CONESTOGA-ROVERS
& ASSOCIATES

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July 14, 2000

Reference No. 13311-67

Mr. Chris McLain
MINNESOTA POLLUTION CONTROL AGENCY
Metro Site Remediation Section
520 Lafayette Road
St. Paul, Minnesota 55155-4194

Dear Mr. McLain:

Re: Remedial Investigation Report
Leak Site No. 12493
Holiday Inn - I-94 East
St. Paul, Minnesota

Please find enclosed a copy of the Remedial Investigation Report for Leak No. 12493, Holiday Inn – St. Paul, St. Paul, Minnesota. As the report states, we are recommending that an active remediation be conducted due to varying groundwater flow paths which may tend to spread the contamination.

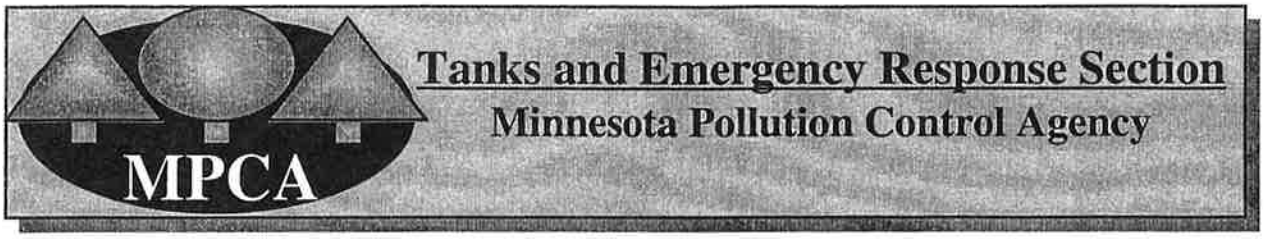
Should you have any questions regarding this invoice, please do not hesitate to call.

Sincerely,

CONESTOGA-ROVERS & ASSOCIATES

Steven R. Voss

SRV/bam/4
Enc.
c.c. Chris Carlstead; MB Hotel Properties, Inc.
Christina Loundy; Piper, Marbury, Rudnick & Wolfe
Ron Frehner; CRA (w/o enc.)



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MPCA, Metro District
Site Remediation

Remedial Investigation Report Form

Fact Sheet #3.24
January 1997

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This form must be completed for all sites in which a remedial investigation (RI) is conducted--this includes either a *Limited Site Investigation (LSI)* or a *full RI*. Completing this form will provide the MPCA with the minimum amount of information necessary for a *full RI*. Additional information should be included if deemed important for making a site cleanup decision. If the consultant has concluded that a *LSI* is applicable to this site, Section 6 and Section 7 may be deleted from this report.

Refer to Minnesota Pollution Control Agency (MPCA) fact sheet #3.1, "Leaking Underground Storage Tank Investigation and Cleanup Policy" for guidance for the overall objectives of an RI and other MPCA fact sheets regarding investigations.

When a tank has been excavated, refer to fact sheets #3.6, "Excavation of Petroleum Contaminated Soil" and #3.7, "Excavation Report Worksheet for Petroleum Release Sites" for reporting requirements.

If free product is discovered the initial reporting should be done in accordance with fact sheet #3.3 "Free Product: Evaluation and Recovery" and fact sheet #3.4, "Free Product Recovery Report Worksheet."

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Leak Number: LEAK0000 12493 Date: July 14, 2000

Responsible Party: MB Hotel Properties, Inc. R.P. phone #: 708-333-3120

Facility Name: Holiday Inn

Facility Address: 2201 Burns Avenue City: St. Paul

County: Ramsey Zip Code: 55119

Location of site: LAT: 44N56'56" LONG: 93W00'20" Circle one: UTM/State

TABLE OF CONTENTS

Section 1: Emergency and High Priority Sites

1. Is an existing drinking water well impacted?	*YES*	*NO*
2. Are there existing vapor impacts?	*YES*	*NO*
3. Is there an existing surface water impact as indicated by 1) a product sheen on the surface water or 2) a product sheen or volatile organic compounds in the part per million (ppm) range in ground water in a well located close to the surface water.	*YES*	*NO*
4. Has the release occurred in the last 30 days?	*YES*	*NO*
5. Has free product been detected at the site?	*YES*	*NO*
6. Is sand or gravel aquifer impacted which is tapped by water wells within or potentially within 500 feet from the edge of the plume **or** does impacted soil overlie a karsted limestone or fractured bedrock? If yes, explain:	*YES*	*NO*

If you answered *YES* to any of questions 1 through 6 above describe below the actions taken to date to reduce or eliminate the risk posed by the release.

Initially, a thin sheen of product was thought to be present in one of the monitoring wells and was reported to the State Duty Officer. After further review and monitoring, it was determined that equipment error had led to this indication. No product was found in the Site monitoring wells in subsequent monitoring events.

Section 2: Site and Release Information

2.1 Describe the land use and pertinent geographic features within 1,000 feet of the site.

The Site is bordered to the immediate north by Interstate 94; to the east by McKnight Road; to the south by Burns Avenue; and to the west by Suburban Avenue. Approximately 1,000 feet north and northwest is SunRay shopping center, a commercial zone; to the northeast of the Site are 3M's Corporate Headquarters; to the east and southeast is Battle Creek Regional Park; to the west are single family homes; and to the south and southwest are the McKnight Village Apartments.

Table 1.

Provide the following for all tanks that have been at the site:

Tank #	UST or AST	Capacity	Contents	Age	Status*	Condition
1	UST	4,000	Unspecified	15	Removed 1983	Unknown
2	UST	10,000	Unspecified	15	Removed 1983	Unknown
3	UST	10,000	Unspecified	15	Removed 1983	Unknown
4	UST	560	Unspecified	15	Removed 1983	Unknown
5	UST	1,000	Unspecified	15	Removed 1983	Unknown

*Indicate: *removed (date), abandoned in place (date), or currently used*
Notes:

2.2 Describe the status of the other components of the tank system(s), (i.e., piping and dispensers) for those tanks listed above.

It is unknown. A private locator (on March 16, 1999), could not detect any piping in the areas areas between the tanks 1, 2, or 3 and the pump island area, nor any piping surrounding the area of tanks 4 or 5.

2.3 Identify and describe the source or suspected source(s) of the release.

The highest concentration of contaminants is halfway between the former USTs numbers 1, 2, and 3 and the former pump island. There are also high levels of contaminants where the former USTs were located. The pump island and former USTs 1, 2, and 3, are the suspected areas of release.

2.4 What was the volume of the release? (if known): unknown gallons

2.5 When did the release occur? (if known): Prior to 1983.

Section 3: Excavated Soil Information

3.1 Was soil excavated for off-site treatment? Yes No

If *YES* then complete the fact sheet #3.7 "Excavation Report Worksheet for Petroleum Release Sites" and include it as an appendix.

Date excavated: NA

Volume removed: NA cubic yards

3.2 Indicate soil treatment type: NA

____ land treatment
____ thermal treatment
____ composting/biopiling
____ other (_____)
Name and location of treatment facility:
_____
_____

Section 4: Extent and Magnitude of Soil Contamination

4.1 Were soil borings conducted in or immediately adjacent to all likely source areas (e.g., underground storage tank basins, above ground storage tank areas, piping, dispensers, remote fill pipes, known spill areas)? *YES* *NO*

4.2 To adequately define the vertical extent of contamination soil borings should be completed at least five feet below the water table or ten feet below the deepest measurable (field screening and visual observation) contamination, whichever is deeper. Were all soil borings completed to the required depth? *YES* *NO*

4.3 To adequately evaluate site stratigraphy at least one boring should be completed 20 feet below the water table, unless a confining layer is present. Was this done? *YES* *NO*

If you answered *NO* to any of the three previous questions, explain why the borings were not conducted in the required locations or to the required depths (see fact sheet #3.19, "Soil and Ground Water Investigations Performed During Remedial Investigations" regarding exceptions and MPCA approval for depth of drilling):

Exceptions:

4.2 Water table is approximately 13 feet below ground surface (bgs) across the Site. Borings were completed to between 20 and 26 feet bgs. Contamination is in contact with the water table at 13 feet bgs. Some of the formation was very dense and met refusal at or before 20 feet bgs (borings BH-19, 20, 21, 22, and 23). Borings 6 through 14 were completed to 10 feet below the water table based on PID readings. BH-15 was completed to 26 feet bgs. PID readings were high, and due to running sand, a representative sample could not be retrieved below 26 feet bgs.

4.4 Indicate the drilling method:

X__ hollow-stem auger
____ sonic drilling
X__ push probes
____ other (_____.
Note: contact MPCA staff hydro before use of flight augers)

Both Geoprobe and hollow stem auger methods were employed during the investigations.

Table 2.

Complete the following table indicating bag headspace results (in ppm) for soil samples from soil borings. See attached Table 2.

ASTM soil classification	Depth (ft)	Soil Boring 1	2	3	4	5	6	7	8	9

Notes:(type of PID/FID)

Table 3.

Indicate the laboratory analytical results for soil samples in mg/kg. (ppm) See attached Table 3.

Well/Boring, Depth(ft)	Date Analyzed	Benzene	Toluene	Ethylbenzene	Xylene	GRO	DRO

Notes:(use less than symbols to show detection limits)

Table 4.

Indicate other notable contaminants (either petroleum or non-petroleum derived) detected in soil samples. Indicate contaminant and list in reported units mg/kg. See attached Table 4.

Well/Boring, Depth (ft)	Date Analyzed						

4.5 If any non-petroleum compounds were detected list them below and identify possible sources of these compounds.

Arsenic, barium, chromium, and lead were detected. All detections were within background levels for metals in soil.

4.6 Describe the vertical and horizontal extent and magnitude of soil contamination.

Based on PID readings, field observations, and analytical results, contamination is present from approximately 0 feet to 20 feet below ground surface (bgs) near former USTs 1, 2, and 3, and the area of the pump island. Contamination may extend to 26 feet bgs. Horizontal extent is delineated by soil borings BH-18 to BH-14, BH-14 to BH-21, BH-21 to BH-17, BH-17 to BH-18. This encompasses the area surrounding the pump island for USTs.

Section 5: Aquifer Characteristics/Ground Water Contamination Assessment

5.1 Hydraulic conductivity is used to evaluate risk to present or potential ground water receptors. The level of potential risk determines the level of confidence required of the hydraulic conductivity values. Indicate average hydraulic conductivity and methods used for measurement and estimation.

MW-1 $K=4x10^{-2}$ cm/sec
MW-2 $K=6.4x10^{-2}$ cm/sec
MW-3 $K=5.5x10^{-2}$ cm/sec
Methods were the same for all well tests. Slug tests were performed with a 10 psi transducer Bouwer - Rice method for an unconfined aquifer using AQTESOLV for windows software.

Measurement
Methods of measuring aquifer parameters are *aquifer* and *permeameter* tests. Aquifer tests such as pumping and slug tests are necessary to evaluate parameters of the actual undisturbed aquifer material. Pumping tests evaluate the largest volume of aquifer material, providing the best measurement of *in situ* aquifer parameters. Slug tests provide *in situ* parameters representing a smaller portion of the aquifer. Permeameter tests are laboratory methods used for the evaluation of discrete samples collected from the aquifer. Permeameter tests require an adequate number of representative field samples, and, inherent sampling and analysis technique limitations must be considered when evaluating results.

Estimation
Methods of estimating hydraulic conductivity may involve grain size analysis or correlating a field description with a reference range of values. As with laboratory measurements, estimation methods require an adequate number of representative field samples. Use the most conservative value of a range when using estimates. If there is any question that sediments may be permeable enough to comprise a resource aquifer, confirm by conducting test(s).

Provide hydraulic conductivity values that support the level of investigation based on risk and remediation potential. Be sure to have tests and estimations performed and analyzed by personnel trained and/or experienced in hydrogeologic investigations. Improperly performed or analyzed tests may be returned as incomplete. Attach all supporting information for the determination in the Methodologies appendix:

5.2×10^{-2} cm/sec

Indicate the measurement or estimation used:
___Pumping test analysis by _____method(s).
X_Slug tests by Bouwer Rice method(s).
___Permeability tests by _____method(s).
___Grain-size distribution approximations by _____ method(s).
X_*Reference from AQTESOLVE Users Guide, See Methodologies Index.
*provide author(s), year published, title, publisher and page(s).

5.2 Indicate the thickness of the aquifer. If the investigation does not provide enough information to determine the aquifer thickness, assume the aquifer is greater than 20 feet thick:

____ less than 10 feet
____ between 10 and 20 feet
X___ 20 feet or greater

5.3 Describe in detail the geology underlying the site including confining layers, bedrock formations and the lateral extent of these formations:

The area immediately surrounding the former pump island and former UST areas contain mixed fill with primarily well sorted SW-sand, and CL-SW sandy clay till. At between 10 and 18 feet bgs, there are discontinuous and disturbed Pt-peat and CL-clay of Lacustrian nature. Evidence exists that there was a pond or bog underlying the former service station site. This is underlain by a dense homogeneous SW-sand well sorted with little fines. There is no evidence of a continuous confining layer and contamination extends throughout the fill and underlying natural formations. At MW-1 to the immediate north, no evidence of a pond or clay exists. Well sorted sand with some fines was logged in MW-1, the deep boring on Site, continuous down to 40 feet bgs. Construction debris, including brick, shingles, concrete, and asphalt, was found in most of the soil borings. Groundwater is approximately 13 feet below surface across the Site.

The impacted aquifer or the aquifer that is likely to be impacted at the site is considered a resource aquifer if one of the following situations exist:

- The aquifer is a current water supply source. No
- The water bearing unit has a hydraulic conductivity greater than 1 X 10^{-2} cm/sec and a minimum thickness of 10 feet. Yes
- The water bearing unit has a hydraulic conductivity between 1 X 10^{-4} cm/sec and 1 X 10^{-2} cm/sec and a minimum thickness of 20 feet. Yes
- The water bearing unit has a hydraulic conductivity less than 1 X 10^{-4} cm/sec and no other viable source of water supply is available. (*Bedrock may be considered a resource aquifer if it is the only water supply available.)* No

5.4 Based on the aquifer characteristics and water supply availability, is the aquifer at the site a resource aquifer? *YES* *NO*

By definition, yes, utilization, no (municipal water is readily available).

5.5 If other water supplies are available, explain.

A detailed water well survey was conducted and no wells exist within the 500 foot radius from the Site. In the 1/2 mile radius, 3M has only deep-bedrock wells upgradient from the Site. McKnight Village Apartments and the hotel are on City water supply.

5.6 Are there any other reasons the impacted aquifer should not be considered a resource aquifer?

The area is fully developed and there is no potential for downstream interceptors in the future.

Table 5.

Indicate the water level measured in all of the soil borings.

	Soil Boring									
	MW 1	MW 2	MW 3	4	5	6	7	8	9	10
Water level depth, ft	15.0	13.03	13.17							

Notes: Soil in borings did not appear saturated where water levels in monitoring wells indicated. Geoprobe borings collapsed before water levels could be taken. Groundwater elevations based on Site datum of 100 ft are as follows: MW-1=82.22, MW-2=82.01, and MW-3=81.98 (WL and survey completed on 3/7/00).

5.7 Is contaminated soil in contact with ground water? *YES* *NO*

If *YES* or if ground water contamination appears likely then complete tables 6 and 7 below.

Table 6.

Breakout of Table 10/11.

Indicate the laboratory analytical results for water samples collected from borings, temporary wells or push probes. See attached Table 6.

Well/Boring Number	Date Analyzed	Depth	Benzene	Toluene	Ethylbenzene	Xylene	GRO	DRO

Notes:

Table 7.

Indicate other notable contaminants (either petroleum or non-petroleum derived) detected in water samples collected from the borings or push probes. Indicate contaminant and report in units of ug/l (ppb). See attached Table 7.

Well/Boring Number	Date Analyzed						

Notes:

5.8 If any non-petroleum compounds were, detected list them below and indicate whether they exceed the Health Risk Limits (HRLs). Also, identify possible sources of these compounds.

Naphthalene exceeded its respective HRL from sample BH-16. Borehole is located in central portion of impacted area. No explanation as to source can be given.

5.9 If contaminated soil is not in contact with ground water, what is the distance separating the deepest contamination from the surface of the water table? Was this distance measured during site activities, referenced from geologic information, or estimated based on professional opinion during a site visit?

Contaminated soil is in contact with groundwater.

5.10 Describe observations of any evidence of a fluctuating water table and a seasonal high water table (e.g., mottling). Also, from other sources of information describe the range of natural water table fluctuations in the area.

There is soil mottling in the vadose zone. Water levels have fluctuated significantly enough between water level measurements to change the groundwater flow direction. See Figures 3 and 3a.

5.11 In your judgment, is there a sufficient distance separating the petroleum contaminated soil (or an impacted non-resource aquifer) from the underlying resource aquifer to prevent petroleum contamination of the resource aquifer? Please explain in detail. In your explanation consider the data and information of this section as well as the nature of the petroleum release (i.e., volume, when it occurred, petroleum product). *YES* *NO*

3M has two bedrock wells upgradient and approximately 1,100 and 1,550 feet NE of the Site. County well records for Unique Wells 200502/62 and 207968/62 report a depth of 120 and 126 feet deep to bedrock, respectively, to the Platteville Limestone. Well 207968/62 is currently operational. It is cased from 126 to 226 feet. If there were a downward gradient well to well 207968/62, its casing through 100 feet of limestone should prevent any petroleum contamination of the resources or Prairie Du Chien.

Additional Ground Water Investigation

Complete **Section 6 and Section 7** only if: *1) a resource aquifer has been impacted at or above Minnesota Department of Health HRLs, 2) a resource aquifer has been impacted below the HRLs, but the levels are likely to reach the HRLs, or 3) there is an insufficient distance separating the petroleum contaminated soil (or an impacted non-resource aquifer) from the underlying resource aquifer.* Regardless of whether you are submitting a *LSI* or a *full RI*, all sections following Section 7 must be completed.

Section 6. Extent and Magnitude of Ground Water Contamination

Table 8.

Monitoring well construction.

Well Number	Unique Well Number	Date Installed	Relative Surface Elevation	Riser Height Above Grade	Bottom of Well (Elevation)	Screen Interval (Elev. - Elev.)
MW-1	643852	3/1/00	97.96	-0.46	75.96	75.96-85.96
MW-2	643851	3/2/00	95.19	-0.17	73.19	73.19-83.19
MW-3	643853	3/2/00	95.80	-0.63	74.80	74.80-84.80

Notes: (location and elevation of benchmark) The location and relative elevation (100.0) of the benchmark is depicted on the attached figures.

Table 9.

Water table summary.

Well Number	Date	Depth of Water from Top of Casing	Product Thickness	Depth of Water Below Grade	Relative Groundwater Elevation
MW-1	6/1/00	15.57	0	16.03	81.93
MW-2	6/1/00	13.31	0	14.01	81.71
MW-3	6/1/00	13.80	0	14.43	81.37
MW-1	3/7/00	15.28	0	15.74	82.22
MW-2	3/7/00	13.01	0	13.18	82.01
MW-3	3/7/00	13.09	0	13.72	81.98

Notes: (ground water above/below screen, etc.) *All water tables are in the screened section of the wells.*

6.1 Were any deep monitoring wells completed at the site? *YES* *NO*

If *YES*, which are deep wells?

Before a deep well is installed contact the MPCA project hydrologist for guidance on its necessity and placement. A deep monitoring well may be necessary if: 1)Contamination exist more than 10 feet below the water table or 2) the impacted aquifer is a resource aquifer or is hydraulically connected to a resource aquifer presently utilized by a water supply well located within 500 feet of the site.

Provide estimates of the following additional aquifer parameters:

i = Horizontal Gradient (dh/dl): 0.24/150 feet	0.0016 ft/ft
Vertical Gradient (dv/dl): No nested wells	NA
Porosity:	30%
Flow direction: Assumed	South-Southwest to West - Southwest
Hydraulic Conductivity (K): $5.2X10^{-2}$ cm/sec	$5.2x10^{-4}$ m/s
Pore velocity $\frac{Ki}{N}$ =	87 meters/year
Where: i = gradient	
n = porosity	

Table 10.

All ground water monitoring data should be collected from a minimum of *two quarterly sampling events.*

Indicate the laboratory analytical results for water samples. See attached Table 10.

Well #	Date	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	GRO	DRO
MW-1								
MW-2								
MW-3								
MW-4								

Notes: (e.g., free product, dry well, units etc.)

Table 11.

Indicate other notable contaminants (either petroleum or non-petroleum derived) detected in water samples. See attached Table 11.

Well Number	Date Analyzed						

Notes: units

6.2 If any non-petroleum compounds were detected list them below and indicate whether they exceed the HRLs. Also, identify possible sources of these compounds. See Table 11.

6.3 Is there a clean or nearly clean (below HRLs) downgradient monitoring well located along the longitudinal axis of the contaminant plume? (approximately 20 degrees plus or minus the axis) *YES* *NO*

6.4 Is there a worst case well completed through the source area of the release? *YES* *NO*

If you have answered *NO* to any of the above three questions, please explain why a well was not completed in the required location.

6.3 MW-3 is directly downgradient of the former pump islands. No off-Site wells were completed.

6.5 Provide an estimate of the longitudinal length of the dissolved contaminant plume: _____ feet

The containment plume is approximately 75 feet long prior to leaving the Site. No off-Site wells were installed. The plume appears to be orientated to the south, towards Burns Avenue.

6.6 Describe the extent and magnitude of the ground water contamination:

The plume is approximately 75 feet long by 75 feet wide (on-Site). The highest concentration of GRO in a soil sample (BH-8) is in the area of the former UST #1 at 1,800 ppm. The highest concentration of GRO in a groundwater sample came from Geoprobe BH-16 at 12,000 ppm. The highest concentration in a well of GRO (MW-2) from 6/1/00 is 2,600 ppm.

Section 7: Evaluation of Natural Attenuation

Table 12.

Complete the bio-activity data in the table below. Data should be from two quarterly rounds of sampling. Refer to the fact sheet #3.21, "Assessment of Natural Biodegradation at Petroleum Tank Release Sites," for acceptable methodologies and indicate the chosen method in the Methodologies appendix.

Monitoring Well	Temp. °C	pH	Dissolved oxygen (mg/l)	Nitrate (mg/l)	(Fe II) (mg/l)	(H_2S, HS^-) (mg/l)
MW-1						
MW-2						
MW-3						
MW-4						

Notes: No natural attenuation sampling has been completed to date. Field data for groundwater currently has recorded pH, conductivity temperature, and clarity.

7.1 Discuss the results of the bio-activity evaluation. Specifically, compare the concentrations of the inorganic parameters inside and outside the plume.

