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PHASE II SITE INVESTIGATION
FOR
FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA

DAMES & MOORE

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DAMES & MOORE A PROFESSIONAL LIMITED PARTNERSHIP

November 11, 1991

Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, Minnesota 55155-6300

Attention: Mr. Mark Hoffman
Site Assessment Unit
Program Development Section
Ground Water and Solid Waste Division

Re: Phase II Site Investigation Report
Fairmont Railway Motors
Fairmont, Minnesota

Dear Mr. Hoffman:

On behalf of Fairmont Railway Motors, Dames & Moore is submitting for your review two copies of the Phase II Site Investigation report for Fairmont Railway Motors in Fairmont, Minnesota. We look forward to your response to this report. If you have any questions, please feel free to contact us.

Very truly yours,

DAMES & MOORE
A Professional LimitedPartnership

Karen K. Vaughn

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Enclosure

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cc: Robert Flanagan

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PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA

1.0 INTRODUCTION

This report presents the results of the Phase II Site Investigation conducted by Dames & Moore for Fairmont Railway Motors at a site located in Fairmont, Minnesota.

The site is presently owned by Fairmont Railway Motors, a division of Harsco Corporation. The facility has been in the railroad supply business since 1909. The area of investigation is a private landfill north of the main plant building.

The Phase II investigation was based on the Work Plan dated February 26, 1991. The Phase I Screening Site Inspection report, prepared by Ecology and the Environment, Inc. for the United States Environmental Protection Agency (U.S. EPA) in August, 1989, provided the basis for the Phase II investigation.

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION

The Fairmont Railway Motors site is located in the northwest quarter of Section 8, Township 102N, Range 30W, in the City of Fairmont, Martin County, Minnesota (see Figure 1). As shown in Figure 2, the facility is situated on a 20 acre parcel of land within the corporate boundaries of the city at 415 North Main Street. A survey coordinate and elevation data map of the site dated May 17, 1991 was prepared by Madsen Land Surveying, Inc. and is included in Appendix A. The elevation of the subject site is approximately 1,160 to 1,185 feet above mean sea level. There is moderate topographic relief across the subject property. The general slope of the site appears to be to the north and west toward the lakes.

The main plant and office building is bounded on the east by Main Street, on the south by Fourth Street, on the north by railroad tracks, and on the west by Lake Avenue and Fourth Avenue. Three of the facility's warehouses are located across the street on the east side of Main Street. The subject landfill is located north of the plant/office building between two railroad tracks. The landfill, covering approximately 5 acres, is divided by Fourth Avenue into an eastern area ("East Landfill") and a western area ("West Landfill"). The East Landfill is fenced; the West Landfill remains unfenced.

The railroad tracks are owned by the Chicago and Northwestern Railroad Company. The

northernmost track is approximately 30 feet from the fence. The municipal power plant, located to the northeast of the property, contains a large coal pile located immediately north of the center of the East Landfill. The Golden Sun Company, a feed store, is located on the east side of the East Landfill between the railroad tracks. A residential area is located north of the West Landfill. Three residences and a city park adjacent to George Lake are located north of the western portion of the East Landfill. Residences and a restaurant are located to the north and south of the West Landfill.

The nearest surface water or drainage course is adjacent to the property on the north and west sides. George Lake is located approximately 250 feet north of the East Landfill. Sisseton Lake is located on the west side approximately 200 feet south of the West Landfill. A channel connecting the two lakes is located immediately adjacent to the west end of the West Landfill. A third lake, Budd Lake, is located immediately upstream (south) of Sisseton Lake. Budd Lake is the primary source of industrial and domestic water for the City of Fairmont. On an annual basis, industrial usage is 130 million gallons, while domestic usage is 300 million gallons. Annual pumpage from the lake amounts to 439 million gallons. A backup municipal supply well near Budd Lake is 305 feet deep, 8 inches in diameter, and screened through a Cretaceous sandstone deposit from depths of 184 to 296 feet. This well can sustain a yield of approximately 870 gallons per minute (1.25 million gallons per day).

A City of Fairmont storm drain flows under the East Landfill and empties into George Lake. The landfill does not discharge into this storm drain. This storm drain could potentially modify the ground water flow in the area.

2.2 SITE HISTORY

The Fairmont Railway Motors facility began operations at this site in 1909. In 1979, Fairmont Railway Motors was sold to the Harsco Corporation of Camp Hill, Pennsylvania. The facility, now a division of Harsco Corporation, continues to manufacture hydraulic hand tools, railway maintenance vehicles, rail grinders, guide wheels, and equipment that adapts standard road trucks for railway travel.

The facility's process and sanitary sewers were connected to the Fairmont municipal sanitary sewer system in 1923. Spent soluble oil and washing solution were discharged into the sanitary sewer system until 1980. After that date, these wastes were sold for recycling. Fairmont Railway Motors reported that no wastes are currently discharged to the municipal wastewater treatment facility that would require a permit from the city, Minnesota Pollution Control Agency (MPCA), or United States Environmental Protection Agency (U.S. EPA).

The last of the PCB capacitors from the production facilities were removed in 1981. None are believed to be buried in the landfill.

Prior to 1930, the facility's solid and hazardous waste disposal practices are unknown. In

approximately 1930, the facility began disposing of wastes in a trench between the two railroad tracks on the west side of the East Landfill, just east of Fourth Street. A historical perspective of landfill dumping is presented in the following discussion. Dates for use of various areas of the landfill are shown in Figure 3. Wastes disposed of in the landfill included paint dust, foundry sand, metals, paint sludges, spent silica sand, and steel shot. The western section of the East Landfill became full in 1938. Dumping continued in the far east area of the East Landfill with some evidence of incineration. In 1941, the East Landfill was further expanded on the east side toward Main Street. The middle section of the East Landfill remained undisturbed. In late 1945, cyanide began to be used in the manufacturing process. Worn-out metal pots with cyanide waste were disposed in the landfill. The cyanide operation ceased in 1980. Paint dusts, paint filters, and paint solids were burned in the east section of the landfill from late 1950 until 1980. Incineration activities moved to the middle and western areas of the East Landfill.

The landfill between the railroad tracks east of Fourth Avenue was nearly filled by 1969. The landfill was expanded west of Fourth Avenue in 1968 into the area of the West Landfill. The same type of wastes were placed in the new section of the landfill as were in the older sections. No burning of waste occurred in the West Landfill. The entire West Landfill area included the trench between the two railroad tracks extending from Fourth Avenue to a channel that connects Sisseton Lake to George Lake. Fairmont Railway Motors ceased placing wastes in the landfill in approximately 1984. The landfill does not have a leachate collection system, surface water diversion system, or liner. The depth and type of landfill cover is unknown.

During the time that the landfill was active, area residents dumped refuse at the landfill. It is unknown whether other businesses or industries dumped their waste at the landfill.

2.3 PREVIOUS INVESTIGATIONS

2.3.1 MPCA - 1980

Representatives of the Minnesota Pollution Control Agency (MPCA) visited the site on July 10, 1980. Correspondence of August 5, 1980 from the MPCA regarding their site inspection stated the following:

1) Some of the waste being placed in the landfill may have contained hazardous components.

2) The disposal of cutting and grinding oil to the sanitary sewer system may have been inappropriate.

3) Any cyanide waste generated at the site should be considered hazardous and disposed in an approved manner.

2.3.2 MPCA - 1986

In 1986, after discovering hazardous substances at the Gofer Sanitary , located approximately 10 miles north of the site, the MPCA requested a summary of all hazardous substances deposited by Fairmont Railway Motors at the Gofer Sanitary . Wastes suspected of being deposited there included paint sludges, spent soluble oils, metals, and cyanide wastes.

2.3.3 MPCA/U.S. EPA - 1987

A preliminary assessment (PA) of the Fairmont Railway Motors site was prepared by MPCA in March, 1987, and submitted to the U.S. EPA. The U.S. EPA then instructed Ecology and Environment, Inc. Field Investigation Team (FIT) to prepare a Screening Site Investigation (SSI) work plan for the site that outlined the procedures for a SSI to identify areas that may require removal action to remediate an immediate human health or environmental threat. The SSI work plan was approved by U.S. EPA on October 4, 1988. The SSI was conducted on December 6, 1988. The FIT SSI included an interview with site representatives, a reconnaissance inspection of the site, and collection of 11 soil and sediment samples and 1 municipal well sample. During the reconnaissance inspection, the following was noted:

1) The landfill had plant growth and was partially covered with snow. No signs of leachate or stressed vegetation were observed on site.

2) Several scrap metal piles, machine metal piles, 55-gallon drums, an old crane, and a shed with a calcium carbide sign were observed within the fenced area. Some drums carried labels reading "Flammable," "denatured alcohol," and "Kerosene." Other drums were unlabeled and resting on the ground.

Samples were collected during the SSI to assess levels of U.S. EPA Target Compound List (TCL) compounds and U.S. EPA Target Analyte List (TAL) analytes present at the site. On December 6, 1988, the FIT collected eight surface soil samples, including one potential background soil sample, and three lake sediment samples, including one potential background sediment sample. A sample was also collected from one municipal well.

Soil and sediment samples (indicated as S1 through S11 on Figures 4 and 5) were obtained from various locations throughout the site. One municipal well sample (indicated as RW1 and duplicate RW2 on Figure 6) was collected to assess whether TCL compounds and/or TAL analytes had migrated from the site via ground water in the aquifer.

Surface soil samples S1 and S4 were collected to assess whether TCL compounds or TAL analytes had been deposited in the West Landfill. Soil sample S7 was chosen because the terrain outside the fenced area was lower and runoff may have collected there. Soil sample S8, located near the scrap

metal pile, was chosen because of the lower terrain and to assess whether TCL and/or TAL compounds had been deposited there. Soil samples S9, S10, and S11 were collected within the fenced area of the East Landfill. Sample S9 was collected near the calcium carbide shed. Sample S10 was collected between the scrap metal pile and the metal shaving pile. Sample S11 was collected near a small metal pile. This location was chosen because of nearby drums and because the ground surface was lower at this point. Sample S5 was collected as a potential background sample to assess the representative chemical content of the soil in the area surrounding the site. This location was chosen because the ground surface appeared to be in an undisturbed state.

Sediment samples S2 and S3 were collected to assess whether any TCL compounds and/or TAL analytes had migrated from the site to the lakes. Sediment sample S6 was collected upstream from the site as a potential background sediment sample.

The municipal well sampling location was chosen because it is the only municipal ground water well in use in Fairmont, and to assess the general characteristics of bedrock ground water in the area. According to the well log, the depth of the well is approximately 305 feet. The sample was obtained from an outlet that bypassed water treatment systems and/or storage tanks. A duplicate sample was collected in accordance with U.S. EPA quality assurance/quality control (QA/QC) requirements.

All soil and sediment samples were analyzed under the Contract Laboratory Program (CLP) for TCL compounds by S-Cubed of San Diego, California and for TAL analytes by Enseco/Rocky Mountain Analytical of Arvada, Colorado. Municipal well samples were analyzed under the CLP for TCL compounds by Versar, Inc. of Springfield, Virginia, and for TAL analytes by Skinner and Sherman, Inc., of Waltham, Massachusetts.

Chemical analysis results for soils/sediments and ground water are shown in Tables 1 and 2 respectively. Although chemical constituents were found to be present on site, the general findings from this study were inconclusive. Therefore, the MPCA requested that a Phase II site investigation be conducted by Fairmont Railway Motors to provide more detailed, site-specific data, which would allow a more comprehensive site screening.

3.0 SCOPE OF SERVICES AND PURPOSE

The scope of services for the Phase II Site Investigation included field and laboratory investigations, an examination of published geologic and hydrogeologic information, and a review of previous investigations to help characterize the site.

The field and laboratory investigations consisted of completion of nine on-site soil borings. The soils were physically characterized and monitored in the field for the presence of visible contamination and for organic vapors. Soil samples were collected and analyzed for the presence of chemical

constituents. Physical testing of soils was conducted to confirm field classifications and provide quantitative soils information.

Three of the soil borings were completed as ground water monitoring wells. These wells were screened across the water table to characterize the near-surface water quality and ground water flow at this site. Ground water samples were also collected and analyzed for chemical constituents.

4.0 INVESTIGATIVE PROCEDURES

4.1 PLACEMENT OF SOIL BORINGS AND MONITORING WELLS

A proposed plan for boring and well placement was presented in the Phase II work plan. The generalized plan included exploration on the Fairmont Railway Motors property in the vicinity of the East and West Landfills. The exploration consisted of placement of nine soil borings, three of which were completed as monitoring wells. Six of the soil borings were advanced through the known landfill areas. The Phase II drilling locations are shown on Figure 7.

Placement of the soil borings and monitoring wells was based on site specific objectives. These objectives were provided in the Phase II work plan and include the following:

1) Assessment of the nature and extent of potential contaminant sources in the landfill;

2) Identification of the potential pathways of migration from the site, as well as the potential for off-site contamination contributions; and

3) Definition of on-site physical features and facilities that could affect migration.

Slight variations exist from the Phase II work plan with regard to locations of the monitoring wells due to operational considerations. These changes in location were approved by Mr. Mark Hoffman of the MPCA, who was on site on the first day of drilling.

4.2 DRILLING AND SOIL SAMPLING

Nine soil borings were advanced from April 22 to April 24, 1991. The borings were drilled with a truck-mounted drilling rig. Installation of monitoring wells MW-1, MW-2, and MW-3 was performed with a 4-1/4 inch I.D. hollow stem auger. The wells were constructed in accordance the Minnesota Department of Health Water Well Code by a licensed contractor, Thein Well Company. Soil boring was performed using 3-inch I.D. hollow stem augers. Soil sampling was conducted in accordance with ASTM D1586 "Penetration Test and Split Barrel Sampling of Soils".

To minimize the potential for cross contamination, the drill rig, hollow stem augers, and split barrel samplers were steam cleaned prior to use in each boring. Continuous split barrel soil samples were collected at 2.5 foot intervals to the final depth of each boring. The split barrel sampler was cleaned between each sampling interval with a mixture of distilled water and Alconox® and rinsed with distilled water. Upon completion of each boring, the boreholes were backfilled with granular bentonite, except when completed as a monitoring well.

Soils encountered during borings were visually and manually classified in the field in accordance with ASTM D2487 "Standard Test Method for Classification of Soils for Engineering Purposes" and ASTM D2488 "Standard Practice for Description and Identification of Soils" (Visual-Manual Procedure).

4.3 FIELD CONTAMINATION DETECTION

Soil samples were visually examined in the field by an on-site geologist for unusual odors and/or discoloration which may indicate soil contamination. Soils were also scanned for the presence of organic vapors using a Photovac Tip II, a photoionization detector (PID). The Tip II has a 10.6 eV lamp and was calibrated to 100 ppm isobutylene gas. Soil samples were scanned with the PID using two primary approaches. These included: 1) continually scanning the soil cuttings brought to the surface by the hollow stem auger; and 2) scanning fresh soils from the split barrel samplers. Periodic readings were also taken from open borings at selected sampling intervals and immediately after the removal of the hollow stem augers.

The site was continuously monitored for the presence of hydrogen cyanide (HCN) with a HCN indicator tube detector made by Sensidyne. These tubes turn bright red when HCN is detected in the air at concentrations above 4 ppm. A detector tube was attached to the drill rig above the borehole at all times. Additionally, one reading per borehole was collected with a Monitox HCN monitor by Compur, Inc. The Monitox units detects HCN from 0 to 199 ppm and sounds an alarm at 10 ppm.

4.4 SOIL SAMPLING AND PHYSICAL SOIL TESTING/CHEMICAL ANALYSIS

4.4.1 Soil Sampling

As requested by MPCA and detailed in the approved work plan, one composite soil sample was collected from the entire length of each of the soil borings to assess the extent of contamination. Samples were collected using a laboratory spatula by cutting the center portion of each split spoon sample and mixing them in a large stainless steel bowl. The samples were then placed in containers supplied by the laboratory and returned to the laboratory using appropriate preservation and chain-of-custody procedures, as detailed in the work plan.

4.4.2 Physical Soil Testing

During drilling operations, two shelby tube soil samples were collected for laboratory testing. The soils in borings B-4 at 16.5' to 18.5' and B-9 at 11.5' to 13.5' were sampled for permeability testing. The soils were collected in two foot length shelby tubes, sealed at both ends, labeled and shipped to the Dames & Moore laboratory in Salt Lake City, Utah. The Salt Lake City laboratory performed ASTM-D-5084 "Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter".

4.4.3 Chemical Analysis

The soil samples were chemically analyzed by PACE, Inc. for the presence of U.S. EPA Target Compounds List (TCL) compounds and U.S. EPA Target Analyte List (TAL) analytes. The laboratory analyses were performed using CLP protocol. Laboratory quality analysis/quality control (QA/QC) procedures were followed as provided in the Phase II work plan.

4.5 MONITORING WELL INSTALLATION

Three ground water monitoring wells were installed at this site in accordance with the Minnesota Department of Health Water Well Construction Code by a licensed monitoring well contractor, Thein Well Company. The monitoring well permit application and unique water well records are included in Appendix B. The location of these wells is shown in Figure 7. The monitoring wells were to be installed straddling the shallow ground water table. Wells MW-1 and MW-2 were installed in this manner. Due to low permeability of soils beneath the site, ground water at MW-2 was not recognized at the anticipated depth. Hence, MW-3 was constructed at a greater depth to assure the collection of a ground water sample.

The ground water monitoring wells were installed using 2-inch diameter black iron riser pipe, and a 10-foot long, 2-inch diameter, 0.010-inch slotted stainless steel screen. Silica sand was placed around each screen as a filter pack to approximately 2 feet above the screen. A bentonite seal was placed above the sand pack at a thickness of at least 2 feet except for MW-1, which was a very shallow well and had to be constructed with a 6" layer of bentonite. The remaining annular space above the seal was grouted to the surface with neat cement using a tremie pipe. A steel protective casing with a locking cap was placed over the riser pipe embedded in the cement seal at the surface. Protective posts were installed around the monitoring wells for additional protection.

4.6 MONITORING WELL DEVELOPMENT AND SAMPLING

Monitoring well development and sampling procedures were performed in accordance with the MPCA "Procedures for Ground Water Monitoring Guidelines", December 1986. Each monitoring well

was developed after construction using a Brainard Kilman pump and/or a bailer. The equipment was cleaned with distilled water and Alconox® and rinsed with distilled water before being used in the next well to prevent cross contamination.

Approximately seven well volumes were purged from MW-1 prior to sampling. MW-2 and MW-3 were bailed dry two times. Ground water elevations and field measurements of temperature, conductivity, and pH were taken at each well prior to sample collection. This information is presented in the Field Stabilization Testing Forms in Appendix C. Each well was sampled with a separate disposable bailer. Water samples were collected, placed in laboratory clean containers, labeled, and transported to the laboratory under refrigerated conditions, using appropriate preservation and chain-of-custody procedures.

4.7 WATER LEVEL DATA

Water level measurements were taken in the ground water monitoring wells on May 7 and 8, 1991. This information is presented on the Field Stabilization Testing Forms in Appendix C. The measurements were made with a water level indicator to an accuracy of 0.01 feet. The top of the inner casing was used as a reference point. A list of surveyed points is provided with the Madsen survey and established to the National Geodetic Vertical Datum of 1929 (NGVD).

4.8 GROUND WATER CHEMICAL ANALYSIS

The ground water samples were chemically analyzed by PACE, Inc. for the presence of U.S. EPA Target Compounds List (TCL) compounds and U.S. EPA Target Analyte List (TAL) analytes. The laboratory analyses were performed using CLP protocol. Laboratory quality analysis/quality control (QA/QC) procedures were followed as provided in the Phase II work plan.

5.0 GEOLOGY

5.1 REGIONAL GEOLOGICAL CONDITIONS

The unconsolidated materials in the area are reported to be glacial till with local gravel deposits, based on information obtained from the United States Geological Survey (USGS) Atlas for the "Water Resources of Blue Earth River Watershed, South-Central Minnesota" The till is an unstratified mixture of clay, silt and gravel. Underlying the glacial materials is Precambrian bedrock to the west with younger Cambrian and Ordovician bedrock formations to the east. The bedrock beneath the site is Precambrian and is at a depth of approximately 250 to 300 feet below the ground surface. This Precambrian bedrock consist mostly of quartzite and granitic crystalline rocks.

5.2 SITE GEOLOGICAL CONDITIONS

The Phase II Site Investigation field program included nine soil borings in which three ground water monitoring wells were installed. The boring logs and well construction diagrams are provided in Appendix C. The logs indicate the depth and description of various soil strata, standard penetration values, water level information, and abandoning procedures. The depth shown as changes between the strata are approximate. The actual change may be transitional, and the depth of the transition is likely to vary horizontally.

The location of the borings and wells are shown on Figure 7. Their positions are based on survey information provided by Madsen Land Surveying of Fairmont, Minnesota. The survey information is presented in Appendix A.

The location of two geological cross-sections is shown on Figure 8. Geological cross-section A-A' (west-east) and geological cross section B-B' (north-south) are provided on Figures 9 and 10 respectively. The drawings illustrate that fill material consisting of silty sand, clayey sand and debris are present in various areas of the site ranging from 5 feet to 13 feet below grade. The fill material is underlain glacial till which ranges from silty clay with trace gravel to clayey silt with trace gravel. Underlying the glacial till is Precambrian bedrock.

5.3 FIELD CONTAMINATION DETECTION

No PID readings or hydrogen cyanide readings were detected above ambient levels throughout the drilling program.

5.4 PHYSICAL SOIL TESTING DATA

The underlying glacial till at the site is an important factor in controlling the extent of possible migration. The permeability tests for borings B-4 at 16.5' to 18.5' and B-9 at 11.5' to 13.5' indicate that the on-site glacial till has an average hydraulic conductivity of 5.53 x 10-8 m/s and 5.94 x 10-8 m/s respectively. These values correlate with the anticipated values of hydraulic conductivities for glacial tills, and indicate that low permeability tills probably exist across the site. The hydraulic conductivity values are in direct proportion to the ground water velocity and would tend to indicate that the velocity of ground water beneath the landfill is very slow.

6.0 HYDROGEOLOGY

Ground water is a supplementary source of drinking water for the City of Fairmont. The primary source of the city's drinking water is Budd Lake. Potential ground water sources in the glacial till and the bedrock do not yield enough water for the entire municipal use. Localized gravel deposits may be used by some private wells.

The regional shallow ground water flow direction appears to be northeasterly toward the Blue Earth River and its tributaries. The slow moving ground water at the site is likely flowing in a northward direction to George Lake, especially in the vicinity of the East Landfill. Ground water near the West Landfill is likely to have flow components toward Sisseton Lake and the inter-lake channel. A definitive flow pattern in this complex area could not be determined with existing data. Depth to ground water below the property is approximately 5 to 25 feet below ground surface, dependent upon the topography of the site.

7.0 ANALYTICAL DATA

Analytical data were reported for soil and ground water samples collected during the Phase II site investigation. The major analytical groups that were analyzed during this investigation (volatiles, semivolatiles, pesticides, polychlorinated biphenyls [PCB], cyanide and metals) are discussed in the sections below. Analytical data from soil borings and monitoring wells are provided in Appendices D and E, respectively. Summaries of the soil data and monitoring well data are presented in Tables 3 and 4, respectively.

The ground water quality standard in Minnesota is the Recommended Allowable Limit (RAL). The RAL for parameters in ground water is provided in Table 4, where available. The action level for soil is determined by the Minnesota Pollution Control Agency on a site-by-site basis.

7.1 QUALITY ASSURANCE/QUALITY CONTROL

All samples were analyzed following the protocols outlined in the 3/90 Revision of the CLP Statement of Work. Associated method detection limits are listed in Table 5. The method detection limit listed for each compound in the soil does not include correction for the percent moisture. All samples were extracted and analyzed within CLP holding times.

There was presumptive evidence that analytes other than the target compounds were present in some of the soil and ground water samples, based on the discussion presented by Pace. Identification of these compounds was based on a mass spectral library search. Estimated concentrations of these compounds are included in the analysis data sheets contained in Appendices D and E.

The summary of the CLP data package comments concerning the analyses of is contained in Appendix F. A separate summary is provided for organic soil, organic water, inorganic soil, and inorganic water analyses.

No concentrations of organic compounds above the detection limits were reported in the field blank. The concentration of zinc in the field blank was reported at 26.3 ug/l, which is above its detection limit of 20.0 ug/l. The concentrations of all other inorganic compounds in the field blank were below the detection limits.

7.2 VOLATILE ORGANIC COMPOUNDS

Acetone was the only volatile organic compound (VOC) reported in the soil samples collected in the borings above the method detection limit and not in the method blanks. Concentrations ranging from 15 ug/kg to 170 ug/kg were detected in B-4, B-5, B-6, B-9, MW-2, and MW-3. The concentrations and associated locations are shown in Figure 11.

VOCs in the water samples collected from the monitoring wells were not reported above the method detection limits.

Concentrations of 2-butanone in soil borings B-4 and B-5 were reported above the detection limit. Elevated concentration of 2-butanone was reported in the laboratory method blank. Therefore, the validity of these results is questionable. The compound was not detected in the water samples from the monitoring wells.

7.3 SEMIVOLATILE ORGANIC COMPOUNDS

The semivolatile organic compounds include carcinogenic and noncarcinogenic polynuclear aromatic hydrocarbons (PAHs), phthalates, and phenols. PAHs were the only semivolatile compounds reported above method detection limits and not in the method blank. PAHs are stable compounds and exhibit a strong tendency to adsorb on soils. They tend to be relatively immobile and persistent in the environment. They are characterized, in general, by low volatility, low solubility, high adsorption tendency, and moderated biodegradability. A subset of 12 specific PAH compounds have been designated by the Minnesota Department of Health (MDH) as being carcinogenic. The list of carcinogenic PAHs are shown on Table 6.

PAH compounds were detected in soil samples collected in borings B-6, B-7, B-8, and B-9. In B-7 and B-9, soil analyses indicated elevated concentrations of carcinogenic PAHs. PAH compounds were not detected in the soil samples collected from borings B-4, B-5, MW-1, MW-2, and MW-3. Carcinogenic and noncarcinogenic PAH concentrations in the soil above method detection limits are shown on Figures 12 and 13, respectively. No carcinogenic or noncarcinogenic PAH compounds

concentration above method detection limits were reported in the ground water.

Bis(2-ethylhexyl)phthalate was reported in all soil borings at concentrations above detection limits ranging from 530 ug/kg to 19,000 ug/kg. Elevated concentration of this compound was reported in the laboratory method blank. Therefore, the validity of these results is questionable. Bis(2-ethylhexyl)phthalate was not reported above the detection limit in the water samples from the monitoring wells.

7.4 PESTICIDES AND POLYCHLORINATED BIPHENYLS

Pesticides above detection limits were reported in the soil samples from soil borings B-4, B-5, B-8, and B-9. The compounds 4,4'-DDD; 4,4'-DDE; and 4,4'-DDT were reported in concentrations ranging from 7.5 ug/kg to 44 ug/kg. Aldrin, alpha-chlordane, and gamma-chlordane were noted in B-4 at concentrations of 46 ug/kg, 32 ug/kg, and 50 ug/kg, respectively. Pesticide concentrations in the soil above method detection limits are shown in Figure 14. Pesticides were not reported above method detection limits in the water samples from the monitoring wells.

Only one polychlorinated biphenyl (PCB) was noted above detection limits in the soil borings. The concentration of Aroclor 1254 in B-5 was 210 ug/kg. This concentration is shown in Figure 14. PCBs were not reported above detection limits in the water samples from the monitoring wells.

7.5 CYANIDE

Cyanide compounds are relatively stable under normal environmental conditions. Free cyanide may be released under highly acidic conditions. Cyanide (total) analyses were performed on the soil and water samples.

The only cyanide (total) concentrations above the detection limit was noted in a soil sample from boring B-5 at a concentration of 7.58 mg/kg. This concentration is shown in Figure 15.

Total cyanide concentrations were not reported above detection limits in the water samples from the monitoring wells.

7.6 METALS

Aluminum, iron, paint dust, paint sludge, and steel shot were disposed on site. These wastes are relatively inert, although they may leach from the soils into the ground water. Most metals tend to adsorb in soils, with pH and cation exchange capacity being the critical variables in determining the amount of adsorption. The metals that are present at concentrations above detection limits include aluminum, arsenic, barium, cadmium, chromium, copper, iron, lead, magnesium, manganese, nickel,

vanadium, and zinc. Metals concentrations above detection limits in soil are shown on Figure 15.

Water samples from the ground water monitoring wells were analyzed for metals. The same metals detected in the borings were also detected above detection limits in the water samples from the monitoring wells. Metals concentrations above detection limits in the ground water samples are shown on Figure 16.

8.0 DISCUSSION

8.1 COMPARISON TO GUIDELINES AND STANDARDS

The Minnesota Department of Health has established Recommended Allowable Limits for Drinking Water Contaminants. The Recommended Allowable Limits (RALs) for known or probable carcinogens are derived from a quantitative estimate of the chemical's carcinogenic potency and are calculated so that exposure to the contaminant in drinking water results in a lifetime cancer risk below 1 in 100,000 (10^{-5}). The RALs for noncarcinogens are derived according to U.S. EPA risk assessment methods; i.e., using a reference dose, a drinking water equivalent, an uncertainty factor, and a factor for relative source contribution. In general, a noncarcinogenic RAL is an estimate of a daily exposure to the human population that is unlikely to result in deleterious effects during long-term exposure. The RALs apply primarily to private water supplies, for which there are no standards regulating levels of drinking water contaminants. In the case of public water systems, the U.S. EPA has established standards called Maximum Contaminant Levels (MCLs) for a number of contaminants. The MCL is defined as the maximum permissible level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of a public water system.

The ground water concentrations above method detection limits found during the Phase II site inspection were compared with the RALs. The compounds listed in Table 7 were found to exceed the RALs and/or MCLs. The only compounds in the ground water samples found to exceed the RALs were the inorganics. No volatile, semivolatile, pesticide, or PCB compound in the ground water samples was reported above the method detection limit. For comparison purposes, the concentrations of the municipal well sample (RW-1) collected during the SSI are also listed.

Although the arsenic concentrations in MW-2 and MW-3 (15.5 and 15.1 ug/l) exceed the RALs, they do not exceed the Maximum Contaminant Level (MCL) for arsenic of 50 ug/l established by the U.S. EPA.

The concentration of cadmium in MW-1 (8.0 ug/l) does not exceed the MCL of 10 ug/l. The concentration of cadmium in MW-2 and MW-3 (15.1 and 19.3 ug/l) are close to the MCL value.

The concentration of chromium in MW-2 (65.0 ug/l) does not exceed the RAL of 100 ug/l but

marginally exceed the MCL of 50 ug/l.

The concentration of lead in MW-2 (21.2 ug/l) does not exceed the MCL for lead of 50 ug/l. The concentration of lead in MW-1 (60.3 ug/l) only marginally exceeds the MCL.

No MCLs have been established for manganese, nickel, or vanadium.

With the exception of chromium, copper, iron, and nickel, the concentrations from the monitoring wells in the shallower aquifer (MW-1 and MW-3) are higher than or in the same relative range of concentration as the concentration in the deeper sampled aquifer (MW-2). The city's drinking water well (184 to 296 feet deep) does not have elevated levels of these compounds, based on the concentrations found in the municipal well sample RW1 collected during the SSI.

Recommended allowable limits for soils have not been established in Minnesota. The actual action level for soil is determined by the MPCA on a site-by-site basis. One "rule of thumb" to consider is that the RAL for soils may be 20 times the ground water RAL for that compound. This 20-fold factor is representative of the 20-fold dilution used when conducting the Toxicity Characteristic Leaching Procedure (TCLP) test. A list of compounds that would exceed this "rule of thumb" RAL is detailed in Table 8. The first portion of the table contains the metals and the last portion all other constituents. The concentrations of the compounds found in the background soil sample S5 taken during the SSI are also listed for comparison.

Although all metals reported above the method detection limits exceed these "rule of thumb" RALs, most metal concentrations correlate well with the concentrations in the background sample S5. Copper, lead, and zinc concentrations in B-6 and B-7 along with copper in B-8 significantly exceed the concentrations in background sample S5. The samples were tested for total cyanide only, and not for free cyanide. It is therefore not possible to assess whether the concentration in B-5 of 7.58 mg/kg total cyanide would actually exceed the 20 X RAL for free cyanide of 2.0 mg/kg.

While no RAL exists for some additional pesticides and PCB compounds, their presence on the site is notable. Their location and concentration is listed on Table 9 as well as their 20 times RAL concentration and the concentration found during the SSI. Also listed is an additional location reporting 4,4'-DDT. This concentration did not, however, exceed the 20 X RALs.

The concentrations in the soils of the total carcinogenic PAHs and the total noncarcinogenic PAHs at each borehole are shown in Table 10. The RAL for the total carcinogenic PAHs in ground water is 0.03 ug/l. The RAL for the total noncarcinogenic PAHs in ground water is 0.3 ug/l. The 20 X RAL is shown for comparison purposes. The concentration of the soil in the background sample S5 (from the SSI) is also listed for comparison. As previously noted, no PAHs above detection limits were reported in the ground water.

8.2 OTHER POTENTIAL CONTRIBUTORS OF CONTAMINATION

Other sources may exist near the site that have contributed to the contamination noted. Contaminants from the coal pile of the neighboring Fairmont Public Utilities power plant may have migrated to the site via surface water flow or windblown particulates. Coal is known to contain high concentrations of PAHs, which may explain why the elevated levels of PAHs were recorded in the East Landfill next to the coal pile but not on the West Landfill. Another possible explanation for PAHs on site may be due to the presence of the railroad ties in the railway bed or buried in the landfill.

Pesticides were noted in areas close to the road in the West Landfill and near Golden Sun Company. If Golden Sun Company sold or used pesticides in the past, inadequate storage and/or disposal practices may have resulted in the migration of pesticides onto the site. The proximity of the railroad and/or the roadway may explain the pesticides in the West Landfill. Railroads frequently spray areas surrounding their tracks with pesticides.

Indiscriminate unauthorized dumping by parties other than Fairmont Railway Motors could have occurred in the past. The types of disposed materials are unknown.

9.0 CONCLUSIONS

The following conclusions are based on the findings of the report. The conclusions are based on one composite soil sample from each of nine borings and one ground water sample from each of three monitoring wells:

1) The regional shallow ground water flow direction appears to be northeasterly toward the Blue Earth River and its tributaries. The slow moving ground water at the site is likely flowing in a northward direction towards George Lake, especially in the vicinity of the East Landfill. Ground water near the West Landfill is likely to have flow components toward Sisseton Lake and the inter-lake channel. A definitive flow pattern in this complex area could not be assessed with existing data.

2) Volatile organic compounds, semivolatiles, pesticides, and PCBs were not detected above method detection limits in the ground water. Arsenic, cadmium, chromium, lead, manganese, nickel, and vanadium were recorded in the ground water at concentrations above the Recommended Allowable Limits (RALs) and/or the Maximum Contaminant Levels (MCLs). Four of these concentrations (cadmium in MW-2 and MW-3, chromium in MW-2, and lead in MW-1) only marginally exceeded the Maximum Contaminant Levels established by U.S. EPA. All other concentrations were either below the MCL or the MCL has not been established.

3) Contamination of the deeper aquifer is not apparent at the present time, assuming municipal well

4) Visible contamination of the soil was not noted during drilling. No hydrogen cyanide or volatile organic compounds were noted above ambient concentrations during drilling.

5) All boring samples were composites collected over the entire length of the borehole. Therefore, an analytical result above method detection limit does not indicate vertical extent of contamination.

6) No RALs for soils have been established in Minnesota. Pesticides in B-4, B-5, and B-6 (4,4'-DDD, 4,4'-DDE, 4,4'-DDT, aldrin, alpha-chlordane, and gamma-chlordane) were reported in the on-site soils. A single PCB, Aroclor 1254, was reported at 210 ug/kg in B-9. Copper, lead and zinc in B-6, B-7, and B-8 significantly exceeded the background soil concentrations found in S5 of the SSI.

7) The on-site concentration of both carcinogenic and noncarcinogenic PAHs in the soil is elevated in boreholes B-6, B-7, B-8, and B-9. These boreholes are located adjacent to the power plant coal pile.

8) The underlying glacial till at the site is an important factor in controlling the extent of possible migration of contaminants. The permeability tests indicate that the on-site glacial till has a low average hydraulic conductivity which would likely inhibit the migration of contaminants.

9) Other potential contributors of PAHs to the reported contamination include the power plant coal pile and the railroad. Golden Sun Company and the railroad's use of pesticides may have contributed to the elevated concentration of some compounds found during the investigation. Indiscriminate unauthorized dumping by parties other than Fairmont Railway Motors may have contributed to the reported contamination.

10.0 RECOMMENDATIONS

The following actions are recommended for this site:

- Prepare a Sampling Plan for the monitoring of constituents of concern in the ground water at specified time intervals;
- Upon approval of the Sampling Plan by MPCA, conduct the proposed monitoring of the ground water; and
- Submit the ground water sampling results to the MPCA.

These recommendations are based on the following:

1) Based on previous sampling results, contamination of the deep aquifer is not apparent at the present time.

2) The underlying glacial till at the site has a low average hydraulic conductivity, which would likely inhibit migration of contaminants.

3) The additional ground water sampling will better characterize the site and aid in assessing the need for future actions.

Furthermore:

4) The area exhibiting elevated concentrations of contaminants in the soil is, in general, located in the East Landfill and contained inside the fence.

5) The fencing limits access by the general public, thereby minimizing the risk due to dermal contact.

6) The exposure to the contaminants by employees is minimal, as few workers enter the fenced area, and those that do are using fork lifts and are not in direct contact with the on-site soils.

TABLES

TABLE 1
SSI CHEMICAL ANALYSIS OF SOIL AND SEDIMENT SAMPLES
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

	SEDIMENT SAMPLES			SOIL SAMPLES							
Sample Collection Parameters	S6 background	S2	S3	S5 background	S1	S4	S7	S8	S9	S10	S11
VOLATILE ORGANICS (values in ug/kg)											
toluene	--	--	--	--	7	--	4J	--	--	4J	--
SEMIVOLATILE ORGANICS (values in ug/kg)											
4 - methylphenol	--	--	230J	--	--	--	--	--	--	--	--
naphthalene	--	--	440J	--	--	--	--	--	--	--	--
2-methylnaphthalene	--	--	160J	--	--	--	--	76J	--	--	110J
acenaphthylene	--	--	180J	--	--	--	--	--	--	--	260J
acenaphthene	180J	--	200J	--	--	--	--	--	--	--	180J
dibenzofuran	--	--	160J	--	--	--	--	--	--	--	81J
fluorene	180J	--	280J	--	--	--	--	--	--	--	150J
phenanthrene	1,200	--	1,600	--	73J	120J	550J	230J	170J	190J	1,500
anthracene	340J	--	--	--	--	--	150J	--	--	--	540J
fluoranthene	1,700	--	2,300	99J	--	250J	970	280J	270J	250J	4,200
pyrene	1,400	--	2,000	79J	--	240J	790	230J	230J	300J	4,300
benzo[a]anthracene	680J	--	1,000J	--	--	180J	430J	120J	--	180J	3,000
chrysene	910	--	1,500	--	180J	400J	510J	220J	160J	240J	3,100
bis(2-ethylhexyl)phthalate	640J	220J	840J	--	200J	150J	150J	1,300	140J	380J	290J
benzo[b]fluoranthene	850	--	2,400	--	140J	880	870	190J	260J	280J	7,200
benzo[k]fluoranthene	470J	--	--	--	--	--	--	130J	120J	--	--
benzo[a]pyrene	680J	210J	1,300	--	160J	380J	540J	120J	140J	230J	3,600
indeno[1,2,3-cd]pyrene	290J	--	910J	--	--	450J	250J	84J	--	--	1,700
dibenzo[a,h]anthracene	--	--	470J	--	--	--	160J	--	--	--	940
benzo[g,h,i]perylene	310J	--	1,100J	--	280J	700J	360J	110J	160J	60J	1,900J
PESTICIDES/PCBS (values in ug/kg)											
4,4'-DDE	36	--	--	--	--	--	13J	--	--	--	--
Aroclor 1254	--	--	--	--	--	220	--	85J	--	--	--
ANALYTE DETECTED (values in mg/kg)											
aluminum	2,870J*	7,240J*	5,480J*	8,600J*	3,770J*	3,610J*	5,910J*	4,270J*	5,840J*	3,560J*	4,610J*
arsenic	3.8	4.8	6.4	7.4	5.8	3.4	17.5	3.0	7.1	1.5B	4.9
barium	69.1	136	129	135	25.7B	40.2B	132	41.9B	110	158	114
berylium	--	0.38B	--	0.54B	--	--	0.52B	--	0.41B	--	0.45B
cadmium	01.9J	1.2JB	1.9JB	1.2JB	--	3.8	1.4J	--	--	1.3J	--
calcium	32,900J*	31,600J*	26,700J*	12,100J*	16,600J*	3,220J*	24,500J*	5,000J*	42,000J*	2,740J*	65,400J*
chromium	7.6	13.2	13.4	15.5	15.5	36.3	23.5	17	18.6	27.8	10
cobalt	3.5B	6.2B	6.3B	8.2B	1.4B	3.2B	5.7B	2.4B	6.0B	2.5B	4.2B
copper	33	31.4	113	16.8	107	348	69.4	316	50.6	539	24.9
iron	8,330	14,300	14,600	16,800	13,400	18,400	16,100	9,520	15,400	11,300	10,400
lead	88.3J*	18	107J*	35.7J*	6.1	175J*	130J*	59J*	77.2J*	117J*	49.6J*
magnesium	6,080	7,970	6,610	5,250	2,560	540B	7,220	2,480	9,080	1,360	15,800
manganese	259	429	399	938	153	302	642	250	603	275	860
mercury	0.5	--	0.2	--	--	--	--	--	--	--	--
nickel	10.8B	17.7	19.5	24.7	12	15.5	15.9	10.8	17.1	9.8	11.8
potassium	492B	1,100B	957B	1,470	339B	410B	1,150B	423B	799B	223B	1,460
selenium	--	1.8	1.4JWB	2.2	--	.63JWB	--	--	--	--	0.59JWB
sodium	469B	--	--	--	--	--	--	--	--	254B	--
vanadium	12.4B	25.6	26.7	32.6	3.5B	11.4B	23.3	8.7B	24.6	4.5B	17.3
zinc	152JE*	70.2JE*	289JE*	69.4JE*	10.2JE*	104JE*	183JE*	137JE*	96.6JE*	100JE*	74.3JE*

-- Not detected

Compound Qualifier	*Definition*	*Interpretation*
J	Indicates an estimate value.	Compound value may be semiquantitative.

