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Environmental Restoration Program

OPERABLE UNIT 6, DECONTAMINATION AND DECOMMISSIONING, AREA 17, SPECIAL METALLURGICAL (SM) BUILDING ANNEX VERIFICATION REPORT

MOUND PLANT
MIAMISBURG, OHIO

October 1992

FINAL
(Revision 0)

Department of Energy
Albuquerque Field Office

Environmental Restoration Program
Technical Support Office
Los Alamos National Laboratory

ENVIRONMENTAL RESTORATION PROGRAM

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ACRONYMS

AA	atomic absorption
AEA	Atomic Energy Act
ALARA	as low as reasonably achievable
ARAR	applicable or relevant and appropriate requirements
ASTM	American Society for Testing Materials
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLP	(EPA) Contract Laboratory Program
D&D	Decontamination and Decommissioning
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration (Program)
FFA	Federal Facility Agreement
GC	gas chromatograph
ICP	inductively coupled plasma
LSA	low specific activity
MS	mass spectrometry
NPL	National Priority List
OEPA	Ohio Environmental Protection Agency
ORAU	Oak Ridge Associated Universities
PCB	polychlorinated biphenyl
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	remedial investigation/feasibility study
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SMA	Special Metallurgical Building Annex
SM/PP	Special Metallurgical/Plutonium Processing
SOP	Standard Operating Procedure
SOW	Statement of Work
TAL	Target Analyte List
TCL	Target Compound List
TRU	transuranic (waste)
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
VOC	volatile organic compound
WD	Waste Disposal (Building)
XRF	X-ray fluorescence

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EXECUTIVE SUMMARY

This report documents the verification analysis of the part of Area 17 at Mound Plant in Miamisburg, Ohio, that was previously the site of an annex of the Special Metallurgical (SM) Building. The scope of work for the original work reported herein is for chemical analysis, but the report also includes previous verification analysis for radionuclides and conclusions drawn for the area sampled.

Mound Plant is operated by EG&G Mound Applied Technologies for the U.S. Department of Energy (DOE). Since its establishment in 1948, The facility has been used for a wide variety of chemical and metallurgical processing and research. As a result of historic disposal practices and contaminant releases to the environment, Mound Plant was placed on the National Priority List in November 1989. A Federal Facility Agreement was finalized in August 1990, with the U.S. Environmental Protection Agency (EPA) and the DOE as parties to the agreement and the DOE as the lead agency.

Area 17 is the area containing the Special Metallurgical (SM) Building and the SM Building Annex (SMA). The SM Building was used for the production processes that used plutonium-238. Plutonium-238 and processing chemicals are the suspected contaminants in the area of the SMA.

The SMA was still in place and was not sampled during the 1989 reconnaissance sampling activity of areas assigned to the Decontamination and Decommissioning Program. The annex was demolished, and the foundation and underlying soil were removed to a depth of approximately 3 ft in 1990. The portion of Area 17 that is the subject of this report is the SMA excavation, or approximately 6% of the total area in Area 17.

A 3 by 7 element grid had been previously established in the excavation. This existing grid was surveyed and used in this study. The grid elements were square and were 15 ft on a side. A sampling plan was developed to include grid node point sampling, grid area sampling, and excavation wall sampling. The sampling plan included both composite and individual samples. Samples were taken from depths of 18 inches to 2 ft. Individual samples were analyzed for volatile organic compounds, semivolatiles, polychlorinated biphenyls (PCBs), pesticides, and metals plus cyanide, sulfate, nitrate, nitrite, and chloride. The laboratory analyses followed EPA Contract Laboratory Program protocols with full data packages when these methods were available. The resulting data were validated.

Chemicals found above the detection limit were either naturally occurring inorganics associated with the soil or one additional chemical, tetrachloroethane, found above the detection limit in one sample. This chemical was found in a grid cell near the SM Building wall.

No specific cleanup levels have been established for the facility through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. The conclusions from this report must be reviewed and the results of this study compared when these levels are available.

The statistical analysis of the results for analytes found at levels above the detection limit and for estimated values below the reported detection limit was made to determine arithmetic means and standard deviations. The three-standard-deviation upper limit was calculated and reported. The method chosen is considered sufficiently conservative to provide a worst case evaluation of area conditions. The resulting values appear low enough to be below any expected cleanup level.

The values for the plutonium-238 data in the area indicate that it meets the 100-picocuries per gram (pCi/g) restricted release criterion established for Mound Plant.

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1. INTRODUCTION

1.1. PURPOSE

This Verification Report describes the environmental sampling and analysis, data interpretation, and conclusions associated with the verification study of cleanup activities for a portion of Area 17 at Mound Plant, Miamisburg, Ohio. The area sampled is an open excavation requiring closure. Its focus is primarily on the chemical portion of the verification. The chemical verification must be combined with the radionuclide verification for complete conclusions to be drawn, as discussed in Section 6.

The conclusions from a verification activity may indicate that the cleanup of the area has been achieved, that it has not been achieved, or that the data are insufficient to establish conclusions at some established statistical level of confidence. The null hypothesis used in this study is that the area is assumed to be contaminated until it is established that it is clean.

Cleanup of Area 17 is being performed by subarea to allow for a manageable area to be cleaned without undermining building foundations. For this reason, verification sampling is being done for a limited portion of Area 17. The remainder of the verifications for cleanup will be done on a separate schedule. In addition, chemical and radionuclide verifications have been done separately. This work is discussed in general in the Operable Unit 6 Verification Work Plan (DOE 1992d). Sampling and analysis plans will describe the details of the activity on an area-specific basis.

It is acknowledged that having radionuclide and chemical verification done separately, both from the organizational standpoint and to some extent from the data quality objective standpoint, is difficult. When all decontamination and decommissioning (D&D) and verifications are complete for all past, current, and planned projects, a Record of Decision (ROD) will be written under the Federal Facility Agreement (FFA). This document will support delisting of the Mound Plant Site. The ROD activities will include a compilation and reevaluation of all verification sampling and analysis and a reevaluation of the conclusions drawn concerning the status of the Site from the standpoint of cleanliness. All chemical and radiological sampling will be fully integrated at this time. The completion of a verification report does not preclude the preparation of a remedial investigation report or a risk assessment, which are part of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process.

This verification report was written to establish current conditions in the specific areas sampled.

1.2. SCOPE

This report provides information associated with the traceability and defensibility of the activities completed as part of this chemical verification effort. Methods used during the laboratory analysis and data verification are referenced. An activity-specific sampling and analysis plan was used to control the activity (DOE 1991b). This verification sampling activity was not performed under an approved Work Plan and Quality Assurance Project Plan (QAPP), as they were still in draft form at the time the verification work was done. The information in this report will allow the determination of the acceptability of the work done. This report will be augmented by an additional report or reports when verification is completed for the remainder of Area 17.

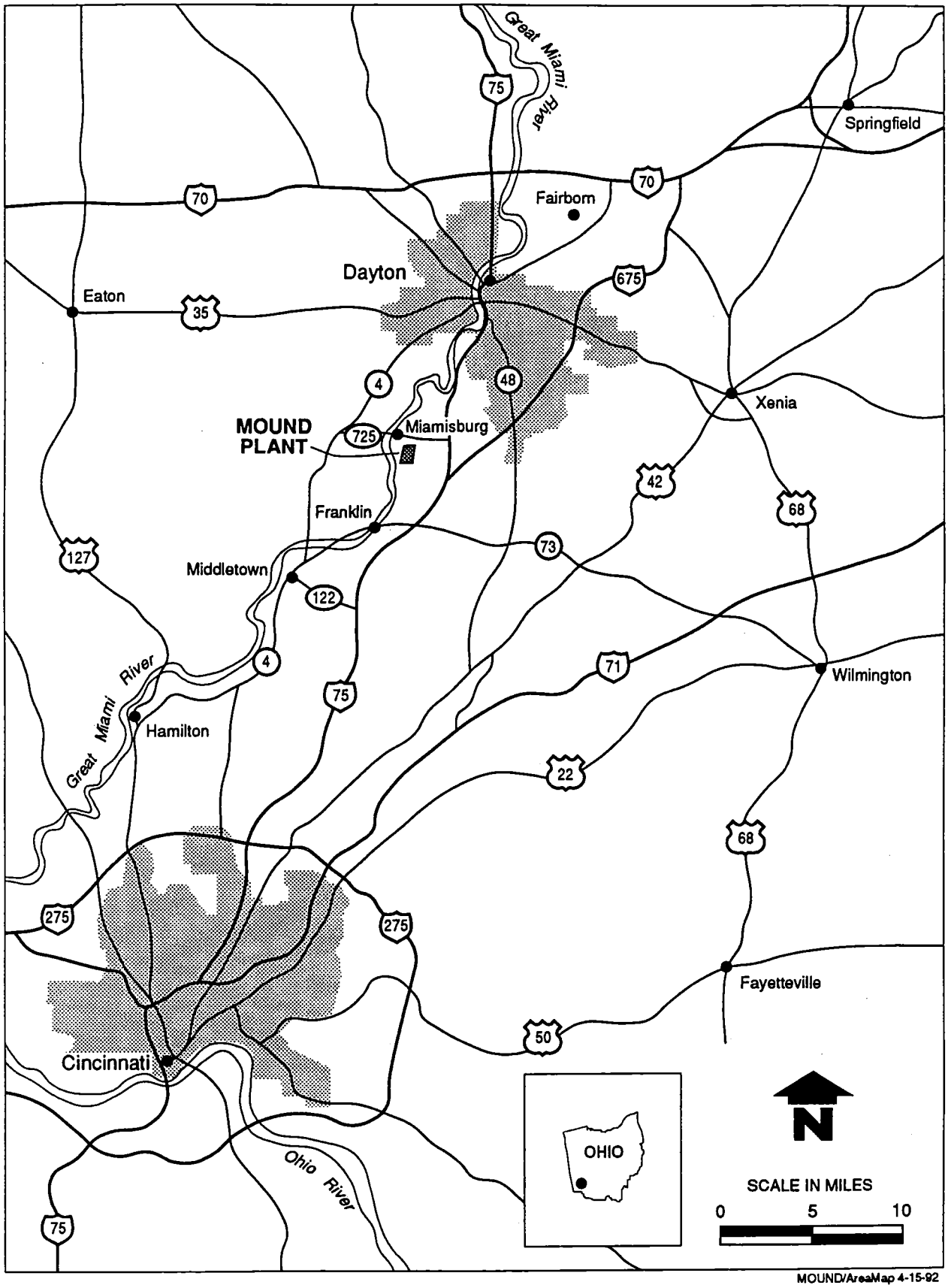
Specific cleanup levels have not been established. The verification was performed under the CERCLA, which requires that risk-based cleanup levels be established on a site-specific basis. These risk-based numbers are not available for use at this time, because the risk assessment process is not complete. When the risk-based levels are available, the conclusions presented herein must be reviewed.

The work described in this report primarily relates to the results obtained from the chemical analyses. Data on radionuclide analysis are included as available and are discussed in the section on previous activities and in the conclusions. The radionuclide data, except for the soil screening data taken prior to shipment of the samples for chemical analysis from this study, have been gathered by other organizations.

1.3. PHYSICAL DESCRIPTION

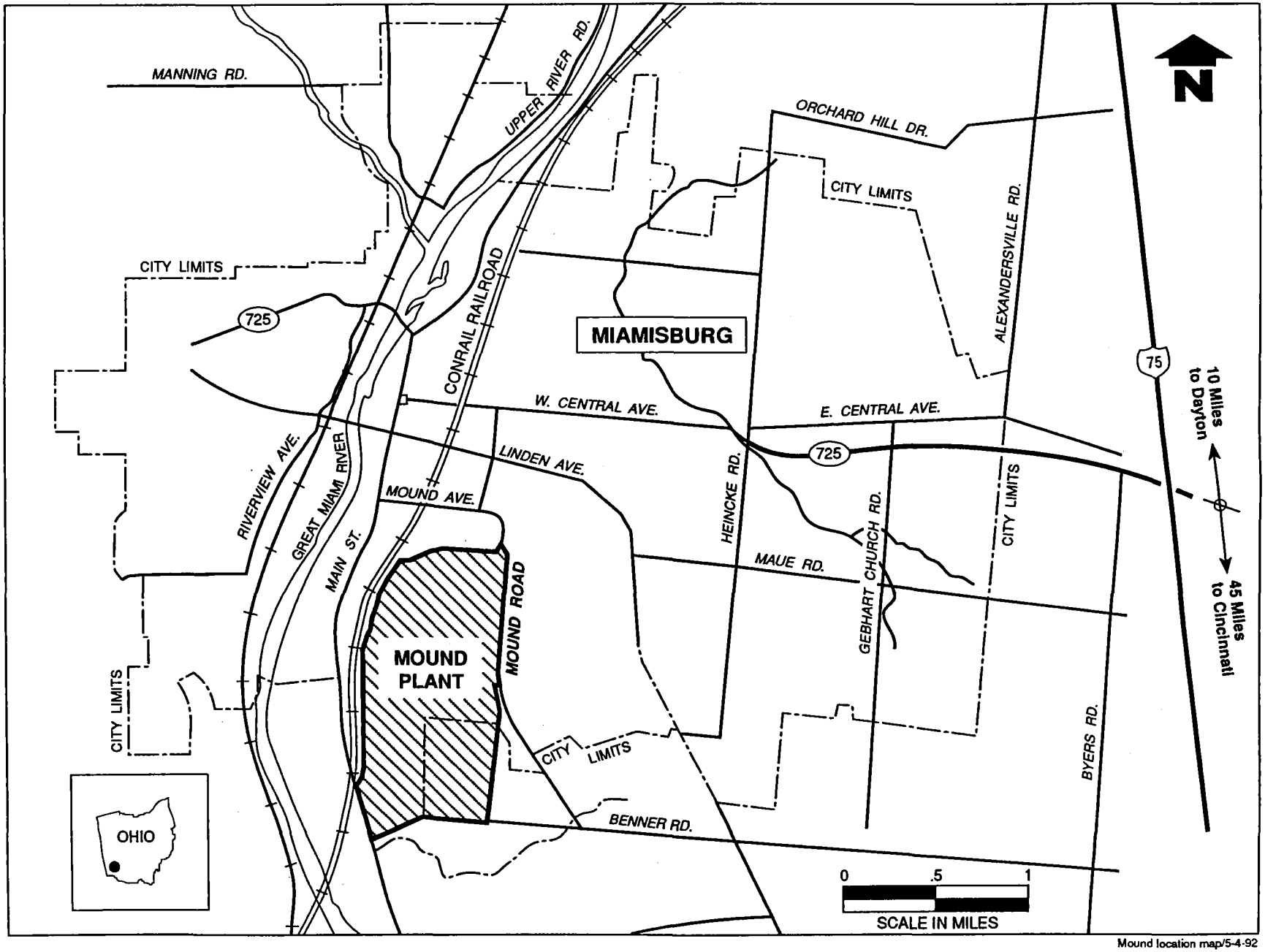
1.3.1. Mound Plant

Mound Plant, located in the outer city limits of Miamisburg, Ohio, is operated by EG&G Mound Applied Technologies for the U.S. Department of Energy (DOE) (Figures 1.1 and 1.2). The major topographical feature of the region is the Great Miami River, which flows from north to south approximately 2,000 ft due west of the plant site. Mound Plant occupies 306 acres on two adjacent hills overlooking the Great Miami River and the city of Miamisburg. These two hills are referred to as the Main Hill and the Special Metallurgical/Plutonium Processing (SM/PP) Hill. Figure 1.3 is a map showing the hills and valley region of the plant. Figure 1.4 is a topographical map of the site. The elevation of the plant ranges from approximately 700 to 900 ft above mean sea level. Natural slopes range up to 20 degrees from the horizontal.



MOUND/AreaMap 4-15-92

Figure 1.1. Regional location of Mound Plant.



Mound location map/5-4-92

Figure 1.2. Location of Mound Plant, Miamisburg, Ohio.

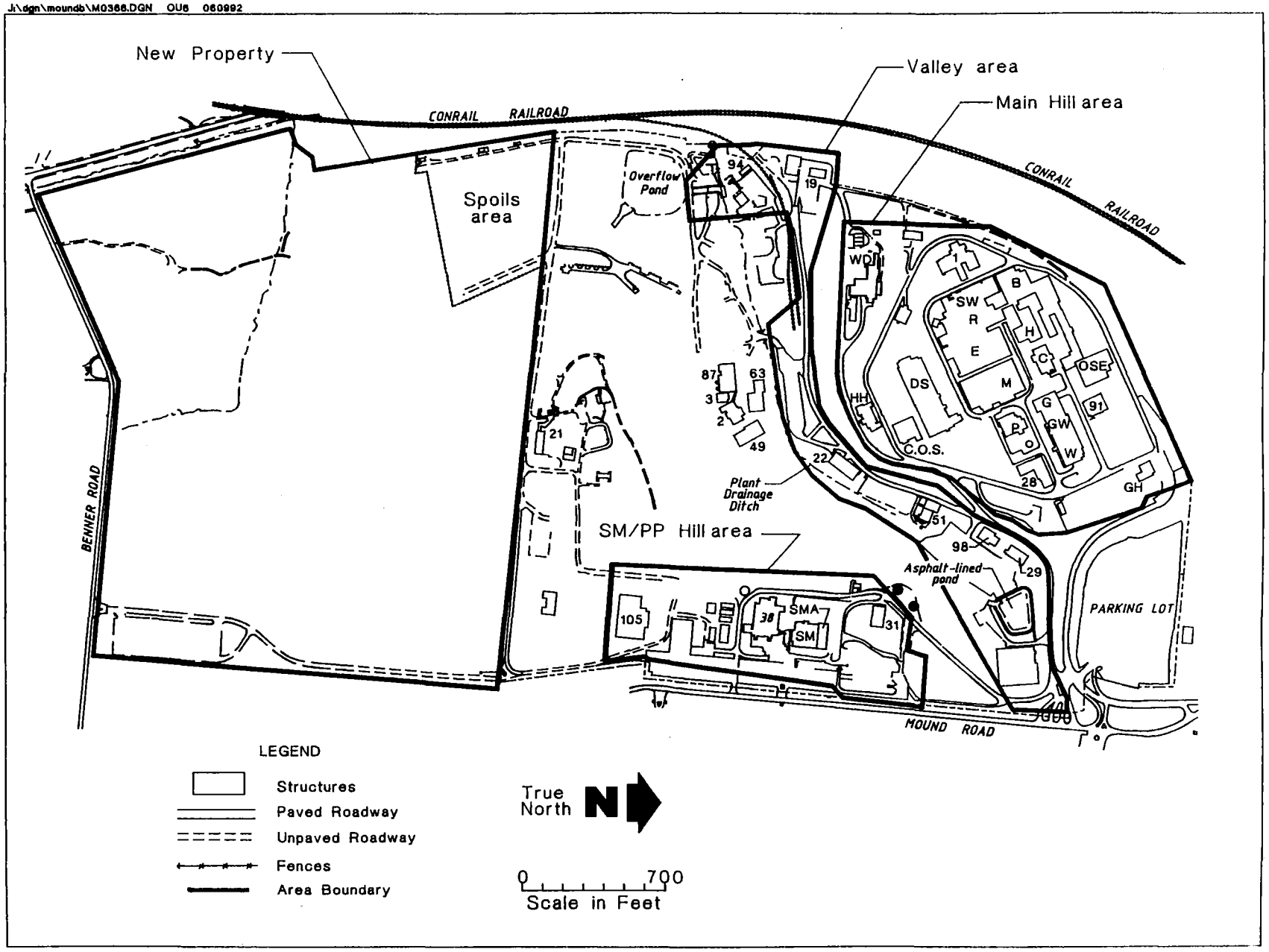


Figure 1.3. Mound Plant areas and main buildings.

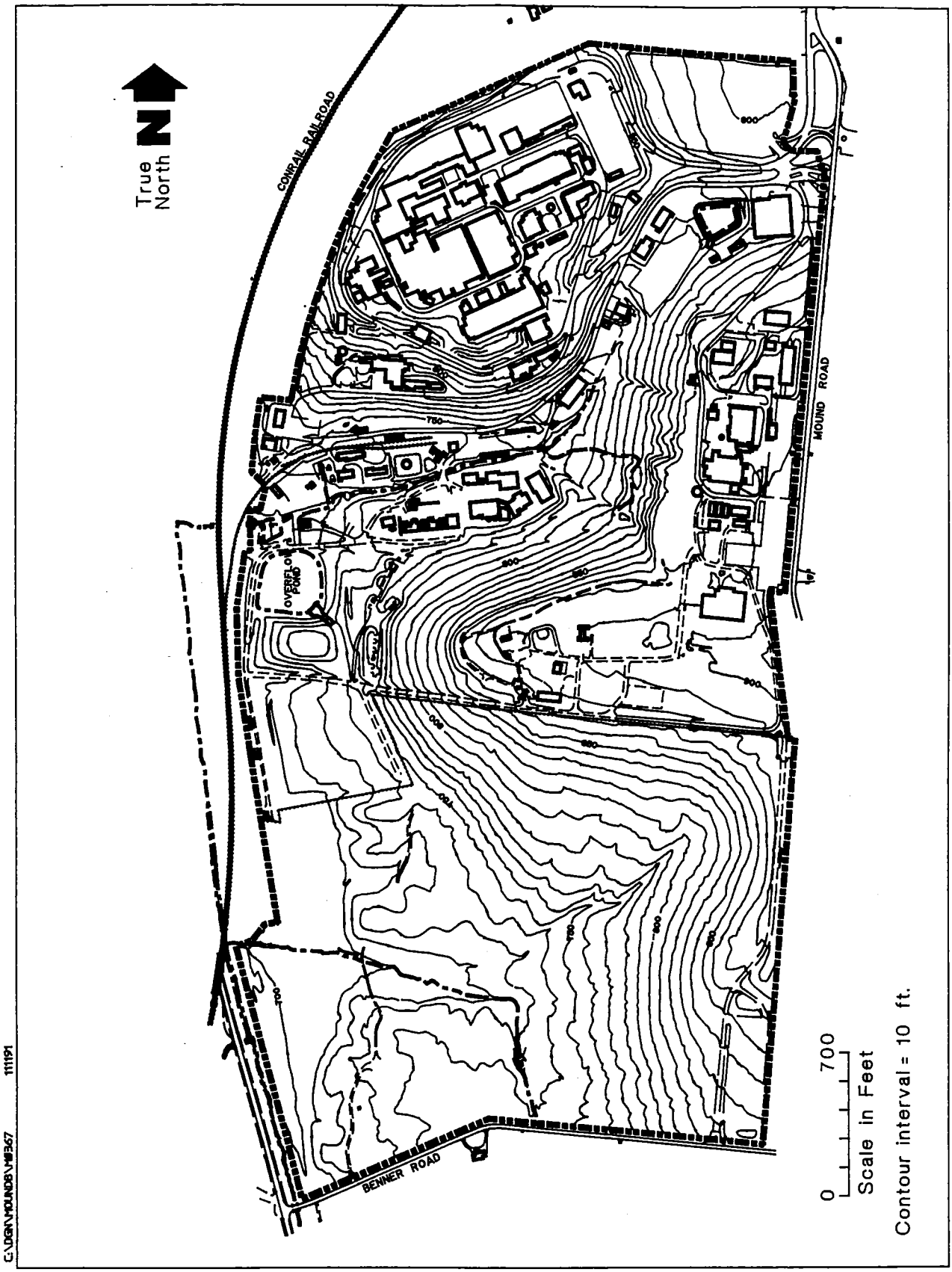


Figure 1.4. Mound Plant topography.

The dominant features of Mound Plant are the two hills underlain by bedrock shales and limestones. These are covered by a thin veneer of glacial till. Much of the original surface of the hills has been regraded and reworked during plant construction. As an example, the Main Hill was leveled in 1947 for foundation stability. Reworked materials (mostly tills) were relocated to the southern slope of the Main Hill. The SM/PP Hill has not undergone as extensive regrading as the Main Hill, but the western slopes have periodically received construction debris and soil materials that have locally reshaped the hill slope morphology.

The bedrock immediately beneath Mound Plant belongs to the upper Ordovician Richmond Group, which ranges in thickness from 250 to 300 ft in the plant vicinity. The bedrock consists of calcareous shale and interbeds of limestone. The Richmond Group underlies the Main Hill and the SM/PP Hill. More complete descriptions of the geology, soils, drainage, and hydrogeology for the plant are found in the work plans for Operable Units 6 and 9 (DOE 1992a,d).

1.3.2. Area 17

The Special Metallurgical (SM) Building is the central feature of Area 17 (Figure 1.5). A small portion of Area 17 was the area under an annex to the SM Building. The SM Building Annex (SMA) was an addition to the north side of the SM Building that left the main SM Building wall intact. This structure, its foundation, and the soil underneath it were removed in 1990. The area of interest is approximately 6,075 ft^2 (45 ft by 135 ft) and consists of an excavation approximately 3 ft deep.

A geologic cross section from west to east across the area that includes Area 17 is shown in Figure 1.6. This nearly exposed bedrock of calcareous shale forms the upper portion of the part of Area 17 that is the subject of this verification effort. Areas with thicker coverage of till, soil, and engineering fill are found on the upper flanks of the hill.

1.4. HISTORY

1.4.1. Mound Plant

Mound Plant was established in 1948, when the Monsanto Chemical Company was requested to evaluate the chemical and metallurgical properties of polonium as a project of the Manhattan Engineer District (DOE 1986). More recently, the Mound Plant missions include the manufacture of chemical explosive detonators, explosive timers, explosive-actuated transducers, explosive switches, and heat sources fueled with encapsulated plutonium-238; surveillance of detonators, cables, and components containing radioactive materials; separation, purification, and sale of stable (nonradioactive) isotopes

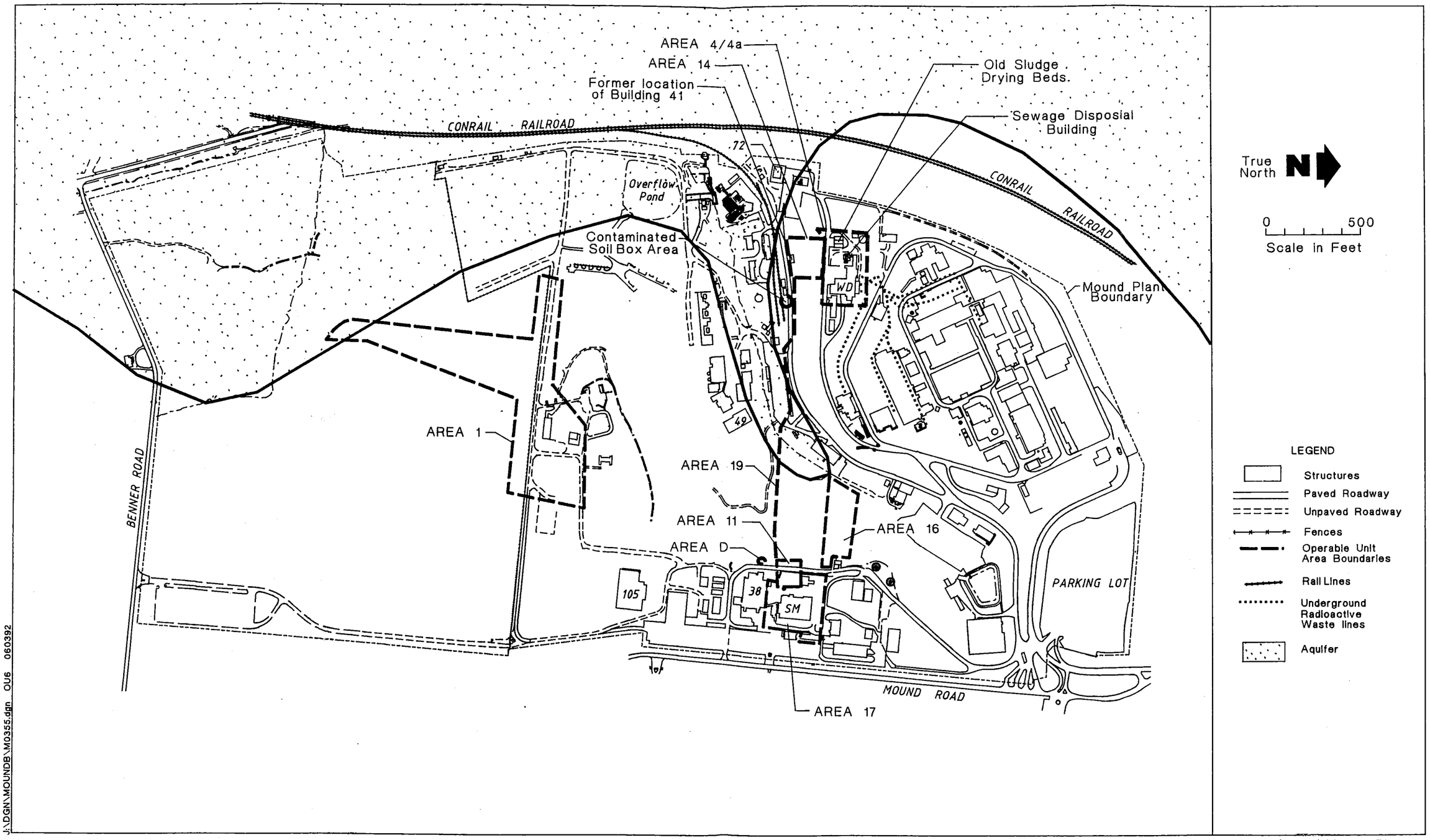


Figure 1.5. Location of Mound Plant decontamination and decommissioning areas.

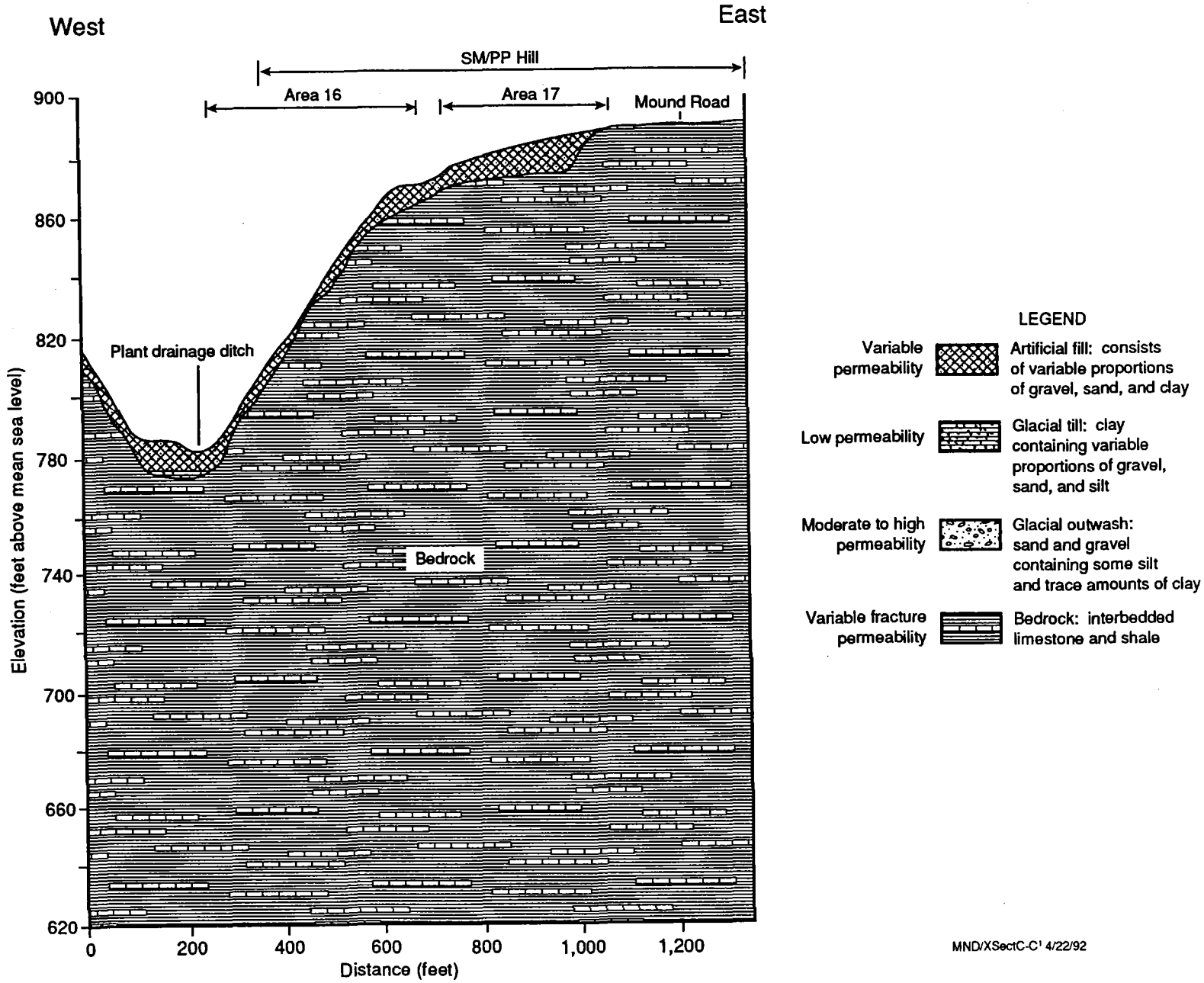


Figure 1.6. Generalized stratigraphic cross section across Area 17.

of noble gases, carbon, and several other elements of interest to the scientific community; recovery of tritium from wastes generated at Mound Plant and other DOE sites; and peaceful applications of atomic energy.

As a result of historic disposal practices and contaminant releases to the environment, Mound Plant was placed on the National Priority List (NPL) in November 1989. In August 1990, the U.S. Environmental Protection Agency (EPA) and the DOE entered into an FFA (EPA 1990a), with the DOE identified as the lead agency. The terms of the FFA require that the DOE develop and implement a remedial investigation/feasibility study (RI/FS) and conduct interim remedial actions in order to protect the public health, welfare, and the environment. To facilitate this effort, nine operable units were established at Mound Plant. These nine operable units and their current objectives and status are as follows:

- Area B Groundwater, Operable Unit 1, includes a historical waste disposal area (landfill) with known releases of volatile chemicals to the Buried Valley aquifer. Two stages of the RI have been performed for Area B, and a third is underway.

- Seeps, Operable Unit 2, addresses potential release areas on the Mound Plant Main Hill, including some peripheral groundwater seeps. Its scope includes characterization of the indurated bedrock and unconsolidated overburden on the Main Hill and associated soils and groundwater.

- Miscellaneous Sites, Operable Unit 3, includes those potential release areas for which little or no data are currently available and for which the collection of site-specific data in a limited field investigation will enhance the scoping effort.

- Miami-Erie Canal, Operable Unit 4, addresses an abandoned segment of the Miami-Erie Canal, west of Mound Plant, that contains plutonium-contaminated sediments from a 1969 waste line break and tritium-contaminated soils. Although a mile long, it is considered to be one potential release area.

- Radioactively Contaminated Soils, Operable Unit 5, includes soils with known or suspected radioactive contamination. These areas are lower priority than the D&D Program areas (below), because the identified levels of contamination are lower or the areas are less likely to be disturbed in the near future than are the D&D Program areas. This operable unit also addresses groundwater in the indurated bedrock and unconsolidated overburden on the Mound Plant SM/PP Hill.

- D&D Program Areas, Operable Unit 6, includes potential release areas with radioactively contaminated soil that is undergoing removal or that is scheduled for removal in the near future. Because it is already known that the contaminated soil will be removed and because the D&D Program is an ongoing activity that reduces potential impacts to human health and the environment, the scope of the RI/FS for these areas is verification of cleanup after the soil is removed.

- Limited Action Areas, Operable Unit 7, includes potential release areas that are believed to have no contamination based on a review of area histories and an August 1990 joint visual site inspection by the DOE, the EPA, and the Ohio Environmental Protection Agency (OEPA). No further action is required, and no further documentation will be produced.

- Inactive Underground Storage Tanks, Operable Unit 8, includes underground storage tanks primarily in the vicinity of the WD Building. Operable Unit 8's scope is currently under review to determine the regulatory status of all underground tanks at the Mound Plant. That review will result in a distribution of responsibility for the tanks between the Environmental Restoration (ER) Program and a Mound Plant Underground Tank Compliance Program under the Resource Conservation Recovery Act (RCRA) Subtitle I, administered by the state of Ohio.

- Site-wide RI/FS, Operable Unit 9, includes offsite migration of contaminants in groundwater, soils, surface water and sediments, airborne contamination, and ecology. The Site-wide RI/FS will additionally ensure that a comprehensive investigation is performed by compiling all data from individual operable unit investigations into a comprehensive report.

A CERCLA ROD for the plant and removal of the property from the NPL are the ultimate goals. A ROD may be developed for each operable unit, and remedial actions specific to those RODs may be taken prior to completion of the final ROD for the Site.

1.4.2. Operable Unit 6, Decontamination and Decommissioning

Operable Unit 6, D&D Program areas, includes potential and known release sites with radioactively contaminated soil. When facilities or assets such as buildings are declared surplus or are no longer needed or are required for other purposes, they are assigned to the Mound Plant D&D Program for management. The D&D Program will manage the decontamination of radiological and chemical contamination associated with routine operations. This includes the D&D of contaminated soil associated with the building or process and extends to the D&D of underground tanks and piping involved with nuclear operations. Verification and verification reporting are intended to integrate the obligations of the DOE under the Atomic Energy Act (AEA) (AEA 1954) for decommissioning of nuclear operations with the obligations under CERCLA for remedial response to hazardous substances.

The areas or buildings assigned to the D&D Program are undergoing cleanup or are scheduled for cleanup in the near future. Because it is already known that the contaminated soil will be removed and because the D&D Program is an ongoing activity that reduces the potential impacts to human health and the environment, the goal of the activities associated with this operable unit is the verification of the completion of cleanup of hazardous and radioactive contaminants.

1.4.3. Area 17

1.4.3.1. History of Known or Suspected Contamination

Historically, the SM Building was used for the production processes that used plutonium-238. As a result of these operations, both the building interior and the soil under and in the vicinity of the building were contaminated. This area was identified as Area 17 and assigned to the D&D program.

The SM Building was used from approximately 1960 to 1972 when, as a result of leaks in sumps, piping, and tanks used during plutonium processing activities, the area became contaminated (DOE 1990). Plutonium-238 is the primary contaminant. During the excavation of the foundation of the SMA, approximately 754 cubic yards of material were taken from the site (Keener 1991).

Plutonium is the primary contaminant of concern in the sampling area; thorium was not used at the SM Building, but it was redrummed in an area to the north of the building. This may have provided a source of thorium contamination in the area. Other materials used in the area of the SM Building and the SMA include nitric acid, hydrofluoric acid, trace amounts of acetone, and nickel from plating operations of plutonium-238 sources. Palladium was also used in the process. These activities took place between 1963 and 1965. Waste plating solution was packaged and sent to the Waste Disposal (WD) Building (Rogers 1991). Other chemicals used at the SM Building include Freon™ and trichloroethene. Freon™ was used in a closed-loop cooling system. Wipes and other materials contaminated with trichloroethene were packaged and transferred to the WD Building (DOE 1992c).

1.4.3.2. History of Cleanup and Investigations

Soil samples were collected from Area 17 as part of the Mound Site Survey Project (Stought et al. 1988). This was done prior to D&D of the SMA. Samples taken during the Site Survey Project were not taken in the area of interest in this study.