7.2 In your judgment, is natural biodegradation occurring at this site? Please Explain. *YES* *NO*

Section 8: Well Receptor Information/Assessment

Include in the appendices of this report: 1) A list of addresses within 500 feet from the edge of the plume and confirmation of status of water supply from the city utility billing department; 2) well logs; and 3) map showing ½ mile radius, 500 foot radius, water supply wells, other potential petroleum sources, and addresses for properties within 500 feet.

Table 13.

Complete the following table for all water supply wells located within 500 feet of the edge of the plume and any municipal or industrial wells found within ½ mile.

Unique Well #	Ground Elevation (ft)	Total Depth (ft)	Base of Casing (ft)	Static Elevation	Aquifer	Use	Owner	Distance & Direction from site
200202	1,005	563	Unknown	Unknown	PDC.	Ind.	3M 20: well	1,550' NE
207968	1,002	560	226	Unknown	PDC.	Ind.	3M 16" active	1,100' NE
145729	1,000	95	Unknown	Unknown	Glacial	Irrigation	Bradley Apt	2,000' NW
207969	1,000	502	224	Unknown	PDC	Ind.	3M	1,600' NE
413569	950	230	205	120	St. Peter	Dom.	Rick Fox	1,600' ESE
109749	960	235	232	160	PDC	Dom.	Warren Robbins	2,100 SE

8.1 Is municipal water available in the area? *YES* *NO*

8.2 Were all property owners within 500 feet of the nearest edge of the contaminant plume successfully contacted to determine if water wells are present? If No, please explain. *YES* *NO*

There are no residential wells located within 500 feet of the plume.

8.3 Discuss the results of the ground water receptor survey and any analytical results from sampling conducted at nearby water wells. Comment on the risks to water supply wells identified within 500 feet from the edge of the plume as well as the risk posed by or to any municipal or industrial wells found within ½ mile. Specifically indicate whether water supply wells identified utilize the impacted aquifer. (Note: an impacted aquifer separated from another aquifer by a clay lens is not considered a separate aquifer.)

All wells within 1/2 mile of the plume are deep wells cased through bedrock. As such, risk to these wells should be minimal.

8.4 Are there any plans for ground water development in the impacted aquifer within 1/2 mile of the site, or one mile down gradient of the site if the aquifer is fractured? Please give the name, title and telephone number of the *YES* *NO*

person that was contacted for this information.

It is an unconfined surficial aquifer. All property within 1/2 mile is developed. There is no reasonable expectation, based upon review of the properties surrounding the site, that development of groundwater resources would be utilized.

_____ Telephone: _____

Section 9: Surface Water Risk Assessment

9.1 Are there any surface waters or wetlands located within ¼ mile of the site? *YES* *NO*

If *YES*, indicate its name:_____

9.2 If surface water is present downgradient of the site, is there a clean down gradient soil boring or monitoring well located between the site and the surface water? *YES* *NO* *N/A*

If *NO*, we assume that contamination discharges to surface water. Therefore, complete the following information: NA

Name of receiving water:	_____
Plume width, (W):	_____ feet
Plume thickness, (H):	_____ feet
Hydraulic conductivity, (K):	_____ gal/day/ft^2
Horizontal gradient, (dh/dl):	_____ (unitless)
Discharge, (Q) = H*W*K*(dh/dl)/1440	_____ gal/min

If *YES*, identify them and indicate the distance to these features and discuss the contamination risk potential.

Section 10: Vapor Risk Assessment/Survey

10.1 Is there a history of vapor impacts in the vicinity of the site ? *YES* *NO*

If *YES*, describe:

10.2 Is there any indication that free product or highly contaminated ground water may be traveling offsite within the utility corridors? If YES, have they been investigated with borings or push probes? *YES* *NO*

10.3 Discuss the potential for vapor migration/accumulation near the site. In your discussion consider: Soil types, product type, presence and distribution of free product or high concentrations of dissolved product. Also, compare the depth of contamination with the location of underground utility lines, location and depth of storm and sanitary sewers and location of nearby basements.

The storm sewers are above the water table. The highest concentrations of soil contamination in the former UST area are below the storm sewers in the parking lot. There was a sporadic detect in one downgradient storm sewer on Burns Avenue (0-20 ppm variable). However, the storm sewers and utilities are seated in well sorted sands with little fine grain material. As such, there should be only minimal risk of migration of contaminants, specifically along these corridors.

If the vapor risk assessment indicated a risk of vapor impacts to buildings or utilities, complete the following table with vapor monitoring data collected. Location numbers should be mapped on an accompanying figure of the surveyed area.

Table 14.

Location #	Date	PID reading (ppm)	Percent of the LEL
1.	7/2/00	0.0	0%
2.	7/2/00	0.0	0%
3.	7/2/00	0.0 to 20 variable	0%
4.	7/2/00	5	0%
5.	7/2/00	1.0	0%
6.	7/2/00	0.0	0%
7.	7/2/00	19.0	0%
8.	7/2/00	0.0	0%
9.	7/2/00	4.0	0%

Notes: The locations of the vapor monitoring points are depicted on Figure 5.

10.4 Describe and interpret the results of the vapor survey.

The vapor survey was inconclusive. There were no levels of sustained organic vapor present during the survey above background levels. The sewers that had sporadic hits on the PID are located west of the plume.

Section 11: Discussion

11.1 Discuss the risks associated with the remaining soil contamination?

The soil contamination has been in contact with the groundwater for an extended period of time. The asphalt parking lot is acting as a barrier to direct exposure. There is no potential risk for incidental human contact. The contaminated soil is likely to continue to impact groundwater.

11.2 Discuss the risks associated with the impacted ground water?

The soil contamination is impacting the groundwater. There are no downgradient receptor wells. The nearest surface water is Battle Creek located approximately 1,600 feet downgradient. There does not appear to be any risk of contamination to water wells located upgradient of the Site. These wells are cased off to 226 feet bgs, 100 feet of which is bedrock.

11.3 Discuss other concerns not mentioned above:

Vapor impacts in the utilities corridor of Burns Avenue have not been evaluated, but should be of low risk due to the sandy soil conditions of the area.

Section 12: Conclusions and Recommendations

Recommendation for site:

____ site closure
____ additional vapor monitoring
X__ additional ground water monitoring
X__ active cleanup

The recommendation above should be based on fact sheet #3.1, "Leaking Underground Storage Tank Investigation and Cleanup Policy." Describe below how you applied the policy to support your recommendation.

If additional monitoring is recommended, indicate the proposed monitoring schedule and frequency: Two additional quarterly sampling rounds, annual thereafter until active cleanup is completed.

If active cleanup is proposed, then MPCA staff will review this RI report at a higher than normal priority to determine if active cleanup is required. We will respond with either a request for proposal for additional monitoring or a Corrective Action Design report. Please indicate below what cleanup technology you are considering at this time.

Due to the fluctuating water table and groundwater flow directions, it appears that the plume is unstable. As such, we recommend active cleanup using a small soil vapor extraction (SVE) system with a groundwater extraction system with discharge to the sanitary sewer.

Section 13: Required Figures

Indicate attached figures:

X	*Figure 1, 1a:*	Site location map (*approximate scale is not acceptable) and* a large scale site map show all potential receptors within 300 feet of the site. The large scale site map should show those properties with basements and wells.
X	*Figure 2, 2a, 2b, etc.:*	One or more site map showing: structures; all past and present petroleum storage tanks, piping, and dispensers; extent of soil excavation; boring and well locations (including any drinking water wells on site); horizontal extent of soil contamination; horizontal extent of ground water contamination; and location of end points for all geologic cross sections.
X	*Figure 3, 3a:*	Ground water gradient contour maps (for sites with monitoring wells).
X	*Figure 4*	Well receptor survey map showing 1/2 mile radius, 500 foot radius, water supply wells, other potential sources of contamination.
X	*Figure 5:*	Vapor survey map showing utilities and buildings with basements and monitoring locations (if a survey was required).
X	*Figure 6, 6a:*	Geologic cross sections.

Section 14: Appendices

Indicate attached appendices.

NA	*Appendix A*	Excavation Report Worksheet for Petroleum Release Sites.
X	*Appendix B*	Laboratory Analytical Reports for Soil and Ground Water.
X	*Appendix C*	Methodologies and Procedures, Including Field Screening of Soil, Other Field Analyses, Soil Boring, Soil Sampling, Well Installation, and Water Sampling.
X	*Appendix D*	Geologic Logs for Each Well or Boring, Including Well As-Builts on Log.
X	*Appendix E*	Well Construction Diagrams and Copies of the Minnesota Department of Health Well Record.
X	*Appendix F*	Copies of Water Supply Well Logs With Legible Unique Numbers.
X	*Appendix G*	A List of Addresses Within 500 Feet From the Edge of the Plume and Confirmation of Status of Water Supply From the City Utility Billing department.

Section 15: Consultant (or other) Information

By signing this document, I/we acknowledge that we are submitting this document on behalf of and as agents of the responsible person or volunteer for this leak site. I/we acknowledge that if information in this document is inaccurate or incomplete, it will delay the completion of remediation and may harm the environment and may result in reduction of reimbursement awards. In addition, I/we acknowledge on behalf of the responsible person or volunteer for this leak site that if this document is determined to contain a false material statement, representation, or certification, or if it omits material information, the responsible person or volunteer may be found to be in violation of Minn. Stat. § 115.075 (1994) or Minn. Rules 7000.0300 (Duty of Candor), and that the responsible person or volunteer may be liable for civil penalties.

Name and Title:	Signature:	Date signed:
Steven R. Voss		7/13/00
		/ /
		/ /
		/ /

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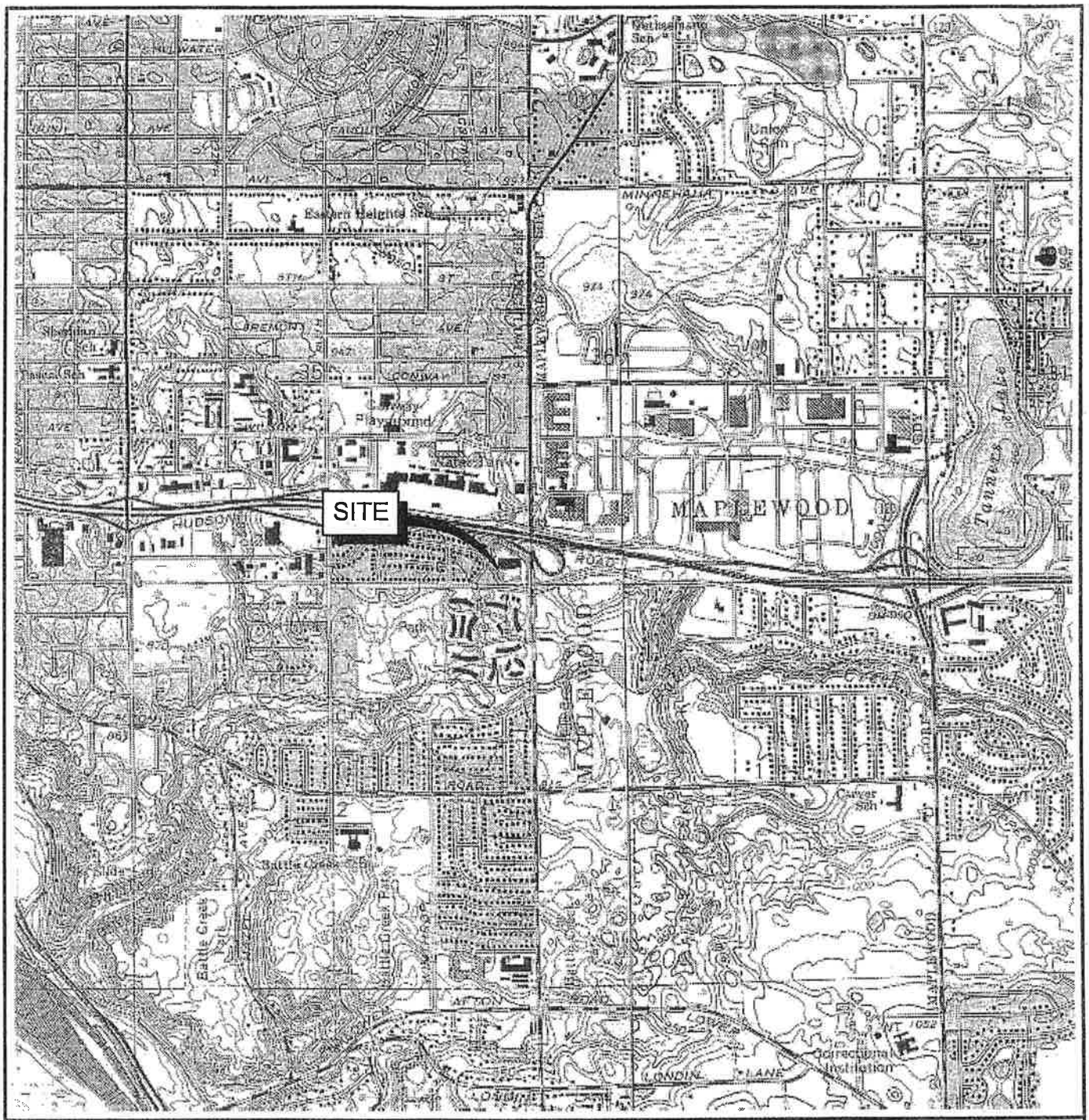


