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FINAL PHASE I
REMEDIAL INVESTIGATION (RI) REPORT

Barrels Inc. Site
Lansing, Michigan

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CONESTOGA-ROVERS & ASSOCIATES

CRA
Consulting Engineers

CONESTOGA-ROVERS & ASSOCIATES LIMITED
651 Colby Drive
Waterloo, Ontario, Canada N2V 1C2
(519) 884-0510 Colby Office Fax: (519) 884-0525
(519) 725-3313 Bathurst Office (519) 725-1394

December 16, 1993

Reference No. 4869

Mr. Pat Donovan
Michigan Department of Natural Resources
10650 South Bennett
Morrice, Michigan
U.S.A. 48857

Mr. Gary L. Finkbeiner
Assistant Attorney General
Environmental Protection Div.
640 Law Building - 525 West Ottawa
Lansing, Michigan 48909

Dear Mr. Donovan:

Re: Phase I Remedial Investigation Report
Barrels Inc. Site, Lansing, Michigan

On behalf of the Barrels Inc. Site PRP Group, Conestoga-Rovers & Associates is providing the Phase I Remedial Investigation Report for the Barrels Inc. Site, in accordance with the approved RI/FS Work Plan and the Consent Decree dated March 1, 1993.

This plan indicates the need to re-sample selected monitoring wells prior to establishing the requirements for additional RI work for the Site. In order to expedite this it is proposed to conduct some of the sampling early in the new year. The MDNR will be informed of the sampling conducted and the results of any analyses through the monthly progress reporting.

Please contact us if any questions or comments arise on this matter.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Renato Pasqualoni

Renato Pasqualoni, P. Eng.

RP/cz
Encl.

c.c. Ed Peterson
Tim Strauss
Kevin Walsh
Gerald Ritter
Vince Spagnuolo
Michael Perry
Charles Barbieri
Michael Ortega
David Tripp
Keith Jonson
John Tully
Jefferson Murphy
Arvid Sather
Brad Ioerger
Keith Meiser
Stephen Leemakers
Rachel Demming
Don Schiemann
Andrew Hodges
Graham Carpio
Chris Danikolas

CRA
651 Colby Drive
Waterloo, Ontario N2V 1C2
(519) 884-0510 (Colby Office)
(519) 725-3313 (Bathurst Office)

MEMO

TO: Barrels PRP Group

REFERENCE NO: 4869

FROM: Renato Pasqualoni/cz/6

DATE: December 16, 1993

RE: Phase I RI Report

CRA is providing the PRP Group members, only the sections of the Phase I RI Report which have been revised. Please replace these into the binders previously provided.

Thank you.

Consulting Engineers

CONESTOGA-ROVERS & ASSOCIATES LIMITED
651 Colby Drive
Waterloo, Ontario, Canada N2V 1C2
(519) 884-0510 Colby Office Fax: (519) 884-0525
(519) 725-3313 Bathurst Office (519) 725-1394

December 2, 1993

Reference No. 4869

Mr. Chris T. Danikolas, Esq.
Howard & Howard
1400 North Woodward Avenue
Suite 250
Bloomfield Hills, Michigan
U.S.A. 48304

Dear Mr. Danikolas:

Re: Phase I RI Report Revisions
Barrels, Inc. Site
Lansing, Michigan

The enclosed Phase I RI Report revisions have been completed as requested within your letter of November 23, 1993, and as discussed during our subsequent telephone conversations.

Please feel free to contact us should any additional questions or comments arise.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Renato Pasqualoni

Renato Pasqualoni, P. Eng.

RP/dm/19
Encl.

c.c. Ed Peterson
Tim Strauss
Kevin Walsh
Gerald Ritter
Brad Ioerger
Alan Van Norman

Consulting Engineers

CONESTOGA-ROVERS & ASSOCIATES LIMITED
651 Colby Drive
Waterloo Ontario Canada N2V 1C2
(519) 884-0510 Colby Office Fax (519) 884-0525
(519) 725-3313 Bathurst Office (519) 725-1394

October 15, 1993

Reference No. 4869

Mr. Chris T. Danikolas, Esq.
Howard & Howard
1400 North Woodward Avenue
Suite 250
Bloomfield Hills, Michigan 48304

Dear Mr. Danikolas:

Re: Phase I RI Report
Barrels, Inc. Site
Lansing, Michigan

We have enclosed the Phase I RI Report for the Barrels, Inc. Site for your review. Section 7.0 of the report, which discusses environmental fate of the various Parameters of Concern, is not quite complete. However, the section is not essential for the technical committee to begin review of the report. I will submit the completed section the week of October 22, 1993.

The Phase I Report is due at the MDNR on November 26, 1993. I suggest that a meeting be held at CRA's Detroit office on the week of November 5, 1993 in order to review the report. Please contact me with any constraints in scheduling so that we can determine a specific suitable time for all to attend the meeting.

Please contact us should any questions or comments arise.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Renato Pasqualoni, P. Eng.

RP/bjr/17
Encl.
c.c. Ed Peterson
Kevin Walsh
Tim Strauss
Gary Gifford
Gerald Ritter
Alan Van Norman

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SECTION 1

1.0 INTRODUCTION

This Phase I Remedial Investigation report for the Barrels, Inc. Site has been prepared by Conestoga-Rovers & Associated on behalf of the Barrels Inc. Site Participating PRP Group. This report is submitted to the Michigan Department of Natural Resources (MDNR) in accordance with the Consent Decree dated March 1, 1993, and the Remedial Investigation/Feasibility Study (RI/FS) Work Plan, dated December 1992.

1.1 SITE DESCRIPTION

The Barrels, Inc. Site is a 2.3-acre former drum reclamation facility located in an industrial area in the northern section of the City of Lansing, Ingham County, Michigan. The Site location plan is presented on Figure 1.1. Figure 1.2 presents a Plan of the Site. The Site is bounded to the north and east by a CSX Transportation (CSXT) railway line (formerly Chesapeake and Ohio) and to the west and south by existing industrial properties.

Drainage from the Site is primarily eastward into a ditch along the railway track, at the rear of the property. The ditch invert has a depth of about 1 to 3 feet below surrounding grades. Figure 1.2 presents the location of the drainage ditch.

1.1.1 Site Background

Figure 1.3 is reproduced from a historical CSXT plan (date unknown) which indicates that the southern portion of the site was used as a coal yard by the Cahill Coal Company. The western portion of the site, along with other properties along Larch Street, were used by Cutler Oil Company/Gulf Refining Company.

Barrels, Inc. began operations on the Site around 1961 and continued until 1980, when the Site was abandoned. The Barrels, Inc.

reclamation process consisted of: cleaning drums in a caustic solution, rinsing, repairing and repainting. Spills to surface soils allegedly occurred at the loading dock and drum storage areas. The spills at the loading dock allegedly consisted of the contents of the caustic tank which contained the cleaning solution and residual materials which allegedly remained in most of the drums. Any releases which occurred in the drum storage area would have consisted of residual materials which were spilled during drum movement, or overflowed when drums occasionally became filled with rainwater.

A total of five groundwater monitoring wells were installed in and around the Site in 1982. Three of the monitoring wells (MW1, MW2 and MW3) were installed by the U.S. EPA on properties adjacent to the Site. The remaining two wells (EDI-4 and EDI-5) were installed on the CSXT portion of the property by CSXT. Locations of formerly existing wells (Pre-RI) are presented on Figure 1.4. Wells EDI-4 and EDI-5 have been renamed as MW4 and MW5, respectively. Logs for the Pre-RI wells are presented in Appendix A.

In 1986, a drum removal action and a surface soil sampling program were conducted by the MDNR. Following the soil sampling, the surface soils in the drum storage area were removed to a depth of approximately six inches. Nine underground petroleum storage tanks were also removed by the MDNR from the Barrels, Inc. property in 1986. Eight tanks were removed from an area east of the existing wooden shed, and one tank was removed from the west side of the Site, near the entrance of the facility.

Subsequent surface soil sampling was conducted by the MDNR in 1987. The analytical results from the 1987 sampling indicate that the surface soils contained variable concentrations of base neutral extractable organics, pesticides, PCBs and inorganics. The data tables as presented in the MDNRs Work Plan, dated March 1992, are provided in Appendix B. Similar compounds were reported in samples obtained from surface scrapings of the floor slab in the main building.

1.1.2 Adjacent Land Use

The Barrels, Inc. Site is located in an industrial/commercial area, as indicated on Figure 1.2. All adjacent property land uses are industrial or commercial. As a result, environmental conditions at the Site may be affected by off-Site adjacent and upgradient land uses. Adjacent and upgradient land uses which may affect the Site include: possible underground storage tank(s) located on the Chocola Cleaning Materials property, Motor Wheel manufacturing plant, Kent Electronics and two landfills located north of the Site which have been designated Superfund Sites.

It is noted that this area is served with a municipal water supply and municipal storm and sanitary sewers.

1.1.3 Buildings

A schematic of the main building is presented on Figure 1.5. The building is rectangular and has an office area in the front, a loading and unloading dock in the center and a drum restoration area at the rear. The building has a total area of approximately 5,200 square feet.

The Barrels, Inc. drum cleaning process included a caustic (wash) tank and flush tank, a 2,000-gallon free standing tank, an open box tank, a 1,500-gallon UST for spillage collection and two 500-gallon tanks/sumps. The sumps are connected to a drain pipe which discharges to the sanitary sewer. The free standing tank is reported to have been used as a flocculation tank. The purpose of the open box tank is unknown.

A "wood shed" is located to the south of the main building and consist of a dilapidated office and garage structure. Remnant electrical switches and piping were observed within and along the side of this structure.

1.1.4 Drum Storage Area

During the operation of the Barrels, Inc. Site, drums destined for recycling were stored on the east side of the Site. During 1986 the MDNR removed all remaining drums from the Site and excavated the top six inches of soil. The soils were disposed off Site. Surface soil samples obtained in the area in 1987 by the MDNR indicate that some soil contamination remained. Reported compounds include base neutrals, pesticides, PCBs and inorganics.

The parameter groups which were identified by the MDNR: base neutrals, pesticides, PCBs and inorganics, are parameters that tend to attenuate on soil particles and are not particularly mobile in groundwater. This suggests that the contamination in the drum storage area is likely to be a shallow surface soil problem.

1.1.5 Loading Dock/Process Tank Area

Spills from the caustic tank located at the rear of the main building occasionally overflowed the loading dock and allegedly spilled onto the soils at the rear of the building. The spills allegedly consisted of the caustic wash liquid, but could have also contained residual materials from the drums. A tile field is reported to be located at the rear of the building to collect infiltrating spilled liquids. Fluids collected by the tile field drained into a 1,500-gallon UST located at the southeast corner of the building. This UST is referred to as the caustic overflow UST or caustic tank (CT).

1.1.6 Underground Storage Tank Area

In 1986, nine underground storage tanks were removed from the Site by the MDNR as described in earlier sections.

1.1.7 Drainage Ditch

The property drains eastward into a drainage ditch along the CSXT railway line. Soils eroded by Site drainage could settle as sediment into the drainage ditch. The location, and flow direction, of the drainage ditch is presented on Figure 1.2.

1.2 REMEDIAL INVESTIGATION OBJECTIVES

Specific objectives of the RI include:

1. investigate the nature and extent of contamination in the drum storage area, loading dock area and underground storage tank (UST) locations;

2. investigate the nature and extent of contamination within the building, including the floor slab, drains and existing tanks;

3. investigate the drainage ditch between the Site and C&O railroad tracks, with respect to impact from Site contaminated runoff;

4. investigate the hydrogeologic conditions at the Site; and

5. investigate groundwater quality at the Site.

1.3 ASSESSMENT OF PHASE I INVESTIGATION

The data collected during the Phase I portion of the RI has been assessed through a conservative screening procedure, that was presented in the approved RI/FS Work Plan, to determine whether implementation of any of the Phase II investigation is necessary to complete a feasibility study. The appropriate Phase II investigation will be implemented if the following assessment criteria, which was presented in the approved RI/FS Work Plan, is exceeded:

1. Drum Storage Area. If the Phase I results define the extent of the vertical penetration of contaminants to the extent that the volume of soil potentially requiring remediation can be estimated (i.e. no more stringent than Michigan Act 307 Type B standards) with the accuracy appropriate for a Feasibility Study, then Phase II soil sample collection will not be required.

2. UST Area. If the Phase I results define the extent of the vertical penetration of contaminants to the extent that the volume of soil potentially requiring remediation can be estimated (i.e. no more stringent than Type B standards) with the accuracy appropriate for a Feasibility Study, then Phase II soil sample collection will not be required.

3. Caustic Tank Spill Area. If the Phase I results define the extent of the vertical penetration of contaminants to the extent that the volume of soil potentially requiring remediation can be estimated (i.e. no more stringent than Type B standards) with the accuracy appropriate for a Feasibility Study, then Phase II soil sample collection will not be required.

4. Groundwater Quality. If it can be shown by groundwater flow analysis and water quality distribution that upgradient conditions are controlling downgradient water quality, or if the volumetric extent of groundwater which does not meet Type B criteria can be estimated with the accuracy appropriate for a Feasibility Study, the Phase II well installation will not be required.

Since the preparation of the RI/FS Work Plan for the Barrels, Inc. Site, the MDNR has released Operational Memorandum #14: Generic Remedial Action Plans Using Industrial Site Risk Assessment Criteria. This MDNR directive will be referred to in this report as the Type C Generic Industrial Cleanup criteria. The Generic Industrial Cleanup criteria are based on algorithms which take into account the industrial nature of certain areas.

The two main criteria for assessing whether a site is suitable for applying the generic criteria are that the site's primary activity is industrial in nature and that the current zoning of the property is industrial and is not anticipated to change. The Barrels Inc. Site meets both of these criteria. In addition, the shallow sand aquifer below the Site is not utilized as a drinking water source, since the area is serviced with municipal water. As such, the assumption in the Generic Industrial Cleanup criteria that the groundwater would be used as drinking water by workers on the Site, is considered to be conservative.

For the purposes of the RI, soil analytical data will be evaluated using the Generic Industrial Cleanup criteria as the primary criteria. Groundwater analytical data will be evaluated using the Generic Industrial Cleanup criteria for groundwater below the Site, and Type B criteria to assess possible downgradient effects. Other Michigan Act 307 criteria are provided for comparison in Drawings 1, 2, 3, 4 and 5, but will not be discussed in the RI.

Each compound has been evaluated in terms of the above criteria and a list of "Chemicals of Concern" was developed for the project. This list of chemicals of concern has been assessed along with the geologic and hydrogeologic data to determine if any gaps remain in the data.

Since it is not within the scope of this Phase I RI report to conduct an FS, the evaluation will not discuss possible cleanup methods, but will determine if sufficient information is available to conduct an FS (i.e. choose a remedy). Limited data gaps were identified and additional investigation has been recommended as part of a Phase II RI, to be conducted prior to preparing an FS (see Section 9.0).

1.4 REPORT ORGANIZATION

The following summarizes the organization for the remainder of this report.

Section 2.0 Field Investigation

This section presents an overview of field work conducted during the Phase I investigation.

Section 3.0 Regional Setting

This section presents information on regional geology and hydrogeology.

Section 4.0 Site Soils

This section presents information on site specific soils, groundwater and bedrock encountered in the boreholes drilled on Site during this Phase I investigation.

Section 5.0 Chemical Distribution

This section presents chemical distribution in Site soils and groundwater, for a list of Chemicals of Concern.

Section 6.0 Waste Residual Sampling

The results of waste residual sampling will be presented in this section.

Section 7.0 Chemical Fate and Transport

This section presents a review of the interaction of site related chemicals of concern within the environmental media of concern.

Section 8.0 Nature and Extent of Contamination

This section presents an evaluation of site conditions to determine an estimate of contamination around boreholes, groundwater and waste residual areas.

Section 9.0 Recommendation of Phase II

This section presents an assessment of site specific areas with respect to the requirements of possible additional field work, if necessary.

SECTION 2

2.0 FIELD INVESTIGATION SUMMARY

This section presents a summary of field activities completed during the Phase I remedial investigation. Types and location of sampling will be described along with the QA/QC procedures.

2.1 RECONNAISSANCE AND SURVEY

During the Site reconnaissance the following activities were conducted:

1. assessment and inspection of existing monitoring/extraction wells;
2. measurement of water levels in all existing wells;
3. reconnaissance at the Site and surrounding area;
4. documentation of Site conditions;
5. determination of accessibility of drilling locations;
6. determination of the nature and extent of vegetation; and
7. staking at locations for field investigation.

A Site survey was conducted by Darrell Hughes and Associates under direct supervision of CRA. A base plan was developed through this activity and is used throughout this report to present the results of the investigation.

Site survey tasks included:

1. preparation of an accurate Site plan showing all existing buildings, fences, property lines, etc.;
2. accurately locating existing and new boreholes and monitoring wells; and
3. Conducting an elevation survey of all existing and new boreholes and monitoring wells, geodetic elevation datum.

2.2 SOIL SAMPLE COLLECTION

As indicated in Section 1.2, areas of the Site with possible soil contamination include the Drum Storage Area, the Caustic Tank Area, the Underground Storage Tank area and the Drainage Ditch. Soil sampling was performed in these areas at proposed locations as stated in the work plan with minor changes where drilling equipment access was limited. The sampling was conducted between May 11 and May 28, 1993.

Continuous sampling was conducted at various depths at each borehole. Samples were retained for analysis based on visible contamination, odor and Photoionization Detector (PID) response. Precise sampling methodologies are presented in the following subsections. A log was made of the subsurface conditions encountered at each borehole including soil types, depths, chemical staining and other relevant field observations. Borehole stratigraphic logs are presented in Appendix C.

The boreholes were advanced using dry drilling methods consistent with MDNR, Environmental Response Division (ERD), Draft Hydrogeologic Study Guidance Document dated November 1990, Section 6.3, and prevailing soil conditions. All drilling was completed by Mateco Drilling Company of Grand Rapids, Michigan. Upon completion of sampling, all boreholes were filled with cement bentonite grout. All soil cuttings were collected and containerized in 55-gallon drums. The drums were staged on Site on a polyethylene mat near the southeast corner of the main building. The drums will be characterized and properly disposed, on completion of the investigation.

All soil samples were collected, preserved, documented and handled using procedures defined in the Quality Assurance Project Plan (QAPP). All QAPP quality control and decontamination procedures were followed.

2.2.1 Drum Storage Area

Soil borings were completed at 14 locations in the Drum Storage Area as shown on Figure 2.1. The borings were numbered DS-1 to DS-14. To ensure representative coverage, boreholes were located on a grid that was approximately 100 feet on each side.

All samples were collected using a CME 45 track-mounted drilling rig. Boreholes were advanced with 4 1/4-inch inside diameter hollow stem augers. Standard 2-foot long, 2-inch diameter split spoon samplers were used to obtain soil samples at continuous depth intervals. Upon opening each split spoon sampler, soil samples were immediately screened for any volatile organic compounds using a photoionization detector (PID).

Boreholes were advanced to a maximum depth of three feet into the first confining layer where native clay was encountered. Where native clay was not encountered, the borings were completed to 20 feet. Borehole depths ranged from about 6 to 20 feet below the ground surface.

From each borehole where native clay was encountered, the following samples were retained for chemical analysis:

- the top six inches of the soil sample overlying the native clay;
- the second six inches of native clay;
- the native clay from the last six inches of the boreholes (i.e. 2.5 to 3 feet into the native clay); and
- the sample with the highest PID reading.

If a clay layer was not encountered, the borehole was advanced to the first water table or a maximum depth of 20 feet and the following samples were analyzed:

- a sample from within the top three feet of the surface;
- the sample with the highest PID reading; and
- the last sample from the borehole.

In either previous situation, boring and sampling continued if visual, olfactory or initial PID readings indicated the presence of contamination.

Continuous split spoon sampling continued until two successive apparently unimpacted split spoon samples were obtained.

2.2.2 Loading Dock/Process Tank Area

In the loading dock/process tank area, soil borings were completed at three locations as shown on Figure 2.2.

All samples were collected with a CME 45 track-mounted drilling rig. Boreholes were advanced using 4 1/4-inch inside diameter hollow stem auger. Standard 2-foot long, 2-inch inside diameter split spoon samplers were used to obtain soil samples at continuous depth intervals. Upon opening each split spoon sampler, soil samples were immediately screened for any volatile organic compounds using a PID.

Each of the three soil borings was drilled three feet into the first confining layer encountered below the collection tank invert. The boreholes were extended to depths ranging from 10 to 18 feet below ground surface.

In either previous situation, boring and sampling continued if visual, olfactory or initial PID readings indicated the presence of contamination.

The surface sample, along with either the highest PID reading or the most visibly contaminated sample and the bottom sample from each borehole were submitted for chemical analysis.

2.2.3 Underground Storage Tank Area

Soil borings in the underground storage tank area were completed at six locations as shown on Figure 2.3.

All samples were collected using a CME 45 track-mounted drilling rig. Boreholes were advanced using a 4 1/4-inch inside diameter hollow stem auger. Standard 2-foot long , two-inch inside diameter split spoon samplers were used to obtain soil samples at continuous depth intervals. Upon opening each split spoon sampler, soil samples were immediately screened for volatile organic compounds using a photoionization detector (PID).

Each of the six boreholes were advanced to a minimum of six feet into the native soil. Borehole depths ranged from about 10 to 22 feet below the ground surface.

Sampling continued if visual, olfactory or initial PID readings indicated the presence of contamination. The sample with the highest PID reading and the bottom sample from each borehole was submitted for chemical analysis.

2.2.4 Drainage Ditch

Soil borings in the drainage ditch area were completed at the five locations shown on Figure 2.4.

Due to the overhead utility lines, access to the drainage ditch was limited. Therefore all soil sampling was completed using a General 500 post hole auger. Standard 2-foot long, 2-inch diameter split spoon samplers were used to obtain soil samples at continuous depth intervals. The split spoons were driven using a 15-lb hand operated hammer. Upon opening each split spoon sampler, soil samples were immediately screened for any volatile organic compounds using a photoionization detector (PID).

Each borehole was drilled to a minimum depth of three feet into the first native confining layer encountered or to the first water table encountered or to a maximum depth of 20 feet. Borehole depths ranged from about 6 to 10 feet below ground surface.

From each borehole, the following samples were retained for chemical analysis:

- a sediment sample with the highest PID reading;
- a native soil sample with the highest PID readings;
- the last sample from the borehole.

In either previous situation, boring and sampling continued if visual, olfactory or initial PID readings indicated the presence of contamination.

2.2.5 Headspace PID

A second method of PID assessment of the soils was used to confirm the results of the PID readings of the split spoons. A portion of each sample (approximately four ounces) was placed into an 8-ounce sample jar and covered with aluminum foil. Each jar was maintained at a temperature of about 20°C for greater than one hour. The volatile organic concentration in the headspace was then measured by inserting a PID probe through the foil.

The split spoon PID results are presented in the Borehole Logs. The results of the headspace analysis are presented in Table 2.1. No significant difference was reported between the two methods.

2.3 PHYSICAL TESTING OF CLAY

An undisturbed sample of clay was obtained from the first confining layer encountered at MW2, MW7, MW8 and MW9, using a thin walled Shelby Tube Sampler. The Shelby Tube was pushed a distance of two feet into the native clay confining layer. The tubes were sealed and shipped to Materials Testing Consultants, Inc. of Grand Rapids, Michigan. The samples were subjected to grain size distribution and falling head permeability testing. The grain size analysis was conducted using ASTM Test Method D 421 and D 422. The permeability testing was conducted using a falling head method.

2.4 MONITORING WELL INSTALLATION

Ten new groundwater monitoring wells were installed at the locations presented on Figure 2.6. There now are a total of 15 monitoring wells associated with the Site. Monitoring well stratigraphic and construction logs are presented in Appendix D. Table 2.1 presents monitoring well completion details.

Soil sampling was conducted during the drilling of boreholes for installation of monitoring wells. All soil samples were collected using a CME-45 track mounted drilling rig. Borings were advanced utilizing 4 1/4-inch inside diameter hollow steam augers. Standard 2-foot long, 2-inch diameter split spoon samplers were used to obtain soil samples on a continuous depth basis. Upon opening each split spoon sampler, soil samples were immediately screened for volatile organic compounds using a PID. No soil samples were retained for chemical analysis, since no saturated sample had any evidence of contamination.

New monitoring well installations included a background well cluster MW9, water table wells at existing locations MW2, MW3, MW4 (formerly ED1-4), and MW5 (formerly ED1-5), two new water table wells MW6 and MW8, and one new on-Site monitoring well cluster MW7. The location of each well is presented on Figure 2.6. The background well cluster

included a well at the water table and a well with the top of the screen installed at a depth of approximately 20 feet below the water table. The boreholes for well MW6 and MW8 were advanced to bedrock, approximately 60 feet BGS to obtain deep stratigraphic information.

All monitoring wells installed at the Site consisted of 2-inch black steel riser pipe with stainless steel screens. The black steel pipe was utilized above the water table. Only stainless steel materials were utilized below the water table. The screens were 10 feet long when placed at the water table, straddling the water table at mid-screen. If placed below the water table, a well screen with a length of three feet was used.

A clean quartz sand pack was installed around each well screen. The sand pack extended to two feet above the top of the screen. A 2-foot bentonite plug was placed on the sandpack. The remainder of the borehole annulus was backfilled with bentonite cement grout. Lockable protective caps were installed over each monitoring well.

Each monitoring well was developed with a pre-cleaned stainless steel bailer in accordance with requirements defined in the Quality Assurance Project Plan (QAPP). Field measurements of pH, conductivity and temperature were taken after each well volume was removed. Well development continued until three consecutive consistent readings were measured.

Following well development, all wells were surveyed and groundwater elevations in each well were determined. Groundwater levels were routinely measured during the remainder of the field investigation.

Purge water and development water was collected and transferred to a 1,700-gallon tank. Following completion of the investigation the water will be characterized and properly disposed.

2.5 GROUNDWATER SAMPLING

One round of groundwater sampling was completed on 15 wells. All wells were purged by bailing or pumping until at least three borehole volumes were removed from each well.

Groundwater samples were collected from each of the 15 monitoring wells following well development in accordance with the following protocols:

i) new disposable latex gloves were worn by sampling personnel at each monitoring well;

ii) the depth of water was measured to the nearest 0.01 foot using an electric measuring tape, cleaned in accordance with the QAPP;

iii) the pH, temperature and conductivity of the groundwater was recorded;

iv) wells were purged using a low volume electric pump or a bottom filling stainless steel bailer;

v) groundwater samples were obtained using a bottom filling stainless steel bailer, cleaned in accordance with the QAPP; and

vi) all samples collected for inorganic analysis were passed through a final filter with a 0.45 micron opening size.

The pH, conductivity and temperature were obtained following removal of each casing volume. Purging continued until these parameters had stabilized. All purging was consistent with the procedures outlined in the MDNR, ERD, Draft Hydrogeologic Study Guidance Document, Section III, C.8. All purge groundwater generated during purging was stored in a 1,700 gallon tank, located near the main building.

All groundwater samples were collected, documented, and handled using procedures outlined in the Quality Assurance Project Plan (QAPP) February, 1993. All QAPP quality control and decontamination procedures were followed.

2.6 SINGLE WELL RESPONSE TEST (SWRT)

The hydraulic conductivity of the Upper Sand Aquifer was evaluated utilizing the single well response test (SWRT). The SWRT involves inducing a change in the water level in a well by introducing a slug of known volume. As the water level returned to its static level, measurements were collected with a Telog data collection system with a 10 pgsi pressure transducer. The measurements were collected at one second intervals.

An analysis of the (SWRT) data was completed to determine hydraulic conductivity at each well's screened interval utilizing the Bouwer-Rice method for unconfined aquifers. Calculations of hydraulic conductivity, based on measurements taken, were generated using the AquaTESOLV computer program.

2.7 WASTE RESIDUAL SAMPLING

Composite grab samples of waste residuals were collected from each of the nine locations designated in the RI/FS Work Plan, within or near the main building. The locations that these samples were taken from are presented on Figure 2.5. One additional sample was obtained from a small square metal tank structure which had a fume hood above it. These waste residual samples consisted of liquids and sludges which remained at the base of the sampled tanks from the drum cleaning and reclamation process. When sludges were encountered several aliquots of material were collected using appropriate sampling equipment. These aliquots were thoroughly mixed in a stainless steel bowl and the sample was placed in an appropriate sample container and sealed with a Teflon lined cap. When

liquids were encountered, samples were collected using the sample jar designated for the analysis. All sampling protocol was completed in accordance with the quality Assurance Project Plan (QAPP).

Decontamination of equipment was performed in Accordance with the QAPP.

As presented on Figure 2.5, a composite grab sample was obtained from each of the following locations:

i) the five process tanks (5 samples);

ii) the two sumps (two samples);

iii) the floor drains which connect the process tanks and sumps (one sample);

iv) scrapings of residual materials on the floor (one sample; and

v) the manhole located on the west side of the main building (one sample).

The waste residual sludge/liquid was submitted to ENCOTEC, Inc. in Ann Arbor, Michigan for RCRA hazardous waste characteristics analysis, including reactivity, corrosivity, and ignitability and TCLP for volatiles, semi-volatiles, pesticides, herbicides, metals and PCBs.

2.8 DATA VALIDATION

All chemical analyses including priority pollutants, curene, reactivity, ignitability, corrosivity and TCLP were performed by ENCOTECH labs of Ann Arbor Michigan.

Analytical results of the field investigation were assessed and validated by CRA's Quality Assurance Officer (QAO) based upon a review

of standard quality control criteria presented by the QAPP. Laboratory validation reports are presented in Appendix F. All analyses included strict adherence to Chain of Custody protocol. Field chain of custody forms are presented in Appendix G.

The following provides a summary and definition of the qualifiers used in the Barrels Inc. databases.

B - analyte present in method blank
E - estimated value as reported by lab
J - value is an estimated quality for detected analytes
ND - analyte is a non-detect, associated value being the quantitation limit
R - data was unusable for non-detected analytes
S - results due to secondary dilution
UJ - analyte was checked for, but not detected, value is an estimate

As noted in the QA/QC memo of October 14, 1993, which is attached as Appendix J, inconsistencies in compound concentration profiles indicate that an error in sample labeling may have occurred for Boreholes DS-4, DS-8 and DD-1. The data from the lower depths was switched to provide a supportable concentrations profile.

SECTION 3

3.0 REGIONAL SETTING

3.1 REGIONAL GEOLOGY

3.1.1 Overburden

Present day topography of Ingham County is characterized by gentle morainic hills and relatively flat undulating ground moraine. Most of the glacial drift in this area consists of unconsolidated clay, sand and gravel. Figure 3.1 indicates that the surficial geology in the area of the Site consists of glacial moraines and outwash channels. The regional unconsolidated materials are predominantly fine grained materials that would generally result in relatively low groundwater velocities. Regional geologic information indicates that the drift stratigraphy consists of about 50 to 100 feet of overburden soils (drift) overlying bedrock. The bedrock consists of interbedded sandstone, shale and limestone of the Saginaw Formation.

3.1.2 Bedrock

The bedrock geology throughout Ingham County consists of the Saginaw formation of the Pennsylvanian age which directly underlies the glacial deposits. Regionally, the formation is composed of sandstone, siltstone, coal, shale and minor amounts of limestone (Kelly, 1936). Bedrock is found at an average depth of 50 to 100 feet BGS.

3.2 REGIONAL HYDROGEOLOGY

3.2.1 Surface Drainage

Regionally, the Site is located within the Grand River Drainage Basin. Most of the northern part of Ingham County is drained by the Red Cedar River and its major tributaries, Sycamore Creek, Deer Creek, Doan Creek and Sloan Creek. The western part of the county is drained by the

Grand River and the southern part is drained by several tributaries of Portage Creek (Vanlier, 1969). The Barrels Inc. Site drains toward the Grand River.

3.2.2 Hydrogeology

Figures 3.2 and 3.3 provide regional information on aquifer characteristic. These figures are reproduced from the Hydrogeologic Atlas of Michigan, 1981.

Figure 3.2 depicts the Lansing area as being part of a Category IIIB aquifer. Category IIIB is described in the Hydrogeologic Atlas of Michigan as an area where the overburden soils consist of interbedded aquifers, aquicludes and aquitards at depth, but where there may not be an aquifer near the surface.

Figure 3.3 presents regional aquifer vulnerability to surface contamination. The Site is located in an area where the local first usable aquifer is protected from surface contamination by impervious materials (silt and clay). The aquifer in the area of the Site is a Category IIIB aquifer and is not located near the surface.

SECTION 4

4.0 SUBSURFACE CONDITIONS

The following section provides a summary of the subsurface conditions encountered in the boreholes and monitoring wells placed at the Site. Complete details of subsurface conditions encountered are presented on the borehole and monitoring well logs presented in Appendix C and D.

4.1 SITE SOILS

This section will present the subsurface soil conditions encountered at the Site. First a brief description of the findings from each investigation task will be provided. This will be followed by a summary which relates soil conditions across the Site. This summary will be supported with cross-sections of the Site.

The soils encountered within the boreholes consisted of surficial fill materials overlying a clay stratum, which in turn overlies an interbedded clay and sand sequence.

4.1.1 Drum Storage Area

Boreholes placed in the Drum Storage Area were given the designation DS (i.e. DS-1 to DS-14).

4.1.1.1 Fill Materials

Fill materials were encountered at each borehole location, including Boreholes DS-1 through DS-14. These materials consist mainly of a random mixture of sand and gravel and sand and silt, ranging in depth from 2 to 7.5 feet below ground surface.

Coal was encountered with the fill at Boreholes DS-1, DS-10 and DS-13. At Borehole DS-1, the coal was fragmented and contained within a matrix of sand. At Borehole DS-10 coal was found in a 4-inch thick seam of powder. At Borehole DS-13 a 1.7-foot thick seam of coal was encountered.

4.1.1.2 Sand

Sand was encountered within Boreholes DS-3, DS-4, DS-5, DS-6 and DS-12 below the fill materials.

A sand stratum was encountered between the fill materials and an underlying clay layer (depth 4 feet) in Boreholes DS-5 and DS-6. Within Borehole DS-4 a sand stratum was encountered below the clay layer at a depth of about 7 feet. At Boreholes DS-3 and DS-12 sand soils were encountered below the fill materials, extending to depths of about 12 to 20 feet.

4.1.1.3 Clay

Clay soils, in the context of this report, indicate soils capable of creating a suitable confining layer to limit the downward migration of contaminants. As such, included in this broad category are materials with very low permeabilities ranging from low plasticity materials containing large amounts of silt, to materials with higher plasticity containing extensive amounts of clay.

Clay soils were encountered at each of the drum storage boreholes except Boreholes DS-3 and DS-12, at depths of about 4 to 8 feet. The clay was penetrated at Borehole DS-4, and had a thickness of 3 feet, at that location. At the remaining boreholes the clay was not fully penetrated, but had thicknesses which were greater than 2 to 6 feet. The permeability of the clay materials has been measured to be approximately 10^{-8} cm/sec indicating that it is a confining layer.

Samples of the shallow clay were obtained at MW2, MW7 and MW9. These locations were chosen due to their proximity to boreholes where clay was encountered. A sample at MW8 was obtained to determine the permeability of shallow native soil at a location where clay was not encountered (i.e. DS-3). The results of grain size distribution and falling head permeability analysis conducted on each sample is presented on Table 4.1. The permeability of the clay stratum ranges from 1.0×10^{-8} to 5.7×10^{-8} cm/sec. This indicates that the clay is an effective barrier.

4.1.2 Loading Dock/Process Tank Area

Boreholes placed in the Loading Dock/Process Tank Area were given the designation CT (i.e. CT-1 to CT-3).

4.1.2.1 Fill Materials

Fill materials were encountered in the Loading dock/Process Tank area at Boreholes CT-1, CT-2 and CT-3. These fill materials consist of sands and gravel with little clay and silt ranging in depth from 1.8 to 5.8 feet below the ground surface. Fill also contained black slag material, and an occasional black oily stained seam. Odors were noted in several of the fill samples.

4.1.2.2 Sand

Sand was encountered at Borehole CT-1 and CT-3. Borehole CT-1 has a layer of sand with some clay that underlies the fill from 3.0 to 5.0 feet below ground surface. Borehole CT-3 has an interbedded sand and silt unit from 8.5 to 18.0 feet below the ground surface.

4.1.2.3 Clay

Clay was encountered at each of the boreholes placed in the Loading Dock/Process Tank area. Borehole CT-1 encountered a clay layer which contained occasional sand seams extending from 5 to 10 feet below the ground surface. Borehole CT-2 had a clay layer extending from 1.8 to 10 feet below the ground surface. Borehole CT-3 had three clay layers at depths of 5.8 to 8.5, 10.5 to 12.5 and 14.8 to 18 feet.

4.1.3 Underground Storage Tank Area

Boreholes placed in the Underground Storage Tank Area were given the designation US (i.e. US-1 to US-6).

4.1.3.1 Fill Materials

Fill was encountered in the underground storage tank area at each borehole ranging in depth from 0.8 to 4.0 feet below ground surface. The fill materials consist of sand and gravel with some asphalt material encountered at borehole US-1. Petroleum staining and oily liquid were detected at Borehole US-3, within the fill materials.

4.1.3.2 Sand

Sand was encountered underlying the fill at each borehole. At boreholes US-1, US-2, US-5 and US-6 sand soils were found to be interbedded with clay at depths from 16.0 to 22.0 feet below the ground surface. At boreholes US-3 and US-4 sand lenses were encountered within clay.

4.1.3.3 Clay

A significant shallow clay layer was encountered at Boreholes US-1, US-3, US-4, US-5, and US-6. The clay layer was encountered at a depth of approximately 2 to 4 feet, and generally had a thickness of approximately 2 to 8 feet.

4.1.4 Drainage Ditch

The boreholes placed in the Drainage Ditch Area were given the designation DD (i.e. DD-1 to DD-5).

4.1.4.1 Fill

Along the drainage ditch, a fill layer was encountered at each borehole ranging in depth from 2.0 to 3.0 feet below ground surface. The fill consisted of sands and gravels with some clay. Also encountered in the fill were fragments of slag, brick and coal.

4.1.4.2 Sand

Sand was encountered beneath the fill at Boreholes DD-1 and DD-5. This sand contains some silt and traces of clay and extends to a depth of approximately 4 to 5 feet below the ground surface. At Borehole DD-2 a sand seam was encountered within a clay stratum.

4.1.4.3 Clay

A shallow clay confining stratum was encountered at each borehole at a depth ranging from approximately 2 to 5 feet. Borehole DD-2 encountered two clay layers extending from 2.2 to greater than 6 feet below

the ground surface. At boreholes DD-3, DD-4 and DD-5 clay underlies the fill and extends from about 8.0 to 10.0 feet below the ground surface.

4.1.5 Monitoring Wells

The soils encountered during the installation of monitoring wells consisted of surficial fill materials overlying a clay stratum, which in turn overlies an interbedded clay and sand sequence which extends to a depth of about 30 feet below grade. Underlying the interbedded sequence, a sand and gravel stratum (aquifer) was encountered which extended to a depth of approximately 54 feet. Below the sand and gravel a gray clay till aquitard was encountered, which extends to a sandstone bedrock.

4.1.5.1 Fill Materials

Each of the monitoring well borings encountered fill materials at the ground surface, generally extending to a depth of less than 3 feet. However, at MW5 fill materials extended to a depth of approximately 12 feet.

The fill composition varied throughout the Site, but generally consisted of earth materials with traces of organics.

Coal was encountered within the fill materials at MW5, MW6 and MW7. At MW7 the coal was encountered in a stratum of about 2 feet thickness.

4.1.5.2 Clay

A shallow confining clay stratum was encountered in each of the monitoring well borings, except MW3 and MW5. The clay had a thickness of about 2.5 to 5 feet. As discussed previously, undisturbed samples of the clay were obtained from MW2, MW7 and MW9 were subjected to

falling head permeability tests. The testing indicated that the clay has a permeability of approximately 10^{-8} cm/sec, making it a confining layer.

4.1.5.3 Interbedded Sand/Clay

A sequence of interbedded sand and clay was encountered below the confining clay stratum at each of the monitoring wells. The sequence extended to the top of the sand aquifer at a depth of about 30 feet below grade. This sequence was generally below the depths of the boreholes, and as such was only encountered in 2 of the 28 boreholes drilled.

The thickness of the individual clay layers ranged from about 0.5 to 2 feet. These layers had similar physical properties as the clay confining layer. As such, the interbedded clay would also act as a barrier to restrict downward migration.

4.1.5.4 Sand

A stratum of clean sand was encountered below the interbedded sand/clay sequence at each of the monitoring wells. This sand stratum was fully penetrated at MW6 and MW8, and was found to extend to a depth of about 54 feet.

The sand was found to be saturated below a depth of approximately 27 to 30 feet and is considered to be a sand aquifer.

4.1.5.5 Clay Till

A clay till was encountered below the sand aquifer at MW6 and MW8. The till extended to the bedrock surface at a depth of about 58 to 64 feet. This stratum is a low permeability barrier and a lower boundary aquitard to the aquifer.

4.1.6 Summary

Three cross-sections of the Site were prepared based on the subsurface soils conditions encountered in the borings completed on the Site. Figure 4.1 presents the location of the cross-sections, and Figures 4.2 to 4.4 present the sections.

Using these cross-sections the various strata encountered at the Site will be described in order to provide background for the following sections of the report.

The cross-sections indicate the following:

1) fill materials are encountered throughout the Site;
2) a confining clay layer underlies the fill materials across a majority of the site, having a thickness of 4 to greater than 10 feet;
3) the clay stratum is underlain by an interbedded sand/clay sequence, followed by a sand aquifer;
4) the sand aquifer was underlain by a dense clay till of about 7 to 10 feet thickness; and
5) finally, the overburden was underlain by bedrock at a depth of about 60 feet.

The shallow confining clay stratum is generally found to be continuous, with the possible exceptions at locations US-2, DS-3 and MW5.

At the location of Borehole US-2, and other locations of former petroleum underground storage tanks, excavations of soils conducted during the installation and removal of the tanks have extended into and through the confining clay layer. This is illustrated on Figure 4.2, which indicates that the fill at US-2 extends well into the clay unit.

At DS-3, the clay stratum was not encountered to a depth of about 12 feet. However, the boring for MW8, which was done within 25 feet of DS-3, encountered a clay layer at a depth of about 7 feet (reference

Figure 4.2). Figure 4.2 suggests that a thin clay stratum may underlay DS-3, however, this has not been verified. The lack of a clay stratum at DS-3 is not the result of any excavation there, since several feet of native sand were encountered above the clay. The clay may thin (pinch out) between MW8 and DS-3, to the point where it may be non-existent at DS-3.

At MW5 fill materials are found to penetrate the clay stratum extending to a depth of about 12 feet. It is suspected that an excavation was conducted at this location in the past. The purpose of an excavation at this location is not known.

4.2 BEDROCK

Two borings were drilled until a gray sandstone, bedrock, was encountered. Bedrock was encountered at 58.5 feet below the ground surface at MW6-32 and 64.0 feet below the ground surface at MW8-34. At these boring locations the type of bedrock encountered was a gray medium grained sandstone which is consistent with descriptions of Saginaw Formation lithology.

4.3 GROUNDWATER

Groundwater conditions at the Site have been characterized through monitoring conducted within the previously (Pre-RI) existing and new wells at the Site.

4.3.1 Well Development and Purging

Details of well development are presented on Table 4.2. Generally the wells could not be developed to clear conditions. This is due to the nature of the soils in which the wells are screened. The wells are generally installed within the sand aquifer, however, some wells straddle the interbedded sand/clay stratum.

Each well was purged prior to sampling groundwater. The purging criteria was discussed in Section 2.0 and is presented in the QAPP. The results of the purging are presented on Table 4.3. As with the well development results, the purging results indicate that the water could generally not be purged to a clear condition. However, it is noted that conductivity, temperature and pH had stabilized prior to sampling groundwater.

4.3.2 Single Well Response Tests

The radial permeability of the screened soils at each monitoring well was measured by means of a single well response test. This test is also known as a slug test, or rising or falling head test. The procedure for the test was described in Section 2.0 and the QAPP.

The results of the permeability testing are presented on Table 4.4 as well as Appendix E. The range of permeability measured is 6.7×10^{-6} cm/sec to 9.5×10^{-2} cm/sec. The majority of the test results fall within the range expected for sand or sand and gravel.

4.3.3 Groundwater Elevations

Table 4.5 presents the results of the water level measurements taken at the Site. Based on this data, Figure 4.5 was developed which shows the groundwater contours and also indicates an approximate groundwater flow direction.

The direction of groundwater flow across the Barrels Site is approximately south to south-west. The MDNR's Work Plan for the Site indicated a westerly groundwater flow direction, but discounted MW2 in their evaluation. The new data indicates that the water level at MW2 is consistent with other water levels measured, and should be considered.

4.3.4 Groundwater Flow Rate

The mean horizontal hydraulic conductivity (K_h) across the Site was calculated from the single well response tests to be about 3×10^{-2} cm/sec, or 84.5 ft/day.

Using Figure 4.5 a groundwater gradient of about 0.0025 ft/ft was measured.

Assuming an average porosity (n) of about 0.3, the following flow rate was calculated:

$$v = \frac{K_h i}{n}$$ where: K_h = 84.5 ft/day; i = 0.0025 ft/ft; n = 0.3

Therefore: v = 0.7 ft/day

Therefore, the groundwater flow rate is approximately 0.7 ft/day an approximate south/southwest direction, as indicated on Figure 4.5.

SECTION 5

5.0 ENVIRONMENTAL CONDITIONS

The purpose of this section is to summarize reported analytical results with respect to the geologic conditions encountered at the Site. Each of the reported compounds will be assessed against evaluation criteria to determine a list of parameters of concern. Later this list will be utilized to assess data gaps and to determine the requirements, if any, for a Phase II investigation.

5.1 APPROPRIATE EVALUATION CRITERIA

Each of the compounds detected in the soils and groundwater at the Site will be compared to the appropriate cleanup criteria to assess possible requirement for further investigation, if any, as described in the approved RI/FS Work Plan and Section 1.0 of this report. Soils were assessed using the Generic Industrial Cleanup criteria. Groundwater was assessed based on the Generic Industrial Cleanup criteria below the Site, and Type B criteria at downgradient locations.

Tables 5.1 and 5.2 present the appropriate soil and groundwater evaluation criteria for all compounds detected on Site.

For soils, background conditions were calculated for inorganics by conducting a statistical evaluation of all soil samples which were found to be clean of all organic constituents. These samples are presented on Table 5.3. This evaluation ignores the type of soil (clay or sand) under consideration, however, this is considered reasonable at this time since one of the goals of this report is to estimate the need for additional investigation, if any is required. Table 5.4 presents the results of the background calculations. The statistical evaluation equation used is taken from the MDNR's November 1991 Draft Cleanup Verification Guidance Document, page 5. The background criteria is the mean of the designated background sample concentrations, plus three times the standard deviation of the data. Also, the calculated background concentrations were compared to the Acceptable Default Values presented in the MDNR's September 30, 1993

MERA Operational Memo #15, Default Type A Cleanup Criteria. The higher of the two numbers was chosen.

Background calculations for groundwater were not possible due to a limited number of sampling points upgradient of the Site.

5.2 PARAMETERS OF CONCERN

Lists of Parameters of Concern for the Barrels, Inc. Site were developed using the Generic Industrial Chemical criteria. Tables 5.5 and 5.6, respectively, present the soils and groundwater Parameters of Concern for the Site. The lists include only substances which were detected at concentrations above the Generic Industrial Cleanup criteria with respect to soils, and both the Generic Industrial Cleanup criteria and Type B criteria with respect to groundwater. The discussion within the remainder of this RI Report will generally be limited to the Parameters of Concern.

It is noted that the compound curene [4,4'-methylene - bis(2 chloroaniline)] was not detected in any soil or groundwater sample and as such is not a Parameter of Concern.

Zinc was not chosen as a groundwater parameter of concern because it was detected only in wells of galvanized steel construction. The galvanizing process uses zinc which has been known to affect groundwater samples from these types of wells.

5.3 SOILS

During the field activities, subsurface soil samples were collected from the four areas of potential concern at the site in order to define the extent of vertical penetration of contaminants. These areas include the drum storage area, the loading dock/process tank area, the underground storage tank area and the drainage ditch area.

The following subsections will discuss analytical results from soil samples. A summary of the reported VOCs, SVOCs Inorganics and PCB/Pesticides are presented in Tables 5.7, 5.8, 5.9 and 5.10. Drawings 1, 2, 3 and 4 present the reported compounds and indicate which parameters exceed the evaluation criteria discussed. A table of all samples obtained, and parameters analyzed for, is presented in Appendix F.

5.3.1 Drum Storage Area

A total of 14 boreholes were drilled and samples collected at various depths from the ground surface down to 20 feet, to determine the nature and extent of reported compounds.

5.3.1.1 VOCs

Drawing 1 presents a summary of reported compounds and a comparison to established evaluation criteria. All VOCs related to the Drum Storage Area have concentrations below the Generic Industrial Cleanup Criteria.

5.3.1.2 SVOCs

Drawing 2 presents a summary of reported compounds and a comparison to established evaluation criteria.

Samples obtained from Boreholes DS-3 and DS-6 contained no reported concentrations of SVOCs.

Polynuclear Aromatic Hydrocarbons (PAHs) were reported within samples obtained at Boreholes DS-1, DS-2, DS-5, DS-7, DS-8, DS-13 and DS-14 at concentrations below the Generic Industrial Cleanup criteria. Similarly, at Borehole DS-12, Bis(2-Ethylhexyl)phthalate and

Di-n-Octyl phthalate were reported at concentrations below the Generic Industrial Cleanup criteria.

The 2 to 4-foot sample obtained from Borehole DS-4 contained several PAHs at concentrations below the Generic Industrial Cleanup criteria. However, the compounds Benzo(b) fluoranthene, Benzo(a) pyrene and Chrysene were found to exceed the Generic Industrial Cleanup criteria. The PAHs did not penetrate to the 4 to 6-foot depth. The 2 to 4-foot sample consisted of fill materials and was noted to contain a red discoloration of unknown origin.

The 0 to 2-foot sample from Borehole DS-9 contained concentrations of several PAHs, some of which exceeded the Generic Industrial Cleanup criteria. The sample was found to consist of fill and topsoil. The contaminants did not penetrate to the 2 to 4-foot sample which reported no PAH concentrations.

The 0 to 2-foot sample taken from Borehole DS-10 consisted of sand fill with a 4-inch seam of coal powder. The analyzed sample was a composite of the coal and soil. The sample exhibited concentrations of PAHs which were generally below the Generic Industrial Cleanup criteria. Only the compound Benzo(b) fluoranthene was reported to have a concentration above the Generic Industrial Cleanup criteria. The PAHs did not penetrate to the 2 to 4-foot sample which reported no PAH concentrations.

The 0 to 2-foot sample obtained from Borehole DS-11 contained concentrations of PAHs which were generally below the Generic Industrial Cleanup criteria. Only the compound Benzo(b) fluoranthene was reported to have a concentration above the Generic Industrial Cleanup criteria. The PAHs did not penetrate to the 2 to 4-foot depth sample at concentrations above the Generic Industrial Cleanup criteria.

5.3.1.3 Pesticides/PCBs

Drawing 3 presents a summary of the reported compounds and a comparison to established evaluation criteria.

Pesticides/PCBs were not detected in any of the soil samples obtained from Boreholes DS-3, DS-6, DS-8, DS-10 and DS-13.

Concentrations of 4,4'-DDD and 4,4'-DDE were detected in a limited number of samples from Boreholes DS-11, DS-12 and DS-14, below the Generic Industrial Cleanup criteria.

Various concentrations of the pesticides Alpha-Chlordane, Gamma-Chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Dieldrin and Endrin were reported at Boreholes DS-1, DS-2, DS-4, DS-5 and DS-7, at concentrations below the Generic Industrial Cleanup criteria.

At Borehole DS-9, PCB-1254, 4,4'-DDD and 4,4'-DDE were reported. Only the PCB concentration in the 0 to 2-foot sample exceeded the Generic Industrial Cleanup criteria. The PCBs do not penetrate the clay confining stratum to the 2 to 4-foot sample.

5.3.1.4 Inorganics

Drawing 4 presents a summary of reported compounds and a comparison to established evaluation criteria.

The 0 to 2-foot sample at Borehole DS-1 was found to contain Arsenic at a concentration which exceeded the Generic Industrial Cleanup criteria. Arsenic did not penetrate significantly to the 4 to 6-foot sample, where it was reported to have a concentration below the Generic Industrial Cleanup criteria.

The 8 to 10-foot sample at Borehole DS-2 contained only Arsenic at concentrations which exceeded the Generic Industrial Cleanup

criteria. This elevated Arsenic concentration is considered to be unusual as it was not detected in samples above this depth and may actually represent natural arsenic concentrations in the clay. A Michigan Background Soil Survey conducted by the MDNR Waste Management Division (April 1991), indicates the Statewide Range of concentrations for Arsenic is between 0 and 40 mg/kg. The concentration of Arsenic at this location was 13 mg/kg which is at the lower end of the range.

The samples obtained at Borehole DS-3 contained no detected inorganics concentrations, above the criteria under consideration.

At Borehole DS-4, Arsenic was found to slightly exceed the Generic Industrial Cleanup criteria within the 6 to 8-foot sample which is considered to be unusual as it was not detected in samples above this depth and may represent natural arsenic conditions in the clay, as was discussed for DS-2.

The 0 to 2-foot sample obtained at Borehole DS-5 contained a concentration of Arsenic which exceeded the Generic Industrial Cleanup criteria. Samples taken at 2 to 4, 4 to 6 and 8 to 10 feet did not contain concentrations of inorganics which exceeded any of the criteria. Therefore, the contaminants are confined to the fill soils above the clay confining layer at DS-5.

The samples obtained at Borehole DS-6 contained no detected inorganics concentration above the criteria under consideration.

The 0 to 2-foot sample obtained at Borehole DS-7 contained concentrations of Arsenic and Lead above the Generic Industrial Cleanup criteria. These parameters did not penetrate to the 2 to 4-foot sample, and as such are contained in the upper fill soils.

The 0 to 2-foot sample obtained from Borehole DS-8 contained a concentration of Arsenic above the Generic Industrial Cleanup criteria. The 0 to 2-foot sample consists of fill materials. The 4 to 6 and 8 to

10-foot samples are of the clay confining layer. The Arsenic does not penetrate to the 4 to 6 or 8 to 10-foot samples.

The 0 to 2-foot sample obtained at DS-9 contained concentrations of Arsenic and Lead above the Generic Industrial Cleanup criteria. However, inorganics are not encountered at concentrations above the criteria under consideration at the 2 to 4-foot depth. This indicates that the clay stratum encountered is an effective barrier at DS-9.

The 0 to 2-foot sample obtained at DS-10 contained concentrations of Lead below the Generic Industrial Cleanup criteria. These concentrations do not penetrate to the 2 to 4-foot depth and as such are contained.

The 0 to 2-foot sample obtained at Borehole DS-11 contained concentrations of Arsenic at levels above the Generic Industrial Cleanup criteria. No inorganic was found to penetrate the 2 to 4-foot sample at concentrations exceeding the Generic Industrial Cleanup criteria. Also, no inorganics were encountered at levels above the evaluation criteria within the 6 to 8 or 8 to 10-foot samples. As such, the inorganics were contained at DS-11.

The 0 to 2-foot sample at Borehole DS-12 contained concentrations of Arsenic above the Generic Industrial Cleanup criteria. Concentrations of the inorganics within the 4 to 6 and 18 to 20-foot sample were found to be below the Generic Industrial Cleanup criteria. As such, there is an effective barrier to downward migration at DS-12.

The 0 to 2, 2 to 4 and 4 to 6-foot samples at Borehole DS-13 contained concentrations of the inorganics at levels below the Generic Industrial Cleanup criteria.

The 0 to 2-foot sample obtained at Borehole DS-14 contained concentrations of Arsenic exceeding the Generic Industrial Cleanup criteria. The 2 to 4, 4 to 6 and 8 to 10-foot sample contained concentrations of inorganics which were below the Generic Industrial Cleanup criteria. The

0 to 2 and 2 to 4-foot samples consisted of fill materials. The 4 to 6-foot sample is of the confining clay layer. The Arsenic is confined to the 0 to 2-foot fill materials.

5.3.2 Loading Dock/Process Tank Area

A total of three boreholes were drilled and sampled within the area of the Loading Dock/Process Tank Area at the east end of the main building.

5.3.2.1 VOCs

Drawing 1 presents a summary of reported compounds and a comparison to established evaluation criteria.

VOCs were detected within each of the Boreholes placed in the Loading Dock/Process Tank Area, however, none of the concentrations exceeded the Generic Industrial Cleanup criteria.

5.3.2.2 SVOCs

Drawing 2 presents a summary of reported compounds and a comparison to established evaluation criteria.

Concentrations of PAHs were encountered within the Boreholes CT-1, CT-2 and CT-3, at concentrations below the Generic Industrial Cleanup criteria.

5.3.2.3 Pesticides/PCBs

Drawing 3 presents a summary of reported compounds and a comparison to established evaluation criteria.

Within the 0 to 2-foot sample obtained at Borehole CT-1 Gamma-Chlordane and PCB-1254 were reported at concentrations exceeding the Generic Industrial Cleanup criteria. PCB was again reported in the 2 to 4-foot sample at a level below the Generic Industrial Cleanup criteria. Within the 8 to 10-foot sample no Pesticides/PCBs were reported. As such, there is evidence of an effective barrier to downward migration at this location.

At Borehole CT-2, the 0 to 2-foot sample contains a concentration of PCB which was below the Generic Industrial Cleanup criteria. PCB is reported again within the 2 to 4-foot sample, also, at a concentration below the Generic Industrial Cleanup criteria. Alpha-Chlordane and Gamma-Chlordane were detected within the 2 to 4-foot sample at concentrations which did not exceed the Generic Industrial Cleanup criteria. No concentrations of Pesticides/PCBs were reported within the 8 to 10-foot sample. Therefore, there is a barrier to downward migration at CT-2.

The 0 to 2-foot sample at Borehole CT-3 was found to contain concentrations of Alpha-Chlordane and Gamma-Chlordane which did not exceed the Generic Industrial Cleanup criteria. The concentrations of PCB within the 0 to 2-foot sample were reported to be above the Generic Industrial Cleanup criteria. The Pesticides/PCBs concentrations within the 4 to 6-foot sample were below the Generic Industrial Cleanup criteria, indicating that a barrier to downward migration exists.

5.3.2.4 Inorganics

Drawing 4 presents a summary of reported compounds and a comparison to established evaluation criteria.

The concentrations of inorganics of samples obtained at Boreholes CT-1, CT-2 and CT-3 did not exceed the Generic Industrial Cleanup criteria.

5.3.3 Underground Storage Tank Areas

Six boreholes were drilled and samples collected within the two areas identified as Underground Storage Tank Areas.

5.3.3.1 VOCs

Drawing 1 presents a summary of reported compounds and a comparison to established evaluation criteria.

Each of the samples obtained from the Underground Storage Tank Areas encountered compounds which are associated with petroleum products, including, Benzene, Ethylbenzene and Xylenes. These compounds were reported at concentrations below the Generic Industrial Cleanup criteria.

5.3.3.2 SVOCs

Drawing 2 presents a summary of reported compounds and a comparison to established evaluation criteria.

Samples obtained at Boreholes US-1, US-2, US-3, US-4, US-5 and US-6 had reported concentrations of PAHs and N-Nitrosodiphenylamine (indistinguishable from diphenylamine) below the Generic Industrial Cleanup criteria.

5.3.3.3 Pesticides/PCBs

Drawing 3 presents a summary of reported compounds and a comparison to established evaluation criteria.

Pesticides/PCBs were not encountered in any of the boreholes drilled as part of the investigation of the former UST areas.

5.3.3.4 Inorganics

Drawing 4 presents a summary of reported compounds and a comparison to established evaluation criteria.

Concentrations of inorganics within Boreholes US-1, US-2, US-3, US-5 and US-6 were found to be below the Generic Industrial Cleanup criteria.

The 2 to 4-foot sample obtained at Borehole US-4 contained reported concentrations of Arsenic above the Generic Industrial Cleanup Criteria. The 10 to 12-foot sample contains no inorganics concentrations above any of the criteria, indicating the inorganics are confined in the upper soils.

5.3.4 Drainage Ditch Area

Five boreholes were drilled and sampled along the alignment of the drainage ditch.

5.3.4.1 VOCs

Drawing 1 presents a summary of reported compounds and a comparison to established evaluation criteria.

VOCs were not reported in Boreholes DD-1, DD-2, DD-3 and DD-4.

The 0 to 2-foot sample obtained from Borehole DD-5 reported a low concentration of Trichloroethene. The concentration was below the Generic Industrial Cleanup criteria.

5.3.4.2 SVOCs

Drawing 2 presents a summary of reported compounds and a comparison to established evaluation criteria.

SVOCs were encountered within the 0 to 2-foot sample of each of the drainage ditch borings, confirming that the concern is limited to surface soils.

The 0 to 2-foot sample obtained at Borehole DD-1 contained concentrations of several PAHs below the Generic Industrial Cleanup criteria. This sample is considered to be upgradient of the site, and not within the realm of influence of the Site. Also, detecting contaminants upgradient of the Site indicates that the drainage ditch along the Site is being affected by upgradient conditions. The contaminants encountered at DD-1 are confined from downward migration by a clay layer.

The 0 to 2-foot sample from Borehole DD-2 contained the PAHs Benzo(b)fluoranthene and Chrysene at concentrations above the Generic Industrial Cleanup criteria. These PAH compounds were not reported within the 2 to 4 and 4 to 6-foot samples. Therefore, they are limited from downward migration by a clay confining layer.

The 0 to 2-foot sample from Borehole DD-3 contained several PAHs at concentrations occasionally above the Generic Industrial Cleanup criteria. These PAH compounds were not reported within the 4 to 6 and 6 to 8-foot samples. Therefore, the PAHs are limited from downward migration by a clay confining layer.

The 0 to 2-foot sample obtained from Borehole DD-4 had detected concentrations of Benzo(b)fluoranthene, Chrysene and

Phenanthrene below the Generic Industrial Cleanup criteria. Also, these compounds are not reported in the 4 to 6 and 6 to 8-foot samples.

The 0 to 2-foot sample from Borehole DD-5 contained concentrations of several PAHs and included the compounds Benzo(a)Anthracene and Benzo(b)fluoranthene above the Generic Industrial Cleanup criteria. These compounds were not reported in the 6 to 8 and 8 to 10-foot samples, indicating that they were limited from downward migration by a clay confining layer.

5.3.4.3 Pesticides/PCBs

Drawing 3 presents a summary of reported compounds and a comparison to established evaluation criteria.

PCB-1254 was encountered at Borehole DD-1 within the 0 to 2 and 2 to 4-foot samples. As discussed above, this borehole is upgradient of the Site, and as such could not be affected by the Site. The PCB concentrations reported in DD-1 are below the Generic Industrial Cleanup criteria. PCBs were not reported in the 4 to 6-foot sample indicating again that the clay is an effective barrier to PCB migration.

Each of the soil samples from Borehole DD-2 contained concentrations of PCB. The concentrations exceeded the Generic Industrial Cleanup criteria. The 4 to 6-foot sample was obtained from a clay stratum. Borehole DD-2 did not penetrate the clay layer. It is doubtful that PCBs could penetrate the clay to a significant depth, considering their adsorbing property (see Section 7.2.3). The concentrations of PCBs decreased quickly with respect to increasing depth, which many indicate that PCBs have not penetrated through the clay.

The 0 to 2-foot sample obtained at Borehole DD-3 contained Alpha-Chlordane and PCB at concentrations which exceeded the Generic Industrial Cleanup criteria. These compounds are not reported in the

4 to 6 and 6 to 8-foot samples, indicating an effective barrier to downward migration.

The 0 to 2-foot sample obtained at Borehole DD-4 contained concentrations of Alpha-Chlordane and PCBs which are below Generic Industrial Cleanup criteria. The 6 to 8-foot sample is of clay material which will act as a barrier to further downward migration.

The 0 to 2-foot sample obtained from Borehole DD-5 contained 4,4'-DDE at a concentration below the Generic Industrial Cleanup criteria.

5.3.4.4 Inorganics

Drawing 4 presents a summary of reported compounds and a comparison to established evaluation criteria.

The 0 to 2-foot sample obtained from Borehole DD-1 contained reported concentrations of Lead and Zinc below the Generic Industrial Cleanup criteria. The criteria was not exceeded within the 2 to 4 and 4 to 6-foot samples.

The 0 to 2-foot sample obtained at Borehole DD-2 contained concentrations of Arsenic and Lead above the Generic Industrial Cleanup criteria. The 2 to 4 and 4 to 6-foot samples did not exceed the criteria.

The 0 to 2-foot sample from Borehole DD-3 reported inorganic compounds which did not exceed the Generic Industrial Cleanup criteria. The 4 to 6 and 6 to 8-foot samples did not exceed the criteria.

The 0 to 2-foot sample from Borehole DD-4 reported inorganic compounds did not exceed the Generic Industrial Cleanup criteria.

The 0 to 2-foot sample obtained at Borehole DD-5 contained concentrations of Arsenic above Generic Industrial Cleanup

criteria. The criteria was not exceeded within the 6 to 8 and 8 to 10-foot samples.

5.3.5 Monitoring Well Borings

As required in the RI/FS Work Plan, the soil samples obtained while drilling through the saturated stratum were assessed for the presence of visible or PID contamination. The results of PID analysis were presented on Table 2.1. Since no such contamination was encountered, the soils from the saturated stratum were not retained for analysis.

5.4 GROUNDWATER

Groundwater samples were collected from each well using methods outlined in the QAPP.

The results of analysis for all samples are presented in Appendix D. Table 5.11 summarizes the detected analytes, which are also presented on Drawing 5. A Table of all groundwater samples obtained, and all parameters analyzed for, is presented in Appendix G.

Monitoring wells MW4-34, MW4-50 and MW6-32 are representative of on-Site conditions only and will be evaluated using the Generic Industrial Cleanup criteria only. Monitoring wells MW1-47, MW2-36, MW2-45, MW5-34, MW5-50, MW7-33, MW7-48 and MW8-34 are representative of groundwater at the farthest downgradient monitoring points available. These wells will be assessed using the Generic Industrial Cleanup criteria and Act 307 Type B criteria in order to assess possible off-Site affects. Monitoring wells MW3-33, MW3-46, MW9-33 and MW9-45 are upgradient and/or cross-gradient of the Site and will be assessed as background conditions.

5.4.1 VOCs

VOCs were not reported at Monitoring Wells MW1-47, MW2-45, MW3-46, MW4-34, MW7-33, MW7-48, MW8-34 and MW9-45.

At MW2-36, Benzene was reported to have a concentration above the Generic Industrial Cleanup criteria. The concentration reported was considered to be unusually high since no soil Benzene concentrations were reported at this level, and there was no indication of VOCs in the soil headspace results. Also, MW2-45 contained no Benzene and is located only about 6 feet below MW2-36.

At MW4-50 and MW6-32, 1,2-Dichloroethane was reported, but did not exceed the Generic Industrial Cleanup criteria.

At MW6-32, Vinyl Chloride was also reported but did not exceed the Generic Industrial Cleanup criteria.

At MW5-34 and MW5-50, 1,2-Dichloroethane was found to exceed Type B criteria, but not the Generic Industrial Cleanup criteria.

5.4.2 SVOCs

SVOCs were not reported in any of the groundwater samples obtained from the wells.

5.4.3 Pesticides/PCBs

Pesticides were reported in samples obtained from MW3-33, MW9-33 and MW9-45. These wells are upgradient or cross-gradient of the Site, and therefore the reported concentrations are not expected to be a result of Site operations.

PCB-1254 was reported in the groundwater within wells MW5-34 and MW7-33. The concentrations detected exceeded the Health Based Drinking Water Values for the Type B and the Generic Industrial Cleanup criteria. At each location the PCB contamination was detected in the shallow well of a 2-well cluster. The deeper wells did not detect any PCBs. This suggests that the PCBs may be a result of the well installation procedure. PCB will attenuate to soil particles and would be sampled along with soil particles within silty water. It is recommended that the wells should be repurged and resampled to determine the existence of PCB concentrations within the groundwater. Filtered samples should be obtained to eliminate the silt concerns.

5.4.4 Inorganics

Inorganics were reported above Type B or background criteria within groundwater samples obtained from MW4-34, MW4-50, MW5-50 and MW6-32. Insufficient background groundwater quality is available to evaluate each of the inorganics in terms of background concentrations.

At MW4-34, Arsenic exceeds the background concentration established by MW9-45 of 0.006 mg/L. Within the deeper MW4-50, Arsenic is reported at levels below background concentrations. MW4-50 was found to contain concentrations of Zinc above the Generic Industrial Cleanup criteria. This concentration is likely caused by the galvanized steel riser piping used in the construction of this well.

Groundwater from MW5-50 was found to contain Lead and Zinc at concentrations above Type B and the Generic Industrial Cleanup criteria. These concentrations are likely the result of the use of galvanized piping for well construction.

Groundwater from MW6-32 was found to contain reported concentrations of Lead above the Generic Industrial Cleanup criteria.

This concentration of lead is considered to be unusual and should be confirmed by a second round of sampling.

SECTION 6

6.0 WASTE RESIDUALS

Table 6.1 presents a summary of all TCLP analysis conducted. The following presents an assessment of the analytical data versus RCRA requirements, as presented in Table 6.1.

Waste Residual samples were collected from the main building and analyzed as discussed in Section 2.7. The waste residual sludge/liquid was submitted for RCRA hazardous waste analysis, including reactivity, corrosivity and ignitability and TCLP for volatiles, semi-volatiles, pesticides, herbicides, metals and PCBs. Sample BTH-003 taken from the open box tank (10' x 12' 8') exceeded regulatory limits for corrosivity (1.0 S.U.), chromium (25.0 mg/L), lead (16.0 mg/L) and Mercury (0.81 mg/L). Sample BTH-004 taken from the open tank (3' x 4' x 2.5') exceeded regulatory limits for cadmium (3.9 mg/L). All other samples had no detections or were under regulatory criteria for all parameters and tests.

The residual waste materials consisted of sludges and liquids which remained at the base of the tanks sampled. These wastes had very small volumes, having thickness of less than 1 or 2 inches at the base of the tanks.

SECTION 7

7.0 ENVIRONMENTAL FATE AND TRANSPORT

This section presents the environmental fate and transport of Site chemicals of potential concern at the Barrels Inc. Site, and discusses these with respect to:

1) physical and chemical properties;
2) potential routes of migration; and
3) migration and environmental fate.

The environments of concern and the potential pathways include:

1) soils;
2) air; and
3) sand aquifer.

The purpose of this section is to present an analysis and evaluation of the interaction of Site-related parameters of concern in the environmental media. Section 7.1 presents a general description of the physical and chemical properties of Site-related parameters of concern and the influence of these properties on their environmental fate and transport. Section 7.2 presents a discussion of the probable behavior and environmental fate of the parameters of concern.

7.1 PHYSICAL AND CHEMICAL PROPERTIES

The basic physical and chemical properties of the organic and inorganic chemicals of concern are presented on Table 7.1

The probable behavior and environmental fate of all constituents can be assessed to some extent by evaluating the physical and chemical properties of the constituent. The mobility and persistence of these constituents are of primary importance in this evaluation. Mobility is the potential for a chemical to migrate within various media. Persistence is a

measure of how long a chemical will remain in the environment. Factors that affect the mobility and persistence of Site-related constituents include, but are not necessarily limited to:

1) physical properties, such as density;
2) chemical properties, such as water chemistry, pH and REDOX potential;
3) moisture levels; and
4) presence of microorganisms.

The water solubility is the maximum concentration of a compound that can dissolve in water at a specific temperature and pH. Compounds with high solubilities generally exhibit increased mobility.

Vapor pressure and Henry's Law Constants provide an indication of the volatility of a compound. High vapor pressures and Henry's constants indicate a general tendency for a compound to volatilize from water. Compounds with high Henry's constants generally do not persist in surface water environments.

The organic carbon partitioning coefficient (Koc) indicates the tendency of a compound to be adsorbed to organic materials in soils or sediments. High Kocs generally indicate lower mobility. PCBs have very high Kocs and are virtually immobile in organic rich soils.

The behavior of inorganic compounds is dependent upon numerous factors including water chemistry, pH and REDOX potential. Generally, inorganic compounds will precipitate as pH and alkalinity increase. Inorganic compounds may also become complexed depending upon the chemical environment.

Table 7.1 presents a descriptive summary of the chemical properties which help determine the environmental fate of Site-related parameters.

Chemicals present in a groundwater system can be transported via advection and hydrodynamic dispersion. Advection refers to

the process of chemical transport by the bulk flow of groundwater and depends upon the groundwater velocity.

Hydrodynamic dispersion refers to the combined processes of molecular diffusion and kinematic dispersion. Diffusion is the process whereby chemicals move under the influence of their thermal-kinetic energy from regions of high concentration to regions of low concentration. Kinematic dispersion is the process of mechanical mixing due to variations in pore velocities. Both diffusion and dispersion result in a dilution of the chemical. Diffusion is dominant at low fluid velocities while dispersion is dominant at medium to high fluid velocities.

The transport of chemicals in a groundwater system is also affected by adsorption/desorption processes. Adsorption, or sorbing, refers to the binding of chemical molecules present in the aqueous phase to subsurface material. Desorption, the reverse of adsorption, refers to the release of chemical molecules from a bound state to a free aqueous phase. While adsorption reduces the aqueous phase concentration, desorption increases it.

Adsorption/desorption processes are typically assumed to be adequately described as a reversible, instantaneous, linear equilibrium isotherm approximated by the following expression:

$$S = K'C$$

where:

S is the sorbed concentration (M/M);
K' is the equilibrium partition coefficient (dimensionless); and
C is the dissolved concentration (M/M).

Organic sorption refers to the sorption of organic compounds due to hydrophobic partitioning. In this case, S has units of chemical mass per unit mass of soil (M/M), C has units of chemical mass per unit mass of water (M/M) and K' is represented by the dimensionless

"partition coefficient" K_p. Research into organic sorption has shown (Hamaker and Thompson, 1972, de Marsily, 1986) that K_p is highly related to the organic content of the subsurface material as expressed by:

$$K_p = K_{oc} f_{oc}$$

where:

K_{oc} represents the organic carbon partitioning coefficient (dimensionless); and

f_{oc} represents the fraction of organic carbon (dimensionless).

The organic carbon partitioning coefficient is a measure of the tendency for organics to be adsorbed by the subsurface media. K_{oc} is chemical specific and is largely independent of soil properties. The fraction of organic carbon represents the mass concentration (mass of carbon per unit mass of soil) of organic carbon in the porous medium and is thus a property of the subsurface material.

The impact of sorption on chemical transport may be represented by a retardation factor R. The retardation factor is the reciprocal of the ratio of the chemical transport velocity to the average linear groundwater velocity. For example, if it takes one year for a volume of groundwater to travel from a point A to another point B it would take 1/R years for a sorbing solute to travel from point A to point B.

The retardation factor may be calculated as follows [de Marsily, 1986].

Organic sorption:

$$R = 1 + \frac{P_b}{n p_w} K_p$$

where:

P_b represents the dry bulk density of the porous medium (M/L^3);

p_w represents the fluid density (M/L^3); and

n represents the total porosity (dimensionless).

7.2 ENVIRONMENTAL FATE OF REPORTED SITE PARAMETERS OF CONCERN

This section provides information on the environmental fate of substances which are considered to be Parameters of Concern. These include VOCs, SVOCs, Pesticides/PCBs and Inorganics. The information on environmental fate presented is summarized from U.S. EPA Toxicological Profile reports for each substance.

7.2.1 VOCs

7.2.1.1 Benzene

Benzene released to the environment is subject to environmental fate processes including volatilization, sorption and biodegradation.

Benzene has a relatively low Koc values and high vapor pressure and therefore is subject to transport from a soil medium into the atmosphere or the water column via volatilization or flushing, respectively. Of the BTEX compounds, benzene has the highest potential for mobility from the soil medium (Koc of 78 ml/g, vapor pressure of 95.2 mm Hg, Henry's law constant of 5.48×10^{-3} atm-m^3/mol).

The rate of leaching of a chemical from soil to the aqueous phase is dependent upon the chemical concentration in the soil, the temperature, the chemical solubility and contact time between the source and the groundwater. The presence of significant concentrations of Benzene in groundwater generally indicates that soil leaching is occurring.

Benzene, once present in the groundwater, can also be attenuated or degraded by aerobic biodegradation or via volatilization into the vadose zone and ultimately the atmosphere. As discussed previously, Benzene has a relatively high Henry's Law constant value and vapor pressure. Therefore volatilization to the vadose zone would be a significant process for reducing chemical concentrations in the groundwater. Benzene present in the atmosphere is subject to degradation processes such as reaction with hydroxyl radicals.

7.2.1.2 1,2-Dichloroethane

1,2-Dichloroethane is used primarily to make vinyl chloride and a number of other solvents to remove grease, glue and dirt. It is also found in commercial solvents used by industry to clean cloth, remove grease from metal, and to break down oils, fats, waxes, resins and rubber. In the household, 1,2-dichloroethane can be found in some cleaning agents and pesticides; in some adhesives, such as those used to glue wallpaper or carpeting; and in some paint, varnish and finish removers. 1,2-Dichloroethane is also added to leaded gasoline to prevent engine knock.

Environmental Fate

Due to its high vapor pressure of 78.7 mm Hg at 20°C, volatilization from soil or water will be rapid. Once in the atmosphere, 1,2-dichloroethane may be transported long distances and is primarily removed by photooxidation (half-life approximately 1 month), with the products of photooxidation being CO_2 and HCL. Direct photolysis will not be a significant removal process.

When 1,2-dichloroethane is released to water, the primary removal process is evaporation as indicated by its high vapor pressure and moderate Henry's law constant. The half-life is dependent on wind and mixing conditions. Under laboratory conditions, the half-life is estimated to be in the order of hours (Howard, 1990). Chemical and biological biodegradation is expected to be very slow. A low K_{OC} value of 16.57 mL/g

and a low estimated BCF value of 8 L/kg bioconcentration in aquatic organisms will not be significant.

1,2-Dichloroethane released on land will evaporate rapidly as indicated by its' high vapor pressure. Based on its low K_{OC} value and high water solubility of 8,524 mg/L, 1,2-dichloroethane will readily leach through sandy soil into groundwater. Significant biodegradation in soil or groundwater is not expected based on laboratory experiments in aquatic systems (Howard, 1990).

7.2.1.3 Vinyl Chloride (VC)

Vinyl Chloride (VC) is produced in large quantities and almost exclusively used for the production of polyvinyl chloride (PVC) and other polymers. Emissions and wastewater from production and manufacturing facilities account for the majority of VC present in the environment.

Environmental Fate

Vinyl Chloride has a very high vapor pressure and a high Henry's law constant which indicates that it will rapidly volatilize from both soil and water. The reported half-life in soils of VC is between 0.2 to 0.5 days for a depth of 10 cm below the ground surface. Within water a half-life of 0.805 hours was calculated for evaporation from a river 1 m deep (with a current 3 m/sec and with a wind velocity of 3 m/sec) using the reported Henry's law constant (1.07×10^{-2} atm-m^3/mole)[1].

VC is considered highly to very highly mobile due to its low sorption ability. Any VC released to the soil that does not volatilize may leach through soils. VC is not expected to hydrolyze, bioconcentrate in aquatic organisms, or adsorb to sediment.

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1 Howard Philip H. Handbook of Environmental Fate and Exposure Data for Organic Chemicals. Lewis Publishers: Volume I, 1989, p554-555.

Vinyl Chloride is resistant to biodegradation in aerobic systems, but in waters containing photosensitizers such as humic acid, rapid photodegradation will occur. In the air, VC will degrade rapidly by reacting with photochemically produced radicals. Its estimated half-life is 1.5 days. Chloroacetaldehyde, HCI, chloroethene epoxide, formaldehyde, formyl chloride, formic acid, and carbon monoxide are products of this reaction.

7.2.2 SVOCs

7.2.2.1 PAHs

Polycyclic aromatic hydrocarbons (PAHs) are a group of chemicals formed during the incomplete combustion of coal, oil, gas, garbage, or other organic substances. PAHs are a subset of the semi-volatile organic compounds, and are the only BNAs detected of the Chemicals of Concern. PAHs may also leach from coal disposed of or buried, through the migration of precipitation. Some PAHs are used in medicines and others are used to make dyes, plastics and pesticides. PAHs are found throughout the environment in the air, water and soil. As pure chemicals, PAHs generally exist as colorless, white or pale yellow-green solids. Most PAHs do not occur alone in the environment, rather they are found as mixtures of two or more PAHs. PAHs can occur either in the air attached to dust particles, or in soil or sediment as solids. PAHs can also be found in substances such as crude oil, coal tar pitch, creosote and road and roofing tar. PAHs generally exhibit low solubility in water, but some may readily volatilize in air.

Chemical Identity

The following 6 PAHs are considered as a group in this review of the chemical and physical properties of PAHs.

- benzo(a)anthracene
- benzo(a)pyrene
- benzo(b)fluoranthene
- chrysene

- dibenzo(a,h)anthracene
- benzo(g,h,i)perylene

Environmental Fate

PAHs released to the environment are subject to a number of environmental fate processes including volatilization, sorption, biodegradation and bioaccumulation. PAH compounds tend to be removed from the water column by volatilization to the atmosphere, adsorption to particulates or sediments, or by being accumulated by or sorbed into aquatic organisms. Adsorption of PAHs to soil and sediments increases with increasing organic carbon content, and is also directly dependent on particle size.

Environmental Evaluation of PAHs

The environmental fate of PAHs is described by U.S. EPA in the document "Ambient Water Quality Criteria for Polynuclear Aromatic Hydrocarbons" which states:

> ***"PAH will adsorb strongly onto suspended particulates and biota and their (PAH) transport will be determined largely by the hydrogeologic condition of the aquatic system. PAH dissolved in the water column will probably undergo direct photolysis at a rapid rate. The ultimate fate of those which accumulate in the sediment is believed to be biodegration and biotransformation by benthic organisms (U.S. EPA, 1979)".***

This is restated in the U.S. EPA document "Health Effects Assessment for Polycyclic Aromatic Hydrocarbons (PAHs)" which states:

> ***"The predominant mechanism that is likely to dictate the fate of most PAHs in aquatic media is sorption to particulate matter and subsequent sedimentation and microbial degradation."***

Since PAHs are most likely to stay in the sediment or soil, microbial degradation is the most likely ultimate environmental fate in contrast to photolysis and volatilization. Compounds with four cyclic rings or less are most amenable to microbial degradation. Benzo(a)pyrene (five cyclic rings) has a half life in soil inoculated with bacteria of less than eight days. The half-life reported for benzo(a)pyrene in soil reported in Superfund Public Health Evaluation Manual (SPHEM, 1986) is 420 to 480 days but there is no reference to the microbial content in the soil.

7.2.3 Pesticides/PCBs

7.2.3.1 PCBs

Polychlorinated biphenyls (PCBs) are a group of 209 stable, fat-soluble chemicals. Historically, PCBs have been used in the manufacturing of capacitors, transformers, carbonless copying paper, paints and hydraulic fluid. Presently, the use of PCBs is restricted to closed electrical systems and is being phased out as new dielectric fluids are developed and become widely available.

The PCB identified at the Barrels Inc. Site include:

Aroclor 1254.

Aroclor is the commercial name for American PCB product mixtures. Different product mixtures are further identified by codes, such as 1242 and 1254. These codes designate the percent of chlorination of the product mixture. Because the time necessary for different components of PCB mixtures to break down in the environment varies, PCB mixtures found in soils, sediments and biota have different compositions in comparison to the commercial formulations.

Environmental Fate

Environmental fate is important in determining the environmental impact of PCBs. Sorption, volatilization and bioaccumulation are important fate processes. PCBs strongly adsorb to organic rich sediment and soil. Volatilization and biodegradation are also important fate processes but may occur only at relatively slow rates.

7.2.3.2 Chlordane

Chlordane is not a naturally occurring compound. It was primarily manufactured for use as an insecticide. The general use of chlordane was first restricted in July 1983 by the USEPA. The only permitted use of chlordane was for underground termite control up until April 14, 1988 when all commercial use was canceled.

Technical grade chlordane is a mixture of at least 50 compounds, including alpha and gamma chlordane as major constituents.

Environmental Fate

Chlordane will persist in soil and has a reported half-life of 3.3 years. Based on field, soil column, and leaching tests, as well as using the estimated Koc of 5.54, chlordane is described as immobile or slightly mobile. Volatilization of the compound from soils is significant if it is sprayed onto the soil (especially moist soils), however, once chlordane is captured below the surface of the soil volatilization is negligible.

Volatilization from water, which is characterized by its Henry's law constant (see Table 7.1), is considered a significant removal process. The half-lives of chlordane from rivers, ponds and lakes have been determined to be between 3.6 and 26.6 days.

To a greater extent, the removal process of chlordane from water is adsorption to sediment (Koc-=24,600 to 15,500). Chlordane is very persistent in this state.

BFC values of above 3,200 have been observed in fish and aquatic organisms making bioconcentration a significant factor in chlordane's environmental fate.

In the atmosphere, this compound exists in the vapor phase, but 96% of the airborne reservoir of chlordane is in a sorbed state. This state allows for its long range transport. The dominating chemical removal process is the reaction with photochemically produced hydroxyl radicals. The half-life for this process is 6.2 days. The compound can be removed from the air by washout in rain.

7.2.4 Inorganics

The final group of Site-related Parameters of Concern includes the following:

- arsenic
- lead

The following sections will present a literature review of the properties of these metals. The goals of this review will be to determine and evaluate the properties of these metals in the environment that are important in determining the environmental fate.

7.2.4.1 Arsenic

Arsenic occurs in nature in sulfide ores, such as Arsenopyrite. Arsenic trioxide is obtained as a by-product from the smelting of copper, lead or gold ores.

Arsenic was used as a therapeutic agent as early as 400 BC.

The major current use of arsenic is for pesticides, herbicides, cotton desiccants, wood preservatives, bronzing, glass production, metal alloy production, and manufacture of integrated circuits.

Arsenic compounds may be classified into three major groups:

(1) inorganic arsenic compounds,
(2) organic arsenic compounds, and
(3) arsine gas.

The most common inorganic arsenic compounds include arsenic trioxide, sodium arsenate, arsenic trichloride, arsenic pentoxide, arsenic acid and arsenate (i.e. lead arsenate and calcium arsenate). Common organic arsenic compounds are arsanilic acid, methylarsonic acid, dimethylarsinite acid and arsenobetaine.

Environmental Fate

Arsenic generally enters the environment as a byproduct of industrial processes. It may enter the environment as particulate fall-out from smoke stacks during smelting process, discarded as residual of casting processes or wood preserving operations, etc.

Arsenic trioxide is only slightly soluble in water. Sodium arsenite and sodium arsenate are highly soluble. Depending on the pH of water, interchanges of valence may occur in water solution. Arsenic may be transformed by oxidation-reduction reactions. The most common form of arsenic in water is arsenate, which can be reduced to arsenite by microorganisms.

Arsenic is released into the atmosphere primarily as arsenic trioxide. Trivalent arsenic in the atmosphere undergo oxidation to the pentavalent state.

Arsenic levels in uncontaminated surface water and groundwater range from about 1 to 10 ppb. Much higher levels, up to 3400 ppb, have been detected in volcanic rock. Arsenic is relatively mobile.

Specification

Arsenic exists in the oxidation states -3, 0, +3, +5. It undergoes transformation to the various states by oxidation-reduction reactions, ligand exchange and biotransformations.

7.2.4.2 Lead (Pb)

Lead (Pb) is a naturally occurring bluish-gray metal found in only limited quantities in the Earth's crust. Lead and its compounds can be detected in all parts of the environment. Lead has a wide variety of uses including:

- batteries,
- ammunition,
- metal products, and
- chemical manufacture.

Chemical Identity

The physical properties of lead are presented in Table 7.1. Additional information includes:

Symbol	-	Pb
Atomic Weight	-	207.2
Atomic Number	-	82

Metallic lead is stable in dry air. In moist air, however, it quickly forms lead monoxide, which in turn produces lead carbonate with carbon dioxide in air. In general, the properties of inorganic lead compounds

are similar to those of the alkaline earth metals. The nitrate, chlorate and acetate salts are water soluble, chloride salt is slightly soluble and the sulfate, carbonate, chromate, phosphate and sulfide salts are insoluble. Lead forms stable compounds with organic compounds, especially under anaerobic conditions, which are generally insoluble in water.

Environmental Fate

It is believed that combustion of leaded gasoline is responsible for over 90 percent of the lead in the environment. Lead particles are removed from the atmosphere by wet or dry deposition. Lead is extremely persistent in both water and soil. The speciation of lead depends upon pH, temperature and the presence of humic materials. Lead is largely associated with the suspended solids and sediments (immobile forms) in aquatic systems.

Lead has the tendency to form compounds of low solubility. Hydroxide, carbonate, sulfide and sulfate may act as solubility controls in precipitating lead from water.

The amount of lead that remains in solution depends largely upon the pH and the water dissolved salt content. Equilibrium calculations show that at pH>5.4 the solubility of lead is 30 μg/L (hard water) or 500 μg/L (soft water). The presence of sulfate and carbonates will limit these levels. In the groundwaters of the upper sand aquifer the majority of any aqueous phase lead, which may leave the sludge lagoon, would be readily precipitated as $PbCO_3$ (solid).

Speciation

Lead exists in three oxidation states (0,2^+ and 4^+). Lead can precipitate as a number of compounds including, $PbS0_4$, $PbC0_3$, $Pb(OH)_2$, PbS and $Pb_3(PO4)_2$.

Lead readily forms complexes with organic ligands, which tend to increase the amount of lead which can be dissolved in water. Lead is

readily adsorbed to numerous solid surfaces including organic matter, clay, silica, iron and manganese oxides.

7.3 REFERENCES

The foregoing information on environmental fate and transport was derived in part from the following references:

1. Howard Phillip H. Handbook of Environmental Fate and Exposure Data for Organic Chemicals. Lewis Publishers. Volume I. 1989.

2. Howard Phillip H. Handbook of Environmental Fate and Exposure Data for Organic Chemicals. Lewis Publishers. Volume II. 1989.

3. Agency for Toxic Substances and Disease Registry, U.S. Public Health Services. Toxicological Profiles. February 18, 1993.

SECTION 8

8.0 NATURE AND EXTENT OF CONTAMINATION

This section presents an assessment of the data obtained during the Phase I investigation of the Barrels, Inc. Site, with respect to the volume, distribution, concentration and mobility of Site Parameters of Concern, and the existence of any data gaps. This assessment has been conducted to determine whether sufficient information is available to estimate the volume of soil and groundwater requiring remediation to an extent suitable to conduct a FS. As discussed in Section 1.3, the criteria used in the determination of the extent of contamination in soils is the Generic Industrial Cleanup criteria. Both the Generic Industrial Cleanup criteria and Type B, will be utilized for groundwater. Drawings 1, 2, 3, 4 and 5 present detected compounds for each borehole soil sample and each monitoring well water sample.