In 1989, Roy F. Weston, Inc. (WESTON), conducted reconnaissance sampling for Mound Plant D&D areas. None of the samples taken during this activity were from the foundation area of the SMA. However, they do provide reference data for Area 17 as a whole. A map showing the sampling locations from this activity is given in Figure 1.7. Samples in the reconnaissance sampling effort were analyzed for inorganics and organics in the EPA Contract Laboratory Program (CLP) suite of chemicals. The data resulting from these analyses have since been validated, and this validation is detailed in the final Reconnaissance Sampling Report (DOE 1992b). Chemical contamination within Area 17 was not substantiated for contamination above the analytical detection limit. The only chemicals, not naturally

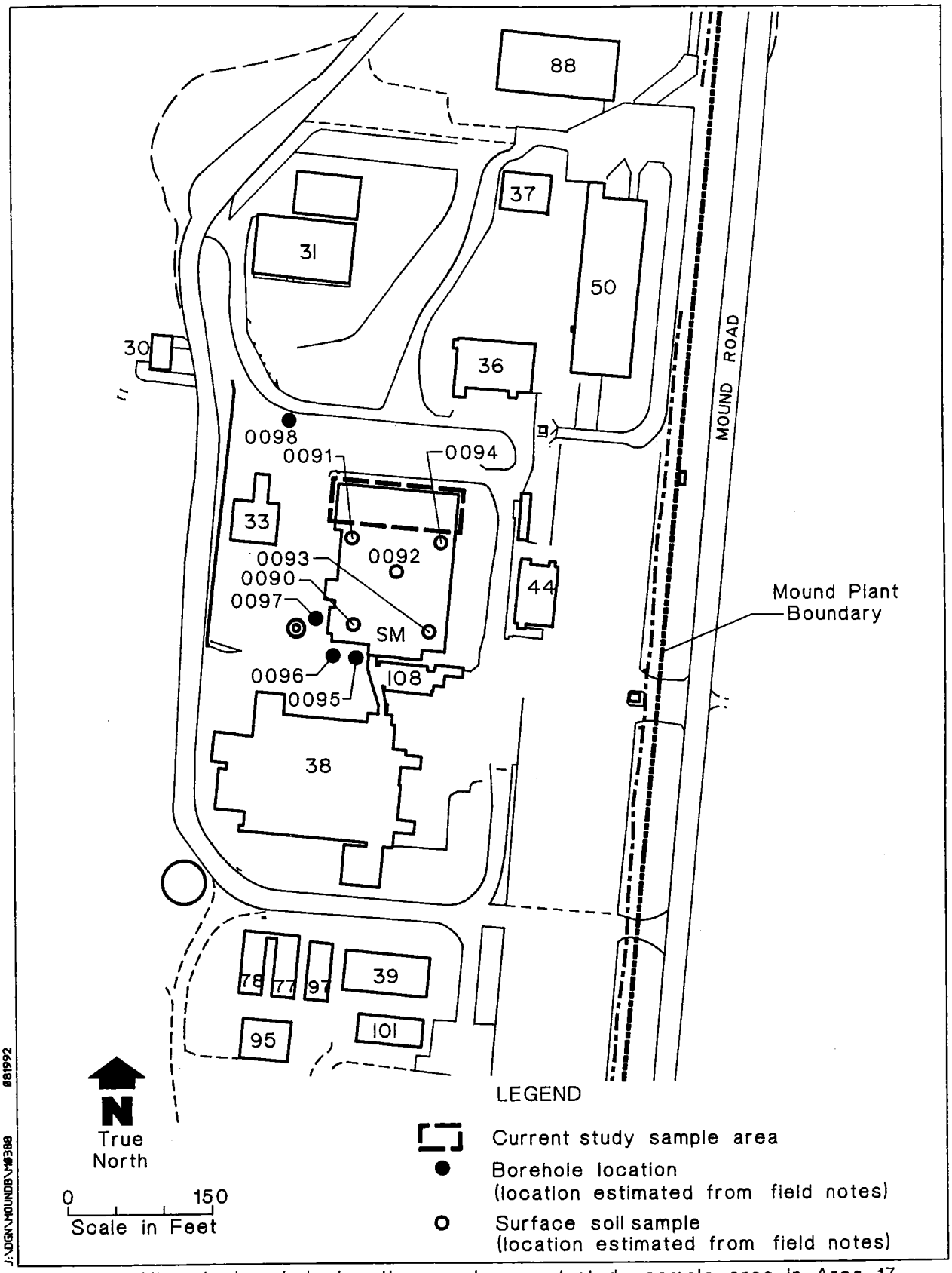


Figure 1.7. Historic borehole locations and current study sample area in Area 17.

occurring, found in the area above the detection limit, with no analytical data qualifiers, were 1,1,1-trichloroethane, trichloromethane (chloroform), and trichloroethene. The area was used for plutonium processing; these chemicals are not inconsistent with processing, general manufacturing, or laboratory activities such as cleaning and degreasing of equipment. Each chemical was identified with only one sample (DOE 1992b). Sample soil screening for plutonium-238 and thorium-232 were included in this study (DOE 1992b).

In January 1990, the SMA's walls and interior were removed. In August 1990, a D&D work package was prepared for SMA foundation and soil removal. The work package also contained a QA Plan. The QA Plan was based on a risk matrix and was tiered to the Site QA Program. The excavation activity was performed by Mound Plant staff and included removal and disposal of the foundation for the previously removed building. The underground utilities, including several storm sewers within the project boundary, were removed and packaged. Contaminated soil was excavated and packaged. The work package included plans for a clay barrier to be constructed around the perimeter of the excavation to prevent subsurface recontamination prior to the area being brought back to original contour with clean, offsite, sampled soil and chips and dust. This final action or an equivalent action has not been completed and depends on the results of the verification activity reported in this document.

The work sequence included the establishment of a 15-ft by 15-ft grid to control the excavation. Beginning at the west end and working eastward, the foundation and contaminated soil were to be excavated using a track excavator and/or front-end loader. Digging guidelines were to be followed. Column footings were 23 ft apart and approximately 7 ft deep.

Mound Plant uses field measurements and the results of a quick turnaround soil screening facility on the plant site to control removal of radionuclides. This sampling was required and controlled by the digging guidelines that were part of the work package. The radionuclide excavation evaluation methods are discussed in the Operable Unit 6 Verification Work Plan (DOE 1992d). Soils showing plutonium-238 levels from 100 picocuries per gram (pCi/g) to 100 nanocuries per gram (nCi/g) and/or thorium-232 levels greater than 5 pCi/g were packaged as low specific activity (LSA) wastes. Soils testing below these levels were to be used as fill or left in place. Soils with levels above 100 nCi/g of plutonium-238 were packaged as transuranic (TRU) waste. Excavated soil packaged during this D&D activity will ultimately be sent offsite for disposal. The digging guidelines included in the work package restricted movement of dirt when wind velocities were above 25 miles per hour. The work package required that high volume air samplers and continuous air monitoring were to be used during the activity. Mound Plant location maps for the activity are included in Appendix A. The Health and Safety Plan used for the verification sampling is included in Appendix B.

Oak Ridge Associated Universities (ORAU) conducted an independent verification of the SMA foundation in November 1991. This verification was for plutonium-238 and plutonium-239/240. Low energy gamma scans of the excavation were made to identify any areas of gross residual activity, referred to as "hot-spots." One area was identified at a level of approximately 1.5 times the ambient background. This area and four of the 15-ft by 15-ft grid blocks were sampled for the verification. The grid block samples were composites of material taken from the four corners and the center of the grid area. All the soil results are shown to be within the established plutonium guideline levels of 100 pCi/g average and the Mound as-low-as-reasonably-achievable (ALARA) goal of 25 pCi/g. A copy of the letter report of this verification, including a map of the selected grids, is included in Appendix C.

2

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2. VERIFICATION SAMPLING

2.1. SAMPLING SCOPE

In June of 1991, the "Operable Unit 6 Decontamination and Decommissioning Program Hazardous Constituents Post-Cleanup Verification, Special Metallurgical Building Annex (Area 17), Sampling and Analysis Plan" (SAP), Mound Plant, Miamisburg, Ohio (DOE 1991b), was transmitted to regulatory agencies for information. The OEPA commented on the document. Comment responses were transmitted to the regulatory agency and some changes were made to the activity as a result of these comments. These changes are identified in the deviation section of this report, subsection 3.3.3. These comments and the responses are found in Appendix D of this document.

The SAP was prepared to specify the characterization of potential chemical contaminants remaining in a subsection of Area 17 in the location of the SMA foundation. The sampling described as part of this plan was intended to provide the chemical analysis to include Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds, pesticides, polychlorinated biphenyls (PCBs), and Target Analyte List (TAL) inorganics, analyzed under EPA CLP protocols when these methods are available.

2.2. SAMPLING STRATEGY

The sampling methodology was developed to sufficiently cover the area of interest, which is only about 6% of the total Area 17, to provide better coverage of the study area than could be provided with random samples. The sampling and analyses were performed in accordance with a Sampling and Analysis Plan written for this activity (DOE 1991b). The cost of the effort was also a factor in the method selection. The approaches for sampling are discussed in "Preparation of Soil Sampling Protocol: Techniques and Strategies" (EPA 1983).

Planning of the sampling activity was based on the following assumptions:

1. The chemical composition of the area to be sampled was reasonably homogeneous.
2. The area should be considered small so that the grid provides reasonable but not excessive sampling and so that the area can be assumed to be relatively homogeneous.
3. Previous sampling in Area 17 was sufficient to identify a reasonably low level risk of finding either hot spots or high levels of contamination.
4. The activity should provide the chemical component of the total verification activity and be supplemented by other chemical verification activities as cleanup continues.

5. The data should be analyzed in a conservative manner. If errors are made in the analysis, it is better to determine that the area is contaminated when, in fact, it is clean (false negative decision) than to determine that the site is clean when it is, in fact, contaminated (false positive decision).

The number of samples needed to demonstrate a specific statistical confidence is based on calculations involving the following parameters: the cleanup standard, the mean concentration where the site should be declared clean with high probability, the false positive rate, the false negative rate, and the standard deviation (EPA 1989a).

The cleanup standards for the Mound Plant are to be risk-based and include ARARs. The exact wording of the cleanup standard often is the determining factor on what specific method for sampling or analysis is ultimately used to establish if the area is clean. The standard may imply that the mean will be used for the comparison, or it may reflect the wording of the working cleanup level for plutonium-238 at Mound Plant (i.e., a mean and an upper limit that no sample is to exceed). The upper tail position on the population distribution is also of importance. At the time of the planning of the verification activity, the risk-based numbers were not available for planning purposes, and the ARARs had not been agreed upon by the parties to the FFA. The number of samples needed for the study could not be statistically established, because the risk assessment was not complete at the time of the drafting of this report, and the ARARs have not been agreed upon by the appropriate parties. Potential or preliminary ARARs will be used in the data analysis as points of comparison along with literature values for soil chemistry.

Since homogeneity and small size were basic assumptions used in the planning of the activity, the area was not stratified for sampling purposes. The list of Site-wide chemicals of concern, originally developed for Operable Unit 9, is shown on Table II.1 (DOE 1992a). Table II.2 lists the chemicals analyzed for in this study.

A list of the samples that were to be taken during the sampling activity is given in Appendix E. This list was part of the activity SAP. The samples listed as background samples were not collected because of the inaccessibility of the location planned for the samples. Complete background sampling is part of Operable Unit 9, and verification background sampling was deferred to that activity. Operable Unit 9 will provide background data for various purposes and activities. Field location maps for the samples are included in Appendix A. A location map for the grid used in this study is shown in Figure 2.1. This grid is the grid used in the excavation activity and is the same grid used by ORAU during their independent verification study.

Table II.1. Mound Plant - Potential Contaminants of Concern

Compound	Compound
Acetone	Antimony
Acetonitrile	Beryllium
Acrylonitrile	Bismuth
Ammonia	Cadmium
ANCO ALGAECIDE No. 1 (2-benzyl-4-chlorophenol)[a]	Chromium
ANCOOL 3310 (triazole) sodium molybdate[a,b]	Cobalt
Arsenic	Cyanide
Benzene	Copper
Calcium	Iron
Carbon disulfide	Lead
Carbon tetrachloride	Lithium
Chloroform	Magnesium
Cresols (methylphenol)	Manganese
Diethyl benzene	Mercury
Fluoride	Nickel
Freon-TF (Freon 113, trichlorotrifluoroethane)	Selenium
Hexane	Silver
High explosives	Vanadium
PETN	Zinc
RDX	Actinium-227
HMX	Americium-241
Iodomethane	Bismuth-207
Methylene chloride	Bismuth-210m
Methyl ethyl ketone (2-butanone)	Cesium-137
Methyl isobutyl ketone (4-methyl-2-pentanone)	Cobalt-60
NALCO 2532 bis(tributyltin) oxide[a]	Plutonium-238,239/240
PCBs	Radium-226
Phenol	Strontium-90
Potassium	Thorium-228, 230, 232
Sodium	Tritium
Tetrachloroethane	Uranium-234/235, 238
Toluene	Rare earths (lanthanides)
Tribromomethane (bromoform)	Nitrate-nitrite
Trichloroethane	Nitrite
Trichloroethene	Chloride
Xylene	Sulfate
Aluminum	

Notes:
[a]Indicator compound
[b]Analyze for molybdenum in the TAL method, not for the molybdate; analyze for tin, not for the oxide.
HMX - Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (cyclotetramethylenetetranitramine)
PETN - pentaerythritol tetranitrate
PCB - polychlorinated biphenyl
RDX - Hexahydro-1,3,5-trinitro-s-triazine (cyclotetramethylenetetranitramine)

Table II.2. Chemicals Analyzed for in Area 17

Volatile Organic Compounds	Semivolatile Organic Compounds		Pesticides and PCBs	TAL Metals and Other Inorganics
1,1-Dichloroethane	1,2-Dichlorobenzene	Benzo(g,h,i)perylane	4,4'-DDD	Aluminum
1,1-Dichloroethene	1,2,4-Trichlorobenzene	Benzo(k)fluoranthene	4,4'-DDE	Antimony
1,1,1-Trichloroethane	1,3-Dichlorobenzene	Benzoic acid	4,4'-DDT	Arsenic
1,1,2,2-Tetrachloroethane	1,4-Dichlorobenzene	Benzyl alcohol	4,6-Dinitro-o-cresol	Barium
1,2-Dichloroethane	2-Chloronapthalene	bis(2-Chloroethoxy)methane	Aldrin	Beryllium
1,2-Dichloroethene (total)	2-Chlorophenol	bis(2-Chloroethyl)ether	Alpha BHC	Cadmium
1,2-Dichloropropane	2-Methylnapthalene	bis(2-Chloroisopropyl)ether	Alpha chlordane	Calcium
1,3-*cis*-Dichloropropene	2-Methylphenol	bis(2-Ethylhexyl)phthalate	Aroclor 1016	Chloride
1,3-*trans*-dichloropropene	2-Nitroaniline	Butylbenzylphthalate	Aroclor 1221	Chromium (total)
2-Butanone	2-Nitrophenol	Chrysene	Aroclor 1232	Cobalt
2-Hexanone	2,4-Dichlorophenol	Di-b-butylphthalate	Aroclor 1242	Copper
4-Methyl-2-pentanone	2,4-Dimethylphenol	Di-n-octylphthalate	Aroclor 1248	Cyanide
Acetone	2,4-Dinitrophenol	Dibenz(a,h)anthracene	Aroclor 1254	Iron
Benzene	2,4-Dinitrotoluene	Dibenzofuran	Aroclor 1260	Lead
Bromodichloromethane	2,4,5-Trichlorophenol	Diethylphthalate	Beta BHC	Magnesium
Bromoethane	2,4,6-Trichlorophenol	Dimethylphalate	Delta BHC	Manganese
Bromoform	2,6-Dinitro-2-methylphenol	Ethylbenzene	Dieldrin	Mercury
Carbon Disulfide	2,6-Dinitrotoluene	Fluoranthene	Endosulfan I (Alpha)	Nickel
Carbon tetrachloride	3-Nitroaniline	Fluorene	Endosulfan II (Beta)	Nitrate
Chlorobenzene	3,3'-Dichlorobenzidine	Hexachlorobenzene	Endosulfan Sulfate	Nitrite
Chloroethane	4-Bromophenyl-phenyl-ether	Hexachlorobutadiene	Endrin	Potassium
Chloroethene	4-Chloroaniline	Hexachloroethane	Endrin Aldehyde	Selenium
Chloromethane	4-Chloro-3-methylphenol	Hexachlorocyclopen-tadiene	Endrin Ketone	Silver
Dibromochloromethane	(para-chloro-meta-cresol)	Indeno(1,2,3-cd) pyrene	Gamma BHC (Lindane)	Sodium
Dichloromethane	4-Chlorophenyl-phenyl ether	Isophorone	Gamma Chlordane	Sulfate
Ethylbenzene	4-Methylphenol	N-Nitroso-di-n-dipropylamine	Heptachlor	Thallium
Styrene	4-Nitroaniline	N-nitrosodiphenylamine	Heptachlor Epoxide	Vanadium
Tetrachloroethane	4-Nitrophenol	Naphtalene	Methoxychlor	Zinc
Toluene	Acenaphthene	Nitrobenzene	Toxaphene	
Trichloroethene	Acenaphthylene	Pentachlorophenol		
Trichloromethane	Anthracene	Phenanthrene		
Vinyl acetate	Benzo(a)anthracene	Phenol		
Xylenes (total)	Benzo(a)pyrene	Pyrene		
	Benzo(b)fluoranthene			

PCB - polychlorinated biphenyl
TAL - Target Analyte List

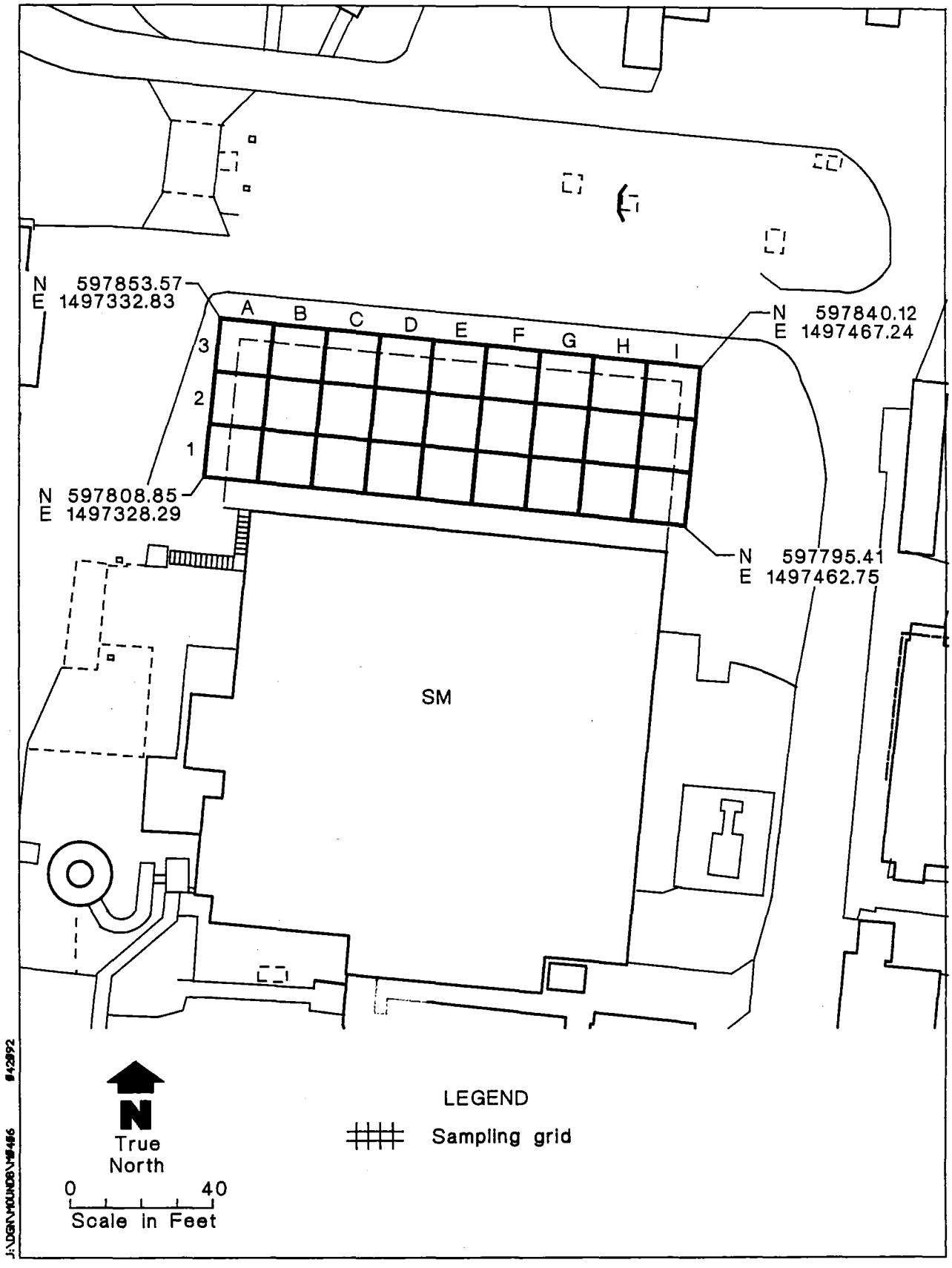

Figure 2.1. Sampling locations in Area 17.

Surveying was done on August 27, 1991, by Shaw, Weiss and DeNaples of Dayton, Ohio. The grid had been previously identified and used for Mound Plant, and the grid lines were identified by marks on the SM Building wall. The staked corner points were exterior to the excavation, and the remainder of the points were surveyed and staked by the surveying crew inside the excavation. This established a block of 27 cells. Locations and elevations for the grid are found in Table II.3, and copies of the field maps are found in Appendix A. The map of the grid with grid identification is found in Figure 2.1.

2.3. SAMPLING IDENTIFICATION

Soil samples for Area 17 are identified with an MND13 designator. This designator is followed by a 4-digit location code and 4 additional digits to identify samples at that location. The first or shallowest sample is designated 0001. Examples are as follows:

MND13-0107-0001 for the first soil sample assigned to this activity

MND13-0109-0001 for the first sample at a location

MND13-0109-0002 for a field duplicate to match MND13-0109-0001

MND13-0130-2002 for a trip blank

SW/17A/05AUG91 and SW/17B/05AUG91 for surface water standing in Area 17 excavations, used for radionuclide analysis

SW/17A/29JUL91 and SW/17B/29JUL91 for surface water standing in Area 17 excavations, used for chemical analysis

For data entry, 17A water samples are designated MND13-0017-0001 and 17B water samples are designated MND13-00170-0002.

2.4. SAMPLING ACTIVITY

Based on the field notes, information on the field activities is as follows:

The sampling activities began with the collection of two water samples from two separate areas of standing water within the excavation where soil sampling was to take place. Samples 17A were taken from grid location 2-H. Samples 17B were taken from a pool that covered grid areas 2-E and 2-F. the water was nearly opaque except for a thin surface layer and the bottom was obscured. The unfiltered water samples were collected into the appropriate laboratory-prepared sample containers, and any required preservatives were added. The first sample was designated SW/17A/29JUL91 and the second was designated SW/17B/29JUL91. The containers were tightly sealed, labeled, affixed with

Table II.3. Surveyed Elevations and Coordinates for the Sampling Area in Area 17[a]

Coordinates for the Grid Corners at Ground Level			
Location	Elevation (ft)	Ohio State Plane Coordinates	
NW	883.00	N597853.57	E1497332.83
NE	885.98	N597840.12	E1497467.24
SE	886.15	N597795.41	E1497462.75
SW	882.68	N597808.85	E1497328.29

Elevations for the Northwest Corner of Cells Surveyed			
Location	Elevation (ft)	Location	Elevation (ft)
B2	880.16	B1	880.20
C2	882.08	C1	879.66
D2	881.93	D1	882.30
E2	881.50	E1	881.89[b]
F2	882.54	F1	882.63
G2	881.53	G1	882.03
H2	884.24	H1	880.95
I2	883.43	I1	883.64

[a]A map of surveyed locations is in Appendix A.
[b]From map stake; is not at the corner of the grid cell.

a custody seal, and stored on ice in a sample cooler. The samples were transported under full chain of custody, via overnight delivery, to WESTON Analytical Laboratory in Lionville, Pennsylvania, for analysis . The laboratory batch numbers for these analyses is 91071303. Because of the numbering system used for the DART system, these samples have been reidentified as MND11-0017-0001 and MND-0017-0002 for DART entry.

The water samples were analyzed for VOCs, semivolatiles, pesticides, PCBs, metals, and cyanide. The results from these analyses are found in Appendix E. Because data validation was not done for these samples, the case narratives are also included in Appendix E. No organics, including pesticides or PCBs, were identified in the samples except those found in the laboratory blanks. Aluminum, calcium, iron, magnesium, and sodium were the only inorganics identified in the samples.

On the fifth of August, samples designated as SW/17A/05AUG91 and SW/17B/05AUG91 were collected from locations that matched the previous samples. These samples were collected in the same manner as the previous samples and shipped under chain of custody to Acculabs of Boulder, Colorado, under subcontract to WESTON, Lionville. the samples were analyzed for the following radionuclides: cesium-137, tritium, plutonium-238, thorium-228, and thorium-232. The laboratory batch identifications for the samples were 2069-39253-3, sample 2 and sample 3. The results of the radionuclide analyses are given in Table II.4. Based on the results of the analyses of the surface water samples, verification sampling of the soils was done as planned.

To aid in directing D&D activities at the SMA, a 45-ft by 135-ft grid was established. The grid was broken into 27 squares, 15 ft on each side. Prior to soil sampling for nonradioactive constituents, the nodal points of the grid were surveyed for location and elevation by a professional land surveyor registered in the state of Ohio. The four corner nodal points were surveyed for elevation and location; the sixteen interior nodal points were surveyed for elevation only. Each nodal point was marked by a wooden stake or nail. The coordinates of the grid were tied into an established benchmark at Mound Plant.

Field operations associated with this sampling event followed the "Operable Unit 6, Decontamination and Decommissioning Program, Hazardous Constituents, Post-Cleanup Verification, Special Metallurgical Annex (Area 17), Sampling and Analysis Plan" (DOE 1991b) and the associated Health and Safety Plan. The sampling equipment and procedures used during the investigation were in accordance with the requirements of the Mound Plant ER Program Standard Operating Procedures (SOPs) (DOE 1991a). Applicable SOPs included

1.1, General Instructions for Field Personnel (Revision 1);

Table II.4. Surface Water Analyses Data for Area 17

Laboratory Designation - Field Designation - Date Collected -	2069-39253-3-2 SW/17A/05AUG91 08/05/91	2069-39253-3-3 SW/17B/05AUG91 08/05/91
	(pCi/L)	(pCi/L)
Cesium-137 - total	0 ± 1[a]	0 ± 1[a]
Tritium - total	880 ± 160[a]	890 ± 160[a]
Plutonium-238 - total	0.34 ± 0.12[a]	0.53 ± 0.14[a]
Thorium-228 - total	0.0 ± 0.1[a]	0.0 ± 0.1[a]
Thorium-230 - total	0.0 ± 0.1[a]	0.0 ± 0.1[a]
Thorium-232 - total	0.0 ± 0.1[a]	0.0 ± 0.1[a]

[a]Variability of the radioactive disintegration process (counting error) at the 95% confidence level, 1.96σ.

1.3, Sample Control and Documentation (Revision 0);

1.4, Sample containers and Preservation (Revision 1);

1.5, Guide to Handling, Packaging, and Shipping Samples (Revision 1);

1.6, General Equipment Decontamination, Level D Protection (Revision 1);

1.8, Personnel Decontamination, Level D Protection (Revision 0); and

5.2, Soil Sampling with Spade and Scoop (Revision 1).

Field activities associated with soil sample collection were monitored by a Mound Plant Health Physics Technician.

Composite and individual soil samples were collected from the SMA area. Three composite samples (MND13-0110-0001 through MND13-0112-0001) were collected from the 27 grid squares. The 27 grid squares were subdivided into 3 sets of 9 grid squares each. A sample was collected from the center of each of the nine sets and used to form one composite sample. All samples used to form composites were weighed in the field to ensure equal representation of each sample point contained in the composite. The collected soil was placed in a stainless steel bowl and mixed completely prior to placement in the appropriate sample containers. These samples were analyzed for semivolatiles, pesticides/PCBs, metals, and cyanide. Two additional composite samples were collected from the sidewalls of the excavation. One composite sample was collected from nine locations along the north and east walls (at 20-ft intervals), collected at points halfway down the wall, and identified as MND13-0113-0001. A second composite was collected from the south and west walls and identified as MND13-0114-0001. These two composite samples were analyzed for semivolatiles, pesticides/PCBs, metals, and cyanide.

Nine soil samples (MND13-0115-0001 through MND13-0123-0001) were collected from individual locations at the base of the excavation for analysis for VOCs and inorganic ions (chloride, sulfate, nitrate, and nitrite). Three soil samples (MND13-0107-0001 through MND13-0109-0001) were collected from individual locations at the base of the excavation for analysis for VOCs, semivolatiles, pesticides/PCBs, metals, cyanide, and inorganic ions (chloride, sulfate, nitrate, and nitrite). Six soil samples (MND13-0124-0001 through MND13-0129-0001)) were collected from individual locations along the side walls of the excavation at points halfway down the wall. These samples were analyzed for VOCs and inorganic ions (chloride, sulfate, nitrate, and nitrite).

Soil samples from the base of the excavation were collected at depths of approximately 18 inches below the existing base. Access to the sampling depth was achieved through excavating a small test pit with the aid of a backhoe. Excavated materials were placed immediately adjacent to the test pit. Test pit excavation was performed just prior to sample collection. Soil that comprised the sample was

collected from the bottom of the excavation, after removing approximately 1 to 2 inches of additional soil by hand with the aid of a stainless steel trowel. This was performed to eliminate any potential cross contamination transmitted by the backhoe between excavations. Following sample collection, each excavation was backfilled with the previously excavated material. Soil samples collected from the walls of the excavation were collected at depths of approximately 6 inches into the wall. This material was exposed using a stainless steel trowel.

Collected soils were immediately placed in the appropriate laboratory-prepared containers. The containers were then tightly sealed, labeled, affixed with a custody seal, and stored on ice in a sampling cooler. Collected samples were transported daily under full chain-of-custody documentation, via overnight delivery, to the WESTON Analytical Laboratory in Lionville, Pennsylvania, for analysis.

A portion of each soil sample collected was provided to the Mound Plant Soil Screening Facility for plutonium-238 and thorium-232 screening purposes prior to sample shipment. These results accompanied the analytical samples from the field to the analytical laboratory.

Prior to and between sampling events, all equipment was decontaminated in order to prevent cross contamination. Equipment decontamination consisted of a wash with a solution of Alconox and tap water. Equipment was then rinsed with tap water, followed by a single rinse with methanol, and finally a rinse with deionized water. Hexane was not used during decontamination, as specified in SOP 1.6. The rinsate fluids were turned over to Mound Plant personnel for disposal.

Quality control samples were collected and submitted for analysis in order to assess field quality control. These samples included two rinsate blanks, three trip blanks, and two field duplicates. Rinsate blanks (MND13-BLNK-03SEPT91 and MND13-BLNK-04SEPT91) were collected following equipment decontamination and were analyzed for TCL VOCs and semivolatile organic compounds and inorganic ions (chloride, sulfate, nitrate, and nitrite). Trip blanks were enclosed in every sample cooler submitted to the analytical laboratory. Trip blanks were analyzed for TCL VOCs. Field duplicate MND13-0112-0002 was analyzed for TCL semivolatiles, pesticides/PCBs, and TAL metals and cyanide. Field duplicate MND13-0109-0002 was analyzed for TCL VOCs, semivolatiles, pesticides/PCBs, TAL metals and cyanide, and inorganic ions (chloride, sulfate, nitrate, and nitrite). Table II.5 lists the sample identifications, laboratory identifications, and field locations and notes for the samples. Samples 0107 through 0109, identified in the Sampling and Analysis Plan (DOE 1991b) and on the table as judgmental, were taken from the areas indicated based on the judgment of the field sampling team. Table II.6 contains the radionuclide screening data for Area 17.

Table II.5. Operable Unit 6, Area 17, Sample Summary

WESTON Field Sample Number	WESTON Analytics Sample Number[a]	Field Location and Notes[b]
MND13-0110-0001	311001	Composite sample collected from Cells A1, A2, A3, B1, B2, B3, C1, C2, C3
MND13-0111-0001	311101	Composite sample collected from Cells D1, D2, D3, E1, E2, E3, F1, F2, F3
MND13-0112-0001	311201	Composite Sample collected from Cells G1, G2, G3, H1, H2, H3, I1, I2, I3
MND13-0112-0002	311202	Duplicate of composite sample collected from Cells G1, G2, G3, H1, H2, H3, I1, I2, I3
MND13-0113-0001	311301	Composite sample collected from nine north and east excavation sidewall locations
MND13-0115-0001	311501	Soil sample from Cell A3
MND13-0116-0001	311601	Soil sample from Cell B2
MND13-0117-0001	311701	Soil sample from Cell C1
MND13-0118-0001	311801	Soil sample from Cell D3
MND13-0119-0001	311901	Soil sample from Cell E2
MND13-0120-0001	312001	Soil sample from Cell F1
MND13-0121-0001	312101	Soil sample from Cell G3
MND13-0122-0001	312201	Soil sample from Cell H2
MND13-0123-0001	312301	Soil sample from Cell I1
MND13-0124-0001	312401	Soil sample collected from excavation sidewall
MND13-0125-0001	312501	Soil sample collected from excavation sidewall
MND13-0126-0001	312601	Soil sample collected from excavation sidewall
MND13-0130-2001	313021	Trip blank
MND13-0107-0001	310701	Judgmental sample, southwest quadrant of Cell B2
MND13-0108-0001	310801	Judgmental sample, southeast quadrant of Cell E2
MND13-0109-0001	310901	Judgmental sample, southwest quadrant of Cell G1

Table II.5. (page 2 of 2)

WESTON Field Sample Number	WESTON Analytics Sample Number[a]	Field Location and Notes[b]
MND13-0109-0002	310902	Duplicate of judgmental sample collected for the southwest quadrant of Cell G1
MND13-0114-0001	311401	Composite sample collected from nine south and west excavation sidewall locations
MND13-0127-0001	312701	Soil sample collected from excavation sidewall
MND13-0128-0001	312801	Soil sample collected from excavation sidewall
MND13-0129-0001	312901	Soil sample collected from excavation sidewall
MND13-0130-2002	313022	Trip blank
MND13-BLNK-03SEPT91	303S91	Rinsate sample/field blank
MND13-BLNK-04SEPT91	304S91	Rinsate sample/field blank
MND13-TRIP-03SEPT91	T03S91	Trip blank

[a]WESTON analytical software packages could not accommodate the original sample number string, so it had to be re-codified into a shorter form.
[b]Field sampling locations indicated on maps.

Table II.6. Radionuclide Screening Data Summary, Area 17

Sample[a,b]	Screening Value	
	Plutonium-238 (pCi/g)	Thorium-232 (pCi/g)
0107-0001	26	0.5
0108-0001	4	0.4
0109-0001	22	0.7
0113-0001 0124-0001 0125-0001 0126-0001	8	0.9
0110-0001 0115-0001 0116-0001 0117-0001	18	1.0
0112-0001 0112-0002 0123-0001 0122-0001	4	0.3
0111-0001 0118-0001 0119-0001 0120-0001	14	1.0
0114-0001 0127-0001 0128-0001 0129-0001	25	1.0

[a]Samples grouped together were composited for screening by the Mound Plant Field Screening Facility.
[b]No data are available for samples 0109-0002 and 0121-0001.

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3. QUALITY OBJECTIVES OF THE ACTIVITY AND DATA

The analytical data gathered during this activity are ultimately intended to be compared with standards established for the cleanup. These standards are developed by a variety of mechanisms, including

- cleanup standards based on a chosen cleanup technology and on the variability of the applied methodology;
- background standards based on analytical results of areas that are representative of site conditions but that are not contaminated, applied on a site-specific basis;
- regulatory standards based on promulgated values from appropriate regulatory agencies, not site-specific; and
- risk standards based on the carcinogenicity or toxicity and site-specific use scenarios. In themselves, they do not consider false negative or false positive evaluations and are not accompanied by uncertainty measurements. The method of comparison of the analytical data must be defensible, and the uncertainty analysis is supplied as a part of the comparison method.

Table III.1 lists the analytical levels and appropriate data uses. This verification sampling was performed with rigorous quality assurance/quality control and complete data validation and meets Level IV analytical uses, as identified in the data quality objectives provided in the Work Plan (DOE 1992d).

3.1. DATA QUALITY OBJECTIVES AND QUALITY CONTROL

One of the purposes of the sampling activity was to provide defensible and traceable data and data of sufficient quality to support the conclusions drawn from the activity. These data fall into the category established in the Operable Unit 6 Verification Work Plan (DOE 1992d), which includes data needs after D&D, data verifying cleanup of radionuclides to a given level, and data verifying the absence of hazardous chemicals or documenting and quantifying their presence. Even though this activity was not carried out under an approved QAPP, the data needs and quality objectives were those stated in the Work Plan (DOE 1992d). The Work Plan and QAPP are now final. To meet these needs, the samples were collected, identified, and shipped under strict procedural control; laboratory analysis required strict control; and the resulting data required validation. These controls included use of specified containers with specified cleanliness, proper labeling, chain-of-custody documentation, required cooling during shipment, and adherence to holding times. The work, with the exception of the sample identification system, meets the Work Plan and QAPP requirements.

Potentially all data in the category described above support the ROD and are important to removal of the Site from the NPL. Because the cleanup criteria resulting from the risk assessment have not been completed, preliminary numbers only are available.

Table III.1. Summary of Analytical Levels Appropriate to Data Uses

Data Uses	Analytical Level	Type of Analysis	Limitations	Data Quality
Site characterization, monitoring during implementation	Level I	Total organic/inorganic vapor detection using portable instruments Field test kits	Instruments respond to naturally occurring compounds.	If instruments calibrated and data interpreted correctly, can provide indication of contamination.
Site characterization, evaluation of alternatives, engineering design, monitoring during implementation	Level II	Variety of organics by GC; Inorganics by AA; XRF Field screening of radionuclides Tentative identification; analyte-specific Detection limits vary from low ppm to low ppb.	Tentative identification Techniques/instruments limited mostly to volatiles and metals.	Dependent on QA/QC steps employed Data typically reported in concentration ranges.
Risk assessment, site characterization, evaluation of alternatives, engineering design, monitoring during implementation	Level III	Organics/inorganics, using EPA procedures other than CLP, can be analyte-specific. RCRA characteristic tests	Tentative identification in some cases Can provide data of same quality as Level IV.	Similar detection limits to CLP Less rigorous QA/QC
Risk assessment, evaluation of alternatives, engineering design	Level IV	TCL organics/inorganics by GC/MS; AA; ICP Low ppb detection limit	Tentative identification of non-TCL parameters Some time may be required for validation of packages.	Goal is data of known quality. Rigorous QA/QC
Risk assessment	Level V	Nonconventional parameters Method specific detection limits Modification of existing methods	May require method development modification. Mechanism to obtain services requires special lead time.	Method-specific

Reference: EPA 1987
AA - atomic absorption
CLP - Contract Laboratory Program
EPA - Environmental Protection Agency
GC - gas chromatography
ICP - Inductively coupled plasma
MS - mass spectrometry
ppm - parts per million
ppb - parts per billion
QA/QC - quality assurance/quality control
RCRA - Resource Conservation and Recovery Act
TCL - Target Compound List
XRF - X-ray fluorescence

Field quality control sampling included the following:

- Field duplicates at locations 109 and 112.
- Trip blanks: two bottles per cooler with the same sample identification. These are identified with the sample location. Two of these were identified with sample location 130, and one was identified as MND13-TRIP-03SEPT91; this last blank was the trip blank for the rinsate blank from September 3 and 4, 1991.
- One rinsate blank for every 10 samples was planned. Two rinsate blanks rather than the three required were taken.