SOURCE: USGS TOPOGRAPHIC MAP
LAKE ELMO & ST. PAUL EAST, MINN. QUADS

N

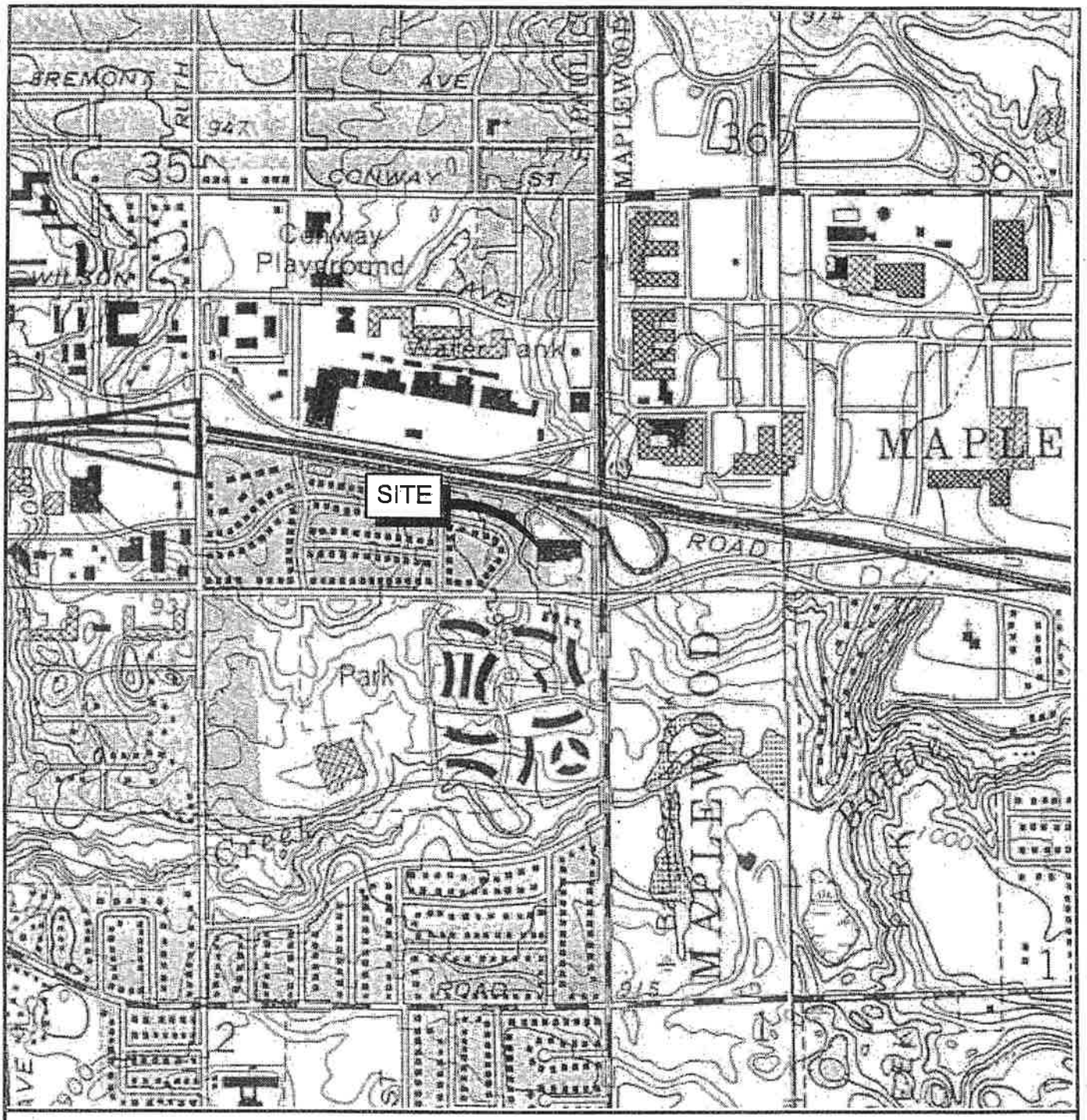
0 1000 2000ft

figure 1

SITE LOCATION
1-94 HOLIDAY INN
St. Paul, Minnesota

CRA

13311-00(CARL004)GN-SP017 JUN 30/2000



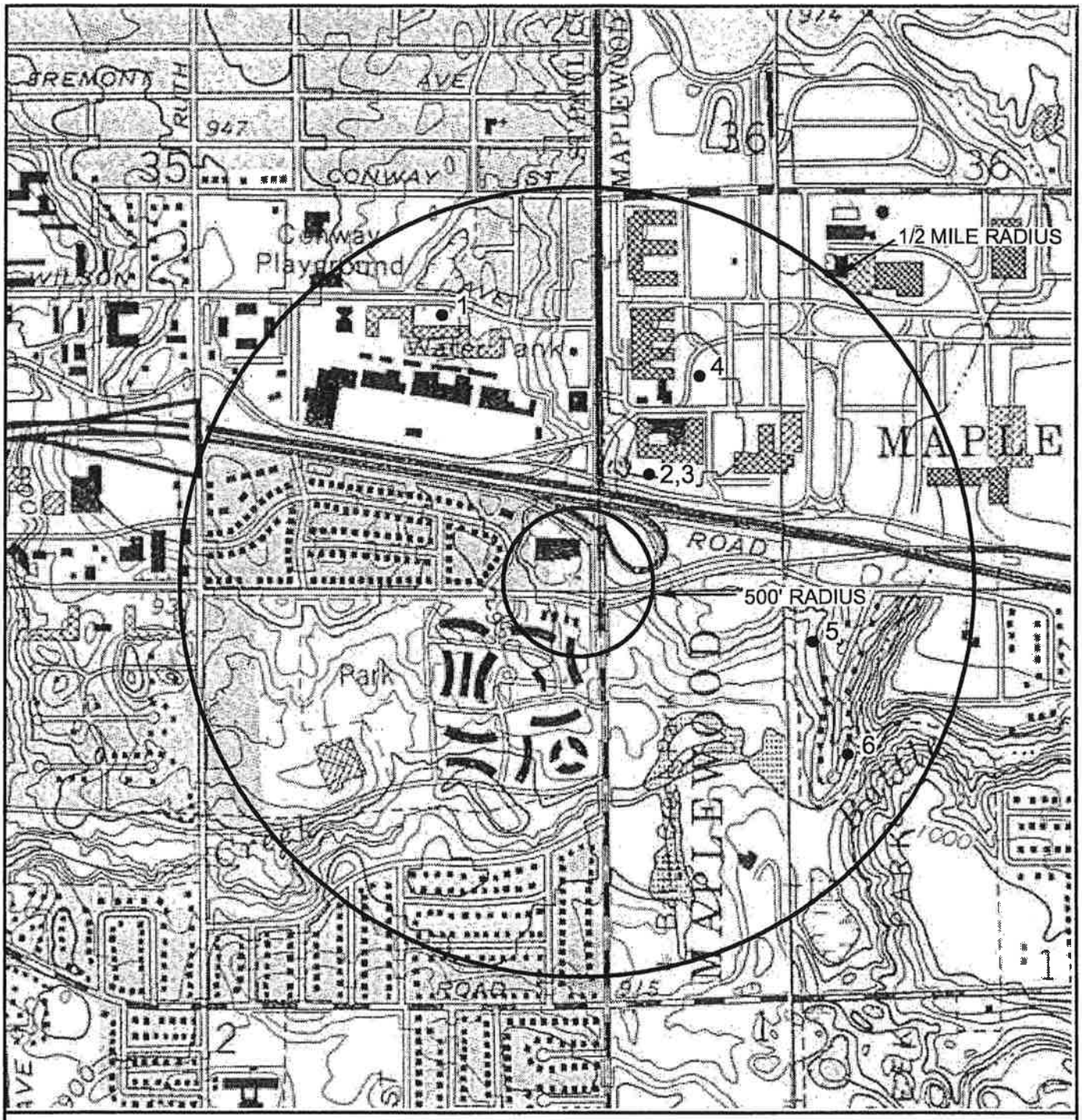
SOURCE: USGS TOPOGRAPHIC MAP
LAKE ELMO & ST. PAUL EAST, MINN. QUADS

figure 1a

POTENTIAL RECEPTORS
1-94 HOLIDAY INN
St. Paul, Minnesota

CRA

13311-00(CARL004)GN-SP018 JUN 30/2000



SOURCE: USGS TOPOGRAPHIC MAP
LAKE ELMO & ST. PAUL EAST, MINN. QUADS

figure 4

WELL RECEPTOR
SURVEY MAP
1-94 HOLIDAY INN
St. Paul, Minnesota

CRA

13311-00(CARL004)GN-SP019 JUL 13/2000

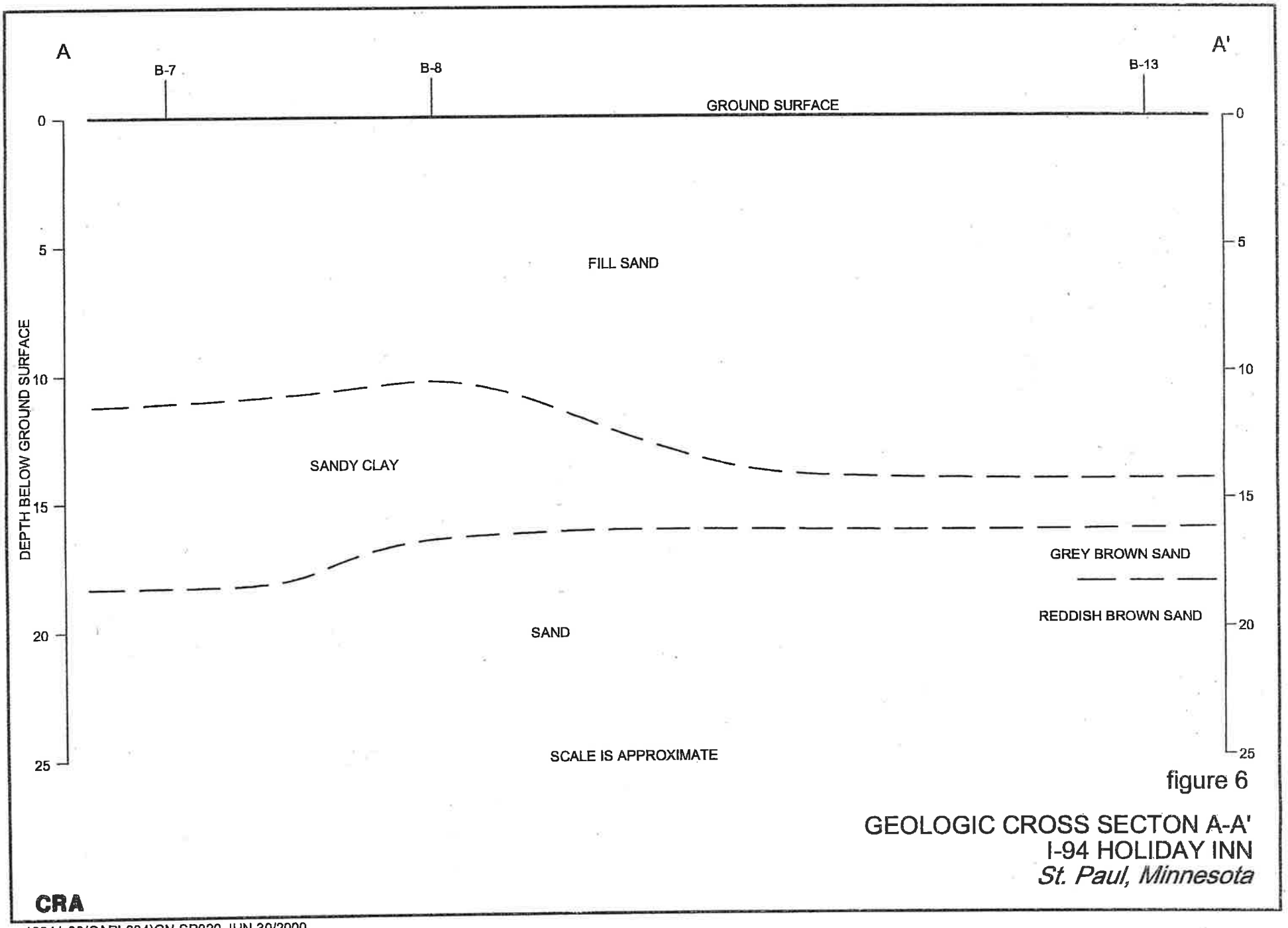


figure 6

GEOLOGIC CROSS SECTON A-A'
I-94 HOLIDAY INN
St. Paul, Minnesota

CRA

13311-00(CARL004)GN-SP020 JUN 30/2000

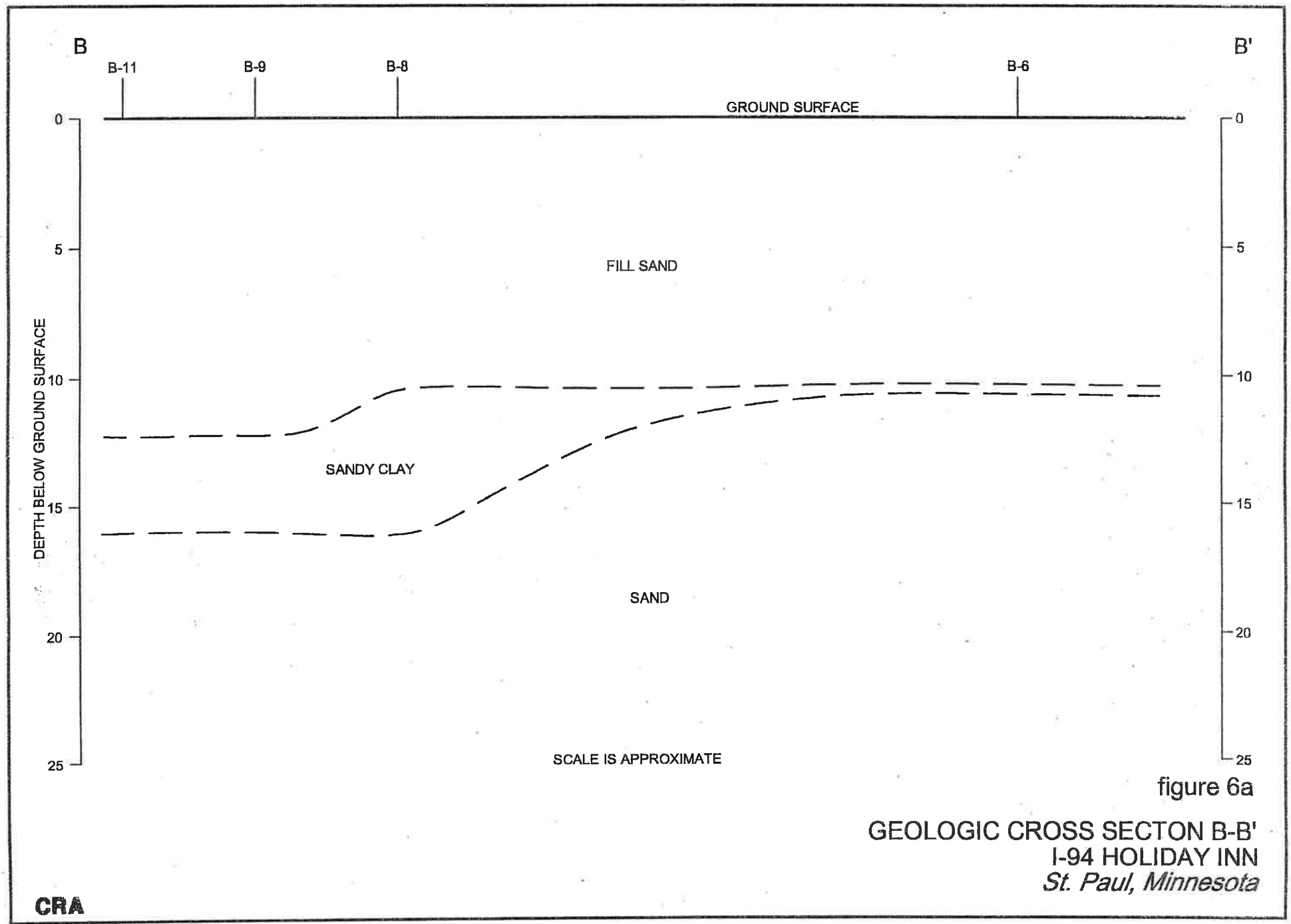


figure 6a

GEOLOGIC CROSS SECTON B-B'
I-94 HOLIDAY INN
St. Paul, Minnesota

CRA

13311-00(CARL004)GN-SP021 JUN 30/2000

TABLE 2

SOIL SAMPLE HEADSPACE RESULTS
HOLIDAY INN - I-94 EAST SITE

ASTM Soil Classification	*Depth (Ft. BGS)*	*BH-6*	*BH-7*	*BH-8*	*BH-9*	*BH-10*	*BH-11*	*BH-12*	*BH-13*	*BH-14*	*BH-15*
Fill	0 - 2	7.2	30	2	7	1	0	0.5	0.0	38	52
Fill	2 - 4	7.2	30	2	7	1	0	0.5	0.0	229	164
Fill	4 - 6	0	5	12	2	0.5	0.5	0.5	0.5	225	70
Fill	6 - 8	0	5	12	2	0.5	0.5	0.5	0.5	133	131
Fill	8 - 10		5	>100	50	10	NR	0.5	0.0	117	336
SW Sand	10 - 12		5	>100	50	10	NR	0.5	0.0	135	170
SW Sand	12 - 14		30	>1800	>2000	89	126	15	7	100	106
SW Sand	14 - 16		30	>1800	>2000	89	126	15	7	1800	1876
SW Sand	16 - 18		>400	>2000	20	67	350	0	4	1500	1676
SW Sand	18 - 20		>400	>2000	20	67	350	0	4	1600	1162
SW Sand	20 - 22		10	2	2	0	1	0	0.0	1700	1453
SW Sand	22 - 24		10	2	2	0	1	0	0.0	135	1303
SW Sand	24 - 26										1553

Note:
NR - No sample recovered
BGS - Below Ground Surface
BH - Borehole
MW - Monitoring Well

TABLE 2

SOIL SAMPLE HEADSPACE RESULTS
HOLIDAY INN - I-94 EAST SITE

ASTM Soil Classification	*Depth (Ft. BGS)*	*BH-16*	*BH-17*	*BH-18*	*BH-19*	*BH-20*	*BH-21*	*BH-22*	*BH-23*	*BH-24*	*BH-25*
Fill	0 - 2	449	755	332	0.0	52	0.0	55	0.0	6	4
Fill	2 - 4	170	206	150	0.0	342	12	NR	0.0	11	13
Fill	4 - 6	80	633	30	0.0	30	68	19	0.0	10	11
Fill	6 - 8	162	438	25	0.0	63	0.0	75	35	1405	10
Fill	8 - 10	242	210	50	0.0	50	4	20	0.0	>2000	9
SW Sand	10 - 12	601	325	50	0.0	50	24	20	0.0	>2000	121
SW Sand	12 - 14	>2000	667	300	7	75	4	30	10	>2000	13
SW Sand	14 - 16	>2000	1120	1650	14	12	2353	13	9.9	1712	16
SW Sand	16 - 18	1950	1257	1620	0.0	5.0	2650	4	0.0	1970	23
SW Sand	18 - 20	>2000	470	1625	0.0	0.0		0.0	0.0	1985	17
SW Sand	20 - 22	1878	220	500	0.0					1833	23
SW Sand	22 - 24	>2000	207	150						1437	23
SW Sand	24 - 26	>2000		150						1187	18

Note:
NR - No sample recovered
BGS - Below Ground Surface
BH - Borehole
MW - Monitoring Well

TABLE 2

SOIL SAMPLE HEADSPACE RESULTS
HOLIDAY INN - I-94 EAST SITE

ASTM Soil Classification	*Depth (Ft. BGS)*	*BH-26*	*BH-27*	*BH-28*	*MW-1*	*MW-2*	*MW-3*
Fill	0 - 2	6	6	12	11	1	13
Fill	2 - 4	7	8	14	17	1	28
Fill	4 - 6	20	9	15	9	5	25
Fill	6 - 8	16	11	15	2	10	55
Fill	8 - 10	39	29	17	0.0	NR	40
SW Sand	10 - 12	19	14	18	0.0	12	443
SW Sand	12 - 14	14	42	16	2	14	1998
SW Sand	14 - 16	14	22	13	0.0	12	1898
SW Sand	16 - 18	7	11	15	0.0	20	220
SW Sand	18 - 20	13	9	10	0.0	24	225
SW Sand	20 - 22	10	12	8	0.0	20	106
SW Sand	22 - 24	13	11	10			
SW Sand	24 - 26		10	15			

Note:
NR - No sample recovered
BGS - Below Ground Surface
BH - Borehole
MW - Monitoring Well

TABLE 3

LAB RESULTS FOR SOIL SAMPLES
HOLIDAY INN - I-94 EAST SITE

Well/ Boring	*Depth (Ft. BGS)*	*Date Analyzed*	*Benzene*	*Toluene*	*Ethyl Benzene*	*Xylenes*	*GRO*	*DRO*	*MTBE*
BH-6	8 - 12	3/25/99	<0.2	<0.2	<0.2	<0.3	<1.0	NA	<0.2
BH-7	16 - 20	3/25/99	<0.2	0.8 J	2.1	3.3	190	NA	<0.2
BH-8	16 - 20	3/25/99	<4.0	6	19 J	83.1	1800	NA	<4.0
BH-9	12 - 16	3/25/99	<0.2	0.5 J	1.5	4	140	NA	<0.2
BH-9	Duplicate	3/25/99	<0.2	0.7 J	2.4	5.9	220	NA	<0.2
BH-10	12 - 16	3/25/99	<0.2	<0.2	<0.3	<0.3	1.3 J	NA	<0.2
BH-11	16 - 20	3/25/99	<0.2	<0.2	<0.2	<0.3	12	NA	<0.2
BH-12	14.5 - 16	3/26/99	<0.01	<0.015	<0.015	<0.03	<1.0	2.0	NA
BH-12	Duplicate	3/26/99	<0.01	<0.015	<0.015	<0.03	<1.0	<2.0	NA
BH-13	14 - 16	3/26/99	<0.01	<0.015	<0.015	<0.03	<1.0	<2.0	NA
BH-14	14 - 16	7/12 -15/99	<0.2	0.6 J	0.7 J	1.3	270	NA	<0.2
BH-15	14 - 16	7/12/99	<0.2	<0.2	<0.2	<0.3	44	NA	<0.2
BH-16	14 - 16	7/12/99	<2.0	<2.0	<2.0	<3.0	320	NA	<2.0
BH-17	16 - 18	7/12/99	<0.2	<0.2	<0.2	<0.3	37	NA	<0.2
BH-18	14 - 16	7/12/99	<0.2	<0.2	0.2 J	1.1 J	120	NA	<0.2
BH-19	10 - 14	7/12 -15/99	<0.2	<0.2	<0.2	<0.3	<1.5	NA	<0.2
BH-20	12 - 14	7/12/99	<0.2	<0.2	<0.2	<0.3	<1.0	NA	<0.2
BH-20	Duplicate	7/12/99	<0.2	<0.2	<0.2	<0.3	<1.0	NA	<0.2
BH-21	16 - 18	7/12/99	<0.2	0.6 J	1.1	3.9	200	NA	0.4
BH-22	6 - 8	7/12 -15/99	<0.2	<0.2	<0.2	<0.3	<1.0	NA	<0.2
BH-23	6 - 8	7/12/99	<0.2	<0.2	<0.2	<0.3	<1.0	NA	<0.2
MW-1	2 - 4 ft.	3/10/00	<0.026	<0.027	<0.028	<0.59	<1.2	NA	<0.022
MW-2	16 - 18	3/10/00	<0.052	<0.054	<0.056	<0.12	<2.4	NA	<0.044
MW-3	10 - 12	3/10/00	0 .5 J	0.4 J	2.9	7.6	110	NA	<0.044
BH-24	10 - 12	3/10/00	<0.26	2.2 J	7.6 J	44	440	NA	<0.22
BH-25	10 - 12	3/10/00	<0.052	<0.054	<0.056	<0.12	<2.4	NA	<0.044
BH-26	10 - 12	3/10/00	<0.052	<0.054	<0.056	<0.12	<2.4	NA	<0.044
BH-27	12 - 14	3/10/00	<0.052	<0.054	<0.056	<0.12	<2.4	NA	<0.044
BH-28	10 - 12	3/10/00	<0.026	<0.027	<0.028	<0.059	<1.2	NA	<0.022

Notes:
All data presented in mg/kg
NA - Not analyzed
J - Result above MDL, below PQL
MDL - Method Detection Limit
PQL - Practical Quantitation Limit
BGS - Below Ground Surface

TABLE 4

LEAD AND OTHER NOTABLE CONTAMINANTS IN SOIL
HOLIDAY INN - I-94 EAST SITE

ID	*Depth (Ft. BGS)*	*Date Analyzed*	*Lead*	*Arsenic*	*Barium*	*Chromium*	*Acetone*	*Chloro-methane*	*Trichloro-trifluoroethane*
BH-6	8 -12	3/25/99	16	NA	NA	NA	NA	NA	NA
BH-7	16 - 20	3/25/99	14	NA	NA	NA	NA	NA	NA
BH-8	16 - 20	3/25/99	6	NA	NA	NA	NA	NA	NA
BH-9	12 - 16	3/25/99	17	NA	NA	NA	NA	NA	NA
BH-9	Duplicate	3/25/99	17	NA	NA	NA	NA	NA	NA
BH-10	16 - 20	3/25/99	9.4	NA	NA	NA	NA	NA	NA
BH-11	16 - 20	3/25/99	9.4	NA	NA	NA	NA	NA	NA
BH-12	14.5 - 16	3/26/99	19	0.9	36	14	0.4	0.082	0.065
BH-12	Duplicate	3/26/99	16	0.85	28	14	<0.050	<0.015	<0.050
BH-13	14 - 16	3/26/99	15	0.68	30	16	<0.050	<0.015	<0.050
BH-14	14 - 16	7/15/99	8	NA	NA	NA	NA	NA	NA
BH-15	14 - 16	7/15/99	<5.0	NA	NA	NA	NA	NA	NA
BH-16	14 - 16	7/15/99	17	NA	NA	NA	NA	NA	NA
BH-17	16 - 18	7/15/99	10	NA	NA	NA	NA	NA	NA
BH-18	14 - 16	7/15/99	7.6	NA	NA	NA	NA	NA	NA
BH-19	10 - 14	7/15/99	16	NA	NA	NA	NA	NA	NA
BH-20	12 - 14	7/15/99	19	NA	NA	NA	NA	NA	NA
BH-20	Duplicate	7/15/99	14	NA	NA	NA	NA	NA	NA
BH-21	16 - 18	7/15/99	6.9	NA	NA	NA	NA	NA	NA
BH-22	6 - 8	7/15/99	28	NA	NA	NA	NA	NA	NA
BH-23	6 - 8	7/15/99	16	NA	NA	NA	NA	NA	NA
MW-1	2 - 4	3/20/00	13 J	NA	NA	NA	NA	NA	NA
MW-2	16 - 18	3/20/00	14 J	NA	NA	NA	NA	NA	NA
MW-3	10 - 12	3/20/00	16 J	NA	NA	NA	NA	NA	NA
BH-24	10 - 12	3/20/00	14 J	NA	NA	NA	NA	NA	NA
BH-25	10 - 12	3/20/00	15 J	NA	NA	NA	NA	NA	NA
BH-26	10 - 12	3/20/00	13 J	NA	NA	NA	NA	NA	NA
BH-27	12 - 14	3/20/00	<5.0	NA	NA	NA	NA	NA	NA
BH-28	10 - 12	3/20/00	20 J	NA	NA	NA	NA	NA	NA

Notes:
NA - Not Analyzed
All data presented in mg/kg
BGS - Below Ground Surface
J - Result is estimated; LCS percent recovery was above control limits.

TABLE 6

GROUNDWATER ANALYTICAL RESULTS FROM BORINGS, TEMPORARY WELLS, OR PUSH PROBES
HOLIDAY INN - I-94 EAST SITE

Date Analyzed: Depth of Sample	*Health Risk Limit (ug/L)*	*BH-14 7/08,09/99 13-15FT*	*BH-15 7/8/99 13-15FT*	*BH-16 7/8/99 13-15FT*	*BH-19 7/08,09/99 13-15FT*	*BH-19 Duplicate 13-15FT*	*BH-20 7/8/99 13-15FT*	*BH-22 7/08,09/99 13-15FT*	*BH-23 7/08,09/99 13-15FT*
Benzene	10	70	63	67 J	0.4 J	<0.4	35	<4	0.5 J
Toluene	1000	3.5 J	<3	<50	<6	<6	<3	2.8	1.1 J
Ethylbenzene	700	<3	<3	370	<6	<6	<3	<6	<6
Xylenes total	10000	<6	<6	730	<1.2	<1.2	<6	<1.2	<1.2
MTBE	NC	<2	<2	<20	<0.4	<0.4	<2	<0.4	<0.4
GRO	NC	4600	3200	12000	<20	<20	4400	<20	<20
DRO	NC	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Lead	NC	4	<1.0	6	<1.0	<1.0	2	<1.0	<1.0

Notes:
J - Result is above MDL, but below PQL.
MDL - Method Detection Limit.
PQL - Practical Quantitation Limit.
NC - No Criteria

TABLE 7
NOTABLE CONTAMINANTS FROM BORINGS, TEMPORARY WELLS, OR PUSH PROBES
HOLIDAY INN - I-94 EAST SITE

Date Analyzed:	*Health Risk Limit (ug/L)*	*BH-14* 7/08,09/99	*BH-15* 7/8/99	*BH-16* 7/8/00	*BH-19* 7/08,09/99	*BH-19* Duplicate	*BH-20* 7/8/99	*BH-22* 7/08,09/99	*BH-23* 7/08,09/99
Acetone	700	<10	<10.0	430 J	3.8 J	3.2 J	63	2.9 J	3 J
n-Butylbenzene	NC	230	75	140	<0.8	<0.8	100	<0.8	<0.8
sec-Buytylbenzene	NC	43	15	<40	<0.8	<0.8	21	<0.8	<0.8
Ethyl Ether	1000	<3	<3.0	<30	<0.6	<0.6	<3	<0.6	<0.6
Isopropylbenzene	NC	11	17	110	<0.6	<0.6	<3	<0.6	<0.6
p-Isopropyltoluene	NC	7 J	<4	<40	<0.8	<0.8	<4	<0.8	<0.8
Methyl ethyl keytone	4000	<5	31	400	<1	<1	95	<1	<1
Methyl isobutyl ketone	300	22	25	93 J	<0.4	<0.4	41	<0.4	<0.4
Methylene Chloride	NC	<7.0	<7.0	6100 J	2.1 J	<1.4	<7	<1.4	<1.4
Naphthalene	300	18	5.3 J	440	<0.6	<0.6	4.3 J	<0.6	<0.8
n-Propylbenzene	NC	140	56	260	<0.8	<0.8	200	<8	<0.8
Tetrachloroethene	7	<4	<4	<40	<0.8	<0.8	<4	<0.8	<0.8
Tetrahydrofuran	100	320	340	<100	<2	<2	<10	<2	<2
1,2,3-Trichlorobenzene	NC	<4	<4	<40	<0.8	<0.8	<4	<0.8	<0.8
1,2,4-Trichlorobenzene	70	<5	<5	<50	<1	<1	<5	<1	<1
Trichloroethene	30	<3	<3	<30	<0.6	<0.6	<3	<0.6	<0.6
1,2,4-Trimethylbenzene	NC	28	280	2000	<0.8	<0.8	190	<0.8	<0.8
1,3,5-Trimethylbenzene	NC	190	85	440	<0.8	<0.8	200	<0.8	<0.8

Notes:

J - Result is above MDL, but below PQL.

MDL - Method Detection Limit.

PQL - Practical Quantitation Limit.

NC - No Criteria.