Analyte Qualifiers	*Definition*	*Interpretation*
E	Estimated or not reported due to interference. See laboratory narrative.	Analyte or element was not detected, or value may be semiquantitative.
*	Duplicate value outside QC protocols which indicates a possible matrix problem.	Value may be quantitative or semiquantitative.
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semiquantitative.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.
W	Post-digestion spike for furnace AA analysis is out of control limits (35-115%), while sample absorbance is <50% of spike absorbance.	Value may be semiquantitative.

Source: Ecology and Environment, Inc. 1989

TABLE 2
SSI CHEMICAL ANALYSES OF MUNICIPAL WELL SAMPLES
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Sample Collection Parameters	RW1	Duplicate	Blank
Date	12/6/88	12/6/88	12/6/88
Time	1430	1430	--
CLP Organic Traffic Report Number	ECU65	ECU66	ECU70
CLP Inorganic Traffic Report Number	MECM78	MECM79	MECM83
Temperature (°C)	3	3	--
Specific Conductivity (µmhos/cm)	500	500	--
pH	7.7	7.7	--
Volatile Organics			
Methylene chloride	0.11J	--	0.12J
Acetone	--	--	4.1
Chloroform	--	--	0.12
Toluene	--	0.14JX	0.38J
Acrolein	--	--	6.92
Analyte Detected			
Aluminum	34.1JB	30.1JB	--
Barium	56.2J	56.2J	--
Calcium	56,700	57,100	115B
Copper	11J	6.2JB	--
Iron	66.9JB	56.3JB	--
Magnesium	36,700	37,200	84JB
Manganese	26.9J	28.4J	3.7JB
Potassium	3,120	3,150	--
Sodium	11,900	12,100	--
Vanadium	3.9JB	4.0JB	--

-- Not detected.
All values in µg/kg

Compound Qualifiers	Definition	Interpretation
J	Indicates an estimated value.	Compound value may be semiquantitative.
X	Cannot be confirmed by CLP protocols.	Compound may or may not be present.

Analyte Qualifiers	Definition	Interpretation
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.

Source: Ecology and Environment, Inc. 1989.

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	MW-1	MW-2	MW-3	B-4	B-5	B-6	B-7	B-8	B-9
VOLATILE COMPOUNDS (values in ug/kg)									
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	U
1,1-Dichloroethane	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	U	U	U	U	U	U	U	U	U
1,2-Dichloroethane	U	U	U	U	U	U	U	U	U
1,2-Dichloroethene (total)	U	U	U	U	U	U	U	U	U
1,2-Dichloropropane	U	U	U	U	U	U	U	U	U
2-Butanone	BJ-12	J-3	J-4	B-27	B-18	BJ-2	BJ-4	U	J-6
2-Hexanone	U	U	U	U	U	U	U	U	U
4-Methyl-2-Pentanone	U	U	U	U	U	U	U	U	U
Acetone	U	26	17	48	170	23	J-12	J-4	15
Benzene	U	U	U	U	U	U	U	U	U
Bromodichloromethane	U	U	U	U	U	U	U	U	U
Bromoform	U	U	U	U	U	U	U	U	U
Bromomethane	U	U	U	U	U	U	U	U	U
Carbon Disulfide	J-7	J-4	U	U	U	U	U	U	U
Carbon Tetrachloride	U	U	U	U	U	U	U	U	U
Chlorobenzene	U	U	U	U	U	U	U	U	U
Chloroethane	U	U	U	U	U	U	U	U	U
Chloroform	U	U	U	U	U	U	U	U	U
Chloromethane	U	U	U	U	U	U	U	U	U
Dibromochloromethane	U	U	U	U	U	U	U	U	U
Ethylbenzene	U	U	U	U	U	U	U	U	U
Methylene Chloride	J-3	J-3	J-2	U	J-3	J-6	U	J-3	U
Styrene	U	U	U	U	U	U	U	U	U
Tetrachloroethene	U	U	U	U	U	U	U	U	U

U - Analyte not detected. Result reported is the detection limit adjusted for percent moisture.

J - Analyte was detected, but at a level below the CLP detection limit. The reported result is considered an estimate.

B - Analyte was detected in the sample and in the associated method blank.

P - Quantitation results for the analyte between the two columns differ by more than 25.0%. (Applies to Pesticide/PCB results onl

E - Reported result exceeds the instrument calibration range.

D - Reported result is the result of a dilution analysis.

N - There is presumptive evidence that this analyte is present in the sample. Identification is based on a mass spectral library search. Analyte is not a target compound. The reported value is considered an estimate.

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	MW-1	MW-2	MW-3	B-4	B-5	B-6	B-7	B-8	B-9
VOLATILE COMPOUNDS (values in ug/kg)									
Toluene	U	U	U	U	U	U	U	U	U
Trichloroethene	U	U	U	U	U	U	U	U	U
Vinyl Chloride	U	U	U	U	U	U	U	U	U
Xylene (total)	J-3	U	U	J-3	U	J-3	U	J-2	J-3
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U
SEMIVOLATILE COMPOUNDS (values in ug/kg)									
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	U
2,2'-oxybis(1-Chloropropane)	U	U	U	U	U	U	U	U	U
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	U
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	U
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	U
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	U
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	U
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	U
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	U
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U
2-Chlorophenol	U	U	U	U	U	U	U	U	U
2-Methylnaphthalene	U	U	U	J-36	U	U	J-47	J-93	J-96
2-Methylphenol	U	U	U	U	U	U	U	U	U
2-Nitroaniline	U	U	U	U	U	U	U	U	U

U - Analyte not detected. Result reported is the detection limit adjusted for percent moisture.

J - Analyte was detected, but at a level below the CLP detection limit. The reported result is considered an estimate.

B - Analyte was detected in the sample and in the associated method blank.

P - Quantitation results for the analyte between the two columns differ by more than 25.0%. (Applies to Pesticide/PCB results onl

E - Reported result exceeds the instrument calibration range.

D - Reported result is the result of a dilution analysis.

N - There is presumptive evidence that this analyte is present in the sample. Identification is based on a mass spectral library search. Analyte is not a target compound. The reported value is considered an estimate.

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	MW-1	MW-2	MW-3	B-4	B-5	B-6	B-7	B-8	B-9
SEMIVOLATILE COMPOUNDS (values in ug/kg)									
2-Nitrophenol	U	U	U	U	U	U	U	U	U
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	U
3-Nitroaniline	U	U	U	U	U	U	U	U	U
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	U
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U
4-Chloroaniline	U	U	U	U	U	U	U	U	U
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	U
4-Methylphenol	U	U	U	U	U	U	U	U	U
4-Nitroaniline	U	U	U	U	U	U	JD-270	U	U
4-Nitrophenol	U	U	U	U	U	U	U	U	U
Acenaphthene	U	U	U	U	U	U	U	J-66	J-96
Acenaphthylene	U	U	U	J-26	U	U	U	U	J-84
Anthracene	U	U	U	J-42	U	U	J-83	J-92	J-250
Benzo(a)anthracene	J-35	U	U	J-150	J-43	J-270	780	J-230	760
Benzo(a)pyrene	J-34	U	U	J-170	J-50	J-160	1400	J-160	760
Benzo(b)fluoranthene	J-37	U	U	J-220	J-60	J-340	2500	J-170	980
Benzo(g,h,i)perylene	U	U	U	U	U	J-78	J-330	J-61	J-240
Benzo(k)fluoranthene	J-39	U	U	J-270	J-72	J-290	1700	J-220	950
Bis(2-Ethylhexyl)phthalate	B-590	B-1600	B-530	B-1500	B-760	BD-19000	B-2000	B-1400	B-870
Butylbenzylphthalate	U	U	U	U	U	U	U	U	U
Carbazole	U	U	U	J-30	U	J-33	J-21	J-68	J-160
Chrysene	J-41	U	U	J-180	J-76	410	1200	J-250	890
Di-n-butylphthalate	J-14	U	U	J-13	J-18	J-40	J-19	J-27	J-16
Di-n-octylphthalate	U	U	U	U	U	U	U	U	U
Dibenz(a,h)anthracene	U	U	U	U	U	U	J-140	U	J-93
Dibenzofuran	U	U	U	U	U	U	U	J-39	J-55

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TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	MW-1	MW-2	MW-3	B-4	B-5	B-6	B-7	B-8	B-9
SEMIVOLATILE COMPOUNDS (values in ug/kg)									
Diethylphthalate	U	U	U	U	U	U	U	U	U
Dimethylphthalate	U	U	U	U	U	U	U	U	U
Fluoranthene	J-67	U	U	J-270	J-78	490	420	490	1400
Fluorene	U	U	U	U	U	U	U	J-54	J-84
Hexachlorobenzene	U	U	U	U	U	U	U	U	U
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	U
Hexachloroethane	U	U	U	U	U	U	U	U	U
Indeno(1,2,3-cd)pyrene	U	U	U	J-61	U	J-80	390	J-68	J-270
Isophorone	U	U	U	U	U	U	U	U	U
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	U
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	U
Naphthalene	U	U	U	J-26	U	U	J-48	J-73	J-74
Nitrobenzene	U	U	U	U	U	U	U	U	U
Pentachlorophenol	U	U	U	U	U	U	U	U	U
Phenanthrene	J-33	U	U	J-160	J-55	J-330	J-330	500	1040
Phenol	U	U	U	U	U	U	U	U	U
Pyrene	J-81	U	U	J-270	J-103	510	650	420	1400
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	U
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	U
PESTICIDES / PCB'S (values in ug/kg)									
4,4'-DDD	U	U	U	U	P-40	U	U	U	U
4,4'-DDE	U	U	U	14	12	U	U	U	13
4,4'-DDT	U	U	U	U	7.5	U	U	P-6.9	44

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FAIRMONT RAILWAY MOTORS

Compound	MW-1	MW-2	MW-3	B-4	B-5	B-6	B-7	B-8	B-9
PESTICIDES / PCB'S (values in ug/kg)									
Aldrin	U	U	U	46	U	U	U	U	U
Alpha-BHC	U	U	U	U	U	U	U	U	U
Alpha-Chlordane	U	U	U	P-32	U	U	U	U	U
Aroclor 1016	U	U	U	U	U	U	U	U	U
Aroclor 1221	U	U	U	U	U	U	U	U	U
Aroclor 1232	U	U	U	U	U	U	U	U	U
Aroclor 1242	U	U	U	U	U	U	U	U	U
Aroclor 1248	U	U	U	U	U	U	U	U	U
Aroclor 1254	U	U	U	U	210	U	U	U	U
Aroclor 1260	U	U	U	U	U	U	U	U	U
Beta-BHC	U	U	U	U	U	U	U	U	U
Delta-BHC	U	U	U	U	U	U	U	U	U
Dieldrin	U	U	U	U	U	U	U	U	U
Endosulfan I	U	U	U	U	U	U	U	U	U
Endosulfan II	U	U	U	U	U	U	U	U	U
Endosulfan sulfate	U	U	U	U	U	U	U	U	U
Endrin	U	U	U	U	U	U	U	U	U
Endrin aldehyde	U	U	U	U	U	U	U	U	U
Endrin ketone	U	U	U	U	U	U	U	U	U
Gamma-BHC (Lindane)	U	U	U	U	U	U	U	U	U
Gamma-Chlordane	U	U	U	50	U	U	U	U	U
Heptachlor	U	U	U	U	U	U	U	U	U
Heptachlor epoxide	U	U	U	U	U	U	U	U	U
Methoxychlor	U	U	U	U	U	U	U	U	U
Toxaphene	U	U	U	U	U	U	U	U	U

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FAIRMONT RAILWAY MOTORS

Compound	MW-1	MW-2	MW-3	B-4	B-5	B-6	B-7	B-8	B-9
INORGANICS (values in mg/kg)									
Aluminum	3560	3570	4820	2480	2910	5190	28000	6980	7370
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	2.0	5.3	6.3	7.0	4.6	22.2	ND	1.9	15.3
Barium	56.7	58.0	77.0	64.1	84.1	114	184	24.5	95.1
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	1.1	3.6	0.70	1.3	ND	4.6	1.9	ND	ND
Calcium	17700	37200	36200	41300	33900	8580	7500	3270	22900
Chromium	8.3	9.8	10.7	14.4	12.0	29.7	115	19.9	18.2
Cobalt	ND	ND	ND	ND	ND	12.4	ND	ND	6.4
Copper	6.1	8.2	8.5	24.2	9.9	2390	4290	1160	31.8
Cyanide, Total	ND	ND	ND	ND	7.58	ND	ND	ND	ND
Iron	5270	8070	9430	16200	8760	93000	11500	13900	12900
Lead	15.5	3.9	5.6	88.6	93.2	1860	1000	113	71.1
Magnesium	5320	10500	11500	7960	10300	2800	1660	524	6100
Manganese	163	364	467	460	968	1010	249	233	483
Mercury	ND	ND	ND	ND	ND	ND	1.0	ND	ND
Nickel	6.8	8.4	11.3	12.0	7.4	94.7	58.6	17.6	12.7
Potassium	466	826	857	618	740	427	369	ND	931
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium	ND	122	ND	197	134	165	920	ND	ND
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	9.8	11.6	15.5	10.4	11.7	62.3	8.1	7.8	21.8
Zinc	24.2	27.1	35.2	94.9	48.2	1080	481	148	82.4

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TABLE 4
SUMMARY OF GROUND WATER ANALYTICAL RESULTS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	MW-1	MW-2	MW-3	RAL
VOLATILE COMPOUNDS (values in ug/l)				
1,1,1-Trichloroethane	U	U	U	600.0
1,1,2,2-Tetrachloroethane	U	U	U	2.0
1,1,2-Trichloroethane	U	U	U	3.0
1,1-Dichloroethane	U	U	U	70.0
1,1-Dichloroethene	U	U	U	6.0
1,2-Dichloroethane	U	U	U	4.0
1,2-Dichloroethene (total)	U	U	U	170.0
1,2-Dichloropropane	U	U	U	5.0
2-Butanone	U	U	U	300.0
2-Hexanone	U	U	U	-
4-Methyl-2-Pentanone	U	U	U	-
Acetone	U	U	U	700.0
Benzene	U	U	U	10.0
Bromodichloromethane	U	U	U	3.0
Bromoform	U	U	U	40.0
Bromomethane	U	U	U	0.10
Carbon Disulfide	U	U	U	700.0
Carbon Tetrachloride	U	U	U	3.0
Chlorobenzene	U	U	U	100.0
Chloroethane	U	U	U	-
Chloroform	U	U	U	60.0
Chloromethane	U	U	U	-
Dibromochloromethane	U	U	U	10.0
Ethylbenzene	U	U	U	700.0
Methylene Chloride	BJ-3	U	U	50.0
Styrene	U	U	U	10.0

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PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	MW-1	MW-2	MW-3	RAL
VOLATILE COMPOUNDS (values in ug/l)				
Tetrachloroethene	U	U	U	7.0
Toluene	U	J-3	U	1000.0
Trichloroethene	U	U	U	30.0
Vinyl Chloride	U	U	U	0.10
Xylene (total)	U	U	U	10000
cis-1,3-Dichloropropene	U	U	U	2.0
trans-1,3-Dichloropropene	U	U	U	2.0
SEMIVOLATILE COMPOUNDS (values in ug/l)				
1,2,4-Trichlorobenzene	U	U	U	-
1,2-Dichlorobenzene	U	U	U	600.0
1,3-Dichlorobenzene	U	U	U	600.0
1,4-Dichlorobenzene	U	U	U	10.0
2,2'-oxybis(1-Chloropropane)	U	U	U	-
2,4,5-Trichlorophenol	U	U	U	-
2,4,6-Trichlorophenol	U	U	U	30.0
2,4-Dichlorophenol	U	U	U	20.0
2,4-Dimethylphenol	U	U	U	600.0
2,4-Dinitrophenol	U	U	U	10.0
2,4-Dinitrotoluene	U	U	U	1.0
2,6-Dinitrotoluene	U	U	U	-
2-Chloronaphthalene	U	U	U	-
2-Chlorophenol	U	U	U	30.0
2-Methylnaphthalene	U	U	U	-

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PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	MW-1	MW-2	MW-3	RAL
SEMIVOLATILE COMPOUNDS (values in ug/l)				
2-Methylphenol	U	U	U	-
2-Nitroaniline	U	U	U	-
2-Nitrophenol	U	U	U	-
3,3'-Dichlorobenzidine	U	U	U	0.8
3-Nitroaniline	U	U	U	-
4,6-Dinitro-2-methylphenol	U	U	U	-
4-Bromophenyl-phenylether	U	U	U	-
4-Chloro-3-methylphenol	U	U	U	-
4-Chloroaniline	U	U	U	-
4-Chlorophenyl-phenylether	U	U	U	-
4-Methylphenol	U	U	U	30.0
4-Nitroaniline	U	U	U	-
4-Nitrophenol	U	U	U	-
Acenaphthene	U	U	U	4000.0
Acenaphthylene	U	U	U	-
Anthracene	U	U	U	2000.0
Benzo(a)anthracene	U	U	U	-
Benzo(a)pyrene	U	U	U	-
Benzo(b)fluoranthene	U	U	U	-
Benzo(g,h,i)perylene	U	U	U	-
Benzo(k)fluoranthene	U	U	U	-
Bis(2-Ethylhexyl)phthalate	U	J-7	J-6	20.0
Butylbenzylphthalate	U	U	U	100.0
Carbazole	U	U	U	-
Chrysene	U	U	U	-
Di-n-butylphthalate	U	U	U	700.0

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PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	MW-1	MW-2	MW-3	RAL
SEMIVOLATILE COMPOUNDS (values in ug/l)				
Di-n-octylphthalate	U	U	U	-
Dibenz(a,h)anthracene	U	U	U	-
Dibenzofuran	U	U	U	-
Diethylphthalate	U	U	U	6000.0
Dimethylphthalate	U	U	U	7000.0
Fluoranthene	U	U	U	-
Fluorene	U	U	U	300.0
Hexachlorobenzene	U	U	U	0.2
Hexachlorobutadiene	U	U	U	1.0
Hexachlorocyclopentadiene	U	U	U	50.0
Hexachloroethane	U	U	U	1.0
Indeno(1,2,3-cd)pyrene	U	U	U	-
Isophorone	U	J-1	U	100.0
N-Nitroso-di-n-propylamine	U	U	U	-
N-Nitrosodiphenylamine	U	U	U	70.0
Naphthalene	U	U	U	30.0
Nitrobenzene	U	U	U	3.0
Pentachlorophenol	U	U	U	200.0
Phenanthrene	U	U	U	-
Phenol	U	U	U	4000.0
Pyrene	U	U	U	200.0
bis(2-Chloroethoxy)methane	U	U	U	-
bis(2-Chloroethyl)ether	U	U	U	0.3

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Compound	MW-1	MW-2	MW-3	RAL
PESTICIDES / PCB'S (values in ug/l)				
4,4'-DDD	U	U	U	-
4,4'-DDE	U	U	U	-
4,4'-DDT	U	U	U	1.0
Aldrin	U	U	U	0.02
Alpha-BHC	U	U	U	0.06
Alpha-Chlordane	U	U	U	0.3
Aroclor 1016	U	U	U	-
Aroclor 1221	U	U	U	-
Aroclor 1232	U	U	U	-
Aroclor 1242	U	U	U	-
Aroclor 1248	U	U	U	-
Aroclor 1254	U	U	U	-
Aroclor 1260	U	U	U	-
Beta-BHC	U	U	U	0.2
Delta-BHC	U	U	U	-
Dieldrin	U	U	U	0.02
Endosulfan I	U	U	U	-
Endosulfan II	U	U	U	-
Endosulfan sulfate	U	U	U	-
Endrin	U	U	U	2.0
Endrin aldehyde	U	U	U	-
Endrin ketone	U	U	U	-
Gamma-BHC (Lindane)	U	U	U	0.3
Gamma-Chlordane	U	U	U	-
Heptachlor	U	U	U	0.08
Heptachlor epoxide	U	U	U	0.04

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PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	MW-1	MW-2	MW-3	RAL
PESTICIDES / PCB'S (values in ug/kg)				
Methoxychlor	U	U	U	30.0
Toxaphene	U	U	U	0.3
INORGANICS (values in mg/l)				
Aluminum	20700	ND	17300	-
Antimony	ND	ND	ND	1.0
Arsenic	ND	15.5	15.1	0.2
Barium	538	ND	375	2000.0
Beryllium	ND	ND	ND	0.08
Cadmium	8.0	15.1	19.3	4.0
Calcium	266000	250000	134000	-
Chromium	46.1	65.0	35.8	100.0
Cobalt	ND	ND	ND	1.0
Copper	50.3	121	62.6	1000.0
Cyanide, Total	ND	ND	ND	100.0
Iron	35300	64000	41200	-
Lead	60.3	21.2	11.8	20.0
Magnesium	91100	96500	48100	-
Manganese	1250	1900	1550	300.0
Mercury	ND	ND	ND	1.0
Nickel	46.7	94.9	ND	70.0
Potassium	7340	14900	7030	-
Selenium	ND	ND	ND	10.0
Silver	ND	ND	ND	10.0

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Compound	MW-1	MW-2	MW-3	RAL
INORGANICS (values in mg/kg)				
Sodium	47100	44800	13100	-
Thallium	ND	ND	ND	0.3
Vanadium	92.6	ND	73.3	20.0
Zinc	169	178	134	700.0

U - Analyte not detected. Result reported is the detection limit adjusted for percent moisture.

J - Analyte was detected, but at a level below the CLP detection limit. The reported result is considered an estimate.

B - Analyte was detected in the sample and in the associated method blank.

P - Quantitation results for the analyte between the two columns differ by more than 25.0%. (Applies to Pesticide/PCB results onl

E - Reported result exceeds the instrument calibration range.

D - Reported result is the result of a dilution analysis.

N - There is presumptive evidence that this analyte is present in the sample. Identification is based on a mass spectral library search. Analyte is not a target compound. The reported value is considered an estimate.

TABLE 5
ANALYTICAL METHOD DETECTION LIMITS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

PARAMETER	WATER ug/l	SOIL ug/kg
VOLATILE ORGANIC COMPOUNDS		
1,1,1-Trichloroethane	10	10
1,1,2,2-Tetrachloroethane	10	10
1,1,2-Trichloroethane	10	10
1,1-Dichloroethane	10	10
1,1-Dichloroethene	10	10
1,2-Dichloroethane	10	10
1,2-Dichloroethene(total)	10	10
1,2-Dichloropropane	10	10
2-Butanone	10	10
2-Hexanone	10	10
4-Methyl-2-Pentanone	10	10
Acetone	10	10
Benzene	10	10
Bromodichloromethane	10	10
Bromoform	10	10
Bromomethane	10	10
Carbon Disulfide	10	10
Carbon Tetrachloride	10	10
Chlorobenzene	10	10
Chloroethane	10	10
Chloroform	10	10
Chloromethane	10	10
Dibromochloromethane	10	10
Ethylbenzene	10	10
Methylene Chloride	10	10
Styrene	10	10
Tetrachloroethene	10	10
Toluene	10	10
Trichloroethene	10	10
Vinyl Chloride	10	10
Xylene (total)	10	10
cis-1,3-Dichloropropene	10	10
trans-1,3-Dichloropropene	10	10

TABLE 5 (CONTINUED)
ANALYTICAL METHOD DETECTION LIMITS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

PARAMETER	WATER ug/l	SOIL ug/kg
SEMIVOLATILE COMPOUNDS		
1,2,4-Trichlorobenzene	10	330
1,2-Dichlorobenzene	10	330
1,3-Dichlorobenzene	10	330
1,4-Dichlorobenzene	10	330
2,2'-oxybis(1-Chloropropane	10	330
2,4,5-Trichlorophenol	25	800
2,4,6-Trichlorophenol	10	330
2,4-Dichlorophenol	10	330
2,4-Dimethylphenol	10	330
2,4-Dinitrophenol	25	800
2,4-Dinitrotoluene	10	330
2,6-Dinitrotoluene	10	330
2-Chloronaphthalene	10	330
2-Chlorophenol	10	330
2-Methylnaphthalene	10	330
2-Methylphenol	10	330
2-Nitroaniline	25	800
2-Nitrophenol	10	330
3,3'-Dinitrobenzidine	10	330
3-Nitroaniline	25	800
4,6-Dinitro-2-methylphenol	25	800
4-Bromophenyl-phenylether	10	330
4-Chloro-3-methylphenol	10	330
4-Chloroaniline	10	330
4-Chlorophenyl-phenylether	10	330
4-Methylphenol	10	330
4-Nitroaniline	25	800
4-Nitrophenol	25	800
Acenaphthene	10	330
Acenaphthylene	10	330
Anthracene	10	330
Benzo(a)anthracene	10	330
Benzo(b)fluoranthene	10	330
Benzo(g,h,i)perylene	10	330
Benzo(k)fluoranthene	10	330

TABLE 5 (CONTINUED)
ANALYTICAL METHOD DETECTION LIMITS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

PARAMETER	WATER ug/l	SOIL ug/kg
Bis(2-Ethylhexyl)phthalate	10	330
Butylbenzylphthalate	10	330
Carbazole	10	330
Chrysene	10	330
Di-n-butylphthalate	10	330
Di-n-octylphthalate	10	330
Dibenz(a,h)anthracene	10	330
Dibenzofuran	10	330
Diethylphthalate	10	330
Dimethylphthalate	10	330
Fluoranthene	10	330
Fluorene	10	330
Hexachlorobenzene	10	330
Hexachlorobutadiene	10	330
Hexachlorocyclopentadiene	10	330
Hexachloroethane	10	330
Indeno(1,2,3-cd)pyrene	10	330
Isophorone	10	330
N-Nitroso-di-n-propylamine	10	330
N-Nitrosodiphenylamine	10	330
Naphthalene	10	330
Nitrobenzene	10	330
Pentachlorophenol	25	800
Phenanthrenene	10	330
Phenol	10	330
Pyrene	10	330
bis(2-Chloroethoxy)methane	10	330
bis(2-Chloroethyl)ether	10	330

TABLE 5 (CONTINUED)
ANALYTICAL METHOD DETECTION LIMITS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

PARAMETER	WATER ug/l	SOIL ug/kg
PESTICIDES AND PCB'S		
4,4'-DDD	0.10	3.3
4,4'-DDE	0.10	3.3
4,4'-DDT	0.10	3.3
Aldrin	0.05	1.7
Alpha-BHC	0.05	1.7
Alpha-Chlordane	0.05	1.7
Aroclor 1016	1.0	33.0
Aroclor 1221	2.0	67.0
Aroclor 1232	1.0	33.0
Aroclor 1242	1.0	33.0
Aroclor 1248	1.0	33.0
Aroclor 1254	1.0	33.0
Aroclor 1260	1.0	33.0
Beta-BHC	0.05	1.7
Delta-BHC	0.05	1.7
Dieldrin	0.10	3.3
Endosulfan I	0.05	1.7
Endosulfan II	0.10	3.3
Endosulfan sulfate	0.10	3.3
Endrin	0.10	3.3
Endrin aldehyde	0.10	3.3
Endrin ketone	0.10	3.3
Gamma-BHC (Lindane)	0.05	1.7
Gamma-Chlordane	0.05	1.7
Heptachlor	0.05	1.7
Heptachlor Epoxide	0.05	1.7
Methoxychlor	0.50	17.0
Toxaphene	5.0	170.0

TABLE 5 (CONTINUED)
ANALYTICAL METHOD DETECTION LIMITS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

PARAMETER	WATER ug/l	SOIL mg/kg
INORGANICS		
Aluminum	200	20
Antimony	60	6
Arsenic	10	1
Barium	200	20
Beryllium	5	0.5
Cadmium	5	0.5
Calcium	5,000	500
Chromium	10	1
Cobalt	50	5
Copper	25	2.5
Cyanide (total)	10	1
Iron	100	10
Lead	3	0.3
Magnesium	5,000	500
Manganese	15	1.5
Mercury	0.2	0.02
Nickel	40	4
Potassium	5,000	500
Selenium	5	0.5
Silver	10	1
Sodium	5,000	500
Thallium	10	1
Vanadium	50	5
Zinc	20	2

TABLE 6

CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Benzo(a)anthracene

Benzo(b)fluoranthene

Benzo(j)fluoranthene

Benzo(k)fluoranthene

Benzo(a)pyrene

Dibenz(a,h)acridine

Dibenz(a,j)acridine

Dibenz(a,h)anthracene

7H-Dibenzo(c,g)carbazole

Dibenzo(a,e)pyrene

Dibenzo(a,i)pyrene

Dibenzo(a,l)pyrene

Indeno(1,2,3-cd)pyrene

5-methylchrysene

Source: Recommended Allowable Limits for Drinking Water Contaminants." Prepared by the Minnesota Department of Health, Section of Health Risk Assessment, Release No. 3, January, 1991.

TABLE 7
COMPOUNDS EXCEEDING RECOMMENDED ALLOWABLE LIMITS IN GROUND WATER
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	Source	(ug/l)
Arsenic	MW-2	15.5
	MW-3	15.1
	RW-1	ND
	RAL	0.2
	MCL	50
Cadmium	MW-1	8.0
	MW-2	15.1
	MW-3	19.3
	RW-1	ND
	RAL	4.0
	MCL	10
Chromium	MW-2	65.0
	RW-1	ND
	RAL(Cr^{+6})	100
	MCL	50
Lead	MW-1	60.3
	MW-2	21.2
	RW-1	ND
	RAL	20.0
	MCL	50
Manganese	MW-1	1,250
	MW-2	1,900
	MW-3	1,550
	RW-1	26.9J
	RAL	300
	MCL	–
Nickel	MW-2	94.9
	RW-1	ND
	RAL	70.0
	MCL	-

TABLE 7 (CONTINUED)
COMPOUNDS EXCEEDING RECOMMENDED ALLOWABLE LIMITS IN GROUND WATER
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	Source	(ug/l)
Vanadium	MW-1	92.6
	MW-3	73.3
	RW-1	3.9JB
	RAL	20
	MCL	–

RAL - Minnesota Recommended Allowable Limit

MCL - Maximum Contaminant Level

ND - Not Detected.

J - Analyte was detected, but at a level below the CLP detection limit. The reported result is considered an estimate.

B - Analyte was detected in the sample and in the associated method blank.

Note: MW-1, MW-2, and MW-3 were sampled as part of the Phase II Site Investigation, May 7-8, 1991.

RW-1 was sampled as part of the Screening Site Investigation, December 6, 1988.

TABLE 8
COMPOUNDS IN SOILS EXCEEDING 20 X RECOMMENDED ALLOWABLE LIMITS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	Source	(mg/kg)
Arsenic	B-4	7.0
	B-5	4.6
	B-6	22.2
	B-8	1.9
	B-9	15.3
	MW-1	2.0
	MW-2	5.3
	MW-3	6.3
	S5	7.4
	20 x RAL	0.004
Barium	B-4	64.1
	B-5	84.1
	B-6	114
	B-7	184
	B-9	95.1
	MW-1	56.7
	MW-2	58.0
	MW-3	77.0
	S5	135
	20 X RAL	40
Cadmium	B-4	1.3
	B-6	4.6
	B-7	1.9
	MW-1	1.1
	MW-2	3.6
	MW-3	0.70
	S5	1.2JB
	20 X RAL	0.08
Cobalt	B-6	12.4
	B-9	6.4
	S5	8.2B
	20 X RAL	0.02
Copper	B-4	24.2
	B-6	2,390
	B-7	4,290
	B-8	1,160
	B-9	31.8
	S5	16.8
	20 X RAL	20

TABLE 8 - CONTINUED
COMPOUNDS IN SOILS EXCEEDING 20 X RECOMMENDED ALLOWABLE LIMITS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	Source	mg/kg
Cyanide (total)	B-5	7.58
	S5	-
	20 X RAL*	2.0
Lead	B-4	88.6
	B-5	93.2
	B-6	1,860
	B-7	1,000
	B-8	113
	B-9	71.1
	MW-1	15.5
	MW-2	3.9
	MW-3	5.6
	S5	35.7J
	20 X RAL	0.4
Manganese	B-4	460
	B-5	968
	B-6	1,010
	B-7	249
	B-8	233
	B-9	483
	MW-2	364
	MW-3	467
	S5	938
	20 X RAL	6
Nickel	B-4	12.0
	B-5	7.4
	B-6	94.7
	B-7	58.6
	B-8	17.6
	B-9	12.7
	MW-1	6.8
	MW-2	8.4
	MW-3	11.3
	S5	24.7
	20 X RAL	1.4
Vanadium	B-4	10.4
	B-5	11.7
	B-6	62.3
	B-7	8.1
	B-8	7.8
	B-9	21.8
	MW-1	9.8

TABLE 8 - CONTINUED
COMPOUNDS IN SOILS EXCEEDING 20 X RECOMMENDED ALLOWABLE LIMITS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	Source	mg/kg
Vanadium	MW-2	11.6
	MW-3	15.5
	S5	32.6
	20 X RAL	0.4
Zinc	B-5	48.2
	B-6	1,080
	B-7	481
	B-8	148
	B-9	82.4
	MW-1	24.2
	MW-2	27.1
	MW-3	35.2
	S5	69.4
	20 X RAL	14

Compound	Location	(ug/kg)
4,4'-DDT	B-9	44
	S5	-
	20 X RAL	20
Aldrin	B-4	46
	S5	-
	20 X RAL	0.4
Alpha-Chlordane	B-4	32.P
	S5	-
	20 X RAL	6

RAL - Minnesota Recommended Allowable Limit

ND - Not detected

J - Analyte was detected, but at a level below the CLP detection limit. The reported result is considered an estimate.

B - Analyte was detected in the sample and in the associated method blank.

* - The RAL for cyanide is for free cyanide. No RAL has been established for total cyanide.

Note: B-1 through B-9 were sampled as part of the Phase II Site Investigation, April, 1991.

S5, the background sample, was sampled as part of the Screening Site Investigation, December, 1988.

TABLE 9
ADDITIONAL PESTICIDES AND PCBS ON SITE
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	Location	(ug/kg)
4,4'-DDD	B-5	40.P
	S5	ND
	20 X RAL	-
4,4'-DDE	B-4	14
	B-5	12
	B-9	13
	S5	ND
	20 X RAL	-
4,4'-DDT	B-8	6.9P
	S5	ND
	20 X RAL	20
Aroclor 1254	B-5	210
	S5	ND
	20 X RAL	-
Gamma-Chlordane	B-4	50
	S5	ND
	20 X RAL	-

RAL - Minnesota Recommended Allowable Limit

ND - Not detected

P - Quantitation results for the analyte between the two columns differ by more than 25.0%. (Applies to pesticides and PCB results only.)

Note: B-1 through B-9 were sampled as part of the Phase II Site Investigation, April, 1991.

S5, the background sample, was sampled as part of the Screening Site Investigation, December, 1988.

TABLE 10
TOTAL CARCINOGENIC AND NONCARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS
PHASE II SITE INVESTIGATION
FAIRMONT RAILWAY MOTORS

Compound	Location	(ug/kg)
Total	B-7	6,770
Carcinogenic	B-9	3,450
PAHs	S5	ND
	20 X RAL	0.6
Total	B-6	1,410
Noncarcinogenic	B-7	2,270
PAHs	B-8	1,410
	B-9	4,730
	S5	178J
	20 X RAL	6

RAL - Minnesota Recommended Allowable Limit

ND - Not detected

P - Quantitation results for the analyte between the two columns differ by more than 25.0%. (Applies to pesticides and PCB results only.)

Note: B-1 through B-9 were sampled as part of the Phase II Site Investigation, April, 1991.

S5, the background sample, was sampled as part of the Screening Site Investigation, December, 1988.

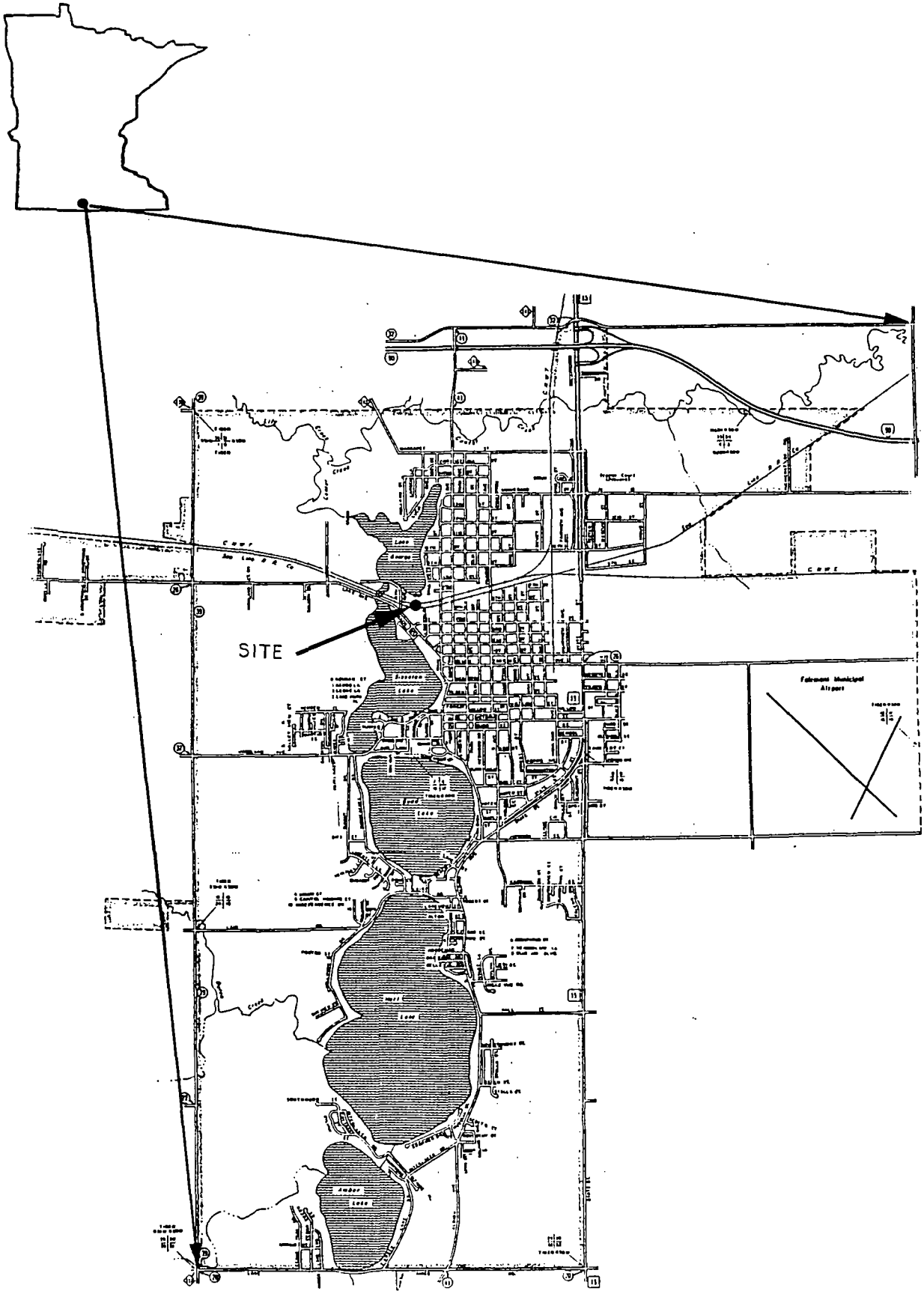
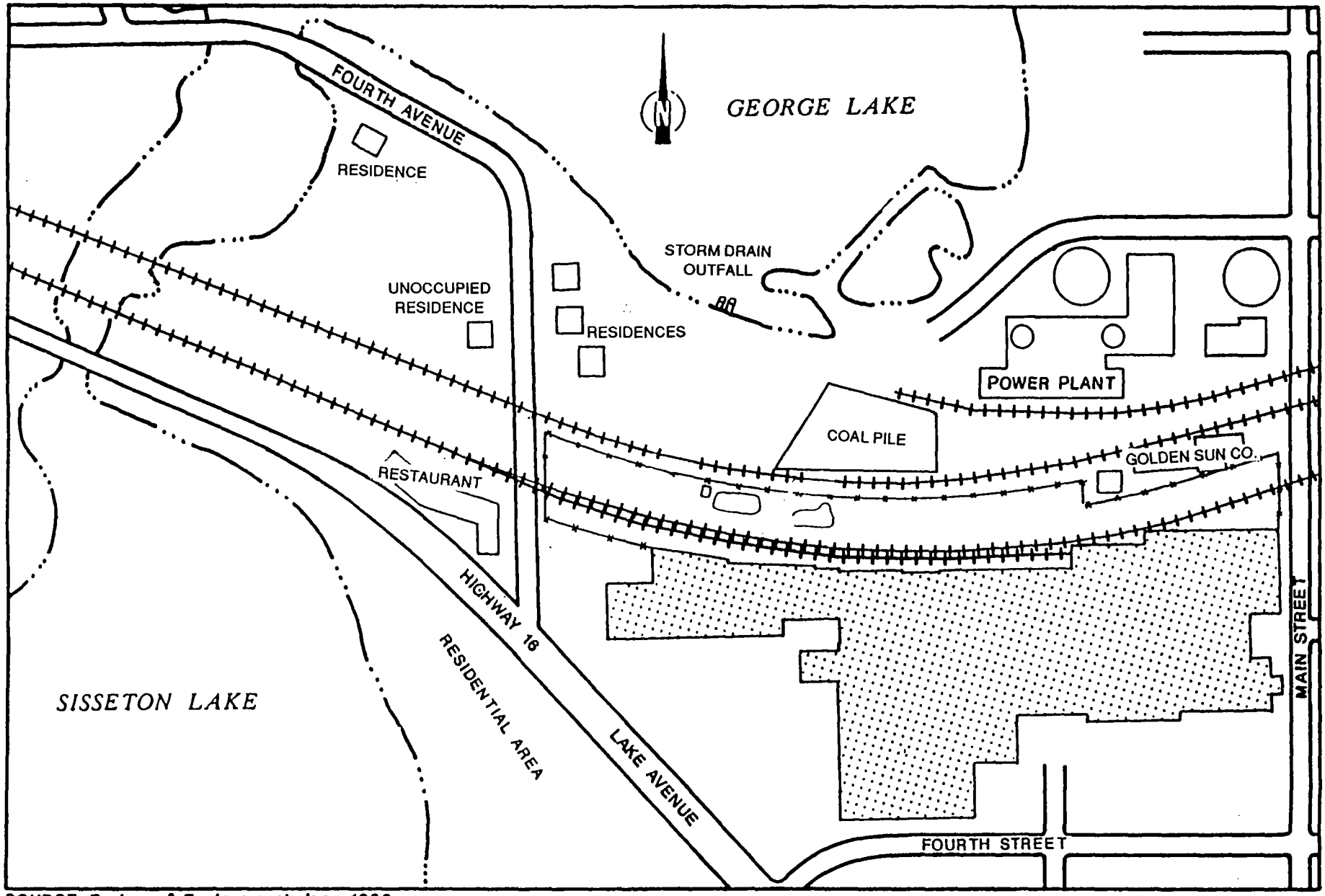


FIGURE 1 SITE LOCATION MAP	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	**DAMES & MOORE**

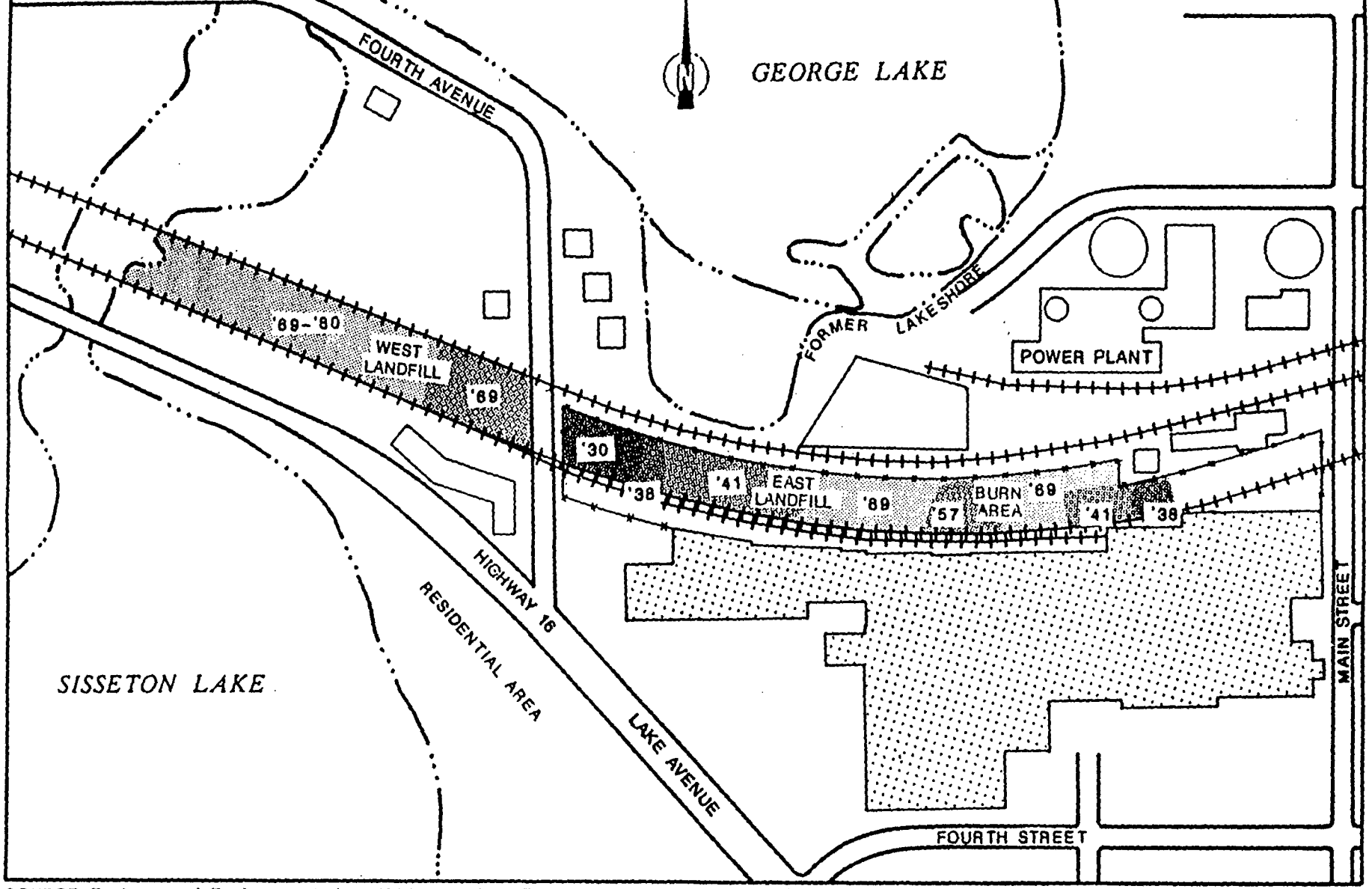


SOURCE: Ecology & Environment, Inc., 1989.

