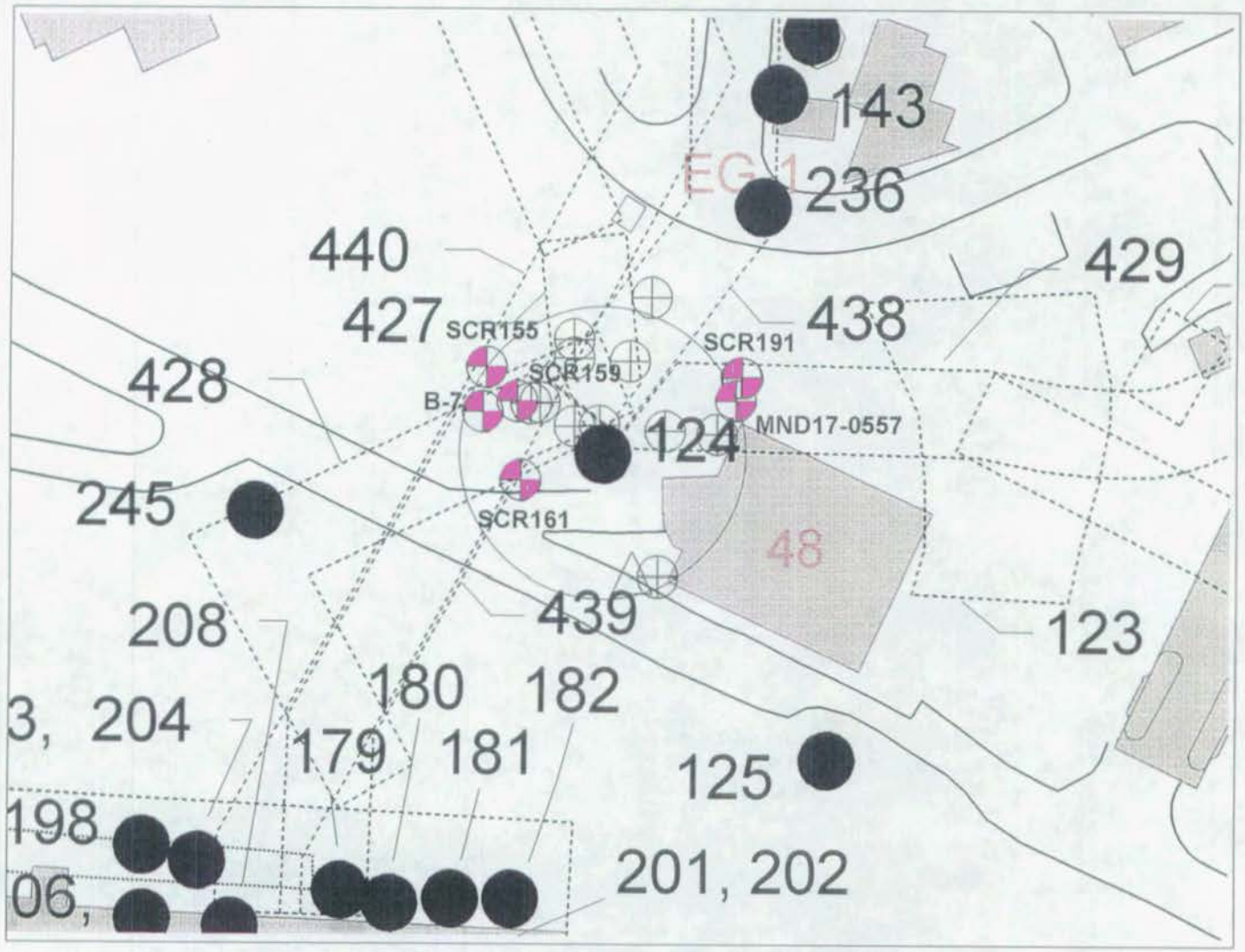
1 - Soil Gas Survey - Freon 11, Freon 113, Trans-1,2-Dichloroethylene, Cis-1,2-Dichloroethylene, 1,1,1-Trichloroethane, Perchloroethylene, Trichloroethylene, Toluene
2 - Gamma Spectroscopy - Thorium-228, -230, Cobalt-60, Cesium-137, Radium-224, -226, -228, Americium-241, Actinium-227, Bismuth-207, Bismuth-210m, Potassium-40
3 - Target Analyte List
4 - Target Compound List (VOC)
5 - Target Compound List (SVOC)
6 - Target Compound List (Pesticides/Polychlorinated Biphenyl)
7 - Dioxins/Furans
8 - Extractable Petroleum Hydrocarbons (EPH)/Total Petroleum Hydrocarbons (TPH)
9 - Lithium
10 - Nitrate/Nitrite
11 - Chloride
12 - Explosives
13 - Plutonium-238
14 - Plutonium-238, Thorium-232
15 - Cobalt-60, Cesium-137, Radium-226, Americium-241
16 - Tritium