- Result exceeds Health Risk Limit

TABLE 10

GROUNDWATER SAMPLING RESULTS
HOLIDAY INN - I-94 EAST SITE

Date Analyzed:	*Health Risk Limit (ug/L)*	*MW-1 3/11/99*	*MW-1 Duplicate*	*MW-1 6/9/00*	*MW-2 3/11/99*	*MW-2 6/9/00*	*MW-3 3/11/99*	*MW-3 6/9/00*	*MW-3 Duplicate*
Benzene	10	<2	<2	<1	6.4	7.0 J	34	23	25
Toluene	1000	<0.3	<0.3	<1	<0.3	<5	37	19 J	19 J
Ethylbenzene	700	<0.3	<0.3	<1	<0.3	47 J	96	<2	<2
Xylenes-o,m,p	10000	<0.6	<0.6	<2.4	13	116	440	463	461
MTBE	20	<0.2	<0.2	<0.28	<0.2	17 J	<0.2	7 J	7 J
GRO	NC	<20	<20	<23	310	2600	1800	1400	1400
DRO	NC	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Lead	NC	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
Results are reported in micrograms per liter.
J - Result if above MDL, but below PQL.
MDL - Method Detection Limit.
PQL - Practical qualification Limit.
NC - No Criteria.
- Result exceeds Health Risk Limit

TABLE 11

GROUNDWATER RESULTS - OTHER NOTABLE CONTAMINANTS
HOLIDAY INN - I-94 EAST SITE

Date Analyzed:	*Drinking Water (ug/L)*	*MW-1 3/11/99*	*MW-1 Duplicate*	*MW-2 3/11/99*	*MW-3 3/11/99*
Acetone	700	<1.0	<5.0 U	<14 U	<86 U
n-Butylbenzene	NC	<0.4	<0.4	4.6	26
sec-Butylbenzene	NC	<0.4	<0.4	2.1	4.6
Ethyl Ether	1000	<0.3	<0.3	7.4	<0.03
Isopropylbenzene	NC	<0.3	<0.3	9.8	9.2
p-Isopropyltoluene	NC	<0.4	<0.4	<0.4	<0.4
Methyl ethyl ketone	4000	<0.5	<0.5	30	63
Methyl isobutyl ketone	300	<0.2	<0.2	<0.2	<0.2
Methylene Chloride	50	<0.7	<0.7	<0.7	<0.7
Naphthalene	300	<0.3	0.9 J	7.6	26
n-Propylbenzene	NC	<0.4	<0.4	22	21
Tetrachloroethene	7	0.4 E,J	0.4 J	<0.4	<0.4
Tetrahydrofuran	100	<1.0	<1.0	<1.0	<1.0
1,2,3-Trichlorobenzene	NC	<0.4	<0.4	<0.4	0.8 J
1,2,4-Trichlorobenzene	70	<0.5	<0.5	<0.5	8.2
Trichloroethene	30	1.1 E	1.1	<0.3	1.1
1,2,4-Trimethylbenzene	NC	<0.4	<0.4	44	140
1,3,5-Trimethylbenzene	NC	<0.4	<0.4	13	31

Notes:
J - Result is above MDL, but below PQL.
MDL - Method Detection Limit.
PQL - Practical Quantitation Limit.
U - Result is non-detect due to contamination in the trip or rinsate blank. The associated value is the quantitation limit.
E - Estimated result, surrogate recovery was above control limits.
NC - No Criteria.

APPENDIX A

EXCAVATION REPORT WORKSHEET FOR PETROLEUM RELEASE SITES

(NO EXCAVATION COMPLETED)

APPENDIX B

LABORATORY ANALYTICAL REPORTS FOR SOIL AND GROUND WATER

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CRA, INC.

BH-6 8'-12'

BH-6 8-12

LABORATORY ANALYSIS REPORT

DATE:	April 9, 1999	**PAGE:**	1 Of 20
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	031799-200153 3/16/99 Client 3/17/99 13311
CONTACT:	Ruth Mickel		

		Sample No.:		**L20649-1**
		Sample ID.:		**S-990316-DS-01**
ANALYSIS	**UNITS**	**MDL**	**POL**	**RESULT**
EPA 8020/WIS DNR GRO				
Date Analyzed: 3/26/99				
Methyl tert butyl ether	mg/kg	0.2	1.0	ND
Benzene	mg/kg	0.2	1.0	ND
Toluene	mg/kg	0.2	1.0	ND
Ethylbenzene	mg/kg	0.2	1.0	ND
m,p-Xylene*	mg/kg	0.3	1.0	ND
o-Xylene	mg/kg	0.2	1.0	ND
Gasoline Range Organics	mg/kg	1.0	2.0	ND

Surrogate Recovery	**Detector**	**% Recovery**
1-chloro-4-Fluorobenzene	FID	126%
1-chloro-4-Fluorobenzene	PID	102%

ANALYSIS	**UNITS**	**POL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	16	3/25/99

* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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BH-7
16'-20'

LABORATORY ANALYSIS REPORT

DATE:	*April 9, 1999*	***PAGE:***	*2 Of 20*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*031799-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/16/99*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/17/99*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Ruth Mickel*		

BH-7 16-20

		Sample No.:		***L20649-2***
		Sample ID.:		***S-990316-DS-02***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
EPA 8020/WIS DNR GRO				
Date Analyzed: 3/26,27/99				
Methyl tert butyl ether	*mg/kg*	*0.2*	*1.0*	*ND*
Benzene	*mg/kg*	*0.2*	*1.0*	*ND*
Toluene	*mg/kg*	*0.2*	*1.0*	*(r)0.8*
Ethylbenzene	*mg/kg*	*0.2*	*1.0*	*2.1*
*m,p-Xylene**	*mg/kg*	*0.3*	*1.0*	*3.3*
o-Xylene	*mg/kg*	*0.2*	*1.0*	*ND*
Gasoline Range Organics	*mg/kg*	*10*	*20*	*(dd)190*

Surrogate Recovery	***Detector***	***3/26 % Rec***	***3/27 % Rec***
1-chloro-4-Fluorobenzene	*FID*	*111%*	*(s)255%*
1-chloro-4-Fluorobenzene	*PID*	*85.4%*	*112%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead (6010B)	*mg/kg*	*5.0*	*14*	*3/25/99*

(dd)A dilution was necessary due to sample matrix; therefore, detection limits were raised.
(r)Result is above MDL, but below PQL.
(s)High surrogate recovery due to matrix interference.
** means Coeluting Compounds*
ND means Not Detected or below reported MDL
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***mg/kg** means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)*

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BH-8 16'-20'

LABORATORY ANALYSIS REPORT

DATE:	*April 9, 1999*	***PAGE:***	*3 Of 20*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*031799-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/16/99*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/17/99*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Ruth Mickel*		

BH-8 16-20

		Sample No.:		***L20649-3***
		Sample ID.:		***S-990316-DS-03***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
EPA 8020/WIS DNR GRO[(dd)]				
Date Analyzed: 3/26/99				
Methyl tert butyl ether	*mg/kg*	*4.0*	*20*	*ND*
Benzene	*mg/kg*	*4.0*	*20*	*ND*
Toluene	*mg/kg*	*4.0*	*20*	*[(r)]6.0*
Ethylbenzene	*mg/kg*	*4.0*	*20*	*[(r)]19*
*m,p-Xylene**	*mg/kg*	*6.0*	*20*	*77*
o-Xylene	*mg/kg*	*4.0*	*20*	*[(r)]6.1*
Gasoline Range Organics	*mg/kg*	*20*	*40*	*1800*

Surrogate Recovery	***Detector***	***% Recovery***
1-chloro-4-Fluorobenzene	*FID*	*[(s)]191%*
1-chloro-4-Fluorobenzene	*PID*	*118%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead (6010B)	*mg/kg*	*5.0*	*6.0*	*3/25/99*

[(dd)]A dilution was necessary due to sample matrix; therefore, detection limits were raised.
[(r)]Result is above MDL, but below PQL.
[(s)]High surrogate recovery due to matrix interference.
** means Coeluting Compounds*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***mg/kg** means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)*

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BH-9
12'-16'

LABORATORY ANALYSIS REPORT

DATE:	April 9, 1999	**PAGE:**	4 Of 20
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	031799-200153 3/16/99 Client 3/17/99 13311
CONTACT:	Ruth Mickel		

BH-3 12-16'

		Sample No.:		**L20649-4**
		Sample ID.:		**S-990316-DS-04**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO				
Date Analyzed: 3/26/99				
Methyl tert butyl ether	mg/kg	0.2	1.0	ND
Benzene	mg/kg	0.2	1.0	ND
Toluene	mg/kg	0.2	1.0	(r)0.5
Ethylbenzene	mg/kg	0.2	1.0	1.5
m,p-Xylene*	mg/kg	0.3	1.0	4.0
o-Xylene	mg/kg	0.2	1.0	ND
Gasoline Range Organics	mg/kg	1.0	2.0	140

Surrogate Recovery	**Detector**	**% Recovery**
1-chloro-4-Fluorobenzene	FID	(s)227%
1-chloro-4-Fluorobenzene	PID	(s)132%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	17	3/25/99

(r)Result is above MDL, but below PQL.
(s)High surrogate recovery due to matrix interference.
* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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BH-9 12'-16' (Dup)

LABORATORY ANALYSIS REPORT

DATE:	April 9, 1999	**PAGE:**	5 Of 20
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	031799-200153 3/16/99 Client 3/17/99 13311
CONTACT:	Ruth Mickel		

BH-9 12-16 Dup

		Sample No.:		**L20649-5**
		Sample ID.:		**S-990316-DS-05**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO				
Date Analyzed: 3/26,27/99				
Methyl tert butyl ether	mg/kg	0.2	1.0	ND
Benzene	mg/kg	0.2	1.0	ND
Toluene	mg/kg	0.2	1.0	(r)0.7
Ethylbenzene	mg/kg	0.2	1.0	2.4
m,p-Xylene*	mg/kg	0.3	1.0	5.7
o-Xylene	mg/kg	0.2	1.0	(r)0.2
Gasoline Range Organics	mg/kg	10	20	(dd)220

Surrogate Recovery	**Detector**	**3/26 % Rec**	**3/27 % Rec**
1-chloro-4-Fluorobenzene	FID	119%	(s)230%
1-chloro-4-Fluorobenzene	PID	88.7%	114%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	17	3/25/99

(dd) A dilution was necessary due to sample matrix; therefore, detection limits were raised.
(r) Result is above MDL, but below PQL.
(s) High surrogate recovery due to matrix interference.
* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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BH-10 16'-20'

LABORATORY ANALYSIS REPORT

DATE:	*April 9, 1999*	***PAGE:***	*6 Of 20*
CLIENT:	*Conestoga-Rovers & Associates* *1801 Old Highway 8* *Suite 114* *St. Paul, MN 55112*	***PROJECT NO.:*** ***COLLECTION DATE:*** ***COLLECTED BY:*** ***RECEIVED DATE:*** ***PROJECT DESCRP.:***	*031799-200153* *3/16/99* *Client* *3/17/99* *13311*
CONTACT:	*Ruth Mickel*		

BH-10 16-20

		Sample No.:		***L20649-6***
		Sample ID.:		***S-990316-DS-06***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
EPA 8020/WIS DNR GRO				
Date Analyzed: 3/26/99				
Methyl tert butyl ether	*mg/kg*	*0.2*	*1.0*	*ND*
Benzene	*mg/kg*	*0.2*	*1.0*	*ND*
Toluene	*mg/kg*	*0.2*	*1.0*	*ND*
Ethylbenzene	*mg/kg*	*0.2*	*1.0*	*ND*
*m,p-Xylene**	*mg/kg*	*0.3*	*1.0*	*ND*
o-Xylene	*mg/kg*	*0.2*	*1.0*	*ND*
Gasoline Range Organics	*mg/kg*	*1.0*	*2.0*	*(r)1.3*

Surrogate Recovery	***Detector***	***% Recovery***
1-chloro-4-Fluorobenzene	*FID*	*121%*
1-chloro-4-Fluorobenzene	*PID*	*90.0%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead (6010B)	*mg/kg*	*5.0*	*9.4*	*3/25/99*

(r)Result is above MDL, but below PQL.
** means Coeluting Compounds*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***mg/kg** means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)*

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BH-11 16'-20'

LABORATORY ANALYSIS REPORT

DATE:	April 9, 1999	**PAGE:**	7 Of 20
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	031799-200153 3/16/99 Client 3/17/99 13311
CONTACT:	Ruth Mickel		

BH-11 16-20

				Sample No.:	**L20649-7**
				Sample ID.:	**S-990316-DS-07**
ANALYSIS	**UNITS**	**MDL**	**PQL**		**RESULT**
EPA 8020/WIS DNR GRO					
Date Analyzed: 3/26/99					
Methyl tert butyl ether	mg/kg	0.2	1.0		ND
Benzene	mg/kg	0.2	1.0		ND
Toluene	mg/kg	0.2	1.0		ND
Ethylbenzene	mg/kg	0.2	1.0		ND
m,p-Xylene*	mg/kg	0.3	1.0		ND
o-Xylene	mg/kg	0.2	1.0		ND
Gasoline Range Organics	mg/kg	1.0	2.0		12

Surrogate Recovery	**Detector**	**% Recovery**
1-chloro-4-Fluorobenzene	FID	120%
1-chloro-4-Fluorobenzene	PID	91.9%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	9.4	3/25/99

* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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BH-12
14.5'-16'

LABORATORY ANALYSIS REPORT

DATE:	*April 9, 1999*	*PAGE:*	*8 Of 20*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*031799-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/16/99*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/17/99*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Ruth Mickel*		

BH-12 14.5-16'

		Sample No.:		***L20649-8***
		Sample ID.:		***S-990316-DS-11***
ANALYSIS	***UNITS***	***MDL***	***POL***	***RESULTS***
EPA 8021/MDH 465E List[w]				
Date Analyzed: 3/30/99				
Acetone	*ug/kg*	*50*	*250*	*400*
Allyl Chloride	*ug/kg*	*100*	*500*	*ND*
Benzene	*ug/kg*	*10*	*50*	*ND*
Bromobenzene	*ug/kg*	*20*	*100*	*ND*
Bromochloromethane	*ug/kg*	*15*	*75*	*ND*
Bromodichloromethane	*ug/kg*	*15*	*75*	*ND*
Bromoform	*ug/kg*	*20*	*100*	*ND*
Bromomethane	*ug/kg*	*15*	*75*	*ND*
n-Butylbenzene	*ug/kg*	*20*	*100*	*ND*
sec-Butylbenzene	*ug/kg*	*20*	*100*	*ND*
tert-Butylbenzene	*ug/kg*	*20*	*100*	*ND*
Carbon tetrachloride	*ug/kg*	*15*	*75*	*ND*
Chlorobenzene	*ug/kg*	*20*	*100*	*ND*
Chloroethane	*ug/kg*	*15*	*75*	*ND*
Chloroform	*ug/kg*	*15*	*75*	*ND*
Chloromethane	*ug/kg*	*15*	*75*	*82*
2-Chlorotoluene	*ug/kg*	*20*	*100*	*ND*
4-Chlorotoluene	*ug/kg*	*20*	*100*	*ND*
1,2-Dibromo-3-chloropropane	*ug/kg*	*15*	*75*	*ND*
Dibromochloromethane	*ug/kg*	*15*	*75*	*ND*
1,2-Dibromoethane	*ug/kg*	*15*	*75*	*ND*
Dibromomethane	*ug/kg*	*15*	*75*	*ND*
1,2-Dichlorobenzene	*ug/kg*	*20*	*100*	*ND*
1,3-Dichlorobenzene	*ug/kg*	*20*	*100*	*ND*
1,4-Dichlorobenzene	*ug/kg*	*20*	*100*	*ND*
Dichlorodifluoromethane	*ug/kg*	*75*	*380*	*ND*
1,1-Dichloroethane	*ug/kg*	*15*	*75*	*ND*
1,2-Dichloroethane	*ug/kg*	*15*	*75*	*ND*
1,1-Dichloroethene	*ug/kg*	*15*	*75*	*ND*
cis-1,2-Dichloroethene	*ug/kg*	*15*	*75*	*ND*
trans-1,2-Dichloroethene	*ug/kg*	*15*	*75*	*ND*
Dichlorofluoromethane	*ug/kg*	*10*	*50*	*ND*
1,2-Dichloropropane	*ug/kg*	*10*	*50*	*ND*
1,3-Dichloropropane	*ug/kg*	*15*	*75*	*ND*
2,2-Dichloropropane	*ug/kg*	*15*	*75*	*ND*
1,1-Dichloropropene	*ug/kg*	*15*	*75*	*ND*
cis-1,3-Dichloropropene	*ug/kg*	*15*	*75*	*ND*
trans-1,3-Dichloropropene	*ug/kg*	*15*	*75*	*ND*
Ethyl Ether	*ug/kg*	*15*	*75*	*ND*

[w]Result reported on a wet weight basis.
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***ug/kg** means Micrograms Per Kilogram which is equivalent to Parts Per Billion (ppb)*

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BH-12
14.5'-16'

LABORATORY ANALYSIS REPORT

DATE:	*April 9, 1999*	***PAGE:***	*9 Of 20*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*031799-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/16/99*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/17/99*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Ruth Mickel*		

BH-12 14.5-16

				Sample No.:	***L20649-8***
				Sample ID.:	***S-990316-DS-11***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULTS***
EPA 8021/MDH 465E List[w]				
Date Analyzed: 3/30/99				
Ethyl benzene	*ug/kg*	*15*	*75*	*ND*
Hexachlorobutadiene	*ug/kg*	*25*	*130*	*ND*
Isopropylbenzene	*ug/kg*	*15*	*75*	*ND*
p-Isopropyltoluene	*ug/kg*	*20*	*100*	*ND*
Methyl ethyl ketone	*ug/kg*	*50*	*250*	*ND*
Methyl isobutyl ketone	*ug/kg*	*10*	*50*	*ND*
Methyl tert butyl ether	*ug/kg*	*10*	*50*	*ND*
Methylene Chloride	*ug/kg*	*75*	*380*	*ND*
Naphthalene	*ug/kg*	*15*	*75*	*ND*
n-Propylbenzene	*ug/kg*	*20*	*100*	*ND*
Styrene	*ug/kg*	*15*	*75*	*ND*
1,1,1,2-Tetrachloroethane	*ug/kg*	*15*	*75*	*ND*
1,1,2,2-Tetrachloroethane	*ug/kg*	*20*	*100*	*ND*
Tetrachloroethene	*ug/kg*	*20*	*100*	*ND*
Tetrahydrofuran	*ug/kg*	*50*	*250*	*ND*
Toluene	*ug/kg*	*15*	*75*	*ND*
1,2,3-Trichlorobenzene	*ug/kg*	*20*	*100*	*ND*
1,2,4-Trichlorobenzene	*ug/kg*	*25*	*130*	*ND*
1,1,1-Trichloroethane	*ug/kg*	*15*	*75*	*ND*
1,1,2-Trichloroethane	*ug/kg*	*15*	*75*	*ND*
Trichloroethene	*ug/kg*	*10*	*50*	*ND*
Trichlorofluoromethane	*ug/kg*	*20*	*100*	*ND*
1,1,2-Trichlorotrifluoroethane	*ug/kg*	*50*	*250*	*[r]65*
1,2,3-Trichloropropane	*ug/kg*	*20*	*100*	*ND*
1,2,4-Trimethylbenzene	*ug/kg*	*20*	*100*	*ND*
1,3,5-Trimethylbenzene	*ug/kg*	*20*	*100*	*ND*
Vinyl Chloride	*ug/kg*	*20*	*100*	*ND*
o-Xylene	*ug/kg*	*15*	*75*	*ND*
*m,p-Xylene**	*ug/kg*	*30*	*150*	*ND*

Surrogate	***Detector***	***% Rec.***
4-Fluorochlorobenzene	*PID*	*98.9%*
4-Fluorochlorobenzene	*ELCD*	*98.1%*

[w]Result reported on a wet weight basis.
[r]Result is above MDL, but below PQL.
** means Coeluting Compounds*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***ug/kg** means Micrograms Per Kilogram which is equivalent to Parts Per Billion (ppb)*

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BH-12

LABORATORY ANALYSIS REPORT

BH-12 14.5'-16'

DATE:	April 9, 1999	**PAGE:**	10 Of 20
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	031799-200153 3/16/99 Client 3/17/99 13311
CONTACT:	Ruth Mickel		

BH-12 A.S-16

		Sample No.:		**L20649-8**
		Sample ID.:		**S-990316-DS-11**
ANALYSIS	**UNITS**	**MDL**	**POL**	**RESULT**
WIS DNR GRO				
Date Analyzed: 3/26/99				
Gasoline Range Organics	mg/kg	1.0	2.0	ND
Surrogate Recovery	**Detector**		**% Recovery**	
1-Chloro-4-Fluorobenzene	FID		104%	

ANALYSIS	**UNITS**	**MDL**	**POL**	**RESULT**
WIS DNR DRO				
Date Preserved: 3/22/99				
Date Extracted: 3/22/99				
Date Analyzed: 3/27/99				
Diesel Range Organics	mg/kg	2	10	[r]2
Moisture Content	%	0.1	---	8.6

ANALYSIS	**UNITS**	**POL**	**RESULT**	**ANALYSIS DATE**
Arsenic (7060)	mg/kg	0.25	0.90	3/29/99
Barium (6010B)	mg/kg	1.3	36	3/26/99
Cadmium (6010B)	mg/kg	0.5	ND	3/26/99
Chromium (6010B)	mg/kg	1.0	14	3/26/99
Lead (6010B)	mg/kg	5.0	19	3/26/99
Mercury (7470)	mg/kg	0.01	ND	4/08/99
Selenium (7741)	mg/kg	1.0	ND	3/29/99
Silver (6010B)	mg/kg	1.3	ND	3/26/99

[r]*Result is above MDL, but below PQL.*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit.*
***PQL** means Practical Quantification Limit.*
***mg/kg** means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm).*

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BA-12

14.5'-16'

LABORATORY ANALYSIS REPORT

DATE:	*April 9, 1999*	***PAGE:***	*11 Of 20*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*031799-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/16/99*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/17/99*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Ruth Mickel*		

			Sample No.:	***L20649-8***
			Sample ID.:	***S-990316-DS-11***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
Method 8082				
Date Extracted: 3/29/99				
Date Analyzed: 4/08/99				
Arochlor 1016[L][m]	*ug/kg*	*12*	*48*	*ND*
Arochlor 1221	*ug/kg*	*12*	*48*	*ND*
Arochlor 1232	*ug/kg*	*12*	*48*	*ND*
Arochlor 1242	*ug/kg*	*12*	*48*	*ND*
Arochlor 1248	*ug/kg*	*12*	*48*	*ND*
Arochlor 1254	*ug/kg*	*12*	*48*	*ND*
Arochlor 1260[m]	*ug/kg*	*12*	*48*	*ND*

Surrogate	***Limits***	***% Recovery***
Decachlorobiphenyl	*70 - 130%*	*101%*

[L] *LCS recovery was low for this analyte.*
[m] *MS recovery was low for this anallyte.*
ND *means Not Detected or below reported MDL*
MDL *means Method Detection Limit*
PQL *means Practical Quantification Limit*
ug/kg *means Micrograms Per Kilogram which is equivalent to Parts Per Billion (ppb)*

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BH-12 14.5'-16' (DUP)