SCALE

0 200 400 600 800 1000 FEET

FIGURE 2 SITE PLAN	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE

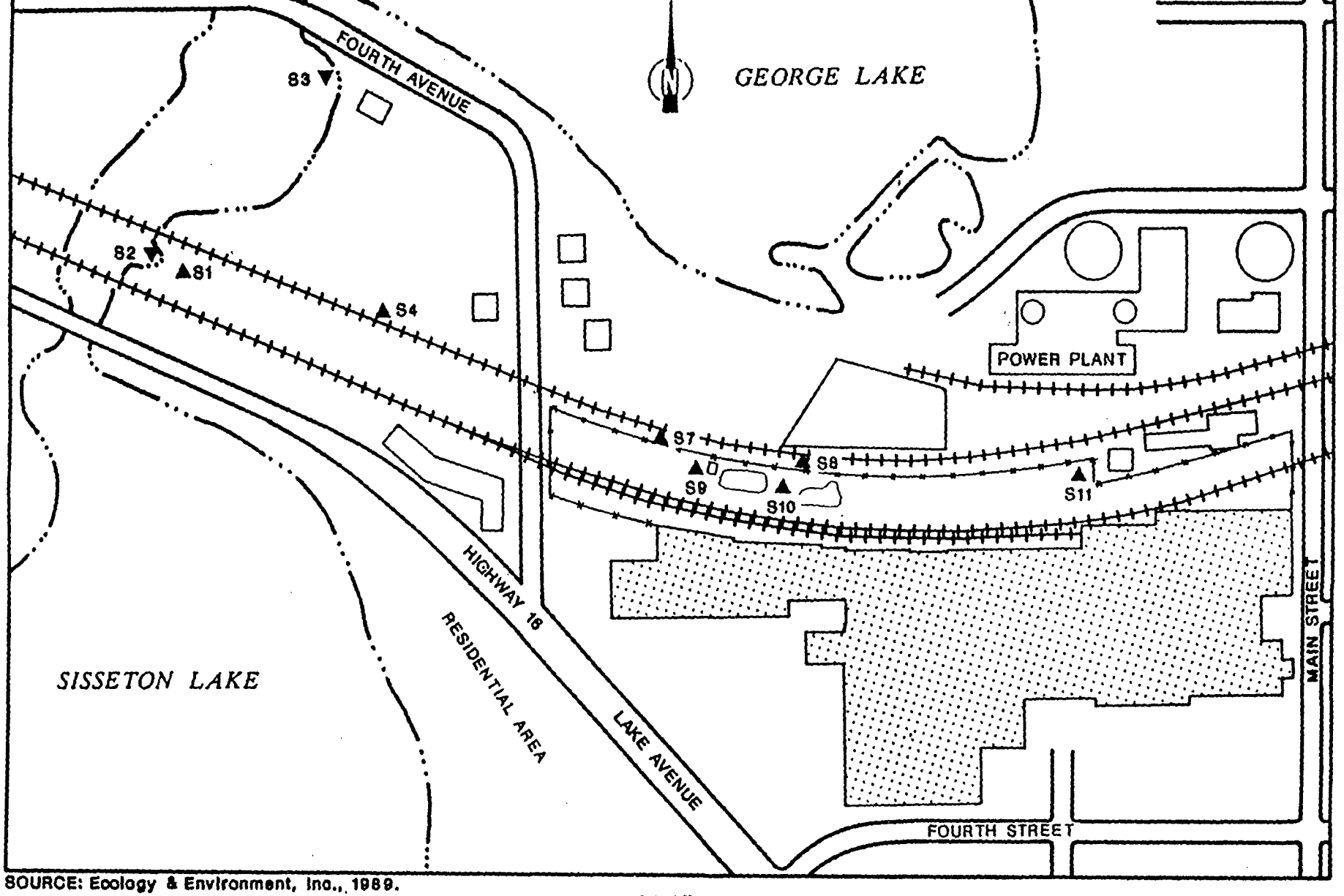


SOURCE: Ecology and Environment, Inc. 1989; based on Fairmont Railway Motors 1988.

SCALE

0 200 400 600 800 1000 FEET

FIGURE 3 HISTORICAL LANDFILL USAGE	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE



SOURCE: Ecology & Environment, Inc., 1989.

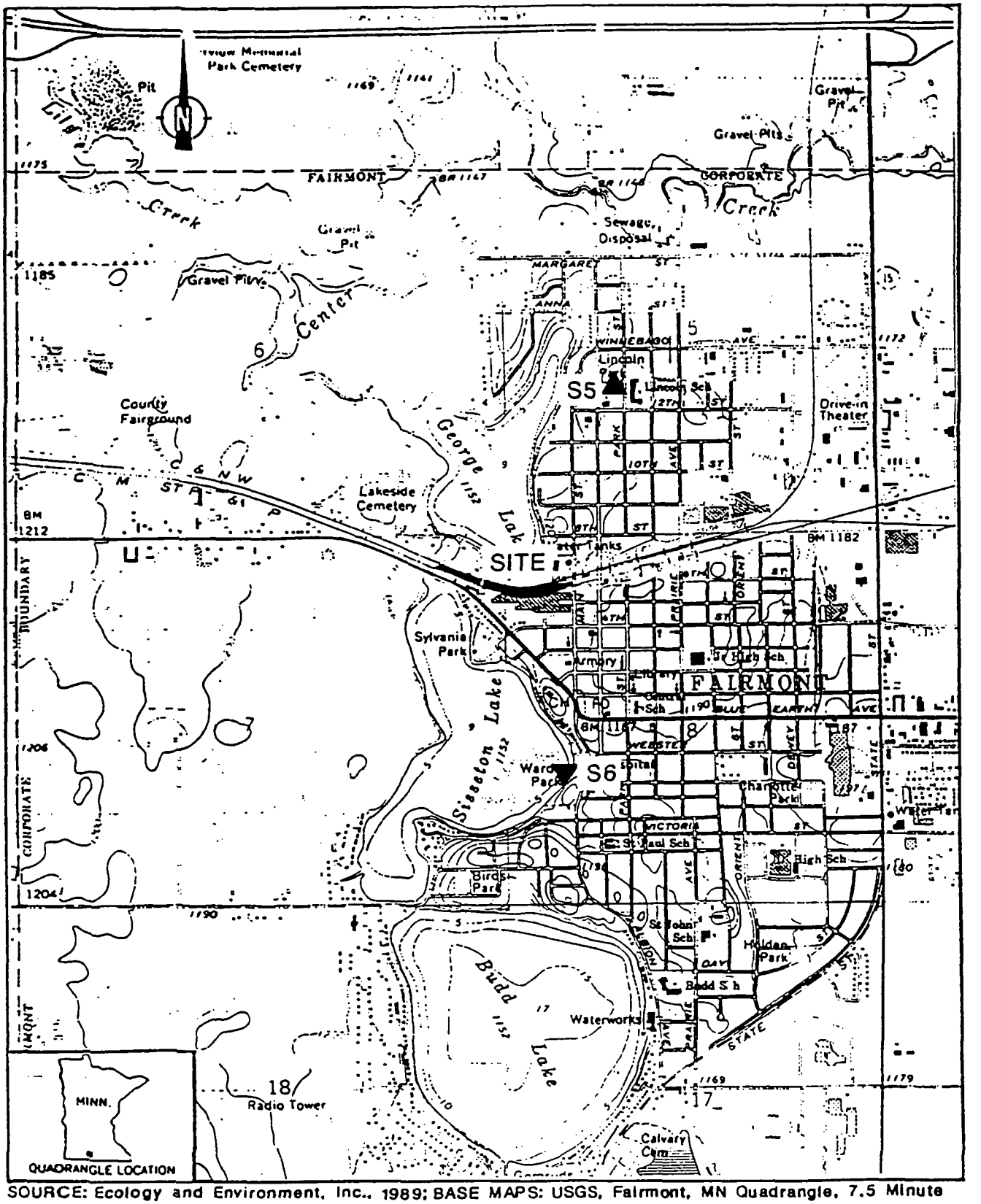
SCALE

0 200 400 600 800 1000 FEET

LEGEND

▼ SEDIMENT SAMPLE ▲ SOIL SAMPLE

FIGURE 4 SSI ON-SITE SOIL BORING LOCATION MAP	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE



SOURCE: Ecology and Environment, Inc., 1989; BASE MAPS: USGS, Fairmont, MN Quadrangle, 7.5 Minute Series, 1967.

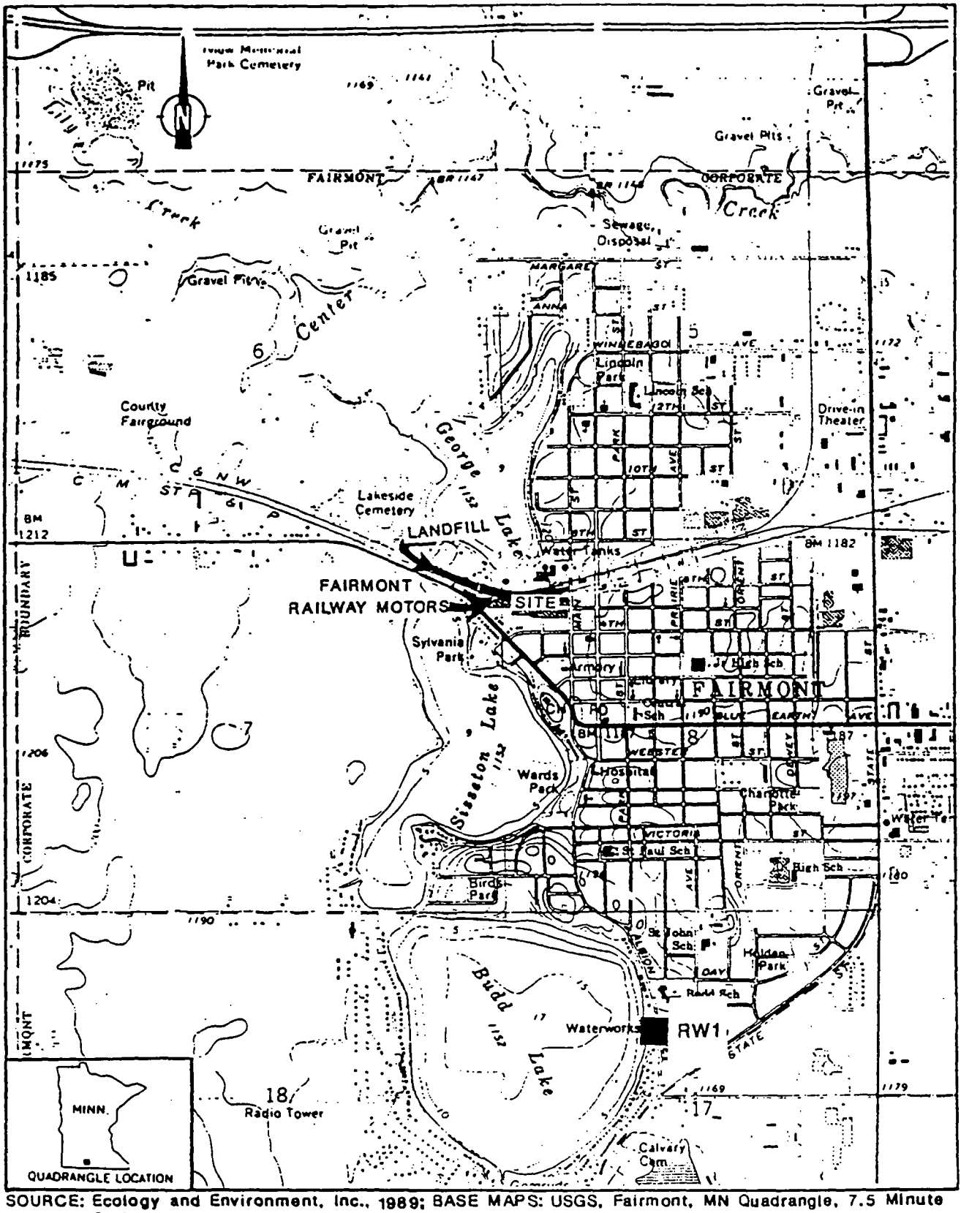
SCALE

0 0.5 1 MILE

LEGEND

▼ SEDIMENT SAMPLE ▲ SOIL SAMPLE

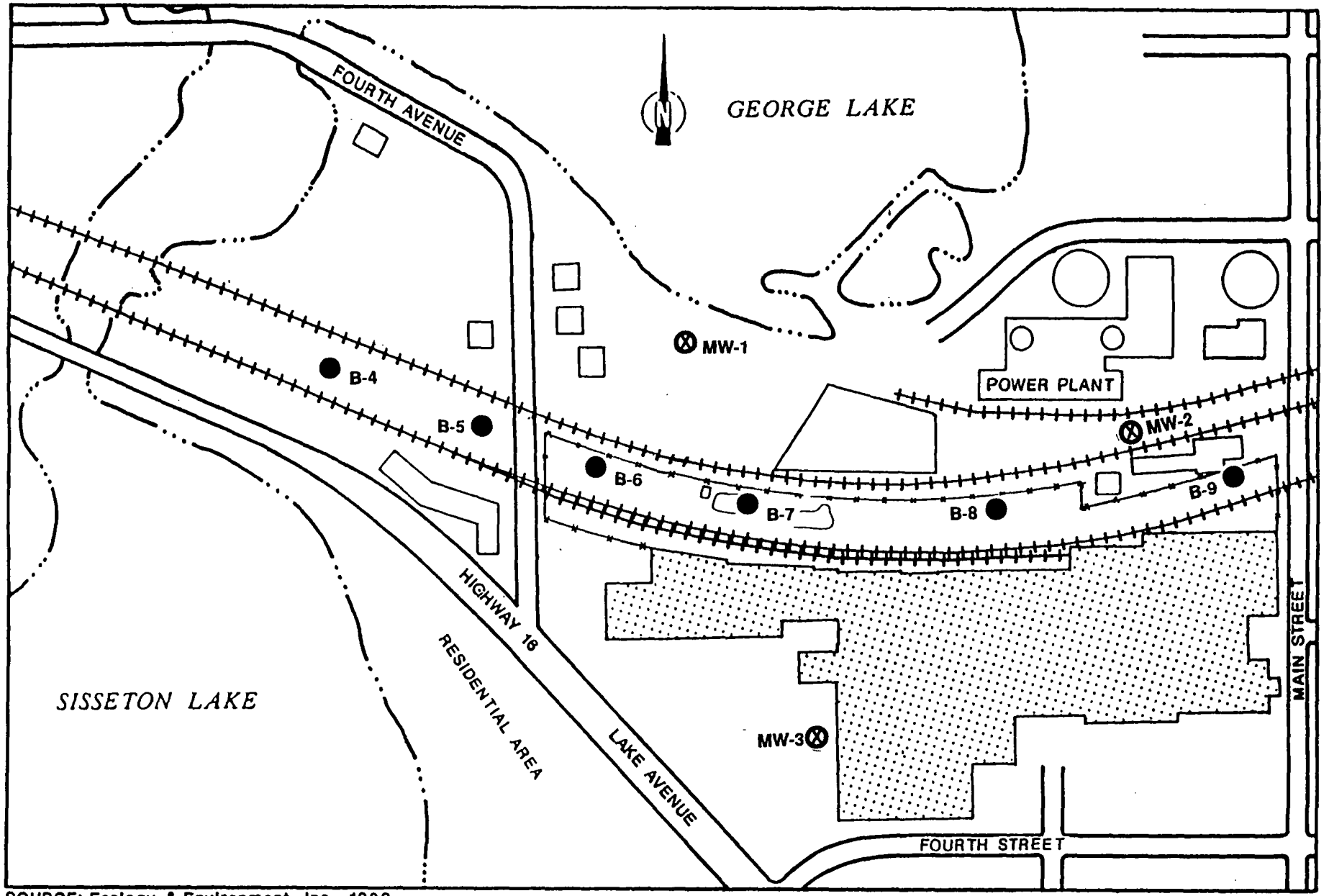
FIGURE 5 SSI OFF-SITE SOIL BORING LOCATION MAP	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE



SOURCE: Ecology and Environment, Inc., 1989; BASE MAPS: USGS, Fairmont, MN Quadrangle, 7.5 Minute Series, 1967.

SCALE
0 0.5 1 MILE

FIGURE 6 SSI MUNICIPAL WELL LOCATION MAP	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE



SOURCE: Ecology & Environment, Inc., 1989.

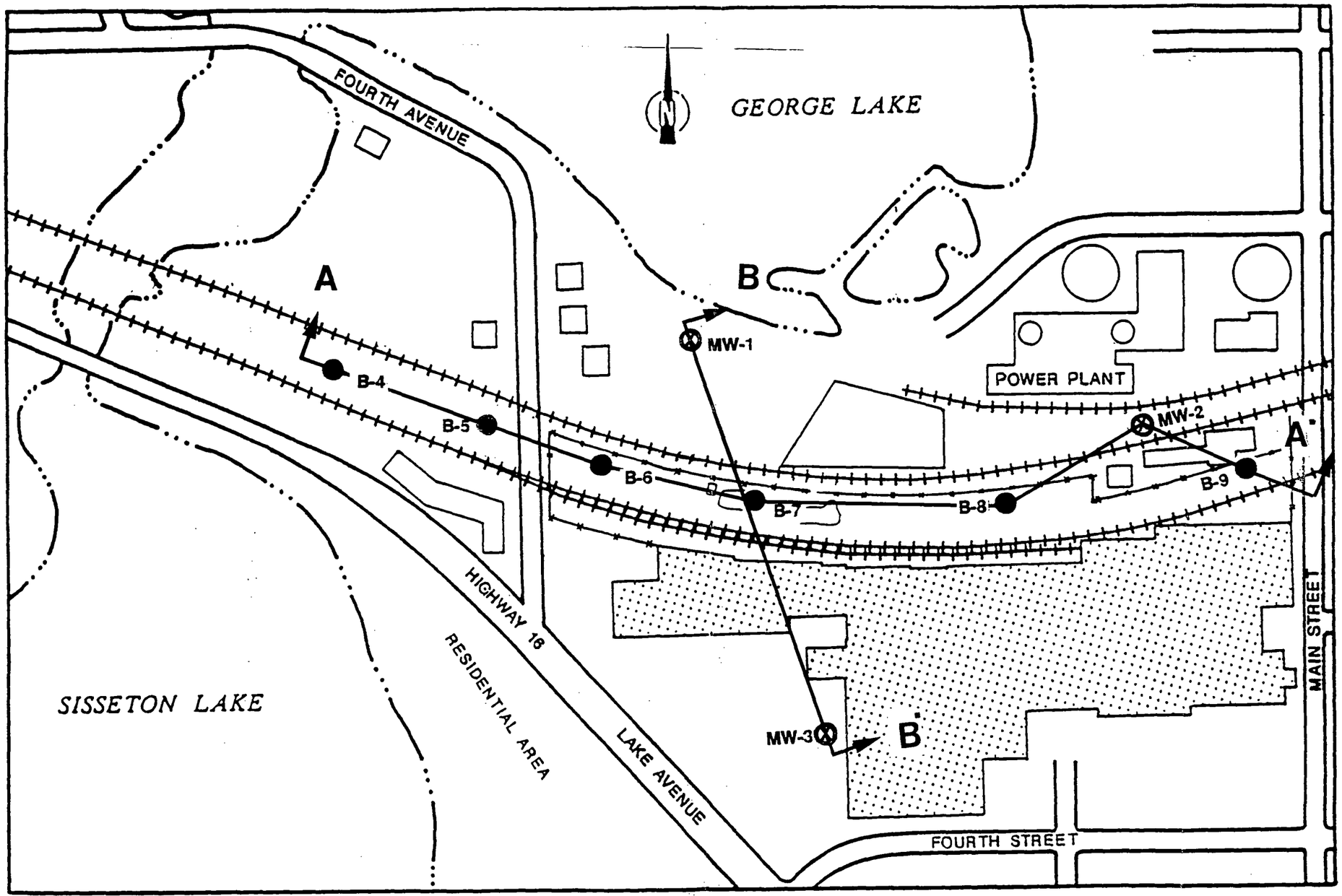
SCALE

0 200 400 600 800 1000 FEET

⊗ - Monitoring Wells

● - Soil Borings

FIGURE 7 SOIL BORING AND MONITORING WELL LOCATION MAP	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE



SOURCE: Ecology & Environment, Inc., 1989.

SCALE

0 200 400 600 800 1000 FEET

⊗ - Monitoring Wells

● - Soil Borings

FIGURE 8 GEOLOGIC CROSS SECTION LOCATIONS	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE

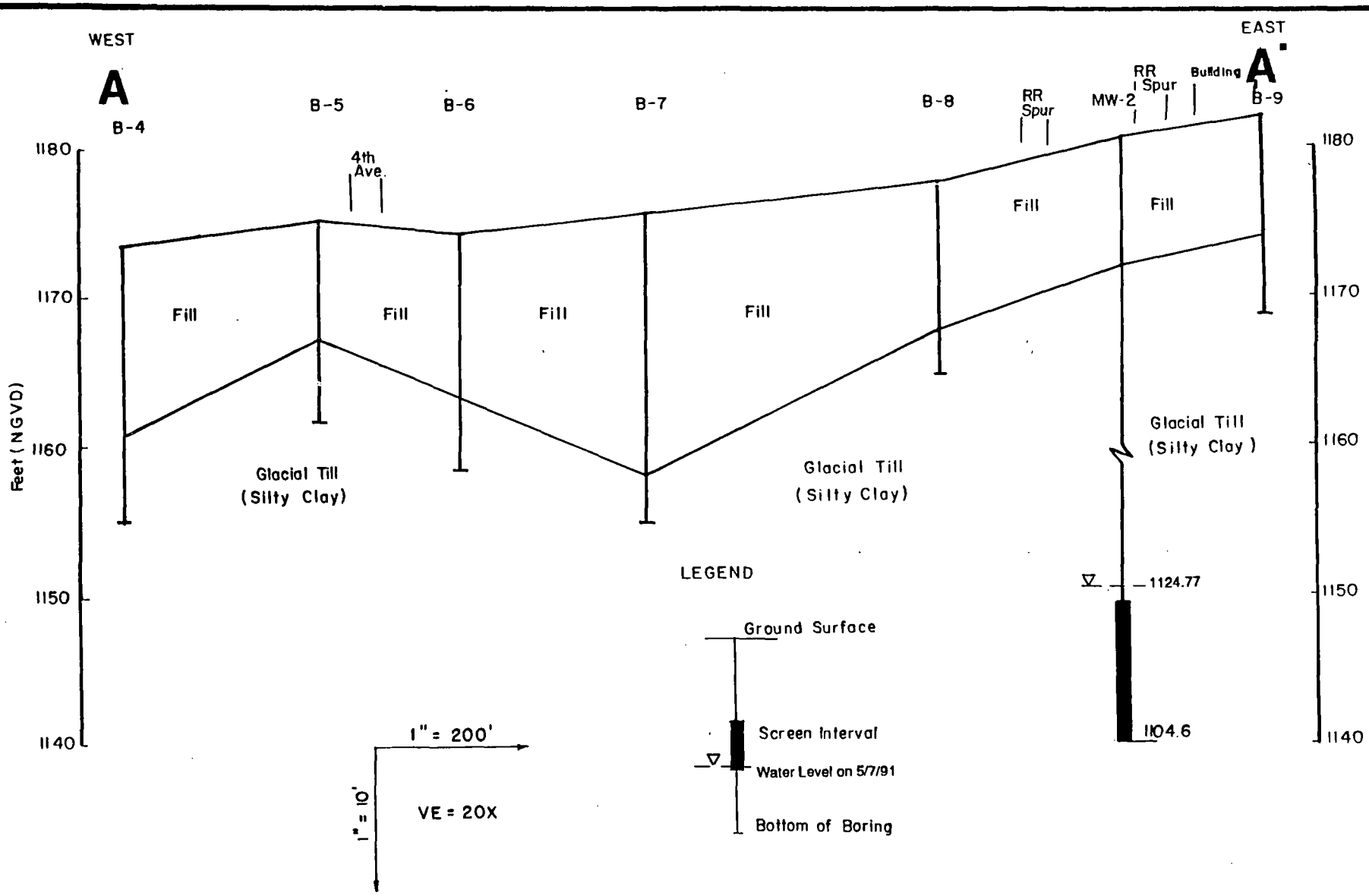


FIGURE 9 WEST-EAST CROSS SECTION	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE

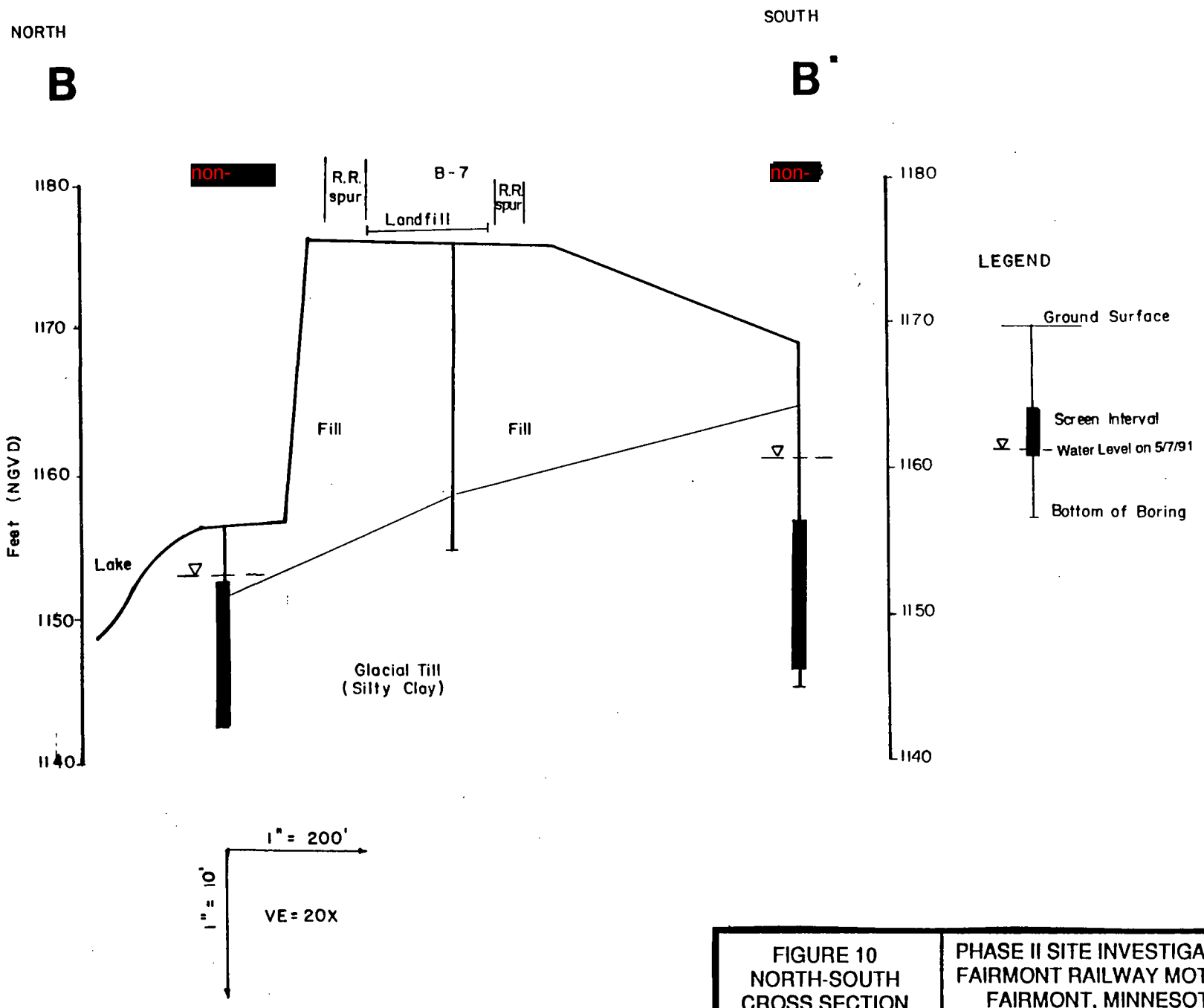
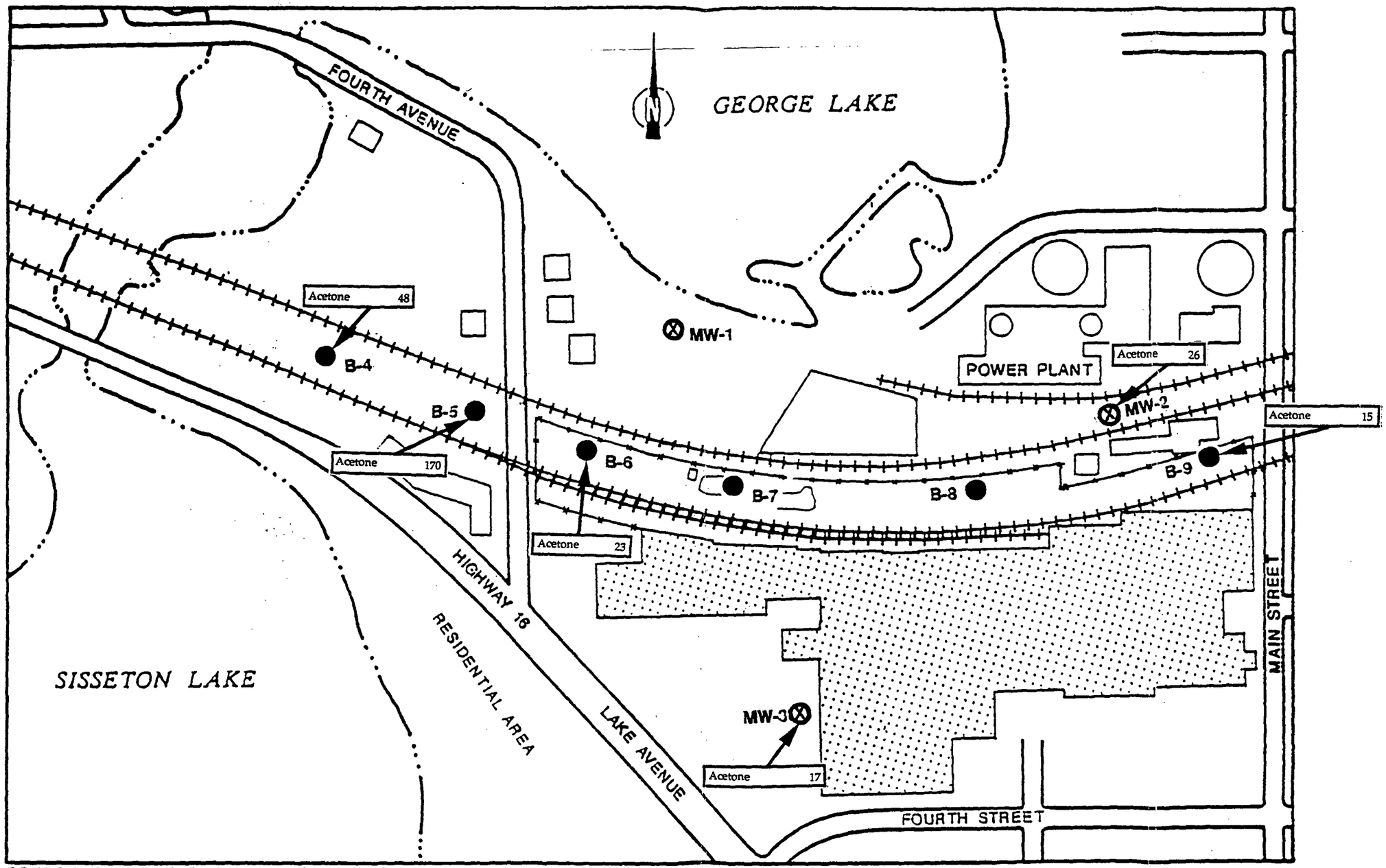


FIGURE 10 NORTH-SOUTH CROSS SECTION	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE



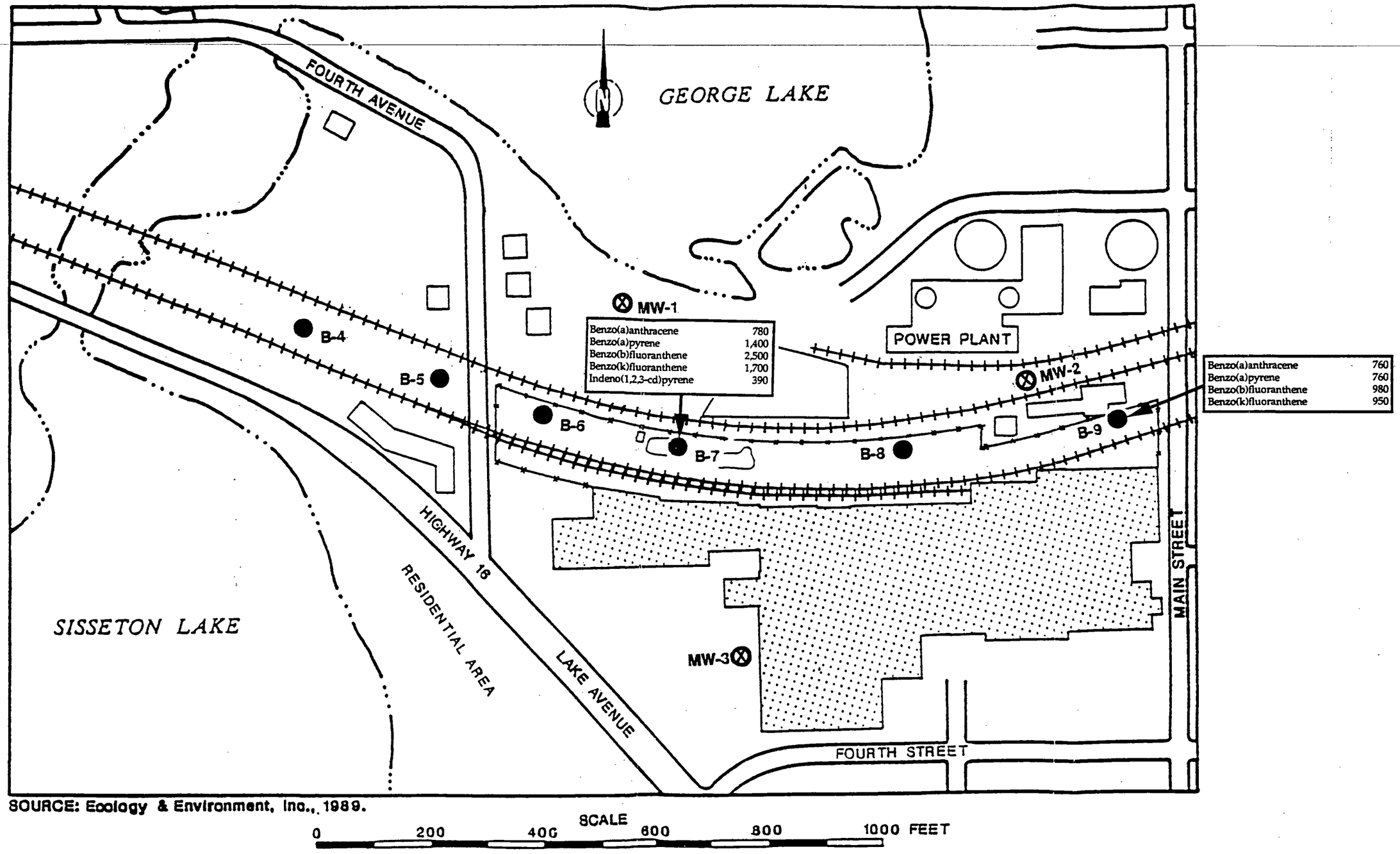
SOURCE: Ecology & Environment, Inc., 1989.

⊗ - Monitoring Wells

● - Soil Borings

Concentrations in ug/kg

FIGURE 11 VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE



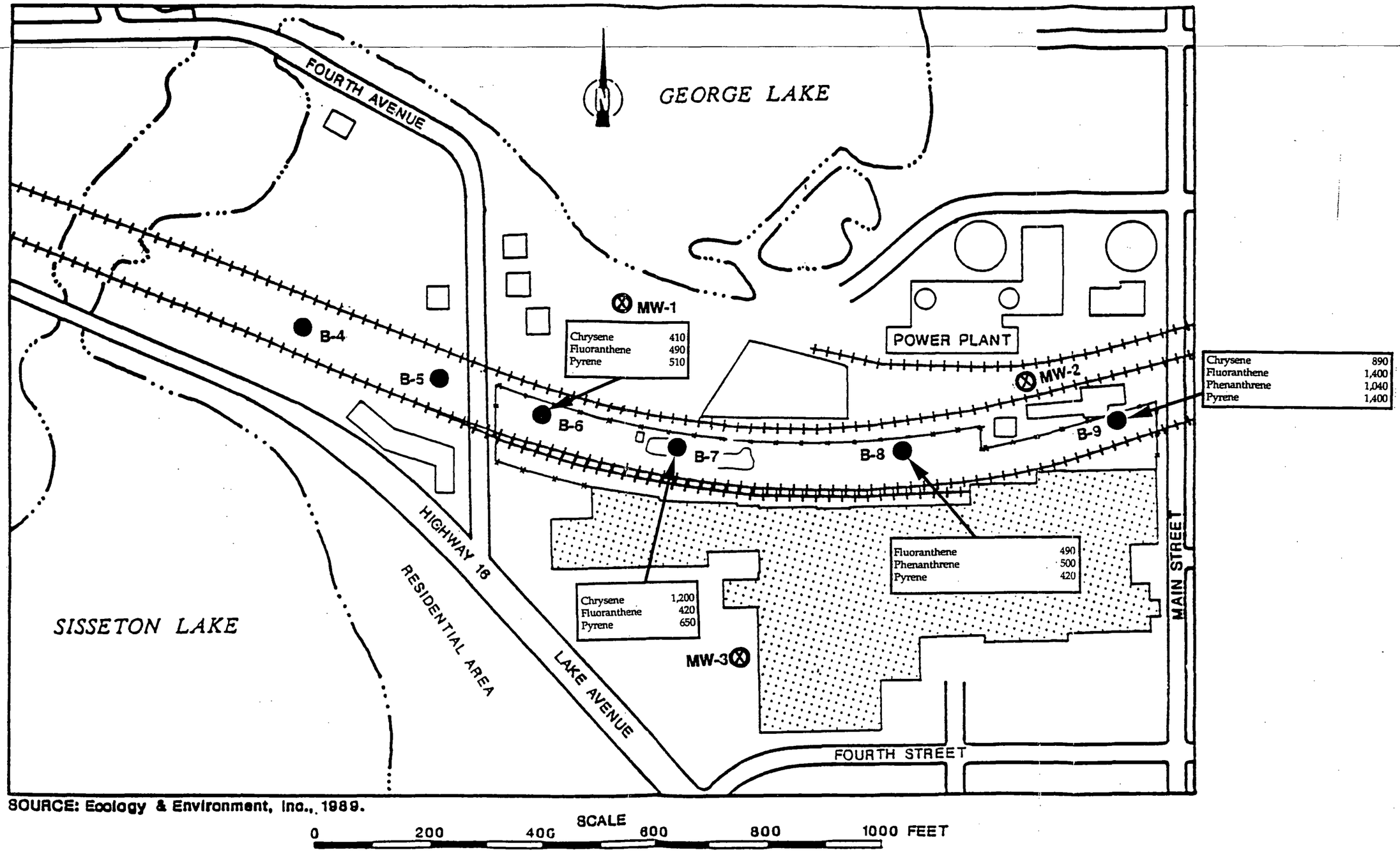
SOURCE: Ecology & Environment, Inc., 1989.