A detailed review of the Site conditions is presented in Section 5.0. The Drawings generally indicate that the compounds detected are few and sparse and appear to be the result of isolated minor spills at various locations across the Site along with contamination from coal and petroleum products. The contaminants were generally confined to the upper till soil materials. Also, the soil boring data indicates that there is a substantial clay layer throughout the Site, with the exception of a few locations. These will be discussed further in the following subsections.

8.1 VOCs

8.1.1 Soils

VOCs were reported at concentrations which were below the Generic Industrial Cleanup criteria. As such, no data gaps remain with respect to VOCs in soil.

8.1.2 Groundwater

The only VOC compound reported in groundwater at concentrations above the Generic Industrial Cleanup criteria was Benzene at MW2-36. Benzene was detected at a concentration of 0.15 mg/L, which was unexpected since soil Benzene concentrations were an order of magnitude lower, or less, and no VOCs were detected in the headspace analysis. Also, Benzene was not detected in MW2-45 which has a screen only about 6 feet below MW2-36.

1,2-Dichloroethane was encountered within monitoring wells MW4-50, MW5-34, MW5-50 and MW6-32 below the Generic Industrial Cleanup criteria, but above Type B criteria. This is not a concern at Monitoring Wells MW4-50 and MW6-32 which are on Site, but may be a concern at MW5-34 and MW5-50 which may be representative of groundwater exiting the Site.

8.1.3 Data Gaps

VOCs reported in soils were generally found to be confined to the upper fill materials or shallow confining clay layer. The concentrations were below the Generic Industrial Cleanup criteria. As such, it is considered that sufficient information has been gathered to permit an assessment of the extent of VOCs requiring remediation in soils.

With respect to groundwater, Benzene and 1,2-Dichloroethane are considered to be parameters of concern. These parameters were encountered in wells which were located the furthest downgradient to the various portions of the Site, including MW2-36, MW5-34 and MW5-50.

Benzene was encountered within Monitoring Well MW2-36 at a concentration which exceeded both the Type B and Generic Industrial Cleanup criteria. Benzene was not encountered at significant concentrations in the soils sampled from Boreholes US-3 and US-4 which

were used to assess the affect of former underground petroleum storage tanks. Also, no VOC concentrations were detected during the PID assessment of the soil samples obtained during the installation of MW2-36. In addition, Benzene was not reported in MW2-45, which is approximately 6 feet below the screen for MW2-36. Based on these facts and the isolated nature of the reported Benzene, it is considered that this value should be confirmed by a second round of sampling. If confirmed, then the horizontal extent of the Benzene should be determined by the installation of additional wells.

1,2-Dichloroethane was encountered in Monitoring Wells MW5-34 and MW5-50 at concentrations above Type B criteria. It is considered that the existing data should be confirmed with a second round of groundwater sampling, before a downgradient investigation is conducted.

8.2 SVOCs

8.2.1 Drum Storage Area

PAHs were generally encountered within the Drum Storage Area at the Site. These were encountered in the 0 to 2-foot sample of soil from Boreholes DS-1, DS-2, DS-5, DS-7, DS-11, DS-12 and DS-14, PAHs were also encountered in Boreholes DS-4 and DS-11 at the 2 to 4-foot depth level. PAHs are confined to the shallow soils at the Site. Their detection coincides with locations where coal, coal fragments, coal powder and unidentified black organic material (suspected coal dust) were encountered. As discussed in Section 7.0, PAHs are a natural part of coal and oil products.

Benzo(a)Anthracene, Benzo(b)Fluoranthene, Benzo(a)Pyrene and Chrysene exceeded the Generic Industrial Cleanup criteria within the 0 to 2-foot sample at Borehole DS-4, DS-9, DS-10 and DS-11. However, these are confined by a clay stratum. As such, sufficient information is available with respect to the extent of SVOCs in the Drum Storage Area.

8.2.2 Loading Dock/Process Tank Area

SVOC concentrations did not exceed the Generic Industrial Cleanup criteria in the Loading Dock/Process Tank Area.

8.2.3 Underground Storage Tank Area

SVOC concentrations did not exceed the Generic Industrial cleanup criteria in the Underground Storage Tank samples.

8.2.4 Drainage Ditch Area

Each of the Drainage Ditch boreholes encountered several PAHs which had concentrations above the Generic Industrial Cleanup criteria. These were always encountered within the top 2 feet of the borehole, and were confined by a clay stratum. Also, the detection of PAHs within the background Borehole DD-1 suggests that the compounds in the Drainage Ditch are partially the result of background off-Site sources as well as on Site sources.

8.2.5 Groundwater

SVOCs were not detected in the groundwater.

8.2.6 Data Gaps

The SVOCs encountered on Site generally consist of PAHs confined to the shallow fill soils by a clay stratum.

Based on the confined nature of the SVOCs, it is considered that sufficient information is available to quantify soils requiring remediation, in order to conduct an FS.

8.3 PESTICIDES/PCBs

8.3.1 Drum Storage Area

Concentration of Pesticides in the Drum Storage Area soils were reported to be below the Generic Industrial Cleanup criteria.

PCB was reported within the 0 to 2-foot sample of Borehole DS-9 at a concentration above the Generic Industrial Cleanup criteria. This sample was confined to the shallow fill soils by a confining clay stratum.

There is sufficient data to quantify Pesticides/PCBs in the Drum Storage Area.

8.3.2 Loading Dock/Process Tank Area

Pesticides concentrations in the Loading Dock/Process Tank Area were below the Generic Industrial Cleanup criteria.

PCBs were encountered at concentrations which exceeded the Generic Industrial Cleanup criteria within the 0 to 2-foot samples from Boreholes CT-1 and CT-3. At each location, the PCBs were confined to the shallow fill soils.

There is sufficient data available to quantify the extent of Pesticides/PCBs in the Loading Dock/Process Tank Area.

8.3.3 Underground Storage Tank Area

Pesticides/PCBs were not reported in the Underground Storage Tank Area Boreholes.

8.3.4 Drainage Ditch Area

PCB-1254 was detected at Boreholes DD-1, DD-2, DD-3 and DD-4. Within DD-1, the PCBs were confined to the fill materials and shallow clay soils. DD-1 is a background borehole which indicates that off Site PCB releases are likely affecting the Site.

At Borehole DD-2 PCBs were encountered at concentrations above the Generic Industrial Cleanup criteria, within each sample, including the final sample at a depth of 4 to 6 feet (clay stratum).

At Boreholes DD-3 and DD-4, PCB was confined to the 0 to 2-foot fill sample.

8.3.5 Groundwater

PCB-1254 was detected within Monitoring Wells MW5-34 and MW7-33. Each of these wells is the water table well of a well couple, and in each case PCB is not detected in the deeper well. This suggests that the detection of PCB may be the result of the well installation procedure, and not actual groundwater quality.

8.3.6 Data Gaps

A soil Data Gap is identified at Borehole DD-2. PCB concentrations above the evaluation criteria are found to extend to the base of the borehole. It is doubtful that if the PCB extends beyond this depth at significant concentrations, however additional evaluation of the horizontal and vertical extent of PCB is recommended.

The reported PCB concentrations at MW5-34 and MW7-33 seem to be an anomaly. Purging the wells further and resampling should be

conducted to determine if PCBs are actually present in the groundwater. Groundwater samples should be filtered. It is anticipated that additional sampling will provide sufficient information to conduct an FS. However, if not, additional wells may be warranted to provide additional data on the lateral extent of PCB.

8.4 INORGANICS

8.4.1 Drum Storage Area

Concentrations of Arsenic or Lead above the Generic Industrial Cleanup criteria were reported within the Drum Storage Area Boreholes DS-1, DS-2, DS-4, DS-5, DS-8, DS-9, DS-13 and DS-14. The Inorganics were generally confined to the shallow fill materials or top of clay soils, except at Borehole DS-2 and DS-4. At Boreholes DS-2 and DS-4, Arsenic was reported within the bottom sample at a concentration above the Generic Industrial Cleanup criteria. Arsenic concentrations within the samples above did not exceed any criteria. As such, this may be a naturally occurring concentration of Arsenic which is above the background criteria. A Michigan Background Soil Survey conducted by the MDNR Waste Management Division (April 1991), indicates the Statewide Range of concentrations for Arsenic is between 0 and 40 mg/kg. The concentration of Arsenic at this location was 13 mg/kg which is at the lower end of the range.

It is considered that sufficient data is available to quantify the inorganics in the Drum Storage Area Soils.

8.4.2 Loading Dock/Process Tank Area

None of the concentrations of inorganics reported in the Loading Dock/Process Tank soils exceeded the Generic Industrial Cleanup criteria.

8.4.3 Underground Storage Tank Area

Arsenic was the only inorganic found to exceed the Generic Industrial Cleanup criteria, at the isolated location of the 0 to 2-foot sample of Borehole US-4. It did not penetrate to the 10 to 12-foot sample.

8.4.4 Drainage Ditch Area

Concentrations of Arsenic and Lead above the Generic Industrial Cleanup criteria were reported in Boreholes DD-2 and DD-5. These were found to be confined to the fill materials at 0 to 2 feet. The off-Site Borehole DD-1 had reported concentrations of Inorganics indicating that off-Site materials are affecting the Drainage Ditch along the Site.

8.4.5 Groundwater

Concentrations of inorganics above the evaluation criteria were reported in Monitoring Wells MW4-34, MW4-50, MW5-50 and MW6-32.

Within MW4-34 and MW4-50, Arsenic concentrations were below the Generic Industrial Cleanup criteria.

At MW5-50, the reported concentrations of Lead and Zinc were above the Generic Industrial Cleanup criteria.

Lead was again encountered within MW6-32 at a concentration above the Generic Industrial Cleanup criteria.

Zinc concentrations above evaluation criteria were encountered within the pre-existing wells MW4-50 and MW5-50. These wells were constructed using a galvanized steel riser piping. The galvanizing process uses Nickel and Zinc to plate steel to provide corrosion protection.

This coating has been known to cause elevated concentrations of these metals in groundwater samples taken from wells constructed of galvanized steel.

Lead was encountered at concentrations 0.008 and 0.009 mg/L within MW6-32 and MW5-50. These concentrations may represent a level which is within background criteria. However, insufficient background information is available to assess this. Also, as discussed in the last paragraph, MW5-50 is a galvanized steel well which may also be the source for lead at that location.

8.4.6 Data Gaps

The sole Data Gap identified is the lack of background groundwater information on Lead and Arsenic. If the Lead and Arsenic results are confirmed with a second round of groundwater sampling, then background wells should be installed to determine if Lead and Arsenic concentrations are background occurrences.

9.0 RECOMMENDATION FOR ADDITIONAL FIELD WORK

The evaluation of the data generated during the Phase I RI generally indicated that sufficient information has been obtained to quantify the extent of affected soils and groundwater, suitably for the purpose of conducting an FS.

The following Data Gaps necessitate further investigation as part of the Phase II work:

1) Lack of definition of the lateral extent of Benzene at MW2-36.

2) Lack of definition of the lateral extent of 1,2-Dichloroethane at MW5.

3) Lack of definition of background concentrations for Lead in groundwater.

4) Concentrations of PCBs at MW5-34 and MW7-33 which were not anticipated based on the Site conditions.

5) Lack of definition of vertical extent of PCB contamination a Borehole DD-2.

In order to suitably fill the Data Gaps identified in points 1) through 4) above, the existence of Benzene, 1,2-Dichloroethane, Lead, Arsenic and PCBs in the groundwater must be determined by a second round of groundwater sampling. Prior to sampling, the monitoring wells will be redeveloped and purged as described in the RI/FS Work Plan and QAPP.

If the concentration of Benzene at MW2-36 is confirmed then a downgradient well should be installed to determine the lateral extent of Benzene contamination.

If the concentrations of 1,2-Dichloroethane is confirmed at MW5-34 and MW5-50, than their downgradient extent should be investigated by the installation of a monitoring well cluster. The cluster should include a

well placed across the water table, and a second well placed at a depth of approximately 20 feet below. The installation and sampling procedures would be as described in the RI/FS Work Plan and QAPP.

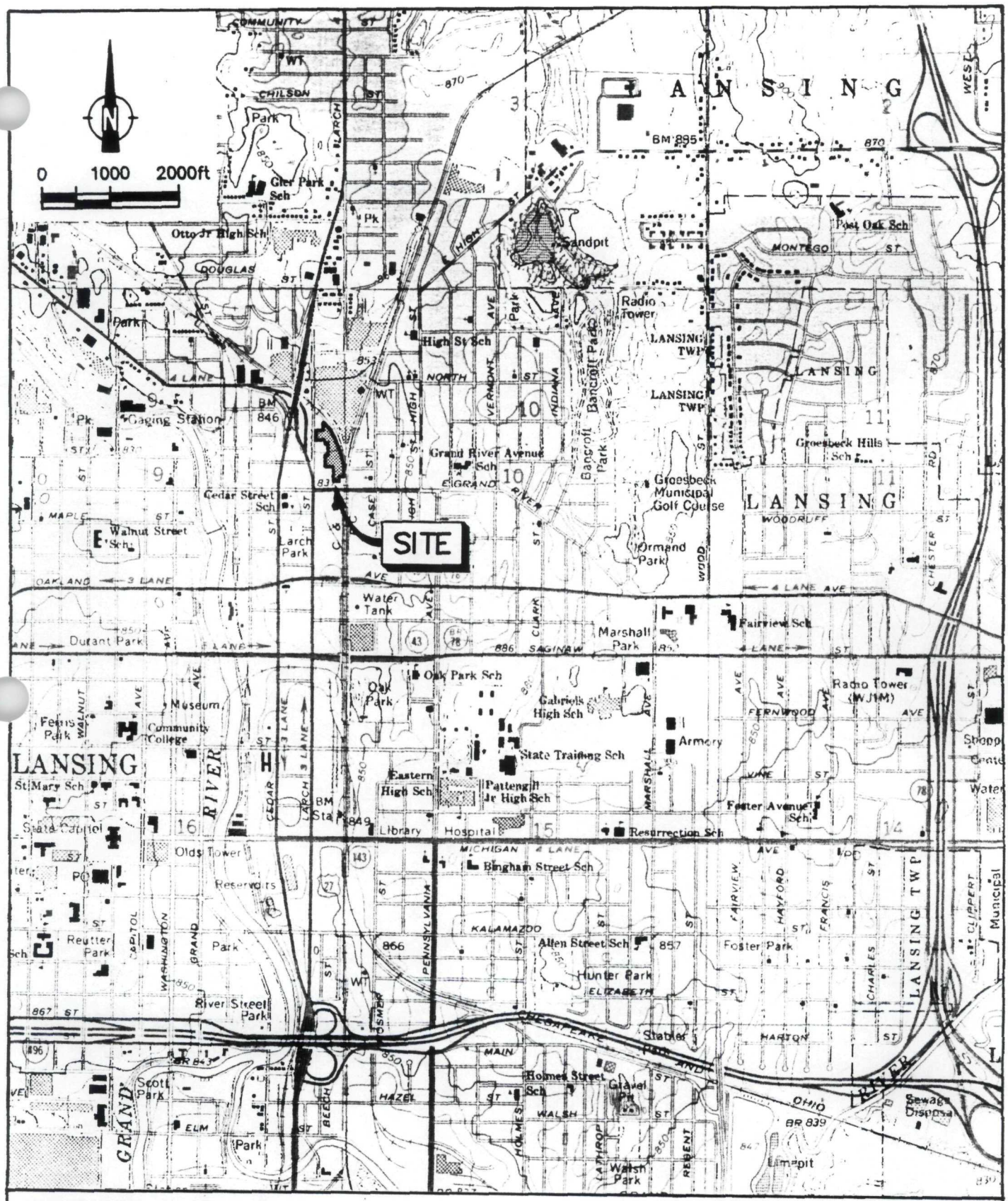
If the concentrations of Lead exceeding regulatory criteria are confirmed, additional background monitoring wells may be necessary to determine if the reported Lead concentrations fall within the span of possible background concentrations.

If the concentrations of PCB exceeding regulatory criteria are confirmed at MW5-34 and MW7-33, then their downgradient extent should be investigated by the installation of two monitoring well clusters. The clusters should include a monitoring well at the water table and a second monitoring well at a depth of about 20 feet below the top of the water table. This would be coordinated with the installation of wells to investigate 1,2-Dichloroethane, if possible, in order to limit the number of wells installed. The installation and sampling procedures would be as described in the RI/FS Work Plan and QAPP.

The extent of occurrence of PCBs at Borehole DD-2 should be further defined. The borehole should be extended below the last sample to determine the extent of vertical penetration of the PCB. Samples would be obtained from the base of the clay confining layer, and the underlying soil, in order to determine if PCBs have penetrated. Sampling procedures and protocol would be followed as described in the RI/FS Work Plan and the QAPP. In order to ensure that PCBs are not "dragged down" during drilling, a casing will be installed to the clay confining layer during drilling. Also, in order to define the lateral extent of PCBs near DD-2, several surface samples will be obtained by hand coring and field tested for PCB concentrations. In this manner, the lateral extent of high PCB concentrations can be evaluated.

It is appropriate to limit the parameter list for subsequent rounds of groundwater sampling to those compounds detected during the Phase I Investigation. Subsequent groundwater samples obtained will be subjected to analysis for VOCs, PCBs, Lead and Arsenic.

FIGURES



SOURCE: USGS QUADRANGLE MAPS,
NORTH LANSING AND SOUTH LANSING, MICH.

CRA

figure 1.1
SITE LOCATION
BARRELS, INC. SITE
Lansing, Michigan

4869 (12) SEPT. 23/93 (W) REV.0

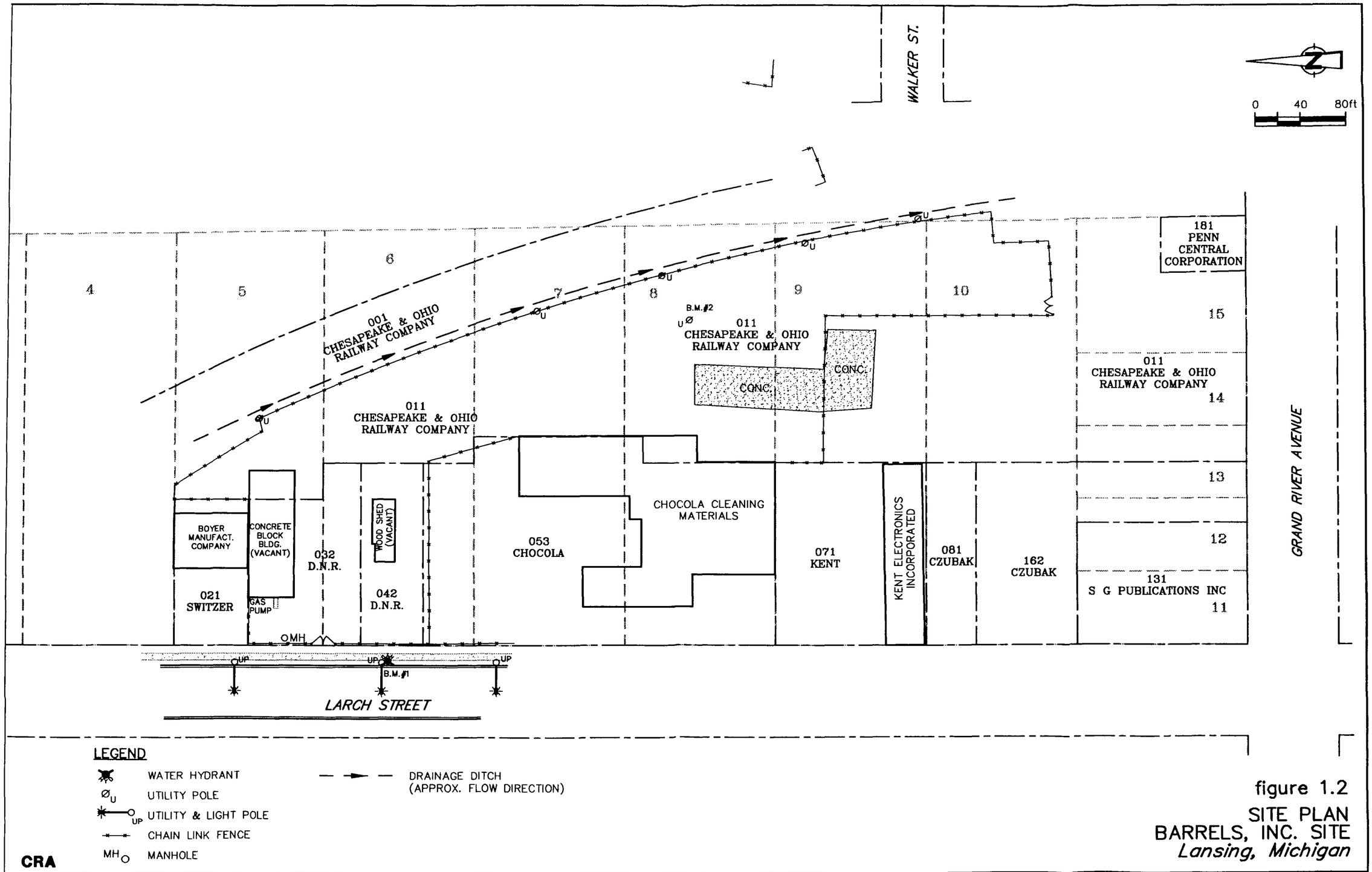
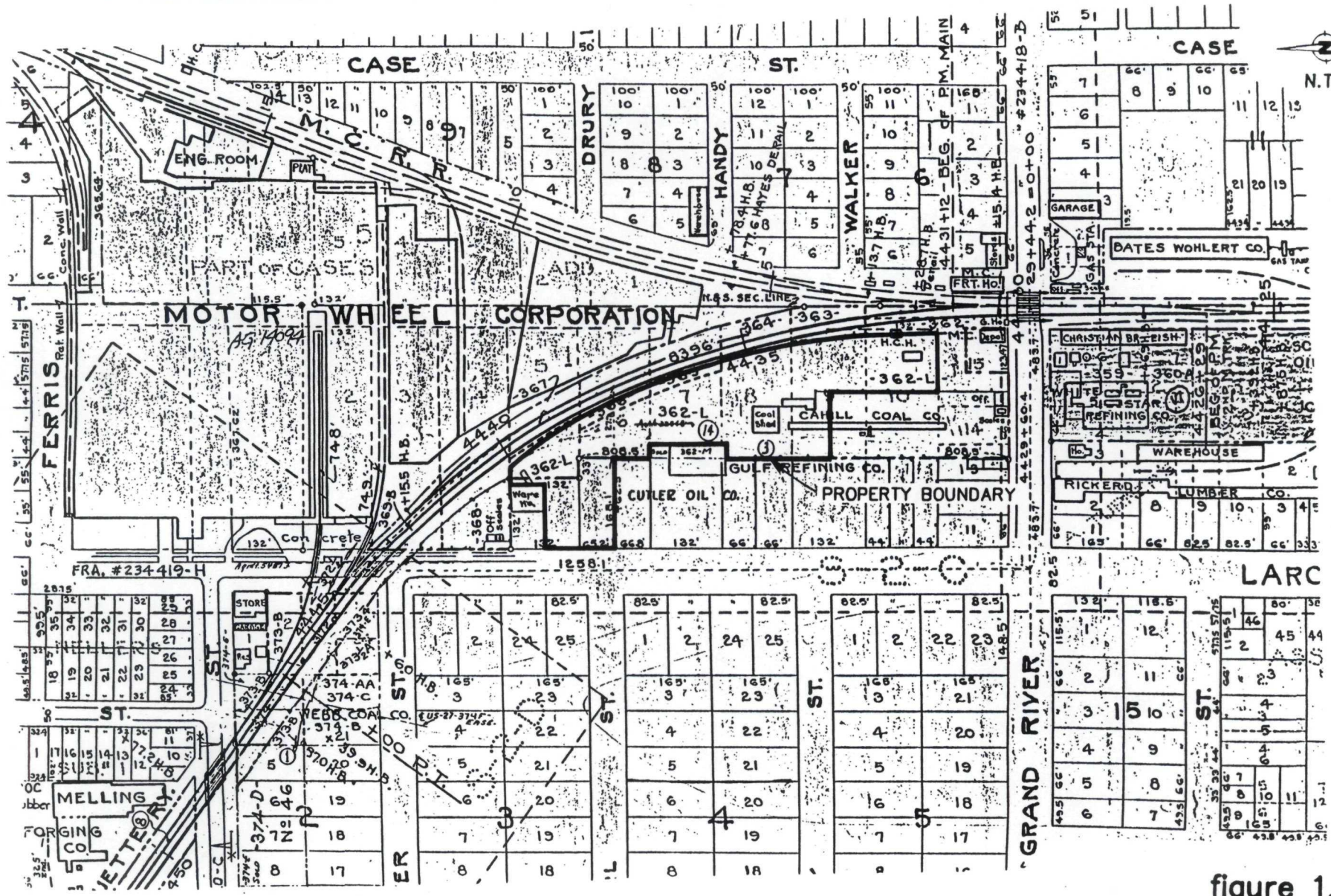


figure 1.2
SITE PLAN
BARRELS, INC. SITE
Lansing, Michigan



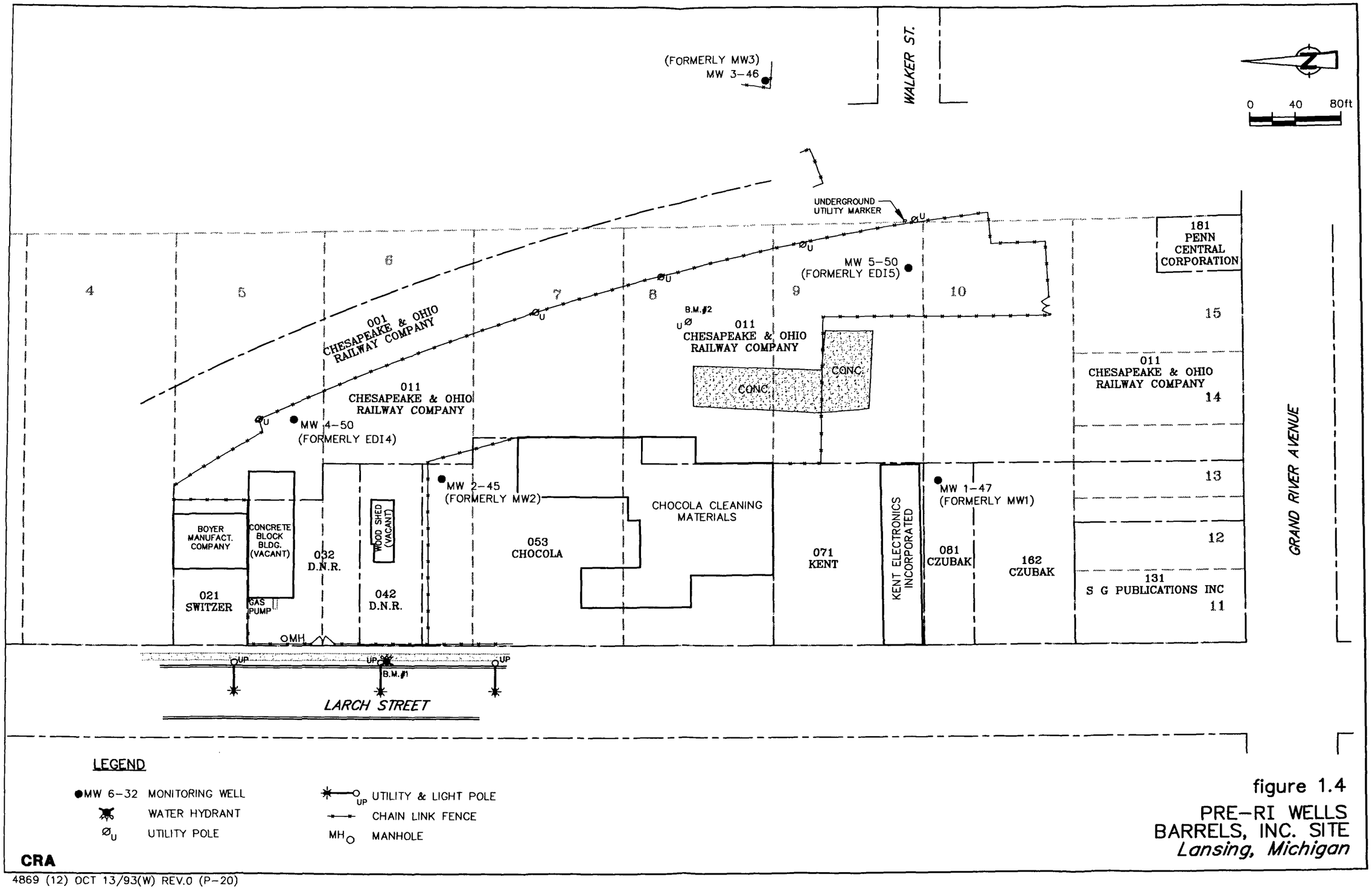
SOURCE: CSXT PLAN
DATE UNKNOWN

figure 1.3

HISTORICAL SITE USAGE
BARRELS, INC. SITE
Lansing, Michigan

CRA

4869 (12) SEPT. 23/93 (W) REV.0

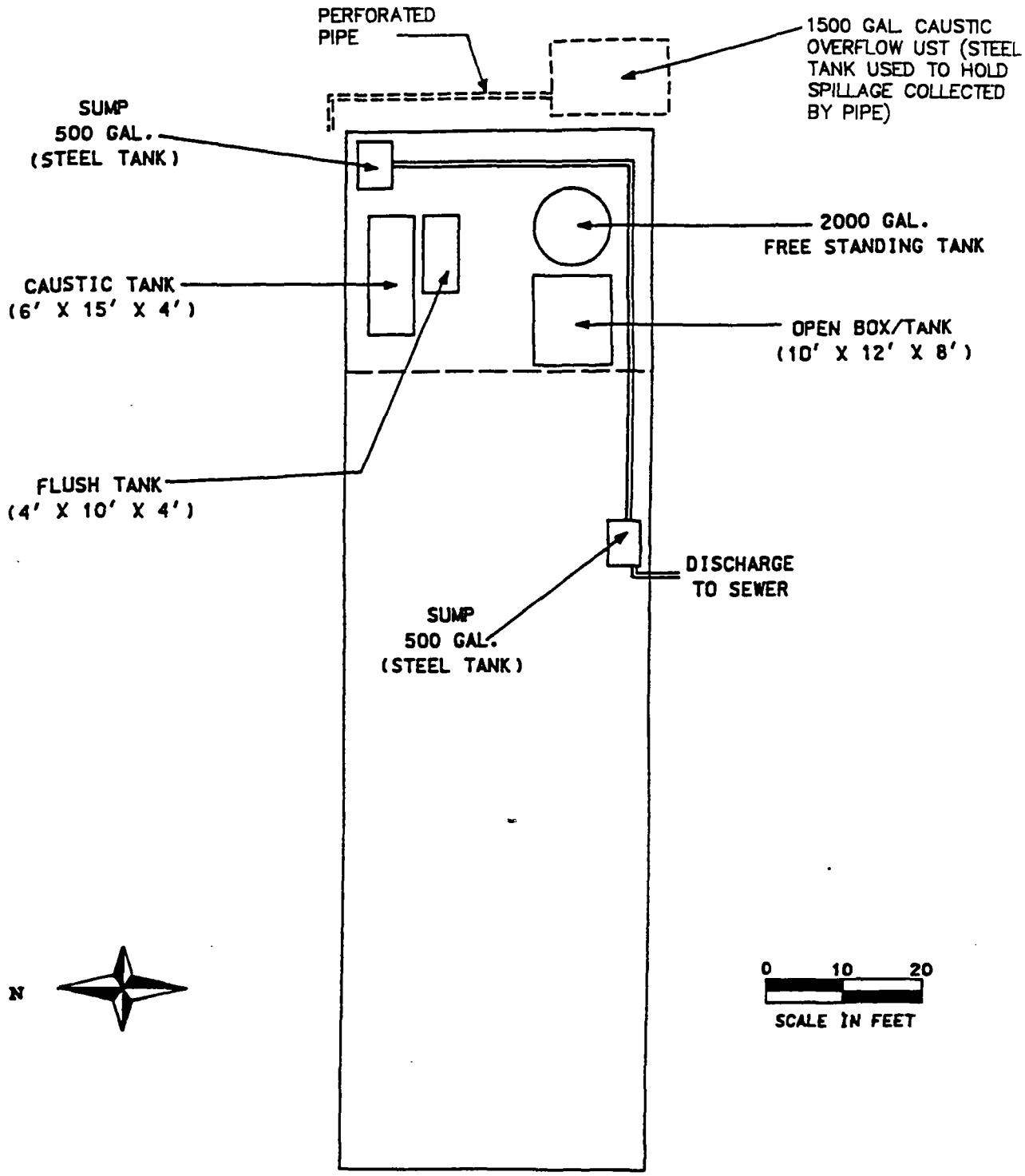


CRA

4869 (12) OCT 13/93(W) REV.0 (P-20)

figure 1.4

PRE-RI WELLS
BARRELS, INC. SITE
Lansing, Michigan



SOURCE: HALIBURTON NUS, FEBRUARY, 1992

figure 1.5
BUILDING SCHEMATIC
BARRELS, INC. SITE
Lansing, Michigan

CRA

4869 (12) OCT 13/93(W) REV.0

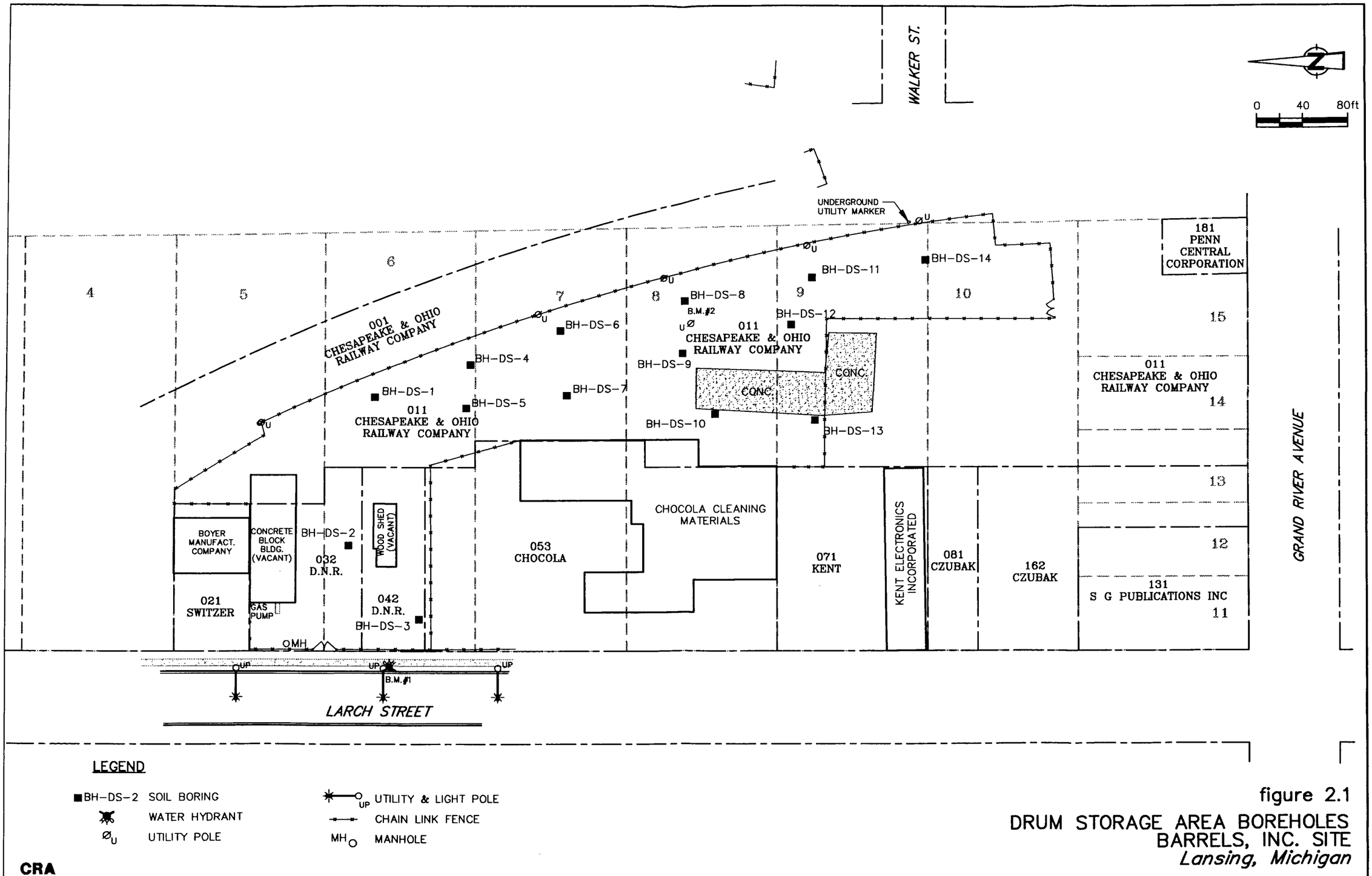
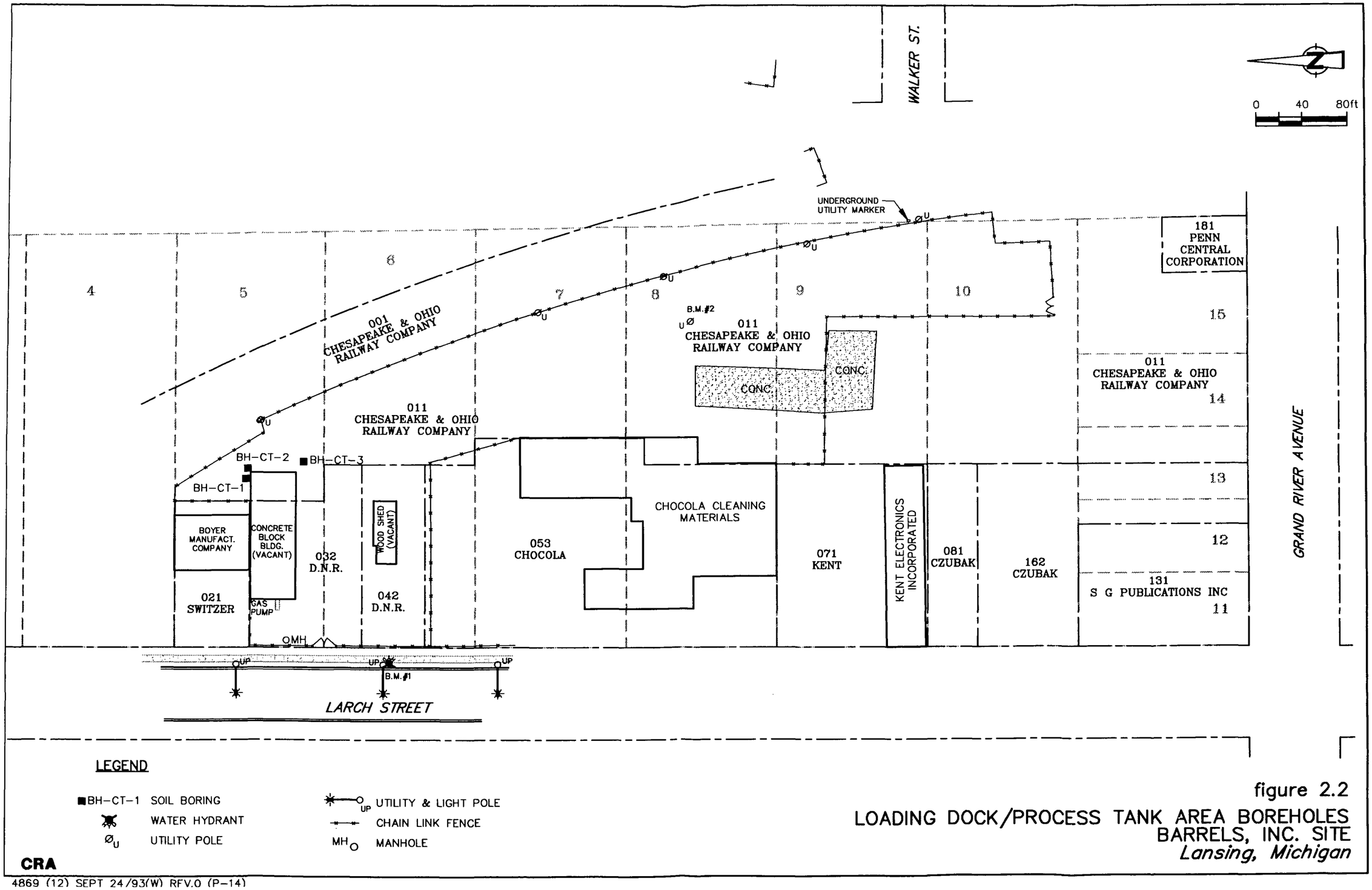


figure 2.1
DRUM STORAGE AREA BOREHOLES
BARRELS, INC. SITE
Lansing, Michigan

4869 (12) SEPT 24/93(W) RFV.0 (P-13)



LEGEND

- ■BH-CT-1 SOIL BORING
- WATER HYDRANT
- Ø$_U$ UTILITY POLE
- UP UTILITY & LIGHT POLE
- CHAIN LINK FENCE
- MH MANHOLE

CRA

figure 2.2

LOADING DOCK/PROCESS TANK AREA BOREHOLES
BARRELS, INC. SITE
Lansing, Michigan

4869 (12) SEPT 24/93(W) RFV.0 (P-14)

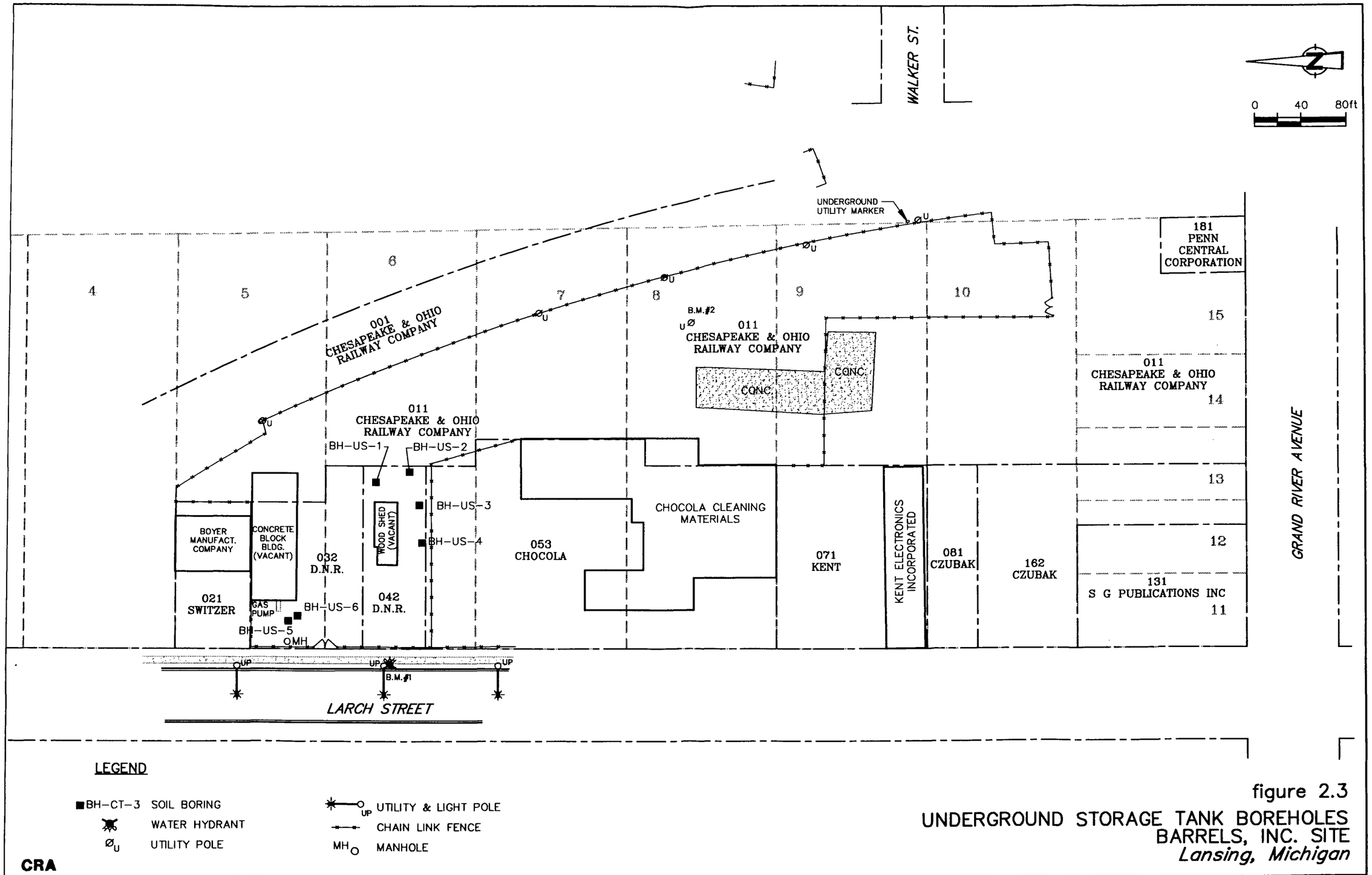


figure 2.3
UNDERGROUND STORAGE TANK BOREHOLES
BARRELS, INC. SITE
Lansing, Michigan

4869 (12) SEPT 24/93(W) REV.0 (P-15)

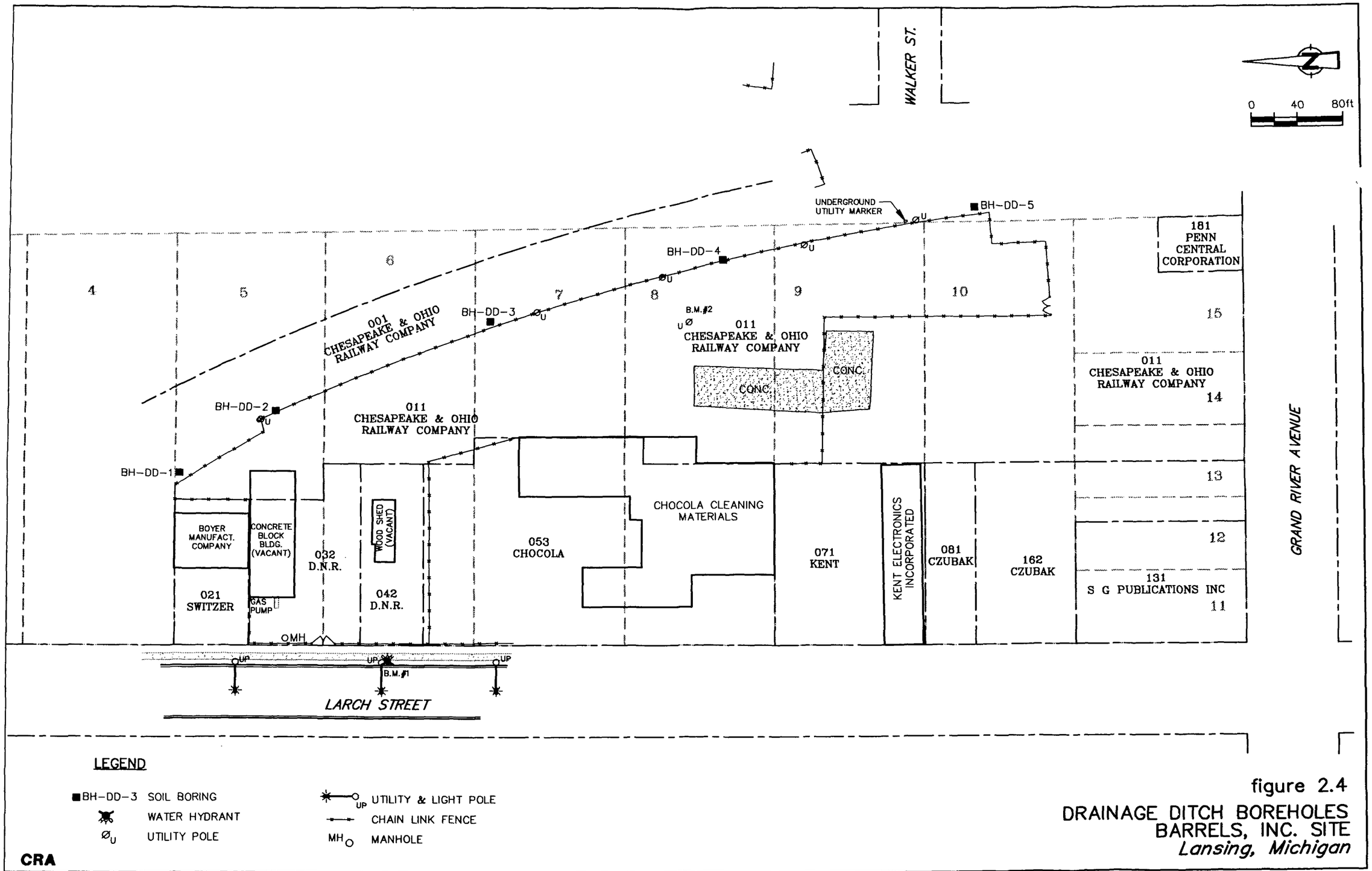
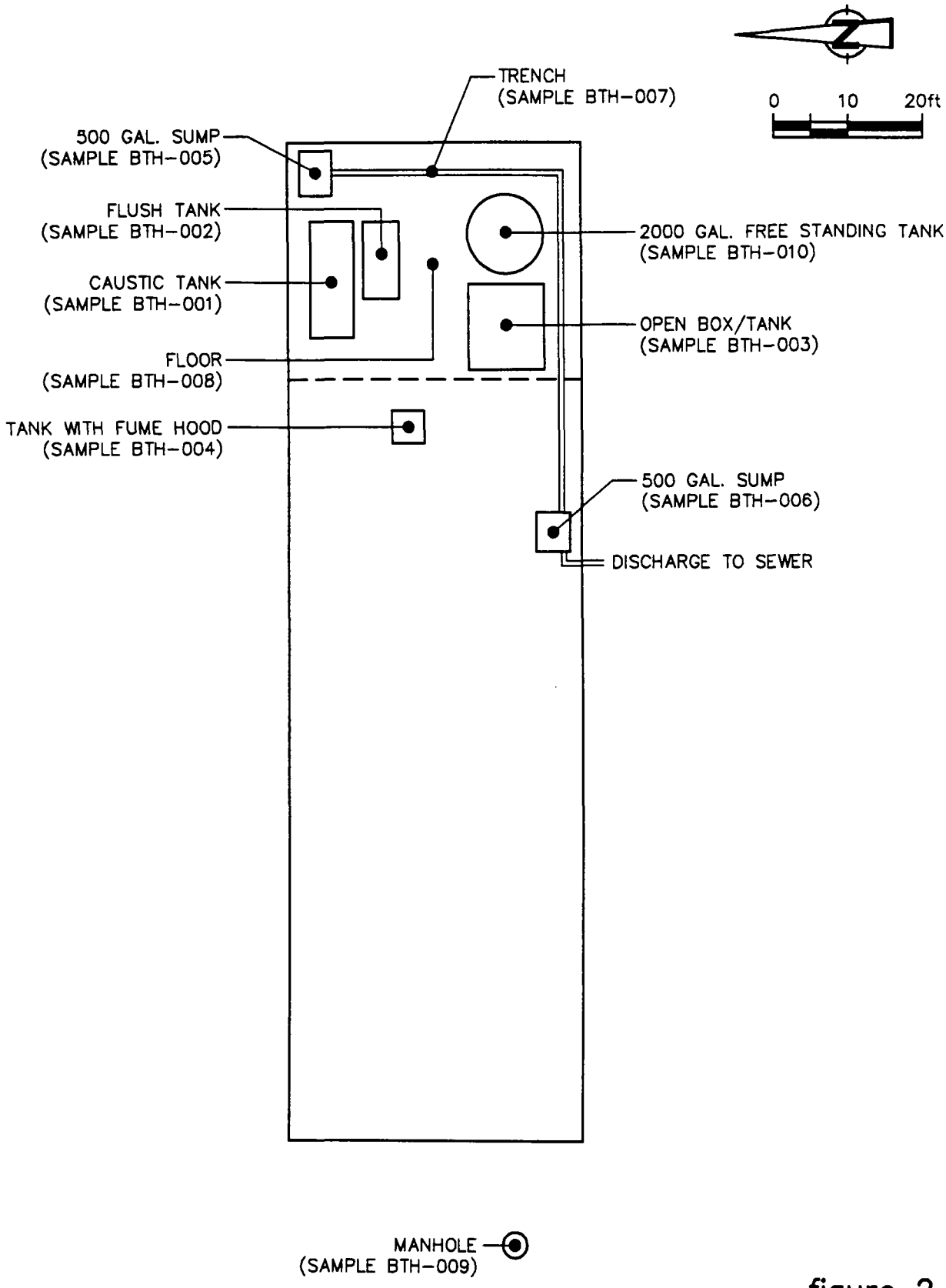


figure 2.4
DRAINAGE DITCH BOREHOLES
BARRELS, INC. SITE
Lansing, Michigan

4869 (12) SEPT 24/93(W) RFV.0 (P-16)



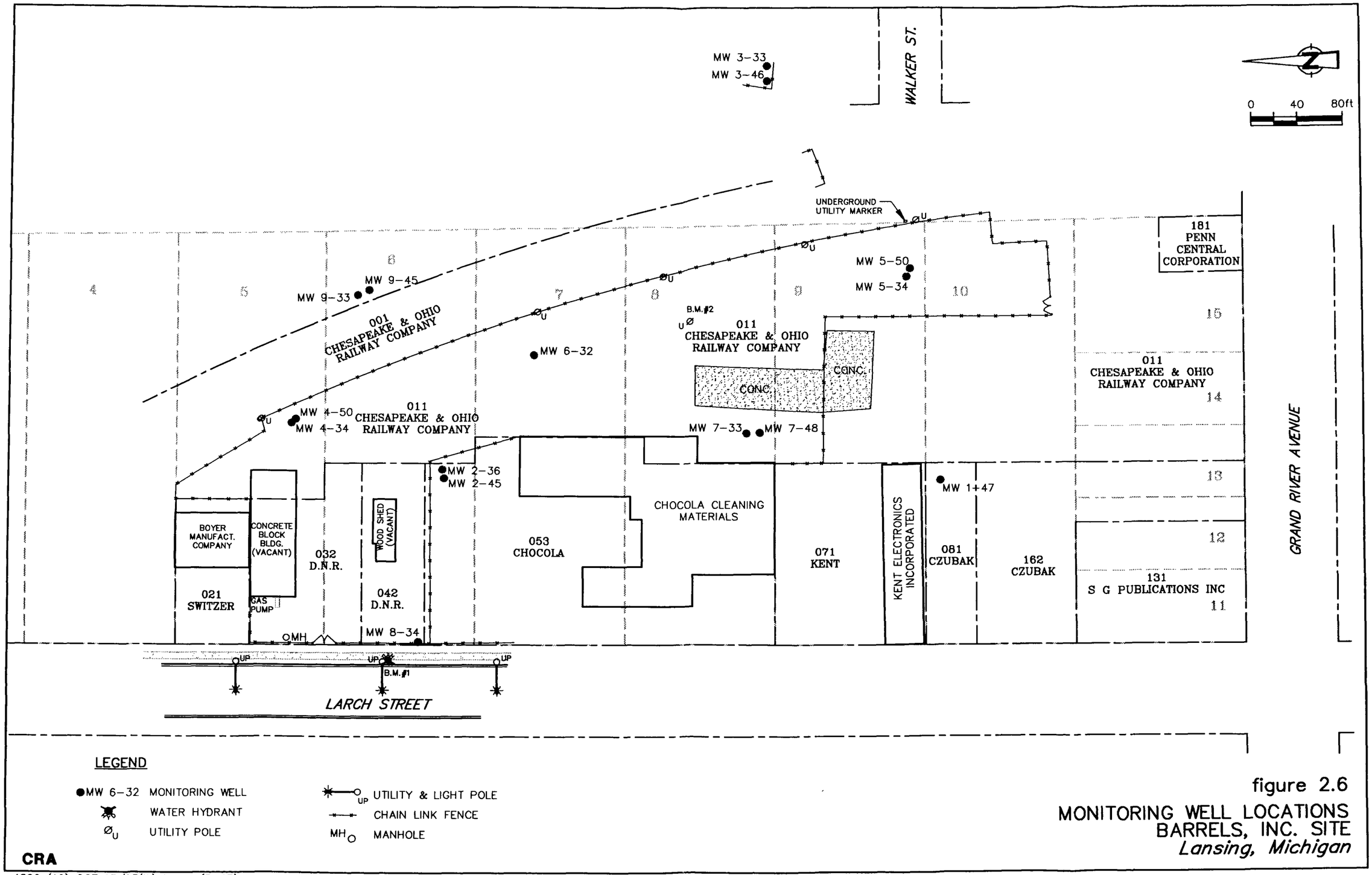
SOURCE: HALIBURTON NUS, FEBRUARY 1992

figure 2.5

WASTE RESIDUAL SAMPLING LOCATIONS
BARRELS, INC. SITE
Lansing, Michigan

CRA

4869 (12) OCT 14/93(W) REV.0 (P-21)



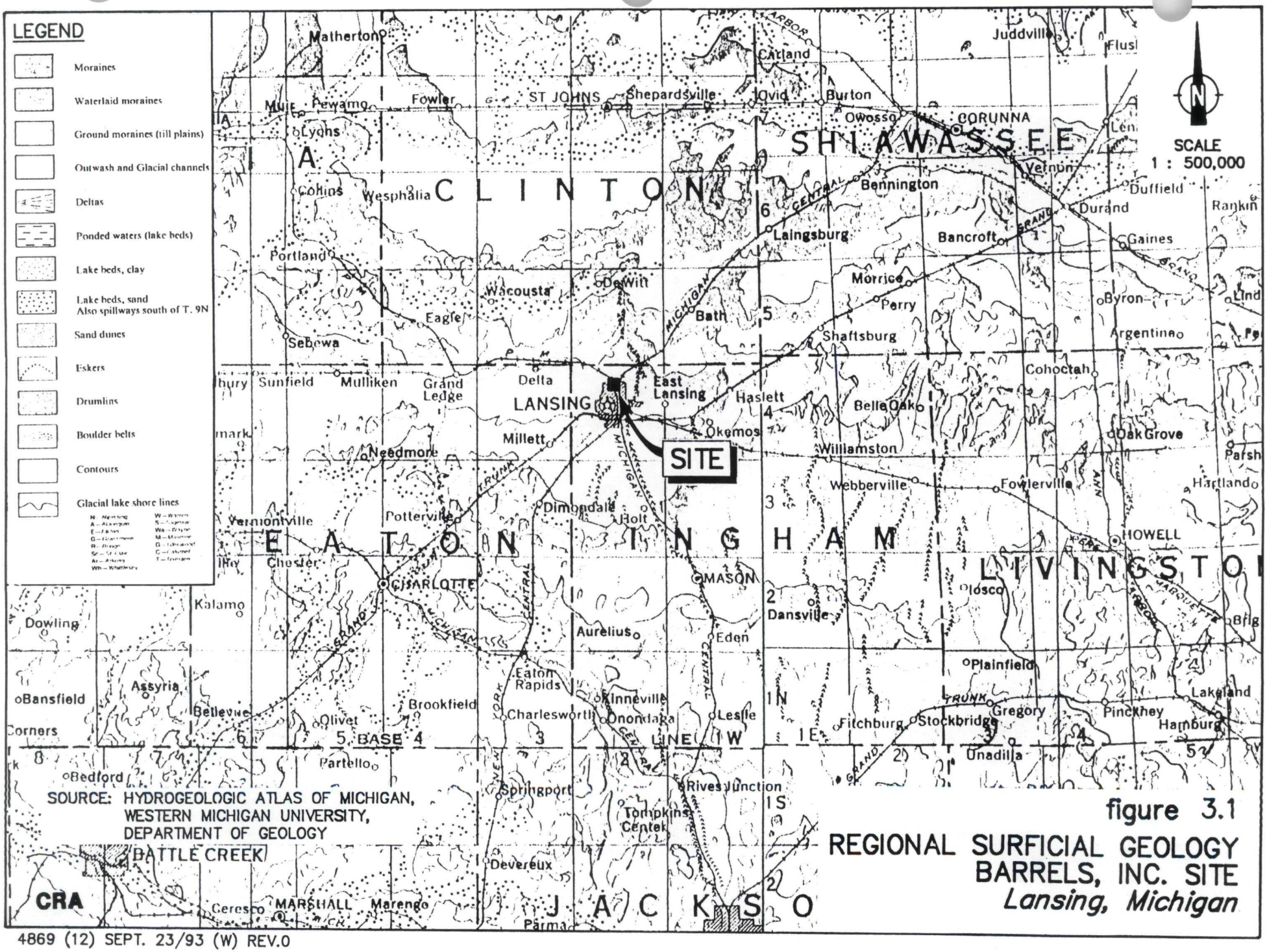
LEGEND

- ●MW 6-32 MONITORING WELL
- WATER HYDRANT
- ØU UTILITY POLE
- UP UTILITY & LIGHT POLE
- CHAIN LINK FENCE
- MH MANHOLE

CRA

figure 2.6
MONITORING WELL LOCATIONS
BARRELS, INC. SITE
Lansing, Michigan

4869 (12) OCT 15/93(W) REV.0 (P-17)



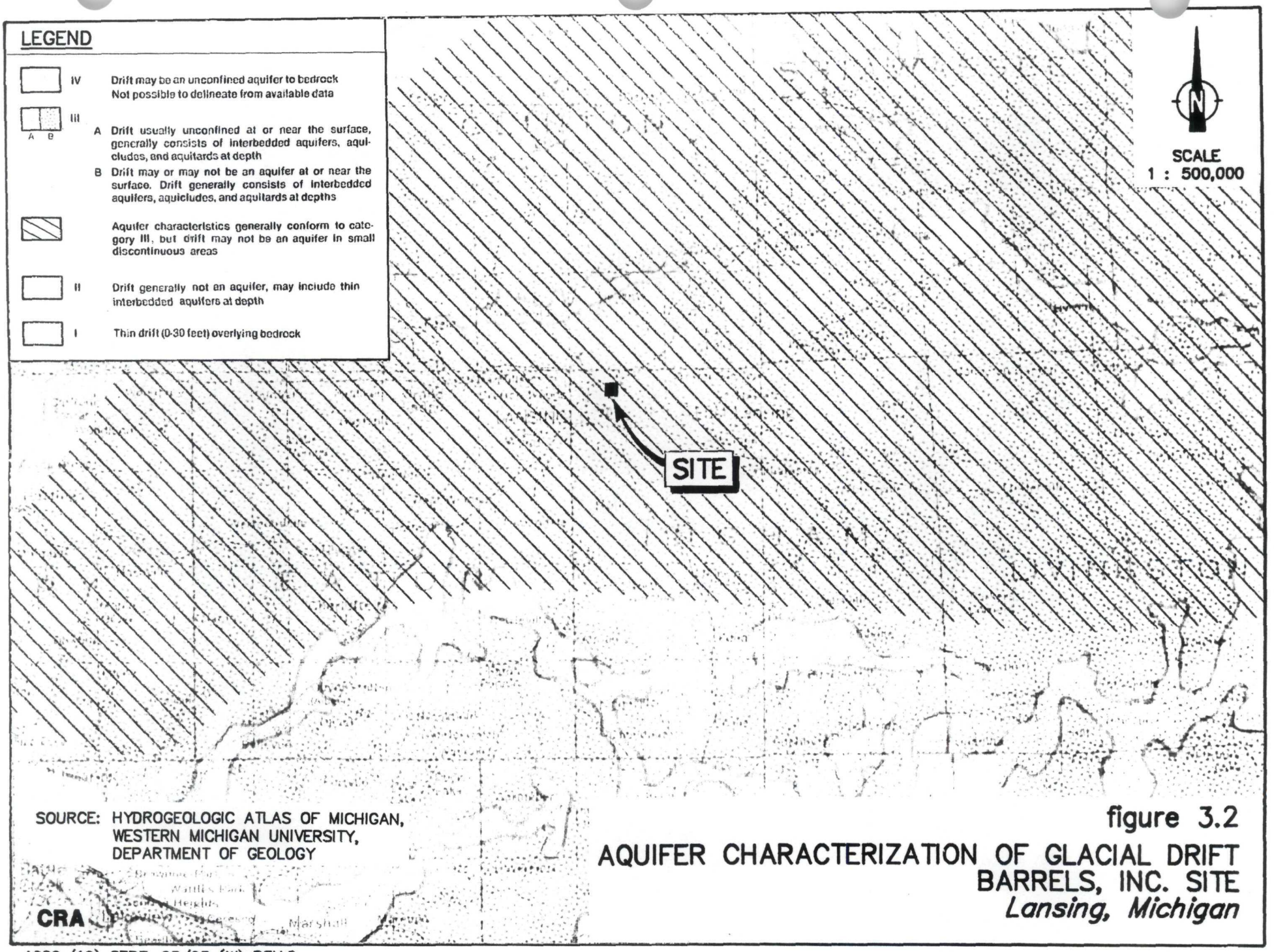
SOURCE: HYDROGEOLOGIC ATLAS OF MICHIGAN, WESTERN MICHIGAN UNIVERSITY, DEPARTMENT OF GEOLOGY

CRA

figure 3.1

REGIONAL SURFICIAL GEOLOGY
BARRELS, INC. SITE
Lansing, Michigan

4869 (12) SEPT. 23/93 (W) REV.0



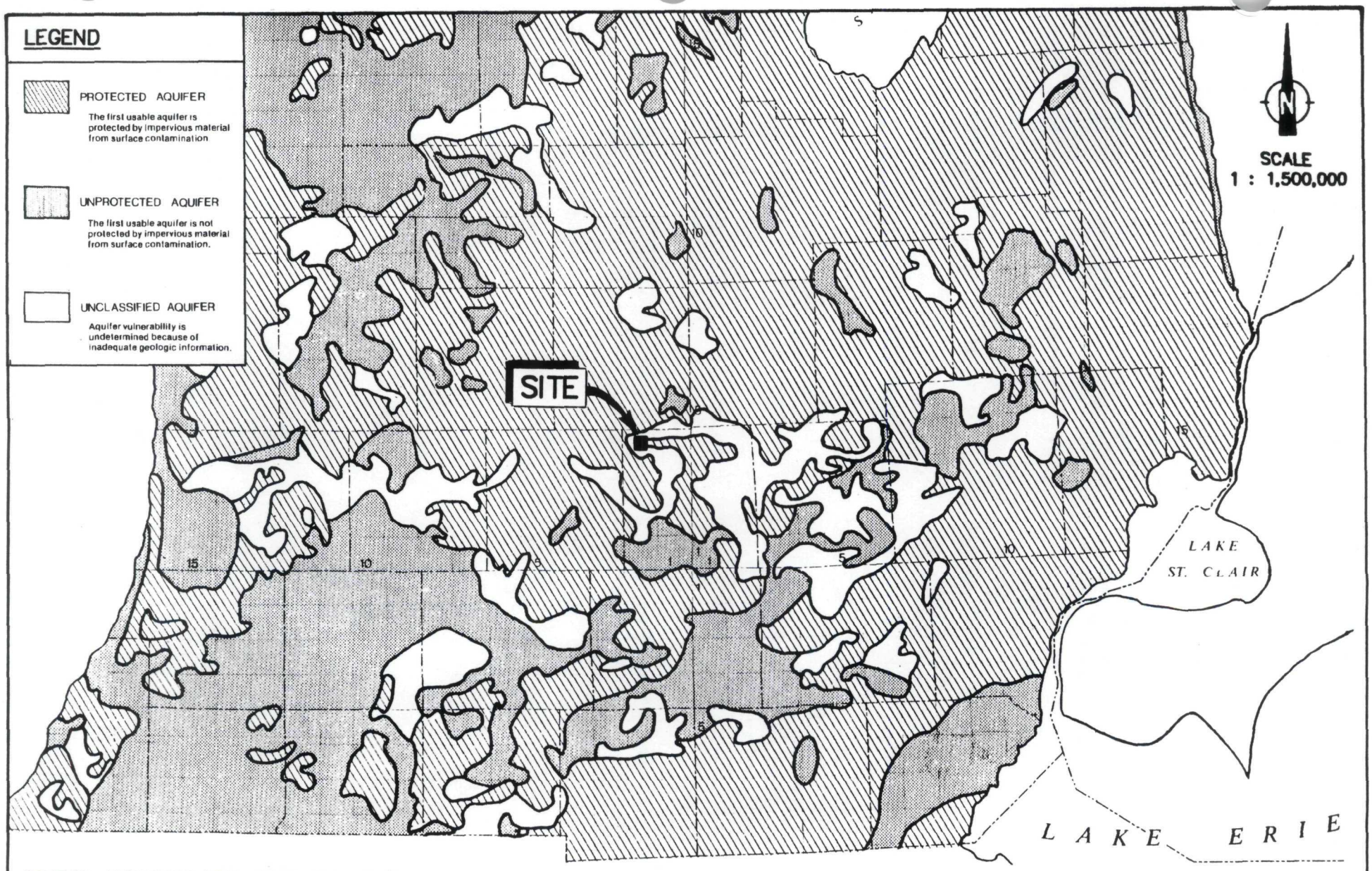
SOURCE: HYDROGEOLOGIC ATLAS OF MICHIGAN, WESTERN MICHIGAN UNIVERSITY, DEPARTMENT OF GEOLOGY

CRA

figure 3.2

AQUIFER CHARACTERIZATION OF GLACIAL DRIFT
BARRELS, INC. SITE
Lansing, Michigan

4869 (12) SEPT. 23/93 (W) REV.0



SOURCE: HYDROGEOLOGIC ATLAS OF MICHIGAN, WESTERN MICHIGAN UNIVERSITY, DEPARTMENT OF GEOLOGY

figure 3.3

AQUIFER VULNERABILITY TO SURFACE CONTAMINATION
BARRELS, INC. SITE
Lansing, Michigan

CRA

4869 (12) SEPT. 23/93 (W) REV.0

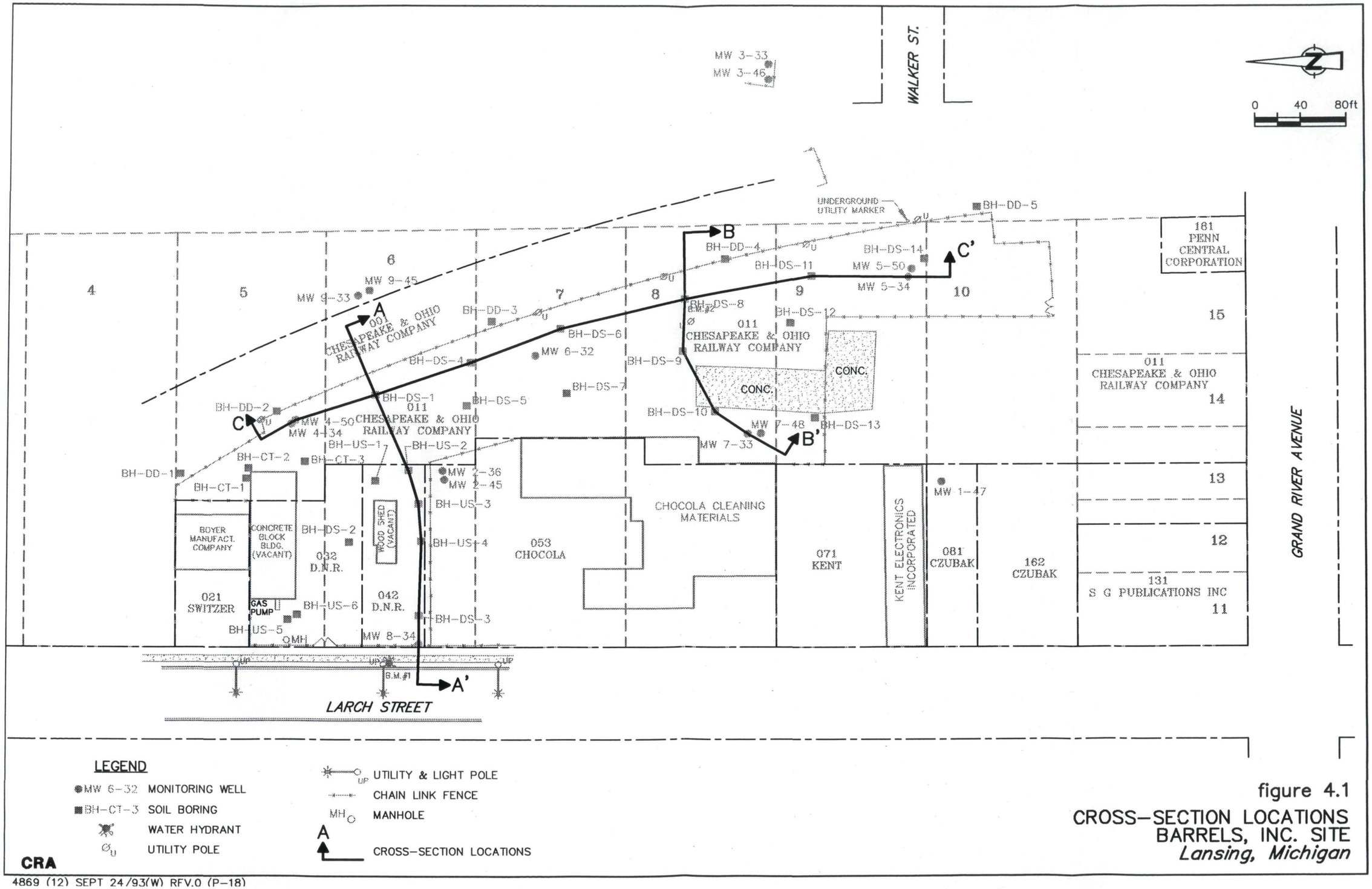
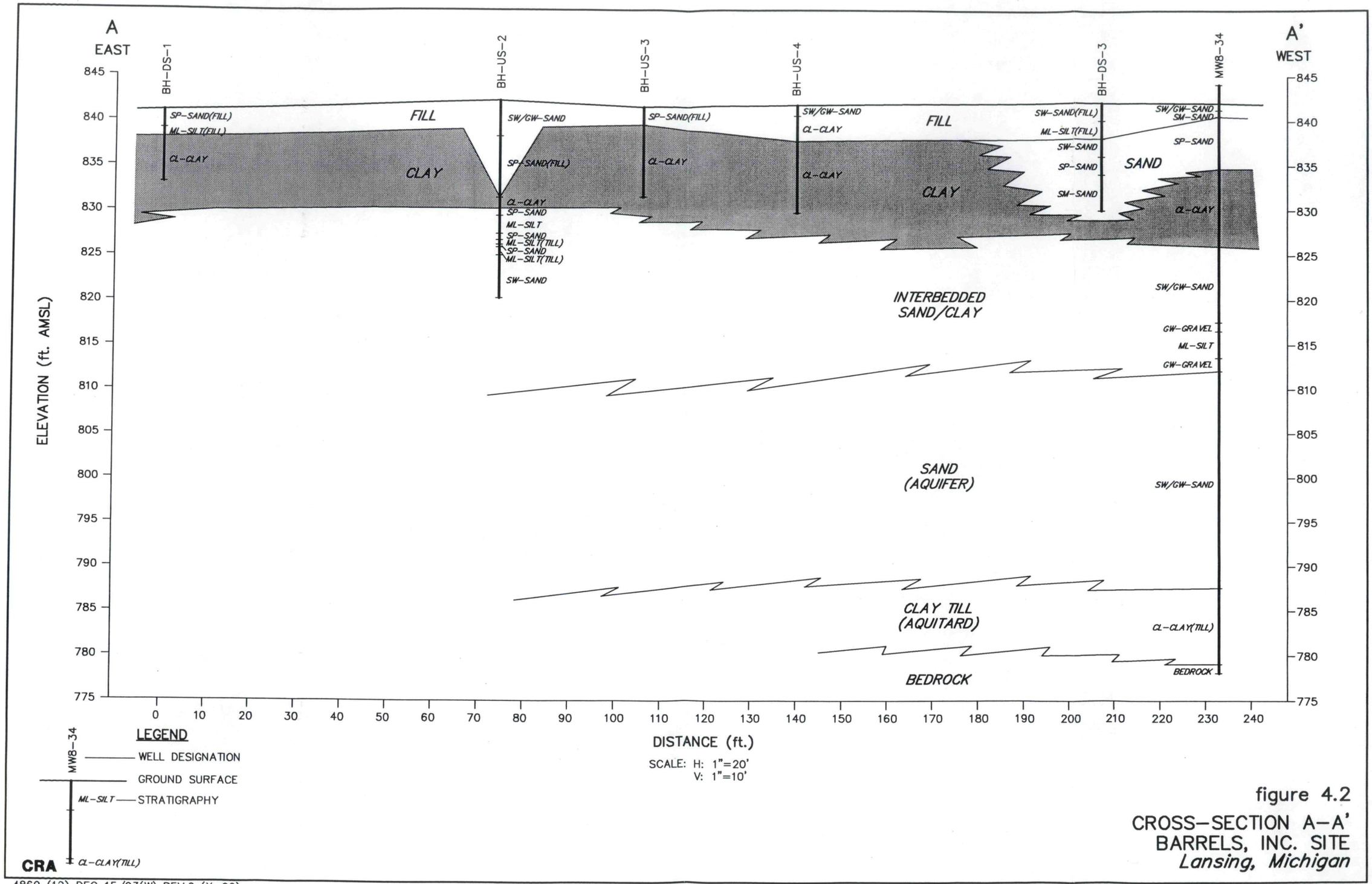


figure 4.1
CROSS-SECTION LOCATIONS
BARRELS, INC. SITE
Lansing, Michigan

4869 (12) SEPT 24/93(W) REV.0 (P-18)



CRA

4869 (12) DEC 15/93(W) REV.0 (X-02)

figure 4.2

CROSS-SECTION A-A'
BARRELS, INC. SITE
Lansing, Michigan

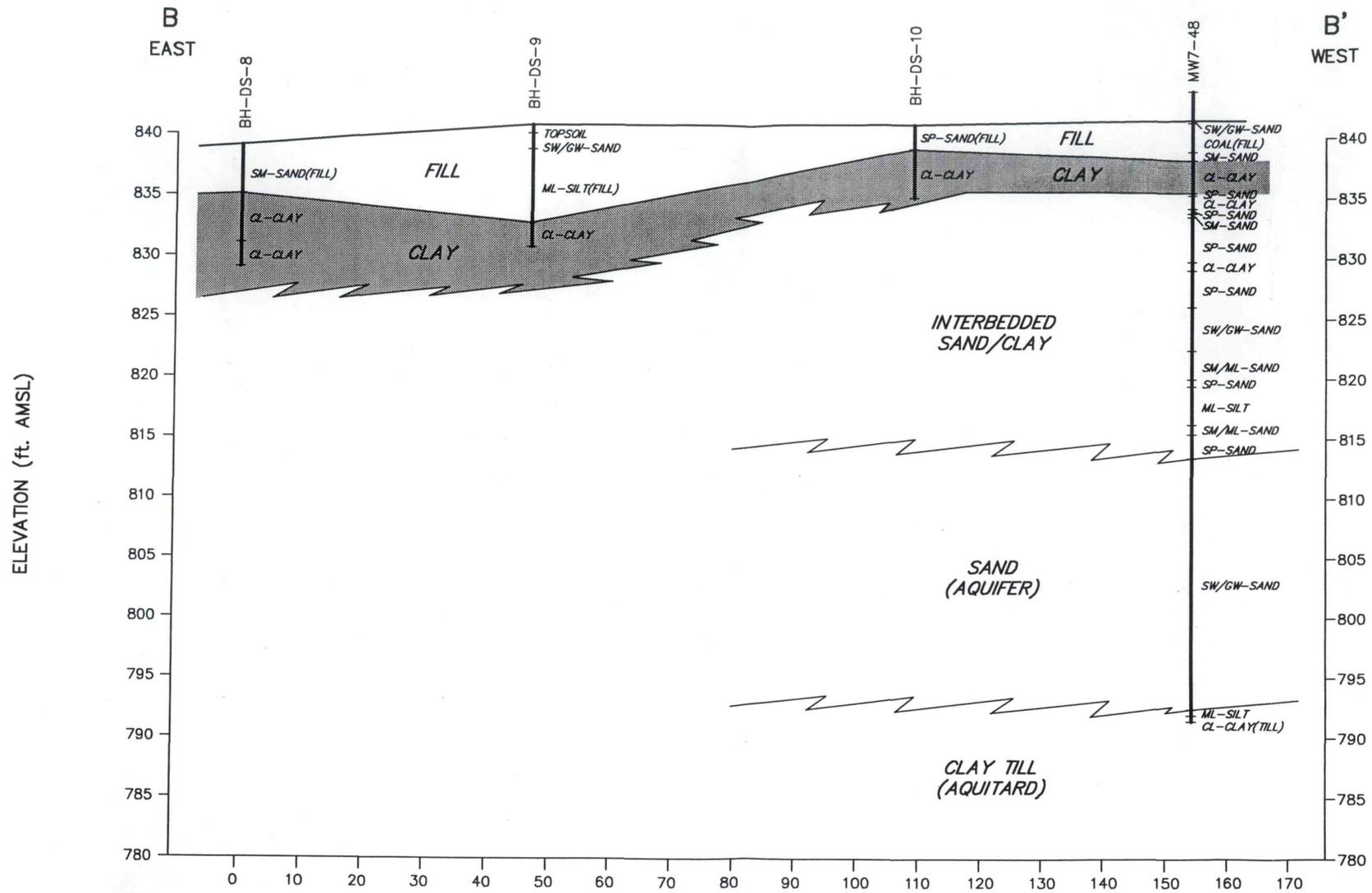


figure 4.3

CROSS-SECTION B-B'
BARRELS, INC. SITE
Lansing, Michigan

CRA

4869 (12) DEC 15/93(W) REV.0 (X-03)

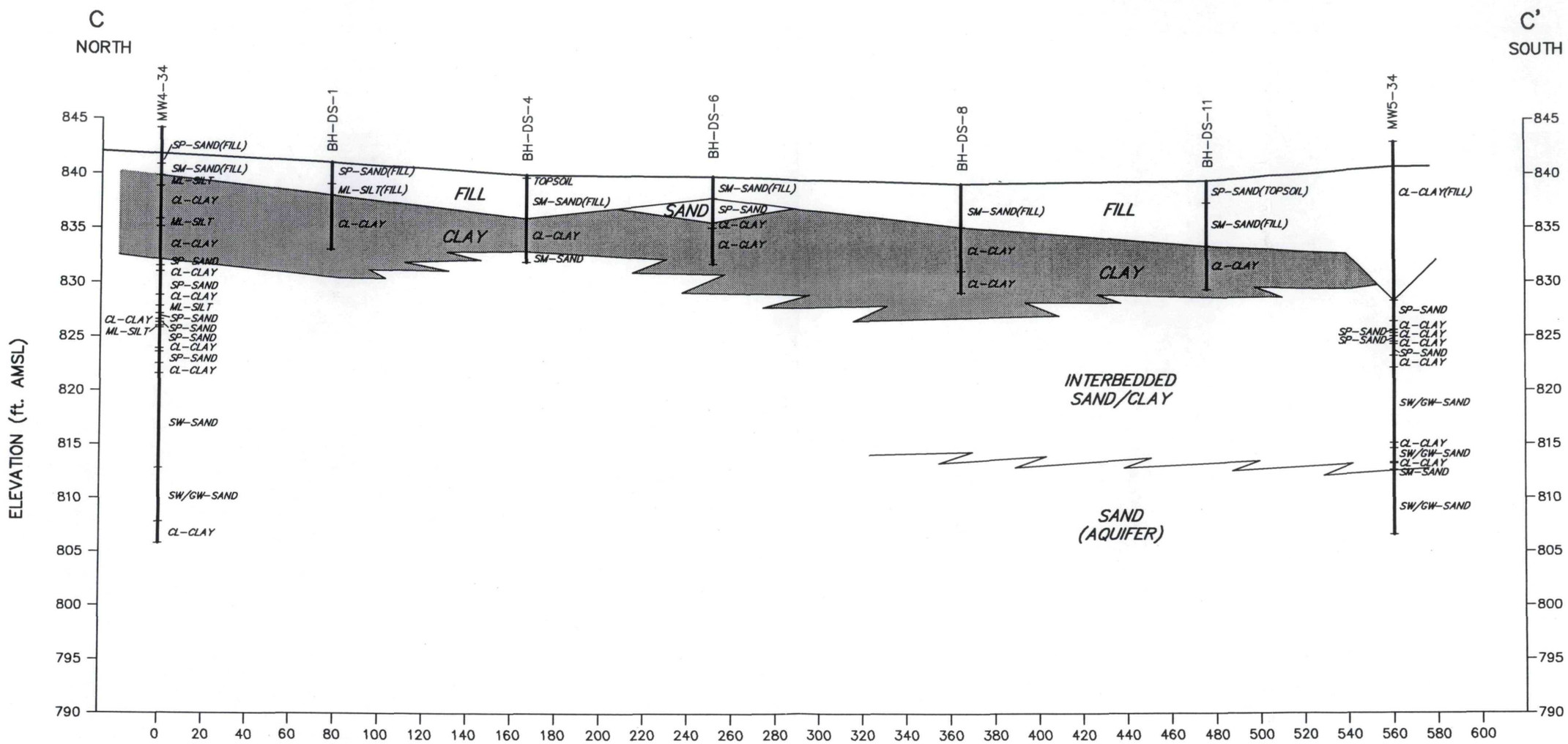


figure 4.4

CROSS-SECTION C-C'
BARRELS, INC. SITE
Lansing, Michigan

CRA

4869 (12) DEC 15/93(W) REV.0 (X-04)

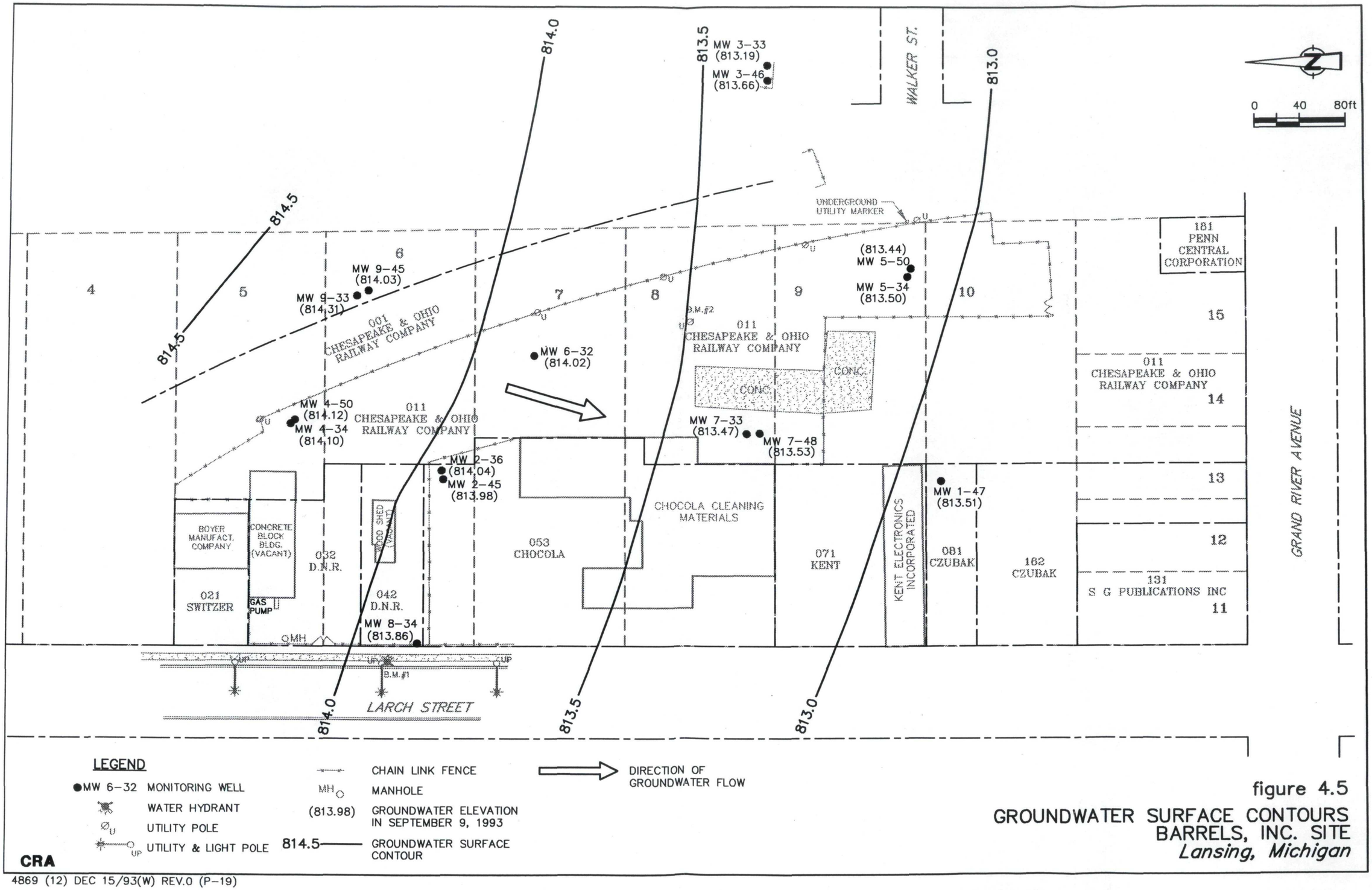


figure 4.5

GROUNDWATER SURFACE CONTOURS
BARRELS, INC. SITE
Lansing, Michigan

4869 (12) DEC 15/93(W) REV.0 (P-19)

TABLES

TABLE 2.1

RESULTS OF HEAD SPACE ANALYSIS

BH No.	*Sample Depth (ft)*	*PID (ppm)*
DS-1	0-2	15
	2-4	22
	4-6	10
	6-8	12
DS-2	0-2	150
	2-4	70
	4-6	20
	6-8	11
	8-10	12
DS-3	0-2	6
	2-4	6
	4-6	10
	6-8	5
	8-10	5
	10-12	9
DS-4	0-2	11
	2-4	7
	4-6	8
	6-8	10
DS-5	0-2	25
	2-4	10
	4-6	75
	6-8	5
	8-10	5
DS-6	0-2	20
	2-4	40
	4-6	600
	6-8	150
DS-7	0-2	220
	2-4	120
	4-6	170
	6-8	500
	8-10	170
DS-9	0-2	9
	2-4	6
	4-6	8
	6-8	8
	8-10	6
DS-10	0-2	6
	2-4	6
	4-6	5
DS-11	0-2	1
	2-4	1
	4-6	2
	6-8	1
	8-10	6
DS-12	0-2	40
	2-4	150
	4-6	300
	6-8	30
	8-10	6
	10-12	5
	12-14	5
	14-16	3
	16-18	7
	18-20	2
DS-13	0-2	100
	2-4	32
	4-6	24
DS-14	0-2	6
	2-4	4
	4-6	0
	6-8	7
	8-10	10
CT-1	0-2	10
	2-4	20
	4-6	15
CT-2	0-2	6
	2-4	2
	4-6	1.5
	6-8	1
	8-10	9
CT-3	0-2	4
	2-4	–
	4-6	10
	6-8	20
	8-10	17
	10-12	0
	12-14	0
	14-16	0
	16-18	0
DD-1	0-2	0
	2-4	0.2
	4-6	0
DD-2	0-2	0
	2-4	0.5
	4-6	0.3
DD-3	0-2	0
	2-4	0
	4-6	0
	6-8	0
DD-4	0-2	100
	2-4	0
	4-6	0
DD-5	0-2	1
	2-4	1
	4-6	1
	6-8	1
	8-10	0.5

TABLE 2.1

RESULTS OF HEAD SPACE ANALYSIS

BH No.	*Sample Depth (ft)*	*PID (ppm)*
DS-8	0-2	11
	4-6	5
	8-10	8
US-1	0-2	250
	2-4	200
	4-6	450
	6-8	430
	8-10	550
	10-12	520
	12-14	370
	14-16	500
	16-18	360
	18-20	220
	20-22	180
US-2	0-2	220
	2-4	210
	4-6	170
	6-8	115
	8-10	145
	10-12	650
	12-14	560
	14-16	540
	16-18	320
	18-20	190
	20-22	180
US-3	0-2	120
	2-4	70
	4-6	90
	6-8	80
	8-10	40
US-4	0-2	150
	2-4	210
	4-6	190
	6-8	148
	8-10	220
	10-12	162
	6-8	12
	8-10	30
US-5	0-2	26
	4-6	30
	6-8	440
	8-10	520
	10-12	420
	12-14	40
	14-16	25
US-6	0-2	20
	2-4	20
	4-6	32
	6-8	450
	8-10	390
	10-12	210
	12-14	30
MW-2	0-2	0
	2-4	0
	4-6	0
	6-8	0
	8-10	1
	10-12	0
	12-14	0
	14-16	1
	16-18	7
	18-20	1
	20-22	1
	22-24	1
	24-26	0
	26-28	0
	28-30	0
	30-32	0
	32-34	0
	34-36	0
MW-5	0-2	1
	2-4	2
	4-6	–
	6-8	1
	8-10	2
	10-12	30
	12-14	1
	14-16	1
	16-18	0.5
	18-20	2
	20-22	–
	22-24	3
	24-26	1
	26-28	3
	28-30	1
	30-32	2
	32-34	1
MW-6	0-2	13
	2-4	1
	4-6	0
	6-8	0
	8-10	0
	10-12	0
	12-14	0
	14-16	0
	16-18	0
	18-20	0
	20-22	0.5
	22-24	0
	24-26	0
	26-28	0
	28-30	1

TABLE 2.1

RESULTS OF HEAD SPACE ANALYSIS

BH No.	*Sample Depth (ft)*	*PID (ppm)*
MW-7	0-2	0
	2-4	0
	4-6	0
	6-8	0
	8-10	0
	10-12	0
	12-14	0
	14-16	1
	16-18	--
	18-20	0
	20-22	1
	22-24	0
	24-26	1
	26-28	1
	28-30	2
	30-32	1
	32-34	1
	34-36	1
	36-38	0
	38-40	1
	40-42	0
	42-44	1
	44-46	0
	46-48	0
	48-50	0

BH No.	*Sample Depth (ft)*	*PID (ppm)*
MW-4	0-2	4
	2-4	3
	4-6	11
	6-8	4
	8-10	3
	10-12	8
	12-14	6
	14-16	8
	16-18	7
	18-20	2
	20-22	2
	22-24	1
	24-26	2
	26-28	1
	28-30	0
	30-32	1
	32-34	1
	34-36	2
MW-8	0-2	0
	2-4	0
	4-6	0
	6-8	0
	8-10	1
	10-12	0
	12-14	0
	14-16	1
	16-18	7
	18-20	1
	20-22	1
	22-24	1
	24-26	0
	26-28	0
	28-30	0
	30-32	0
	32-34	0
	34-36	0
	38-40	0
	40-42	0
	42-44	0
	46-48	0
	50-52	0
	52-54	0
	54-56	0

BH No.	*Sample Depth (ft)*	*PID (ppm)*
MW-9	0-2	1
	2-4	1
	4-6	0
	6-8	1
	8-10	0
	10-12	0
	12-14	0
	14-16	1
	16-18	0
	18-20	2

TA[illegible] 2.2

MONITORING WELL COMPLETION DETAILS
BARRELS INC.
JULY 1993

Location	*Elevation (ft. AMSL)*	*Top of Casing Elevation (ft.)*	*Depth (BGS)*	*Screen Interval*	*Formation*	*Date Completed*
MW2-36	842.44	844.99	39	26-36	sand & gravel	6/10/93
MW3-33	841.10	839.69 (Top well Pipe)	34	23-33	sand & gravel	6/16/93
MW4-34	841.79	844.14	34	24-34	sand & gravel	6/03/93
MW5-34	840.57	842.87	34	24-34	sand & gravel	6/04/93
MW6-32	841.14	843.30	58.5	22-32	sand & gravel	5/27/93
MW7-33	841.30	843.57	33	23-33	sand & gravel	6/09/93
MW7-48	841.43	843.80	48	45.5-48	sand & gravel	6/08/93
MW8-34	842.05	844.14	64	24-34	sand & gravel	6/02/93
MW9-33	842.05	841.62 (Top of well pipe)	33.5	23.5-33.5	sand & gravel	6/15/93
MW9-45	841.96	841.71 (Top of well pipe)	47.5	42.5-45.0	sand & gravel	6/15/93

TABLE 4.1

SUMMARY OF PHYSICAL SOIL DATA

Sample I.D.	*Depth (ft)*	*Grain Size Distribution* *Material*	*Percent*	*Moisture Content As Received (%)*	*Dry Unit Weight (PCF)*	*Permeability (cm/sec)*
MW-2	4-6	Clay	48.1	21.2	106.4	1.0×10^{-8}
		Silt	36.9			
		Sand	15.0			
		Gravel	0.0			
MW-7	3.5-5.5	Clay	46.0	21.3	103.4	1.3×10^{-8}
		Silt	25.7			
		Sand	28.3			
		Gravel	0.0			
MW-8	9-11	Clay	11.9	9.9	108.0	5.8×10^{-5}
		Silt	18.6			
		Sand	66.3			
		Gravel	3.2			
MW-9	6-8	Clay	45.6	18.7	115.0	5.7×10^{-8}
		Silt	46.0			
		Sand	8.3			
		Gravel	0.1			

Notes:

1) Grain size distribution profiles provided in Appendix E.