LABORATORY ANALYSIS REPORT

DATE:	*April 9, 1999*	***PAGE:***	*12 Of 20*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*031799-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/16/99*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/17/99*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Ruth Mickel*		

BH-12 DUP 14.5-16

		Sample No.:		***L20649-9***
		Sample ID.:		***S-990316-DS-12***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULTS***
EPA 8021/MDH 465E List				
Date Analyzed: 3/30/99				
Acetone	*ug/kg*	*50*	*250*	*ND*
Allyl Chloride	*ug/kg*	*100*	*500*	*ND*
Benzene	*ug/kg*	*10*	*50*	*ND*
Bromobenzene	*ug/kg*	*20*	*100*	*ND*
Bromochloromethane	*ug/kg*	*15*	*75*	*ND*
Bromodichloromethane	*ug/kg*	*15*	*75*	*ND*
Bromoform	*ug/kg*	*20*	*100*	*ND*
Bromomethane	*ug/kg*	*15*	*75*	*ND*
n-Butylbenzene	*ug/kg*	*20*	*100*	*ND*
sec-Butylbenzene	*ug/kg*	*20*	*100*	*ND*
tert-Butylbenzene	*ug/kg*	*20*	*100*	*ND*
Carbon tetrachloride	*ug/kg*	*15*	*75*	*ND*
Chlorobenzene	*ug/kg*	*20*	*100*	*ND*
Chloroethane	*ug/kg*	*15*	*75*	*ND*
Chloroform	*ug/kg*	*15*	*75*	*ND*
Chloromethane	*ug/kg*	*15*	*75*	*ND*
2-Chlorotoluene	*ug/kg*	*20*	*100*	*ND*
4-Chlorotoluene	*ug/kg*	*20*	*100*	*ND*
1,2-Dibromo-3-chloropropane	*ug/kg*	*15*	*75*	*ND*
Dibromochloromethane	*ug/kg*	*15*	*75*	*ND*
1,2-Dibromoethane	*ug/kg*	*15*	*75*	*ND*
Dibromomethane	*ug/kg*	*15*	*75*	*ND*
1,2-Dichlorobenzene	*ug/kg*	*20*	*100*	*ND*
1,3-Dichlorobenzene	*ug/kg*	*20*	*100*	*ND*
1,4-Dichlorobenzene	*ug/kg*	*20*	*100*	*ND*
Dichlorodifluoromethane	*ug/kg*	*75*	*380*	*ND*
1,1-Dichloroethane	*ug/kg*	*15*	*75*	*ND*
1,2-Dichloroethane	*ug/kg*	*15*	*75*	*ND*
1,1-Dichloroethene	*ug/kg*	*15*	*75*	*ND*
cis-1,2-Dichloroethene	*ug/kg*	*15*	*75*	*ND*
trans-1,2-Dichloroethene	*ug/kg*	*15*	*75*	*ND*
Dichlorofluoromethane	*ug/kg*	*10*	*50*	*ND*
1,2-Dichloropropane	*ug/kg*	*10*	*50*	*ND*
1,3-Dichloropropane	*ug/kg*	*15*	*75*	*ND*
2,2-Dichloropropane	*ug/kg*	*15*	*75*	*ND*
1,1-Dichloropropene	*ug/kg*	*15*	*75*	*ND*
cis-1,3-Dichloropropene	*ug/kg*	*15*	*75*	*ND*
trans-1,3-Dichloropropene	*ug/kg*	*15*	*75*	*ND*
Ethyl Ether	*ug/kg*	*15*	*75*	*ND*

ND *means Not Detected or below reported MDL*
MDL *means Method Detection Limit*
PQL *means Practical Quantification Limit*
ug/kg *means Micrograms Per Kilogram which is equivalent to Parts Per Billion (ppb)*

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BH-12
14.5' to 16'
(DUP)

LABORATORY ANALYSIS REPORT

DATE: April 9, 1999 **PAGE:** 13 Of 20

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

CONTACT: Ruth Mickel

PROJECT NO.: 031799-200153
COLLECTION DATE: 3/16/99
COLLECTED BY: Client
RECEIVED DATE: 3/17/99
PROJECT DESCRP.: 13311

Sample No.: L20649-9
Sample ID.: S-990316-DS-12

ANALYSIS	UNITS	MDL	PQL	RESULTS
EPA 8021/MDH 465E List				
Date Analyzed: 3/30/99				
Ethyl benzene	ug/kg	15	75	ND
Hexachlorobutadiene	ug/kg	25	130	ND
Isopropylbenzene	ug/kg	15	75	ND
p-Isopropyltoluene	ug/kg	20	100	ND
Methyl ethyl ketone	ug/kg	50	250	ND
Methyl isobutyl ketone	ug/kg	10	50	ND
Methyl tert butyl ether	ug/kg	10	50	ND
Methylene Chloride	ug/kg	75	380	ND
Naphthalene	ug/kg	15	75	ND
n-Propylbenzene	ug/kg	20	100	ND
Styrene	ug/kg	15	75	ND
1,1,1,2-Tetrachloroethane	ug/kg	15	75	ND
1,1,2,2-Tetrachloroethane	ug/kg	20	100	ND
Tetrachloroethene	ug/kg	20	100	ND
Tetrahydrofuran	ug/kg	50	250	ND
Toluene	ug/kg	15	75	ND
1,2,3-Trichlorobenzene	ug/kg	20	100	ND
1,2,4-Trichlorobenzene	ug/kg	25	130	ND
1,1,1-Trichloroethane	ug/kg	15	75	ND
1,1,2-Trichloroethane	ug/kg	15	75	ND
Trichloroethene	ug/kg	10	50	ND
Trichlorofluoromethane	ug/kg	20	100	ND
1,1,2-Trichlorotrifluoroethane	ug/kg	50	250	ND
1,2,3-Trichloropropane	ug/kg	20	100	ND
1,2,4-Trimethylbenzene	ug/kg	20	100	ND
1,3,5-Trimethylbenzene	ug/kg	20	100	ND
Vinyl Chloride	ug/kg	20	100	ND
o-Xylene	ug/kg	15	75	ND
m,p-Xylene*	ug/kg	30	150	ND

Surrogate	Detector	% Rec.
4-Fluorochlorobenzene	PID	86.2%
4-Fluorochlorobenzene	ELCD	76.8%

* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/kg means Micrograms Per Kilogram which is equivalent to Parts Per Billion (ppb)

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BH-12
14.5'-16' (Dup)

LABORATORY ANALYSIS REPORT

DATE:	*April 9, 1999*	*PAGE:*	*14 Of 20*
CLIENT:	*Conestoga-Rovers & Associates* *1801 Old Highway 8* *Suite 114* *St. Paul, MN 55112*	***PROJECT NO.:*** ***COLLECTION DATE:*** ***COLLECTED BY:*** ***RECEIVED DATE:*** ***PROJECT DESCRP.:***	*031799-200153* *3/16/99* *Client* *3/17/99* *13311*
CONTACT:	*Ruth Mickel*		

BH-12 14.5-16 Dup

		Sample No.:		***L20649-9***
		Sample ID.:		***S-990316-DS-12***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
WIS DNR GRO				
Date Analyzed: 3/26/99				
Gasoline Range Organics	*mg/kg*	*1.0*	*2.0*	*ND*
Surrogate Recovery	***Detector***		***% Recovery***	
1-Chloro-4-Fluorobenzene	*FID*		*109%*	

ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
WIS DNR DRO				
Date Preserved: 3/22/99				
Date Extracted: 3/22/99				
Date Analyzed: 3/27/99				
Diesel Range Organics	*mg/kg*	*2*	*10*	*ND*
Moisture Content	*%*	*0.1*	*---*	*7.1*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Arsenic (7060)	*mg/kg*	*0.25*	*0.85*	*3/29/99*
Barium (6010B)	*mg/kg*	*1.3*	*28*	*3/26/99*
Cadmium (6010B)	*mg/kg*	*0.5*	*ND*	*3/26/99*
Chromium (6010B)	*mg/kg*	*1.0*	*14*	*3/26/99*
Lead (6010B)	*mg/kg*	*5.0*	*16*	*3/26/99*
Mercury (7470)	*mg/kg*	*0.01*	*ND*	*4/08/99*
Selenium (7741)	*mg/kg*	*1.0*	*ND*	*3/29/99*
Silver (6010B)	*mg/kg*	*1.3*	*ND*	*3/26/99*

ND means Not Detected or below reported MDL
MDL means Method Detection Limit.
PQL means Practical Quantification Limit.
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm).

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BH-12 14.5'-15' (DUP)

LABORATORY ANALYSIS REPORT

DATE:	April 9, 1999	**PAGE:**	15 Of 20
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	031799-200153 3/16/99 Client 3/17/99 13311
CONTACT:	Ruth Mickel		

BH-12 14.5-15' DUP

			Sample No.:	**L20649-9**
			Sample ID.:	**S-990316-DS-12**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
Method 8082				
Date Extracted: 3/29/99				
Date Analyzed: 4/08/99				
Arochlor 1016[(L)(m)]	ug/kg	12	48	ND
Arochlor 1221	ug/kg	12	48	ND
Arochlor 1232	ug/kg	12	48	ND
Arochlor 1242	ug/kg	12	48	ND
Arochlor 1248	ug/kg	12	48	ND
Arochlor 1254	ug/kg	12	48	ND
Arochlor 1260[(m)]	ug/kg	12	48	ND

Surrogate	**Limits**	**% Recovery**
Decachlorobiphenyl	70 - 130%	101%

[(L)] LCS recovery was low for this analyte.
[(m)] MS recovery was low for this anallyte.
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/kg means Micrograms Per Kilogram which is equivalent to Parts Per Billion (ppb)

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BH-13
14'-16'

LABORATORY ANALYSIS REPORT

DATE:	*April 9, 1999*	***PAGE:***	*16 Of 20*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*031799-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/16/99*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/17/99*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Ruth Mickel*		

BH-13 14'-16'

		Sample No.:		***L20649-10***
		Sample ID.:		***S-990316-DS-13***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULTS***
EPA 8021/MDH 465E List				
Date Analyzed: 3/30/99				
Acetone	*ug/kg*	*50*	*250*	*ND*
Allyl Chloride	*ug/kg*	*100*	*500*	*ND*
Benzene	*ug/kg*	*10*	*50*	*ND*
Bromobenzene	*ug/kg*	*20*	*100*	*ND*
Bromochloromethane	*ug/kg*	*15*	*75*	*ND*
Bromodichloromethane	*ug/kg*	*15*	*75*	*ND*
Bromoform	*ug/kg*	*20*	*100*	*ND*
Bromomethane	*ug/kg*	*15*	*75*	*ND*
n-Butylbenzene	*ug/kg*	*20*	*100*	*ND*
sec-Butylbenzene	*ug/kg*	*20*	*100*	*ND*
tert-Butylbenzene	*ug/kg*	*20*	*100*	*ND*
Carbon tetrachloride	*ug/kg*	*15*	*75*	*ND*
Chlorobenzene	*ug/kg*	*20*	*100*	*ND*
Chloroethane	*ug/kg*	*15*	*75*	*ND*
Chloroform	*ug/kg*	*15*	*75*	*ND*
Chloromethane	*ug/kg*	*15*	*75*	*ND*
2-Chlorotoluene	*ug/kg*	*20*	*100*	*ND*
4-Chlorotoluene	*ug/kg*	*20*	*100*	*ND*
1,2-Dibromo-3-chloropropane	*ug/kg*	*15*	*75*	*ND*
Dibromochloromethane	*ug/kg*	*15*	*75*	*ND*
1,2-Dibromoethane	*ug/kg*	*15*	*75*	*ND*
Dibromomethane	*ug/kg*	*15*	*75*	*ND*
1,2-Dichlorobenzene	*ug/kg*	*20*	*100*	*ND*
1,3-Dichlorobenzene	*ug/kg*	*20*	*100*	*ND*
1,4-Dichlorobenzene	*ug/kg*	*20*	*100*	*ND*
Dichlorodifluoromethane	*ug/kg*	*75*	*380*	*ND*
1,1-Dichloroethane	*ug/kg*	*15*	*75*	*ND*
1,2-Dichloroethane	*ug/kg*	*15*	*75*	*ND*
1,1-Dichloroethene	*ug/kg*	*15*	*75*	*ND*
cis-1,2-Dichloroethene	*ug/kg*	*15*	*75*	*ND*
trans-1,2-Dichloroethene	*ug/kg*	*15*	*75*	*ND*
Dichlorofluoromethane	*ug/kg*	*10*	*50*	*ND*
1,2-Dichloropropane	*ug/kg*	*10*	*50*	*ND*
1,3-Dichloropropane	*ug/kg*	*15*	*75*	*ND*
2,2-Dichloropropane	*ug/kg*	*15*	*75*	*ND*
1,1-Dichloropropene	*ug/kg*	*15*	*75*	*ND*
cis-1,3-Dichloropropene	*ug/kg*	*15*	*75*	*ND*
trans-1,3-Dichloropropene	*ug/kg*	*15*	*75*	*ND*
Ethyl Ether	*ug/kg*	*15*	*75*	*ND*

***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***ug/kg** means Micrograms Per Kilogram which is equivalent to Parts Per Billion (ppb)*

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B4-13

14'-16'

LABORATORY ANALYSIS REPORT

DATE: April 9, 1999 **PAGE:** 17 Of 20

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 031799-200153
COLLECTION DATE: 3/16/99
COLLECTED BY: Client
RECEIVED DATE: 3/17/99
PROJECT DESCRP.: 13311

CONTACT: Ruth Mickel

B-13 14-16

		Sample No.:		L20649-10
		Sample ID.:		S-990316-DS-13
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List				
Date Analyzed: 3/30/99				
Ethyl benzene	ug/kg	15	75	ND
Hexachlorobutadiene	ug/kg	25	130	ND
Isopropylbenzene	ug/kg	15	75	ND
p-Isopropyltoluene	ug/kg	20	100	ND
Methyl ethyl ketone	ug/kg	50	250	ND
Methyl isobutyl ketone	ug/kg	10	50	ND
Methyl tert butyl ether	ug/kg	10	50	ND
Methylene Chloride	ug/kg	75	380	ND
Naphthalene	ug/kg	15	75	ND
n-Propylbenzene	ug/kg	20	100	ND
Styrene	ug/kg	15	75	ND
1,1,1,2-Tetrachloroethane	ug/kg	15	75	ND
1,1,2,2-Tetrachloroethane	ug/kg	20	100	ND
Tetrachloroethene	ug/kg	20	100	ND
Tetrahydrofuran	ug/kg	50	250	ND
Toluene	ug/kg	15	75	ND
1,2,3-Trichlorobenzene	ug/kg	20	100	ND
1,2,4-Trichlorobenzene	ug/kg	25	130	ND
1,1,1-Trichloroethane	ug/kg	15	75	ND
1,1,2-Trichloroethane	ug/kg	15	75	ND
Trichloroethene	ug/kg	10	50	ND
Trichlorofluoromethane	ug/kg	20	100	ND
1,1,2-Trichlorotrifluoroethane	ug/kg	50	250	ND
1,2,3-Trichloropropane	ug/kg	20	100	ND
1,2,4-Trimethylbenzene	ug/kg	20	100	ND
1,3,5-Trimethylbenzene	ug/kg	20	100	ND
Vinyl Chloride	ug/kg	20	100	ND
o-Xylene	ug/kg	15	75	ND
m,p-Xylene*	ug/kg	30	150	ND

Surrogate	**Detector**	**% Rec.**
4-Fluorochlorobenzene	PID	92.4%
4-Fluorochlorobenzene	ELCD	89.3%

* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/kg means Micrograms Per Kilogram which is equivalent to Parts Per Billion (ppb)

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BH-13

14'-16'

LABORATORY ANALYSIS REPORT

DATE:	*April 9, 1999*	*PAGE:*	*18 Of 20*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*031799-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/16/99*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/17/99*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Ruth Mickel*		

BH-13 14-16'

		Sample No.:		***L20649-10***
		Sample ID.:		***S-990316-DS-13***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
WIS DNR GRO				
Date Analyzed: 3/26/99				
Gasoline Range Organics	*mg/kg*	*1.0*	*2.0*	*ND*
Surrogate Recovery	***Detector***		***% Recovery***	
1-Chloro-4-Fluorobenzene	*FID*		*108%*	

ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
WIS DNR DRO				
Date Preserved: 3/26/99				
Date Extracted: 3/30/99				
Date Analyzed: 3/31/99				
Diesel Range Organics	*mg/kg*	*2*	*10*	*ND*
Moisture Content	*%*	*0.1*	*---*	*12.2*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Arsenic (7060)	*mg/kg*	*0.25*	*0.68*	*3/29/99*
Barium (6010B)	*mg/kg*	*1.3*	*30*	*3/26/99*
Cadmium (6010B)	*mg/kg*	*0.5*	*ND*	*3/26/99*
Chromium (6010B)	*mg/kg*	*1.0*	*16*	*3/26/99*
Lead (6010B)	*mg/kg*	*5.0*	*15*	*3/26/99*
Mercury (7470)	*mg/kg*	*0.01*	*ND*	*4/08/99*
Selenium (7740)	*mg/kg*	*1.0*	*ND*	*3/29/99*
Silver (6010B)	*mg/kg*	*1.3*	*ND*	*3/26/99*

ND means Not Detected or below reported MDL
***MDL** means Method Detection Limit.*
***PQL** means Practical Quantification Limit.*
***mg/kg** means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm).*

SPECTRUM LABS INC
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BH-13

LABORATORY ANALYSIS REPORT

DATE:	April 9, 1999	**PAGE:**	19 Of 20
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	031799-200153 3/16/99 Client 3/17/99 13311
CONTACT:	Ruth Mickel		

BH-13

		Sample No.:		**L20649-10**
		Sample ID.:		**S-990316-DS-13**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
Method 8082				
Date Extracted: 3/29/99				
Date Analyzed: 4/08/99				
Arochlor 1016[(L)(m)]	ug/kg	12	48	ND
Arochlor 1221	ug/kg	12	48	ND
Arochlor 1232	ug/kg	12	48	ND
Arochlor 1242	ug/kg	12	48	ND
Arochlor 1248	ug/kg	12	48	ND
Arochlor 1254	ug/kg	12	48	ND
Arochlor 1260[(m)]	ug/kg	12	48	ND

Surrogate	**Limits**	**% Recovery**
Decachlorobiphenyl	70 - 130%	87.9%

[(L)] LCS recovery was low for this analyte.
[(m)] MS recovery was low for this anallyte.
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/kg means Micrograms Per Kilogram which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE:	*April 9, 1999*	***PAGE:***	*20 Of 20*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*031799-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/16/99*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/17/99*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Ruth Mickel*		

This report has been reviewed by me for technical accuracy and completeness. The analyses were performed using EPA or other approved methodologies and the results were reported on a dry weight basis unless otherwise noted. The results reported relate only to the items tested. Please contact me if you have any questions or comments regarding this report. Spectrum Labs, Inc. appreciates the opportunity to provide this analytical service for you.

Report Submitted By,

Gerard Herro for GH
Laboratory Manager

GJH:wmc
cra096-2

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA-ROVERS & ASSOCIATES
1801 OLD HWY. 8, SUITE 114
ST. PAUL, MN 55112 (612)639-0913

SHIPPED TO (Laboratory Name): Spectrum

REFERENCE NUMBER: 13311

SAMPLER'S SIGNATURE: [signature] PRINTED NAME: D. Sheild

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	Base/Neutral GRO	Lead	Tox/GRO/DRO	RCRA Metals	PCBs					REMARKS
1	3-16-99		S-990316-DS-01 BH-6 8-12feet	Soil	3	X	X								STANDARD TURNAROUND
2	↓		S-990316-DS-02 BH-7 16-20ft	↓	3	X	X								
3			S-990316-DS-03 BH-8 16-20ft		3	X	X								Please Observe
4			S-990316-DS-04 BH-9 12-16ft		3	X	X								DRO spikes 1-4
5			S-990316-DS-05 BH-9 Dup 12-16ft		3	X	X								Samples 1-7
6			S-990316-DS-06 BH-10 12-16ft			X	X								~~or if possible~~
7			S-990316-DS-07 BH-11 16-20ft			X	X								~~Take DRO out of~~
8			Gap in # sequence												~~the 1-7 containers~~
9			S-990316-DS-11 BH-12 14.5-16ft		5			X	X	X					~~and Analyze for~~
10			S-990316-DS-12 BH-12 Dup 14.5-16ft		5			X	X	X					~~DRO~~
11	↓		S-990316-DS-13 BH-13 14-16ft	↓	5			X	X	X					~~or Both~~
															Recent observe DSpikes
															CALL DAVE SHEILD
															or Ruth Wickel
															with Questions.

TOTAL NUMBER OF CONTAINERS: 30 | HEALTH/CHEMICAL HAZARDS:

RELINQUISHED BY: ① [signature]	DATE: 3-17-99 TIME: 7:37	RECEIVED BY: ② [signature]	DATE: 3/17/99 TIME: 7:37
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: Self WAY BILL No.

White —Fully Executed Copy
Yellow —Receiving Laboratory Copy
Pink —Shipper Copy
Goldenrod —Sampler Copy

SAMPLE TEAM: DAEILD

RECEIVED FOR LABORATORY BY:
DATE: TIME:

№ 02282

1001 JULY 19/93 REV.0 (F-42)

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA–ROVERS & ASSOCIATES
1801 OLD HWY. 8, SUITE 114
ST. PAUL, MN 55112 (612)639–0913

SHIPPED TO (Laboratory Name): Spectrum

REFERENCE NUMBER: 13311

SAMPLER'S SIGNATURE: [signature] PRINTED NAME: D. SHEILD

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	BTEX/MTBE/GRO	Lead	VOC/GRO/DRO	ABN/DRO/Metals	PCB's	REMARKS
1	3-16-99		S-990316-DS-01	Soil	3	X	X				STANDARD TURN AROUND
2			S-990316-DS-02		3	X	X				
3			S-990316-DS-03		3	X	X				Please Observe
4			S-990316-DS-04		3	X	X				DRO spikes in
5			S-990316-DS-05		3	X	X				samples 1-7
6			S-990316-DS-06			X	X				~~or if possible~~
7			S-990316-DS-07			X	X				~~TAKE DRO out of~~
8			GAP IN # SEQUENCE								~~the 1-7 Good Jars~~
8			S-990316-DS-11		5			X	X	X	~~and Analyse for~~
9			S-990316-DS-12		5			X	X	X	DRO
10	↓		S-990316-DS-13		5			X	X	X	~~OR Both~~
											Record Observed Spikes
											CALL DAVE SHEILD
											or Both Marked
											with Questions.
			TOTAL NUMBER OF CONTAINERS		30						HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY: ① [signature]	DATE: 3-17-99 TIME: 1:37	RECEIVED BY: ② Patrick Lynch	DATE: 3/17/99 TIME: 1:37
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: Self

WAY BILL No.