⊗ - Monitoring Wells

● - Soil Borings

Concentrations in ug/kg

FIGURE 12 CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBON CONCENTRATIONS IN SOIL	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE



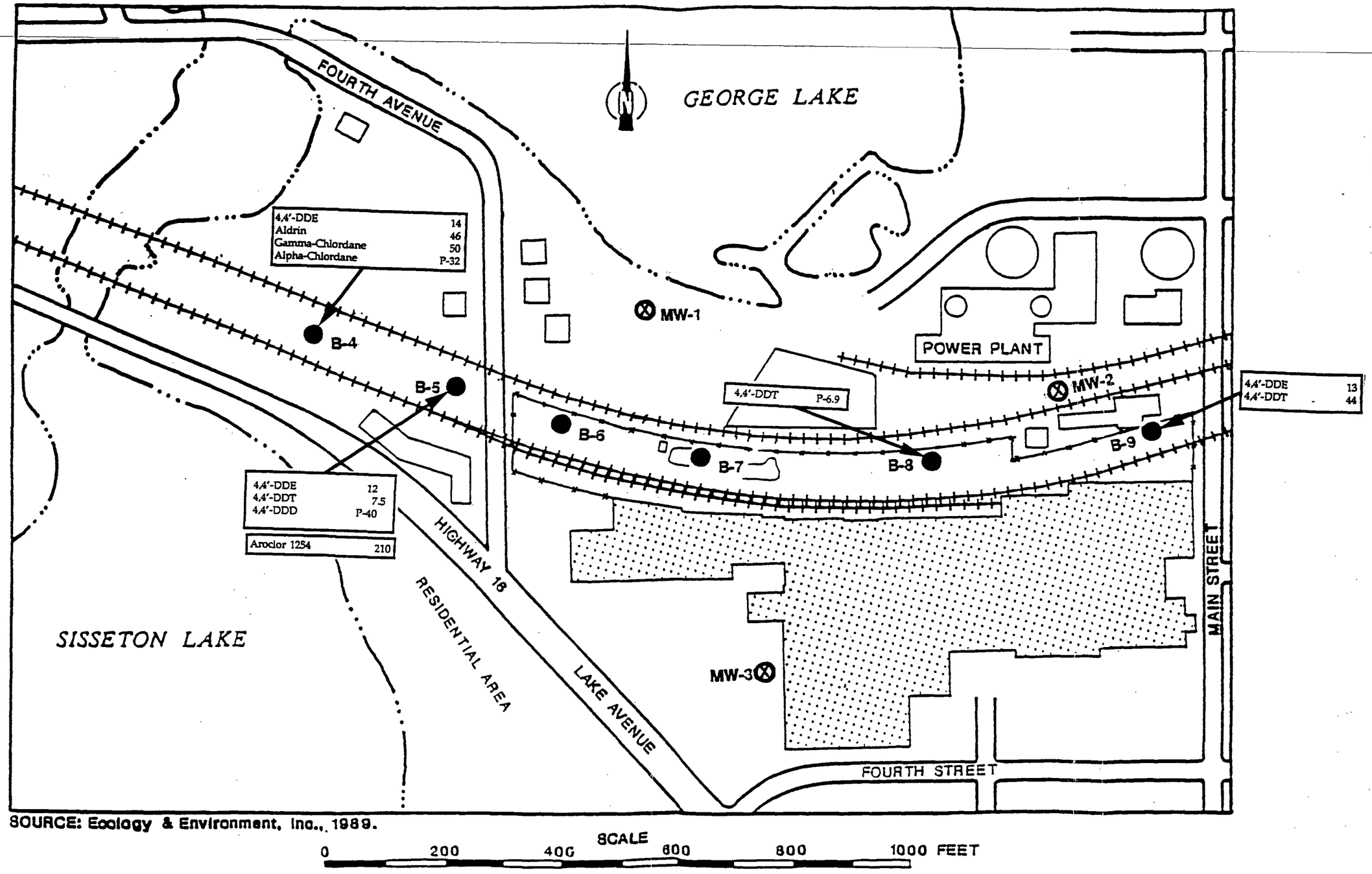
SOURCE: Ecology & Environment, Inc., 1989.

⊗ - Monitoring Wells

● - Soil Borings

Concentrations in ug/kg

FIGURE 13 NONCARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBON CONCENTRATIONS IN SOIL	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE



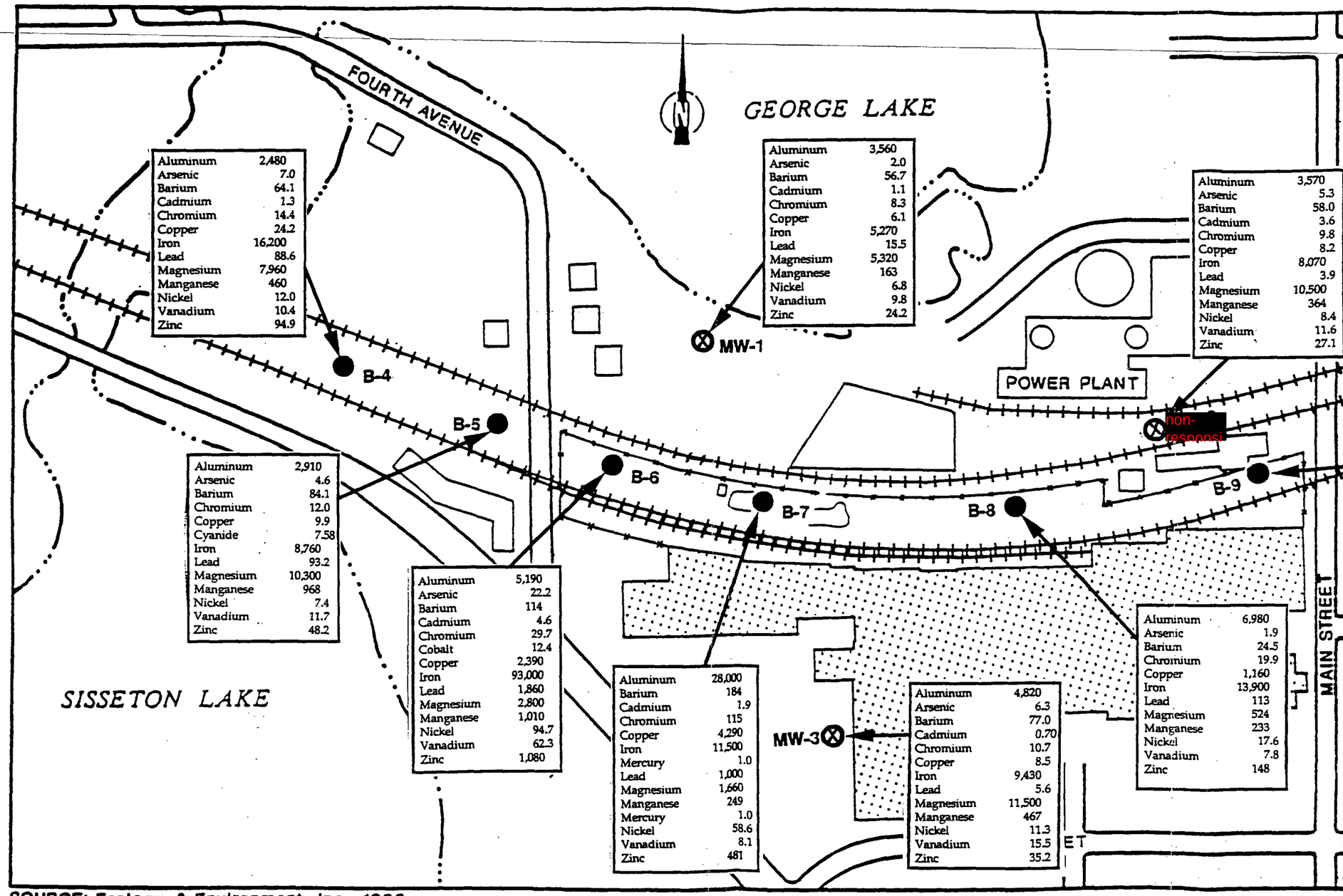
SOURCE: Ecology & Environment, Inc., 1989.

⊗ - Monitoring Wells

● - Soil Borings

Concentrations in ug/kg

FIGURE 14 PESTICIDE/POLYCHLORINATED BIPHENYL CONCENTRATIONS IN SOIL	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE



SOURCE: Ecology & Environment, Inc., 1989.

SCALE

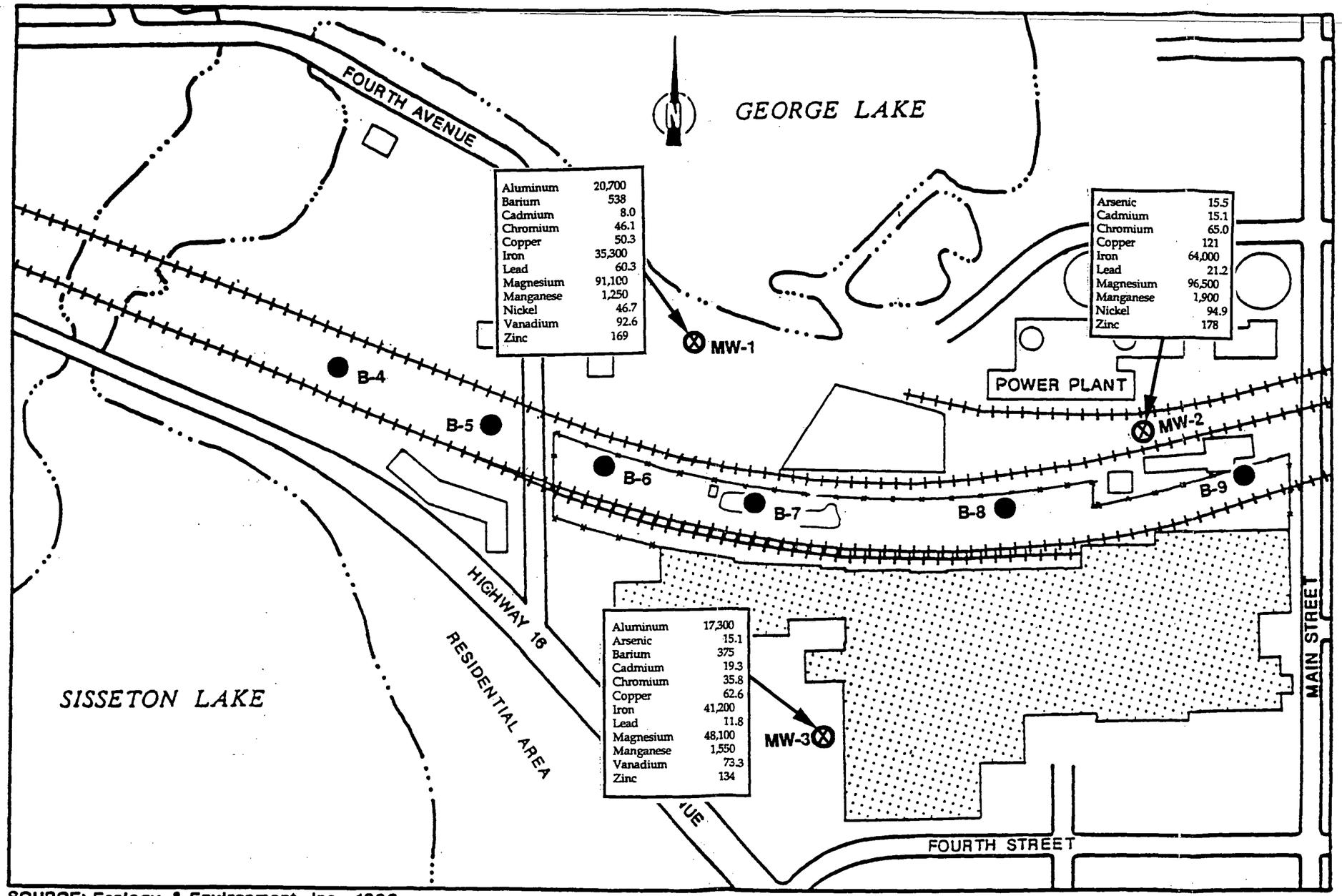
0 200 400 600 800 1000 FEET

⊗ - Monitoring Wells

● - Soil Borings

Concentrations in mg/kg

FIGURE 15 INORGANIC CONCENTRATIONS IN SOIL	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE



SOURCE: Ecology & Environment, Inc., 1989.

SCALE

0 200 400 600 800 1000 FEET

⊗ - Monitoring Wells

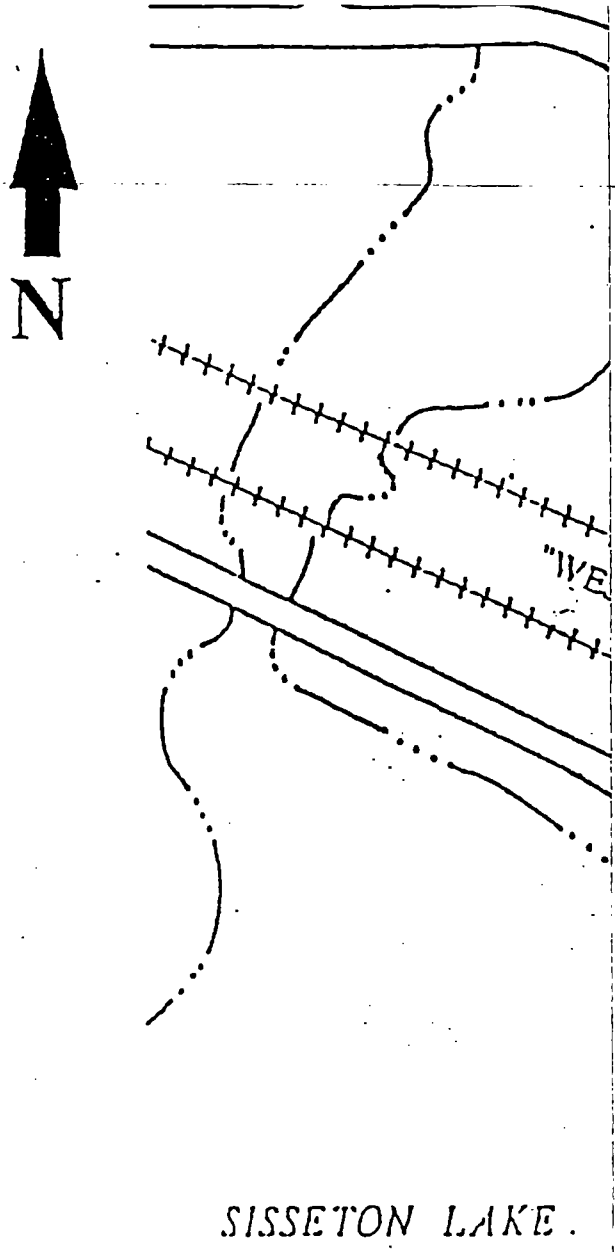
- Soil Borings

Concentrations in ug/l

FIGURE 16 INORGANIC CONCENTRATIONS IN GROUND WATER	PHASE II SITE INVESTIGATION FAIRMONT RAILWAY MOTORS FAIRMONT, MINNESOTA
AUGUST 1991	DAMES & MOORE

APPENDIX A

SITE SURVEY



SURVEY COORDINATE AND ELEVATION DATA

POINT	NORTH COORD.	EAST COORD.	ELEVATION
M[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	3[redacted]	[redacted]	[redacted]
B-4	40,167	75,752	1173.5
B-5	40,057	76,012	1175.2
B-6	40,021	76,218	1174.3
B-7	39,967	76,454	1175.6
B-8	39,983	76,843	1177.6
B-9	39,983	77,231	1182.1

NOTE: Elevation of Monitor Wells are on the top of the casing inside of the Protective Pipe.
Elevations of the Test Holes are on the ground near the test hole. The exact location of Test Hole 8 & 9 could not be found.

BENCHMARK: ELEVATION 1167.15

Top of Fire Hydrant at N.E. corner of Lake Ave. and 4th Ave.

STATE OF MINNESOTA
REGISTERED LAND SURVEYOR 13693
JOHN MADSEN

CERTIFICATION BY MADSEN LAND SURVEYING INC. IS TO SURVEY COORDINATES & ELEVATIONS ONLY MAP COPIED FROM OTHER SOURCE

AMES & MOORE - FAIRMONT RAILWAY MOTORS

0 2

AWN	TEL: (507) 235-3780	DRAWING NUMBER
ECK M.	MADSEN LAND SURVEYING INC.	1
RVEY M. S.	Fairmont, Mn.	FILE NO. 9154

APPENDIX B

UNIQUE WATER WELL RECORDS

MINNESOTA DEPARTMENT OF HEALTH
MONITORING WELL PERMIT APPLICATION

Make check or money order payable to the Minnesota State Treasurer. Mail completed application and fee to the Minnesota Department of Health (MDH), Well Management Unit, P.O. Box 59040, Minneapolis, Minnesota 55459-0040, ATTN: Permits.

CHECK ALL THAT APPLY.	FEE
[X] Petroleum bulk storage site	$50/site
[ ] Permit exists, Permit No. _____	None
[ ] Well owned by State or local government.	None
[ ] All other monitoring wells	$50/well

MDH USE ONLY
___ Not Approved
___ Approved
___ Permit No. _____
Amount Received _____
Date Received _____
So. Codes: Well (20) Site (21)
Deposit Date _____
Deposit No. _____

Unique Well No.	Depth
471547	40'
471548	40'
471549	40'

1. LEGAL DESCRIPTION OF WELL LOCATION
COUNTY MARTIN COUNTY and complete A, B, or C below.

	Township Name	Township Number	N or S	Range Number	E or W	Section Number	Fraction
A.		102N		30W		8	NW ¼ ¼ ¼ ¼

B. Street address 415 NORTH MAIN STREET, FAIRMONT, MINNESOTA 56031
City

C. Sketch (attach map showing well location including distance from nearest road intersection)

2. For wells constructed through a CONFINING LAYER, submit the following information: well diameter, grout material, drilling method, grouting method, casing materials, cross-sectional diagram of well, and cross-section of anticipated geologic formations.

3. [ ] For at-grade wells, check the box and submit the following information: an explanation of why the well casing cannot terminate 12 inches above ground; a map showing the location of the proposed well referenced to a benchmark, permanent landmark, or property boundaries; cross-sectional diagram of the well cap and vault or manhole.

4. CONTRACTOR INFORMATION
Business name THEIN WELL COMPANY, INC. Reg. or Lic. No. 34050
Contact person PETER J. THEIN Phone No. (612)796-2111

5. WELL OWNER INFORMATION
Well owner name ROBERT FLANAGAN / FAIRMONT RAILWAY MOTORS
Well owner address 415 NORTH MAIN STREET, FAIRMONT, MINNESOTA 56031
City State Zip Code
Contact person ROBERT FLANAGAN Phone No. ( )

6. PROPERTY OWNER INFORMATION if different from well owner (if completed, see No. 7 below)
Property owner name SAME INFORMATION AS LISTED ABOVE
Property owner address SAME AS ABOVE
City State Zip Code

7. If the well owner is not the property owner, Minnesota Statutes, Chapter 103I.205, require that "A person may not construct a monitoring well on the property of another until the owner of the property on which the well is to be located and the well owner sign a written agreement that identifies which party will be responsible for obtaining maintenance permits and for sealing the monitoring well. If the property owner refuses to sign the agreement, the well owner, in lieu of a written agreement, state in writing that the well owner will be responsible for obtaining maintenance permits and seal the well."

[X] Well owner and property owner same. [ ] Signed agreement exists. [ ] Statement enclosed.

I certify that all the information provided in this application is true and complete. I understand that misstatement of facts may result in forfeiture of all rights to licensure/registration as a well contractor/monitoring well contractor in accordance with Minnesota Statutes, Chapter 103I.

Contractor Signature _____ Property Owner Signature (or agent) _____

Penalties: Failure to obtain a permit prior to well construction is a violation of Minnesota Statutes, Chapter 103I, and will result in the assessment of a $250 fine.

All variance requests must be accompanied by a permit application.

P:\THERESA\WORD\MOWEAPP.TXT

MONITORING WELL PERMIT
MINNESOTA DEPARTMENT OF HEALTH
WELL MANAGEMENT UNIT

DATE OF APPLICATION: October 31, 1990 **PERMIT NUMBER: 1758**
DATE ISSUED: November 7, 1990 **UNIQUE WELL NUMBER(S): 471548**

In the matter of the application of Thein Well Company - Spicer for a permit to construct one monitoring well located at the NW¼ of Section 8, Range 30W, Township 102N, (415 North Main Street) Fairmont, Martin County, Minnesota.

Pursuant to Minnesota Statutes, Chapter 103I, and on the basis of statements and information contained in the permit application and supporting materials, permission is hereby granted, to Thein Well Company - Spicer to construct a groundwater monitoring well located on property described as the NW¼ of Section 8, Range 30W, Township 102N, (415 North Main Street) Fairmont, Martin County, Minnesota.

GENERAL PROVISIONS

1. This permit shall not release the permittee from any liability or obligation imposed by State law or local ordinances relating thereto and shall remain in force subject to all conditions and limitations now or hereafter imposed by law.

2. No changes shall be made in construction materials, construction procedures, or well location specified in submitted documents without permission previously obtained from the Commissioner of Health.

3. The permittee shall allow inspection by the Minnesota Department of Health (MDH) during well construction.

4. No liability shall be imposed upon or incurred by the State of Minnesota or any of its officers, agents, or employees, officially or personally, on account of the granting hereof or on account of any damage to any person or property resulting from any act or omission of the permittee or any of its agents, employees, or contractors relating to any matter hereunder. This permit shall not be construed as estopping or limiting any legal claims or right of action of any person other than the State against the permittee, its agents, employees, or contractors for violation of, or failure to comply with the provisions of the permit or applicable provisions of the law.

5. Wells shall be constructed, maintained and abandoned in accordance with the requirements of the Minnesota Water Well Construction Code.

MONITORING WELL PERMIT
MINNESOTA DEPARTMENT OF HEALTH
WELL MANAGEMENT UNIT

DATE OF APPLICATION: October 31, 1990 **PERMIT NUMBER: 1759**
DATE ISSUED: November 7, 1990 **UNIQUE WELL NUMBER(S): 471549**

In the matter of the application of Thein Well Company - Spicer for a permit to construct one monitoring well located at the NW¼ of Section 8, Range 30W, Township 102N, (415 North Main Street) Fairmont, Martin County, Minnesota.

Pursuant to Minnesota Statutes, Chapter 103I, and on the basis of statements and information contained in the permit application and supporting materials, permission is hereby granted, to Thein Well Company - Spicer to construct a groundwater monitoring well located on property described as the NW¼ of Section 8, Range 30W, Township 102N, (415 North Main Street) Fairmont, Martin County, Minnesota.

GENERAL PROVISIONS

1. This permit shall not release the permittee from any liability or obligation imposed by State law or local ordinances relating thereto and shall remain in force subject to all conditions and limitations now or hereafter imposed by law.

2. No changes shall be made in construction materials, construction procedures, or well location specified in submitted documents without permission previously obtained from the Commissioner of Health.

3. The permittee shall allow inspection by the Minnesota Department of Health (MDH) during well construction.

4. No liability shall be imposed upon or incurred by the State of Minnesota or any of its officers, agents, or employees, officially or personally, on account of the granting hereof or on account of any damage to any person or property resulting from any act or omission of the permittee or any of its agents, employees, or contractors relating to any matter hereunder. This permit shall not be construed as estopping or limiting any legal claims or right of action of any person other than the State against the permittee, its agents, employees, or contractors for violation of, or failure to comply with the provisions of the permit or applicable provisions of the law.

5. Wells shall be constructed, maintained and abandoned in accordance with the requirements of the Minnesota Water Well Construction Code.

MONITORING WELL PERMIT
MINNESOTA DEPARTMENT OF HEALTH
WELL MANAGEMENT UNIT

DATE OF APPLICATION: October 31, 1990 **PERMIT NUMBER: 1757**
DATE ISSUED: November 7, 1990 **UNIQUE WELL NUMBER(S): 471547**

In the matter of the application of Thein Well Company - Spicer for a permit to construct one monitoring well located at the NW¼ of Section 8, Range 30W, Township 102N, (415 North Main Street) Fairmont, Martin County, Minnesota.

Pursuant to Minnesota Statutes, Chapter 103I, and on the basis of statements and information contained in the permit application and supporting materials, permission is hereby granted, to Thein Well Company - Spicer to construct a groundwater monitoring well located on property described as the NW¼ of Section 8, Range 30W, Township 102N, (415 North Main Street) Fairmont, Martin County, Minnesota.

GENERAL PROVISIONS

1. This permit shall not release the permittee from any liability or obligation imposed by State law or local ordinances relating thereto and shall remain in force subject to all conditions and limitations now or hereafter imposed by law.

2. No changes shall be made in construction materials, construction procedures, or well location specified in submitted documents without permission previously obtained from the Commissioner of Health.

3. The permittee shall allow inspection by the Minnesota Department of Health (MDH) during well construction.

4. No liability shall be imposed upon or incurred by the State of Minnesota or any of its officers, agents, or employees, officially or personally, on account of the granting hereof or on account of any damage to any person or property resulting from any act or omission of the permittee or any of its agents, employees, or contractors relating to any matter hereunder. This permit shall not be construed as estopping or limiting any legal claims or right of action of any person other than the State against the permittee, its agents, employees, or contractors for violation of, or failure to comply with the provisions of the permit or applicable provisions of the law.

5. Wells shall be constructed, maintained and abandoned in accordance with the requirements of the Minnesota Water Well Construction Code.

WATER WELL RECORD

Minnesota Statutes 156A.01-.08

MINNESOTA UNIQUE WELL NO. for Water Sample: 471548

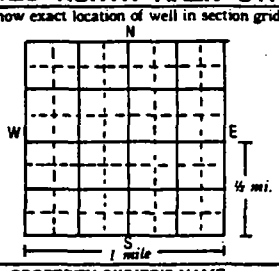
1. LOCATION OF WELL

County Name: MARTIN COUNTY

Township Name	Township Number	Range Number	Section No.	Fraction
	102N (N or S)	30W (E or W)	8	NW (¼ ¼ ¼)

Numerical Street Address and City of Well Location or Distance from Road Intersection: 415 NORTH MAIN STREET, FAIRMONT, MN 56031

Show exact location of well in section grid with "X." Sketch map of well location.



Addition Name

Block Number

Lot Number

2. PROPERTY OWNER'S NAME: ROBERT FLANAGAN

Mailing Address if different than property address indicated above: SAME AS ABOVE

3. FORMATION LOG

FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
BLACK CLAY			0	3
GRAY CLAY			3	5
DARK BROWN CLAY			5	11
GRAY SILTY CLAY			11	14

Use a second sheet, if needed

4. WELL DEPTH (completed): 14' ft. Date of Completion: 4-22-91

5. DRILLING METHOD

☐ Cable Tool ☐ Reverse ☐ Driven ☐ Dug
☐ Hollow Rod ☐ Air ☐ Bored ☐ ____
☐ Rotary ☐ Jetted ☒ Power Auger

6. DRILLING FLUID: NONE USED

7. USE

☐ Domestic ☒ Monitoring ☐ Heat Pump
☐ Irrigation ☐ Public ☐ Industry
☐ Test Well ☐ Municipal ☐ Commercial
☐ Air Conditioning ☐ ____

8. CASING

☒ Black ☐ Threaded
☐ Galv. ☐ Welded
☐ Plastic ☐

HEIGHT: Above/Below Surface ____ ft.
Drive Shoe? Yes ____ No ____

2" in. to 4 ft. Weight ____ lbs./ft.
____ in. to ____ ft. Weight ____ lbs./ft.
____ in. to ____ ft. Weight ____ lbs./ft.

HOLE DIAM.: ____ in. to ____ ft.; ____ in. to ____ ft.; ____ in. to ____ ft.

9. SCREEN

Or open hole from ____ ft. to ____ ft.

Make: JOHNSON
Type: STAINLESS STEEL Diam. 2"
Slot/Gauze: .010 Length: 10'
FITTINGS:
Set between 4 ft. and 14 ft.

10. STATIC WATER LEVEL

4' ft. ☒ below ☐ above land surface Date Measured: 4-22-91

11. PUMPING LEVEL (below land surface)

N/A ft. after ____ hrs. pumping ____ g.p.m.
____ ft. after ____ hrs. pumping ____ g.p.m.

12. HEAD WELL COMPLETION

☐ Pitless adapter manufacturer ____ Model ____
☐ Basement, offset ☒ At least 12" above ground
☐ Plastic casing protection ____

13. WELL GROUTED? ☒ Yes ☐ No

☒ Neat Cement ☐ Bentonite ☐ ____
Grout material ____ from 0 to 3 ft. cu. yds. ____

14. NEAREST SOURCES OF POSSIBLE CONTAMINATION

____ feet ____ direction LANDFILL SITE type

Well disinfected upon completion? ☐ Yes ☒ No

15. PUMP

Date installed ____ ☒ Not installed
Manufacturer's name ____
Model number ____ HP ____ Volts ____
Length of drop pipe ____ ft. Capacity ____ g.p.m.
Material of drop pipe ____
Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating
☐ Jet ☐ Centrifugal ☐ ____

16. ABANDONED WELLS

Unused well on property? ☐ Yes ☒ No

Sealed ☐ Permanent ☐ Temporary ☐ Not sealed

17. REMARKS, ELEVATION, SOURCE OF DATA, etc.

non-responsive

18. WATER WELL CONTRACTOR CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

THEIN WELL COMPANY, INC. 34050
Licensee Business Name *License No.*

Address: SPICER, MN 56288

Signed: [signature] Date: 5-8-91
Authorized Representative

MIKE THEIN Date: 5-8-91
Name of Driller

IMPORTANT:
FILE WITH DEED – WELL OWNER COPY

471548

HE-01205-03 (Rev. 9/88)

5/74 30M
7/78 30M
7/78 30M
2/82 10M

STATE OF MINNESOTA — DEPARTMENT OF HEALTH

WATER WELL RECORD

Minnesota Statutes 156A.01-.08

MINNESOTA UNIQUE WELL NO. *for Water Sample* 471549

1. LOCATION OF WELL

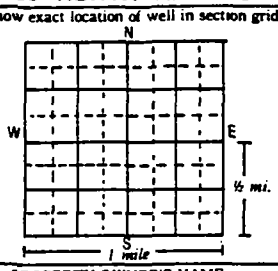
County Name: MARTIN COUNTY

Township Name	Township Number	Range Number	Section No.	Fraction
	102N N or S	30W E or W	8	NW ¼ ¼ ¼

Numerical Street Address and City of Well Location or Distance from Road Intersection.

415 NORTH MAIN STRET, FAIRMONT, MN 56031

Show exact location of well in section grid with "X." Sketch map of well location.



Addition Name

Block Number

Lot Number

2. PROPERTY OWNER'S NAME

ROBERT FLANAGAN

Mailing Address if different than property address indicated above.

SAME AS ABOVE

3. FORMATION LOG

FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
GRAVEL			0	1
DARK BROWN CLAY			1	4
LIGHT BROWN CLAY			4	14
BROWN CLAY			14	18
GRAY CLAY			18	50
MED/FINE GRAY/RED CLAY			50	50.6
GRAY CLAY			50.6	63
GRAY SILTY CLAY			63	66
GRAY SILTY CLAY/SAND STREAKS			66	76

Use a second sheet, if needed

4. WELL DEPTH (completed) 76' ft. **Date of Completion** 4-24-91

5. DRILLING METHOD

☐ Cable Tool ☐ Reverse ☐ Driven ☐ Dug
☐ Hollow Rod ☐ Air ☐ Bored ☐ _____
☐ Rotary ☐ Jetted ☒ Power Auger

6. DRILLING FLUID NONE USED

7. USE

☐ Domestic ☒ Monitoring ☐ Heat Pump
☐ Irrigation ☐ Public ☐ Industry
☐ Test Well ☐ Municipal ☐ Commercial
☐ Air Conditioning ☐ _____

8. CASING

☒ Black ☐ Threaded
☐ Galv. ☐ Welded
☐ Plastic ☐

HEIGHT: Above/Below Surface _____ ft.
Drive Shoe? Yes ___ No ___

2" in. to 66 ft. Weight _____ lbs./ft.
_____ in. to _____ ft. Weight _____ lbs./ft.
_____ in. to _____ ft. Weight _____ lbs./ft.

HOLE DIAM.
___ in. to ___ ft.
___ in. to ___ ft.
___ in. to ___ ft.

9. SCREEN

Make JOHNSON
Type ~~STAINLESS STEEL~~ Diam. 2"
Slot/Gauze .010 Length 10'
FITTINGS:
Set between 66 ft. and 76 ft.

Or open hole from _____ ft. to _____ ft.

10. STATIC WATER LEVEL

64' ft. ☒ below ☐ above land surface Date Measured 4-24-91

11. PUMPING LEVEL (below land surface)

N/A ft. after _____ hrs. pumping _____ g.p.m.
_____ ft. after _____ hrs. pumping _____ g.p.m.

12. HEAD WELL COMPLETION

☐ Pitless adapter manufacturer _____ Model _____
☐ Basement, offset ☒ At least 12" above ground
☐ Plastic casing protection _____

13. WELL GROUTED? ☒ Yes ☐ No

☒ Neat Cement ☐ Bentonite ☐ _____
Grout material _____ from 0 to 64 ft. cu. yds. _____

14. NEAREST SOURCES OF POSSIBLE CONTAMINATION

_____ feet _____ direction LANDFILL SITE type

Well disinfected upon completion? ☐ Yes ☒ No

15. PUMP

Date installed _____ ☒ Not installed
Manufacturer's name _____
Model number _____ HP _____ Volts _____
Length of drop pipe _____ ft. Capacity _____ g.p.m.
Material of drop pipe _____
Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating
☐ Jet ☐ Centrifugal ☐ _____

16. ABANDONED WELLS

Unused well on property? ☐ Yes ☒ No
Sealed ☐ Permanent ☐ Temporary ☐ Not sealed

17. REMARKS, ELEVATION, SOURCE OF DATA, etc.

non-responsive

18. WATER WELL CONTRACTOR CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

THEIN WELL COMPANY, INC. 34050
Licensee Business Name *License No.*

Address SPICER MINNESOTA 56288

Signed _____ Date 5-8-91
Authorized Representative

MIKE THEIN Date 5-8-91
Name of Driller

IMPORTANT:
FILE WITH DEED — WELL OWNER COPY

471549

HE-01205-03(Rev. 9/88)

5/74 30M
7/76 30M
7/78 30M
2/82 10M

1. LOCATION OF WELL

County Name: MARTIN COUNTY

WATER WELL RECORD

Minnesota Statutes 156A.01-.08

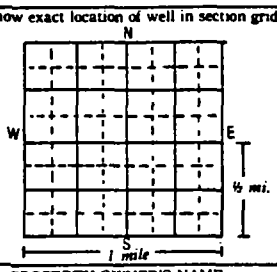
MINNESOTA UNIQUE WELL NO. *for Water Sample*: 471547

Township Name	Township Number	Range Number	Section No.	Fraction
	102N (N or S)	30W (E or W)	8	NW ¼ ¼ ¼

Numerical Street Address and City of Well Location or Distance from Road Intersection.

415 NORTH MAIN STREET, FAIRMONT, MN 56031

Show exact location of well in section grid with "X." Sketch map of well location.



Addition Name

Block Number

Lot Number

2. PROPERTY OWNER'S NAME: ROBERT FLANAGAN

Mailing Address if different than property address indicated above.: SAME AS ABOVE

3. FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
ASPHALT			0	6"
DARK BROWN SILTY CLAY			6"	6'
LIGHT BROWN CLAY			6	12.5
BROWN SANDY CLAY			12.5	13.5
BROWN CLAY/FIRM			13.5	16
GRAY CLAY			16	19
GRAY CLAY			19	21
GRAY CLAY/MOIST			21	23.5

Use a second sheet, if needed

4. WELL DEPTH (completed): 23.5' ft. Date of Completion: 4-23-91

5. DRILLING METHOD
☐ Cable Tool ☐ Reverse ☐ Driven ☐ Dug
☐ Hollow Rod ☐ Air ☐ Bored ☐ ____
☐ Rotary ☐ Jetted ☒ Power Auger

6. DRILLING FLUID: NONE USED

7. USE
☐ Domestic ☒ Monitoring ☐ Heat Pump
☐ Irrigation ☐ Public ☐ Industry
☐ Test Well ☐ Municipal ☐ Commercial
☐ Air Conditioning ☐ ____

8. CASING
☒ Black ☐ Threaded
☐ Galv. ☐ Welded
☐ Plastic ☐
2" in. to 13.5 ft. Weight ____ lbs./ft.
____ in. to ____ ft. Weight ____ lbs./ft.
____ in. to ____ ft. Weight ____ lbs./ft.
HEIGHT: Above/Below
Surface ____ ft.
Drive Shoe? Yes ____ No ____
HOLE DIAM.
____ in. to ____ ft.
____ in. to ____ ft.
____ in. to ____ ft.

9. SCREEN
Make: JOHNSON
Type: STAINLESS STEEL Diam. 2"
Slot/Gauze: .010 Length: 10'
Set between 13.5 and 23.5
FITTINGS:
Or open hole from ____ ft. to ____ ft.

10. STATIC WATER LEVEL
13' ft. ☒ below ☐ above land surface Date Measured 4-23-91

11. PUMPING LEVEL (below land surface)
NA ft. after ____ hrs. pumping ____ g.p.m.
____ ft. after ____ hrs. pumping ____ g.p.m.