3.2. IDENTIFICATION OF ARARS AND RISK ASSESSMENT-DERIVED CLEANUP STANDARDS

The development of risk-based cleanup goals is not sufficiently complete to provide preliminary values for use in verification activities, and formal ARARs have not been agreed to by the FFA parties. As a result of this lack of formal cleanup levels, the cleanup levels demonstrated for the area evaluated in this study must be reviewed when complete cleanup standards are developed. The analysis techniques used in this study have been chosen to make that comparison as simple as possible. Comparison values are presented whenever possible to provide interim information on the condition of the area. This information is used to provide preliminary conclusions as to the condition of the area.

3.3. QUALITY ASSURANCE AND QUALITY CONTROLS USED IN THIS STUDY

3.3.1. Processes and Procedures Used

The procedures used in this activity are listed in Section 2 of this report. These procedures are those that have been reviewed for use at Mound Plant for both the physical protection of samples and technical information generated from the study and for activities controlled by an approved QAPP.

3.3.2. Identification and Maintenance of Activity Records

Records for this activity are currently maintained by WESTON in their office in Albuquerque, New Mexico. Land surveying was done by Shaw, Weiss and DeNaples. WESTON Analytical Laboratory at Lionville, Pennsylvania, completed all analyses except those radiochemistry analyses performed on surface water samples by Acculabs of Golden, Colorado, under subcontract to the Lionville laboratory. Laboratory data have been transmitted to the Los Alamos National Laboratory, ER Technical Support Office, as required by contract. Data validation was done by C.C. Johnson & Malhothra, P.C., Lakewood, Colorado.

3.3.3. Deviations and Deficiencies from Planned Activities

3.3.3.1. Planned Deviations

The following changes were made from the SAP (DOE 1991b) and from established WESTON procedures for this activity. The list of SOPs used in this activity is found in Section 2 of this report.

1. As a response to OEPA comment 1 on the activity SAP, cyanide, nitrate/nitrate, and chloride/sulfate have been added to the chemical analysis for metals, VOCs, and semivolatile organic compounds. Pesticides and PCBs are also included in the analytical suite for samples. Not all samples received the same analysis; compositing invalidates the analysis of VOCs because of chemical loss during the compositing operation.

2. As a result of OEPA comments 4, 6, and 9, samples were taken at uniform depths of 18 to 24 inches to ensure that samples were appropriate for the analysis of VOCs.

3. As a result of OEPA comment 5 and because of access problems at Mound Plant, background sampling has been deferred to the Operable Unit 9 background sampling activity. The site originally planned for background sampling may have been subject to runoff and to potential contamination from nearby railroad activities. In addition, the area identified for background sampling would require breaching the Mound Plant main boundary fence while the drill rig was in place.

4. As a response to OEPA comment 9, 1 rinsate blank for each 10 or fewer samples was planned to be collected.

5. Because of cost and logistic factors, the laboratory performing the analysis was changed from International Technologies Corporation (IT) in Oakridge, Tennessee, to WESTON's laboratory in Lionville, Pennsylvania.

3.3.3.2. Deficiencies from Planned Activities

The following were either not completed or were done in compliance with procedures or planning documents that need to be revised:

1. Rinsate blanks were not collected at the required 1 in 10 ratio, which would have resulted in 3 rinsates blanks. Two rinsate blanks were collected and designated as MND13-BLNK-03SEPT91 and MND11-BLNK-04SEPT91. There was no requirement to match the blank with specific equipment or samples. This requirement will be included in future revisions to the procedures.

2. The sample identifications do not conform in all cases to the system identified in plans and procedures.

3.3.4. Summary of Audit Activities Impacting or Evaluating Reported Activities

No audits were performed of field or laboratory activities during the work reported on here. Since the laboratory analyses were completed, an audit of the WESTON Lionville Laboratory was conducted by WESTON project staff. This audit was primarily to support Operable Unit 1, groundwater monitoring activities, and the completed audit report will become part of the files for Operable Unit 1.

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4. ANALYTICAL ACTIVITIES

4.1. LABORATORY ANALYSIS

Inorganics were analyzed according to criteria set forth in the EPA's CLP Statement of Work (SOW) dated 3/90 (EPA 1990b). Samples were analyzed according to the criteria in the CLP SOW 02/88 (rev. 05/89) for TCL VOCs. Pesticides and PCBs and remaining inorganics were also analyzed according to CLP SOW 02/88 (Rev. 05/89). Table II.2 lists the analytes chosen for the chemical analysis. Table IV.1 shows the laboratory assignments for the Area 17 samples.

Water samples did not receive matrix spike duplicate analysis. This apparently happened because the laboratory could not identify the source of a sample from its identification code. The above explanation is based on the communications between the data validators and laboratory staff.

Detection limits given by the laboratory are generally slightly higher than those stated in the SAP. Laboratory-stated detection limits are given in the data tables in Appendix E. Examples of the differences in detection limit values between the SAP and those reported by the laboratory include detection limit value 1 in the SAP is reported as 1.1 by the laboratory; 330 in the SAP was given as 360 by the laboratory; and for 1,600 in the SAP, 1,800 was given by the laboratory. Matrix effects usually increase the detection limits slightly from those developed for pure single component standards. The expected detection limits in the SAP are given with the planning and field information in Appendix E. All values are in μg/kg for organics and mg/kg for inorganics. This does not impact the results for the analysis or the conclusions. Information on detection limits is also found in the section below on data validation.

Data, as an electronic deliverable from the laboratory, were loaded into DART, an analytical data base developed by WESTON. The data base is briefly described in Appendix E. Data tables produced by DART for Area 17 are also found in Appendix E, which includes a data qualifiers identification list. This appendix is for unqualified data as reported by the laboratory.

The data packages were transmitted to C.C. Johnson and Malhothra, P.C., for validation. A set of forms was used as part of the contract to complete data validation. An outline of the elements from the data validation process and the fixed format of the report are given in Table IV.2. A summary of the qualifier changes due to the validation process is given in Appendix F. Data for 2-hexanone from samples 030-0002 and in the aqueous blanks were rejected.

Table IV.1. Operable Unit 6, Area 17, Sample and Laboratory Batch Identification

WESTON Field Sample Number	Laboratory Batch Numbers									
	9109L602				9109L613				9109L618	
	Volatiles	Semi-volatiles	Pesticides/ PCBs	Inorganics	Volatiles	Semi-volatiles	Pesticides/ PCBs	Inorganics	Volatiles	Semi-volatiles
MND13-0110-0001		X	X	b						
MND13-0111-0001		X	X	b						
MND13-0112-0001		X	X	b						
MND13-0112-0002		X	X	b						
MND13-0113-0001		X	X	b						
MND13-0115-0001	X			a						
MND13-0116-0001	X			a						
MND13-0117-0001	X			a						
MND13-0118-0001	X			a						
MND13-0119-0001	X			a						
MND13-0120-0001	X			a						
MND13-0121-0001	X			a						
MND13-0122-0001	X			a						
MND13-0123-0001	X			a						
MND13-0124-0001	X			a						
MND13-0125-0001	X			a						
MND13-0126-0001	X			a						
MND13-0130-0001	X									
MND13-0107-0001					X	X	X	X		

Table IV.1. (page 2 of 2)

WESTON Field Sample Number	Laboratory Batch Numbers									
	9109L602				9109L613				9109L618	
	Volatiles	Semi-volatiles	Pesticides/ PCBs	Inorganics	Volatiles	Semi-volatiles	Pesticides/ PCBs	Inorganics	Volatiles	Semi-volatiles
MND13-0108-0001					X	X	X	X		
MND13-0109-0001					X	X	X	X		
MND13-0109-0002					X	X	X	X		
MND13-0114-0001						X	X	X		
MND13-0127-0001					X			X		
MND13-0128-0001					X			X		
MND13-0129-0001					X			X		
MND13-0130-2002					X					
MND13-BLNK-03SEPT91									X	X
MND13-BLNK-04SEPT91									X	X
MND13-TRIP-03SEPT91									X	X

[a]Nitrate/nitrite/chloride/sulfate only
[b]Metals only + cyanide
PCB - polychlorinated biphenyl

Table IV.2. Contents and Format of the Data Validation Report

I. Title - "Report of Data Validation Results"

II. Name of project, operable unit, description of task, project number, and date of report.

III. Case Summary

State the following:

- the case/batch number
- the number of samples and type of matrix
- date of collection
- chain of custody identifier - if any
- type of analysis (discuss if incorrect method used)
- condition of samples when received by laboratory, any lost data

IV. Holding times

Discuss results of holding times and those outside the required holding time.

V. Results of Laboratory Quality Control Checks

For organics, discuss the following where applicable:

A. GC/MS tune
B. Calibration
C. Method Blanks
D. Surrogates
E. Matrix Spike/Matrix Spike Duplicates
F. Internal Standards
G. Compound Identification
H. System Performance
I. Compound Quantitation and Reported
J. Tentatively Identified Compounds

For inorganics, discuss the following where applicable:

A. Calibration
B. Blanks
C. Interference Check Sample (ICS)
D. Laboratory Control Sample (LCS)
E. Duplicate Sample Analysis
F. Matrix Spike Sample Analysis
G. Furnace Atomic Absorption QC
H. ICP Serial Dilution
I. Sample Result Verification

VI. Results of Associated Field Quality Control Checks

A. Field Duplicates
B. Field Blanks (trip blanks, ambient blanks, equipment blanks...etc.)

Table IV.2. (page 2 of 2)

VII. Overall Assessment of Data

- Present table of qualified data.

Discuss overall assessment of data and categorize data in one or more of the following (use these as subsections to this section):

- Data had no problems/or qualified due to minor problems.
- Data qualified due to major problems.
- Data unacceptable.
- Problems, but does not affect data.
- Discuss how all findings in the review could impact the data usability (e.g., including the field blank results).

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5. DATA ANALYSIS

Assumptions used to develop the data analysis process included the following:

1. Each potential chemical in the analysis would be treated singly for data evaluation.
2. The detection limit would be less than any cleanup standard when the standard is established.
3. All data are assumed to be usable until demonstrated otherwise.
4. Sufficient samples were taken and analyzed to support the verification activity.

5.1. DATA SUMMARY AND INTERPRETATION FROM THE CHEMICAL VERIFICATION

The data from each location were evaluated, and four types of data were identified to be used in the data analysis. These are

- analytes that have nondetect results at all locations,
- analytes that have nondetects and estimates or a small number of detects,
- analytes that were found in some or all of the blanks, and
- analytes that were generally found above the detection limits.

Statistical calculations were performed on a Compaq SLT 286 computer, using the Statistica software package, Release 3.1, by StatSoft Incorporated. The statistical analysis included the range, mean, standard error, standard deviation, confidence interval, skewness, kurtosis, and coefficient of variation. Examples of input and output tables as well as the graphics generated are found in Appendix G.

The following conventions were used in the analyses:

- Values reported as not detected by the laboratory were assigned the value of 1/2 the detection limit for that analysis.
- Values reported as estimates below the stated detection limit were assigned the value of the detection limit for that analysis.
- For duplicate analyses, the average of the duplicate is used.

This protocol is conservative and is consistent with EPA guidance (EPA 1989a).

5.1.1. Analytes with All Data Reported as Nondetected

These data are listed in Table V.1 and have received no further analysis. The area is considered clean for these analytes. Detection limits, as stated by the laboratory, are given in Appendix B for each location. Changes to these analytical values or qualifiers as a result of validation are given in Appendix F.

Table V.1. Chemicals Listed Only as Nondetected in Area 17

Volatile Organic Compounds	Semivolatile Organic Compounds		Pesticides and PCBs	TAL Metals and Other Inorganics
1,1-Dichloroethane	1,2-Dichlorobenzene	Benzo(g,h,i)perylane	4,4'-DDD	Antimony
1,1-Dichloroethene	1,3-Dichlorobenzene	Benzyl alcohol	4,4'-DDE	Barium
1,1,1-Trichloroethane	1,4-Dichlorobenzene	*bis*(2-Chloroethoxy)methane	4,4'-DDT	Beryllium
1,1,2,2-Tetrachloroethane	2-Chloronapthalene	*bis*(2-Chloroethyl)ether	4,6-Dinitro-o-cresol	Cadmium
1,2-Dichloroethane	2-Chlorophenol	*bis*(2-Chloroisopropyl)ether	Aldrin	Cobalt
1,2-Dichloroethene (total)	2-Methylnapthalene	*bis*(2-Ethylhexyl)phthalate	Alpha BHC	Cyanide
1,2-Dichloropropane	2-Methylphenol	Butylbenzylphthalate	Alpha chlordane	Mercury
1,3-*cis*-Dichloropropene	2-Nitroaniline	Chrysene	Aroclor 1016	Nitrite
1,3-*trans*-dichloropropene	2-Nitrophenol	Di-b-butylphthalate	Aroclor 1221	Potassium
2-Butanone	2,4-Dichlorophenol	Dibenz(a,h)anthracene	Aroclor 1232	Selenium
Benzene	2,4-Dimethylphenol	Dibenzofuran	Aroclor 1242	Silver
Bromodichloromethane	2,4-Dinitrophenol	Diethylphthalate	Aroclor 1248	Sodium
Bromoethane	2,4-Dinitrotoluene	Dimethylphalate	Aroclor 1254	Thallium
Bromoform	2,4,5-Trichlorophenol	Di-n-octylphthalate	Aroclor 1260	
Carbon Disulfide	2,4,6-Trichlorophenol	Fluoranthene	Beta BHC	
Carbon tetrachloride	3-Nitroaniline	Fluorene	Delta BHC	
Chlorobenzene	3,3'-Dichlorobenzidine	Hexachlorobenzene	Dieldrin	
Chloroethane	4-Bromophenyl-phenyl-ether	Hexachlorobutadiene	Endosulfan I (Alpha)	
Chloroethene	4-Chloroaniline	Hexachlorocyclopentadiene	Endosulfan II (Beta)	
Chloromethane	4-Chloro-3-methylphenol	Hexachloroethane	Endosulfan Sulfate	
Dibromochloromethane	(para-chloro-meta-cresol)	Indeno(1,2,3-cd) pyrene	Endrin	
Ethylbenzene	4-Chlorophenyl-phenyl ether	Isophorone	Endrin Aldehyde	
Styrene	4-Methylphenol	N-Nitroso-di-n-dipropylamine	Endrin Ketone	
Trichloroethene	4-Nitroaniline	N-nitrosodiphenylamine	Gamma BHC (Lindane)	
Trichloromethane	4-Nitrophenol	Naphtalene	Gamma Chlordane	
Vinyl acetate	Acenaphthene	Nitrobenzene	Heptachlor	
Xylenes (total)	Anthracene	Phenanthrene	Heptachlor Epoxide	
	Benzo(a)anthracene	Phenol	Methoxychlor	
			Toxaphene	

PCB - polychlorinated biphenyl
TAL - Target Analyte List

5.1.2. Analytes Requiring Further Analysis for Interpretation

The following data transformations were made prior to statistical analysis to conform to EPA guidelines (EPA 1989a) and to be consistent with the draft protocol document for the baseline risk assessment (DOE 1991c). Where duplicate samples were reported, the data were averaged to maintain a data set of 24 values. This approach maintains the rank order of the data. This generally provides a two valued data set. It is assumed that evaluating the transformed data for distribution type (i.e., normal, log normal, or nonparametric), using a simple separation method such as the coefficient of variation, provides little usable information. The transformed values were entered into the Statistica package, and basic parameters were calculated. Using three times the calculated standard deviation, the upper confidence limit envelope was calculated. This approach allows for easy comparison to a proposed cleanup level.

5.1.2.1. Data Sets Comprising Nondetect Values and Estimates

This set of data consists of VOCs and semivolatile organic compounds. These chemicals are listed in Table V.2. This table also contains the statistical analysis summary. Proposed 40 CFR 264 Subpart S values for soils applicable to this study are fluoranthene at 3,200 mg/kg, pyrene at 24,000 mg/kg, and toluene at 20,000 mg/kg (FR 1990). The few samples that contained estimated values or an occasional value above detection limit are identified with the sample location in Table V.3. It appears that, at least in respect to detection limits, the area would not be considered contaminated with any of these chemicals.

5.1.2.2. Cases with the Analyte Found in the Field or Laboratory Blanks

In the cases where values for the analytes were found in the blanks, the data validation process resulted in the data being qualified as nondetected and the value given being an estimate. Acetone, bis(2-ethylhexyl)phthalate, and dichloromethane were determined to be undetected. The area was therefore determined to be clean of these organics.

5.1.2.3. Cases with the Analyte Occurring Above the Detection Limit

The fourth class of data is restricted to those analytes that are naturally occurring and are inorganics that would be expected to be in the environment. In many cases, these data tend to be bimodal because of apparent changes across the sample area. These data were also entered into the statistical package, and standard statistical parameters were calculated. The statistical summary is given in Table V.4. A graph of the statistical distribution of aluminum is shown in Figure 5.1 as an example

Table V.2. Summary Table for Organics, Partial Area 17 Verification Analysis with Estimated Values or Values Above Detection Limit[a]

Analyte	N	Minimum[b]	Maximum	Mean	Standard Deviations	3 Standard Deviations	Upper 3 Standard Deviation Limit	Nominal Laboratory Detection Limit
4 Methyl-2 Pentanone	18	5.0	8.0[c]	5.7	0.64	1.9	7.6	12
Benzo(a)anthracene	8	155	340	200	58	174	374	360
Benzo(a)pyrene	8	155	340	200	58	174	374	360
Benzo(b)fluoranthene	8	155	340	200	58	174	374	360
Benzo(k)fluoranthene	8	155	340	200	58	174	374	370
Benzoic acid	8	750	1,800	994	332	996	1,990	1,800
Chrysene	8	155	360	223	80	240	463	370
Fluoranthene	8	155	390	247	98	294	541	360
Pentachlorophenol	8	750	1,800	994	332	996	1,990	1,850
Phenanthrene	8	155	390	247	98	294	541	360
Pyrene	8	175	390	267	92	276	543	350
Tetrachloroethene	18	3.0	6	3.1	0.5	1.5	4.6	6
Toluene	18	2.5	4.5	3.0	0.4	1.2	4.2	6

[a]All units in μg/kg.
[b]All values based on 1/2 the detection limit.
[c]Based on the average of nondetect and an estimated value below the detection limit.
N - The number of analyses for the analyte in the set.

Table V.3. Compounds Associated with Only a Limited Number of Samples in Area 17

Analyte	Sample Where Estimated Below Detection Limit	Sample Where Found Above Detection Limit
4-Methyl-2-pentanone	0117	
Benzo(a)anthracene	0114	
Benzo(a)pyrene	0114	
Benzo(b)fluoranthene	0114	
Benzo(k)fluoranthene	0114	
Benzoic acid	0113	
Bis(2-ethylhexyl)phthalate[a]	0107 0108 0109 0114	
Chrysene	0113 0114	
Fluoranthene	0110 0113 0114	
Pentachlorophenol	0113	
Phenanthrene	0110 0114	
Tetrachloroethane	0117	0120
Toluene	0117	

[a]These values were qualified as not detected during data qualification.

Table V.4. Summary Table for Inorganics in Partial Area 17 Verification Analysis[a]

(Analytes reported only as nondetected are not listed)

Compound	N[b]	Minimum[c]	Maximum[d]	Mean	Standard Deviation	3 Standard Deviations	Upper Limit Based on 3 Standard Deviations[e]
Aluminum	8	2,980	5,770	4,300	1,062	3,185	7,485
Arsenic	8	1.1	4.7	3.1	1.3	3.9	7.0
Calcium	8	123,000	207,000	160,200	27,900	83,700	243,900
Chloride	18	0.7	31.8	4.8	8.0	24	28.4
Chromium	8	3.3	6.2	4.5	1.2	3.6	8.3
Copper	8	7.0	13.3	9.6	2.4	7.2	16.8
Iron	8	9,710	15,400	12,370	2,110	6,330	18,700
Lead	8	6.1	17.7	9.7	4.0	12.0	21.7
Magnesium	8	23,100	66,900	39,070	15,900	47,700	86,770
Manganese	8	280	477	361	75	225	586
Nickel	8	4	14	9	4	12	21
Nitrate	18	1.1	72.5	18.5	25.9	77.7	96.2
Sulfate	18	22.2	144.0	49.6	28.8	86.4	136
Vanadium	8	5.7	18.1	12.9	4.0	12.0	24.9
Zinc	8	23.8	46.1	33.9	7.5	22.5	56.4

[a]All values in mg/kg; calculations based on number of samples - 1 = degrees of freedom.
[b]N is the number of samples in the analytical set.
[c]Minimum is the lowest value in the data set.
[d]Maximum is the highest value in the data set.
[e]This is the sum of the mean and three standard deviations.

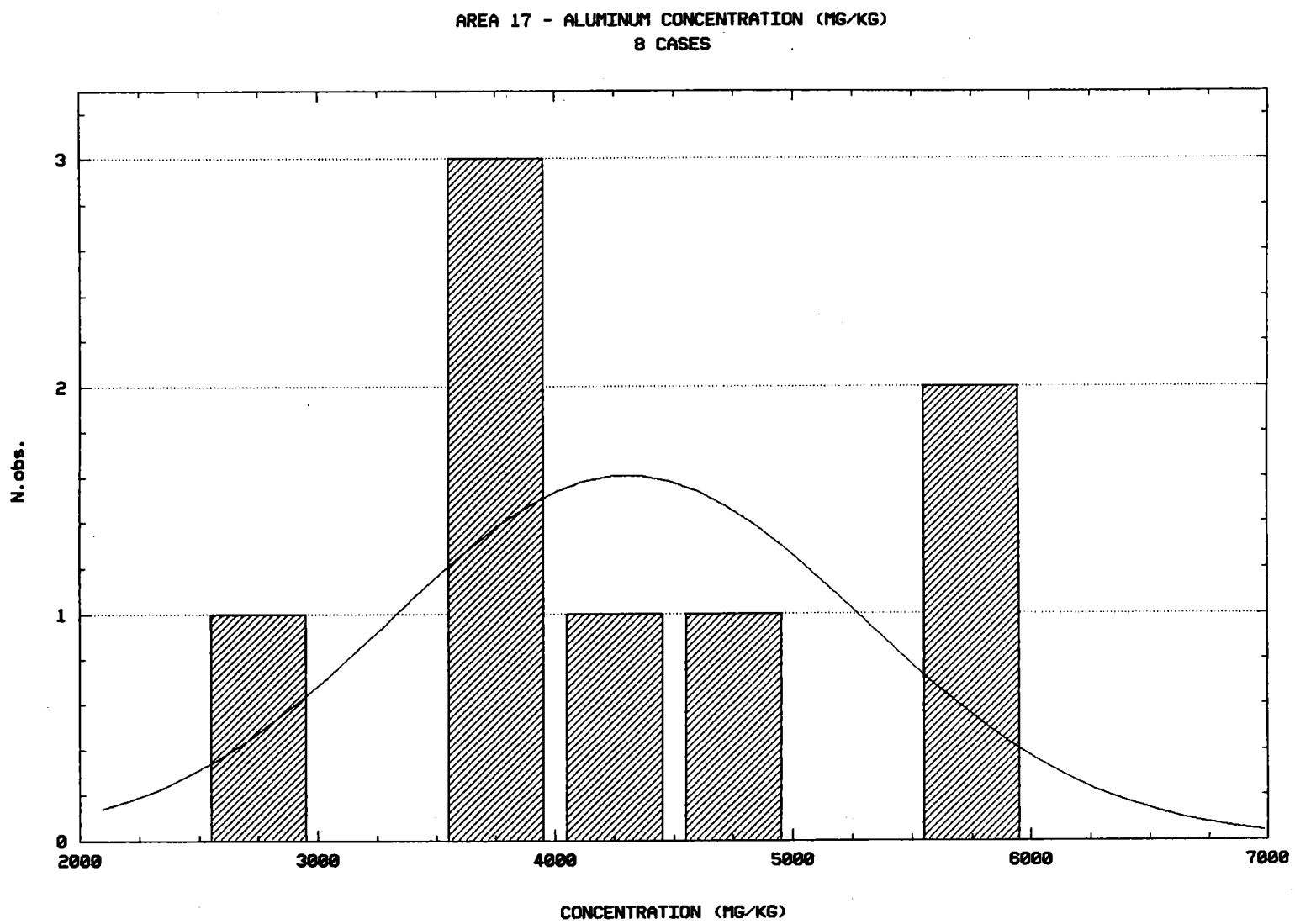

Figure 5.1. Distribution of aluminum concentration data.

Table V.5. Inorganic Comparison Values for Rock and Soils - Area 17[a]

Compound	This Study		Proposed 40 CFR 264 Subpart S[b]	Rock[c]		Soil[d]			
	Mean	3SD		Shale	Limestone	Dayton Area Mean	Ohio	U.S. Eastern	U.S.
Aluminum	4,300	7,485		major	4,200			7,000->100,000	700->100,000
Arsenic	3.1	7.0	80	13	1		5.2-22	<1.0-7.3	<1.0-97
Calcium	160,200	243,900						100-280,000	100-320,000
Chromium	4.5	8.3	400	90	11		15-100	1-1,000	1.0-2,000
Copper	9.6	16.8	2,960	45	4	15	7.0-70	<1.0-700	<1.0-700
Iron	12,370	18,700		major	major			100->100,000	100-100,000
Lead	9.7	21.7		20	9	25	15-30	<10-300	<10-700
Magnesium	39,070	86,770						50-50,000	50->100,000
Manganese	361	586	8,000	850	1,100			<2.0-7,000	<2.0-7,000
Nickel	9	21	2,000	68	20		15-50	<5.0-700	<5.0-700
Vanadium	12.9	24.9	560	130	20		20-150	<7.0-300	<7.0-500
Zinc	33.9	56.4	16,000	45	20	55	25-110	50-2,900	<5.0-2,900
Nitrate	18.5	96.2							
Sulfate	49.6	136							

[a]All values in mg/kg
[b]FR 1990
[c]Drever 1982
[d]Dragun and Chiasson 1991
SD - standard deviation

of the bimodal tendency. Table V.5 identifies these analytes and, for comparison, the values for these analytes in rocks and soils from various sources. The analyte data can be easily compared to these numbers and indicate that, even at the three standard deviation upper limit, the values are within the rock and soil values for the cases where comparison values are available. Other examples are given in Appendix G.

5.2. SUMMARY OF RADIONUCLIDE VERIFICATION FROM OTHER STUDIES

Table V.6 lists the soil screening statistical data summary from this study. The radionuclide data from both EG&G and ORAU are given in the second and third parts of the table. These data indicated that the 100-pCi/g plutonium-238 Mound Plant clean up standard had been attained. From this information, the Mound Plant restricted release level has been reached for the portion of Area 17 evaluated in this study. Comparing the means, the ALARA level of 25 pCi/g has been attained, based on data from this study, field laboratory screening, and the ORAU data. Based on the four EG&T data points, the mean is above the 25-pCi/g standard. As stated in the ORAU report in Appendix C, gamma spectrometry data show that no other radionuclides of concern are present above background levels.

Table V.6. Statistics for Radionuclides Soil Screening Data - Area 17[a]

This Study (8 data points)

Radionuclide	Minimum	Maximum	Mean	Standard Deviation	3 Standard Deviations	Upper 3 Standard Deviations Limit
Plutonium-238	4	26	15	9	27	42
Thorium-232	0.3	1.0	0.7	0.3	0.9	1.6

EG&G Data (4 data points)

Radionuclide	Minimum	Maximum	Mean	Standard Deviation	3 Standard Deviations	Upper 3 Standard Deviations Limit
Plutonium-238	6.6	72.2	32.2	30.2	90.6	122.8

ORAU (5 data points)

Radionuclide	Minimum	Maximum	Mean	Standard Deviation	3 Standard Deviations	Upper 3 Standard Deviations Limit
Plutonium-238	0.4	21.0	9.5	8.2	24.6	34.1
Plutonium- 239/240	0.01	0.04	0.02	0.01	0.03	0.05

[a]All values in pCi/g.
ORAU - Oak Ridge Associated Universities

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6. SUMMARY AND CONCLUSIONS

Because cleanup standards based on ARARs or risk-based studies have not been established for the Mound Plant, the verification results presented in this report will be subject to reevaluation as these levels are developed and become finalized.

For the four groups of analytes evaluated, there is no reason to expect that the area is chemically contaminated, even though no cleanup standards are available. The analytes listed in Table V.1 were not detected. The analytes found in the analytical blanks are common to organics analysis and do not appear to be the result of contaminated soil samples. Data validation qualified these chemicals as not detected in the samples. Of the inorganics identified with the area, all are naturally occurring in the soils and rocks in the area and region in levels that would be accounted for by the reference values provided. The remaining chemicals are organics. These are primarily aromatic hydrocarbons found only at levels at or below the detection limit and are limited to a small group of sample locations. Unless very low cleanup standards are established, these would not indicate a contamination problem.

All the radionuclide results for plutonium-238 indicate that the area is clean to below the restricted release level for plutonium-238. Thorium-232 levels are sufficiently low to indicate that the area meets release standards. ORAU analyzed plutonium-239/240. These values appear sufficiently low to indicate that no contamination problem exists, although no comparison standards are available. Other radionuclide data taken after cleanup activities are not available or do not exist. For any of these radionuclides for which clean up standards may be developed, cleanup is indeterminate.

The analysis method used in this study is extremely conservative. The data listed as nondetected have been set at one-half the detection limit, and data estimated below the detection limit have been set at the detection limit for all the statistical analyses. The three standard deviation upper limit and the mean have been used for comparison purposes. The upper limit is at the 99.7% confidence level. This is consistent with the null hypothesis that the area is not clean until it is proved to be clean. This also indicates that if error is made, it should be in the determination that the area is contaminated when it is not rather than that it is clean when, in fact, it is contaminated.

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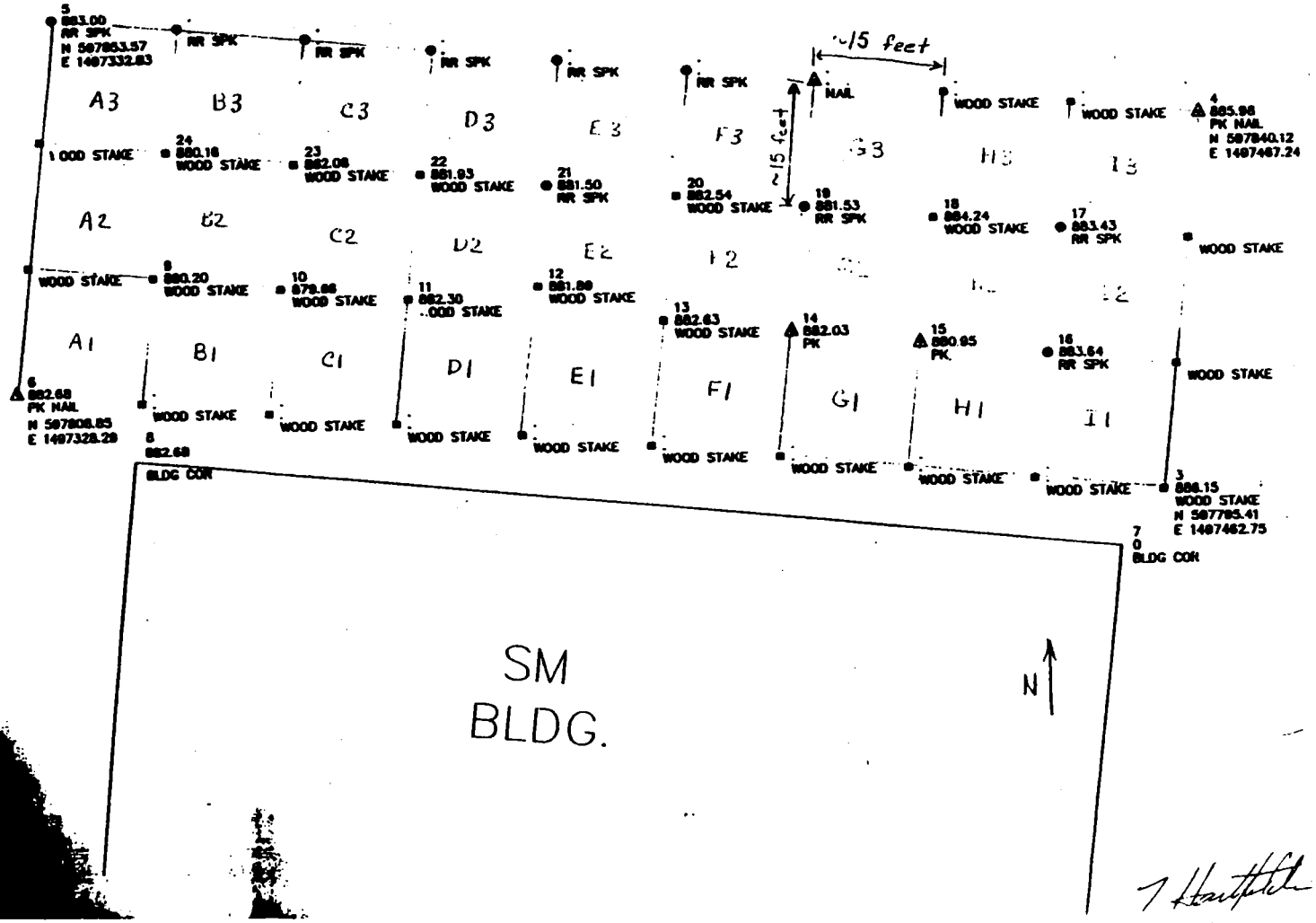
APPENDIX A

FIELD MAPS

OPERABLE UNIT 6, AREA 17 SAMPLING, SEPT 3-4, 1991



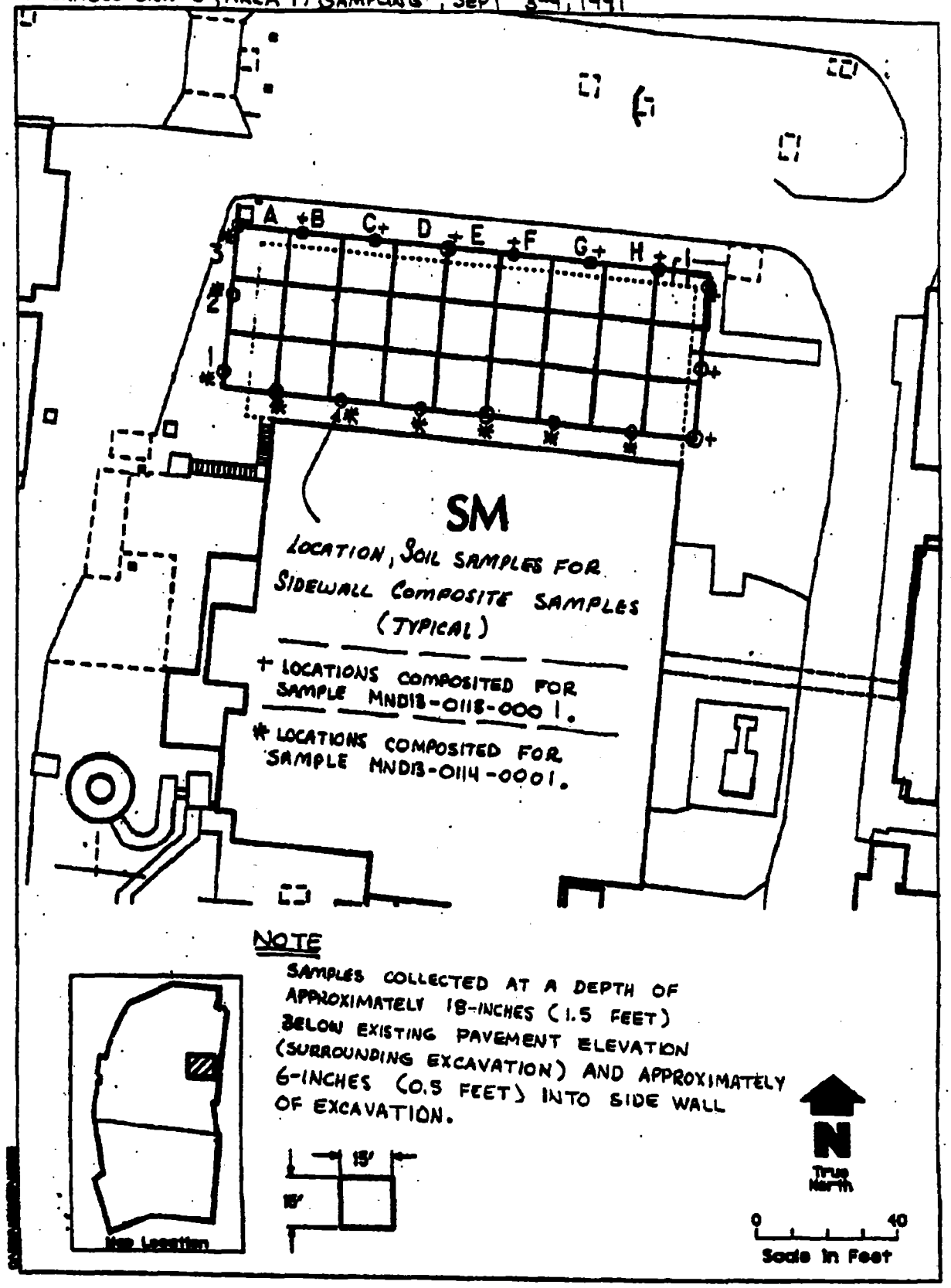
ALL ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL.

ELEVATIONS STATED FOR THE FOUR (4) EXTERIOR CORNERS OF THE SITE ARE ELEVATIONS OF THE PAVEMENT SURROUNDING THE EXCAVATION. REMAINING ELEVATIONS ARE OF THE EXCAVATIONS BOTTOM SURFACE.