White –Fully Executed Copy
Yellow –Receiving Laboratory Copy
Pink –Shipper Copy
Goldenrod –Sampler Copy

SAMPLE TEAM: SHEILD

RECEIVED FOR LABORATORY BY:

DATE: TIME:

No 02282

1001 JULY 19/93 REV.0 (F-42)

TABLE 9						
Quality Control Summary						
VOC 8020/GRO						
3/26/99						
Compound	*Method Blank*	*LCS*	*LCSD*	*RPD*	*LCS*	*RPD*
		% Rec	*% Rec*		*Limit*	*Limit*
Methyl Tert Butyl Ether	<0.2 ug/Kg	102	110	7.78	68.6-110	20
Benzene	<0.2 ug/Kg	86.4	78.3	9.82	69.0-114	20
Toluene	<0.2 ug/Kg	97.8	89.9	8.42	85.3-114	20
Ethylbenzene	<0.2 ug/Kg	98.9	91	8.32	89.5-120	20
p,m-Xylene	<0.3 ug/Kg	101	93.3	7.53	85.9-119	20
o-Xylene	<0.2 ug/Kg	95.8	91.5	4.60	90.9-122	20
GRO	<1.0 ug/Kg	103	101	1.73	80.0-120	20
1-Chloro-4-Fluorobenzene FID	101%	124%	110%		69.2-136	
1-Chloro-4-Fluorobenzene PID	81.2%	98.0%	91.1%		78.5-122	

TABLE 8 Continued						
Quality Control Summary						
VOC 8021/465E						
2/16/99						
	LCS	*LCSD*	*RPD*	*Method Blank*	*RPD*	*LCS*
Compound	*% Rec*	*% Rec*		*ug/Kg*	*Limit*	*Limit*
Naphthalene	85.1	93.6	9.49	<20	20	75.0-125
n-Butylbenzene	97.9	100	2.57	<20	20	75.0-125
n-Propylbenzene	101	104	2.96	<20	20	75.0-125
o-Xylene	101	105	3.57	<15	20	75.0-125
p-Isopropyltoluene	97.8	102	3.68	<20	20	75.0-125
sec-Butylbenzene	98.1	101	2.94	<20	20	75.0-125
Styrene	102	105	3.71	<15	20	75.0-125
tert-Butylbenzene	97.9	101	2.76	<20	20	75.0-125
Tetrachloroethene	96.9	98.4	1.61	<20	20	75.0-125
Tetrahydrofuran	83.8	91.1	8.36	<50	20	75.0-125
Toluene	106	113	6.39	180	20	75.0-125
trans-1,2-Dichloroethene	95.1	94.2	0.866	<15	20	75.0-125
trans-1,3-Dichloropropene	103	105	2.34	<15	20	75.0-125
Trichloroethene	92.6	93.8	1.23	<10	20	75.0-125
Trichlorofluoromethane	95.1	97.2	2.19	<20	20	75.0-125
1,1,2-Trichlorotrifluoroethane	105	118	12.2	<50	20	75.0-125
Vinyl Chloride	81.3	88.9	8.93	1100	20	75.0-125
4-Fluorochlorobenzene-ELCD	133	127		94.5		70.0-130
4-Fluorochlorobenzene-PID	97.3	93.4		92.6		70.0-130

The blank contained appreciable levels of certain compounds, however two of the samples in this project did not contain these compounds. The contamination is believed to be isolated to the methanol used in preparing the blank and the laboratory control standards and the method blank. This contamination is also believed to be the cause of the elevated recoveries.

TABLE 8						
Quality Control Summary						
VOC 8021/465E						
3/30/99						
	LCS	*LCSD*	*RPD*	*Method Blank*	*RPD*	*LCS*
Compound	*% Rec*	*% Rec*		*ug/Kg*	*Limit*	*Limit*
1,1,1,2-Tetrachloroethane	103	105	1.89	<15	20	75.0-125
1,1,1-Trichloroethane	99.1	104	4.54	<15	20	75.0-125
1,1,2,2-Tetrachloroethane	99.1	103	3.55	<20	20	75.0-125
1,1,2-Trichloroethane	95.3	98.7	3.51	<15	20	75.0-125
1,1-Dichloroethane	96.5	103	6.34	<15	20	75.0-125
1,1-Dichloroethene	99.1	96.4	2.70	<15	20	75.0-125
1,1-Dichloropropene	93.6	92.5	1.19	<15	20	75.0-125
1,2,3-Trichlorobenzene	77.0	87.6	12.8	<20	20	75.0-125
1,2,3-Trichloropropane	93.4	98.4	5.28	<20	20	75.0-125
1,2,4-Trichlorobenzene	88.2	95.1	7.59	<25	20	75.0-125
1,2,4-Trimethylbenzene	98.2	101	3.16	<20	20	75.0-125
1,2-Dibromo-3-chloropropane	92.4	140	40.7	<15	20	75.0-125
1,2-Dibromoethane	80.0	82.4	3.06	<15	20	75.0-125
1,2-Dichlorobenzene	96.7	101	4.07	<20	20	75.0-125
1,2-Dichloroethane	92.4	99.4	7.29	<15	20	75.0-125
1,2-Dichloropropane	92.0	98.5	6.83	<10	20	75.0-125
1,3,5-Trimethylbenzene	98.7	101	2.79	<20	20	75.0-125
1,3-Dichlorobenzene	98.2	101	3.14	<20	20	75.0-125
1,3-Dichloropropane	95.0	96.5	1.55	<15	20	75.0-125
1,4-Dichlorobenzene	104	107	2.99	<20	20	75.0-125
2,2-Dichloropropane	117	130	11.0	<15	20	75.0-125
2-Chlorotoluene	98.7	102	3.31	<20	20	75.0-125
4-Chlorotoluene	100	104	3.50	<20	20	75.0-125
Acetone	292	271	7.72	350	20	75.0-125
Allyl Chloride	88.2	91.1	3.22	<100	20	75.0-125
Benzene	94.1	94.5	0.456	<10	20	75.0-125
Bromobenzene	96.5	99.9	3.442	<20	20	75.0-125
Bromochloromethane	93.1	100	7.26	<15	20	75.0-125
Bromodichloromethane	96.9	101	4.19	<15	20	75.0-125
Bromoform	83.9	89.6	6.51	<20	20	75.0-125
Bromomethane	87.2	86.6	0.650	<15	20	75.0-125
Carbon Tetrachloride	102	107	4.93	<15	20	75.0-125
Chlorobenzene	96.9	98.7	1.92	<20	20	75.0-125
Chloroethane	88.1	91.6	3.95	<15	20	75.0-125
Chloroform	100	113	12.1	<15	20	75.0-125
Chloromethane	95.7	96.5	0.775	<15	20	75.0-125
cis-1,2-Dichloroethene	93.1	94.1	1.03	<15	20	75.0-125
cis-1,3-Dichloropropene	104	105	1.08	<15	20	75.0-125
Dibromochloromethane	87.9	90.9	3.32	<15	20	75.0-125
Dibromomethane	79.0	83.6	5.65	<15	20	75.0-125
Dichlorodifluoromethane	36.6	31.6	14.7	<75	20	75.0-125
Dichlorofluormethane	94.7	102	7.77	<10	20	75.0-125
Ethyl Ether	129	135	4.47	360	20	75.0-125
Ethylbenzene	96.2	98.8	2.58	<15	20	75.0-125
Hexachlorobutadiene	105	119	12.9	<25	20	75.0-125
Isopropylbenzene	98.6	101	2.79	<15	20	75.0-125
m&p-Xylenes	98.4	101	2.70	<30	20	75.0-125
Methyl Ethyl Ketone	93.1	94.1	1.03	<15	20	75.0-125
Methyl Iso Butyl Ketone	158	108	6.09	<10	20	75.0-125
Methyl Tert Butyl Ether	123	226	35.2	1400	20	75.0-125
Methylene Chloride	65.9	229	60.2	830	20	75.0-125

TABLE 5						
Quality Control Summary						
Mercury 7470						
4/8/99						
	LCS	*Method*	*20649-8*	*20649-8*	*LCS*	*MS*
		Blank	*MS*	*Duplicate*	*Limit*	*Limit*
	% Rec		*% Rec*			
Mercury	87.4	<0.01 mg/Kg	91.8	<0.01 mg/Kg	90.0-110	75.0-125

The LCS is below the stated limits, the data was accepted based on the matrix spike recovery.

TABLE 6								
Quality Control Summary								
Selenium 7741								
3/29/99								
			20649-8	*20649-9*	*20649-8*			
	LCS	*Method*	*MS*	*AS*	*Duplicate*	*LCS*	*MS*	*RPD*
	% Rec	*Blank*	*% Rec*	*% Rec*		*Limit*	*Limit*	*Limit*
Selenium	97.4	<1.0 mg/Kg	107	110	<1.0 mg/Kg	90.0-110	75.0-125	<20%

TABLE 7							
Quality Control Summary							
ICP Metals 6010B							
3/26/99							
		Method	*20649-9*	*20649-9*			
	LCS	*Blank*	*MS*	*DUP*	*LCS*	*MS*	*RPD*
	% Rec	*mg/Kg*	*% Rec*	*RPD*	*Limit*	*Limit*	*Limit*
Barium	97.6	<1.3	95.2	16.6	90.0-110	75.0-125	20
Cadmiun	95.6	<0.5	88.8	<0.5 mg/Kg	90.0-110	75.0-125	20
Chromium	93.8	<1.0	95.4	1.80	90.0-110	75.0-125	20
Lead	114	<5.0	92.1	56.8	90.0-110	75.0-125	20
Silver	101	<1.3	92.3	<1.3 mg/Kg	90.0-110	75.0-125	20

The RPD between sample 20649-9 and it's duplicate was high. This is believed to be due to the homogeneity of the sample. "The result reported was the one which best correlated with the matrix spike.

TABLE 2							
Quality Control Summary							
WIS DRO							
3/27/99					*20457-1*		
Compound	*Method Blank*	*LCS*	*LCSD*	*LCS 2nd*	*Duplicate*	*RPD*	LCS
		% Rec	*% Rec*	*% Rec*	*RPD*	*Limit*	Limit
DRO	<2 mg/Kg	76.5	79.8	75.5	68.1	20%	70.0-120%

The sample used to duplicate was not a CRA sample, but was a also a soil.
The RPD between sample 20457-1 and the duplicate was high, this is believed to be due to elevated concentrations and the homogeneity of the sample.

TABLE 3							
Quality Control Summary							
PCB 8082							
4/8/99			*20626-1*	*20626-1*	*LCS*	*MS*	*RPD*
Compound	*Method Blank*	*LCS*	*MS*	*Duplicate*	*Limit*	*Limit*	*Limit*
		% Rec	*% Rec*	*RPD*			
Arochlor 1016	<0.06 ug/L	61.2	58.9	14.2	70.0-130	70.0-130	<20
Arochlor 1260	<0.02 ug/L	75.8	52.2	18.8	70.0-130	70.0-130	<20
Decachlorobiphenyl	97.7%	105%	97.0%				

The LCS and the MS recovery for Arochlor 1016 were below the stated control limits. The report was appropriately qualified.
The MS recovery for Arochlor 1260 was below the stated control limits. The report was appropriately qualified.

TABLE 4								
Quality Control Summary								
Arsenic 7060								
3/29/99								
	LCS	*Method*	*20649-9*	*20649-8*	*20649-8*	*LCS*	*MS/AS*	*RPD*
		Blank	*AS*	*Duplicate*	*MS*	*Limit*	*Limit*	*Limit*
			% Rec	*RPD*	*% Rec*			
	% Rec							
Arsenic	106	<0.25 mg/Kg	111	3.22	96.2	90.0-110%	75.0-125%	<20

TABLE 1	
Summary of Samples Received	
Description	**Spectrum Labs ID Number**
S-990316-DS-01	L20649-1
S-990316-DS-02	L20649-2
S-990316-DS-03	L20649-3
S-990316-DS-04	L20649-4
S-990316-DS-05	L20649-5
S-990316-DS-06	L20649-6
S-990316-DS-07	L20649-7
S-990316-DS-11	L20649-8
S-990316-DS-12	L20649-9
S-990316-DS-13	L20649-10

The samples were received intact and in good condition on 3/17/99 at 1.37 PM by Patrick Lynch.

13311

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LABORATORY ANALYSIS REPORT

DATE:	*March 20, 2000*	***PAGE:***	*1 Of 9*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*030600-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/01-03/00*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/06/00*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Grant Anderson*		

MW-1 (2-4')

		Sample No.:		***31573-1***
		Sample ID.:		***S-000301-DS-01***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
EPA 8020/WIS DNR GRO				
Date Analyzed: 3/10/00				
Methyl tert butyl ether	*mg/kg*	*0.022*	*1.0*	*ND*
Benzene	*mg/kg*	*0.026*	*1.0*	*ND*
Toluene	*mg/kg*	*0.027*	*1.0*	*ND*
Ethylbenzene	*mg/kg*	*0.028*	*1.0*	*ND*
*m,p-Xylene**	*mg/kg*	*0.059*	*1.0*	*ND*
o-Xylene	*mg/kg*	*0.023*	*1.0*	*ND*
Gasoline Range Organics	*mg/kg*	*1.2*	*2.0*	*ND*

Surrogate Recovery	***Detector***	***% Recovery***
1-chloro-4-Fluorobenzene	*PID*	*103%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead (6010B)	*mg/kg*	*5.0*	*13*	*3/20/00*
Total Solids (160.3)	*%*	*0.1*	*95*	*3/13/00*

** means Coeluting Compounds*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***mg/kg** means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)*

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LABORATORY ANALYSIS REPORT

DATE:	March 20, 2000	**PAGE:**	2 Of 9
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	030600-200153 3/01-03/00 Client 3/06/00 13311
CONTACT:	Grant Anderson		

MW-2 (16-18')

		Sample No.:		31573-2
		Sample ID.:		S-000301-DS-02
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO[(dd)]				
Date Analyzed: 3/10/00				
Methyl tert butyl ether	mg/kg	0.044	2.0	ND
Benzene	mg/kg	0.052	2.0	ND
Toluene	mg/kg	0.054	2.0	ND
Ethylbenzene	mg/kg	0.056	2.0	ND
m,p-Xylene*	mg/kg	0.12	2.0	ND
o-Xylene	mg/kg	0.046	2.0	ND
Gasoline Range Organics	mg/kg	2.4	4.0	ND

Surrogate Recovery	**Detector**	**% Recovery**
1-chloro-4-Fluorobenzene	PID	103%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	14	3/20/00
Total Solids (160.3)	%	0.1	83	3/13/00

[(dd)] *A dilution was necessary due to sample matrix; therefore, detection limits were raised.*
* *means Coeluting Compounds*
ND *means Not Detected or below reported MDL*
MDL *means Method Detection Limit*
PQL *means Practical Quantification Limit*
mg/kg *means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)*

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LABORATORY ANALYSIS REPORT

DATE:	March 20, 2000	**PAGE:**	3 Of 9
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	030600-200153 3/01-03/00 Client 3/06/00 13311
CONTACT:	Grant Anderson		

MW-3 (10-12')

		Sample No.:		31573-3
		Sample ID.:		S-000302-DS-03
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO[dd]				
Date Analyzed: 3/10/00				
Methyl tert butyl ether	mg/kg	0.044	2.0	ND
Benzene	mg/kg	0.052	2.0	[r]0.50
Toluene	mg/kg	0.054	2.0	[r]0.40
Ethylbenzene	mg/kg	0.056	2.0	2.9
m,p-Xylene*	mg/kg	0.12	2.0	4.7
o-Xylene	mg/kg	0.046	2.0	2.9
Gasoline Range Organics	mg/kg	2.4	4.0	110

Surrogate Recovery	**Detector**	**% Recovery**
1-chloro-4-Fluorobenzene	PID	[s]124%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	16	3/20/00
Total Solids (160.3)	%	0.1	81	3/13/00

[dd]A dilution was necessary due to sample matrix; therefore, detection limits were raised.
[r]Result is above MDL, but below PQL.
* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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LABORATORY ANALYSIS REPORT

DATE:	March 20, 2000	**PAGE:**	4 Of 9
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	030600-200153 3/01-03/00 Client 3/06/00 13311
CONTACT:	Grant Anderson		

BH-24 (10-12')

		Sample No.:		31573-4
		Sample ID.:		S-000302-DS-04
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO[d]				
Date Analyzed: 3/10/00				
Methyl tert butyl ether	mg/kg	0.22	10	ND
Benzene	mg/kg	0.26	10	ND
Toluene	mg/kg	0.27	10	[r]2.2
Ethylbenzene	mg/kg	0.28	10	[r]7.6
m,p-Xylene*	mg/kg	0.59	10	28
o-Xylene	mg/kg	0.23	10	16
Gasoline Range Organics	mg/kg	12	20	440

Surrogate Recovery	**Detector**	**% Recovery**
1-chloro-4-Fluorobenzene	PID	120%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	14	3/20/00
Total Solids (160.3)	%	0.1	84	3/13/00

[d]A dilution was necessary due to levels present; therefore, detection limits were raised.
[r]Result is above MDL, but below PQL.
* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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LABORATORY ANALYSIS REPORT

DATE:	March 20, 2000	**PAGE:**	5 Of 9
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	030600-200153 3/01-03/00 Client 3/06/00 13311
CONTACT:	Grant Anderson		

BH-25
(10-12')

		Sample No.:		31573-5
		Sample ID.:		S-000302-DS-05
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO[(dd)]				
Date Analyzed: 3/10/00				
Methyl tert butyl ether	mg/kg	0.044	2.0	ND
Benzene	mg/kg	0.052	2.0	ND
Toluene	mg/kg	0.054	2.0	ND
Ethylbenzene	mg/kg	0.056	2.0	ND
m,p-Xylene*	mg/kg	0.12	2.0	ND
o-Xylene	mg/kg	0.046	2.0	ND
Gasoline Range Organics	mg/kg	2.4	4.0	ND

Surrogate Recovery	**Detector**	**% Recovery**
1-chloro-4-Fluorobenzene	PID	98.8%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	15	3/20/00
Total Solids (160.3)	%	0.1	95	3/13/00

[(dd)] A dilution was necessary due to sample matrix; therefore, detection limits were raised.
* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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LABORATORY ANALYSIS REPORT

DATE:	March 20, 2000	**PAGE:**	6 Of 9
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	030600-200153 3/01-03/00 Client 3/06/00 13311
CONTACT:	Grant Anderson		

BH-26 (10-12')

		Sample No.:		**31573-6**
		Sample ID.:		**S-000303-DS-06**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO[(dd)]				
Date Analyzed: 3/10/00				
Methyl tert butyl ether	*mg/kg*	*0.044*	*2.0*	*ND*
Benzene	*mg/kg*	*0.052*	*2.0*	*ND*
Toluene	*mg/kg*	*0.054*	*2.0*	*ND*
Ethylbenzene	*mg/kg*	*0.056*	*2.0*	*ND*
*m,p-Xylene**	*mg/kg*	*0.12*	*2.0*	*ND*
o-Xylene	*mg/kg*	*0.046*	*2.0*	*ND*
Gasoline Range Organics	*mg/kg*	*2.4*	*4.0*	*ND*

Surrogate Recovery	***Detector***	***% Recovery***
1-chloro-4-Fluorobenzene	*PID*	*104%*

ANALYSIS	**UNITS**	**PQL**	**RESULT**	***ANALYSIS DATE***
Lead (6010B)	*mg/kg*	*5.0*	*13*	*3/20/00*
Total Solids (160.3)	*%*	*0.1*	*81*	*3/13/00*

[(dd)] A dilution was necessary due to sample matrix; therefore, detection limits were raised.
** means Coeluting Compounds*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***mg/kg** means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)*

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LABORATORY ANALYSIS REPORT

DATE:	*March 20, 2000*	***PAGE:***	*7 Of 9*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*030600-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/01-03/00*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/06/00*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Grant Anderson*		

BH-27 (12-14')

		Sample No.:		***31573-7***
		Sample ID.:		***S-000303-DS-07***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
EPA 8020/WIS DNR GRO[(dd)]				
Date Analyzed: 3/10/00				
Methyl tert butyl ether	*mg/kg*	*0.044*	*2.0*	*ND*
Benzene	*mg/kg*	*0.052*	*2.0*	*ND*
Toluene	*mg/kg*	*0.054*	*2.0*	*ND*
Ethylbenzene	*mg/kg*	*0.056*	*2.0*	*ND*
*m,p-Xylene**	*mg/kg*	*0.12*	*2.0*	*ND*
o-Xylene	*mg/kg*	*0.046*	*2.0*	*ND*
Gasoline Range Organics	*mg/kg*	*2.4*	*4.0*	*ND*

Surrogate Recovery	***Detector***	***% Recovery***
1-chloro-4-Fluorobenzene	*PID*	*99.8%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead (6010B)	*mg/kg*	*5.0*	*ND*	*3/20/00*
Total Solids (160.3)	*%*	*0.1*	*96*	*3/13/00*

[(dd)]A dilution was necessary due to sample matrix; therefore, detection limits were raised.
** means Coeluting Compounds*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***mg/kg** means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)*

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LABORATORY ANALYSIS REPORT

DATE:	March 20, 2000	**PAGE:**	8 Of 9
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	030600-200153 3/01-03/00 Client 3/06/00 13311
CONTACT:	Grant Anderson		

10-12
3H-28

		Sample No.:		31573-8
		Sample ID.:		S-000303-DS-08
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO				
Date Analyzed: 3/10/00				
Methyl tert butyl ether	mg/kg	0.022	1.0	ND
Benzene	mg/kg	0.026	1.0	ND
Toluene	mg/kg	0.027	1.0	ND
Ethylbenzene	mg/kg	0.028	1.0	ND
m,p-Xylene*	mg/kg	0.059	1.0	ND
o-Xylene	mg/kg	0.023	1.0	ND
Gasoline Range Organics	mg/kg	1.2	2.0	ND

Surrogate Recovery	**Detector**	**% Recovery**
1-chloro-4-Fluorobenzene	PID	104%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	20	3/20/00
Total Solids (160.3)	%	0.1	87	3/13/00

* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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LABORATORY ANALYSIS REPORT

DATE:	*March 20, 2000*	***PAGE:***	*9 Of 9*
CLIENT:	*Conestoga-Rovers & Associates* *1801 Old Highway 8* *Suite 114* *St. Paul, MN 55112*	***PROJECT NO.:*** ***COLLECTION DATE:*** ***COLLECTED BY:*** ***RECEIVED DATE:*** ***PROJECT DESCRP.:***	*030600-200153* *3/01-03/00* *Client* *3/06/00* *13311*
CONTACT:	*Grant Anderson*		

This report has been reviewed by me for technical accuracy and completeness. The analyses were performed using EPA or other approved methodologies and the results were reported on a dry weight basis. The results reported relate only to the items tested. Please contact me if you have any questions or comments regarding this report. Spectrum Labs, Inc. appreciates the opportunity to provide this analytical service for you.