Reference List

1. DOE 1986 "Phase I: Installation Assessment Mound [DRAFT]."
2. DOE 1992a "Remedial Investigation/Feasibility Study, Operable Unit 9, Site-Wide Work Plan (Final)."
3. DOE 1992c "Mound Plant Underground Storage Tank Program Plan & Regulatory Status Review (Final)."
4. DOE 1993a "Site Scoping Report: Vol. 7 - Waste Management (FINAL)."
5. EPA 1988a "Preliminary Review/Visual Site Inspection for RCRA Facility Assessment of Mound Plant"
6. DOE 1993d "Operable Unit 9, Site Scping Report: Vol. 3 - Radiological Site Survey (FINAL)."
7. DOE 1993c "Operable Unit 3, Misc. Sites Limited Field Investigation Report."
8. DOE 1992d "Reconnaissance Sampling Report Decontamination & Decommissioning Areas, OU6, (FINAL)."
9. Fentiman 1990 "Characterization of Mound's Hazardous, Radioactive and Mixed Wastes."
10. DOE 1992f "Operable Unit 9, Site Scpoing Report: Vol. 9 - Spills and Response Actions (FINAL)."
11. Styron and Meyer 1981"Potable Water Standards Project: Final Report."
12. DOE 1993b "Reconnaissance Sampling Report - Soil Gas Survey & Geophysical Investigations, Mound Plant Main Hill and SM/PP Hill (FINAL)."
13. DOE 1993d "Operable Unit 9, Site Scoping Report: Vol. 3 - Radiological Site Survey (FINAL)."
14. DOE 1991b "Main Hill Seeps, Operable Unit 2, On-Scene Coordinator Report for CERCLA Section 104 Remedial Action, West Powerhouse PCB Site."
15. Halford 1990 "Results of South Pond Sampling."
16. DOE 1993e "Operable Unit 4, Special Canal Sampling Report, Miami Erie Canal."
17. DOE 1990 "Preliminary Results of Reconnaissance Magnetic Survey of Mound Plant Areas 2, 6, 7, and C."
18. DOE 1992a "Remedial Investigation/Feasibility Study, Operable Unit 9, Site-Wide Work Plan (FINAL)."
19. Rogers 1975 "Mound Laboratory Environmental Plutonium Study, 1974."
20. DOE 1992h "Ground Water and Seep Water Quality Data Report Through First Quarter, FY92."
21. Dames and Moore 1976a, b "Potable Water Standards Project Mound Laboratory" and "Evaluation of the Buried Valley Aquifer Adjacent to Mound Laboratory."
22. DOE 1992i "Closure Report, Building 34 - Aviation Fuel Storage Tank."
23. DOE 1992j "Closure Report, Building 51 - Waste Storage Tank."
24. DOE 1994 "Operable Unit 1, Remedial Investigation Report."
25. EG&G 1994 "Active Underground Storage Tank Plan."