T Hartfield

LOCATIONS OF SAMPLES: MND13-0113-0001
MND13-0114-0001

OPERABLE UNIT 6, AREA 17 SAMPLING, SEPT 3-4, 1991



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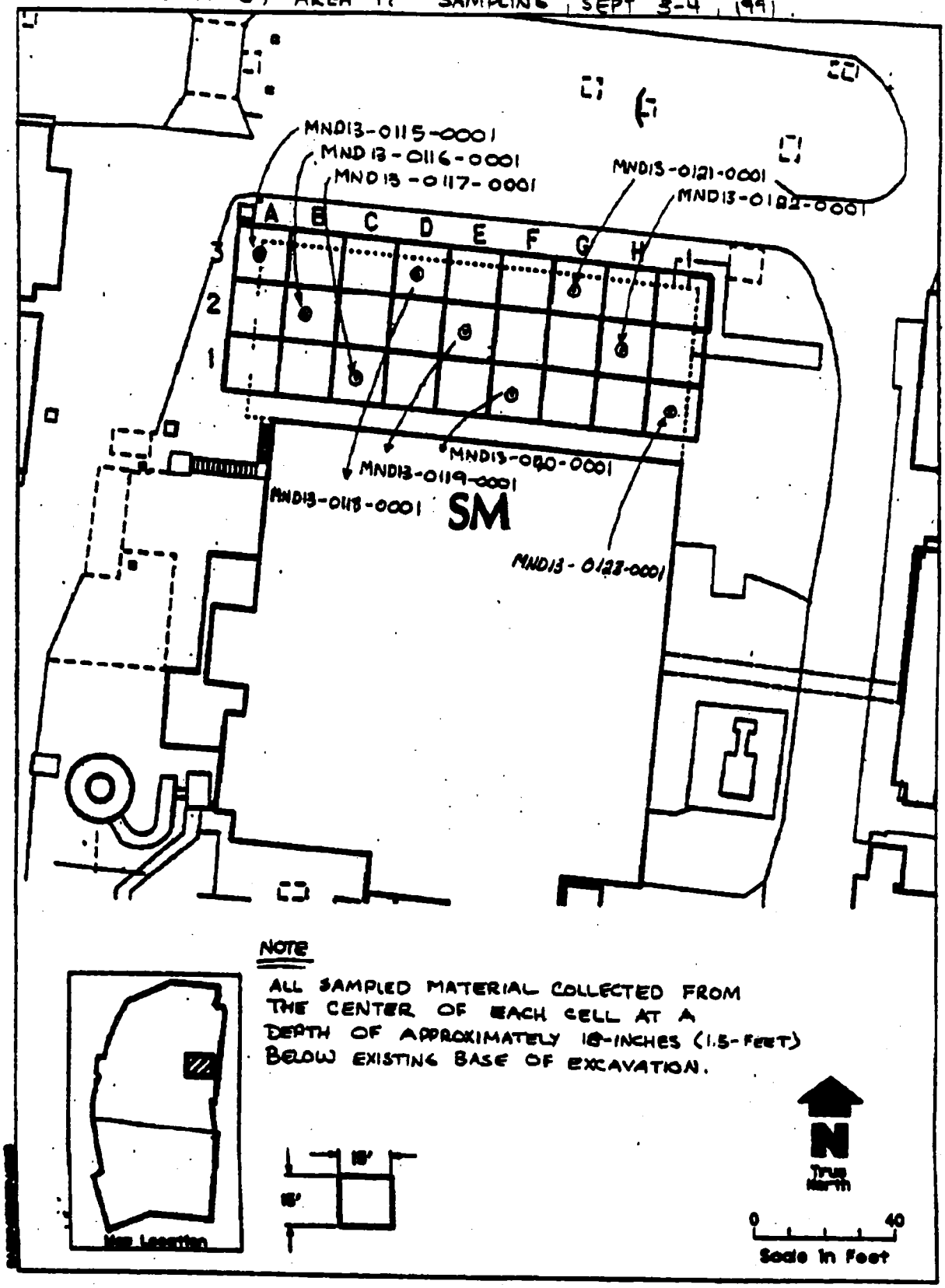
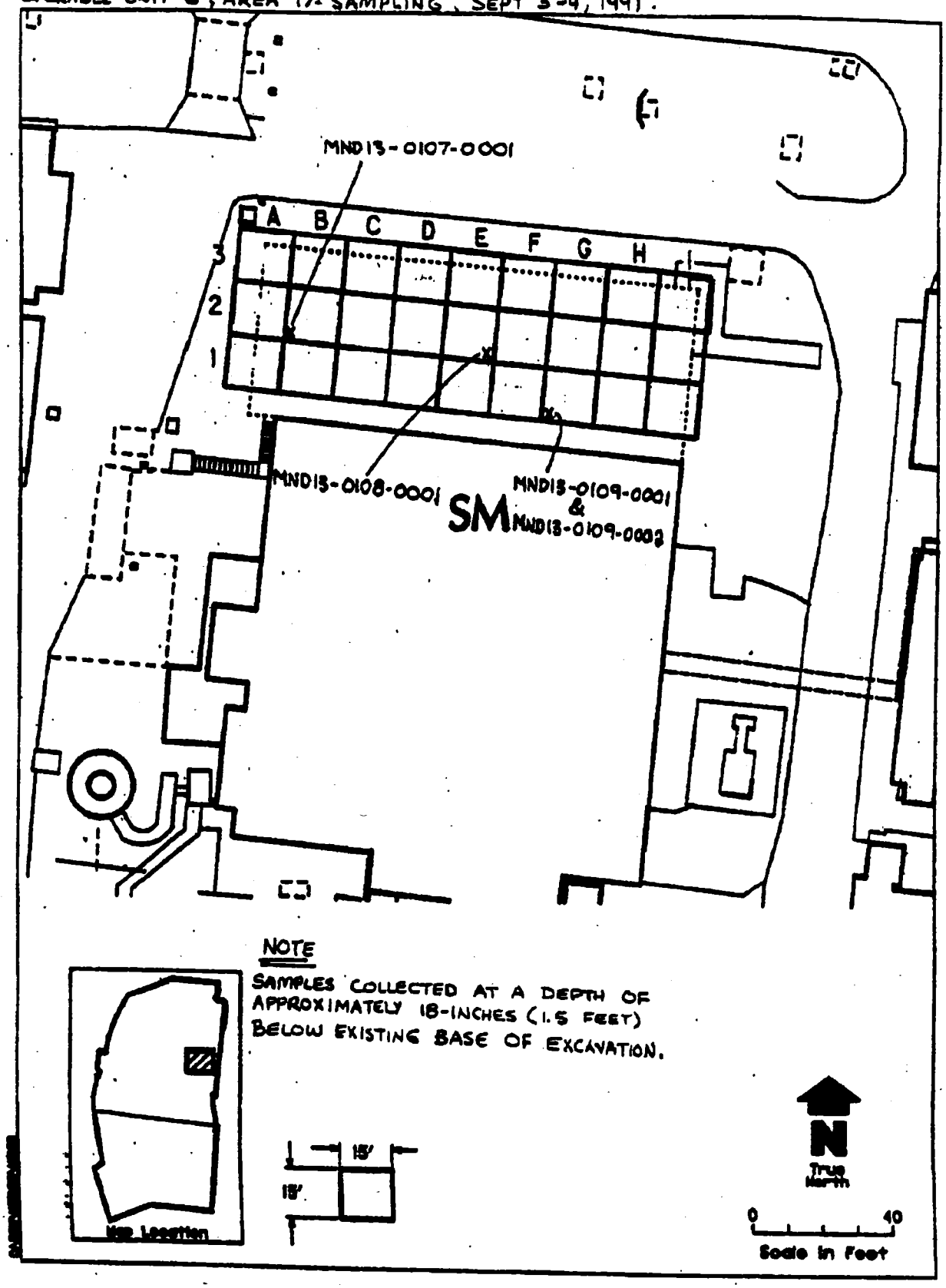
OPERABLE UNIT 6, AREA 17 SAMPLING, SEPT 3-4, 1991.



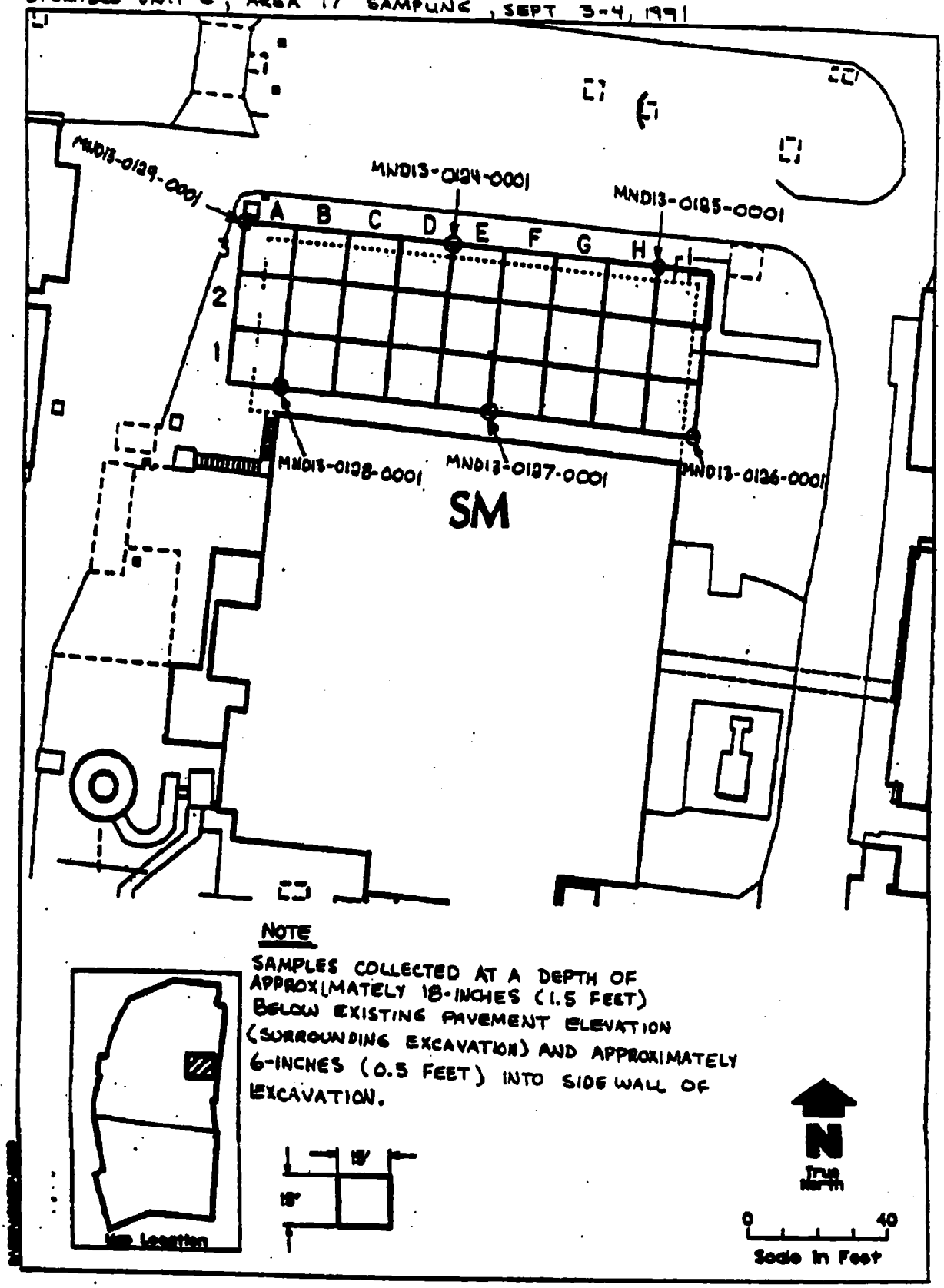
LOCATIONS OF SAMPLES: MND13-0107-0001
MND13-0108-0001
MND13-0109-0001
MND13-0109-0002

OPERABLE UNIT 6, AREA 17- SAMPLING, SEPT 3-4, 1991.



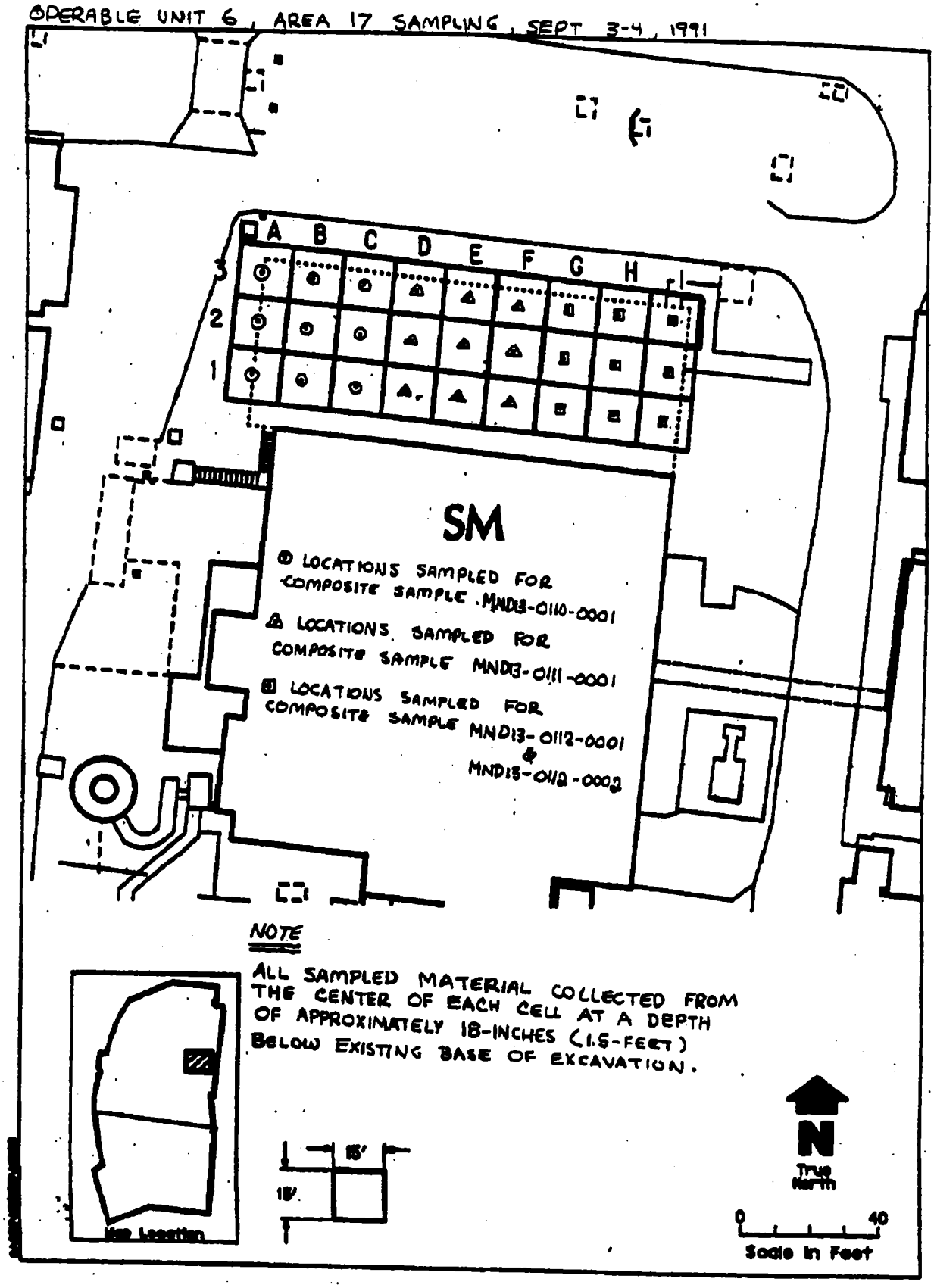
LOCATIONS OF SAMPLES: MND13-0124-0001 MND13-0125-0001 MND13-0126-0001 MND13-0127-0001 MND13-0128-0001 MND13-0129-0001

OPERABLE UNIT 6, AREA 17 SAMPLING, SEPT 3-4, 1991



LOCATIONS OF SAMPLES: MND13-0110-0001
MND13-0111-0001
MND13-0112-0001
MND13-0112-0002

OPERABLE UNIT 6, AREA 17 SAMPLING, SEPT 3-4, 1991



B

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APPENDIX B

HEALTH AND SAFETY FORM USED BY WESTON DURING SAMPLING

SITE HEALTH AND SAFETY PLAN (HASP) FORM

Prepared By Robert J. Hysong Date 6-17-91 W.O. = 2744-40-13155

I. General Information

A. Project Identification

1. Division _____ 2. Department/Office Cincinnati

4. Site Name Mound 5. Client LANL

6. Work Location Address 1 Mound Road Miamisburg OH 45343
(Street Address) (City) (State) (Zip)

B. Site History

1. Describe briefly Soil contains Plutonium-238 contamination ≤681 pCi/g based on preliminary sampling performed 1/91. Areas verified ~~[illegible]~~ fixed for radioactivity.

C. Scope of Work

1. Describe briefly Collect soil samples from ≈7 waste packages for analysis requirements for waste acceptance at Nevada Test Site. Perform Chemical verification at Area 14 & 17.

( ) Site Visit only, Site HASP not necessary, list personnel here & sign-off below:

_____, _____, _____, _____

D. Hazard Assessment and Regulatory Status

1. Indicate Yes (Y)/No (N) to types of hazards anticipated. (N) Physio-chemical: Toxic Chemical - Levels (N) >TLV-TWA, (N) >TLV-STEL, (N) >IDLH; (N) Bio-Hazards: (Y) Radiation; (Y) Physical; (Y) Construction type; (N) Industrial type; (Y) Nuclear Industry type

2. Site Regulatory Status: CERCLA/SARA - (Y) U.S. EPA, (Y) State, (Y) NPL Site: RCRA - (Y) U.S. EPA, (Y) State: OSHA - (Y) 1910, (Y) 1926, (Y) State: NRC - (N) 10 CFR 20; Other Fed. Agency - (Y) DOE, (N) USATHAMA, (N) Air Force:

Based on the Hazard Assessment and Regulatory Status, determine the Standard HASP(s) applicable to this project. Indicate below which Standard Hasp will be used and append the appropriate pages of this Form along with the Standard Plan.

3. Standard Plan to be used: (N) Stack Test (N) Air Emissions (N) Asbestos (Y) Industrial Hygiene (N) Life Systems (Y) Hazardous Mat. (Y) Construction (Y) NRC/DOE (N) USATHAMA (N) Air Force

D. Review and Approval Documentation

1. Reviewed By: a. P.M. Kenneth Baker Date 6/21/91
b. P.D. Kelly M. Plume Date 21 Jun 91
c. DSO/RSO _____ Date _____
d. SHSC _____ Date _____

2. Approved BY: Robert P. Schwendel for GHC Date 6/21/91
(X) a. Corporate Health and Safety Director (CHSD)
( ) b. DSO/RSO (Only with specific delegation by CHSD)

Project Start Date 6-24-91 ; End Date June-30-91 This Site HASP must be Reissued/Reapproved for any activities conducted after: Date 7-25-91

Amendment Date(s) 1._____ 2._____ 3._____ 4._____ 5._____

1.0 Key Personnel (Continued)

WESTON Representatives

Organization/Branch	Name/Title	Address	Telephone
Weston/Cincinnati	John Price	Suite 3301 Triangle Park Drive	513-772-344
Weston/Albuquerque	Ken Baker	6501 Americas PKWY, NE Suite 800	505-994-505

Roles and Responsibilities: John Price - Installation Manager; Ken Baker Project Manager

(WESTON Subcontractors) N/A

Organization/Branch	Name/Title	Address	Telephone

Roles and Responsibilities:

2.2 Site Specific Health and Safety Personnel

The SHSC for activities to be conducted at this Site is Miles Smith

The Site Health and Safety Coordinator (SHSC) has total responsibility for ensuring that the provisions of this Site HASP are adequate and implemented in the field. Changing field conditions may require decisions to be made concerning adequate protection programs. Therefore, the personnel assigned as SHSC's are experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120

Qualifications: D-S, B-T

Designated alternatives include: Jeff Slater: C-S & B-S certified and Tom Tharp: C-T & B-T certified

II. Health and Safety Evaluation

A. Hazard Assessment

1. Background Review: Complete ( ) Partial (X) If partial, why? Soil has only been analyzed for radioactive constituents - nor chemical hazards, but chemical hazards are unlikely in Area 14 & 17 (Task 2 & 3) have been verified for radioactive removal.

2. Activities Covered Under this Plan

No.	Task/Subtask	Description	Schedule
1	Waste/soil Sampling	Sample recently excavated soil from waste boxes	6/24-6/2
2	Area 14 Sampling	Will sample for hazardous constituents in soil	"
3	Area 17 Sampling	"	

3. Types of Hazards: (Place a Y/N in each ( ) to indicate presence/absence of hazard)

a. PhysioChemical (N) Flammable (N) Explosive (N) Corrosive (N) Reactive
(N) O_2 Rich (N) O_2 Deficient [1]*

Chemically Toxic (N) Inhal. (N) Ingest. (N) Cont. (N) Absorb.
(N) Carcin. (N) Mutagen (N) Terat.
(N) OSHA 1910.1000 Substance
(N) OSHA Specific Hazard. Sub. Standard, Describe _____

b. Biological (N) Etiol. Agent (Y) Other - Plant, insect, animal, [2]*

c. Radiation Ionizing - (Y) Internal Exposure (N) External exposure [3]*
Non-ionizing - (N) UV: (N) IR: (N) RF: (N) MicroW: (N) LASER

d. Physical Hazards (Y) [4]* e. Construction Activities (Y) [5]*

* The number in the [ ] refers to one of the following hazard evaluation forms. Complete hazard evaluation forms for each appropriate Hazard Class.

B. Source/Location of Contaminants and Hazardous Substances

1. Directly Related to Tasks

(N) Air _____; (Y) Soil _____;
(N) Other Surface _____; (N) S. Water _____;
(N) G. Water _____; (N) Other _____.

2. Indirectly Related to Work - Nearby Process(s) which could affect team members:

(Y) Client Facility: (N) Nearby Non-client Facility, Describe Mound Plant Manufactures Nuclear weapon Components

( ) Client briefing arranged. Tell Monte you want HP coverage

[1] Chemical Hazards No hazardous materials are expected. Sampling is for verification only.

[a] Identify and attach Material Safety Data Sheets for all reagent type chemicals, solutions or other materials identified as or which in normal use could produce hazardous substances used in performing tasks related to tasks related to this project. ( ) N/A

[b] Chemical Contaminants of Concern ( ) N/A If present, provide following data.

Hazardous Substance/ Tasks	Physical Properties and Characteristics*	Exposure Limits PEL/TLV**	Route(s) of Exposure***/ Symptoms	Monitoring Instruments/IP+ % Response
	(*) State_____ pH___FP_____LEL_____UEL_____ Auto.Ig_____BP _____MP_____ Incompatible with - _____ _____ _____ Sp.Gr_____Vap.D_____ Vap.P_____H20 Sol._____ Oth._____,_____			
	(*) State_____ pH___FP_____LEL_____UEL_____ Auto.Ig_____BP _____MP_____ Incompatible with - _____ _____ _____ Sp.Gr_____Vap.D_____ Vap.P_____H20 Sol._____ Oth._____,_____			

* E = Explosive, F = Flammable, C = Corrosive, R = Reactive, W = Water reactive, O = Ox
Ra = Radioactive. State = Normal physical state at site/proj. temp.

** Use lowest of two, if no TLV/PEL, use Toxicity data in following order: Lowest Toxic humans (LTC-HMN), Lowest Lethal Conc. in humans (LLC-HMN), Lowest Toxic Dose in humans Lowest Lethal Dose in humans (LLD-HMN), LC_{50} or LD_{50} in humans, the Lowest Toxic Concen Lowest Toxic Dose in animals, the lowest LC_{50} or LD_{50} in animals.

*** I = Inhalation, G = Ingestion, S = Skin Absorption, C= Contact, D - Direct Penetra

+ IP = Ionization Potential

[2] Biological Hazards Of Concern

No.	Hazard	Y/N	Task No.(s)*	Location/ Source K,S**	Route of Exposure I,G,C,D**	Team Member(s) Allergic?	Immunization Required?
1.	Poisonous Plants	(Y)	1,	K	C		
2.	Insects	(Y)	1	K	D		
3.	Snakes, Reptiles	(Y)	1	K	D		
4.	Animals	(N)					
5.	Sewage	(N)					
6.	Etiologic Agents	(N) (List)					

* List all task Nos. which would involve potential exposure to these hazard(s).
** K = Known, S = Suspect. I = Inhalation, G = Ingestion, C = Contact, D = Direct Penetration (Bite, Inject., Open wound or sore)

[3] Radiation Hazards of Concern

TYPE

1. Ionizing

RadioNuclide	Location/ Source	TYPE EMITTER	TASK NO.(S)	EXPOSURE LIMITS	Protection Protocol REFERENCE
Plutonium-238	soil	alpha	1	3×10^{-12} µCi/ml inhalation	DOE Order 5480.11

~~Non~~
Areas 14 & 17 (Task 2&3) have had pu-238 contaminated soil removed and ~~are~~ have been verified to have less than 100 pCi/g ~~[illegible]~~ remaining.

2. Non-ionizing

N/A	Location/ Source	TASK NO.(S)	EXPOSURE LIMITS	Protection Protocol REFERENCE
Ultra violet				
Infra Red				
Microwave				
Radio-Freq.				
LASER				

[4] Physical Hazards of Concern

		Hazard (Y/N)	TASK No(s).	Protection CP(s) Attached
1.	Noise	(Y)	1	
2.	Heat - ambient air	(N)		
	- Hot Process - Steam	(N)		
	- Hot Process - LT^3	(N)		
	- Hot Process - Incin.	(N)		
3.	Cold	(N)		
4.	Rain	(Y)	1	
5.	Snow	(N)		
6.	Electric Storms	(Y)	1	
7.	Confined Space Entry	(N)		
8.	"Hot Work"	(N)		
9.	Heavy Manual Lifting/Moving	(N)		
10.	Rough Terrain	(N)		
11.	Housekeeping	(Y)	1	
12.	Structural Integrety	(N)		
13.	Neighborhood	(N)		
14.	Remote Area	(N)		
15.	Compressed Gases	(N)		
16.	Diving	(N)		
17.	Using Boats	(N)		
18.	Working over Water	(N)		
19.	Traffic	(N)		
20.	Explosives	(N)		
21.	Heavy Equipment Operation	(N)		
22.	Lifting Equipment Operation. - Cranes,	(N)		
	- Manlifts	(N)		
23.	Working at Elevation	(N)		
24.	Using Ladders	(Y)		
25.	Using Scaffolding	(N)		
26.	Excavating/Trenching	(N)		
27.	Materials Handling	(Y)		
28.	Haz. Mat. Use/Storage - flam.liq./gases	(N)		
	- oxidizers	(N)		
	- corrosives	(N)		
29.	Fire Prevent/Reponse plan required	(N)		
30.	Fire Extinguishers required	(N)		
31.	Demolition	(N)		
32.	Utilities - Underground	(N)		
	- Overhead	(N)		
33.	Electrical - General	(N)		
	- High Voltage	(N)		
34.	Welding/cutting/burning	(N)		
35.	Hand tools	(Y)	1	
36.	Power Hand Tools	(N)		
37.	High Pressure Water	(N)		
38.	Other _____	(N)		
39.	Other _____	( )		
40.	Other _____	( )		

TASK BY TASK RISK ANALYSIS

The preceding Tables identify the hazards known or suspected to be present in accomplishing the tasks involved in this project.

Section II A. 2. of this HASP describes the background of this site/project and identifies the tasks involved.

Below briefly describe each task and the likelihood of exposure to the hazards identified and the protective protocols to be used.

Task 1. Soil Sampling From Waste Box
Likelihood of Exposure: LOW

Associated Hazards: Removing a core of soil from 5 waste packages involves a slight possibility of physical injury. Hammering the sampling device into the soil could result in cut or broken fingers. The sampler shall wear latex inner gloves and outer work gloves to provide physical and radiological protection. Also, a possibility of bone breaks or muscle/joint injuries from falling off either the box or ladder.

Radiological hazards exist if the soil, containing Pu-238, comes into contact with field personnel through inhalation, ingestion or open wound. Soil will be moist to reduce airborne plutonium-238. No eating, chewing, smoking or drinking by field personnel permitted. Soil outside the sampling area will be covered to reduce the possibility of airborne contamination. Exposed soil will be kept to a minimum. NO sampling will be perform in presence of visible dust.

Concentrations of Pu-238 in the soil range from <25pCi/g to 681pCi/g. Dust loading in the general area (OU-4) has been measured before during heavy construction (see Envir. Monitoring During Constr. of the Miamisburg Solar and Fishing Ponds MLM-2621, 1979. 250 µg/m³ was highest value measured. Most measurements <100 µg/m³. Assuming all soil 680pCi/g result in the following worst case airborne Pu:

$$(250 \times 10^{-6} g/m^3)(680 pCi/g)\left(\frac{uCi}{10^6 pCi}\right)\left(\frac{m^3}{10^6 ml}\right) = 1.7 \times 10^{-13} uCi/ml \text{ Pu-238 airborne}$$

5 boxes will be sampled requiring 1 hour max per box so DAC hours exposure is:

$$\frac{(1.7 \times 10^{-13} uCi/ml)}{3 \times 10^{-12} uCi/ml}(5h) = 0.3 \text{ DAC hours}$$

. Since 2000 DAC hrs are allowed annual exposure, this represents only $\left(\frac{0.3 \text{ DAC hrs}}{2000 \text{ DAC hrs}}\right)$ 0.01% of allowable annual exposure,

Task 2 & 3

Sampling will be performed in Areas 14 and 17 to verify that hazardous materials are not present in the soils. ~~the~~ Both areas have been verified to ~~have~~ have concentrations less than 100 pCi/g of Pu-238 in the soil. No hazardous constituents are expected.

NOTE: A MOUND PLANT HEALTH PHYSICS TECHNICIAN WILL BE ON-SITE TO OVERSEE ALL TASK ACTIVITIES.

III. Personnel Protection Plan

A. Engineering Controls

1. Describe Engineering Controls used as part of Personnel Protection Plan:

Task(s)

1 Cover waste/soil boxes with tarp to minimize area of soil exposed

B. Administrative Controls Make sure soil is moist before sampling

1. Describe Administrative controls used as part of Personnel Protection Plan

Task(s) No eating, chewing, smoking or drinking

1,2,3 No work if visible dust

C. Personnel Protective Equipment *

1. Action Levels for Changing Levels of Protection

(1) Task No.(s) Define Action Levels for up or down grade for each task

1. If visible dust observed (1mg/m³) then no work is performed. 1mg/m³ dust load represents 1/1 DAC hrs from sampling all 5 boxes or 0.06% of allowable annual exposure. Given the worst possible case conditions assumed and the precautions that will actually be taken exposure from this performing waste/soil sampling will be ALARA

c. Description of Levels

Task(s)	1		
	Level D	Level D	
Head	(X) hard hat	( )	( )
Eye & Face	(X) Safety Glasses	( )	( )
Hearing	(X) ear plugs	( )	( )
Arms & Legs only	( )	( )	( )
Whole Body	( )	( )	( )
Apron	( )	( )	( )
Hand - gloves inner	( ) rubber or latex	( )	( )
- gloves outer	( ) work gloves	( )	( )
- gloves	( )	( )	( )
Foot - Boots	(X) Steel toed	( )	( )
- Boots outer	(X) plastic booties	( )	( )
- Boots	( )	( )	( )

If necessary to avoid contact with soil

c. Description of Levels of Protection. (Cont.) Levels C and B

Task(s)	_____		_____	
	Level __		Level __	
Head	( )_____	( )_____	( )_____	( )_____
Eye & Face	( )_____	( )_____	( )_____	( )_____
Hearing	( )_____	( )_____	( )_____	( )_____
Arms & Legs only	( )_____	( )_____	( )_____	( )_____
Whole Body	( )_____	( )_____	( )_____	( )_____
Apron	( )_____	( )_____	( )_____	( )_____
Hand - gloves	( )_____	( )_____	( )_____	( )_____
- gloves	( )_____	( )_____	( )_____	( )_____
- gloves	( )_____	( )_____	( )_____	( )_____
Foot - Boots	( )_____	( )_____	( )_____	( )_____
- Boots	( )_____	( )_____	( )_____	( )_____
- Boots	( )_____	( )_____	( )_____	( )_____
APR - Neg. Pres. Half Face	( )_____	( )_____	( )_____	( )_____
Cart./Canister	( )_____	( )_____	( )_____	( )_____
Full Face	( )_____	( )_____	( )_____	( )_____
Cart./Canister	( )_____	( )_____	( )_____	( )_____
PAPR	( )_____	( )_____	( )_____	( )_____
Cart./Canister Type C	( )_____	( )_____	( )_____	( )_____
SAR - Airline	( )_____	( )_____	( )_____	( )_____
SCBA	( )_____	( )_____	( )_____	( )_____
Comb.Airline/SCBA	( )_____	( )_____	( )_____	( )_____
Cascade Syst.	( )_____	( )_____	( )_____	( )_____
Compressor	( )_____	( )_____	( )_____	( )_____
Fall Protection	( )_____	( )_____	( )_____	( )_____
Floatation	( )_____	( )_____	( )_____	( )_____
_____	( )_____	( )_____	( )_____	( )_____

IV. Site or Project Hazard Monitoring Program

A. Direct Reading Air Monitoring Instruments

1. Instrument Selection & Initial Check Record

	No.	Task No.(s)	Instrument checked upon receipt	Initials
CGI-	( )		( )	
O_2 -	( )		( )	
CGI/O_2-	( )		( )	
CGI/O_2/tox-PPM,H_2S,H_2S/CO	( )		( )	
RAD-GM, mR meter	( )		( )	
-NaI	(X)	1,2,3	( )	
-ZnS	(X)	1,2,3	( )	
-OTHER	( )		( )	
PID -HNU 10.2	( )		( )	
-HNU 11.7	( )		( )	
-HNU 9.5,	( )		( )	
-PHOTOVAC,TMA,OTHER	( )		( )	
FID -FOX-128	( )		( )	
-FOX 128GC	( )		( )	
-HEATH,AID,OTHER	( )		( )	
RAM, Mini-RAM, Other	( )		( )	
MONITOX-HCN	( )		( )	
H_2S	( )		( )	
COCL,	( )		( )	
SO_2,	( )		( )	
OTHER	( )		( )	
Bio-Aerosol Monitor	( )		( )	
Detector Tubes				
Pump - MSA,Draeger,Sensidyne	( )		( )	
- Tubes(No.)/type	( )		( )	( )
- Tubes(No.)/type	( )		( )	( )

Reporting Format X 1.Field notebook. X 2.Field data sheets. ___3.Air monitoring log.___4.Trip report.___5.Other:

2. Direct Reading Air Monitoring Instruments Calibration Record

Instrument, Mfg., Model, Eqp.ID. No.	Date	Time	Calib. Material	Calib. Method Mfg.'s	Other	Initial Setting& Reading	Final Setting& Reading	Calibs Initial

Miami Site Air Monitoring Program

Air Monitoring Instrument Pu-239 & other particulates

Air Monitoring Frequency	Tasks
___ 1. Periodically ___	1
___ 2. Periodically ___	
X 3. Continuous – (weekly sampling)	
___ 4. Other: ___	

Monitoring Locations	Tasks
X 1. Upwind/downwind of site activities.	
X 2. Near residents, etc.	
___ 3. Key site activity locations:	
___ decon area	
___ staging area	
___ excavation area	
___ field lab area	
___ storage tanks	
___ lagoons	
___ drums	
___ 4. Fixed stations	
___ 5. Other: ___	

Air Monitoring Instrument Tritium Oxide

Air Monitoring Frequency (weekly sampling)	Tasks N/A to this Task
___ 1. Periodically ___	
___ 2. Periodically ___	
X 3. Continuous	
___ 4. Other: ___	

Monitoring Locations	Tasks N/A to this task
X 1. Upwind/downwind of site activities.	
___ 2. Near residents, etc.	
___ 3. Key site activity locations:	
___ decon area	
___ staging area	
___ excavation area	
___ field lab area	
___ storage tanks	
___ lagoons	
___ Drums	
___ 4. Fixed stations	
___ 5. Other: Stack Samplers	

D. Action Levels

____ 1. Explosive atmosphere: Tasks _____

Action Level	Action
<10% LEL	Continue investigation
10%-25% LEL	Continue on-site monitoring with extrem caution as higher levels are encountere
>25% LEL	Explosion hazard **Withdraw from area immediately.**

____ 2. Oxygen: Tasks _____

Action Level	Action
<19.5%	Monitor wearing SCBA
	NOTE: Combustible gas readings may not be valid in atmospheres with <19.5% oxyt
19.5%-25%	Continue investigation with caution, as Oxygen levels > 21% require extreme caution. Other than normal level may be due to presence of other substances.
>25%	Fire hazard potential. Stop work and Consult a fire safety specialist.

X 3. Radiation: Tasks _____

- BKG should be taken
round uncontaminated soil
offsite - should be ≈ 12 μR/h

Action Level	Action
3 x Bkg - <2 mR/hr	Radiation above background levels (normally 0.01-0.02 mR/hr) signifies possible source(s) radiation present. Continue investigation with caution. Perform thorough monitoring. **Consult with a health physicist.**
> 2 mrem/hr	Potential radiation hazard. Evacuate site. Continue investigation only upon the advice of a health physicist.

____ 4. Organic gases and vapors:

____ 5. Inorganic gases and vapors:

Action Level	Action
Depends on chemical	Consult standard reference manuals for air concentration/ toxicity data. Action level depends on PEL/REL/TLV.

These Action Levels, if not defined by regulation, is some percent (usually 50%) of the applicable PEL/REL/TLV. That number must also be adjusted to account for instrument response factors.

Ambient Air Sampling - Decision Logic and action levels to institute Air Sampling

X No air sampling is required on this site.

____ An air sampling plan is incorporated in this HASP.

Check situations which will require or action levels which will apply to deciding to institute or increase scope of planned air sampling.

Meteorological conditions:

___ a. Dry weather for _____ days. ___ b. ambient temperature above ___ F°.

___ c. Wind increasing potential of more contaminant dispersion in or migration out of controlled area.

Activities which will require instituting or increasing scope of air sampling:

___ a. major spills

___ b. new site activity resulting in potential presence of new chemical hazards.

___ c. site activity increases airborne contaminants possibilities.

___ d. Air sampling documentation required for:
___ Downgrading from stipulated level of protection.
___ Documenting no migration of contaminants off site through air

Applicable Action Levels for instituting Air Sampling: (Check as Appropriate)

____ a. Visible vapor/gas clouds or vapors levels, or ____ b. Visible dust or particulate levels measured with Direct Reading Instrument, two - three times background or above action level, sustained over 10-15 minute period.

1) Sampling Matrix/
air interface - Monitor matrix/air interface and breathing zone periodically with DRI, if Vapor levels > 2-3 times background, monitor continuously, follow No. 4.

2) Container opening - Monitor opening and breathing zone periodically with DRI, if Vapor levels > 2-3 times background, monitor opening and breathing zone continuously, follow No. 4.

3) Excavation/Drilling/
Intrusive work - Monitor at ground level and breathing zone periodically with DRI, if Vapor levels > 2-3 times background, monitor opening and breathing zone continuously, follow No. 4.

4) Breathing zone - Ensure level of protection specified in HASP is being used. Consult HASP or Corporate Health and Safety relative to instituting personnel, area or perimeter Sampling.