SUMMARY OF WELL DEVELOPMENT
BARRELS INC.
LANSING, MICHIGAN

Location	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Well Volume (gal)	Volume Removed (gal)	Conductivity (MS)	Temperature (°C)	PH	Clarity	Color	Odor
MW2-36	31.45	38.26	1.76	2.11	1116	17.0	7.67	—	—	—
				3.55	1036	17.4	7.34	—	—	—
				5.80	1050	16.1	7.23	—	—	—
				7.65	1048	16.9	7.20	—	—	—
				9.50	1047	16.4	7.25	—	—	—
				11.26	1069	17.1	7.46	—	—	—
MW3-33	26.50	33.0	1.73	1.8	1970	19.1	8.19	poor	brown	none
				3.6	1990	18.6	7.18	poor	brown	none
				5.4	2050	18.8	7.23	poor	brown	none
				7.2	1990	17.9	7.15	poor	brown	none
				9.0	1998	18.5	7.34	poor	brown	none
				10.8	1999	17.8	7.13	poor	brown	none
				12.6	2020	18.3	7.22	poor	brown	none
				14.4	2020	17.6	7.06	cloudy	light brown	none
				16.2	2010	17.8	7.08	cloudy	light brown	none
				18.0	2020	17.8	7.36	cloudy	light brown	none
				19.8	2020	18.3	7.28	cloudy	light brown	none
				21.6	2030	17.8	7.25	cloudy	light brown	none
MW4-34	30.41	36.58	1.50	1.58	1462	17.5	7.62	poor	grey	none
				3.16	1478	16.4	7.42	poor	grey	none
				4.74	1479	15.7	7.47	poor	grey	none
				6.32	1471	15.9	7.38	poor	grey	none
				7.90	1474	16.1	7.45	poor	grey	none
				9.48	1480	16.5	7.47	poor	grey	none
MW5-34	29.75	36.47	1.23	1.3	1454	14.1	7.54	muddy	grey	none
				2.7	1451	13.4	7.22	muddy	grey	none
				3.9	1433	13.9	7.36	muddy	grey	none
				5.3	1464	13.2	7.29	muddy	grey	none
				6.6	1455	13.6	7.31	muddy	grey	none
				7.9	1451	13.2	7.29	muddy	grey	none

Note:

* well bailed dry, well volumes removed on 3 successive days

SUMMARY OF WELL DEVELOPMENT
BARRELS INC.
LANSING, MICHIGAN

Location	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Well Volume (gal)	Volume Removed (gal)	Conductivity (MS)	Temperature (°C)	PH	Clarity	Color	Odor
*MW6-32	29.08	34.02	1.33	1.3	1150	15.4	7.53	very silty	grey	none
				2.7	1254	14.5	7.43	very silty	grey	none
				4.0	1375	17.9	7.71	very silty	grey	none
				5.5	1384	17.0	7.55	very silty	grey	none
MW7-33	30.40	35.08	1.23	1.3	1187	16.8	6.98	cloudy	grey	none
				2.9	1221	16.7	7.17	cloudy	grey	none
				3.9	1196	15.0	7.11	cloudy	grey	none
				5.3	1248	16.5	7.03	cloudy	grey	none
				6.6	1276	15.7	7.12	cloudy	grey	none
				7.9	1300	16.0	7.14	cloudy	grey	none
				9.3	1350	16.2	7.15	cloudy	grey	none
MW7-48	30.45	50.36	3.18	3.18	1416	20.5	7.29	cloudy	grey	none
				6.40	1620	16.9	7.09	poor	grey	none
				9.60	1775	18.1	7.31	cloudy	grey	none
				12.80	1960	16.5	7.05	cloudy	grey	none
				16.00	1970	16.7	7.30	cloudy	grey	none
				19.20	1970	16.5	7.29	cloudy	grey	none
				22.40	1980	16.4	7.30	cloudy	grey	none
MW8-34	31.14	36.98	0.93	1.3	2690	16.7	6.40	poor	grey	none
				2.7	2490	15.9	6.73	poor	grey	none
				3.9	2570	14.6	6.91	poor	grey	none
				5.3	2590	15.3	7.01	poor	grey	none
				6.6	2760	14.4	7.00	poor	grey	none
				7.9	2780	15.3	6.93	poor	grey	none
				9.3	3000	14.3	6.97	poor	grey	none
				10.5	2970	14.9	7.17	poor	grey	none
				11.4	3150	14.4	7.00	poor	grey	none
				13.4	3190	15.2	6.93	poor	grey	none
				14.5	3460	14.2	7.03	poor	grey	none

Note:

* well bailed dry, well volumes removed on 3 successive days

SUMMARY OF WELL DEVELOPMENT
BARRELS INC.
LANSING, MICHIGAN

Location	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Well Volume (gal)	Volume Removed (gal)	Conductivity (MS)	Temperature (°C)	PH	Clarity	Color	Odor
MW9-33	27.46	33.50	1.60	1.6	1064	19.9	7.34	poor	dark grey	none
				3.2	1015	20.3	7.35	poor	dark grey	none
				4.8	1011	18.1	7.39	poor	dark grey	none
				6.4	1009	18.3	7.30	poor	dark grey	none
				8.0	1003	18.1	7.38	poor	dark grey	none
				9.6	1007	17.9	7.41	poor	dark grey	none
MS9-45	27.69	45.07	4.64	4.7	1960	21.4	7.04	poor	dark grey	none
				9.4	1635	20.3	7.27	poor	dark grey	none
				14.1	1758	20.4	7.22	poor	dark grey	none
				18.8	1813	20.8	7.22	poor	dark grey	none
				23.5	1875	20.6	7.32	poor	dark grey	none
				28.2	1870	20.6	7.20	poor	dark grey	none

Note:

* well bailed dry, well volumes removed on 3 successive days

MONITORING WELL PURGING
BARRELS INC.
LANSING, MICHIGAN

Location	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Well Volume (gal)	Volume Removed (gal)	Conductivity (MS)	Temperature (°C)	pH	Clarity	Color	Odor	D.O.
MW1-47	29.71	47.00	4.55	5	3040	56.7	6.77	poor	red/brown	none	0%
				10	3040	57.1	6.44	clear	clear	none	0%
				15	3050	57.9	6.99	clear	clear	none	0%
MW2-36	31.11	38.26	1.86	1.8	2430	68.2	6.71	cloudy	poor	none	0%
				3.6	1650	63.2	7.18	cloudy	poor	none	0%
				5.4	1610	61.5	7.00	cloudy	poor	none	0%
MW2-45	31.34	47.15	4.21	5	3230	60.5	6.79	clear	clear	none	12%
				10	3270	61.3	6.78	clear	clear	none	12%
				15	3190	62.5	6.76	clear	clear	none	12%
MW3-46	29.87	46.80	4.50	5 (dry)	2710	64.4	7.26	cloudy	tan	none	14%
				10 (dry)	3240	67.0	7.32	cloudy	tan	none	14%
MW3-33	37.81	33.50	1.50	1.6	3040	64.3	7.08	cloudy	light grey	none	11%
				3.2	2550	62.2	6.80	cloudy	light grey	none	11%
				4.8	2930	61.3	6.78	cloudy	light grey	none	11%
MW4-50	29.82	51.57	5.80	5	4100	68.8	7.01	cloudy	light grey	none	—
				10	4060	67.5	6.77	cloudy	light grey	none	—
				15	4610	66.2	6.71	cloudy	light grey	none	—
MW4-34	30.25	36.58	1.68	1.6	3030	71.5	7.38	cloudy	brown	none	—
				3.2	2750	65.6	7.34	cloudy	brown	none	—
				4.8	2760	64.1	7.44	cloudy	grey	none	—
MW5-34	29.55	36.47	1.80	1.8	2550	65.6	7.12	poor	dark grey	none	—
				3.6	2480	64.3	6.96	poor	dark grey	none	—
				5.4	2690	65.2	7.02	poor	dark grey	none	—

MONITORING WELL PURGING
BARRELS INC.
LANSING, MICHIGAN

Location	Water Level (ft. BTOC)	Well Depth (ft. BTOC)	Well Volume (gal)	Volume Removed (gal)	Conductivity (MS)	Temperature (°C)	pH	Clarity	Color	Odor	D.O.
MW5-50	29.92	52.25	5.96	5	2630	65.4	6.73	poor	grey	none	3%
				10	2620	64.6	6.97	poor	grey	none	3%
				15	2960	73.9	7.65	cloudy	grey	none	3%
MW6-32	29.47	36.58	1.89	1.8 (dry)	1604	17.7	7.34	poor	dark grey	none	15%
MW7-33	30.31	35.08	1.27	1.5	2720	62.1	6.80	poor	dark grey	none	—
				3.0	2750	58.9	6.86	poor	dark grey	none	—
				4.5	2740	60.2	6.85	poor	grey	none	—
MW7-48	30.38	50.36	5.32	5	4440	66.8	7.30	poor	dark grey	none	—
				10	3740	66.9	7.02	poor	dark grey	none	—
				15	3930	62.5	6.98	fair	cloudy	none	—
MW8-34	30.32	36.98	1.17	1.2	7920	65.6	7.24	cloudy	brown	none	—
				2.4	7620	62.3	6.91	cloudy	grey	none	—
				3.6	7750	60.3	6.54	cloudy	grey	none	—
MW9-33	26.12	33.00	1.83	1.8	2700	62.6	6.64	cloudy	grey	none	19%
				3.6	2680	62.7	7.05	cloudy	grey	none	19%
				5.4	2690	62.9	6.89	cloudy	grey	none	19%
MW9-45	27.59	45.07	4.60	5	1600	62.7	7.07	cloudy	light grey	none	8%
				10	1530	62.3	6.82	cloudy	light grey	none	8%
				15	1470	61.8	6.71	cloudy	light grey	none	8%

TABLE 4.4

SINGLE WELL RESPONSE TEST RESULTS

Well Designation	*Test Type*	*K (ft/sec)*	*K (cm/sec)*	*Screen Depth (ft)*
MW2-36	RH	2.7E-03	8.3E-02	26 - 36
MW3-33	RH	8.6E-04	2.6E-02	23 -33
MW4-34	RH	1.0E-04	3.2E-03	24 - 34
MW4-50	FH	2.0E-03	6.2E-02	45 - 48
MW4-50	RH	1.1E-03	3.3E-02	45 - 48
MW5-34	FH	2.4E-04	7.3E-03	24 - 34
MW5-34	RH	1.4E-04	4.4E-03	24 - 34
MW6-32	RH	2.2E-07	6.7E-06	22 - 32
MW6-32	RH	3.5E-07	1.1E-05	22 - 32
MW7-33	RH	2.6E-05	7.9E-04	23 - 35
MW7-48	FH	7.5E-04	2.3E-02	45 - 48
MW7-48	FH	8.3E-04	2.5E-02	45 - 48
MW7-48	RH	7.3E-04	2.2E-02	45 - 48
MW7-48	RH	6.9E-04	2.1E-02	45 - 48
MW8-34	RH	5.3E-05	1.6E-03	24 - 35
MW8-34	FH	8.5E-05	2.6E-03	24 - 35
MW8-34	RH	3.1E-04	9.3E-03	24 - 35
MW8-34	RH	3.1E-04	9.3E-03	24 - 35
MW9-33	RH	7.3E-04	2.2E-02	23.5 - 33.5
MW9-45	FH	1.7E-04	5.1E-03	42.5 - 45.0
MW9-45	RH	3.10E-03	9.5E-02	42.5 - 45.0

Notes:

1) FH - Falling Head Test
   RH - Rising Head Test

2) Test data collected with Telog Pressure Transducer.
   Results generated using AQTESOLV, Bouwer Rice solution.

3) See monitoring well logs for screened stratum.

TA[illegible] 4.5

SUMMARY OF WATER LEVEL MEASUREMENTS
BARRELS, INC.
LANSING, MICHIGAN

Monitoring Well No.	Top of Casing Elevation	6/11/93		6/17/93		6/21/93		9/9/93(A.M.)		9/9/93(P.M.)	
		Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation	Depth	Elevation
MW1-47	843.21	29.82	813.39	29.70	813.51	29.71	813.50	29.69	813.52	29.70	813.51
MW2-36	844.99	31.45	813.54	30.41	814.58	31.11	813.88	30.94	814.05	30.95	814.04
MW2-45	845.11	31.53	813.59	31.30	813.90	31.25	813.86	31.11	814.00	31.13	813.98
MW3-33	839.69	—	—	26.50	813.19	26.12	813.57	26.52	813.17	26.50	813.19
MW3-46	843.56	—	—	29.88	813.68	29.87	813.69	29.89	813.67	29.90	813.66
MW4-34	844.14	30.41	814.00	30.22	813.92	30.25	813.89	30.02	814.12	30.02	814.12
MW4-50	843.72	29.99	813.72	29.73	813.99	29.82	813.90	29.61	814.11	29.62	814.10
MW5-34	842.87	29.75	813.12	29.42	813.45	29.55	813.32	29.37	813.50	29.37	813.50
MW5-50	843.14	29.97	813.17	29.92	813.22	29.92	813.22	29.71	813.43	29.70	813.44
MW6-32	843.30	29.40	813.90	29.44	813.86	29.47	813.83	29.27	814.03	29.28	814.02
MW7-33	843.57	30.40	813.17	30.24	813.33	30.28	813.29	30.08	813.49	30.10	813.47
MW7-48	843.80	30.58	813.22	30.37	813.43	30.38	813.42	30.22	813.58	30.27	813.53
MW8-34	844.14	29.53	814.61	29.43	814.71	30.32	813.82	30.26	813.88	30.28	813.86
MW9-33	841.62	—	—	27.46	814.16	27.81	813.81	27.31	814.31	27.31	814.31
MW9-45	841.71	—	—	27.69	814.02	27.59	814.12	27.68	814.03	27.68	814.03

Note:

All measurements in feet.

TABLE 5.1

SOILS EVALUATION CRITERIA

Parameter	*Type B 20X Drinking Water Value*	*Type B Direct Contact Value*	*Generic Industrial Cleanup Direct Contact Value*	*Background*
VOCs (mg/kg)				
Benzene	0.024	13	85	–
2-Butanone	6.4	3,600	6,800	–
Chlorobenzene	2.6	1,500	2,800	–
1,1-Dichloroethane	17	9,300	18,000	–
Ethylbenzene	1.5	7,500	14,000	–
Toluene	16	17,000	33,000	–
Total-1,2-Dichloroethene	1.5	860	1,600	–
Tetrachloroethane	0.014	7.8	49	–
Trichloroethene	0.044	24	150	–
1,1,1-Trichloroethane	4	2,200	4,200	–
Xylene	5.6	140,000	270,000	–
SVOCs (mg/kg)				
Acenaphthene	24	45,000	160,000	–
Acenaphthylene	0.5	930	3,200	–
Anthracene	140	260,000	900,000	–
Benzo(a)anthracene	–	0.180	2.1	–
Benzo(b)fluoranthene	–	0.180	2.1	–
Benzo(k)fluoranthene	–	0.180	2.1	–
Benzo(g,h,i)perylene	–	930	3,200	–
Benzo(a)pyrene	–	0.180	2.1	–
Bis(2-ethylhexyl)phthalate	–	92	1,100	–
Butyl benzyl phthalate	22	41,000	140,000	–
Chrysene	–	0.180	2.1	–
Dibenzo(a,h)anthracene	–	0.180	2.6	–
Di-n-butyl phthalate	17	31,000	110,000	–
Di-n-octyl phthalate	2.6	4,700	16,000	–
Fluoranthene	17	31,000	110,000	–
Fluorene	17	31,000	110,000	–
Indeno (1,2,3-cd)pyrene	–	0.180	2.1	–
Naphthalene	5	9,300	32,000	–
N-Nitrosodiphenylamine	0.14	78	510	–
Phenanthrene	0.5	930	3,200	–
Pyrene	10	190	67,000	–
2-Chlorophenol	0.860	480	920	–
2,4-Dimethylphenol	7	13,000	45,000	–
Phenol	84	47,000	89,000	–

TABLE 5.1

SOILS EVALUATION CRITERIA

Parameter	*Type B 20X Drinking Water Value*	*Type B Direct Contact Value*	*Generic Industrial Cleanup Direct Contact Value*	*Background*
Pesticides/PCBs (µg/kg)				
Chlordane	0.54	1,000	12,000	–
4,4'-DDD	–	5,400	62,000	–
4,4'-DDE	–	3,800	44,000	–
4,4'-DDT	–	3,800	44,000	–
Dieldrin	–	80	937	–
Endrin	–	44,000	150,000	–
PCB-1254	–	1,000	7,500	–
Inorganics (mg/kg)				
Antimony	0.048	91	310	–
Arsenic	–	–	8.6	7.2
Cadmium	0.070	130	450	1.2
Chromium	2.4	4,400	4,300	25.4
Copper	20	9,800	–	32
Lead	–	400	400	21
Mercury	0.042	78	270	0.13
Nickel	11.0	20,000	68,000	29.5
Selenium	0.7	1,300	4,500	0.41
Silver	0.66	1,200	4,200	1.0
Zinc	46	86,000	300,000	110
Cyanide	3	5,700	20,000	0.39

TABLE 5.2

GROUNDWATER EVALUATION CRITERIA

Parameter	*Type B Drinking Water Value*	*Generic Industrial Cleanup Direct Contact Value*	*Background*
VOCs (mg/L)			
1,1-Dichloroethane	0.84	2.5	–
1,2-Dichloroethane	0.00038	0.0038	–
Total-1,2-Dichloroethene	0.077	0.23	–
Ethylbenzene	0.68	2.0	–
Tetrachloroethene	0.0007	0.0068	–
Toluene	1.5	4.6	–
1,1,1-Trichloroethane	0.2	0.58	–
1,1,2-Trichloroethane	0.00063	0.0061	–
Trichloroethene	0.0022	0.022	–
Vinyl Chloride	0.000016	0.00016	–
Xylenes	13	38	–
Pesticides /PCBs (µg/L)			
Dieldrin	0.0022	0.022	–
Beta-Endosulfan	1.6	4.8	–
Endrin	1.2	3.5	–
PCB-1254	0.018	0.17	–
Inorganics (mg/L)			
Arsenic	0.00002	0.0002	0.006
Cadmium	0.0035	0.01	–
Lead	0.004	0.004	–
Nickel	0.53	1.6	–
Zinc	2.3	6.9	–
Cyanide	0.15	0.46	–

TABLE 5.3

BACKGROUND SOIL SAMPLES

Borehole No.	*Sample(s) Depth (feet)*
DS-1	6 - 8
DS-3	2 - 4, 6 - 8, 10 - 12
DS-5	8 - 10
DS-6	0 - 2, 2 - 4
DS-8	8 - 10
DS-9	8 - 10
DS-10	2 - 4, 4 - 6
DS-11	8 - 10
DS-12	18 - 20
DS-13	2 - 4, 4 - 6
US-1	20 - 22
US-5	14 - 16
US-6	14 - 16
CT-3	16 - 18
DD-3	4 - 6, 6 - 8
DD-4	4 - 6
DD-5	6 - 8, 8 - 10

(26 Samples Total)

TABLE 5.4

INORGANICS BACKGROUND SOIL EVALUATION (mg/kg)

Parameter	*Range of Concentrations*	*Mean of Concentrations*	*Standard Deviation*	*Calculated Background Concentration**	*Acceptable Default Values ***
Antimony	ND	–	–	–	–
Arsenic	0.71 - 5.8	2.68	1.50	7.2	5.8
Beryllium	ND	–	–	–	–
Cadmium	ND - 0.23	0.086	0.055	0.251	1.2
Chromium	2.5 - 20	11.00	4.79	25.4	18
Copper	3.2 - 23	12.97	6.28	31.8	32
Lead	1.5 - 20	6.69	3.71	17.8	21
Mercury	ND - 0.10	0.004	0.019	–	0.13
Nickel	3.0 - 21.0	12.02	5.84	29.5	20
Selenium	ND	–	–	–	0.41
Silver	ND	–	–	–	1.0
Zinc	2.7 - 82	55.46	18.00	110	47
Cyanide	ND - 0.11 J	–	–	–	0.39

otes:

* Based on MDNR's November 1991, Draft Cleanup Verification Guidance Document Page 5 and calculated as Background Concentration = Mean + 3x Standard Deviation.

** Based on MDNR's September 30, 1993 MERA Operational Memorandum #15 Default Type A Clean up Criteria.

TABLE 5.5

PARAMETERS OF CONCERN
SOILS

Pesticides/PCBs

Chlordane
PCB-1254

SVOCs	*Inorganics*
Benzo(a) anthracene	Arsenic
Benzo(b) fluoranthene	Lead
Benzo (ghi) perylene	
Benzo(a) pyrene	
Chrysene	
Dibenzo (a,h) anthracene	

TABLE 5.6

PARAMETERS OF CONCERN
GROUNDWATER

VOCs	*PCBs/Pesticides*
Benzene	PCB-1254
1,2-Dichloroethane	
Vinyl Chloride	

Inorganics

Arsenic
Lead

SUMMARY OF VOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-1	DS-1	DS-1	DS-1	DS-2	DS-2	DS-2	DS-2	DS-3	DS-3	DS-3	DS-3
Depth	0-2	4-6	6-8	6-8' Dup	0-2	4-6	6-8	8-10	2-4	6-8	6-8 Dup	10-12
Sample ID	RP-47	RP-48	RP-49	RP-50	RP-51	RP-52	RP-53	RP-54	RP-56	RP-57	RP-58	RP-59
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Benzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.010)UJ	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.010)UJ	ND(0.100)	ND(0.100)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	0.13	0.22	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Ethylbenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Methylene chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Tetrachloroethene	0.013	0.027	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Toluene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
o-Xylene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.033 J	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
m-Xylene/p-Xylene	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)UJ	ND(0.020)	ND(0.020)
total Xylenes	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	0.033 J	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)UJ	ND(0.030)	ND(0.030)

S=results due to secondary dilution
J=value is estimated quantity
B=analyte present in method blank
ND=not detected; Target Detection Limit
UJ=analyte checked for but not detected; value estimated
*Detection limits raised due to matrix interference

SUMMARY OF VOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-4	DS-4	DS-4	DS-4	DS-5	DS-5	DS-5	DS-5	DS-6	DS-6	DS-6	DS-6
Depth	0-2	2-4	4-6	6-8	0-2	2-4	4-6	8-10	0-2	2-4	4-6	6-8
Sample ID	RP-42	RP-43	RP-45	RP-44	RP-38	RP-39	RP-40	RP-41	RP-33	RP-34	RP-35	RP-36
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Benzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.078	ND(0.010)
Ethylbenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Methylene chloride	ND(0.014)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Tetrachloroethene	0.05	0.18	0.12	0.2	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Toluene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)	0.014	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
o-Xylene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.015
m-Xylene/p-Xylene	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
total Xylenes	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)

S=results due to secondary dilution
J=value is estimated quantity
B=analyte present in method blank
ND=not detected; Target Detection Limit
UJ=analyte checked for but not detected; value estimated
*Detection limits raised due to matrix interference

SUMMARY OF VOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-7	DS-7	DS-7	DS-7	DS-8	DS-8	DS-8	DS-9	DS-9	DS-9	DS-9	DS-10
Depth	0-2	2-4	6-8	8-10	0-2	4-6	8-10	0-2	2-4	4-6	8-10	0-2
Sample ID	RP-29	RP-30	RP-31	RP-32	RP-22	RP-23	RP-24	RP-25	RP-26	RP-27	RP-28	RP-18
Date Sampled	5/14/93	5/14/93	5/14/93	5/14/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Benzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	0.44	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Ethylbenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Methylene chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Tetrachloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Toluene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
o-Xylene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
m-Xylene/p-Xylene	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
total Xylenes	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)

S=results due to secondary dilution
J=value is estimated quantity
B=analyte present in method blank
ND=not detected; Target Detection Limit
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SUMMARY OF VOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-10	DS-10	DS-10	DS-11	DS-11	DS-11	DS-11	DS-12	DS-12	DS-12	DS-12	DS-13
Depth	2-4	4-6	4-6 DUP	0-2	2-4	6-8	8-10	0-2	4-6	4-6 DUP	18-20	0-2
Sample ID	RP-19	RP-20	RP-21	RP-05	RP-06	RP-07	RP-08	RP-10	RP-11	RP-12	RP-13	RP-14
Date Sampled	5/13/93	5/13/93	5/13/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Benzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(1.0)	ND(1.0)	ND(0.100)	ND(0.100)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	1.2	0.98	ND(0.010)	ND(0.010)
Ethylbenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
Methylene chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
Tetrachloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	3.0	2.5	ND(0.010)	ND(0.010)
Toluene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.051	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.12 J	ND(0.10)	ND(0.010)	ND(0.010)
o-Xylene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
m-Xylene/p-Xylene	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.20)	ND(0.20)	ND(0.020)	ND(0.020)
total Xylenes	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.30)	ND(0.30)	ND(0.030)	ND(0.030)

S=results due to secondary dilution
J=value is estimated quantity
B=analyte present in method blank
ND=not detected; Target Detection Limit
UJ=analyte checked for but not detected; value estimated
*Detection limits raised due to matrix interference

SUMMARY OF VOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-13	DS-13	DS-14	DS-14	DS-14	DS-14	US-1	US-1	US-2	US-2	US-2	US-3
Depth	2-4	4-6	0-2	2-4	4-6	8-10	14-16	20-22	0-2	14-16	20-22	2-4
Sample ID	RP-15	RP-16	RP-01	RP-02	RP-03	RP-04	RP-60	RP-61	RP-63	RP-64	RP-65	RP-65A
Date Sampled	5/13/93	5/13/93	5/11/93	5/11/93	5/11/93	5/11/93	5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/19/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Benzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)*	ND(0.010)	ND(0.010)	0.020 J	ND(0.010)	0.094
2-Butanone	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(29.0)*	ND(0.100)	ND(0.100)	ND(5.8)UJ	ND(0.100)	ND(0.50)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)*	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)*	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)*	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Ethylbenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	16	ND(0.010)	ND(0.010)	38 J	0.034	0.26
Methylene chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)*	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Tetrachloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)*	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Toluene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)*	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.01)	ND(0.050)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)*	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Trichloroethene	ND(0.010)	ND(0.010)	0.076	0.078	0.015	0.021	ND(2.9)*	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
o-Xylene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	9.2	ND(0.010)	ND(0.010)	2.3 J	0.034	0.33
m-Xylene/p-Xylene	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	60	ND(0.020)	ND(0.020)	120 J	0.11	0.69
total Xylenes	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	69.2	ND(0.030)	ND(0.030)	122.3 J	0.144	1.02

S=results due to secondary dilution
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UJ=analyte checked for but not detected; value estimated
*Detection limits raised due to matrix interference

SUMMARY OF VOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	US-3	US-3	US-4	US-4	US-5	US-5	US-6	US-6	CT-1	CT-1	CT-1	CT-2
Depth	8-10	8-10 Dup	2-4	10-12	8-10	14-16	4-6	14-16	0-2	2-4	8-10	0-2
Sample ID	RP-66	RP-67	RP-68	RP-69	RP-70	RP-71	RP-72	RP-73	TB-74	TB-75	TB-76	TB-84
Date Sampled	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/20/93	5/20/93	5/20/93	5/20/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Benzene	0.02	ND(0.010)	ND(0.020)*	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.20)*	ND(0.100)	ND(12.0)	ND(0.100)	ND(0.500)*	ND(0.100)	ND(0.50)*	ND(0.100)	ND(0.100)	ND(0.100)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.020)*	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.020)*	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.020)*	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.010)	ND(0.010)
Ethylbenzene	0.068 J	0.028 J	0.23	0.033	2.5	ND(0.010)	ND(0.050)*	ND(0.010)	0.063	ND(0.010)	0.029	ND(0.010)
Methylene chloride	ND(0.010)	ND(0.010)	ND(0.020)*	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.010)	ND(0.010)
Tetrachloroethene	ND(0.010)	ND(0.010)	ND(0.020)*	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.010)	ND(0.010)
Toluene	ND(0.010)	ND(0.010)	ND(0.020)*	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)*	ND(0.010)	0.31	ND(0.010)	0.091	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.020)*	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)	ND(0.010)	ND(0.020)*	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.050)*	ND(0.010)	ND(0.010)	ND(0.010)
o-Xylene	0.021	ND(0.010)	ND(0.020)*	ND(0.010)	3.9	ND(0.010)	0.14	ND(0.010)	0.26	0.014	0.037	0.019
m-Xylene/p-Xylene	0.053	ND(0.020)	0.34	0.029	11.0	ND(0.020)	0.73	ND(0.020)	0.38	ND(0.020)	0.085	0.027
total Xylenes	0.074	ND(0.030)	0.34	0.029	14.9	ND(0.030)	0.87	ND(0.030)	0.64	0.014	0.122	0.046

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SUMMARY OF VOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	CT-2	CT-2	CT-3	CT-3	CT-3	CT-3	DD-1	DD-1	DD-1	DD-2	DD-2	DD-2
Depth	2-4	8-10	0-2	4-6	16-18	16-18 Dup	0-2	2-4	4-6	0-2	2-4	4-6
Sample ID	TB-78	TB-79	TB-80	TB-81	TB-82	TB-83	TB-88	TB-90	TB-89	TB-85	TB-86	TB-87
Date Sampled	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Benzene	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)UJ	ND(0.100)	ND(0.050)UJ	ND(0.100)UJ	ND(0.100)UJ	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Chlorobenzene	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)UJ	ND(0.010)	0.18 J	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)UJ	0.026	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Ethylbenzene	ND(0.010)UJ	ND(0.010)	0.19 J	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Methylene chloride	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.014)	ND(0.010)UJ	ND(0.010)	ND (0.017)	ND (0.016)	ND (0.017)	ND(0.010)	ND (0.017)	ND(0.010)
Tetrachloroethene	ND(0.010)UJ	0.026	0.073 J	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Toluene	ND(0.010)UJ	0.015	0.69 J	0.012 J	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
o-Xylene	ND(0.010)UJ	0.012	0.26 J	0.010 J	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
m-Xylene/p-Xylene	ND(0.020)UJ	ND(0.020)	0.93 J	0.022 J	ND(0.020)UJ	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
total Xylenes	ND(0.030)UJ	0.012	1.19 J	0.032 J	ND(0.030)UJ	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)

S=results due to secondary dilution
J=value is estimated quantity
B=analyte present in method blank
ND=not detected; Target Detection Limit
UJ=analyte checked for but not detected; value estimated
*Detection limits raised due to matrix interference

SUMMARY OF VOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DD-3	DD-3	DD-3	DD-3	DD-4	DD-4	DD-4	DD-4	DD-5	DD-5	DD-5
Depth	0-2	0-2 Dup	4-6	6-8	0-2	4-6	6-8	6-8 Dup	0-2	6-8	8-10
Sample ID	TB-91	TB-100	TB-92	TB-93	TB-96	TB-95	TB-94	TB-101	TB-98	TB-97	TB-99
Date Sampled	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/26/93	5/26/93	5/26/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter											
Benzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Ethylbenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Methylene chloride	ND(0.010)	ND (0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.013)	ND(0.011)	ND(0.011)
Tetrachloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Toluene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.032	ND(0.010)	ND(0.010)
o-Xylene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
m-Xylene/p-Xylene	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
total Xylenes	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)

S=results due to secondary dilution
J=value is estimated quantity
B=analyte present in method blank
ND=not detected; Target Detection Limit
UJ=analyte checked for but not detected; value estimated
*Detection limits raised due to matrix interference

SUMMARY OF SVOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-1	DS-1	DS-1	DS-1	DS-2	DS-2	DS-2	DS-2	DS-3	DS-3	DS-3	DS-3
Depth	0-2	4-6	6-8	6-8' Dup	0-2	4-6	6-8	8-10	2-4	6-8	6-8 Dup	10-12
Sample ID	RP-47	RP-48	RP-49	RP-50	RP-51	RP-52	RP-53	RP-54	RP-56	RP-57	RP-58	RP-59
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	1.2	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Acenaphthylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(a)anthracene	0.37	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(b)fluoranthene	0.89	ND(0.33)	ND(0.33)	ND(0.33)	0.82	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(k)fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(ghi)perylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(a)pyrene	0.35	ND(0.33)	ND(0.33)	ND(0.33)	0.91	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis(2-ethylhexyl) phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Butyl benzyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Chrysene	0.51	ND(0.33)	ND(0.33)	ND(0.33)	0.84	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Dibenzo (a,h) anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-butyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-octyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluoranthene	0.63	ND(0.33)	ND(0.33)	ND(0.33)	3.0	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluorene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Indeno(1,2,3-cd) pyrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Naphthalene	0.43	ND(0.33)	ND(0.33)	ND(0.33)	7.8	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
**N-Nitrosodiphenylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenanthrene	0.75	ND(0.33)	ND(0.33)	ND(0.33)	5.9	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Pyrene	0.63	ND(0.33)	ND(0.33)	ND(0.33)	2.2	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Acid Compounds												
2-Chlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dimethylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B=analyte present in method blank
S=results due to secondary dilution
E=estimated value; reported by lab
ND=not detected; Target Detection Limit
J=value is an estimated quantity for detected analytes
*Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-4	DS-4	DS-4	DS-4	DS-5	DS-5	DS-5	DS-5	DS-6	DS-6	DS-6	DS-6
Depth	0-2	2-4	4-6	6-8	0-2	2-4	4-6	8-10	0-2	2-4	4-6	6-8
Sample ID	RP-42	RP-43	RP-45	RP-44	RP-38	RP-39	RP-40	RP-41	RP-33	RP-34	RP-35	RP-36
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Acenaphthylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Anthracene	ND(0.33)	0.33	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(a)anthracene	ND(0.33)	1.4	ND(0.33)	ND(0.33)	0.78	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(b)fluoranthene	ND(0.33)	11	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(k)fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	1.0	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(ghi)perylene	ND(0.33)	3.3	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(a)pyrene	ND(0.33)	6.2	ND(0.33)	ND(0.33)	0.52	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis(2-ethylhexyl) phthalate	ND(0.33)	ND(0.33)	ND(0.82)	ND(0.33)	ND(0.48)	ND(0.44)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Butyl benzyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Chrysene	ND(0.33)	3.1	ND(0.33)	ND(0.33)	0.66	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Dibenzo (a,h) anthracene	ND(0.33)	1.1	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-butyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-octyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluoranthene	ND(0.33)	1.0	ND(0.33)	ND(0.33)	0.94	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluorene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Indeno(1,2,3-cd) pyrene	ND(0.33)	3.1	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Naphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.84	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
**N-Nitrosodiphenylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenanthrene	ND(0.33)	0.35	ND(0.33)	ND(0.33)	1.9	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Pyrene	ND(0.33)	1.6	ND(0.33)	ND(0.33)	0.91	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Acid Compounds												
2-Chlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dimethylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B=analyte present in method blank
S=results due to secondary dilution
E=estimated value; reported by lab
ND=not detected; Target Detection Limit
J=value is an estimated quantity for detected analytes
*Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-7	DS-7	DS-7	DS-7	DS-8	DS-8	DS-8	DS-9	DS-9	DS-9	DS-9	DS-10
Depth	0-2	2-4	6-8	8-10	0-2	4-6	8-10	0-2	2-4	4-6	8-10	0-2
Sample ID	RP-29	RP-30	RP-31	RP-32	RP-22	RP-23	RP-24	RP-25	RP-26	RP-27	RP-28	RP-18
Date Sampled	5/14/93	5/14/93	5/14/93	5/14/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Acenaphthylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(a)anthracene	0.36	ND(0.33)	ND(0.33)	ND(0.33)	0.63	ND(0.33)	ND(0.33)	2.6	ND(0.33)	ND(0.33)	ND(0.33)	1.2
Benzo(b)fluoranthene	0.75	ND(0.33)	ND(0.33)	ND(0.33)	1.2	ND(0.33)	ND(0.33)	5.1	ND(0.33)	ND(0.33)	ND(0.33)	2.5
Benzo(k)fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(ghi)perylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	2.1	ND(0.33)	ND(0.33)	ND(0.33)	0.42
Benzo(a)pyrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	2.7	ND(0.33)	ND(0.33)	ND(0.33)	0.78
Bis(2-ethylhexyl) phthalate	ND(1.7)	ND(0.33)	ND(0.33)	ND(0.33)	ND(2.4)	5.2	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Butyl benzyl phthalate	2.1	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Chrysene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.86	ND(0.33)	ND(0.33)	2.4	ND(0.33)	ND(0.33)	ND(0.33)	1.3
Dibenzo (a,h) anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-butyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-octyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluoranthene	0.49	ND(0.33)	ND(0.33)	ND(0.33)	0.98	ND(0.33)	ND(0.33)	5.0	ND(0.33)	ND(0.33)	ND(0.33)	2.2
Fluorene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Indeno(1,2,3-cd) pyrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	2.1	ND(0.33)	ND(0.33)	ND(0.33)	0.41
Naphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.53	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	2.6
**N-Nitrosodiphenylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenanthrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	1.0	ND(0.33)	ND(0.33)	4.1	ND(0.33)	ND(0.33)	ND(0.33)	3.7
Pyrene	0.47	ND(0.33)	ND(0.33)	ND(0.33)	1.0	ND(0.33)	ND(0.33)	4.8	ND(0.33)	ND(0.33)	ND(0.33)	1.7
Acid Compounds												
2-Chlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dimethylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B=analyte present in method blank
S=results due to secondary dilution
E=estimated value; reported by lab
ND=not detected; Target Detection Limit
J=value is an estimated quantity for detected analytes
*Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-10	DS-10	DS-10	DS-11	DS-11	DS-11	DS-11	DS-12	DS-12	DS-12	DS-12	DS-13
Depth	2-4	4-6	4-6 DUP	0-2	2-4	6-8	8-10	0-2	4-6	4-6 DUP	18-20	0-2
Sample ID	RP-19	RP-20	RP-21	RP-05	RP-06	RP-07	RP-08	RP-10	RP-11	RP-12	RP-13	RP-14
Date Sampled	5/13/93	5/13/93	5/13/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Acenaphthylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Anthracene	ND(0.33)	ND(0.33)	ND(0.33)	0.55	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Benzo(a)anthracene	ND(0.33)	ND(0.33)	ND(0.33)	1.9	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Benzo(b)fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	3.5	0.41	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Benzo(k)fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Benzo(ghi)perylene	ND(0.33)	ND(0.33)	ND(0.33)	0.98	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Benzo(a)pyrene	ND(0.33)	ND(0.33)	ND(0.33)	1.3	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Bis(2-ethylhexyl) phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.44)	ND(0.85)	ND(0.33)	130	11.0 J	ND(2.0)	ND(0.33)	ND(1.6)*
Butyl benzyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Chrysene	ND(0.33)	ND(0.33)	ND(0.33)	1.9	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Dibenzo (a,h) anthracene	ND(0.33)	ND(0.33)	ND(0.33)	0.38	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Di-n-butyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	0.4	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Di-n-octyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	6.6	0.35	ND(0.33)	ND(0.33)	ND(1.6)*
Fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	3.6	0.36	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	1.7
Fluorene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Indeno(1,2,3-cd) pyrene	ND(0.33)	ND(0.33)	ND(0.33)	1.4	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Naphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	11.0
**N-Nitrosodiphenylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Phenanthrene	ND(0.33)	ND(0.33)	ND(0.33)	2.9	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	8.4
Pyrene	ND(0.33)	ND(0.33)	ND(0.33)	3.8	0.33	ND(0.33)	ND(0.33)	ND(3.3)	0.36	ND(0.33)	ND(0.33)	ND(1.6)*
Acid Compounds												
2-Chlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
2,4-Dimethylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*
Phenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)*

B=analyte present in method blank
S=results due to secondary dilution
E=estimated value; reported by lab
ND=not detected; Target Detection Limit
J=value is an estimated quantity for detected analytes
*Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-13	DS-13	DS-14	DS-14	DS-14	DS-14	US-1	US-1	US-2	US-2	US-2	US-3
Depth	2-4	4-6	0-2	2-4	4-6	8-10	14-16	20-22	0-2	14-16	20-22	2-4
Sample ID	RP-15	RP-16	RP-01	RP-02	RP-03	RP-04	RP-60	RP-61	RP-63	RP-64	RP-65	RP-65A
Date Sampled	5/13/93	5/13/93	5/11/93	5/11/93	5/11/93	5/11/93	5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/19/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	8.0
Acenaphthylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Benzo(a)anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Benzo(b)fluoranthene	ND(0.33)	ND(0.33)	0.44	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Benzo(k)fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Benzo(ghi)perylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Benzo(a)pyrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Bis(2-ethylhexyl) phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Butyl benzyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Chrysene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Dibenzo (a,h) anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Di-n-butyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Di-n-octyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Fluorene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	14.0
Indeno(1,2,3-cd) pyrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Naphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	36.0	ND(0.33)	ND(0.33)	40.0	ND(0.33)	35.0
**N-Nitrosodiphenylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	14.0
Phenanthrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	12	ND(0.33)	ND(0.33)	11	ND(0.33)	46
Pyrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Acid Compounds												
2-Chlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
2,4-Dimethylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*
Phenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)*

B=analyte present in method blank
S=results due to secondary dilution
E=estimated value; reported by lab
ND=not detected; Target Detection Limit
J=value is an estimated quantity for detected analytes
*Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	US-3	US-3	US-4	US-4	US-5	US-5	US-6	US-6	CT-1	CT-1	CT-1	CT-2
Depth	8-10	8-10 Dup	2-4	10-12	8-10	14-16	4-6	14-16	0-2	2-4	8-10	0-2
Sample ID	RP-66	RP-67	RP-68	RP-69	RP-70	RP-71	RP-72	RP-73	TB-74	TB-75	TB-76	TB-84
Date Sampled	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/20/93	5/20/93	5/20/93	5/20/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Acenaphthylene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Anthracene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(a)anthracene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(b)fluoranthene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(k)fluoranthene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(ghi)perylene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(a)pyrene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis(2-ethylhexyl) phthalate	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	8.6	4.0	ND(0.33)	ND(0.33)	ND(1.2)
Butyl benzyl phthalate	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Chrysene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Dibenzo (a,h) anthracene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-butyl phthalate	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-octyl phthalate	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluoranthene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	0.5	ND(0.33)	ND(0.33)	ND(0.33)
Fluorene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Indeno(1,2,3-cd) pyrene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Naphthalene	4.8	3.6	37.0	1.1	34.0	ND(0.33)	8.1	ND(0.33)	1.0	ND(0.33)	ND(0.33)	0.93
**N-Nitrosodiphenylamine	7.2 J	2.1 J	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenanthrene	6.1	4.5	19	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	0.54	ND(0.33)	ND(0.33)	0.44
Pyrene	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	0.66	ND(0.33)	ND(0.33)	ND(0.33)
Acid Compounds												
2-Chlorophenol	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	1.6	0.66	ND(0.33)	ND(0.33)
2,4-Dimethylphenol	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	1.4	0.61	0.58	0.85
Phenol	ND(3.3)	ND(1.6)*	ND(6.6)*	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	2.0	ND(0.33)	ND(0.33)	0.74

B=analyte present in method blank
S=results due to secondary dilution
E=estimated value; reported by lab
ND=not detected; Target Detection Limit
J=value is an estimated quantity for detected analytes
*Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	CT-2	CT-2	CT-3	CT-3	CT-3	CT-3	DD-1	DD-1	DD-1	DD-2	DD-2	DD-2
Depth	2-4	8-10	0-2	4-6	16-18	16-18 Dup	0-2	4-6	2-4	0-2	2-4	4-6
Sample ID	TB-78	TB-79	TB-80	TB-81	TB-82	TB-83	TB-88	TB-90	TB-89	TB-85	TB-86	TB-87
Date Sampled	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Acenaphthylene	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Anthracene	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Benzo(a)anthracene	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	0.72	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Benzo(b)fluoranthene	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	0.9	ND(0.33)	ND(0.33)	6.2	ND(0.33)	ND(0.33)
Benzo(k)fluoranthene	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Benzo(ghi)perylene	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	3.5	ND(0.33)	ND(0.33)
Benzo(a)pyrene	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	0.46	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Bis(2-ethylhexyl) phthalate	ND(0.33)	ND(0.33)	ND(1.6)*	ND(1.0)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Butyl benzyl phthalate	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Chrysene	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	0.77	ND(0.33)	ND(0.33)	4.4	ND(0.33)	ND(0.33)
Dibenzo (a,h) anthracene	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Di-n-butyl phthalate	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Di-n-octyl phthalate	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Fluoranthene	ND(0.33)	ND(0.33)	1.7	ND(0.33)	ND(0.33)	ND(0.33)	1.1	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Fluorene	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Indeno(1,2,3-cd) pyrene	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Naphthalene	ND(0.33)	ND(0.33)	2.3	ND(0.33)	ND(0.33)	ND(0.33)	0.68	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
**N-Nitrosodiphenylamine	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Phenanthrene	ND(0.33)	ND(0.33)	2.3	ND(0.33)	ND(0.33)	ND(0.33)	0.53	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Pyrene	ND(0.33)	ND(0.33)	1.6	ND(0.33)	ND(0.33)	ND(0.33)	1.0	ND(0.33)	ND(0.33)	4.2	ND(0.33)	ND(0.33)
Acid Compounds												
2-Chlorophenol	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
2,4-Dimethylphenol	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Phenol	ND(0.33)	ND(0.33)	ND(1.6)*	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)

B=analyte present in method blank
S=results due to secondary dilution
E=estimated value; reported by lab
ND=not detected; Target Detection Limit
J=value is an estimated quantity for detected analytes
*Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOCs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DD-3	DD-3	DD-3	DD-3	DD-4	DD-4	DD-4	DD-4	DD-5	DD-5	DD-5
Depth	0-2	0-2 Dup	4-6	6-8	0-2	4-6	6-8	6-8 Dup	0-2	6-8	8-10
Sample ID	TB-91	TB-100	TB-92	TB-93	TB-96	TB-95	TB-94	TB-101	TB-98	TB-97	TB-99
Date Sampled	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/26/93	5/26/93	5/26/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter											
Base Neutral Compounds											
Acenaphthene	ND(2.5)	2.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Acenaphthylene	ND(2.5)	7.5 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.4	ND(0.33)	ND(0.33)
Anthracene	3.3 J	11.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.65	ND(0.33)	ND(0.33)
Benzo(a)anthracene	7.6 J	32.0 EJ	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	2.2	ND(0.33)	ND(0.33)
Benzo(b)fluoranthene	13 J	65.0 EJ	ND(0.33)	ND(0.33)	0.58	ND(0.33)	ND(0.33)	ND(0.33)	4	ND(0.33)	ND(0.33)
Benzo(k)fluoranthene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(ghi)perylene	ND(2.5)	16.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	1.2	ND(0.33)	ND(0.33)
Benzo(a)pyrene	4.9 J	22.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	1.7	ND(0.33)	ND(0.33)
Bis(2-ethylhexyl) phthalate	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.49)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Butyl benzyl phthalate	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Chrysene	9.5 J	41.0 EJ	ND(0.33)	ND(0.33)	0.41	ND(0.33)	ND(0.33)	ND(0.33)	2.6	ND(0.33)	ND(0.33)
Dibenzo (a,h) anthracene	ND(2.5)	11.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.96	ND(0.33)	ND(0.33)
Di-n-butyl phthalate	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-octyl phthalate	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluoranthene	11 J	44.0 EJ	ND(0.33)	ND(0.33)	0.36	ND(0.33)	ND(0.33)	ND(0.33)	3.5	ND(0.33)	ND(0.33)
Fluorene	ND(2.5)	2.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Indeno(1,2,3-cd) pyrene	ND(2.5)	12.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.81	ND(0.33)	ND(0.33)
Naphthalene	ND(2.5)	3.0 J	ND(0.33)	ND(0.33)	0.54	ND(0.33)	ND(0.33)	ND(0.33)	1.3	ND(0.33)	ND(0.33)
**N-Nitrosodiphenylamine	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenanthrene	3.4 J	13.0 J	ND(0.33)	ND(0.33)	0.48	ND(0.33)	ND(0.33)	ND(0.33)	2.2	ND(0.33)	ND(0.33)
Pyrene	11.0 J	50.0 EJ	ND(0.33)	ND(0.33)	0.45	ND(0.33)	ND(0.33)	ND(0.33)	3.5	ND(0.33)	ND(0.33)
Acid Compounds											
2-Chlorophenol	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dimethylphenol	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenol	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B=analyte present in method blank
S=results due to secondary dilution
E=estimated value; reported by lab
ND=not detected; Target Detection Limit
J=value is an estimated quantity for detected analytes
*Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF PESTICIDES/PCBs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	*DS-1*	*DS-1*	*DS-1*	*DS-1*	*DS-2*	*DS-2*	*DS-2*	*DS-2*	*DS-3*	*DS-3*	*DS-3*	*DS-3*
Depth	*0-2*	*4-6*	*6-8*	*6-8' Dup*	*0-2*	*4-6*	*6-8*	*8-10*	*2-4*	*6-8*	*6-8 Dup*	*10-12*
Sample ID	*RP-47*	*RP-48*	*RP-49*	*RP-50*	*RP-51*	*RP-52*	*RP-53*	*RP-54*	*RP-56*	*RP-57*	*RP-58*	*RP-59*
Date Sampled	*5/17/93*	*5/17/93*	*5/17/93*	*5/17/93*	*5/17/93*	*5/17/93*	*5/17/93*	*5/17/93*	*5/17/93*	*5/17/93*	*5/17/93*	*5/17/93*
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
alpha-Chlordane	36	ND(1.7)	ND(1.7)	ND(1.7)	9100	36	ND(1.7)	4.2	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
gamma-Chlordane	48	ND(1.7)	ND(1.7)	ND(1.7)	9800	41	ND(1.7)	5.1	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
4,4'-DDD	47	ND(3.3)	ND(3.3)	ND(3.3)	6300	26	ND(3.3)	ND(3.3)	ND(3.3) UJ	ND(3.3)	ND(3.3)	ND(3.3)
4,4'-DDE	ND(40)*	ND(3.3)	ND(3.3)	ND(3.3)	2600	13.0	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
4,4'-DDT	ND(79)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,200)*	ND(4.1)*	ND(3.3)	ND(3.3)	ND(3.3) UJ	ND(3.3)	ND(3.3)	ND(3.3)
Dieldrin	ND(13)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,200)*	ND(17)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Endrin	ND(13)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,200)*	ND(17)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
PCB-1254	ND(330)*	ND(330)	ND(330)	ND(330)	ND(12,000)*	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)

S = results due to secondary dilution
E = estimated value as reported by lab
B = analyte present in method blank
J = value is an estimated quantity for detected analytes
R = data was unusable for non-detected analytes
UJ = analyte was not detected; value is an estimate
ND = not detected; Target Detection Limit

*Detection limits raised due to matrix interference

SUMMARY OF PESTICIDES/PCBs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	*DS-4*	*DS-4*	*DS-4*	*DS-4*	*DS-5*	*DS-5*	*DS-5*	*DS-5*	*DS-6*	*DS-6*	*DS-6*	*DS-6*
Depth	*0-2*	*2-4*	*4-6*	*6-8*	*0-2*	*2-4*	*4-6*	*8-10*	*0-2*	*2-4*	*4-6*	*6-8*
Sample ID	*RP-42*	*RP-43*	*RP-45*	*RP-44*	*RP-38*	*RP-39*	*RP-40*	*RP-41*	*RP-33*	*RP-34*	*RP-35*	*RP-36*
Date Sampled	*5/17/93*	*5/17/93*	*5/17/93*	*5/17/93*	*5/14/93*	*5/14/93*	*5/14/93*	*5/14/93*	*5/14/93*	*5/14/93*	*5/14/93*	*5/14/93*
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
alpha-Chlordane	17	6.8	38	ND(1.7)	350	ND(1.7)	25	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
gamma-Chlordane	22	9.1	44	ND(1.7)	440	5.6	30	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
4,4'-DDD	40	28	110	ND(3.3)	100	ND(3.3)	ND(33)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
4,4'-DDE	11	17	25	ND(3.3)	120	ND(3.3)	ND(33)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
4,4'-DDT	24	ND(12)*	24	ND(3.3)	ND(66)*	ND(3.3)	ND(33)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Dieldrin	ND(6.6)*	ND(3.3)	ND(13)	ND(3.3)	ND(66)*	ND(3.3)	ND(33)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Endrin	7.0	ND(3.3)	ND(13)	ND(3.3)	ND(66)*	ND(3.3)	ND(33)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
PCB-1254	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)*	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)

S = results due to secondary dilution
E = estimated value as reported by lab
B = analyte present in method blank
J = value is an estimated quantity for detected analytes
R = data was unusable for non-detected analyte:
UJ = analyte was not detected; value is an estim:
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*Detection limits raised due to matrix interferenc

SUMMARY OF PESTICIDES/PCBs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-7	DS-7	DS-7	DS-7	DS-8	DS-8	DS-8	DS-9	DS-9	DS-9	DS-9	DS-10
Depth	0-2	2-4	6-8	8-10	0-2	4-6	8-10	0-2	2-4	4-6	8-10	0-2
Sample ID	RP-29	RP-30	RP-31	RP-32	RP-22	RP-23	RP-24	RP-25	RP-26	RP-27	RP-28	RP-18
Date Sampled	5/14/93	5/14/93	5/14/93	5/14/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
alpha-Chlordane	390	ND(1.7)	ND(1.7)	ND(1.7)	ND(40)*	ND(23)*	ND(1.7)	ND(68)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)*
gamma-Chlordane	450	ND(1.7)	ND(1.7)	ND(1.7)	ND(62)*	ND(32)*	ND(1.7)	ND(68)*	ND(2.1)	ND(2.7)*	ND(1.7)	ND(17)*
4,4'-DDD	ND(210)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(140)*	ND(33)*	ND(3.3)	ND(220)*	ND(6.0)*	7	ND(3.3)	ND(33)*
4,4'-DDE	ND(170)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(300)*	ND(69)*	ND(3.3)	ND(310)*	7.1	ND(9.4)*	ND(3.3)	ND(25)*
4,4'-DDT	ND(170)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(460)*	ND(72)*	ND(3.3)	ND(800)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*
Dieldrin	270	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(33)*	ND(3.3)	ND(130)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*
Endrin	ND(170)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(33)*	ND(3.3)	ND(130)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*
PCB-1254	ND(1,700)*	ND(330)	ND(330)	ND(330)	10,000 E	ND(330)	ND(330)	13,000 E	ND(330)	ND(330)	ND(330)	ND(330)

S = results due to secondary dilution
E = estimated value as reported by lab
B = analyte present in method blank
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UJ = analyte was not detected; value is an estim:
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SUMMARY OF PESTICIDES/PCBs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-10	DS-10	DS-10	DS-11	DS-11	DS-11	DS-11	DS-12	DS-12	DS-12	DS-12	DS-13
Depth	2-4	4-6	4-6 DUP	0-2	2-4	6-8	8-10	0-2	4-6	4-6 DUP	18-20	0-2
Sample ID	RP-19	RP-20	RP-21	RP-05	RP-06	RP-07	RP-08	RP-10	RP-11	RP-12	RP-13	RP-14
Date Sampled	5/13/93	5/13/93	5/13/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/13/93
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
alpha-Chlordane	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)*	ND(2.2)	ND(1.7)	ND(1.7)	ND(38)*	ND(34)*	ND(3.9)*	ND(1.7)	ND(17)*
gamma-Chlordane	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(73)*	ND(34)*	ND(7.3)*	ND(1.7)	ND(17)*
4,4'-DDD	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	11.0	ND(3.3)	ND(3.3)	490 S	520 J	120 J	ND(3.3)	ND(33)*
4,4'-DDE	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(7.7)*	ND(3.3)	ND(3.3)	ND(230)*	ND(66)*	ND(33)*	ND(3.3)	ND(41)*
4,4'-DDT	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(110)*	ND(130)*	ND(47)*	ND(3.3)	ND(120)*
Dieldrin	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(66)*	ND(33)*	ND(3.3)	ND(33)*
Endrin	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(66)*	ND(3.3)	ND(3.3)	ND(33)*
PCB-1254	ND(330)	ND(330)	ND(330)	ND(660)*	ND(330)	ND(330)	ND(330)	ND(660)*	ND(660)*	ND(330)	ND(330)	ND(330)

S = results due to secondary dilution
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SUMMARY OF PESTICIDES/PCBs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-13	DS-13	DS-14	DS-14	DS-14	DS-14	US-1	US-1	US-2	US-2	US-2	US-3
Depth	2-4	4-6	0-2	2-4	4-6	8-10	14-16	20-22	0-2	14-16	20-22	2-4
Sample ID	RP-15	RP-16	RP-01	RP-02	RP-03	RP-04	RP-60	RP-61	RP-63	RP-64	RP-65	RP-65A
Date Sampled	5/13/93	5/13/93	5/11/93	5/11/93	5/11/93	5/11/93	5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/19/93
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
alpha-Chlordane	ND(1.7)	ND(1.7)	ND(1.9)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
gamma-Chlordane	ND(1.7)	ND(1.7)	ND(4.9)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
4,4'-DDD	ND(3.3)	ND(3.3)	ND(3.3)	ND(4.5)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
4,4'-DDE	ND(3.3)	ND(3.3)	ND(33)*	14	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
4,4'-DDT	ND(3.3)	ND(3.3)	ND(48)*	ND(11.0)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Dieldrin	ND(3.3)	ND(3.3)	ND(6.1)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Endrin	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
PCB-1254	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)

S = results due to secondary dilution
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SUMMARY OF PESTICIDES/PCBs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	*US-3*	*US-3*	*US-4*	*US-4*	*US-5*	*US-5*	*US-6*	*US-6*	*CT-1*	*CT-1*	*CT-1*	*CT-2*
Depth	*8-10*	*8-10 Dup*	*2-4*	*10-12*	*8-10*	*14-16*	*4-6*	*14-16*	*0-2*	*2-4*	*8-10*	*0-2*
Sample ID	*RP-66*	*RP-67*	*RP-68*	*RP-69*	*RP-70*	*RP-71*	*RP-72*	*RP-73*	*TB-74*	*TB-75*	*TB-76*	*TB-84*
Date Sampled	*5/19/93*	*5/19/93*	*5/19/93*	*5/19/93*	*5/19/93*	*5/19/93*	*5/19/93*	*5/19/93*	*5/20/93*	*5/20/93*	*5/20/93*	*5/20/93*
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
alpha-Chlordane	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(680)*	ND(8.5)*	ND(1.7)	ND(26.0)*
gamma-Chlordane	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	1900	ND(8.5)*	ND(1.7)	ND(26.0)*
4,4'-DDD	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,100)*	ND(17.0)*	ND(3.3)	ND(110.0)*
4,4'-DDE	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(32,000)*	ND(180.0)*	ND(3.3)	ND(670.0)*
4,4'-DDT	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,100)*	ND(17.0)*	ND(3.3)	ND(50.0)*
Dieldrin	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,100)*	ND(17.0)*	ND(3.3)	ND(50.0)*
Endrin	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,100)*	ND(17.0)*	ND(3.3)	ND(50.0)*
PCB-1254	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	48,000	1,700	ND(330)	2,700

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SUMMARY OF PESTICIDES/PCBs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	CT-2	CT-2	CT-3	CT-3	CT-3	CT-3	DD-1	DD-1	DD-1	DD-2	DD-2	DD-2
Depth	2-4	8-10	0-2	4-6	16-18	16-18 Dup	0-2	2-4	4-6	0-2	2-4	4-6
Sample ID	TB-78	TB-79	TB-80	TB-81	TB-82	TB-83	TB-88	TB-90	TB-89	TB-85	TB-86	TB-87
Date Sampled	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
alpha-Chlordane	46 J	ND(1.7)	4000	78	ND(1.7)	ND(1.7)	ND(26.0)*	ND(26.0)*	ND(1.7)	ND(51,000)*	ND(43.0)*	ND(51.0)*
gamma-Chlordane	67 J	ND(1.7)	5000	100	ND(1.7)	ND(1.7)	ND(26.0)*	ND(26.0)*	ND(1.7)	ND(51,000)*	ND(43.0)*	ND(51.0)*
4,4'-DDD	ND(6.6)UJ	ND(3.3)	ND(6,600)*	160	ND(3.3)	ND(3.3)	ND(50.0)*	ND(50.0)*	ND(3.3)	ND(34E+4)*	ND(83.0)*	ND(99.0)*
4,4'-DDE	ND(45.0)UJ	ND(3.3)	ND(2,200)*	49	ND(3.3)	ND(3.3)	ND(72.0)*	ND(50.0)*	ND(3.3)	ND(99,000)*	ND(180.0)*	ND(99.0)*
4,4'-DDT	ND(6.6)UJ	ND(3.3)	ND(250.0)*	ND(33.0)*	ND(3.3)	ND(3.3)	ND(50.0)*	ND(140.0)*	ND(4.5)*	ND(28E+4)*	ND(87.0)*	ND(99.0)*
Dieldrin	ND(6.6)UJ	ND(3.3)	ND(1,800)*	ND(33.0)*	ND(3.3)	ND(3.3)	ND(50.0)*	ND(96.0)*	ND(3.3)	ND(39E+5)*	ND(83.0)*	ND(330.0)*
Endrin	ND(6.6)	ND(3.3)	ND(250.0)*	ND(33.0)*	ND(3.3)	ND(3.3)	ND(50.0)*	ND(50.0)*	ND(3.3)	ND(99,000)*	ND(83.0)*	ND(99.0)*
PCB-1254	370.0	ND(330)	43,000	ND(330)	ND(330)	ND(330)	6,100	2,200	ND(330)	53E+6 E	20,000 E	8,300

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SUMMARY OF PESTICIDES/PCBs REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DD-3	DD-3	DD-3	DD-3	DD-4	DD-4	DD-4	DD-4	DD-5	DD-5	DD-5
Depth	0-2	0-2 Dup	4-6	6-8	0-2	4-6	6-8	6-8 Dup	0-2	6-8	8-10
Sample ID	TB-91	TB-100	TB-92	TB-93	TB-96	TB-95	TB-94	TB-101	TB-98	TB-97	TB-99
Date Sampled	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/26/93	5/26/93	5/26/93
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter											
alpha-Chlordane	1700 J	580 J	ND(1.7)	ND(1.7)	240	ND(6.0)*	11	11	ND(30.0)*	ND(1.7)	ND(1.7)
gamma-Chlordane	ND(1,700)*	760 J	ND(1.7)	ND(1.7)	ND(310.0)*	ND(7.7)*	ND(13.0)*	ND(16.0)*	ND(41.0)*	ND(1.7)	ND(1.7)
4,4'-DDD	ND(3,300)*	ND(830)*	ND(3.3)	ND(3.3)	ND(50.0)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(44.0)*	ND(3.3)	ND(3.3)
4,4'-DDE	ND(3,300)*	ND(830)*	ND(3.3)	ND(3.3)	ND(50)*	ND(3.3)	ND(3.3)	ND(3.3)	130	ND(3.3)	ND(3.3)
4,4'-DDT	ND(3,300)*	ND(830)*	ND(3.3)	ND(3.3)	ND(50.0)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(200.0)*	ND(3.3)	ND(3.3)
Dieldrin	ND(3,300)*	ND(830)*	ND(3.3)	ND(3.3)	ND(50.0)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(16.0)*	ND(3.3)	ND(3.3)
Endrin	ND(3,300)*	ND(830)*	ND(3.3)	ND(3.3)	ND(50.0)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(16.0)*	ND(3.3)	ND(3.3)
PCB-1254	58,000 J	ND(8,300)*	ND(330)	ND(330)	3,500	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)

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J = value is an estimated quantity for detected analytes
R = data was unusable for non-detected analytes
UJ = analyte was not detected; value is an estimate
ND = not detected; Target Detection Limit

*Detection limits raised due to matrix interference

SUMMARY OF INORGANICS REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-1	DS-1	DS-1	DS-1	DS-2	DS-2	DS-2	DS-2	DS-3	DS-3	DS-3	DS-3
Depth	0-2	4-6	6-8	6-8' Dup	0-2	4-6	6-8	8-10	2-4	6-8	6-8 Dup	10-12
Sample ID	RP-47	RP-48	RP-49	RP-50	RP-51	RP-52	RP-53	RP-54	RP-56	RP-57	RP-58	RP-59
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	ND(0.50) R	6.3 J	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R
Arsenic	13	6.3	3.8	4.3	6.8	3.3	5.0	13	2.5	0.71	0.77	3.2
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	0.11	1.3	0.05	0.06	0.65	0.10	0.30	0.10	0.12	ND(0.05)	ND(0.05)	0.13
Chromium	14	16	10	8.9	26	10	14	16	11	2.5	3.2	11
Copper	70	20	12	14	63	28	16	21	6.5	3.2	5.1	14
Lead	3,100	8.6	4.8	4.2	160	100	7.2	8.4	20	1.5	2.0	4.0
Mercury	0.29	ND(0.10)	ND(0.10)	ND(0.10)	0.25	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
Nickel	15	20	10	9.9	15	6.7	15	17	7.5	3.0	3.4	12
Selenium	1.8	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Silver	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	340	65	43	47	320	150	58	68	52	27	30	47
Cyanide	0.27 J	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	0.8 J	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	0.13 J	ND(0.10)UJ

B=analyte present in method blank
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ND=not detected (Target Detection Limit)
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BARRELS INC.
LANSING, MICHIGAN
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Location	DS-4	DS-4	DS-4	DS-4	DS-5	DS-5	DS-5	DS-5	DS-6	DS-6	DS-6	DS-6
Depth	0-2	2-4	4-6	6-8	0-2	2-4	4-6	8-10	0-2	2-4	4-6	6-8
Sample ID	RP-42	RP-43	RP-45	RP-44	RP-38	RP-39	RP-40	RP-41	RP-33	RP-34	RP-35	RP-36
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	2.1	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50) R	ND(0.50) R	ND(0.50) R
Arsenic	2.7	5.3	22	6.0	11	3.6	4.3	3.8	3.8	2.5	1.7	2.5
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	0.76	0.36	0.12	0.11	0.63	0.08	0.10	0.08	0.17	0.06 J	0.19 J	0.12 J
Chromium	10	17	7.6	18	22	14	20	11	16	6.7	13	18
Copper	11	19	13	21	94	16	17	13	23	6.3	7.8	22
Lead	21	33	4.9	8.5	300	7.6	18	6.5	10	5.9	7.2	9.6
Mercury	4.5	2.5	0.13	ND(0.10)	0.27	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
Nickel	8.9	18	11	19	13	14	17	14	20	5.9	11	22
Selenium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	1.5	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Silver	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	57	78	47	66	270	51	69	54	73	64	62	83
Cyanide	0.13 J	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	0.37	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)	ND(0.10)	ND(0.10)UJ

B=analyte present in method blank
J=value is an estimated quantity for detected analytes
ND=not detected (Target Detection Limit)
R=data was unusable for non detected analytes
S=results due to secondary dilution
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Location	DS-7	DS-7	DS-7	DS-7	DS-8	DS-8	DS-8	DS-9	DS-9	DS-9	DS-9	DS-10
Depth	0-2	2-4	6-8	8-10	0-2	4-6	8-10	0-2	2-4	4-6	8-10	0-2
Sample ID	RP-29	RP-30	RP-31	RP-32	RP-22	RP-23	RP-24	RP-25	RP-26	RP-27	RP-28	RP-18
Date Sampled	5/14/93	5/14/93	5/14/93	5/14/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	2.1 J	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50)	ND(0.50)	ND(0.50)	14	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Arsenic	9.9	4.8	2.0	1.4	8.7	8.4	2.0	18	6.8	4.9	2.6	4.4
Beryllium	1.2	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	3.2 J	0.13 J	0.06 J	0.16 J	0.38	1.4	0.14	15	0.38	0.21	0.13	0.26
Chromium	130	12	14	13	17	27	15	100	20	13	16	5.6
Copper	450	16	7.5	18	25	84	19	1,200	30	17	19	16
Lead	420	7.1	7.4	7.8	58	200	7.3	6,400	23	7.5	9.0	25
Mercury	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	0.23	0.20	ND(0.10)	6.1	0.25	0.11	ND(0.10)	ND(0.10)
Nickel	51	15	12	17	15	26	18	130	18	18	18	5.8
Selenium	0.7	ND(0.50)	ND(0.50)	ND(0.50)	0.57	1.7	ND(0.50)	0.75	ND(0.50)	ND(0.50)	ND(0.50)	0.7
Silver	1.1	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	2.0	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	950	68	65	63	110	370	79	4,100	110	60	82	110
Cyanide	0.16	ND(0.10)	ND(0.10)	ND(0.10)	1.4	0.12	ND(0.10)	0.44	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)

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Location	DS-10	DS-10	DS-10	DS-11	DS-11	DS-11	DS-11	DS-12	DS-12	DS-12	DS-12	DS-13
Depth	2-4	4-6	4-6 DUP	0-2	2-4	6-8	8-10	0-2	4-6	4-6 DUP	18-20	0-2
Sample ID	RP-19	RP-20	RP-21	RP-05	RP-06	RP-07	RP-08	RP-10	RP-11	RP-12	RP-13	RP-14
Date Sampled	5/13/93	5/13/93	5/13/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50)
Arsenic	3.8	5.4	4.3	10	4.3	2.9	4.9	9.8	7.2	6.3	2.3	4.9
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	0.05	0.15	0.14	1.5 J	0.23 J	0.11 J	0.13 J	0.34 J	0.4 J	0.2 J	ND(0.05)UJ	0.34
Chromium	15	20	17	26	14	16	18	15	17	17	4.3	5.3
Copper	15	22	21	180	10	19	20	16	16 J	54 J	7.6	17
Lead	6.5	8.7	11	380	53	7.0	10	12	22	17	3.4	70
Mercury	ND(0.10)	ND(0.10)	ND(0.10)	0.22	ND(0.10)	ND(0.10)	ND(0.10)	0.14	ND(0.10)	0.12	ND(0.10)	ND(0.10)
Nickel	16	19	21	59	13	17	19	14	11	16	5.0	7.7
Selenium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	1.0
Silver	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	49	71	68	1,200	110	64	67	60	78	73	27	100
Cyanide	ND(0.10)	ND(0.10)	ND(0.10)	0.83 J	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10) R	ND(0.10) R	ND(0.10)	ND(0.10)	ND(0.10)

B=analyte present in method blank
J=value is an estimated quantity for detected analytes
ND=not detected (Target Detection Limit)
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Location	DS-13	DS-13	DS-14	DS-14	DS-14	DS-14	US-1	US-1	US-2	US-2	US-2	US-3
Depth	2-4	4-6	0-2	2-4	4-6	8-10	14-16	20-22	0-2	14-16	20-22	2-4
Sample ID	RP-15	RP-16	RP-01	RP-02	RP-03	RP-04	RP-60	RP-61	RP-63	RP-64	RP-65	RP-65A
Date Sampled	5/13/93	5/13/93	5/11/93	5/11/93	5/11/93	5/11/93	5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/19/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	ND(0.50)	ND(0.50)	3.5 J	0.65 J	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Arsenic	2.3	1.7	8.8	3.8	3.3	1.5	1.6	0.82	6.8	0.94	0.60	5.0
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	0.06	0.1	8.8	1.2 J	0.13 J	0.16 J	0.05 J	0.10 J	0.08 J	ND(0.05)UJ	ND(0.05)UJ	0.23
Chromium	9.4	12	53	7.4	19	16	ND(2.50)	3.1	6.1	3.0	ND(2.5)	17
Copper	3.7	7.7	74,000	200	22	18	4.3	5.3	11	3.4	4.0	16.0
Lead	4.8	5.0	520	64	19	7.1	8.9	2.7	5.4	7.8	2.0	24.0
Mercury	ND(0.10)	ND(0.10)	0.11	0.23	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	0.12
Nickel	6.0	9.3	150	31	25	17	2.4	2.8	7.1	2.8	2.4	13
Selenium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Silver	ND(0.50)	ND(0.50)	1.2	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	38	39	7,400	310	120	63	31	26	46	31	26	97
Cyanide	ND(0.10)	ND(0.10)	ND(0.10)	0.17	ND(0.10)	ND(0.10)UJ	0.11	ND(0.10)	ND(0.10) R	ND(0.10)	ND(0.10)	0.17

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BARRELS INC.
LANSING, MICHIGAN
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Location	US-3	US-3	US-4	US-4	US-5	US-5	US-6	US-6	CT-1	CT-1	CT-1	CT-2
Depth	8-10	8-10 Dup	2-4	10-12	8-10	14-16	4-6	14-16	0-2	2-4	8-10	0-2
Sample ID	RP-66	RP-67	RP-68	RP-69	RP-70	RP-71	RP-72	RP-73	TB-74	TB-75	TB-76	TB-84
Date Sampled	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/20/93	5/20/93	5/20/93	5/20/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	1.1 J	ND(0.50) R	ND(0.50) R	1.8 J
Arsenic	6.4	7.4	9.3	5.8	1.2	0.96	3.4	0.91	5.5	5.0	4.4	5.5
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	0.11	0.11	0.37	0.13	ND(0.05)	ND(0.05)	0.14	ND(0.05)	0.69 J	0.39 J	0.11 J	0.43 J
Chromium	20	19	11	20	3.5	3.6	13	3.2	26 J	15 J	11 J	17 J
Copper	19	20	28	22	4.1	6.5	16	5.9	24	18	14	36
Lead	7.6	8.7	160	7.9	4.5	2.2	6.8	2.5	50 J	21 J	5.1 J	100 J
Mercury	ND(0.10)	ND(0.10)	0.44	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	0.55	0.14	ND(0.10)	0.19
Nickel	19	20	8.8	21	3.4	4.0	14	4.0	13 J	12 J	20 J	12 J
Selenium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Silver	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	65	69	260	68	31	37	54	30	87 J	63 J	60 J	130 J
Cyanide	ND(0.10)	ND(0.10)	0.30	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)UJ	0.36 J	0.45 J	ND(0.10)UJ	3.4 J

B=analyte present in method blank
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LANSING, MICHIGAN
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Location	CT-2	CT-2	CT-3	CT-3	CT-3	CT-3	DD-1	DD-1	DD-1	DD-2	DD-2	DD-2
Depth	2-4	8-10	0-2	4-6	16-18	16-18 Dup	0-2	2-4	4-6	0-2	2-4	4-6
Sample ID	TB-78	TB-79	TB-80	TB-81	TB-82	TB-83	TB-88	TB-90	TB-89	TB-85	TB-86	TB-87
Date Sampled	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	3.3 J	ND(0.50) R	ND(0.50) R
Arsenic	3.0	4.0	5.0	5.0	3.3	3.5	6.0	2.8	3.9	14	5.1	3.7
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	0.14 J	0.1 J	0.43 J	0.12 J	0.08 J	ND(0.05)	0.43 J	0.17 J	0.07 J	4.1 J	0.12 J	0.08 J
Chromium	13 J	11 J	56 J	14 J	11 J	15 J	9.2 J	8.5 J	13 J	220 J	14 J	9.3 J
Copper	12	15	100	20	13	16	29	13	12	280	22	13
Lead	30 J	5.5 J	150 J	19 J	4.8 J	5.6 J	82 J	5.8 J	8.1 J	1500 J	10 J	4.9 J
Mercury	0.22 J	ND(0.10)UJ	0.15 J	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	1.0 J	ND(0.10)UJ	ND(0.10)UJ
Nickel	8.9 J	12 J	31 J	14 J	12 J	18 J	10 J	11 J	17 J	53 J	18 J	12 J
Selenium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	0.98	ND(0.50)	ND(0.50)
Silver	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	1.1	ND(0.50)	ND(0.50)
Zinc	68 J	57 J	170 J	70 J	50 J	59 J	210 J	56 J	52 J	2,000 J	67 J	51 J
Cyanide	0.19 J	0.14 J	1.8 J	0.23 J	ND(0.10)UJ	ND(0.10)UJ	0.22	ND(0.10)	ND(0.10)	4.9	ND(0.10)	ND(0.10)

B=analyte present in method blank
J=value is an estimated quantity for detected analytes
ND=not detected (Target Detection Limit)
R=data was unusable for non detected analytes
S=results due to secondary dilution
UJ=analyte was not detected, value is an estimate
Note: *Detection limits raised due to matrix interference

SUMMARY OF INORGANICS REPORTED IN SOIL
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DD-3	DD-3	DD-3	DD-3	DD-4	DD-4	DD-4	DD-4	DD-5	DD-5	DD-5
Depth	0-2	0-2 Dup	4-6	6-8	0-2	4-6	6-8	6-8 Dup	0-2	6-8	8-10
Sample ID	TB-91	TB-100	TB-92	TB-93	TB-96	TB-95	TB-94	TB-101	TB-98	TB-97	TB-99
Date Sampled	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/26/93	5/26/93	5/26/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter											
Antimony	3.7 J	1.4 J	ND(0.50) R	ND(0.50) R	0.64 J	ND(0.50) R	ND(0.50) R	ND(0.50) R	3.1	ND(0.50)	ND(0.50)
Arsenic	7.4	6.9	0.35	2.7	5.8	1.5	2.6	1.9	14	1.2	5.8
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	1.1	0.65	0.10	0.14	1.3	0.23	0.15	0.16	1.6	0.11	0.10
Chromium	43	35 J	8.3 J	12 J	24 J	13 J	11 J	9.3 J	13	13	15
Copper	77	100	14	19	92	20	25	17	170	16	20
Lead	220	200 J	6.2 J	7.9 J	230 J	11 J	33 J	13 J	370	7.4	7.0
Mercury	0.49 J	0.16 J	ND(0.10)	ND(0.10)	0.37	0.10	ND(0.10)	ND(0.10)	4.7	ND(0.10)	ND(0.10)
Nickel	13	16 J	10 J	16 J	21 J	16 J	14 J	12 J	15	13	21
Selenium	ND(0.50)	0.53	ND(0.50)	ND(0.50)	0.61	ND(0.50)	ND(0.50)	ND(0.50)	0.70	ND(0.50)	ND(0.50)
Silver	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	350	460	64	81	550	79	130	82	3,500	61	67
Cyanide	7.7 J	2.3 J	ND(0.10) R	0.11 J	0.57 J	ND(0.10) R	ND(0.10)	ND(0.10)	0.41	ND(0.10)	ND(0.10)

B=analyte present in method blank
J=value is an estimated quantity for detected analytes
ND=not detected (Target Detection Limit)
R=data was unusable for non detected analytes
S=results due to secondary dilution
UJ=analyte was not detected, value is an estimate
Note: *Detection limits raised due to matrix interference

TABLE 5.11

SUMMARY OF COMPOUNDS REPORTED IN GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location	*MW1-47*	*MW2-36*	*MW2-45*	*MW3-33*	*MW3-33Dup*	*MW3-46*	*MW4-34*
Sample ID	*TB-119*	*TB-116*	*TB-117*	*TB-120*	*TB-122*	*TB-121*	*TB-111*
Date Sampled	*6/23*	*6/22*	*6/22*	*6/23*	*6/23*	*6/23*	*6/22*
Priority Pollutant VOCs (mg/L)							
Benzene	ND(0.001)	0.15	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	0.001	0.001	ND(0.001)	ND(0.001)
1,2-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
total-1,2-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Methylene chloride	0.003 BU	0.005 BU	0.004 BU	0.004 BU	0.004 BU	0.004 BU	0.004 BU
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Toluene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,1-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl chloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
o-Xylene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
m-Xylene/p-Xylene	ND(0.002)	0.009	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
total Xylenes	ND(0.003)	0.009	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)
Priority Pollutant SVOCs (mg/L)							
Bis(2-ethylhexyl) phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Priority Pollutant Inorganics (mg/L)							
Arsenic	0.001	0.011	0.001	ND(0.001)	ND(0.001)	ND(0.001)	0.011
Cadmium	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)
Lead	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)
Nickel	ND(0.050)	0.05	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Zinc	0.05	ND(0.020)	0.04	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Cyanide	ND(0.005)	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)	0.018	ND(0.005)	ND(0.005)

TABLE 5.11

SUMMARY OF COMPOUNDS REPORTED IN GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location	*MW1-47*	*MW2-36*	*MW2-45*	*MW3-33*	*MW3-33Dup*	*MW3-46*	*MW4-34*
Sample ID	*TB-119*	*TB-116*	*TB-117*	*TB-120*	*TB-122*	*TB-121*	*TB-111*
Date Sampled	*6/23*	*6/22*	*6/22*	*6/23*	*6/23*	*6/23*	*6/22*
Priority Pollutant Pesticides/PCBs (µg/L)							
Dieldrin	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)
beta-Endosulfan	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)
Endosulfan sulfate	ND(0.01)	ND(0.01)	ND(0.01)	0.028J	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
Endrin	ND(0.01)	ND(0.01)	ND(0.01)	0.021J	ND(0.02)*UJ	ND(0.01)UJ	ND(0.01)UJ
PCB-1254	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.010)

J = value is an estimated quantity for detected analytes
NA = not analyzed
B = analyte present in method blank
U = analyte is a non detect, associated value being the quantitation limit
UJ = analyte was checked but not detected, value is an estimate
ND = not detected; Target Detection Limit
* = Detection limits raised due to matrix interference
S = Secondary Solution

SUMMARY OF COMPOUNDS REPORTED IN GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location	*MW4-50*	*MW5-34*	*MW5-34Dup*	*MW5-50*	*MW6-32*	*MW7-33*
Sample ID	*TB-112*	*TB-108*	*TB-110*	*TB-125*	*TB-105*	*TB-106*
Date Sampled	*6/22*	*6/22*	*6/22*	*6/23*	*6/22*	*6/22*
Priority Pollutant VOCs (mg/L)						
Benzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,2-Dichloroethane	0.001	0.002	0.002	0.012	0.003	ND(0.001)
total-1,2-Dichloroethene	ND(0.001)	0.008	0.007	ND(0.001)	ND(0.001)	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Methylene chloride	0.003 BU	0.005 BU	0.004 BU	0.004 BU	0.006 BU	0.004 BU
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Toluene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,1-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl chloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.007	ND(0.001)
o-Xylene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
m-Xylene/p-Xylene	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
total Xylenes	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)
Priority Pollutant SVOCs (mg/L)						
Bis(2-ethylhexyl) phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Priority Pollutant Inorganics (mg/L)						
Arsenic	0.004	0.004	0.004	ND(0.001)	0.002	0.002
Cadmium	ND(0.0002)	ND(0.0002)	ND(0.0002)	0.0006	0.0004	ND(0.0002)
Lead	ND(0.003)	ND(0.003)	ND(0.003)	0.008	0.009	ND(0.003)
Nickel	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	0.13	0.06
Zinc	9.9	0.05	0.04	21	0.08	ND(0.020)
Cyanide	ND(0.005)UJ	ND(0.005)	ND(0.005)	ND(0.005)	0.01	ND(0.005)

SUMMARY OF COMPOUNDS REPORTED IN GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location Sample ID Date Sampled	*MW4-50* *TB-112* *6/22*	*MW5-34* *TB-108* *6/22*	*MW5-34Dup* *TB-110* *6/22*	*MW5-50* *TB-125* *6/23*	*MW6-32* *TB-105* *6/22*	*MW7-33* *TB-106* *6/22*
Priority Pollutant Pesticides/PCBs (µg/L)						
Dieldrin	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
beta-Endosulfan	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
Endosulfan sulfate	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
Endrin	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
PCB-1254	ND(0.10)	0.73 S	0.35 S	ND (0.01)	ND(0.10)	0.67

J = value is an estimated quantity for detected analytes
NA = not analyzed
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UJ = analyte was checked but not detected, value is an estimate
ND = not detected; Target Detection Limit
* = Detection limits raised due to matrix interference
S = Secondary Solution

TABLE 5.11

SUMMARY OF COMPOUNDS REPORTED IN GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location	*MW7-48*	*MW8-34*	*MW9-33*	*MW9-45*	*Rinsate*	*Rinsate*	*TRIP BLANK*
Sample ID	*TB-107*	*TB-109*	*TB-123*	*TB-124*	*TB-113*	*TB-118*	*TB-127*
Date Sampled	*6/22*	*6/22*	*6/23*	*6/23*	*6/22*	*6/23*	
Priority Pollutant VOCs (mg/L)							
Benzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	ND(0.001)	ND(0.001)	0.001	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,2-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
total-1,2-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Methylene chloride	0.005 BU	0.004 BU	0.003 BU	0.004 BU	0.003 BU	0.003 BU	0.004 BU
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Toluene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,1-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl chloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
o-Xylene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
m-Xylene/p-Xylene	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
total Xylenes	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)
Priority Pollutant SVOCs (mg/L)							
Bis(2-ethylhexyl) phthalate	0.009	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Priority Pollutant Inorganics (mg/L)							
Arsenic	0.001	0.005	0.004	0.006	ND(0.001)	ND(0.001)	NA
Cadmium	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	NA
Lead	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	NA
Nickel	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	NA
Zinc	0.23	ND(0.020)	0.03	ND(0.020)	ND(0.020)	ND(0.020)	NA
Cyanide	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)UJ	ND(0.005)	NA

SUMMARY OF COMPOUNDS REPORTED IN GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location Sample ID Date Sampled	*MW7-48* *TB-107* *6/22*	*MW8-34* *TB-109* *6/22*	*MW9-33* *TB-123* *6/23*	*MW9-45* *TB-124* *6/23*	*Rinsate* *TB-113* *6/22*	*Rinsate* *TB-118* *6/23*	*TRIP BLANK* *TB-127*
Priority Pollutant Pesticides/PCBs (µg/L)							
Dieldrin	ND(0.01)	ND(0.01)	ND(0.01)UJ	0.01 J	ND(0.01)	ND(0.01)	NA
beta-Endosulfan	ND(0.01)	ND(0.01)	ND(0.01)UJ	0.02 J	ND(0.01)	ND(0.01)	NA
Endosulfan sulfate	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.02)UJ	ND(0.01)	ND(0.01)	NA
Endrin	ND(0.01)	ND(0.01)	0.02 J	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
PCB-1254	ND(0.010)	ND(0.010)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)	ND(0.10)	NA

J = value is an estimated quantity for detected analytes
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B = analyte present in method blank
U = analyte is a non detect, associated value being the quantitation limit
UJ = analyte was checked but not detected, value is an estimate
ND = not detected; Target Detection Limit
* = Detection limits raised due to matrix interference
S = Secondary Solution

SUMMARY OF
TCLP WASTE RESIDUAL RESULTS
SUMMARY OF ANALYTES
BARRELS INC.