Reference 2

PRS 124 Sample Locations
Plutonium and Thorium Detects



20 0 20 40 60 80 100 120 140 160 Feet

N
W E
S

Location_name	Sample_id	Location_typ	Collection_d	Value_name	Measured	Value_unit	Detectio	Chem_cl	Start_de	End_dep	CAS_number	Lab_q	Data_	Project_code	Media	Collection_m	Comments
MND17-0557	0557-5001	Borehole	19950822	Thorium-230	5.23	PCI/G		RAD	0.0	0.5	14269-63-7			MND17	Soil	Split spoon	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
MND17-0557	0557-5001	Borehole	19950822	Thorium-232	0.25	PCI/G		RAD	0.0	0.5	7440-29-1			MND17	Soil	Split spoon	
MND17-0557	0557-5004	Borehole	19950823	Thorium-232	0.69	PCI/G		RAD	0.5	4.0	7440-29-1			MND17	Soil	Split spoon	
MND17-0557	0557-5008	Borehole	19950823	Thorium-232	0.72	PCI/G		RAD	4.0	8.0	7440-29-1			MND17	Soil	Split spoon	
SCR191	8802151	Borehole	19880215	Plutonium-238	2902.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR191	8802151	Borehole	19880215	Thorium-232	182.20	PCI/G		RAD	0.0	0.0	7440-29-1			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR191	8802154	Borehole	19880215	Plutonium-238	1279.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR191	8802154	Borehole	19880215	Thorium-232	59.90	PCI/G		RAD	0.0	0.0	7440-29-1			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR191	8802152	Borehole	19880215	Plutonium-238	1118.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR191	8802152	Borehole	19880215	Thorium-232	106.90	PCI/G		RAD	0.0	0.0	7440-29-1			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR191	8802155	Borehole	19880215	Plutonium-238	195.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR191	8802155	Borehole	19880215	Thorium-232	8.20	PCI/G		RAD	0.0	0.0	7440-29-1			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR191	8802153	Borehole	19880215	Plutonium-238	39.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR191	8802153	Borehole	19880215	Thorium-232	2.80	PCI/G		RAD	0.0	0.0	7440-29-1			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR161	9312024-Q	Borehole	19931202	Plutonium-238	26.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value.
SCR159	90072559	Borehole	19900725	Plutonium-238	26.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR159	90072555	Borehole	19900725	Plutonium-238	29.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR159	90072560	Borehole	19900725	Plutonium-238	30.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR159	90072557	Borehole	19900725	Plutonium-238	225.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR159	90072561	Borehole	19900725	Plutonium-238	31.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR159	90072554	Borehole	19900725	Plutonium-238	27.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	88022511	Borehole	19880224	Plutonium-238	37.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	8802251	Borehole	19880224	Plutonium-238	27.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	88022517	Borehole	19880224	Plutonium-238	31.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	8802253	Borehole	19880224	Plutonium-238	74.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	8802253	Borehole	19880224	Thorium-232	2.20	PCI/G		RAD	0.0	0.0	7440-29-1			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value.
SCR155	8802256	Borehole	19880224	Plutonium-238	26.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	8802255	Borehole	19880224	Plutonium-238	26.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	88022525	Borehole	19880224	Plutonium-238	35.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
SCR155	88022523	Borehole	19880224	Plutonium-238	28.00	PCI/G		RAD	0.0	0.0	13981-16-3			SCRDATA	Soil	Unknown	1-Exceeds soil 10-6 GV. 2-Exceeds background value. 3-Exceeds other criteria.
B-7	4007-0005	Borehole	19930823	Plutonium-238	0.68	PCI/G	0.16	RAD	3.5	5.0	13981-16-3	*		MND16	Soil		2-Exceeds background value.
B-7	4007-1007	Borehole	19930823	Plutonium-238	0.69	PCI/G	0.14	RAD	3.5	5.0	13981-16-3			MND16	Soil		2-Exceeds background value.

Reference 3

ENVIRONMENTAL RESTORATION PROGRAM

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

MOUND PLANT
MIAMISBURG, OHIO

June 1993

DEPARTMENT OF ENERGY
ALBUQUERQUE FIELD OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
EG&G MOUND APPLIED TECHNOLOGIES

FINAL

was detected in the samples from this location (a maximum of 0.98 pCi/g of plutonium-238 and less than 2 pCi/g of thorium).

Area D was not identified in the original Site Survey Project Report (Stought et al. 1988), but it has always been included as one of the sites to be addressed by the Mound Plant D&D Program. No significant radioactive contamination was identified during the Site Survey Project, either in the original report or by this evaluation. This is consistent with the site history for this area, which indicates that any nitric acid released would have been raw material prior to processing and, therefore, not contaminated. The D&D of Area D is being conducted as part of the D&D of Building 38 and its utility systems.

The maximum depth sampled in Area D was 180 inches. Borehole data in Mound Plant drawing #FSE16472, reproduced in the Site Scoping Report: Volume II Addendum (DOE 1992f) indicate that the depth to bedrock in this area of the SM/PP Hill ranges from approximately 108 to 228 inches, but this may vary greatly due to the presence of fill dirt. The boring log for location C0146 is not available, so it cannot be determined if bedrock was reached during the sampling.