Other: _____

B. Sample Location

____ 1. Ambient background - Locations: Substances Sampled for

a. _____ _____
b. _____ _____

____ 2. Personal samples, onsite - Locations

a. _____ _____
b. _____ _____
c. _____ _____
d. _____ _____
e. _____ _____
f. _____ _____

____ 3. Personal samples, offsite - Locations

a. _____ _____
b. _____ _____
c. _____ _____
d. _____ _____

____ 4. Fixed onsite samples - Locations:

a. _____ _____
b. _____ _____
c. _____ _____
d. _____ _____
e. _____ _____
f. _____ _____

____ 5. Fixed offsite samples - Locations:

a. _____ _____
b. _____ _____
c. _____ _____
d. _____ _____
e. _____ _____

____ 6. Mobile offsite samples - Locations:

a. _____ _____
b. _____ _____
c. _____ _____

____ 7. Mobile onsite samples - Locations:

a. _____ _____
b. _____ _____
c. _____ _____

____ 8. Background sample stations - Locations

a. _____ _____
b. _____ _____
c. _____ _____

B. Air Sampling

1. Personal Sampling Pumps - Gillian,SKC,MSA No. ( ) _____

Sampling Media - Sorbent Tubes

Task(s)	Location	Duration	Frequency	Type	Anal.	Meth

Sampling Media - Filter

Task(s)	Location	Duration	Frequency	Type	Anal.	Meth

Sampling Media - Impinger

Task(s)	Location	Duration	Frequency	Type	Anal.	Meth

Sampling Media - Air Bag

Task(s)	Location	Duration	Frequency	Type	Anal.	Meth

B. Air Sampling

2. Hi-Volume Pumps

Sampling Media - Filter

Task(s)	Location	Duration	Frequency	Type	Anal. Meth.

3. PORTABLE GAS CHROMATOGRAPH Task(S) _____ Type _____

Portable GC Analytical Plan: _____

4. Passive Dosimeters

		TASK(S)	TYPE	LOCATION	FREQUENCY	DURATION
Organic Vapor	( )					
Mercury Vapor	( )					
Paper Color Change	( )					
TLD	(x)	1 2 3				
Film Badge	( )					
Liquid Media	( )					

5. WIPE SAMPLING

1. Wipe Sampling Plan _____

C. Physical Hazard and Miscellaneous Monitors and Detectors

		TASK(S)	CALIBRATION RQD?	METHOD	Location	Frequency
SOUND LEVEL METER	( )	_____	( )	_____	_____	_____
NOISE DOSIMETER(s)	( )	_____	( )	_____	_____	_____
OCTAVE BAND ANALYER	( )	_____	( )	_____	_____	_____
LIGHT METER	( )	_____	( )	_____	_____	_____
ELECTRIC CIRC. DETECTOR	( )	_____	( )	_____	_____	_____
Thermometer	( )	_____	( )	_____	_____	_____
Wind Speed Indic.	( )	_____	( )	_____	_____	_____
Barometer	( )	_____	( )	_____	_____	_____
Psychrometer	( )	_____	( )	_____	_____	_____
Infra Red Thermom.	( )	_____	( )	_____	_____	_____
Micro Wave Detector	( )	_____	( )	_____	_____	_____
pH METER	( )	_____	( )	_____	_____	_____

D. Indicator Kits

		TASK(S)	LOCATION	FREQUENCY
pH PAPER	( )	_____	_____	_____
PEROXIDE PAPER	( )	_____	_____	_____
CHLOR-N-OIL KIT	( )	_____	_____	_____
HAZARD CATAGORIZING KIT	( )	_____	_____	_____
ASBESTOS TEST KIT	( )	_____	_____	_____

G. Work Location Instrument Readings

Location _____

% LEL ____/____/____/____; % O_2 ____/____/____/____; PID ppm ____/____/____

FID ppm ____ ____ ____ Aerosol Monitor mg/M^3 ____/____/____

GM: Shield Probe/Thin Window - mR/hr____/____/____:cpm____/____/____

NaI____/____/____/____uR/hr: ZnS____/____/____/____cpm

(Monitox)ppm: ( )____/____/____/____; ( )____/____/____/____/____;

( )____/____/____/____/____; ( )____/____/____/____/____;

(Detector Tube)(s): ( )____/____/____/____; ( )____/____/____/____;

( )____/____/____/____; ( )____/____/____/____; ( )____/____/____

Sound Levels ____dBA; ____dBA; ____dBA; ____dBA; ____dBA; ____dBA; ____dB

Illumination ____ pH ____ Other____ ____ Other____ ____ Other __

Location _____

% LEL ____/____/____/____; % O_2 ____/____/____/____; PID ppm ____/____/____

FID ppm ____ ____ ____ Aerosol Monitor mg/M^3 ____/____/____

GM: Shield Probe/Thin Window - mR/hr____/____/____:cpm____/____/____

NaI____/____/____/____uR/hr: ZnS____/____/____/____cpm

(Monitox)ppm: ( )____/____/____/____; ( )____/____/____/____/____;

( )____/____/____/____/____; ( )____/____/____/____/____;

(Detector Tube)(s): ( )____/____/____/____; ( )____/____/____/____;

( )____/____/____/____; ( )____/____/____/____; ( )____/____/____

Sound Levels ____dBA; ____dBA; ____dBA; ____dBA; ____dBA; ____dBA; ____dBA

Illumination ____ pH ____ Other____ ____ Other____ ____ Other __

IV. DECONTAMINATION PLAN

1. Personnel Decontamination

Section III C. lists the tasks and specific levels of protection required for each. Consistent with the levels of protection required, step by step procedures for personnel decontamination for each Level of Protection are attached.

2. Levels of Protection Required for Decontamination Personnel

The levels of protection required for personnel assisting with decontamination will be [___ Level B, ___ Level C, X Level D].
(CHECK) Modifications include: Frisk out when leaving area using ZnS scintillometer

4. Equipment Decontamination

A procedure for decontamination steps required for non-sampling equipment and heavy machinery folllows: _____

5. Sampling Equipment Decontamination

Sampling equipment will be decontaminated in accordance with the following procedure: SOP 1.6

3. Disposition of Decontamination Wastes

(Provide a description of waste disposition including identification of storage area, hauler, and final disposal site if applicable.)
Place disposable booties (if used) and decontamination fluids in plastic lined drums. Mound will store and dispose of wastes as necessary.

VI. Contingencies

A. Emergency Contacts and Phone Numbers

Agency	Contact	Phone Number
Local Medical Emergency Facility	Sycamore Hospital	(513) 296-7026
WESTON Medical Emergency Contact	AGATHA	(513) 421-3063
WESTON Health and Safety 24 Hour	Jeff Slater/	(505) 884-5050 or 866-6884 onsite
Fire Department	Fire Chief - Dave Heitz	7111 or (513) 865-313
Police Department	Security - Mark Gibson	7111 or (513) 865-3281
Onsite Coordinator	Dick Neff	(513) 865-3616
Site Telephone	Weston Trailer	(513) 866-6884
Nearest Telephone		TBD

B. Local Medical Emergency Facility(s)

1. Primary

Name of Hospital Sycamore Hospital

Address: 2150 Leiter Rd. Miamisburg, OH Phone No. (513) 296-7026

Name of Contact _____ Phone No. _____

Type of Service - Physical trauma only ( ) Chemical exposure only ( )
Physical trauma & chemical exposure (x) Available 24 hours (x)

Route to Hospital: (Attach Map)
Mound plant south to Benner Rd.and turn left (east) to Gebhart Church Rd. North on Gebhart Church Rd. to Keiter Rd. and turn right. Sycamore hospital is on the right about .5 mile.

Travel Time From Site (Minutes) 5-6 Distance to Hospital (Miles) <5
Name/No. of 24-Hr. Ambulance Service Mound Fire Dept. Medical Response. Dial 7111.

2. Secondary or Special Services Provider

Name of Hospital _____
Address: _____ Phone No. _____
Name of Contact _____ Phone No. _____
Type of Service - Physical trauma only ( ) chemical exposure only ( )
Physical trauma & chemical exposure ( ) Available 24 hours ( )
Route to Hospital: (Attach Map) _____

Travel Time From Site (Minutes) _____ Distance to Hospital (Miles) _____
Name/No. of 24 Hr. Ambulance Service _____

VI. Contingencies (Continued)

C. Response Plans

1. Medical - General

In case of minor injuries to personnel, first aid treatment will be initiated by trained personnel in the field. First-aid treatment is available from Mound Plant paramedics (ext. 7111). In case of serious injuries, the victim will be transported to Sycamore Hospital as soon as possible.

2. Special First Aid Procedures

Hydro fluid onsite ( ) Y/N

a. Attach HF procedure and ensure solution is on site.

Cyanides on site ( ) Y/N

Location

b. Confirm that Local Med. Emerg. Facility has antidote kit.

a. First Aid Kit - Onsite

Type OSHA Approved (First Responder)

a.

In vehicles

b. Eyewash Required Y/N (Y) (If Handling Corrosives)

Location	Location
On Site	

c.

c. Safety Shower (N) Y/N

Location	Location
On Site	

3. Plan for Response to Fire/Explosion

A fire emergency will be handled by evacuating the work area and immediately notifying the Mound Plant fire department (ext. 7111). Only if a fire appears to be small and easily extinguishable will field personnel attempt to put out the fire with available fire extinguishers. The Mound Plant fire department will be notified of any fires. If an explosion occurs, all personel will be evacuated, and no one will reenter the work area until it has been cleared by Mound Plant fire department personnel.

4. Fire extinguisher

a. Type	b. Location
B,C	Vehicles

5. Plan for Response to Spill/Release

Call 7111. Continue monitoring and arrange with Mound personnel to contain and clean up spill. If drums are encountered and not punctured, the excavation will be covered.

6. Spill Response Gear

Description	Location

6. Plan for Response to Security Problems

Contact Mound security.

VII. Site Personnel and Certification Status

A. WESTON

Name	Title	Task(s)	Medical Current	Fit Test Current Qual.	Fit Test Current Quant.	Training Current	Certification Level or Description
1. Ted Hartfelder	Field Team	1	(X)	( )	( )	(X)	(C-T, B-T)
2.			( )	( )	( )	( )	( )
3.			( )	( )	( )	( )	( )
4.			( )	( )	( )	( )	( )
5.			( )	( )	( )	( )	( )
6.			( )	( )	( )	( )	( )
7.			( )	( )	( )	( )	( )
8.			( )	( )	( )	( )	( )
9.			( )	( )	( )	( )	( )
10.			( )	( )	( )	( )	( )
11.			( )	( )	( )	( )	( )
12.			( )	( )	( )	( )	( )
Site Health and Safety Coordinator (SHSC)							
13. Miles Smith			(X)	(X)	(X)	(X)	(D-S, B-T)

(a) Training - All personnel, including visitors, entering the exclusion or contamination reduction zones must have certifications of completion of training in accordance with OSHA 29 CFR 1910 29, CFR 1926/1920 or 29 CFR 1910.120.

(b) Respirator Fit Testing - All persons, including visitors, entering any area requiring the use or potential use of any negative pressure respirator must have had, as a minimum, a qualitative fit test, administered in accordance with OSHA 29 CFR 1910.134 of ANSI within the last 12 months. If site conditions require the use of a full-face, negative pressure, air purifying respirator for protection from asbestos or lead, employees must have had a quantitative fit test, administered according to OSHA 29 CFR 1910.1002 or 1025 within the last 6 months.

(c) Medical Monitoring Requirements - All personnel, including visitors, entering the exclusion or contamination reduction zones must be certified as medically fit to work, and to wear a respirator, if appropriate, in accordance with 29 CFR 1910, 29 CFR 1926/1910 or 29 CFR 1910.120.

The Site Health and Safety Coordinator is responsible for verifying all certifications and fit tests.

3. Subcontractor's Health and Safety Program Evaluation

Name and address of subcontractor: N/A

Activities to be conducted by subcontractor: _____

EVALUATION CRITERIA

Item	Acceptable	Unacceptable	Comments
Medical Program meets OSHA/WESTON Criteria	( )	( )	
Personal Protective Equipment Available:			
a. meets OSHA criteria,	( )	( )	
b. is as specified in WLHASP	( )	( )	
On-Site Monitoring Equipment Available, Calibrated and Operated Properly	( )	( )	
Safe Working Procedures Clearly Specified	( )	( )	
Training meets OSHA/WESTON Criteria	( )	( )	
Emergency Procedures	( )	( )	
Decontamination Procedures	( )	( )	
General Health and Safety Program Evaluation	( )	( )	

Additional Comments: _____

Evaluation conducted by: _____ Date: _____

C. Subcontractor

Name	Title	Task(s)	Medical Current a.	Fit Test Current Qual. b.	Fit Test Current Quant. b.	Training Current c.	Certification Level or Description
1.			( )	( )	( )	( )	
2.			( )	( )	( )	( )	
3.			( )	( )	( )	( )	
4			( )	( )	( )	( )	
5.			( )	( )	( )	( )	
6.			( )	( )	( )	( )	
7			( )	( )	( )	( )	

VII. HEALTH AND SAFETY PLAN APPROVAL/SIGN OFF FORMAT

1. Site Name Mound 2. (WO#) 2744-40-13-138

Work Location Address 1 Mound Rd, Miamisburg OH 45343
(Street Address) (City) (State) (Zip)

I have read, understood, and agreed with the information set forth in this Health and Safety Plan (and attachments) and discussed in the Personnel Health and Safety briefing.

Site Safety Co-ordinator	Signature	Date
T. HARTFELDER	T Hartfelder	26-AUG-91
Name	Signature	Date
Jeff L. BRASWELL	Jeff L Braswell	25 AUG 91
Name	Signature	Date
KEVIN BATE	Kevin Bate	3 SEPT 91
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date

VIII. Training and Briefing Topics

The following items will be covered at the site specific training meeting, daily or periodically.

Site Specific Training Meeting	Daily	Periodically	
_____	_____	_____	Site characterization and analysis, Sec. 3.0; 29 CFR 1910.120 i.
_____	_____	_____	Physical hazards, Table 3.2.
_____	_____	_____	Chemical hazards, Table 3.1.
_____	_____	_____	Animal bites, stings and poisonous plants.
_____	_____	_____	Etiologic (Infecticus) Agents.
_____	_____	_____	Site control, Sec. 8.0; 29 CFR 1910.120 d.
_____	_____	_____	Engineering controls and work practices, Sec. 8.5; 29 CFR 1910.120 g.
_____	_____	_____	Heavy Machinery.
_____	_____	_____	Forklift
_____	_____	_____	Backhoe
_____	_____	_____	Equipment
_____	_____	_____	Tools
_____	_____	_____	Ladder 29 CFR 1910.27 d.
_____	_____	_____	Overhead and Underground Utilities
_____	_____	_____	Scaffolds
_____	_____	_____	Structural Integrity
_____	_____	_____	Unguarded Openings-wall, Floor, Cailings (?).
_____	_____	_____	Pressurized Air Cyclinders
_____	_____	_____	Personnel Protective Equipment, Sec. 5.0; 29 CFR 1910.120 g; 29 CFR 1910.134

Site Specific Training Meeting	Daily	Periodically	
_____	_____	_____	Respiratory Protection Sec. 5.8; 29 CFR 1910.120g; Z88.2-1980.
_____	_____	_____	Level A
_____	_____	_____	Level B
_____	_____	_____	Level C
_____	_____	_____	Level D
_____	_____	_____	Monitoring, Sec. 7.0; 29 CFR 1910.120 h.
_____	_____	_____	Decontamination, Sec. 9.0; 29 CFR 1910.120 k.
_____	_____	_____	Emergency Response, Sec. 10.0; 29 CFR 1910.120 l.
_____	_____	_____	Elements of an Emergency Response, Sec. 100; 29 CFR 1910.120 l.
_____	_____	_____	Procedures for Handling Site Emergency Incidents, Sec. 10.0; 29 CFR 1910.120 l.
_____	_____	_____	Off Site Emergency Response, 29 CFR 1910.120 l.
_____	_____	_____	Handling Drums and Containers, 29 CFR 1910.120 j.
_____	_____	_____	Opening Drums and Containers
_____	_____	_____	Electrical Material Handling Equipment.
_____	_____	_____	Radioactive Waste.
_____	_____	_____	Shock Sensitive Waste.
_____	_____	_____	Laboratory Waste Packs.
_____	_____	_____	Sampling Drums and Containers.
_____	_____	_____	Shipping and Transport, 49 CFR 172.101
_____	_____	_____	Tank and Vault Procedures.
_____	_____	_____	Illumination, 29 CFR 1910.120 m.
_____	_____	_____	Sanitation, 29 CFR 1910.120 n.

Attachment 1. Level D/Modified Level D Decontamination
(Check indicated Functions or add steps as necessary)

STEP	FUNCTION	DESCRIPTION OF PROCESS, SOLUTION AND CONTAINER
( )	Segregated equipment drop	
	Boot cover and glove wash	
( )	Boot cover and glove rinse	
( )	Tape removal - outer glove and boot	
(X)	Boot cover removal	
(X)	Outer glove removal	
	HOT-LINE	
( )	Suit/safety boot wash	
( )	Suit/boot/glove rinse	
( )	Safety boot removal	
( )	Suit Removal	
( )	Inner glove wash	
( )	Inner glove rinse	
( )	Inner glove removal	
( )	Inner clothing removal	
	CRC/SAFE ZONE BOUNDARY	
( )	Field wash	
( )	Redress	

DISPOSAL PLAN:
END OF DAY: Protective Clothing frisked then dispose of waste

END OF WEEK:

END OF PROJECT:

E. KEY PERSONNEL/IDENTIFICATION OF HEALTH AND SAFETY PERSONNEL

1.0 Key Personnel

The following personnel and organizations are key to the activities at this site.

EPA Representatives

Organization/Branch	Name/Title	Address	Telephone
Ohio EPA/Region	Martha Hatcher/ Site Coordinator	40 South Main Street Dayton, Ohio 45402	(513) 285-6357

Roles and Responsibilities: Primary OEPA contact for Mound Plant

Other EPA Contractors & Subcontractors

Organization/Branch	Name/Title	Address	Telephone

Roles and Responsibilities:

Other Regulatory Agency Representatives

Organization/Branch	Name/Title	Address	Telephone

Roles and Responsibilities:

C

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APPENDIX C

OAK RIDGE ASSOCIATED UNIVERSITIES REPORT

Oak Ridge Associated Universities
Post Office Box 117
Oak Ridge, Tennessee 37831-0117

Energy/
Environment
Systems Division

March 2, 1992

Mr. John P. Sands
EM-453
Trevion II
United States Department of Energy
Washington, DC 20585-0002

SUBJECT: INDEPENDENT VERIFICATION DATA - SM BUILDING ANNEX FOUNDATION

Dear Mr. Sands:

This letter presents the results of the ORAU Independent verification survey of the Mound Laboratories SM Building Annex Foundation, conducted in November 1991. The ORAU survey consisted of a low energy gamma scan of the excavation to identify any areas of gross residual soil activity or "hot-spots", followed by sampling and analysis of soil from four grid blocks. The scan identified one isolated location with slightly elevated gamma radiation; the level at this location was approximately 1.5 times the ambient background level. These results indicate the absence of residual areas of grossly contaminated surface soil. Soil concentrations, listed in the attached table, ranged from 2.8 to 21.0 pCi/g of Pu-238 for the averages of the four grid blocks sampled; Pu-239/240 concentrations were very low ($\leq$0.04 pCi/g), and gamma spectrometry did not identify additional contaminants, in excess of typical background levels. The sample from the location of elevated gamma radiation in grid C,3 contained 0.4 pCi/g of Pu-238 and 0.03 pCi/g of Pu 239/240.

All ORAU soil results are within the established Plutonium guideline levels of 100 pCi/g, average, and the Mound ALARA goal of 25 pCi/g. A comparison of ORAU and EG&G Pu-238 results for soil in the four sampled blocks, indicates some significant differences; however, based on the expected non-homogeneity of the contamination in this excavation and the relatively poor detection sensitivity (about 25 pCi/g) stated for the EG&G analytical procedure, such differences should not be considered unusual or indicative of erroneous results.

On the basis of these results, ORAU is of the opinion that the radiological conditions of this excavated area satisfy the guidelines.

Questions may be directed to me at FTS 626-3305.

Sincerely,

James D. Berger, Director
Environmental Survey and
Site Assessment Program

JDB:ttc

Attachment

cc: M. Landis, ORAU
S. Chen, DOE/Dayton Area Office
file, Mound D&D #355

IVC SOIL SAMPLING RESULTS
SM ANNEX FOUNDATION
MOUND LABORATORIES
MIAMISBURG, OHIO

Grid Block[a] or Location	Data Source	Plutonium Concentration (pCi/g)[b]	
		Pu-238	Pu-239/240
B,2	EG&G	72.2	---[c]
	ORAU	11.1	0.03
B,3	EG&G	6.6	---
	ORAU	12.4	0.01
C,3	EG&G	11.2	---
	ORAU	21.0	0.04
E,2	EG&G	38.8	---
	ORAU	2.8	0.02
C,3 "hot spot"	ORAU	0.4	0.03

[a] Refer to Figure 1.
[b] Concentrations are averages for 5 samples from each grid, with exception of the hot spot in C,3, which is a single sample.
[c] Dash indicates data not provided.

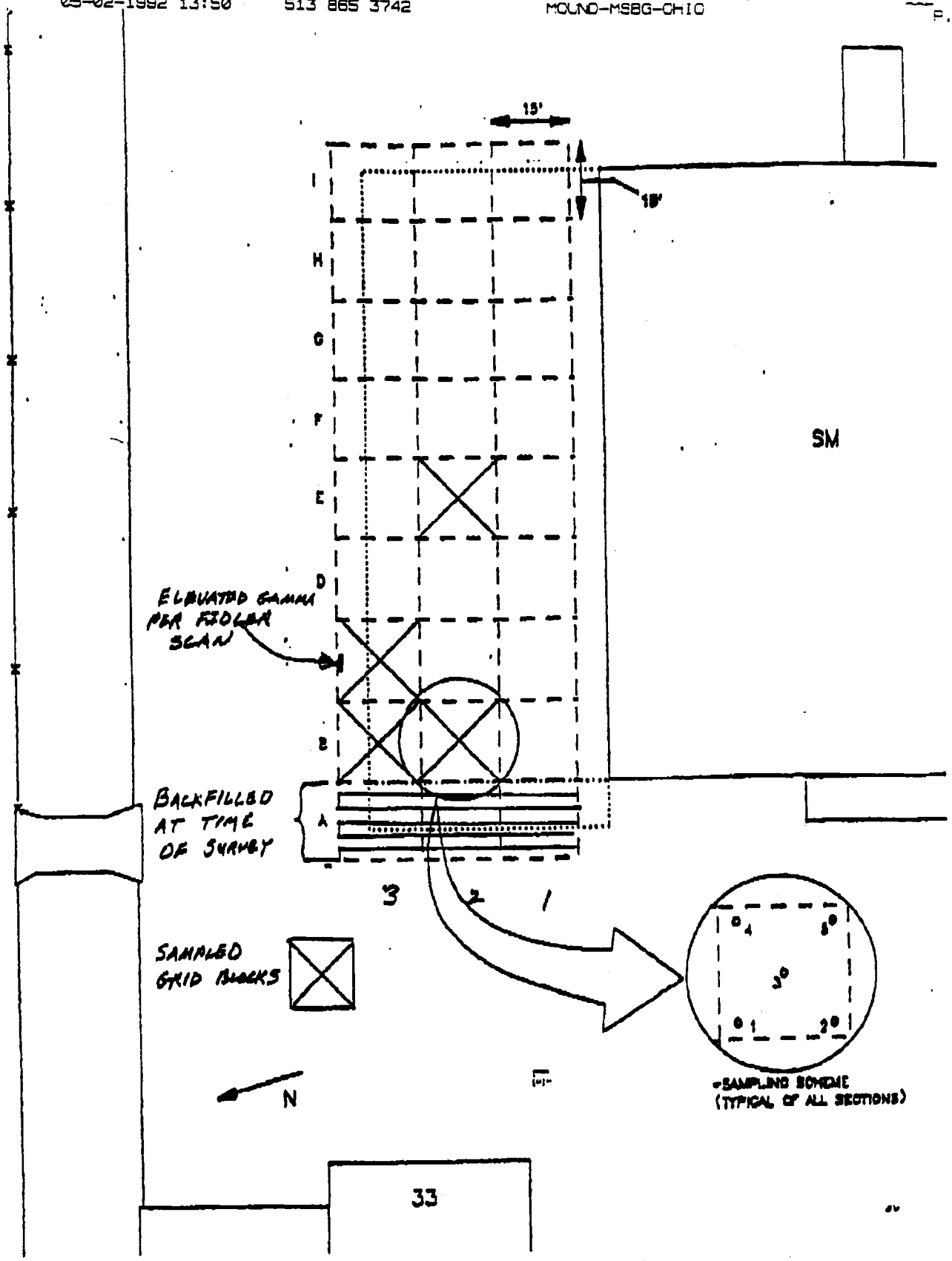

FIGURE 1: IVC SURVEY LOCATIONS
SM BUILDING ANNEX FOUNDATION

D

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APPENDIX D

SPECIAL METALLURGICAL BUILDING ANNEX (AREA 17)
SAMPLING AND ANALYSIS PLAN
RESPONSE TO COMMENTS

US DOE MOUND PLANT
RI/FS
OPERABLE UNIT 6, DECONTAMINATION AND DECOMMISSIONING PROGRAM
SPECIAL METALLURGICAL BUILDING ANNEX (AREA 17)
SAMPLING AND ANALYSIS PLAN RESPONSE TO COMMENTS
JUNE 1991
OHIO ENVIRONMENTAL PROTECTION AGENCY

I. GENERAL COMMENT

OEPA 1. In order to meet the requirements of the CERCLA program, verification sampling can not be limited to analysis for plutonium, thorium, TCL and TAL. Verification sampling must be conducted for the full suite of potential radionuclide contaminants. In addition to plutonium and thorium, cesium-137, cobalt-60, tritium and potassium-40 (known radionuclide contaminants on-site) and strontium-90, technetium-99 (suspected radionuclide contaminants) at a minimum must be sampled for during the verification sampling. Whether or not the plutonium cleanup level was sufficient to meet the CERCLA risk range, will be dependent upon the number of other contaminants present and the combined risk to human health and the environment.

RESPONSE The area sampled in the Special Metallurgical Building Annex (Area 17) is about 6% of the total of Area 17. The area to be sampled is presently an open excavation. Remediation of the remainder of the area is not complete and complete verification is not indicated at this time. At the time of final verification, plutonium, thorium, cesium-137, cobalt-60, tritium, potassium-40, strontium and technetium-99 will be revisited. It does appear prudent to evaluate any chemical contamination in the excavation while it is accessible. Verification of radionuclide removal will be done as part of total Area 17 verification at a later date. It should be noted that neither potassium-40 or technetium-90 are suspected contaminants at Mound Plant.

II. SPECIFIC COMMENTS

OEPA 1. Section 1, Page 1-1, First Paragraph

It should be noted that cesium-137, cobalt-60, potassium-40, and strontium-90 are also radionuclides of concern at the site.

RESPONSE As described above, in the General Comment response, radionuclide analysis will be part of a general verification activity for Area 17 as whole or for a major section of the Area. See the General Comment response above.

OEPA 2. Section 1.3.3, Page 1-9, 2nd Paragraph

DOE should be aware that in order to verify cleanup to a given concentration of a contaminant a confidence level of 95% will most likely be required. DOE should use a statistical analysis to determine with 95% confidence that the mean concentration is less than the chosen remediation level.

RESPONSE DOE and Mound are aware that verification of cleanup to a given concentration of a contaminant at confidence level of 95% will most likely be required. It is for this reason that limited chemical verification data should be developed as described in this sample plan.

OEPA 3. Section 2.1, Page 2-1, First Paragraph

See General Comment #1.

RESPONSE See response to General Comment #1.

OEPA 4. Section 2.2, Page 2-1, 3rd Paragraph

In addition to the TCL and TAL analytes, the following constituents should be analyzed for as a part of the chemical characterization: fluoride, palladium, pH and Freon™ constituents (area specific constituents, pg. 1-8); nitrate-nitrite, chloride/sulfate, and USATHAMA-listed explosives (OU9 Work Plan, Soils Sampling). NOTE: pH should be added to the Area 14 chemical characterization also.

RESPONSE In response to this comment, nitrate-nitrite and chloride/sulfate analyses have been added to the analytical suite for this activity. Process information indicates that the area has not had contamination by USATHAMA-listed explosives and these are not added to the suite for this reason. Additionally, Freon™ was used in a closed-loop system and did not enter the waste stream. Palladium will also remain off the analyte list. A wider array of constituents will be sampled, if required, in the final verification sampling when all of Area 17 is involved.

OEPA 5. Section 3.1, Page 3-1, 2nd Paragraph

a) A figure should be included detailing the location of the background samples.
b) It should be noted that background samples collected in this area are likely to be affected by airborne deposition of plant emissions.

RESPONSE Because of access problems in the area described for background sampling, no specific locations were identified at greater location detail than those described in the plan. This allows for some flexibility in the choice of the locations based on soil coverage, local geologic factors, local conditions and logistics for sampling. Maps will be provided based on the locations chosen and the surveying activities.

OEPA 6. Section 3.2.1, Page 3-2, First Paragraph

Page 1-8 states that soil contamination by hazardous substances (trichloroethene and 1,1,1-trichloroethene) does exist. The nickel concentration stated on page 3-3 is significantly higher than those reported in the Ohio Farm Soils report, suggesting nickel contamination of the soils. These data suggest the first partial sentence on this page is mis-stated and should be corrected.

RESPONSE The first partial sentence on page 1-1 is correct. There are no known release events identified for this area of Area 17 that would result in contamination by trichloroethane, 1,1,1-trichloroethane or nickel. General nickel contamination might be expected in the region of a metallurgical facility that was used for a variety of activities and these volatile compounds are so commonly used in a wide variety of technical activities that contamination could be conceivably widespread and not associated with spills or specific identifiable events.

OEPA 7. Section 3.2.1, Page 3-2, 2nd and 3rd Paragraphs

The data gathered under this investigation must be useable for the completion of a risk assessment, if the site is not to be revisited for later sampling. Compositing of samples and the resulting increase in practical detection limits may negatively affect the usefulness of this data in completing the requirements of the CERCLA process.

RESPONSE This area is relatively small and has uniform setting. The data gathered as part of this activity is planned to meet data needs for defensible analysis. It is proposed that under these circumstances and because of the required additional sampling as part of the verification of Area 17 in its entirety, compositing in this area is justified.

OEPA 8. Section 3.2.1, Page 3-3, Last Paragraph

A discrete grid sampling pattern such as that proposed for Area 14 is much more appropriate for this sampling effort due to the importance of these data and their future uses. Grid sampling will also make the data more comparable to the background samples which will be collected discrete grabs. The statistical comparison of discrete grab and composite samples is questionable at best.

RESPONSE See the response to Comment #7, above.

OEPA 9. Section 3.2.1, Page 3-4, Table III.1

a) VOCs readily volatilize from surface soils, thus VOC are not likely to be detected. VOC samples should be collected from subsurface soils, preferably 18"-24" in depth.
b) Add constituents suggested in general comment #1 and specific comment #4.
c) One rinsate blank for every 10 or fewer samples should be collected and analyzed.

RESPONSE

a) The material underlying the excavation in Area 17 to be sampled is shale and limestone. This material seems to be reasonably in place. Samples will be collected from the depth of approximately 2 feet below the present depth of the excavation to produce the most representative samples.

b) See responses to General Comment and Specific Comment #4.

c) One rinsate blank will be collected and analyzed for every 10 soil samples.

E

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APPENDIX E

SAMPLE DESIGNATIONS

ANALYTICAL METHODS, PARAMETERS, AND QUANTITATIVE LIMITS FOR SAMPLES

QUALIFIER LISTS

LABORATORY DATA

DART SYSTEM DESCRIPTION

Table E.1. Sample Designation for This Study

Sample number	Sample type	Sample location
MND13-0107-0001	Judgmental	B2-4
MND13-0108-0001	Judgmental	E2-2
MND13-0109-0001	Judgmental	G1-4
MND13-0109-2001	Judgmental dup	G1-4
MND13-0110-0001	Composite	A1 through C3
MND13-0111-0001	Composite	D1 through F3
MND13-0112-0001	Composite	G1 through 13
MND13-0112-2001	Composite dup	G1 through 13
MND13-0113-0001	Composite (wall)	North and east walls
MND13-0114-0001	Composite (wall)	South and west walls
MND13-0115-0001	VOC	A3-C
MND13-0116-0001	VOC	B2-C
MND13-0117-0001	VOC	C1-C
MND13-0118-0001	VOC	D3-C
MND13-0119-0001	VOC	E2-C
MND13-0120-0001	VOC	F1-C
MND13-0121-0001	VOC	G3-C
MND13-0122-0001	VOC	H2-C
MND13-0123-0001	VOC	I1-C
MND13-0124-0001 through MND13-0126-0001	VOC	North and east walls
MND13-0127-0001 through MND13-0129-0001	VOC	South and west walls
SW/17A/29July91 and SW/17A/05Aug91	Standing Water	Approximate grid location
SW/17B/29July91 and SW/17B/05Aug91	Standing Water	Approximate grid location

Table E.2. Analytical Methods, Parameters,and Quantitation Limits for Samples

Parameters	Analytical Methods Soil/Sediment	Quantitation Limits[a] Soil/Sediment (µg/kg)
1. Volatile Organic Compounds Soil/Sediment	CLP SOW[b]	Low soil/sediment[c]
Chloromethane		10
Bromomethane		10
Vinyl Chloride		10
Chloroethane		10
Methylene chloride		5
Acetone		10
Carbon disulfide		5
1,1-Dichloroethene		5
1,1-Dichloroethane		5
1,2-Dichloroethene (total)		5
Chloroform		5
1,2-Dichloroethane		5
2-Butanone		10
1,1,1-Trichloroethane		5
Carbon Tetrachloride		5
Vinyl Acetate		10
'Bromodichloromethane		5
1,2-Dichloropropane		5
cis-1,3-dichloropropene		5
Trichloroethene		5
Dibromochloromethane		5
1,1,2-Trichloroethane		5
Benzene		5
trans-1,3-dichloropropene		5
Tribromomethane		5
4-Methyl-2-pentanone		10
2-Hexanone		10
Tetrachloroethene		5
Toluene		5
1,1,2,2-Tetrachloroethane		5
Chlorobenzene		5
Ethylbenzene		5
Styrene		5
Xylenes (total)		5

Table E.2. (page 2 of 5)

Parameters	Analytical Methods Soil/Sediment	Quantitation Limits[a] Soil/Sediment (µg/kg)
2. Semivolatile Organic Compounds	CLP SOW	Low soil/sediment[c]
Phenol		330
bis(2-chloroethyl) ether		330
2-Chlorophenol		330
1,3-Dichlorobenzene		330
1,4-Dichlorobenzene		330
Benzyl alcohol		330
1,2-Dichlorobenzene		330
2-Methylphenol		330
bis(2-chloroisopropyl) ether		330
4-Methyphenol		330
N-nitroso-di-n-dipropylamine		330
Hexachloroethane		330
Nitrobenzene		330
Isophorone		330
2-Nitrophenol		330
2,4-Dimethylphenol		330
Benzoic acid		1600
bis(2-chloroethoxy) methane		330
2,4-Dichlorophenol		330
1,2,4-Trichlorobenzene		330
Naphthalene		330
4-Chloroaniline		330
Hexachlorobutadiene		330
4-chloro-3-methylphenol (para-chloro-meta-cresol)		330
2-Methylnaphthalene		330
Hexachlorocyclopentadiene		330
2,4,6-Trichlorophenol		330
2,4,5-Trichlorophenol		1600
2-Chloronaphthalene		330
2-Nitroaniline		1600
Dimethylphthalate		330
Acenaphthylene		330
2,6-Dinitrotoluene		330
3-Nitroaniline		1600
Acenapththene		330
2,4-Dinitrophenol		1600
4-Nitrophenol		1600
Dibenzofuran		330
2,4-Dinitrotoluene		330
Diethylphthalate		330

Table E.2. (page 3 of 5)

Parameters	Analytical Methods Soil/Sediment	Quantitation Limits* Soil/Sediment (µg/kg)
2. Semivolatile Organic Compounds (continued)	CLP SOW	
4-Chlorophenyl-phenyl ether		330
Fluorene		330
4-Nitroaniline		1600
4,6-Dinitro-2-methylphenol		1600
N-nitrosodiphenylamine		330
4-bromophenyl-phenylether		330
Hexachlorobenzene		330
Pentachlorophenol		1600
Phenanthrene		330
Anthracene		330
Di-n-butylphthalate		330
Fluoranthene		330
Pyrene		330
Butylbenzylphthalate		330
3,3'-Dichlorobenzidine		660
Benzo(a)anthracene		330
Chrysene		330
bis(2-Ethylhexyl)phthalate		330
Di-n-octylphthalate		330
Benzo(b)fluoranthene		330
Benzo(k)fluoranthene		330
Benzo(a)pyrene		330
Indeno(1,2,3-cd)pyrene		330
Dibenz(a,h)anthracene		330
Benzo(g,h,i)perylene		330
3. Pesticides and PCBs	CLP SOW	
alpha-BHC		8.0
beta-BHC		8.0
delta-BHC		8.0
gamma-BHC (Lindane)		8.0
Heptachlor		8.0
Aldrin		8.0
Heptachlor epoxide		8.0
Endosulfan I		8.0
Dieldrin		16.0
4,4'-DDE		16.0
Endrin		16.0
Endosulfan II		16.0
4,4'-DDD		16.0
Endosulfan sulfate		16.0
4,4'-DDT		16.0

Table E.2. (page 4 of 5)

Parameters	Analytical Methods Soil/Sediment	Quantitation Limits[a] Soil/Sediment (µg/kg)
3. Pesticides and PCBs (continued)	CLP SOW	
Methoxychlor		80.0
Endrin ketone		16.0
alpha-Chlordane		80.0
gamma-Chlordane		80.0
Toxaphene		160.0
Aroclor-1016		80.0
Aroclor-1221		80.0
Aroclor-1232		80.0
Aroclor-1242		80.0
Aroclor-1248		80.0
Aroclor-1254		160.0
Aroclor-1260		160.0
4. Metals (Target Analyte List)	CLP SOW	(mg/kg)
Aluminum		40
Antimony		12
Arsenic		2
Barium		40
Beryllium		1
Cadmium		1
Calcium		1000
Chromium		2
Cobalt		10
Copper		5
Iron		20
Lead		0.6
Magnesium		1000
Manganese		3
Mercury		0.04
Nickel		8
Potassium		1000
Selenium		1
Silver		2
Sodium		1000
Thallium		2
Vanadium		10
Zinc		4
5. Cyanide	CLP SOW	2

Table E.2. (page 5 of 5)

[a]For non-CLP analyses, these are method detection limits based on reagent grade water or a purified solid matrix. Actual quantitation limits may be higher depending upon the nature of the sample matrix. The limit reported on final laboratory reports will take into account the actual sample volume or weight, percent moisture (where applicable), and the dilution factor, if any.

[b]"U.S. EPA Contract Laboratory Program, Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration." SOW No. 2/88, including revisions 9/88 and 6/89, or most recent version. Quantitation limits are CRQLs.

[c]Medium Soil/Sediment CRQLs are 125 times the low soil/sediment CRQLs for VOCs and 60 times the low soil/sediment CRQLs for semivolatile organic compounds. Estimated detection limits for metals in soil are based on a 1-gram sample diluted to 200 mL.

[d]"U.S. EPA Contract Laboratory Program, Statement of Work for Inorganics Analysis, Multi-Media, Multi-Concentration." SOW No. 7/88, including revisions 2/89 and 6/89, or most recent version. Quantitation limits are CRDLs.