Parameter	*Units*	*Regulatory Limit*	*BTH -001*	*BTH -002*	*BTH -003*	*BTH -004*	*BTH -005*	*BTH -006*	*BTH -007*	*BTH -008*	*BTH -009*	*BTH -010*
Flashpoint	deg F	140	> 176	> 176	> 176	> 176	> 176	> 176	> 176	> 176	> 176	>200
Corrosivity	S.U.	2 - 12.5	10	9.0	1.0	9.0	9.0	7.9	8.0	7.0	7.0	7.3
Reactive Cyanide	mg/kg	250	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)
Reactive Sulfide	mg/kg	500	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)UJ
TCLP Testing												
Arsenic	mg/L	5.0	ND(0.5)	ND(0.5)	4.1	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.10)
Barium	mg/L	100	2.1	3.2	ND(0.5)	ND(0.5)	1.8	0.57	2.2	0.76	0.84	0.80
Cadmium	mg/L	1.0	ND(0.1)	ND(0.1)	ND(0.1)	3.9	ND(0.1)	ND(0.1)	ND(0.1)	0.16	ND(0.1)	ND(0.005)
Chromium	mg/L	5.0	ND(0.1)	ND(0.1)	25	ND(0.1)	0.15	ND(0.1)	ND(0.1)	0.36	ND(0.1)	ND(0.050)
Lead	mg/L	5.0	ND(0.1)	2.2	16	0.36	0.30	ND(0.1)	0.28	0.50	ND(0.1)	0.07
Mercury	mg/L	0.2	0.023	ND(0.02)	0.81	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	0.0011
Selenium	mg/L	1.0	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.10)
Silver	mg/L	5.0	ND(0.1)	ND(0.1)	0.12	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.10)
Chlorinated Pesticides												
gamma-BHC (Lindane)	mg/L	0.4	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Chlordane	mg/L	0.03	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Endrin	mg/L	0.02	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Heptachlor	mg/L	0.008	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Heptachlor Epoxide	mg/L	0.008	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Methoxychlor	mg/L	10	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Toxaphene	mg/L	0.5	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)

SUMMARY OF
TCLP WASTE RESIDUAL RESULTS
SUMMARY OF ANALYTES
BARRELS INC.

Parameter	*Units*	*Regulatory Limit*	*BTH -001*	*BTH -002*	*BTH -003*	*BTH -004*	*BTH -005*	*BTH -006*	*BTH -007*	*BTH -008*	*BTH -009*	*BTH -010*
Herbicides												
2,4-Dichlorophenoxy-acetic acid	mg/L	10	ND(0.50)	ND(0.50)	ND(0.05)	ND(0.50)	ND(0.05)	ND(0.05)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
2,4,5-TP (Silvex)	mg/L	1.0	ND(0.05)	ND(0.05)	ND(0.01)	ND(0.05)	ND(0.01)	ND(0.01)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Volatiles												
Benzene	mg/L	0.5	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
2-Butanone	mg/L	200	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
Carbon tetrachloride	mg/L	0.5	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Chlorobenzene	mg/L	100	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Chloroform	mg/L	6.0	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dichloroethane	mg/L	0.5	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1-Dichloroethene	mg/L	0.7	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Tetrachloroethene	mg/L	0.7	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Trichloroethene	mg/L	0.5	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Vinyl chloride	mg/L	0.2	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
Base/Neutral Extracables												
1,4-Dichlorobenzene	mg/L	7.5	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
2,4-Dichlorobenzene	mg/L	0.13	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Hexachlorobenzene	mg/L	0.13	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Hexachlorobutadiene	mg/L	0.5	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Hexachloroethane	mg/L	3.0	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Nitrobenzene	mg/L	2.0	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Pyridine	mg/L	5.0	ND(0.260)	ND(0.260)	ND(1.3)	ND(0.260)	ND(0.260)	ND(0.260)	ND(0.260)	ND(0.260)	ND(0.260)	ND(0.260)

SUMMARY OF
TCLP WASTE RESIDUAL RESULTS
SUMMARY OF ANALYTES
BARRELS INC.

Parameter	*Units*	*Regulatory Limit*	*BTH -001*	*BTH -002*	*BTH -003*	*BTH -004*	*BTH -005*	*BTH -006*	*BTH -007*	*BTH -008*	*BTH -009*	*BTH -010*
Acid Extractables												
2-Methylphenol (o-cresol)	mg/L	200	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
3-Methylphenol (m-cresol)	mg/L	200	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.056
4-Methylphenol (p-cresol)	mg/L	200	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.056
Cresol (total)	mg/L	200	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Pentachlorophenol	mg/L	100	ND(0.250)	ND(0.250)	ND(0.50)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)
2,4,5-Trichlorophenol	mg/L	400	ND(0.250)	ND(0.250)	ND(0.50)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)
2,4,6-Trichlorophenol	mg/L	2.0	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)

ND = Not Detect (Target detection limit)

SUMMARY OF PHYSIOCHEMICAL PROPERTIES
BARRELS INC.
LANSING, MICHIGAN

CHEMICAL	MOLECULAR WEIGHT (g/mole)	MELTING POINT (°C)	BOILING POINT (°C)	WATER SOLUBILITY* (mg/L)	VAPOR PRESSURE* (mm Hg)	HENRY'S LAW CONSTANT (atm-m3/mole)	LOG Koc	LOG Kow	FISH BCF (l/kg)
VOCs (1)									
BENZENE	78.11	5.5	80.1	1.75E+03	9.52E+01	5.59E-03	1.92	2.12	5.2
2-BUTANONE	72.1	-86.4	79.6	2.68E+05	7.75E+01	2.74E-05	0.65	0.26	0
CHLOROBENZENE	112.56	-45	132	4.66E+02	1.17E+01	3.72E-03	2.52	2.84	10
1,1-DICHLOROETHANE	98.96	-97.4	57.3	5.50E+03	1.82E+02	4.31E-03	1.48	1.79	–
1,2-DICHLOROETHENE(total)									
cis	96.95	-81	60	3.50E+03	2.08E+02	7.58E-03	1.69	0.70	1.6
trans	96.95	-50	48	6.30E+03	3.24E+02	6.56E-03	1.77	0.48	1.6
ETHYLBENZENE	106.17	-94.97	136.2	1.52E+02	7.00E+00	6.43E-03	3.04	3.15	37.5
TETRACHLOROETHENE	165.83	-22.7	121.4	1.50E+02	1.78E+01	2.59E-02	2.56	2.60	31
TOLUENE	92.1	-95.1	110.8	5.35E+02	2.81E+01	6.37E-03	2.48	2.73	10.7
1,1,1-TRICHLOROETHANE	133.41	-32	74 (5)	1.50E+03	1.23E+02	1.44E-02	2.18	2.50	5.6
TRICHLOROETHENE	131.5	-87	86.7	1.10E+03	5.79E+01	9.10E-03	2.10	2.38	10.6
XYLENES(total)	106.17	-50 to 13	138.4 to 144.4	1.98E+02	1.00E+01	7.04E-03	2.38	3.26	–

Notes: NA - Not Applicable
-- - Data not available
* - Values are given for a temperature range of 20-30° C, except where otherwise specified.

References: (1) All VOC data (except where otherwise specified): Molecular weight, melting point and boiling point from Handbook of Environmental Data on Organic Chemicals, 2nd Ed., 1983.
Other values taken from USEPA Superfund Public Health Evaluation Manual, October 1986.
(5) Taken from Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd Ed., 1986.

SUMMARY OF PHYSIOCHEMICAL PROPERTIES
BARRELS INC.
LANSING, MICHIGAN

CHEMICAL	MOLECULAR WEIGHT (g/mole)	MELTING POINT (°C)	BOILING POINT (°C)	WATER SOLUBILITY* (mg/L)	VAPOR PRESSURE* (mm Hg)	HENRY'S LAW CONSTANT (atm-m3/mole)	LOG Koc	LOG Kow	FISH BCF (l/kg)
BNAs (2)									
ACENAPHTHENE	154.21	90-95	279	3.42E+00	1.55E-03	9.20E-05	3.66	4.00	242
ACENAPHTHYLENE	182.18	249-252	--	3.93E+00	2.90E-02	1.48E-03	3.40	3.70	--
ANTHRACENE	178.23	216.2-216.4	340	4.50E-02	1.95E-04	1.02E-03	4.15	4.45	--
BENZO(A)ANTHRACENE	228	162 (8)	--	5.70E-03	2.20E-08	1.16E-06	6.14	5.60	--
BENZO(B)FLUORANTHENE	252	168 (8)	--	1.40E-02	5.00E-07	1.19E-05	5.74	6.06	--
BENZO(K)FLUORANTHENE	252	217 (8)	480 (8)	4.30E-03	5.10E-07	3.94E-05	5.74	6.06	--
BENZO(G,H,I)PERYLENE	276	222 (8)	--	7.00E-04	1.03E-10	5.34E-08	6.20	6.51	--
BENZO(A)PYRENE	252.3	179	311(at 10 mm)	1.20E-03	5.60E-09	1.15E-06	6.74	6.06	--
BIS(2-ETHYLHEXYL)PHTHALATE	391 (7)	-55	385	2.85E-01 (6)	1.20E+00(at 200° C) (6)	--	--	--	--
BUTYL BENZYL PHTHLATE	312.4	<-35	370	2.90E+00 (8)	8.60E-06 (6)	--	--	4.78 (6)	--
2-CHLOROPHENOL	128.56	9 (5)	175.6	2.85E+04 (6)	4.00E+01(at 82° C) (6)	--	--	-2.17 (6)	--
CHRYSENE	228.2	254	488	1.80E-03	6.30E-09	1.05E-06	5.30	5.61	--
DIBENZO(A,H)ANTHRACENE	278.35	266-267	524	5.00E-04	1.00E-10	7.33E-08	6.52	6.80	--
DI-N-BUTYL PHTHALATE	278.34	-35	340	1.30E+01	1.00E-05	2.82E-07	5.23	5.60	--
2,4-DIMETHYLPHENOL	122.16	26	211.5	--	--	1.70E-05 (8)	--	2.42 (8)	--
DI-N-OCTYL PHTHALATE	--	-35	220 (5)	--	--	--	--	--	--

Notes: NA - Not Applicable
-- - Data not available
* - Values are given for a temperature range of 20-30° C, except where otherwise specified.

References: (2) All BNA data (except where otherwise specified): Molecular weight, melting point and boiling point from Handbook of Environmental Data on Organic Chemicals, 2nd Ed., 1983. Other values taken from USEPA Superfund Public Health Evaluation Manual, October 1986.
(5) Taken from Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd Ed., 1985.
(6) Taken from Handbook of Environmental Data on Organic Chemicals, 2nd Ed., 1983.
(7) Taken from USEPA Superfund Public Health Manual, October 1986.
(8) Taken from USEPA Risk Reduction Engineering Laboratory (RREL) Treatability Database, Cincinnati, Ohio.

SUMMARY OF PHYSIOCHEMICAL PROPERTIES
BARRELS INC.
LANSING, MICHIGAN

CHEMICAL	MOLECULAR WEIGHT (g/mole)	MELTING POINT (°C)	BOILING POINT (°C)	WATER SOLUBILITY* (mg/L)	VAPOR PRESSURE* (mm Hg)	HENRY'S LAW CONSTANT (atm-m3/mole)	LOG Koc	LOG Kow	FISH BCF (l/kg)
BNAs CONTINUED (2)									
FLUORANTHENE	202	107	250	2.06E-01	5.00E-06	6.46E-06	4.58	4.90	1150
FLUORENE	166.22 (8)	114.8 (8)	295 (8)	1.69E+00	7.10E-04	6.42E-05	3.86	4.20	1300
INDENO(1,2,3-CD)PYRENE	276.34	160-163	536	5.30E-04	1.00E-10	6.86E-08	6.20	6.50	–
NAPHTHALENE	128.16	80.2	217.9	3.00E+01 (6)	1.00E+00(at 53° C) (6)	–	--	--	–
n-NITROSODIPHENYLAMINE (8)	198.23	66.5	--	3.50E+01	1.00E-01	3.13E+00	--	2.79	
PHENANTHRENE	178.22	100	340	1.00E+00	6.80E-04	1.59E-04	4.15	4.46	2630
PHENOL	94.11	41	182	9.30E+04	3.41E-01	4.54E-07	1.15	1.46	1.4
PYRENE	202.26	149-151	393 (8)	1.32E-01	2.50E-06	5.04E-06	4.58	4.88	–
PESTICIDES/PCBs (3)									
CHLORODANE(ALPHA & GAMMA)	410 (7)	--	--	5.60E-01	1.00E-05	9.63E-06	5.15	3.32	14000
4,4'-DDD	320.1	112	--	1.00E-01	1.89E-06	7.96E-06	5.89	6.20	–
4,4'-DDE	318 (7)	--	--	4.00E-02	6.50E-06	6.80E-05	6.64	7.00	51000
4,4'-DDT	354.5	108	--	5.00E-03	5.50E-06	5.13E-04	5.39	6.19	54000
DIELDRIN	381	176-177	--	1.95E-01	1.78E-07	4.58E-07	3.23	3.50	4760
ENDRIN	380.93 (8)	226-230 (5)	--	--	2.00E-07 (6)	--	--	5.60 (6)	–
PCB 1254	328.4 (8)	365-390 (8)	--	5.70E-02 (8)	7.71E-05 (8)	8.37E-03 (8)	--	6.03 (8)	–

Notes: NA - Not Applicable
-- - Data not available
* - Values are given for a temperature range of 20-30° C, except where otherwise specified.

References: (2) All BNA data (except where otherwise specified): Molecular weight, melting point and boiling point from Handbook of Environmental Data on Organic Chemicals, 2nd Ed., 1983. Other values taken from USEPA Superfund Public Health Evaluation Manual, October 1986.
(3) All Pesticide/PCB data (except where otherwise specified): Molecular weight, melting point and boiling point taken from Handbook of Environmental data on Organic Chemicals, 2nd Ed., 1983. Other values taken from USEPA Superfund Public Health Evaluation Manual, October 1986.
(5) Taken from Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd Ed.,1985.
(6) Taken from Handbook of Environmental Data on Organic Chemicals, 2nd Ed., 1983
(7) Taken from USEPA Superfund Public Health Manual, October 1986.
(8) Taken from USEPA Risk Reduction Engineering Laboratory (RREL) Treatability Database, Cincinnati, Ohio.

SUMMARY OF PHYSIOCHEMICAL PROPERTIES
BARRELS INC.
LANSING, MICHIGAN

CHEMICAL	MOLECULAR WEIGHT (g/mole)	MELTING POINT (°C)	BOILING POINT (°C)	WATER SOLUBILITY* (mg/L)	VAPOR PRESSURE* (mm Hg)	HENRY'S LAW CONSTANT (atm-m3/mole)	LOG Koc	LOG Kow	FISH BCF (l/kg)
METALS (4)									
ANTIMONY	121.75	630	1635	insoluble	--	--	--	--	1
ARSENIC	74.92	615	--	insoluble	--	--	--	--	44
BERYLLIUM	9.01	1287	2970	insoluble	--	--	--	--	19
CADMIUM	112.41	320.9	765	insoluble	--	--	--	--	81
CHROMIUM	52.00	1857	2672	insoluble	--	--	--	--	16
COPPER	63.55	1083	2567	insoluble	--	--	--	--	200
CYANIDE**	27.03	-13.4	25.6	miscible	6.12E+02	--	--	0.35	0
LEAD	207.20	327	1740	insoluble	--	--	--	--	49
MERCURY (INORGANIC)	200.59	-38.87	356.58	5.60E-02	1.20E-03	1.14E-02	--	--	5500
NICKEL	58.69	1455	2730	insoluble	--	--	--	--	47
SILVER	107.87	961.93	2212	insoluble	--	--	--	--	3080
ZINC	65.38	419.58	907	insoluble	--	--	--	--	47

Notes: NA - Not Applicable
-- - Data not available
* - Values are given for a temperature range of 20-30°C, except where otherwise specified.
** - Data for hydrogen cyanide (HCN)

References: (4) All Metal data (except for Fish BCF): Taken from USEPA Risk Reduction Engineering Laboratory (RREL) Treatability Database, Cincinnati, Ohio.
Fish BCF data taken from USEPA Superfund Public Health Manual, October 1986.

APPENDICES

APPENDIX A

PRE-RI MONITORING WELL DETAILS

RECORD OF SUBSURFACE EXPLORATION

Alt & Witzig Engineering, Inc.

Boring B-1

Project Name: Barrels Landfill

Date of Boring: 8-16-82

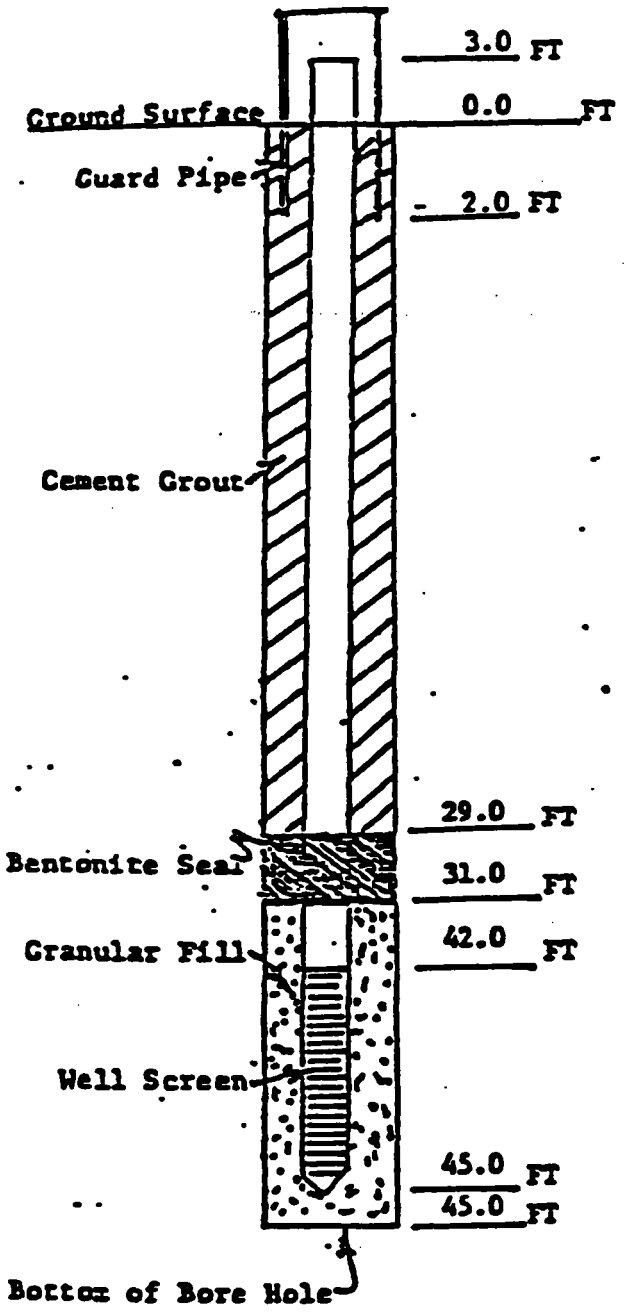
Site: Lansing, Michigan

Project No.: S2080-13

DESCRIPTION	DEPTH	SAMPLE	Blows per 6" Increment	Driller's Remarks
SURFACE Dark Brown to Black Dry SILT with Brick Fragments (Fill)		1SS	4-6-8	
		2SS	9-10-13	
Brown Dry Silty CLAY	5	3SS	10-15-20	
Brown to Gray Moist SAND with some Gravel	10	4SS	14-18-20	
Brown to Gray Moist Fine SAND	15	5SS	9-14-17	
Gray Moist Silty SAND with trace Clay	20	6SS	10-15-15	
	25	7SS	4-10-7	
Gray Moist Fine SAND	30	8SS	8-18-22	
Gray Moist to Wet Fine to Coarse SAND & Gravel	35	9SS	24-20-39	
	40	10SS	7-12-18	On Completion
	45	11SS	9-13-22	
ring terminated at 45.0 feet.				

WELL DIAGRAM

mw1



Project: Barrels Landfill
Lansing, Michigan

Well No: B-1

Time & Date Started: 8-16-82, 4:30 p.m.

Time & Date Completed: 8-17-82, 10:45 a.m.

Driller's Remarks:

Natural cave of sand. 50 lbs. of granular bentonite installed for seal.

Prepared For: Ecology and Enviroment, Inc. Chicago, Illinois		Prepared By: Alt & Witzig Engineering, Inc. Indianapolis, Indiana
PROJECT NAME: Barrels Landfill Lansing, Michigan		PROJECT NO. S2080-13 / DATE 08/82

RECORD OF SUBSURFACE EXPLORATION

Alt & Witzig Engineering, Inc.

Boring B-2

Project Name: Barrels Landfill

Date of Boring: 8-17-82

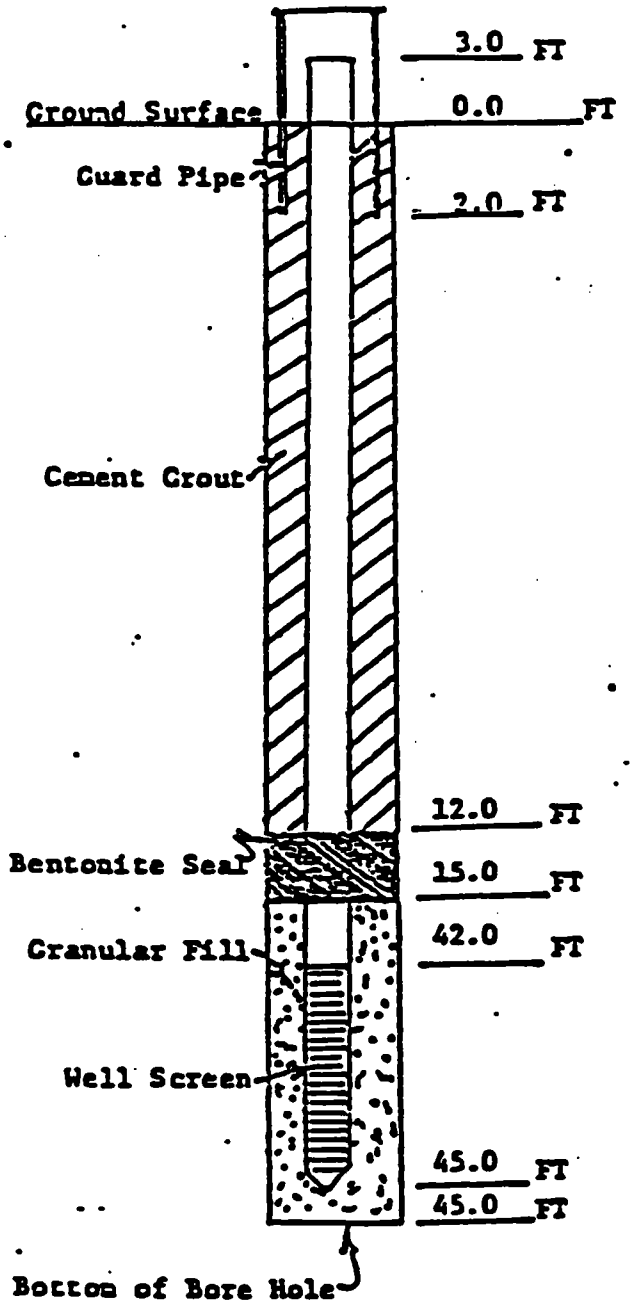
Site: Lansing, Michigan

Project No.: S2080-13

DESCRIPTION	DEPTH	SAMPLE	Blows per 6" Increment	Driller's Remarks
SURFACE				No surface sample taken.
SAND & Gravel Cobbles (Fill)				
Gray Moist Silty CLAY		1SS	4-5-6	
	5	2SS	4-6-9	
	10	3SS	10-18-21	
Gray Moist Fine SAND	15	4SS	13-13-9	
Brown to Gray Clayey SILT with trace Sand & Gravel	20	5SS	28-35-37	
Gray Moist Fine Silty SAND with some Gravel	25	6SS	13-16-27	
Gray Clayey SILT with Sand Seams	30	7SS	10-25-35	
Gray Dry Fine to Coarse SAND and Gravel	35	8SS	26-24-26	
	40	9SS	10-11-15	▽ On Completion
Gray Wet Fine to Coarse SAND and Gravel	45	10SS	13-15-15	
Boring terminated at 45.0 feet.				

MW2

WELL DIAGRAM



Project: Barrels Landfill
Lansing, Michigan

Well No: B-2

Time & Date Started: 8-17-82, 2:15 p.m.

Time & Date Completed: 8-17-82, 3:45 p.m.

Driller's Remarks:

Natural cave of sand to 15 feet. 50 lbs. of granular bentonite installed as seal.

Prepared For: Ecology and Environment, Inc. Chicago, Illinois		Prepared By: Alt & Witzig Engineering, Inc. Indianapolis, Indiana
PROJECT NAME Barrels Landfill Lansing, Michigan		PROJECT NO. S2090-13 / DATE 08/82

RECORD OF SUBSURFACE EXPLORATION

Alt & Witzig Engineering, Inc.

Boring B-3

ct Name: Barrels Landfill — Date of Boring: 8-18-82

Site: Lansing, Michigan — Project No.: S2080-13

DESCRIPTION	DEPTH	SAMPLE	Blows per 6" Increment	Driller's Remarks
SURFACE				No surface sample taken.
Brown SAND & Gravel (Fill)		1SS	7-6-6	
	5	2SS	10-8-7	
Brown Dry Fine SAND	10	3SS	4-10-14	
Brown Moist Silty Sandy CLAY	15	4SS	8-8-12	
rown Moist Fine SAND with trace Gravel	20	5SS	10-11-16	
	25	6SS	9-13-16	
Brown Wet Fine SAND	30	7SS	7-11-13	On Completion
	35	8SS	- 9-13	
Gray Wet Silty CLAY				
Brown Wet Fine SAND	40	9SS	- 2-8	
Gray Clayey SILT with Sand Seams & trace Gravel (Continued)	45	10SS	50/3"	

RECORD OF SUBSURFACE EXPLORATION

Alt & Witzig Engineering, Inc.

Boring B-3 (Page 2)

Project Name: Barrels Landfill

Date of Boring: 8-19-82

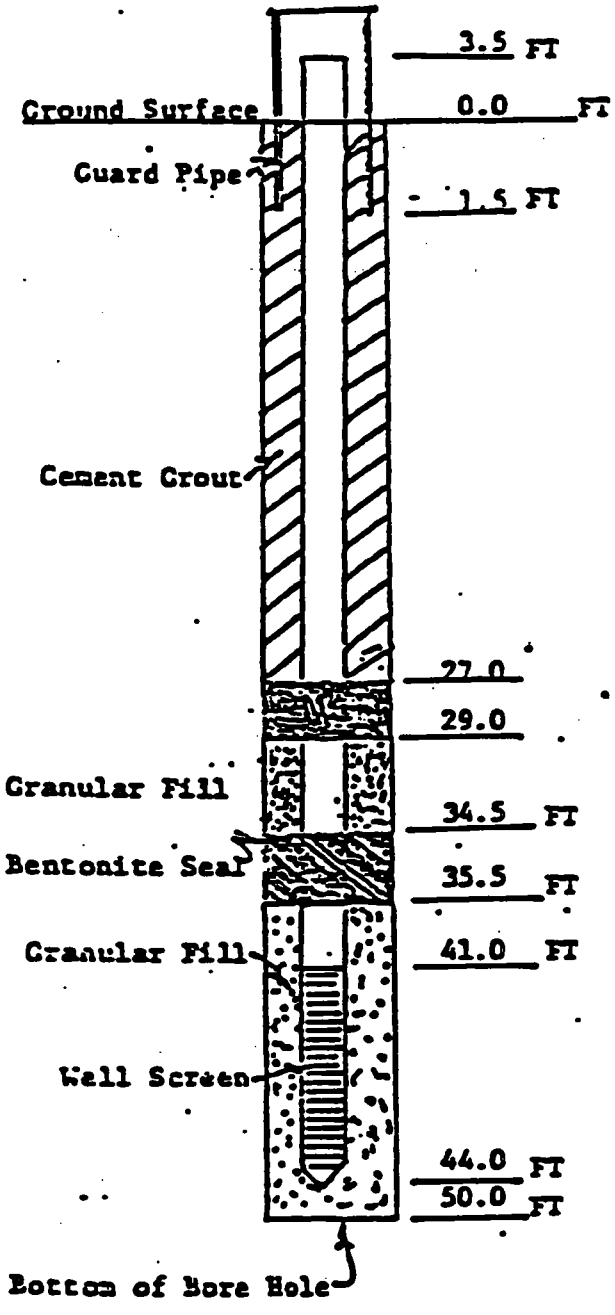
Site: Lansing, Michigan

Project No.: S20S0-13

DESCRIPTION	DEPTH	SAMPLE	Blows per 6" Increment	Driller's Remarks
SURFACE				
Gray Clayey SILT with Sand Seams & trace Gravel		11SS	50/3"	
	50			
Boring terminated at 50.0 feet.				
	55			

WELL DIAGRAM

MW3



Project: Barrels Landfill
Lansing, Michigan

Well No: B-3

Time & Date Started: 8-18-82, 1:45 p.m.

Time & Date Completed: 8-18-82, 4:15 p.m.

Driller's Remarks:

Granular fill is natural sand.
75 lbs. of granular bentonite installed for seal.

Prepared For: Ecology and Environment, Inc. Chicago, Illinois		Prepared By: Alt & Witzig Engineering, Inc. Indianapolis, Indiana
PROJECT NAME Barrels Landfill Lansing, Michigan		PROJECT NO. S2080-13 / DATE 08/82

Environmental Data Inc.

PROJECT NO. 20185

DATE 10/4/82

PERMIT NO. E -4

PROJECT Lansing Iron & Metal Lease

LOCATION Lansing, Michigan

EQUIPMENT Stearns' AD II 8" HSA

TECHNICIAN ELC

BORING NO. 8z-1

SURFACE ELEV.

HOLE PLUGGED WITH annulus from 0-25' plugged with bentonite slurry.

BORING LOCATION

SE¼ of SE¼ of NE¼ Sec. 9
T4N R2W
Lansing Township
Ingham County

BORING DEPTH FEET FROM	TO		NO. BLOWS LAST 12 IN.	NO. BLOWS 3rd 6 IN.	NO. BLOWS 2nd 6 IN.	NO. BLOWS 1st 6 IN.	DEPTH OF TEST
0	2	Topsoil and rubble (Note: surface is about 12-18" below surrounding grade -- excavated). Core 0-2 ft.					
2	4	Clay, brown to grey, silty and sandy (fine to very fine), few pebbles. Heavily stained and mixed with black silty material. Oily odor. Core 2-4 ft.					
4	6	Clay, stiff, plastic, grey with brown mottling. Core 4-6 ft.					
6	8	Sand, very fine to medium, light brown, grading into clay, brown, stiff, silty. Core 6-8 ft.					
8	13	Sand, very fine to medium, light brown, silty; interbedded clay, brown, stiff, silty. Clay at 8 ft is mixed with a dark fine-grained [illegible] material similar to [illegible] Oily odor in upper part. Core 8-10'					
13	18	Clay, brown, very firm, plastic, silty, sandy, few fine					

GROUNDWATER

ENCOUNTERED AT _____ FT.

AFTER COMPLETION _____ FT.

AFTER 22 HRS 41.25 FT.

BORING CAVE IN _____ FT.

Developed with rod pump.

WELL DATA

CASING USED: Screen set between 45 and 48 ft.

TYPE Galvanized

DIAMETER 2"

LENGTH 48'

SCREEN LENGTH & SLOT SIZE 0"x3 7 slo tai

HT. ABOVE GROUND

EDI-4

DATE 10/4/82

PERMIT NO. EDI-4

PROJECT Lansing Iron & Metal Lease

LOCATION Lansing, Michigan

EQUIPMENT Stearns' AD II 8" HSA

TECHNICIAN ELC

BORING NO. 82-1

SURFACE ELEV.

HOLE PLUGGED WITH

BORING LOCATION

BORING DEPTH FEET FROM	TO		NO. BLOWS LAST 12 IN.	NO. BLOWS 3rd 6 IN.	NO. BLOWS 2nd 6 IN.	NO. BLOWS 1st 6 IN.	DEPTH OF TEST
		pebbles. Thin streaks of sand, very fine to medium, silty somewhat clayey. Core 13-15 ft.					
18	24	Clay, grey firm, plastic, silty, somewhat sandy, occasional small pebble. Core 18-20 ft.					
24	30	Sand, medium to coarse, and gravel fine to coarse; interbedded thin lenses of clay, firm, sandy, gravelly. Core 23-25 ft and 28-30 ft.					
30	35	Sand and gravel, sand is medium to coarse and gravel is fine to medium. Core 33-35 ft.					
35	48	Sand and gravel as above, but better sorted and more gravelly. Core 38-40 ft.					

GROUNDWATER

ENCOUNTERED AT _____ FT.

AFTER COMPLETION _____ FT.

AFTER 22 HRS 41.25 FT.

BORING CAVE IN _____ FT.

Developed with rod pump.

WELL DATA

CASING USED: TYPE Galvanized

DIAMETER 2"

LENGTH 48'

SCREEN LENGTH & SLOT SIZE 30"x36"x 7 slot stainless s

HT. ABOVE GROUND _____

PERMIT NO. EDI-5

PROJECT Darrels Inc. - Site Investigation

LOCATION Lansing

EQUIPMENT Stearns Acker 11 8" HSK

TECHNICIAN ELC

TEST HOLE BORING NO. #6 (or Well 82-2)

SURFACE ELEV. -

HOLE PLUGGED WITH Bentonite & Cement

BORING LOCATION

See Location Map

BORING DEPTH FEET FROM	TO		NO. BLOWS LAST 12 IN.	NO. BLOWS 3rd 6 IN.	NO. BLOWS 2nd 6 IN.	NO. BLOWS 1st 6 IN.	DEPTH OF TEST	SAMPLES	T.
0.0	3.0	RUBBLE, borken glass, roots, black							
3.0	7.0	CLAY, brown to dirty brown, sandy					0	2	
7.0	13.5	CLAY, mottled, brown, sandy					2	4	
13.5	17.0	SAND, fine, brown					4	6	
17.0	23.5	SAND, medium to coarse, gravelly					6	8	
		brown to gray					8	10	
23.5	23.8	CLAY, gray					13	[illegible]	
23.8	27.0	SAND, fine, gray					18	20	
27.0	40.0	SAND & gravel					23	25	
40.0	47.0	SAND & gravel, wet					28	30	
							33	35	
		W.L. 43.08' TOC after devel.					38	40	

GROUNDWATER

ENCOUNTERED AT 40 FT.

AFTER COMPLETION 43.08 FT. TOC

AFTER ____ HRS ____ FT.

BORING CAVE IN ____ FT.

WELL DATA

CASING USED: TYPE galvan

DIAMETER 2

LENGTH ____

SCREEN LENGTH & SLOT SIZE 20x

HT. ABOVE GROUND.

SHEET ___ OF ___

Environmental Data Inc.
ENVIRONMENTAL SCIENTISTS/ENGINEERS/GEOLOGISTS/CHEMISTS
911 CASCADE WEST PARKWAY, S.E., P.O. BOX 6010, GRAND RAPIDS, MICHIGAN 49803

CLIENT The Chessie System

PROJECT NO. 20185

DATE 10/4/82

PERMIT NO. ___

PROJECT Lansing Iron & Metal Lease

LOCATION Lansing, Michigan

EQUIPMENT Stearns' AD II 8" HSA

TECHNICIAN ELC

BORING NO. 1

SURFACE ELEV. ___

HOLE PLUGGED WITH ___

BORING LOCATION

BORING DEPTH FEET FROM	TO		NO. BLOWS LAST 12 IN.	NO. BLOWS 3rd 6 IN.	NO. BLOWS 2nd 6 IN.	NO. BLOWS 1st 6 IN.	DEPTH OF TEST
		pebbles. Thin streaks of sand, very fine to medium,					
		silty somewhat clayey. Core 13-15 ft.					
	24	Clay, grey firm, plastic, silty, somewhat sandy, occasional					
		small pebble. Core 18-20 ft.					
24	30	Sand, medium to coarse, and gravel fine to coarse; inter-					
		bedded thin lenses of clay, firm, sandy, gravelly.					
		Core 23-25 ft and 28-30 ft.					
30	35	Sand and gravel, sand is medium to coarse and gravel is fine					
		to medium. Core 33-35 ft.					
35	48	Sand and gravel as above, but better sorted and more					
		gravelly. Core 38-40 ft.					

GROUNDWATER

ENCOUNTERED AT ___ FT.

AFTER COMPLETION ___ FT.

AFTER 22 HRS 41.25 FT.

BORING CAVE IN ___ FT.

Developed with rod pump.

WELL DATA

CASING USED: TYPE Galvanized

DIAMETER 2"

LENGTH 48'

SCREEN LENGTH & SLOT SIZE 30"x36"x2"
7 slot stainless steel

HT. ABOVE GROUND ___

Environmental Data Inc.
ENVIRONMENTAL SCIENTISTS/ENGINEERS/GEOLOGISTS/CHEMISTS
[illegible] CASCADE WEST PARKWAY, S.E., P.O. BOX [illegible], GRAND RAPIDS, MICHIGAN [illegible]

CLIENT The Chessie System

PROJECT NO. 20185

DATE 10/4/82

PERMIT NO. _____

PROJECT Lansing Iron & Metal Lease

LOCATION Lansing, Michigan

EQUIPMENT Stearns' AD II 8" HSA

TECHNICIAN ELC

BORING NO. Test Hole 2

SURFACE ELEV. _____

HOLE PLUGGED WITH natural soils

BORING LOCATION

See location map

BORING DEPTH FEET FROM	TO		DEPTH OF TEST	NO. BLOWS 1st 6 IN.	NO. BLOWS 2nd 6 IN.	NO. BLOWS 3rd 6 IN.	NO. BLOWS LAST 12 IN.
[illegible]	4.0	Topsoil - clayey - black - rubble		Samples taken			
4.0	6.0	Clay - mottled gray to brown, firm, plastic. Oily odor.	0-2	1 liner	2 vials		
			2-4	1 line	vials		
			2-6	1 liner	2 vials		
				1 bottle			

GROUNDWATER

ENCOUNTERED AT dry hole FT.

AFTER COMPLETION _____ FT.

AFTER _____ HRS _____ FT.

BORING CAVE IN _____ FT.

WELL DATA

CASING USED: TYPE _____

DIAMETER _____

LENGTH _____

SCREEN LENGTH & SLOT SIZE _____

HT. ABOVE GROUND _____

Environmental Data Inc.
ENVIRONMENTAL SCIENTISTS/ENGINEERS/GEOLOGISTS/CHEMISTS
611 CASCADE WEST PARKWAY, S.E., P.O. BOX 6010, GRAND RAPIDS, MICHIGAN 49503

CLIENT The Chessie System

PROJECT NO. 20185

DATE 10/4/82

PERMIT NO.

PROJECT Lansing Iron & Metal Lease

LOCATION Lansing, Michigan

EQUIPMENT Stearns' AD II 8" HSA

TECHNICIAN ELC

BORING NO. Test hole 3

SURFACE ELEV.

HOLE PLUGGED WITH natural soils

BORING LOCATION

See location map

BORING DEPTH FEET FROM	TO		DEPTH OF TEST	NO. BLOWS 1st 6 IN.	NO. BLOWS 2nd 6 IN.	NO. BLOWS 3rd 6 IN.	NO. BLOWS LAST 12 IN.
[illegible]	1.8	Topsoil - rubble, oily and oily odor.		Samples			
1.8	2.5	Clay brown sandy, soft, plastic	0-2	1 liner	2 vials		
				1 bottle			
2.5	4.0	Clay, dirty brown to black, sandy, oily odor	2-4	2 liners	2 vial		
				1 bottle			
4.0	6.0	Topsoil	4-6	2 liners	2 bial		

GROUNDWATER

ENCOUNTERED AT dry hole FT.

AFTER COMPLETION _____ FT.

AFTER _____ HRS _____ FT.

BORING CAVE IN _____ FT.

WELL DATA

CASING USED: TYPE _____

DIAMETER _____

LENGTH _____

SCREEN LENGTH & SLOT SIZE _____

HT. ABOVE GROUND _____

Environmental Data Inc.
ENVIRONMENTAL SCIENTISTS/ENGINEERS/GEOLOGISTS/CHEMISTS
911 CASCADE WEST PARKWAY, S.E., P.O. BOX 6010, GRAND RAPIDS, MICHIGAN 49505

CLIENT The Chessie System

PROJECT NO. 20185

DATE 10/4/82

PERMIT NO.

PROJECT Lansing Iron & Metal Lease

LOCATION Lansing, Michigan

EQUIPMENT Stearns' AD II 8" HSA

TECHNICIAN ELC

BORING NO. Test hole 4

SURFACE ELEV.

HOLE PLUGGED WITH natural soils

BORING LOCATION

See location map

BORING DEPTH FEET FROM	TO		DEPTH OF TEST	NO. BLOWS 1st 6 IN.	NO. BLOWS 2nd 6 IN.	NO. BLOWS 3rd 6 IN.	NO. BLOWS LAST 12 IN.
0.0	2.5	Topsoil rubble, black, oily, oily odor.		Samples			
2.3	4.0	Clay - mottled brown to gray - sandy, gravelly, strong oily odor	0-2	2 liners	2 vial		
				1 bottle			
4.0	5.2	Clay - brown to black, soft, trace of sand, slight odor	2-4	1 liner	2 vials		
5.2	6.0	Topsoil		1 bottle			

Base Newhal Slow Bed

GROUNDWATER

ENCOUNTERED AT dry hole FT.

AFTER COMPLETION FT.

AFTER HRS FT.

BORING CAVE IN FT.

WELL DATA

CASING USED: TYPE

DIAMETER

LENGTH

SCREEN LENGTH & SLOT SIZE

HT. ABOVE GROUND

SHEET ___ OF ___

Environmental Data Inc.
ENVIRONMENTAL SCIENTISTS/ENGINEERS/GEOLOGISTS/CHEMISTS
611 CASCADE WEST PARKWAY, S.E., P.O. BOX 6010, GRAND RAPIDS, MICHIGAN 49505

CLIENT The Chessie System

PROJECT NO. 20185

DATE 10/4/82

PERMIT NO. ___

PROJECT Lansing Iron & Metal Lease

LOCATION Lansing, Michigan

EQUIPMENT Stearns' AD II 8" HSA

TECHNICIAN ELC

BORING NO. Test hole 5

SURFACE ELEV. ___

HOLE PLUGGED WITH natural soils

BORING LOCATION

See location map

BORING DEPTH FEET FROM	TO		NO. BLOWS LAST 12 IN. / NO. BLOWS 3rd 6 IN. / NO. BLOWS 2nd 6 IN. / NO. BLOWS 1st 6 IN. / DEPTH OF TEST	Samples
0.0	1.5	Topsoil - rubble		
1.5	3.0	Sand medium to fine brown	0-2	2 vials
3.0	4.5	Clay mottled brown sandy, soft, slight odor	2-4	2 vials
4.5	5.0	Gravel wet	4-6	2 vials
5.0	7.0	Clay - dirty brown to black layers of wet gravel		
7.0		Wood fibers (unable to penetrate)		

GROUNDWATER

ENCOUNTERED AT 4.5 FT.

AFTER COMPLETION ___ FT.

AFTER ___ HRS ___ FT.

BORING CAVE IN ___ FT.

WELL DATA

CASING USED: TYPE ___

DIAMETER ___

LENGTH ___

SCREEN LENGTH & SLOT SIZE ___

HT. ABOVE GROUND ___

APPENDIX B

MDNR PRE-RI SOIL ANALYTICAL DATA

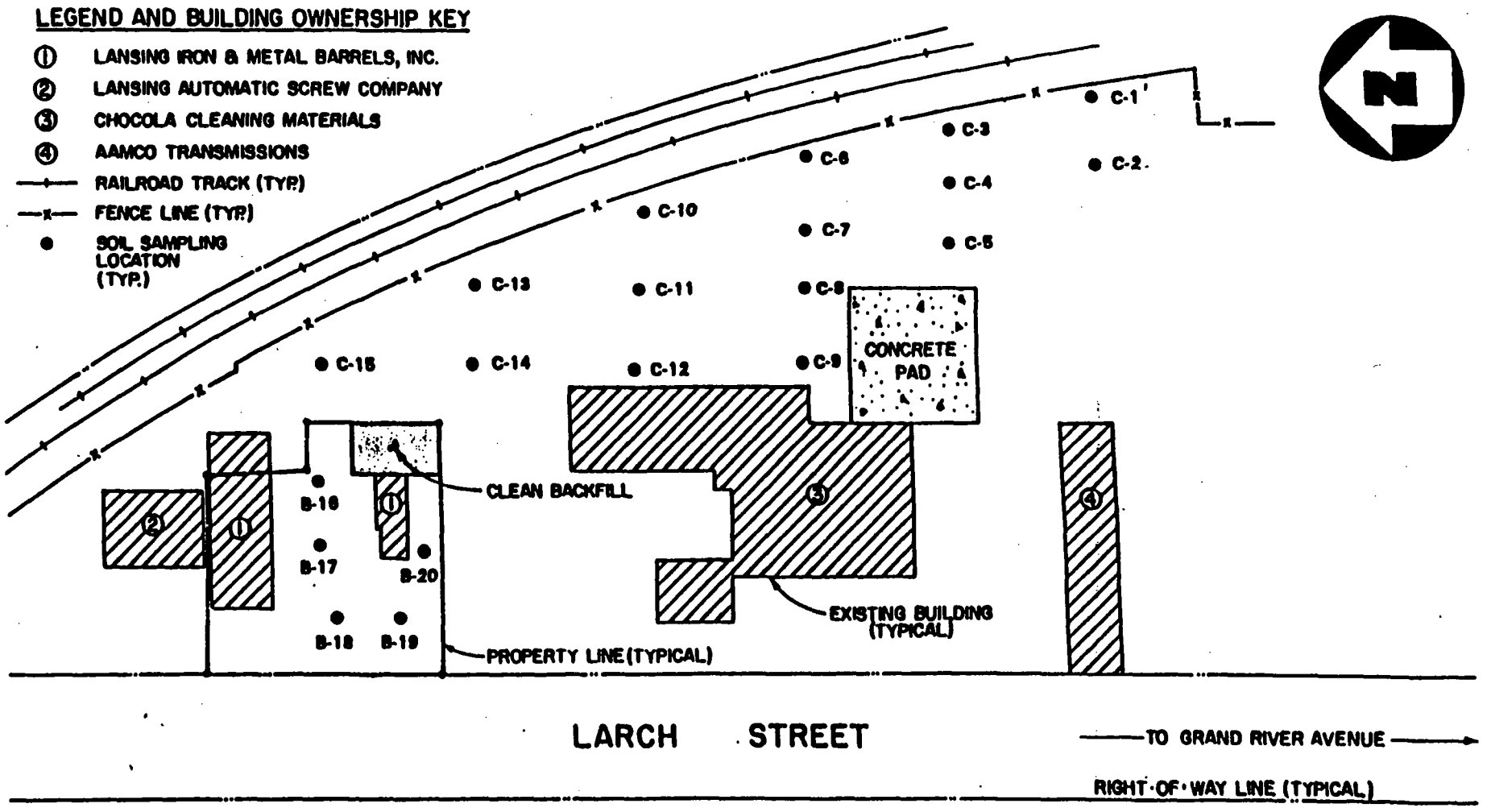


FIGURE 1

LOCATION OF SOIL SAMPLING POINTS
BARRELS DRUM ANALYSIS SITE, LANSING, MI
SCALE: 1" = 100'

NUS CORPORATION

Units in the enclosed tabulation are as folllows:

Organic results - all values reported in ug/kg (ppb).

Inorganic results - all values reported in mg/kg (ppm).

Phenolic results - all values reported in mg/kg (ppm).

Curene results - all values reported in ug/kg (ppb).

Cyanide results - all values reported in mg/kg (ppm).

SAMPLE NUMBER :		01-00-016	01-00-017	01-00-018	01-00-018RA	01-00-019	01-00-020	01-00-001	01-00-001RA
LABORATORY ID NUMBER :									
DESCRIPTION:									
DATE SAMPLED:		06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87
*** VOLATILES ***									
PP	CAS NO	COMPOUND							
	67-64-1	ACETONE	R	R	R	R	R	R	R	R
	591-78-6	2-HEXANONE	4 J						
	108-10-1	4-METHYL-2-PENTANONE							
11V	71-55-6	1,1,1-TRICHLOROETHANE				J 120		13	
95V	127-18-4	TETRACHLOROETHENE		6 J					
87V	79-01-6	TRICHLOROETHENE							
50V	156-60-5	TRANS-1,2-DICHLOROETHENE							
23V	67-66-3	CHLOROFORM							
44V	75-09-2	METHYLENE CHLORIDE	R	R	R	R	R	R	R	R
*** BASE/NEUTRALS ***									
PP	CAS NO	COMPOUND							
88B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	21000 J	10000 J	2600 J			1900	7100	
69B	84-74-2	DI-N-BUTYL PHTHALATE			220 J				400 J	
67B	85-68-7	BUTYL BENZYL PHTHALATE			9200				1300	
77B	208-96-8	ACENAPHTHYLENE								
78B	120-12-7	ANTHRACENE								
72B	56-55-3	BENZO(A)ANTHRACENE			800 J					
74B	205-99-2	BENZO(B)FLUORANTHENE			800 J					
	207-08-9	BENZO(K)FLUORANTHENE								
76B	191-24-2	BENZO(G,H,I)PERYLENE								
73B	50-32-8	BENZO(A)PYRENE			460 J					
75B	218-01-9	CHRYSENE			820 J					
39B	206-44-0	FLUORANTHENE			610 J					
83B	193-39-5	INDENO(1,2,3-CD)PYRENE								
66B	91-20-3	NAPHTHALENE								

SAMPLE NUMBER :	S1-SD-016	S1-SD-017	S1-SD-018	S1-SD-018RA	S1-SD-019	S1-SD-020	S1-SD-021	S1-SD-021RA
LABORATORY ID NUMBER :								
DESCRIPTION:								
DATE SAMPLED:	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87
018 85-01-8 PHENANTHRENE								
048 129-00-0 PYRENE			690 J				570 J	

*** ACIDS ***

PP	CAS NO	COMPOUND

NO PARAMETERS FOR THIS CATEGORY

*** PESTICIDES ***

PP	CAS NO	COMPOUND							
02P	50-29-3	4,4'-DDT			720 J				6700
	72-54-8	4,4'-DDD	5400 J						1300 J
03P	72-55-9	4,4'-DDE			770 J				2400
09P	72-20-8	ENDRIN							
01P	57-74-9	CHLORDANE		51000 J	14000		1000	5000 J	
106P	53469-21-9	AROCLOR-1242							
107P	11097-69-1	AROCLOR-1254							
111P	11096-82-5	AROCLOR-1260							

SAMPLE NUMBER :			SI-SO-S16	SI-SO-S17	SI-SO-S18	SI-SO-S18RA	SI-SO-S19	SI-SO-S20	SI-SO-C01	SI-SO-C01RA
LABORATORY ID NUMBER :										
DESCRIPTION:										
DATE SAMPLED:			06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87
*** INORGANICS ***										
PP	CAS NO	COMPOUND								
2		ANTIMONY							21	
3		ARSENIC	J 6.6 mN	J 3.6 mN	J 6.6 mN		J 3.9 mN	J 9.1 mN	J 21 mN	
5		BERYLLIUM								
6		CADMIUM	J 1.0 m	J 1.0 m	J 4.2 m		J 1.2 m		J 40 m	
7		CALCIUM								
8		CHROMIUM	27	36	664		10	12	66	
10		COPPER	62	90	122		46	33	1320	
12		LEAD	107 m	102 m	611 m		116 m	66 m	2000 m	
13		MERCURY		3.0	0.03			0.03	0.46	
16		NICKEL	12 m	16 m	20 m		18 m	22 m	233 m	
18		SELENIUM							J 4.0 m	
19		SILVER			2.2				2.4	
20		SODIUM						2.0		
24		ZINC	131	120	613		80	110	36000	

SAMPLE NUMBER :		SI-SO-016	SI-SO-017	SI-SO-018	SI-SO-018RA	SI-SO-019	SI-SO-020	SI-SO-021	SI-SO-021RA
LABORATORY ID NUMBER :									
DESCRIPTION:									
DATE SAMPLED:		06/00/87	06/00/87	06/00/87	06/00/87	06/00/87	06/00/87	06/00/87	06/00/87
*** GEOCHEMICAL PARAMETERS ***									
PP	CAS NO	COMPOUND							
		CYANIDE	2.0 R	3.6 R	1.6 R		1.6 R	2.4 R	3.4 R
		PHENOLICS							
		CURRENT	18	8.4	7.9			18	

SAMPLE NUMBER :	01-00-C02	01-00-C02RA	01-00-C03	01-00-C03RA	01-00-C04	01-00-C04RA	01-00-C05	01-00-C06
LABORATORY ID NUMBER :								
DESCRIPTION:								
DATE SAMPLED:	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87

*** VOLATILES ***

PP	CAS NO	COMPOUND							
	67-64-1	ACETONE	R	R	R	R	R	R	R	R
	591-78-6	2-HEXANONE								
	108-10-1	4-METHYL-2-PENTANONE			R		R			
11V	71-55-6	1,1,1-TRICHLOROETHANE								
05V	127-18-4	TETRACHLOROETHENE							780	
07V	79-01-6	TRICHLOROETHENE							43 J	
30V	156-60-5	TRANS-1,2-DICHLOROETHENE							62	
25V	67-66-3	CHLOROFORM								
44V	75-09-2	METHYLENE CHLORIDE	R	R	R	R	R	R	R	R

*** BASE/NEUTRALS ***

PP	CAS NO	COMPOUND							
05B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	25000		50000		10000		62000	21000
06B	84-74-2	DI-N-BUTYL PHTHALATE	2500 J		6400		610 J		930 J	24000
07B	85-68-7	BUTYL BENZYL PHTHALATE	35000		8500		12000		2600 J	
77B	208-96-8	ACENAPHTHYLENE							1100 J	
78B	120-12-7	ANTHRACENE								
79B	56-55-3	BENZO(A)ANTHRACENE			3100 J				2000 J	
74B	205-99-2	BENZO(B)FLUORANTHENE							2000 J	
	207-08-9	BENZO(K)FLUORANTHENE			3300					
76B	191-24-2	BENZO(G,H,I)PERYLENE							1000 J	
75B	50-32-8	BENZO(A)PYRENE			2300 J				2000 J	
70B	218-01-9	CHRYSENE			3300 J				2000 J	
80B	206-44-0	FLUORANTHENE			10000				6000 J	
83B	193-39-5	INDENO(1,2,3-CD)PYRENE							J 1700 J	
66B	91-20-3	NAPHTHALENE							1100 J	

SAMPLE NUMBER :	01-00-C02	01-00-C02RA	01-00-C03	01-00-C03RA	01-00-C04	01-00-C04RA	01-00-C05	01-00-C06
LABORATORY ID NUMBER :								
DESCRIPTION:								
DATE SAMPLED:	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87
81B 85-01-8 PHENANTHRENE			10000				6100 J	
84B 129-00-0 PYRENE			7200				4000 J	

*** ACIDS ***

PP	CAS NO	COMPOUND

NO PARAMETERS FOR THIS CATEGORY

*** PESTICIDES ***

PP	CAS NO	COMPOUND							
92P	50-29-3	4,4'-DDT			11000		6300 J		80000	2500
	72-54-8	4,4'-DDD	19000		8400		18000		91000	450 J
93P	72-55-9	4,4'-DDE	8200 J		2200 J		8800 J		8000 J	200 J
90P	72-20-8	ENDRIN								
91P	57-74-9	CHLORDANE								
106P	53469-21-9	AROCLOR-1242							200000	
107P	11097-69-1	AROCLOR-1254					75000 J			
111P	11096-82-5	AROCLOR-1260								

SAMPLE NUMBER :	SI-SO-C02	SI-SO-C02RA	SI-SO-C03	SI-SO-C03RA	SI-SO-C04	SI-SO-C04RA	SI-SO-C05	SI-SO-C06
LABORATORY ID NUMBER :								
DESCRIPTION:								
DATE SAMPLED:	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87

*** INORGANICS ***

PP	CAS NO	COMPOUND							
2		ANTIMONY	42		41		18		17
3		ARSENIC	J 18 *N		J 30 *NS		J 16 *N	J 9.4 *N	J 33 *NS
5		BERYLLIUM					1.3		
6		CADMIUM	J 38 *		J 41 *		J 16 *	J 7.6 *	J 27 *
7		CALCIUM							
9		CHROMIUM	740		82		90	66	61
10		COPPER	2500		666		1300	188	900
12		LEAD	2740 *		3830 *		1000 *	674 *	800 *
13		MERCURY	1.4		0.44		1.9		
16		NICKEL	228 *		280 *		164 *	48 *	280 *
18		SELENIUM	J 3.4 N		J 3.1 N		J 1.9 N	J 1.8 N	
19		SILVER	2.2		2.4		2.1		2.4
20		SODIUM							
24		ZINC	18200		7470		4800	8300	2100

SAMPLE NUMBER :	S1-SO-C02	S1-SO-C02RA	S1-SO-C03	S1-SO-C03RA	S1-SO-C04	S1-SO-C04RA	S1-SO-C05	S1-SO-C06
LABORATORY ID NUMBER :								
DESCRIPTION:								
DATE SAMPLED:	00/00/97	00/00/97	00/00/97	00/00/97	00/00/97	00/00/97	00/00/97	00/00/97
*** GEOCHEMICAL PARAMETERS ***								
PP CAS NO COMPOUND								
CYANIDE	0.1 A		0.0 A		0.1 A		0.0 A	0.0 A
PHENOLICS	0.6				0.7		7.1	20
CHROME	37		00		00		110	0.0

SAMPLE NUMBER :	01-00-C06RA	01-00-C07	01-00-C08	01-00-C09RA	01-00-C09	01-00-C10	01-00-C11	01-00-C12
LABORATORY ID NUMBER :								
DESCRIPTION:								
DATE SAMPLED:	00/00/97	00/00/97	00/00/97	00/00/97	00/00/97	00/00/97	00/00/97	00/00/97

*** VOLATILES ***

PP	CAS NO	COMPOUND							
	67-64-1	ACETONE	R	R	R	R	240 B	R	R	R
	591-78-6	2-HEXANONE								
	108-10-1	4-METHYL-2-PENTANONE								
11V	71-55-6	1,1,1-TRICHLOROETHANE								
96V	127-18-4	TETRACHLOROETHENE						120		
97V	79-01-6	TRICHLOROETHENE						4 J		
30V	156-60-5	TRANS-1,2-DICHLOROETHENE								
23V	67-66-3	CHLOROFORM			22					
44V	75-09-2	METHYLENE CHLORIDE	R	R	R	R	R	R	R	R

*** BASE/NEUTRALS ***

PP	CAS NO	COMPOUND							
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE		4000 J	14000		2700	730 J	200 J	
63B	84-74-2	DI-N-BUTYL PHTHALATE			1700 J				170 J	
67B	85-68-7	BUTYL BENZYL PHTHALATE		30000	30000				200 J	
77B	208-96-8	ACENAPHTHYLENE								
78B	120-12-7	ANTHRACENE								400 J
72B	56-55-3	BENZO(A)ANTHRACENE			3100 J		700 J			1400
74B	205-99-2	BENZO(B)FLUORANTHENE							200 J	1000
	207-08-9	BENZO(K)FLUORANTHENE			3000 J					
79B	191-24-2	BENZO(G,H,I)PERYLENE							270 J	
73B	50-32-8	BENZO(A)PYRENE			2900 J				200 J	1100 J
76B	218-01-9	CHRYSENE			2700 J		700 J			1000
80B	206-44-0	FLUORANTHENE			6100 J		1100		120 J	1000
81B	193-39-5	INDENO(1,2,3-CD)PYRENE			J 1000 J				210 J	
68B	91-20-3	NAPHTHALENE					810 J			

SAMPLE T.F.

SAMPLE NUMBER :			BI-SO-C06RA	BI-SO-C07	BI-SO-C08	BI-SO-C09RA	BI-SO-C09	BI-SO-C10	BI-SO-C11	BI-SO-C12
LABORATORY ID NUMBER :										
DESCRIPTION:										
DATE SAMPLED:			06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87
61B	85-01-8	PHENANTHRENE			8800 J		1200			880 J
64B	129-00-0	PYRENE			4000 J		880 J		140 J	1000

*** ACIDS ***

PP	CAS NO	COMPOUND

NO PARAMETERS FOR THIS CATEGORY

*** PESTICIDES ***

PP	CAS NO	COMPOUND								
92P	50-29-3	4,4'-DDT							260	
	72-54-8	4,4'-DDD							93	
93P	72-55-9	4,4'-DDE							70 J	
96P	72-20-8	ENDRIN							120	
91P	57-74-9	CHLORDANE		24000			7100		600	
106P	53469-21-9	AROCLOR-1242								
107P	11097-69-1	AROCLOR-1254			100000					
111P	11096-82-5	AROCLOR-1260								1000

SAMPLE NUMBER :	SI-SO-C06RA	SI-SO-C07	SI-SO-C08	SI-SO-C09RA	SI-SO-C09	SI-SO-C10	SI-SO-C11	SI-SO-C12
LABORATORY ID NUMBER :								
DESCRIPTION:								
DATE SAMPLED:	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87

*** INORGANICS ***

PP	CAS NO	COMPOUND							
2		ANTIMONY			1880				
3		ARSENIC		J 11 *N	J 22 *N		J 3.2 *N	J 0.1 *N	J 0.8 *N	J 3.8 *N
5		BERYLLIUM		1.7					1.4	
6		CADMIUM		J 0.8 *	J 68 *		J 2.6 *	J 3.7 *	J 3.6 *	
7		CALCIUM								
9		CHROMIUM		180	137		10	44	140	11
10		COPPER		1100	6230		64	81	302	19
12		LEAD		648 *	6330 *		317 *	94 *	368 *	48 *
15		MERCURY		0.80	3.8					
16		NICKEL		69 *	344 *		11 *	68 *	62 *	18 *
18		SELENIUM		J 1.2 N	J 4.1 N					
19		SILVER		2.2	6.0		2.2		2.1	
20		SODIUM								
24		ZINC		1770	7300		406	280	238	60

SAMPLE NUMBER :	SI-SD-C06RA	SI-SD-C07	SI-SD-C08	SI-SD-C09RA	SI-SD-C09	SI-SD-C10	SI-SD-C11	SI-SD-C12
LABORATORY ID NUMBER :								
DESCRIPTION:								
DATE SAMPLED:	06/06/97	06/06/97	06/06/97	06/06/97	06/06/97	06/06/97	06/06/97	06/06/97
*** GEOCHEMICAL PARAMETERS ***								
PP CAS NO COMPOUND								
CYANIDE		1.4 A	2.6 A		2.2 A	2.1 A	2.2 A	2.1 A
PHENOLICS		11			10	14		
CURONE		26	64		12	9.0	6.7	9.0

SAMPLE NUMBER :	01-SD-C13	01-SD-C13RA	01-SD-C14	01-SD-C14RA	01-SD-C15	01-SD-C15RA
LABORATORY ID NUMBER :						
DESCRIPTION:						
DATE SAMPLED:	06/11/97	06/06/97	06/06/97	06/06/97	06/06/97	06/06/97

*** VOLATILES ***

PP	CAS NO	COMPOUND						
	67-64-1	ACETONE	R	R	R	R	R	R
	591-78-6	2-HEXANONE			R	27		
	108-10-1	4-METHYL-2-PENTANONE						
11V	71-55-6	1,1,1-TRICHLOROETHANE						
05V	127-18-4	TETRACHLOROETHENE			R	26		
07V	79-01-6	TRICHLOROETHENE						
30V	156-60-5	TRANS-1,2-DICHLOROETHENE						
23V	67-66-3	CHLOROFORM						
44V	75-09-2	METHYLENE CHLORIDE	R	R	R	R	R	R

*** BASE/NEUTRALS ***

PP	CAS NO	COMPOUND						
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	2000 J		520000 J			
68B	84-74-2	DI-N-BUTYL PHTHALATE						
67B	85-68-7	BUTYL BENZYL PHTHALATE						
77B	208-96-8	ACENAPHTHYLENE						
78B	120-12-7	ANTHRACENE						
72B	56-55-3	BENZO(A)ANTHRACENE						
74B	205-99-2	BENZO(B)FLUORANTHENE						
	207-08-9	BENZO(K)FLUORANTHENE						
79B	191-24-2	BENZO(G,H,I)PERYLENE						
73B	50-32-8	BENZO(A)PYRENE						
75B	218-01-9	CHRYSENE						
80B	206-44-0	FLUORANTHENE						
81B	193-39-5	INDENO(1,2,3-CD)PYRENE						
66B	91-20-3	NAPHTHALENE						

SAMPLE NUMBER :	S1-SO-C13	S1-SO-C13RA	S1-SO-C14	S1-SO-C14RA	S1-SO-C15	S1-SO-C15RA
LABORATORY ID NUMBER :						
DESCRIPTION:						
DATE SAMPLED:	06/11/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87
018 85-01-8 PHENANTHRENE						
048 129-00-0 PYRENE						

*** ACIDS ***

PP	CAS NO	COMPOUND

NO PARAMETERS FOR THIS CATEGORY

*** PESTICIDES ***

PP	CAS NO	COMPOUND					
052P	50-29-3	4,4'-DDT					
	72-54-8	4,4'-DDD					
053P	72-55-9	4,4'-DDE			3700 J		710 J
056P	72-20-8	ENDRIN	27000				
061P	57-74-9	CHLORDANE			48000		8100 J
106P	53469-21-9	AROCLOR-1242					
107P	11097-69-1	AROCLOR-1254			84000 J		
111P	11096-82-5	AROCLOR-1260					

SAMPLE NUMBER :	S1-SD-C13	S1-SD-C13RA	S1-SD-C14	S1-SD-C14RA	S1-SD-C16	S1-SD-C16RA
LABORATORY ID NUMBER :						
DESCRIPTION:						
DATE SAMPLED:	06/11/97	06/06/97	06/06/97	06/06/97	06/06/97	06/06/97
*** INORGANICS ***						
PP CAS NO COMPOUND						
2 ANTIMONY						
3 ARSENIC	J 12 MW		J 12 MW		J 8.9 MW	
5 BERYLLIUM						
6 CADMIUM	J 0.4 M		J 0.4 M		J 0.2 M	
7 CALCIUM			120		60	
8 CHROMIUM	43					
10 COPPER	174		120		90	
12 LEAD	269 M		222 M		302 M	
14 MERCURY	0.6					
16 NICKEL	32 M		30 M		35 M	
18 SELENIUM						
19 SILVER	0.2				0.1	
20 SODIUM						
24 ZINC	690		876		312	

SAMPLE NUMBER :		SI-GO-G13	SI-GO-G13RA	SI-GO-G14	SI-GO-G14RA	SI-GO-G15	SI-GO-G15RA
LABORATORY ID NUMBER :							
DESCRIPTION:							
DATE SAMPLED:		06/11/87	06/06/87	06/06/87	06/06/87	06/06/87	06/06/87
*** GEOCHEMICAL PARAMETERS ***							
PP	CAS NO	COMPOUND					
		CYANIDE	0.2 *		4.7 *		2.0 *
		PHENOLICS			50		0.0
		CHROME					27

APPENDIX C

BOREHOLE STRATIGRAPHIC LOGS

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-19)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-1
DATE COMPLETED: MAY 17, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	841.1					
	SP-SAND(FILL), coal fragments, brown to black	839.1	8"ø BOREHOLE	1SS		12	0-5
2.5	ML-SILT(FILL), some clay, soft, brown, moist	838.1	BENTONITE GROUT	2SS		5	0-1
	CL-CLAY, some silt, gray and brown, mottled						
5.0	- some sand, firm, damp			3SS		6	0
	- hard						
7.5	- 4" sand seam			4SS		31	0
	END OF HOLE @ 8.0 FT. BGS	833.1					
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-20)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-2
DATE COMPLETED: MAY 17, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	842.3					
	SW-SAND(FILL), some gravel, brown	841.8					
2.5	SP-SAND(FILL), black, moist, oil/petroleum material - brown and green, moist			1SS		12	150-500
				2SS		18	10-20
		838.3	8"ø BOREHOLE				
5.0	SM-SAND, trace to some silt, brown, wet		BENTONITE GROUT	3SS		5	10-20
		836.3					
7.5	CL-CLAY, some sand, some silt, gray and brown, mottled, moist to wet - stiff, brown, mottled, moist			4SS		2	5
				5SS		8	0
10.0	END OF HOLE @ 10.0 FT. BGS	832.3					
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-21)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-3
DATE COMPLETED: MAY 17, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	842.2					
	SW-SAND(FILL), some gravel, brown, dry	840.2	8"ø BOREHOLE	1SS		23	0
2.5	ML-SILT(FILL), some silt, loose, brown, moist	838.2	BENTONITE GROUT	2SS		6	0
5.0	SW-SAND, trace to some silt, fine to medium grained, stratified, brown	836.2		3SS		13	0-3
7.5	SP-SAND, trace silt, dense, brown, damp to moist	834.2		4SS		31	0-2
10.0	SM-SAND, trace to some silt, brown, moist – some silt, brown, wet	830.2		5SS		31	0-2
12.5	END OF HOLE @ 12.0 FT. BGS			6SS		17	3-5
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-22)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-4
DATE COMPLETED: MAY 17, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	839.9					
	TOPSOIL	839.6					
	SM-SAND(FILL), some silt, compact, brown, dry, red discoloration		8"ø BOREHOLE	1SS		12	200
2.5				2SS		6	2
	CL-CLAY, some silt and sand, loose, brown, damp	835.9	BENTONITE GROUT				
5.0				3SS		8	0
	SM-SAND, trace to some silt, gray	832.9		4SS		10	0
7.5	END OF HOLE @ 8.0 FT. BGS	831.9					
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-23)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-5
DATE COMPLETED: MAY 14, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	841.8					
	SP-SAND(FILL), organics, brown and black	839.5		1SS		29	0
2.5	ML-SILT, some clay, gray	839.0					
	SP-SAND, brown to gray	838.6	8"ø BOREHOLE	2SS		8	0
	ML-SILT, some clay, gray	838.0					
5.0	SP-SAND, BROWN	837.8	BENTONITE GROUT	3SS		10	0
	CL-CLAY, some silt, stiff, gray, moist						
	– firm, gray and brown, mottled, damp			4SS		9	0
7.5	– stiff, brown						
	– sand seam			5SS		15	0
10.0	END OF HOLE @ 10.0 FT. BGS	831.8					
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-24)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-6
DATE COMPLETED: MAY 14, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	839.8					
	SM-SAND(FILL), compact, brown, damp		8"ø BOREHOLE	1SS	X	16	0
2.5	SP-SAND, trace silt, loose, brown, damp	837.8	BENTONITE GROUT	2SS	X	9	2-3
5.0	CL-CLAY	835.5					
	CL-CLAY, some silt, firm, gray - stiff, gray and brown, mottled, moist	835.0		3SS	X	5	0-2
7.5				4SS	X	11	0
	END OF HOLE @ 8.0 FT. BGS	831.8					
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-25)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-7
DATE COMPLETED: MAY 14, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	841.7					
	SW/GW-SAND and GRAVEL(FILL), dense, brown and gray, damp	839.7	8"ø BOREHOLE	1SS	X	85	0
2.5	ML-SILT(FILL), some sand, compact, brown, damp - some clay, some silt, stiff, stiff, brown, moist - no sand			2SS	X	21	0
5.0				3SS	X	19	0
	CL-CLAY, some silt, trace sand, stiff, gray and brown, mottled, moist	835.7	BENTONITE GROUT	4SS	X	15	0-2
7.5				5SS	X	8	0-2
10.0	END OF HOLE @ 10.0 FT. BGS	831.7					
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-26)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-8
DATE COMPLETED: MAY 13, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	839.1					
	SM-SAND(FILL), intermixed with ML-SILT, some clay, some black organics, brown, damp		8"ø BOREHOLE	1SS		21	0-3
2.5				2SS		9	
	CL-CLAY, some silt, gray	835.1					
5.0				3SS		8	0-3
7.5			BENTONITE GROUT	NR		-	
	CL-CLAY, some silt, firm, brown, moist	831.1		4SS		5	0
10.0	END OF HOLE @ 10.0 FT. BGS	829.1					
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

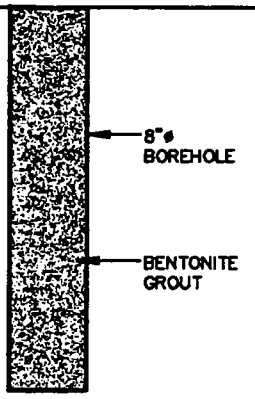
CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-27)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-9
DATE COMPLETED: MAY 13, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	840.8					
	TOPSOIL	840.1					
	SW/GW-SAND and GRAVEL(FILL), brown to gray	838.8		1SS	X	54	0
2.5	ML-SILT(FILL), some clay, stiff, brown, moist			2SS	X	9	0
	- 3" clay, black		8"ø BOREHOLE				
5.0	- 3" sand seam			3SS	X	4	0
	- black						
	- brown		BENTONITE GROUT	4SS	X	5	0
7.5		832.8					
	CL-CLAY, some silt, trace sand, stiff, brown, moist			5SS	X	13	0
	- occasional minor sand seam	830.8					
10.0	END OF HOLE @ 10.0 FT. BGS						
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-28)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-10
DATE COMPLETED: MAY 13, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	840.9					
	SP-SAND(FILL) – 4" coal powder	838.9	8"ø BOREHOLE; BENTONITE GROUT	1SS		22	0
2.5	CL-CLAY, some silt, firm, brown, mottled			2SS		5	0
5.0				3SS		5	0
	END OF HOLE @ 6.0 FT. BGS	834.9					
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-29)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-11
DATE COMPLETED: MAY 12, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	839.4					
	SP-SAND(TOPSOIL), loose, red brown, dry	837.4	8"ø BOREHOLE	1SS		13	0
2.5	SM-SAND(FILL), some silt, trace glass, loose, brown - stiff, damp - some sand, loose			2SS		4	0
5.0		833.4		3SS		5	0-2
7.5	CL-CLAY, some silt, firm, gray and brown, mottled, moist - some sand, firm		BENTONITE GROUT	4SS		4	0-2
10.0	END OF HOLE @ 10.0 FT. BGS	829.4		5SS		6	0-2
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-30)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-12
DATE COMPLETED: MAY 12, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
	GROUND SURFACE	839.9					
	SM-SAND(FILL), some silt, loose, brown and damp	837.9		1SS		11	0-70
2.5	ML-SILT(FILL), some silt, brown, damp - moist			2SS		4	0-20
5.0		833.9		3SS		4	0-40
	SM-SAND interbedded with CL-CLAY, some silt, brown, damp to moist		8"ø BOREHOLE	4SS		5	0-9
7.5	SP-SAND, trace silt, compact, brown, dry	831.9		5SS		23	0-5
10.0			BENTONITE GROUT	6SS		23	2-7
12.5	SM-SAND, some silt, trace gravel, brown, damp	827.9		7SS		15	2-
15.0	SP-SAND, trace silt, brown, damp - 2" silt seam - medium grained, compact, gray	825.9		8SS		23	0-1
17.5				9SS		18	0
20.0	END OF HOLE @ 20.0 FT. BGS	819.9		10SS		14	0-2
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-31)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-13
DATE COMPLETED: MAY 13, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	841.2					
	TOPSOIL	840.9	8" ø BOREHOLE; BENTONITE GROUT				
	COAL(FILL), crushed, black	839.2		1SS		14	0-2
2.5	CL-CLAY, some silt, firm, brown, mottled			2SS		5	0
	- some clay, some sand						
5.0				3SS		4	0
	END OF HOLE @ 6.0 FT. BGS	835.2					
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-32)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DS-14
DATE COMPLETED: MAY 11, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
	GROUND SURFACE	838.9					
	SP-SAND(FILL), trace silt, trace black organics, brown to black - loose			1SS	X	18	0-1
2.5				2SS	X	4	0-6
	CL-CLAY, some silt, brown, mottled, moist	834.9	8"ø BOREHOLE				
5.0	- some black organics			3SS	X	9	0-2
			BENTONITE GROUT	4SS	X	6	0
7.5	- stiff, gray, moist						
				5SS	X	4	0
10.0	END OF HOLE @ 10.0 FT. BGS	828.9					
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-16)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-CT-1
DATE COMPLETED: MAY 20, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	843.1					
	SW/GW-SAND and GRAVEL(FILL), little clay, brown - little silt, no clay, black, oily			1SS		6	4
2.5		840.1	8"ø BOREHOLE	2SS		2	10.5
	SC-SAND, some clay, gray, moist						
5.0		838.1	BENTONITE GROUT	3SS		3	5
	CL-CLAY, little silt, gray, saturated						
7.5				4SS		7	0
	- sand seams			5SS		8	3
10.0	END OF HOLE @ 10.0 FT. BGS	833.1					
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-17)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-CT-2
DATE COMPLETED: MAY 20, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	842.6					
	SM-SAND(FILL), some silt, little gravel, brown	842.1					
	SW/GW-SAND and GRAVEL(FILL), gray	840.8		1SS	X	13	9
2.5	CL-CLAY, some silt, little sand, gray		8"ø BOREHOLE	2SS	X	14	3
5.0	– gray and tan, mottled, moist		BENTONITE GROUT	3SS	X	6	1
7.5				4SS	X	7	10
	– sand seams			5SS	X	8	0
10.0	END OF HOLE @ 10.0 FT. BGS	832.6					
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-18)

PROJECT NAME: BARRELS
HOLE DESIGNATION: BH-CT-3
PROJECT NO.: 4869
DATE COMPLETED: MAY 20, 1993
CLIENT: BARRELS INC.
DRILLING METHOD: 4 1/4" ID HSA
LOCATION: LANSING, MICHIGAN
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	GROUND SURFACE	842.1
	SP-SAND(FILL), vegetation, tan	841.8
	SW/GW-SAND and GRAVEL(FILL), little clay, slag, gray and black, odor	
2.5		
5.0		
	CL-CLAY, some silt, gray and tan	836.3
7.5		
	SP-SAND, little gravel, fine grained, tan	833.6
10.0		
	ML-SILT(TILL), sand seams, little gravel, gray, moist	831.6
12.5		
	SP-SAND, tan, moist	828.6
15.0	ML-SILT, some clay, trace gravel, gray and tan	827.3
17.5		
	END OF HOLE @ 18.0 FT. BGS	824.1
20.0		
22.5		
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		10	22
2SS		7	7
3SS		6	5
4SS		17	0
5SS		15	12
6SS		18	30
7SS		19	10
8SS		14	30
9SS		17	0.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

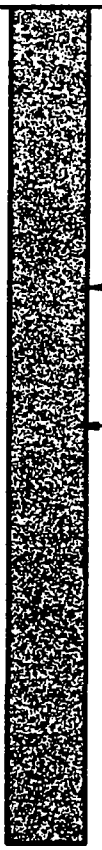
(L-33)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-US-1
DATE COMPLETED: MAY 18, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	GROUND SURFACE	842.6
2.5	SW/GW-SAND and GRAVEL(FILL), dense, brown and gray, dry – some black asphaltic material	
5.0	CL-CLAY, some silt, soft, gray, moist, petroleum odor – sand and gravel seam, oily material – trace sand and gravel, stiff	838.6
7.5		
10.0	SM-SAND, some silt, gray, dry, petroleum odor	833.8
	ML-SILT, some clay, gray, moist, petroleum odor	832.6 832.1
12.5	SM-SAND, some silt, compact, medium grained, gray, damp, petroleum odor – minor black staining – moist, oil staining	
15.0		
17.5	ML-SILT, some clay, stiff, brown, moist	825.4 824.8
	SP-SAND, compact, brown, moist, petroleum odor – dense, wet	823.9 823.3
20.0	ML-SILT(TILL), some clay, brown, slight petroleum odor	
22.5	SP-SAND, brown, moist – some gravel, dense, brown, damp	820.6
	END OF HOLE @ 22.0 FT. BGS	
25.0		
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS	X	50	0–70
2SS	X	2	0–12
3SS	X	3	50–150
4SS	X	8	50–150
5SS	X	10	30–100
6SS	X	19	100–170
7SS	X	16	200
8SS	X	20	200
9SS	X	12	50–100
10SS	X	31	30–50
11SS	X	31	0–40

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-34)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-US-2
DATE COMPLETED: MAY 15, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
	GROUND SURFACE	842.3					
	SW/GW-SAND and GRAVEL(FILL), compact, brown, dry			1SS		23	2-9
2.5				2SS		6	5-14
	SP-SAND(FILL), trace gravel, loose, brown, dry	838.3					
5.0				3SS		2	0-20
	- no gravel						
7.5	- trace gravel, wet		8"ø BOREHOLE	4SS		2	2-14
				5SS		2	0-2
10.0							
	CL-CLAY, some silt, soft, gray to black, moist, petroleum odor	831.5	BENTONITE GROUT	6SS		WH	15
		830.3					
12.5	SP-SAND, loose, gray to black, wet, petroluem odor	829.5		7SS		6	10-110
	ML-SILT, some clay, soft, gray, petroluem odor	827.5					
15.0	SP-SAND, loose, brown, wet, petroleum odor	826.8		8SS		12	40-150
	ML-SILT(TILL), some clay, stiff, brown with red and green discoloration, petroleum odor	826.3 826.0					
17.5	SP-SAND, gray, wet, petroluem odor	825.1		9SS		26	30-70
	ML-SILT(TILL), some clay, stiff, brown, petroleum odor			10SS		34	50-100
20.0	SW-SAND, some gravel, compact, brown, moist, petroleum odor						
	- trace to some gravel, brown, moist to wet, slight petroleum odor			11SS		42	20
22.5	- some gravel, dense, gray and brown, damp	820.3					
	END OF HOLE @ 22.0 FT. BGS						
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-35)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-US-3
DATE COMPLETED: MAY 19, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	841.6					
	SP-SAND(FILL), loose, brown, dry - gray, black petroleum staining, petroleum odor	839.6		1SS		8	0-20
2.5	CL-CLAY, some silt, some sand, firm, gray, moist, petroleum odor		8"ø BOREHOLE	2SS		4	50-100
5.0	- no sand, slight petroleum odor			3SS		5	20-30
7.5	- some sand, no odor		BENTONITE GROUT	4SS		5	15-20
10.0	END OF HOLE @ 10.0 FT. BGS	831.6		5SS		12	5-11
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-36)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-US-4
DATE COMPLETED: MAY 19, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	841.8					
	SW/GW-SAND and GRAVEL(FILL), loose, brown, dry	840.6		1SS		20	17-80
2.5	CL-CLAY, some silt, gray and black, petroleum odor and staining - some sand, soft, gray, moist, petroleum odor	837.8	8"ø BOREHOLE	2SS		5	30-120
5.0	CL-CLAY, some silt, firm, gray, moist, petroleum odor - gray brown			3SS		7	20-70
7.5	- occasional minor sand lense		BENTONITE GROUT	4SS		5	15-30
10.0	- some sand, some clay, brown, damp			5SS		8	50-150
12.5	END OF HOLE @ 12.0 FT. BGS	829.8		6SS		10	7-15
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-37)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-US-5
DATE COMPLETED: MAY 19, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	844.0					
	SW-SAND(FILL), some gravel, loose, brown, dry			1SS	X	7	0
2.5							
	CL-CLAY, some silt, some sand, soft, brown, moist, slight petroleum odor – no sand, stiff	840.0	8"ø BOREHOLE	2SS	X	2	0–20
5.0				3SS	X	11	30
7.5			BENTONITE GROUT				
	SP-SAND, compact, gray to black, petroleum odor and staining	835.5		4SS	X	17	150
10.0							
	ML-SILT(TILL), some clay, gray and brown, petroleum odor – strong petroleum odor – some sand, brown, no odor	833.3		5SS	X	17	250
12.5				6SS	X	22	2'
	SW/GW-SAND and GRAVEL, brown, dry, no odor – compact	830.7					
15.0				7SS	X	15	15–50
	END OF HOLE @ 16.0 FT. BGS	828.0					
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-38)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-US-6
DATE COMPLETED: MAY 19, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: R. PASQUALONI

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	843.7					
	SW-SAND(FILL), some gravel, loose, brown to black, damp	841.7		1SS	X	9	0-2
2.5	ML-SILT, some clay, some sand, firm, brown, damp	839.7		2SS	X	6	0-2
5.0	SW-SAND, some gravel, brown, damp, petroleum odor	838.5	8" ø BOREHOLE	3SS	X	5	25-50
7.5	CL-CLAY, some silt, soft, brown to black, moist, black oily material, strong petroleum odor - stiff, brown, petroleum odor	835.4		4SS	X	8	50-200
	SP-SAND, black, moist, petroleum odor	834.0		5SS	X	15	20-220
10.0	CL-CLAY, some silt, stiff, brown, moist, petroleum odor - some sand, trace gravel, hard, brown, damp - stiff, slight petroleum odor	830.9	BENTONITE GROUT	6SS	X	20	20-120
12.5	SP-SAND, trace silt, compact, medium grained, brown, damp, slight petroleum odor	829.7		7SS	X	22	50-170
15.0	SM-SAND, some silt, some gravel, compact, brown and damp	827.7		8SS	X	12	5-7
	END OF HOLE @ 16.0 FT. BGS						
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-11)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DD-1
DATE COMPLETED: MAY 24, 1993
DRILLING METHOD: 3 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	842.4					
	SW/GW-SAND and GRAVEL(FILL), trace clay, slag		7"ø BOREHOLE; BENTONITE GROUT	1SS			0
2.5				2SS			
	SM-SAND, some silt, brown and tan, moist	839.4					
	SP-SAND, tan, wet	838.6					
5.0				3SS			
	CL-CLAY, some silt, tan and gray, saturated	837.4					
	END OF HOLE @ 6.0 FT. BGS	836.4					
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-12)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DD-2
DATE COMPLETED: MAY 24, 1993
DRILLING METHOD: 3 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	841.0					
	SW/GW-SAND and GRAVEL(FILL), some clay, soft, black		7"ø BOREHOLE	1SS			0
2.5	CL-CLAY, some silt, brown and gray, moist	838.8	BENTONITE GROUT	2SS			0
5.0	SW/GW-SAND and GRAVEL, little clay, brown	836.7		3SS			0
	CL-CLAY, some silt, little gravel, brown	835.8					
	END OF HOLE @ 6.0 FT. BGS	835.0					
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-13)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DD-3
DATE COMPLETED: MAY 25, 1993
DRILLING METHOD: 3 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	838.9					
	ML-SILT(FILL), some clay, little sand, trace gravel, brick fragments, black		7"ø BOREHOLE	1SS			0
2.5	CL-CLAY, some silt, black – trace sand, trace gravel, brown and tan	835.9	BENTONITE GROUT	2SS			0
5.0				3SS			
7.5				4SS			0
	END OF HOLE @ 8.0 FT. BGS	830.9					
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-14)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DD-4
DATE COMPLETED: MAY 25, 1993
DRILLING METHOD: 3 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	836.3					
	SM-SAND(FILL), some silt, trace clay, trace gravel, black	834.3	7"ø BOREHOLE	1SS			183
2.5	CL-CLAY, some silt, little sand, gray		BENTONITE GROUT	2SS			563
5.0				3SS			0
7.5				4SS			
	END OF HOLE @ 8.0 FT. BGS	828.3					
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-15)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: BH-DD-5
DATE COMPLETED: MAY 26, 1993
DRILLING METHOD: 3 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	838.0					
	SM-SAND(FILL), some silt, little clay, trace gravel, organics, coal fragments, red brick fragments, black	836.0		1SS			0
2.5	SP-SAND, trace clay, black	834.0	7"ø BOREHOLE	2SS			0
	ML-SILT, some clay, gray, wet	833.0	BENTONITE GROUT	3SS			0
5.0	CL-CLAY, little silt, gray, wet			4SS			0
7.5				5SS			
10.0	END OF HOLE @ 10.0 FT. BGS	828.0					
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

APPENDIX D

MONITORING WELL COMPLETION DETAILS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

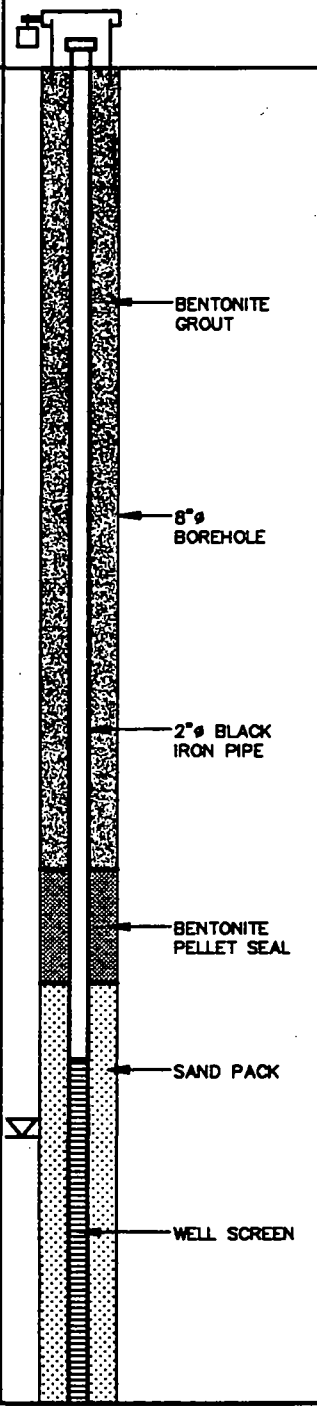
(L-01)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW2-36 (Page 1 of 2)
DATE COMPLETED: JUNE 9, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: B. HOLBROOK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	844.99
	GROUND SURFACE	842.4
	SC-SAND(FILL), little clay, trace gravel, tan	
	- gray	840.4
2.5	ML-SILT, some clay, trace sand, gray	838.8
	CL-CLAY, little sand, trace organics, dark brown	837.9
5.0	CL-CLAY some silt, gray and brown with greenish streaks	
7.5		833.4
	SP-SAND, fine grained, tan	
10.0	- trace pyrite fragments, white and brown	
	- trace gravel, medium grained, brown, wet	
12.5		
15.0		826.6
	CL-CLAY some silt, trace sand, gray, wet	
17.5		824.4
	SP-SAND, little clay, brown, wet	
	- trace gravel, fine grained, brown, moist	822.4
20.0	SW-SAND, little gravel, trace clay, medium to coarse grained, brown	
22.5		819.0
	CL-CLAY, trace silt, trace gravel, gray	818.7
25.0	SW/GW-SAND and GRAVEL	816.8
	CL-CLAY, trace gravel, gray	816.4
27.5	SP-SAND, trace clay, trace gravel, coarse grained, brown	814.4
	- no gravel or clay, fine grained, wet	814.4
	CL-CLAY, little sand, gray, wet	813.3
30.0	SW/GW-SAND and GRAVEL, gray	812.9
	CL-CLAY some silt, gray	811.9
32.5	SW/GW-SAND and GRAVEL, some pebbles, saturated	