4.1.9. Building 48 Hillside

A note in the Site Survey Project Report (Table 2.1 in Stought et al. 1988) indicated that elevated levels of plutonium-238 were discovered in an area designated as Block 19. The area of concern is actually located adjacent to a process sewer manhole northwest of Building 48 on the south slope of the Main Hill (Plate 1). This area is referred to as the Building 48 hillside in this report. The Building 48 hillside is also west of Area 5, but is not currently included in the boundaries of Area 5. Internal Mound Plant memoranda reviewed for this report substantiate the note in the project report (Stought et al. 1988) that plutonium-238 concentrations are as high as 32 nCi/g (Draper 1986a). The data sheets are included in Appendix E. The levels of plutonium-238 encountered required that the construction project be abandoned, so the initial holes were simply backfilled and the contamination left in place. The contamination encountered at the Building 48 hillside is attributed to a release of 7.64 mCi of plutonium-238 in November 1967. This incident is listed in the Site Scoping Report: Volume 11: Spills and Response Actions (DOE 1992h). As the Building 48 hillside is associated with the soils adjacent to the alpha waste water sewer lines, similar problems may be anticipated along the length of the lines. These lines are scheduled to undergo D&D.

Reference 4

ENVIRONMENTAL RESTORATION PROGRAM

OPERABLE UNIT 9,
SITE SCOPING REPORT
VOLUME 11 - SPILLS AND RESPONSE ACTIONS

MOUND PLANT
MIAMISBURG, OHIO

March 1992

DEPARTMENT OF ENERGY
ALBUQUERQUE FIELD OFFICE

ENVIRONMENTAL RESTORATION PROGRAM
TECHNICAL SUPPORT OFFICE
LOS ALAMOS NATIONAL LABORATORY

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(Revision 0)

Table II.1. Summary of Spills and Environmental Releases from Records of the Safety Office

Date	Location	Material	Amount	Incident	Response
02/12/63	South end SW Bldg.	H-3	"Low-level"	Fire of paper covering metal during cutting and drumming for disposal (63-13).	MRC Incident Investigation Report No. 63-13 (2/14/63).
03/04/63	Historic landfill	Misc. chemicals	Unknown	Explosion of incompatible chemicals in deteriorated containers; no radioactivity.	MRC Incident Investigation Report No. 63-19 (2/19/63).
10/27/64	SM Bldg.	Pu-238	Unknown	Methanol vapors inside fumehood exploded; possible air release.	MRC Incident Investigation Final Report 11/23/64 - record incomplete. Use of flammable solvents within gloveboxes prohibited by AEC.
02/26/65	SM Bldg.	Pu-238	Unknown	Ruptured can of trash in Room 26; possible air release; possible water release.	MRC report 3/2/65 - record incomplete.
03/08/65	SM Bldg.	Pu-238	Unknown	Acid release in Room 59; possible air release.	MRC report 3/8/65 - record incomplete.
08/27/65	SM Bldg.	Pu-238	Unknown	Fire in Room 38; possible air release.	MRC report 9/7/65 - record incomplete.
05/20/66	SM Bldg.	H-3	Unknown	Unidentified release of tritium to SW stack.	MRC Incident Investigation Report No. 66-26 (5/27/66). Recommendations to re-evaluate mechanical and engineering conditions of ERS.
09/08/67	WTS west of SM Bldg.	Pu-238	Unknown	Flanges in line found unbolted; low-risk line contaminated, including soil to 15 ft downslope; high-risk line not in use yet.	MRC Incident Investigation Report No. 67-21 (10/10/67). Soil cleanup proposed (no cleanup guideline given) with periodic system inspections.
11/09/67	Wasteline south of SW/R Bldgs.	"Low-level radioactivity"	1,500-2,000 gals	During wasteline repair wastewater spilled across road to storm drains and then to drainage ditch; about 7.65 millicuries released.	MRC Incident Description 11/17/67. 10 on-plant and 7 off-plant water samples collected 5 to 20 minutes after spill; highest air reading 1200 dis/min/mL; highest water reading 216.0 dis/min/mL at culvert exit to drainage ditch.
03/30/68	SM Bldg.	Pu-238	Unknown	Reversal of air flow in SM stack; possible air release.	MRC Incident Investigation Report No. 68-8 (4/10/68).