CLP - (EPA) Contract Laboratory Program
SOW - Statement of Work
PCBs - polychlorinated biphenyls
CRQLs - contract-required quantitation limits
CRDLs - contract-required detection limits

Table E.3. Summary of Internal Quality Control Procedures For Laboratory Measurements: Soil Samples

Analytical Method	Parameter	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
CLP SOW[a]	Organochlorine pesticides/PCBs (TCL)[b]	Field quality control			
		Duplicate	1 every 10 or fewer field samples (water)	Not established	Evaluate data for useability.
			1 every 20 or fewer field samples (soil)	Not established	Evaluate data for useability.
		Laboratory quality control			
		Method blank	1 per 20 samples analyzed of a given matrix or fewer, see CLP SOW-2/88	≤ Contract required quanitation limit (CRQL)	Investigate source; reextract and reanalyze associated samples.
		Matrix spike	1 per 20 samples of a given matrix in a case or fewer; see CLP SOW-2/88	See Table VI.4	Evaluate data for useability.
		Matrix spike duplicate	1 per 20 samples of a given matrix in a case or fewer; see CLP SOW-2/88	See Table VI.4	Evaluate data for useability.
		Surrogate spike	All lab and field samples	See Table VI.4	Evaluate data for useability.

NA - Not applicable

Table E.3. (page 2 of 9)

Analytical Method	Parameter	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
CLP SOW[a] (continued)	Organochlorine pesticides/PCBs (TCL)[b]	Calibration (evaluation standards)	Beginning of every 72-hour period	≤ 10% relative standard deviation (RSD) for calibration factors ≤ 20% breakdown for Endrin, 4,4'-DDT or combined breakdown for Endrin/4,4'-DDT	Recalibrate, see CLP SOW-2/88.
		Calibration (Individual standards)	Beginning of every 72-hour period and in sequence defined in CLP SOW-2/88	≤ 15% difference for calibration factors (quantitation run) ≤ 20% difference for calibration factors (confirmation run)	Reanalyze samples since last acceptable quantitation standard.
		Retention time window	CLP SOW-2/88	CLP SOW-2/88	See CLP SOW-2/88.
CLP SOW[a]	Volatile organic compunds (TCL)[b]	Field quality control			
		Trip blank	1 per shipping container to lab	Not established	Evaluate data for useability.
		Duplicate	1 every 10 or fewer field samples (water)	Not established	Evaluate data for useability.
			1 every 20 or fewer field samples (soil)	Not established	Evaluate data for useability.

NA - Not applicable

Table E.3. (page 3 of 9)

Analytical Method	Parameter	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
CLP SOW[a] (continued)	Volatile organic compounds (TCL)[b]	Laboratory quality control			
		Method blank	Once per 12-hour period	≤ 5 x CRQL of [c] ≤ CRQL others	Investigate source; reextract and reanalyze associated samples.
		Matrix spike	1 per 20 samples of a given matrix in a case or fewer; see CLP SOW-2/88	See Table VI.4	Evaluate data for useability.
		Matrix spike duplicate	1 per 20 samples of a given matrix in a case or fewer; see CLP SOW-2/88	See Table VI.4	Evaluate data for useability.
		Surrogate spike	All lab and field samples	See Table VI.4	See CLP SOW-2/88.
		Tuning criteria	Daily or each 12-hour period, whichever is more frequent	CLP SOW-2/88	Retune; reanalyze associated samples.
		Calibration	CLP SOW-2/88	CLP SOW-2/88	Recalibrate before sample analysis.
		Retention time window	CLP SOW -2/88	± 0.06 relative retention time units	See CLP SOW-2/88.

NA - Not applicable

Table E.3. (page 4 of 9)

Analytical Method	Parameter	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
CLP SOW[a] (continued)	Volatile organic compounds (TCL)[b]	Calibration check compounds	With every calibration	≤ 30% RSD from relative response factors (RRF)	Recalibrate.
		Internal standard	Every sample	CLP SOW-2/88	See CLP SOW-2/88.
		System performance check compounds (SPCC)	Once each 12-hour period and every calibration	RRF ≥ 0.300 SPCCS except, RRF ≥ 0.250 bromoform	Identify source and correct. Recalibrate if source not found and corrected.
		Continuing calibration check compounds (CCC)	Once each 12-hour period	≤ 25% difference to initial RRF for selected compounds	Identify source and correct. Recalibrate if source not found and corrected.
CLP SOW[a]	Semivolatile organic compounds(TCL)[b]	Field quality control			
		Duplicate	1 every 10 or fewer field samples (water)	Not established	Evaluate data for useability.
			1 every 20 or fewer field samples (soil)	Not established	Evaluate data for useability.
		Laboratory quality control			
		Method blank	1 per 20 samples analyzed of a given matrix or fewer; see CLP SOW-2/88	≤ 5 x CRQL phthalate esters ≤ CRQL others	Investigate source; reextract and reanalyze associated samples.
		Matrix spike	1 per 20 sample of a given matrix or fewer; see CLP SOW-2/88	See Table VI.4	Evaluate data for useability.

NA - Not applicable

Table E.3. (page 5 of 9)

Analytical Method	Parameter	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
CLP SOW[a] (continued)	Semivolatile organic compounds (TCL)[b]	Matrix spike duplicate	1 per 20 sample of a given matrix or fewer; see CLP SOW-2/88	See Table VI.4	Evaluate data for useability.
		Surrogate spike	All lab and field samples	See Table VI.4	See CLP SOW-2/88.
		Tuning criteria	Daily or each 12-hour period, whichever is more frequent	CLP SOW-2/88	Retune; reanalyze associated samples.
		Calibration	CLP SOW-2/88	CLP SOW-2/88	Recalibrate before sample analysis.
		Calibration check compounds	With every calibration	≤ 30% RSD from RRF	Recalibrate.
		Internal standard	Every sample	CLP SOW-2/88	See CLP SOW-2/88.
		System performance check compounds (SPCC)	Once each 12-hour period and every calibration	RRF ≥ 0.050 for selected compounds	Identify source and correct. Recalibrate if source not found and corrected.
		Continuing calibration check compounds (CCC)	Once each 12-hour period	≤ 25% difference to initial RRF for selected compounds	Identify source and correct. Recalibrate if source not found and corrected.

NA - Not applicable

Table E.3. (page 6 of 9)

Analytical Method	Parameter	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
CLP SOW[a] (continued)	Semivolatile organic compounds (TCL)[b]	Retention time window	CLP SOW -2/88	± 0.06 relative retention time units	See CLP SOW-2/88.
CLP SOW[d]	Metals and cyanide (TAL)[e] or calcium, potassium, sodium, magnesium, iron, and manganese	Field quality control			
		Duplicate	1 every 10 or fewer field samples (water)	Not established	Evaluate data for useability.
			1 every 20 or fewer field samples (soil)	Not established	Evaluate data for useability.
		Laboratory quality control			
		Initial and continuing calibration blanks (ICB, CCB)	After every ICV and CCV or 10% or every 2 hours, whichever is more frequent	≤ CRDL	Correct problem; recalibrate; reanalyze preceding 10 samples or all since last good blank.
		Preparation blank (PB)	One per sample delivery group or batch, whichever is more frequent	≤ CRDL	If sample results < 10 x CRDL, but > CRDL, redigest and reanalyze.

NA - Not applicable

Table E.3. (page 7 of 9)

Analytical Method	Parameter	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
CLP SOW[d] (continued)	Metals and cyanide (TAL)[e] or calcium, potassium, sodium, magnesium, iron, and manganese	ICP Serial dilution (L)	1 per group of samples of a given matrix, concentration, or each delivery group, whichever is more frequent	If result > 50 x, instrument detection limit (IDL): ± 10% difference	Evaluate data for useability.
		Spike sample (S)	1 per group of samples of a given matrix, concentration, or sample delivery group, whichever is more frequent.	75-125% recovery	Evaluate date for useability.
		Sample dup. (D) (sample replicate)	1 per group of samples of a given matrix, concentration, or sample delivery group, whichever is more frequent.	If result ≥ 5 x CRDL: ± 20% relative percent difference (RPD) If result ≤ 5 x CRDL: ± CRDL	Evaluate data for useability.
		Method std. addition GFAA[f] only (MSA)	CLP SOW-7/88	CLP SOW-7/88	See CLP SOW-7/88.
		Linear range analysis (LRA) for ICP	CLP SOW-7/88	CLP SOW-7/88	Reanalyze.

NA - Not applicable

Table E.3. (page 8 of 9)

Analytical Method	Parameter	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
CLP SOW[d] (continued)	Metals and cyanide (TAL)[e] or calcium, potassium, sodium, magnesium, iron, and manganese	Laboratory control sample (LCS)	1 per group of samples in a delivery group or batch, whichever is more frequent	80-120% recovery	Correct problem; redigest and reanalyze associated samples.
		Initial calibration verification std. (ICV)	CLP SOW-7/88	CLP SOW-7/88	See CLP SOW-7/88.
		Continuing calibration verification std. (CCV)	CLP SOW-7/88	CLP SOW-7/88	See CLP SOW-7/88.
		Linear range check standard (CRI, CRA)	CLP SOW-7/88	Not established	None.
		Interference check sample (ICS)	Sample twice per 8-hour shift, or at beginning and end of analysis run, whichever is more frequent	± 20% of true value	Correct problem; recalibrate reanalyze samples since last good ICS.

NA - Not applicable

Table E.3. (page 9 of 9)

Analytical Method	Parameter	Quality Control Check	Frequency	Acceptance Criteria	Corrective Action
CLP SOW[d] (continued)	Metals and cyanide (TAL)[e]	Interelement corrections for ICP	Once per year or or when instrument adjusted	CLP SOW-7/88	CLP SOW-7/88.

[a]EPA Contract Laboratory Program Statement of Work for Organic Analysis, No. 2/88 with most current revisions or most recent version (EPA 1988a).
[b]Target Compound List.
[c]For methylene chloride, acetone, toluene, or 2-butanone.
[d]EPA Contract Laboratory Program Statement of Work for Inorganic Analysis, No. 7/88 with most current revisions or most recent version (EPA 1988b).
[e]Target Analyte List.
[f]Graphite furnace atomic absorption.

Table E.4. Laboratory Control Limits for Matrix Spikes, Matrix Spike Duplicates, and Surrogate Spikes: Soil/Sediment Samples

Analytical Method	Spiking Compounds	Spike Concentration: Soil (µg/kg)[a]	Control Limits: Percent Recovery (%) Soil	Control Limits: Relative Percent Difference (%) Soil
CLP SOW[b] Pesticides/ PCBs	Matrix spike			
	Lindane	0.08	46-127	≤50
	Heptachlor	0.08	35-130	≤31
	Aldrin	0.08	34-132	≤43
	Dieldrin	0.2	31-134	≤38
	Endrin	0.2	42-139	≤45
	4,4'-DDT	0.2	23-134	≤50
	Surrogate			
	Dibutylchlorendate	0.1	24-150	NA
CLP SOW[b] Volatile Organic Compounds	Matrix spike			
	1,1-DCE	50	59-172	≤22
	Trichloroethene	50	62-137	≤24
	Benzene	50	66-142	≤21
	Toluene	50	59-139	≤21
	Chlorobenzene	50	60-133	≤21
	Surrogates			
	Toluene-d8	50	88-110	81-117
	4-Bromo-fluorobenzene	50	86-115	74-121
	1,2,Dichloroethane-d4	50	76-114	70-121

Table E.4. (page 2 of 2)

Analytical Method	Spiking Compounds	Spike Concentration: Soil (µg/kg)[a]	Control Limits: Percent Recovery (%) Soil	Control Limits: Relative Percent Difference (%) Soil
CLP SOW[b] Semivolatile Organic Compounds	Matrix spike			
	Phenol	100	26-90	≤35
	2-chlorophenol	100	25-102	≤50
	1,4-dichlorobenzene	50	28-104	≤27
	N-nitroso-di-n-propyl-amine	50	41-126	≤38
	1,2,4-trichlorobenzene	50	38-107	≤23
	4-chloro-3-methylphenol	100	26-103	≤33
	Acenaphthene	50	31-137	≤19
	4-nitrophenol	100	11-114	≤50
	2,4-dinitrotoluene	50	28-89	≤47
	Pentachlorophenol	100	17-109	≤47
	Pyrene	50	35-142	≤36
	Surrogates			
	Nitrobenzene-d5	50	23-120	NA
	2-Fluorobiphenyl	50	30-115	NA
	p-Terphenyl-d14	50	18-137	NA
	Phenol-d5	100	24-113	NA
	2-Fluorophenol	100	25-121	NA
	2,4,6-Tribromophenol	100	19-122	NA

[a]Percent recovery limits for water are those established in SW846. The control limits for soil matrix spikes and surrogates and for precision are project-established advisory limits until enough data points are generated to develop control charts.

[b]EPA Contract Laboratory Program Statements of Work for Organic Analysis (No. 2/88) and Inorganic Analysis (No. 7/88).

NA - Not applicable

WESTON

GLOSSARY OF PEST/PCB DATA

DATA QUALIFIERS

U - Indicates that the compounds was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J - Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E - Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I - Interference.

ABBREVIATIONS

BS - Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD - Indicates blank spike duplicate.

MS - Indicates matrix spike.

MSD - Indicates matrix spike duplicate.

DL - Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA - Not applicable.

DF - Dilution factor.

NR - Not required.

WESTON SM

GLOSSARY OF BNA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero; for example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

A = Aldol Condensation Product.

X = Additional qualifiers used as required are explained in the case narrative.

NQ = Result qualitatively confirmed but not able to quantify.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not applicable.

DF = Dilution factor.

NR = Not required.

WESTON SM

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero; for example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

X = Additional qualifiers used as required are explained in the case narrative.

NQ = Result qualitatively confirmed but not able to quantify.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not applicable.

DF = Dilution factor.

NR = Not required.

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
% SOLIDS	0107	09/04/91	0001	1.5- 2.0	%		88.9	0.10	RWL	-
	0108	09/04/91	0001	1.5- 2.0	%		88.6	0.10	RWL	-
	0109	09/04/91	0001	1.5- 2.0	%		87.9	0.10	RWL	-
	0109	09/04/91	0002	1.5- 2.0	%		85.1	0.10	RWL	-
	0110	09/03/91	0001	1.5- 2.0	%		84.4	0.10	RWL	-
	0111	09/03/91	0001	1.5- 2.0	%		93.6	0.10	RWL	-
	0112	09/03/91	0001	1.5- 2.0	%		82.3	0.10	RWL	-
	0112	09/03/91	0002	1.5- 2.0	%		86.4	0.10	RWL	-
	0113	09/03/91	0001	1.5- 2.0	%		89.4	0.10	RWL	-
	0114	09/03/91	0001	1.5- 2.0	%		93.2	0.10	RWL	-
	0115	09/03/91	0001	1.5- 2.0	%		92.5	0.10	RWL	-
	0116	09/03/91	0001	1.5- 2.0	%		96.3	0.10	RWL	-
	0117	09/03/91	0001	1.5- 2.0	%		92.3	0.10	RWL	-
	0118	09/03/91	0001	1.5- 2.0	%		88.6	0.10	RWL	-
	0119	09/03/91	0001	1.5- 2.0	%		85.6	0.10	RWL	-
	0120	09/03/91	0001	1.5- 2.0	%		92.7	0.10	RWL	-
	0121	09/03/91	0001	1.5- 2.0	%		86.4	0.10	RWL	-
	0122	09/03/91	0001	1.5- 2.0	%		84.1	0.10	RWL	-
	0123	09/03/91	0001	1.5- 2.0	%		92.7	0.10	RWL	-
	0124	09/03/91	0001	1.5- 2.0	%		88.7	0.10	RWL	-
	0125	09/03/91	0001	1.5- 2.0	%		93.5	0.10	RWL	-
	0126	09/03/91	0001	1.5- 2.0	%		93.9	0.10	RWL	-
	0127	09/03/91	0001	1.5- 2.0	%		91.0	0.10	RWL	-
	0127	09/04/91	0001	1.5- 2.0	%		86.9	0.10	RWL	-
	0128	09/03/91	0001	1.5- 2.0	%		97.8	0.10	RWL	-
	0128	09/04/91	0001	1.5- 2.0	%		86.8	0.10	RWL	-
	0129	09/03/91	0001	1.5- 2.0	%		90.5	0.10	RWL	-
	0129	09/04/91	0001	1.5- 2.0	%		80.6	0.10	RWL	-
1,1,1-TRICHLOROETHANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
1,1,1-TRICHLOROETHANE	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
1,1,2,2-TETRACHLOROETHANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
1,1,2-TRICHLOROETHANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
1,1,2-TRICHLOROETHANE	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
1,1-DICHLOROETHANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
1,1-DICHLOROETHENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
1,2,4-TRICHLOROBENZENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
1,2-DICHLOROBENZENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
1,2-DICHLOROBENZENE	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
1,2-DICHLOROETHANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
1,2-DICHLOROETHENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
1,2-DICHLOROETHENE	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
1,2-DICHLOROPROPANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
1,3-CIS-DICHLOROPROPENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
1,3-CIS-DICHLOROPROPENE	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
1,3-DICHLOROBENZENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
1,3-TRANS-DICHLOROPROPENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
1,3-TRANS-DICHLOROPROPENE	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
1,4-DICHLOROBENZENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
2,4,5-TRICHLOROPHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1500.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
2,4,6-TRICHLOROPHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
2,4,6-TRICHLOROPHENOL	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
2,4-DICHLOROPHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
2,4-DIMETHYLPHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
2,4-DINITROPHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1500.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
2,4-DINITROTOLUENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
2,4-DINITROTOLUENE	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
2,6-DINITROTOLUENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
2-BUTANONE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
2-BUTANONE	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
2-CHLORONAPHTHALENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
2-CHLOROPHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
2-HEXANONE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
2-HEXANONE	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
2-METHYLNAPHTHALENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
2-METHYLPHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
2-NITROANILINE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1500.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
2-NITROPHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
2-NITROPHENOL	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
3,3'-DICHLOROBENZIDINE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	620.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	740.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	740.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	780.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	770.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	700.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	710.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	730.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	720.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	680.	RWL	1.00
3-NITROANILINE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1500.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
4,4'-DDD	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.1	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	9.4	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
4,4'-DDD	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.9	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
4,4'-DDE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.1	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	9.4	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.9	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
4,4'-DDT	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.1	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	9.4	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.9	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
4,6-DINITRO-O-CRESOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1500.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
4-BROMOPHENYL-PHENYL ETHER	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
4-BROMOPHENYL-PHENYL ETHER	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
4-CHLORO-3-METHYLPHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
4-CHLOROANILINE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
4-CHLOROPHENYL-PHENYLETHER	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
4-METHYL-2-PENTANONE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
4-METHYL-2-PENTANONE	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	J	7.	11.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
4-METHYLPHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
4-NITROANILINE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1500.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
4-NITROANILINE	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
4-NITROPHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1500.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
ACENAPHTHENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
ACENAPHTHYLENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
ACETONE	0107	09/04/91	0001	1.5- 2.0	UG/KG	JB	10.	11.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	B	12.	12.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	B	14.	11.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
ACETONE	0109	09/04/91	0002	1.5- 2.0	UG/KG	B	14.	12.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	B	42.	11.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	B	41.	10.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	B	68.	11.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	B	40.	11.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	B	25.	11.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	B	100.	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	B	46.	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	B	44.	11.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	B	67.	12.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	B	110.	12.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	B	94.	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	B	78.	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	B	33.	11.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	B	23.	11.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	B	27.	11.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	B	12.	11.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	B	25.	10.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	B	17.	11.	RWL	1.00
ALDRIN	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	22.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.0	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.7	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.2	RWL	1.00
ALPHA CHLORDANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	220.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	40.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	47.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
ALPHA CHLORDANE	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	42.	RWL	1.00
ALPHA-BHC	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	22.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.0	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.7	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.2	RWL	1.00
ALUMINUM, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG		3540.	41.4	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		4960.	43.3	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG		3790.	43.4	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		3370.	44.8	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG		4350.	46.5	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG		3550.	42.0	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG		6170.	45.2	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG		5180.	45.1	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG		5770.	43.1	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG		2980.	39.8	RWL	1.0
ANTHRACENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
ANTIMONY, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	12.4	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	13.0	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	13.0	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	13.4	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	14.0	RWL	1.0

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
ANTIMONY, TOTAL	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	12.6	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	13.6	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	13.5	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	12.9	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	11.9	RWL	1.0
AROCLOR-1016	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	220.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	40.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	47.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	42.	RWL	1.00
AROCLOR-1221	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	220.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	40.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	47.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	42.	RWL	1.00
AROCLOR-1232	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	220.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	40.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	47.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	42.	RWL	1.00
AROCLOR-1242	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
AROCLOR-1242	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	220.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	40.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	47.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	42.	RWL	1.00
AROCLOR-1248	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	220.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	40.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	47.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	42.	RWL	1.00
AROCLOR-1254	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	86.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	87.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	85.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	430.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	87.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	81.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	94.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	86.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	89.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	85.	RWL	1.00
AROCLOR-1260	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	86.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	87.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	85.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	430.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	87.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	81.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	94.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	86.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
AROCLOR-1260	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	89.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	85.	RWL	1.00
ARSENIC, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG		4.2	2.2	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		4.7	2.1	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	2.1	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		2.5	2.2	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG		3.9	2.3	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	2.1	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG		3.7	2.4	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	2.2	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG		4.1	2.2	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG		2.9	2.0	RWL	1.0
BARIUM, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	41.4	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	43.3	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	43.4	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	44.8	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	46.5	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	42.0	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	45.2	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	45.1	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	43.1	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	39.8	RWL	1.0
BENZENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
BENZENE	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
BENZO(A)ANTHRACENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	J	64.	340.	RWL	1.00
BENZO(A)PYRENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	J	52.	340.	RWL	1.00
BENZO(B)FLUORANTHENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	J	67.	340.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
BENZO(G,H,I)PERYLENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
BENZO(K)FLUORANTHENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	J	48.	340.	RWL	1.00
BENZOIC ACID	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1500.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	J	110.	1800.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
BENZYL ALCOHOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
BENZYL ALCOHOL	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
BERYLLIUM, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.0	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.2	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	0.99	RWL	1.0
BETA-BHC	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	22.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.0	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.7	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.2	RWL	1.00
BIS(2-CHLOROETHOXY)METHANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
BIS(2-CHLOROETHYL)ETHER	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
BIS(2-CHLOROETHYL)ETHER	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
BIS(2-CHLOROISOPROPYL)ETHER	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
BIS(2-ETHYLHEXYL)PHTHALATE	0107	09/04/91	0001	1.5- 2.0	UG/KG	JB	150.	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	JB	150.	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	JB	240.	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	JB	220.	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	B	450.	340.	RWL	1.00
BROMODICHLOROMETHANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
BROMODICHLOROMETHANE	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
BROMOFORM	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
BROMOMETHANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
BROMOMETHANE	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
BUTYL BENZYL PHTHALATE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
CADMIUM, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.0	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.2	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	0.99	RWL	1.0

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
CALCIUM, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG		153000.	1030.	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		142000.	1080.	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG		207000.	1090.	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		0.00	0.00	RWL	0.00
	0110	09/03/91	0001	1.5- 2.0	MG/KG		156000.	1160.	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG		195000.	1050.	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG		158000.	1130.	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG		165000.	1130.	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG		123000.	1080.	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG		144000.	994.	RWL	1.0
CARBON DISULFIDE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
CARBON TETRACHLORIDE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
CARBON TETRACHLORIDE	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
CHLORIDE BY IC	0107	09/04/91	0001	1.5- 2.0	MG/KG		2.3	1.4	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		2.5	1.4	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	1.5	RWL	1.0
	0115	09/03/91	0001	1.5- 2.0	MG/KG		2.5	1.3	RWL	1.0
	0116	09/03/91	0001	1.5- 2.0	MG/KG		3.9	1.3	RWL	1.0
	0117	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.3	RWL	1.0
	0118	09/03/91	0001	1.5- 2.0	MG/KG		2.8	1.4	RWL	1.0
	0119	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0120	09/03/91	0001	1.5- 2.0	MG/KG		3.5	1.3	RWL	1.0
	0121	09/03/91	0001	1.5- 2.0	MG/KG		4.9	1.4	RWL	1.0
	0122	09/03/91	0001	1.5- 2.0	MG/KG		3.2	1.4	RWL	1.0
	0123	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.3	RWL	1.0
	0124	09/03/91	0001	1.5- 2.0	MG/KG		2.8	1.4	RWL	1.0
	0125	09/03/91	0001	1.5- 2.0	MG/KG		31.8	1.3	RWL	1.0
	0126	09/03/91	0001	1.5- 2.0	MG/KG		2.2	1.2	RWL	1.0
	0127	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0128	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0129	09/04/91	0001	1.5- 2.0	MG/KG		19.4	1.4	RWL	1.0
CHLOROBENZENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
CHLOROBENZENE	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
CHLOROETHANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
CHLOROETHANE	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
CHLOROFORM	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
CHLOROMETHANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
CHLOROMETHANE	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
CHROMIUM, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG		3.5	2.1	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		5.6	2.2	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG		3.7	2.2	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		3.2	2.2	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG		4.5	2.3	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG		3.3	2.1	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG		6.1	2.3	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG		6.2	2.3	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG		5.9	2.2	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG		3.6	2.0	RWL	1.0
CHRYSENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	J	37.	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	J	84.	340.	RWL	1.00
COBALT, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	10.3	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	10.8	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	10.9	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	11.2	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	11.6	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	10.5	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	11.3	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	11.3	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	10.8	RWL	1.0

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
COBALT, TOTAL	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	9.9	RWL	1.0
COPPER, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG		11.0	5.2	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		13.3	5.4	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG		7.6	5.4	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		6.5	5.6	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG		11.4	5.8	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG		7.0	5.3	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG		7.5	5.7	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG		8.0	5.6	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG		10.9	5.4	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG		8.4	5.0	RWL	1.0
CYANIDE, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	1.2	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.2	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.2	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	1.2	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
DELTA-BHC	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	22.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.0	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.7	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.2	RWL	1.00
DI-N-BUTYL PHTHALATE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
DI-N-BUTYL PHTHALATE	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
DI-N-OCTYL PHTHALATE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
DIBENZ(A,H)ANTHRACENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
DIBENZOFURAN	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
DIBROMOCHLOROMETHANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
DIBROMOCHLOROMETHANE	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
DICHLOROMETHANE-METHYLENE CHLORIDE	0107	09/04/91	0001	1.5- 2.0	UG/KG	B	25.	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	B	25.	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	B	26.	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	B	32.	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	B	32.	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	B	25.	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	B	83.	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	B	43.	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	B	29.	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	B	85.	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	B	87.	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	B	41.	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	B	79.	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	B	63.	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	B	59.	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	B	65.	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	B	37.	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	B	29.	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
DICHLOROMETHANE-METHYLENE CHLORIDE	0126	09/03/91	0001	1.5- 2.0	UG/KG	B	32.	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	B	14.	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	B	37.	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	B	15.	6.	RWL	1.00
DIELDRIN	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.1	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	9.4	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.9	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
DIETHYL PHTHALATE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
DIMETHYL PHTHALATE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
ENDOSULFAN I(ALPHA)	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
ENDOSULFAN I(ALPHA)	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	22.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.0	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.7	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.2	RWL	1.00
ENDOSULFAN II(BETA)	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.1	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	9.4	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.9	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
ENDOSULFAN SULFATE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.1	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	9.4	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.9	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
ENDRIN	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.1	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	9.4	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.9	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
ENDRIN	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
ENDRIN ALDEHYDE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.1	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	9.4	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.9	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
ENDRIN KETONE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.7	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.1	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	9.4	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	8.6	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.9	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	8.5	RWL	1.00
ETHYLBENZENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
ETHYLBENZENE	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
FLUORANTHENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	J	110.	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	J	49.	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	J	160.	340.	RWL	1.00
FLUORENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
GAMMA CHLORDANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	220.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	40.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	47.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	42.	RWL	1.00
GAMMA-BHC (LINDANE)	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
GAMMA-BHC (LINDANE)	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	22.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.0	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.7	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.2	RWL	1.00
HEPTACHLOR	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	22.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.0	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.7	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.2	RWL	1.00
HEPTACHLOR EPOXIDE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	22.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.0	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.7	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	4.3	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.4	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	4.2	RWL	1.00
HEXACHLOROBENZENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
HEXACHLOROBENZENE	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
HEXACHLOROBUTADIENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
HEXACHLOROCYCLOPENTADIENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
HEXACHLOROETHANE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
INDENO(1,2,3-CD)PYRENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
INDENO(1,2,3-CD)PYRENE	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
IRON, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG		11900.	20.7	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		13500.	21.6	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG		12100.	21.7	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		11200.	22.4	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG		10900.	23.3	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG		9710.	21.0	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG		16400.	22.6	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG		14400.	22.6	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG		15200.	21.6	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG		10700.	19.9	RWL	1.0
ISOPHORONE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
LEAD, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG		7.8	3.3	RWL	5.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		6.5	3.2	RWL	5.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG		23.1	3.2	RWL	5.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		12.3	1.3	RWL	2.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG		11.3	1.4	RWL	2.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG		6.5	3.2	RWL	5.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG		12.8	1.4	RWL	2.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG		5.7	3.3	RWL	5.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG		12.3	1.3	RWL	2.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG		6.1	3.0	RWL	5.0
MAGNESIUM, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG		54100.	1030.	RWL	1.0

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
MAGNESIUM, TOTAL	0108	09/04/91	0001	1.5- 2.0	MG/KG		48000.	1080.	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG		22000.	1090.	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		30900.	1120.	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG		66900.	1160.	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG		23100.	1050.	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG		23400.	1130.	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG		25600.	1130.	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG		30700.	1080.	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG		38800.	994.	RWL	1.0
MANGANESE, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG		477.	3.1	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		320.	3.2	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG		325.	3.3	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		357.	3.4	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG		280.	3.5	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG		293.	3.2	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG		542.	3.4	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG		371.	3.4	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG		403.	3.2	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG		318.	3.0	RWL	1.0
MERCURY, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	0.11	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	0.11	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	0.11	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	0.12	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	0.12	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	0.11	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	0.12	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	0.12	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	0.11	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	0.11	RWL	1.0
METHOXYCHLOR	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	220.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	40.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	47.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	43.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
METHOXYCHLOR	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	44.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	42.	RWL	1.00
N-NITROSO-DI-N-PROPYLAMINE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
N-NITROSODIPHENYLAMINE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
NAPHTHALENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
NICKEL, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG		13.8	8.3	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		13.2	8.7	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	8.7	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	9.0	RWL	1.0

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
NICKEL, TOTAL	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	9.3	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	8.4	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG		15.7	9.0	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG		12.2	9.0	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG		10.9	8.6	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	8.0	RWL	1.0
NITRATE BY IC	0107	09/04/91	0001	1.5- 2.0	MG/KG		32.9	1.4	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		7.5	1.4	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		1.5	1.5	RWL	1.0
	0115	09/03/91	0001	1.5- 2.0	MG/KG		67.9	1.3	RWL	1.0
	0116	09/03/91	0001	1.5- 2.0	MG/KG		12.3	1.3	RWL	1.0
	0117	09/03/91	0001	1.5- 2.0	MG/KG		3.0	1.3	RWL	1.0
	0118	09/03/91	0001	1.5- 2.0	MG/KG		2.5	1.4	RWL	1.0
	0119	09/03/91	0001	1.5- 2.0	MG/KG		2.6	1.4	RWL	1.0
	0120	09/03/91	0001	1.5- 2.0	MG/KG		2.5	1.3	RWL	1.0
	0121	09/03/91	0001	1.5- 2.0	MG/KG		4.0	1.4	RWL	1.0
	0122	09/03/91	0001	1.5- 2.0	MG/KG		3.5	1.4	RWL	1.0
	0123	09/03/91	0001	1.5- 2.0	MG/KG		1.9	1.3	RWL	1.0
	0124	09/03/91	0001	1.5- 2.0	MG/KG		2.2	1.4	RWL	1.0
	0125	09/03/91	0001	1.5- 2.0	MG/KG		72.5	1.3	RWL	1.0
	0126	09/03/91	0001	1.5- 2.0	MG/KG		60.4	1.2	RWL	1.0
	0127	09/04/91	0001	1.5- 2.0	MG/KG		2.8	1.4	RWL	1.0
	0128	09/04/91	0001	1.5- 2.0	MG/KG		2.5	1.4	RWL	1.0
	0129	09/04/91	0001	1.5- 2.0	MG/KG		51.7	1.4	RWL	1.0
NITRITE BY IC	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	1.5	RWL	1.0
	0115	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.3	RWL	1.0
	0116	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.3	RWL	1.0
	0117	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.3	RWL	1.0
	0118	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0119	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0120	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.3	RWL	1.0
	0121	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0122	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0123	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.3	RWL	1.0

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
NITRITE BY IC	0124	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0125	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.3	RWL	1.0
	0126	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.2	RWL	1.0
	0127	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0128	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
	0129	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.4	RWL	1.0
NITROBENZENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
PENTACHLOROPHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1500.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1900.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	1800.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	J	160.	1800.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	1700.	RWL	1.00
PHENANTHRENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	J	49.	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	J	41.	340.	RWL	1.00
PHENOL	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	310.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
PHENOL	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	340.	RWL	1.00
POTASSIUM, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1030.	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1080.	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1090.	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	1120.	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1160.	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1050.	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1130.	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	1130.	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1080.	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	994.	RWL	1.0
PYRENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	J	33.	310.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	390.	RWL	1.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	J	93.	390.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	350.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	360.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	370.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	J	69.	360.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	J	100.	340.	RWL	1.00
SELENIUM, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.2	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.2	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
SELENIUM, TOTAL	0113	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.1	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1.0	RWL	1.0
SILVER, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	2.1	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	2.2	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	2.2	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	2.2	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	2.3	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	2.1	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	2.3	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	2.3	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	2.2	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	2.0	RWL	1.0
SODIUM, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1030.	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1080.	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	1090.	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	1120.	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1160.	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1050.	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1130.	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	1130.	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	1080.	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	994.	RWL	1.0
STYRENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
STYRENE	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
SULFATE BY IC	0107	09/04/91	0001	1.5- 2.0	MG/KG		66.7	1.4	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		35.1	1.4	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG		35.3	1.4	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		34.0	1.5	RWL	1.0
	0115	09/03/91	0001	1.5- 2.0	MG/KG		50.8	1.3	RWL	1.0
	0116	09/03/91	0001	1.5- 2.0	MG/KG		47.9	1.3	RWL	1.0
	0117	09/03/91	0001	1.5- 2.0	MG/KG		49.9	1.3	RWL	1.0
	0118	09/03/91	0001	1.5- 2.0	MG/KG		28.6	1.4	RWL	1.0
	0119	09/03/91	0001	1.5- 2.0	MG/KG		24.7	1.4	RWL	1.0
	0120	09/03/91	0001	1.5- 2.0	MG/KG		26.3	1.3	RWL	1.0
	0121	09/03/91	0001	1.5- 2.0	MG/KG		33.8	1.4	RWL	1.0
	0122	09/03/91	0001	1.5- 2.0	MG/KG		81.0	1.4	RWL	1.0
	0123	09/03/91	0001	1.5- 2.0	MG/KG		22.2	1.3	RWL	1.0
	0124	09/03/91	0001	1.5- 2.0	MG/KG		34.2	1.4	RWL	1.0
	0125	09/03/91	0001	1.5- 2.0	MG/KG		144.	1.3	RWL	1.0
	0126	09/03/91	0001	1.5- 2.0	MG/KG		50.0	1.2	RWL	1.0
	0127	09/04/91	0001	1.5- 2.0	MG/KG		72.6	1.4	RWL	1.0
	0128	09/04/91	0001	1.5- 2.0	MG/KG		51.4	1.4	RWL	1.0
	0129	09/04/91	0001	1.5- 2.0	MG/KG		38.1	1.4	RWL	1.0
TETRACHLOROETHENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	J	5.	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG		6.	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
TETRACHLOROETHENE	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
THALLIUM, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	2.2	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	2.1	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	2.1	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG	ND	-	2.2	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	2.3	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	2.1	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	2.4	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	21.8	RWL	10.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	2.2	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	2.0	RWL	1.0
TOLUENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	J	1.	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
TOLUENE	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
TOTAL XYLENES	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
TOXAPHENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	86.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	87.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	85.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	430.	RWL	5.00
	0110	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	87.	RWL	1.00
	0111	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	81.	RWL	1.00
	0112	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	94.	RWL	1.00
	0112	09/03/91	0002	1.5- 2.0	UG/KG	ND	-	86.	RWL	1.00
	0113	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	89.	RWL	1.00
	0114	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	85.	RWL	1.00
TRICHLOROETHENE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
TRICHLOROETHENE	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	5.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	6.	RWL	1.00
VANADIUM, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG		16.0	10.3	RWL	1.0
	0108	09/04/91	0001	1.5- 2.0	MG/KG		14.6	10.8	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG	ND	-	10.9	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		12.8	11.2	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG		18.1	11.6	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG		11.1	10.5	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG	ND	-	11.3	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG	ND	-	11.3	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG		14.1	10.8	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG		14.5	9.9	RWL	1.0
VINYL ACETATE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
VINYL ACETATE	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
VINYL CHLORIDE	0107	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0108	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0109	09/04/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0109	09/04/91	0002	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0115	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0116	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0117	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0118	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0119	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0120	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0121	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0122	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	12.	RWL	1.00
	0123	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0124	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0125	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0126	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0127	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
	0128	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	10.	RWL	1.00
	0129	09/03/91	0001	1.5- 2.0	UG/KG	ND	-	11.	RWL	1.00
ZINC, TOTAL	0107	09/04/91	0001	1.5- 2.0	MG/KG		36.0	4.1	RWL	1.0

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

SOIL CHEMISTRY DATA BY PARAMETER
SITE: MND13 AREA 17
09/03/91 TO 09/04/91
REPORT DATE: 04/03/92

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	DEPTH RANGE (FT)	UNITS OF MEASURE	PVI	PARAMETER VALUE	DETECTION LIMIT	LAB CODE	DILUTION FACTOR
ZINC, TOTAL	0108	09/04/91	0001	1.5- 2.0	MG/KG		46.1	4.3	RWL	1.0
	0109	09/04/91	0001	1.5- 2.0	MG/KG		31.0	4.3	RWL	1.0
	0109	09/04/91	0002	1.5- 2.0	MG/KG		33.1	4.5	RWL	1.0
	0110	09/03/91	0001	1.5- 2.0	MG/KG		26.2	4.7	RWL	1.0
	0111	09/03/91	0001	1.5- 2.0	MG/KG		23.8	4.2	RWL	1.0
	0112	09/03/91	0001	1.5- 2.0	MG/KG		42.2	4.5	RWL	1.0
	0112	09/03/91	0002	1.5- 2.0	MG/KG		34.4	4.5	RWL	1.0
	0113	09/03/91	0001	1.5- 2.0	MG/KG		39.9	4.3	RWL	1.0
	0114	09/03/91	0001	1.5- 2.0	MG/KG		28.9	4.0	RWL	1.0

PARAMETER VALUE INDICATOR (PVI): ND= NOT DETECTED

DATA FILE NAME: K:\DART\MND\MND13\SCI10000.DAT

SURFACE WATER QUALITY DATA BY LOCATION
SITE: MND13 AREA 17
LOCATION: 0017
NORTH COORDINATE: UNKNOWN
EAST COORDINATE: UNKNOWN
07/29/91 TO 07/29/91
REPORT DATE: 08/14/92