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		25	
2SS		15	
3ST			
4SS		7	
5SS		16	
6SS		18	
7SS		15	
8SS		12	
9SS		14	
10SS		50	
11SS		16	
12SS		35	
13SS		15	
14SS		11	
15SS		16	
16SS		22	
17SS		34	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

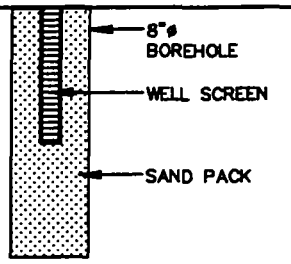
CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-01)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW2-36 (Page 2 of 2)
DATE COMPLETED: JUNE 9, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: B. HOLBROOK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
35.0				17SS		34	
				18SS		11	
37.5							
40.0	END OF HOLE @ 39.0 FT. BGS	803.4	SCREEN DETAILS: Screened Interval: 26.0 to 36.0' BGS Length -10.0' Diameter -2.0" Slot # 10 Material -Stainless Steel Sand pack interval: 24.0 to 39.0' BGS Material -Natural				
42.5							
45.0							
47.5							
50.0							
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

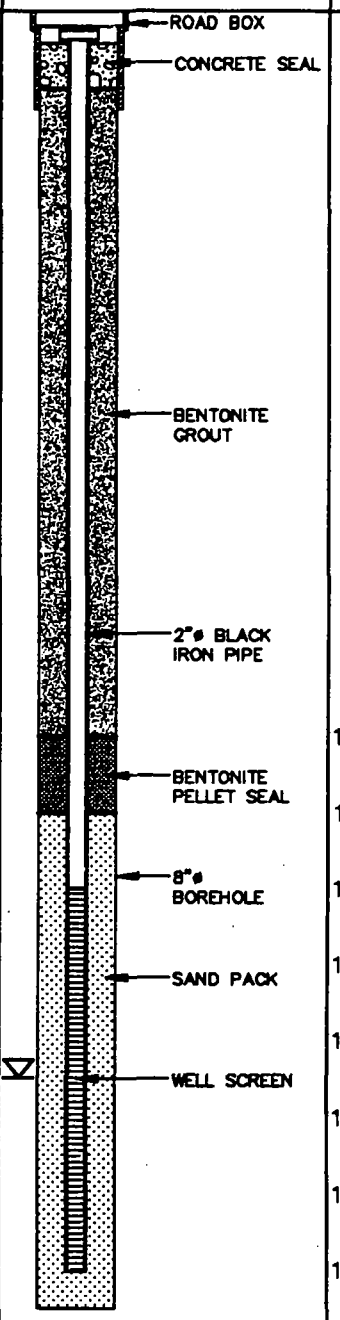
(L-02)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW3-33 (Page 1 of 2)
DATE COMPLETED: JUNE 16, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: B. HOLBROOK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	839.69
	GROUND SURFACE	840.1
	Asphalt	839.8
	SP-SAND(FILL), little gravel, brown and black, mottled	
2.5	– trace silt, organics, no gravel	
5.0	CL-CLAY, some sand, trace silt, brown	835.0
	SP-SAND, fine grained, brown with traces of black	834.5
7.5	CL-CLAY, some silt, sand seams, brown	832.8
	SP-SAND, trace clay, trace gravel, fine grained, brown	832.1
10.0		
	– trace silt, no clay or gravel	
12.5		
15.0		
17.5		
20.0		
22.5		
25.0		
	SW-SAND, medium to coarse grained, brown, moist	814.3
27.5	SW/GW-SAND and GRAVEL, saturated	812.4
		812.1
30.0		
32.5		
	END OF HOLE @ 34.0 FT. BGS	806.1

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS	X	6	
2SS	X	6	
3SS	X	8	
4SS	X	14	
5SS	X	20	
6SS	X	27	
7SS	X	18	
8SS	X	14	
9SS	X	13	
10SS	X	18	
11SS	X	24	
12SS	X	18	
13SS	X	19	
14SS	X	14	
15SS	X	14	
16SS	X	21	
17SS	X	16	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-02)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW3-33 (Page 2 of 2)
DATE COMPLETED: JUNE 16, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: B. HOLBROOK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
35.0			SCREEN DETAILS: Screened Interval: 23.0 to 33.0' BGS Length -10.0' Diameter -2.0" Slot # 10 Material -Stainless Steel Sand pack interval: 21.0 to 34.0' BGS Material -Natural				
37.5							
40.0							
42.5							
45.0							
47.5							
50.0							
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

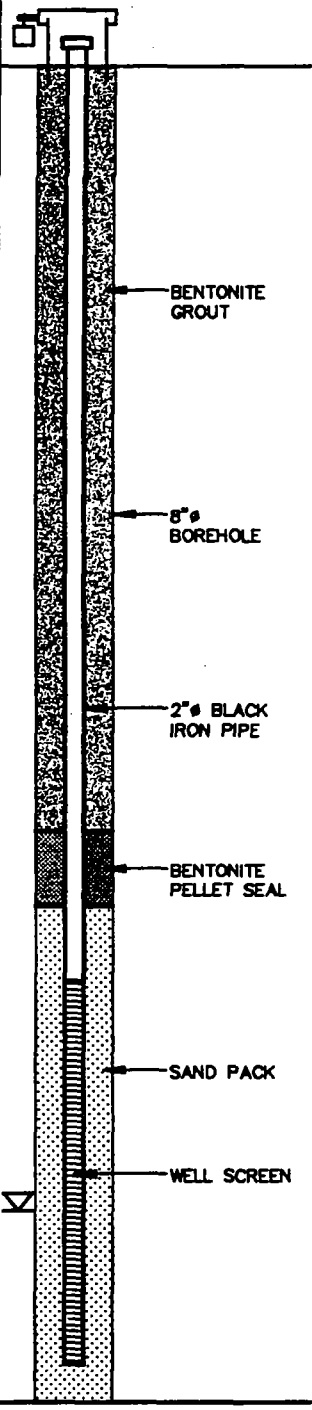
(L-03)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW4-34 (Page 1 of 2)
DATE COMPLETED: JUNE 3, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	844.14
	GROUND SURFACE	841.8
	SP-SAND(FILL), little gravel, tan	840.8
	SM-SAND(FILL), some silt, little gravel, organics, brown	839.8
2.5	ML-SILT some clay, little sand, trace gravel, gray, green and black	838.8
5.0	CL-CLAY some silt, trace gravel, very soft, gray, green and brown, mosttled, moist – little sand, organics, light gray and brown, mottled	835.8
7.5	ML-SILT some sand, little clay, trace gravel, grayish brown	835.1
	CL-CLAY, some silt, trace gravel, sand seams, brownish tan	832.1
10.0	SP-SAND, fine grained, tan	831.5
	CL-CLAY some silt, trace gravel, brown	831.0
12.5	SP-SAND, fine grained, tan	828.8
	CL-CLAY some silt, trace gravel, tan	827.8
15.0	ML-SILT some clay, trace gravel, trace sand, gray	827.1
	SP-SAND, trace clay, brownish tan, moist	826.6
	CL-CLAY some silt, trace gravel, gray	826.3
17.5	SP-SAND, tan	826.0
	ML-SILT some clay, trace gravel, brownish gray	825.8
20.0	SP-SAND, gray, damp	823.9
	CL-CLAY some silt, trace gravel, gray	823.6
22.5	SP-SAND, grayish tan, wet	822.5
	CL-CLAY some silt, gray, moist	821.6
25.0	SW-SAND, trace gravel, fine to coarse grained, gray and tan	
27.5		
30.0	SW/GW-SAND and GRAVEL, trace clay, brown and gray – saturated	812.8
32.5		811.8

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS	X	10	
2SS	X	WH	
3SS	X	9	
4SS	X	11	
5SS	X	12	
6SS	X	17	
7SS	X	12	
8SS	X	12	
9SS	X	14	
10SS	X	10	
11SS	X	31	
12SS	X	21	
13SS	X	16	
14SS	X	19	
15SS	X	18	
16SS	X	17	
17SS	X	20	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

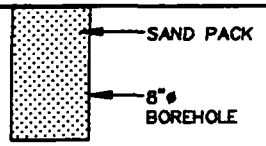
CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-03)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW4-34
(Page 2 of 2)
DATE COMPLETED: JUNE 3, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
35.0	CL-CLAY some silt, trace gravel, gray (34.0 to 34.2 ft BGS)			18SS	X	24	
	END OF HOLE @ 36.0 FT. BGS	805.8					
37.5			SCREEN DETAILS: Screened Interval: 24.0 to 34.0' BGS Length -10.0' Diameter -2.0" Slot # 10 Material -Stainless Steel Sand pack interval: 22.0 to 36.0' BGS Material -Natural				
40.0							
42.5							
45.0							
47.5							
50.0							
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

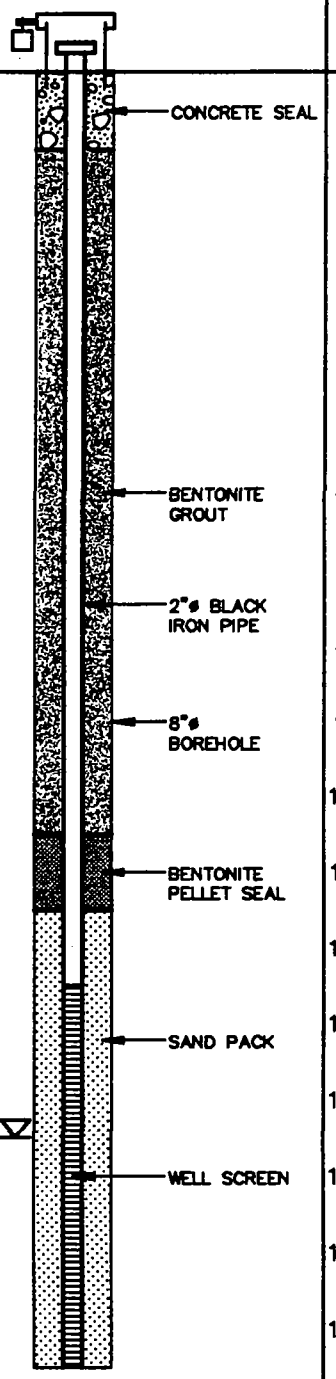
(L-04)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW5-34 (Page 1 of 2)
DATE COMPLETED: JUNE 3, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	842.87
	GROUND SURFACE	840.6
	CL-CLAY(FILL), some silt, little gravel, glass fragments, black	
	– trace gravel, trace sand, light gray	
2.5		
5.0	– no gravel, green gray	
7.5	– gray and tan	
10.0	– copper wire fragment	
12.5	SP-SAND, trace gravel, tan	828.3
	CL-CLAY some silt, trace gravel, brown	826.4
15.0	SP-SAND, tan	825.6
	CL-CLAY some silt, brown	825.3
	SP-SAND, tan	825.0
17.5	CL-CLAY some silt, brown	824.5
	SP-SAND, tan	824.3
	CL-CLAY some silt, trace gravel, gray	823.2
20.0	SW/GW-SAND and GRAVEL, light gray	822.1
22.5		
25.0	CL-CLAY some silt, little sand, gray, damp	815.1
	SW/GW-SAND and GRAVEL, light gray	814.6
27.5	CL-CLAY some silt, some gravel, gray	813.3
	SM-SAND some silt, gray, moist	813.2
	SW/GW-SAND and GRAVEL, light gray, damp	812.6
30.0	CL-CLAY layer, some silt (28.7 to 29.6 ft BGS) – saturated	812.6
32.5		
	END OF HOLE @ 34.0 FT. BGS	806.6

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		26	
2SS		14	
3SS		5	
4SS		6	
5SS		7	
6SS		49	
7SS		21	
8SS		17	
9SS		23	
10SS		26	
11SS		15	
12SS		15	
13SS		9	
14SS		20	
15SS		18	
16SS		14	
17SS		12	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-04)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW5-34 (Page 2 of 2)
DATE COMPLETED: JUNE 3, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
35.0			SCREEN DETAILS: Screened Interval: 24.0 to 34.0' BGS Length -10.0' Diameter -2.0" Slot # 10 Material -Stainless Steel Sand pack interval: 22.0 to 34.0' BGS Material -Natural				
37.5							
40.0							
42.5							
45.0							
47.5							
50.0							
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

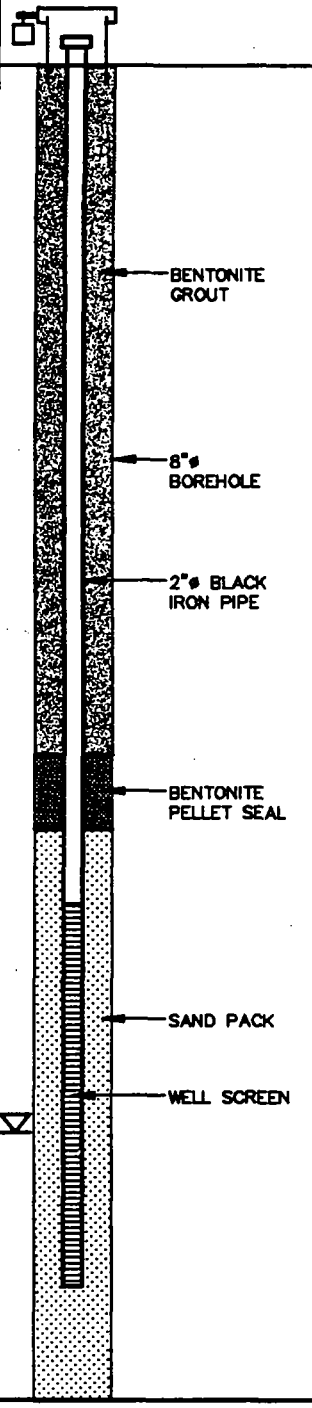
(L-05)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW6-32 (Page 1 of 2)
DATE COMPLETED: MAY 27, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	843.30
	GROUND SURFACE	841.1
	SM-SAND some silt, little gravel and slag, brown	
2.5	CL-CLAY, little silt, little sand, grayish brown	838.6
	SP-SAND, tan gray, moist	838.1
5.0	CL-CLAY, trace silt, tan – black – brown – copper scrap (7.0 to 8.0 ft BGS)	837.1
7.5	CL-CLAY some silt, gray	833.1
10.0	SP-SAND, tan, dry	830.8
12.5	ML-SILT some clay, gray, damp	827.1
15.0	SP-SAND, tan, dry	826.1
17.5	ML-SILT, gray, dry	824.6
20.0	SW/GW-SAND and GRAVEL, red sandstone fragments, brown	820.1
22.5	– trace clay, trace silt, gray	
25.0		
27.5	– little clay, little silt, saturated	813.1
30.0		
32.5		

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS	X	>50	0
2SS	X	23	0
3SS	X	11	0
4SS	X	9	0
5SS	X	9	0
6SS	X	21	3
7SS	X	20	3
8SS	X	11	0
9SS	X	21	7
10SS	X	16	3
11SS	X	25	0
12SS	X	22	0
13SS	X	23	0.5
14SS	X	30	0
15SS	X	13	4
16SS	X	12	0
17SS	X	25	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

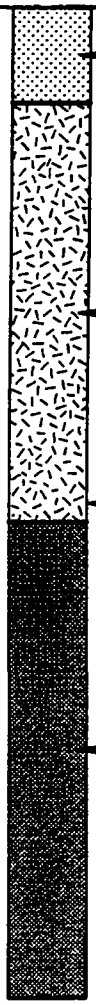
(L-05)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW6-32 (Page 2 of 2)
DATE COMPLETED: MAY 27, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	– cobble sized gravel	
35.0		
	– 1" to 3" interbedded gray silt layers	
37.5		
40.0		
42.5		
45.0		
47.5		
	ML–SILT some clay, trace gravel, gray	792.1
50.0	SP–SAND, little gravel, gray	791.6
	– red sandstone fragments	791.2
	CL–CLAY(TILL), some silt, little gravel, gray	
52.5		
	– tan sandstone fragments	
55.0	– coal and shale fragments	
	SP–SAND and WEATHERED SANDSTONE	784.6
57.5		783.1
	CL–CLAY(TILL), some silt, trace gravel, gray	782.8
	SANDSTONE, gray	782.6
60.0	END OF HOLE @ 58.5 FT. BGS	
62.5		
65.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
22.0 to 32.0' BGS
Length –10.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
20.0 to 35.0' BGS
Material –Natural

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
18SS		19	0
19SS		15	0
20SS		28	0
21SS		24	0
22SS		19	0
23SS		19	0
24SS		20	0
25SS		16	0
26SS		124	0
27SS		43	0
28SS		>50	0
29SS		>50	
30SS			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-06)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW7-33
DATE COMPLETED: JUNE 8, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser)	843.57					
	GROUND SURFACE	841.3					
	For stratigraphy see MW7-48						
2.5							
5.0				1ST	X		
7.5			2"ø BLACK IRON PIPE				
10.0			BENTONITE GROUT				
12.5							
15.0							
17.5			8"ø BOREHOLE				
20.0			BENTONITE PELLET SEAL				
22.5							
25.0			SAND PACK				
27.5		812.8	WELL SCREEN				
30.0							
32.5							
	END OF HOLE @ 33.0 FT. BGS	808.3					

SCREEN DETAILS:
Screened Interval:
23.0 to 33.0' BGS
Length -10.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
21.0 to 33.0' BGS
Material -Natural

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

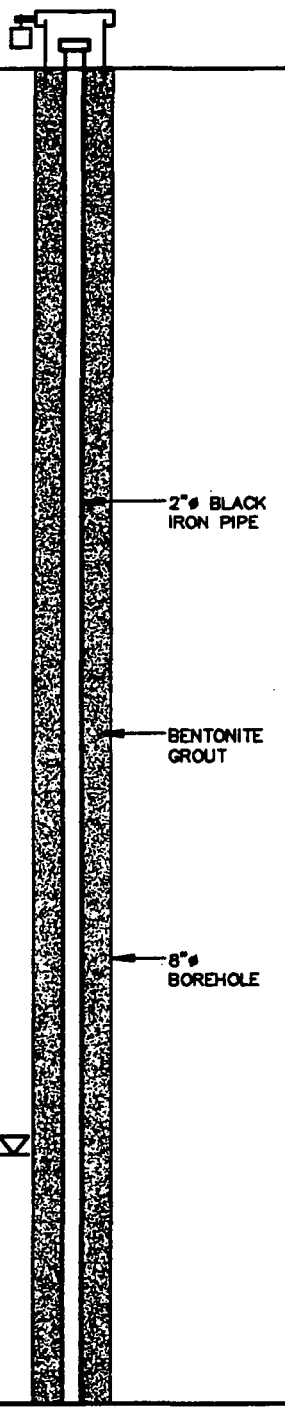
(L-07)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW7-48 (Page 1 of 2)
DATE COMPLETED: JUNE 4, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	843.80
	GROUND SURFACE	841.4
	SW/GW-SAND and GRAVEL(FILL), tan	841.2
	COAL(FILL), black	
2.5	SM-SAND, some silt, tan	838.8
	CL-CLAY, some silt, trace sand	838.1
5.0		
	SP-SAND, trace clay, tan	835.4
	CL-CLAY, some silt, tan	835.2
7.5	SP-SAND, trace clay, tan	834.1
	SM-SAND, some silt, trace clay, tan	833.7
	SP-SAND, fine grained, tan	833.4
10.0		
	CL-CLAY, some silt, trace sand, tan	829.7
12.5	SP-SAND, trace silt, brown	829.0
	- trace gravel, medium grained	
15.0		
	SW/GW-SAND and GRAVEL, trace clay, medium grained, brown	826.0
17.5		
	SM/ML-SAND and SILT, fine grained, light gray	822.4
20.0		
	SP-SAND, medium grained, tan	820.0
22.5	ML-SILT, trace clay, gray	819.4
25.0		
	SM/ML-SAND and SILT, trace clay, gray, damp	816.2
	SP-SAND, trace gravel, gray, damp	815.4
27.5		
	SW/GW-SAND and GRAVEL, trace clay, saturated	813.4
		812.9
30.0		
32.5	- little pebbles, no clay	

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		24	
2SS		7	
3SS		8	
4SS		14	
5SS		27	
6SS		21	
7SS		15	
8SS		18	
9SS		20	
10SS		51	
11SS		26	
12SS		30	
13SS		14	
14SS		10	
15SS		11	
16SS		10	
17SS		9	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

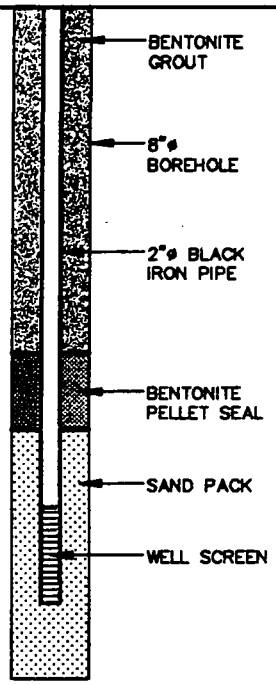
(L-07)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW7-48 (Page 2 of 2)
DATE COMPLETED: JUNE 4, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
35.0		
37.5		
40.0		
42.5		
45.0		
47.5		
	ML-SILT, trace sand and gravel, moist	792.4
50.0	CL-CLAY(TILL), trace silt, trace gravel, moist	791.9
	END OF HOLE @ 50.0 FT. BGS	791.4
52.5		
55.0		
57.5		
60.0		
62.5		
65.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
45.5 to 48.0' BGS
Length -2.5'
Diameter -2.0"
Slot # 10
Material -Stainless Steel used below water table, black riser used above.
Sand pack interval:
43.5 to 50.0' BGS
Material -Natural

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
18SS	X	16	
19SS	X	14	
20SS	X	15	
21SS	X	25	
22SS	X	15	
23SS	X	12	
24SS	X	18	
25SS	X	27	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

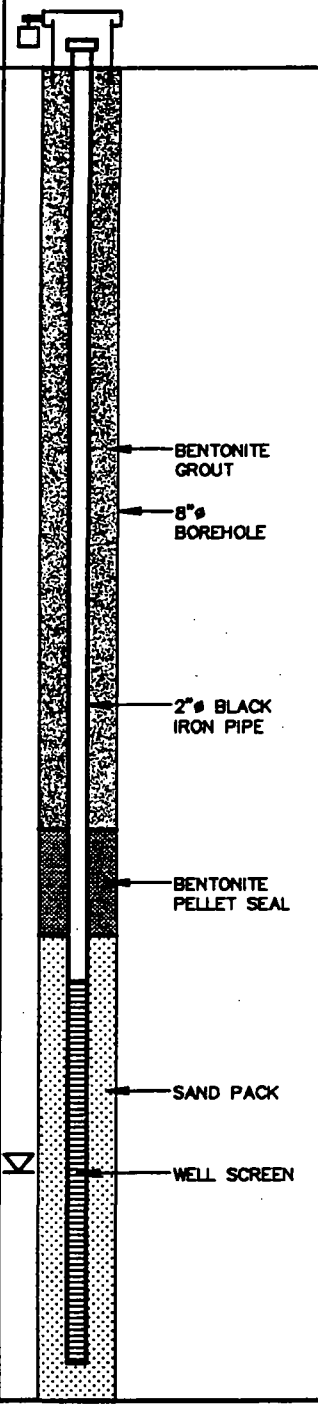
(L-08)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW8-34 (Page 1 of 3)
DATE COMPLETED: JUNE 2, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	844.14
	GROUND SURFACE	842.1
	SW/GW-SAND and GRAVEL, little silt, tan	841.3
	SM-SAND, little silt, trace clay, trace gravel, dark brown	840.6
2.5	SP-SAND, trace silt, trace clay, tan, moist	
5.0		
7.5	CL-CLAY, some silt, trace sand, trace gravel, brown, moist	834.7
10.0		
12.5		
15.0		
	SW/GW-SAND and GRAVEL, tan	826.1
17.5		
20.0		
22.5		
25.0	GW-GRAVEL, little sand, gray	817.6
	ML-SILT, some silt, trace gravel, gray, moist	816.6
27.5		
	GW-GRAVEL, some sand, trace clay, gray, saturated	813.6 / 813.1
30.0	SW/GW-SAND and GRAVEL, trace clay, gray	812.1
32.5		

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS	X	9	
2SS	X	6	
3SS	X	8	
4SS	X	16	
5SS	X	20	
6SS	X	16	
7SS	X	10	
8SS	X	15	
9SS	X	31	
10SS	X	23	
11SS	X	23	
12SS	X	18	
13SS	X	16	
14SS	X	6	
15SS	X	30	
16SS	X	17	
17SS	X	18	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

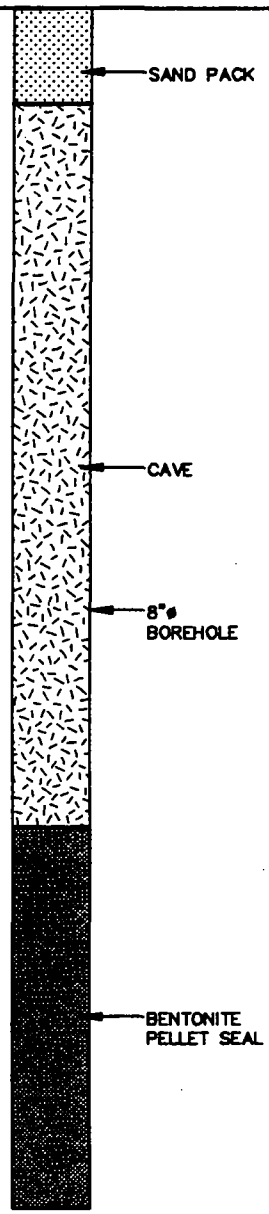
(L-08)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW8-34 (Page 2 of 3)
DATE COMPLETED: JUNE 2, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
35.0		
37.5	– coarser gravel	
40.0		
42.5		
45.0		
47.5		
50.0		
52.5		
55.0	CL-CLAY(TILL), some silt, little gravel, gray	787.6
57.5	SC-SAND, little clay, gray (57.0 to 57.5 ft BGS)	
60.0		
62.5	WEATHERED BEDROCK, light gray sandstone fragments, sand, interbedded glacial till	779.1
65.0	END OF HOLE @ 64.0 FT. BGS	778.1

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
18SS	X	15	
19SS	X	9	
20SS	X	8	
21SS	X	7	
22SS	X	7	
23SS	X	15	
24SS	X	12	
25SS	X	23	
26SS	X	10	
27SS	X	15	
28SS	X	15	
29SS	X	35	
30SS	X	36	
31SS	X	42	
32SS	X	43	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-08)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW8-34
(Page 3 of 3)
DATE COMPLETED: JUNE 2, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
67.5			SCREEN DETAILS: Screened Interval: 24.0 to 34.0' BGS Length -10.0' Diameter -2.0' Slot # 10 Material -Stainless Steel Sand pack interval: 22.8 to 35.0' BGS Material -Natural				
70.0							
72.5							
75.0							
77.5							
80.0							
82.5							
85.0							
87.5							
90.0							
92.5							
95.0							
97.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

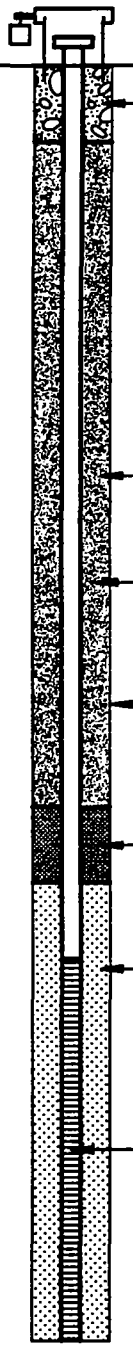
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-09)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW9-33
DATE COMPLETED: JUNE 15, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: T. BENKO

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	841.62 842.1					
	For stratigraphy see MW9-45						
2.5			CONCRETE SEAL				
5.0							
7.5				1ST	X		
10.0			BENTONITE GROUT				
12.5			2"ø BLACK IRON PIPE				
15.0							
17.5			8"ø BOREHOLE				
20.0			BENTONITE PELLET SEAL				
22.5							
25.0			SAND PACK				
27.5							
30.0			WELL SCREEN				
32.5							
	END OF HOLE @ 33.5 FT. BGS	808.6					



SCREEN DETAILS:
Screened interval:
23.5 to 33.5' BGS
Length -10.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
21.5 to 33.5' BGS
Material -Natural

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

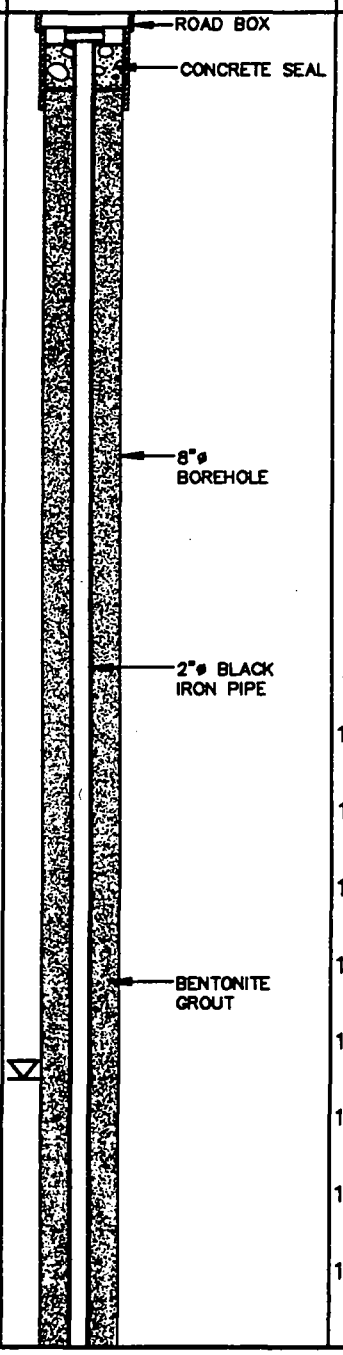
(L-10)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW9-45 (Page 1 of 2)
DATE COMPLETED: JUNE 14, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: B. HOLBROOK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	841.71
	GROUND SURFACE	842.0
	Concrete	841.2
	SW/GW-SAND and GRAVEL(FILL), some shales, trace clay, black	840.2
2.5	CL-CLAY, some sand, brown and black, mottled	840.0
	SW/GW-SAND and GRAVEL, little pebbles, black, wet	838.2
5.0	CL-CLAY, some silt, trace gravel, brown	838.0
	CL-CLAY, some sand, little silt, brown, moist	836.7
7.5	CL-CLAY, trace sand, trace silt, brown and gray, mottled	836.0
	CL-CLAY, some silt, light brown	
10.0	SM-SAND, some silt, brown	832.4
	SP-SAND, trace silt, fine grained, brown	832.2
	CL-CLAY, some silt, brown and black, mottled	832.0
12.5	SP-SAND, trace silt, trace gravel, fine grained, brown	831.0
15.0		
	ML-SILT, some clay, trace sand, brown	826.3
17.5	SP-SAND, trace clay, brown, wet	826.0
	CL-CLAY, some silt, little sand, trace gravel, brown	824.0
20.0	- gray	
	SW-SAND, trace gravel, trace silt, medium to coarse grained, gray	821.1
22.5		
25.0	GW-GRAVEL, some sand, little pebbles, brown	817.2
27.5	ML-SILT, some clay, trace gravel, saturated	815.0
	SP-SAND, trace gravel, coarse grained, saturated	814.0
30.0	ML-SILT, some clay, gray	813.0
	SW-SAND, trace gravel, medium to coarse grained	812.8
32.5	SM-SAND, some silt, trace clay, gray, saturated	811.2

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		9	
2SS		12	
3SS		3	
4SS		9	
5SS		16	
6SS		19	
7SS		29	
8SS		19	
9SS		24	
10SS		14	
11SS		29	
12SS		29	
13SS		46	
14SS		22	
15SS		22	
16SS		13	
17SS		16	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

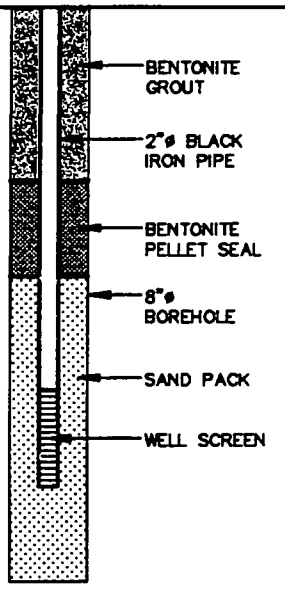
(L-10)

PROJECT NAME: BARRELS
PROJECT NO.: 4869
CLIENT: BARRELS INC.
LOCATION: LANSING, MICHIGAN

HOLE DESIGNATION: MW9-45 (Page 2 of 2)
DATE COMPLETED: JUNE 14, 1993
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: B. HOLBROOK

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	CL-CLAY, some silt, trace gravel, gray	808.5 / 808.3
35.0	SP-SAND, trace gravel, trace clay, brown, saturated	
	COBBLES, some gravel, some sand, little clay, saturated	806.0 / 805.0
37.5	SP/GP-SAND and GRAVEL, coarse, saturated	
40.0		
42.5		
45.0		
	CL-CLAY(TILL), some silt, trace gravel	796.2
47.5	END OF HOLE @ 47.5 FT. BGS	794.5
50.0		
52.5		
55.0		
57.5		
60.0		
62.5		
65.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
42.5 to 45.0' BGS
Length -2.5'
Diameter -2.0"
Slot # 10
Material -Stainless Steel used below water table, black riser used above.
Sand pack interval:
39.5 to 47.5' BGS
Material -Natural

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
18SS	X	9	
19SS	X	29	
20SS	X	29	
21SS	X	27	
22SS	X	38	
23SS	X	37	
24SS	X	88	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

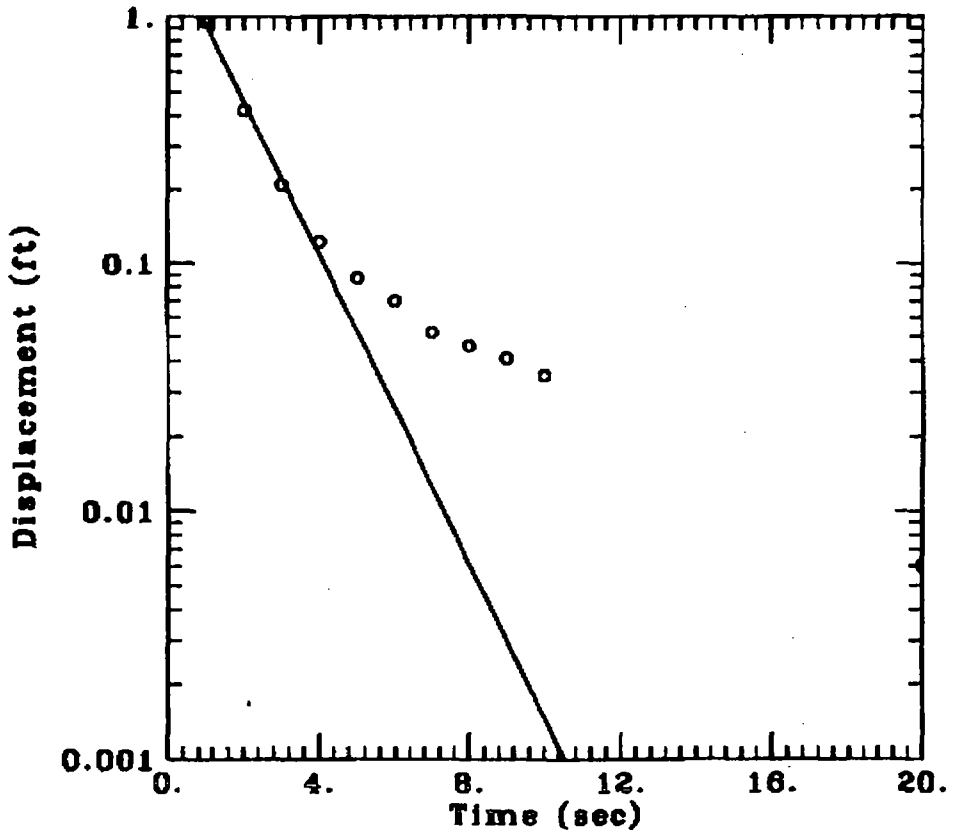
CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

APPENDIX E

SINGLE WELL RESPONSE TEST RESULTS

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-2-36: RISING HEAD TEST#1



DATA SET:
236_r1.dat
09/23/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/09/93

TEST WELL:
MW2-36

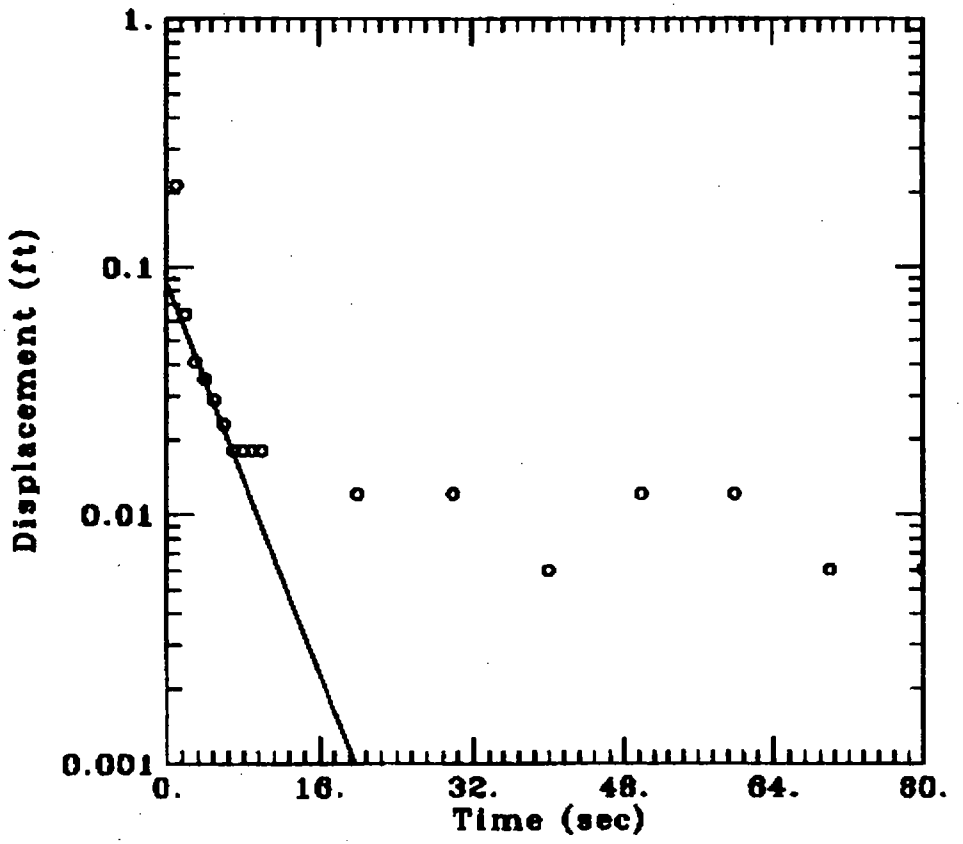
OBS. WELL:
MW2-36

ESTIMATED PARAMETERS:
K = 0.002732 ft/sec
y0 = 1.922 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.195 ft
rw = 0.333 ft
L = 10. ft
b = 21.68 ft
H = 6.63 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-3-33: RISING HEAD TEST#1



DATA SET:
333_r1.dat
09/03/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/09/93

TEST WELL:
MW3-33

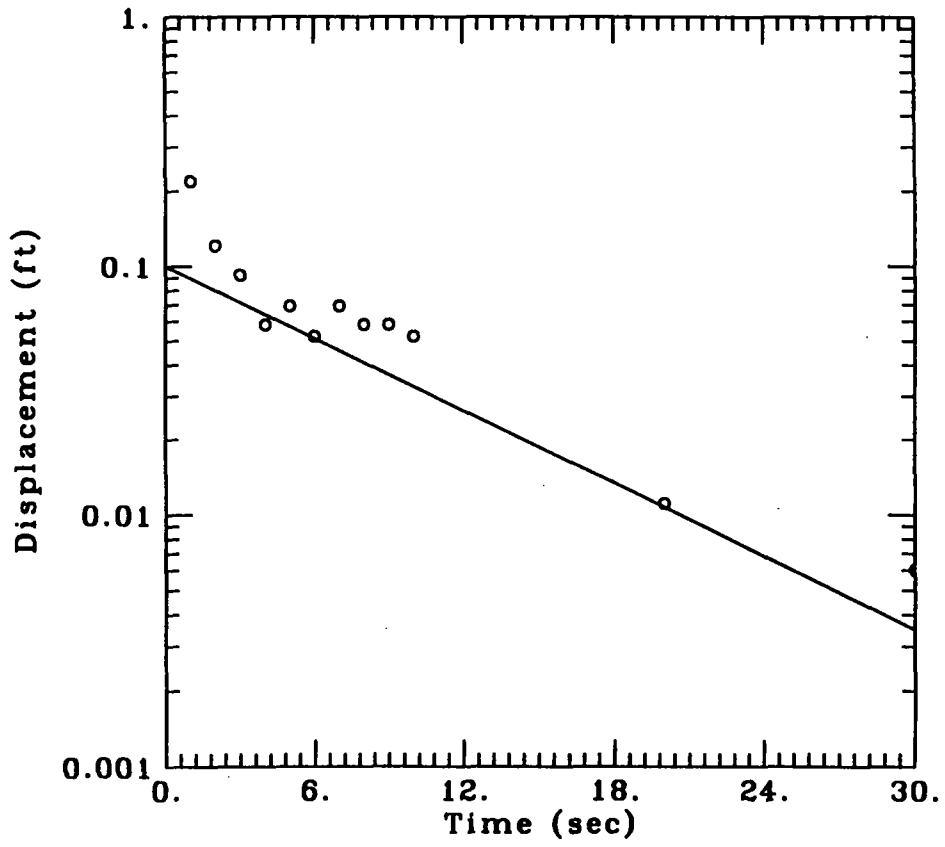
OBS. WELL:
MW3-33

ESTIMATED PARAMETERS:
K = 0.0008627 ft/sec
y0 = 0.08629 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.195 ft
rw = 0.333 ft
L = 10. ft
b = 21.68 ft
H = 6.63 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-4-34: RISING HEAD TEST#1



DATA SET:
434_R1.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW4-34

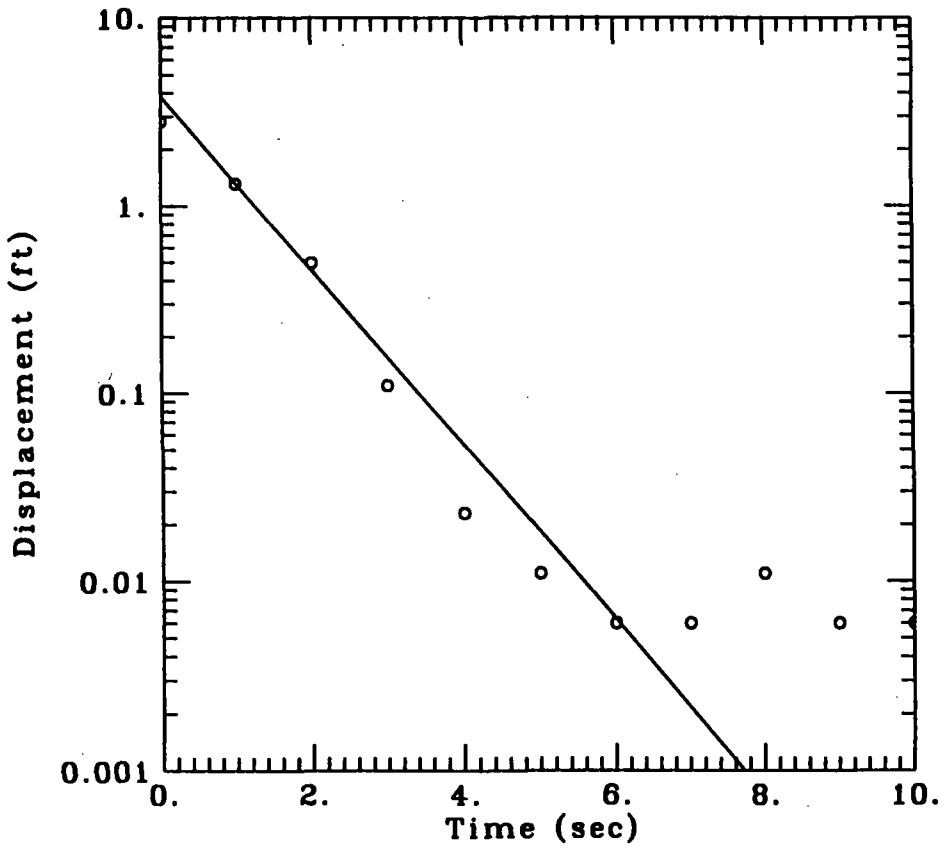
OBS. WELL:
MW4-34

ESTIMATED PARAMETERS:
K = 0.0004167 ft/sec
y0 = 0.09973 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.195 ft
rw = 0.333 ft
L = 10. ft
b = 21.68 ft
H = 6.133 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-4-50: FALLING HEAD TEST#1



DATA SET:
450_f1.dat
08/23/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW4-50

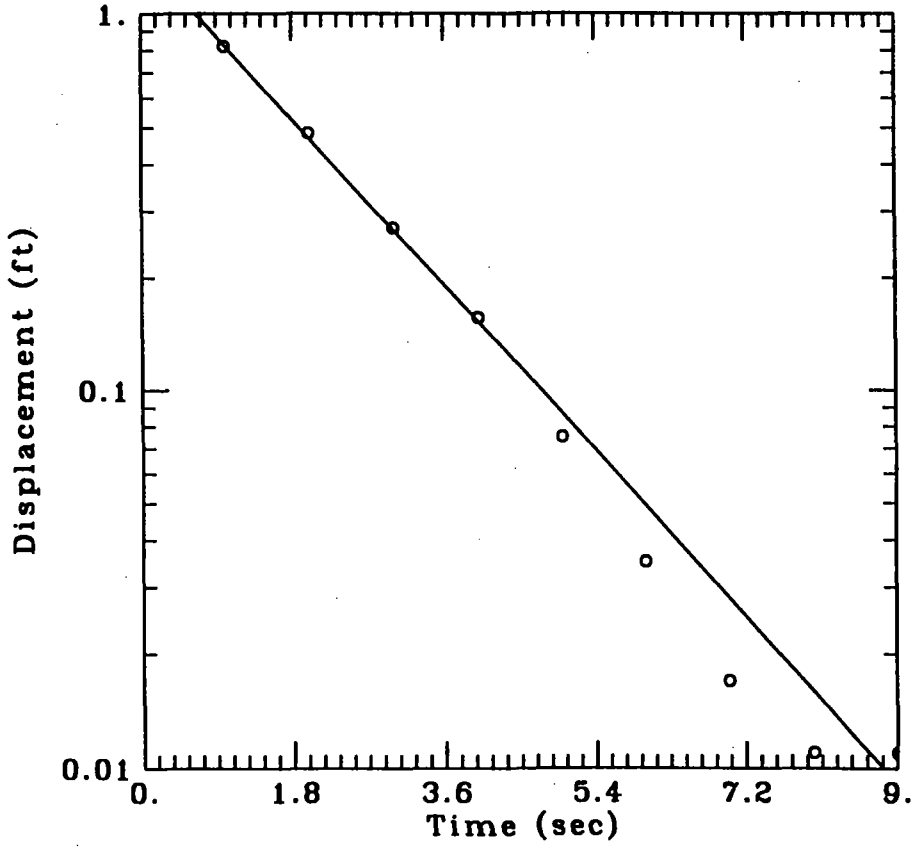
OBS. WELL:
MW4-50

ESTIMATED PARAMETERS:
K = 0.00203 ft/sec
y0 = 3.841 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.083 ft
rw = 0.333 ft
L = 5. ft
b = 21.86 ft
H = 21.86 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-4-50: RISING HEAD TEST#1



DATA SET:
450_r1.dat
08/23/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW4-50

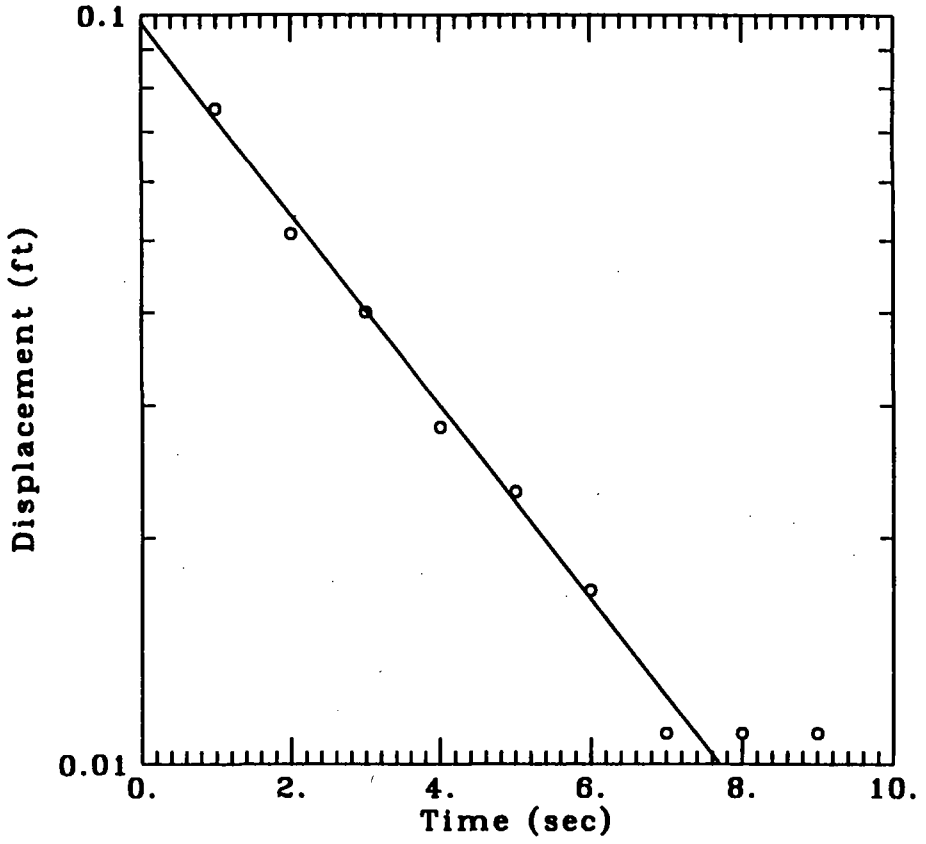
OBS. WELL:
MW4-50

ESTIMATED PARAMETERS:
K = 0.00107 ft/sec
y0 = 1.453 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.083 ft
rw = 0.333 ft
L = 5. ft
b = 21.86 ft
H = 21.86 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-5-34: FALLING HEAD TEST#1



DATA SET:
534_F1.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW5-34

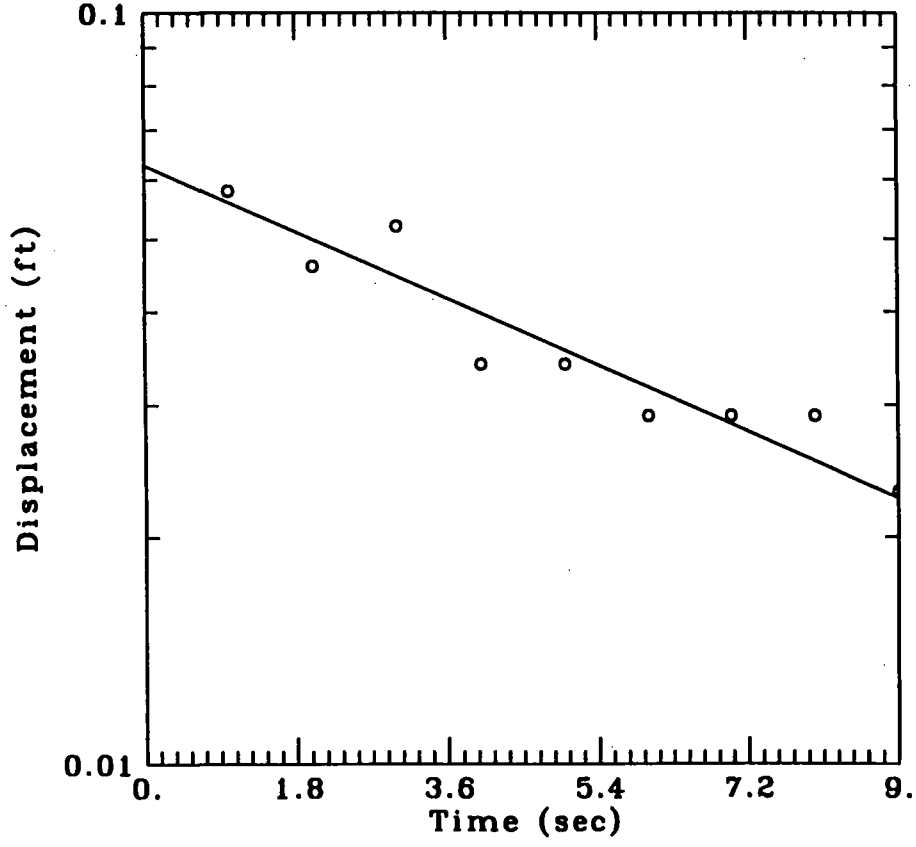
OBS. WELL:
MW5-34

ESTIMATED PARAMETERS:
K = 0.0001997 ft/sec
y0 = 0.09757 ft

TEST DATA:
H0 = 1.98 ft
rc = 0.083 ft
rw = 0.333 ft
L = 10. ft
b = 21.68 ft
H = 6.122 ft

Conestoga Rovers & Associates	Client: **Barrels Inc.**
Project No.: **4869**	Location: **Lansing, Michigan**

MW-5-34: RISING HEAD TEST#1



DATA SET:
534_R1.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW5-34

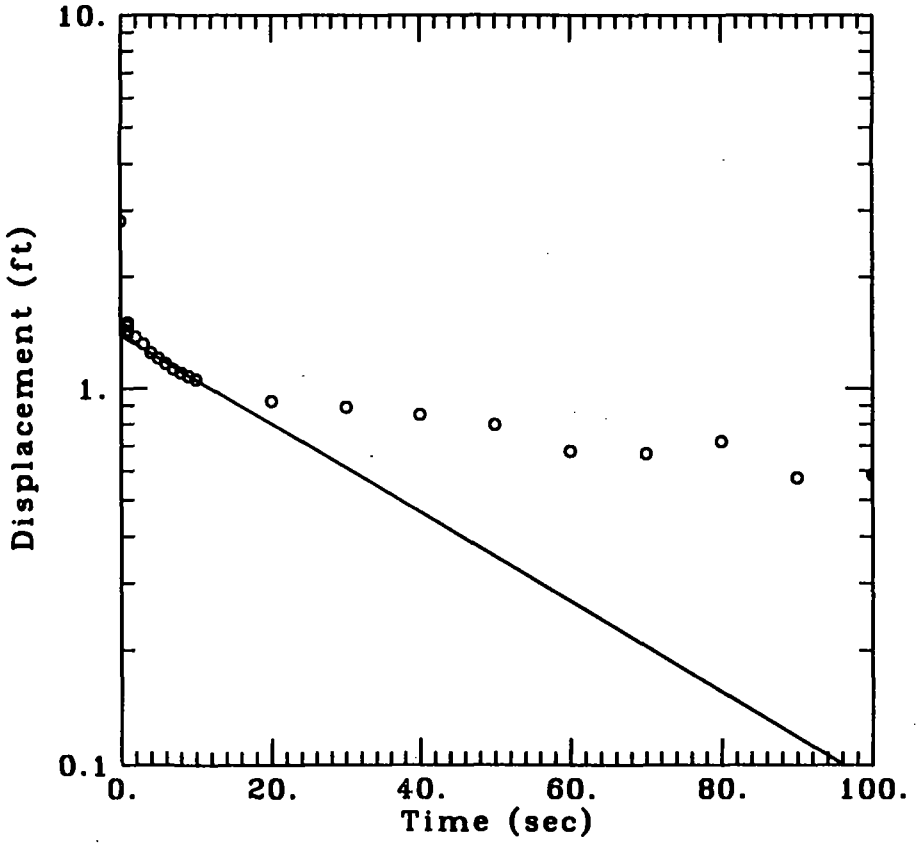
OBS. WELL:
MW5-34

ESTIMATED PARAMETERS:
K = 7.6992E-05 ft/sec
y0 = 0.06275 ft

TEST DATA:
H0 = 1.98 ft
rc = 0.083 ft
rw = 0.333 ft
L = 10. ft
b = 21.68 ft
H = 6.156 ft

Conestoga Rovers & Associates	Client: **Barrels Inc.**
Project No.: **4869**	Location: **Lansing, Michigan**

MW-6-32: RISING HEAD TEST#1



DATA SET:
632_R1.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW6-32

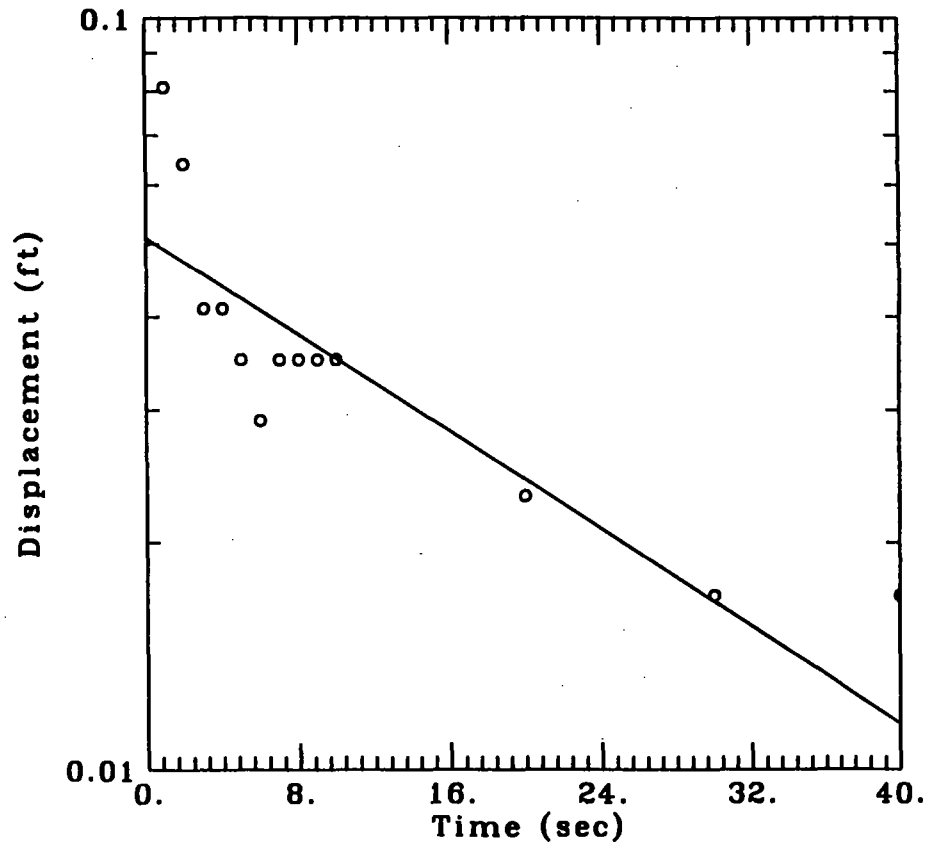
OBS. WELL:
MW6-32

ESTIMATED PARAMETERS:
K = 9.6128E-05 ft/sec
y0 = 1.386 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.195 ft
rw = 0.333 ft
L = 10. ft
b = 21.68 ft
H = 4.967 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-7-33: RISING HEAD TEST#1



DATA SET:
733_R1.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW7-33

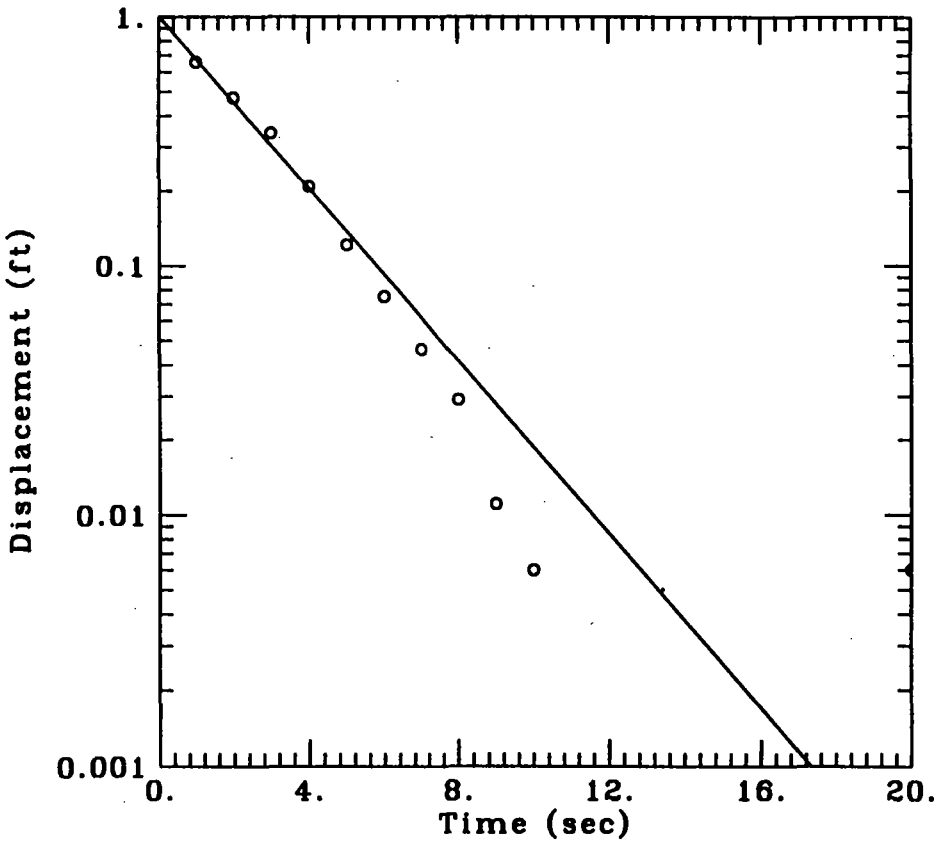
OBS. WELL:
MW7-33

ESTIMATED PARAMETERS:
K = 0.0001241 ft/sec
y0 = 0.05097 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.195 ft
rw = 0.333 ft
L = 10. ft
b = 21.68 ft
H = 4.135 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-7-48: FALLING HEAD TEST#1



DATA SET:
748_F1.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW7-48

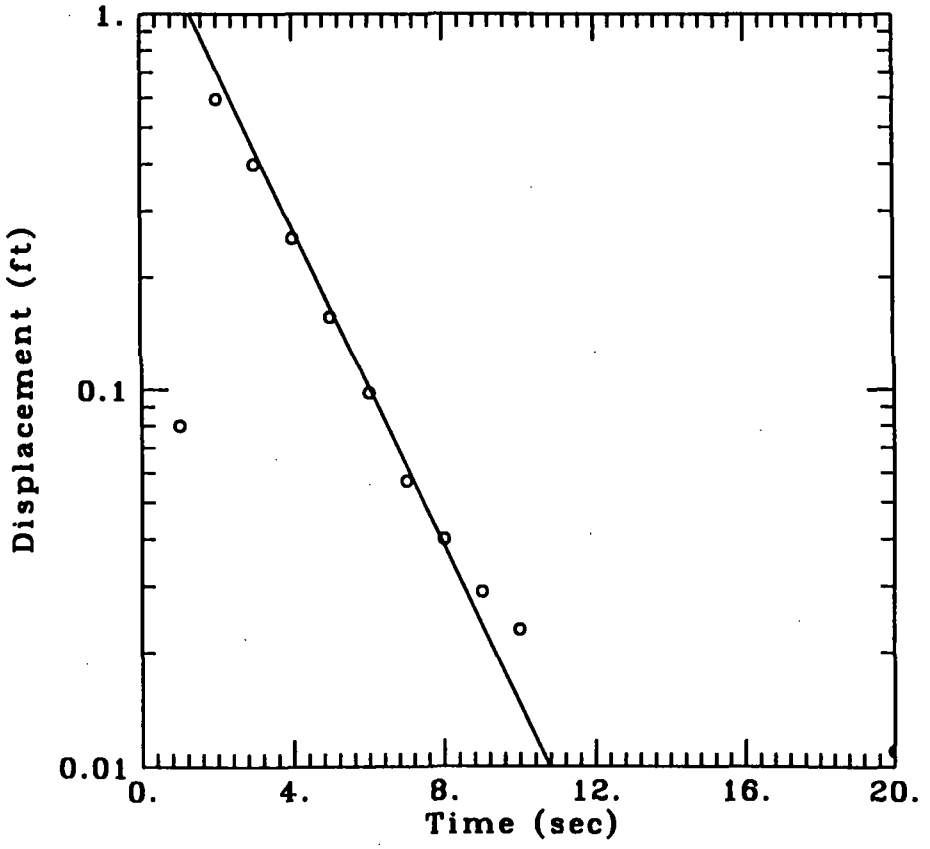
OBS. WELL:
MW7-48

ESTIMATED PARAMETERS:
K = 0.0005696 ft/sec
y0 = 1.011 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.083 ft
rw = 0.333 ft
L = 5. ft
b = 21.68 ft
H = 15.1 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-7-48: FALLING HEAD TEST#2



DATA SET:
748_F2.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW7-48

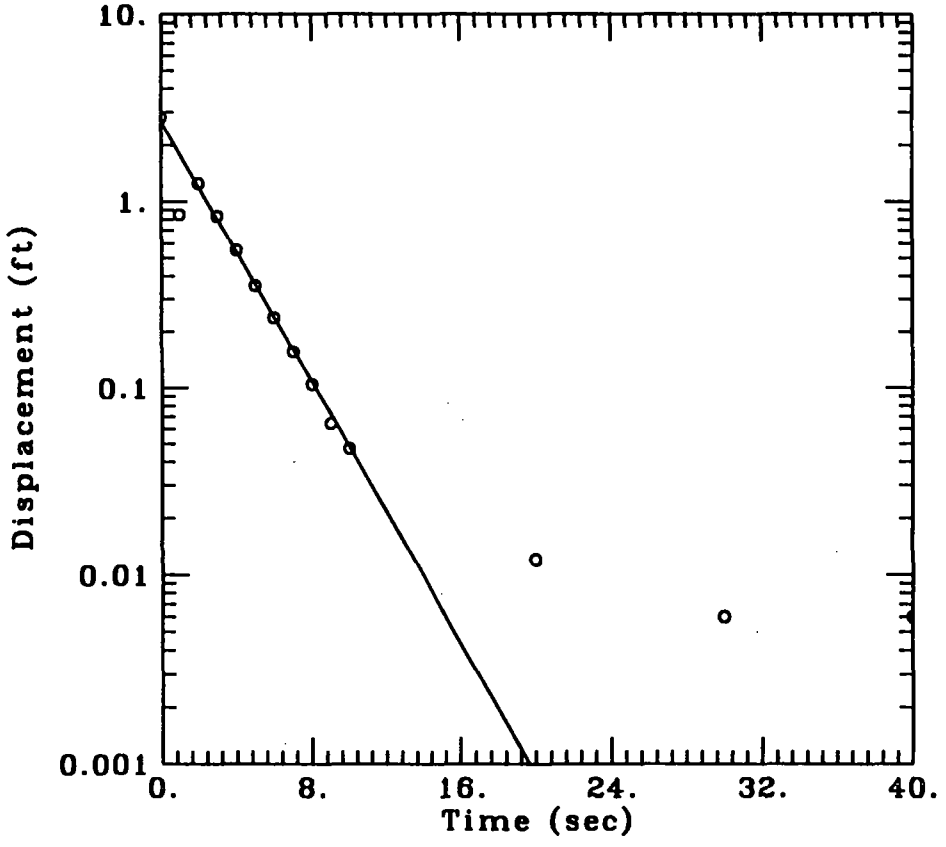
OBS. WELL:
MW7-48

ESTIMATED PARAMETERS:
K = 0.0006931 ft/sec
y0 = 1.875 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.083 ft
rw = 0.333 ft
L = 5. ft
b = 21.68 ft
H = 15.1 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-7-48: RISING HEAD TEST#1



DATA SET:
748_R1.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW7-48

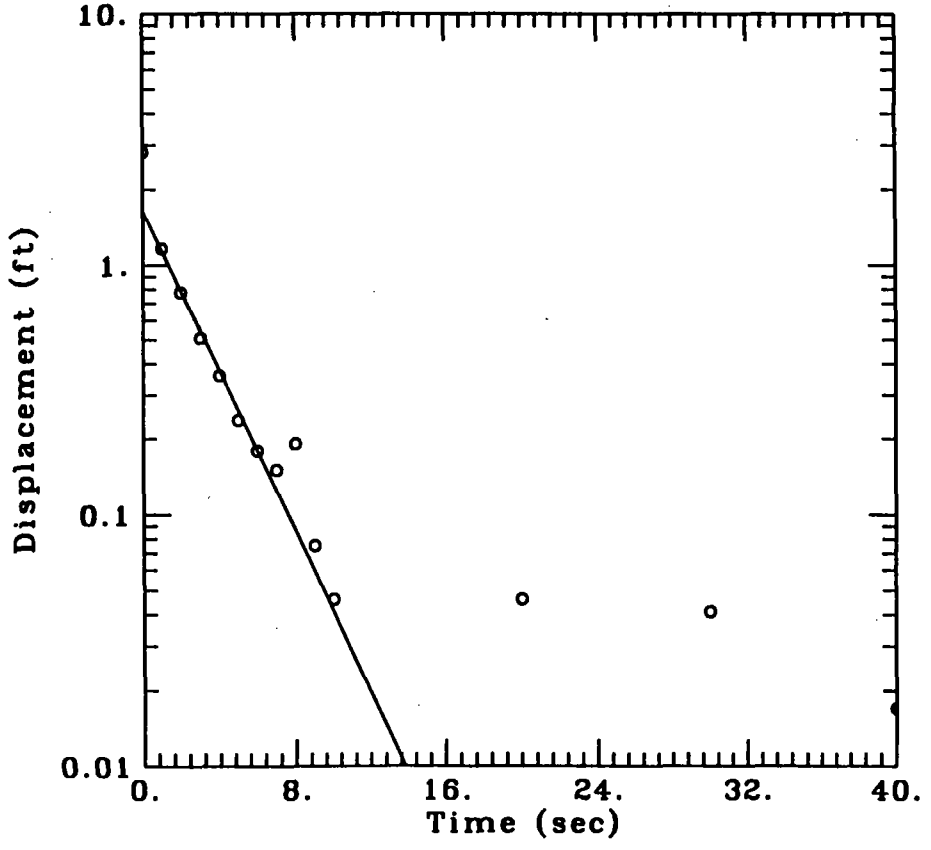
OBS. WELL:
MW7-48

ESTIMATED PARAMETERS:
K = 0.0005729 ft/sec
y0 = 2.673 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.083 ft
rw = 0.333 ft
L = 5. ft
b = 21.68 ft
H = 15.1 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-7-48: RISING HEAD TEST#2



DATA SET:
748_R2.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW7-48

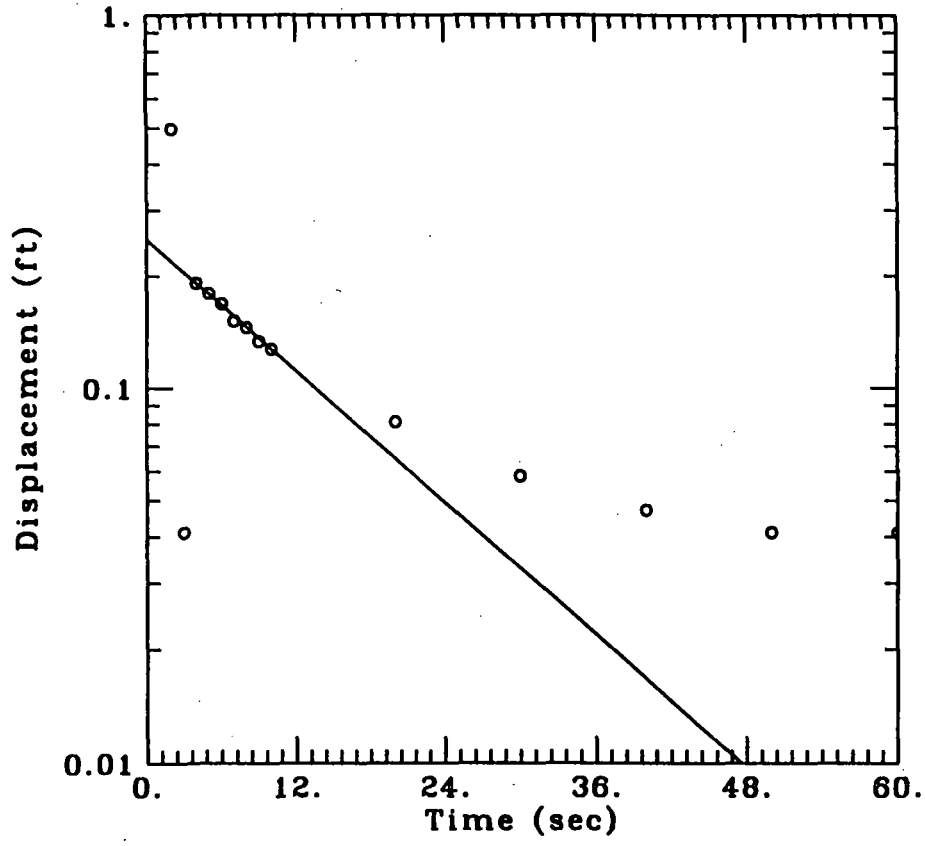
OBS. WELL:
MW7-48

ESTIMATED PARAMETERS:
K = 0.0005265 ft/sec
y0 = 1.644 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.083 ft
rw = 0.333 ft
L = 5. ft
b = 21.68 ft
H = 15.1 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-8-34: FALLING HEAD TEST#1



DATA SET:
834_F1.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW8-34

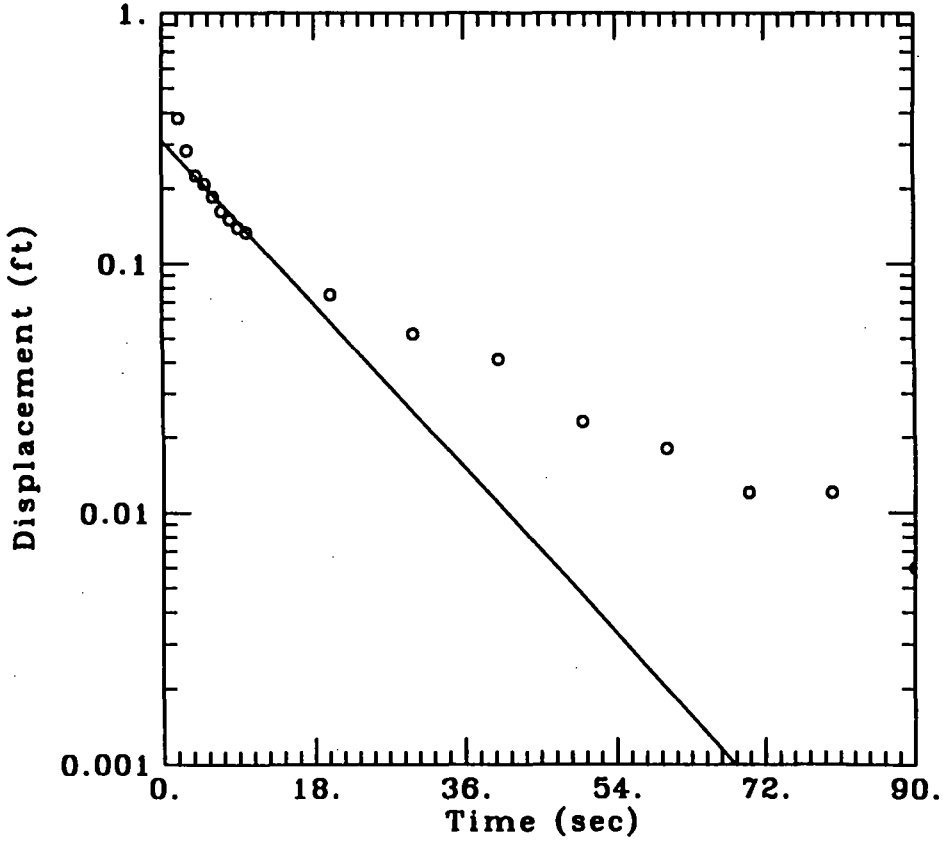
OBS. WELL:
MW8-34

ESTIMATED PARAMETERS:
K = 4.4804E-05 ft/sec
y0 = 0.2504 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.083 ft
rw = 0.333 ft
L = 10. ft
b = 21.68 ft
H = 5.688 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-8-34: FALLING HEAD TEST#2



DATA SET:
834_F2.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW8-34

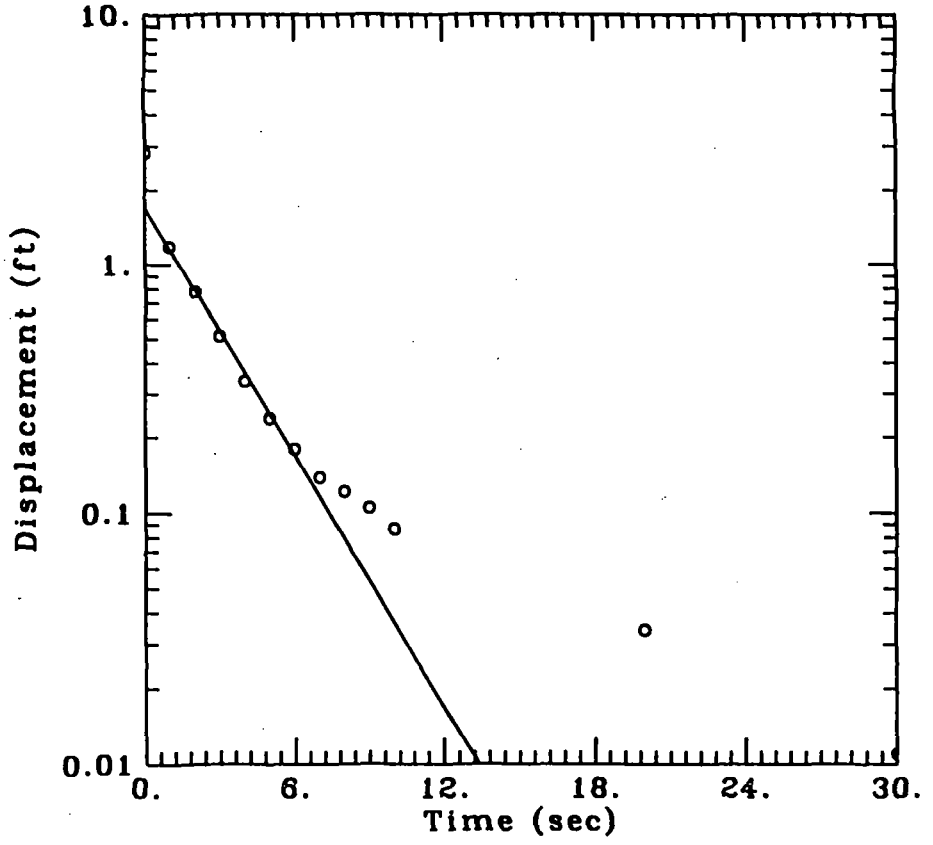
OBS. WELL:
MW8-34

ESTIMATED PARAMETERS:
K = 5.5778E-05 ft/sec
y0 = 0.3123 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.083 ft
rw = 0.333 ft
L = 10. ft
b = 21.68 ft
H = 5.717 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-8-34: RISING HEAD TEST#1



DATA SET:
B34_R1.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW8-34

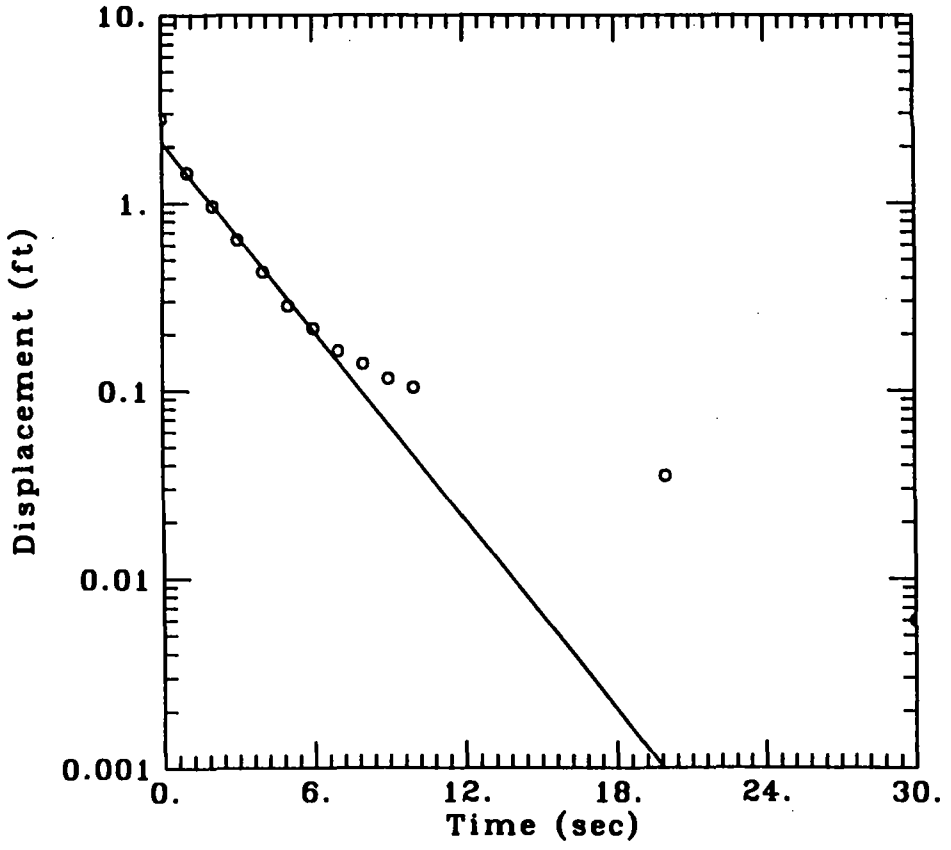
OBS. WELL:
MW8-34

ESTIMATED PARAMETERS:
K = 0.0002542 ft/sec
y0 = 1.695 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.083 ft
rw = 0.333 ft
L = 10. ft
b = 21.68 ft
H = 5.694 ft

Conestoga Rovers & Associates	Client: **Barrels Inc.**
Project No.: **4869**	Location: **Lansing, Michigan**

MW-8-34: RISING HEAD TEST#2



DATA SET:
834_R2.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/08/93

TEST WELL:
MW8-34

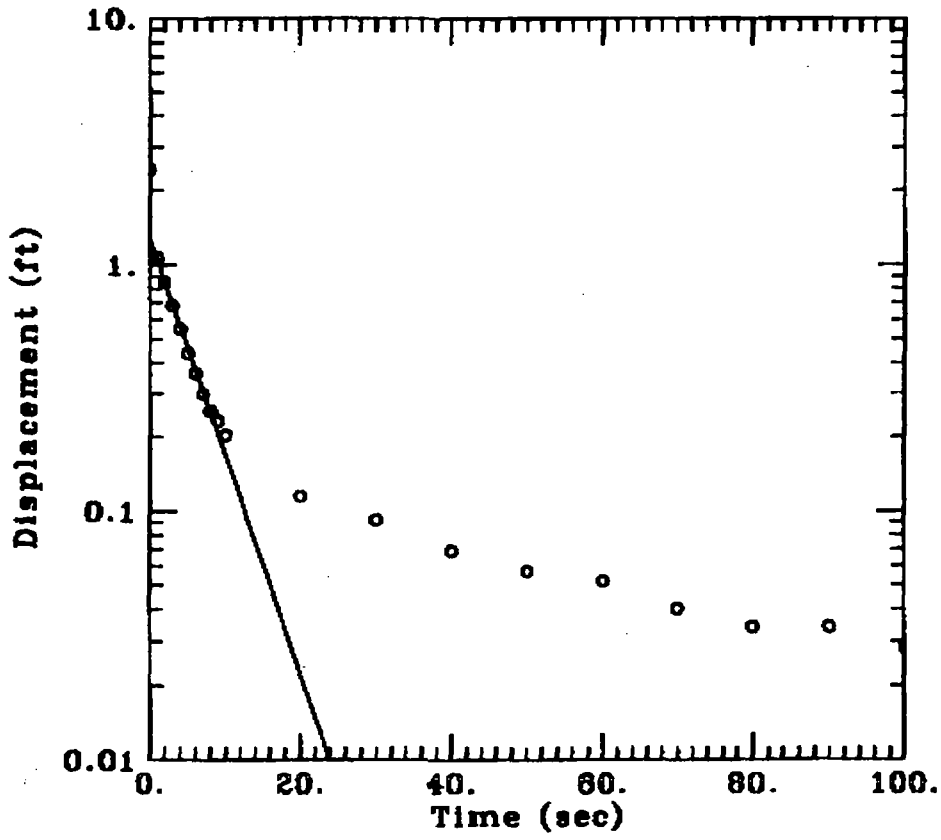
OBS. WELL:
MW8-34

ESTIMATED PARAMETERS:
K = 0.0002553 ft/sec
y0 = 2.099 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.083 ft
rw = 0.333 ft
L = 10. ft
b = 21.68 ft
H = 5.706 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-9-33: RISING HEAD TEST#1



DATA SET:
S33_r1.dat
09/03/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/09/93

TEST WELL:
MW9-33

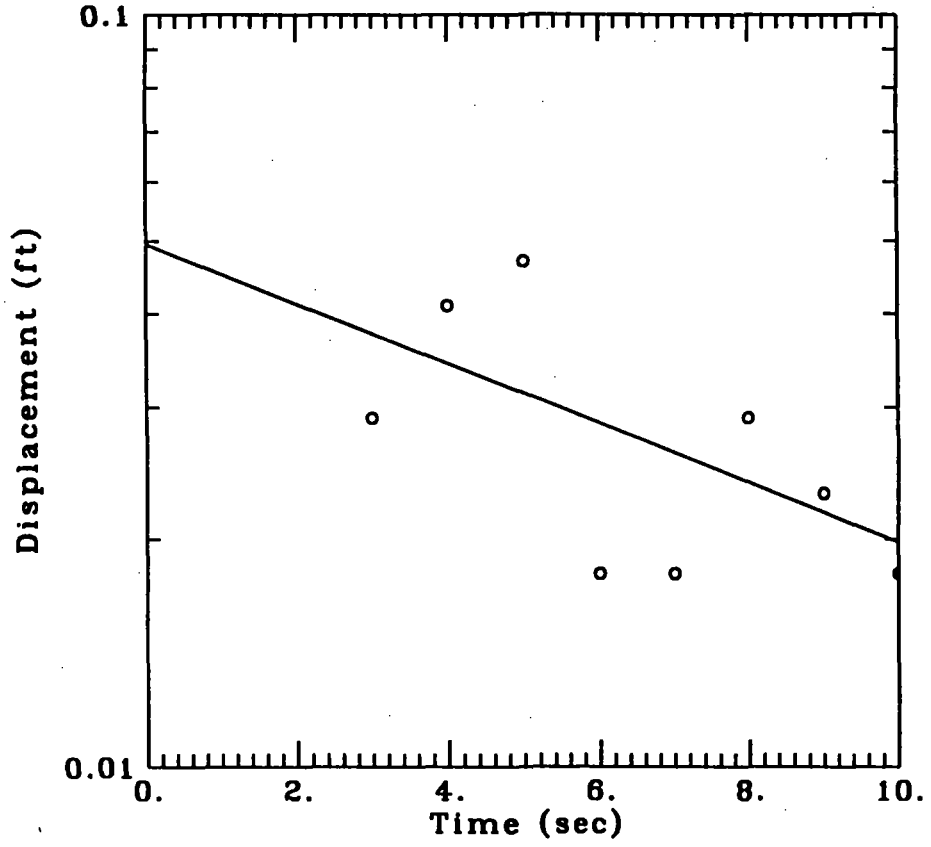
OBS. WELL:
MW9-33

ESTIMATED PARAMETERS:
K = 0.0007348 ft/sec
y0 = 1.275 ft

TEST DATA:
H0 = 2.42 ft
rc = 0.195 ft
rw = 0.333 ft
L = 10. ft
b = 21.88 ft
H = 5.532 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-9-45: FALLING HEAD TEST#1



DATA SET:
945_F1.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/09/93

TEST WELL:
MW9-45

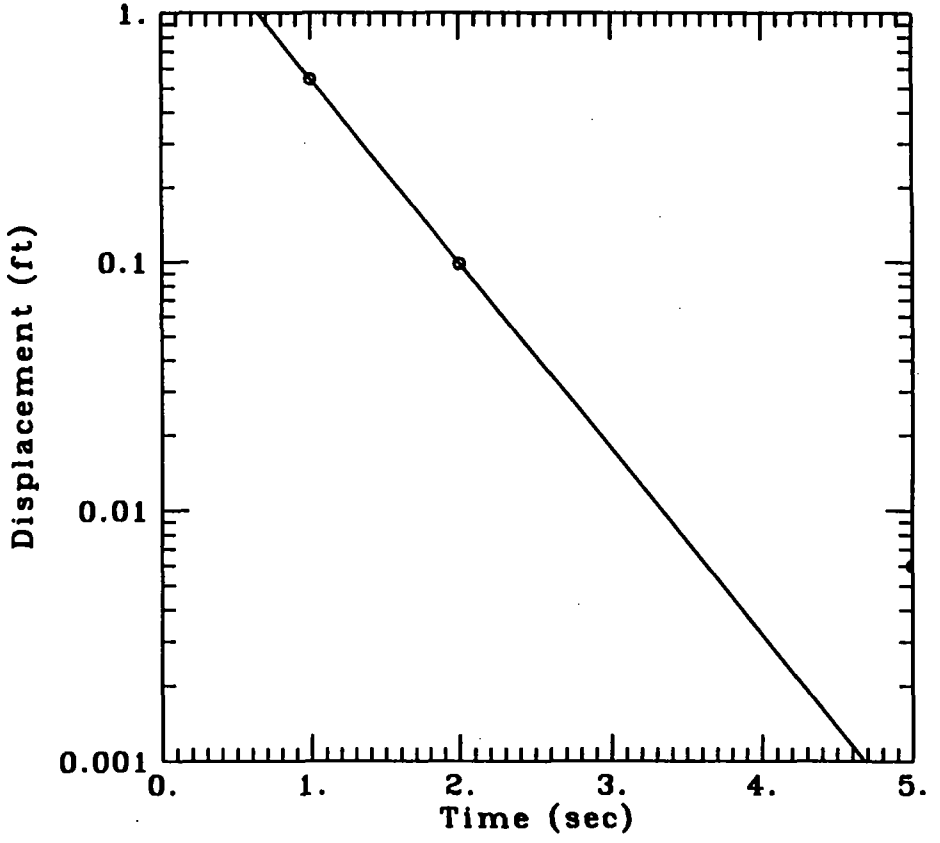
OBS. WELL:
MW9-45

ESTIMATED PARAMETERS:
K = 0.0001346 ft/sec
y0 = 0.0495 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.083 ft
rw = 0.333 ft
L = 5. ft
b = 21.68 ft
H = 16.83 ft