Report Submitted By,

Gerard Herro
Laboratory Manager

GJH:wmc
cra080-2

TABLE 1	
Summary of Samples Received	
Description	*Spectrum Labs ID Number*
S-000301-DS-01	31573-1
S-000301-DS-02	31573-2
S-000302-DS-03	31573-3
S-000302-DS-04	31573-4
S-000302-DS-05	31573-5
S-000303-DS-06	31573-6
S-000303-DS-07	31573-7
S-000303-DS-08	31573-8

The samples were received intact and in good condition on 3/06/00 at 3:40 pm by Patrick Lynch

TABLE 2						
Quality Control Summary						
VOC 8021/GRO						
3/10/00 Soil						
Compound	*Method Blank*	*LCS*	*LCSD*	*RPD*	MS	*RPD*
	mg/Kg	*% Rec*	*% Rec*		Limit	*Limit*
Methyl Tert Butyl Ether	<0.022	83.7	82.2	1.88	68.6-110	20
Benzene	<0.026	88.7	88.9	0.2	69.0-114	20
Toluene	<0.027	96.8	97	0.21	85.3-114	20
Ethylbenzene	<0.028	101	102	0.76	89.5-120	20
p,m-Xylene	<0.059	105	105	0.15	85.9-119	20
o-Xylene	<0.023	100	101	0.13	90.9-122	20
GRO	<1.2	112	112	0.25	80.0-120	20
1-Chloro-4-Fluorobenzene PID	100%	102	99.7		78.5-122	

Table 2		
Lead 6010B		
7/14/99 Soil		
Sample	*Result*	*Limit*
Method Blank	<5 mg/Kg	<5 mg/Kg
LCS	140%	75.0-125%
Matrix Spike 31573-4	86.8%	75.0-125%
Matrix Spike Dup 31573-4	89.9%	75.0-125%
RPD	6.47%	20%

The LCS result was high, the data was accepted based on the matrix spike results.

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA–ROVERS & ASSOCIATES
1801 OLD HWY. 8, SUITE 114
ST. PAUL, MN 55112 (612)639–0913

SHIPPED TO (Laboratory Name): Spectrum

REFERENCE NUMBER: 13311

SAMPLER'S SIGNATURE: _____ PRINTED NAME: SHEILD

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS: BTEX MTBE GRO	PARAMETERS: Lead	PARAMETERS: TOTAL Solid	REMARKS
573-1	1	3-1-00	13:00	S-000301-DS-01	Soil	3	/	/	/	CALL GRANT
-2	2	3-1-00	18:40	S-000301-DS-02	↓	↓	/	/	/	With Any
-3	3	3-2-00	14:00	S-000302-DS-03			/	/	/	Questions
-4	4	3-2-00	16:00	S-000302-DS-04			/	/	/	
-5	5	3-2-00	12:00	S-000302-DS-05			/	/	/	
-6	6	3-3-00	15:30	S-000303-DS-06			/	/	/	
-7	7	3-3-00	16:00	S-000303-DS-07			/	/	/	
-8	8	3-3-00	17:45	S-000303-DS-08	↓	↓	/	/	/	

	Soil	JAR	TOTAL
1 (in grams)	31.8	84.09	135.4
2	33.0	89.51	143.2
3	32.8	84.08	137.1
4	33.0	89.16	141.9
5	33.1	89.83	143.2
6	32.5	89.95	142.4
7	33.3	89.94	142.9
8	32.3	89.80	141.6

TOTAL NUMBER OF CONTAINERS: 24 HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY: ① _____	DATE: 3-6-00 TIME: 14:38	RECEIVED BY: ② _____	DATE: TIME:
RELINQUISHED BY: ② _____	DATE: TIME:	RECEIVED BY: ③ _____	DATE: TIME:
RELINQUISHED BY: ③ _____	DATE: TIME:	RECEIVED BY: ④ _____	DATE: TIME:

METHOD OF SHIPMENT: WAY BILL No.

White –Fully Executed Copy
Yellow –Receiving Laboratory Copy
Pink –Shipper Copy
Goldenrod –Sampler Copy

SAMPLE TEAM: SHEILD

RECEIVED FOR LABORATORY BY: Patrick Lynch
DATE: 3/6/00 TIME: 2:40pm

ONICC
№ 03666

1001 JULY 19/93 REV.0 (F-42)

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA-ROVERS & ASSOCIATES
1801 OLD HWY. 8, SUITE 114
ST. PAUL, MN 55112 (612)639-0913

SHIPPED TO (Laboratory Name): Spectrum

REFERENCE NUMBER: 13311

SAMPLER'S SIGNATURE: [signature] PRINTED NAME: SHEILA

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	BTEX WTPH GRO	Lead	Total Solid							REMARKS
1	3-1-00	13:00	S-000301-DS-01 MW-1, 2'-4'	Soil	3	✓	✓	✓							Call Grant
2	3-1-00	18:40	S-000301-DS-02 MW-2 16'-18'	↓	↓	✓	✓	✓							with any
3	3-2-00	14:00	S-000302-DS-03 MW-3 10'-12'	↓	↓	✓	✓	✓							Questions
4	3-2-00	16:00	S-000302-DS-04 BA-24 10'-12'	↓	↓	✓	✓	✓							
5	3-2-00	18:00	S-000302-DS-05 BH-25 10'-12'	↓	↓	✓	✓	✓							
6	3-3-00	15:35	S-000303-DS-06 BH-26 10'-12'	↓	↓	✓	✓	✓							
7	3-3-00	16:00	S-000303-DS-07 BH-27 12'-14'	↓	↓	✓	✓	✓							
8	3-3-00	17:45	S-000303-DS-08 BH-28 10'-12'	↓	↓	✓	✓	✓							
			Soil Tar Total												
1	(in grams)		31.8 84.09 135.4												
2			33.0 89.51 143.2												
3			32.8 84.08 [illegible]												
4			33.0 89.16 141.9												
5			33.1 89.83 143.2												
6			32.5 89.95 142.4												
7			33.3 89.94 142.9												
8			32.3 89.80 141.6												

TOTAL NUMBER OF CONTAINERS: 24 HEALTH/CHEMICAL HAZARDS:

RELINQUISHED BY: ① [signature]	DATE: 3-6-00 TIME: 14:38	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: WAY BILL No.

White —Fully Executed Copy
Yellow —Receiving Laboratory Copy
Pink —Shipper Copy
Goldenrod —Sampler Copy

SAMPLE TEAM: SHEILD

RECEIVED FOR LABORATORY BY: [signature]
DATE: 3/1/00 TIME: 2:40 am

№ 03668

13311

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LABORATORY ANALYSIS REPORT

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R.B (MW-2)

DATE:	*March 21, 2000*	***PAGE:***	*1 Of 18*
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CONTACT:	*Grant Anderson*		

		Sample No.:		***31644-1***
		Sample ID.:		***W-000307-DS-01***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULTS***
EPA 8021/MDH 465E List				
Date Analyzed: 3/11/00				
Acetone[v]	*ug/L*	*1.0*	*5*	*[r]3.7*
Allyl Chloride	*ug/L*	*2.0*	*5*	*ND*
Benzene	*ug/L*	*0.2*	*1*	*[r]0.7*
Bromobenzene	*ug/L*	*0.4*	*1*	*ND*
Bromochloromethane	*ug/L*	*0.3*	*1*	*ND*
Bromodichloromethane	*ug/L*	*0.3*	*1*	*ND*
Bromoform	*ug/L*	*0.4*	*1*	*ND*
Bromomethane	*ug/L*	*0.3*	*2*	*ND*
n-Butylbenzene	*ug/L*	*0.4*	*1*	*ND*
sec-Butylbenzene	*ug/L*	*0.4*	*1*	*ND*
tert-Butylbenzene	*ug/L*	*0.4*	*1*	*ND*
Carbon tetrachloride	*ug/L*	*0.3*	*1*	*ND*
Chlorobenzene	*ug/L*	*0.4*	*1*	*ND*
Chloroethane	*ug/L*	*0.3*	*2*	*ND*
Chloroform	*ug/L*	*0.3*	*1*	*ND*
Chloromethane	*ug/L*	*0.3*	*2*	*ND*
2-Chlorotoluene	*ug/L*	*0.4*	*1*	*ND*
4-Chlorotoluene	*ug/L*	*0.4*	*1*	*ND*
1,2-Dibromo-3-chloropropane	*ug/L*	*0.3*	*1*	*ND*
Dibromochloromethane	*ug/L*	*0.3*	*1*	*ND*
1,2-Dibromoethane	*ug/L*	*0.3*	*1*	*ND*
Dibromomethane	*ug/L*	*0.3*	*1*	*ND*
1,2-Dichlorobenzene	*ug/L*	*0.4*	*1*	*ND*
1,3-Dichlorobenzene	*ug/L*	*0.4*	*1*	*ND*
1,4-Dichlorobenzene	*ug/L*	*0.4*	*1*	*ND*
Dichlorodifluoromethane	*ug/L*	*0.2*	*2*	*ND*
1,1-Dichloroethane	*ug/L*	*0.3*	*1*	*ND*
1,2-Dichloroethane	*ug/L*	*0.3*	*1*	*ND*
1,1-Dichloroethene	*ug/L*	*0.3*	*1*	*ND*
cis-1,2-Dichloroethene	*ug/L*	*0.3*	*1*	*ND*
trans-1,2-Dichloroethene	*ug/L*	*0.3*	*1*	*ND*
Dichlorofluoromethane	*ug/L*	*0.2*	*2*	*ND*
1,2-Dichloropropane	*ug/L*	*0.2*	*1*	*ND*
1,3-Dichloropropane	*ug/L*	*0.3*	*1*	*ND*
2,2-Dichloropropane	*ug/L*	*0.3*	*1*	*ND*
1,1-Dichloropropene	*ug/L*	*0.3*	*1*	*ND*
cis-1,3-Dichloropropene	*ug/L*	*0.3*	*1*	*ND*
trans-1,3-Dichloropropene	*ug/L*	*0.3*	*1*	*ND*

[r]Result is above MDL, but below PQL.
[v]Verification standard was low for this compound.
***ND** means Not Detected*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***ug/L** means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)*

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LABORATORY ANALYSIS REPORT

DATE: March 21, 2000 **PAGE:** 2 Of 18

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 030800-200153
COLLECTION DATE: 3/07/00
COLLECTED BY: Client
RECEIVED DATE: 3/08/00
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

Sample No.: 31644-1
Sample ID.: W-000307-DS-01

ANALYSIS	UNITS	MDL	PQL	RESULTS
EPA 8021/MDH 465E List				
Date Analyzed: 3/11/00				
Ethyl Ether[cv]	ug/L	0.3	2	ND
Ethyl benzene	ug/L	0.3	1	ND
Hexachlorobutadiene	ug/L	0.5	1	ND
Isopropylbenzene	ug/L	0.3	1	ND
p-Isopropyltoluene	ug/L	0.4	1	ND
Methyl ethyl ketone	ug/L	0.5	2	4.3
Methyl isobutyl ketone	ug/L	0.2	2	ND
Methyl tert butyl ether[cv]	ug/L	0.2	2	ND
Methylene Chloride	ug/L	0.7	2	ND
Naphthalene	ug/L	0.3	2	ND
n-Propylbenzene	ug/L	0.4	1	ND
Styrene	ug/L	0.3	1	ND
1,1,1,2-Tetrachloroethane	ug/L	0.3	1	ND
1,1,2,2-Tetrachloroethane	ug/L	0.4	1	ND
Tetrachloroethene	ug/L	0.4	1	ND
Tetrahydrofuran[cv]	ug/L	1.0	2	ND
Toluene	ug/L	0.3	1	[r]0.3
1,2,3-Trichlorobenzene	ug/L	0.4	1	ND
1,2,4-Trichlorobenzene	ug/L	0.5	1	ND
1,1,1-Trichloroethane	ug/L	0.3	1	ND
1,1,2-Trichloroethane	ug/L	0.3	1	ND
Trichloroethene	ug/L	0.3	1	ND
Trichlorofluoromethane	ug/L	0.2	2	ND
1,1,2-Trichlorotrifluoroethane	ug/L	0.9	2	ND
1,2,3-Trichloropropane	ug/L	0.4	1	ND
1,2,4-Trimethylbenzene	ug/L	0.4	1	ND
1,3,5-Trimethylbenzene	ug/L	0.4	1	ND
Vinyl Chloride	ug/L	0.2	2	ND
o-Xylene	ug/L	0.3	1	ND
m,p-Xylene*	ug/L	0.6	1	ND

Surrogate	Detector	Limit	% Rec.
4-Fluorochlorobenzene	PID	80 - 120	101%
4-Fluorochlorobenzene	ELCD	80 - 120	110%

[r] Result is above MDL, but below PQL.
[cv] Calibration verification was low for this compound.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE:	March 21, 2000	**PAGE:**	3 Of 18
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	030800-200153 3/07/00 Client 3/08/00 13311
CONTACT:	Grant Anderson		

		Sample No.:		**31644-1**
		Sample ID.:		**W-000307-DS-01**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
WIS DNR GRO				
Date Analyzed: 3/13/00				
Gasoline Range Organics	ug/L	20	100	ND

Surrogate Recovery	**Detector**	**% Recovery**
1-Chloro-4-Fluorobenzene	PID	96.9%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead, Dissolved (239.2)	ug/L	1	ND	3/20/00

ND means Not Detected or below reported MDL
MDL means Method Detection Limit.
PQL means Practical Quantification Limit.
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).

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LABORATORY ANALYSIS REPORT

DATE: March 21, 2000 **PAGE:** 4 Of 18

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 030800-200153
COLLECTION DATE: 3/07/00
COLLECTED BY: Client
RECEIVED DATE: 3/08/00
PROJECT DESCRP.: 13311

MW-3

CONTACT: Grant Anderson

		Sample No.:		31644-2
		Sample ID.:		W-000307-DS-02
ANALYSIS	UNITS	MDL	PQL	RESULTS
EPA 8021/MDH 465E List				
Date Analyzed: 3/11,14/00				
Acetone[v]	ug/L	10	50	86
Allyl Chloride	ug/L	2.0	5	ND
Benzene	ug/L	0.2	1	34
Bromobenzene	ug/L	0.4	1	ND
Bromochloromethane	ug/L	0.3	1	ND
Bromodichloromethane	ug/L	0.3	1	ND
Bromoform	ug/L	0.4	1	ND
Bromomethane	ug/L	0.3	2	ND
n-Butylbenzene	ug/L	0.4	1	26
sec-Butylbenzene	ug/L	0.4	1	4.6
tert-Butylbenzene	ug/L	0.4	1	ND
Carbon tetrachloride	ug/L	0.3	1	ND
Chlorobenzene	ug/L	0.4	1	ND
Chloroethane	ug/L	0.3	2	ND
Chloroform	ug/L	0.3	1	ND
Chloromethane	ug/L	0.3	2	ND
2-Chlorotoluene	ug/L	0.4	1	ND
4-Chlorotoluene	ug/L	0.4	1	ND
1,2 Dibromo-3 chloropropane	ug/L	0.3	1	ND
Dibromochloromethane	ug/L	0.3	1	ND
1,2-Dibromoethane	ug/L	0.3	1	ND
Dibromomethane	ug/L	0.3	1	ND
1,2-Dichlorobenzene	ug/L	0.4	1	ND
1,3-Dichlorobenzene	ug/L	0.4	1	ND
1,4-Dichlorobenzene	ug/L	0.4	1	ND
Dichlorodifluoromethane	ug/L	0.2	2	ND
1,1-Dichloroethane	ug/L	0.3	1	ND
1,2-Dichloroethane	ug/L	0.3	1	ND
1,1-Dichloroethene	ug/L	0.3	1	[c]1.1
cis-1,2-Dichloroethene	ug/L	0.3	1	ND
trans-1,2-Dichloroethene	ug/L	0.3	1	ND
Dichlorofluoromethane	ug/L	0.2	2	ND
1,2-Dichloropropane	ug/L	0.2	1	ND
1,3-Dichloropropane	ug/L	0.3	1	ND
2,2-Dichloropropane	ug/L	0.3	1	ND
1,1-Dichloropropene	ug/L	0.3	1	ND
cis-1,3-Dichloropropene	ug/L	0.3	1	ND
trans-1,3-Dichloropropene	ug/L	0.3	1	ND

[c]*Result appears to be due to laboratory contamination. Similar contamination was detected in method blank.*
[v]*Verification standard was low for this compound.*
ND *means Not Detected*
MDL *means Method Detection Limit*
PQL *means Practical Quantification Limit*
ug/L *means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)*

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LABORATORY ANALYSIS REPORT

DATE: March 21, 2000 **PAGE:** 5 Of 18

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 030800-200153
COLLECTION DATE: 3/07/00
COLLECTED BY: Client
RECEIVED DATE: 3/08/00
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		**31644-2**
		Sample ID.:		**W-000307-DS-02**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List				
Date Analyzed: 3/11,14/00				
Ethyl Ether[cv]	ug/L	0.3	2	ND
Ethyl benzene	ug/L	3.0	10	96
Hexachlorobutadiene	ug/L	0.5	1	ND
Isopropylbenzene	ug/L	0.3	1	9.2
p-Isopropyltoluene	ug/L	0.4	1	ND
Methyl ethyl ketone[cv]	ug/L	5.0	20	63
Methyl isobutyl ketone	ug/L	0.2	2	ND
Methyl tert butyl ether[cv]	ug/L	0.2	2	ND
Methylene Chloride	ug/L	0.7	2	ND
Naphthalene	ug/L	0.3	2	26
n-Propylbenzene	ug/L	0.4	1	21
Styrene	ug/L	0.3	1	ND
1,1,1,2-Tetrachloroethane	ug/L	0.3	1	ND
1,1,2,2-Tetrachloroethane	ug/L	0.4	1	ND
Tetrachloroethene	ug/L	0.4	1	ND
Tetrahydrofuran[cv]	ug/L	1.0	2	ND
Toluene	ug/L	0.3	1	37
1,2,3-Trichlorobenzene	ug/L	0.4	1	[r]0.8
1,2,4-Trichlorobenzene	ug/L	0.5	1	8.2
1,1,1-Trichloroethane	ug/L	0.3	1	ND
1,1,2-Trichloroethane	ug/L	0.3	1	ND
Trichloroethene	ug/L	0.3	1	ND
Trichlorofluoromethane	ug/L	0.2	2	ND
1,1,2-Trichlorotrifluoroethane	ug/L	0.9	2	ND
1,2,3-Trichloropropane	ug/L	0.4	1	ND
1,2,4-Trimethylbenzene	ug/L	4.0	10	140
1,3,5-Trimethylbenzene	ug/L	0.4	1	31
Vinyl Chloride	ug/L	0.2	2	ND
o-Xylene	ug/L	3.0	10	100
m,p-Xylene*	ug/L	6.0	10	340

Surrogate	**Detector**	**Limit**	**3/11 % Rec**	**3/14 % Rec**
4-Fluorochlorobenzene	PID	80 - 120	116%	109%
4-Fluorochlorobenzene	ELCD	80 - 120	112%	[s]140%

[r]Result is above MDL, but below PQL.
[s]High surrogate recovery due to matrix interference.
[cv]Calibration verification was low for this compound.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE:	March 21, 2000	**PAGE:**	6 Of 18
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	030800-200153 3/07/00 Client 3/08/00 13311
CONTACT:	Grant Anderson		

				Sample No.:	**31644-2**
				Sample ID.:	**W-000307-DS-02**
ANALYSIS	**UNITS**	**MDL**	**PQL**		**RESULT**
WIS DNR GRO[(d)]					
Date Analyzed: 3/13/00					
Gasoline Range Organics	ug/L	230	1000		1800

Surrogate Recovery	**Detector**	**% Recovery**
1-Chloro-4-Fluorobenzene	PID	90.7%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead, Dissolved (239.2)	ug/L	1	ND	3/20/00

[(d)] *A dilution was necessary due to levels present; therefore, detection limits were raised.*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit.*
***PQL** means Practical Quantification Limit.*
***ug/L** means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).*

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LABORATORY ANALYSIS REPORT

DATE: March 21, 2000 **PAGE:** 7 Of 18

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 030800-200153
COLLECTION DATE: 3/07/00
COLLECTED BY: Client
RECEIVED DATE: 3/08/00
PROJECT DESCRP.: 13311

MW-1

CONTACT: Grant Anderson

ANALYSIS	UNITS	MDL	PQL	Sample No.: 31644-3 Sample ID.: W-000307-DS-03 RESULTS
EPA 8021/MDH 465E List				
Date Analyzed: 3/11,13/00				
Acetone	ug/L	1.0	5	ND
Allyl Chloride	ug/L	2.0	5	ND
Benzene	ug/L	0.2	1	[r]0.7
Bromobenzene	ug/L	0.4	1	ND
Bromochloromethane	ug/L	0.3	1	ND
Bromodichloromethane	ug/L	0.3	1	ND
Bromoform	ug/L	0.4	1	ND
Bromomethane	ug/L	0.3	2	ND
n-Butylbenzene	ug/L	0.4	1	ND
sec-Butylbenzene	ug/L	0.4	1	ND
tert-Butylbenzene	ug/L	0.4	1	ND
Carbon tetrachloride	ug/L	0.3	1	ND
Chlorobenzene	ug/L	0.4	1	ND
Chloroethane	ug/L	0.3	2	ND
Chloroform	ug/L	0.3	1	ND
Chloromethane	ug/L	0.3	2	ND
2-Chlorotoluene	ug/L	0.4	1	ND
4-Chlorotoluene	ug/L	0.4	1	ND
1,2-Dibromo-3-chloropropane	ug/L	0.3	1	ND
Dibromochloromethane[v]	ug/L	0.3	1	ND
1,2-Dibromoethane	ug/L	0.3	1	ND
Dibromomethane	ug/L	0.3	1	ND
1,2-Dichlorobenzene	ug/L	0.4	1	ND
1,3-Dichlorobenzene	ug/L	0.4	1	ND
1,4-Dichlorobenzene	ug/L	0.4	1	ND
Dichlorodifluoromethane	ug/L	0.2	2	ND
1,1-Dichloroethane	ug/L	0.3	1	ND
1,2-Dichloroethane	ug/L	0.3	1	ND
1,1-Dichloroethene	ug/L	0.3	1	ND
cis-1,2-Dichloroethene	ug/L	0.3	1	ND
trans-1,2-Dichloroethene	ug/L	0.3	1	ND
Dichlorofluoromethane	ug/L	0.2	2	ND
1,2-Dichloropropane	ug/L	0.2	1	ND
1,3-Dichloropropane[v]	ug/L	0.3	1	ND
2,2-Dichloropropane	ug/L	0.3	1	ND
1,1-Dichloropropene	ug/L	0.3	1	ND
cis-1,3-Dichloropropene	ug/L	0.3	1	ND
trans-1,3-Dichloropropene	ug/L	0.3	1	ND