12. HEAD WELL COMPLETION
☐ Pitless adapter manufacturer ____ Model ____
☐ Basement, offset ☒ least 12" above ground
☐ Plastic casing protection ____

13. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ ____
Grout material ____ from 0 to 12 ft. cu. yds. ____

14. NEAREST SOURCES OF POSSIBLE CONTAMINATION
____ feet ____ direction LANDFILL SITE type
Well disinfected upon completion? ☐ Yes ☒ No

15. PUMP
Date installed ____ ☒ Not installed
Manufacturer's name ____
Model number ____ HP ____ Volts ____
Length of drop pipe ____ ft. Capacity ____ g.p.m.
Material of drop pipe ____
Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating
☐ Jet ☐ Centrifugal ☐ ____

16. ABANDONED WELLS
Unused well on property? ☐ Yes ☒ No
Sealed ☐ Permanent ☐ Temporary ☐ Not sealed

17. REMARKS, ELEVATION, SOURCE OF DATA, etc.

non-responsive

18. WATER WELL CONTRACTOR CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

THEIN WELL COMPANY, INC. 34050
License Business Name *License No.*

Address: SPICER, MINNESOTA 56288

Signed: [signature] Date 5-8-91
Authorized Representative

MIKE THEIN Date 5-8-91
Name of Driller

IMPORTANT:
FILE WITH DEED – WELL OWNER COPY

471547

HE-01205-03 (Rev. 9/88)

5/74 30M
7/76 30M
7/78 30M
2/82 10M

APPENDIX C

SOIL BORING LOGS, WELL DETAILS,AND WELL STABILIZATION FORMS

Depth (Feet)	Sample Type	Sample Depth	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
Ground Surface Elevation: 1173.5						
	SS		4			Clayey SAND, medium to coarse, with trace wood fragments, firm to soft, dry, black (SP)
5	SS		25	6		
	SS		83	3		
10	SS		50	2		
	SS		100	5		Fill
						PEAT, black (OL)
15	SS					Silty CLAY, black to grey (CL)
	ST		100			* Shelby tube sample collected for permeability test at 16.5 to 18.5.
20						End of boring at 18.5 feet on 4/23/91. Boring abandoned on 4/23/91.
25						
30						
35						

Dames & Moore
Job Number 20512-002

FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA
BORING B-4

Depth (Feet)	Sample Type	Sample Depth	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
Ground Surface Elevation: 1175.2						
	SS		33	9		SAND and GRAVEL with wood fragments, black, stiff, dry (SP)
5	SS		0	8		
	SS		79	9		Fill
10	SS		50	11		Clayey SILT, blue to grey, stiff, dry (ML)
	SS		100	15		SAND, medium with some gravel, brown motted, stiff, dry (SP)
15						End of boring at 13.5 feet on 4/23/91. Boring abandoned on 4/23/91.
20						
25						
30						
35						

Dames & Moore
Job Number 20512-002

FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA
BORING B-5

Depth (Feet)	Sample Type	Sample Depth	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
Ground Surface Elevation: 1174.2						
	SS		67	3		SAND, medium to coarse, black and reddish brown, soft to firm, dry (SP)
5	SS		50	6		
	SS		33	5		(iron debris, green fragments, possibly copper)
10	SS		25	3		Fill
	SS		75	3		Sandy SILT, grey to black, trace organics, soft to firm, moist (ML/OL)
15	SS		58	6		
						End of boring at 16 feet on 4/22/91. Boring abandoned on 4/22/91.
20						
25						
30						
35						

Dames & Moore

Job Number 20512-002

FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA
BORING B-6

Depth (Feet)	Sample Type	Sample Depth	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
Ground Surface Elevation: 1175.6						
	SS		17			SAND, medium with trace gravel reddish brown to black, soft, dry (SP) Fill
5	SS		50	5		Sandy SILT, reddish brown motted, very stiff to firm, dry to wet (ML)
	SS		67	17		
10	SS		58	4		
	SS		58	4		
15	SS		33	6		
	SS		50	6		black, lense of granular material at 16.5 feet
20	SS		75	5		Clayey SILT with trace gravel, brown mottled, firm, moist (ML)
25						End of boring at 21 feet on 4/23/91. Boring abandoned on 4/23/91.
30						
35						

Dames & Moore
Job Number 20512-002

FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA
BORING B-7

Depth (Feet)	Sample Type	Sample Depth	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
Ground Surface Elevation: 1177.6						
	SS		100	3		Silty SAND, medium, black to brown, soft, dry (SP)
5	SS		20	4		* small pocket of yellow powder
	SS		20	5		Fill
10	SS		50	13		Silty CLAY, dark brown to grey, firm to stiff, moist to wet (CL)
	SS		75	11		
15						End of boring at 13.5 feet on 4/23/91. Boring abandoned on 4/23/91.
20						
25						
30						
35						

Dames & Moore
Job Number 20512-002

FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA
BORING B-8

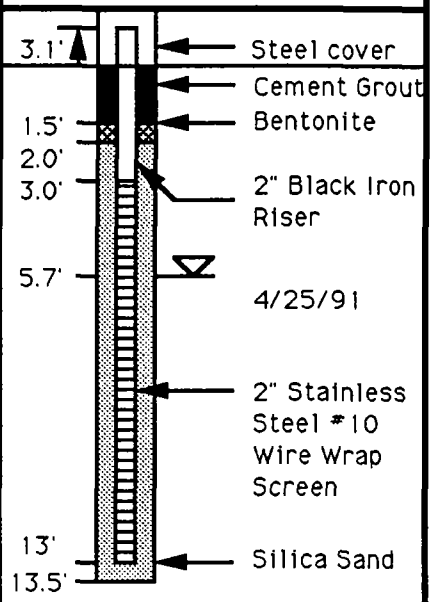
Depth (Feet)	Sample Type	Sample Depth	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
	Ground Surface Elevation: 1182.1					
	SS		50	4		SAND, medium to coarse, brown, soft, dry (SP)
5	SS		25	2		Fill
	SS		25	5		Clayey SILT brown, firm, dry (ML)
10	SS		25	6		
	ST					* Shelby tube sample collected for permeability test at 11.5 to 13.5 feet.
15						End of boring at 13.5 feet on 4/23/91. Boring abandoned on 4/23/91.
20						
25						
30						
35						

Dames & Moore
Job Number 20512-002

FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA
BORING B-9

Depth (Feet)	Sample Type	Sample Depth	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
Elevation Ground Surface: 1155.1						
	SS		30	100		SILT, black to brown, moist to wet (ML)
5	SS		50	100		hit concrete, saturated at 4.5 feet. Fill
	SS		25	3		CLAY, black, soft, wet (CL)
10	SS		17	2		
	SS		25	1		Clayey SAND, fine to medium with trace gravel, grey, very soft, wet (SC)
15						End of boring at 13.5 feet on 4/22/91. Well installed on 4/22/91.
20						
25						
30						
35						

WELL CONSTRUCTION DETAILS



Top of casing elevation 1158.15

Dames & Moore

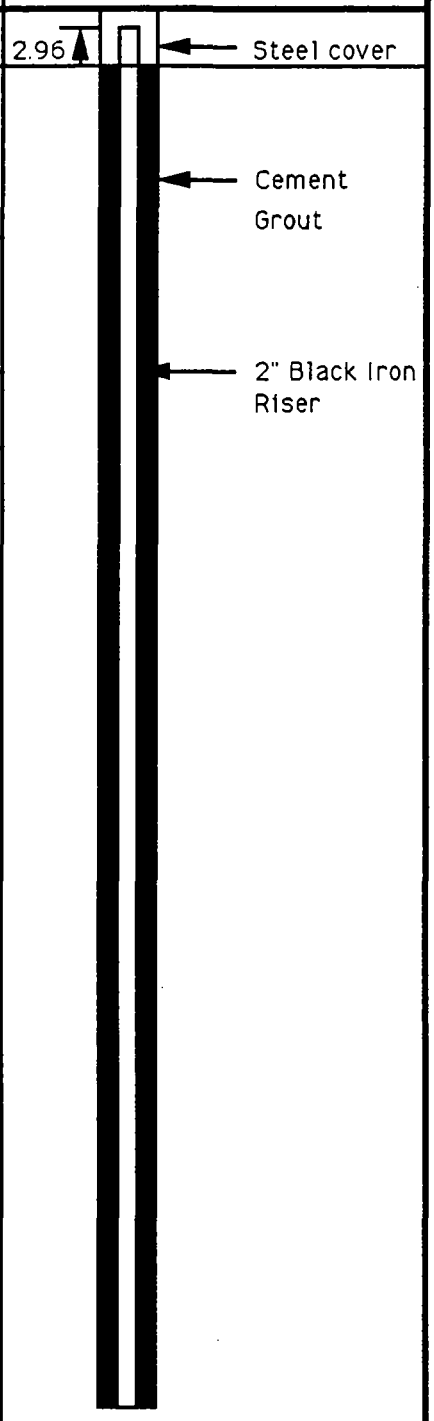
Job Number 20512-002

FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA

non-responsive [redacted]

Depth (Feet)	Sample Type	Sample Depth	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
						Elevation Ground Surface: 1180.6
	SS		33	6		SAND, SILT, CLAY Mixture, brown, firm, dry (SM-SC) Fill
5	SS		83	5		Sandy SILT, with some gravel, brown to grey, mottled, firm to stiff, dry (ML)
	SS		83	16		SAND, fine to medium with trace gravel, reddish brown, stiff, dry (SP)
10	SS		83	12		Clayey SILT, with trace gravel, brown to dark grey, stiff, dry, (ML)
	SS		83	10		1/2 inch sand lense.
15	SS		100	17		
	SS		83	9		
20	SS		83	12		Silty CLAY, with trace gravel, grey, stiff, moist (CL)
	SS		83	13		
25	SS		83	14		
	SS		75	10		
30	SS		100	9		Clayey SILT, with trace gravel, grey, stiff, moist (ML)
	SS		83	9		
35						Silty CLAY, trace gravel, grey, stiff, moist (CL)

WELL CONSTRUCTION DETAILS

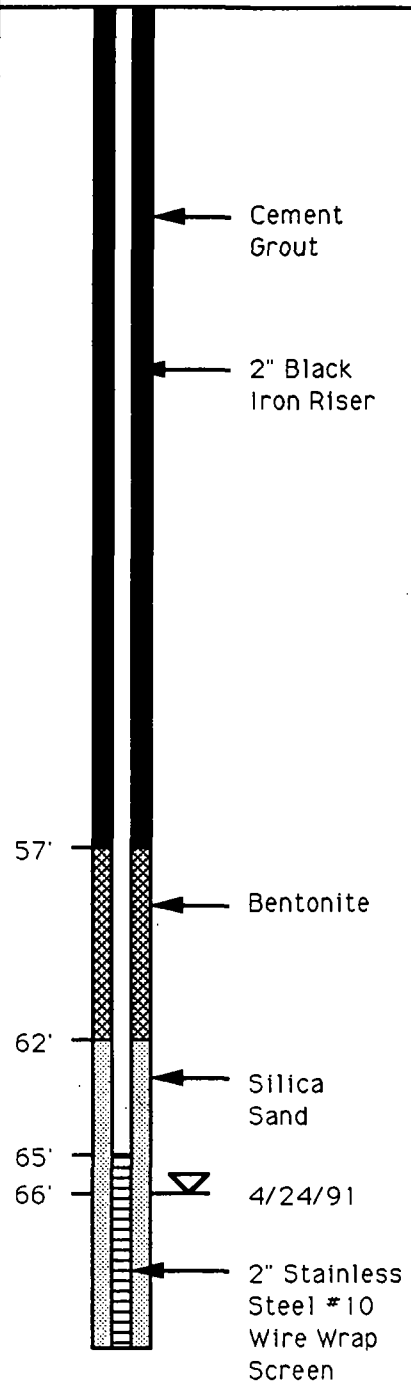


Dames & Moore
Job Number 20512-002

FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA
non-responsive [redacted] [redacted]

Depth (Feet)	Sample Type	Sample Depth	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
	SS		100	10		2 inch fine sand lense at 40.5 feet.
	SS		58	17		
40	SS		100	15		
	SS		83	10		
45	SS		100	10		
	SS		100	8		Sandy SILT with trace gravel, grey, stiff, moist, (ML)
50	SS		100	18		Sand lenses throughout unit.
	SS		91	8		
55	SS		91	10		
	SS		50	8		
60	SS		100	7		
	SS		100	9		
65	SS		100	10		
	SS		91	8		
70	SS		100	10		

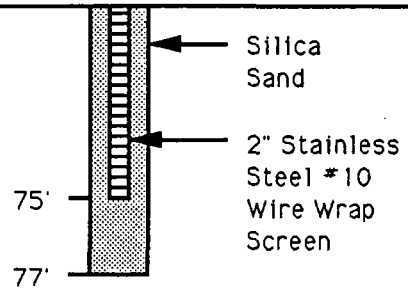
WELL CONSTRUCTION DETAILS



Dames & Moore
Job Number 20512-002

FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA
non-responsive

Depth (Feet)	Sample Type	Sample Depth	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS	WELL CONSTRUCTION DETAILS
	SS		100	10		Sandy SILT, with trace gravel, grey, stiff, moist (ML)	
	SS		100	11			
75	SS		100	11			
80						End of boring at 77 feet on 4/23/91. Well installed on 4/24/91.	
85							
90							
95							
100							
105							



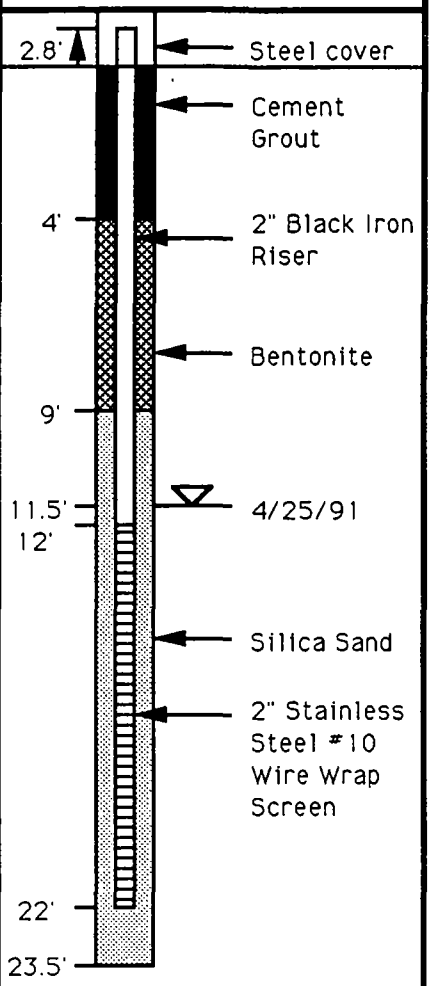
Top of casing elevatio n1183.59

Dames & Moore
Job Number 20512-002

FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA
non-responsive [redacted]

Depth (Feet)	Sample Type	Sample Depth	% Recovery	Blows/ft.	USCS Symbol	DESCRIPTION OF SUBSURFACE MATERIALS
						Elevation Ground Surface: 1168.7
	SS		50	8		SAND, medium, brown, firm, dry (SP) Fill
						Sandy CLAY, black, firm, dry (CL) Fill
5	SS		33	8		Clayey SILT with trace gravel, brown, mottled, firm, dry (ML)
	SS		83	12		Silty CLAY, with trace gravel, brown motted, stiff, moist (CL)
10	SS		83	16		
	SS		75	19		Sandy SILT, with trace gravel, brown, very stiff, moist (ML)
15	SS		91	28		
	SS		91	11		Sandy CLAY with trace gravel, dark brown to grey, stiff, wet (CL)
20	SS		91	14		
	SS		83	15		
25						End of boring at 23.5 feet on 4/24/91. Well installed on 4/24/91.
30						
35						

WELL CONSTRUCTION DETAILS



Top of casing elevation 1171.54

Dames & Moore

Job Number 20512-002

FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA
non-responsive

FIELD STABILIZATION TESTING FORM

Site/Facility Name: Fairmont Railway Motors **Date:** 5/07/91
Name of well: non- **Weather:** Partly Cloudy
Unique well#: 471548 **Sampler name:** Dean Jacobsen
Address: 415 North Main Street **& affiliation:** Dames and Moore
Fairmont, MN 56301

Location: T 102N S 8 R 30W
Owner name: Fairmont Railway Motors
Well Diameter: 2 inches
Depth to water: 5. 21 ft., measuring from top of casing using water level indicator
Total depth: 16.17 ft.
Volume of water in casing: 8.4 gallons
Purge method: bailer
Time purge start: 3:05
Time stop: 4:35
Total # gallons evacuated: 60 gallons
Pump rate: 0.66 gallons/minute
Total # wells volumes evacuated: 7.1 volumes
Purge water retained? No **If yes, containment method:**

Stabilization Tests (field measurements):

Trials	Volume removed (gal)	pH (± 0.1 unit)	Temperature (± 0.5°C)	Conductivity (± 5% umhos/cm)
1.	0.0	5.0	8.7	1549
2.	8.5	4.9	7.8	1723
3.	13.5	5.2	8.0	1795
4.	28.0	8.0	8.0	1841
5.	42.5	5.6	8.1	1846
6.	51.0	5.6	7.8	1841
7.	60.0	5.6	7.8	1843

Purge, stabilization, etc. performed by: Dean Jacobsen
Time sampled: 4:40
Sample method: dedicated bailer
Parameters sampled for: USEPA Target Compound List (TCL) and the USEPA Target Analyte List (TAL)
Filtered? No **If yes, parameters:**
Notes about sample (color, turbidity, etc.): Clear
Chain of Custody done? Yes

FIELD STABILIZATION TESTING FORM

Site/Facility Name: Fairmont Railway Motors **Date:** 5/08/91
Name of well: non- **Weather:** Partly Cloudy
Unique well#: 471549 **Sampler name:** Dean Jacobsen
Address: 415 North Main Street **& affiliation:** Dames and Moore
Fairmont, MN 56301

Location: T 102N S 8 R 30W
Owner name: Fairmont Railway Motors
Well Diameter: 2 inches
Depth to water: 58.82 ft., measuring from top of casing using water level indicator
Total depth: 74.86 ft.
Volume of water in casing: 11.5 gallons
Purge method: bailer
Time purge start: 7:40
Time stop: 12:20
Total # gallons evacuated: 16 gallons
Pump rate: 0.05 gallons/minute
Total # wells volumes evacuated: 1.4 volumes
Purge water retained? No **If yes, containment method:**

Stabilization Tests (field measurements):

Trials	Volume removed (gal)	pH (± 0.1 unit)	Temperature (± 0.5°C)	Conductivity (± 5% umhos/cm)
1.	0.0	5.5	12.1	1449
2.	12.0	5.2	11.6	1487
3.	14.0	5.8	12.6	1475
4.	15.0	5.8	12.6	1485
5.	16.0	5.8	12.9	1505

Purge, stabilization, etc. performed by: Dean Jacobsen
Time sampled: 1:00
Sample method: dedicated bailer
Parameters sampled for: USEPA Target Compound List (TCL) and the USEPA Target Analyte List (TAL)
Filtered? No **If yes, parameters:**
Notes about sample (color, turbidity, etc.): Clear
Chain of Custody done? Yes

FIELD STABILIZATION TESTING FORM

Site/Facility Name: Fairmont Railway Motors **Date:** 5/08/91
Name of well: non- **Weather:** Partly Cloudy
Unique well#: 471547 **Sampler name:** Dean Jacobsen
Address: 415 North Main Street **& affiliation:** Dames and Moore
Fairmont, MN 56301

Location: T 102N S 8 R 30W
Owner name: Fairmont Railway Motors
Well Diameter: 2 inches
Depth to water: 10.78 ft., measuring from top of casing using water level indicator
Total depth: 23.81 ft.
Volume of water in casing: 9.5 gallons
Purge method: bailer
Time purge start: 10:55
Time stop: 12:00
Total # gallons evacuated: 19 gallons
Pump rate: 0.29 gallons/minute
Total # wells volumes evacuated: 2 volumes
Purge water retained? No **If yes, containment method:**

Stabilization Tests (field measurements):

Trials	Volume removed (gal)	pH (± 0.1 unit)	Temperature (± 0.5°C)	Conductivity (± 5% umhos/cm)
1.	0.0	5.2	11.5	544
2.	9.5	5.3	11.7	583
3.	15.0	5.4	12.3	597
4.	19.0	5.4	12.5	583

Purge, stabilization, etc. performed by: Dean Jacobsen
Time sampled: 1:45
Sample method: dedicated bailer
Parameters sampled for: USEPA Target Compound List (TCL) and the USEPA Target Analyte List (TAL)
Filtered? No **If yes, parameters:**
Notes about sample (color, turbidity, etc.): Clear
Chain of Custody done? Yes

APPENDIX D

SOIL BORING ANALYTICAL DATA

Dames and Moore
Fairmont Railway Site

Sample Data Summary Package

000001

~~100209~~

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

15006.1 (MW-1)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15006.1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12005

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 26. Date Analyzed: 4/30/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	G
74-87-3	Chloromethane	14.	U
74-83-9	Bromomethane	14.	U
75-01-4	Vinyl Chloride	14.	U
75-00-3	Chloroethane	14.	U
75-09-2	Methylene Chloride	3.	J
67-64-1	Acetone	14.	U
75-15-0	Carbon Disulfide	7.	J
75-35-4	1,1-Dichloroethene	14.	U
75-34-3	1,1-Dichloroethane	14.	U
540-59-0	1,2-Dichloroethene (total)	14.	U
67-66-3	Chloroform	14.	U
107-06-2	1,2-Dichloroethane	14.	U
78-93-3	2-Butanone	12.	BJ
71-55-6	1,1,1-Trichloroethane	14.	U
56-23-5	Carbon Tetrachloride	14.	U
75-27-4	Bromodichloromethane	14.	U
78-87-5	1,2-Dichloropropane	14.	U
10061-01-5	cis-1,3-Dichloropropene	14.	U
79-01-6	Trichloroethene	14.	U
124-48-1	Dibromochloromethane	14.	U
79-00-5	1,1,2-Trichloroethane	14.	U
71-43-2	Benzene	14.	U
10061-02-6	trans-1,3-Dichloropropene	14.	U
75-25-2	Bromoform	14.	U
108-10-1	4-Methyl-2-Pentanone	14.	U
591-78-6	2-Hexanone	14.	U
127-18-4	Tetrachloroethene	14.	U
79-34-5	1,1,2,2-Tetrachloroethane	14.	U
108-88-3	Toluene	14.	U
108-90-7	Chlorobenzene	14.	U
100-41-4	Ethylbenzene	14.	U
100-42-5	Styrene	14.	U
1330-20-7	Xylene (total)	~~14.~~ 3	~~U~~ J

05/21/91 KK

| MW-1 |

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15006.1

Sample wt/vol: 30.4 (g/ml) G Lab File ID: >13092

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 24 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	430	U
111-44-4	bis(2-Chloroethyl)ether	430	U
95-57-8	2-Chlorophenol	430	U
541-73-1	1,3-Dichlorobenzene	430	U
106-46-7	1,4-Dichlorobenzene	430	U
95-50-1	1,2-Dichlorobenzene	430	U
95-48-7	2-Methylphenol	430	U
108-60-1	2,2'-oxybis(1-Chloropropane)	430	U
106-44-5	4-Methylphenol	430	U
621-64-7	N-Nitroso-di-n-propylamine	430	U
67-72-1	Hexachloroethane	430	U
98-95-3	Nitrobenzene	430	U
78-59-1	Isophorone	430	U
88-75-5	2-Nitrophenol	430	U
105-67-9	2,4-Dimethylphenol	430	U
111-91-1	bis(2-Chloroethoxy)methane	430	U
120-83-2	2,4-Dichlorophenol	430	U
120-82-1	1,2,4-Trichlorobenzene	430	U
91-20-3	Naphthalene	430	U
106-47-8	4-Chloroaniline	430	U
87-68-3	Hexachlorobutadiene	430	U
59-50-7	4-Chloro-3-methylphenol	430	U
91-57-6	2-Methylnaphthalene	430	U
77-47-4	Hexachlorocyclopentadiene	430	U
88-06-2	2,4,6-Trichlorophenol	430	U
95-95-4	2,4,5-Trichlorophenol	2200	U
91-58-7	2-Chloronaphthalene	430	U
88-74-4	2-Nitroaniline	2200	U
131-11-3	Dimethylphthalate	430	U
208-96-8	Acenaphthylene	430	U
606-20-2	2,6-Dinitrotoluene	430	U
99-09-2	3-Nitroaniline	2200	U
83-32-9	Acenaphthene	430	U

non-

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15006.1

Sample wt/vol: 30.4 (g/ml) G Lab File ID: >13092

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 24 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	2200	U
100-02-7	4-Nitrophenol	2200	U
132-64-9	Dibenzofuran	430	U
121-14-2	2,4-Dinitrotoluene	430	U
84-66-2	Diethylphthalate	430	U
7005-72-3	4-Chlorophenyl-phenylether	430	U
86-73-7	Fluorene	430	U
100-01-6	4-Nitroaniline	2200	U
534-52-1	4,6-Dinitro-2-methylphenol	2200	U
86-30-6	N-Nitrosodiphenylamine	430	U
101-55-3	4-Bromophenyl-phenylether	430	U
118-74-1	Hexachlorobenzene	430	U
87-86-5	Pentachlorophenol	2200	U
85-01-8	Phenanthrene	33	J
120-12-7	Anthracene	430	U
86-74-8	Carbazole	430	U
84-74-2	Di-n-butylphthalate	14	J
206-44-0	Fluoranthene	67	J
129-00-0	Pyrene	81	J
85-68-7	Butylbenzylphthalate	430	U
91-94-1	3,3'-Dichlorobenzidine	430	U
56-55-3	Benzo(a)anthracene	35	J
218-01-9	Chrysene	41	J
117-81-7	Bis(2-Ethylhexyl)phthalate	590	B
117-84-0	Di-n-octylphthalate	430	U
205-99-2	Benzo(b)fluoranthene	37	J
207-08-9	Benzo(k)fluoranthene	39	J
50-32-8	Benzo(a)pyrene	34	J
193-39-5	Indeno(1,2,3-cd)pyrene	430	U
53-70-3	Dibenz(a,h)anthracene	430	U
191-24-2	Benzo(g,h,i)perylene	430	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

150061 (MW-1)

Lab Name: PACE, Inc. Contract: ~~OR016~~ SJC 4/28/91

Lab Code: PACE Case No.: ~~WPSE~~ Dames + Moore 5/28/91 SAS No.: N/A SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 150061

Sample wt/vol: 30.23 (g/mL) g Lab File ID: NA

% Moisture: 24 decanted: (Y/N) N Date Received: 4/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 4/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 5/18/91

Injection Volume: 5.0 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) Y pH: 7.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta-BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma-BHC (Lindane)	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.3	U
72-55-9	4,4'-DDE	4.3	U
72-20-8	Endrin	4.3	U
33213-65-9	Endosulfan II	4.3	U
72-54-8	4,4'-DDD	4.3	U
1031-07-8	Endosulfan sulfate	4.3	U
50-29-3	4,4'-DDT	4.3	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.3	U
7421-36-3	Endrin aldehyde	4.3	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor-1016	43	U
11104-28-2	Aroclor-1221	43	U
11141-16-5	Aroclor-1232	88	U
53469-21-9	Aroclor-1242	43	U
12672-29-6	Aroclor-1248	43	U
11097-69-1	Aroclor-1254	43	U
11096-82-5	Aroclor-1260	43	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

15006.1 (MW-1)

Lab Name: PACE Contract: ORO16

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15006.1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12005

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 26. Date Analyzed: 4/30/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: ~~3~~ 2 5/21/91 NL

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	692-45-5	Formic acid, ethenyl ester	1.50	9.	JN
2.	~~- -~~	~~UNKNOWN~~	~~3.65~~	~~10.~~	~~JN~~
3.	- -	UNKNOWN SILANE	9.98	12 ~~10.~~	JN
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ARC 6-14-9

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW-1

Lab Name: PACE INC Contract: _____

Lab Code: PACE Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15006.1

Sample wt/vol: 30.4 (g/mL) G Lab File ID: >13092

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 24 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 14

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.92	270	JNB
2.		UNKNOWN	9.80	120	JNB
3.	57-10-3	HEXADECANOIC ACID	27.48	96	JN
4.	4337-65-9	HEXANEDIOIC ACID, MONO(2-ETHYLHEXYL)	32.62	330	JNB
5.		UNKNOWN HYDROCARBON	33.74	190	JN
6.		UNKNOWN HYDROCARBON	36.69	240	JN
7.		UNKNOWN	36.78	100	JN
8.		UNKNOWN	38.14	500	JN
9.		UNKNOWN	38.99	170	JN
10.		UNKNOWN HYDROCARBON	39.91	310	JN
11.		UNKNOWN HYDROCARBON	43.52	270	JN
12.		UNKNOWN	47.81	230	JN
13.		UNKNOWN HYDROCARBON	48.58	150	JN
14.		UNKNOWN	49.96	100	JN
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

15007.0 (8-5)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15007.0

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12006

Level: (low/med) LOW Date Received: 4/24/91

Moisture: not dec. 27. Date Analyzed: 4/30/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	14.	U
74-83-9	Bromomethane	14.	U
75-01-4	Vinyl Chloride	14.	U
75-00-3	Chloroethane	14.	U
75-09-2	Methylene Chloride	3.	J
67-64-1	Acetone	170.	
75-15-0	Carbon Disulfide	14.	U
75-35-4	1,1-Dichloroethene	14.	U
75-34-3	1,1-Dichloroethane	14.	U
540-59-0	1,2-Dichloroethene (total)	14.	U
67-66-3	Chloroform	14.	U
107-06-2	1,2-Dichloroethane	14.	U
78-93-3	2-Butanone	18.	B
71-55-6	1,1,1-Trichloroethane	14.	U
56-23-5	Carbon Tetrachloride	14.	U
75-27-4	Bromodichloromethane	14.	U
78-87-5	1,2-Dichloropropane	14.	U
10061-01-5	cis-1,3-Dichloropropene	14.	U
79-01-6	Trichloroethene	14.	U
124-48-1	Dibromochloromethane	14.	U
79-00-5	1,1,2-Trichloroethane	14.	U
71-43-2	Benzene	14.	U
10061-02-6	trans-1,3-Dichloropropene	14.	U
75-25-2	Bromoform	14.	U
108-10-1	4-Methyl-2-Pentanone	14.	U
591-78-6	2-Hexanone	14.	U
127-18-4	Tetrachloroethene	14.	U
79-34-5	1,1,2,2-Tetrachloroethane	14.	U
108-88-3	Toluene	14.	U
108-90-7	Chlorobenzene	14.	U
100-41-4	Ethylbenzene	14.	U
100-42-5	Styrene	14.	U
1330-20-7	Xylene (total)	14.	U

B-5

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15007.0

Sample wt/vol: 30.0 (g/ml) G Lab File ID: >13093

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	410	U
111-44-4	bis(2-Chloroethyl)ether	410	U
95-57-8	2-Chlorophenol	410	U
541-73-1	1,3-Dichlorobenzene	410	U
106-46-7	1,4-Dichlorobenzene	410	U
95-50-1	1,2-Dichlorobenzene	410	U
95-48-7	2-Methylphenol	410	U
108-60-1	2,2'-oxybis(1-Chloropropane)	410	U
106-44-5	4-Methylphenol	410	U
621-64-7	N-Nitroso-di-n-propylamine	410	U
67-72-1	Hexachloroethane	410	U
98-95-3	Nitrobenzene	410	U
78-59-1	Isophorone	410	U
88-75-5	2-Nitrophenol	410	U
105-67-9	2,4-Dimethylphenol	410	U
111-91-1	bis(2-Chloroethoxy)methane	410	U
120-83-2	2,4-Dichlorophenol	410	U
120-82-1	1,2,4-Trichlorobenzene	410	U
91-20-3	Naphthalene	410	U
106-47-8	4-Chloroaniline	410	U
87-68-3	Hexachlorobutadiene	410	U
59-50-7	4-Chloro-3-methylphenol	410	U
91-57-6	2-Methylnaphthalene	410	U
77-47-4	Hexachlorocyclopentadiene	410	U
88-06-2	2,4,6-Trichlorophenol	410	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	410	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethylphthalate	410	U
208-96-8	Acenaphthylene	410	U
606-20-2	2,6-Dinitrotoluene	410	U
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	410	U

B-5

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15007.0

Sample wt/vol: 30.0 (g/ml) G Lab File ID: >13093

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	410	U
121-14-2	2,4-Dinitrotoluene	410	U
84-66-2	Diethylphthalate	410	U
7005-72-3	4-Chlorophenyl-phenylether	410	U
86-73-7	Fluorene	410	U
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine	410	U
101-55-3	4-Bromophenyl-phenylether	410	U
118-74-1	Hexachlorobenzene	410	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	55	J
120-12-7	Anthracene	410	U
86-74-8	Carbazole	410	U
84-74-2	Di-n-butylphthalate	18	J
206-44-0	Fluoranthene	78	J
129-00-0	Pyrene	103	J
85-68-7	Butylbenzylphthalate	410	U
91-94-1	3,3'-Dichlorobenzidine	410	U
56-55-3	Benzo(a)anthracene	43	J
218-01-9	Chrysene	76	J
117-81-7	Bis(2-Ethylhexyl)phthalate	760	B
117-84-0	Di-n-octylphthalate	410	U
205-99-2	Benzo(b)fluoranthene	60	J
207-08-9	Benzo(k)fluoranthene	72	J
50-32-8	Benzo(a)pyrene	50	J
193-39-5	Indeno(1,2,3-cd)pyrene	410	U
53-70-3	Dibenz(a,h)anthracene	410	U
191-24-2	Benzo(g,h,i)perylene	410	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: PACE, Inc. Contract: ~~OR016~~ ARC 6-14-91 | 150070 (B-5)

Lab Code: PACE Case No.: ~~WrPat~~ Dames & Moore SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 150070

Sample wt/vol: 30.33 (g/mL) g Lab File ID: NA

% Moisture: 17.8 decanted: (Y/N) N Date Received: 4/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 4/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 5/18/91

Injection Volume: 5.0 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.0	U
72-55-9	4,4'-DDE	12	
72-20-8	Endrin	4.0	U
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	40	P
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	7.5	
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.0	U
7421-36-3	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	40 ~~81~~ SOS 5/31/91 EE	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	81	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	210	
11096-82-5	Aroclor-1260	40	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

15007.0 (B-5)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15007.0

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12006

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 27. Date Analyzed: 4/30/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: ~~11~~ 10 05-21-91 KL

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	~~67-64-1~~	~~2-Propanone~~	~~3.87~~	~~20.~~	~~J N~~	Target Compound 5-21-91 x
2.	- -	UNKNOWN	12.07	7.	J N	
3.	- -	UNKNOWN	13.05	6.	J N	
4.	- -	UNKNOWN	13.20	9.	J N	
5.	- -	UNKNOWN ~~C12H18~~ 05-21-91 KL	13.43	7.	J N	
6.	- -	UNKNOWN	13.67	~~20.~~ 23	J N	
7.	- -	UNKNOWN	13.77	~~10.~~ 13	J N	ARC 6-14-91
8.	- -	UNKNOWN C9H12	14.45	9.	J N	
9.	- -	UNKNOWN	14.92	~~20.~~ 31	J N	
10.	- -	UNKNOWN C10H14	15.58	~~10.~~ 14	J N	
11.	- -	UNKNOWN C10H14	17.40	6.	J N	
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B-5

Lab Name: PACE INC Contract: _____

Lab Code: PACE Case No.: D-M SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15007.0

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 713093

Level: (low/med) LOW Date Received: [redacted]

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

Number TICs found: 20 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.92	250	JNB
2.		UNKNOWN	14.81	97	JN
3.	18344-37-1	HEPTADECANE, 2,6,10,14-TETRAMETHYL	20.23	100	JN
4.	55045-10-8	TRIDECANE, 6-PROPYL	22.44	110	JN
5.	55045-07-3	DODECANE, 2-METHYL-8-PROPYL	23.18	94	JN
6.	629-78-7	HEPTADECANE	23.93	97	JN
7.	74645-98-0	DODECANE, 2,7,10-TRIMETHYL	24.01	190	JN
8.		UNKNOWN	25.96	92	JN
9.		UNKNOWN HYDROCARBON	26.68	84	JN
10.	57-10-3	HEXADECANOIC ACID	27.53	160	JN
11.		UNKNOWN HYDROCARBON	27.92	110	JN
12.	13076-24-4	ANTHRACENE, 1,4-DIMETHOXY	29.61	1200	JN
13.		UNKNOWN HYDROCARBON	30.37	200	JN
14.		UNKNOWN	30.80	250	JN
15.		UNKNOWN HYDROCARBON	33.80	940	JN
16.		UNKNOWN HYDROCARBON	36.80	1500	JN
17.		UNKNOWN HYDROCARBON	40.05	930	JN
18.		UNKNOWN HYDROCARBON	43.63	290	JN
19.		UNKNOWN	50.25	240	JN
20.		UNKNOWN	51.43	120	JN
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B-5 RE

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15007.0

Sample wt/vol: 30.0 (g/ml) G Lab File ID: >14265

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/22/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	410	U
111-44-4	bis(2-Chloroethyl)ether	410	U
95-57-8	2-Chlorophenol	410	U
541-73-1	1,3-Dichlorobenzene	410	U
106-46-7	1,4-Dichlorobenzene	410	U
95-50-1	1,2-Dichlorobenzene	410	U
95-48-7	2-Methylphenol	410	U
108-60-1	2,2'-oxybis(1-Chloropropane)	410	U
106-44-5	4-Methylphenol	410	U
621-64-7	N-Nitroso-di-n-propylamine	410	U
67-72-1	Hexachloroethane	410	U
98-95-3	Nitrobenzene	410	U
78-59-1	Isophorone	410	U
88-75-5	2-Nitrophenol	410	U
105-67-9	2,4-Dimethylphenol	410	U
111-91-1	bis(2-Chloroethoxy)methane	410	U
120-83-2	2,4-Dichlorophenol	410	U
120-82-1	1,2,4-Trichlorobenzene	410	U
91-20-3	Naphthalene	18	J
106-47-8	4-Chloroaniline	410	U
87-68-3	Hexachlorobutadiene	410	U
59-50-7	4-Chloro-3-methylphenol	410	U
91-57-6	2-Methylnaphthalene	410	U
77-47-4	Hexachlorocyclopentadiene	410	U
88-06-2	2,4,6-Trichlorophenol	410	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	410	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethylphthalate	410	U
208-96-8	Acenaphthylene	410	U
606-20-2	2,6-Dinitrotoluene	410	U
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	410	U

B-5RE

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15007.0

Sample wt/vol: 30.0 (g/ml) G Lab File ID: >14265

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/22/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	410	U
121-14-2	2,4-Dinitrotoluene	410	U
84-66-2	Diethylphthalate	410	U
7005-72-3	4-Chlorophenyl-phenylether	410	U
86-73-7	Fluorene	410	U
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine	410	U
101-55-3	4-Bromophenyl-phenylether	410	U
118-74-1	Hexachlorobenzene	410	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	55	J
120-12-7	Anthracene	410	U
86-74-8	Carbazole	410	U
84-74-2	Di-n-butylphthalate	17	J
206-44-0	Fluoranthene	75	J
129-00-0	Pyrene	120	J
85-68-7	Butylbenzylphthalate	410	U
91-94-1	3,3'-Dichlorobenzidine	410	U
56-55-3	Benzo(a)anthracene	44	J
218-01-9	Chrysene	77	J
117-81-7	Bis(2-Ethylhexyl)phthalate	750	B
117-84-0	Di-n-octylphthalate	410	U
205-99-2	Benzo(b)fluoranthene	69	J
207-08-9	Benzo(k)fluoranthene	42	J
50-32-8	Benzo(a)pyrene	410	U
193-39-5	Indeno(1,2,3-cd)pyrene	410	U
53-70-3	Dibenz(a,h)anthracene	410	U
191-24-2	Benzo(g,h,i)perylene	410	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B-SRE

Lab Name: PACE INC. Contract: _____

Lab Code: PACE Case No.: D-M SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15007.0

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >14265

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/22/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

Number TICs found: 20

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.42	450	JNB
2.		UNKNOWN ~~5-HEXEN-2-ONE, 5-METHYL-~~	9.29	190	JNB
3.		UNKNOWN	9.60	210	JN
4.		UNKNOWN HYDROCARBON	19.73	110	JN
5.		UNKNOWN HYDROCARBON	21.93	100	JN
6.	504-44-9	HEXADECANE, 2,6,11,15-tetramethyl	22.67	110	JN
7.		UNKNOWN HYDROCARBON	23.41	93	JN
8.	1921-70-6	PENTADECANE, 2,6,10,14-TETRAMETHYL	23.50	210	JN
9.		UNKNOWN HYDROCARBON	26.17	100	JN
10.	57-10-3	HEXADECANOIC ACID	27.00	300	JN
11.		UNKNOWN HYDROCARBON	27.94	130	JN
12.		UNKNOWN	28.02	100	JN
13.		ANTHRACENE, 1,4-DIMETHOXY	29.04	1500	JN
14.		UNKNOWN HYDROCARBON	29.86	96	JN
15.		UNKNOWN HYDROCARBON	30.99	210	JN
16.		UNKNOWN HYDROCARBON	35.94	450	JN
17.		UNKNOWN OCTADECENAL	38.22	420	JN
18.		UNKNOWN HYDROCARBON	39.17	2100	JN
19.		UNKNOWN HYDROCARBON	42.50	180	JN
20.		UNKNOWN	44.06	220	JN
21.					
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

15008.0 (B-6)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15008.0

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12007

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 15. Date Analyzed: 4/30/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene Chloride	6.	J
67-64-1	Acetone	23.	
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	12.	U
75-34-3	1,1-Dichloroethane	12.	U
540-59-0	1,2-Dichloroethene (total)	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	12.	U
78-93-3	2-Butanone	2.	BJ
71-55-6	1,1,1-Trichloroethane	12.	U
56-23-5	Carbon Tetrachloride	12.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	12.	U
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
10061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	12.	U
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
1330-20-7	Xylene (total)	~~12.~~ 3	~~U~~ J

05-21-91 KL

B-6

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15008.8

Sample wt/vol: 30.4 (g/ml) G Lab File ID: >14264

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/22/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	1900	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	1900	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	1900	U
83-32-9	Acenaphthene	380	U

B-6

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15008.8

Sample wt/vol: 30.4 (g/ml) G Lab File ID: >14264

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/22/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1900	U
100-02-7	4-Nitrophenol	1900	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	1900	U
534-52-1	4,6-Dinitro-2-methylphenol	1900	U
86-30-6	N-Nitrosodiphenylamine	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	1900	U
85-01-8	Phenanthrene	330	J
120-12-7	Anthracene	380	U
86-74-8	Carbazole	33	J
84-74-2	Di-n-butylphthalate	40	J
206-44-0	Fluoranthene	490	
129-00-0	Pyrene	510	
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	270	J
218-01-9	Chrysene	410	
117-81-7	Bis(2-Ethylhexyl)phthalate	12000	B E
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	340	J
207-08-9	Benzo(k)fluoranthene	290	J
50-32-8	Benzo(a)pyrene	160	J
193-39-5	Indeno(1,2,3-cd)pyrene	80	J
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	78	J

PESTICIDE ORGANICS ANALYSIS DATA SHEET

150088 (B-6)

Lab Name: PACE, Inc. Contract: ~~OR016~~ SAC 5/23/91

Lab Code: PACE Case No.: ~~SAC 5/23/91~~ Dames & Moore SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 150088

Sample wt/vol: 30.36 (g/mL) g Lab File ID: NA

% Moisture: 14 decanted: (Y/N) N Date Received: 4/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 4/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 5/18/91

Injection Volume: 50 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) Y pH: 7.6 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	SA ~~3.8~~ 1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	3.8	U
72-55-9	4,4'-DDE	3.8	U
72-20-8	Endrin	3.8	U
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'-DDD	3.8	U
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	3.8	U
72-43-5	Methoxychlor	190	U
53494-70-5	Endrin ketone	38	U
7421-36-3	Endrin aldehyde	38	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	38	U
11141-16-5	Aroclor-1232	77	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	38	U
11096-82-5	Aroclor-1260	38	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

15008.0 (8-6)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15008.0

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12007

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 15. Date Analyzed: 4/30/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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TENTATIVELY IDENTIFIED COMPOUNDS

B-6

Lab Name: PACE, INC Contract: _____

Lab Code: PACE Case No.: D+M SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 150038

Sample wt/vol: 30.4 (g/mL) g Lab File ID: 14264

Level: (low/med) LOW Date Received: 04-24-91

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04-29-91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05-22-91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 13

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		unknown	8.41	110	JNB
2.		unknown	14.51	130	JN
3.		unknown	16.37	150	JN
4.		unknown	21.35	90	JN
5.		unknown	24.27	100	JN
6.		unknown	25.47	150	JN
7.	112958	eicosane	26.15	150	JN
8.	57103	hexadecanoic acid	27.02	420	JN
9.		unknown hydrocarbon	27.46	380	JN
10.		unknown	28.02	300	JN
11.		unknown polyaromatic hydrocarbon	28.24	110	JN
12.		unknown polyaromatic hydrocarbon	28.42	150	JN
13.	57-11-4	octadecanoic acid	29.63	110	JN
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30.					