PARAMETER NAME	LOG DATE	SAMPLE ID	UNITS OF MEASURE	PVI	PARAMETER VALUE	LAB CODE	DILUTION FACTOR
1,1,1-TRICHLOROETHANE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
1,1,2,2-TETRACHLOROETHANE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
1,1,2-TRICHLOROETHANE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
1,1-DICHLOROETHANE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
1,1-DICHLOROETHENE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
1,2,4-TRICHLOROBENZENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
1,2-DICHLOROBENZENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
1,2-DICHLOROETHANE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
1,2-DICHLOROETHANE-d4	07/29/91	0001	% RECOVERY		105.	RWL	1.00
	07/29/91	0002	% RECOVERY		107.	RWL	1.00
1,2-DICHLOROETHENE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
1,2-DICHLOROPROPANE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
1,3-CIS-DICHLOROPROPENE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
1,3-DICHLOROBENZENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
1,3-TRANS-DICHLOROPROPENE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
1,4-DICHLOROBENZENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
2,4,5-TRICHLOROPHENOL	07/29/91	0001	UG/L	U	50.	RWL	1.00
	07/29/91	0002	UG/L	U	50.	RWL	1.00
2,4,6-TRIBROMOPHENOL	07/29/91	0001	% RECOVERY		66.	RWL	1.00
	07/29/91	0002	% RECOVERY		56.	RWL	1.00
2,4,6-TRICHLOROPHENOL	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
2,4-DICHLOROPHENOL	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
2,4-DIMETHYLPHENOL	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
2,4-DINITROPHENOL	07/29/91	0001	UG/L	U	50.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): U - LESS THAN DETECTION LIMIT

SURFACE WATER QUALITY DATA BY LOCATION
SITE: MND13 AREA 17
LOCATION: 0017
NORTH COORDINATE: UNKNOWN
EAST COORDINATE: UNKNOWN
07/29/91 TO 07/29/91
REPORT DATE: 08/14/92

PARAMETER NAME	LOG DATE	SAMPLE ID	UNITS OF MEASURE	PVI	PARAMETER VALUE	LAB CODE	DILUTION FACTOR
2,4-DINITROPHENOL	07/29/91	0002	UG/L	U	50.	RWL	1.00
2,4-DINITROTOLUENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
2,6-DINITROTOLUENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
2-BUTANONE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
2-CHLORONAPHTHALENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
2-CHLOROPHENOL	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
2-FLUOROBIPHENYL	07/29/91	0001	% RECOVERY		56.	RWL	1.00
	07/29/91	0002	% RECOVERY		46.	RWL	1.00
2-FLUOROPHENOL	07/29/91	0001	% RECOVERY		90.	RWL	1.00
	07/29/91	0002	% RECOVERY		85.	RWL	1.00
2-HEXANONE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
2-METHYLNAPHTHALENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
2-METHYLPHENOL	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
2-NITROANILINE	07/29/91	0001	UG/L	U	50.	RWL	1.00
	07/29/91	0002	UG/L	U	50.	RWL	1.00
2-NITROPHENOL	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
3,3'-DICHLOROBENZIDINE	07/29/91	0001	UG/L	U	20.	RWL	1.00
	07/29/91	0002	UG/L	U	20.	RWL	1.00
3-NITROANILINE	07/29/91	0001	UG/L	U	50.	RWL	1.00
	07/29/91	0002	UG/L	U	50.	RWL	1.00
4,4'-DDD	07/29/91	0001	UG/L	U	0.10	RWL	1.00
	07/29/91	0002	UG/L	U	0.10	RWL	1.00
4,4'-DDE	07/29/91	0001	UG/L	U	0.10	RWL	1.00
	07/29/91	0002	UG/L	U	0.10	RWL	1.00
4,4'-DDT	07/29/91	0001	UG/L	U	0.10	RWL	1.00
	07/29/91	0002	UG/L	U	0.10	RWL	1.00
4,6-DINITRO-O-CRESOL	07/29/91	0001	UG/L	U	50.	RWL	1.00
	07/29/91	0002	UG/L	U	50.	RWL	1.00
4-BROMOPHENYL-PHENYL ETHER	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
4-CHLORO-3-METHYLPHENOL	07/29/91	0001	UG/L	U	10.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): U - LESS THAN DETECTION LIMIT

SURFACE WATER QUALITY DATA BY LOCATION
SITE: MND13 AREA 17
LOCATION: 0017
NORTH COORDINATE: UNKNOWN
EAST COORDINATE: UNKNOWN
07/29/91 TO 07/29/91
REPORT DATE: 08/14/92

PARAMETER NAME	LOG DATE	SAMPLE ID	UNITS OF MEASURE	PVI	PARAMETER VALUE	LAB CODE	DILUTION FACTOR
4-CHLORO-3-METHYLPHENOL	07/29/91	0002	UG/L	U	10.	RWL	1.00
4-CHLOROANILINE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
4-CHLOROPHENYL-PHENYLETHER	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
4-METHYL-2-PENTANONE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
4-METHYLPHENOL	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
4-NITROANILINE	07/29/91	0001	UG/L	U	50.	RWL	1.00
	07/29/91	0002	UG/L	U	50.	RWL	1.00
4-NITROPHENOL	07/29/91	0001	UG/L	U	50.	RWL	1.00
	07/29/91	0002	UG/L	U	50.	RWL	1.00
ACENAPHTHENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
ACENAPHTHYLENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
ACETONE	07/29/91	0001	UG/L	JB	6.	RWL	1.00
	07/29/91	0002	UG/L	JB	8.	RWL	1.00
ALDRIN	07/29/91	0001	UG/L	U	0.052	RWL	1.00
	07/29/91	0002	UG/L	U	0.050	RWL	1.00
ALPHA CHLORDANE	07/29/91	0001	UG/L	U	0.52	RWL	1.00
	07/29/91	0002	UG/L	U	0.50	RWL	1.00
ALPHA-BHC	07/29/91	0001	UG/L	U	0.052	RWL	1.00
	07/29/91	0002	UG/L	U	0.050	RWL	1.00
ALUMINUM, TOTAL	07/29/91	0001	UG/L		295.	RWL	1.0
	07/29/91	0002	UG/L		388.	RWL	1.0
ANTHRACENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
ANTIMONY, TOTAL	07/29/91	0001	UG/L	U	60.0	RWL	1.0
	07/29/91	0002	UG/L	U	60.0	RWL	1.0
AROCLOR-1016	07/29/91	0001	UG/L	U	0.52	RWL	1.00
	07/29/91	0002	UG/L	U	0.50	RWL	1.00
AROCLOR-1221	07/29/91	0001	UG/L	U	0.52	RWL	1.00
	07/29/91	0002	UG/L	U	0.50	RWL	1.00
AROCLOR-1232	07/29/91	0001	UG/L	U	0.52	RWL	1.00
	07/29/91	0002	UG/L	U	0.50	RWL	1.00
AROCLOR-1242	07/29/91	0001	UG/L	U	0.52	RWL	1.00
	07/29/91	0002	UG/L	U	0.50	RWL	1.00
AROCLOR-1248	07/29/91	0001	UG/L	U	0.52	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): U - LESS THAN DETECTION LIMIT

SURFACE WATER QUALITY DATA BY LOCATION
SITE: MND13 AREA 17
LOCATION: 0017
NORTH COORDINATE: UNKNOWN
EAST COORDINATE: UNKNOWN
07/29/91 TO 07/29/91
REPORT DATE: 08/14/92

PARAMETER NAME	LOG DATE	SAMPLE ID	UNITS OF MEASURE	PVI	PARAMETER VALUE	LAB CODE	DILUTION FACTOR
AROCLOR-1248	07/29/91	0002	UG/L	U	0.50	RWL	1.00
AROCLOR-1254	07/29/91	0001	UG/L	U	1.0	RWL	1.00
	07/29/91	0002	UG/L	U	1.0	RWL	1.00
AROCLOR-1260	07/29/91	0001	UG/L	U	1.0	RWL	1.00
	07/29/91	0002	UG/L	U	1.0	RWL	1.00
ARSENIC, TOTAL	07/29/91	0001	UG/L	U	10.0	RWL	1.0
	07/29/91	0002	UG/L	U	10.0	RWL	1.0
BARIUM, TOTAL	07/29/91	0001	UG/L	U	200.	RWL	1.0
	07/29/91	0002	UG/L	U	200.	RWL	1.0
BENZENE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
BENZO(A)ANTHRACENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
BENZO(A)PYRENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
BENZO(B)FLUORANTHENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
BENZO(G,H,I)PERYLENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
BENZO(K)FLUORANTHENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
BENZOIC ACID	07/29/91	0001	UG/L	U	50.	RWL	1.00
	07/29/91	0002	UG/L	U	50.	RWL	1.00
BENZYL ALCOHOL	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
BERYLLIUM, TOTAL	07/29/91	0001	UG/L	U	5.0	RWL	1.0
	07/29/91	0002	UG/L	U	5.0	RWL	1.0
BETA-BHC	07/29/91	0001	UG/L	U	0.052	RWL	1.00
	07/29/91	0002	UG/L	U	0.050	RWL	1.00
BIS(2-CHLOROETHOXY)METHANE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
BIS(2-CHLOROETHYL)ETHER	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
BIS(2-CHLOROISOPROPYL)ETHER	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
BIS(2-ETHYLHEXYL)PHTHALATE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
BROMODICHLOROMETHANE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
BROMOFLUOROBENZENE	07/29/91	0001	% RECOVERY		100.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): U - LESS THAN DETECTION LIMIT

SURFACE WATER QUALITY DATA BY LOCATION
SITE: MND13 AREA 17
LOCATION: 0017
NORTH COORDINATE: UNKNOWN
EAST COORDINATE: UNKNOWN
07/29/91 TO 07/29/91
REPORT DATE: 08/14/92

PARAMETER NAME	LOG DATE	SAMPLE ID	UNITS OF MEASURE	PVI	PARAMETER VALUE	LAB CODE	DILUTION FACTOR
BROMOFLUOROBENZENE	07/29/91	0002	% RECOVERY		98.	RWL	1.00
BROMOFORM	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
BROMOMETHANE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
BUTYL BENZYL PHTHALATE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
CADMIUM, TOTAL	07/29/91	0001	UG/L	U	5.0	RWL	1.0
	07/29/91	0002	UG/L	U	5.0	RWL	1.0
CALCIUM, TOTAL	07/29/91	0001	UG/L		32900.	RWL	1.0
	07/29/91	0002	UG/L		30400.	RWL	1.0
CARBON DISULFIDE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
CARBON TETRACHLORIDE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
CHLOROBENZENE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
CHLOROETHANE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
CHLOROFORM	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
CHLOROMETHANE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
CHROMIUM, TOTAL	07/29/91	0001	UG/L	U	10.0	RWL	1.0
	07/29/91	0002	UG/L	U	10.0	RWL	1.0
CHRYSENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
COBALT, TOTAL	07/29/91	0001	UG/L	U	50.0	RWL	1.0
	07/29/91	0002	UG/L	U	50.0	RWL	1.0
COPPER, TOTAL	07/29/91	0001	UG/L	U	25.0	RWL	1.0
	07/29/91	0002	UG/L	U	25.0	RWL	1.0
CYANIDE, TOTAL	07/29/91	0001	UG/L	U	10.0	RWL	1.0
	07/29/91	0002	UG/L	U	10.0	RWL	1.0
DELTA-BHC	07/29/91	0001	UG/L	U	0.052	RWL	1.00
	07/29/91	0002	UG/L	U	0.050	RWL	1.00
DI-N-BUTYL PHTHALATE	07/29/91	0001	UG/L	JB	1.	RWL	1.00
	07/29/91	0002	UG/L	JB	2.	RWL	1.00
DI-N-OCTYL PHTHALATE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
DIBENZ(A,H)ANTHRACENE	07/29/91	0001	UG/L	U	10.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): U - LESS THAN DETECTION LIMIT

SURFACE WATER QUALITY DATA BY LOCATION
SITE: MND13 AREA 17
LOCATION: 0017
NORTH COORDINATE: UNKNOWN
EAST COORDINATE: UNKNOWN
07/29/91 TO 07/29/91
REPORT DATE: 08/14/92

PARAMETER NAME	LOG DATE	SAMPLE ID	UNITS OF MEASURE	PVI	PARAMETER VALUE	LAB CODE	DILUTION FACTOR
DIBENZ(A,H)ANTHRACENE	07/29/91	0002	UG/L	U	10.	RWL	1.00
DIBENZOFURAN	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
DIBROMOCHLOROMETHANE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
DIBUTYLCHLORENDATE	07/29/91	0001	% RECOVERY		67.	RWL	1.00
	07/29/91	0002	% RECOVERY		27.	RWL	1.00
DICHLOROMETHANE-METHYLENE CHLORIDE	07/29/91	0001	UG/L	JB	3.	RWL	1.00
	07/29/91	0002	UG/L	JB	1.	RWL	1.00
DIELDRIN	07/29/91	0001	UG/L	U	0.10	RWL	1.00
	07/29/91	0002	UG/L	U	0.10	RWL	1.00
DIETHYL PHTHALATE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
DIMETHYL PHTHALATE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
ENDOSULFAN I(ALPHA)	07/29/91	0001	UG/L	U	0.052	RWL	1.00
	07/29/91	0002	UG/L	U	0.050	RWL	1.00
ENDOSULFAN II(BETA)	07/29/91	0001	UG/L	U	0.10	RWL	1.00
	07/29/91	0002	UG/L	U	0.10	RWL	1.00
ENDOSULFAN SULFATE	07/29/91	0001	UG/L	U	0.10	RWL	1.00
	07/29/91	0002	UG/L	U	0.10	RWL	1.00
ENDRIN	07/29/91	0001	UG/L	U	0.10	RWL	1.00
	07/29/91	0002	UG/L	U	0.10	RWL	1.00
ENDRIN KETONE	07/29/91	0001	UG/L	U	0.10	RWL	1.00
	07/29/91	0002	UG/L	U	0.10	RWL	1.00
ETHYLBENZENE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
FLUORANTHENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
FLUORENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
GAMMA CHLORDANE	07/29/91	0001	UG/L	U	0.52	RWL	1.00
	07/29/91	0002	UG/L	U	0.50	RWL	1.00
GAMMA-BHC (LINDANE)	07/29/91	0001	UG/L	U	0.052	RWL	1.00
	07/29/91	0002	UG/L	U	0.050	RWL	1.00
HEPTACHLOR	07/29/91	0001	UG/L	U	0.052	RWL	1.00
	07/29/91	0002	UG/L	U	0.050	RWL	1.00
HEPTACHLOR EPOXIDE	07/29/91	0001	UG/L	U	0.052	RWL	1.00
	07/29/91	0002	UG/L	U	0.050	RWL	1.00
HEXACHLOROBENZENE	07/29/91	0001	UG/L	U	10.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): U - LESS THAN DETECTION LIMIT

SURFACE WATER QUALITY DATA BY LOCATION
SITE: MND13 AREA 17
LOCATION: 0017
NORTH COORDINATE: UNKNOWN
EAST COORDINATE: UNKNOWN
07/29/91 TO 07/29/91
REPORT DATE: 08/14/92

PARAMETER NAME	LOG DATE	SAMPLE ID	UNITS OF MEASURE	PVI	PARAMETER VALUE	LAB CODE	DILUTION FACTOR
HEXACHLOROBENZENE	07/29/91	0002	UG/L	U	10.	RWL	1.00
HEXACHLOROBUTADIENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
HEXACHLOROCYCLOPENTADIENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
HEXACHLOROETHANE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
INDENO(1,2,3-CD)PYRENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
IRON, TOTAL	07/29/91	0001	UG/L		578.	RWL	1.0
	07/29/91	0002	UG/L		936.	RWL	1.0
ISOPHORONE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
LEAD, TOTAL	07/29/91	0001	UG/L	U	3.0	RWL	1.0
	07/29/91	0002	UG/L	U	3.0	RWL	1.0
MAGNESIUM, TOTAL	07/29/91	0001	UG/L		8760.	RWL	1.0
	07/29/91	0002	UG/L		6230.	RWL	1.0
MANGANESE, TOTAL	07/29/91	0001	UG/L	U	15.0	RWL	1.0
	07/29/91	0002	UG/L	U	15.0	RWL	1.0
MERCURY, TOTAL	07/29/91	0001	UG/L	U	0.20	RWL	1.0
	07/29/91	0002	UG/L	U	0.20	RWL	1.0
METHOXYCHLOR	07/29/91	0001	UG/L	U	0.52	RWL	1.00
	07/29/91	0002	UG/L	U	0.50	RWL	1.00
N-NITROSO-DI-N-PROPYLAMINE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
N-NITROSODIPHENYLAMINE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
NAPHTHALENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
NICKEL, TOTAL	07/29/91	0001	UG/L	U	40.0	RWL	1.0
	07/29/91	0002	UG/L	U	40.0	RWL	1.0
NITROBENZENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
NITROBENZENE-D5	07/29/91	0001	% RECOVERY		57.	RWL	1.00
	07/29/91	0002	% RECOVERY		45.	RWL	1.00
P-TERPHENYL-d14	07/29/91	0001	% RECOVERY		40.	RWL	1.00
	07/29/91	0002	% RECOVERY	*	31.	RWL	1.00
PENTACHLOROPHENOL	07/29/91	0001	UG/L	U	50.	RWL	1.00
	07/29/91	0002	UG/L	U	50.	RWL	1.00
PHENANTHRENE	07/29/91	0001	UG/L	U	10.	RWL	1.00

PARAMETER VALUE INDICATOR (PVI): U - LESS THAN DETECTION LIMIT

SURFACE WATER QUALITY DATA BY LOCATION
SITE: MND13 AREA 17
LOCATION: 0017
NORTH COORDINATE: UNKNOWN
EAST COORDINATE: UNKNOWN
07/29/91 TO 07/29/91
REPORT DATE: 08/14/92

PARAMETER NAME	LOG DATE	SAMPLE ID	UNITS OF MEASURE	PVI	PARAMETER VALUE	LAB CODE	DILUTION FACTOR
PHENANTHRENE	07/29/91	0002	UG/L	U	10.	RWL	1.00
PHENOL	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
POTASSIUM, TOTAL	07/29/91	0001	UG/L	U	5000.	RWL	1.0
	07/29/91	0002	UG/L	U	5000.	RWL	1.0
PYRENE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
Phenol-d5	07/29/91	0001	% RECOVERY	*	104.	RWL	1.00
	07/29/91	0002	% RECOVERY	*	99.	RWL	1.00
SELENIUM, TOTAL	07/29/91	0001	UG/L	U	5.0	RWL	1.0
	07/29/91	0002	UG/L	U	5.0	RWL	1.0
SILVER, TOTAL	07/29/91	0001	UG/L	U	10.0	RWL	1.0
	07/29/91	0002	UG/L	U	10.0	RWL	1.0
SODIUM, TOTAL	07/29/91	0001	UG/L		7500.	RWL	1.0
	07/29/91	0002	UG/L	U	5000.	RWL	1.0
STYRENE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
TETRACHLOROETHENE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
THALLIUM, TOTAL	07/29/91	0001	UG/L	U	10.0	RWL	1.0
	07/29/91	0002	UG/L	U	10.0	RWL	1.0
TOLUENE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
TOLUENE-d8 (BY GC)	07/29/91	0001	% RECOVERY		104.	RWL	1.00
	07/29/91	0002	% RECOVERY		106.	RWL	1.00
TOTAL XYLENES	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
TOXAPHENE	07/29/91	0001	UG/L	U	1.0	RWL	1.00
	07/29/91	0002	UG/L	U	1.0	RWL	1.00
TRICHLOROETHENE	07/29/91	0001	UG/L	U	5.	RWL	1.00
	07/29/91	0002	UG/L	U	5.	RWL	1.00
VANADIUM, TOTAL	07/29/91	0001	UG/L	U	50.0	RWL	1.0
	07/29/91	0002	UG/L	U	50.0	RWL	1.0
VINYL ACETATE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
VINYL CHLORIDE	07/29/91	0001	UG/L	U	10.	RWL	1.00
	07/29/91	0002	UG/L	U	10.	RWL	1.00
ZINC, TOTAL	07/29/91	0001	UG/L	U	20.0	RWL	1.0
	07/29/91	0002	UG/L	U	20.0	RWL	1.0

PARAMETER VALUE INDICATOR (PVI): U - LESS THAN DETECTION LIMIT

DATA FILE NAME: K:\DART\MND\MND13\SWQ10000.DAT

6 A

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: LANL-MOUND **SAMPLES RECEIVED:** 07-31-91
RFW #: 9107L303, GC/MS VOLATILE
W.O. #: 2744-40-90

NARRATIVE

The set of samples consisted of three (3) water samples collected on 07-29-91.

The samples were analyzed according to criteria set forth in CLP SOW 02/88 (Rev. 05/89) for TCL Volatile target compounds on 08-06-91.

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

1. Non-target compounds were not detected in these samples.

2. All surrogate recoveries were within EPA QC limits.

3. One (1) of ten (10) matrix spike recoveries was outside EPA QC limits.

4. The laboratory blank contained the common contaminants methylene chloride and acetone at levels less than 2x the CRQL.

5. Internal standard area and retention time criteria were met for samples and blanks.

8.23.91

Jack R. Tuschall, Ph.D. Date
Laboratory Manager
Lionville Analytical Laboratory

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: LANL-MOUND PLANT **SAMPLES RECEIVED:** 07-31-91
RFW #: 9107L303, SEMIVOLATILE
W.O. #: 2744-40-90

NARRATIVE

The set of samples consisted of three (3) water samples collected on 07-29-91.

The samples were extracted on 08-05-91 and analyzed according to criteria set forth in SW 846 Method 8270 for TCL Semivolatile target compounds on 08-15,16,19-91.

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

1. Non-target compounds were detected in these samples.

2. Five (5) of thirty-six (36) surrogate recoveries were outside EPA QC limits; however, EPA CLP surrogate recovery criteria were met (i.e., no more than one outlier per fraction (acid and base neutral) and no recoveries less than 10%).

3. Two (2) of twenty-two (22) blank spike recoveries were outside EPA QC limits.

4. The laboratory blank contained the common contaminant di-n-butylphthalate at a level less than the CRQL.

5. Internal standard area and retention time criteria were met for all samples and blanks.

9.12.91

Jack R. Tuschall, Ph.D. Date
Laboratory Manager
Lionville Analytical Laboratory

6A

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: LANL MOUND PLANT **SAMPLES RECEIVED:** 07-31-91
RFW #: 9107L303, PCB/PEST
W.O. #: 2744-40-90

NARRATIVE

The set of samples consisted of three (3) water samples collected on 07-29-91.

The samples were extracted on 08-01-91 and analyzed according to criteria set forth in the Contract Laboratory Program for Pesticide and PCB target compounds on 09-03-91.

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

1. Linearity and breakdown criteria were met on the primary column.

2. Continuing calibration criteria were exceeded for Delta-BHC; however, this occurred after the sample extracts, so there were no re-analysis requirements.

3. Retention time criteria were met for all compounds on both the primary and confirmation columns.

4. All surrogate recoveries were within EPA QC limits.

5. All blank spike recoveries were within EPA QC limits.

6. The blank spike samples required two-fold dilutions to maintain pesticide recoveries within the linear range of the instrument.

9. 16. 91.

Jack R. Tuschall, Ph.D. Date
Laboratory Manager
Lionville Analytical Laboratory

WESTON

Roy F. Weston, INC.
Lionville Laboratory

CLIENT: LANL MOUND PLANT **SAMPLES RECEIVED:** 7/31/91
RFW #: 9107L303
W.O.#: 2744-40-90

METALS NARRATIVE

The set of samples consisted of three (3) water samples collected on 7/29/91.

The samples were analyzed according to criteria set forth in CLP SOW 3/90.

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

1. ICVs, CCVs, and LCSs stock standards were purchased from Inorganic Ventures Laboratory.

2. All ICV and CCV values were within control limits.

3. All ICB and CCB values were within control limits.

4. All preparation blank values were within control limits.

5. All LCS results were within the 80-120% control limits.

6. All matrix spike recoveries were within the 75-125% control limits with the exception of As,Pb,Se,Tl. All corresponding samples were flagged with an "N" according to CLP protocol.

7. All duplicate analyses were within the 20% RPD control limit.

WESTON

8. The code CV is currently in use by the laboratory for both mercury instruments in operation (HG1 and HG2). Hg1 is complete with autosampler and software but does not add reagents; HG2 is operated by the analyst and produces a strip chart. Reference SOP21-15-0245.1. Sample volumes and reagents have been proportionally scaled down to adapt to a new automated technique. The volume used for all water analysis is 33 mls. For soils, 0.1 gram of sample in a final volume of 50 mls.

Jack R. Tuschall, Ph.D.
Laboratory Manager
WESTON Analytical Laboratories

9. 16. 91
Date

Dart Analysis and Retrieval Tools

January 1992

OVERVIEW

The DART is a PC-based technical database management system in which the central secure repository for the data types listed in Appendix A are stored. Along with storage capabilities DART has systems which allow these data types to be reported and analyzed in several formats. Options have been incorporated that allow users to only report and analyze subsets of data as specified by the user. Data may also be imported to third party software packages such as spreadsheets, models, graphics, and word processing systems. The capabilities of the system allow scientists and engineers the ability to perform standard reporting and analysis required by projects in a cost effective, time saving, and quality assured manner.

CAPABILITIES

MAIN MENU OPTIONS:

The following summarizes the main menu options of the DART system:

OVERVIEW OF MAIN MENU OPTIONS

A - **Go to the Data Retrieval Menu** - This system allows user specified data sets to be retrieved from the central database. The central database remains intact while data sets retrieved by the user can be reported and analyzed through the Analysis and Reporting Processor or imported into third party software packages.

B - **Analysis and Reporting Processor** - This system has the capabilities to report and analyze data sets as retrieved from the Data Retrieval System. Pre-formatted and pre-specified analysis and reporting capabilities have been added as menu driven selections which allow the user to produce report quality products and to analyze data. A summary of reporting capabilities are contained in Appendix B. Appendix E contains some examples of the data reports available.

C - **View/Browse** - This system allows data to be viewed or browsed through screen interaction.

D - **Prepare Data for Model/Graphics Input Menu** - Allows user specified data sets to be directly imported into third party software packages of models. Appendix C lists the models that directly interact with DART software.

Project Dependant Requirements

The DART system has been developed to provide consistent methodologies for the storage, reporting, and analysis of data for projects requiring the need for the following:

- A central secure repository for project data
- A quality assured/quality controlled database
- Standardized report quality data reports
- Standardized methodologies for analyzing data
- A system where project participants can access data

The system has the capability for the storage, retrieval, and reporting of various data types as noted in Appendix A. It is noted, that the configuration of the DART modules has made it possible to include or exclude additional data types, reporting capabilities, and analysis capabilities as defined by project needs.

HARDWARE REQUIREMENTS

The hardware configuration is strictly dependant on the size of the individual projects. The following hardware configuration would probably by sufficient for a small to medium sized project. Again, a systems analysis should be preformed to determine the exact hardware requirements based on long term data volume and project requirements.

286/386 Based IBM compatible
30 MB hard disk space
EGA/VGA Display Monitor
HP Laserjet Series or Standard Line Printer

Local Area Network Version - The DART system is available for use by multi-users on a Local Area Network (LAN). This allows project data to be accessed simultaneously by a number of project participants. A systems analysis is required to determine system configuration and requirements.

System Administrator

It is recommended that a system administrator be assigned to establish and maintain coding conventions, coordinate electronic deliverables, maintain data entry and maintain backup systems. This will provide a central resource responsible for the maintenance of the system.

APPENDIX A

DATA TYPES ADDRESSED

The data types that are stored in the DART are those most common to remedial investigation/feasability studies. A hierarchical structure of data structures are maintained so that defensibility and tracking can be achieved. The modular approach to DART software makes adding data structures not accounted for an easy process.

The following is a summary of data file types and their contents:

Facility Information - Provides information about where data are collected.

Facility Id
Facility Type
Facility Name
Facility Location
Facility Manager
Facility Area
Facility Standard Drawing Scale

Location Information - Provides information about the specific sampling location.

Location Id
Location Type
North Coordinate
East Coordinate
Elevation
Driller Code
Date Location Established
Depth
Diameter
Location Cross Reference

Well Completion Information - Provides information about the well characteristics of a sampling location that has been defined as a well.

Location Id
Installer Code
Date Installed
Casing Elevation
Casing Depth
Casing Diameter
Seal End Depth
Geologic Formation of Completion
Screen Beginning Depth
Screen Length
Background Flag
Abandoned Flag
Abandoned Date
Flag

Slug Test Data - Contains results recorded during a slug test field investigation.

Location Id
Date Logged
Slug Volume
Elapsed Time
Depth to Water
Logger Code
Flag

Pump Test Data - Contains results recorded during a pump test field investigation.

Location Id
Date Logged
Distance
Elapsed Time
Depth to Water
Pump Rate
Logger Code
Flag

Recovery Test Data - Contains results recorded during a recovery test.

Location Id
Date Logged
Distance
Elapsed Time
Depth to Water
Logger Code
Flag

F

Cardinal®

APPENDIX F

QUALIFIER LIST

QUALIFIER CHANGES RESULTING FROM DATA VALIDATION

EXPLANATION OF ORGANICS DATA QUALIFIERS

For the purposes of this data review document the following code letters and associated definitions are provided:

U - The material was analyzed for, but was not detected. The associated numerical value is the estimated quantitation limit.

R - Quality Control indicates that data are not usable (i.e. compound may or may not be present). Resampling and re-analysis are necessary to determine the presence or absence of the analyte in the sample.

J - The associated numerical value is an estimated quantity because the amount detected is below the quantitation detection limits or because quality control criteria were not met. (See sub-qualifiers listed below.) No sub-qualifier will follow a J if all quality control criteria were met.

UJ-B - The compound is considered to be <u>undetected</u> and the value reported is an estimated quantitation limit because the compound was identified in an associated blank as well as in the sample. The value of this reported quantitation limit (DL) is determined by the amount of the compound found in the sample:

1) the sample value was less than the CRQL: the QL is reported as equal to the CRQL.
2) the sample value was greater than CRDL but less than 5X the amount of the compound found in the blank (less than 10X for methylene chloride, acetone, 2-butanone, toluene and phthalates): the QL is reported as equal to the reported sample value.
3) the sample value was greater than 5X the blank value (10X for compounds noted above), see J-B qualifier.

J-B - The reported value is an estimated amount. The compound was detected in the blank and the quantity reported in the sample is greater than 5X the amount found in the blank (greater than 10X for above compounds), but less than 100X the blank amount.

J-C - The value reported was estimated due to instrument calibration and/or resolution problems. (A "C" flag by the laboratory indicates GC/MS confirmation for Pesticides/PCB's).

J-H - The value reported was estimated due to holding time violation.

J-S - The value reported was estimated due to surrogate or matrix spike recovery problems.

J-I - The value reported was estimated due to internal standard recovery deficiencies.

J-M - Compounds could not be separated or were subject to interference problems attributable to sample matrix.

J-N - Tentative identification of a compound. Resampling and re-analysis would be necessary for verification of identity.

J-A - TIC identified as an aldol condensate.

J-P - This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I.

Definition of Qualifiers
(Used by Data Reviewer)

The following qualifiers are specified for use by the Functional Guidelines for Inorganic Data Validation.

(R) = Rejected - Data are unusable (Note: Analyte may or may not be present).

(UJ) = Undetected, but the number that is reported as the quantitation limit is an estimated value

(J) = Estimated value

The following subqualifiers give further detail of the type and amount of qualification a given data point has received.

-H = Qualified due to holding time violation

-I = Qualified due to interference problems (ICP serial dilution or ICS, or poor analytical spike recovery by graphite furnace)

-D = Qualified due to duplicate control limits being exceeded

-S = Qualified due to matrix spike recoveries outside control limits

-C = Qualified due to instrument calibration problems

-L = Qualified due to LCS recoveries outside control limits

-B = Qualified due to blank contamination problems

-K = Qualified due to negative blank value problems

-Q = Qualified for other reasons - refer to the text of the report

Example: The percent recovery of the Aluminum matrix spike was only 65%. Undetected values (e.g., Al = 200u) will be flagged as follows:

Al = 200u (UJ-S)

meaning the number being reported at the detection limit (200u) is estimated (UJ) due to spike recovery problems (-S).

Reported positive Aluminum values (e.g., Al = 250) will be flagged as follows:

Al = 250 (J-S)

meaning the reported positive result (250) is estimated (J) due to spike recovery problems (-S).

Table F.1. Qualifier Changes as the Result of Data Validation for Laboratory Batch 9109L602

Volatiles								
	Sample/Location							
Analyte	130-2001	115-0001 116-0001 118-0001 125-0001 126-0001	117-0001	117-0001RE	119-0001 123-0001 122-0001 121-0001	120-0001	124-0001RE	124-0001
Chloromethane				UJ-SH		UJ-I	UJ-S	UJ-IS
Bromomethane		UJ-C	UC-C	UJ-SH	UJ-C	UJ-CI	UJ-CS	UJ-CIS
Chloroethene				UJ-SH		UJ-I	UJ-S	UJ-IS
Chloroethane				UJ-SH		UJ-I	UJ-S	UJ-IS
Dichloromethane	UJ-B	UJ-BC	UJ-BC	UJ-BSH	UJ-BC	UJ-BCI	UJ-BCS	UJ-BCIS
Acetone		UJ-BC	UJ-BC	UJ-BSH	UJ-BC	UJ-BCI	UJ-BCS	UJ-BCIS
Carbon disulfide		UJ-C	UJ-C	UJ-SH	UJ-C	UJ-CI	UJ-S	UJ-CIS
1,1-Dichloroethene				UJ-SH		UJ-I	UJ-S	US-IS
1,1-Dichloroethane				UJ-SH		UJ-I	UJ-S	UJ-IS
1,2-Dichloroethene (total)				UJ-SH		UJ-I	UJ-S	UJ-IS
Trichloromethane				UJ-SH		UJ-I	UJ-S	UJ-IS
1,2-Dichloroethane				UJ-SH		UJ-I	UJ-S	UJ-IS
2-Butanone	R-C	UJ-C	UJ-C	UJ-SH	UJ-C	UJ-CI	UJ-CS	UJ-CIS
1,1,1-Trichloroethane				UJ-SH		UJ-I	UJ-S	UJ-IS
Carbon tetrachloride				UJ-SH		UJ-I	UJ-S	UJ-IS
Vinyl Acetate		UJ-C		UJ-SH	UJ-C	UJ-CI	UJ-CS	UJ-CIS
Bromodichloromethane				UJ-SH		UJ-I	UJ-S	UJ-IS
1,2-Dichloropropane				UJ-SH		UJ-I	UJ-S	UJ-IS
1,3-*cis*-Dichloropropene				UJ-SH		UJ-I	UJ-S	UJ-IS
Trichloroethene				UJ-SH		UJ-I	UJ-S	UJ-IS
Dibromochloromethane				UJ-SH		UJ-I	UJ-S	UJ-IS

Table F.1. (page 2 of 2)

Volatiles								
	Sample/Location							
Analyte	130-2001	115-0001 116-0001 118-0001 125-0001 126-0001	117-0001	117-0001RE	119-0001 123-0001 122-0001 121-0001	120-0001	124-0001RE	124-0001
1,1,2-Trichloroethane				UJ-SH		UJ-I	UJ-S	UJ-IS
Benzene				UJ-SH		UJ-I	UJ-S	UJ-IS
1,3-*trans*-Dichloropropene				UJ-SH		UJ-I	UJ-S	UJ-IS
Bromoform				UJ-SH		UJ-I	UJ-S	UJ-IS
4-Methyl-2-pentanone	UJ-C	UJ-C	UJ-CI	J-ISH	UJ-C	UJ-CI	UJ-CS	UJ-CIS
2-Hexanone		UJ-C	UJ-CI	J-ISH	UJ-C	UJ-CI	UJ-CS	UJ-CIS
Tetrachloroethene			UJ-CI	J-ISH		UJ-I	UJ-S	UJ-IS
1,1,2,2-Tetrachloroethane	UJ-C		UJ-CI	J-ISH		UJ-I	UJ-S	UJ-IS
Toluene			UJ-CI	J-ISH		UJ-I	UJ-S	UJ-IS
Chlorobenzene			UJ-CI	J-ISH		UJ-I	UJ-S	UJ-IS
Ethylbenzene			UJ-CI	J-ISH		UJ-I	UJ-S	UJ-IS
Styrene			UJ-CI	J-ISH		UJ-I	UJ-S	UJ-IS
Xylene (total)			UJ-CI	J-ISH		UJ-I	UJ-S	UJ-IS
Hexane			J-N		J-N	J-N		J-N

Table F.2. Qualifier Changes as the Result of Data Validation for Laboratory Batch 9109L602

Semivolatiles				
	Sample/Location			
Analyte	110-0001	111-0001 112-0001	112-0002	113-0001
Benzoic acid				J-C
Hexachlorocyclopentadiene	UJ-C	UJ-C	UJ-C	R-C
3-Nitroaniline	UJ-C	UJ-C	UJ-C	
Diethylphthalate				UJ-C
4-Nitroaniline	UJ-C	UJ-C	UJ-C	UJ-C
4,6-Dinitro-2-methylphenol		UJ-C	UJ-C	UJ-C
Di-n-butylphthalate	UJ-C	UJ-C	UJ-C	UJ-C
Butylbenzylphthalate	UJ-C	UJ-C	UJ-C	UJ-C
3,3'-Dichlorobenzidine	UJ-C	UJ-C	UJ-C	UJ-C
Dibenzo(a,h)anthracene		UJ-ABN[a]	UJ-ABN[a]	
Aldol Condensate	UJ-ABN[a]		UJ-AN[b]	UJ-AN[f]
Aldol Condensate	UJ-AN[b]			UJ-AN[g]
Aldol Condensate	UJ-ABN[c]			UJ-AB[h]
Unknown	J-N[d]			J-N[i,j]
Organic acid	J-N[e]	J-N[e]		

[a]RT = 5.15 - 5.17
[b]RT = 5.65
[c]RT = 6.37
[d]RT = 7.17
[e]RT = 19.17 - 19.18
[f]RT = 4.82
[g]RT = 5.33
[h]RT = 6.12
[i]RT = 6.95
[j]RT = 7.20

RT - retention time

Table F.3. Qualifier Changes as the Result of Data Validation for Laboratory Batch 9109L602

Pesticides/PCBs	
	Sample/Location
Analyte	110-0001 112-0001 112-0002 113-0001 113-1001
Aldrin	UJ-C

Table F.4. Qualifier Changes as the Result of Data Validation for Laboratory Batch 9109L602

Inorganics		
	Sample/Location	
Analyte	110-0001	111-0001 112-0001 112-0002 113-0001
Aluminum	J-D	J-D
Antimony	UJ-IS	UJ-IS
Arsenic	J-S	J-S
Barium	J-I	J-I
Chromium	J-I	J-I
Iron	J-D	J-D
Lead	J-S	J-S
Magnesium	J-D	J-D
Manganese	J-D	J-D
Potassium	J-KI	J-KI
Selenium	UJ-IS	UJ-IS
Silver	UJ-L	UJ-L
Sodium	J-I	J-I
Thallium	UJ-IS	UJ-IS
Vanadium		J-K
Zinc	J-D	J-D
Cyanide	UJ-H	UJ-H

Table F.5. Qualifier Changes as the Result of Data Validation for Laboratory Batch 9109L613