Conestoga Rovers & Associates	Client: Barrels Inc.
Project No.: 4869	Location: Lansing, Michigan

MW-9-45: RISING HEAD TEST#1



DATA SET:
945_R1.DAT
08/26/93

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATE:
07/09/93

TEST WELL:
MW9-45

OBS. WELL:
MW9-45

ESTIMATED PARAMETERS:
K = 0.002515 ft/sec
y0 = 3.005 ft

TEST DATA:
H0 = 2.81 ft
rc = 0.083 ft
rw = 0.333 ft
L = 5. ft
b = 21.68 ft
H = 16.85 ft

APPENDIX F

SUMMARY OF SOIL ANALYTICAL DATA

SUMMARY OF VOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-1	DS-1	DS-1	DS-1	DS-2	DS-2	DS-2	DS-2	DS-3	DS-3	DS-3	DS-3
Depth	0-2	4-6	6-8	6-8' Dup	0-2	4-6	6-8	8-10	2-4	6-8	6-8 Dup	10-12
Sample ID	RP-47	RP-48	RP-49	RP-50	RP-51	RP-52	RP-53	RP-54	RP-56	RP-57	RP-58	RP-59
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acrolein	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)UJ	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)UJ	ND(0.200)	ND(0.200)
Acrylonitrile	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Benzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Bromodichloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Bromoform	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Bromoethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.010)UJ	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.010)UJ	ND(0.100)	ND(0.100)
Carbon disulfide	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.010)UJ	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.010)UJ	ND(0.100)	ND(0.100)
Carbon tetrachloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	0.13	0.22	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Chloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
2-Chloroethylvinyl ether	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Chloroform	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Chloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Dibromochloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
1,2-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF VOC s IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-1	DS-1	DS-1	DS-1	DS-2	DS-2	DS-2	DS-2	DS-3	DS-3	DS-3	DS-3
Depth	0-2	4-6	6-8	6-8' Dup	0-2	4-6	6-8	8-10	2-4	6-8	6-8 Dup	10-12
Sample ID	RP-47	RP-48	RP-49	RP-50	RP-51	RP-52	RP-53	RP-54	RP-56	RP-57	RP-58	RP-59
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
1,1-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
1,2-Dichloropropane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
cis-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
trans-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Ethylbenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Methylene chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
1,1,2,2-Tetrachloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Tetrachloroethene	0.013	0.027	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Toluene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
1,1,2-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
Vinyl chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
o-Xylene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.033 J	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)
m-Xylene/p-Xylene	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)UJ	ND(0.020)	ND(0.020)
total Xylenes	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	0.033 J	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)UJ	ND(0.030)	ND(0.030)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF VOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-4	DS-4	DS-4	DS-4	DS-5	DS-5	DS-5	DS-5	DS-6	DS-6	DS-6	DS-6
Depth	0-2	2-4	4-6	6-8	0-2	2-4	4-6	8-10	0-2	2-4	4-6	6-8
Sample ID	RP-42	RP-43	RP-45	RP-44	RP-38	RP-39	RP-40	RP-41	RP-33	RP-34	RP-35	RP-36
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acrolein	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)
Acrylonitrile	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Benzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Bromodichloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Bromoform	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Bromoethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Carbon disulfide	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Carbon tetrachloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
2-Chloroethylvinyl ether	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroform	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Dibromochloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,2-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF VO\ .N SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-4	DS-4	DS-4	DS-4	DS-5	DS-5	DS-5	DS-5	DS-6	DS-6	DS-6	DS-6
Depth	0-2	2-4	4-6	6-8	0-2	2-4	4-6	8-10	0-2	2-4	4-6	6-8
Sample ID	RP-42	RP-43	RP-45	RP-44	RP-38	RP-39	RP-40	RP-41	RP-33	RP-34	RP-35	RP-36
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
1,1-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.078	ND(0.010)
1,2-Dichloropropane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
cis-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
trans-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Ethylbenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Methylene chloride	0.014B	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,2,2-Tetrachloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Tetrachloroethene	0.05	0.18	0.12	0.2	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Toluene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,2-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)	0.014	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Vinyl chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
o-Xylene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.015
m-Xylene/p-Xylene	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
total Xylenes	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF VOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-7	DS-7	DS-7	DS-7	DS-8	DS-8	DS-8	DS-9	DS-9	DS-9	DS-9	DS-10
Depth	0-2	2-4	6-8	8-10	0-2	4-6	8-10	0-2	2-4	4-6	8-10	0-2
Sample ID	RP-29	RP-30	RP-31	RP-32	RP-22	RP-23	RP-24	RP-25	RP-26	RP-27	RP-28	RP-18
Date Sampled	5/14/93	5/14/93	5/14/93	5/14/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acrolein	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)
Acrylonitrile	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Benzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Bromodichloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Bromoform	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Bromoethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	0.44	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Carbon disulfide	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Carbon tetrachloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
2-Chloroethylvinyl ether	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroform	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Dibromochloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,2-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF VOC SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-7	DS-7	DS-7	DS-7	DS-8	DS-8	DS-8	DS-9	DS-9	DS-9	DS-9	DS-10
Depth	0-2	2-4	6-8	8-10	0-2	4-6	8-10	0-2	2-4	4-6	8-10	0-2
Sample ID	RP-29	RP-30	RP-31	RP-32	RP-22	RP-23	RP-24	RP-25	RP-26	RP-27	RP-28	RP-18
Date Sampled	5/14/93	5/14/93	5/14/93	5/14/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
1,1-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,2-Dichloropropane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
cis-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
trans-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Ethylbenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Methylene chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,2,2-Tetrachloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Tetrachloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Toluene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,2-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Vinyl chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
o-Xylene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
m-Xylene/p-Xylene	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
total Xylenes	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
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SUMMARY OF VOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-10	DS-10	DS-10	DS-11	DS-11	DS-11	DS-11	DS-12	DS-12	DS-12	DS-12	DS-13
Depth	2-4	4-6	4-6 DUP	0-2	2-4	6-8	8-10	0-2	4-6	4-6 DUP	18-20	0-2
Sample ID	RP-19	RP-20	RP-21	RP-05	RP-06	RP-07	RP-08	RP-10	RP-11	RP-12	RP-13	RP-14
Date Sampled	5/13/93	5/13/93	5/13/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acrolein	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(2.0)	ND(2.0)	ND(0.200)	ND(0.200)
Acrylonitrile	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Benzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
Bromodichloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
Bromoform	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
Bromoethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(1.0)	ND(1.0)	ND(0.100)	ND(0.100)
Carbon disulfide	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(1.0)	ND(1.0)	ND(0.100)	ND(0.100)
Carbon tetrachloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(.10)	ND(.10)	ND(0.010)	ND(0.010)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
Chloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
2-Chloroethylvinyl ether	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
Chloroform	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
Chloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
Dibromochloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
1,2-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF VOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-10	DS-10	DS-10	DS-11	DS-11	DS-11	DS-11	DS-12	DS-12	DS-12	DS-12	DS-13
Depth	2-4	4-6	4-6 DUP	0-2	2-4	6-8	8-10	0-2	4-6	4-6 DUP	18-20	0-2
Sample ID	RP-19	RP-20	RP-21	RP-05	RP-06	RP-07	RP-08	RP-10	RP-11	RP-12	RP-13	RP-14
Date Sampled	5/13/93	5/13/93	5/13/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
1,1-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	1.2	0.98	ND(0.010)	ND(0.010)
1,2-Dichloropropane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(1.2)	ND(1.2)	ND(0.010)	ND(0.010)
cis-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(1.2)	ND(1.2)	ND(0.010)	ND(0.010)
trans-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(1.2)	ND(1.2)	ND(0.010)	ND(0.010)
Ethylbenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
Methylene chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
1,1,2,2-Tetrachloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Tetrachloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	3.0	2.5	ND(0.010)	ND(0.010)
Toluene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.051	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.010)	ND(0.010)
1,1,2-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.100)	ND(0.100)	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.12 J	ND(0.10)	ND(0.010)	ND(0.010)
Vinyl chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.100)	ND(0.100)	ND(0.010)	ND(0.010)
o-Xylene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND(0.010)
m-Xylene/p-Xylene	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.20)	ND(0.20)	ND(0.020)	ND(0.020)
total Xylenes	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.30)	ND(0.30)	ND(0.030)	ND(0.030)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
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SUMMARY OF VOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-13	DS-13	DS-14	DS-14	DS-14	DS-14	US-1	US-1	US-2	US-2	US-2	US-3
Depth	2-4	4-6	0-2	2-4	4-6	8-10	14-16	20-22	0-2	14-16	20-22	2-4
Sample ID	RP-15	RP-16	RP-01	RP-02	RP-03	RP-04	RP-60	RP-61	RP-63	RP-64	RP-65	RP-65A
Date Sampled	5/13/93	5/13/93	5/11/93	5/11/93	5/11/93	5/11/93	5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/19/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acrolein	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(58)	ND(0.200)	ND(0.200)	ND(120)UJ	ND(0.200)	ND(1.0)
Acrylonitrile	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Benzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	0.020 J	ND(0.010)	0.094
Bromodichloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Bromoform	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Bromoethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(29.0)	ND(0.100)	ND(0.100)	ND(5.8)UJ	ND(0.100)	ND(0.50)
Carbon disulfide	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(29)	ND(0.100)	ND(0.100)	ND(5.8)UJ	ND(0.100)	ND(0.50)
Carbon tetrachloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Chloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
2-Chloroethylvinyl ether	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Chloroform	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Chloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Dibromochloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
1,2-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF VOC . . SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-13	DS-13	DS-14	DS-14	DS-14	DS-14	US-1	US-1	US-2	US-2	US-2	US-3
Depth	2-4	4-6	0-2	2-4	4-6	8-10	14-16	20-22	0-2	14-16	20-22	2-4
Sample ID	RP-15	RP-16	RP-01	RP-02	RP-03	RP-04	RP-60	RP-61	RP-63	RP-64	RP-65	RP-65A
Date Sampled	5/13/93	5/13/93	5/11/93	5/11/93	5/11/93	5/11/93	5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/19/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
1,1-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
1,2-Dichloropropane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
cis-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
trans-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Ethylbenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	16	ND(0.010)	ND(0.010)	38 J	0.034	0.26
Methylene chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
1,1,2,2-Tetrachloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Tetrachloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Toluene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.01)	ND(0.050)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
1,1,2-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Trichloroethene	ND(0.010)	ND(0.010)	0.076	0.078	0.015	0.021	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
Vinyl chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(2.9)	ND(0.010)	ND(0.010)	ND(5.8)UJ	ND(0.010)	ND(0.050)
o-Xylene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	9.2	ND(0.010)	ND(0.010)	2.3 J	0.034	0.33
m-Xylene/p-Xylene	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	60	ND(0.020)	ND(0.020)	120 J	0.11	0.69
total Xylenes	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	69.2	ND(0.030)	ND(0.030)	122.3 J	0.144	1.02

S = results due to secondary dilution
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* Detection limits raised due to matrix interference

SUMMARY OF VOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	US-3	US-3	US-4	US-4	US-5	US-5	US-6	US-6	CT-1	CT-1	CT-1	CT-2
Depth	8-10	8-10 Dup	2-4	10-12	8-10	14-16	4-6	14-16	0-2	2-4	8-10	0-2
Sample ID	RP-66	RP-67	RP-68	RP-69	RP-70	RP-71	RP-72	RP-73	TB-74	TB-75	TB-76	TB-84
Date Sampled	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/20/93	5/20/93	5/20/93	5/20/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acrolein	ND(0.200)	ND(0.200)	ND(.40)	ND(0.200)	ND(25.0)	ND(0.20)	ND(1.0)	ND(0.200)	ND(1.0)	ND(0.200)	ND(0.200)	ND(0.200)
Acrylonitrile	ND(0.010)UJ	ND(0.010)	ND(0.010)UJ	ND(0.010)	ND(0.010)UJ	ND(0.010)UJ	ND(0.050)	ND(0.010)	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)UJ
Benzene	0.02	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Bromodichloromethane	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Bromoform	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Bromoethane	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.20)	ND(0.100)	ND(12.0)	ND(0.100)	ND(0.050)	ND(0.100)	ND(0.50)	ND(0.100)	ND(0.100)	ND(0.100)
Carbon disulfide	ND(0.100)	ND(0.100)	ND(0.20)	ND(0.100)	ND(12.0)	ND(0.100)	ND(0.50)	ND(0.100)	ND(0.50)	ND(0.100)	ND(0.100)	ND(0.100)
Carbon tetrachloride	ND(0.100)	ND(0.100)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroethane	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
2-Chloroethylvinyl ether	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroform	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Chloromethane	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Dibromochloromethane	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
1,2-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF VOC'S IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	US-3	US-3	US-4	US-4	US-5	US-5	US-6	US-6	CT-1	CT-1	CT-1	CT-2
Depth	8-10	8-10 Dup	2-4	10-12	8-10	14-16	4-6	14-16	0-2	2-4	8-10	0-2
Sample ID	RP-66	RP-67	RP-68	RP-69	RP-70	RP-71	RP-72	RP-73	TB-74	TB-75	TB-76	TB-84
Date Sampled	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/20/93	5/20/93	5/20/93	5/20/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
1,1-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
1,2-Dichloropropane	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
cis-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
trans-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Ethylbenzene	0.068 J	0.028 J	0.23	0.033	2.5	ND(0.010)	ND(0.050)	ND(0.010)	0.063	ND(0.010)	0.029	ND(0.010)
Methylene chloride	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,2,2-Tetrachloroethane	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Tetrachloroethene	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Toluene	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	0.31	ND(0.010)	0.091	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,2-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)	ND(0.010)	ND(0.020)	ND(0.010)	ND(1.2)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)
Vinyl chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.050)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
o-Xylene	0.021	ND(0.010)	ND(0.020)	ND(0.010)	3.9	ND(0.010)	0.14	ND(0.010)	0.26	0.014	0.037	0.019
m-Xylene/p-Xylene	0.053	ND(0.020)	0.34	0.029	11.0	ND(0.020)	0.73	ND(0.020)	0.38	ND(0.020)	0.085	0.027
total Xylenes	0.074	ND(0.030)	0.34	0.029	14.9	ND(0.030)	0.87	ND(0.030)	0.64	0.014	0.122	0.046

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF VOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	CT-2	CT-2	CT-3	CT-3	CT-3	CT-3	DD-1	DD-1	DD-1	DD-2	DD-2	DD-2
Depth	2-4	8-10	0-2	4-6	16-18	16-18 Dup	0-2	2-4	4-6	0-2	2-4	4-6
Sample ID	TB-78	TB-79	TB-80	TB-81	TB-82	TB-83	TB-88	TB-90	TB-89	TB-85	TB-86	TB-87
Date Sampled	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acrolein	ND(0.200)UJ	ND(0.200)	ND(1.0)UJ	ND(0.200)UJ	ND(0.200)UJ	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)
Acrylonitrile	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Benzene	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Bromodichloromethane	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Bromoform	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Bromoethane	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)UJ	ND(0.100)	ND(0.050)UJ	ND(0.100)UJ	ND(0.100)UJ	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Carbon disulfide	ND(0.100)UJ	ND(0.100)	ND(0.050)UJ	ND(0.100)UJ	ND(0.100)UJ	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Carbon tetrachloride	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chlorobenzene	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroethane	ND(0.010)UJ	ND(0.010)	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
2-Chloroethylvinyl ether	ND(0.010)UJ	ND(0.010)	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroform	ND(0.010)UJ	ND(0.010)	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloromethane	ND(0.010)UJ	ND(0.010)	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Dibromochloromethane	ND(0.010)UJ	ND(0.010)	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)UJ	ND(0.010)	0.18 J	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,2-Dichloroethane	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF VOC[illegible] SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	CT-2	CT-2	CT-3	CT-3	CT-3	CT-3	DD-1	DD-1	DD-1	DD-2	DD-2	DD-2
Depth	2-4	8-10	0-2	4-6	16-18	16-18 Dup	0-2	2-4	4-6	0-2	2-4	4-6
Sample ID	TB-78	TB-79	TB-80	TB-81	TB-82	TB-83	TB-88	TB-90	TB-89	TB-85	TB-86	TB-87
Date Sampled	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
1,1-Dichloroethene	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)UJ	0.026	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,2-Dichloropropane	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
cis-1,3-Dichloropropene	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
trans-1,3-Dichloropropene	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Ethylbenzene	ND(0.010)UJ	ND(0.010)	0.19 J	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Methylene chloride	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	0.014 JB	ND(0.010)UJ	ND(0.010)	0.017B	0.016B	0.017B	ND(0.010)	0.017B	ND(0.010)
1,1,2,2-Tetrachloroethane	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Tetrachloroethene	ND(0.010)UJ	0.026	0.073 J	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Toluene	ND(0.010)UJ	0.015	0.69 J	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	0.012 J	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,2-Trichloroethane	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)UJ	ND(0.010)	ND(0.050)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Vinyl chloride	ND(0.010)UJ	ND(0.010)	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
o-Xylene	ND(0.010)UJ	0.012	0.26 J	0.010 J	ND(0.010)UJ	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
m-Xylene/p-Xylene	ND(0.020)UJ	ND(0.020)	0.93 J	0.022 J	ND(0.020)UJ	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
total Xylenes	ND(0.030)UJ	0.012	1.19 J	0.032 J	ND(0.030)UJ	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF VOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DD-3	DD-3	DD-3	DD-3	DD-4	DD-4	DD-4	DD-4	DD-5	DD-5	DD-5
Depth	0-2	0-2 Dup	4-6	6-8	0-2	4-6	6-8	6-8 Dup	0-2	6-8	8-10
Sample ID	TB-91	TB-100	TB-92	TB-93	TB-96	TB-95	TB-94	TB-101	TB-98	TB-97	TB-99
Date Sampled	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/26/93	5/26/93	5/26/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter											
Acrolein	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)
Acrylonitrile	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Benzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Bromodichloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Bromoform	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Bromoethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
2-Butanone	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Carbon disulfide	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Carbon tetrachloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chlorobenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
2-Chloroethylvinyl ether	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroform	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Dibromochloromethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,2-Dichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF VOC'ι SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DD-3	DD-3	DD-3	DD-3	DD-4	DD-4	DD-4	DD-4	DD-5	DD-5	DD-5
Depth	0-2	0-2 Dup	4-6	6-8	0-2	4-6	6-8	6-8 Dup	0-2	6-8	8-10
Sample ID	TB-91	TB-100	TB-92	TB-93	TB-96	TB-95	TB-94	TB-101	TB-98	TB-97	TB-99
Date Sampled	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/26/93	5/26/93	5/26/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter											
1,1-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
total-1,2-Dichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,2-Dichloropropane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
cis-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
trans-1,3-Dichloropropene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Ethylbenzene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Methylene chloride	ND(0.010)	0.010B	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.013B	0.011B	0.011B
1,1,2,2-Tetrachloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Tetrachloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Toluene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,1-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
1,1,2-Trichloroethane	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Trichloroethene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.032	ND(0.010)	ND(0.010)
Vinyl chloride	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
o-Xylene	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
m-Xylene/p-Xylene	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
total Xylenes	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)

S = results due to secondary dilution
J = value is an estimated quantity
B = analyte present in method blank
ND = not detected; Targe Detection Limit
UJ = analyte was checked for; not detected; value estimated
* Detection limits raised due to matrix interference

SUMMARY OF SVOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-1	DS-1	DS-1	DS-1	DS-2	DS-2	DS-2	DS-2	DS-3	DS-3	DS-3	DS-3
Depth	0-2	4-6	6-8	6-8' Dup	0-2	4-6	6-8	8-10	2-4	6-8	6-8 Dup	10-12
Sample ID	RP-47	RP-48	RP-49	RP-50	RP-51	RP-52	RP-53	RP-54	RP-56	RP-57	RP-58	RP-59
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	1.2	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Acenaphthylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzidine	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(8.8)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Benzo(a)anthracene	0.37	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(b)fluoranthene	0.89	ND(0.33)	ND(0.33)	ND(0.33)	0.82	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(k)fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(ghi)perylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(a)pyrene	0.35	ND(0.33)	ND(0.33)	ND(0.33)	0.91	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroethoxy) methane	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroethyl) ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroisopropyl) ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-ethylhexyl) phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Bromophenyl phenyl ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Butyl benzyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2-Chloronaphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Chlorophenyl phenyl ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Chrysene	0.51	ND(0.33)	ND(0.33)	ND(0.33)	0.84	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Dibenzo (a,h) anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-butyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,2-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,3-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,4-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
3,3'-Dichlorobenzidine	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(3.5)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistin[illegible]able from Diphenylamine

SUMMARY OF SVC N SOIL—BOREHOLES
BAR.. S INC.
LANSING, MICHIGAN
June 1993

Location	DS-1	DS-1	DS-1	DS-1	DS-2	DS-2	DS-2	DS-2	DS-3	DS-3	DS-3	DS-3
Depth	0-2	4-6	6-8	6-8' Dup	0-2	4-6	6-8	8-10	2-4	6-8	6-8 Dup	10-12
Sample ID	RP-47	RP-48	RP-49	RP-50	RP-51	RP-52	RP-53	RP-54	RP-56	RP-57	RP-58	RP-59
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Diethyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Dimethyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dinitrotoluene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,6-Dinitrotoluene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-octyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,2-Diphenylhydrazine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluoranthene	0.63	ND(0.33)	ND(0.33)	ND(0.33)	3.0	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluorene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorobutadiene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorocyclopentadiene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachloroethane	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Indeno(1,2,3-cd) pyrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Isophorone	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4,4'-methyllene-bis-(2-chloro-aniline)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.18)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Naphthalene	0.43	ND(0.33)	ND(0.33)	ND(0.33)	7.8	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Nitrobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.18)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
N-Nitrosodimethylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.18)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
** N-Nitrosodiphenylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
N-Nitroso-di-n-propylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenanthrene	0.75	ND(0.33)	ND(0.33)	ND(0.33)	5.9	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Pyrene	0.63	ND(0.33)	ND(0.33)	ND(0.33)	2.2	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,2,4-Trichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-1	DS-1	DS-1	DS-1	DS-2	DS-2	DS-2	DS-2	DS-3	DS-3	DS-3	DS-3
Depth	0-2	4-6	6-8	6-8' Dup	0-2	4-6	6-8	8-10	2-4	6-8	6-8 Dup	10-12
Sample ID	RP-47	RP-48	RP-49	RP-50	RP-51	RP-52	RP-53	RP-54	RP-56	RP-57	RP-58	RP-59
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acid Compounds												
4-Chloro-3-methylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2-Chlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dichlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dimethylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4,6-Dinitro-2-methylphenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(3.0)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
2,4-Dinitrophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(3.0)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
2-Nitrophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Nitrophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(3.0)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Pentachlorophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(3.0)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Phenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4,6-Trichlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.58)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVO(I SOIL—BOREHOLES
BARK. .S INC.
LANSING, MICHIGAN
June 1993

Location	DS-4	DS-4	DS-4	DS-4	DS-5	DS-5	DS-5	DS-5	DS-6	DS-6	DS-6	DS-6
Depth	0-2	2-4	4-6	6-8	0-2	2-4	4-6	8-10	0-2	2-4	4-6	6-8
Sample ID	RP-42	RP-43	RP-45	RP-44	RP-38	RP-39	RP-40	RP-41	RP-33	RP-34	RP-35	RP-36
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Acenaphthylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Anthracene	ND(0.33)	0.33	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzidine	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Benzo(a)anthracene	ND(0.33)	1.4	ND(0.33)	ND(0.33)	0.78	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(b)fluoranthene	ND(0.33)	11	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(k)fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	1.0	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(ghi)perylene	ND(0.33)	3.3	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(a)pyrene	ND(0.33)	6.2	ND(0.33)	ND(0.33)	0.52	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroethoxy) methane	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroethyl) ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroisopropyl) ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-ethylhexyl) phthalate	ND(0.33)	ND(0.33)	0.82	ND(0.33)	0.48	0.44	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Bromophenyl phenyl ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Butyl benzyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2-Chloronaphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Chlorophenyl phenyl ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Chrysene	ND(0.33)	3.1	ND(0.33)	ND(0.33)	0.66	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Dibenzo (a,h) anthracene	ND(0.33)	1.1	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-butyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,2-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,3-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,4-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
3,3'-Dichlorobenzidine	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-4	DS-4	DS-4	DS-4	DS-5	DS-5	DS-5	DS-5	DS-6	DS-6	DS-6	DS-6
Depth	0-2	2-4	4-6	6-8	0-2	2-4	4-6	8-10	0-2	2-4	4-6	6-8
Sample ID	RP-42	RP-43	RP-44	RP-45	RP-38	RP-39	RP-40	RP-41	RP-33	RP-34	RP-35	RP-36
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Diethyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Dimethyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dinitrotoluene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,6-Dinitrotoluene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-octyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,2-Diphenylhydrazine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluoranthene	ND(0.33)	1.0	ND(0.33)	ND(0.33)	0.94	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluorene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorobutadiene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorocyclopentadiene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachloroethane	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Indeno(1,2,3-cd) pyrene	ND(0.33)	3.1	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Isophorone	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4,4'-methyllene-bis-(2-chloro-aniline)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Naphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.84	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Nitrobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
N-Nitrosodimethylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
** N-Nitrosodiphenylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
N-Nitroso-di-n-propylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenanthrene	ND(0.33)	0.35	ND(0.33)	ND(0.33)	1.9	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Pyrene	ND(0.33)	1.6	ND(0.33)	ND(0.33)	0.91	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,2,4-Trichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVO[illegible] SOIL—BOREHOLES
BARR[illegible]S INC.
LANSING, MICHIGAN
June 1993

Location	DS-4	DS-4	DS-4	DS-4	DS-5	DS-5	DS-5	DS-5	DS-6	DS-6	DS-6	DS-6
Depth	0-2	2-4	4-6	6-8	0-2	2-4	4-6	8-10	0-2	2-4	4-6	6-8
Sample ID	RP-42	RP-43	RP-44	RP-45	RP-38	RP-39	RP-40	RP-41	RP-33	RP-34	RP-35	RP-36
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acid Compounds												
4-Chloro-3-methylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2-Chlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dichlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dimethylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4,6-Dinitro-2-methylphenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
2,4-Dinitrophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
2-Nitrophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Nitrophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Pentachlorophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Phenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4,6-Trichlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-7	DS-7	DS-7	DS-7	DS-8	DS-8	DS-8	DS-9	DS-9	DS-9	DS-9	DS-10
Depth	0-2	2-4	6-8	8-10	0-2	4-6	8-10	0-2	2-4	4-6	8-10	0-2
Sample ID	RP-29	RP-30	RP-31	RP-32	RP-22	RP-23	RP-24	RP-25	RP-26	RP-27	RP-28	RP-18
Date Sampled	5/14/93	5/14/93	5/14/93	5/14/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Acenaphthylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzidine	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(25)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Benzo(a)anthracene	0.36	ND(0.33)	ND(0.33)	ND(0.33)	0.63	ND(0.33)	ND(0.33)	2.6	ND(0.33)	ND(0.33)	ND(0.33)	1.2
Benzo(b)fluoranthene	0.75	ND(0.33)	ND(0.33)	ND(0.33)	1.2	ND(0.33)	ND(0.33)	5.1	ND(0.33)	ND(0.33)	ND(0.33)	2.5
Benzo(k)fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(ghi)perylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	2.1	ND(0.33)	ND(0.33)	ND(0.33)	0.42
Benzo(a)pyrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	2.7	ND(0.33)	ND(0.33)	ND(0.33)	0.78
Bis (2-chloroethoxy) methane	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroethyl) ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroisopropyl) ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-ethylhexyl) phthalate	1.7	ND(0.33)	ND(0.33)	ND(0.33)	2.4	5.2	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Bromophenyl phenyl ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Butyl benzyl phthalate	2.1	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2-Chloronaphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Chlorophenyl phenyl ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Chrysene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.86	ND(0.33)	ND(0.33)	2.4	ND(0.33)	ND(0.33)	ND(0.33)	1.3
Dibenzo (a,h) anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-butyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,2-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,3-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,4-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
3,3'-Dichlorobenzidine	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(10)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indisting[illegible]ble from Diphenylamine

SUMMARY OF SVOC SOIL—BOREHOLES
BARRETT INC.
LANSING, MICHIGAN
June 1993

Location	DS-7	DS-7	DS-7	DS-7	DS-8	DS-8	DS-8	DS-9	DS-9	DS-9	DS-9	DS-10
Depth	0-2	2-4	6-8	8-10	0-2	4-6	8-10	0-2	2-4	4-6	8-10	0-2
Sample ID	RP-29	RP-30	RP-31	RP-32	RP-22	RP-23	RP-24	RP-25	RP-26	RP-27	RP-28	RP-18
Date Sampled	5/14/93	5/14/93	5/14/93	5/14/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Diethyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Dimethyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dinitrotoluene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,6-Dinitrotoluene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-octyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,2-Diphenylhydrazine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluoranthene	0.49	ND(0.33)	ND(0.33)	ND(0.33)	0.98	ND(0.33)	ND(0.33)	5.0	ND(0.33)	ND(0.33)	ND(0.33)	2.2
Fluorene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorobutadiene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorocyclopentadiene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachloroethane	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Indeno(1,2,3-cd) pyrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	2.1	ND(0.33)	ND(0.33)	ND(0.33)	0.41
Isophorone	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4,4'-methyllene-bis-(2-chloro-aniline)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(.50)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Naphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.53	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	2.6
Nitrobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
N-Nitrosodimethylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
** N-Nitrosodiphenylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
N-Nitroso-di-n-propylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenanthrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	1.0	ND(0.33)	ND(0.33)	4.1	ND(0.33)	ND(0.33)	ND(0.33)	3.7
Pyrene	0.47	ND(0.33)	ND(0.33)	ND(0.33)	1.0	ND(0.33)	ND(0.33)	4.8	ND(0.33)	ND(0.33)	ND(0.33)	1.7
1,2,4-Trichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-7	DS-7	DS-7	DS-7	DS-8	DS-8	DS-8	DS-9	DS-9	DS-9	DS-9	DS-10
Depth	0-2	2-4	6-8	8-10	0-2	4-6	8-10	0-2	2-4	4-6	8-10	0-2
Sample ID	RP-29	RP-30	RP-31	RP-32	RP-22	RP-23	RP-24	RP-25	RP-26	RP-27	RP-28	RP-18
Date Sampled	5/14/93	5/14/93	5/14/93	5/14/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acid Compounds												
4-Chloro-3-methylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2-Chlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dichlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dimethylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4,6-Dinitro-2-methylphenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
2,4-Dinitrophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
2-Nitrophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Nitrophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Pentachlorophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Phenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4,6-Trichlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVO J SOIL—BOREHOLES
BARR..S INC.
LANSING, MICHIGAN
June 1993

Location	DS-10	DS-10	DS-10	DS-11	DS-11	DS-11	DS-11	DS-12	DS-12	DS-12	DS-12	DS-13
Depth	2-4	4-6	4-6 DUP	0-2	2-4	6-8	8-10	0-2	4-6	4-6 DUP	18-20	0-2
Sample ID	RP-19	RP-20	RP-21	RP-05	RP-06	RP-07	RP-08	RP-10	RP-11	RP-12	RP-13	RP-14
Date Sampled	5/13/93	5/13/93	5/13/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Acenaphthylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Anthracene	ND(0.33)	ND(0.33)	ND(0.33)	0.55	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Benzidine	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(25)
Benzo(a)anthracene	ND(0.33)	ND(0.33)	ND(0.33)	1.9	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Benzo(b)fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	3.5	0.41	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Benzo(k)fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Benzo(ghi)perylene	ND(0.33)	ND(0.33)	ND(0.33)	0.98	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Benzo(a)pyrene	ND(0.33)	ND(0.33)	ND(0.33)	1.3	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Bis (2-chloroethoxy) methane	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Bis (2-chloroethyl) ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Bis (2-chloroisopropyl) ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Bis (2-ethylhexyl) phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.44	0.85	ND(0.33)	130	11.0 J	2.0 J	ND(0.33)	ND(1.6)
4-Bromophenyl phenyl ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Butyl benzyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
2-Chloronaphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
4-Chlorophenyl phenyl ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Chrysene	ND(0.33)	ND(0.33)	ND(0.33)	1.9	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Dibenzo (a,h) anthracene	ND(0.33)	ND(0.33)	ND(0.33)	0.38	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Di-n-butyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	0.4	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
1,2-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
1,3-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
1,4-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
3,3'-Dichlorobenzidine	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(10)

B = analyte present in method blank
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E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-10	DS-10	DS-10	DS-11	DS-11	DS-11	DS-11	DS-12	DS-12	DS-12	DS-12	DS-13
Depth	2-4	4-6	4-6 DUP	0-2	2-4	6-8	8-10	0-2	4-6	4-6 DUP	18-20	0-2
Sample ID	RP-19	RP-20	RP-21	RP-05	RP-06	RP-07	RP-08	RP-10	RP-11	RP-12	RP-13	RP-14
Date Sampled	5/13/93	5/13/93	5/13/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Diethyl phthalate	ND(0.33)	ND(0.33)	ND(2.0)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Dimethyl phthalate	ND(0.33)	ND(0.33)	ND(2.0)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
2,4-Dinitrotoluene	ND(0.33)	ND(0.33)	ND(2.0)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
2,6-Dinitrotoluene	ND(0.33)	ND(0.33)	ND(2.0)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Di-n-octyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	6.6	0.35	ND(0.33)	ND(0.33)	ND(1.6)
1,2-Diphenylhydrazine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	3.6	0.36	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	1.7
Fluorene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Hexachlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Hexachlorobutadiene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Hexachlorocyclopentadiene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Hexachloroethane	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Indeno(1,2,3-cd) pyrene	ND(0.33)	ND(0.33)	ND(0.33)	1.4	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Isophorone	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
4,4'-methyllene-bis-(2-chloro-aniline)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.50)
Naphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	11.0
Nitrobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
N-Nitrosodimethylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
** N-Nitrosodiphenylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
N-Nitroso-di-n-propylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
Phenanthrene	ND(0.33)	ND(0.33)	ND(0.33)	2.9	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	8.4
Pyrene	ND(0.33)	ND(0.33)	ND(0.33)	3.8	0.33	ND(0.33)	ND(0.33)	ND(3.3)	0.36	ND(0.33)	ND(0.33)	ND(1.6)
1,2,4-Trichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC SOIL—BOREHOLES
BARK , INC.
LANSING, MICHIGAN
June 1993

Location	DS-10	DS-10	DS-10	DS-11	DS-11	DS-11	DS-11	DS-12	DS-12	DS-12	DS-12	DS-13
Depth	2-4	4-6	4-6 DUP	0-2	2-4	6-8	8-10	0-2	4-6	4-6 DUP	18-20	0-2
Sample ID	RP-19	RP-20	RP-21	RP-05	RP-06	RP-07	RP-08	RP-10	RP-11	RP-12	RP-13	RP-14
Date Sampled	5/13/93	5/13/93	5/13/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acid Compounds												
4-Chloro-3-methylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
2-Chlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
2,4-Dichlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
2,4-Dimethylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
4,6-Dinitro-2-methylphenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.7)	ND(1.7)	ND(1.7)	ND(0.33)	ND(8.5)
2,4-Dinitrophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.7)	ND(1.7)	ND(1.7)	ND(0.33)	ND(8.5)
2-Nitrophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
4-Nitrophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.7)	ND(1.7)	ND(1.7)	ND(0.33)	ND(8.5)
Pentachlorophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.7)	ND(1.7)	ND(1.7)	ND(0.33)	ND(8.5)
Phenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)
2,4,6-Trichlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(1.6)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-13	DS-13	DS-14	DS-14	DS-14	DS-14	US-1	US-1	US-2	US-2	US-2	US-3
Depth	2-4	4-6	0-2	2-4	4-6	8-10	14-16	20-22	0-2	14-16	20-22	2-4
Sample ID	RP-15	RP-16	RP-01	RP-02	RP-03	RP-04	RP-60	RP-61	RP-63	RP-64	RP-65	RP-65A
Date Sampled	5/13/93	5/13/93	5/11/93	5/11/93	5/11/93	5/11/93	5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/19/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	8.0
Acenaphthylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Benzidine	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(100)	ND(5.0)	ND(5.0)	ND(100)	ND(5.0)	ND(100)
Benzo(a)anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Benzo(b)fluoranthene	ND(0.33)	ND(0.33)	0.44	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Benzo(k)fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Benzo(ghi)perylene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Benzo(a)pyrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Bis (2-chloroethoxy) methane	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Bis (2-chloroethyl) ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Bis (2-chloroisopropyl) ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Bis (2-ethylhexyl) phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
4-Bromophenyl phenyl ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Butyl benzyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
2-Chloronaphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
4-Chlorophenyl phenyl ether	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Chrysene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Dibenzo (a,h) anthracene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Di-n-butyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
1,2-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
1,3-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
1,4-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
3,3'-Dichlorobenzidine	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(40)	ND(2.0)	ND(2.0)	ND(40)	ND(2.0)	ND(40)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC SOIL—BOREHOLES
BARK INC.
LANSING, MICHIGAN
June 1993

Location	DS-13	DS-13	DS-14	DS-14	DS-14	DS-14	US-1	US-1	US-2	US-2	US-2	US-3
Depth	2-4	4-6	0-2	2-4	4-6	8-10	14-16	20-22	0-2	14-16	20-22	2-4
Sample ID	RP-15	RP-16	RP-01	RP-02	RP-03	RP-04	RP-60	RP-61	RP-63	RP-64	RP-65	RP-65A
Date Sampled	5/13/93	5/13/93	5/11/93	5/11/93	5/11/93	5/11/93	5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/19/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Diethyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Dimethyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
2,4-Dinitrotoluene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
2,6-Dinitrotoluene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Di-n-octyl phthalate	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
1,2-Diphenylhydrazine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Fluoranthene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Fluorene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	14.0
Hexachlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Hexachlorobutadiene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Hexachlorocyclopentadiene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Hexachloroethane	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Indeno(1,2,3-cd) pyrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Isophorone	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
4,4'-methyllene-bis-(2-chloro-aniline)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(2.0)	ND(0.1)	ND(0.1)	ND(2.0)	ND(0.1)	ND(2.0)
Naphthalene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	36.0	ND(0.33)	ND(0.33)	40.0	ND(0.33)	35.0
Nitrobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
N-Nitrosodimethylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
** N-Nitrosodiphenylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	14.0
N-Nitroso-di-n-propylamine	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
Phenanthrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	12.0	ND(0.33)	ND(0.33)	11.0	ND(0.33)	46.0
Pyrene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
1,2,4-Trichlorobenzene	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-13	DS-13	DS-14	DS-14	DS-14	DS-14	US-1	US-1	US-2	US-2	US-2	US-3
Depth	2-4	4-6	0-2	2-4	4-6	8-10	14-16	20-22	0-2	14-16	20-22	2-4
Sample ID	RP-15	RP-16	RP-01	RP-02	RP-03	RP-04	RP-60	RP-61	RP-63	RP-64	RP-65	RP-65A
Date Sampled	5/13/93	5/13/93	5/11/93	5/11/93	5/11/93	5/11/93	5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/19/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acid Compounds												
4-Chloro-3-methylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
2-Chlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
2,4-Dichlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
2,4-Dimethylphenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
4,6-Dinitro-2-methylphenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(0.33)	ND(0.33)	ND(34)	ND(1.7)	ND(1.7)	ND(34)	ND(1.7)	ND(34)
2,4-Dinitrophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(0.33)	ND(0.33)	ND(34)	ND(1.7)	ND(1.7)	ND(34)	ND(1.7)	ND(34)
2-Nitrophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
4-Nitrophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(0.33)	ND(0.33)	ND(34)	ND(1.7)	ND(1.7)	ND(34)	ND(1.7)	ND(34)
Pentachlorophenol	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(0.33)	ND(0.33)	ND(34)	ND(1.7)	ND(1.7)	ND(34)	ND(1.7)	ND(34)
Phenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)
2,4,6-Trichlorophenol	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(0.33)	ND(6.6)	ND(0.33)	ND(6.6)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC SOIL—BOREHOLES
BARK INC.
LANSING, MICHIGAN
June 1993

Location	US-3	US-3	US-4	US-4	US-5	US-5	US-6	US-6	CT-1	CT-1	CT-1	CT-2
Depth	8-10	8-10 Dup	2-4	10-12	8-10	14-16	4-6	14-16	0-2	2-4	8-10	0-2
Sample ID	RP-66	RP-67	RP-68	RP-69	RP-70	RP-71	RP-72	RP-73	TB-74	TB-75	TB-76	TB-84
Date Sampled	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/20/93	5/20/93	5/20/93	5/20/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Acenaphthylene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Anthracene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzidine	ND(50)	ND(25)	ND(100)	ND(5.0)	ND(50)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Benzo(a)anthracene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(b)fluoranthene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(k)fluoranthene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(ghi)perylene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(a)pyrene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroethoxy) methane	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroethyl) ether	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroisopropyl) ether	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-ethylhexyl) phthalate	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	8.6	4.0	ND(0.33)	ND(0.33)	1.2
4-Bromophenyl phenyl ether	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Butyl benzyl phthalate	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2-Chloronaphthalene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Chlorophenyl phenyl ether	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Chrysene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Dibenzo (a,h) anthracene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-butyl phthalate	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,2-Dichlorobenzene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,3-Dichlorobenzene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,4-Dichlorobenzene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
3,3'-Dichlorobenzidine	ND(20)	ND(10)	ND(40)	ND(2.0)	ND(20)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	US-3	US-3	US-4	US-4	US-5	US-5	US-6	US-6	CT-1	CT-1	CT-1	CT-2
Depth	8-10	8-10 Dup	2-4	10-12	8-10	14-16	4-6	14-16	0-2	2-4	8-10	0-2
Sample ID	RP-66	RP-67	RP-68	RP-69	RP-70	RP-71	RP-72	RP-73	TB-74	TB-75	TB-76	TB-84
Date Sampled	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/20/93	5/20/93	5/20/93	5/20/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Diethyl phthalate	ND(3.0)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Dimethyl phthalate	ND(3.0)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dinitrotoluene	ND(3.0)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,6-Dinitrotoluene	ND(3.0)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-octyl phthalate	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,2-Diphenylhydrazine	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluoranthene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	0.5	ND(0.33)	ND(0.33)	ND(0.33)
Fluorene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorobenzene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorobutadiene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorocyclopentadiene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachloroethane	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Indeno(1,2,3-cd) pyrene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Isophorone	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4,4'-methyllene-bis-(2-chloro-aniline)	ND(1.0)	ND(.50)	ND(2.0)	ND(0.1)	ND(1.0)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Naphthalene	4.8	3.6	37.0	1.1	34.0	ND(0.33)	8.1	ND(0.33)	1.0	ND(0.33)	ND(0.33)	0.93
Nitrobenzene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
N-Nitrosodimethylamine	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
** N-Nitrosodiphenylamine	7.2 J	2.1 J	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
N-Nitroso-di-n-propylamine	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenanthrene	6.1	4.5	19.0	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	0.54	ND(0.33)	ND(0.33)	0.44
Pyrene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	0.66	ND(0.33)	ND(0.33)	ND(0.33)
1,2,4-Trichlorobenzene	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC SOIL—BOREHOLES
BARK , INC.
LANSING, MICHIGAN
June 1993

Location	US-3	US-3	US-4	US-4	US-5	US-5	US-6	US-6	CT-1	CT-1	CT-1	CT-2
Depth	8-10	8-10 Dup	2-4	10-12	8-10	14-16	4-6	14-16	0-2	2-4	8-10	0-2
Sample ID	RP-66	RP-67	RP-68	RP-69	RP-70	RP-71	RP-72	RP-73	TB-74	TB-75	TB-76	TB-84
Date Sampled	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/20/93	5/20/93	5/20/93	5/20/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acid Compounds												
4-Chloro-3-methylphenol	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2-Chlorophenol	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	1.6	0.66	ND(0.33)	ND(0.33)
2,4-Dichlorophenol	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dimethylphenol	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	1.4	0.61	0.58	0.85
4,6-Dinitro-2-methylphenol	ND(1.7)	ND(8.5)	ND(34)	ND(1.7)	ND(3.3)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
2,4-Dinitrophenol	ND(1.7)	ND(8.5)	ND(34)	ND(1.7)	ND(3.3)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
2-Nitrophenol	ND(0.33)	ND(1.6)	ND(6.6)	ND(0.33)	ND(1.7)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Nitrophenol	ND(1.7)	ND(8.5)	ND(34)	ND(1.7)	ND(3.3)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Pentachlorophenol	ND(1.7)	ND(8.5)	ND(34)	ND(1.7)	ND(3.3)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Phenol	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	2.0	ND(0.33)	ND(0.33)	0.74
2,4,6-Trichlorophenol	ND(3.3)	ND(1.6)	ND(6.6)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
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SUMMARY OF SVOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	CT-2	CT-2	CT-3	CT-3	CT-3	CT-3	DD-1	DD-1	DD-1	DD-2	DD-2	DD-2
Depth	2-4	8-10	0-2	4-6	16-18	16-18 Dup	0-2	2-4	4-6	0-2	2-4	4-6
Sample ID	TB-78	TB-79	TB-80	TB-81	TB-82	TB-83	TB-88	TB-90	TB-89	TB-85	TB-86	TB-87
Date Sampled	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Base Neutral Compounds												
Acenaphthene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Acenaphthylene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Anthracene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Benzidine	ND(5.0)	ND(5.0)	ND(25)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(50)	ND(5.0)	ND(5.0)
Benzo(a)anthracene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	0.72	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Benzo(b)fluoranthene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	0.9	ND(0.33)	ND(0.33)	6.2	ND(0.33)	ND(0.33)
Benzo(k)fluoranthene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Benzo(ghi)perylene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	3.5	ND(0.33)	ND(0.33)
Benzo(a)pyrene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	0.46	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Bis (2-chloroethoxy) methane	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Bis (2-chloroethyl) ether	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Bis (2-chloroisopropyl) ether	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Bis (2-ethylhexyl) phthalate	ND(0.33)	ND(0.33)	ND(1.6)	1.0	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
4-Bromophenyl phenyl ether	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Butyl benzyl phthalate	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
2-Chloronaphthalene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
4-Chlorophenyl phenyl ether	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Chrysene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	0.77	ND(0.33)	ND(0.33)	4.4	ND(0.33)	ND(0.33)
Dibenzo (a,h) anthracene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Di-n-butyl phthalate	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
1,2-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
1,3-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
1,4-Dichlorobenzene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
3,3'-Dichlorobenzidine	ND(2.0)	ND(2.0)	ND(10)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistin[illegible]hable from Diphenylamine

SUMMARY OF SVOC SOIL—BOREHOLES
BARK INC.
LANSING, MICHIGAN
June 1993

Location	CT-2	CT-2	CT-3	CT-3	CT-3	CT-3	DD-1	DD-1	DD-1	DD-2	DD-2	DD-2
Depth	2-4	8-10	0-2	4-6	16-18	16-18 Dup	0-2	2-4	4-6	0-2	2-4	4-6
Sample ID	TB-78	TB-79	TB-80	TB-81	TB-82	TB-83	TB-88	TB-89	TB-90	TB-85	TB-86	TB-87
Date Sampled	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Diethyl phthalate	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Dimethyl phthalate	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
2,4-Dinitrotoluene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
2,6-Dinitrotoluene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Di-n-octyl phthalate	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
1,2-Diphenylhydrazine	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Fluoranthene	ND(0.33)	ND(0.33)	1.7	ND(0.33)	ND(0.33)	ND(0.33)	1.1	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Fluorene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Hexachlorobenzene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Hexachlorobutadiene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Hexachlorocyclopentadiene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Hexachloroethane	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Indeno(1,2,3-cd) pyrene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Isophorone	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
4,4'-methyllene-bis-(2-chloro-aniline)	ND(0.1)	ND(0.1)	ND(.50)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(1.0)	ND(0.1)	ND(0.1)
Naphthalene	ND(0.33)	ND(0.33)	2.3	ND(0.33)	ND(0.33)	ND(0.33)	0.68	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Nitrobenzene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
N-Nitrosodimethylamine	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
** N-Nitrosodiphenylamine	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
N-Nitroso-di-n-propylamine	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Phenanthrene	ND(0.33)	ND(0.33)	2.3	ND(0.33)	ND(0.33)	ND(0.33)	0.53	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
Pyrene	ND(0.33)	ND(0.33)	1.6	ND(0.33)	ND(0.33)	ND(0.33)	1.0	ND(0.33)	ND(0.33)	4.2	ND(0.33)	ND(0.33)
1,2,4-Trichlorobenzene	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	CT-2	CT-2	CT-3	CT-3	CT-3	CT-3	DD-1	DD-1	DD-1	DD-2	DD-2	DD-2
Depth	2-4	8-10	0-2	4-6	16-18	16-18 Dup	0-2	2-4	4-6	0-2	2-4	4-6
Sample ID	TB-78	TB-79	TB-80	TB-81	TB-82	TB-83	TB-88	TB-89	TB-90	TB-85	TB-86	TB-87
Date Sampled	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Acid Compounds												
4-Chloro-3-methylphenol	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
2-Chlorophenol	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
2,4-Dichlorophenol	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
2,4-Dimethylphenol	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
4,6-Dinitro-2-methylphenol	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)	ND(1.7)	ND(1.7)
2,4-Dinitrophenol	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)	ND(1.7)	ND(1.7)
2-Nitrophenol	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
4-Nitrophenol	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)	ND(1.7)	ND(1.7)
Pentachlorophenol	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)	ND(1.7)	ND(1.7)
Phenol	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)
2,4,6-Trichlorophenol	ND(0.33)	ND(0.33)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(3.3)	ND(0.33)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC' ' SOIL—BOREHOLES
BARI INC.
LANSING, MICHIGAN
June 1993

Location	DD-3	DD-3	DD-3	DD-3	DD-4	DD-4	DD-4	DD-4	DD-5	DD-5	DD-5
Depth	0-2	0-2 Dup	4-6	6-8	0-2	4-6	6-8	6-8 Dup	0-2	6-8	8-10
Sample ID	TB-91	TB-100	TB-92	TB-93	TB-96	TB-95	TB-94	TB-101	TB-98	TB-97	TB-99
Date Sampled	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/26/93	5/26/93	5/26/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter											
Base Neutral Compounds											
Acenaphthene	ND(2.5)	2.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Acenaphthylene	ND(2.5)	7.5 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.4	ND(0.33)	ND(0.33)
Anthracene	3.3 J	11.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.65	ND(0.33)	ND(0.33)
Benzidine	ND(38)	ND(25)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Benzo(a)anthracene	7.6 J	32.0 EJ	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	2.2	ND(0.33)	ND(0.33)
Benzo(b)fluoranthene	13.0 J	65.0 EJ	ND(0.33)	ND(0.33)	0.58	ND(0.33)	ND(0.33)	ND(0.33)	4.0	ND(0.33)	ND(0.33)
Benzo(k)fluoranthene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Benzo(ghi)perylene	ND(2.5)	16.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	1.2	ND(0.33)	ND(0.33)
Benzo(a)pyrene	4.9 J	22.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	1.7	ND(0.33)	ND(0.33)
Bis (2-chloroethoxy) methane	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroethyl) ether	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-chloroisopropyl) ether	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Bis (2-ethylhexyl) phthalate	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	0.49	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Bromophenyl phenyl ether	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Butyl benzyl phthalate	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2-Chloronaphthalene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Chlorophenyl phenyl ether	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Chrysene	9.5 J	41.0 EJ	ND(0.33)	ND(0.33)	0.41	ND(0.33)	ND(0.33)	ND(0.33)	2.6	ND(0.33)	ND(0.33)
Dibenzo (a,h) anthracene	ND(2.5)	11.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.96	ND(0.33)	ND(0.33)
Di-n-butyl phthalate	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,2-Dichlorobenzene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,3-Dichlorobenzene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,4-Dichlorobenzene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
3,3'-Dichlorobenzidine	ND(15)	ND(10)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DD-3	DD-3	DD-3	DD-3	DD-4	DD-4	DD-4	DD-4	DD-5	DD-5	DD-5
Depth	0-2	0-2 Dup	4-6	6-8	0-2	4-6	6-8	6-8 Dup	0-2	6-8	8-10
Sample ID	TB-91	TB-100	TB-92	TB-93	TB-96	TB-95	TB-94	TB-101	TB-98	TB-97	TB-99
Date Sampled	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/26/93	5/26/93	5/26/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter											
Diethyl phthalate	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Dimethyl phthalate	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dinitrotoluene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,6-Dinitrotoluene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Di-n-octyl phthalate	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
1,2-Diphenylhydrazine	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Fluoranthene	11.0 J	44.0 EJ	ND(0.33)	ND(0.33)	0.36	ND(0.33)	ND(0.33)	ND(0.33)	3.5	ND(0.33)	ND(0.33)
Fluorene	ND(2.5)	2.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorobenzene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorobutadiene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachlorocyclopentadiene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Hexachloroethane	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Indeno(1,2,3-cd) pyrene	ND(2.5)	12.0 J	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	0.81	ND(0.33)	ND(0.33)
Isophorone	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4,4'-methyllene-bis-(2-chloro-aniline)	ND(0.75)	ND(0.50)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Naphthalene	ND(2.5)	3.0 J	ND(0.33)	ND(0.33)	0.54	ND(0.33)	ND(0.33)	ND(0.33)	1.3	ND(0.33)	ND(0.33)
Nitrobenzene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
N-Nitrosodimethylamine	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
** N-Nitrosodiphenylamine	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
N-Nitroso-di-n-propylamine	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
Phenanthrene	3.4 J	13.0 J	ND(0.33)	ND(0.33)	0.48	ND(0.33)	ND(0.33)	ND(0.33)	2.2	ND(0.33)	ND(0.33)
Pyrene	11.0 J	50.0 EJ	ND(0.33)	ND(0.33)	0.45	ND(0.33)	ND(0.33)	ND(0.33)	3.5	ND(0.33)	ND(0.33)
1,2,4-Trichlorobenzene	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF SVOC SOIL—BOREHOLES
BARI INC.
LANSING, MICHIGAN
June 1993

Location	DD-3	DD-3	DD-3	DD-3	DD-4	DD-4	DD-4	DD-4	DD-5	DD-5	DD-5
Depth	0-2	0-2 Dup	4-6	6-8	0-2	4-6	6-8	6-8 Dup	0-2	6-8	8-10
Sample ID	TB-91	TB-100	TB-92	TB-93	TB-96	TB-95	TB-94	TB-101	TB-98	TB-97	TB-99
Date Sampled	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/26/93	5/26/93	5/26/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter											
Acid Compounds											
4-Chloro-3-methylphenol	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2-Chlorophenol	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dichlorophenol	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4-Dimethylphenol	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4,6-Dinitro-2-methylphenol	ND(13)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
2,4-Dinitrophenol	ND(13)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
2-Nitrophenol	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
4-Nitrophenol	ND(13)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Pentachlorophenol	ND(13)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Phenol	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)
2,4,6-Trichlorophenol	ND(2.5)	ND(1.6)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)	ND(0.33)

B = analyte present in method blank
S = results due to secondary dilution
E = estimated value; reported by lab
ND = not detected; Target Detection Limit
J = value is an estimated quantity for detected analytes
* Detection limits raised due to matrix interference
** Indistinguishable from Diphenylamine

SUMMARY OF PESTICIDES/PCB's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-1	DS-1	DS-1	DS-1	DS-2	DS-2	DS-2	DS-2	DS-3	DS-3	DS-3	DS-3
Depth	0-2	4-6	6-8	6-8' Dup	0-2	4-6	6-8	8-10	2-4	6-8	6-8 Dup	10-12
Sample ID	RP-47	RP-48	RP-49	RP-50	RP-51	RP-52	RP-53	RP-54	RP-56	RP-57	RP-58	RP-59
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
Aldrin	ND(13)	ND(1.7)	ND(1.7)	ND(1.7)	ND(600)	ND(8.5)	ND(2.6)*	ND(1.7)	ND(1.7)	ND(1.8)*	ND(1.7)	ND(1.7)
alpha-BHC	ND(6.8)	ND(1.7)	ND(1.7)	ND(1.7)	ND(600)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
beta-BHC	ND(6.8)	ND(1.7)	ND(1.7)	ND(1.7)	ND(600)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
delta-BHC	ND(6.8)	ND(1.7)	ND(1.7)	ND(1.7)	ND(600)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
gamma-BHC (Lindane)	ND(6.8)	ND(1.7)	ND(1.7)	ND(1.7)	ND(600)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
alpha-Chlordane	36	ND(1.7)	ND(1.7)	ND(1.7)	9100	36	ND(1.7)	4.2	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
gamma-Chlordane	48	ND(1.7)	ND(1.7)	ND(1.7)	9800	41	ND(1.7)	5.1	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
4,4'-DDD	47	ND(3.3)	ND(3.3)	ND(3.3)	6300	26	ND(3.3)	ND(3.3)	ND(3.3) UJ	ND(3.3)	ND(3.3)	ND(3.3)
4,4'-DDE	ND(40)	ND(3.3)	ND(3.3)	ND(3.3)	2600	13.0	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
4,4'-DDT	ND(79)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1200)	ND(4.1)	ND(3.3)	ND(3.3)	ND(3.3) UJ	ND(3.3)	ND(3.3)	ND(3.3)
Dieldrin	ND(13)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1200)	ND(17)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
alpha-Endosulfan	ND(13)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1200)	ND(17)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
beta-Endosulfan	ND(13)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1200)	ND(17)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Endosulfan sulfate	ND(13)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1200)	ND(17)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Endrin	ND(13)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1200)	ND(17)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Endrin aldehyde	ND(13)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1200)	ND(17)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Heptachlor	ND(6.8)	ND(1.7)	ND(1.7)	ND(1.7)	ND(600)	ND(8.5)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.8)*	ND(1.7)
Heptachlor epoxide	ND(17)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1500)	ND(11)	ND(5.4)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Toxaphene	ND(170)	ND(170)	ND(170)	ND(170)	ND(6000)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)
PCB-1016	ND(330)	ND(330)	ND(330)	ND(330)	ND(12000)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1221	ND(330)	ND(330)	ND(330)	ND(330)	ND(12000)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1232	ND(330)	ND(330)	ND(330)	ND(330)	ND(12000)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1242	ND(330)	ND(330)	ND(330)	ND(330)	ND(12000)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1248	ND(330)	ND(330)	ND(330)	ND(330)	ND(12000)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1254	ND(330)	ND(330)	ND(330)	ND(330)	ND(12000)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1260	ND(330)	ND(330)	ND(330)	ND(330)	ND(12000)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)

S = results due to secondary dilution
E = estimated value as reported by lab
B = analyte present in method blank
ND = not detected (Target Detection Limit)
J = value is an estimated quantity for detected analytes
UJ = analyte was not detected; value is an estimate
R = data was unusable for non-detected analytes
Note: * Detection limits raised due to matrix interference

SUMMARY OF PESTICIDES/PCB's IN SOIL—BOREHOLES
BA S INC.
LANSIN MICHIGAN
June 1993

Location	DS-4	DS-4	DS-4	DS-4	DS-5	DS-5	DS-5	DS-5	DS-6	DS-6	DS-6	DS-6
Depth	0-2	2-4	4-6	6-8	0-2	2-4	4-6	8-10	0-2	2-4	4-6	6-8
Sample ID	RP-42	RP-43	RP-45	RP-44	RP-38	RP-39	RP-40	RP-41	RP-33	RP-34	RP-35	RP-36
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
Aldrin	ND(3.4)	ND(6.6)	ND(6.8)	ND(1.7)	ND(34)	ND(1.7)	ND(17)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
alpha-BHC	ND(3.4)	ND(2.5)	ND(6.8)	ND(1.7)	ND(34)	ND(1.7)	ND(17)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
beta-BHC	ND(3.4)	ND(1.7)	ND(6.8)	ND(1.7)	ND(34)	ND(1.7)	ND(17)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
delta-BHC	ND(3.4)	ND(1.7)	ND(15)	ND(1.7)	ND(34)	ND(1.7)	ND(17)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
gamma-BHC (Lindane)	ND(3.4)	ND(1.7)	ND(6.8)	ND(1.7)	ND(34)	ND(1.7)	ND(17)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
alpha-Chlordane	17	6.8	38	ND(1.7)	350	ND(1.7)	25	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
gamma-Chlordane	22	9.1	44	ND(1.7)	440	5.6	30	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
4,4'-DDD	40	28	110	ND(3.3)	100	ND(3.3)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
4,4'-DDE	11	17	25	ND(3.3)	120	ND(3.3)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
4,4'-DDT	24	ND(12)	24	ND(3.3)	ND(66)	ND(3.3)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Dieldrin	ND(6.6)	ND(3.3)	ND(13)	ND(3.3)	ND(66)	ND(3.3)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
alpha-Endosulfan	ND(6.6)	ND(3.3)	ND(13)	ND(3.3)	ND(66)	ND(3.3)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
beta-Endosulfan	ND(6.6)	ND(3.3)	ND(13)	ND(3.3)	ND(66)	ND(3.3)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Endosulfan sulfate	ND(6.6)	ND(3.3)	ND(13)	ND(3.3)	ND(66)	ND(3.3)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Endrin	7.0	ND(3.3)	ND(13)	ND(3.3)	ND(66)	ND(3.3)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Endrin aldehyde	ND(6.6)	ND(3.9)	ND(13)	ND(3.3)	ND(66)	ND(3.3)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Heptachlor	ND(3.4)	ND(1.7)	ND(7.6)	ND(1.7)	ND(34)	ND(1.7)	ND(17)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Heptachlor epoxide	ND(3.4)	ND(19)	ND(6.8)	ND(1.7)	ND(140)	ND(1.7)	ND(17)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Toxaphene	ND(170)	ND(170)	ND(170)	ND(170)	ND(340)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)
PCB-1016	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1221	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1232	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1242	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1248	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1254	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1260	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)

S = results due to secondary dilution
E = estimated value as reported by lab
B = analyte present in method blank
ND = not detected (Target Detection Limit)
J = value is an estimated quantity for detected analytes
UJ = analyte was not detected; value is an estimate
R = data was unusable for non-detected analytes
Note: * Detection limits raised due to matrix interference

SUMMARY OF PESTICIDES/PCB's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-7	DS-7	DS-7	DS-7	DS-8	DS-8	DS-8	DS-9	DS-9	DS-9	DS-9	DS-10
Depth	0-2	2-4	6-8	8-10	0-2	4-6	8-10	0-2	2-4	4-6	8-10	0-2
Sample ID	RP-29	RP-30	RP-31	RP-32	RP-23	RP-22	RP-24	RP-25	RP-26	RP-27	RP-28	RP-18
Date Sampled	5/14/93	5/14/93	5/14/93	5/14/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
Aldrin	ND(85)	ND(1.7)	ND(1.7)	ND(1.7)	ND(21)*	ND(34)	ND(1.7)	ND(68)	ND(1.7)	ND(1.7)	ND(1.7)	ND(22)*
alpha-BHC	ND(85)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)*	ND(34)	ND(1.7)	ND(68)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)*
beta-BHC	ND(85)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)*	ND(34)	ND(1.7)	ND(68)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)*
delta-BHC	ND(85)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)*	ND(34)	ND(1.7)	ND(68)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)*
gamma-BHC (Lindane)	ND(85)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)*	ND(34)	ND(1.7)	ND(68)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)*
alpha-Chlordane	390	ND(1.7)	ND(1.7)	ND(1.7)	ND(23)*	ND(40)	ND(1.7)	ND(68)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)*
gamma-Chlordane	450	ND(1.7)	ND(1.7)	ND(1.7)	ND(32)*	ND(62)	ND(1.7)	ND(68)	ND(2.1)	ND(2.7)	ND(1.7)	ND(17)*
4,4'-DDD	ND(210)	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*	ND(140)	ND(3.3)	ND(220)	ND(6.0)	7.0	ND(3.3)	ND(33)*
4,4'-DDE	ND(170)	ND(3.3)	ND(3.3)	ND(3.3)	ND(69)*	ND(300)	ND(3.3)	ND(310)	7.1	ND(9.4)	ND(3.3)	ND(25)*
4,4'-DDT	ND(170)	ND(3.3)	ND(3.3)	ND(3.3)	ND(72)*	ND(460)	ND(3.3)	ND(800)	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*
Dieldrin	270	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*	ND(66)	ND(3.3)	ND(130)	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*
alpha-Endosulfan	ND(170)	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*	ND(66)	ND(3.3)	ND(130)	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*
beta-Endosulfan	ND(170)	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*	ND(66)	ND(3.3)	ND(130)	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*
Endosulfan sulfate	ND(170)	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*	ND(66)	ND(3.3)	ND(130)	ND(3.3)	ND(3.3)	ND(3.3)	ND(47)*
Endrin	ND(170)	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*	ND(66)	ND(3.3)	ND(130)	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*
Endrin aldehyde	ND(170)	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*	ND(75)	ND(3.3)	ND(230)	ND(3.3)	ND(3.3)	ND(3.3)	ND(33)*
Heptachlor	ND(85)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)*	ND(34)	ND(1.7)	ND(68)	ND(1.7)	ND(1.7)	ND(1.7)	ND(17)*
Heptachlor epoxide	ND(85)	ND(1.7)	ND(1.7)	ND(1.7)	ND(68)*	ND(34)	ND(1.7)	ND(140)	ND(1.7)	ND(1.7)	ND(1.7)	ND(28)*
Toxaphene	ND(850)	ND(170)	ND(170)	ND(170)	ND(170)	ND(340)	ND(170)	ND(680)	ND(170)	ND(170)	ND(170)	ND(170)
PCB-1016	ND(1700)	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(1300)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1221	ND(1700)	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(1300)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1232	ND(1700)	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(1300)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1242	ND(1700)	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(1300)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1248	ND(1700)	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(1300)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1254	ND(1700)	ND(330)	ND(330)	ND(330)	ND(330)	10,000 E	ND(330)	13,000 E	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1260	ND(1700)	ND(330)	ND(330)	ND(330)	ND(330)	ND(660)	ND(330)	ND(1300)	ND(330)	ND(330)	ND(330)	ND(330)

S = results due to secondary dilution
E = estimated value as reported by lab
B = analyte present in method blank
ND = not detected (Target Detection Limit)
J = value is an estimated quantity for detected analytes
UJ = analyte was not detected; value is an estimate
R = data was unusable for non-detected analytes
Note: * Detection limits raised due to matrix interference

SUMMARY OF PESTICIDES/PCB's IN SOIL—BOREHOLES
BA' S INC.
LANSIN ICHIGAN
June 1993

Location	DS-10	DS-10	DS-10	DS-11	DS-11	DS-11	DS-11	DS-12	DS-12	DS-12	DS-12	DS-13
Depth	2-4	4-6	4-6 DUP	0-2	2-4	6-8	8-10	0-2	4-6	4-6 DUP	18-20	0-2
Sample ID	RP-19	RP-20	RP-21	RP-05	RP-06	RP-07	RP-08	RP-10	RP-11	RP-12	RP-13	RP-14
Date Sampled	5/13/93	5/13/93	5/13/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/13/93
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
Aldrin	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)	ND(34)	ND(1.7)	ND(1.7)	ND(40)*
alpha-BHC	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)	ND(34)	ND(1.7)	ND(1.7)	ND(17)*
beta-BHC	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)	ND(34)	ND(1.7)	ND(1.7)	ND(17)*
delta-BHC	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)	ND(34)	ND(1.7)	ND(1.7)	ND(17)*
gamma-BHC (Lindane)	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)	ND(34)	ND(1.7)	ND(1.7)	ND(17)*
alpha-Chlordane	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(38)	ND(34)	ND(3.9)	ND(1.7)	ND(17)*
gamma-Chlordane	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(73)	ND(34)	ND(7.3)	ND(1.7)	ND(17)*
4,4'-DDD	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	11.0	ND(3.3)	ND(3.3)	490 S	520 J	120 J	ND(3.3)	ND(33)*
4,4'-DDE	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(7.7)	ND(3.3)	ND(3.3)	ND(230)	ND(66)	ND(33)	ND(3.3)	ND(41)*
4,4'-DDT	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(3.5)	ND(3.3)	ND(3.3)	ND(110)	ND(130)	ND(47)	ND(3.3)	ND(120)*
Dieldrin	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)	ND(66)	ND(33)	ND(3.3)	ND(33)*
alpha-Endosulfan	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)	ND(66)	ND(3.3)	ND(3.3)	ND(33)*
beta-Endosulfan	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)	ND(66)	ND(3.3)	ND(3.3)	ND(33)*
Endosulfan sulfate	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)	ND(66)	ND(3.3)	ND(3.3)	ND(33)*
Endrin	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)	ND(66)	ND(3.3)	ND(3.3)	ND(33)*
Endrin aldehyde	ND(3.3)	ND(3.3)	ND(3.3)	ND(66)*	ND(3.5)	ND(3.3)	ND(3.3)	ND(560)	ND(66)	ND(3.3)	ND(3.3)	ND(33)*
Heptachlor	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)	ND(34)	ND(1.7)	ND(1.7)	ND(17)*
Heptachlor epoxide	ND(1.7)	ND(1.7)	ND(1.7)	ND(34)*	ND(3.9)	ND(1.7)	ND(1.7)	ND(36)	ND(34)	ND(1.7)	ND(1.7)	ND(42)*
Toxaphene	ND(170)	ND(170)	ND(170)	ND(340)*	ND(170)	ND(170)	ND(170)	ND(340)	ND(340)	ND(170)	ND(170)	ND(170)
PCB-1016	ND(330)	ND(330)	ND(330)	ND(660)*	ND(330)	ND(330)	ND(330)	ND(660)	ND(660)	ND(330)	ND(330)	ND(330)
PCB-1221	ND(330)	ND(330)	ND(330)	ND(660)*	ND(330)	ND(330)	ND(330)	ND(660)	ND(660)	ND(330)	ND(330)	ND(330)
PCB-1232	ND(330)	ND(330)	ND(330)	ND(660)*	ND(330)	ND(330)	ND(330)	ND(660)	ND(660)	ND(330)	ND(330)	ND(330)
PCB-1242	ND(330)	ND(330)	ND(330)	ND(660)*	ND(330)	ND(330)	ND(330)	ND(660)	ND(660)	ND(330)	ND(330)	ND(330)
PCB-1248	ND(330)	ND(330)	ND(330)	ND(660)*	ND(330)	ND(330)	ND(330)	ND(660)	ND(660)	ND(330)	ND(330)	ND(330)
PCB-1254	ND(330)	ND(330)	ND(330)	ND(660)*	ND(330)	ND(330)	ND(330)	ND(660)	ND(660)	ND(330)	ND(330)	ND(330)
PCB-1260	ND(330)	ND(330)	ND(330)	ND(660)*	ND(330)	ND(330)	ND(330)	ND(660)	ND(660)	ND(330)	ND(330)	ND(330)

S = results due to secondary dilution
E = estimated value as reported by lab
B = analyte present in method blank
ND = not detected (Target Detection Limit)
J = value is an estimated quantity for detected analytes
UJ = analyte was not detected; value is an estimate
R = data was unusable for non-detected analytes
Note: * Detection limits raised due to matrix interference

SUMMARY OF PESTICIDES/PCB's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-13	DS-13	DS-14	DS-14	DS-14	DS-14	US-1	US-1	US-2	US-2	US-2	US-3
Depth	2-4	4-6	0-2	2-4	4-6	8-10	14-16	20-22	0-2	14-16	20-22	2-4
Sample ID	RP-15	RP-16	RP-01	RP-02	RP-03	RP-04	RP-60	RP-61	RP-63	RP-64	RP-65	RP-65A
Date Sampled	5/13/93	5/13/93	5/11/93	5/11/93	5/11/93	5/11/93	5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/19/93
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
Aldrin	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
alpha-BHC	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7) UJ	ND(1.7)	ND(1.7)	ND(1.7)
beta-BHC	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
delta-BHC	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
gamma-BHC (Lindane)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7) UJ	ND(1.7)	ND(1.7)	ND(1.7)
alpha-Chlordane	ND(1.7)	ND(1.7)	ND(1.9)*	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
gamma-Chlordane	ND(1.7)	ND(1.7)	ND(4.8)*	ND(1.8)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
4,4'-DDD	ND(3.3)	ND(3.3)	ND(3.3)	ND(4.5)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
4,4'-DDE	ND(3.3)	ND(3.3)	ND(33)*	14	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
4,4'-DDT	ND(3.3)	ND(3.3)	ND(48)*	ND(11.0)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Dieldrin	ND(3.3)	ND(3.3)	ND(6.1)*	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
alpha-Endosulfan	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
beta-Endosulfan	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Endosulfan sulfate	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Endrin	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Endrin aldehyde	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
Heptachlor	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Heptachlor epoxide	ND(1.7)	ND(1.7)	ND(2.7)	ND(2.0)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)
Toxaphene	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)
PCB-1016	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1221	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1232	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1242	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1248	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1254	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1260	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)

S = results due to secondary dilution
E = estimated value as reported by lab
B = analyte present in method blank
ND = not detected (Target Detection Limit)
J = value is an estimated quantity for detected analytes
UJ = analyte was not detected; value is an estimate
R = data was unusable for non-detected analytes
Note: * Detection limits raised due to matrix interference

SUMMARY OF PESTICIDES/PCB's IN SOIL—BOREHOLES
BA! S INC.
LANSIN. MICHIGAN
June 1993

Location	US-3	US-3	US-4	US-4	US-5	US-5	US-6	US-6	CT-1	CT-1	CT-1	CT-2
Depth	8-10	8-10 Dup	2-4	10-12	8-10	14-16	4-6	14-16	0-2	2-4	8-10	0-2
Sample ID	RP-66	RP-67	RP-68	RP-69	RP-70	RP-71	RP-72	RP-73	TB-74	TB-75	TB-76	TB-84
Date Sampled	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/20/93	5/20/93	5/20/93	5/20/93
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
Aldrin	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(680)UJ	ND(8.5) UJ	ND(1.7) UJ	ND(26) UJ
alpha-BHC	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(680) R	ND(8.5) R	ND(1.7) R	ND(26) R
beta-BHC	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(2.9)*	ND(1.7)	ND(680)	ND(8.5)	ND(1.7)	ND(26)
delta-BHC	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(680)	ND(8.5)	ND(1.7)	ND(26)
gamma-BHC (Lindane)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(680) R	ND(8.5) R	ND(1.7) R	ND(26) R
alpha-Chlordane	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(680)	ND(8.5)	ND(1.7)	ND(26.0)
gamma-Chlordane	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	1900	ND(8.5)	ND(1.7)	ND(26.0)
4,4'-DDD	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,100)	ND(17.0)	ND(3.3)	ND(110.0)
4,4'-DDE	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(32,000)	ND(180.0)	ND(3.3)	ND(670.0)
4,4'-DDT	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,100)	ND(17.0)	ND(3.3)	ND(50.0)
Dieldrin	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,100)	ND(17.0)	ND(3.3)	ND(50.0)
alpha-Endosulfan	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,100)	ND(17.0)	ND(3.3)	ND(50.0)
beta-Endosulfan	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,100)	ND(17.0)	ND(3.3)	ND(50.0)
Endosulfan sulfate	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,100)	ND(17.0)	ND(3.3)	ND(50.0)
Endrin	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,100)	ND(17.0)	ND(3.3)	ND(50.0)
Endrin aldehyde	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(1,100)	ND(17)	ND(3.3)	ND(50)
Heptachlor	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(680)UJ	ND(8.5) UJ	ND(1.7) UJ	ND(26) UJ
Heptachlor epoxide	ND(1.7)	ND(1.7)	ND(3.2)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(1.7)	ND(680)	ND(8.5)	ND(1.7)	ND(26)
Toxaphene	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(6,800)	ND(425)	ND(170)	ND(260)
PCB-1016	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(14,000)	ND(825)	ND(330)	ND(500)
PCB-1221	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(14,000)	ND(825)	ND(330)	ND(500)
PCB-1232	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(14,000)	ND(825)	ND(330)	ND(500)
PCB-1242	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(14,000)	ND(825)	ND(330)	ND(500)
PCB-1248	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(14,000)	ND(825)	ND(330)	ND(500)
PCB-1254	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	48,000	1,700	ND(330)	2,700
PCB-1260	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(14,000)	ND(825.0)	ND(330)	ND(500)

S = results due to secondary dilution
E = estimated value as reported by lab
B = analyte present in method blank
ND = not detected (Target Detection Limit)
J = value is an estimated quantity for detected analytes
UJ = analyte was not detected; value is an estimate
R = data was unusable for non-detected analytes
Note: * Detection limits raised due to matrix interference

SUMMARY OF PESTICIDES/PCB's IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	CT-2	CT-2	CT-3	CT-3	CT-3	CT-3	DD-1	DD-1	DD-1	DD-2	DD-2	DD-2
Depth	2-4	8-10	0-2	4-6	16-18	16-18 Dup	0-2	2-4	4-6	0-2	2-4	4-6
Sample ID	TB-78	TB-79	TB-80	TB-81	TB-82	TB-83	TB-88	TB-90	TB-89	TB-85	TB-86	TB-87
Date Sampled	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter												
Aldrin	ND(3.4) UJ	ND(1.7)UJ	ND(160)UJ	ND(17)UJ	ND(1.7)UJ	ND(1.7)UJ	ND(26)UJ	ND(26)	ND(1.7)UJ	ND(290000)UJ	ND(43)UJ	ND(51)UJ
alpha-BHC	ND(3.4) R	ND(1.7)R	ND(130)R	ND(17)R	ND(1.7)R	ND(1.7)R	ND(26) R	ND(26)	ND(1.7) R	ND(51,000)R	ND(43)R	ND(51) R
beta-BHC	ND(3.4)	ND(1.7)	ND(130)	ND(17)	ND(1.7)	ND(1.7)	ND(26)	ND(26)	ND(1.7)	ND(51,000)	ND(43)	ND(51)
delta-BHC	ND(3.4) UJ	ND(1.7)	ND(130)	ND(17)	ND(1.7)	ND(1.7)	ND(26)	ND(26)	ND(1.7)	ND(51,000)	ND(43)	ND(51)
gamma-BHC (Lindane)	ND(3.4) R	ND(1.7)R	ND(130)R	ND(17)R	ND(1.7)R	ND(1.7)R	ND(26)R	ND(26)	ND(1.7)R	ND(51,000)R	ND(43)R	ND(51)R
alpha-Chlordane	46 J	ND(1.7)	4000	78	ND(1.7)	ND(1.7)	ND(26.0)	ND(26.0)	ND(1.7)	ND(51,000)	ND(43.0)	ND(51.0)
gamma-Chlordane	67 J	ND(1.7)	5000	100	ND(1.7)	ND(1.7)	ND(26.0)	ND(26.0)	ND(1.7)	ND(51,000)	ND(43.0)	ND(51.0)
4,4'-DDD	ND(6.6)UJ	ND(3.3)	ND(6,600)	160	ND(3.3)	ND(3.3)	ND(50.0)	ND(50.0)	ND(3.3)	ND(34E+4)	ND(83.0)	ND(99.0)
4,4'-DDE	ND(45.0)UJ	ND(3.3)	ND(2,200)	49	ND(3.3)	ND(3.3)	ND(72.0)	ND(50.0)	ND(3.3)	ND(99,000)	ND(180.0)	ND(99.0)
4,4'-DDT	ND(6.6)UJ	ND(3.3)	ND(250.0)	ND(33.0)	ND(3.3)	ND(3.3)	ND(50.0)	ND(140.0)	ND(4.5)*	ND(28E+4)	ND(87.0)	ND(99.0)
Dieldrin	ND(6.6)UJ	ND(3.3)	ND(1,800)	ND(33.0)	ND(3.3)	ND(3.3)	ND(50.0)	ND(96.0)	ND(3.3)	ND(39E+5)	ND(83.0)	ND(330.0)
alpha-Endosulfan	ND(6.6)UJ	ND(3.3)	ND(250)	ND(33.0)	ND(3.3)	ND(3.3)	ND(50)	ND(50)	ND(3.3)	ND(250000)	ND(83.0)	ND(99)
beta-Endosulfan	ND(6.6)	ND(3.3)	ND(250)	ND(33.0)	ND(3.3)	ND(3.3)	ND(50)	ND(50)	ND(3.3)	ND(99,000)	ND(83.0)	ND(99)
Endosulfan sulfate	ND(6.6)	ND(3.3)	ND(250)	ND(33.0)	ND(3.3)	ND(3.3)	ND(50)	ND(50)	ND(3.3)	ND(99,000)	ND(83.0)	ND(99)
Endrin	ND(6.6)	ND(3.3)	ND(250.0)	ND(33.0)	ND(3.3)	ND(3.3)	ND(50.0)	ND(50.0)	ND(3.3)	ND(99,000)	ND(83.0)	ND(99.0)
Endrin aldehyde	ND(6.6)UJ	ND(3.3)	ND(250)	ND(33)	ND(3.3)	ND(3.3)	ND(50)	ND(50)	ND(3.3)	ND(350000)	ND(83)	ND(99)
Heptachlor	ND(3.4)UJ	ND(1.7)UJ	ND(130)UJ	ND(17)UJ	ND(1.7)UJ	ND(1.7)UJ	ND(26)UJ	ND(26)	ND(1.7)UJ	ND(51,000)UJ	ND(43)UJ	ND(51)UJ
Heptachlor epoxide	ND(3.4) UJ	ND(1.7)	ND(630)	ND(17)	ND(1.7)	ND(1.7)	ND(26)	ND(26)	ND(1.7)	ND(110000)	ND(43)	ND(51)
Toxaphene	ND(170)	ND(170)	ND(1300)	ND(170)	ND(170)	ND(170)	ND(260)	ND(260)	ND(170)	ND(510000)	ND(430)	ND(510)
PCB-1016	ND(330)	ND(330)	ND(2500)	ND(330)	ND(330)	ND(330)	ND(500)	ND(500)	ND(330)	ND(990000)	ND(830)	ND(990)
PCB-1221	ND(330)	ND(330)	ND(2500)	ND(330)	ND(330)	ND(330)	ND(500)	ND(500)	ND(330)	ND(990000)	ND(830)	ND(990)
PCB-1232	ND(330)	ND(330)	ND(2500)	ND(330)	ND(330)	ND(330)	ND(500)	ND(500)	ND(330)	ND(990000)	ND(830)	ND(990)
PCB-1242	ND(330)	ND(330)	ND(2500)	ND(330)	ND(330)	ND(330)	ND(500)	ND(500)	ND(330)	ND(990000)	ND(830)	ND(990)
PCB-1248	ND(330)	ND(330)	ND(2500)	ND(330)	ND(330)	ND(330)	ND(500)	ND(500)	ND(330)	ND(990000)	ND(830)	ND(990)
PCB-1254	370.0	ND(330)	43,000	ND(330)	ND(330)	ND(330)	6,100	2,200	ND(330)	53E+6 E	20,000 E	8,300
PCB-1260	ND(330)	ND(330)	ND(2500)	ND(330)	ND(330)	ND(330)	ND(500)	ND(500)	ND(330)	ND(990000)	ND(830)	ND(990)

S = results due to secondary dilution
E = estimated value as reported by lab
B = analyte present in method blank
ND = not detected (Target Detection Limit)
J = value is an estimated quantity for detected analytes
UJ = analyte was not detected; value is an estimate
R = data was unusable for non-detected analytes
Note: * Detection limits raised due to matrix interference

SUMMARY OF PESTICIDES/PCB's IN SOIL—BOREHOLES
BA S INC.
LANSIN MICHIGAN
June 1993

Location	DD-3	DD-3	DD-3	DD-3	DD-4	DD-4	DD-4	DD-4	DD-5	DD-5	DD-5
Depth	*0-2*	*0-2 Dup*	*4-6*	*6-8*	*0-2*	*4-6*	*6-8*	*6-8 Dup*	*0-2*	*6-8*	*8-10*
Sample ID	*TB-91*	*TB-100*	*TB-92*	*TB-93*	*TB-96*	*TB-95*	*TB-94*	*TB-101*	*TB-98*	*TB-97*	*TB-99*
Date Sampled	*5/25/93*	*5/25/93*	*5/25/93*	*5/25/93*	*5/25/93*	*5/25/93*	*5/25/93*	*5/25/93*	*5/26/93*	*5/26/93*	*5/26/93*
Units	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Parameter											
Aldrin	ND(1700)	ND(430)	ND(1.7)	ND(1.7)	ND(26)	ND(1.7)	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)
alpha-BHC	ND(1700)	ND(430)	ND(1.7)	ND(1.7)	ND(26)	ND(1.7)	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)
beta-BHC	ND(1700)	ND(430)	ND(1.7)	ND(1.7)	ND(26)	ND(1.7)	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)
delta-BHC	ND(1700)	ND(430)	ND(1.7)	ND(1.7)	ND(26)	ND(1.7)	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)
gamma-BHC (Lindane)	ND(1700)	ND(430)	ND(1.7)	ND(1.7)	ND(26)	ND(1.7)	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)
alpha-Chlordane	1700 J	580 J	ND(1.7)	ND(1.7)	240	ND(6.0)*	11.0	11.0	ND(30.0)	ND(1.7)	ND(1.7)
gamma-Chlordane	ND(1,700)	760 J	ND(1.7)	ND(1.7)	ND(310.0)	ND(7.7)*	ND(13.0)	ND(16.0)	ND(41.0)	ND(1.7)	ND(1.7)
4,4'-DDD	ND(3,300)	ND(830)	ND(3.3)	ND(3.3)	ND(50.0)	ND(3.3)	ND(3.3)	ND(3.3)	ND(44.0)	ND(3.3)	ND(3.3)
4,4'-DDE	ND(3,300)	ND(830)	ND(3.3)	ND(3.3)	ND(50)	ND(3.3)	ND(3.3)	ND(3.3)	130	ND(3.3)	ND(3.3)
4,4'-DDT	ND(3,300)	ND(830)	ND(3.3)	ND(3.3)	ND(50.0)	ND(3.3)	ND(3.3)	ND(3.3)	ND(200.0)	ND(3.3)	ND(3.3)
Dieldrin	ND(3,300)	ND(830)	ND(3.3)	ND(3.3)	ND(50.0)	ND(3.3)	ND(3.3)	ND(3.3)	ND(16.0)	ND(3.3)	ND(3.3)
alpha-Endosulfan	ND(3,300)	ND(830)	ND(3.3)	ND(3.3)	ND(50.0)	ND(3.3)	ND(3.3)	ND(3.3)	ND(16.0)	ND(3.3)	ND(3.3)
beta-Endosulfan	ND(3,300)	ND(830)	ND(3.3)	ND(3.3)	ND(50.0)	ND(3.3)	ND(3.3)	ND(3.3)	ND(16.0)	ND(3.3)	ND(3.3)
Endosulfan sulfate	ND(3,300)	ND(830)	ND(3.3)	ND(3.3)	ND(50.0)	ND(3.3)	ND(3.3)	ND(3.3)	ND(16.0)	ND(3.3)	ND(3.3)
Endrin	ND(3,300)	ND(830)	ND(3.3)	ND(3.3)	ND(50.0)	ND(3.3)	ND(3.3)	ND(3.3)	ND(16.0)	ND(3.3)	ND(3.3)
Endrin aldehyde	ND(3,300)	ND(830)	ND(3.3)	ND(3.3)	ND(50)	ND(3.3)	ND(3.3)	ND(3.3)	ND(16)	ND(3.3)	ND(3.3)
Heptachlor	ND(1,700)	ND(430)	ND(1.7)	ND(1.7)	ND(26)	ND(1.7)	ND(1.7)	ND(1.7)	ND(8.5)	ND(1.7)	ND(1.7)
Heptachlor epoxide	ND(1,700)	ND(430)	ND(1.7)	ND(1.7)	ND(26)	ND(1.7)	ND(1.7)	ND(1.7)	ND(40)	ND(1.7)	ND(1.7)
Toxaphene	ND(8,500)	ND(4300)	ND(170)	ND(170)	ND(1300)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)	ND(170)
PCB-1016	ND(1,600)	ND(8300)	ND(330)	ND(330)	ND(2500)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1221	ND(1,600)	ND(8300)	ND(330)	ND(330)	ND(2500)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1232	ND(1,600)	ND(8300)	ND(330)	ND(330)	ND(2500)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1242	ND(1,600)	ND(8300)	ND(330)	ND(330)	ND(2500)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1248	ND(1,600)	ND(8300)	ND(330)	ND(330)	ND(2500)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1254	58,000 J	ND(8,300)	ND(330)	ND(330)	3,500	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)
PCB-1260	ND(1600)	ND(8300)	ND(330)	ND(330)	ND(2500)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)	ND(330)

S = results due to secondary dilution
E = estimated value as reported by lab
B = analyte present in method blank
ND = not detected (Target Detection Limit)
J = value is an estimated quantity for detected analytes
UJ = analyte was not detected; value is an estimate
R = data was unusable for non-detected analytes
Note: * Detection limits raised due to matrix interference

SUMMARY OF METALS IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-1	DS-1	DS-1	DS-1	DS-2	DS-2	DS-2	DS-2	DS-3	DS-3	DS-3	DS-3
Depth	0-2	4-6	6-8	6-8' Dup	0-2	4-6	6-8	8-10	2-4	6-8	6-8 Dup	10-12
Sample ID	RP-47	RP-48	RP-49	RP-50	RP-51	RP-52	RP-53	RP-54	RP-56	RP-57	RP-58	RP-59
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93	5/17/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	ND(0.50) R	6.3 J	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R
Arsenic	13	6.3	3.8	4.3	6.8	3.3	5.0	13	2.5	0.71	0.77	3.2
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	0.11	1.3	0.05	0.06	0.65	0.10	0.30	0.10	0.12	ND(0.05)	ND(0.05)	0.13
Chromium	14	16	10	8.9	26	10	14	16	11	2.5	3.2	11
Copper	70	20	12	14	63	28	16	21	6.5	3.2	5.1	14
Lead	3,100	8.6	4.8	4.2	160	100	7.2	8.4	20	1.5	2.0	4.0
Mercury	0.29	ND(0.10)	ND(0.10)	ND(0.10)	0.25	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
Nickel	15	20	10	9.9	15	6.7	15	17	7.5	3.0	3.4	12
Selenium	1.8	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Silver	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Thallium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	340	65	43	47	320	150	58	68	52	27	30	47
Cyanide	0.27 J	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	0.8 J	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	0.13 J	ND(0.10)UJ

B=analyte present in method blank
J=value is an estimated quantity for detected analytes
ND = not detected (Target Detection Limit)
R = data was unusable for non detetected analytes
S = results due to secondary dilution
UJ = analyte was not detecte, value is an estimate
* Detection limits raised due to matrix interface