B-6 DL

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15008.8 DL

Sample wt/vol: 30.4 (g/ml) G Lab File ID: >14367

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/23/91

Injection Volume: 2.0 (uL) Dilution Factor: 10

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	3800	U
111-44-4	bis(2-Chloroethyl)ether	3800	U
95-57-8	2-Chlorophenol	3800	U
541-73-1	1,3-Dichlorobenzene	3800	U
106-46-7	1,4-Dichlorobenzene	3800	U
95-50-1	1,2-Dichlorobenzene	3800	U
95-48-7	2-Methylphenol	3800	U
108-60-1	2,2'-oxybis(1-Chloropropane)	3800	U
106-44-5	4-Methylphenol	3800	U
621-64-7	N-Nitroso-di-n-propylamine	3800	U
67-72-1	Hexachloroethane	3800	U
98-95-3	Nitrobenzene	3800	U
78-59-1	Isophorone	3800	U
88-75-5	2-Nitrophenol	3800	U
105-67-9	2,4-Dimethylphenol	3800	U
111-91-1	bis(2-Chloroethoxy)methane	3800	U
120-83-2	2,4-Dichlorophenol	3800	U
120-82-1	1,2,4-Trichlorobenzene	3800	U
91-20-3	Naphthalene	3800	U
106-47-8	4-Chloroaniline	3800	U
87-68-3	Hexachlorobutadiene	3800	U
59-50-7	4-Chloro-3-methylphenol	3800	U
91-57-6	2-Methylnaphthalene	3800	U
77-47-4	Hexachlorocyclopentadiene	3800	U
88-06-2	2,4,6-Trichlorophenol	3800	U
95-95-4	2,4,5-Trichlorophenol	19000	U
91-58-7	2-Chloronaphthalene	3800	U
88-74-4	2-Nitroaniline	19000	U
131-11-3	Dimethylphthalate	3800	U
208-96-8	Acenaphthylene	3800	U
606-20-2	2,6-Dinitrotoluene	3800	U
99-09-2	3-Nitroaniline	19000	U
83-32-9	Acenaphthene	3800	U

| B-6 DL |

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15008.8 DL

Sample wt/vol: 30.4 (g/ml) G Lab File ID: >14367

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/23/91

Injection Volume: 2.0 (uL) Dilution Factor: 10

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	19000	U
100-02-7	4-Nitrophenol	19000	U
132-64-9	Dibenzofuran	3800	U
121-14-2	2,4-Dinitrotoluene	3800	U
84-66-2	Diethylphthalate	3800	U
7005-72-3	4-Chlorophenyl-phenylether	3800	U
86-73-7	Fluorene	3800	U
100-01-6	4-Nitroaniline	19000	U
534-52-1	4,6-Dinitro-2-methylphenol	19000	U
86-30-6	N-Nitrosodiphenylamine	3800	U
101-55-3	4-Bromophenyl-phenylether	3800	U
118-74-1	Hexachlorobenzene	3800	U
87-86-5	Pentachlorophenol	19000	U
85-01-8	Phenanthrene	340	JD
120-12-7	Anthracene	3800	U
86-74-8	Carbazole	3800	U
84-74-2	Di-n-butylphthalate	3800	U
206-44-0	Fluoranthene	590	JD
129-00-0	Pyrene	550	JD
85-68-7	Butylbenzylphthalate	3800	U
91-94-1	3,3'-Dichlorobenzidine	3800	U
56-55-3	Benzo(a)anthracene	290	JD
218-01-9	Chrysene	470	JD
117-81-7	Bis(2-Ethylhexyl)phthalate	19000	BD
117-84-0	Di-n-octylphthalate	3800	U
205-99-2	Benzo(b)fluoranthene	300	JD
207-08-9	Benzo(k)fluoranthene	280	JD
50-32-8	Benzo(a)pyrene	3800	U
193-39-5	Indeno(1,2,3-cd)pyrene	3800	U
53-70-3	Dibenz(a,h)anthracene	3800	U
191-24-2	Benzo(g,h,i)perylene	3800	U

TENTATIVELY IDENTIFIED COMPOUNDS

B-6 DL

Lab Name: PACE INC Contract: _____

Lab Code: PACE Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15008.8 DL

Sample wt/vol: 30.4 (g/mL) G Lab File ID: >14367

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/23/91

Injection Volume: 2.0 (uL) Dilution Factor: 10

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 3

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	57-10-7	Hexadecanoic Acid	26.95	1700	JN
2.		UNKNOWN	29.19	2800	JN
3.	123-79-5	Hexanedioic Acid, Dioctyl Ester	32.09	1200	JNB
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

non-responsive NO.

non-
non-responsive

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15009.6

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12213

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 13. Date Analyzed: 5/ 2/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11.	U
74-83-9	Bromomethane	11.	U
75-01-4	Vinyl Chloride	11.	U
75-00-3	Chloroethane	11.	U
75-09-2	Methylene Chloride	3.	J
67-64-1	Acetone	26.	
75-15-0	Carbon Disulfide	4.	J
75-35-4	1,1-Dichloroethene	11.	U
75-34-3	1,1-Dichloroethane	11.	U
540-59-0	1,2-Dichloroethene (total)	11.	U
67-66-3	Chloroform	11.	U
107-06-2	1,2-Dichloroethane	11.	U
78-93-3	2-Butanone	3.	J
71-55-6	1,1,1-Trichloroethane	11.	U
56-23-5	Carbon Tetrachloride	11.	U
75-27-4	Bromodichloromethane	11.	U
78-87-5	1,2-Dichloropropane	11.	U
10061-01-5	cis-1,3-Dichloropropene	11.	U
79-01-6	Trichloroethene	11.	U
124-48-1	Dibromochloromethane	11.	U
79-00-5	1,1,2-Trichloroethane	11.	U
71-43-2	Benzene	11.	U
10061-02-6	trans-1,3-Dichloropropene	11.	U
75-25-2	Bromoform	11.	U
108-10-1	4-Methyl-2-Pentanone	11.	U
591-78-6	2-Hexanone	11.	U
127-18-4	Tetrachloroethene	11.	U
79-34-5	1,1,2,2-Tetrachloroethane	11.	U
108-88-3	Toluene	11.	U
108-90-7	Chlorobenzene	11.	U
100-41-4	Ethylbenzene	11.	U
100-42-5	Styrene	11.	U
1330-20-7	Xylene (total)	11.	U

Lab Name: PACE, INC. Contract: non-

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15009.6

Sample wt/vol: 30.2 (g/ml) G Lab File ID: >13087

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 13 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	1900	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	1900	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	1900	U
83-32-9	Acenaphthene	380	U

non-

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15009.6

Sample wt/vol: 30.2 (g/ml) G Lab File ID: >13087

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 13 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1900	U
100-02-7	4-Nitrophenol	1900	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	1900	U
534-52-1	4,6-Dinitro-2-methylphenol	1900	U
86-30-6	N-Nitrosodiphenylamine	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	1900	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	Bis(2-Ethylhexyl)phthalate	1600	B
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

150096 (MW-2)

Lab Name: PACE, Inc. Contract: ~~OR016~~ SOC 5/28/91

Lab Code: PACE Case No.: SOC 5/28/91 ~~WrPat~~ Dames and Moore SAS No.: N/A SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 150096

Sample wt/vol: 30.55 (g/mL) g Lab File ID: NA

% Moisture: 13 decanted: (Y/N) N Date Received: 4/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 4/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 5/18/91

Injection Volume: 5.0 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) Y pH: 8.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	3.7	U
72-55-9	4,4'-DDE	3.7	U
72-20-8	Endrin	3.7	U
33213-65-9	Endosulfan II	3.7	U
72-54-8	4,4'-DDD	3.7	U
1031-07-8	Endosulfan sulfate	3.7	U
50-29-3	4,4'-DDT	3.7	U
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.7	U
7421-36-3	Endrin aldehyde	3.7	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	37	U
11104-28-2	Aroclor-1221	37	U
11141-16-5	Aroclor-1232	76	U
53469-21-9	Aroclor-1242	37	U
12672-29-6	Aroclor-1248	37	U
11097-69-1	Aroclor-1254	37	U
11096-82-5	Aroclor-1260	37	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

15009.6 (MW-2)

Lab Name: PACE Contract: ORD16

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15009.6

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12213

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 13. Date Analyzed: 5/ 2/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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3.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW-2

Lab Name: PACE, INC Contract: _____

Lab Code: PACE Case No.: D&M SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15009.86 PAR 5129

Sample wt/vol: 30.2 (g/mL) g Lab File ID: >13087

Level: (low/med) LOW Date Received: 04-24-91

% Moisture: 13 decanted: (Y/N) N Date Extracted: 04-29-91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05-11-91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

Number TICs found: 8

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		unknown	8.91	280	JNB
2.		unknown	9.78	120	JNB
3.		unknown	22.53	87	JNB
4.	4337-65-9	hexanedioic acid, mono (2ethylhexyl) ester	32.61	250	JN
5.		unknown hydrocarbon	33.74	82	JN
6.		C25 hydrocarbon	36.67	98	JN
7.		C25 hydrocarbon	39.88	98	JN
8.		unknown hydrocarbon	43.49	85	JN
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10.					
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

15010.0 (B-4)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15010.0

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12108

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 18. Date Analyzed: 5/ 1/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene Chloride	12.	U
67-64-1	Acetone	48.	
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	12.	U
75-34-3	1,1-Dichloroethane	12.	U
540-59-0	1,2-Dichloroethene (total)	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	12.	U
78-93-3	2-Butanone	27.	B
71-55-6	1,1,1-Trichloroethane	12.	U
56-23-5	Carbon Tetrachloride	12.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	12.	U
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
10061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	12.	U
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
1330-20-7	Xylene (total)	3.	J

B-4

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15010.0

Sample wt/vol: 30.6 (g/ml) G Lab File ID: >13094

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	26	J
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
91-57-6	2-Methylnaphthalene	36	J
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	26	J
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	400	U

B-4

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15010.0

Sample wt/vol: 30.6 (g/ml) G Lab File ID: >13094

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	160	J
120-12-7	Anthracene	42	J
86-74-8	Carbazole	30	J
84-74-2	Di-n-butylphthalate	13	J
206-44-0	Fluoranthene	270	J
129-00-0	Pyrene	270	J
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	150	J
218-01-9	Chrysene	180	J
117-81-7	Bis(2-Ethylhexyl)phthalate	1500	B
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	220	J
207-08-9	Benzo(k)fluoranthene	270	J
50-32-8	Benzo(a)pyrene	170	J
193-39-5	Indeno(1,2,3-cd)pyrene	61	J
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

150100 (B-4)

Lab Name: PACE, Inc. Contract: ~~OR016~~ N.E. Arc 6-14-91

Lab Code: PACE Case No.: ~~Wrpat~~ Dames + Moore SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 150100

Sample wt/vol: 30.53 (g/mL) g Lab File ID: NA

% Moisture: 18.1 decanted: (Y/N) N Date Received: 4/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 4/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 5/19/91

Injection Volume: 5.0 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) Y pH: 7.6 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	~~1.0~~ 2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	46	
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.0	U
72-55-9	4,4'-DDE	14	
72-20-8	Endrin	4.0	U
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	4.0	U
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	4.0	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.0	U
7421-36-3	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	32	P
5103-74-2	gamma-Chlordane	50	
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	80	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

15010.0 (B-4)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15010.0

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12108

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 18. Date Analyzed: 5/ 1/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 6 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	3.82	~~10.~~15	J N
2.	- -	UNKNOWN	11.22	5.	J N
3.	- -	UNKNOWN	13.97	7.	J N
4.	- -	UNKNOWN	19.75	~~30.~~27	J N
5.	- -	UNKNOWN	20.12	~~10.~~13	J N
6.	- -	UNKNOWN C13H16	20.57	5.	J N
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12.					
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ARC 6-12-91

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B-4

Lab Name: PACE INC Contract: _____

Lab Code: PACE Case No.: D-M SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15010.0

Sample wt/vol: 30.6 (g/mL) G Lab File ID: >13094

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 19 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 20

CONCENTRATION UNITS: (ug/L or ug/Kg) µg/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.93	250	JNB
2.		UNKNOWN	9.79	96	JNB
3.		UNKNOWN	18.06	82	JN
4.	74381-40-1	PROPANOIC ACID, 2-METHYL-, 1-(1,1-DI	22.54	96	JN
5.	55045-07-3	DODECANE, 2-METHYL-8-PROPYL	24.03	120	JN
6.		UNKNOWN	25.81	140	JN
7.		UNKNOWN	26.00	180	JN
8.		UNKNOWN	26.12	120	JN
9.		UNKNOWN HYDROCARBON	26.69	96	JN
10.	57-10-3	HEXADECANOIC ACID	27.54	310	JN
11.	13076-29-4	ANTHRACENE, 1,4-DIMETHOXY	29.59	280	JN
12.		UNKNOWN HYDROCARBON 2	31.50	200	JN
13.	123-79-5	HEXANEDIOIC ACID, DIOCTYL ESTER	32.66	450	JNB
14.		UNKNOWN HYDROCARBON	33.80	580	JN
15.		UNKNOWN HYDROCARBON	36.78	1300	JN
16.	630-03-5	NONACOSANE	40.04	800	JN
17.	630-07-9	PENTATRIACONTANE	43.64	370	JN
18.		UNKNOWN	45.48	81	JN
19.		UNKNOWN	50.30	430	JN
20.		UNKNOWN	51.44	120	JN
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B-4 RE

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15010.0

Sample wt/vol: 30.6 (g/ml) G Lab File ID: >14266

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/22/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	25	J
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
91-57-6	2-Methylnaphthalene	35	J
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	23	J
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	400	U

B-4 RE

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15010.0

Sample wt/vol: 30.6 (g/ml) G Lab File ID: >14266

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/22/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	170	J
120-12-7	Anthracene	46	J
86-74-8	Carbazole	28	J
84-74-2	Di-n-butylphthalate	16	J
206-44-0	Fluoranthene	260	J
129-00-0	Pyrene	320	J
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	160	J
218-01-9	Chrysene	210	J
117-81-7	Bis(2-Ethylhexyl)phthalate	1400	B
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	220	J
207-08-9	Benzo(k)fluoranthene	210	J
50-32-8	Benzo(a)pyrene	160	J
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B-4RE

Lab Name: PACE INC Contract: _____

Lab Code: PACE Case No.: D-M SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15010.0

Sample wt/vol: 30.6 (g/mL) G Lab File ID: >14266

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/22/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 20

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.42	530	JNB
2.		UNKNOWN	9.08	240	JNB
3.		UNKNOWN	9.30	260	JN
4.		UNKNOWN	9.61	180	JN
5.	1921-70-6	PENTADECANE, 2,6,10,14-tetramethyl	23.50	160	JN
6.		UNKNOWN	25.39	85	JN
7.	629-92-5	NONADECANE	26.16	130	JN
8.	57-10-3	HEXADECANOIC ACID	27.01	390	JN
9.		UNKNOWN HYDROCARBON	27.45	110	JN
10.	3674-65-5	PHENANTHRENE, 2,3-DIMETHYL	28.24	97	JN
11.	10544-50-0	SULFUR, MOL. (S8)	28.49	230	JN
12.	13076-29-4	ANTHRACENE, 1,4-DIMETHOXY	29.01	340	JN
13.		UNKNOWN HYDROCARBON	30.97	260	JN
14.		UNKNOWN	31.70	190	JN
15.		UNKNOWN HYDROCARBON	35.92	790	JN
16.	630-07-9	PENTATRIACONTANE	39.16	670	JN
17.		UNKNOWN	42.58	230	JN
18.		UNKNOWN HYDROCARBON	43.51	440	JN
19.		UNKNOWN	44.08	210	JN
20.		UNKNOWN	46.32	200	JN
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

15011.8 (8-7)

Lab Name: PACE Contract: DRD16

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15011.8

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12107

Level: (low/med) LOW Date Received: 4/24/91

Moisture: not dec. 18. Date Analyzed: 5/ 1/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene Chloride	12.	U
67-64-1	Acetone	12.	J
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	12.	U
75-34-3	1,1-Dichloroethane	12.	U
540-59-0	1,2-Dichloroethene (total)	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	12.	U
78-93-3	2-Butanone	4.	BJ
71-55-6	1,1,1-Trichloroethane	12.	U
56-23-5	Carbon Tetrachloride	12.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	12.	U
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
10061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	12.	U
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
1330-20-7	Xylene (total)	12.	U

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15011.8

Sample wt/vol: 30.2 (g/ml) G Lab File ID: >14952

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/28/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	48	J
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	47	J
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	1900	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	1900	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	1900	U
83-32-9	Acenaphthene	390	U

B-7

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15011.8

Sample wt/vol: 30.2 (g/ml) G Lab File ID: >14952

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/28/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1900	U
100-02-7	4-Nitrophenol	1900	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	4700	E
534-52-1	4,6-Dinitro-2-methylphenol	1900	U
86-30-6	N-Nitrosodiphenylamine	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	1900	U
85-01-8	Phenanthrene	330	J
120-12-7	Anthracene	83	J
86-74-8	Carbazole	21	J
84-74-2	Di-n-butylphthalate	19	J
206-44-0	Fluoranthene	420	
129-00-0	Pyrene	650	
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	780	
218-01-9	Chrysene	1200	
117-81-7	Bis(2-Ethylhexyl)phthalate	2000	B
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo(b)fluoranthene	2500	
207-08-9	Benzo(k)fluoranthene	1700	
50-32-8	Benzo(a)pyrene	1400	
193-39-5	Indeno(1,2,3-cd)pyrene	390	
53-70-3	Dibenz(a,h)anthracene	140	J
191-24-2	Benzo(g,h,i)perylene	330	J

150118 (B-7)

Lab Name: PACE, Inc. Contract: ~~OR016~~ Sac 5/28/91

Lab Code: PACE Case No.: Dames & Moore Sac WRP257 SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 150118

Sample wt/vol: 30.59 (g/mL) g Lab File ID: NA

% Moisture: 14 decanted: (Y/N) N Date Received: 4/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 4/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 5/19/91

Injection Volume: 5.0 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	3.8	U
72-55-9	4,4'-DDE	3.8	U
72-20-8	Endrin	3.8	U
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'-DDD	3.8	U
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	3.8	U
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.8	U
7421-36-3	Endrin aldehyde	3.8	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	38	U
11141-16-5	Aroclor-1232	76	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	38	U
11096-82-5	Aroclor-1260	38	U

FORM I PEST 3/9

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

15011.8 (B-7)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15011.8

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12107

Level: (low/med) LOW Date Received: 4/24/91

Moisture: not dec. 18. Date Analyzed: 5/ 1/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 2 ~~2~~ 5-21-91 KK

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	~~UNKNOWN C6H4F2~~	~~7.35~~	~~90.~~	~~JN~~
2.	- -	UNKNOWN	16.43	5.	JN
3.	- -	UNKNOWN SILANE	16.67	8.	JN
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Tentative 5-21-91 KK

TENTATIVELY IDENTIFIED COMPOUNDS

B-7

Lab Name: PACE INC Contract: _____

Lab Code: PACE Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15011.8

Sample wt/vol: 30.2 (g/mL) G Lab File ID: >14952

Level: (low/med) LOW Date Received: 04-25-91 24 n.e. 4/25/30/91

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04-29-91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05-08-91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 18

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.44	360	JNB
2.		UNKNOWN	9.30	300	JNB
3.		UNKNOWN	21.30	200	JN
4.		UNKNOWN	21.82	150	JN
5.		UNKNOWN HYDROCARBON	21.91	120	JN
6.	7372-88-5	Dibenzothiophene, 4-methyl	25.88	92	JN
7.		UNKNOWN HYDROCARBON	26.15	130	JN
8.	613-12-7	ANTHRACENE, 2-METHYL	26.44	140	JN
9.	832-71-3	PHENANTHRENE, 2-METHYL	26.53	220	JN
10.	610-48-0	ANTHRACENE, 1-METHYL	26.79	110	JN
11.	832-64-4	PHENANTHRENE, 4-methyl	26.85	93	JN
12.	57-10-3	HEXADECANOIC ACID	26.99	200	JN
13.	612-94-2	Naphthalene, 2-phenyl	27.42	230	JN
14.	52251-71-5	ANTHRACENE, 2-ethyl	27.86	110	JN
15.	3674-66-6	PHENANTHRENE, 2,5-DIMETHYL	28.23	92	JN
16.	238-84-6	11H BENZO A FLUORENE	30.45	140	JN
17.		UNKNOWN POLYAROMATIC HYDROCARBON	30.51	96	JN
18.	192-97-2	BENZO (e) PYRENE	39.65	980	JN
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B-7 DL

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15011.8 DL

Sample wt/vol: 30.2 (g/ml) G Lab File ID: >14999

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/28/91

Injection Volume: 2.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.4

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CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	1900	U
111-44-4	bis(2-Chloroethyl)ether	1900	U
95-57-8	2-Chlorophenol	1900	U
541-73-1	1,3-Dichlorobenzene	1900	U
106-46-7	1,4-Dichlorobenzene	1900	U
95-50-1	1,2-Dichlorobenzene	1900	U
95-48-7	2-Methylphenol	1900	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1900	U
106-44-5	4-Methylphenol	1900	U
621-64-7	N-Nitroso-di-n-propylamine	1900	U
67-72-1	Hexachloroethane	1900	U
98-95-3	Nitrobenzene	1900	U
78-59-1	Isophorone	1900	U
88-75-5	2-Nitrophenol	1900	U
105-67-9	2,4-Dimethylphenol	1900	U
111-91-1	bis(2-Chloroethoxy)methane	1900	U
120-83-2	2,4-Dichlorophenol	1900	U
120-82-1	1,2,4-Trichlorobenzene	1900	U
91-20-3	Naphthalene	1900	U
106-47-8	4-Chloroaniline	1900	U
87-68-3	Hexachlorobutadiene	1900	U
59-50-7	4-Chloro-3-methylphenol	1900	U
91-57-6	2-Methylnaphthalene	1900	U
77-47-4	Hexachlorocyclopentadiene	1900	U
88-06-2	2,4,6-Trichlorophenol	1900	U
95-95-4	2,4,5-Trichlorophenol	9600	U
91-58-7	2-Chloronaphthalene	1900	U
88-74-4	2-Nitroaniline	9600	U
131-11-3	Dimethylphthalate	1900	U
208-96-8	Acenaphthylene	1900	U
606-20-2	2,6-Dinitrotoluene	1900	U
99-09-2	3-Nitroaniline	9600	U
83-32-9	Acenaphthene	1900	U

B-7 DL

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15011.8 DL

Sample wt/vol: 30.2 (g/ml) G Lab File ID: >14999

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/28/91

Injection Volume: 2.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	9600	U
100-02-7	4-Nitrophenol	9600	U
132-64-9	Dibenzofuran	1900	U
121-14-2	2,4-Dinitrotoluene	1900	U
84-66-2	Diethylphthalate	1900	U
7005-72-3	4-Chlorophenyl-phenylether	1900	U
86-73-7	Fluorene	1900	U
100-01-6	4-Nitroaniline	2700	J D
534-52-1	4,6-Dinitro-2-methylphenol	9600	U
86-30-6	N-Nitrosodiphenylamine	1900	U
101-55-3	4-Bromophenyl-phenylether	1900	U
118-74-1	Hexachlorobenzene	1900	U
87-86-5	Pentachlorophenol	9600	U
85-01-8	Phenanthrene	330	J D
120-12-7	Anthracene	1900	U
86-74-8	Carbazole	1900	U
84-74-2	Di-n-butylphthalate	69	J D
206-44-0	Fluoranthene	450	J D
129-00-0	Pyrene	610	J D
85-68-7	Butylbenzylphthalate	1900	U
91-94-1	3,3'-Dichlorobenzidine	1900	U
56-55-3	Benzo(a)anthracene	870	J D
218-01-9	Chrysene	1300	J D
117-81-7	Bis(2-Ethylhexyl)phthalate	2500	B D
117-84-0	Di-n-octylphthalate	1900	U
205-99-2	Benzo(b)fluoranthene	2000	D
207-08-9	Benzo(k)fluoranthene	1600	J D
50-32-8	Benzo(a)pyrene	1500	J D
193-39-5	Indeno(1,2,3-cd)pyrene	900	J D
53-70-3	Dibenz(a,h)anthracene	340	J D
191-24-2	Benzo(g,h,i)perylene	790	J D

TENTATIVELY IDENTIFIED COMPOUNDS

B-7DL

Lab Name: PACE INC Contract: _____

Lab Code: PACE Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15011.8 DL

Sample wt/vol: 30.2 (g/mL) G Lab File ID: >14999

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/08/91

Injection Volume: 2.0 (uL) Dilution Factor: 5

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 3

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	192-97-2	BENZO (e) PYRENE	37.90	1700	JN
2.	205-82-3	BENZO (j) FLUORANTHENE	38.27	460	JN
3.	192-97-2	BENZO (e) PYRENE	39.02	1800	JN
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

15012.6RE (B-8)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15012.6RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12406

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 16. Date Analyzed: 5/ 4/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene Chloride	3.	J
67-64-1	Acetone	4.	J
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	12.	U
75-34-3	1,1-Dichloroethane	12.	U
540-59-0	1,2-Dichloroethene (total)	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	12.	U
78-93-3	2-Butanone	12.	U
71-55-6	1,1,1-Trichloroethane	12.	U
56-23-5	Carbon Tetrachloride	12.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	12.	U
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
10061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	12.	U
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
1330-20-7	Xylene (total)	~~12.~~ 2	~~U~~ J

05-27-91 KL

B-8

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15012.6

Sample wt/vol: 30.0 (g/ml) G Lab File ID: >13091

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 12 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	73	J
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	93	J
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	1900	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	1900	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	1900	U
83-32-9	Acenaphthene	66	J

B-8

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15012.6

Sample wt/vol: 30.0 (g/ml) G Lab File ID: >13091

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 12 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1900	U
100-02-7	4-Nitrophenol	1900	U
132-64-9	Dibenzofuran	39	J
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	54	J
100-01-6	4-Nitroaniline	1900	U
534-52-1	4,6-Dinitro-2-methylphenol	1900	U
86-30-6	N-Nitrosodiphenylamine	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	1900	U
85-01-8	Phenanthrene	500	
120-12-7	Anthracene	92	J
86-74-8	Carbazole	68	J
84-74-2	Di-n-butylphthalate	27	J
206-44-0	Fluoranthene	490	
129-00-0	Pyrene	420	
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	230	J
218-01-9	Chrysene	250	J
117-81-7	Bis(2-Ethylhexyl)phthalate	1400	B
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	170	J
207-08-9	Benzo(k)fluoranthene	220	J
50-32-8	Benzo(a)pyrene	160	J
193-39-5	Indeno(1,2,3-cd)pyrene	68	J
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	61	J

PESTICIDE ORGANICS ANALYSIS DATA SHEET

150126 (B-8)

Lab Name: PACE, Inc. Contract: ~~OR016~~ SCK 5/23/91

Lab Code: PACE Case No.: ~~5/23/91 HrPat~~ SCK Dames + Moore SAS No.: N/A SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 150126

Sample wt/vol: 30.05 (g/mL) g Lab File ID: NA

% Moisture: 12 decanted: (Y/N) N Date Received: 4/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 4/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 5/19/91

Injection Volume: 5.0 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	3.7	U
72-55-9	4,4'-DDE	3.7	U
72-20-8	Endrin	3.7	U
33213-65-9	Endosulfan II	3.7	U
72-54-8	4,4'-DDD	3.7	U
1031-07-8	Endosulfan sulfate	3.7	U
50-29-3	4,4'-DDT	6.9	P
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.7	U
7421-36-3	Endrin aldehyde	3.7	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	37	U
11104-28-2	Aroclor-1221	37	U
11141-16-5	Aroclor-1232	76	U
53469-21-9	Aroclor-1242	37	U
12672-29-6	Aroclor-1248	37	U
11097-69-1	Aroclor-1254	37	U
11096-82-5	Aroclor-1260	37	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

15012.6RE (B-8)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15012.6RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12406

Level: (low/med) LOW Date Received: 4/24/91

Moisture: not dec. 16. Date Analyzed: 5/ 4/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B-8

Lab Name: PACE INC. Contract: _____

Lab Code: PACE Case No.: D-M SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15012.6

Sample wt/vol: 30.0 (g/mL) G Lab File ID: >13091

Level: (low/med) LOW Date Received: 04-24-91

% Moisture: 12 decanted: (Y/N) N Date Extracted: 04-29-91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05-11-91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	25659-22-7	4-HEXENE-2-ONE	8.91	280	JNB
2.		UNKNOWN HYDROCARBON	23.93	160	JN
3.	75163-97-2	OCTADECANE, 2,6-DIMETHYL	24.02	390	JN
4.	54833-48-6	HEPTADECANE, 2,6,10,15-tetramethyl	26.69	220	JN
5.	613-12-7	ANTHRACENE, 2-METHYL	27.14	120	JN
6.	610-48-0	ANTHRACENE, 1-METHYL	27.40	150	JN
7.		UNKNOWN	27.52	340	JN
8.	112-95-8	EICOSANE	27.97	280	JN
9.		UNKNOWN HYDROCARBON	30.38	460	JN
10.		UNKNOWN HYDROCARBON	31.51	470	JN
11.	4337-65-9	HEXANEDIOIC ACID, MONO(2-ETHYLHEXYL)ESTER	32.72	12000	JNB
12.	629-78-7	UNKNOWN HYDROCARBON	33.79	750	JN
13.	629-50-5	TRIDECANE	35.16	830	JN
14.		UNKNOWN HYDROCARBON	36.76	550	JN
15.	192-97-2	BENZO[E]PYRENE	38.91	230	JN
16.		UNKNOWN HYDROCARBON	39.52	1100	JN
17.		UNKNOWN HYDROCARBON	41.63	320	JN
18.		UNKNOWN HYDROCARBON	43.57	600	JN
19.		UNKNOWN HYDROCARBON	45.17	390	JN
20.		UNKNOWN HYDROCARBON	48.61	410	JN
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

15013.4 (8-9)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15013.4

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12211

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 18. Date Analyzed: 5/ 2/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene Chloride	12.	U
67-64-1	Acetone	15.	
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	12.	U
75-34-3	1,1-Dichloroethane	12.	U
540-59-0	1,2-Dichloroethene (total)	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	12.	U
78-93-3	2-Butanone	6.	J
71-55-6	1,1,1-Trichloroethane	12 ~~0.5~~	U ~~J~~ 05-27-91 RL
56-23-5	Carbon Tetrachloride	12.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	12.	U
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
10061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	12.	U
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
1330-20-7	Xylene (total)	~~12.~~ 3	~~U~~ J 05-27-91 RL

| B-9 |

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15013.4

Sample wt/vol: 30.5 (g/ml) G Lab File ID: >13095

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 16 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	74	J
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	96	J
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	84	J
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	96	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B-9

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15013.4

Sample wt/vol: 30.5 (g/ml) G Lab File ID: >13095

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 16 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	55	J
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	84	J
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	1040	
120-12-7	Anthracene	250	J
86-74-8	Carbazole	160	J
84-74-2	Di-n-butylphthalate	16	J
206-44-0	Fluoranthene	1400	
129-00-0	Pyrene	1400	
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	760	
218-01-9	Chrysene	890	
117-81-7	Bis(2-Ethylhexyl)phthalate	870	B
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo(b)fluoranthene	980	
207-08-9	Benzo(k)fluoranthene	950	
50-32-8	Benzo(a)pyrene	760	
193-39-5	Indeno(1,2,3-cd)pyrene	270	J
53-70-3	Dibenz(a,h)anthracene	93	J
191-24-2	Benzo(g,h,i)perylene	240	J

PESTICIDE ORGANICS ANALYSIS DATA SHEET

150134 (B-9)

Lab Name: PACE, Inc. Contract: ~~OR016~~ SK 5/28/91

Lab Code: PACE Case No.: ~~WrPat~~ SAC 5/28/91 Dames & Moore SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 150134

Sample wt/vol: 30.57 (g/mL) g Lab File ID: NA

% Moisture: 16 decanted: (Y/N) N Date Received: 4/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 4/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 5/18/91

Injection Volume: 5.0 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	3.9	U
72-55-9	4,4'-DDE	13	
72-20-8	Endrin	3.9	U
33213-65-9	Endosulfan II	3.9	U
72-54-8	4,4'-DDD	3.9	U
1031-07-8	Endosulfan sulfate	3.9	U
50-29-3	4,4'-DDT	44	
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	3.9	U
7421-36-3	Endrin aldehyde	3.9	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	39	U
11104-28-2	Aroclor-1221	39	U
11141-16-5	Aroclor-1232	78	U
53469-21-9	Aroclor-1242	39	U
12672-29-6	Aroclor-1248	39	U
11097-69-1	Aroclor-1254	39	U
11096-82-5	Aroclor-1260	39	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

15013.4 (B-9)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15013.4

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12211

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 18. Date Analyzed: 5/ 2/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: ~~1~~ 0 05-27-91 NH

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		~~UNKNOWN C6H4F2~~	~~7.33~~	~~90.~~	~~JN~~
2.					
3.					
4.					
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30.					

Internal Standard Do Not Report NH 5-27-91

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B-9

Lab Name: PACE INC Contract: _____

Lab Code: PACE Case No.: D-M SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15013.4

Sample wt/vol: 30.5 (g/mL) G Lab File ID: >13095

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 16 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/11/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 20

CONCENTRATION UNITS: (ug/L or ug/Kg) ~~ug/Kg~~

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	8.93	860	JNB
2.		UNKNOWN	9.80	340	JNB
3.		UNKNOWN HYDROCARBON	24.02	240	JN
4.	613-12-7	ANTHRACENE, 2-METHYL	27.06	280	JN
5.	832-64-4	PHENANTHRENE, 4-METHYL	27.15	340	JN
6.	610-48-0	ANTHRACENE, 1-METHYL	27.27	150	JN
7.	610-48-0	ANTHRACENE, 1-METHYL	27.41	350	JN
8.	832-64-4	PHENANTHRENE, 4-METHYL	27.48	320	JN
9.	35465-71-5	2-PHENYNAPHTHALENE	28.03	140	JN
10.	84-65-1	9,10-ANTHRACENEDIONE	28.09	160	JN
11.	3674-66-6	PHENANTHRENE, 2,5-DIMETHYL	28.85	190	JN
12.	243-48-5	BENZO[b]NAPHTHO[2,3-d]FURAN	30.37	130	JN
13.	243-17-4	11H-BENZO[b]FLUORENE	31.08	620	JN
14.	2381-21-7	PYRENE, 1-METHYL	31.39	180	JN
15.	4337-65-9	HEXANEDIOIC ACID, MONO(2-ETHYLHEXYL)	32.66	190	JN
16.	192-97-2	BENZO[e]PYRENE	38.97	2100	JN
17.	629-99-2	PENTACOSANE	39.98	780	JN
18.		UNKNOWN HYDROCARBON	43.59	740	JN
19.		UNKNOWN	47.95	2400	JN
20.		UNKNOWN	48.67	1000	JN
21.					
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30.					

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B-9 RE

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15013.4

Sample wt/vol: 30.5 (g/ml) G Lab File ID: >14267

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 16 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/23/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	73	J
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	94	J
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	73	J
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	92	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B-9 RE

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15013.4

Sample wt/vol: 30.5 (g/ml) G Lab File ID: >14267

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 16 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/23/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	57	J
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	85	J
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	1000	
120-12-7	Anthracene	300	J
86-74-8	Carbazole	150	J
84-74-2	Di-n-butylphthalate	15	J
206-44-0	Fluoranthene	1300	
129-00-0	Pyrene	1500	
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	820	
218-01-9	Chrysene	920	
117-81-7	Bis(2-Ethylhexyl)phthalate	850	B
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo(b)fluoranthene	880	
207-08-9	Benzo(k)fluoranthene	890	
50-32-8	Benzo(a)pyrene	760	
193-39-5	Indeno(1,2,3-cd)pyrene	190	J
53-70-3	Dibenz(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	160	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B-9RE

Lab Name: PACE, INC Contract: _____

Lab Code: PACE Case No.: D+M SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15013.4

Sample wt/vol: 30.5 (g/mL) g Lab File ID: 214267

Level: (low/med) LOW Date Received: 04-24-91

% Moisture: 16 decanted: (Y/N) N Date Extracted: 04-29-91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05-23-91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		unknown	8.42	620	JN
2.	1921706	2,6,10,14 tetramethyl pentadecane	23.51	210	JN
3.		unknown	26.16	130	JN
4.		unknown polyaromatic hydrocarbon	26.48	300	JN
5.		unknown polyaromatic hydrocarbon	26.55	340	JN
6.		unknown	26.80	330	JN
7.		unknown polyaromatic hydrocarbon	26.88	120	JN
8.	57103	hexadecanoic acid	26.99	180	JN
9.	34465715	2 phenylnaphthalene	27.45	370	JN
10.		unknown polyaromatic hydrocarbon	28.01	170	JN
11.	3674655	P-Terphenyl, 2,3-dimethyl	28.27	220	JN
12.	5737183	CYCLOPENTA (DEF) PHENANTHRENONE	28.48	110	JN
13.		unknown	29.72	130	JN
14.		unknown polyaromatic hydrocarbon	30.47	490	JN
15.		unknown polyaromatic hydrocarbon	30.67	110	JN
16.		unknown polyaromatic hydrocarbon	31.14	130	JN
17.	82053	7H-benz(de)anthracene-7-one	32.07	140	JN
18.		unknown	32.52	180	JN
19.	3351313	3 methyl chrysene	34.86	180	JN
20.		unknown polyaromatic hydrocarbon	39.07	1500	JN
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

15014.2 (MW-3)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15014.2

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12212

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 15. Date Analyzed: 5/ 2/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12.	U
74-83-9	Bromomethane	12.	U
75-01-4	Vinyl Chloride	12.	U
75-00-3	Chloroethane	12.	U
75-09-2	Methylene Chloride	2.	J
67-64-1	Acetone	17.	
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	12.	U
75-34-3	1,1-Dichloroethane	12.	U
540-59-0	1,2-Dichloroethene (total)	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	12.	U
78-93-3	2-Butanone	4.	J
71-55-6	1,1,1-Trichloroethane	12.	U
56-23-5	Carbon Tetrachloride	12.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	12.	U
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
10061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	12.	U
591-78-6	2-Hexanone	12.	U
127-18-4	Tetrachloroethene	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	12.	U
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
1330-20-7	Xylene (total)	12.	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

non-[redacted]

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15014.2

Sample wt/vol: 30.1 (g/ml) G Lab File ID: >14263

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 15 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/22/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	390	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

non-

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15014.2

Sample wt/vol: 30.1 (g/ml) G Lab File ID: >14263

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 15 decanted: (Y/N) N Date Extracted: 04/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/22/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	390	U
218-01-9	Chrysene	390	U
117-81-7	Bis(2-Ethylhexyl)phthalate	530	B
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	U
50-32-8	Benzo(a)pyrene	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenz(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	390	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

N.F. Inc 6-14-91

150142 (MW-3)

Lab Name: PACE, Inc. Contract: ~~OR016~~

Lab Code: PACE Case No.: ~~HrPat~~ Dames + Moore SAS No.: N/A SDG No.: —

Matrix: (soil/water) SOIL Lab Sample ID: 150142

Sample wt/vol: 30.96 (g/mL) g Lab File ID: NA

% Moisture: 14.9 decanted: (Y/N) N Date Received: 4/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 4/29/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 5/19/91

Injection Volume: 5.0 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) Y pH: 8.0 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	3.8	U
72-55-9	4,4'-DDE	3.8	U
72-20-8	Endrin	3.8	U
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'-DDD	3.8	U
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	3.8	U
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.8	U
7421-36-3	Endrin aldehyde	3.8	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	38	U
11141-16-5	Aroclor-1232	76	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	38	U
11096-82-5	Aroclor-1260	38	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

15014.2 (MW-3)

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 15014.2

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B12212

Level: (low/med) LOW Date Received: 4/24/91

% Moisture: not dec. 15. Date Analyzed: 5/ 2/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
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20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW-3

Lab Name: PACE INC Contract: _____

Lab Code: PACE Case No.: D-M SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 15014.2

Sample wt/vol: 30.1 (g/mL) G Lab File ID: >14263

Level: (low/med) LOW Date Received: 04/24/91

% Moisture: 15 decanted: (Y/N) N Date Extracted: 04/25/91

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/22/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) ~~ug/Kg~~

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	9.38	220	JNB
2.		UNKNOWN	9.04	95	JNB
3.		UNKNOWN	9.27	120	JN
4.		UNKNOWN ORGANIC ACID	9.57	110	JN
5.		UNKNOWN	29.68	100	JN
6.	646-13-9	OCTADECANOIC ACID, 2-METHYL ESTER	31.91	90	JN
7.	4337-65-9	HEXANEDIOIC ACID, MONO C2-ENYL/HEX	32.07	240	JNB
8.		UNKNOWN HYDROCARBON	35.85	120	JN
9.	630-07-9	PENTADECANOANE	39.09	180	JN
10.		UNKNOWN HYDROCARBON	42.97	110	JN
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
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23.					
24.					
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26.					
27.					
28.					
29.					
30.					

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Level: (low/med) LOW

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
1	VBLK	92	92	106		0
2	15006.1	102	98	120		0
3	15007.0	113	89	114		0
4	15008.0	112	89	109		0
5	15008MS	97	90	102		0
6	15008MSD	110	79	116		0
7	VBLK	108	105	101		0
8	15011.8	113	89	119		0
9	15010.0	112	92	109		0
10	VBLK	101	100	91		0
11	~~15012.6~~	~~126~~	~~65~~	~~97~~		~~0~~
12	15013.4	112	93	107		0
13	15014.2	94	91	89		0
14	15009.6	110	99	102		0
15	VBLK	106	106	111		0
16	15012.6RE 05-27-91 NZ	128	77	115		0
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

Rerun is compliant. NZ 5-27-91

	QC LIMITS
S1 (TOL) = Toluene-d8	(84-138)
S2 (BFB) = Bromofluorobenzene	(59-113)
S3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

000071

FORM II VOA-2 1/87 Rev.