Volatiles			
	Sample/Location		
Analyte	129-0001 127-0001 109-0002 109-0001 107-0001 108-0001	128-0001	130-0002
Dichloromethane	UJ-B	UJ-B	UJ-B
Acetone	UJ-BC	UJ-BC	
2-Butanone		UJ-C	R-C
4-Methyl-2-pentanone		UJ-C	
2-Hexanone		UJ-C	

Table F.6. Qualifier Changes as the Result of Data Validation for Laboratory Batch 9109L613

Semivolatiles			
	Sample/Location		
Analyte	109-0001 108-0001 107-0001	109-0002	114-0001
Benzoic acid	UJ-C	UJ-C	UJ-C
Hexachlorocyclopentadiene	UJ-C	UJ-C	UJ-C
3-Nitroaniline	UJ-C	UJ-C	UJ-C
2,4-Dinitrotoluene	UJ-C	UJ-C	UJ-C
4-Nitroaniline	UJ-C	UJ-C	UJ-C
4,6-Dinitro-2-methylphenol	UJ-C	UJ-C	UJ-C
Di-n-Butylphthalate	UJ-C	UJ-C	UJ-C
Butylbenzylphthalate	UJ-C	UJ-C	UJ-C
3,3'-Dichlorobenzidine	UJ-C	UJ-C	
Di-n-Octyl phthalate	UJ-BC	UJ-BC	UJ-BC
Aldol Condensate	UJ-ABN[a]	UJ-ABN[a]	UJ-ABN[a]
Aldol Condensate	UJ-AN[b]	UJ-AN[b]	UJ-AN[b]
Aldol Condensate	UJ-ABN[c]	UJ-ABN[c]	UJ-ABN[c]
Aldol Condensate			UJ-AN[e]
Adipate		J-N[e]	J-N[d]
Unknown			J-N[f]
Unknown			J-N[g]

[a]RT = 5.15 - 520
[b]RT = 5.63 - 5.68
[c]RT = 6.35 - 6.38
[d]RT = 22.35 - 22.45
[e]RT = 7.38
[f]RT = 23.15
[g]RT = 25.37

RT - retention time

Table F.7. Qualifier Changes as the Result of Data Validation for Laboratory Batch 9109L613

Pesticides/PCBs	
Analyte	114-0001 109-0002 109-0001 108-0001 107-0001
Aldrin	UJ-C

Table F.8. Qualifier Changes as the Result of Data Validation for Laboratory Batch 9109L613

Inorganics			
	Sample/Location		
Analyte	107-0001	108-0001 109-0002 114-0001	109-0001
Aluminum	J-D	J-D	J-D
Antimony	UJ-S	UJ-IS	UJ-IS
Arsenic	J-S	J-S	J-SI
Barium	J-I	J-I	J-I
Chromium	J-I	J-I	J-I
Cobalt	J-I	J-I	J-I
Iron	J-D	J-D	J-D
Lead	J-SI	J-S	J-S
Magnesium	J-D	J-D	J-D
Manganese	J-D	J-D	J-D
Nickel	J-I	J-I	J-I
Potassium	J-KI	J-KI	J-KI
Selenium	UJ-SI	UJ-SI	UJ-SI
Sodium	J-I	J-I	J-I
Thallium	UJ-SI	UJ-SI	UJ-SI
Vanadium			J-K
Zinc	J-D	J-D	J-D

Table F.9. Qualifier Changes as the Result of Data Validation for Laboratory Batch 9109L618

Volatile	
Analyte	Water Sample 04 591 03 591 TO 3591
Chloromethane	UC-C
Dichloromethane	UJ-B
Acetone	UJ-C
2-Butanone	R-C

Table F.10. Qualifier Changes as the Result of Data Validation for Laboratory Batch 9109L618

Semivolatile			
	Water Sample/Location		
Analyte	03591	04591	04591RE
bis(2-Chloroisopropyl)ether	UJ-C	UJ-C	UJ-C
Benzoic acid	UJ-C	UJ-C	UJ-C
2,4-Dinitrophenol	UJ-C	UJ-C	UJ-C
Dibenzofuran			UJ-I
2,4-Dinitrotoluene			UJ-I
Diethylphthalate			UJ-I
4-Chlorophenyl-phenylether			UJ-I
Fluorene			UJ-I
4-Nitroaniline			UJ-I
4,6-Dinitro-2-methylphenol	UJ-C	UJ-C	UJ-CI
N-Nitrosodiphenylamine (1)			UJ-I
4-Bromophenyl-phenylether			UJ-I
Hexachlorobenzene			UJ-I
Pentachlorophenol			UJ-I
Phenanthrene			UJ-I
Anthracene			UJ-I
Di-n-Butylphthalate			UJ-I
Fluoranthene			UJ-I
Pyrene		UJ-I	UJ-I
Butylbenzylphthalate		UJ-I	UJ-I
3,3'-Dichlorobenzidine		UJ-I	UJ-I
Benzo(a)anthracene		UJ-I	UJ-I
Chrysene		UJ-I	UJ-I
bis(2-Ethylhexyl)phthalate		UJ-I	UJ-I
Di-n-Octyl phthalate		UJ-I	UJ-I

Table F.10. (page 2 of 2)

Semivolatile			
	Water Sample/Location		
Analyte	03591	04591	04591RE
benzo(b)fluoranthene		UJ-I	UJ-I
Benzo(k)fluoranthene		UJ-I	UJ-I
Benzo(a)pyrene		UJ-I	UJ-I
Indeno(1,2,3-cd)pyrene		UJ-I	UJ-I
Dibenzo(a,h)anthracene		UJ-I	UJ-I
Benzo(g,h,i)perylene		UJ-I	UJ-I

G

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APPENDIX G

STATISTICAL ANALYSIS

AREA 17 - RADIOLOGICAL DATA - SOILS (pCi/G)

data file: C:\CSS\DATA\17rad.CSS [8 cases with 5 variables]

VARIABLE LIST and missing data values:

var. 1:	PU238	EG&G
var. 2:	PU238	ORAU
var. 3:	PU239_40	
var. 4:	PU238	WESTON
var. 5:	TH232	

SD = SQRT (SUM (d**2)/(n-1))

css/3: basic stats	Descriptive Statistics N. of Cases = 8 (MD pairwise deleted)					
	N	Min	Max	Mean	St. Err.	St. Dev.
PU238	4	6.600000	72.20000	32.20000	15.11048	30.22096
PU238	5	.400000	21.00000	9.54000	3.68043	8.22970
PU239_40	5	.010000	.04000	.02600	.00510	.01140
PU238	8	4.000000	26.00000	15.12500	3.19284	9.03070
TH232	8	.300000	1.00000	.72500	.10308	.29155

css/3: basic stats	Descriptive Statistics N. of Cases = 8 (MD pairwise deleted)			
	p=.9500 Up.limit	p=.9500 Dn.limit	Skewness	Kurtosis
PU238	97.09378	-32.6938	.346448	-2.04515
PU238	21.27344	-2.1934	.165960	-1.85054
PU239_40	.04226	.0097	-.194302	-1.74840
PU238	22.94488	7.3051	-.088103	-1.89090
TH232	.97746	.4725	-.276163	-1.88511

AREA 17 - ORGANIC DATA - SOILS (UG/KG)

data file: c:\mound\17ORG.CSS [25 cases with 17 variables]

VARIABLE LIST and missing data values:

var. 15:	A_Q	4-METHYL-2-PENTANONE
var. 16:	A_R	BIS(2-ETHYLHEXYL) PHTHALATE
var. 17:	A_S	TOLUENE

SD = SQRT (SUM (d**2)/(n-1))

css/3: basic stats	Descriptive Statistics N. of Cases = 23 [from 25] (MD pairwise deleted)					
	N	Min	Max	Mean	St. Err.	St. Dev.
A_Q	18	5.0000	8.0000	5.6806	.15098	.64057
A_R	8	175.0000	380.0000	266.5625	32.43447	91.73854
A_S	18	2.5000	4.5000	3.0278	.09456	.40118

css/3: basic stats	Descriptive Statistics N. of Cases = 23 [from 25] (MD pairwise deleted)			
	p=.9500 Up.limit	p=.9500 Dn.limit	Skewness	Kurtosis
A_Q	6.0004	5.3607	2.511187	6.70536
A_R	346.0009	187.1241	.108099	-2.09058
A_S	3.2281	2.8275	2.492238	7.40797

data file: C:\123R31\17ORG.CSS [25 cases with 14 variables]

VARIABLE LIST and missing data values:

```
var.   2:      A_C  4-BROMOPHENYL-PHENYL ETHER
var.   3:      A_D  4-METHYL-2-PENTANONE
var.   4:      A_E  BENZO(A)ANTHRACENE
var.   5:      A_F  BENZO(A)PYRENE
var.   6:      A_G  BENZO(B)FLUORANTHENE
var.   7:      A_H  BENZO(K)FLUORANTHENE
var.   8:      A_I  BENZOIC ACID
                   100  BENZOIC_
var.   9:      A_J  CHRYSENE
                   100  CHRYSENE
var.  10:      A_K  FLUORANTHENE
                   100  FLUORANT
var.  11:      A_L  PENTACHLOROPHENOL
                   100  PENTACHL
var.  12:      A_M  PHENANTHRENE
                   100  PHENANTH
var.  13:      A_N  PYRENE
                   100  PYRENE
var.  14:      A_P  TETRACHLOROETHENE
                   100  PCE
```

SD = SQRT (SUM (d**2)/(n-1))

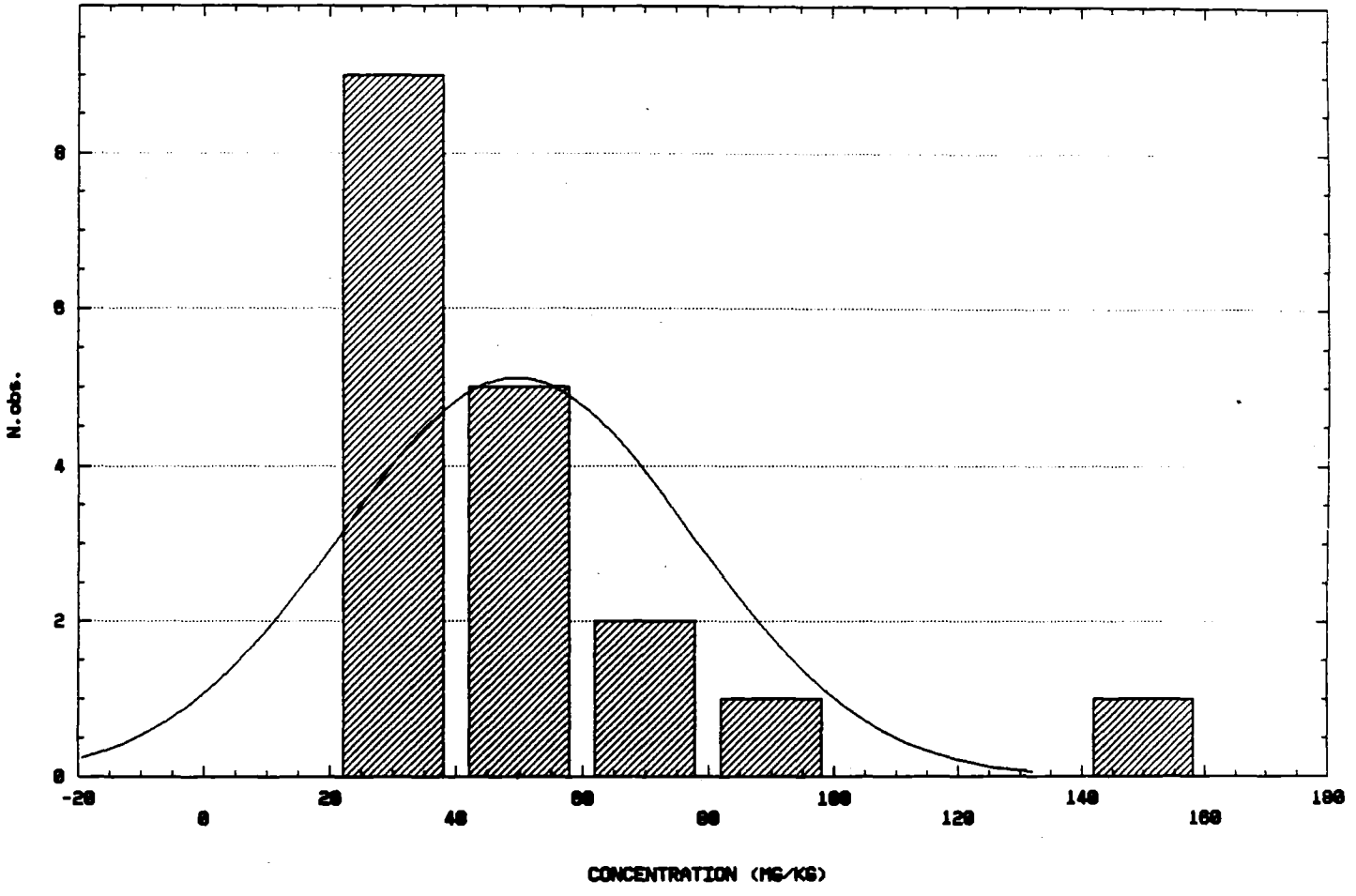
css/3: basic stats	Descriptive Statistics N. of Cases = 23 [from 25] (MD pairwise deleted)					
	N	Min	Max	Mean	St. Err.	St. Dev.
A_C	8	155.0000	195.000	179.0625	4.4305	12.5312
A_D	18	5.0000	8.250	5.6944	.1636	.6943
A_E	8	155.0000	340.000	200.3125	20.4002	57.7005
A_F	8	155.0000	340.000	200.3125	20.4002	57.7005
A_G	8	155.0000	340.000	200.3125	20.4002	57.7005
A_H	8	155.0000	340.000	200.3125	20.4002	57.7005
A_I	8	750.0000	1800.000	993.7500	117.4268	332.1333
A_J	8	155.0000	360.000	222.8125	28.1396	79.5909
A_K	8	155.0000	390.000	247.1875	34.5295	97.6641
A_L	8	750.0000	1800.000	993.7500	117.4268	332.1333
A_M	8	155.0000	390.000	247.1875	34.5295	97.6641
A_N	8	175.0000	390.000	266.5625	32.5170	91.9718
A_P	18	3.0000	4.500	3.1667	.1143	.4851

css/3: basic stats	Descriptive Statistics N. of Cases = 23 [from 25] (MD pairwise deleted)			
	p=.9500 Up.limit	p=.9500 Dn.limit	Skewness	Kurtosis
A_C	189.914	168.2114	-.580361	-.85840
A_D	6.041	5.3478	2.660246	7.31953
A_E	250.277	150.3483	1.690179	1.34957
A_F	250.277	150.3483	1.690179	1.34957
A_G	250.277	150.3483	1.690179	1.34957
A_H	250.277	150.3483	1.690179	1.34957
A_I	1281.352	706.1485	1.712188	1.38719
A_J	291.732	153.8930	.890966	-1.20696
A_K	331.757	162.6180	.441484	-1.90814
A_L	1281.352	706.1485	1.712188	1.38719
A_M	331.757	162.6180	.441484	-1.90814
A_N	346.203	186.9221	.131998	-2.05686
A_P	3.409	2.9245	2.271526	3.35532

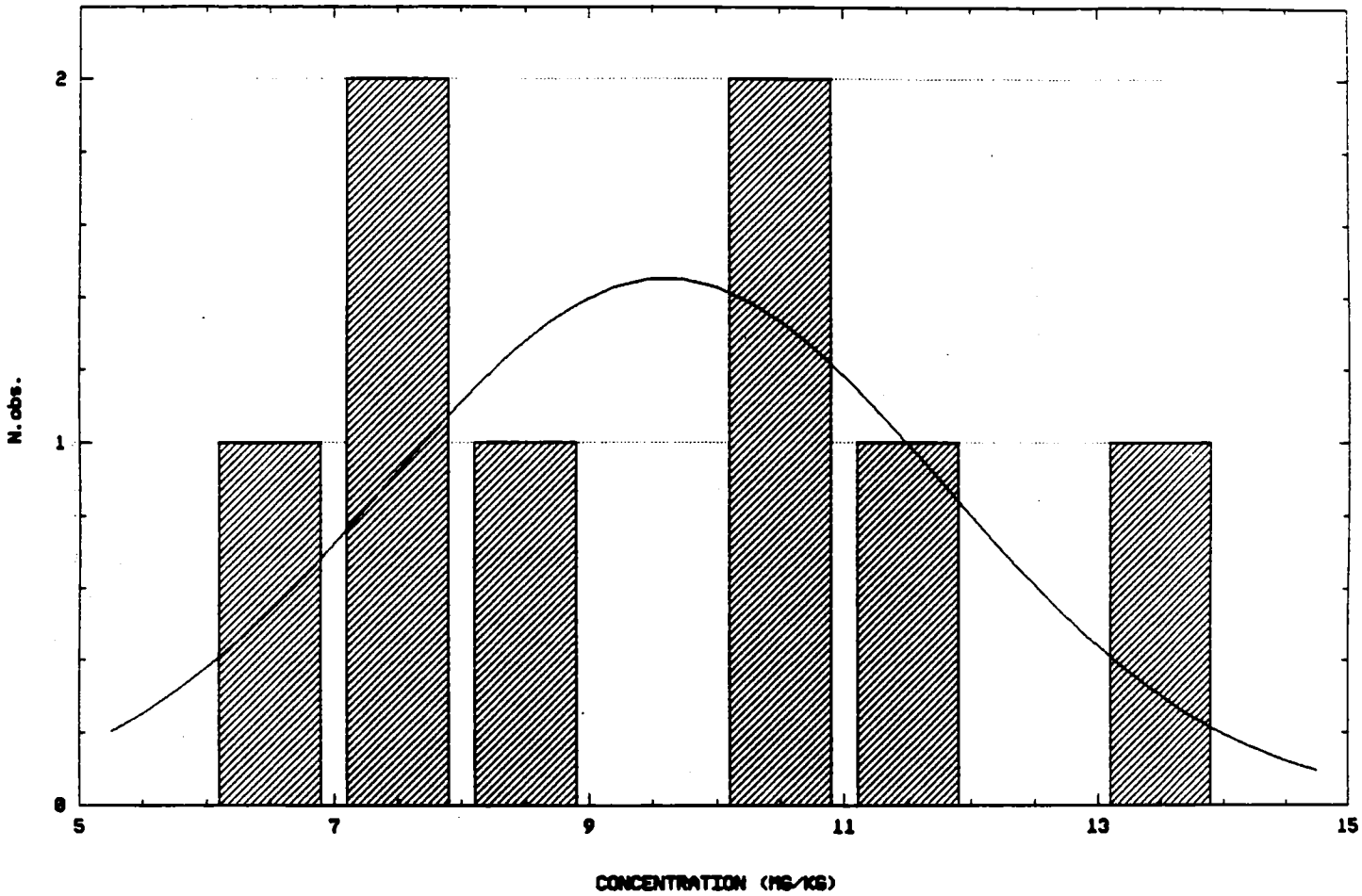
css/3: basic stats	Descriptive Statistics N. of Cases = 23 [from 25] (MD pairwise deleted)			
	p=.9500 Up.limit	p=.9500 Dn.limit	Skewness	Kurtosis
A_C	189.213	168.9123	-.580361	-.85840
A_D	6.031	5.3575	2.660246	7.31953
A_E	247.050	153.5753	1.690179	1.34957
A_F	247.050	153.5753	1.690179	1.34957
A_G	247.050	153.5753	1.690179	1.34957
A_H	247.050	153.5753	1.690179	1.34957
A_I	1262.777	724.7234	1.712188	1.38719
A_J	287.281	158.3442	.890966	-1.20696
A_K	326.295	168.0799	.441484	-1.90814
A_L	1262.777	724.7234	1.712188	1.38719
A_M	326.295	168.0799	.441484	-1.90814
A_N	341.059	192.0657	.131998	-2.05686
A_P	3.402	2.9313	2.271526	3.35532

The following is a random sample of distribution graphs that are included to show the range of distribution forms found in the data. Because they are bar graphs of a small data set, they are not intended to convey information beyond this level. The solid lines are the best fit single distribution computer estimates of the distributions.

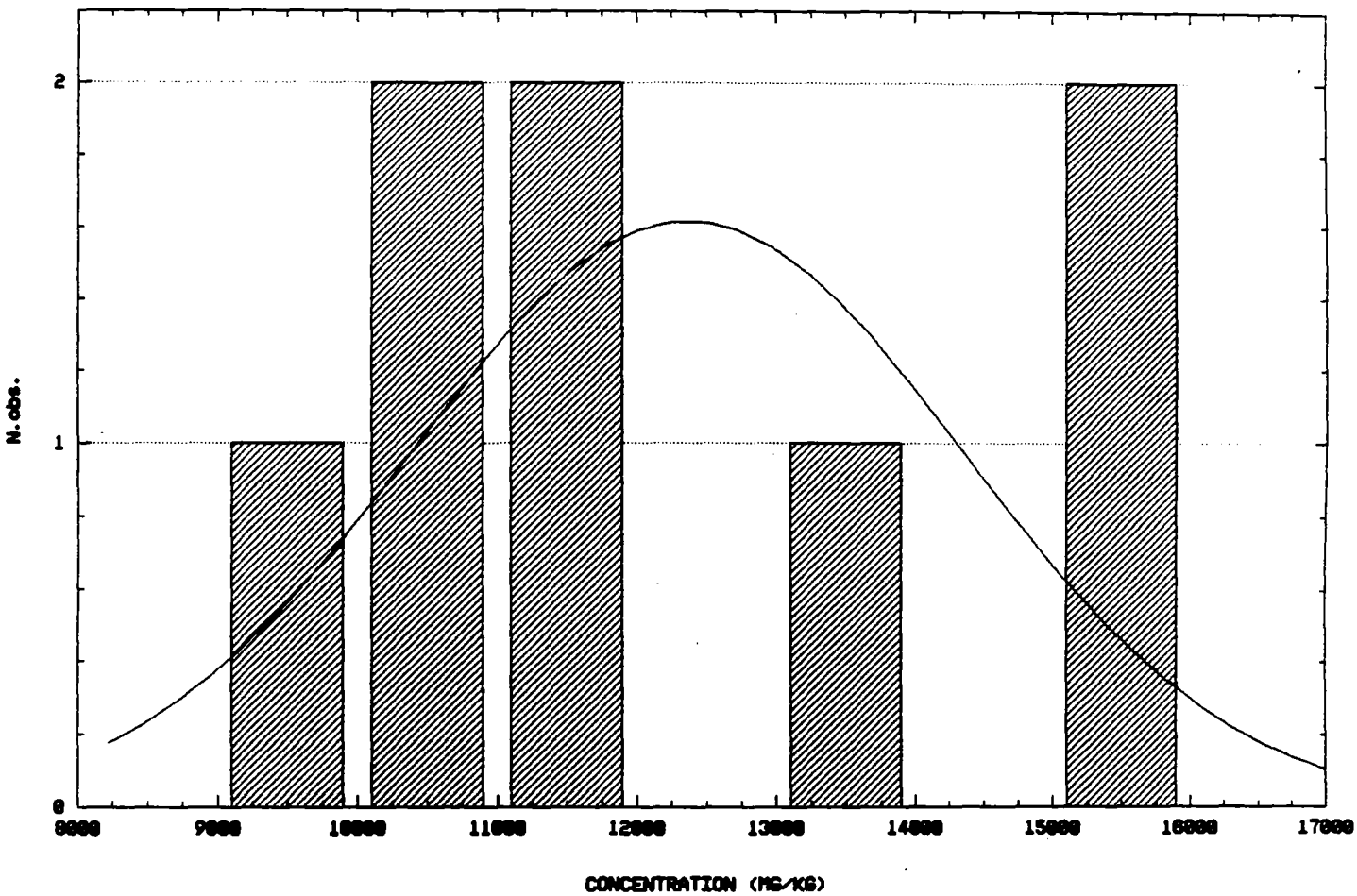
AREA 17 - SULFATE CONCENTRATION (MG/KG)
18 CASES



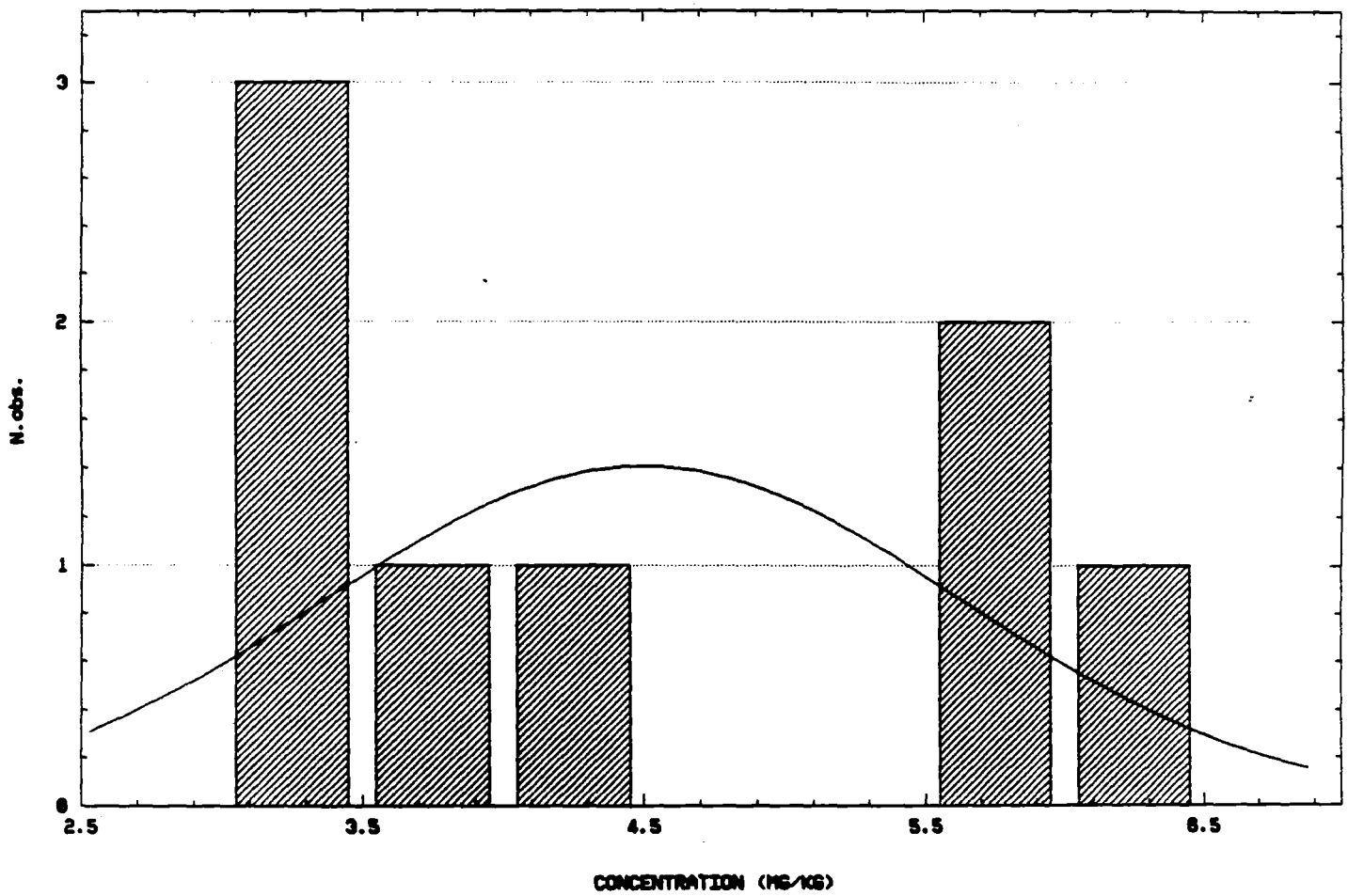
AREA 17 - COPPER CONCENTRATION (MG/KG)
8 CASES



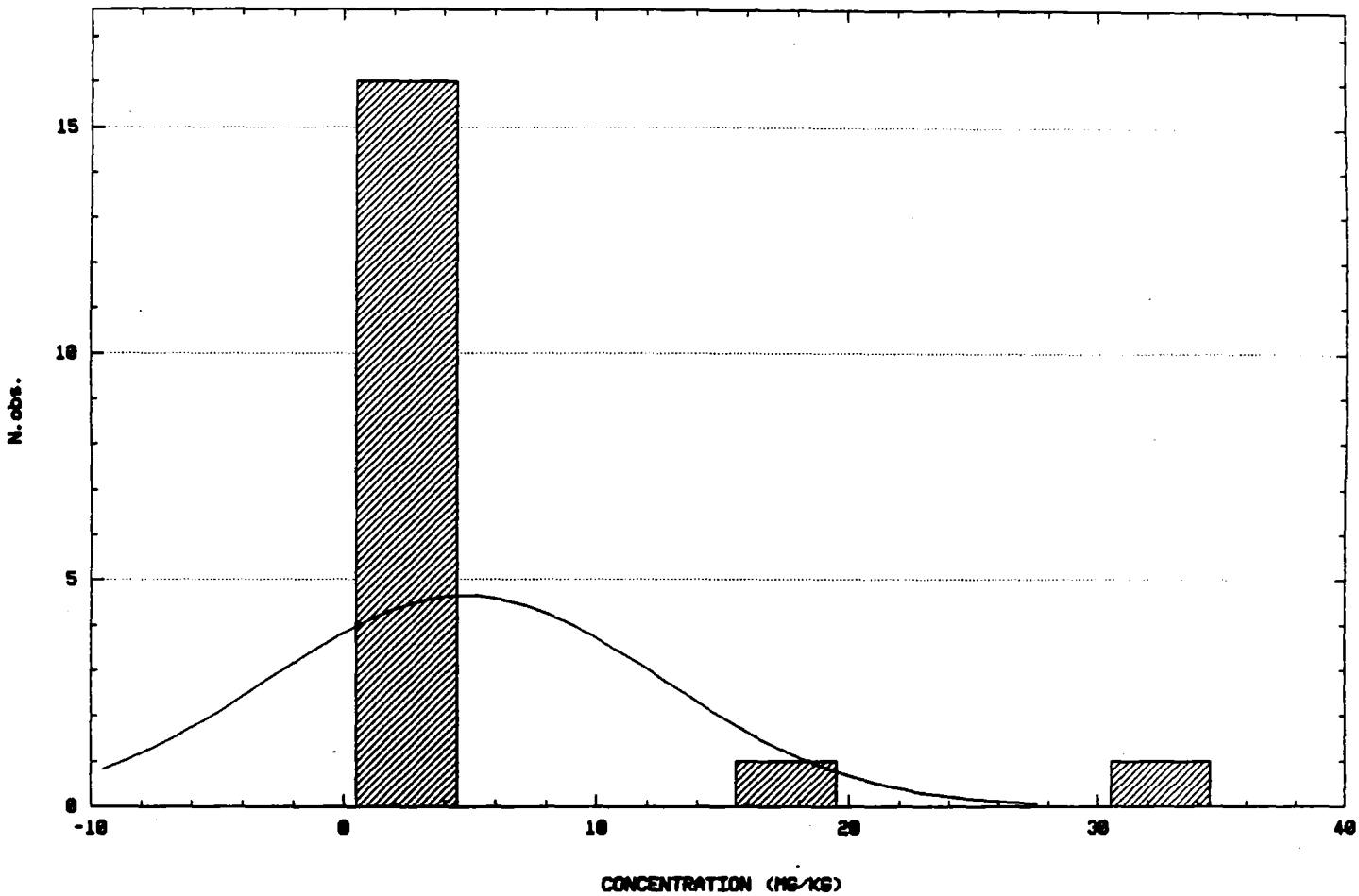
AREA 14 - IRON CONCENTRATION (MG/KG)
8 CASES



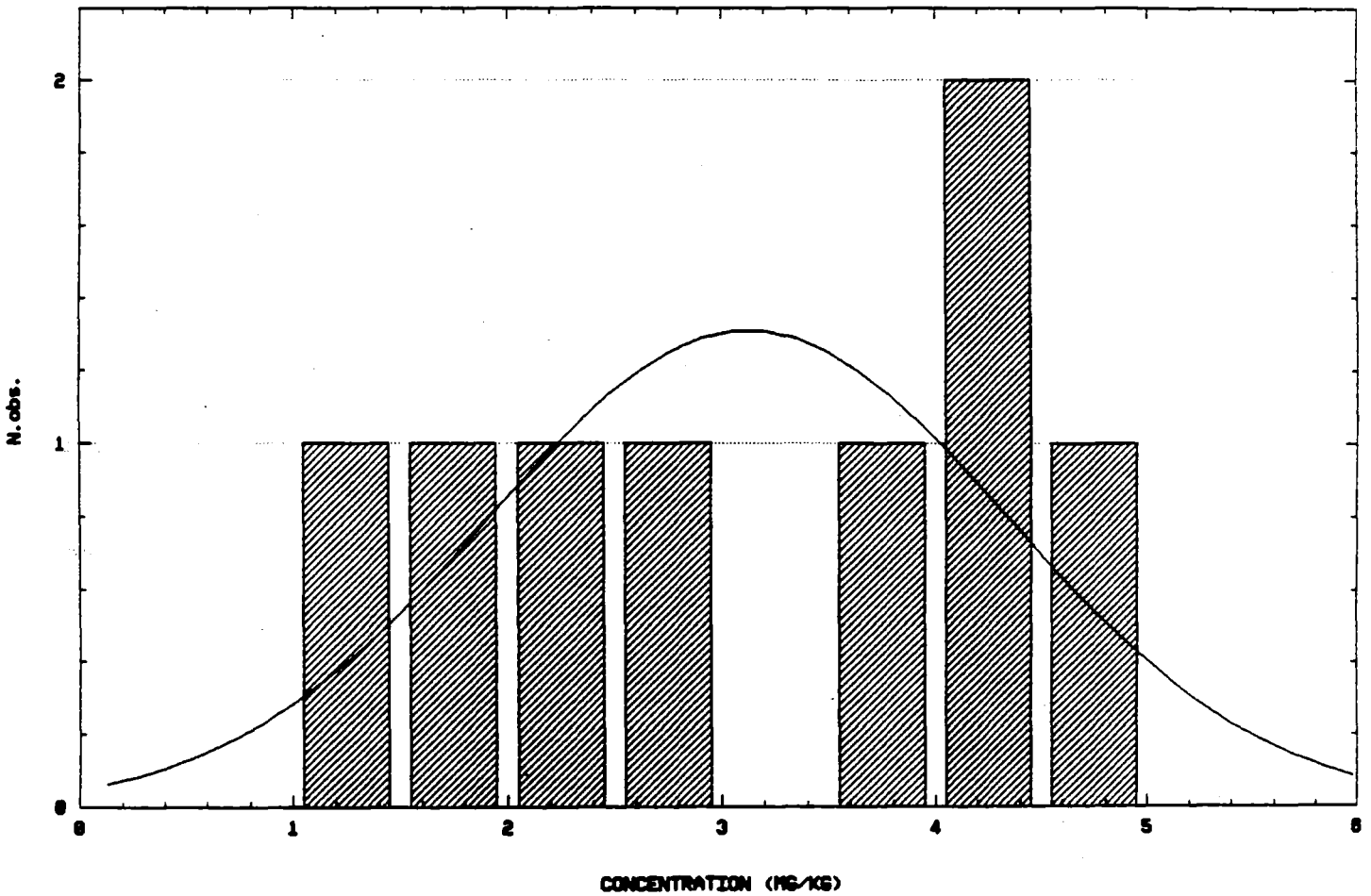
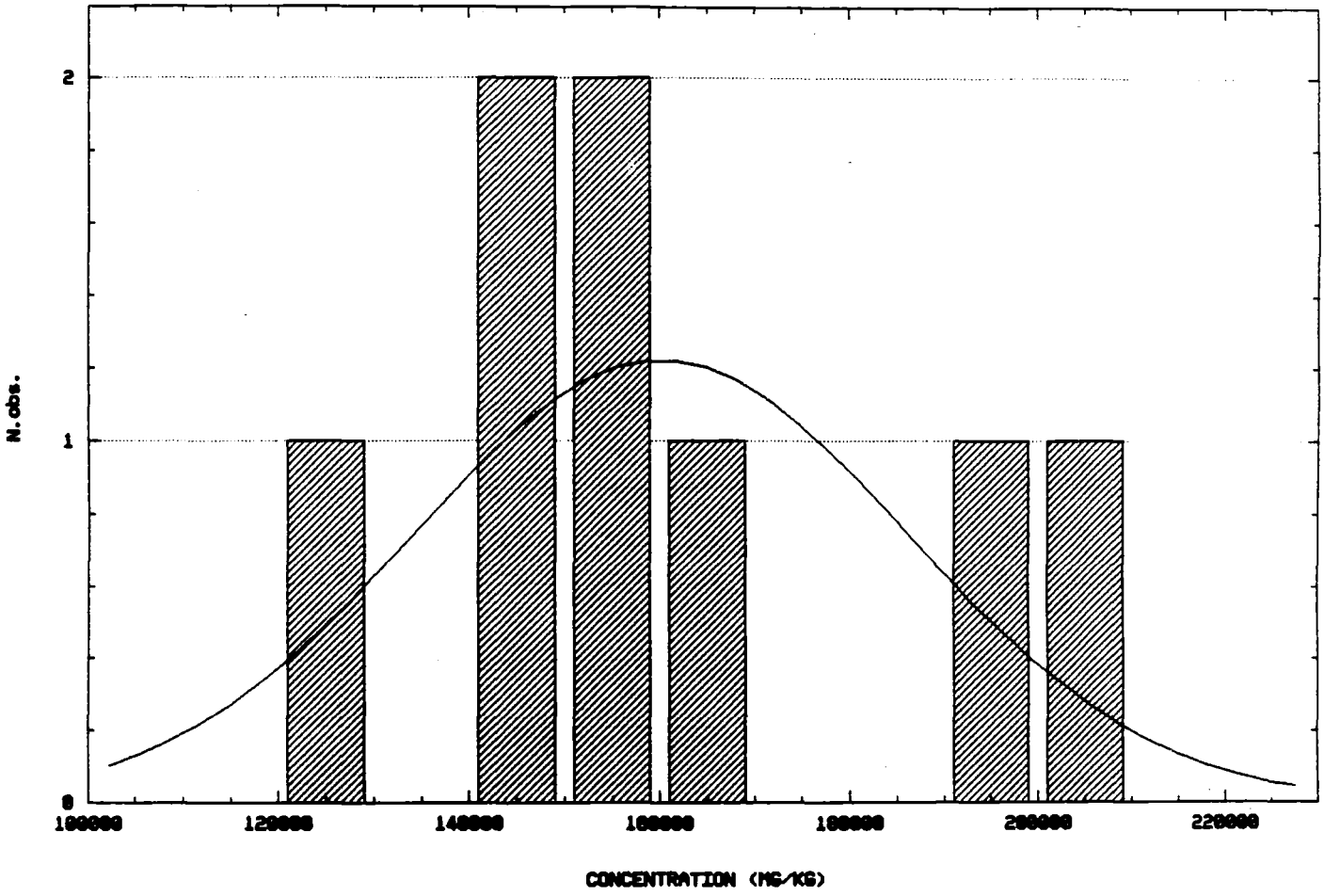
AREA 17 - CHROMIUM CONCENTRATION (MG/KG)
8 CASES



AREA 17 - CHLORIDE CONCENTRATION (MG/KG)
18 CASES



AREA 17 - ARSENIC CONCENTRATION (MG/KG)
8 CASES



AREA 17 - CALCIUM CONCENTRATION (MG/KG)
8 CASES