SUMMARY OF METALS IN SOIL—BOREHOLES
BAR INC.
LANSING, MICHIGAN
June 1993

Location	DS-4	DS-4	DS-4	DS-4	DS-5	DS-5	DS-5	DS-5	DS-6	DS-6	DS-6	DS-6
Depth	0-2	2-4	4-6	6-8	0-2	2-4	4-6	8-10	0-2	2-4	4-6	6-8
Sample ID	RP-42	RP-43	RP-45	RP-44	RP-38	RP-39	RP-40	RP-41	RP-33	RP-34	RP-35	RP-36
Date Sampled	5/17/93	5/17/93	5/17/93	5/17/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93	5/14/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	2.1	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50) R	ND(0.50) R	ND(0.50) R
Arsenic	2.7	5.3	22	6.0	11	3.6	4.3	3.8	3.8	2.5	1.7	2.5
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	0.76	0.36	0.12	0.11	0.63	0.08	0.10	0.08	0.17	0.06 J	0.19 J	0.12 J
Chromium	10	17	7.6	18	22	14	20	11	16	6.7	13	18
Copper	11	19	13	21	94	16	17	13	23	6.3	7.8	22
Lead	21	33	4.9	8.5	300	7.6	18	6.5	10	5.9	7.2	9.6
Mercury	4.5	2.5	0.13	ND(0.10)	0.27	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
Nickel	8.9	18	11	19	13	14	17	14	20	5.9	11	22
Selenium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	1.5	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Silver	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Thallium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	57	78	47	66	270	51	69	54	73	64	62	83
Cyanide	0.13 J	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	0.37	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)	ND(0.10)	ND(0.10)UJ

B=analyte present in method blank
J=value is an estimated quantity for detected analytes
ND = not detected (Target Detection Limit)
R = data was unusable for non detetected analytes
S = results due to secondary dilution
UJ = analyte was not detecte, value is an estimate
* Detection limits raised due to matrix interface

SUMMARY OF METALS IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-7	DS-7	DS-7	DS-7	DS-8	DS-8	DS-8	DS-9	DS-9	DS-9	DS-9	DS-10
Depth	0-2	2-4	6-8	8-10	0-2	4-6	8-10	0-2	2-4	4-6	8-10	0-2
Sample ID	RP-29	RP-30	RP-31	RP-32	RP-22	RP-23	RP-24	RP-25	RP-26	RP-27	RP-28	RP-18
Date Sampled	5/14/93	5/14/93	5/14/93	5/14/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	2.1 J	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50)	ND(0.50)	ND(0.50)	14	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Arsenic	9.9	4.8	2.0	1.4	8.4	8.7	2.0	18	6.8	4.9	2.6	4.4
Beryllium	1.2	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	3.2 J	0.13 J	0.06 J	0.16 J	1.4	0.38	0.14	15	0.38	0.21	0.13	0.26
Chromium	130	12	14	13	27	17	15	100	20	13	16	5.6
Copper	450	16	7.5	18	84	25	19	1,200	30	17	19	16
Lead	420	7.1	7.4	7.8	200	58	7.3	6,400	23	7.5	9.0	25
Mercury	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	0.20	0.23	ND(0.10)	6.1	0.25	0.11	ND(0.10)	ND(0.10)
Nickel	51	15	12	17	26	15	18	130	18	18	18	5.8
Selenium	0.7	ND(0.50)	ND(0.50)	ND(0.50)	1.7	0.57	ND(0.50)	0.75	ND(0.50)	ND(0.50)	ND(0.50)	0.7
Silver	1.1	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	2.0	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Thallium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	950	68	65	63	370	110	79	4,100	110	60	82	110
Cyanide	0.16	ND(0.10)	ND(0.10)	ND(0.10)	0.12	1.4	ND(0.10)	0.44	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)

B=analyte present in method blank
J=value is an estimated quantity for detected analytes
ND = not detected (Target Detection Limit)
R = data was unusable for non detetected analytes
S = results due to secondary dilution
UJ = analyte was not detecte, value is an estimate
* Detection limits raised due to matrix interface

SUMMARY OF METALS IN SOIL—BOREHOLES
BAI 5 INC.
LANSIN MICHIGAN
June 1993

Location	DS-10	DS-10	DS-10	DS-11	DS-11	DS-11	DS-11	DS-12	DS-12	DS-12	DS-12	DS-13
Depth	2-4	4-6	4-6 DUP	0-2	2-4	6-8	8-10	0-2	4-6	4-6 DUP	18-20	0-2
Sample ID	RP-19	RP-20	RP-21	RP-05	RP-06	RP-07	RP-08	RP-10	RP-11	RP-12	RP-13	RP-14
Date Sampled	5/13/93	5/13/93	5/13/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/12/93	5/13/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50)
Arsenic	3.8	5.4	4.3	10	4.3	2.9	4.9	9.8	7.2	6.3	2.3	4.9
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	0.05	0.15	0.14	1.5 J	0.23 J	0.11 J	0.13 J	0.34 J	0.4 J	0.2 J	ND(0.05)UJ	0.34
Chromium	15	20	17	26	14	16	18	15	17	17	4.3	5.3
Copper	15	22	21	180	10	19	20	16	16 J	54 J	7.6	17
Lead	6.5	8.7	11	380	53	7.0	10	12	22	17	3.4	70
Mercury	ND(0.10)	ND(0.10)	ND(0.10)	0.22	ND(0.10)	ND(0.10)	ND(0.10)	0.14	ND(0.10)	0.12	ND(0.10)	ND(0.10)
Nickel	16	19	21	59	13	17	19	14	11	16	5.0	7.7
Selenium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	1.0
Silver	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Thallium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	49	71	68	1,200	110	64	67	60	78	73	27	100
Cyanide	ND(0.10)	ND(0.10)	ND(0.10)	0.83 J	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10) R	ND(0.10) R	ND(0.10)	ND(0.10)	ND(0.10)

B=analyte present in method blank
J=value is an estimated quantity for detected analytes
ND = not detected (Target Detection Limit)
R = data was unusable for non detetected analytes
S = results due to secondary dilution
UJ = analyte was not detecte, value is an estimate
* Detection limits raised due to matrix interface

SUMMARY OF METALS IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	DS-13	DS-13	DS-14	DS-14	DS-14	DS-14	US-1	US-1	US-2	US-2	US-2	US-3
Depth	2-4	4-6	0-2	2-4	4-6	8-10	14-16	20-22	0-2	14-16	20-22	2-4
Sample ID	RP-15	RP-16	RP-01	RP-02	RP-03	RP-04	RP-60	RP-61	RP-63	RP-64	RP-65	RP-65A
Date Sampled	5/13/93	5/13/93	5/11/93	5/11/93	5/11/93	5/11/93	5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/19/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	ND(0.50)	ND(0.50)	3.5 J	0.65 J	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Arsenic	2.3	1.7	8.8	3.8	3.3	1.5	1.6	0.82	6.8	0.94	0.60	5.0
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	0.06	0.1	8.8	1.2 J	0.13 J	0.16 J	0.05 J	0.10 J	0.08 J	ND(0.05)UJ	ND(0.05)UJ	0.23
Chromium	9.4	12	53	7.4	19	16	ND(2.50)	3.1	6.1	3.0	ND(2.5)	17
Copper	3.7	7.7	74,000	200	22	18	4.3	5.3	11	3.4	4.0	16.0
Lead	4.8	5.0	520	64	19	7.1	8.9	2.7	5.4	7.8	2.0	24.0
Mercury	ND(0.10)	ND(0.10)	0.11	0.23	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	0.12
Nickel	6.0	9.3	150	31	25	17	2.4	2.8	7.1	2.8	2.4	13
Selenium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Silver	ND(0.50)	ND(0.50)	1.2	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Thallium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	38	39	7,400	310	120	63	31	26	46	31	26	97
Cyanide	ND(0.10)	ND(0.10)	ND(0.10)	0.17	ND(0.10)	ND(0.10)UJ	0.11	ND(0.10)	ND(0.10) R	ND(0.10)	ND(0.10)	0.17

B=analyte present in method blank
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UJ = analyte was not detecte, value is an estimate
* Detection limits raised due to matrix interface

SUMMARY OF METALS IN SOIL—BOREHOLES
BA[illegible]S INC.
LANSIN[illegible], MICHIGAN
June 1993

Location	US-3	US-3	US-4	US-4	US-5	US-5	US-6	US-6	CT-1	CT-1	CT-1	CT-2
Depth	8-10	8-10 Dup	2-4	10-12	8-10	14-16	4-6	14-16	0-2	2-4	8-10	0-2
Sample ID	RP-66	RP-67	RP-68	RP-69	RP-70	RP-71	RP-72	RP-73	TB-74	TB-75	TB-76	TB-84
Date Sampled	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/20/93	5/20/93	5/20/93	5/20/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	1.1 J	ND(0.50) R	ND(0.50) R	1.8 J
Arsenic	6.4	7.4	9.3	5.8	1.2	0.96	3.4	0.91	5.5	5.0	4.4	5.5
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	0.11	0.11	0.37	0.13	ND(0.05)	ND(0.05)	0.14	ND(0.05)	0.69 J	0.39 J	0.11 J	0.43 J
Chromium	20	19	11	20	3.5	3.6	13	3.2	26 J	15 J	11 J	17 J
Copper	19	20	28	22	4.1	6.5	16	5.9	24	18	14	36
Lead	7.6	8.7	160	7.9	4.5	2.2	6.8	2.5	50 J	21 J	5.1 J	100 J
Mercury	ND(0.10)	ND(0.10)	0.44	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	0.55	0.14	ND(0.10)	0.19
Nickel	19	20	8.8	21	3.4	4.0	14	4.0	13 J	12 J	20 J	12 J
Selenium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Silver	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Thallium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)UJ	ND(0.50)UJ	ND(0.50)UJ	ND(0.50)UJ
Zinc	65	69	260	68	31	37	54	30	87 J	63 J	60 J	130 J
Cyanide	ND(0.10)	ND(0.10)	0.30	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)UJ	0.36 J	0.45 J	ND(0.10)UJ	3.4 J

B=analyte present in method blank
J=value is an estimated quantity for detected analytes
ND = not detected (Target Detection Limit)
R = data was unusable for non detetected analytes
S = results due to secondary dilution
UJ = analyte was not detecte, value is an estimate
* Detection limits raised due to matrix interface

SUMMARY OF METALS IN SOIL—BOREHOLES
BARRELS INC.
LANSING, MICHIGAN
June 1993

Location	CT-2	CT-2	CT-3	CT-3	CT-3	CT-3	DD-1	DD-1	DD-1	DD-2	DD-2	DD-2
Depth	2-4	8-10	0-2	4-6	16-18	16-18 Dup	0-2	2-4	4-6	0-2	2-4	4-6
Sample ID	TB-78	TB-79	TB-80	TB-81	TB-82	TB-83	TB-88	TB-90	TB-89	TB-85	TB-86	TB-87
Date Sampled	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93	5/24/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter												
Antimony	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	ND(0.50) R	3.3 J	ND(0.50) R	ND(0.50) R
Arsenic	3.0	4.0	5.0	5.0	3.3	3.5	6.0	2.8	3.9	14	5.1	3.7
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	0.14 J	0.1 J	0.43 J	0.12 J	0.08 J	ND(0.05)	0.43 J	0.17 J	0.07 J	4.1 J	0.12 J	0.08 J
Chromium	13 J	11 J	56 J	14 J	11 J	15 J	9.2 J	8.5 J	13 J	220 J	14 J	9.3 J
Copper	12	15	100	20	13	16	29	13	12	280	22	13
Lead	30 J	5.5 J	150 J	19 J	4.8 J	5.6 J	82 J	5.8 J	8.1 J	1500 J	10 J	4.9 J
Mercury	0.22 J	ND(0.10)UJ	0.15 J	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ	1.0 J	ND(0.10)UJ	ND(0.10)UJ
Nickel	8.9 J	12 J	31 J	14 J	12 J	18 J	10 J	11 J	17 J	53 J	18 J	12 J
Selenium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	0.98	ND(0.50)	ND(0.50)
Silver	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	1.1	ND(0.50)	ND(0.50)
Thallium	ND(0.50)UJ	ND(0.50)UJ	ND(0.50)UJ	ND(0.50)UJ	ND(0.50)UJ	ND(0.50)UJ	ND(0.50)UJ	ND(0.50)UJ	ND(0.50)UJ	ND(0.50)UJ	ND(0.50)UJ	ND(0.50)UJ
Zinc	68 J	57 J	170 J	70 J	50 J	59 J	210 J	56 J	52 J	2,000 J	67 J	51 J
Cyanide	0.19 J	0.14 J	1.8 J	0.23 J	ND(0.10)UJ	ND(0.10)UJ	0.22	ND(0.10)	ND(0.10)	4.9	ND(0.10)	ND(0.10)

B=analyte present in method blank
J=value is an estimated quantity for detected analytes
ND = not detected (Target Detection Limit)
R = data was unusable for non detetected analytes
S = results due to secondary dilution
UJ = analyte was not detecte, value is an estimate
* Detection limits raised due to matrix interface

SUMMARY OF METALS IN SOIL—BOREHOLES
BAI S INC.
LANSIN MICHIGAN
June 1993

Location	DD-3	DD-3	DD-3	DD-3	DD-4	DD-4	DD-4	DD-4	DD-5	DD-5	DD-5
Depth	0-2	0-2 Dup	4-6	6-8	0-2	4-6	6-8	6-8 Dup	0-2	6-8	8-10
Sample ID	TB-91	TB-100	TB-92	TB-93	TB-96	TB-95	TB-94	TB-101	TB-98	TB-97	TB-99
Date Sampled	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/25/93	5/26/93	5/26/93	5/26/93
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Parameter											
Antimony	3.7 J	1.4 J	ND(0.50) R	ND(0.50) R	0.64 J	ND(0.50) R	ND(0.50) R	ND(0.50) R	3.1	ND(0.50)	ND(0.50)
Arsenic	7.4	6.9	0.35	2.7	5.8	1.5	2.6	1.9	14	1.2	5.8
Beryllium	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cadmium	1.1	0.65	0.10	0.14	1.3	0.23	0.15	0.16	1.6	0.11	0.10
Chromium	43	35 J	8.3 J	12 J	24 J	13 J	11 J	9.3 J	13	13	15
Copper	77	100	14	19	92	20	25	17	170	16	20
Lead	220	200 J	6.2 J	7.9 J	230 J	11 J	33 J	13 J	370	7.4	7.0
Mercury	0.49 J	0.16 J	ND(0.10)	ND(0.10)	0.37	0.10	ND(0.10)	ND(0.10)	4.7	ND(0.10)	ND(0.10)
Nickel	13	16 J	10 J	16 J	21 J	16 J	14 J	12 J	15	13	21
Selenium	ND(0.50)	0.53	ND(0.50)	ND(0.50)	0.61	ND(0.50)	ND(0.50)	ND(0.50)	0.70	ND(0.50)	ND(0.50)
Silver	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Thallium	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Zinc	350	460	64	81	550	79	130	82	3,500	61	67
Cyanide	7.7 J	2.3 J	ND(0.10) R	0.11 J	0.57 J	ND(0.10) R	ND(0.10)	ND(0.10)	0.41	ND(0.10)	ND(0.10)

B=analyte present in method blank
J=value is an estimated quantity for detected analytes
ND = not detected (Target Detection Limit)
R = data was unusable for non detetected analytes
S = results due to secondary dilution
UJ = analyte was not detecte, value is an estimate
* Detection limits raised due to matrix interface

TCLP WASTE RESIDUAL RESULTS
SUMMARY OF ANALYTES
BARRELS INC.

Parameter	*Units*	*Regulatory Limit*	*BTH -001*	*BTH -002*	*BTH -003*	*BTH -004*	*BTH -005*	*BTH -006*	*BTH -007*	*BTH -008*	*BTH -009*	*BTH -010*
Flashpoint	deg F	140	> 176	> 176	> 176	> 176	> 176	> 176	> 176	> 176	> 176	>200
Corrosivity	S.U.	2 - 12.5	10	9.0	1.0	9.0	9.0	7.9	8.0	7.0	7.0	7.3
Reactive Cyanide	mg/kg	250	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)
Reactive Sulfide	mg/kg	500	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)UJ
TCLP Testing												
Arsenic	mg/L	5.0	ND(0.5)	ND(0.5)	4.1	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.10)
Barium	mg/L	100	2.1	3.2	ND(0.5)	ND(0.5)	1.8	0.57	2.2	0.76	0.84	0.80
Cadmium	mg/L	1.0	ND(0.1)	ND(0.1)	ND(0.1)	3.9	ND(0.1)	ND(0.1)	ND(0.1)	0.16	ND(0.1)	ND(0.005)
Chromium	mg/L	5.0	ND(0.1)	ND(0.1)	25	ND(0.1)	0.15	ND(0.1)	ND(0.1)	0.36	ND(0.1)	ND(0.050)
Lead	mg/L	5.0	ND(0.1)	2.2	16	0.36	0.30	ND(0.1)	0.28	0.50	ND(0.1)	0.07
Mercury	mg/L	0.2	0.023	ND(0.02)	0.81	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	0.0011
Selenium	mg/L	1.0	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.10)
Silver	mg/L	5.0	ND(0.1)	ND(0.1)	0.12	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.010)
Chlorinated Pesticides												
gamma-BHC (Lindane)	mg/L	0.4	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Chlordane	mg/L	0.03	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Endrin	mg/L	0.02	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Heptachlor	mg/L	0.008	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Heptachlor Epoxide	mg/L	0.008	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Methoxychlor	mg/L	10	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Toxaphene	mg/L	0.5	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)

TCLP WASTE RESIDUAL RESULTS
SUMMARY ANALYTES
BARRELS INC.

Parameter	*Units*	*Regulatory Limit*	*BTH -001*	*BTH -002*	*BTH -003*	*BTH -004*	*BTH -005*	*BTH -006*	*BTH -007*	*BTH -008*	*BTH -009*	*BTH -010*
Herbicides												
2,4-Dichlorophenoxy-acetic acid	mg/L	10	ND(0.50)	ND(0.50)	ND(0.05)	ND(0.50)	ND(0.05)	ND(0.05)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
2,4,5-TP (Silvex)	mg/L	1.0	ND(0.05)	ND(0.05)	ND(0.01)	ND(0.05)	ND(0.01)	ND(0.01)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Volatiles												
Benzene	mg/L	0.5	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
2-Butanone	mg/L	200	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
Carbon tetrachloride	mg/L	0.5	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Chlorobenzene	mg/L	100	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Chloroform	mg/L	6.0	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dichloroethane	mg/L	0.5	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1-Dichloroethene	mg/L	0.7	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Tetrachloroethene	mg/L	0.7	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Trichloroethene	mg/L	0.5	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Vinyl chloride	mg/L	0.2	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
Base/Neutral Extracables												
1,4-Dichlorobenzene	mg/L	7.5	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
2,4-Dichlorobenzene	mg/L	0.13	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Hexachlorobenzene	mg/L	0.13	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Hexachlorobutadiene	mg/L	0.5	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Hexachloroethane	mg/L	3.0	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Nitrobenzene	mg/L	2.0	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Pyridine	mg/L	5.0	ND(0.260)	ND(0.260)	ND(1.3)	ND(0.260)	ND(0.260)	ND(0.260)	ND(0.260)	ND(0.260)	ND(0.260)	ND(0.260)

TCLP WASTE RESIDUAL RESULTS
SUMMARY OF ANALYTES
BARRELS INC.

Parameter	*Units*	*Regulatory Limit*	*BTH -001*	*BTH -002*	*BTH -003*	*BTH -004*	*BTH -005*	*BTH -006*	*BTH -007*	*BTH -008*	*BTH -009*	*BTH -010*
Acid Extractables												
2-Methylphenol (o-cresol)	mg/L	200	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
3-Methylphenol (m-cresol)	mg/L	200	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.056
4-Methylphenol (p-cresol)	mg/L	200	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	0.056
Cresol (total)	mg/L	200	ND(0.010)	ND(0.010)	ND(0.10)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Pentachlorophenol	mg/L	100	ND(0.250)	ND(0.250)	ND(0.50)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)
2,4,5-Trichlorophenol	mg/L	400	ND(0.250)	ND(0.250)	ND(0.50)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)	ND(0.250)
2,4,6-Trichlorophenol	mg/L	2.0	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)

ND = Not Detect (Target detection limit)

APPENDIX G

SUMMARY OF GROUNDWATER ANALYTICAL DATA

SUMMARY GROUNDWATER DATA
BAR INC.
LANSING, MICHIGAN
JULY 1993

Location	MW1-47	MW2-36	MW2-45	MW3-33	MW3-33Dup	MW3-46
Sample ID	TB-119	TB-116	TB-117	TB-120	TB-122	TB-121
Date Sampled	6/23	6/22	6/22	6/23	6/23	6/23
Priority Pollutant VOCs (mg/L)						
Acrolein	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Acrylonitrile	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Benzene	ND(0.001)	0.15	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Bromodichloromethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Bromoform	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Bromomethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
2-Butanone	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Carbon disulfide	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Carbon tetrachloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Chlorobenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Chloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
2-Chloroethylvinyl ether	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroform	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Chloromethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Dibromochloromethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	0.001	0.001	ND(0.001)
1,2-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
total-1,2-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,2-Dichloropropane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
cis-1,3-Dichloropropene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
trans-1,3-Dichloropropene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Methylene chloride	0.003 BU	0.005 BU	0.004 BU	0.004 BU	0.004 BU	0.004 BU
1,1,2,2-Tetrachloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Toluene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,1-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl chloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
o-Xylene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
m-Xylene/p-Xylene	ND(0.002)	0.009	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
total Xylenes	ND(0.003)	0.009	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)

SUMMARY GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location	*MW1-47*	*MW2-36*	*MW2-45*	*MW3-33*	*MW3-33Dup*	*MW3-46*
Sample ID	*TB-119*	*TB-116*	*TB-117*	*TB-120*	*TB-122*	*TB-121*
Date Sampled	*6/23*	*6/22*	*6/22*	*6/23*	*6/23*	*6/23*
Priority Pollutant SVOCs (mg/L)						
Base Neutral Compounds						
Acenaphthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Acenaphthylene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Anthracene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzidine	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Benzo(a)anthracene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzo(b)fluoranthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzo(k)fluoranthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzo(ghi)perylene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzo(a)pyrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Bis(2-chloroethoxy) methane	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Bis(2-chloroethyl) ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Bis(2-chloroisopropyl) ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Bis(2-ethylhexyl) phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4-Bromophenyl phenyl ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Butyl benzyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2-Chloronaphthalene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4-Chlorophenyl phenyl ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Chysene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Dibenz (a,h) anthracene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Di-n-butyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,2-Dichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,3-Dichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,4-Dichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
3,3'-Dichlorobenzidine	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Diethyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Dimethyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,4-Dinitrotoluene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,6-Dinitrotoluene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Di-n-octyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,2-Diphenylhydrazine	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Fluoranthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Fluorene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Hexachlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Hexachlorobutadiene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Hexachlorocyclopentadiene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Hexachloroethane	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)

SUMMARY GROUNDWATER DATA
BAF 3 INC.
LANSING, MICHIGAN
JULY 1993

Location	*MW1-47*	*MW2-36*	*MW2-45*	*MW3-33*	*MW3-33Dup*	*MW3-46*
Sample ID	*TB-119*	*TB-116*	*TB-117*	*TB-120*	*TB-122*	*TB-121*
Date Sampled	*6/23*	*6/22*	*6/22*	*6/23*	*6/23*	*6/23*
Indeno(1,2,3-cd) pyrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Isophorone	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4,4'-Methyllene-bis-(2-chloro-aniline)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Naphthalene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Nitrobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
N-Notrosodimethylamine	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
** N-Nitrosodiphenylamine	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
N-Nitroso-di-n-propylamine	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Phenanthrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Pyrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,2,4-Trichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Acid Compounds						
4-Chloro-3-methylphenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2-Chlorophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,4-Dichlorophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,4-Dimethylphenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4,6-Dinitro-2-methylphenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
2,4-Dinitrophenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
2-Nitrophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4-Nitrophenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Pentachlorophenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Phenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,4,6-Trichlorophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)

** Indistinguishable from diphenylamine

SUMMARY GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location	*MW1-47*	*MW2-36*	*MW2-45*	*MW3-33*	*MW3-33Dup*	*MW3-46*
Sample ID	*TB-119*	*TB-116*	*TB-117*	*TB-120*	*TB-122*	*TB-121*
Date Sampled	*6/23*	*6/22*	*6/22*	*6/23*	*6/23*	*6/23*
Priority Pollutant Inorganics (mg/L)						
Antimony	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Arsenic	0.001	0.011	0.001	ND(0.001)	ND(0.001)	ND(0.001)
Beryllium	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Cadmium	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)
Chromium	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Copper	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)
Lead	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)
Mercury	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)
Nickel	ND(0.050)	0.05	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Selenium	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Silver	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ
Thallium	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
Zinc	0.05	ND(0.020)	0.04	ND(0.020)	ND(0.020)	ND(0.020)
Cyanide	ND(0.005)	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)	0.018	ND(0.005)

SUMMARY GROUNDWATER DATA
BARF INC.
LANSING, .CHIGAN
JULY 1993

Location	MW1-47	MW2-36	MW2-45	MW3-33	MW3-33Dup	MW3-46
Sample ID	TB-119	TB-116	TB-117	TB-120	TB-122	TB-121
Date Sampled	6/23	6/22	6/22	6/23	6/23	6/23
Priority Pollutant Pesticides/PCB's (µg/L)						
Aldrin	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
alpha-BHC	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
beta-BHC	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
delta-BHC	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
gamma-BHC (Lindane)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
alpha-Chlordane	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
gamma-Chlordane	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
4,4'-DDD	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
4,4'-DDE	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
4,4'-DDT	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.02)UJ	ND(0.02)*UJ	ND(0.01)UJ
Dieldrin	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
alpha-Endosulfan	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
beta-Endosulfan	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
Endosulfan sulfate	ND(0.01)	ND(0.01)	ND(0.01)	0.028J	ND(0.01)UJ	ND(0.01)UJ
Endrin	ND(0.01)	ND(0.01)	ND(0.01)	0.021J	ND(0.02)*UJ	ND(0.01)UJ
Endrin aldehyde	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
Heptachlor	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
Heptachlor epoxide	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)UJ
Toxaphene	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ
PCB-1016	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ
PCB-1221	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ
PCB-1232	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ
PCB-1242	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ
PCB-1248	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ
PCB-1254	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ
PCB-1260	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)UJ

J=value is an estimated quantity for detected analytes
NA=not analyzed
B=analyte present in method blank
U=analyte is a non detect, associated value being the quantitation limit
UJ=analyte was checked but not detected, value is an estimate
ND=not detected; Target Detection Limit
*=detection limits raised due to matrix interference
S=Secondary dilution

SUMMARY GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location	*MW4-34*	*MW4-50*	*MW5-34*	*MW5-34Dup*	*MW5-50*	*MW6-32*	*MW7-33*
Sample ID	*TB-111*	*TB-112*	*TB-108*	*TB-110*	*TB-125*	*TB-105*	*TB-106*
Date Sampled	*6/22*	*6/22*	*6/22*	*6/22*	*6/23*	*6/22*	*6/22*
Priority Pollutant VOCs (mg/L)							
Acrolein	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Acrylonitrile	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Benzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Bromodichloromethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Bromoform	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Bromomethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
2-Butanone	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Carbon disulfide	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Carbon tetrachloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Chlorobenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Chloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
2-Chloroethylvinyl ether	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroform	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Chloromethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Dibromochloromethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,2-Dichloroethane	ND(0.001)	0.001	0.002	0.002	0.012	0.003	ND(0.001)
1,1-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
total-1,2-Dichloroethene	ND(0.001)	ND(0.001)	0.008	0.007	ND(0.001)	ND(0.001)	ND(0.001)
1,2-Dichloropropane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
cis-1,3-Dichloropropene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
trans-1,3-Dichloropropene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Methylene chloride	0.004 BU	0.003 BU	0.005 BU	0.004 BU	0.004 BU	0.006 BU	0.004 BU
1,1,2,2-Tetrachloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Toluene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,1-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl chloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.007	ND(0.001)
o-Xylene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
m-Xylene/p-Xylene	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
total Xylenes	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)

SUMMARY GROUNDWATER DATA
BAF 3 INC.
LANSING, MICHIGAN
JULY 1993

Location	MW4-34	MW4-50	MW5-34	MW5-34Dup	MW5-50	MW6-32	MW7-33
Sample ID	TB-111	TB-112	TB-108	TB-110	TB-125	TB-105	TB-106
Date Sampled	6/22	6/22	6/22	6/22	6/23	6/22	6/22
Priority Pollutant SVOCs (mg/L)							
Base Neutral Compounds							
Acenaphthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Acenaphthylene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Anthracene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzidine	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Benzo(a)anthracene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzo(b)fluoranthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzo(k)fluoranthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzo(ghi)perylene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzo(a)pyrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Bis(2-chloroethoxy) methane	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Bis(2-chloroethyl) ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Bis(2-chloroisopropyl) ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Bis(2-ethylhexyl) phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4-Bromophenyl phenyl ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Butyl benzyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2-Chloronaphthalene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4-Chlorophenyl phenyl ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Chysene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Dibenz (a,h) anthracene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Di-n-butyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,2-Dichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,3-Dichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,4-Dichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
3,3'-Dichlorobenzidine	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Diethyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Dimethyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,4-Dinitrotoluene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,6-Dinitrotoluene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Di-n-octyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,2-Diphenylhydrazine	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Fluoranthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Fluorene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Hexachlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Hexachlorobutadiene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Hexachlorocyclopentadiene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Hexachloroethane	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)

SUMMARY GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location	*MW4-34*	*MW4-50*	*MW5-34*	*MW5-34Dup*	*MW5-50*	*MW6-32*	*MW7-33*
Sample ID	**TB-111**	**TB-112**	**TB-108**	**TB-110**	**TB-125**	**TB-105**	**TB-106**
Date Sampled	**6/22**	**6/22**	**6/22**	**6/22**	**6/23**	**6/22**	**6/22**
Indeno(1,2,3-cd) pyrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Isophorone	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4,4'-Methyllene-bis-(2-chloro-aniline)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Naphthalene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Nitrobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
N-Notrosodimethylamine	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
** N-Nitrosodiphenylamine	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
N-Nitroso-di-n-propylamine	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Phenanthrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Pyrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,2,4-Trichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Acid Compounds							
4-Chloro-3-methylphenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2-Chlorophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,4-Dichlorophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,4-Dimethylphenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4,6-Dinitro-2-methylphenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
2,4-Dinitrophenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
2-Nitrophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4-Nitrophenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Pentachlorophenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Phenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,4,6-Trichlorophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)

** Indistinguishable from diphenylamine

SUMMARY GROUNDWATER DATA
BAF[illegible]S INC.
LANSIN[illegible], MICHIGAN
JULY 1993

Location	*MW4-34*	*MW4-50*	*MW5-34*	*MW5-34Dup*	*MW5-50*	*MW6-32*	*MW7-33*
Sample ID	*TB-111*	*TB-112*	*TB-108*	*TB-110*	*TB-125*	*TB-105*	*TB-106*
Date Sampled	*6/22*	*6/22*	*6/22*	*6/22*	*6/23*	*6/22*	*6/22*
Priority Pollutant Inorganics (mg/L)							
Antimony	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Arsenic	0.011	0.004	0.004	0.004	ND(0.001)	0.002	0.002
Beryllium	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Cadmium	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	0.0006	0.0004	ND(0.0002)
Chromium	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Copper	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)
Lead	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	0.008	0.009	ND(0.003)
Mercury	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)
Nickel	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	0.13	0.06
Selenium	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Silver	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ
Thallium	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
Zinc	ND(0.020)	9.9	0.05	0.04	21	0.08	ND(0.020)
Cyanide	ND(0.005)	ND(0.005)UJ	ND(0.005)	ND(0.005)	ND(0.005)	0.01	ND(0.005)

SUMMARY GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location	*MW4-34*	*MW4-50*	*MW5-34*	*MW5-34Dup*	*MW5-50*	*MW6-32*	*MW7-33*
Sample ID	*TB-111*	*TB-112*	*TB-108*	*TB-110*	*TB-125*	*TB-105*	*TB-106*
Date Sampled	*6/22*	*6/22*	*6/22*	*6/22*	*6/23*	*6/22*	*6/22*
Priority Pollutant Pesticides/PCB's (µg/L)							
Aldrin	ND(0.02)*	ND(0.01)	ND(0.01)	ND(0.02)*	ND (0.01)	ND(0.01)	ND(0.03)
alpha-BHC	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
beta-BHC	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
delta-BHC	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
gamma-BHC (Lindane)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
alpha-Chlordane	ND(0.01)UJ	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
gamma-Chlordane	ND(0.01)UJ	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
4,4'-DDD	ND(0.06)*UJ	ND(0.01)	ND(0.03)	ND(0.02)*	ND (0.01)	ND(0.01)	ND(0.01)
4,4'-DDE	ND(0.05)*UJ	ND(0.01)	ND(0.04)	ND(0.02)*	ND (0.01)	ND(0.01)	ND(0.01)
4,4'-DDT	ND(0.01)UJ	ND(0.01)	ND(0.01)	ND(0.5)*	ND (0.01)	ND(0.01)	ND(0.01)
Dieldrin	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
alpha-Endosulfan	ND(0.01)UJ	ND(0.01)	ND(0.02)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
beta-Endosulfan	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
Endosulfan sulfate	ND(0.01)UJ	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
Endrin	ND(0.01)UJ	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
Endrin aldehyde	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.02)
Heptachlor	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
Heptachlor epoxide	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND (0.01)	ND(0.01)	ND(0.01)
Toxaphene	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND (0.01)	ND(0.10)	ND(0.10)
PCB-1016	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND (0.01)	ND(0.10)	ND(0.10)
PCB-1221	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND (0.01)	ND(0.10)	ND(0.10)
PCB-1232	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND (0.01)	ND(0.10)	ND(0.10)
PCB-1242	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND (0.01)	ND(0.10)	ND(0.10)
PCB-1248	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND (0.01)	ND(0.10)	ND(0.10)
PCB-1254	ND(0.010)	ND(0.10)	0.73 S	0.35 S	ND (0.01)	ND(0.10)	0.67
PCB-1260	ND(0.010)	ND(0.10)	ND(0.10)	ND(0.010)	ND (0.01)	ND(0.10)	ND(0.10)

J=value is an estimated quantity for detected analytes
NA=not analyzed
B=analyte present in method blank
U=analyte is a non detect, associated value being the quantitation limit
UJ=analyte was checked but not detected, value is an estimate
ND=not detected; Target Detection Limit
*=detection li[illegible] raised due to matrix interference
S=Secondar[illegible] ion

SUMMARY GROUNDWATER DATA
BAF 3 INC.
LANSIN, MICHIGAN
JULY 1993

Location	MW7-48	MW8-34	MW9-33	MW9-45	Rinsate	Rinsate	TRIP BLANK
Sample ID	TB-107	TB-109	TB-123	TB-124	TB-113	TB-118	TB-127
Date Sampled	6/22	6/22	6/23	6/23	6/22	6/23	-
Priority Pollutant VOCs (mg/L)							
Acrolein	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Acrylonitrile	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Benzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Bromodichloromethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Bromoform	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Bromomethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
2-Butanone	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Carbon disulfide	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Carbon tetrachloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Chlorobenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Chloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
2-Chloroethylvinyl ether	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroform	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Chloromethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Dibromochloromethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	ND(0.001)	ND(0.001)	0.001	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,2-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
total-1,2-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,2-Dichloropropane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
cis-1,3-Dichloropropene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
trans-1,3-Dichloropropene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Methylene chloride	0.005 BU	0.004 BU	0.003 BU	0.004 BU	0.003 BU	0.003 BU	0.004 BU
1,1,2,2-Tetrachloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Toluene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,1-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl chloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
o-Xylene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
m-Xylene/p-Xylene	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
total Xylenes	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)

SUMMARY GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location	*MW7-48*	*MW8-34*	*MW9-33*	*MW9-45*	*Rinsate*	*Rinsate*	*TRIP BLANK*
Sample ID	*TB-107*	*TB-109*	*TB-123*	*TB-124*	*TB-113*	*TB-118*	*TB-127*
Date Sampled	*6/22*	*6/22*	*6/23*	*6/23*	*6/22*	*6/23*	
Priority Pollutant SVOCs (mg/L)							
Base Neutral Compounds							
Acenaphthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Acenaphthylene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Anthracene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Benzidine	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	NA
Benzo(a)anthracene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Benzo(b)fluoranthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Benzo(k)fluoranthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Benzo(ghi)perylene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Benzo(a)pyrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Bis(2-chloroethoxy) methane	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Bis(2-chloroethyl) ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Bis(2-chloroisopropyl) ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Bis(2-ethylhexyl) phthalate	0.009	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
4-Bromophenyl phenyl ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Butyl benzyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
2-Chloronaphthalene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
4-Chlorophenyl phenyl ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Chysene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Dibenz (a,h) anthracene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Di-n-butyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
1,2-Dichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
1,3-Dichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
1,4-Dichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
3,3'-Dichlorobenzidine	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	NA
Diethyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Dimethyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
2,4-Dinitrotoluene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
2,6-Dinitrotoluene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Di-n-octyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
1,2-Diphenylhydrazine	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
Fluoranthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Fluorene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Hexachlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Hexachlorobutadiene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Hexachlorocyclopentadiene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Hexachloroethane	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA

SUMMARY GROUNDWATER DATA
BAF 3 INC.
LANSING, MICHIGAN
JULY 1993

Location	*MW7-48*	*MW8-34*	*MW9-33*	*MW9-45*	*Rinsate*	*Rinsate*	*TRIP BLANK*
Sample ID	*TB-107*	*TB-109*	*TB-123*	*TB-124*	*TB-113*	*TB-118*	*TB-127*
Date Sampled	*6/22*	*6/22*	*6/23*	*6/23*	*6/22*	*6/23*	
Indeno(1,2,3-cd) pyrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Isophorone	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
4,4'-Methyllene-bis-(2-chloro-aniline)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
Naphthalene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Nitrobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
N-Notrosodimethylamine	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	NA
** N-Nitrosodiphenylamine	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
N-Nitroso-di-n-propylamine	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Phenanthrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Pyrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
1,2,4-Trichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Acid Compounds							
4-Chloro-3-methylphenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
2-Chlorophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
2,4-Dichlorophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
2,4-Dimethylphenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
4,6-Dinitro-2-methylphenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	NA
2,4-Dinitrophenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	NA
2-Nitrophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
4-Nitrophenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	NA
Pentachlorophenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	NA
Phenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
2,4,6-Trichlorophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA

** Indistinguishable from diphenylamine

SUMMARY GROUNDWATER DATA
BARRELS INC.
LANSING, MICHIGAN
JULY 1993

Location Sample ID Date Sampled	*MW7-48* *TB-107* *6/22*	*MW8-34* *TB-109* *6/22*	*MW9-33* *TB-123* *6/23*	*MW9-45* *TB-124* *6/23*	*Rinsate* *TB-113* *6/22*	*Rinsate* *TB-118* *6/23*	*TRIP BLANK* *TB-127*
Priority Pollutant Inorganics (mg/L)							
Antimony	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Arsenic	0.001	0.005	0.004	0.006	ND(0.001)	ND(0.001)	NA
Beryllium	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Cadmium	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	NA
Chromium	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	NA
Copper	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	NA
Lead	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	NA
Mercury	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	ND(0.0002)	NA
Nickel	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	NA
Selenium	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	NA
Silver	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)UJ	NA
Thallium	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	NA
Zinc	0.23	ND(0.020)	0.03	ND(0.020)	ND(0.020)	ND(0.020)	NA
Cyanide	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)UJ	ND(0.005)	NA

SUMMARY GROUNDWATER DATA
BARR INC.
LANSING, MICHIGAN
JULY 1993

Location	MW7-48	MW8-34	MW9-33	MW9-45	Rinsate	Rinsate	TRIP BLANK
Sample ID	TB-107	TB-109	TB-123	TB-124	TB-113	TB-118	TB-127
Date Sampled	6/22	6/22	6/23	6/23	6/22	6/23	
Priority Pollutant Pesticides/PCB's (µg/L)							
Aldrin	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
alpha-BHC	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
beta-BHC	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
delta-BHC	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
gamma-BHC (Lindane)	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
alpha-Chlordane	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
gamma-Chlordane	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
4,4'-DDD	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
4,4'-DDE	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
4,4'-DDT	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.02)UJ	ND(0.01)	ND(0.01)	NA
Dieldrin	ND(0.01)	ND(0.01)	ND(0.01)UJ	0.01 J	ND(0.01)	ND(0.01)	NA
alpha-Endosulfan	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
beta-Endosulfan	ND(0.01)	ND(0.01)	ND(0.01)UJ	0.02 J	ND(0.01)	ND(0.01)	NA
Endosulfan sulfate	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.02)UJ	ND(0.01)	ND(0.01)	NA
Endrin	ND(0.01)	ND(0.01)	0.02 J	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
Endrin aldehyde	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
Heptachlor	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
Heptachlor epoxide	ND(0.01)	ND(0.01)	ND(0.01)UJ	ND(0.01)UJ	ND(0.01)	ND(0.01)	NA
Toxaphene	ND(0.010)	ND(0.010)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)	ND(0.10)	NA
PCB-1016	ND(0.010)	ND(0.010)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)	ND(0.10)	NA
PCB-1221	ND(0.010)	ND(0.010)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)	ND(0.10)	NA
PCB-1232	ND(0.010)	ND(0.010)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)	ND(0.10)	NA
PCB-1242	ND(0.010)	ND(0.010)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)	ND(0.10)	NA
PCB-1248	ND(0.010)	ND(0.010)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)	ND(0.10)	NA
PCB-1254	ND(0.010)	ND(0.010)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)	ND(0.10)	NA
PCB-1260	ND(0.010)	ND(0.010)	ND(0.10)UJ	ND(0.10)UJ	ND(0.10)	ND(0.10)	NA

J=value is an estimated quantity for detected analytes
NA=not analyzed
B=analyte present in method blank
U=analyte is a non detect, associated value being the quantitation limit
UJ=analyte was checked but not detected, value is an estimate
ND=not detected; Target Detection Limit
*=detection limits raised due to matrix interference
S=Secondary dilution

APPENDIX H

QA/QC DATA

QA/QC DATA
BART INC.
LANSING, MICHIGAN
JUNE 1993

	RP-09 Rinsate Blank	*RP-17 Rinsate Blank*	*RP-37 Rinsate Blank*	*RP-46 Rinsate Blank*	*RP-55 Rinsate Blank*	*RP-62 Rinsate Blank*	*TB-77 Rinsate Blank*	*TB-103 Rinsate Blank*	*TB-104 Rinsate Blank*
Priority Pollutant VOCs (mg/kg)									
Acrolein	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Acrylonitrile	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)UJ	ND(0.001)	ND(0.001)
Benzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Bromodichloromethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Bromoform	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Bromomethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
2-Butanone	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Carbon disulfide	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Carbon tetrachloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Chlorobenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Chloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
2-Chloroethylvinyl ether	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Chloroform	0.009	0.008	0.001	0.001	0.001	0.001	0.001	ND(0.001)	ND(0.001)
Chloromethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Dibromochloromethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,2-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
total-1,2-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,2-Dichloropropane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
cis-1,3-Dichloropropene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
trans-1,3-Dichloropropene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.003	ND(0.001)	ND(0.001)
Methylene chloride	ND(0.001)	0.002 BU	0.002 B	0.002 B	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,2,2-Tetrachloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Toluene	ND(0.001)	ND(0.001)	0.002	ND(0.001)	ND(0.001)	ND(0.001)	0.003	ND(0.001)	ND(0.001)
1,1,1-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	0.002	0.002	0.003	ND(0.001)	ND(0.001)	ND(0.001)
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl chloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
o-Xylene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
m-Xylene/p-Xylene	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
total Xylenes	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)

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QA/QC DATA
BARRELS INC.
LANSING, MICHIGAN
JUNE 1993

	RP-09 Rinsate Blank	*RP-17 Rinsate Blank*	*RP-37 Rinsate Blank*	*RP-46 Rinsate Blank*	*RP-55 Rinsate Blank*	*RP-62 Rinsate Blank*	*TB-77 Rinsate Blank*	*TB-103 Rinsate Blank*	*TB-104 Rinsate Blank*
Priority Pollutant SVOCs (mg/kg)									
Base Neutral Compounds									
Acenaphthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Acenaphthylene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Anthracene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzidine	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Benzo(a)anthracene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzo(b)fluoranthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzo(k)fluoranthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzo(ghi)perylene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Benzo(a)pyrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Bis(2-chloroethoxy) methane	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Bis(2-chloroethyl) ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Bis(2-chloroisopropyl) ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Bis(2-ethylhexyl) phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4-Bromophenyl phenyl ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Butyl benzyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2-Chloronaphthalene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4-Chlorophenyl phenyl ether	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Chysene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Dibenz (a,h) anthracene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Di-n-butyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,2-Dichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,3-Dichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,4-Dichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
3,3'-Dichlorobenzidine	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Diethyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Dimethyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,4-Dinitrotoluene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,6-Dinitrotoluene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Di-n-octyl phthalate	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,2-Diphenylhydrazine	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Fluoranthene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Fluorene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)

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Hexachlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Hexachlorobutadiene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Hexachlorocyclopentadiene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Hexachloroethane	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Indeno(1,2,3-cd) pyrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Isophorone	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4,4'-Methyllene-bis-(2-chloro-aniline)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Naphthalene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Nitrobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
N-Notrosodimethylamine	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
N-Nitrosodiphenylamine	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
N-Nitroso-di-n-propylamine	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Phenanthrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Pyrene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
1,2,4-Trichlorobenzene	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Acid Compounds									
4-Chloro-3-methylphenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2-Chlorophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,4-Dichlorophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,4-Dimethylphenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4,6-Dinitro-2-methylphenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.005)	ND(0.020)	ND(0.020)	ND(0.020)
2,4-Dinitrophenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.005)	ND(0.020)	ND(0.020)	ND(0.020)
2-Nitrophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
4-Nitrophenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.005)	ND(0.020)	ND(0.020)	ND(0.020)
Pentachlorophenol	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.005)	ND(0.020)	ND(0.020)	ND(0.020)
Phenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
2,4,6-Trichlorophenol	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)

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Priority Pollutant Inorganics (mg/kg)									
Antimony	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Arsenic	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Beryllium	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Cadmium	ND(.0002)	ND(.0002)	ND(.0002)	ND(.0002)	ND(.0002)	ND(.0002)	ND(.0002)	ND(.0002)	ND(.0002)
Chromium	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Copper	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)	ND(0.025)
Lead	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)
Mercury	ND(.0002)	ND(.0002)	ND(.0002)	ND(.0002)	ND(.0002)	ND(.0002)	ND(.0002)	ND(.0002)	ND(.0002)
Nickel	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Selenium	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Silver	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Thallium	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)
Zinc	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Cyanide	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)UJ	ND(0.005)UJ	ND(0.005)	ND(0.005)UJ	ND(0.005)	ND(0.005)

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Priority Pollutant Pesticides/PCB's (µg/kg)									
Aldrin	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
alpha-BHC	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
beta-BHC	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
delta-BHC	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
gamma-BHC (Lindane)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
alpha-Chlordane	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
gamma-Chlordane	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
4,4'-DDD	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
4,4'-DDE	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
4,4'-DDT	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Dieldrin	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
alpha-Endosulfan	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
beta-Endosulfan	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Endosulfan sulfate	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Endrin	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Endrin aldehyde	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Heptachlor	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Heptachlor epoxide	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)
Toxaphene	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
PCB-1016	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
PCB-1221	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
PCB-1232	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
PCB-1242	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
PCB-1248	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
PCB-1254	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
PCB-1260	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)

B = analyte present in method blank
U = analyte is a non detect, associated value being the quantitation limit
UJ = analyte was checked for, but not detected; value is an estimate
ND = not detected; Target Detection Limit

APPENDIX I

SOIL PHYSICAL TESTING

4867

Renate

Rec'd CRA

JUL 20 1993

Materials Testing Consultants, INC.

693 PLYMOUTH N.E., GRAND RAPIDS, MI 49505 • PH. (616) 456-5469 • FAX (616) 456-5784

12 July 1993
Job No. T0327

Mateco Drilling Company
693 Plymouth, N.E.
Grand Rapids, Michigan 49505

Attention: Mr. Dale Elliott

Reference: Laboratory Soils Tests,
Barrels Site (MDC Job No. 3704-93)

Dear Mr. Elliott:

Materials Testing Consultants, Inc. has completed the particle size analysis and permeability tests on the four shelby tube samples submitted on 29 June 1993. The particle size analysis was conducted using ASTM Test Methods D 421 and D 422. The permeability tests were conducted using the falling head method. Please find the enclosed grain size distribution test reports. The permeability test results were as follow:

Sample ID	Moisture Content As Received (%)	Dry Unit Weight (PCF)	Permeability (CM/SEC)
MW-2	21.2	106.4	1.0×10^{-8}
MW-7	21.3	103.4	1.3×10^{-8}
MW-8	9.9	108.0	5.8×10^{-5}
MW-9	18.7	115.0	$5.7\text{-}10^{-8}$

The remaining shelby tube samples will be held at Materials Testing Consultants, Inc. for a period of one month. If you have any questions or if we can be of further service, please call.

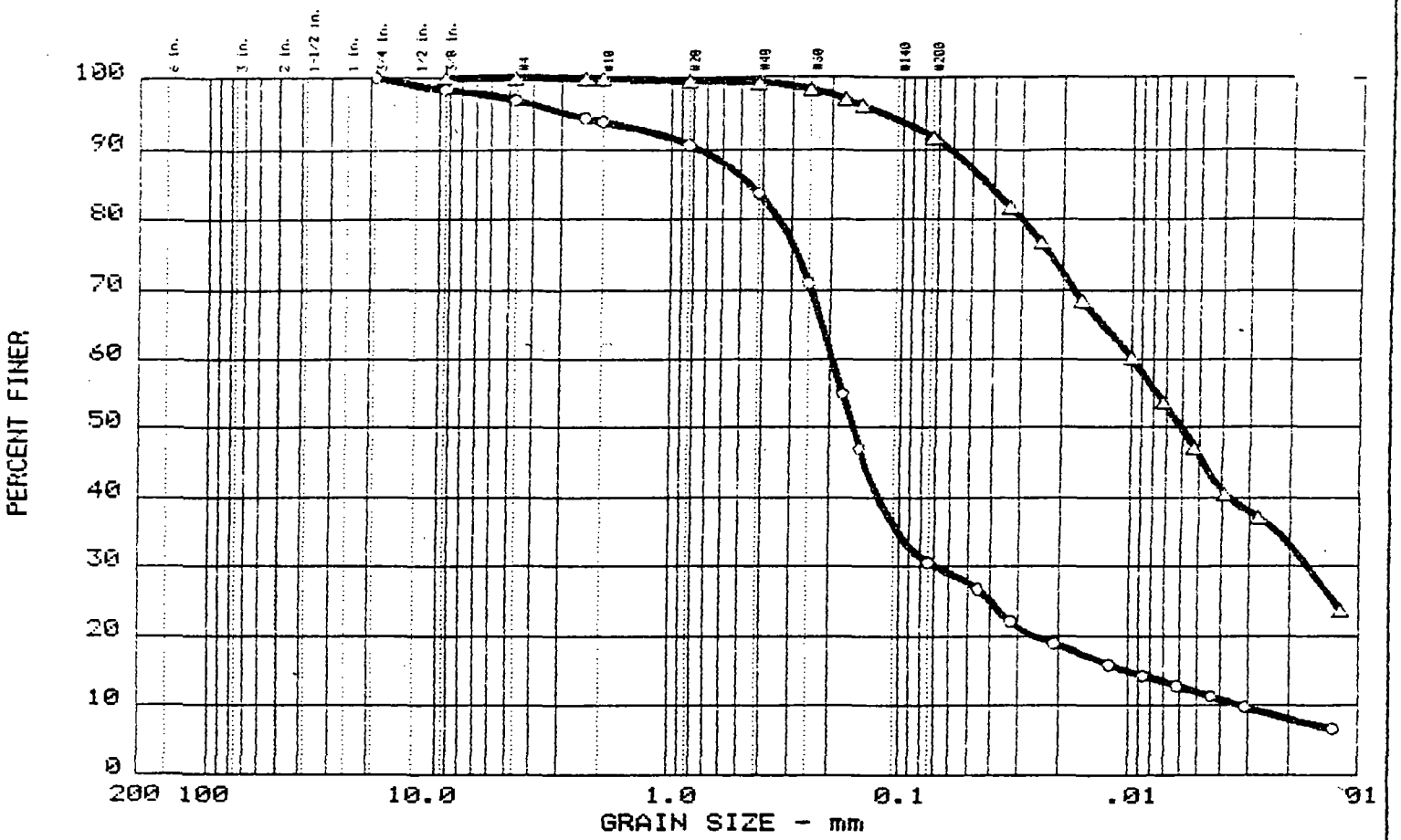
Sincerely,

MATERIALS TESTING CONSULTANTS, INC.

Peter Johnson

Peter T. Johnson, C.E.T.
Laboratory Manager

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	3.2	66.3	18.6	11.9
△	0.0	0.1	8.3	46.0	45.6

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.45	0.20	0.16	0.069	0.0101	0.0033	7.44	60.0
△					0.01	0.002				

MATERIAL DESCRIPTION	USCS	AASHTO
○ F. to C. SAND, little silt, little clay, tr. grvl	SM	
△ SILT and CLAY, trace sand	CL	

Project No.: T0327
Project: Barrels Site
○ Location: MW-8
△ Location: MW-9

Date: 7-9-93

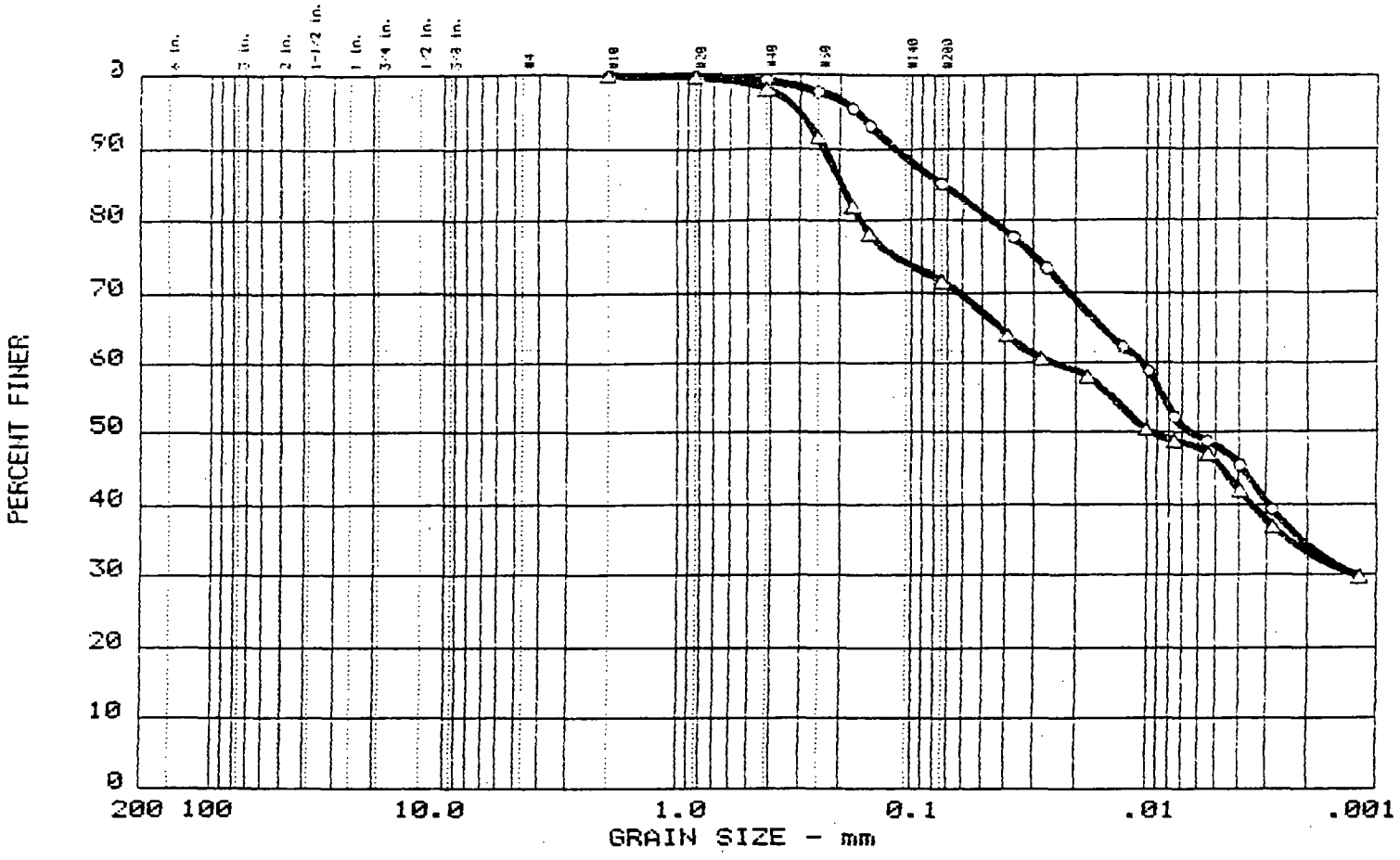
Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

MATERIALS TESTING CONSULTANTS

Fig. No.

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	0.0	15.0	36.9	48.1
△	0.0	0.0	28.3	25.7	46.0

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○					0.01	0.001				
△			0.20		0.01	0.001				

MATERIAL DESCRIPTION	USCS	AASHTO
○ CLAY and SILT, little sand	CL	
△ CLAY, some sand, some silt	CL	

Project No.: T0327
Project: Barrels Site
○ Location: MW-2
△ Location: MW-7

Date: 7-9-93

Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

MATERIALS TESTING CONSULTANTS

Fig. No.

APPENDIX J

DATA VALIDATION

MEMO

TO: Renato Pasqualoni

REFERENCE NO: 4869

FROM: Steven C. Day

DATE: October 14, 1993

RE: Data Concerns
Barrels, Inc. Site - Lansing, Michigan

As requested, I have reviewed the laboratory data associated with the collection of soil and water samples from the Barrels, Inc. Site to determine if the presence of methylene chloride and bis(2-ethylhexyl)phthalate was due to previous Site activities or an artifact of the laboratory analyses. In addition, I reviewed the data from three boreholes to determine if the contaminant concentration profile was due to a potential sample identification error.

Potential Laboratory Contamination

The volatile organic compounds (VOC) soil method blanks were not reported by the laboratory as containing detectable concentrations of methylene chloride. However, methylene chloride was detected in the aqueous method blank samples. The methylene chloride in the aqueous method blank samples was detected slightly above the laboratory's reporting limit of 1 µg/L.

The method used for VOC analysis is more sensitive for water samples than soil samples. This is due to the mass of water aliquot analyzed being larger than the mass of soil aliquot. Consequently, low levels (i.e., less than 10 µg/kg) of methylene chloride present in soil method blanks would not have been reported as being detected.

The USEPA guidance document for validation of organics data recognizes that methylene chloride is one of a group of common laboratory contaminants. If a common laboratory contaminant is detected in a method blank sample, the associated samples are evaluated to determine if the reported value is less than or equal to 10 times the concentration of the method blank concentration. Should this be true, the associated samples results are qualified as being non-detect with the reported value becoming the sample quantitation limit.

As previously noted, methylene chloride detected in the soil method blanks at concentrations less than 10 µg/kg would not have been reported by the laboratory. The application of the ten times criteria described above would not have been performed by the data validator and the data would remain unqualified. However, the guidance document allows the reviewer of the data to apply professional judgement in qualification of sample data due to potential laboratory contamination without the application of the ten times criteria. Due to the low, uniform

concentrations of methylene chloride detected in the samples, professional judgment would dictate that all methylene chloride results should be qualified as non-detect with the reported concentration becoming the sample quantitation limit.

The SVOC results for numerous samples indicated the presence of varying concentrations of bis(2-ethylhexyl)phthalate. The associated method blanks were not reported as containing this compound. The bis(2-ethylhexyl)phthalate soil data should be qualified using professional judgement as this compound is also recognized by the USEPA as being a common laboratory contaminant. However, due to the inconsistency of bis(2-ethylhexyl)phthalate concentrations, professional judgement would dictate that those samples with concentrations of 10 times or less the quantitation limit (less than or equal to 3.3 µg/kg) be qualified as non-detect with the reported concentration becoming the sample quantitation limit. Consequently, all samples with reported concentrations of bis(2-ethylhexyl)phthalate except samples S-051993-RP-10, S-051993-RP-11, S-051393-RP-22 and S-051993-RP-73 should be qualified. Resampling and analysis will be necessary to confirm the presence or absence of bis(2-ethylhexyl)phthalate in the four samples with concentrations greater than 3.3 µg/kg.

The sample collected from monitoring well 7 was reported to have a bis(2-ethylhexyl) phthalate concentration of 0.009 mg/L. This value is marginally greater than the laboratory reporting limit of 0.005 mg/L. No bis(2-ethylhexyl)phthalate was detected in the associated method blank and the presence of the compound may be due to random laboratory contamination. The data should be considered suspect and the data generated from the second round of groundwater sampling will confirm the presence or absence of bis(2-ethylhexyl)phthalate in the well.

Contaminant Concentration Profile

The concentration profiles of contaminants detected in three boreholes (DS-8, DD-1 and DS-4) were not as would be expected for undisturbed soil. Polynuclear aromatic hydrocarbons (PAHs) were detected in borehole DS-8 in the sample collected from a depth of 4 to 6 feet but were not detected in the sample collected from a depth of 0 to 2 feet. Considering the strong adsorption of PAHs to organic matter in the soil, the upper depth sample should have had detectable concentrations of PAHs. This reversed concentration profile also occurred for the majority of the inorganic analytes detected. This would indicate that a sample labeling error may have occurred in the field or laboratory and the data should be considered suspect.

The concentration profiles of pesticides and polychlorinated biphenyls (PCBs) in boreholes DD-1 and DS-4 were also not as would be expected. In both boreholes the presence of these compounds was not continuous with depth. This would not be possible since the organic matter in the soil would attenuate the migration of pesticides and PCBs through the soil. Again, a sample labeling error may have occurred in the field or laboratory and the data should be considered suspect.

CRA
1801 Old Highway 8, Suite #114
St. Paul, Minnesota 55112
(612) 639-0913

MEMO

TO: Alan Van Norman

REFERENCE NO: 4869

FROM: Amber L. Poffenberger alp

DATE: August 11, 1993

RE: Data Quality Assessment and Validation for Ten Waste Residual Samples Collected June 4 and July 9, 1993 at the Barrels, Inc. Site in Lansing, Michigan.

The following details a data quality assessment and validation for ten waste residual samples collected June 4 and July 9, 1993 at the Barrels, Inc. Site in Lansing, Michigan. The samples are identified in Table 1 and were analyzed for the parameters listed in Table 2. The analyses were performed by Environmental Control Technology Corporation (ENCOTEC) of Ann Arbor, Michigan. The quality assurance criteria were established in the associated quality assurance project plan.[1]

Holding Time Periods

The holding time periods for the analyses are listed in Table 2. On the basis of sample collection dates on the chain-of-custody forms and analytical reports provided by ENCOTEC, the analyses were completed within the specified holding time periods, with the exception of reactive sulfide. Those samples which exceeded the analytical holding time are listed in Table 3. The associated data should be flagged as noted in the table.

Method Blank Samples

Contamination of the samples contributed by laboratory conditions or procedures was monitored by the concurrent preparation and analysis of method blank samples. The method blank samples were reported to be free from detectable concentrations of target analytes, indicating no significant laboratory contamination occurred.

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1 Application of relevant quality assurance criteria was consistent with "National Functional Guidelines for Organic Data Review", December 1990 (Revised June 1991) and "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses", July 1988.

Surrogate Compound Percent Recoveries (Surrogate Recoveries)

Individual sample performance for organic analyses was monitored by surrogate recoveries. All surrogate recoveries for the analyses were within the acceptance criteria.

Check Sample Percent Recoveries

Check samples for analyses were examined to assess the accuracy of the laboratory procedures. The check sample percent recoveries were within acceptance criteria, indicating the method achieved adequate accuracy.

Field Quality Assurance/Quality Control (QA/QC)

There was no field QA/QC collected for this sampling event.

Overall Assessment

The data were found to exhibit acceptable levels of accuracy and precision and may be used with the qualification noted above.

ALP/ma
Enc.
cc: Steve Day, Chicago
Renato Pasqualoni, Bathurst
Brian Holbrook, Detroit

TABLE 1

SUMMARY OF SAMPLE IDENTIFICATION NUMBERS
BARRELS, INC. SITE
JUNE/JULY 1993 SAMPLING EVENT

Sample Delivery Group CRA-BI-061

WR-060493-BTH-001
WR-060493-BTH-002
WR-060493-BTH-003
WR-060493-BTH-004
WR-060493-BTH-005
WR-060493-BTH-006
WR-060493-BTH-007
WR-060493-BTH-008
WR-060493-BTH-009

Sample Delivery Group CRA-BI-071

WR-070993-BTH-010

TABLE 2

SUMMARY OF ANALYTICAL PARAMETERS AND HOLDING TIME PERIODS BARRELS, INC. SITE JUNE/JULY 1993 SAMPLING EVENT

*Analysis - Method**	*Holding Time***
Toxicity Characteristic Leaching Procedure (TCLP) Volatile Organic Compounds (VOC) - SW 8260	14/14 Days***
TCLP Semivolatile Organic Compounds (SVOC) - SW 8270	14/7/40 Days***
TCLP Pesticides - SW 8080	14/7/40 Days***
TCLP Herbicides - SW 8150	14/7/40 Days***
TCLP Metals - SW 6010/7000 Series	180/180 Days*** (except Mercury - 28/28 Days'
Reactive Cyanide - SW Section 7.3.3.2	As Soon As Possible
Reactive Sulfide - SW Section 7.3.4.2	As Soon As Possible
Flashpoint - SW 1010	28 Days
Corrosivity - SW 9040	Analyze Immediately

* Methods were derived from:
SW - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA SW-846, 3rd edition, November 1986.
TCLP - 40 CFR Part 261 Appendix II - "Method 1311 Toxicity Characteristic Leaching Procedure ", Revised July 1990.

** Holding time periods are based from sample collection date to sample analysis date.

*** Days from sample collection to sample extraction/days to preparative extraction (where applicable)/days to sample analysis.

TABLE 3

SAMPLE HOLDING TIME VIOLATIONS
BARRELS, INC. SITE
JUNE/JULY 1993 SAMPLING EVENT

Analysis	*Sample ID*	*Method Required Holding Time*	*Sample Analyzed*	*Qualifier**
		Sample Delivery Group CRA-B1-071		
Reactive Sulfide	WR-070993-BTH-010	7 Days	13 Days	J/UJ

* Sample results should be qualified as:
J - The associated value is an estimated quantity for detected analytes.
UJ - The analyte was checked for, but not detected.
The associated value is an estimate.

Waterloo File Copy

CRA
1801 Old Highway 8, Suite #114
St. Paul, Minnesota 55112
(612) 639-0913

MEMO

TO: Alan Van Norman

REFERENCE NO: 4869

FROM: Amber L. Poffenberger

DATE: August 16, 1993

RE: Data Quality Assessment and Validation for Soil and Water Samples Collected May and June, 1993 at the Barrels, Inc. Site in Lansing, Michigan.

The following details a data quality assessment and validation for soil and water samples collected May and June, 1993 at the Barrels, Inc. Site in Lansing, Michigan. The samples are identified in Table 1 and were analyzed for the parameters listed in Table 2. The analyses were performed by Environmental Control Technology Corporation (ENCOTEC) of Ann Arbor, Michigan. The quality assurance criteria were established in the associated quality assurance project plan.[1]

Holding Time Periods

The holding time periods for the analyses are listed in Table 2. On the basis of sample collection dates on the chain-of-custody forms and analytical reports provided by ENCOTEC, the analyses were completed within the specified holding time periods, with the exception of those samples listed in Table 3. The associated data should be qualified as noted in the table.

Method Blank Samples

Contamination of the samples contributed by laboratory conditions or procedures was monitored by the concurrent preparation and analysis of method blank samples. The majority of method blank samples were reported to be free from detectable concentrations of target analytes, indicating no significant laboratory contamination occurred. Analytes detected in the method blank samples are listed in Table 4. The associated data should be qualified as noted in the table.

Surrogate Compound Percent Recoveries (Surrogate Recoveries)

Individual sample performance for organic analyses was monitored by surrogate recoveries. The majority of surrogate recoveries for the analyses were within the

---

1 Application of relevant quality assurance criteria was consistent with "National Functional Guidelines for Organic Data Review", December 1990 (Revised June 1991) and "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses", July 1988.

acceptance criteria. PEST/PCB samples L-062393-TB-120, L-062393-TB-121, L-062393-TB-122, L-062393-TB-123, and L-062393-TB-124 were re-extracted due to low surrogate recoveries. Since the re-extractions occurred twenty days past the analytical holding time, the data was deemed unusable, and the original PEST/PCB analysis results are reported for these five samples. Due to analysis dilutions and/or matrix interferences, several samples could not be assessed based on surrogate recoveries. Outlying surrogate results are listed in Table 5. The associated sample data should be qualified as noted in the table.

Check Sample Percent Recoveries

Check samples for analyses were examined to assess the accuracy of the laboratory procedures. The majority of check sample percent recoveries were within acceptance criteria, indicating the method achieved adequate accuracy. Those recoveries which exceeded the acceptance criteria are listed in Table 6. The associated data should be qualified as noted in the table.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results - Organic Analyses

To assess the long term accuracy and precision of the analytical method on various matrices, matrix spike percent recoveries and relative percent difference (RPD) of the spike recoveries were determined for organic analyses. The majority of MS/MSD percent recoveries and RPDs were within the acceptance criteria, indicating adequate accuracy and precision were achieved for the methods. Table 7 lists MS/MSD results which exceeded the acceptance criteria. The associated data should be qualified as noted in the table.

Matrix Spike/Laboratory Duplicate (MS/DUP) Results - Inorganic Analyses

To assess the long term accuracy and precision of the analytical method on various matrices, matrix spike percent recoveries and relative percent differences of duplicate results were determined. The majority of percent recoveries and RPDs were within the acceptance criteria, indicating an adequate level of accuracy and precision were achieved for the methods. Table 8 lists MS results which exceeded the acceptance criteria, while Table 9 lists laboratory duplicate results which exceeded the acceptance criteria. The associated data should be qualified as noted in the respective tables.

Field Quality Assurance/Quality Control (QA/QC)

The field QA/QC collected for this sampling event consisted of one trip blank sample, eleven rinsate blank samples, and ten field duplicate sample sets.

To evaluate the possibility of contamination arising from sample transport, the environment and/or storage, a trip blank sample was submitted to ENCOTEC for VOC analysis. The trip blank yielded a positive concentration of methylene chloride, which was qualified as non-detect due to method blank contamination. As a result, none of the investigative samples should be qualified based on trip blank sample results.

As a check on cleanliness of sampling equipment, rinsate blank samples were collected as authentic samples for labeling and submission to the laboratory. The majority of rinsate blank samples yielded non-detectable concentrations of target analytes, indicating adequate decontamination of the sampling equipment occurred. Low concentrations of VOC analytes were detected in several of the rinsate blank samples. Since none of the analytes were detected in the associated environmental samples, qualification of the data based on the rinsate blank sample results was not deemed necessary.

Overall precision for the sampling event was monitored by the evaluation of field duplicate sample set results. Relative percent difference of the results were calculated and the majority were found to be acceptable. A number of analytes yielded a positive result in one sample and a non-detect result in the duplicate sample. In cases where the positive result was near the detection limit, the data should remain unqualified due to the variability in measurement of field and laboratory precision for soils, particularly near the detection limit. Field duplicate sample results are listed in Table 10. The associated data should be qualified as noted in the table.

Overall Assessment

The data were found to exhibit acceptable levels of accuracy and precision and may be used with the qualifications noted above.

ALP/ma
Enc.
cc: Steve Day, Chicago
Renato Pasqualoni, Bathurst
Brian Holbrook, Detroit

TABLE 1

SUMMARY OF SAMPLE IDENTIFICATION NUMBERS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Sample Delivery Group CRA-B1-051

S-051193-RP-01
S-051193-RP-02
S-051193-RP-03
S-051193-RP-04
S-051293-RP-05
S-051293-RP-06
S-051293-RP-07
S-051293-RP-08
W-051293-RP-09
S-051293-RP-10
S-051293-RP-11
S-051293-RP-12
S-051293-RP-13
S-051393-RP-14
S-051393-RP-15
S-051393-RP-16
W-051393-RP-17
S-051393-RP-18
S-051393-RP-19
S-051393-RP-20
S-051393-RP-21
S-051393-RP-22
S-051393-RP-23
S-051393-RP-24
S-051393-RP-25
S-051393-RP-26
S-051393-RP-27
S-051393-RP-28
S-051493-RP-29
S-051493-RP-30
S-051493-RP-31
S-051493-RP-32
S-051493-RP-33
S-051493-RP-34
S-051493-RP-35
S-051493-RP-36
W-051493-RP-37
S-051493-RP-38
S-051493-RP-39
S-051493-RP-40
S-051493-RP-41

TABLE 1

SUMMARY OF SAMPLE IDENTIFICATION NUMBERS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Sample Delivery Group CRA-B1-052

S-051793-RP-42
S-051793-RP-43
S-051793-RP-44
S-051793-RP-45
W-051793-RP-46
S-051793-RP-47
S-051793-RP-48
S-051793-RP-49
S-051793-RP-50
S-051793-RP-51
S-051793-RP-52
S-051793-RP-53
S-051793-RP-54
W-051793-RP-55
S-051793-RP-56
S-051793-RP-57
S-051793-RP-58
S-051793-RP-59
S-051893-RP-60
S-051893-RP-61
W-051893-RP-62
S-051893-RP-63
S-051893-RP-64
S-051893-RP-65
S-051993-RP-65A
S-051993-RP-66
S-051993-RP-67
S-051993-RP-68
S-051993-RP-69
S-051993-RP-70
S-051993-RP-71
S-051993-RP-72
S-051993-RP-73

TABLE 1

SUMMARY OF SAMPLE IDENTIFICATION NUMBERS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Sample Delivery Group CRA-B1-053

S-052093-TB-74
S-052093-TB-75
S-052093-TB-76
L-052093-TB-77
S-052093-TB-78
S-052093-TB-79
S-052093-TB-80
S-052093-TB-81
S-052093-TB-82
S-052093-TB-83
S-052093-TB-84
S-052493-TB-85
S-052493-TB-86
S-052493-TB-87
S-052493-TB-88
S-052493-TB-89
S-052493-TB-90

Sample Delivery Group CRA-B1-054

S-052593-TB-91
S-052593-TB-92
S-052593-TB-93
S-052593-TB-94
S-052593-TB-95
S-052593-TB-96
S-052693-TB-97
S-052693-TB-98
S-052693-TB-99
S-052593-TB-100
S-052593-TB-101
L-052593-TB-103
L-052593-TB-104

TABLE 1

SUMMARY OF SAMPLE IDENTIFICATION NUMBERS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Sample Delivery Group CRA-B1-062

L-062293-TB-105
L-062293-TB-106
L-062293-TB-107
L-062293-TB-108
L-062293-TB-109
L-062293-TB-110
L-062293-TB-111
L-062293-TB-112
L-062293-TB-113
L-062293-TB-116
L-062293-TB-117
L-062393-TB-118
L-062393-TB-119
L-062393-TB-120
L-062393-TB-121
L-062393-TB-122
L-062393-TB-123
L-062393-TB-124
L-062393-TB-125
L-062293-TB-127

TABLE 2

SUMMARY OF ANALYTICAL PARAMETERS AND HOLDING TIME PERIODS BARRELS, INC. SITE MAY/JUNE 1993 SAMPLING EVENT

*Analysis - Method**	*Holding Time***
Volatile Organic Compounds (VOC) - SW 8260	
Water/Soil	14 Days
Acrylonitrile - SW 8260 modified	
Water/Soil	14 Days
Semivolatile Organic Compounds + Curene (SVOC) - SW 8270	
Water	7/40 Days***
Soil	14/40 Days***
Pesticides/Polychlorinated Biphenyls (PEST//PCB) - SW 8080	
Water	7/40 Days***
Soil	14/40 Days***
Select Metals - SW 6010/6020/7000 Series	
Water/Soil	6 Months (except Mercury - 28 Days)
Cyanide - EPA 335.2	
Water/Soil	14 Days

Notes:

* Methods were derived from:

SW - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA SW-846, 3rd edition, November 1986.

EPA - "Methods for Chemical Analysis of Water and Wastes", EPA/4-79-020, revised March 1983.

** Holding time periods are based from sample collection date to sample analysis date.

*** Seven (or fourteen) days from sample collection to sample extraction, then forty days to sample analysis.

TABLE 3

SAMPLE HOLDING TIME VIOLATIONS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Sample ID*	*Method Required Holding Time*	*Sample Analyzed*	*Qualifier**
	Sample Delivery Group CRA-B1-052			
Cyanide	S-051793-RP-42	14 Days	15 Days	J/UJ
	S-051793-RP-43	14 Days	15 Days	J/UJ
	S-051793-RP-44	14 Days	15 Days	J/UJ
	S-051793-RP-45	14 Days	18 Days	J/UJ
	W-051793-RP-46	14 Days	15 Days	J/UJ
	S-051793-RP-47	14 Days	15 Days	J/UJ
	S-051793-RP-48	14 Days	15 Days	J/UJ
	S-051793-RP-49	14 Days	15 Days	J/UJ
	S-051793-RP-50	14 Days	15 Days	J/UJ
	S-051793-RP-51	14 Days	15 Days	J/UJ
	S-051793-RP-52	14 Days	15 Days	J/UJ
	S-051793-RP-53	14 Days	18 Days	J/UJ
	S-051793-RP-54	14 Days	15 Days	J/UJ
	W-051793-RP-55	14 Days	15 Days	J/UJ
	S-051793-RP-56	14 Days	15 Days	J/UJ
	S-051793-RP-57	14 Days	18 Days	J/UJ
	S-051793-RP-58	14 Days	15 Days	J/UJ
	S-051793-RP-59	14 Days	15 Days	J/UJ
	S-051993-RP-73	14 Days	16 Days	J/UJ
VOC	S-051793-RP-51	14 Days	15 Days	J/UJ
	S-051793-RP-57	14 Days	15 Days	J/UJ
	S-051893-RP-64	14 Days	15 Days	J/UJ
Acrylonitrile	S-051993-RP-66	14 Days	21 Days	J/UJ
	S-051993-RP-68	14 Days	21 Days	J/UJ
	S-051993-RP-70	14 Days	21 Days	J/UJ
	S-051993-RP-71	14 Days	21 Days	J/UJ

TABLE 3

SAMPLE HOLDING TIME VIOLATIONS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Sample ID*	*Method Required Holding Time*	*Sample Analyzed*	*Qualifier**
	Sample Delivery Group CRA-B1-053			
Cyanide	S-052093-TB-74	14 Days	15 Days	J/UJ
	S-052093-TB-75	14 Days	15 Days	J/UJ
	S-052093-TB-76	14 Days	15 Days	J/UJ
	L-052093-TB-77	14 Days	15 Days	J/UJ
	S-052093-TB-78	14 Days	15 Days	J/UJ
	S-052093-TB-79	14 Days	15 Days	J/UJ
	S-052093-TB-80	14 Days	15 Days	J/UJ
	S-052093-TB-81	14 Days	15 Days	J/UJ
	S-052093-TB-82	14 Days	15 Days	J/UJ
	S-052093-TB-83	14 Days	15 Days	J/UJ
	S-052093-TB-84	14 Days	15 Days	J/UJ
VOC	S-052093-TB-78	14 Days	15 Days	J/UJ
	S-052093-TB-80	14 Days	17 Days	J/UJ
	S-052093-TB-81	14 Days	15 Days	J/UJ
	S-052093-TB-82	14 Days	15 Days	J/UJ
Acrylonitrile	S-052093-TB-74	14 Days	15 Days	J/UJ
	S-052093-TB-75	14 Days	15 Days	J/UJ
	S-052093-TB-76	14 Days	15 Days	J/UJ
	L-052093-TB-77	14 Days	16 Days	J/UJ
	S-052093-TB-78	14 Days	15 Days	J/UJ
	S-052093-TB-79	14 Days	15 Days	J/UJ
	S-052093-TB-80	14 Days	15 Days	J/UJ
	S-052093-TB-81	14 Days	15 Days	J/UJ
	S-052093-TB-82	14 Days	15 Days	J/UJ
	S-052093-TB-83	14 Days	15 Days	J/UJ
	S-052093-TB-84	14 Days	15 Days	J/UJ

TABLE 3

SAMPLE HOLDING TIME VIOLATIONS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Sample ID*	*Method Required Holding Time*	*Sample Analyzed*	*Qualifier**
	Sample Delivery Group CRA-B1-062			
Cyanide	L-062293-TB-112	14 Days	15 Days	J/UJ
	L-062293-TB-113	14 Days	15 Days	J/UJ
	L-062293-TB-116	14 Days	15 Days	J/UJ
	L-062293-TB-117	14 Days	15 Days	J/UJ

* Sample results should be qualified as:
J - The associated value is an estimated quantity for detected analytes.
UJ - The analyte was checked for, but not detected.
The associated value is an estimate.

TABLE 4

ANALYTES DETECTED IN METHOD BLANKS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Parameter*	*Sample ID*	*Qualifier**
	Sample Delivery Group CRA-B1-051		
VOC	Methylene Chloride	W-051393-RP-17	0.002U
		W-051493-RP-37	0.002U
	Sample Delivery Group CRA-B1-052		
VOC	Methylene Chloride	W-051793-RP-46	0.002U
	Sample Delivery Group CRA-B1-062		
VOC	Methylene Chloride	L-062293-TB-105	0.006U
		L-062293-TB-106	0.004U
		L-062293-TB-107	0.005U
		L-062293-TB-108	0.005U
		L-062293-TB-109	0.004U
		L-062293-TB-110	0.004U
		L-062293-TB-111	0.004U
		L-062293-TB-112	0.003U
		L-062293-TB-113	0.003U
		L-062293-TB-116	0.005U
		L-062293-TB-117	0.004U
		L-062393-TB-118	0.003U
		L-062393-TB-119	0.003U
		L-062393-TB-120	0.004U
		L-062393-TB-121	0.004U
		L-062393-TB-122	0.004U
		L-062393-TB-123	0.003U
		L-062393-TB-124	0.004U
		L-062393-TB-125	0.004U
		L-062393-TB-127	0.004U

* Sample results should be qualified as:
U - The analyte is non-detect , with the associated value being the quantitation limit.

TABLE 5

OUTLYING SURROGATE RECOVERIES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Sample ID*	*Surrogate Compound*	*% Recovery*	*% Recovery Limits*	*Qualifier**
		Sample Delivery Group CRA-B1-051			
PEST/PCB	S-051193-RP-05	Dibutylchlorendate	DL**	36-150	NR
	S-051293-RP-10	Dibutylchlorendate	DL**	36-150	NR
	S-051293-RP-11	Dibutylchlorendate	DL**	36-150	NR
	S-051493-RP-29	Dibutylchlorendate	DL**	36-150	NR
VOC	S-051393-RP-14	Bromofluorobenzene	MI***	74-121	NR
	S-051493-RP-29	Bromofluorobenzene	MI***	74-121	NR

TABLE 5

OUTLYING SURROGATE RECOVERIES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Sample ID*	*Surrogate Compound*	*% Recovery*	*% Recovery Limits*	*Qualifier**
		Sample Delivery Group CRA-B1-052			
PEST/PCB	S-051793-RP-51	Dibutylchlorendate	DL**	36-150	NR
Acrylonitrile	S-051893-RP-60	1,2-Dichloroethane-d4	MI***	60-140	NR
	S-051893-RP-64	1,2-Dichloroethane-d4	MI***	60-140	NR
SVOC	S-051793-RP-51	Nitrobenzene-d5	MI***	23-120	NR
		2-Fluorobiphenyl	MI***	30-115	NR
		Terphenyl-d14	MI***	18-137	NR
		Phenol-d5	MI***	24-113	NR
		2-Fluorophenol	MI***	25-121	NR
		2,4,6-Tribromophenol	MI***	19-122	NR

TABLE 5

OUTLYING SURROGATE RECOVERIES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Sample ID*	*Surrogate Compound*	*% Recovery*	*% Recovery Limits*	*Qualifier**
		Sample Delivery Group CRA-B1-052 (Cont'd)			
	S-051893-RP-60	Nitrobenzene-d5	DL**	23-120	NR
		2-Fluorobiphenyl	DL**	30-115	NR
		Terphenyl-d14	DL**	18-137	NR
		Phenol-d5	DL**	24-113	NR
		2-Fluorophenol	DL**	25-121	NR
		2,4,6-Tribromophenol	DL**	19-122	NR
	S-051893-RP-64	Nitrobenzene-d5	DL**	23-120	NR
		2-Fluorobiphenyl	DL**	30-115	NR
		Terphenyl-d14	DL**	18-137	NR
		Phenol-d5	DL**	24-113	NR
		2-Fluorophenol	DL**	25-121	NR
		2,4,6-Tribromophenol	DL**	19-122	NR
	S-051993-RP-65	Nitrobenzene-d5	DL**	23-120	NR
		2-Fluorobiphenyl	DL**	30-115	NR
		Terphenyl-d14	DL**	18-137	NR
		Phenol-d5	DL**	24-113	NR
		2-Fluorophenol	DL**	25-121	NR
		2,4,6-Tribromophenol	DL**	19-122	NR

TABLE 5

OUTLYING SURROGATE RECOVERIES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Sample ID*	*Surrogate Compound*	*% Recovery*	*% Recovery Limits*	*Qualifier**
		Sample Delivery Group CRA-B1-052 (Cont'd)			
	S-051993-RP-68	Nitrobenzene-d5	DL**	23-120	NR
		2-Fluorobiphenyl	DL**	30-115	NR
		Terphenyl-d14	DL**	18-137	NR
		Phenol-d5	DL**	24-113	NR
		2-Fluorophenol	DL**	25-121	NR
		2,4,6-Tribromophenol	DL**	19-122	NR
		Sample Delivery Group CRA-B1-053			
PEST/PCB	S-052093-TB-74	Dibutylchlorendate	DL**	36-150	NR
	S-052093-TB-79	Dibutylchlorendate	DL**	36-150	NR
	S-052493-TB-85	Dibutylchlorendate	DL**	36-150	NR
SVOC	S-052093-TB-80	Nitrobenzene-d5	DL**	23-120	NR
		2-Fluorobiphenyl	DL**	30-115	NR
		Terphenyl-d14	DL**	18-137	NR
		Phenol-d5	DL**	24-113	NR
		2-Fluorophenol	DL**	25-121	NR
		2,4,6-Tribromophenol	DL**	19-122	NR

TABLE 5

OUTLYING SURROGATE RECOVERIES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Sample ID*	*Surrogate Compound*	*% Recovery*	*% Recovery Limits*	*Qualifier**
		Sample Delivery Group CRA-B1-053 (Cont'd)			
	S-052493-TB-85	Nitrobenzene-d5	DL**	23-120	NR
		2-Fluorobiphenyl	DL**	30-115	NR
		Terphenyl-d14	DL**	18-137	NR
		Phenol-d5	DL**	24-113	NR
		2-Fluorophenol	DL**	25-121	NR
		2,4,6-Tribromophenol	DL**	19-122	NR
		Sample Delivery Group CRA-B1-054			
PEST/PCB	S-052593-TB-100	Dibutylchlorendate	DL**	36-150	NR
VOC	S-052593-TB-100	Toluene-d8	MI***	81-117	NR
	S-052693-TB-98	Toluene-d8	MI***	81-117	NR
		Bromofluorobenzene	MI***	74-121	NR
	S-052693-TB-99	Toluene-d8	MI***	81-117	NR

TABLE 5

OUTLYING SURROGATE RECOVERIES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Sample ID*	*Surrogate Compound*	*% Recovery*	*% Recovery Limits*	*Qualifier**
		Sample Delivery Group CRA-B1-062			
PEST/PCB	L-062393-TB-120	Dibutylchlorendate	34	51-123	J/UJ
	L-062393-TB-121	Tetrachloro-m-xylene	46	50-150	J/UJ
	L-062393-TB-122	Dibutylchlorendate	37	51-123	J/UJ
	L-062393-TB-123	Dibutylchlorendate	40	51-123	J/UJ
	L-062393-TB-124	Dibutylchlorendate	40	51-123	J/UJ

* Sample results should be qualified as:
- J - Result is an estimated value for detected analytes.
- UJ - Analyte was checked for, but not detected. The associated value is an estimated quantitation limit.
- NR - No qualification of the data was deemed necessary.

** DL - Surrogates were diluted out. Recoveries could not be calculated.

*** MI - Surrogate recovery was distorted due to matrix interference.

TABLE 6

OUTLYING CHECK SAMPLE RESULTS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Parameter*	*% Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
		Sample Delivery Group CRA-B1-053			
PEST/PCB	alpha-BHC	0	37-134	J/R	S-052093-TB-74;
	gamma-BHC	7	32-127	J/R	S-052093-TB-75;
	Heptachlor	13	34-111	J/UJ	S-052093-TB-76;
	Aldrin	14	42-122	J/UJ	S-052093-TB-78;
					S-052093-TB-79;
					S-052093-TB-80;
					S-052093-TB-81;
					S-052093-TB-82;
					S-052093-TB-83;
					S-052093-TB-84;
					S-052493-TB-85;
					S-052493-TB-86;
					S-052493-TB-87;
					S-052493-TB-88;
					S-052493-TB-89

* Sample results should be qualified as:

J - The sample result should be qualified as estimated for detected analytes.

UJ - The analyte was checked for, but not detected. The associated value is an estimated quantitation limit.