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: PACE, INC. Contract:

Lab code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	S7 (2CP)#	S8 (DCB)#	TOT OUT
01	SBLK01	81	88	90	85	85	71	83	72	0
02	MW-1	79	83	83	83	82	90	81	81	0
03	B-5	72	75	82	70	68	82	69	69	0
04	B-5 RE	72	67	89	74	78	81	70	62	0
05	B-6	79	76	100	81	84	76	76	73	0
06	B-6 DL	77	91	93	90	79	74	86	92	0
07	B-6 MS	81	84	84	80	82	83	79	82	0
08	B-6 MSD	81	85	92	79	83	87	80	81	0
09	MW-2	79	85	84	80	83	86	79	80	0
10	B-4	84	87	97	83	84	89	84	78	0
11	B-4 RE	84	80	104	87	91	91	81	70	0
12	B-7	66	65	82	79	75	59	75	61	0
13	B-7 DL	65	75	80	85	85	55	80	70	0
14	B-8	75	81	85	76	78	84	77	76	0
15	B-9	86	88	96	84	85	89	83	78	0
16	B-9 RE	83	78	101	88	92	92	83	72	0
17	MW-3	77	78	84	84	90	86	81	73	0
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(23-120)
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)
S3 (TPH)	= Terphenyl-d14	(18-137)
S4 (PHL)	= Phenol-d5	(24-113)
S5 (2FP)	= 2-Fluorophenol	(25-121)
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)
S7 (2CP)	= 2-Chlorophenol-d4	(20-130)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(20-130)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: Pace, INC Contract: _____

Lab Code: PACE Case No.: ~~0.53~~ Demas → Moore SAS No.: _____ SDG No.: _____

GC Column(1): DB-608 ID: 0.53 (mm) GC Column(2): DB-1701 ID: 0.53 (mm)

N.E. AEC 6-14-91

		EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
	01	PBLK02	84	66	105	94			0
B-6 ~~MW~~ +MS	02	150088MS	100	83	114	115			0
B-6 ~~MW~~ MSD	03	150088MSD	92	80	110	108			0
MW-1	04	150061	93	79	115	109			0
B-5	05	150070	99	74	95	94			0
B-6	06	150088	93	80	143	171			1
MW-2	07	150096	91	77	97	97			0
B-4	08	150100	100	85	137	93			0
B-7	09	150118	97	82	105	101			0
B-8	10	150126	111	88	151	104			1
B-9	11	150134	108	93	127	211			1
MW-3	12	150142	95	76	149	97			0
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								
	26								
	27								
	28								
	29								
	30								

	ADVISORY QC LIMITS
TCX = Tetrachloro-m-xylene	(60-150)
DCB = Decachlorobiphenyl	(60-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

page __ of __

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 15008.0 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (UG/KG)	SAMPLE CONCENTRATION (UG/KG)	MS CONCENTRATION (UG/KG)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	59.	0.	72.	123	59-172
Trichloroethene	59.	0.	64.	108	62-137
Benzene	59.	0.	66.	113	66-142
Toluene	59.	0.	71.	120	59-139
Chlorobenzene	59.	0.	66.	112	60-133

COMPOUND	SPIKE ADDED (UG/KG)	MSD CONCENTRATION (UG/KG)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	59.	69.	117	5	22	59-172
Trichloroethene	59.	60.	102	6	24	62-137
Benzene	59.	58.	99	13	21	66-142
Toluene	59.	71.	120	0	21	59-139
Chlorobenzene	59.	57.	97	14	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PACE, INC. Contract:

Lab code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix Spike - EPA Sample No.: B-6 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
Phenol	3800	0	2600	68	26- 90
2-Chlorophenol	3800	0	2700	70	25-102
1,4-Dichlorobenzene	1900	0	1300	66	28-104
N-Nitroso-di-n-propylam	1900	0	1400	72	41-126
1,2,4-Trichlorobenzene	1900	0	1300	70	38-107
4-Chloro-3-methylphenol	3800	0	2700	72	26-103
Acenaphthene	1900	0	1400	73	31-137
4-Nitrophenol	3800	0	2800	74	11-114
2,4-Dinitrotoluene	1900	0	1100	60	28- 89
Pentachlorophenol	3800	0	2900	76	17-109
Pyrene	1900	510	1500	54	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	3900	2600	68	1	35	26- 90
2-Chlorophenol	3900	2800	72	2	50	25-102
1,4-Dichlorobenzene	1900	1200	64	3	27	28-104
N-Nitroso-di-n-propylam	1900	1400	73	1	38	41-126
1,2,4-Trichlorobenzene	1900	1400	70	0	23	38-107
4-Chloro-3-methylphenol	3900	2800	73	2	33	26-103
Acenaphthene	1900	1400	72	1	19	31-137
4-Nitrophenol	3900	2900	76	3	50	11-114
2,4-Dinitrotoluene	1900	1200	61	1	47	28- 89
Pentachlorophenol	3900	3200	82	8	47	17-109
Pyrene	1900	2000	80	38 *	36	35-142

column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 11 outside limits

Spike Recovery: 0 out of 22 outside limits

COMMENTS: _____

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PACE, INC Contract: _____

Lab Code: PACE Case No.: Dames + Moore SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: 150088

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
gamma-BHC (Lindane)	~~66~~ 77	0	72.0	94	46-127
Heptachlor	~~66~~ 77	0	64.4	84	35-130
Aldrin	~~66~~ 77	0	59.0	77	34-132
Dieldrin	~~266~~ 308	0	302	98	31-134
Endrin	~~266~~ 308	0	271	88	42-139
4,4'-DDT	~~266~~ 308	0	265	86	23-134

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	78	74.6	96	2	50	46-127
Heptachlor	78	62.9	81	4	31	35-130
Aldrin	78	61.8	79	3	43	34-132
Dieldrin	309	291	94	4	38	31-134
Endrin	309	271	88	0	45	42-139
4,4'-DDT	309	266	86	0	50	23-134

Column to be used to flag recovery and RPD values with an asterisk

Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS: _____

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

PACE Interregion - Minnesota
1710 Douglas Drive North
Minneapolis, MN 55422

June 11, 1991
PACE Project Number: 910424528

Attn: Customer Service

Dames & Moore

PACE Sample Number:			10 0150061	
Date Collected:			04/22/91	
Date Received:			05/01/91	
Parameter	Units	MDL	MW-1	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	mg/kg	0.01	ND	05/07/91
Totals, Extract Date-Metals (Soils+)			05/08/91	
CLP TARGET ANALYTE LIST FOR SOLIDS				
Aluminum	mg/kg	27.0	3560	05/21/91
Arsenic	mg/kg	1.4	2.0	05/21/91
Antimony	mg/kg	8.1	ND	05/21/91
Barium	mg/kg	27.0	56.7	05/21/91
Beryllium	mg/kg	0.68	ND	05/21/91
Cadmium	mg/kg	0.68	1.1	05/21/91
Calcium-Solid	mg/kg	135	17700	05/21/91
Chromium	mg/kg	1.4	8.3	05/21/91
Cobalt	mg/kg	6.8	ND	05/21/91
Copper	mg/kg	3.4	6.1	05/21/91
Iron	mg/kg	13.5	5270	05/21/91
Lead	mg/kg	0.41	15.5	05/21/91
Magnesium	mg/kg	135	5320	05/21/91
Manganese	mg/kg	2.0	163	05/21/91
Mercury	mg/kg	0.34	ND	05/21/91
Nickel	mg/kg	5.4	6.8	05/21/91
Potassium	mg/kg	135	463	05/21/91
Selenium	mg/kg	0.68	ND	05/21/91
Silver	mg/kg	1.4	ND	05/21/91
Sodium	mg/kg	135	ND	05/21/91
Thallium	mg/kg	1.4	ND	05/21/91
Vanadium	mg/kg	6.8	9.8	05/21/91
Zinc	mg/kg	2.7	24.2	05/21/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

9608 Loiret Boulevard
Lenexa, KS 66219
TEL: 913-599-5665
FAX: 913-599-1759

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REPORT OF LABORATORY ANALYSIS

Customer Service
Page 2

June 11, 1991
PACE Project Number: 910424528

Dames & Moore

PACE Sample Number:			10 0150070	
Date Collected:			04/22/91	
Date Received:			05/01/91	
Parameter	Units	MDL	B-5	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	mg/kg	0.01	7.58	05/07/91 7.6
Totals, Extract Date-Metals (Soils+)			05/08/91	
CLP TARGET ANALYTE LIST FOR SOLIDS				
Aluminum	mg/kg	24.1	2910	05/21/91
Arsenic	mg/kg	1.2	4.6	05/21/91
Antimony	mg/kg	7.2	ND	05/21/91
Barium	mg/kg	24.1	84.1	05/21/91
Beryllium	mg/kg	0.60	ND	05/21/91
Cadmium	mg/kg	0.60	ND	05/21/91
Calcium-Solid	mg/kg	120	33900	05/21/91
Chromium	mg/kg	1.2	12.0	05/21/91
Cobalt	mg/kg	6.0	ND	05/21/91
Copper	mg/kg	3.0	9.9	05/21/91
Iron	mg/kg	12.0	8760	05/21/91
Lead	mg/kg	0.36	93.2	05/21/91
Magnesium	mg/kg	120	10300	05/21/91
Manganese	mg/kg	1.8	968	05/21/91
Mercury	mg/kg	0.30	ND	05/21/91
Nickel	mg/kg	4.8	7.4	05/21/91
Potassium	mg/kg	120	740	05/21/91
Selenium	mg/kg	0.60	ND	05/21/91
Silver	mg/kg	1.20	ND	05/21/91
Sodium	mg/kg	120	134	05/21/91
Thallium	mg/kg	1.2	ND	05/21/91
Vanadium	mg/kg	6.0	11.7	05/21/91
Zinc	mg/kg	2.4	48.2	05/21/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

REPORT OF LABORATORY ANALYSIS

Customer Service
Page 3

June 11, 1991
PACE Project Number: 910424528

Dames & Moore

PACE Sample Number:			10 0150088	
Date Collected:			04/22/91	
Date Received:			05/01/91	
Parameter	Units	MDL	B-6	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	mg/kg	0.01	ND	05/07/91
Totals, Extract Date-Metals (Soils+)			05/08/91	
CLP TARGET ANALYTE LIST FOR SOLIDS				
Aluminum	mg/kg	2.3	5190	05/21/91
Arsenic	mg/kg	1.2	22.2	05/21/91
Antimony	mg/kg	7.0	ND	05/21/91
Barium	mg/kg	2.3	114	05/21/91
Beryllium	mg/kg	0.58	ND	05/21/91
Cadmium	mg/kg	0.58	4.6	05/21/91
Calcium-Solid	mg/kg	116	8580	05/21/91
Chromium	mg/kg	1.16	29.7	05/21/91
Cobalt	mg/kg	5.8	12.4	05/21/91
Copper	mg/kg	2.9	2390	05/21/91
Iron	mg/kg	11.6	93000	05/21/91
Lead	mg/kg	0.35	1860	05/21/91
Magnesium	mg/kg	116	2800	05/21/91
Manganese	mg/kg	1.7	1010	05/21/91
Mercury	mg/kg	0.29	ND	05/21/91
Nickel	mg/kg	4.7	94.7	05/21/91
Potassium	mg/kg	116	427	05/21/91
Selenium	mg/kg	0.58	ND	05/21/91
Silver	mg/kg	1.2	ND	05/21/91
Sodium	mg/kg	116	165	05/21/91
Thallium	mg/kg	1.2	ND	05/21/91
Vanadium	mg/kg	5.8	62.3	05/21/91
Zinc	mg/kg	2.3	1080	05/21/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

REPORT OF LABORATORY ANALYSIS

Customer Service
Page 4

June 11, 1991
PACE Project Number: 910424528

Dames & Moore

PACE Sample Number:			10 0150096	
Date Collected:			04/22/91	
Date Received:			05/01/91	
Parameter	Units	MDL	MW-2	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	mg/kg	0.01	ND	05/07/91
Totals, Extract Date-Metals (Soils+)			05/08/91	
CLP TARGET ANALYTE LIST FOR SOLIDS				
Aluminum	mg/kg	22.7	3570	05/21/91
Arsenic	mg/kg	1.1	5.3	05/21/91
Antimony	mg/kg	6.8	ND	05/21/91
Barium	mg/kg	22.7	58.0	05/21/91
Beryllium	mg/kg	0.57	ND	05/21/91
Cadmium	mg/kg	0.57	3.6	05/21/91
Calcium-Solid	mg/kg	114	37200	05/21/91
Chromium	mg/kg	1.1	9.8	05/21/91
Cobalt	mg/kg	5.7	ND	05/21/91
Copper	mg/kg	2.8	8.2	05/21/91
Iron	mg/kg	11.4	8070	05/21/91
Lead	mg/kg	0.34	3.9	05/21/91
Magnesium	mg/kg	114	10500	05/21/91
Manganese	mg/kg	1.7	364	05/21/91
Mercury	mg/kg	0.28	ND	05/21/91
Nickel	mg/kg	4.5	8.4	05/21/91
Potassium	mg/kg	114	826	05/21/91
Selenium	mg/kg	0.57	ND	05/21/91
Silver	mg/kg	1.1	ND	05/21/91
Sodium	mg/kg	114	122	05/21/91
Thallium	mg/kg	1.1	ND	05/21/91
Vanadium	mg/kg	5.7	11.6	05/21/91
Zinc	mg/kg	2.3	27.1	05/21/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

REPORT OF LABORATORY ANALYSIS

Customer Service
Page 5

June 11, 1991
PACE Project Number: 910424528

Dames & Moore

PACE Sample Number:			10 0150100	
Date Collected:			04/22/91	
Date Received:			05/01/91	
Parameter	Units	MDL	B-4	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	mg/kg	0.01	ND	05/07/91
Totals, Extract Date-Metals (Soils+)			05/08/91	
CLP TARGET ANALYTE LIST FOR SOLIDS				
Aluminum	mg/kg	23.8	2480	05/21/91
Arsenic	mg/kg	1.2	7.0	05/21/91
Antimony	mg/kg	7.1	ND	05/21/91
Barium	mg/kg	23.8	64.1	05/21/91
Beryllium	mg/kg	0.60	ND	05/21/91
Cadmium	mg/kg	0.60	1.3	05/21/91
Calcium-Solid	mg/kg	119	41300	05/21/91
Chromium	mg/kg	1.20	14.4	05/21/91
Cobalt	mg/kg	6.0	ND	05/21/91
Copper	mg/kg	3.0	24.2	05/21/91
Iron	mg/kg	11.9	16200	05/21/91
Lead	mg/kg	0.36	88.6	05/21/91
Magnesium	mg/kg	119	7960	05/21/91
Manganese	mg/kg	1.8	460	05/21/91
Mercury	mg/kg	0.30	ND	05/21/91
Nickel	mg/kg	4.8	12.0	05/21/91
Potassium	mg/kg	119	618	05/21/91
Selenium	mg/kg	0.60	ND	05/21/91
Silver	mg/kg	1.2	ND	05/21/91
Sodium	mg/kg	119	197	05/21/91
Thallium	mg/kg	1.2	ND	05/21/91
Vanadium	mg/kg	6.0	10.4	05/21/91
Zinc	mg/kg	2.4	94.9	05/21/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

REPORT OF LABORATORY ANALYSIS

Customer Service
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June 11, 1991
PACE Project Number: 910424528

Dames & Moore

PACE Sample Number:			10 0150118	
Date Collected:			04/22/91	
Date Received:			05/01/91	
Parameter	Units	MDL	B-7	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	mg/kg	0.01	ND	05/07/91
Totals, Extract Date-Metals (Soils+)			05/08/91	
CLP TARGET ANALYTE LIST FOR SOLIDS				
Aluminum	mg/kg	22.2	28000	05/21/91
Arsenic	mg/kg	1.10	ND	05/21/91
Antimony	mg/kg	6.7	ND	05/21/91
Barium	mg/kg	22.2	184	05/21/91
Beryllium	mg/kg	0.56	ND	05/21/91
Cadmium	mg/kg	0.56	1.9	05/21/91
Calcium-Solid	mg/kg	111	7500	05/21/91
Chromium	mg/kg	1.1	115	05/21/91
Cobalt	mg/kg	5.6	ND	05/21/91
Copper	mg/kg	2.8	4290	05/21/91
Iron	mg/kg	11.1	11500	05/21/91
Lead	mg/kg	0.33	1000	05/21/91
Magnesium	mg/kg	111	1660	05/21/91
Manganese	mg/kg	1.7	249	05/21/91
Mercury	mg/kg	0.28	1.0	05/21/91
Nickel	mg/kg	4.4	58.6	05/21/91
Potassium	mg/kg	111	369	05/21/91
Selenium	mg/kg	5.6	ND	05/21/91
Silver	mg/kg	1.1	ND	05/21/91
Sodium	mg/kg	111	920	05/21/91
Thallium	mg/kg	1.1	ND	05/21/91
Vanadium	mg/kg	5.6	8.1	05/21/91
Zinc	mg/kg	2.2	481	05/21/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

REPORT OF LABORATORY ANALYSIS

Customer Service
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June 11, 1991
PACE Project Number: 910424528

Dames & Moore

PACE Sample Number:			10 0150126	
Date Collected:			04/22/91	
Date Received:			05/01/91	
Parameter	Units	MDL	B-8	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	mg/kg	0.01	ND	05/07/91
Totals, Extract Date-Metals (Soils+)			05/08/91	
CLP TARGET ANALYTE LIST FOR SOLIDS				
Aluminum	mg/kg	21.7	6980	05/21/91
Arsenic	mg/kg	1.1	1.9	05/21/91
Antimony	mg/kg	6.5	ND	05/21/91
Barium	mg/kg	21.7	24.5	05/21/91
Beryllium	mg/kg	0.54	ND	05/21/91
Cadmium	mg/kg	0.54	ND	05/21/91
Calcium-Solid	mg/kg	109	3270	05/21/91
Chromium	mg/kg	1.1	19.9	05/21/91
Cobalt	mg/kg	5.4	ND	05/21/91
Copper	mg/kg	2.7	1160	05/21/91
Iron	mg/kg	10.9	13900	05/21/91
Lead	mg/kg	0.33	113	05/21/91
Magnesium	mg/kg	109	524	05/21/91
Manganese	mg/kg	1.6	233	05/21/91
Mercury	mg/kg	0.27	ND	05/21/91
Nickel	mg/kg	4.3	17.6	05/21/91
Potassium	mg/kg	109	ND	05/21/91
Selenium	mg/kg	0.54	ND	05/21/91
Silver	mg/kg	1.1	ND	05/21/91
Sodium	mg/kg	109	ND	05/21/91
Thallium	mg/kg	1.1	ND	05/21/91
Vanadium	mg/kg	5.4	7.8	05/21/91
Zinc	mg/kg	2.2	148	05/21/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Customer Service
Page 8

June 11, 1991
PACE Project Number: 910424528

Dames & Moore

PACE Sample Number:			10 0150134	
Date Collected:			04/22/91	
Date Received:			05/01/91	
Parameter	Units	MDL	B-9	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	mg/kg	0.01 1.2	ND OK	05/07/91
Totals, Extract Date-Metals (Soils+)			05/08/91	
CLP TARGET ANALYTE LIST FOR SOLIDS				
Aluminum	mg/kg	23.5	7370	05/21/91
Arsenic	mg/kg	1.2	15.3	05/21/91
Antimony	mg/kg	7.1	ND	05/21/91
Barium	mg/kg	23.5	95.1	05/21/91
Beryllium	mg/kg	0.59	ND	05/21/91
Cadmium	mg/kg	0.59	ND	05/21/91
Calcium-Solid	mg/kg	118	22900	05/21/91
Chromium	mg/kg	1.2	18.2	05/21/91
Cobalt	mg/kg	5.9	6.4	05/21/91
Copper	mg/kg	2.9	31.8	05/21/91
Iron	mg/kg	11.8	12900	05/21/91
Lead	mg/kg	0.35	71.1	05/21/91
Magnesium	mg/kg	118	6100 6110	05/21/91
Manganese	mg/kg	1.8	483	05/21/91
Mercury	mg/kg	0.29	ND	05/21/91
Nickel	mg/kg	4.7	12.7	05/21/91
Potassium	mg/kg	118	931	05/21/91
Selenium	mg/kg	0.59	ND	05/21/91
Silver	mg/kg	1.2	ND	05/21/91
Sodium	mg/kg	118	ND	05/21/91
Thallium	mg/kg	1.20	ND	05/21/91
Vanadium	mg/kg	5.9	21.8	05/21/91
Zinc	mg/kg	2.4	82.4	05/21/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

9608 Loiret Boulevard
Lenexa, KS 66219
TEL: 913-599-5665
FAX: 913-599-1759

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REPORT OF LABORATORY ANALYSIS

Customer Service
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June 11, 1991
PACE Project Number: 910424528

Dames & Moore

PACE Sample Number:			10 0150142	
Date Collected:			04/22/91	
Date Received:			05/01/91	
Parameter	Units	MDL	MW-3	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	mg/kg	0.01	ND	05/07/91
Totals, Extract Date-Metals (Soils+)			05/08/91	
CLP TARGET ANALYTE LIST FOR SOLIDS				
Aluminum	mg/kg	24.4	4820	05/21/91
Arsenic	mg/kg	1.2	6.3	05/21/91
Antimony	mg/kg	7.3	ND	05/21/91
Barium	mg/kg	24.4	77.0	05/21/91
Beryllium	mg/kg	0.61	ND	05/21/91
Cadmium	mg/kg	0.61	0.70	05/21/91
Calcium-Solid	mg/kg	122	36200	05/21/91
Chromium	mg/kg	1.2	10.7	05/21/91
Cobalt	mg/kg	6.1	ND	05/21/91
Copper	mg/kg	3.0	8.5	05/21/91
Iron	mg/kg	12.2	9430	05/21/91
Lead	mg/kg	0.37	5.6	05/21/91
Magnesium	mg/kg	122	11500	05/21/91
Manganese	mg/kg	1.8	467	05/21/91
Mercury	mg/kg	0.30	ND	05/21/91
Nickel	mg/kg	4.9	11.3	05/21/91
Potassium	mg/kg	122	857	05/21/91
Selenium	mg/kg	0.61	ND	05/21/91
Silver	mg/kg	1.2	ND	05/21/91
Sodium	mg/kg	122	ND	05/21/91
Thallium	mg/kg	1.2	ND	05/21/91
Vanadium	mg/kg	6.1	15.5	05/21/91
Zinc	mg/kg	2.4	35.2	05/21/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

Dames & Moore

These data have been reviewed and are approved for release.

Brian J. Smith
Manager, Inorganic Chemistry

9608 Loiret Boulevard
Lenexa, KS 66219
TEL: 913-599-5665
FAX: 913-599-1759

REPORT OF LABORATORY ANALYSIS

Customer Service
Page 11

QUALITY CONTROL DATA

June 11, 1991
PACE Project Number: 910424528

Dames & Moore

Cyanide, Total by 335.2
Batch: 60 04673
Samples: 10 0150061, 10 0150070, 10 0150088, 10 0150096, 10 0150100
10 0150118, 10 0150126, 10 0150134, 10 0150142

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	MDL	Method Blank	10 0150118 B-7	Duplicate of Sample 10 0150118	RPD
Cyanide, Total by 335.2	mg/kg	0.01	ND	ND	ND	0%

SPIKE:

Parameter	Units	MDL	10 0150142 MW-3	Spike	Spike Recv
Cyanide, Total by 335.2	mg/kg	0.01	ND	0.20	96%

LABORATORY CONTROL SAMPLE:

Parameter	Units	MDL	Spiked Blank	Spike	Recv
Cyanide, Total by 335.2	mg/kg	0.01	0.124	0.13	95%

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference

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3373

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: PACE MN
Address:
Phone:

Report To: Wendy Patrick
Bill To:
P.O. # / Billing Reference:
Project Name / No.:

Pace Client No.:
Pace Project Manager:
Pace Project No.: 910-[illegible]
*Requested Due Date: Level 4

Sampled By (PRINT):
Sampler Signature: Date Sampled:

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	UNPRESERVED	H_2SO_4	HNO_3	VOA			ANALYSES REQUEST	REMARKS
1				15014 2									
2	Temp Blank												Record Temp upon arrival
3													
4													
5													
6													
7													
8													

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	SHIPMENT METHOD RETURNED / DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
1 2	[illegible] / PACE, MN	[illegible]	4-30-91	17:[illegible]
	[illegible]	[illegible]	5/1/91	0830

Additional Comments

CLP - PDE

SEE REVERSE SIDE FOR INSTRUCTIONS

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THE ASSURANCE OF QUALITY

372

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client [illegible]

Address

Phone

Report To: [illegible]

Bill To:

P.O. # / Billing Reference

Project Name / No.

Pace Client No.

Pace Project Manager

Pace Project No. [illegible]

*Requested Due Date: [illegible]

Sampled By (PRINT):

Sampler Signature

Date Sampled

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA			ANALYSES REQUEST	REMARKS
1				15006.1									
2				15007.0									
3				15008.8									
4				15009.6									
5				15010.0									
6				15011.8									
7				15012.6									
8				[illegible]									

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	RETURNED / DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
18	[illegible] / PACE MN	[illegible]	4-30-91	17:00
	[illegible]	[illegible]	6/1/91	[illegible]

Additional Comments

All [illegible] [illegible] [illegible]

SEE REVERSE SIDE FOR INSTRUCTIONS

APPENDIX E

GROUND WATER ANALYTICAL DATA

Dames and Moore
Fairmont Railway Site
(Waters)

Sample Data Summary Package

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

17041.0 (Field Blank)

Lab Name: PACE Contract: ~~ORB16~~ APC 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17041.0

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13730

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	6.	BJ
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylene (total)	10.	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLK

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17041.0

Sample wt/vol: 960 (g/ml) ML Lab File ID: >13753

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	52	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	52	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	52	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD BLK

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17041.0

Sample wt/vol: 960 (g/ml) ML Lab File ID: >13753

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	52	U
100-02-7	4-Nitrophenol	52	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	52	U
534-52-1	4,6-Dinitro-2-methylphenol	52	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	52	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

170410 (Field Blank)

Lab Name: PACE, Inc. Contract: ~~OR016~~ SOC 5/23/91

Lab Code: PACE Case No.: ~~WrPat~~ SOC 5/23/91 SAS No.: N/A SDG No.: ____

Matrix: (soil/water) WATER Lab Sample ID: 170410DM

Sample wt/vol: 1000 (g/mL) ml Lab File ID: NA

% Moisture: NA decanted: (Y/N) N Date Received: 5/10/91

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 5/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5/15/91

Injection Volume: 5.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta-BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	2.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

17041.0
(Field Blank)

Lab Name: PACE Contract: ~~DR016~~ LRC 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17041.0

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13730

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

KEB 6/14/91

Number TICs found: 01

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	G
1.	1825-61-2	Silane, methoxytrimethyl-	6.32	14	JN
2.					
3.					
4.					
5.					
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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Field BLK

Lab Name: Pace Inc Contract: _____

Lab Code: PACE Case No.: DoM SAS No.: NA SDG No.: NA

Matrix: (soil/water) Water Lab Sample ID: 170410

Sample wt/vol: 960 (g/mL) mL Lab File ID: >13753

Level: (low/med) Low Date Received: 5-10-91

% Moisture: NA decanted: (Y/N) NA Date Extracted: 5-14-91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5-17-91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) NA pH: 7.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

17042.3 (Rinse Blank)

Lab Name: PACE Contract: ~~OR016~~ ARC 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17042.3

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13731

Level: (low/med) LOW Date Received: 5/10/91

Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	3.	BJ
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylene (total)	10.	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RINSE BLK

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17042.9

Sample wt/vol: 950 (g/ml) ML Lab File ID: >13754

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	11	U
111-44-4	bis(2-Chloroethyl)ether	11	U
95-57-8	2-Chlorophenol	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
95-50-1	1,2-Dichlorobenzene	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	2,2'-oxybis(1-Chloropropane)	11	U
106-44-5	4-Methylphenol	11	U
621-64-7	N-Nitroso-di-n-propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	11	U
88-75-5	2-Nitrophenol	11	U
105-67-9	2,4-Dimethylphenol	11	U
111-91-1	bis(2-Chloroethoxy)methane	11	U
120-83-2	2,4-Dichlorophenol	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	11	U
87-68-3	Hexachlorobutadiene	11	U
59-50-7	4-Chloro-3-methylphenol	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
88-06-2	2,4,6-Trichlorophenol	11	U
95-95-4	2,4,5-Trichlorophenol	53	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	53	U
131-11-3	Dimethylphthalate	11	U
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U
99-09-2	3-Nitroaniline	53	U
83-32-9	Acenaphthene	11	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RINSE BLK

a Name: PACE, INC. Contract:

ab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 17042.9

ample wt/vol: 950 (g/ml) ML Lab File ID: >13754

evel: (low/med) LOW Date Received: 05/10/91

oisture: decanted: (Y/N) Date Extracted: 05/14/91

oncentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

njection Volume: 2.0 (uL) Dilution Factor: 1.0

P Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	53	U
100-02-7	4-Nitrophenol	53	U
132-64-9	Dibenzofuran	11	U
121-14-2	2,4-Dinitrotoluene	11	U
84-66-2	Diethylphthalate	11	U
7005-72-3	4-Chlorophenyl-phenylether	11	U
86-73-7	Fluorene	11	U
100-01-6	4-Nitroaniline	53	U
534-52-1	4,6-Dinitro-2-methylphenol	53	U
86-30-6	N-Nitrosodiphenylamine	11	U
101-55-3	4-Bromophenyl-phenylether	11	U
118-74-1	Hexachlorobenzene	11	U
87-86-5	Pentachlorophenol	53	U
85-01-8	Phenanthrene	11	U
120-12-7	Anthracene	11	U
86-74-8	Carbazole	11	U
84-74-2	Di-n-butylphthalate	11	U
206-44-0	Fluoranthene	11	U
129-00-0	Pyrene	11	U
85-68-7	Butylbenzylphthalate	11	U
91-94-1	3,3'-Dichlorobenzidine	11	U
56-55-3	Benzo(a)anthracene	11	U
218-01-9	Chrysene	11	U
117-81-7	Bis(2-Ethylhexyl)phthalate	11	U
117-84-0	Di-n-octylphthalate	11	U
205-99-2	Benzo(b)fluoranthene	11	U
207-08-9	Benzo(k)fluoranthene	11	U
50-32-8	Benzo(a)pyrene	11	U
193-39-5	Indeno(1,2,3-cd)pyrene	11	U
53-70-3	Dibenz(a,h)anthracene	11	U
191-24-2	Benzo(g,h,i)perylene	11	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

170429 (Rinse Blank)

Lab Name: PACE, Inc. Contract: ~~OR016~~ SDG 5/23/91

Lab Code: PACE Case No.: ~~WrPat~~ SDG 5/23/91 SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 170429DM

Sample wt/vol: 750 (g/mL) ml Lab File ID: NA

% Moisture: NA decanted: (Y/N) N Date Received: 5/10/91

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 5/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5/16/91

Injection Volume: 5.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	0.07	U
319-85-7	beta-BHC	0.07	U
319-86-8	delta-BHC	0.07	U
58-89-9	gamma-BHC (Lindane)	0.07	U
76-44-8	Heptachlor	0.07	U
309-00-2	Aldrin	0.07	U
1024-57-3	Heptachlor epoxide	0.07	U
959-98-8	Endosulfan I	0.07	U
60-57-1	Dieldrin	0.13	U
72-55-9	4,4'-DDE	0.13	U
72-20-8	Endrin	0.13	U
33213-65-9	Endosulfan II	0.13	U
72-54-8	4,4'-DDD	0.13	U
1031-07-8	Endosulfan sulfate	0.13	U
50-29-3	4,4'-DDT	0.13	U
72-43-5	Methoxychlor	0.67	U
53494-70-5	Endrin ketone	0.13	U
7421-36-3	Endrin aldehyde	0.13	U
5103-71-9	alpha-Chlordane	0.07	U
5103-74-2	gamma-Chlordane	0.07	U
8001-35-2	Toxaphene	0.70	U
12674-11-2	Aroclor-1016	1.3	U
11104-28-2	Aroclor-1221	1.3	U
11141-16-5	Aroclor-1232	2.7	U
53469-21-9	Aroclor-1242	1.3	U
12672-29-6	Aroclor-1248	1.3	U
11097-69-1	Aroclor-1254	1.3	U
11096-82-5	Aroclor-1260	1.3	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

17042.3 (Rinse Blank)

Lab Name: PACE Contract: ~~OR016~~ ARC 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17042.3

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13731

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

KEB 6/16/91

Number TICs found: ~~0~~ 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		unknown Silane	6.33	5	JN
2.					
3.					
4.					
5.					
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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Rinse BLK

Lab Name: Pace Inc. Contract: _____

Lab Code: PACE Case No.: _____ SAS No.: NA SDG No.: NA

Matrix: (soil/water) Water Lab Sample ID: 17042.9

Sample wt/vol: 950 (g/mL) mL Lab File ID: >13754

Level: (low/med) Low Date Received: 5-10-91

% Moisture: NA decanted: (Y/N) NA Date Extracted: 5-14-91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5-17-91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) NA pH: 7.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	9.33	2.0	JN
2. 931179	1,2 cyclohexanediol	12.44	4.0	JN
3.				
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

17043.7 (MW-2)

Lab Name: PACE Contract: ~~BR016~~ ARC 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17043.7

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13732

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	G
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	3.	J
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylene (total)	10.	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Mnon-

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17043.7

Sample wt/vol: 910 (g/ml) ML Lab File ID: >13755

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	11	U
111-44-4	bis(2-Chloroethyl)ether	11	U
95-57-8	2-Chlorophenol	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
95-50-1	1,2-Dichlorobenzene	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	2,2'-oxybis(1-Chloropropane)	11	U
106-44-5	4-Methylphenol	11	U
621-64-7	N-Nitroso-di-n-propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	1	J
88-75-5	2-Nitrophenol	11	U
105-67-9	2,4-Dimethylphenol	11	U
111-91-1	bis(2-Chloroethoxy)methane	11	U
120-83-2	2,4-Dichlorophenol	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	11	U
87-68-3	Hexachlorobutadiene	11	U
59-50-7	4-Chloro-3-methylphenol	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
88-06-2	2,4,6-Trichlorophenol	11	U
95-95-4	2,4,5-Trichlorophenol	55	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	55	U
131-11-3	Dimethylphthalate	11	U
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U
99-09-2	3-Nitroaniline	55	U
83-32-9	Acenaphthene	11	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

non-

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17043.7

Sample wt/vol: 910 (g/ml) ML Lab File ID: >13755

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	55	U
100-02-7	4-Nitrophenol	55	U
132-64-9	Dibenzofuran	11	U
121-14-2	2,4-Dinitrotoluene	11	U
84-66-2	Diethylphthalate	11	U
7005-72-3	4-Chlorophenyl-phenylether	11	U
86-73-7	Fluorene	11	U
100-01-6	4-Nitroaniline	55	U
534-52-1	4,6-Dinitro-2-methylphenol	55	U
86-30-6	N-Nitrosodiphenylamine	11	U
101-55-3	4-Bromophenyl-phenylether	11	U
118-74-1	Hexachlorobenzene	11	U
87-86-5	Pentachlorophenol	55	U
85-01-8	Phenanthrene	11	U
120-12-7	Anthracene	11	U
86-74-8	Carbazole	11	U
84-74-2	Di-n-butylphthalate	11	U
206-44-0	Fluoranthene	11	U
129-00-0	Pyrene	11	U
85-68-7	Butylbenzylphthalate	11	U
91-94-1	3,3'-Dichlorobenzidine	11	U
56-55-3	Benzo(a)anthracene	11	U
218-01-9	Chrysene	11	U
117-81-7	Bis(2-Ethylhexyl)phthalate	7	J
117-84-0	Di-n-octylphthalate	11	U
205-99-2	Benzo(b)fluoranthene	11	U
207-08-9	Benzo(k)fluoranthene	11	U
50-32-8	Benzo(a)pyrene	11	U
193-39-5	Indeno(1,2,3-cd)pyrene	11	U
53-70-3	Dibenz(a,h)anthracene	11	U
191-24-2	Benzo(g,h,i)perylene	11	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

170437 (MW-2)

Lab Name: PACE, Inc. Contract: ~~OR016~~ SAC 5/23/91

Lab Code: PACE Case No.: ~~WrPat~~ SAC 5/23/91 SAS No.: N/A SDG No.: ____

Matrix: (soil/water) WATER Lab Sample ID: 170437DM

Sample wt/vol: 1000 (g/mL) ml Lab File ID: NA

% Moisture: NA decanted: (Y/N) N Date Received: 5/10/91

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 5/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5/16/91

Injection Volume: 5.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta-BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

17043.7 (MW-2)

Lab Name: PACE Contract: ~~OR016~~ ARC 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17043.7

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13732

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

KEB 6/13/91

Number TICs found: 01

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	G
1.	1825-61-2	Silane, methoxytrimethyl-	6.35	20	JN
2.					
3.					
4.					
5.					
6.					
7.					
8.					
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1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

[redacted]-no

Lab Name: PACE INC Contract:

Lab Code: PACE Case No.: D+M SAS No.: NA SDG No.: NA

Matrix: (soil/water) Water Lab Sample ID: 17043.7

Sample wt/vol: 910 (g/mL) mL Lab File ID: >13755

Level: (low/med) Low Date Received: 5-10-91

% Moisture: NA decanted: (Y/N) NA Date Extracted: 5-14-91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5-17-91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) NA pH: 7.0

Number TICs found: 4

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	931179	1,2 Cyclohexanediol	12.47	6.0	JN
2.		Unknown	14.19	3.0	JN
3.		Unknown	31.35	11.0	JN
4.		Unknown	39.93	3.0	JN
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

17044.5 (Field Duplicate)

Lab Name: PACE Contract: ~~SRD16~~ ARC 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17044.5

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13733

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	G
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	6.	BJ
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylene (total)	10.	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD DUP

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17044.5

Sample wt/vol: 980 (g/ml) ML Lab File ID: >13756

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	51	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	51	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	51	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FIELD DUP

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17044.5

Sample wt/vol: 980 (g/ml) ML Lab File ID: >13756

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	51	U
100-02-7	4-Nitrophenol	51	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	51	U
534-52-1	4,6-Dinitro-2-methylphenol	51	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	51	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

170445
(Field Duplicate)

Lab Name: PACE, Inc. Contract: ~~OR016~~ SOC 5/23/91

Lab Code: PACE Case No.: ~~Hrpat~~ SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 170445DM

Sample wt/vol: 990 (g/mL) ml Lab File ID: NA

% Moisture: NA decanted: (Y/N) N Date Received: 5/10/91

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 5/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5/16/91

Injection Volume: 5.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta-BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	2.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

17044.5 (Field Duplicate)

Lab Name: PACE Contract: ~~OR01C~~ DRC 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17044.5

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13733

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

FIELD DUP

Lab Name: PACE Inc. Contract: _____

Lab Code: PACE Case No.: D&M SAS No.: NA SDG No.: NA

Matrix: (soil/water) Water Lab Sample ID: 17044.5

Sample wt/vol: 980 (g/mL) mL Lab File ID: >13756

Level: (low/med) Low Date Received: 5-10-91

% Moisture: NA decanted: (Y/N) NA Date Extracted: 5-14-91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5-17-91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) NA pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 931179 KG 7/31	~~Cyc~~ 1,2 cyclohexane diol	12.46	8.0	JW
2.				
3.				
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

17046.1 (MW-1)

Lab Name: PACE Contract: ~~OR016~~ ARC 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17046.1

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13734

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	3.	BJ
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylene (total)	10.	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

non-

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17046.1

Sample wt/vol: 960 (g/ml) ML Lab File ID: >13757

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	52	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	52	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	52	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

non-

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17046.1

Sample wt/vol: 960 (g/ml) ML Lab File ID: >13757

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	52	U
100-02-7	4-Nitrophenol	52	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	52	U
534-52-1	4,6-Dinitro-2-methylphenol	52	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	52	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

170461 (MW-1)

Lab Name: PACE, Inc. Contract: ~~GR016~~ 5/23/91

Lab Code: PACE Case No.: ~~WrPat~~ 5/23/91 SAS No.: N/A SDG No.: ____

Matrix: (soil/water) WATER Lab Sample ID: 170461DM

Sample wt/vol: 1000 (g/mL) ml Lab File ID: NA

% Moisture: NA decanted: (Y/N) N Date Received: 5/10/91

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 5/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5/16/91

Injection Volume: 5.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta-BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	2.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ARC 6-19-91

17046.1 (MW-1)

Lab Name: PACE Contract: ~~DR016~~

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17046.1

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13734

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-1

Lab Name: Pace Inc. Contract: _____

Lab Code: PACE Case No.: D-M SAS No.: NA SDG No.: _____

Matrix: (soil/water) Water Lab Sample ID: 17046.1

Sample wt/vol: 960 (G/mL) mL Lab File ID: >13757

Level: (low/med) Low Date Received: 5-10-91

% Moisture: NA decanted: (Y/N) NA Date Extracted: 5-14-91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5-17-91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) NA pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	931179	1,2 Cyclohexane diol	12.46	7.0	JN
2.					
3.					
4.					
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

17047.0 (MW-3)

Lab Name: PACE Contract: ~~OR016~~ ARC 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17047.0

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13735

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylene (total)	10.	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE non-responsive

non-

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17047.0

Sample wt/vol: 970 (g/ml) ML Lab File ID: >13758

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	52	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	52	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	52	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

non-

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17047.0

Sample wt/vol: 970 (g/ml) ML Lab File ID: >13758

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	52	U
100-02-7	4-Nitrophenol	52	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	52	U
534-52-1	4,6-Dinitro-2-methylphenol	52	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	52	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-Ethylhexyl)phthalate	6	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

170470 (MW-3)

Lab Name: PACE, Inc. Contract: ~~OR016~~ SDC 9/23/91

Lab Code: PACE Case No.: ~~WrPat~~ SDC 9/23/91 SAS No.: N/A SDG No.: —

Matrix: (soil/water) WATER Lab Sample ID: 170470DM

Sample wt/vol: 900 (g/mL) ml Lab File ID: NA

% Moisture: NA decanted: (Y/N) N Date Received: 5/10/91

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 5/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5/15/91

Injection Volume: 5.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta-BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.52	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.2	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	2.1	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ARC 6-19-91

17047.0 (MW-3)

Lab Name: PACE Contract: ~~OR818~~

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17047.0

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13735

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

KEB 6-18-91

Number TICs found: 02

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	G
1.	1825-61-2	Silane, methoxytrimethyl-	6.35	26	JN
2.		unknown silane	12.15	20	JN
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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-3

Lab Name: Pace Inc Contract: _____

Lab Code: PACE Case No.: _____ SAS No.: NA SDG No.: _____

Matrix: (soil/water) Water Lab Sample ID: 17047.0

Sample wt/vol: 970 (g/mL) mL Lab File ID: >13758

Level: (low/med) Low Date Received: 5-10-91

% Moisture: NA decanted: (Y/N) NA Date Extracted: 5-14-91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5-17-91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	931179	1,2 Cyclohexanediol	12.44	7.0	JN
2.					
3.					
4.					
5.					
6.					
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2A

WATER VOLATILE SURROGATE RECOVERY

Lab Name: PACE Contract: ~~QR016~~ ARC 6-18-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

		EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
	1	VBLK01	100	103	87		0
Field Blank	2	17041.0	94	95	80		0
Rinse Blank	3	17042.3	103	105	90		0
MW-2	4	17043.7	101	105	85		0
Field Duplicate	5	17044.5	109	110	86		0
MW-1	6	17046.1	102	95	82		0
MW-3	7	17047.0	101	104	81		0
	8	VBLK02	110	101	113		0
MW-2 MS	9	17043MS	103	107	82		0
MW-2 MSD	10	17043MSD	96	97	95		0
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		QC LIMITS
S1 (TOL)	= Toluene-d8	(88-110)
S2 (BFB)	= Bromofluorobenzene	(86-115)
S3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: PACE, INC. Contract:

Lab code: PACE Case No.: D&M SAS No.: N/A SDG No.:

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	S7 (2CP)#	S8 (DCB)#	TOT OUT
01	SBLK 02	79	63	93	87	85	88	82	57	0
02	FIELD BLK	80	72	91	83	77	88	79	65	0
03	RINSE BLK	75	73	70	76	71	89	75	66	0
04	MW-2	70	65	47	65	67	83	74	67	0
05	FIELD DUP	80	77	66	82	75	93	80	73	0
06	MW-1	82	71	38	85	78	87	82	73	0
07	MW-3	80	71	66	83	75	88	82	76	0
08	MW-3MS	82	76	56	90	89	93	88	74	0
09	MW-3MSD	80	72	58	81	79	90	81	69	0
10										
11										
12										
13										
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		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(35-114)
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)
S3 (TPH)	= Terphenyl-d14	(33-141)
S4 (PHL)	= Phenol-d5	(10-110)
S5 (2FP)	= 2-Fluorophenol	(21-110)
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)
S7 (2CP)	= 2-Chlorophenol-d4	(33-110)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(16-110)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

2E
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: Pace, Inc. Contract: _____

Lab Code: PACE Case No.: D9M SAS No.: _____ SDG No.: _____

GC Column(1): DB-1608 ID: 0.53 (mm) GC Column(2): DB-1701 ID: 0.53 (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	PBLK01	98	80	106	85			0
Field Dup. 02	170445MS	89	71	83	65			0
Field Dup 03	170445MSD	89	72	76	60			0
Field Blank 04	170410	92	74	115	99			0
Rinse Blank 05	170429	99	78	80	64			0
MW-2 06	170437	99	78	87	72			0
Field Dup. 07	170445	94	72	80	63			0
MW-1 08	170461	95	72	77	63			0
MW-3 09	170478	94	70	111	94			0
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	ADVISORY QC LIMITS
TCX = Tetrachloro-m-xylene	(60-150)
DCB = Decachlorobiphenyl	(60-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

page __ of __

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: 17043.7 (MW-2)

COMPOUND	SPIKE ADDED (UG/L)	SAMPLE CONCENTRATION (UG/L)	MS CONCENTRATION (UG/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.	0.	50.	100	61-145
Trichloroethene	50.	0.	52.	103	71-120
Benzene	50.	0.	52.	104	76-127
Toluene	50.	3.	54.	104	76-125
Chlorobenzene	50.	0.	55.	109	75-130

COMPOUND	SPIKE ADDED (UG/L)	MSD CONCENTRATION (UG/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.	52.	105	5	14	61-145
Trichloroethene	50.	48.	96	7	14	71-120
Benzene	50.	51.	102	3	11	76-127
Toluene	50.	53.	101	3	13	76-125
Chlorobenzene	50.	52.	103	5	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PACE, INC. Contract:

Lab code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix Spike - EPA Sample No.: MW-3

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	102	0	89	88	12-110
2-Chlorophenol	102	0	86	84	27-123
1,4-Dichlorobenzene	51	0	35	69	36- 97
N-Nitroso-di-n-propylam	51	0	48	94	41-116
1,2,4-Trichlorobenzene	51	0	40	78	39- 98
4-Chloro-3-methylphenol	102	0	92	91	23- 97
Acenaphthene	51	0	42	82	46-118
4-Nitrophenol	102	0	120	113 *	10- 80
2,4-Dinitrotoluene	51	0	45	88	24- 96
Pentachlorophenol	102	0	100 ~~105~~	103	9-103
Pyrene	51	0	29	58	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	103	84	81	7	42	12-110
2-Chlorophenol	103	80	78	8	40	27-123
1,4-Dichlorobenzene	52	34	66	5	28	36- 97
N-Nitroso-di-n-propylam	52	47	91	3	38	41-116
1,2,4-Trichlorobenzene	52	38	74	5	28	39- 98
4-Chloro-3-methylphenol	103	87	85	7	42	23- 97
Acenaphthene	52	38	73	11	31	46-118
4-Nitrophenol	103	110 ~~108~~	105 *	8	50	10- 80
2,4-Dinitrotoluene	52	43	83	6	38	24- 96
Pentachlorophenol	103	100	97	5	50	9-103
Pyrene	52	28	54	6	31	26-127

Column to be used to flag recovery and RPD values with an asterisk

Values outside of QC limits

RPD: 0 out of 11 outside limits

Spike Recovery: 2 out of 22 outside limits

COMMENTS: _____

3E

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PACE, Inc. Contract: ~~OR016~~ 5/13/91

Lab Code: PACE Case No.: ~~WrPat~~ D+M 5/13/91 SAS No.: N/A SDG No.: _____

Matrix Spike - EPA Sample No.: 170445 (Field Duplicate)

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
gamma-BHC (Lindane)	1.0	0	0.871	87	56-123
Heptachlor	1.0	0	0.772	77	40-131
Aldrin	1.0	0	0.733	73	40-120
Dieldrin	4.0	0	3.44	86	52-126
Endrin	4.0	0	3.47	87	56-121
4,4'-DDT	4.0	0	3.36	84	38-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	1.0	0.873	87	0	15	56-123
Heptachlor	1.0	0.798	80	3.8	20	40-131
Aldrin	1.0	0.740	74	1.4	22	40-120
Dieldrin	4.1	3.38	82	4.8	18	52-126
Endrin	4.1	3.41	83	4.7	21	56-121
4,4'-DDT	4.1	3.28	80	4.9	27	38-127

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS: _____

4A

VOLATILE METHOD BLANK SUMMARY

ARC 6-18-91

Lab Name: PACE Contract: ~~8R816~~

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Lab File ID: B13729 Lab Sample ID: VBLK 01

Date Analyzed: 5/18/91 Time Analyzed: 4:50

Matrix: (soil/water) WATER Level: (low/med) LOW

Instrument ID: EXTRA 400B

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
Field Blank 1	17041.0	17041.0	B13730	5:26
Rinse Blank 2	17042.3	17042.3	B13731	6:02
MW-2 3	17043.7	17043.7	B13732	6:38
Field Dup. 4	17044.5	17044.5	B13733	7:13
MW-1 5	17046.1	17046.1	B13734	7:49
MW-3 6	17047.0	17047.0	B13735	8:26
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COMMENTS:

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Lab File ID: B14003 Lab Sample ID: VBLK 02

Date Analyzed: 5/20/91 Time Analyzed: 9:04

Matrix: (soil/water) WATER Level: (low/med) LOW

Instrument ID: EXTRA

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
MW-2 MS 1	17043MS	17043.7	B14004	9:48
MW-2 MSD 2	17043MSD	17043.7	B14005	10:42
3				
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COMMENTS:

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK02

Lab Name: PACE, INC. Contract:

Lab code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Lab File ID: >13752 Lab Sample ID: SBLK WATER

Instrument ID: HP-2 Date Extracted: 05/14/91

Matrix: (soil/water) WATER Date Analyzed: 05/17/91

Level: (low/med) LOW Time Analyzed: 13:27

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	FIELD BLK	17041.0	>13753	05/17/91
2	RINSE BLK	17042.9	>13754	05/17/91
3	MW-2	17043.7	>13755	05/17/91
4	FIELD DUP	17044.5	>13756	05/17/91
5	MW-1	17046.1	>13757	05/17/91
6	MW-3	17047.0	>13758	05/17/91
7	MW-3MS	17045.3MS	>13759	05/17/91
8	MW-3MSD	17045.3MSD	>13760	05/17/91
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COMMENTS: _____

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4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PBLK01

Lab Name: PACE, Inc. Contract: ~~OR016~~ SAC 5/23/91

Lab Code: PACE Case No.: ~~HrPat~~ DaM SAC 5/23/91 SAS No.: N/A SDG No.:

Lab Sample ID: PBLK01DM Lab File ID: N/A

Matrix: (soil/water) WATER Extraction: (SepF/Cont/Sonc) SEPF

Sulfur Cleanup: (Y/N) N Date Extracted: 5/14/91

Date Analyzed (1): 5/16/91 Date Analyzed (2): 5/16/91

Time Analyzed (1): 05:28 Time Analyzed (2): 05:28

Instrument ID (1): G Instrument ID (2): G

GC Column (1): DB-608 ID: 0.53 (mm) GC Column (2): DB-1701 ID: 0.53 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

		EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
Field Dup. MS	01	170445MS	170445MSDM	5/16/91	5/16/91
Field Dup. MSD	02	170445MSD	170445MSDDM	5/16/91	5/16/91
Field Blank	03	170410	170410 DM	5/16/91	5/16/91
Rinse Blank	04	170429	170429 DM	5/16/91	5/16/91
MW-2	05	170437	170437DM	5/16/91	5/16/91
Field Dup.	06	170445	170445DM	5/16/91	5/16/91
MW-1	07	170461	170461 DM	5/16/91	5/16/91
MW-3	08	170470	170470 DM	5/16/91	5/16/91
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COMMENTS:

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8A
VOLATILE INTERNAL STANDARD AREA SUMMARY

ARC 6-18-91

Lab Name: PACE Contract: ~~OR016~~

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Lab File ID (Standard): B13724 Date Analyzed: 5/18/91

Instrument ID: EXTRA 400B Time Analyzed: 1:50

Matrix: (soil/water) WATER Level: (low/med): LOW Column: (pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	18267.	7.92	191920.	9.32	229936.	13.27
	UPPER LIMIT	36534.	8.42	383840.	9.82	459872.	13.77
	LOWER LIMIT	9134.	7.42	95960.	8.82	114968.	12.77
	EPA SAMPLE NO.						
1	VBLK 01	22161.	7.93	204157.	9.32	234333.	13.25
R.B. 2	17041.0	21467.	7.90	197801.	9.30	224761.	13.23
R.B. 3	17042.3	21685.	7.90	209452.	9.30	245047.	13.23
MW-2 4	17043.7	19147.	7.90	166547.	9.30	198331.	13.25
D. 5	17044.5	21719.	7.92	192115.	9.30	223390.	13.23
MW-1 6	17046.1	22446.	7.92	197773.	9.30	233409.	13.25
MW-3 7	17047.0	21375.	7.88	184194.	9.27	219922.	13.22
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IS1 (BCM) = BROMOCHLOROMETHANE (IS)
IS2 (DFB) = 1,4-DIFLUOROBENZENE (IS)
IS3 (CBZ) = CHLOROBENZENE-D5 (IS)

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8A
VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: PACE Contract: ~~ORO18~~ ARC 6-18-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Lab File ID (Standard): B14002 Date Analyzed: 5/20/91

Instrument ID: EXTRA 400B Time Analyzed: 8:16

Matrix: (soil/water) WATER Level: (low/med): LOW Column: (pack/cap) CAP

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	23680.	7.92	208213.	9.30	244813.	13.25
	UPPER LIMIT	47360.	8.42	416426.	9.80	489626.	13.75
	LOWER LIMIT	11840.	7.42	104107.	8.80	122407.	12.75
	EPA SAMPLE NO.						
1	VBLK 02	19782.	7.92	187896.	9.32	215190.	13.25
MW-2MS	17043MS	28466.	7.92	208054.	9.33	243796.	13.25
MW-2MSD	17043MSD	22113.	7.90	206725.	9.30	250835.	13.25
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IS1 (BCM) = BROMOCHLOROMETHANE (IS)
IS2 (DFB) = 1,4-DIFLUOROBENZENE (IS)
IS3 (CBZ) = CHLOROBENZENE-D5 (IS)

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PACE, INC. Contract:

Lab code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Lab File ID (Standard): >13751 Date Analyzed: 05/17/91

Instrument ID: HP-2 Time Analyzed: 11:22

		IS1(DCB) AREA #	RT #	IS2(NAP) AREA #	RT #	IS3(ACE) AREA #	RT #
	12 HOUR STD	71586	11.24	216480	15.19	114313	20.81
	UPPER LIMIT	143172	11.74	432960	15.69	228626	21.31
	LOWER LIMIT	35793	10.74	108240	14.69	57156	20.31
	EPA SAMPLE NO.						
1	SBLK 02	62188	11.22	184174	15.14	107332	20.79
2	FIELD BLK	53549	11.22	154213	15.16	87077	20.79
3	RINSE BLK	56496	11.21	161254	15.15	84281	20.78
4	MW-2	50013	11.21	152775	15.16	86886	20.79
5	FIELD DUP	50062	11.20	146440	15.16	83687	20.80
6	MW-1	42593	11.23	126289	15.15	78004	20.78
7	MW-3	40658	11.21	127643	15.15	79697	20.79
8	MW-3MS	41330	11.22	127691	15.15	76031	20.79
9	MW-3MSD	51247	11.23	151795	15.15	87811	20.77
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NAP) = Naphthalene-d8
IS3 (ACE) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +.50 minutes of internal standard RT
RT LOWER LIMIT = -.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk
* Values outside of QC limits.

Page __ of __.

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: PACE, INC. Contract:

Lab code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Lab File ID (Standard): >13751 Date Analyzed: 05/17/91

Instrument ID: HP-2 Time Analyzed: 11:22

		IS4(PHN) AREA #	RT #	IS5(CHR) AREA #	RT #	IS6(PER) AREA #	RT #
	12 HOUR STD	179314	25.43	126771	33.95	82470	40.45
	UPPER LIMIT	358628	25.93	253542	34.45	164940	40.95
	LOWER LIMIT	89657	24.93	63385	33.45	41235	39.95
	EPA SAMPLE NO.						
1	SBLK 02	158306	25.40	111899	33.92	106691	40.43
2	FIELD BLK	127605	25.40	90995	33.90	81612	40.39
3	RINSE BLK	110332	25.39	69579	33.91	56336	40.40
4	MW-2	129467	25.40	106532	33.90	106214	40.41
5	FIELD DUP	127990	25.39	111972	33.92	113526	40.39
6	MW-1	135053	25.39	132552	33.92	147637	40.43
7	MW-3	138710	25.40	132743	33.92	140815	40.42
8	MW-3MS	126041	25.41	123150	33.90	134175	40.41
9	MW-3MSD	135034	25.37	116329	33.84	120932	40.28
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IS4 (PHN) = Phenanthrene-d10
IS5 (CHR) = Chrysene-d12
IS6 (PER) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +.50 minutes of internal standard RT
RT LOWER LIMIT = -.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk
* Values outside of QC limits.

page __ of __.

Method Blank Data

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: PACE Contract: ~~OR016~~ ARC 6-18-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: VBLK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13729

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	6.	J
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	3.	J
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylene (total)	10.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK 01

Lab Name: PACE Contract: OR016

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: VBLK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B13729

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 100. Date Analyzed: 5/18/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0 ~~0~~ X ARC 6-19-91 6-19-91 JH

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		~~Unknown~~ ARC 6-19-91	~~12.17~~		~~JN~~
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02

Lab Name: PACE Contract: ~~DR818~~ AR 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: VBLK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B14003

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 100. Date Analyzed: 5/20/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	6.	J
591-78-6	2-Hexanone	15.	
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylene (total)	10.	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK 02

Lab Name: PACE Contract: ~~DR816~~ ARC 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: VBLK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B14003

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 100. Date Analyzed: 5/20/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 01

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	719-22-2	2,5 cyclohexadiene-1,4-dione, 2,6 bis 1,1-dimethylethyl	16.97	50	JN
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK02

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: SBLK

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >13752

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK02

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: SBLK

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >13752

Level: (low/med) LOW Date Received:

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLK 02

Lab Name: Pace Inc Contract: _____

Lab Code: PACE Case No.: D+M SAS No.: NA SDG No.: NA

Matrix: (soil/water) Water Lab Sample ID: SBLK

Sample wt/vol: 1000 (g/mL) mL Lab File ID: >13752

Level: (low/med) Low Date Received: _____

% Moisture: NA decanted: (Y/N) NA Date Extracted: 5-14-91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5-17-91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) NA pH: ____

Number TICs found: 0

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK01

Lab Name: PACE, Inc. Contract: ~~OR016~~ SOC 5/22/91

Lab Code: PACE Case No.: ~~WrPat~~ SOC 5/22/91 SAS No.: N/A SDG No.: ____

Matrix: (soil/water) WATER Lab Sample ID: PBLK01

Sample wt/vol: 1000 (g/mL) ml Lab File ID: NA

% Moisture: NA decanted: (Y/N) N Date Received: NA

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 5/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5/14/91

Injection Volume: 5.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta-BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

Matrix Spike Data

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

17043MS

Lab Name: PACE Contract: ~~DP016~~ ARC 6-18-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17043.7

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B14004

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/20/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene		S
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10,	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene		S
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene		S
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	2.	BJ
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene		S
108-90-7	Chlorobenzene		S
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylene (total)	10.	U

S = spiked compound

FORM I VOA 1/87 Rev.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

17043MSD

Lab Name: PACE , Contract: ~~OR815~~ AR 6-19-91

Lab Code: PACE Case No.: D & M SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17043.7

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B14005

Level: (low/med) LOW Date Received: 5/10/91

% Moisture: not dec. 100. Date Analyzed: 5/20/91

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10.	U	
74-83-9	Bromomethane	10.	U	
75-01-4	Vinyl Chloride	10.	U	
75-00-3	Chloroethane	10.	U	
75-09-2	Methylene Chloride	10.	U	
67-64-1	Acetone	10.	U	
75-15-0	Carbon Disulfide	10.	U	
75-35-4	1,1-Dichloroethene		S	
75-34-3	1,1-Dichloroethane	10.	U	
540-59-0	1,2-Dichloroethene (total)	10.	U	
67-66-3	Chloroform	10.	U	
107-06-2	1,2-Dichloroethane	10.	U	
78-93-3	2-Butanone	10.	U	
71-55-6	1,1,1-Trichloroethane	10.	U	
56-23-5	Carbon Tetrachloride	10.	U	
75-27-4	Bromodichloromethane	10.	U	
78-87-5	1,2-Dichloropropane	10.	U	
10061-01-5	cis-1,3-Dichloropropene	~~0.91~~ 10	~~J~~ U	06-18-91 [illegible]
79-01-6	Trichloroethene		S	
124-48-1	Dibromochloromethane	10.	U	
79-00-5	1,1,2-Trichloroethane	10.	U	
71-43-2	Benzene		S	
10061-02-6	trans-1,3-Dichloropropene	10.	U	
75-25-2	Bromoform	10.	U	
108-10-1	4-Methyl-2-Pentanone	10.	U	
591-78-6	2-Hexanone	~~0.3~~ 10	~~BJ~~ U	6-18-91 [illegible]
127-18-4	Tetrachloroethene	~~0.04~~ 10	~~J~~ U	6-18-91 [illegible]
79-34-5	1,1,2,2-Tetrachloroethane	10.	U	
108-88-3	Toluene		S	
108-90-7	Chlorobenzene		S	
100-41-4	Ethylbenzene	10.	U	
100-42-5	Styrene	10.	U	
1330-20-7	Xylene (total)	10.	U	

S = Spiked compound

FORM I VOA 1/87 Rev.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

non-[redacted]

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17047.0MS

Sample wt/vol: 980 (g/ml) ML Lab File ID: >13759

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	89	S
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	86	S
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	35	S
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	48	S
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	40	S
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	92	S
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	51	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	51	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	51	U
83-32-9	Acenaphthene	42	S

S = spiked compound

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

non-[redacted]

Lab Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17047.0MS

Sample wt/vol: 980 (g/ml) ML Lab File ID: >13759

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	51	U
100-02-7	4-Nitrophenol	120	S
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	45	S
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	51	U
534-52-1	4,6-Dinitro-2-methylphenol	51	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	100	S
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	29	S
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

S = spiked compound

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

non-

Name: PACE, INC. Contract:

Lab Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 17047.0MSD

Sample wt/vol: 970 (g/ml) ML Lab File ID: >13760

Level: (low/med) LOW Date Received: 05/10/91

% Moisture: decanted: (Y/N) Date Extracted: 05/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	84	S
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	80	S
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	34	S
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	47	S
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	38	S
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	87	S
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	52	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	52	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	1	J
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	52	U
83-32-9	Acenaphthene	38	S

S = spiked compound

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

non-[redacted]

Name: PACE, INC. Contract:

Code: PACE Case No.: D&M SAS No.: N/A SDG No.:

atrix: (soil/water) WATER Lab Sample ID: 17047.0MSD

ple wt/vol: 970 (g/ml) ML Lab File ID: >13760

evel: (low/med) LOW Date Received: 05/10/91

oisture: decanted: (Y/N) Date Extracted: 05/14/91

centrated Extract Volume: 1000 (uL) Date Analyzed: 05/17/91

jection Volume: 2.0 (uL) Dilution Factor: 1.0

Cleanup: (Y/N) N pH: 7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	52	U
100-02-7	4-Nitrophenol	108	S
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	43	S
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	52	U
534-52-1	4,6-Dinitro-2-methylphenol	52	U
86-30-6	N-Nitrosodiphenylamine	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	100	S
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	28	S
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	Bis(2-Ethylhexyl)phthalate	3	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

S = spiked compound

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

170445MS (Field Dupl. MS)

Lab Name: PACE, Inc. Contract: ~~OR016~~ SDC 5/23/91

Lab Code: PACE Case No.: ~~WrPat~~ D+M SDC 5/23/91 SAS No.: N/A SDG No.: ____

Matrix: (soil/water) WATER Lab Sample ID: 170445MS

Sample wt/vol: 1000 (g/mL) ml Lab File ID: NA

% Moisture: NA decanted: (Y/N) N Date Received: 5/10/91

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 5/14/91

Concentrated Extract Volume: ~~500~~ 1000 (uL) Date Analyzed: 5/16/91

ARC 6-12-91

Injection Volume: 5.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.05	U
319-85-7	beta-BHC	0.05	U
319-86-8	delta-BHC	0.05	U
58-89-9	gamma-BHC (Lindane)	0.87	S
76-44-8	Heptachlor	0.77	S
309-00-2	Aldrin	0.73	S
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	3.4	S
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	SDC 5/23/91 ~~3.4~~ 3.5	S
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	3.4	S
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.05	U
5103-74-2	gamma-Chlordane	0.05	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	2.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

S = spiked compound

FORM I PEST 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

170445MSD
(Field Dupl. MSD)

Lab Name: PACE, Inc. Contract: ~~OR016~~ SAC 5/23/91

Lab Code: PACE Case No.: ~~WrPat~~ SAC 5/23/91 SAS No.: N/A SDG No.: —

Matrix: (soil/water) WATER Lab Sample ID: 170445MSDUM

Sample wt/vol: 980 (g/mL) ml Lab File ID: NA

% Moisture: NA decanted: (Y/N) N Date Received: 5/10/91

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 5/14/91

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 5/16/91

Injection Volume: 5.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	0.051	U
319-85-7	beta-BHC	0.051	U
319-86-8	delta-BHC	0.051	U
58-89-9	gamma-BHC (Lindane)	0.87	S
76-44-8	Heptachlor	0.80	S
309-00-2	Aldrin	0.74	S
1024-57-3	Heptachlor epoxide	0.051	U
959-98-8	Endosulfan I	0.051	U
60-57-1	Dieldrin	3.4	S
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	3.4	S
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	3.3	S
72-43-5	Methoxychlor	~~0.50~~ 0.51	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.051	U
5103-74-2	gamma-Chlordane	0.051	U
8001-35-2	Toxaphene	~~5.0~~ 5.1	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	2.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

S = spiked compound

FORM I PEST 3/90

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

PACE Interregion - Minnesota
1710 Douglas Drive North
Minneapolis, MN 55422

June 28, 1991
PACE Project Number: 910510524

Attn: Customer Service

Dames & Moore

PACE Sample Number: 10 0170410
Date Collected: 05/10/91
Date Received: 05/22/91

Parameter	Units	MDL	Field Blank	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	ug/L	10	ND	05/21/91
CLP TARGET ANALYTE LIST				
Aluminum	ug/L	200	ND	06/28/91
Antimony	ug/L	60.0	ND	06/28/91
Arsenic	ug/L	10.0	ND	06/28/91
Barium	ug/L	200	ND	06/28/91
Beryllium	ug/L	5.0	ND	06/28/91
Cadmium	ug/L	5.0	ND	06/28/91
Calcium	ug/L	1000	ND	06/28/91
Chromium	ug/L	10.0	ND	06/28/91
Cobalt	ug/L	50.0	ND	06/28/91
Copper	ug/L	25.0	ND	06/28/91
Iron	ug/L	100	ND	06/28/91
Lead	ug/L	3.0	ND	06/28/91
Magnesium	ug/L	1000	ND	06/28/91
Manganese	ug/L	15.0	ND	06/28/91
Mercury	ug/L	0.5	ND	06/11/91
Nickel	ug/L	40.0	ND	06/28/91
Potassium	ug/L	1000	ND	06/28/91
Selenium	ug/L	5.0	ND	06/28/91
Silver	ug/L	10.0	ND	06/28/91
Sodium	ug/L	1000	ND	06/28/91
Thallium	ug/L	10.0	ND	06/28/91
Vanadium	ug/L	50.0	ND	06/28/91
Zinc	ug/L	20.0	26.3	06/28/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Customer Service
Page 2

June 28, 1991
PACE Project Number: 910510524

Dames & Moore

PACE Sample Number:			10 0170429	
Date Collected:			05/10/91	
Date Received:			05/22/91	
Parameter	Units	MDL	Rinse Blank	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	ug/L	10	ND	05/21/91
CLP TARGET ANALYTE LIST				
Aluminum	ug/L	200	3390	06/28/91
Antimony	ug/L	60.0	ND	06/28/91
Arsenic	ug/L	10.0	ND	06/28/91
Barium	ug/L	200	ND	06/28/91
Beryllium	ug/L	5.0	ND	06/28/91
Cadmium	ug/L	5.0	10.2	06/28/91
Calcium	ug/L	1000	23800	06/28/91
Chromium	ug/L	10.0	10.6	06/28/91
Cobalt	ug/L	50.0	ND	06/28/91
Copper	ug/L	25.0	ND	06/28/91
Iron	ug/L	100	10000	06/28/91
Lead	ug/L	3.0	5.6	06/28/91
Magnesium	ug/L	1000	10300	06/28/91
Manganese	ug/L	15.0	314	06/28/91
Mercury	ug/L	0.5	ND	06/11/91
Nickel	ug/L	40.0	ND	06/28/91
Potassium	ug/L	1000	1610	06/28/91
Selenium	ug/L	5.0	ND	06/28/91
Silver	ug/L	10.0	ND	06/28/91
Sodium	ug/L	1000	ND	06/28/91
Thallium	ug/L	10.0	ND	06/28/91
Vanadium	ug/L	50.0	ND	06/28/91
Zinc	ug/L	20.0	75.4	06/28/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

9608 Loiret Boulevard
Lenexa, KS 66219
TEL: 913-599-5665
FAX: 913-599-1759

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REPORT OF LABORATORY ANALYSIS

Customer Service
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June 28, 1991
PACE Project Number: 910510524

Dames & Moore

PACE Sample Number:			10 0170437	
Date Collected:			05/10/91	
Date Received:			05/22/91	
Parameter	Units	MDL	MW-2	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	ug/L	10	ND	05/21/91
CLP TARGET ANALYTE LIST				
Aluminum	ug/L	200	ND	06/28/91
Antimony	ug/L	60.0	ND	06/28/91
Arsenic	ug/L	10.0	15.5	06/28/91
Barium	ug/L	200	ND	06/28/91
Beryllium	ug/L	5.0	ND	06/28/91
Cadmium	ug/L	5.0	15.1	06/28/91
Calcium	ug/L	1000	250000	06/28/91
Chromium	ug/L	10.0	65.0	06/28/91
Cobalt	ug/L	50.0	ND	06/28/91
Copper	ug/L	25.0	121	06/28/91
Iron	ug/L	100	64000	06/28/91
Lead	ug/L	3.0	21.2	06/28/91
Magnesium	ug/L	1000	96500	06/28/91
Manganese	ug/L	15.0	1900	06/28/91
Mercury	ug/L	0.5	ND	06/11/91
Nickel	ug/L	40.0	94.9	06/28/91
Potassium	ug/L	1000	14900	06/28/91
Selenium	ug/L	5.0	ND	06/28/91
Silver	ug/L	10.0	ND	06/28/91
Sodium	ug/L	1000	44800	06/28/91
Thallium	ug/L	10.0	ND	06/28/91
Vanadium	ug/L	50.0	ND	06/28/91
Zinc	ug/L	20.0	178	06/28/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Customer Service
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June 28, 1991
PACE Project Number: 910510524

Dames & Moore

PACE Sample Number: 10 0170445
Date Collected: 05/10/91
Date Received: 05/22/91

Parameter	Units	MDL	Field Duplicate	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	ug/L	10	ND	05/21/91
CLP TARGET ANALYTE LIST				
Aluminum	ug/L	200	31500	06/28/91
Antimony	ug/L	60.0	ND	06/28/91
Arsenic	ug/L	10.0	23.4	06/28/91
Barium	ug/L	200	516	06/28/91
Beryllium	ug/L	5.0	ND	06/28/91
Cadmium	ug/L	5.0	17.7	06/28/91
Calcium	ug/L	1000	157000	06/28/91
Chromium	ug/L	10.0	72.1	06/28/91
Cobalt	ug/L	50.0	ND	06/28/91
Copper	ug/L	25.0	74.2	06/28/91
Iron	ug/L	100	58500	06/28/91
Lead	ug/L	3.0	61.0	06/28/91
Magnesium	ug/L	1000	54200	06/28/91
Manganese	ug/L	15.0	2180	06/28/91
Mercury	ug/L	0.5	ND	06/11/91
Nickel	ug/L	40.0	59.0	06/28/91
Potassium	ug/L	1000	9110	06/28/91
Selenium	ug/L	5.0	ND	06/28/91
Silver	ug/L	10.0	ND	06/28/91
Sodium	ug/L	1000	12300	06/28/91
Thallium	ug/L	10.0	ND	06/28/91
Vanadium	ug/L	50.0	137	06/28/91
Zinc	ug/L	20.0	185	06/28/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Customer Service
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June 28, 1991
PACE Project Number: 910510524

Dames & Moore

PACE Sample Number:			10 0170453	
Date Collected:			05/10/91	
Date Received:			05/22/91	
Parameter	Units	MDL	GW Triple	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	ug/L	10	ND	05/21/91
CLP TARGET ANALYTE LIST				
Aluminum	ug/L	200	20900	06/28/91
Antimony	ug/L	60.0	ND	06/28/91
Arsenic	ug/L	10.0	22.5	06/28/91
Barium	ug/L	200	450	06/28/91
Beryllium	ug/L	5.0	ND	06/28/91
Cadmium	ug/L	5.0	21.8	06/28/91
Calcium	ug/L	1000	153000	06/28/91
Chromium	ug/L	10.0	34.9	06/28/91
Cobalt	ug/L	50.0	ND	06/28/91
Copper	ug/L	25.0	66.9	06/28/91
Iron	ug/L	100	50300	06/28/91
Lead	ug/L	3.0	20.7	06/28/91
Magnesium	ug/L	1000	47200	06/28/91
Manganese	ug/L	15.0	1990	06/28/91
Mercury	ug/L	0.5	ND	06/11/91
Nickel	ug/L	40.0	65.8	06/28/91
Potassium	ug/L	1000	7920	06/28/91
Selenium	ug/L	5.0	ND	06/28/91
Silver	ug/L	10.0	ND	06/28/91
Sodium	ug/L	1000	11900	06/28/91
Thallium	ug/L	10.0	ND	06/28/91
Vanadium	ug/L	50.0	91.7	06/28/91
Zinc	ug/L	20.0	145	06/28/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Customer Service
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June 28, 1991
PACE Project Number: 910510524

Dames & Moore

PACE Sample Number:			10 0170461	
Date Collected:			05/10/91	
Date Received:			05/22/91	
Parameter	Units	MDL	MW-1	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	ug/L	10	ND	05/21/91
CLP TARGET ANALYTE LIST				
Aluminum	ug/L	200	20700	06/28/91
Antimony	ug/L	60.0	ND	06/28/91
Arsenic	ug/L	10.0	ND	06/28/91
Barium	ug/L	200	538	06/28/91
Beryllium	ug/L	5.0	ND	06/28/91
Cadmium	ug/L	5.0	8.0	06/28/91
Calcium	ug/L	1000	266000	06/28/91
Chromium	ug/L	10.0	46.1	06/28/91
Cobalt	ug/L	50.0	ND	06/28/91
Copper	ug/L	25.0	50.3	06/28/91
Iron	ug/L	100	35300	06/28/91
Lead	ug/L	3.0	60.3	06/28/91
Magnesium	ug/L	1000	91100	06/28/91
Manganese	ug/L	15.0	1250	06/28/91
Mercury	ug/L	0.5	ND	06/11/91
Nickel	ug/L	40.0	46.7	06/28/91
Potassium	ug/L	1000	7340	06/28/91
Selenium	ug/L	5.0	ND	06/28/91
Silver	ug/L	10.0	ND	06/28/91
Sodium	ug/L	1000	47100	06/28/91
Thallium	ug/L	10.0	ND	06/28/91
Vanadium	ug/L	50.0	92.6	06/28/91
Zinc	ug/L	20.0	169	06/28/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

REPORT OF LABORATORY ANALYSIS

Customer Service
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June 28, 1991
PACE Project Number: 910510524

Dames & Moore

PACE Sample Number:			10 0170470	
Date Collected:			05/10/91	
Date Received:			05/22/91	
Parameter	Units	MDL	MW-3	DATE ANALYZED
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cyanide, Total by 335.2	ug/L	10	ND	05/21/91
CLP TARGET ANALYTE LIST				
Aluminum	ug/L	200	17300	06/28/91
Antimony	ug/L	60.0	ND	06/28/91
Arsenic	ug/L	10.0	15.1	06/28/91
Barium	ug/L	200	375	06/28/91
Beryllium	ug/L	5.0	ND	06/28/91
Cadmium	ug/L	5.0	19.3	06/28/91
Calcium	ug/L	1000	134000	06/28/91
Chromium	ug/L	10.0	35.8	06/28/91
Cobalt	ug/L	50.0	ND	06/28/91
Copper	ug/L	25.0	62.6	06/28/91
Iron	ug/L	100	41200	06/28/91
Lead	ug/L	3.0	11.8	06/28/91
Magnesium	ug/L	1000	48100	06/28/91
Manganese	ug/L	15.0	1550	06/28/91
Mercury	ug/L	0.5	ND	06/11/91
Nickel	ug/L	40.0	ND	06/28/91
Potassium	ug/L	1000	7030	06/28/91
Selenium	ug/L	5.0	ND	06/28/91
Silver	ug/L	10.0	ND	06/28/91
Sodium	ug/L	1000	13100	06/28/91
Thallium	ug/L	10.0	ND	06/28/91
Vanadium	ug/L	50.0	73.3	06/28/91
Zinc	ug/L	20.0	134	06/28/91

MDL Method Detection Limit
ND Not detected at or above the MDL.

APPENDIX F

CLP DATA PACKAGE SUMMARY BY PACE, INC.

pace
INCORPORATED
THE ASSURANCE OF QUALITY

June 17, 1991

Ms. Karen Vaughn
Dames & Moore, Inc.
1900 Silver Lake Road
New Brighton, MN 55112

Re: Fairmont Railway Site

Dear Ms. Vaughn:

Enclosed is the CLP data package representing the organic analyses of 9 soil samples received on April 24, 1991. The samples were analyzed following the protocols outlined in the 3/90 Revision of the CLP Statement of Work for Organics. Preliminary results were sent to Ms. Whillock on June 14, 1991.

Please note the following summary comments concerning the analyses:

Holding Times. All samples were extracted and analyzed within CLP holding times.

GC/MS Tuning. All BFB and DFTPP tuning criteria were met prior to analysis of calibration standards and samples.

Instrumental Calibrations. All instrumental calibrations met CLP criteria with the following exceptions in the volatile organic fraction.

The percent difference (%D) for vinyl chloride (63%) exceeded the 40.0% maximum limit in the 4/30/91 and 5/04/91 continuing calibrations. The quality of the data should not be affected by these outliers since vinyl chloride was not detected in the samples analyzed under this calibration.

The %D for bromomethane (53%) exceeded CLP criteria in the 5/04/91 continuing calibration standard. This represents a 53% increase in response for this analyte. The quality of the data should not be affected by this outlier since bromomethane was not detected in the samples analyzed under this calibration.

Surrogate Recoveries. All calculated surrogate recoveries met CLP criteria.

High decachlorobiphenyl recoveries were noted in the pesticide/PCB analysis of samples B-6, B-8 and B-9. Coeluting matrix interferences are believed to be the cause of the high recoveries.

Matrix Spike/Matrix Spike Duplicate. All matrix spike recoveries were within the CLP QC Advisory Limits.

Internal Standard (IS) Responses. All internal standard responses were within the QC limits as established by the daily 50 ppb standards with exceptions in the semivolatile organic analysis.

1710 Douglas Drive North
Minneapolis, MN 55422
TEL: 612-544-5543
FAX: 612-525-3377

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The perylene-d_{12} and chrysene-d_{12} responses were below the lower QC limit in samples B-5, B-4 and B-9. The samples were reanalyzed and similar low responses were observed. Perylene-d_{12} was below the QC limit and chrysene-d_{12} was just above the lower QC limit in all reanalyses. Data for both the initial analyses and reanalyses of these samples are submitted for your review.

The perylene-d_{12} response was below the lower QC limit in the analysis of sample B-7. The sample was reanalyzed, but at a dilution because of target analytes which exceeded the calibration range. The perylene-d_{12} response was within the QC limits in the reanalysis. Dilution of the sample extract effectively reduced the matrix interferences which caused the reduced IS response in the initial analysis. Data for both the initial analysis and reanalysis of this sample are submitted for your review.

If you should have any questions concerning the data submitted, please feel free to contact me at 525-3454. I am anticipating that the Inorganic CLP data package for these samples will be sent to you on Wednesday, June 19.

Sincerely,

Steven R. Crupi

Steven R. Crupi
Quality Assurance

SRC:CLP146/alr

pace
INCORPORATED
THE ASSURANCE OF QUALITY

June 21, 1991

Ms. Karen Vaughn
Dames & Moore, Inc.
1900 Silver Lake Road
New Brighton, MN 55112

Re: Fairmont Railway Site

Dear Ms. Vaughn:

Enclosed is the CLP data package representing the organic analyses of 6 water samples received on May 10, 1991. The samples were analyzed following the protocols outlined in the 3/90 Revision of the CLP Statement of Work for Organics.

Please note the following summary comments concerning the analyses:

Holding Times. All samples were extracted and analyzed within CLP holding times.

GC/MS Tuning. All BFB and DFTPP tuning criteria were met prior to analysis of calibration standards and samples.

Instrumental Calibrations. All instrumental calibrations met CLP criteria with the following exception in the pesticide/PCB fraction.

The percent relative standard deviation (%RSD) for the surrogate decachlorobiphenyl exceeded the 10.0% criteria in the INDA standard on the DB608 column. Since the %RSD criteria was met in the analysis of the INDB standard on this column, decachlorobiphenyl calculations for the DB608 column were performed using the calibration factor from the INDB standard.

Method Blank. The volatile method blank, analyzed on 5/20/91, was initially found to contain 15 ppb of 2-hexanone. Upon inspection of the mass spectral data, it was evident that the same TIC noted in the 5/18/91 method blank was coeluting with 2-hexanone in the 5/20/91 blank. The presence of this TIC artificially raised the calculated value of 2-hexanone.

Surrogate Recoveries. All calculated surrogate recoveries met CLP criteria.

Matrix Spike/Matrix Spike Duplicate. All matrix spike recoveries were within the CLP QC Advisory Limits.

Internal Standard (IS) Responses. All internal standard responses were within the QC limits as established by the daily 50 ppb standards.

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If you should have any questions concerning the data submitted, please feel free to contact me at 525-3454.

Sincerely,

Steven R. Crupi

Steven R. Crupi
Quality Assurance

SRC:CLP148/alr

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Dames & Moore
910424.528

Samples were received May 1, 1991 and prepped for Metals on May 8.

Beryllium & Cadmium were not accepted from the ICV and CCV recoveries. Both analytes were rerun with good recoveries on a second full run. Cyanide ICV read low but CCVs read well so data was accepted.

Spike sample recoveries were mostly out of control. The source of this interference was determined to be the extremely high levels of Iron and Aluminum which were present in the soil sample chosen for dup spike. This was unfortunate since all other samples were not nearly that high in Aluminum. All samples were high in Iron. Therefore most spike recoveries and duplicate RPDs were out of control. If this presents a problem to Dames & Moore, we would be happy to reprep and respike a different sample hoping to avoid the aluminum interference.

Brian J Smith

Brian Smith
Inorganic Manager
June 13, 1991

KLG3/jad

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DAMES and MOORE
Project No. 910510524

Project Narrative

All samples for project were received on MAY 10, 1991. Samples were submitted for full TAL Metals by CLP (SOW-90). Samples were prepped according to SOW and all batch QC samples were included. Analysis by Inductively Coupled Argon Plasma was run on all samples for Al, Sb, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Mg, Mn, Ni, Ag, Na, V, and Zn. The first run was unacceptable for Al, Cd, Ba, and V. Those four analytes were rerun and all but Cd was accepted. Cadmium was run by itself and accepted. Spike data for Cadmium was low at 67.7% and flagged with an "N" data was accepted by analyst. Nickel was flagged with an "*" due to out of control RPD however one result was below MDL and the other just over resulting in a RPD which is over 200% data was accepted by analyst.

Analysis by Graphite Furnace AA was run on all samples for As, Se, Tl, and Pb. All analysis were acceptable except Pb which had to be run by Method of Standard Additions. Selenium spike results were out of control but analytical spikes were acceptable therefore data was accepted.

All other analysis for this SDG were performed as per SOW-90 and were reported on the forms included in the package. Raw data has also been included in the data package.

Brian J. Smith,
Inorganics Manager

BJS33/plc