R - The data are unusable for non-detected analyte

TABLE 7

OUTLYING MS/MSD RESULTS
ORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Sample ID*	*Spiking Compound*	*MS % Recovery*	*MSD % Recovery*	*% Recovery Limits*	*RPD*	*RPD Limits*	*Qualifier**
		Sample Delivery Group CRA-B1-052						
PEST/PCB	S-051793-RP-56	4,4'-DDD	91	74	31-141	20	17	J/UJ
		4,4'-DDT	88	69	25-160	24	22	J/UJ
	S-051893-RP-63	gamma-Chlordane	112	146	27-190	26	21	J/UJ
		alpha-Chlordane	116	158	27-200	31	20	J/UJ
		Sample Delivery Group CRA-B1-053						
PEST/PCB	S-052093-TB-78	delta-BHC	87	110	19-140	24	20	J/UJ
		Aldrin	65	107	42-122	50	21	J/UJ
		Heptochlor Epoxide	74	96	37-142	26	18	J/UJ
		gamma-Chlordane	MI**	MI**	27-190	NC***	21	J/UJ
		Endosulfan I	MI**	MI**	45-153	NC***	16	J/UJ
		alpha-Chlordane	MI**	MI**	27-200	NC***	20	J/UJ
		4,4'-DDE	MI**	MI**	30-145	NC***	17	J/UJ
		Dieldrin	MI**	MI**	36-146	NC***	17	J/UJ
		4,4'-DDD	79	118	31-141	39	17	J/UJ
		Endrin Aldehyde	29	45	13-159	43	22	J/UJ
		4,4'-DDT	68	131	25-160	64	22	J/UJ

TABLE 7

OUTLYING MS/MSD RESULTS
ORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Sample ID*	*Spiking Compound*	*MS % Recovery*	*MSD % Recovery*	*% Recovery Limits*	*RPD*	*RPD Limits*	*Qualifier**
		Sample Delivery Group CRA-B1-062						
PEST/PCB	L-062293-TB-111	Heptachlor	148	141	34-111	5	22	J/NR
		Aldrin	128	106	42-122	19	15	J/NR
		Heptachlor Epoxide	188	156	37-142	19	16	J/NR
		gamma-Chlordane	95	48	20-193	66	13	J/UJ
		alpha-Chlordane	64	35	27-163	58	13	J/UJ
		Endosulfan I	64	43	45-153	38	20	J/UJ
		4,4'-DDE	851	505	30-145	51	16	J/UJ
		Endrin	62	78	30-147	23	13	J/UJ
		4,4'-DDD	770	364	31-141	72	17	J/UJ
		4,4'-DDT	44	33	25-160	28	19	J/UJ
		Endosulfan Sulfate	19	19	26-144	1	16	J/UJ

* Sample results should be qualified as:

J - Result is an estimated value for detected analytes.

UJ - Analyte was checked for, but not detected. The associated value is an estimated quantitation limit.

NR - No qualification of the data was deemed necessary for non-detected analytes.

** MI - Recovery was distorted due to matrix interference.

*** [illegible] - Non-calculable.

TABLE 8

OUTLYING MATRIX SPIKE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*MS % Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
			Sample Delivery Group CRA-B1-051			
Cyanide	S-051193-RP-04	Cyanide	31	75-125	J/UJ	S-051193-RP-04; S-051193-RP-05; S-051193-RP-06; S-051193-RP-07; S-051193-RP-08;
Cyanide	S-051493-RP-36	Cyanide	30	75-125	J/UJ	S-051493-RP-33; S-051493-RP-36; S-051493-RP-37; S-051493-RP-39; S-051493-RP-40; S-051493-RP-41
Metals	S-051193-RP-04	Antimony	2	75-125	J/R	S-051193-RP-01; S-051193-RP-02; S-051193-RP-03; S-051193-RP-04; S-051193-RP-05; S-051193-RP-06;

TABLE 8

OUTLYING MATRIX SPIKE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*MS % Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
			Sample Delivery Group CRA-B1-051 (Cont'd)			
Metals	S-051193-RP-04	Antimony	2	75-125	J/R	S-051193-RP-07; S-051193-RP-08; S-051293-RP-10; S-051293-RP-11; S-051293-RP-12; S-051293-RP-13; S-051393-RP-29; S-051493-RP-30; S-051493-RP-31; S-051493-RP-32; S-051493-RP-34; S-051493-RP-35; S-051493-RP-36
Metals	S-051193-RP-04	Cadmium	66	75-125	J/UJ	S-051193-RP-02; S-051193-RP-03; S-051193-RP-04; S-051193-RP-05; S-051193-RP-06; S-051193-RP-07;

TABLE 8

OUTLYING MATRIX SPIKE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*MS % Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
			Sample Delivery Group CRA-B1-051 (Cont'd)			
Metals	S-051193-RP-04	Cadmium	66	75-125	J/UJ	S-051193-RP-08 S-051293-RP-10; S-051293-RP-11; S-051293-RP-12; S-051293-RP-13; S-051393-RP-29; S-051493-RP-30; S-051493-RP-31; S-051493-RP-32; S-051493-RP-34; S-051493-RP-35; S-051493-RP-36

TABLE 8

OUTLYING MATRIX SPIKE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*MS % Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
			Sample Delivery Group CRA-B1-052			
Cyanide	S-051893-RP-63	Cyanide	14	75-125	J/R	S-051893-RP-63
Metals	S-051793-RP-56	Antimony	11	75-125	J/R	S-051793-RP-42; S-051793-RP-43; S-051793-RP-44; S-051793-RP-45; S-051793-RP-47; S-051793-RP-48; S-051793-RP-49; S-051793-RP-50; S-051793-RP-51; S-051793-RP-52; S-051793-RP-53; S-051793-RP-54; S-051793-RP-56; S-051793-RP-57; S-051793-RP-58; S-051793-RP-59

TABLE 8

OUTLYING MATRIX SPIKE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*MS % Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
			Sample Delivery Group CRA-B1-052 (Cont'd)			
Metals	S-051893-RP-63	Antimony	29	75-125	J/R	S-051893-RP-60; S-051893-RP-61; S-051893-RP-64; S-051893-RP-65
Metals	S-051893-RP-63	Cadmium	68	75-125	J/UJ	S-051893-RP-60; S-051893-RP-61; S-051893-RP-63; S-051893-RP-64; S-051893-RP-65

TABLE 8

OUTLYING MATRIX SPIKE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*MS % Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
			Sample Delivery Group CRA-B1-053			
Metals	S-052093-TB-78	Antimony	8	75-125	J/R	S-052093-TB-74; S-052093-TB-75; S-052093-TB-76; L-052093-TB-77; S-052093-TB-78; S-052093-TB-79; S-052093-TB-80; S-052093-TB-81; S-052093-TB-82; S-052093-TB-83; S-052093-TB-84; S-052493-TB-85; S-052493-TB-86; S-052493-TB-87; S-052493-TB-88; S-052493-TB-89; S-052493-TB-90

TABLE 8

OUTLYING MATRIX SPIKE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*MS % Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
		Sample Delivery Group CRA-B1-053 (Cont'd)				
Metals	S-052093-TB-78	Lead	51	75-125	J/UJ	S-052093-TB-74;
		Thallium	43	75-125	J/UJ	S-052093-TB-75;
		Zinc	68	75-125	J/UJ	S-052093-TB-76;
						S-052093-TB-78;
						S-052093-TB-79;
						S-052093-TB-80;
						S-052093-TB-81;
						S-052093-TB-82;
						S-052093-TB-83;
						S-052093-TB-84;
						S-052493-TB-85;
						S-052493-TB-86;
						S-052493-TB-87;
						S-052493-TB-88;
						S-052493-TB-89;
						S-052493-TB-90

TABLE 8

OUTLYING MATRIX SPIKE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*MS % Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
			Sample Delivery Group CRA-B1-053 (Cont'd)			
Metals	S-052093-TB-78	Mercury	46	75-125	J/UJ	L-052093-TB-77; S-052093-TB-78; S-052093-TB-79; S-052093-TB-80; S-052093-TB-81; S-052093-TB-82; S-052093-TB-83; S-052093-TB-84; S-052493-TB-85; S-052493-TB-86; S-052493-TB-87; S-052493-TB-88; S-052493-TB-89; S-052493-TB-90

TABLE 8

OUTLYING MATRIX SPIKE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*MS % Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
			Sample Delivery Group CRA-B1-054			
Cyanide	S-052593-TB-102	Cyanide	15	75-125	J/R	S-052593-TB-91; S-052593-TB-92; S-052593-TB-93; S-052593-TB-95; S-052593-TB-96; S-052593-TB-100
Metals	S-052593-TB-102	Antimony	2	75-125	J/R	S-052593-TB-91; S-052593-TB-92; S-052593-TB-93; S-052593-TB-94; S-052593-TB-95; S-052593-TB-96; S-052593-TB-100; S-052593-TB-101

TABLE 8

OUTLYING MATRIX SPIKE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*MS % Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
			Sample Delivery Group CRA-B1-054 (Cont'd)			
Metals	S-052593-TB-102	Lead	71	75-125	J/UJ	S-052593-TB-92; S-052593-TB-93; S-052593-TB-94; S-052593-TB-95; S-052593-TB-96; S-025293-TB-100; S-025293-TB-101
			Sample Delivery Group CRA-B1-062			
Metals	L-062293-TB-114	Silver	46	75-125	J/UJ	L-062293-TB-105; L-062293-TB-106; L-062293-TB-107; L-062293-TB-108; L-062293-TB-109; L-062293-TB-110; L-062293-TB-111; L-062293-TB-112; L-062293-TB-113; L-062293-TB-116; L-062293-TB-117; L-062393-TB-118;

TABLE 8

OUTLYING MATRIX SPIKE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*MS % Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
			Sample Delivery Group CRA-B1-062 (Cont'd)			
Metals	L-062293-TB-114	Silver	46	75-125	J/UJ	L-062393-TB-119; L-062393-TB-120; L-062393-TB-121; L-062393-TB-122; L-062393-TB-123; L-062393-TB-124; L-062393-TB-125

* Sample results should be qualified as:
J - Result is an estimated value for detected analytes.
UJ - Analyte was checked for, but not detected. The associated value is an estimated quantitation limit.
R - Data is deemed unusable for non-detected analytes.

TABLE 9

OUTLYING LABORATORY DUPLICATE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*RPD*	*RPD Limits*	*Qualifier**	*Associated Samples*
		Sample Delivery Group CRA-B1-053				
Metals	S-052093-TB-78	Cadmium	35	20	J	S-052093-TB-74;
		Chromium	36	20	J	S-052093-TB-75;
		Lead	26	20	J	S-052093-TB-76;
		Nickel	33	20	J	S-052093-TB-78;
						S-052093-TB-79;
						S-052093-TB-80;
						S-052093-TB-81;
						S-052093-TB-82;
						S-052093-TB-83;
						S-052093-TB-84;
						S-052493-TB-85;
						S-052493-TB-86;
						S-052493-TB-87;
						S-052493-TB-88;
						S-052493-TB-89;
						S-052493-TB-90

TABLE 9

OUTLYING LABORATORY DUPLICATE RESULTS
INORGANIC ANALYSES
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Spiked Sample ID*	*Spiking Compound*	*RPD*	*RPD Limits*	*Qualifier**	*Associated Samples*
		Sample Delivery Group CRA-B1-054				
Metals	S-052593-TB-102	Chromium	39	20	J	S-052593-TB-92; S-052593-TB-93; S-052593-TB-94; S-052593-TB-95; S-052593-TB-96; S-025293-TB-100; S-025293-TB-101
		Nickel	40	20	J	
Metals	S-052593-TB-102	Lead	40	20	J	S-052593-TB-92; S-052593-TB-93; S-052593-TB-94; S-052593-TB-95; S-052593-TB-96; S-025293-TB-100; S-025293-TB-101

* Sample results should be qualified as:
J - Result is an estimated value for detected analytes.
** MI - Recovery was distorted due to matrix interference.
*** NC - Non calculable.

TABLE 10

FIELD DUPLICATE SAMPLE RESULTS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Analyte*	*Sample 1 Results (mg/Kg)**	*Sample 2 Results (mg/Kg)**	*RPD*	*Qualifier***
		Sample Delivery Group CRA-B1-051			
		Samples S-051293-RP-11/S-051293-RP-12			
Metals	Arsenic	7.2	6.3	13	NR
	Cadmium	0.4J	0.2J	--	NR
	Chromium	17	17	0	NR
	Copper	16	54	109	J
	Lead	22	17	26	NR
	Mercury	ND***	0.12	NC****	NR
	Nickel	11	16	37	NR
	Zinc	78	73	6.6	NR
PEST/PCB	4,4'-DDD	520	120	125	J
VOC	total-1,2-Dichloroethene	1.2	0.98	20	NR
	Tetrachloroethene	3	2.5	18	NR
	Trichloroethene	0.12	ND***	NC****	J
SVOC	Bis (2-ethylhexyl) phthalate	11	2.0	138	J
	Di-n-octyl-phthalate	0.35	ND***	NC****	NR
	Pyrene	0.36	ND***	NC****	NR

TABLE 10

FIELD DUPLICATE SAMPLE RESULTS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Analyte*	*Sample 1 Results (mg/Kg)**	*Sample 2 Results (mg/Kg)**	*RPD*	*Qualifier***
		Sample Delivery Group CRA-B1-051 (Cont'd)			
		Samples S-051393-RP-20/S-051393-RP-21			
Metals	Arsenic	5.4	4.3	23	NR
	Cadmium	0.15	0.14	6.9	NR
	Chromium	20	17	16	NR
	Copper	22	21	4.7	NR
	Lead	8.7	11	23	NR
	Nickel	19	21	10	NR
	Zinc	71	68	4.3	NR
		Sample Delivery Group CRA-B1-052			
		Samples S-051793-RP-49/S-051793-RP-50			
Metals	Arsenic	3.8	4.3	12	NR
	Cadmium	0.05	0.06	18	NR
	Chromium	10	8.9	12	NR
	Copper	12	14	15	NR
	Lead	4.8	4.2	13	NR
	Nickel	10	9.9	1.0	NR
	Zinc	43	47	8.9	NR

TABLE 10

FIELD DUPLICATE SAMPLE RESULTS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Analyte*	*Sample 1 Results (mg/Kg)**	*Sample 2 Results (mg/Kg)**	*RPD*	*Qualifier***
		Sample Delivery Group CRA-B1-052			
		Samples S-051793-RP-57/S-051793-RP-58			
Cyanide	Cyanide	ND***	0.13	NC****	NR
Metals	Arsenic	0.71	0.77	8.1	NR
	Chromium	2.5	3.2	25	NR
	Copper	3.2	5.1	46	NR
	Lead	1.5	2	29	NR
	Nickel	3.0	3.4	13	NR
	Zinc	27	30	11	NR
		Samples S-051993-RP-66/S-051993-RP-67			
Metals	Arsenic	6.4	7.4	14	NR
	Cadmium	0.11	0.11	0	NR
	Chromium	20	19	5.1	NR
	Copper	19	20	5.1	NR
	Lead	7.6	8.7	13	NR
	Nickel	19	20	5.1	NR
	Zinc	65	69	6.0	NR

TABLE 10

FIELD DUPLICATE SAMPLE RESULTS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Analyte*	*Sample 1 Results (mg/Kg)**	*Sample 2 Results (mg/Kg)**	*RPD*	*Qualifier***
	Sample Delivery Group CRA-B1-052 (Cont'd)				
	Samples S-051993-RP-66/S-051993-RP-67 (Cont'd)				
VOC	Benzene	0.02	ND***	NC****	NR
	Ethylbenzene	0.068	0.028	83	J
	total Xylenes	0.074	ND***	NC****	NR
SVOC	Naphthalene	4.8	3.6	29	NR
	n-Nitrosodiphenylamine	7.2	2.1	110	J
	Phenanthrene	6.1	4.5	30	NR
	Sample Delivery Group CRA-B1-053				
	Samples S-052093-TB-82/S-052093-TB-83				
Metals	Arsenic	3.3	3.5	5.9	NR
	Cadmium	0.08J	ND***	NC****	NR
	Chromium	11J	15J	--	NR
	Copper	13	16	21	NR
	Lead	4.8J	5.6J	--	NR
	Nickel	12J	18J	--	NR
	Zinc	50J	59J	--	NR

TABLE 10

FIELD DUPLICATE SAMPLE RESULTS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Analyte*	*Sample 1 Results (mg/Kg)**	*Sample 2 Results (mg/Kg)**	*RPD*	*Qualifier***
		Sample Delivery Group CRA-B1-054			
		Samples S-052593-TB-91/S-052593-TB-100			
Cyanide	Cyanide	7.7J	2.3J	--	NR
Metals	Antimony	3.7J	1.4J	--	NR
	Arsenic	7.4	6.9	7.0	NR
	Cadmium	1.1	0.65	51	NR
	Chromium	43	35J	--	NR
	Copper	77	100	26	NR
	Lead	220	200J	--	NR
	Mercury	0.49	0.16	102	J
	Nickel	13	16J	--	NR
	Selenium	ND***	0.53	NC****	NR
	Zinc	350	460	27	NR
PEST/PCB	alpha-Chlordane	1700	580	98	J
	gamma-Chlordane	ND***	760	NC****	J
	Aroclor 1254	58000	ND***	NC****	J

TABLE 10

FIELD DUPLICATE SAMPLE RESULTS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Analyte*	*Sample 1 Results (mg/Kg)**	*Sample 2 Results (mg/Kg)**	*RPD*	*Qualifier***
	Sample Delivery Group CRA-B1-054 (Cont'd)				
	Samples S-052593-TB-91/S-052593-TB-100 (Cont'd)				
SVOC	Acenaphthene	ND***	2.0	NC****	J
	Acenaphthylene	ND***	7.5	NC****	J
	Anthracene	3.3	11	108	J
	Benzo (a) anthracene	7.6	32	123	J
	Benzo (b) fluoranthene	13	65	133	J
	Benzo (g,h,i) perylene	ND***	16	NC****	J
	Benzo (a) pyrene	4.9	22	127	J
	Chrysene	9.5	41	125	J
	Dibenz (a,h) anthracene	ND***	11	NC****	J
	Fluoranthene	11	44	120	J
	Fluorene	ND***	2.0	NC****	J
	Indeno (1,2,3-cd) pyrene	ND***	12	NC****	J
	Naphthalene	ND***	3.0	NC****	J
	Phenanthrene	3.4	13	117	J
	Pyrene	11	50	128	J

TABLE 10

FIELD DUPLICATE SAMPLE RESULTS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Analyte*	*Sample 1 Results (mg/Kg)**	*Sample 2 Results (mg/Kg)**	*RPD*	*Qualifier***
		Sample Delivery Group CRA-B1-054 (Cont'd)			
		Samples S-052593-TB-94/S-052593-TB-101			
Metals	Arsenic	2.6	1.9	31	NR
	Cadmium	0.15	0.16	6.5	NR
	Chromium	11J	9.3J	--	NR
	Copper	25	17	38	NR
	Lead	33J	13J	--	NR
	Nickel	14J	12J	--	NR
	Zinc	130	82	45	NR
PEST/PCB	alpha-Chlordane	11	11	0	NR
		Sample Delivery Group CRA-B1-062			
		Samples L-062293-TB-108/L-062293-TB-110			
Metals	Arsenic	0.004	0.004	0	NR
	Zinc	0.05	0.04	22	NR
PEST/PCB	Aroclor 1254	0.73	ND***	NC****	NR
VOC	1,2-Dichloroethane	2	0.002	0	NR
	total-1,2-Dichloroethene	0.008	0.007	13	NR

TABLE 10

FIELD DUPLICATE SAMPLE RESULTS
BARRELS, INC. SITE
MAY/JUNE 1993 SAMPLING EVENT

Analysis	*Analyte*	*Sample 1 Results (mg/Kg)**	*Sample 2 Results (mg/Kg)**	*RPD*	*Qualifier***
		Sample Delivery Group CRA-B1-062 (Cont'd)			
		Samples S-062393-TB-120/S-062393-TB-122			
Cyanide	Cyanide	ND***	0.018	NC****	NR
PEST/PCB	Endosulfan Sulfate	0.028J	ND***	NC****	NR
	Endrin	0.021J	ND***	NC****	NR
VOC	1,1-Dichloroethane	0.001	0.001	0	NR

* Results are in mg/Kg (mg/L for waters), except PEST/PCBs, which are in µg/Kg (µg/L for waters).

** Sample results should be qualified as:

J - Result is an estimated value for detected analytes.

NR - No additional qualification of the data was deemed necessary.

*** ND - Non-detect.

**** NC - Non-calculable.

APPENDIX K

CHAIN-OF-CUSTODY FORMS

CRA
CONESTOGA-ROVERS & ASSOCIATES
11677 S. Wayne Road • Suite 102
Romulus, Michigan 48174

SHIPPED TO (Laboratory name): Encotech

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels Inc.

SAMPLER'S SIGNATURE [signature] (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
WR-06	0493-BTH-003	6/17/93	1000	Open Box Tank	Waste Residual	3	TCLP VOC
							SVOC, Pesticides
WR-06	0493-BTH-005	6/17/93	1015	500 Gallon Sump	Waste Residual	1	Metals [illegible]
							Reactivity
WR-06	0493-BTH-006	6/17/93	1030	Sump [illegible]	Waste Residual	1	Corrosivity
							Ignitability
				TOTAL NUMBER OF CONTAINERS		5	

ANTICIPATED CHEMICAL HAZARDS:
003 Reactive Corrosive

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
1 Thomas [signature] (SIGN)	6-17-93 20:33	2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY:	DATE/TIME
HAND DELIVER	CRA PERSONNEL	(SIGN)	
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

WHITE – CRA OFFICE COPY
YELLOW – RECEIVING LABORATORY COPY
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 000109

CRA
CONESTOGA-ROVERS & ASSOCIATES
11677 S. Wayne Road • Suite 102
Romulus, Michigan 48174

SHIPPED TO (Laboratory name): Encotec

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels

SAMPLER'S SIGNATURE: B. Hollenbeck (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
WR-	070943-BTH-010	7/4/93	1700	2000 gal standing tank	waste res. fuel	4	Reactivity
							Corrosivity
							Ignitability
							TCLP VOC,
							SVOC, Pesticides,
							Metals,
							Herbicides
				TOTAL NUMBER OF CONTAINERS		4	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 B. Hollenbeck (SIGN)	DATE/TIME	RECEIVED BY: 2 David J. Taylor (SIGN) 19:15 07/09/93
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

WHITE – CRA OFFICE COPY
YELLOW – RECEIVING LABORATORY COPY
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 000118

CRA
CONESTOGA-ROVERS & ASSOCIATES
11677 S. Wayne Road • Suite 102
Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENVIROTECH

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: BARRELS

SAMPLER'S SIGNATURE: (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
505	593TB91	5-25	850		SOIL	2	[illegible]
505	593TB92	5-25	933		SOIL	2	[illegible]
505	593TB93	5-25	1050		SOIL	2	
505	593TB100	5-25	855		SOIL	2	
505	593TB102MS		1050		SOIL	2	MATRIX SPIKE
505	593TB102MSD		1050		SOIL	2	MATRIX SPIKE DUP
~~505~~	—	—	—		—	—	
406	593TB103		135		H2O	8	
405	593TB104		205		H2O	8	
505	593TB96		333		SOIL	2	
505	593TB95		345		SOIL	2	
505	593TB94		410		SOIL	2	
[illegible]	593TB101		420		SOIL	2	
				TOTAL NUMBER OF CONTAINERS		36	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 (SIGN)	DATE/TIME 5/25/93 1645	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

WHITE – CRA OFFICE COPY
YELLOW – RECEIVING LABORATORY COPY
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 000[illegible]

CRA
CONESTOGA-ROVERS & ASSOCIATES
11677 S. Wayne Road • Suite 102
Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENCOTECH

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: BARRELS INC

SAMPLER'S SIGNATURE: Thomas Benko (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
S05	2093TB74	5-20-93	915		SOIL	2	PPVOC/PPSVOC
S05	2093TB 75	↓	920		↓	2	PCB/PEST METALS
S05	2093TB76	↓	933		↓	2	CYANIDE CURONE
S05	2093TB ~~78~~ 84	↓	1021		↓	2	↓
S05	2093TB78MS	↓	1025		↓	2	↓
S05	2093TB78MSD	↓	1025		↓	2	↓
S05	2093TB 79	↓	1105		↓	2	↓
S05	2093TB 80	↓	1307		↓	2	↓
S05	2093TB 81	↓	1328		↓	2	↓
S05	2093TB 82	↓	1420		↓	2	↓
S05	2093 TB83	↓	1422		↓	2	↓
L05	2093 TB77	↓	1006		↓	8	↓
S05	2093TB 78	↓	1025		↓	2	↓
				TOTAL NUMBER OF CONTAINERS		~~30~~	32

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
1 Thomas Benko (SIGN)	5-20-93 1525	2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY:	DATE/TIME
FED X	BENKO	(SIGN)	

CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:	COOLER OPENED BY: (SIGN)	DATE/TIME

WHITE – CRA OFFICE COPY
YELLOW – RECEIVING LABORATORY COPY
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 000102

CRA
CONESTOGA-ROVERS & ASSOCIATES
11677 S. Wayne Road • Suite 102
Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENCOTECH

CHAIN OF CUSTODY RECORD

PROJECT Nº: 41869

PROJECT NAME: BARRELS

SAMPLER'S SIGNATURE: [signature] (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
S052493TB85		5-24	225		SOIL	2	PPVOC PPSVOC RB
S052493TB86			236			2	RST/METALS
S052493TB87			250			2	CYANIDE CORENE
S052493TB88			317			2	
S052493TB89			417			2	
S052493TB90						2	
				TOTAL NUMBER OF CONTAINERS		12	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 [signature] (SIGN)	DATE/TIME 5-24-93 1730	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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Nº 000167

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Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENCOTech

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels Inc

SAMPLER'S SIGNATURE [signature] (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
505	2693TB98	5-26	835		Soil	2	PPVOC
505	2693TB97	5-26	945		Soil	2	PPSVOC
505	2693TB99	5-26	1005		Soil	2	PCB/POST
							METALS, TT
							CYANIDE
							CUDENE
				TOTAL NUMBER OF CONTAINERS			

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
[signature] 1 (SIGN)	526931506	2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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Nº 000[illegible]3

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11677 S. Wayne Road • Suite 102
Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENCO Tech

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels

SAMPLER'S SIGNATURE: Thomas Beasley (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
LOG	393TB175	6-23			H2O	1	PP Pest PCB
	↓	↓			↓	1	PP SVOC CURENT
						1	PP METALS
						1	TCN
				TOTAL NUMBER OF CONTAINERS			

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
1 Thomas Beasley (SIGN)	6-23 93 18 18	2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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Nº 000171

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Romulus, Michigan 48174

SHIPPED TO (Laboratory name): Encotec

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels Inc.

SAMPLER'S SIGNATURE: Brian T. Holcomb (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
1	WR-060493-BTH-001	6/4/93	0920	Caustic Tank	Waste Residual	2	TCLP VOC SVOC
							Pesticides
	WR-060493-BTH-002	6/4/93	0940	Flush Tank	Waste Residual	2	Herbicides MBK
							Reactivity Corrosivity
	WR-060493-BTH-003	6/4/93	1000	Open Box Tank	Waste Residual	2	Ignitability
	WR-060493-BTH-004	6/4/93	1030	Open Tank	Waste Residual	2	
	WR-060493-BTH-005	6/4/93	1040	500 Gallon Sump	Waste Residual	2	
	WR-060493-BTH-006	6/4/93	1100	Sump [illegible]	Waste Residual	2	
	WR-060493-BTH-007	6/4/93	1120	Trench	Waste Residual	2	
	WR-060493-BTH-008	6/4/93	1140	Floor Area	Waste Residual	2	
	WR-060493-BTH-009	6/4/93	1200	Manhole	Waste Residual	2	
				TOTAL NUMBER OF CONTAINERS		18	

ANTICIPATED CHEMICAL HAZARDS:
Corrosivity 003 Reactivity 003

RELINQUISHED BY: 1 (SIGN)	DATE/TIME 6/4/93 4:35p	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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Nº 000172

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Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENCOTECH

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels, Inc.

SAMPLER'S SIGNATURE: [signature] (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
1	S-051893-RP-60	5-18-93	11:15	US-1	Soil	2	PP VOC, SVOC,
2	S-051893-RP-61	5-18-93	11:40	US-1	Soil	2	metals, cyanide
~~3~~	~~[illegible]~~			~~US-2~~			PCB/Pest., current
3	W-051893-RP-62	5-18-93	2:00	US-2	Water	8	
4	S-051893-RP-63	↓	2:15	↓	Soil	2	(MS/MSD)
5	S-051893-RP-63MS	↓	2:15	↓	↓	↓	↓
6	S-051893-RP-63MSD	↓	2:15	↓	↓	↓	↓
7	S-051893-RP-64	↓	2:55	↓	↓	↓	↓
8	S-051893-RP-65	↓	3:15	↓	↓	↓	↓
				TOTAL NUMBER OF CONTAINERS			

ANTICIPATED CHEMICAL HAZARDS: Spilled Petroleum Products such as Gasoline & Fuel oil

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
1 [signature] (SIGN)	5-18-93 5:00	2 (SIGN)
2 (SIGN)		3 (SIGN)
3 (SIGN)		4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY:	DATE/TIME
Fed. Ex.	Pasqualoni	(SIGN)	

CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:	COOLER OPENED BY: (SIGN)	DATE/TIME

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SHIPPED TO (Laboratory name): ENCOTECH

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels

SAMPLER'S SIGNATURE: [signature] (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
1	S-051493-RP-29	5-14-93	7:40	DS-7	Soil	2	PNAs SVOC metals
2	S-051493-RP-30	↓	8:00	↓	↓	↓	PCB/Pest:cides
3	S-051493-RP-31		8:30				cyanide
4	S-051493-RP-32		9:00				
5	S-051493-RP-34		9:45	DS-6			
6	S-051493-RP-35		10:00				
7	S-051493-RP-36		10:10				
8	S-051493-RP-36MS		10:10				
9	S-051493-RP-36MSD		10:10				
10	W-051493-RP-37		11:30	DS-5	Water	8	
11	S-051493-RP-38		12:30		Soil		
12	S-051493-RP-39		12:40				
13	S-051493-RP-40		12:45				
14	S-051493-RP-41	↓	1:00	↓	↓		
				TOTAL NUMBER OF CONTAINERS			

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 [signature] (SIGN)	DATE/TIME	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: Fed. Ex.	SHIPPED BY: R. Pasqualoni	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENCOTECH

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels, Inc.

SAMPLER'S SIGNATURE: [signature] (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
1	S-051193-RP-01	5-11-93	16:00	BH-DS-14	Soil	2	PP VOC, SVOC, metals,
2	S-051193-RP-02	↓	16:30	↓	↓	↓	PCB/Pest, cyanide
3	S-051193-RP-03	↓	16:45	↓	↓	↓	↓
4	S-051293-RP-04	5-12-93	8:30	↓	↓	↓	↓
5	S-051293-RP05	↓	9:45	BH-DS-11	↓	↓	↓
6	S-051293-RP-06	↓	10:00	↓	↓	↓	↓
7	S-051293-RP-07	↓	10:15	↓	↓	↓	↓
8	S-051293-RP-08	↓	10:25	↓	↓	↓	↓
9	W-051293-RP-09	5-12-93	11:30	BH-DS-12-SS1	water	3	
10	S-051293-RP-10	↓	11:40	BH-DS-12	Soil	2	↓
11	S-051293-RP-11	↓	1:20	↓	↓	↓	↓
12	S-051293-RP-12	↓	1:30	↓	↓	↓	↓
13	S-051292-RP-13	↓	2:30	↓	↓	↓	↓
				TOTAL NUMBER OF CONTAINERS			

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 [signature] (SIGN)	DATE/TIME 5-12-93 16:00	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: Federal Express	SHIPPED BY: [signature]	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENCOTECH

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4569

PROJECT NAME: Barrels

SAMPLER'S SIGNATURE [signature] (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
1	S-051393-RP-14	5-13-93	8:30	DS-13	Soil	2	PP VOC, SVOC, PCB/Pest.
2	S-051393-RP-15	↓	8:45	↓	↓	↓	metals, cyanide
3	S-051393-RP-16	↓	9:00	↓	↓	↓	↓
4	W-051393-RP-17	↓	10:30	DS-12	water	8	↓
5	S-051393-RP-18	↓	9:30	↓	soil	2	↓
6	S-051393-RP-19	↓	9:45	↓	↓	↓	↓
7	S-051393-RP-20	↓	10:30	↓	↓	↓	↓
8	S-051393-RP-21	↓	10:30	↓	↓	↓	↓
9	S-051393-RP-22	5-12-93	11:00	DS-8	Soil	2	↓
10	S-051393-RP-23	↓	11:30	↓	↓	↓	↓
11	S-051393-RP-24	↓	2:00	↓	↓	↓	↓
12	S-051393-RP-25	↓	2:35	DS-9	↓	↓	↓
13	S-051393-RP-26	↓	2:45	↓	↓	↓	↓
14	S-051393-RP-27	↓	3:10	↓	↓	↓	↓
15	S-051393-RP-28	↓	3:20	↓	↓	↓	↓
				TOTAL NUMBER OF CONTAINERS		36	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
1 [signature] (SIGN)	5-13-93 | 5:00	2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENCOTECH

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels

SAMPLER'S SIGNATURE: [signature] (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
1	5-051793-RP42	5-17-93	10:00	DS-4	Soil	2	PPVOC, SVOC,
2	5-051793-RP-43	↓	10:15	↓	↓	↓	metals, Pesticides
3	5-051793-RP-44	↓	10:30	↓	↓	↓	reserve
4	5-051793-RP-45	↓	10:30	↓	↓	↓	↓
5	5-051793-RP-46	5-17-93	12:30	DS-1	water	8	↓
6	5-051793-RP-47	↓	12:40	↓	Soil	2	↓
7	5-051793-RP-48	↓	12:55	↓	↓	↓	↓
8	5-051793-RP-49	↓	1:35	↓	↓	↓	↓
9	5-051793-RP-50	↓	1:35	↓	↓	↓	↓
10	5-051793-RP-51	5-17-93	2:00	DS-2	Soil	2	↓
11	5-051793-RP-52	↓	2:30	↓	↓	↓	
12	5-051793-RP-53	↓	2:40	↓	↓	↓	
13	5-051793-RP-54	↓	2:50	↓	↓	↓	
14	5-051793-RP-55	5-17-93	3:30	DS-3	water	3	
15	5-051793-RP-56	↓	3:35	↓	Soil	2	(MS/MSD)
16	5-051793-RP-57	↓	4:00	↓	↓	↓	
17	5-051793-RP-58	↓	4:00	↓	↓	↓	
18	5-051793-RP-59	↓	5:00	↓	↓	↓	
				TOTAL NUMBER OF CONTAINERS		48	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 [signature] (SIGN)	DATE/TIME 5-17-93 5:30	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: Fed Ex	SHIPPED BY: Pasqualoni	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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11677 S. Wayne Road • Suite 102
Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENCOTECH

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels Inc.

SAMPLER'S SIGNATURE: [signature] (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
1	5-051993-RP-65	5-19-93	9:00	US-3	soil	2	PP VOC, SVOC
2	5-051993-RP-66	↓	9:15	↓	↓	1	Pesticide, metals
3	5-051993-RP-67	↓	9:15	↓	↓	↓	cyanide, cyanide
4	5-051993-RP-68	5-19-93	10:00	US-4	soil	2	↓
5	5-051993-RP-69	5-19-93	10:35	US-4	soil	2	↓
6	5-051993-RP-70	↓	2:10	US-5	↓	↓	↓
7	5-051993-RP-71	↓	3:20	US-5	↓	↓	↓
8	5-051993-RP-72	↓	3:45	US-6	↓	↓	↓
9	5-051993-RP-73	↓	4:30	US-6	↓	↓	↓
				TOTAL NUMBER OF CONTAINERS		18	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 [signature] (SIGN)	DATE/TIME 5-19-93 5:30	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: Fed. Ex.	SHIPPED BY: Passenger	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENCOTEC

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: BARRELS

SAMPLER'S SIGNATURE: Thomas Benko (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
L06	2293TB108	6-22	1127		H20	1	PP PEST/PCB
	↓		↓		↓	1	PP SVOC
						1	TCN
						1	METALS PP
L06	2293TB109	6-22	1600			1	PCB PEST/PP
	↓	↓	↓			1	PP SVOC
						1	TCN
						1	METALS PP
L06	2293TB110	6-22	1137			1	PP PEST/PCB
	↓	↓	↓			1	PP SVOC
						1	~~PCB~~ ~~ME~~ TCN
						1	PP METALS
				TOTAL NUMBER OF CONTAINERS		12	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
1 Thomas Benko (SIGN)	6-23-93 1818	2 (SIGN)
2 (SIGN)		3 (SIGN)
3 (SIGN)		4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN) [signature]	DATE/TIME 6-23-1818
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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SHIPPED TO (Laboratory name): ENVCOTECH

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: BARRELS

SAMPLER'S SIGNATURE: Thomas Bindu (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
6062	293TB111	6-22-93	1420		H2O	1	PP Pest PCB
	↓	↓	↓			1	PP SVOC
						1	TCN
						1	METALS PP
6062	293TB112		1505			1	PP Pest/PCB
	↓	↓	↓			1	PP SVOC
						1	TCN
						1	METALS PP
6062	293TB113	~~[illegible]~~	1445			1	PP Pest PCB
	↓	↓	↓			1	PP SVOC
						1	METALS PP
						1	TCN
				TOTAL NUMBER OF CONTAINERS		12	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
1 Thomas Bindu (SIGN)	6-23-93 1618	2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

WHITE – CRA OFFICE COPY
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PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 000252

2

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11677 S. Wayne Road • Suite 102
Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENCOTECH

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: BARRELS

SAMPLER'S SIGNATURE: Thomas Bendo (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
1062	293TB114MS	6-22	1430			1	PP Pest/PCB
	↓	↓	↓			1	PPSVOC
						1	TCN
	↓	↓	↓			1	METALS PP
1062	293TB115MSD	6-22	1410			1	PP Pest/PCB
	↓	↓	↓			1	PPSVOC
						1	TCN
	↓	↓	↓			1	METALS PP
				TOTAL NUMBER OF CONTAINERS		8	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 Thomas Bendo (SIGN)	DATE/TIME 6-23-93 1818	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME 6/23/1818
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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P.L.VC

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Romulus, Michigan 48174

SHIPPED TO (Laboratory name): EncoTech

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels

SAMPLER'S SIGNATURE: Thomas Benbo (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
L06	2293T3116	6 22	1718		H20	1	PP Pest PCB
	↓	↓	↓		↓	1	PP METALS
						1	PP SVOC·CUPEN
						1	TCN
L06	2293T3117		1740			1	PP PEST PCB
	↓	↓	↓		↓	1	PP METALS
						1	PP SVOC·CUPEN
						1	TCN
L06	2293T3118	6 23	0900			1	PP PEST PCB
	↓	↓	↓		↓	1	PP METALS
						1	PP SVOC CUPEN
						1	TCN
				TOTAL NUMBER OF CONTAINERS		12	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 Thomas Benbo (SIGN)	DATE/TIME 6-23-93 1818	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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GOLDEN ROD – SHIPPERS

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SHIPPED TO (Laboratory name): ENCOTEC

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: BARRELS

SAMPLER'S SIGNATURE: Thomas Bender (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
2062393TB119		6-23	931		H2O	1	PP PEST PCB
						1	PP METALS
						1	PP SVOC CUREMI
						1	TCN
2062393TB120			1150			1	PP PEST PCB
2062393TB120			1150			1	PP METALS
						1	PP VOC CUREMI
						1	TCN
2062393TB121						1	PP PEST PCB
2062393TB121			1234			1	PP METALS
						1	PP SVOC CUREMI
						1	TCN
				TOTAL NUMBER OF CONTAINERS		12	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 Thomas Bender (SIGN)	DATE/TIME 6-23-93 1818	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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GOLDEN ROD – SHIPPERS

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SHIPPED TO (Laboratory name): ENCOTECH

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: BARRELS

SAMPLER'S SIGNATURE: Thomas Benko (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
LOG	2393TB122	6-23	1200			1	PPREST PCB
	↓	↓				1	PP METALS
						1	PPSVOC EUDENE
						1	TCN
LOG	2393TB123	6-23	1107			1	PPREST PCB
	↓	↓				1	PP METALS
						1	PPSVOC EUDENE
						1	TCN
LOG	2393TB124	6-23	1050			1	PPREST PCB
	↓	↓	↓			1	PP METALS
						1	PPSVOC EUDENE
						1	TCN
				TOTAL NUMBER OF CONTAINERS		12	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
1 Thomas Benko (SIGN)	6-23-93 1818	2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN) [signature]	DATE/TIME [illegible] 1818
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

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GOLDEN ROD – SHIPPERS

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SHIPPED TO (Laboratory name): ENCO Tech

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels

SAMPLER'S SIGNATURE: Thomas Benko (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
1062	393TB122	6-23	1200			2	VOC
1062	393TB123	↓	1107			2	VOC
1062	393TB124	↓	1050			2	VOC
1062	393TB125	↓				2	VOC
				TOTAL NUMBER OF CONTAINERS		8	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
1 Thomas Benko (SIGN)	6-23-93 1818	2 (SIGN)
2 (SIGN)		3 (SIGN)
3 (SIGN)		4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN) Mark Mu	DATE/TIME 6-23-93 1818
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

WHITE – CRA OFFICE COPY
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GOLDEN ROD – SHIPPERS

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SHIPPED TO (Laboratory name): ENCOTEC

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: BARRELS

SAMPLER'S SIGNATURE: Thomas Bentz (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
L06	2293TB105	6-22-93	845		H2O	2	VOC
L06	2293TB106	6-22-93	950			2	VOC
L06	2293TB107	6-22-93	1027			2	VOC
L06	2293TB108	6-22-93	1127			2	VOC
L06	2293TB109	6-22	1600			2	VOC
L06	2293TB110	6-22	1137			2	VOC
L06	2293TB127	6-22				4	VOC TRIP BLANK
L06	2293TB111		1420			2	VOC
L06	2293TB112		1505			2	VOC
L06	2293TB113		1445			2	VOC
L06	2293TB114MS		1430			2	VOC MS
L06	2293TB115MSD		1410			2	VOC MSD
L06	2293TB116		1718			2	VOC
L06	2293TB117		1740			2	VOC
L06	2393TB118	6-23	0900			2	VOC
L06	2393TB119		0931			2	VOC
L06	2393TB120		1150			2	VOC
L06	2393TB121		1234			2	VOC
				TOTAL NUMBER OF CONTAINERS		38	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
1 Thomas Bentz (SIGN)	6-23-93 1818	2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN) Mick Mort	DATE/TIME 6-23-93 1818
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME

WHITE – CRA OFFICE COPY
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GOLDEN ROD – SHIPPERS

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BRN

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Romulus, Michigan 48174

SHIPPED TO (Laboratory name): ENCOTEC

CHAIN OF CUSTODY RECORD

PROJECT Nº: 4869

PROJECT NAME: Barrels

SAMPLER'S SIGNATURE: Thomas Benbo (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
L06	2293TB105	6-22-93	845		H2O	1	PP PEST / PCB
	↓	↓	↓		↓	1	PPSVOC
						1	TCN
						1	METALS PP
L06	2293TB106		950			1	PP PEST / PCB
	↓		↓			1	PPSVOC
						1	TCN
						1	METALS PP
L06	2293TB107		1027			1	PP PEST PCB
	↓		↓			1	PPSVOC
						1	TCN
						1	METALS PP
		↓			↓		
				TOTAL NUMBER OF CONTAINERS		12	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 Thomas Benbo (SIGN)	DATE/TIME 6/23/93 1818	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME /	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME /	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME 6/23/93 1818
CONDITION OF SEAL UPON RECEIPT:		COOLER OPENED BY: (SIGN)	DATE/TIME /
GENERAL CONDITION OF COOLER:			

WHITE – CRA OFFICE COPY
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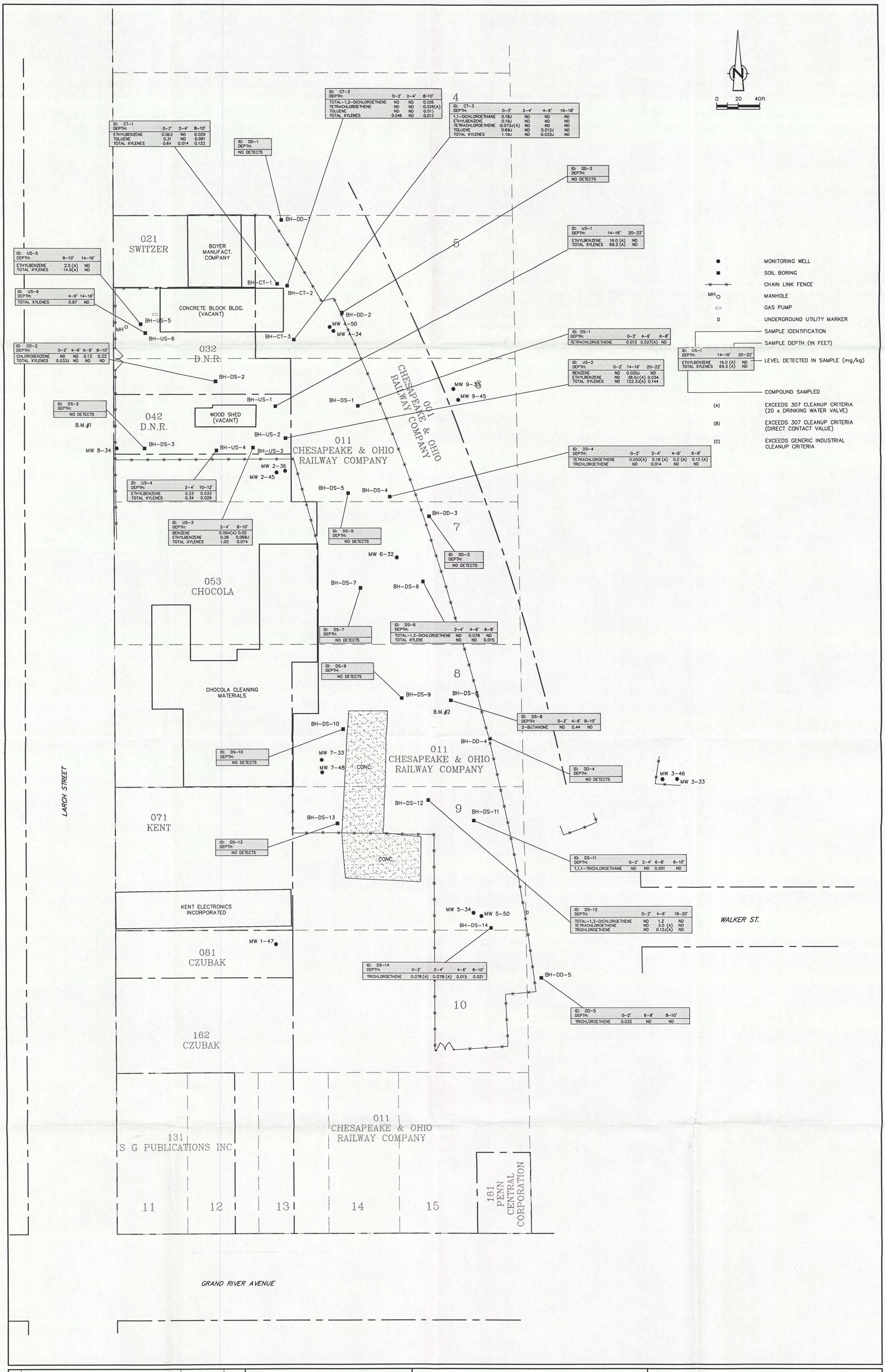
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 000259



Nº	Revision	Date	Initial

Approved

BARRELS, INC
LANSING, MICHIGAN

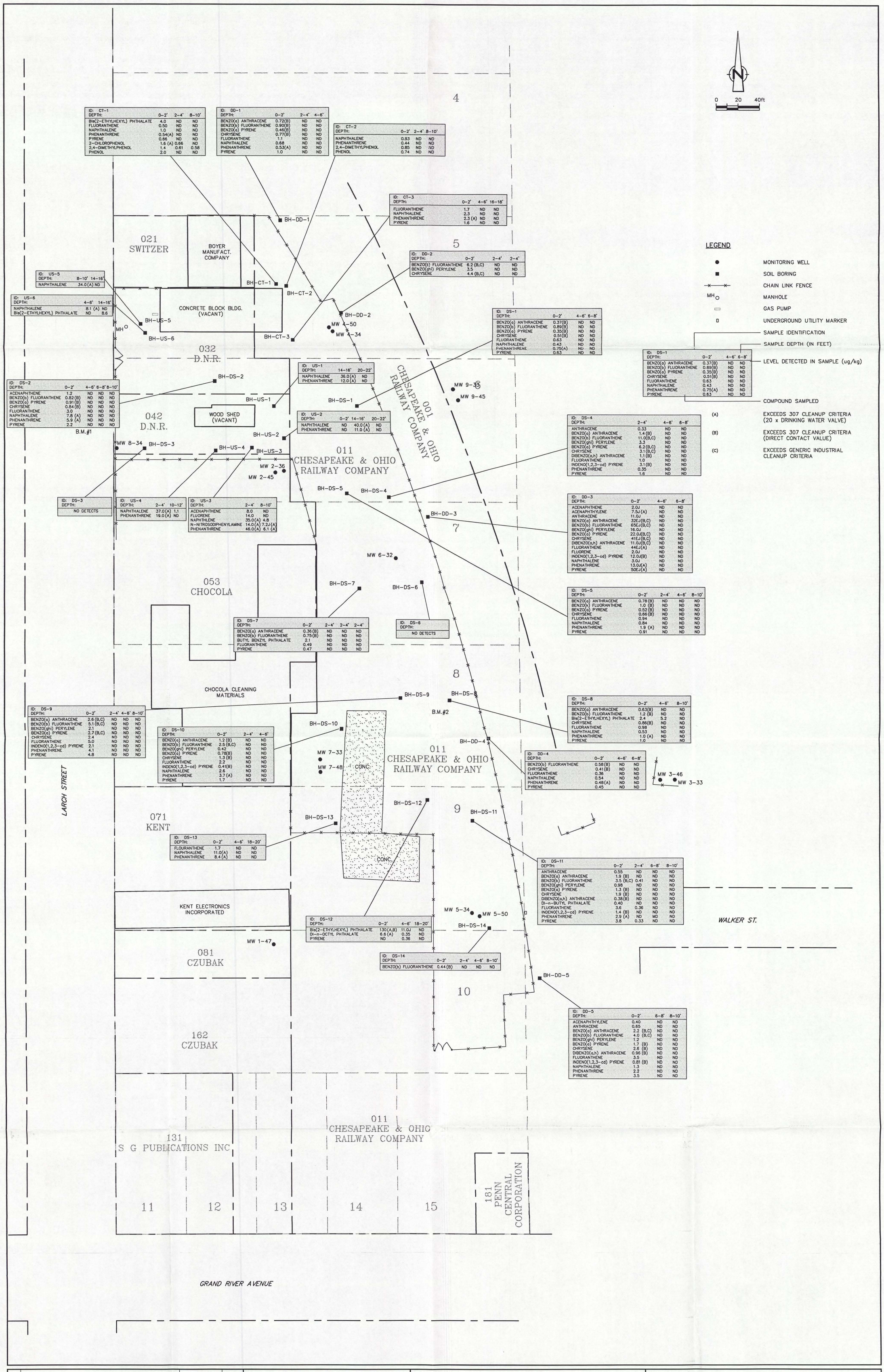
PHASE I REMEDIAL INVESTIGATION

VOCs
DETECTED IN SOILS

CRA
CONESTOGA-ROVERS & ASSOCIATES

Drawn by: KSW	Scale: 1"=40'	Date: NOV 29/93(W)	File Nº: P-09	Rev.Nº: 0
Designed by: RP	Field book:	Project Nº: 4869	Drawing Nº: 1	
Checked by: RP				

4869 (L) NOV 29/93(W) REV.0 (P-09)



ID: CT-1 DEPTH:	0-2'	2-4'	8-10'
Bis(2-ETHYLHEXYL) PHTHALATE	4.0	ND	ND
FLUORANTHENE	0.50	ND	ND
NAPHTHALENE	1.0	ND	ND
PHENANTHRENE	0.54(A)	ND	ND
PYRENE	0.66	ND	ND
2-CHLOROPHENOL	1.6 (A)	0.66	ND
2,4-DIMETHYLPHENOL	1.4	0.61	0.58
PHENOL	2.0	ND	ND

ID: DD-1 DEPTH:	0-2'	2-4'	4-6'
BENZO(a) ANTHRACENE	0.72(B)	ND	ND
BENZO(b) FLUORANTHENE	0.90(B)	ND	ND
BENZO(a) PYRENE	0.46(B)	ND	ND
CHRYSENE	0.77(B)	ND	ND
FLUORANTHENE	1.1	ND	ND
NAPHTHALENE	0.68	ND	ND
PHENANTHRENE	0.53(A)	ND	ND
PYRENE	1.0	ND	ND

ID: CT-2 DEPTH:	0-2'	2-4'	8-10'
NAPHTHALENE	0.93	ND	ND
PHENANTHRENE	0.44	ND	ND
2,4-DIMETHYLPHENOL	0.85	ND	ND
PHENOL	0.74	ND	ND

ID: CT-3 DEPTH:	0-2'	4-6'	16-18'
FLUORANTHENE	1.7	ND	ND
NAPHTHALENE	2.3	ND	ND
PHENANTHRENE	2.3 (A)	ND	ND
PYRENE	1.6	ND	ND

ID: DD-2 DEPTH:	0-2'	2-4'	2-4'
BENZO(k) FLUORANTHENE	6.2 (B,C)	ND	ND
BENZO(ghi) PERYLENE	3.5	ND	ND
CHRYSENE	4.4 (B,C)	ND	ND

ID: US-5 DEPTH:	8-10'	14-16'
NAPHTHALENE	34.0 (A)	ND

ID: US-6 DEPTH:	4-6'	14-16'
NAPHTHALENE	8.1 (A)	ND
Bis(2-ETHYLHEXYL) PHTHALATE	ND	8.6

ID: DS-1 DEPTH:	0-2'	4-6'	6-8'
BENZO(a) ANTHRACENE	0.37(B)	ND	ND
BENZO(b) FLUORANTHENE	0.89(B)	ND	ND
BENZO(a) PYRENE	0.35(B)	ND	ND
CHRYSENE	0.51(B)	ND	ND
FLUORANTHENE	0.63	ND	ND
NAPHTHALENE	0.43	ND	ND
PHENANTHRENE	0.75(A)	ND	ND
PYRENE	0.63	ND	ND

ID: DS-2 DEPTH:	0-2'	4-6'	6-8'	8-10'
ACENAPHTHENE	1.2	ND	ND	ND
BENZO(b) FLUORANTHENE	0.82(B)	ND	ND	ND
BENZO(a) PYRENE	0.91(B)	ND	ND	ND
CHRYSENE	0.84(B)	ND	ND	ND
FLUORANTHENE	3.0	ND	ND	ND
NAPHTHALENE	7.8 (A)	ND	ND	ND
PHENANTHRENE	5.9 (A)	ND	ND	ND
PYRENE	2.2	ND	ND	ND

ID: US-1 DEPTH:	14-16'	20-22'
NAPHTHALENE	36.0 (A)	ND
PHENANTHRENE	12.0 (A)	ND

ID: US-2 DEPTH:	0-2'	14-16'	20-22'
NAPHTHALENE	ND	40.0 (A)	ND
PHENANTHRENE	ND	11.0 (A)	ND

ID: DS-3 DEPTH:
NO DETECTS

ID: US-4 DEPTH:	2-4'	10-12'
NAPHTHALENE	37.0 (A)	1.1
PHENANTHRENE	19.0 (A)	ND

ID: US-3 DEPTH:	2-4'	8-10'
ACENAPHTHENE	8.0	ND
FLUORENE	14.0	ND
NAPHTHALENE	35.0 (A)	4.8
N-NITROSODIPHENYLAMINE	14.0 (A)	7.2J (A)
PHENANTHRENE	46.0 (A)	6.1 (A)

ID: DS-4 DEPTH:	2-4'	4-6'	6-8'
ANTHRACENE	0.33	ND	ND
BENZO(a) ANTHRACENE	1.4 (B)	ND	ND
BENZO(b) FLUORANTHENE	11.0(B,C)	ND	ND
BENZO(ghi) PERYLENE	3.3	ND	ND
BENZO(a) PYRENE	6.2 (B,C)	ND	ND
CHRYSENE	3.1 (B,C)	ND	ND
DIBENZO(a,h) ANTHRACENE	1.1 (B)	ND	ND
FLUORANTHENE	1.0	ND	ND
INDENO(1,2,3-cd) PYRENE	3.1 (B)	ND	ND
PHENANTHRENE	0.35	ND	ND
PYRENE	1.6	ND	ND

ID: DD-3 DEPTH:	0-2'	4-6'	6-8'
ACENAPHTHENE	2.0J	ND	ND
ACENAPHTHYLENE	7.5J (A)	ND	ND
ANTHRACENE	11.0J	ND	ND
BENZO(a) ANTHRACENE	32EJ(B,C)	ND	ND
BENZO(b) FLUORANTHENE	65EJ(B,C)	ND	ND
BENZO(ghi) PERYLENE	16.0J	ND	ND
BENZO(a) PYRENE	22.0J(B,C)	ND	ND
CHRYSENE	41EJ(B,C)	ND	ND
DIBENZO(a,h) ANTHRACENE	11.0J(B,C)	ND	ND
FLUORANTHENE	44EJ(A)	ND	ND
FLUORENE	2.0J	ND	ND
INDENO(1,2,3-cd) PYRENE	12.0J(B)	ND	ND
NAPHTHALENE	3.0J	ND	ND
PHENANTHRENE	13.0J(A)	ND	ND
PYRENE	50EJ(A)	ND	ND

ID: DS-5 DEPTH:	0-2'	2-4'	4-6'	8-10'
BENZO(a) ANTHRACENE	0.78 (B)	ND	ND	ND
BENZO(k) FLUORANTHENE	1.0 (B)	ND	ND	ND
BENZO(a) PYRENE	0.52 (B)	ND	ND	ND
CHRYSENE	0.66 (B)	ND	ND	ND
FLUORANTHENE	0.94	ND	ND	ND
NAPHTHALENE	0.84	ND	ND	ND
PHENANTHRENE	1.9 (A)	ND	ND	ND
PYRENE	0.91	ND	ND	ND

ID: DS-7 DEPTH:	0-2'	2-4'	2-4'	2-4'
BENZO(a) ANTHRACENE	0.36 (B)	ND	ND	ND
BENZO(b) FLUORANTHENE	0.75 (B)	ND	ND	ND
BUTYL BENZYL PHTHALATE	2.1	ND	ND	ND
FLUORANTHENE	0.49	ND	ND	ND
PYRENE	0.47	ND	ND	ND

ID: DS-6 DEPTH:
NO DETECTS

ID: DS-8 DEPTH:	0-2'	4-6'	8-10'
BENZO(a) ANTHRACENE	0.63(B)	ND	ND
BENZO(b) FLUORANTHENE	1.2 (B)	ND	ND
Bis(2-ETHYLHEXYL) PHTHALATE	2.4	5.2	ND
CHRYSENE	0.86(B)	ND	ND
FLUORANTHENE	0.98	ND	ND
NAPHTHALENE	0.53	ND	ND
PHENANTHRENE	1.0 (A)	ND	ND
PYRENE	1.0	ND	ND

ID: DS-9 DEPTH:	0-2'	2-4'	4-6'	8-10'
BENZO(a) ANTHRACENE	2.6 (B,C)	ND	ND	ND
BENZO(b) FLUORANTHENE	5.1 (B,C)	ND	ND	ND
BENZO(ghi) PERYLENE	2.1	ND	ND	ND
BENZO(a) PYRENE	2.7 (B,C)	ND	ND	ND
CHRYSENE	2.4	ND	ND	ND
FLUORANTHENE	5.0	ND	ND	ND
INDENO(1,2,3-cd) PYRENE	2.1	ND	ND	ND
PHENANTHRENE	4.1	ND	ND	ND
PYRENE	4.8	ND	ND	ND

ID: DS-10 DEPTH:	0-2'	2-4'	4-6'
BENZO(a) ANTHRACENE	1.2 (B)	ND	ND
BENZO(b) FLUORANTHENE	2.5 (B,C)	ND	ND
BENZO(ghi) PERYLENE	0.42	ND	ND
BENZO(a) PYRENE	0.78(B)	ND	ND
CHRYSENE	1.3 (B)	ND	ND
FLUORANTHENE	2.2	ND	ND
INDENO(1,2,3-cd) PYRENE	0.41(B)	ND	ND
NAPHTHALENE	2.6	ND	ND
PHENANTHRENE	3.7 (A)	ND	ND
PYRENE	1.7	ND	ND

ID: DD-4 DEPTH:	0-2'	4-6'	6-8'
BENZO(b) FLUORANTHENE	0.58(B)	ND	ND
CHRYSENE	0.41 (B)	ND	ND
FLUORANTHENE	0.36	ND	ND
NAPHTHALENE	0.54	ND	ND
PHENANTHRENE	0.48 (A)	ND	ND
PYRENE	0.45	ND	ND

ID: DS-13 DEPTH:	0-2'	4-6'	18-20'
FLOURANTHENE	1.7	ND	ND
NAPHTHALENE	11.0 (A)	ND	ND
PHENANTHRENE	8.4 (A)	ND	ND

ID: DS-11 DEPTH:	0-2'	2-4'	6-8'	8-10'
ANTHRACENE	0.55	ND	ND	ND
BENZO(a) ANTHRACENE	1.9 (B)	ND	ND	ND
BENZO(b) FLUORANTHENE	3.5 (B,C)	0.41	ND	ND
BENZO(ghi) PERYLENE	0.98	ND	ND	ND
BENZO(a) PYRENE	1.3 (B)	ND	ND	ND
CHRYSENE	1.9 (B)	ND	ND	ND
DIBENZO(a,h) ANTHRACENE	0.38 (B)	ND	ND	ND
DI-n-BUTYL PHTHALATE	0.40	ND	ND	ND
FLUORANTHENE	3.6	0.36	ND	ND
INDENO(1,2,3-cd) PYRENE	1.4 (B)	ND	ND	ND
PHENANTHRENE	2.9 (A)	ND	MD	ND
PYRENE	3.8	0.33	ND	ND

ID: DS-12 DEPTH:	0-2'	4-6'	18-20'
Bis(2-ETHYLHEXYL) PHTHALATE	130 (A,B)	11.0J	ND
DI-n-OCTYL PHTHALATE	6.6 (A)	0.35	ND
PYRENE	ND	0.36	ND

ID: DS-14 DEPTH:	0-2'	2-4'	4-6'	8-10'
BENZO(b) FLUORANTHENE	0.44 (B)	ND	ND	ND

ID: DD-5 DEPTH:	0-2'	6-8'	8-10'
ACENAPHTHYLENE	0.40	ND	ND
ANTHRACENE	0.65	ND	ND
BENZO(a) ANTHRACENE	2.2 (B,C)	ND	ND
BENZO(b) FLUORANTHENE	4.0 (B,C)	ND	ND
BENZO(ghi) PERYLENE	1.2	ND	ND
BENZO(a) PYRENE	1.7 (B)	ND	ND
CHRYSENE	2.6 (B)	ND	ND
DIBENZO(a,h) ANTHRACENE	0.96 (B)	ND	ND
FLUORANTHENE	3.5	ND	ND
INDENO(1,2,3-cd) PYRENE	0.81 (B)	ND	ND
NAPHTHALENE	1.3	ND	ND
PHENANTHRENE	2.2	ND	ND
PYRENE	3.5	ND	ND

LEGEND

- MONITORING WELL
- SOIL BORING
- CHAIN LINK FENCE
- MANHOLE
- GAS PUMP
- UNDERGROUND UTILITY MARKER

SAMPLE IDENTIFICATION
SAMPLE DEPTH (IN FEET)
LEVEL DETECTED IN SAMPLE (ug/kg)
COMPOUND SAMPLED

(A) EXCEEDS 307 CLEANUP CRITERIA (20 x DRINKING WATER VALVE)
(B) EXCEEDS 307 CLEANUP CRITERIA (DIRECT CONTACT VALUE)
(C) EXCEEDS GENERIC INDUSTRIAL CLEANUP CRITERIA

Nº	Revision	Date	Initial

Approved

BARRELS, INC
LANSING, MICHIGAN

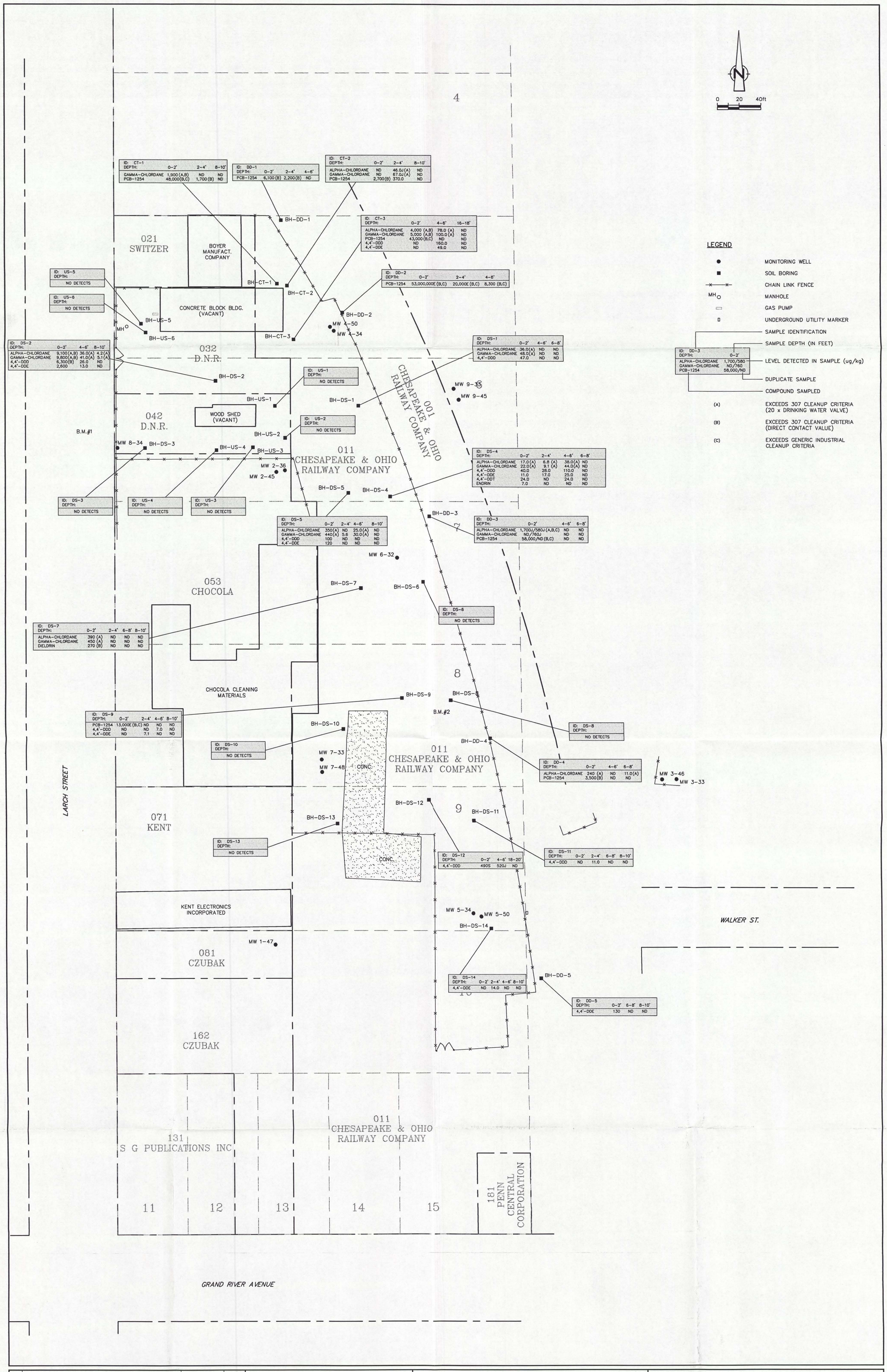
PHASE I REMEDIAL INVESTIGATION

SVOCs DETECTED IN SOILS

CRA
CONESTOGA-ROVERS & ASSOCIATES

Drawn by: KSW	Scale: 1"=40'	Date: NOV 29/93(W)	File Nº: P-08	Rev.Nº: 0
Designed by: RP				
Checked by: RP	Field book:	Project Nº: 4869	Drawing Nº: 2	

4869 (L) NOV 29/93(W) REV.0 (P-08)



Nº	Revision	Date	Initial

Approved

BARRELS, INC
LANSING, MICHIGAN

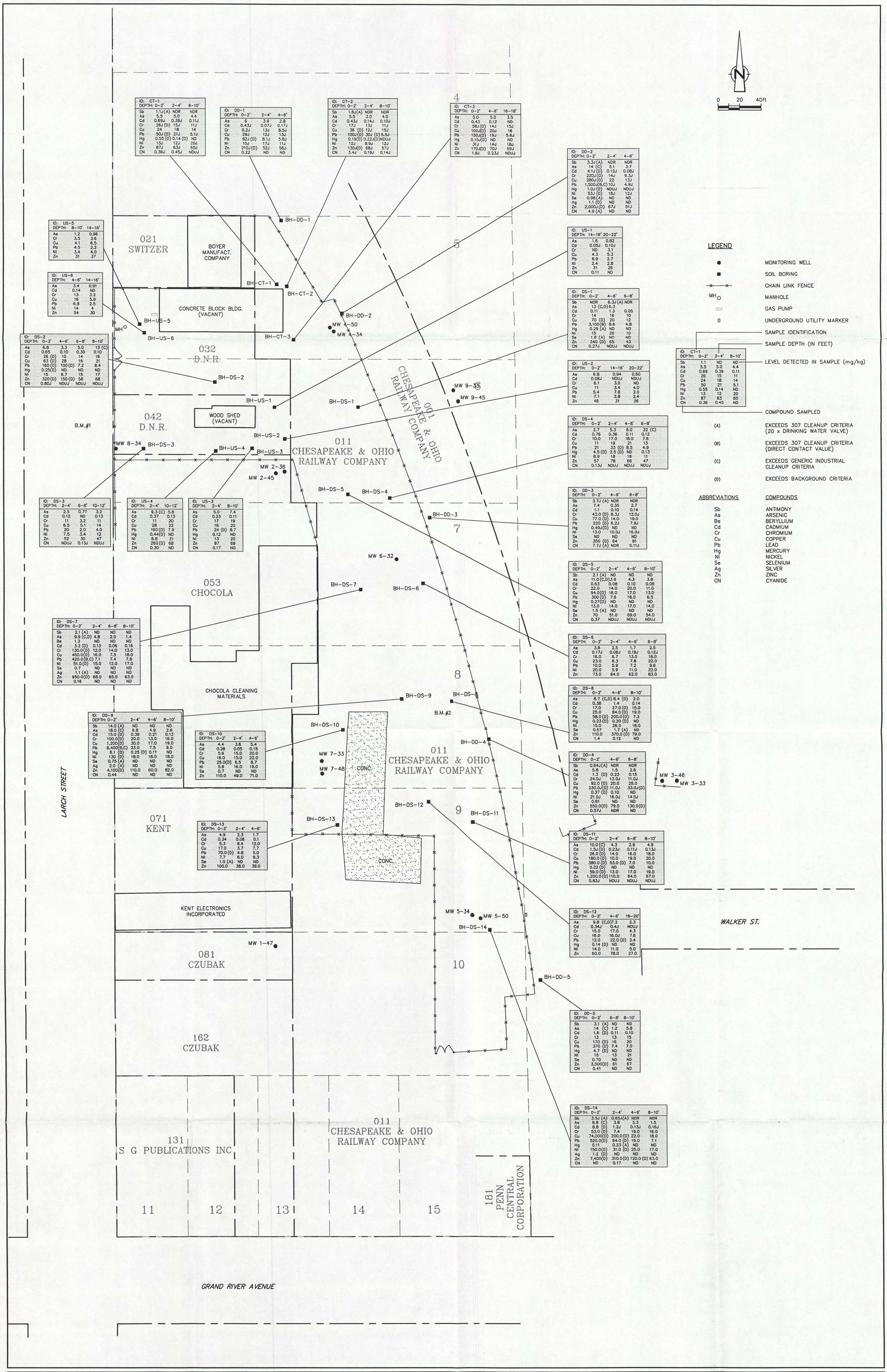
PHASE I REMEDIAL INVESTIGATION

PESTICIDES/PCBs DETECTED IN SOILS

CRA
CONESTOGA-ROVERS & ASSOCIATES

Drawn by: KSW	Scale: 1"=40'	Date: NOV 29/93(W)	File Nº: P-10	Rev.Nº: 0
Designed by: RP				
Checked by: RP	Field book:	Project Nº: 4869	Drawing Nº: 3	

4869 (L) NOV 29/93(W) REV.0 (P-10)



ID: CT-1 DEPTH:	0-2'	2-4'	8-10'
Sb	1.1J (A)	NDR	NDR
As	5.5	5.0	4.4
Cd	0.69J	0.39J	0.11J
Cr	26J (D)	15J	11J
Cu	24	18	14
Pb	50J (D)	21J	5.1J
Hg	0.55 (D)	0.14 (D)	ND
Ni	13J	12J	20J
Zn	87J	63J	60J
CN	0.36J	0.45J	NDUJ

ID: DD-1 DEPTH:	0-2'	2-4'	4-6'
As	6	3.9	2.8
Cd	0.43J	0.07J	0.17J
Cr	9.2J	13J	8.5J
Cu	29J	12J	13J
Pb	82J (D)	8.1J	5.8J
Ni	10J	17J	11J
Zn	210J (D)	52J	56J
CN	0.22	ND	ND

ID: CT-2 DEPTH:	0-2'	2-4'	8-10'
Sb	1.8J(A)	NDR	NDR
As	5.5	3.0	4.0
Cd	0.43J	0.14J	0.10J
Cr	17J	13J	11J
Cu	36 (D)	12J	15J
Pb	100J (D)	30J (D)	5.5J
Hg	0.19(D)	0.22J(D)	NDUJ
Ni	12J	8.9J	12J
Zn	130J(D)	68J	57J
CN	3.4J	0.19J	0.14J

ID: CT-3 DEPTH:	0-2'	4-6'	16-18'
As	5.0	5.0	3.5
Cd	0.43	0.12	ND
Cr	56J (D)	14J	15J
Cu	100J(D)	20J	16
Pb	150J(D)	19J	5.6J
Hg	0.15J(D)	ND	ND
Ni	31J	14J	18J
Zn	170J(D)	70J	59J
CN	1.8J	0.23J	NDUJ

ID: DD-2 DEPTH:	0-2'	2-4'	4-6'
Sb	3.3J (A)	NDR	NDR
As	14 (C)	5.1	3.7
Cd	4.1J (D)	0.12J	0.08J
Cr	220J (D)	14J	9.3J
Cu	280J (D)	22	13J
Pb	1,500J(B,C)	10J	4.9J
Hg	1.0J (D)	NDUJ	NDUJ
Ni	53J (D)	18J	12J
Se	0.98 (A)	ND	ND
Ag	1.1 (D)	ND	ND
Zn	2,000J (D)	67J	51J
CN	4.9 (A)	ND	ND

ID: US-5 DEPTH:	8-10'	14-16'
As	1.2	0.96
Cr	3.5	3.6
Cu	4.1	6.5
Pb	4.5	2.2
Ni	3.4	4.0
Zn	31	37

ID: US-6 DEPTH:	4-6'	14-16'
As	3.4	0.91
Cd	0.14	ND
Cr	13	3.2
Cu	16	5.9
Pb	6.8	2.5
Ni	14	4
Zn	54	30

ID: US-1 DEPTH:	14-16'	20-22'
As	1.6	0.82
Cd	0.05J	0.10J
Cr	ND	3.1
Cu	4.3	5.3
Pb	8.9	2.7
Ni	2.4	2.8
Zn	31	26
CN	0.11	ND

ID: DS-1 DEPTH:	0-2'	4-6'	6-8'
Sb	NDR	6.3J (A)	NDR
As	13 (C,D)	6.3	
Cd	0.11	1.3	0.05
Cr	14	16	10
Cu	70 (D)	20	12
Pb	3,100(B)	8.6	4.8
Hg	0.29 (A)	ND	ND
Ni	15	20	10
Se	1.8 (A)	ND	ND
Zn	340 (D)	65	43
CN	0.27J	NDUJ	NDUJ

ID: DS-2 DEPTH:	0-2'	4-6'	6-8'	8-10'
As	6.8	3.3	5.0	13 (C)
Cd	0.65	0.10	0.30	0.10
Cr	26 (D)	10	14	16
Cu	63 (D)	28	16	21
Pb	160 (D)	100 (D)	7.2	8.4
Hg	0.25(D)	ND	ND	ND
Ni	15	6.7	15	17
Zn	320 (D)	150 (D)	58	68
CN	0.80J	NDUJ	NDUJ	NDUJ

ID: US-2 DEPTH:	0-2'	14-16'	20-22'
As	6.8	0.94	0.60
Cd	0.08J	NDUJ	NDUJ
Cr	6.1	3.0	ND
Cu	11	3.4	4.0
Pb	5.4	7.8	2.0
Ni	7.1	2.8	2.4
Zn	46	31	26

ID: DS-4 DEPTH:	0-2'	2-4'	4-6'	6-8'
As	2.7	5.3	6.0	22 (C)
Cd	0.76	0.36	0.11	0.12
Cr	10.0	17.0	18.0	7.6
Cu	11	19	21	13
Pb	21	33 (D)	8.5	4.9
Hg	4.5 (D)	2.5 (D)	ND	0.13
Ni	8.9	18	19	11
Zn	57	78	66	47
CN	0.13J	NDUJ	NDUJ	NDUJ

ID: DS-3 DEPTH:	2-4'	6-8'	10-12'
As	2.5	0.77	3.2
Cd	0.12	ND	0.13
Cr	11	3.2	11
Cu	6.5	5.1	14
Pb	20	2.0	4.0
Ni	7.5	3.4	12
Zn	52	30	47
CN	NDUJ	0.13J	NDUJ

ID: US-4 DEPTH:	2-4'	10-12'
As	9.3 (C)	5.8
Cd	0.37	0.13
Cr	11	20
Cu	28	22
Pb	160 (D)	7.9
Hg	0.44(D)	ND
Ni	8.8	21
Zn	260 (D)	68
CN	0.30	ND

ID: US-3 DEPTH:	2-4'	8-10'
As	5.0	7.4
Cd	0.23	0.11
Cr	17	19
Cu	16	20
Pb	24 (D)	8.7
Hg	0.12	ND
Ni	13	20
Zn	97	69
CN	0.17	ND

ID: DD-3 DEPTH:	0-2'	4-6'	6-8'
Sb	3.7J (A)	NDR	NDR
As	7.4	0.35	2.7
Cd	1.1	0.10	0.14
Cr	43.0 (D)	8.3J	12.0J
Cu	77.0 (D)	14.0	19.0
Pb	220 (D)	6.2J	7.9J
Hg	0.49J(D)	ND	ND
Ni	13.0	10.0J	16.0J
Se	ND	ND	ND
Zn	350 (D)	64	81
CN	7.7J (A)	NDR	0.11J

ID: DS-5 DEPTH:	0-2'	2-4'	4-6'	8-10'
Sb	2.1 (A)	ND	ND	ND
As	11.0 (C,D)	3.6	4.3	3.8
Cd	0.63	0.08	0.10	0.08
Cr	22.0	14.0	20.0	11.0
Cu	94.0(D)	16.0	17.0	13.0
Pb	300 (D)	7.6	18.0	6.5
Hg	0.27(D)	ND	ND	ND
Ni	13.0	14.0	17.0	14.0
Se	1.5 (A)	ND	ND	ND
Zn	70	51.0	69.0	54.0
CN	0.37	NDUJ	NDUJ	NDUJ

ID: DS-7 DEPTH:	0-2'	2-4'	6-8'	8-10'
Sb	2.1 (A)	ND	ND	ND
As	9.9 (C,D)	4.8	2.0	1.4
Be	1.2	ND	ND	ND
Cd	3.2 (D)	0.13	0.06	0.16
Cr	130.0(D)	12.0	14.0	13.0
Cu	450.0(D)	16.0	7.5	18.0
Pb	420.0(B,C)	7.1	7.4	7.8
Ni	51.0(D)	15.0	12.0	17.0
Se	0.7	ND	ND	ND
Ag	1.1 (A)	ND	ND	ND
Zn	950.0(D)	68.0	65.0	63.0
CN	0.16	ND	ND	ND

ID: DS-6 DEPTH:	0-2'	2-4'	4-6'	6-8'
As	3.8	2.5	1.7	2.5
Cd	0.17J	0.06J	0.19J	0.12J
Cr	16.0	6.7	13.0	18.0
Cu	23.0	6.3	7.8	22.0
Pb	10.0	5.9	7.2	9.6
Ni	20.0	5.9	11.0	22.0
Zn	73.0	64.0	62.0	83.0

ID: DS-8 DEPTH:	0-2'	4-6'	8-10'
As	8.7 (C,D)	8.4 (D)	2.0
Cd	0.38	1.4	0.14
Cr	17.0	27.0 (D)	15.0
Cu	25.0	84.0 (D)	19.0
Pb	58.0 (D)	200.0 (D)	7.3
Hg	0.23 (D)	0.20 (D)	ND
Ni	15.0	26.0	18.0
Se	0.57	1.7 (A)	ND
Zn	110.0	370.0 (D)	79.0
CN	1.4	0.12	ND

ID: DS-9 DEPTH:	0-2'	2-4'	4-6'	8-10'
Sb	14.0 (A)	ND	ND	ND
As	18.0 (C)	6.8	4.9	2.6
Cd	15.0 (D)	0.38	0.21	0.13
Cr	100.0(D)	20.0	13.0	16.0
Cu	1,200(D)	30.0	17.0	19.0
Pb	6,400(B,C)	23.0	7.5	9.0
Hg	6.1 (D)	0.25 (D)	0.11	ND
Ni	130 (D)	18.0	18.0	18.0
Se	0.75 (A)	ND	ND	ND
Ag	2.0 (A)	ND	ND	ND
Zn	4,100(D)	110.0	60.0	82.0
CN	0.44	ND	ND	ND

ID: DS-10 DEPTH:	0-2'	2-4'	4-6'
As	4.4	3.8	5.4
Cd	0.26	0.05	0.15
Cr	5.6	15.0	20.0
Cu	16.0	15.0	22.0
Pb	25.0(D)	6.5	8.7
Ni	5.8	16.0	19.0
Se	0.7	ND	ND
Zn	110.0	49.0	71.0

ID: DD-4 DEPTH:	0-2'	4-6'	6-8'
Sb	0.64J(A)	NDR	NDR
As	5.8	1.5	2.6
Cd	1.3 (D)	0.23	0.15
Cr	24.0J	13.0J	11.0J
Cu	92.0 (D)	20.0	25.0
Pb	230.0J(D)	11.0J	33.0J(D)
Hg	0.37 (D)	0.10	ND
Ni	21.0J	16.0J	14.0J
Se	0.61	ND	ND
Zn	550.0(D)	79.0	130.0(D)
CN	0.57J	NDR	ND

ID: DS-13 DEPTH:	0-2'	2-4'	4-6'
As	4.9	2.3	1.7
Cd	0.34	0.06	0.1
Cr	5.3	9.4	12.0
Cu	17.0	3.7	7.7
Pb	70.0 (D)	4.8	5.0
Ni	7.7	6.0	9.3
Se	1.0 (A)	ND	ND
Zn	100.0	38.0	39.0

ID: DS-11 DEPTH:	0-2'	2-4'	6-8'	8-10'
As	10.0 (C)	4.3	2.9	4.9
Cd	1.5J (D)	0.23J	0.11J	0.13J
Cr	26.0 (D)	14.0	16.0	18.0
Cu	180.0 (D)	10.0	19.0	20.0
Pb	380.0 (D)	53.0 (D)	7.0	10.0
Hg	0.22 (D)	ND	ND	ND
Ni	59.0 (D)	13.0	17.0	19.0
Zn	1,200.0 (D)	110.0	64.0	67.0
CN	0.83J	NDUJ	NDUJ	NDUJ

ID: DS-12 DEPTH:	0-2'	4-6'	18-20'
As	9.8 (C,D)	7.2	2.3
Cd	0.34J	0.4J	NDUJ
Cr	15.0	17.0	4.3
Cu	16.0	16.0J	7.6
Pb	12.0	22.0 (D)	3.4
Hg	0.14 (D)	ND	ND
Ni	14.0	11.0	5.0
Zn	60.0	78.0	27.0

ID: DD-5 DEPTH:	0-2'	6-8'	8-10'
Sb	3.1 (A)	ND	ND
As	14 (C)	1.2	5.8
Cd	1.6 (D)	0.11	0.10
Cr	13	13	15
Cu	170 (D)	16	20
Pb	370 (D)	7.4	7.0
Hg	4.7 (D)	ND	ND
Ni	15	13	21
Se	0.70	ND	ND
Zn	3,500(D)	61	67
CN	0.41	ND	ND

ID: DS-14 DEPTH:	0-2'	2-4'	4-6'	8-10'
Sb	3.5J (A)	0.65J(A)	NDR	NDR
As	8.8 (C)	3.8	3.3	1.5
Cd	8.8 (D)	1.2J	0.13J	0.16J
Cr	53.0 (D)	7.4	19.0	16.0
Cu	74,000(D)	200.0 (D)	22.0	18.0
Pb	520.0(D)	64.0 (D)	19.0	7.1
Hg	0.11	0.23 (A)	ND	ND
Ni	150.0(D)	31.0 (D)	25.0	17.0
Ag	1.2 (D)	ND	ND	ND
Zn	7,400(D)	310.0 (D)	120.0 (D)	63.0
CN	ND	0.17	ND	ND

LEGEND

- MONITORING WELL
- SOIL BORING
- CHAIN LINK FENCE
- MH MANHOLE
- GAS PUMP
- UNDERGROUND UTILITY MARKER

ID: CT-1 DEPTH:	0-2'	2-4'	8-10'
Sb	1.1	ND	ND
As	5.5	5.0	4.4
Cd	0.69	0.39	0.11
Cr	26	15	11
Cu	24	18	14
Pb	50	21	5.1
Hg	0.55	0.14	ND
Ni	13	12	20
Zn	87	63	60
CN	0.36	0.45	ND

- SAMPLE IDENTIFICATION
- SAMPLE DEPTH (IN FEET)
- LEVEL DETECTED IN SAMPLE (mg/kg)
- COMPOUND SAMPLED

(A) EXCEEDS 307 CLEANUP CRITERIA (20 x DRINKING WATER VALVE)

(B) EXCEEDS 307 CLEANUP CRITERIA (DIRECT CONTACT VALUE)

(C) EXCEEDS GENERIC INDUSTRIAL CLEANUP CRITERIA

(D) EXCEEDS BACKGROUND CRITERIA

ABBREVIATIONS	COMPOUNDS
Sb	ANTIMONY
As	ARSENIC
Be	BERYLLIUM
Cd	CADMIUM
Cr	CHROMIUM
Cu	COPPER
Pb	LEAD
Hg	MERCURY
Ni	NICKEL
Se	SELENIUM
Ag	SILVER
Zn	ZINC
CN	CYANIDE

Nº	Revision	Date	Initial

Approved

BARRELS, INC
LANSING, MICHIGAN

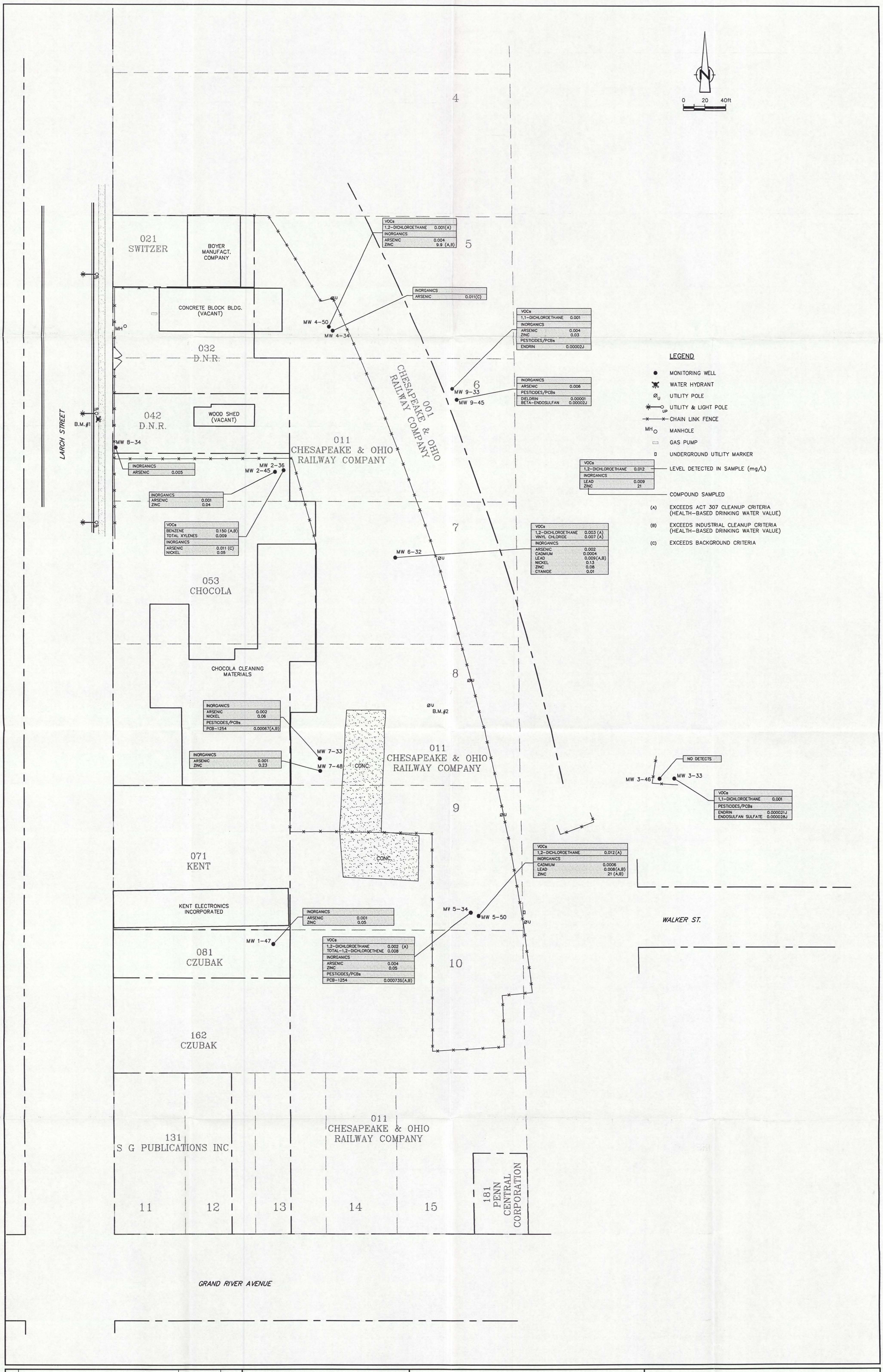
PHASE I REMEDIAL INVESTIGATION

INORGANICS DETECTED IN SOILS

CRA
CONESTOGA-ROVERS & ASSOCIATES

Drawn by: KSW	Scale: 1"=40'	Date: DEC 02/93(W)	File Nº: P-07	Rev.Nº: 0
Designed by: RP				
Checked by: RP	Field book:	Project Nº: 4869	Drawing Nº: 4	

4869 (L) DEC 02/93(W) REV.0 (P-07)



№	Revision	Date	Initial

Approved

BARRELS, INC
LANSING, MICHIGAN

PHASE I REMEDIAL INVESTIGATION

COMPOUNDS DETECTED IN GROUNDWATER

CRA
CONESTOGA-ROVERS & ASSOCIATES

Drawn by: R.B.B.	Scale: 1"=40'	Date: DEC 15/93(W)	File №: P-11	Rev.№: 0
Designed by: R.P.	Field book:	Project №: 4869	Drawing №: 5	
Checked by: R.P.				

4869 (L) DEC 15/93(W) REV.0 (P-11)