[r] Result is above MDL, but below PQL.
[v] Verification standard was low for this compound.
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE: March 21, 2000 **PAGE:** 8 Of 18

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 030800-200153
COLLECTION DATE: 3/07/00
COLLECTED BY: Client
RECEIVED DATE: 3/08/00
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

Sample No.: 31644-3
Sample ID.: W-000307-DS-03

ANALYSIS	UNITS	MDL	PQL	RESULTS
EPA 8021/MDH 465E List				
Date Analyzed: 3/11,13/00				
Ethyl Ether[v][cv]	ug/L	0.3	2	ND
Ethyl benzene	ug/L	0.3	1	ND
Hexachlorobutadiene	ug/L	0.5	1	ND
Isopropylbenzene	ug/L	0.3	1	ND
p-Isopropyltoluene	ug/L	0.4	1	ND
Methyl ethyl ketone[cv]	ug/L	0.5	2	ND
Methyl isobutyl ketone	ug/L	0.2	2	ND
Methyl tert butyl ether[v][cv]	ug/L	0.2	2	ND
Methylene Chloride	ug/L	0.7	2	ND
Naphthalene	ug/L	0.3	2	ND
n-Propylbenzene	ug/L	0.4	1	ND
Styrene	ug/L	0.3	1	ND
1,1,1,2-Tetrachloroethane	ug/L	0.3	1	ND
1,1,2,2-Tetrachloroethane	ug/L	0.4	1	ND
Tetrachloroethene	ug/L	0.4	1	[r]0.4
Tetrahydrofuran[v][cv]	ug/L	1.0	2	ND
Toluene	ug/L	0.3	1	ND
1,2,3-Trichlorobenzene	ug/L	0.4	1	ND
1,2,4-Trichlorobenzene	ug/L	0.5	1	ND
1,1,1-Trichloroethane	ug/L	0.3	1	ND
1,1,2-Trichloroethane[v]	ug/L	0.3	1	ND
Trichloroethene	ug/L	0.3	1	1.1
Trichlorofluoromethane	ug/L	0.2	2	ND
1,1,2-Trichlorotrifluoroethane	ug/L	0.9	2	ND
1,2,3-Trichloropropane	ug/L	0.4	1	ND
1,2,4-Trimethylbenzene	ug/L	0.4	1	ND
1,3,5-Trimethylbenzene	ug/L	0.4	1	ND
Vinyl Chloride	ug/L	0.2	2	ND
o-Xylene	ug/L	0.3	1	ND
m,p-Xylene*	ug/L	0.6	1	ND

Surrogate	Detector	Limit	% Rec.
4-Fluorochlorobenzene	PID	80 - 120	102%
4-Fluorochlorobenzene	ELCD	80 - 120	[s]146%

[r] Result is above MDL, but below PQL.
[v] Verification standard was low for this compound.
[cv] Calibration verification was low for this compound.
[s] High surrogate recovery due to matrix interference.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE:	March 21, 2000	**PAGE:**	9 Of 18
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	030800-200153 3/07/00 Client 3/08/00 13311
CONTACT:	Grant Anderson		

				Sample No.:	**31644-3**
				Sample ID.:	**W-000307-DS-03**
ANALYSIS	**UNITS**	**MDL**	**PQL**		**RESULT**
WIS DNR GRO					
Date Analyzed: 3/13/00					
Gasoline Range Organics	ug/L	20	100		ND
Surrogate Recovery	**Detector**		**% Recovery**		
1-Chloro-4-Fluorobenzene	PID		94.0%		

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead, Dissolved (239.2)	ug/L	1	ND	3/20/00

ND means Not Detected or below reported MDL
MDL means Method Detection Limit.
PQL means Practical Quantification Limit.
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).

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LABORATORY ANALYSIS REPORT

DATE: March 21, 2000 **PAGE:** 10 Of 18

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 030800-200153
COLLECTION DATE: 3/07/00
COLLECTED BY: Client
RECEIVED DATE: 3/08/00
PROJECT DESCRP.: 13311

MW-1 (dup.)

CONTACT: Grant Anderson

		Sample No.:		31644-4
		Sample ID.:		W-000307-DS-04
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List				
Date Analyzed: 3/12/00				
Acetone[v]	ug/L	1.0	5	[r]1.4
Allyl Chloride	ug/L	2.0	5	ND
Benzene	ug/L	0.2	1	ND
Bromobenzene	ug/L	0.4	1	ND
Bromochloromethane	ug/L	0.3	1	ND
Bromodichloromethane	ug/L	0.3	1	ND
Bromoform	ug/L	0.4	1	ND
Bromomethane	ug/L	0.3	2	ND
n-Butylbenzene	ug/L	0.4	1	ND
sec-Butylbenzene	ug/L	0.4	1	ND
tert-Butylbenzene	ug/L	0.4	1	ND
Carbon tetrachloride	ug/L	0.3	1	ND
Chlorobenzene	ug/L	0.4	1	ND
Chloroethane	ug/L	0.3	2	ND
Chloroform	ug/L	0.3	1	ND
Chloromethane	ug/L	0.3	2	ND
2-Chlorotoluene	ug/L	0.4	1	ND
4-Chlorotoluene	ug/L	0.4	1	ND
1,2-Dibromo-3-chloropropane	ug/L	0.3	1	ND
Dibromochloromethane	ug/L	0.3	1	ND
1,2-Dibromoethane	ug/L	0.3	1	ND
Dibromomethane	ug/L	0.3	1	ND
1,2-Dichlorobenzene	ug/L	0.4	1	ND
1,3-Dichlorobenzene	ug/L	0.4	1	ND
1,4-Dichlorobenzene	ug/L	0.4	1	ND
Dichlorodifluoromethane	ug/L	0.2	2	ND
1,1-Dichloroethane	ug/L	0.3	1	ND
1,2-Dichloroethane	ug/L	0.3	1	ND
1,1-Dichloroethene	ug/L	0.3	1	ND
cis-1,2-Dichloroethene	ug/L	0.3	1	ND
trans-1,2-Dichloroethene	ug/L	0.3	1	ND
Dichlorofluoromethane	ug/L	0.2	2	ND
1,2-Dichloropropane	ug/L	0.2	1	ND
1,3-Dichloropropane	ug/L	0.3	1	ND
2,2-Dichloropropane	ug/L	0.3	1	ND
1,1-Dichloropropene	ug/L	0.3	1	ND
cis-1,3-Dichloropropene	ug/L	0.3	1	ND
trans-1,3-Dichloropropene	ug/L	0.3	1	ND

[r] Result is above MDL, but below PQL.
[v] Verification standard was low for this compound.
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE: March 21, 2000 **PAGE:** 11 Of 18

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
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PROJECT NO.: 030800-200153
COLLECTION DATE: 3/07/00
COLLECTED BY: Client
RECEIVED DATE: 3/08/00
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		31644-4
		Sample ID.:		W-000307-DS-04
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List				
Date Analyzed: 3/12/00				
Ethyl Ether[cv]	ug/L	0.3	2	ND
Ethyl benzene	ug/L	0.3	1	ND
Hexachlorobutadiene	ug/L	0.5	1	ND
Isopropylbenzene	ug/L	0.3	1	ND
p-Isopropyltoluene	ug/L	0.4	1	ND
Methyl ethyl ketone	ug/L	0.5	2	ND
Methyl isobutyl ketone	ug/L	0.2	2	ND
Methyl tert butyl ether[cv]	ug/L	0.2	2	ND
Methylene Chloride	ug/L	0.7	2	ND
Naphthalene	ug/L	0.3	2	[r]0.9
n-Propylbenzene	ug/L	0.4	1	ND
Styrene	ug/L	0.3	1	ND
1,1,1,2-Tetrachloroethane	ug/L	0.3	1	ND
1,1,2,2-Tetrachloroethane	ug/L	0.4	1	ND
Tetrachloroethene	ug/L	0.4	1	[r]0.4
Tetrahydrofuran[cv]	ug/L	1.0	2	ND
Toluene	ug/L	0.3	1	ND
1,2,3-Trichlorobenzene	ug/L	0.4	1	ND
1,2,4-Trichlorobenzene	ug/L	0.5	1	ND
1,1,1-Trichloroethane	ug/L	0.3	1	ND
1,1,2-Trichloroethane	ug/L	0.3	1	ND
Trichloroethene	ug/L	0.3	1	1.1
Trichlorofluoromethane	ug/L	0.2	2	ND
1,1,2-Trichlorotrifluoroethane	ug/L	0.9	2	ND
1,2,3-Trichloropropane	ug/L	0.4	1	ND
1,2,4-Trimethylbenzene	ug/L	0.4	1	ND
1,3,5-Trimethylbenzene	ug/L	0.4	1	ND
Vinyl Chloride	ug/L	0.2	2	ND
o-Xylene	ug/L	0.3	1	ND
m,p-Xylene*	ug/L	0.6	1	ND

Surrogate	**Detector**	**Limit**	**% Rec.**
4-Fluorochlorobenzene	PID	80 - 120	95.4%
4-Fluorochlorobenzene	ELCD	80 - 120	106%

[r] Result is above MDL, but below PQL.
[cv] Calibration verification was low for this compound.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE:	*March 21, 2000*	***PAGE:***	*12 Of 18*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*030800-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/07/00*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/08/00*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Grant Anderson*		

		Sample No.:		***31644-4***
		Sample ID.:		***W-000307-DS-04***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
WIS DNR GRO				
Date Analyzed: 3/13/00				
Gasoline Range Organics	*ug/L*	*20*	*100*	*ND*

Surrogate Recovery	***Detector***	***% Recovery***
1-Chloro-4-Fluorobenzene	*PID*	*93.5%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead, Dissolved (239.2)	*ug/L*	*1*	*ND*	*3/20/00*

***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit.*
***PQL** means Practical Quantification Limit.*
***ug/L** means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).*

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LABORATORY ANALYSIS REPORT

DATE: March 21, 2000 **PAGE:** 13 Of 18

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 030800-200153
COLLECTION DATE: 3/07/00
COLLECTED BY: Client
RECEIVED DATE: 3/08/00
PROJECT DESCRP.: 13311

MW-2

CONTACT: Grant Anderson

		Sample No.:		31644-5
		Sample ID.:		W-000307-DS-05
ANALYSIS	UNITS	MDL	PQL	RESULTS
EPA 8021/MDH 465E List				
Date Analyzed: 3/12/00				
Acetone[v]	ug/L	1.0	5	14
Allyl Chloride	ug/L	2.0	5	ND
Benzene	ug/L	0.2	1	6.4
Bromobenzene	ug/L	0.4	1	ND
Bromochloromethane	ug/L	0.3	1	ND
Bromodichloromethane	ug/L	0.3	1	ND
Bromoform	ug/L	0.4	1	ND
Bromomethane	ug/L	0.3	2	ND
n-Butylbenzene	ug/L	0.4	1	4.6
sec-Butylbenzene	ug/L	0.4	1	2.1
tert-Butylbenzene	ug/L	0.4	1	ND
Carbon tetrachloride	ug/L	0.3	1	ND
Chlorobenzene	ug/L	0.4	1	ND
Chloroethane	ug/L	0.3	2	ND
Chloroform	ug/L	0.3	1	ND
Chloromethane	ug/L	0.3	2	ND
2-Chlorotoluene	ug/L	0.4	1	ND
4-Chlorotoluene	ug/L	0.4	1	ND
1,2-Dibromo-3-chloropropane	ug/L	0.3	1	ND
Dibromochloromethane	ug/L	0.3	1	ND
1,2-Dibromoethane	ug/L	0.3	1	ND
Dibromomethane	ug/L	0.3	1	ND
1,2-Dichlorobenzene	ug/L	0.4	1	ND
1,3-Dichlorobenzene	ug/L	0.4	1	ND
1,4-Dichlorobenzene	ug/L	0.4	1	ND
Dichlorodifluoromethane	ug/L	0.2	2	ND
1,1-Dichloroethane	ug/L	0.3	1	ND
1,2-Dichloroethane	ug/L	0.3	1	ND
1,1-Dichloroethene	ug/L	0.3	1	ND
cis-1,2-Dichloroethene	ug/L	0.3	1	ND
trans-1,2-Dichloroethene	ug/L	0.3	1	ND
Dichlorofluoromethane	ug/L	0.2	2	ND
1,2-Dichloropropane	ug/L	0.2	1	ND
1,3-Dichloropropane	ug/L	0.3	1	ND
2,2-Dichloropropane	ug/L	0.3	1	ND
1,1-Dichloropropene	ug/L	0.3	1	ND
cis-1,3-Dichloropropene	ug/L	0.3	1	ND
trans-1,3-Dichloropropene	ug/L	0.3	1	ND

[v] Verification standard was low for this compound.
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE: March 21, 2000 **PAGE:** 14 Of 18

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 030800-200153
COLLECTION DATE: 3/07/00
COLLECTED BY: Client
RECEIVED DATE: 3/08/00
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

Sample No.: 31644-5
Sample ID.: W-000307-DS-05

ANALYSIS	UNITS	MDL	PQL	RESULTS
EPA 8021/MDH 465E List				
Date Analyzed: 3/12/00				
Ethyl Ether[cv]	ug/L	0.3	2	7.4
Ethyl benzene	ug/L	0.3	1	ND
Hexachlorobutadiene	ug/L	0.5	1	ND
Isopropylbenzene	ug/L	0.3	1	9.8
p-Isopropyltoluene	ug/L	0.4	1	ND
Methyl ethyl ketone	ug/L	0.5	2	30
Methyl isobutyl ketone	ug/L	0.2	2	ND
Methyl tert butyl ether[cv]	ug/L	0.2	2	ND
Methylene Chloride	ug/L	0.7	2	ND
Naphthalene	ug/L	0.3	2	7.6
n-Propylbenzene	ug/L	0.4	1	22
Styrene	ug/L	0.3	1	ND
1,1,1,2-Tetrachloroethane	ug/L	0.3	1	ND
1,1,2,2-Tetrachloroethane	ug/L	0.4	1	ND
Tetrachloroethene	ug/L	0.4	1	ND
Tetrahydrofuran[cv][m]	ug/L	1.0	2	ND
Toluene	ug/L	0.3	1	ND
1,2,3-Trichlorobenzene	ug/L	0.4	1	ND
1,2,4-Trichlorobenzene	ug/L	0.5	1	ND
1,1,1-Trichloroethane	ug/L	0.3	1	ND
1,1,2-Trichloroethane	ug/L	0.3	1	ND
Trichloroethene	ug/L	0.3	1	ND
Trichlorofluoromethane	ug/L	0.2	2	ND
1,1,2-Trichlorotrifluoroethane	ug/L	0.9	2	ND
1,2,3-Trichloropropane	ug/L	0.4	1	ND
1,2,4-Trimethylbenzene	ug/L	0.4	1	44
1,3,5-Trimethylbenzene	ug/L	0.4	1	13
Vinyl Chloride	ug/L	0.2	2	ND
o-Xylene	ug/L	0.3	1	ND
m,p-Xylene*	ug/L	0.6	1	13

Surrogate	Detector	Limit	% Rec.
4-Fluorochlorobenzene	PID	80 - 120	111%
4-Fluorochlorobenzene	ELCD	80 - 120	117%

[cv] Calibration verification was low for this compound.
[m] No MS recovery for this compound.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE:	March 21, 2000	**PAGE:**	15 Of 18
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	030800-200153 3/07/00 Client 3/08/00 13311
CONTACT:	Grant Anderson		

				Sample No.:	**31644-5**
				Sample ID.:	**W-000307-DS-05**
ANALYSIS	**UNITS**	**MDL**	**PQL**		**RESULT**
WIS DNR GRO					
Date Analyzed: 3/13,15/00					
Gasoline Range Organics	ug/L	20	100		310
Surrogate Recovery	**Detector**		**% Recovery**		
1-Chloro-4-Fluorobenzene	PID		94.7%		

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead, Dissolved (239.2)	ug/L	1	ND	3/20/00

ND means Not Detected or below reported MDL
MDL means Method Detection Limit.
PQL means Practical Quantification Limit.
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).

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LABORATORY ANALYSIS REPORT

DATE: March 21, 2000 **PAGE:** 16 Of 18

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 030800-200153
COLLECTION DATE: 3/07/00
COLLECTED BY: Client
RECEIVED DATE: 3/08/00
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		31644-6
		Sample ID.:		Trip Blank
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List				
Date Analyzed: 3/10/00				
Acetone	ug/L	1.0	5	(r)1.1
Allyl Chloride	ug/L	2.0	5	ND
Benzene	ug/L	0.2	1	ND
Bromobenzene	ug/L	0.4	1	ND
Bromochloromethane	ug/L	0.3	1	ND
Bromodichloromethane	ug/L	0.3	1	ND
Bromoform	ug/L	0.4	1	ND
Bromomethane	ug/L	0.3	2	ND
n-Butylbenzene	ug/L	0.4	1	ND
sec-Butylbenzene	ug/L	0.4	1	ND
tert-Butylbenzene	ug/L	0.4	1	ND
Carbon tetrachloride	ug/L	0.3	1	ND
Chlorobenzene	ug/L	0.4	1	ND
Chloroethane	ug/L	0.3	2	ND
Chloroform	ug/L	0.3	1	ND
Chloromethane	ug/L	0.3	2	ND
2-Chlorotoluene	ug/L	0.4	1	ND
4-Chlorotoluene	ug/L	0.4	1	ND
1,2-Dibromo-3-chloropropane	ug/L	0.3	1	ND
Dibromochloromethane	ug/L	0.3	1	ND
1,2-Dibromoethane	ug/L	0.3	1	ND
Dibromomethane	ug/L	0.3	1	ND
1,2-Dichlorobenzene	ug/L	0.4	1	ND
1,3-Dichlorobenzene	ug/L	0.4	1	ND
1,4-Dichlorobenzene	ug/L	0.4	1	ND
Dichlorodifluoromethane	ug/L	0.2	2	ND
1,1-Dichloroethane	ug/L	0.3	1	ND
1,2-Dichloroethane	ug/L	0.3	1	ND
1,1-Dichloroethene	ug/L	0.3	1	ND
cis-1,2-Dichloroethene	ug/L	0.3	1	ND
trans-1,2-Dichloroethene	ug/L	0.3	1	ND
Dichlorofluoromethane	ug/L	0.2	2	ND
1,2-Dichloropropane	ug/L	0.2	1	ND
1,3-Dichloropropane	ug/L	0.3	1	ND
2,2-Dichloropropane	ug/L	0.3	1	ND
1,1-Dichloropropene	ug/L	0.3	1	ND
cis-1,3-Dichloropropene	ug/L	0.3	1	ND
trans-1,3-Dichloropropene	ug/L	0.3	1	ND

(r)Result is above MDL, but below PQL.
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

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CLIENT: Conestoga-Rovers & Associates
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Suite 114
St. Paul, MN 55112

PROJECT NO.: 030800-200153
COLLECTION DATE: 3/07/00
COLLECTED BY: Client
RECEIVED DATE: 3/08/00
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		31644-6
		Sample ID.:		Trip Blank
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List				
Date Analyzed: 3/10/00				
Ethyl Ether[cv]	ug/L	0.3	2	ND
Ethyl benzene	ug/L	0.3	1	ND
Hexachlorobutadiene	ug/L	0.5	1	ND
Isopropylbenzene	ug/L	0.3	1	ND
p-Isopropyltoluene	ug/L	0.4	1	ND
Methyl ethyl ketone	ug/L	0.5	2	ND
Methyl isobutyl ketone	ug/L	0.2	2	ND
Methyl tert butyl ether[cv]	ug/L	0.2	2	ND
Methylene Chloride	ug/L	0.7	2	[cc]31
Naphthalene	ug/L	0.3	2	ND
n-Propylbenzene	ug/L	0.4	1	ND
Styrene	ug/L	0.3	1	ND
1,1,1,2-Tetrachloroethane	ug/L	0.3	1	ND
1,1,2,2-Tetrachloroethane	ug/L	0.4	1	ND
Tetrachloroethene	ug/L	0.4	1	ND
Tetrahydrofuran[cv]	ug/L	1.0	2	ND
Toluene	ug/L	0.3	1	ND
1,2,3-Trichlorobenzene	ug/L	0.4	1	ND
1,2,4-Trichlorobenzene	ug/L	0.5	1	ND
1,1,1-Trichloroethane	ug/L	0.3	1	ND
1,1,2-Trichloroethane	ug/L	0.3	1	ND
Trichloroethene	ug/L	0.3	1	ND
Trichlorofluoromethane	ug/L	0.2	2	ND
1,1,2-Trichlorotrifluoroethane	ug/L	0.9	2	ND
1,2,3-Trichloropropane	ug/L	0.4	1	ND
1,2,4-Trimethylbenzene	ug/L	0.4	1	ND
1,3,5-Trimethylbenzene	ug/L	0.4	1	ND
Vinyl Chloride	ug/L	0.2	2	ND
o-Xylene	ug/L	0.3	1	ND
m,p-Xylene*	ug/L	0.6	1	ND

Surrogate	**Detector**	**Limit**	**% Rec.**
4-Fluorochlorobenzene	PID	80 - 120	101%
4-Fluorochlorobenzene	ELCD	80 - 120	[s]126%

[cc] Result appears to be due to laboratory contamination.
[cv] Calibration verification was low for this compound.
[s] High surrogate recovery due to matrix interference.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE:	*March 21, 2000*	***PAGE:***	*18 Of 18*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*030800-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*3/07/00*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*3/08/00*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Grant Anderson*		

This report has been reviewed by me for technical accuracy and completeness. The analyses were performed using EPA or other approved methodologies and the results were reported on an "as received" basis unless otherwise noted. The results reported relate only to the items tested. Please contact me if you have any questions or comments regarding this report. Spectrum Labs, Inc. appreciates the opportunity to provide this analytical service for you.

Report Submitted By,

Jon Jones for

Gerard Herro
Laboratory Manager

GJH:wmc
cra081-1

TABLE I	
Summary of Samples Received	
Description	*Spectrum Labs ID Number*
W-000307-DS-01	31644-1
W-000307-DS-02	31644-2
W-000307-DS-03	31644-3
W-000307-DS-04	31644-4
W-000307-DS-05	31644-5
Trip Blank	31644-6

The samples were received intact and in good condition on 3/8/00 at 11:18AM by Alan Sandau.

TABLE 2							
Quality Control Summary							
VOC 8021/GRO							
3/13/00 Water			*31628-1*	*31628-1*			
Compound	*Method Blank*	*LCS*	*MS*	*MSD*	*RPD*	*MS*	*RPD*
	ug/L	*% Rec*	*% Rec*	*% Rec*		Limit	*Limit*
GRO	<20	112	103	106	2.79	80.0-120	20
1-Chloro-4-Fluorobenzene PID	94%	94.7	87.1	89.7		78.5-122	

Table 3		
Dissolved Lead-239.2		
3/20/00		
Sample	*Result*	*Limit*
Method Blank	<0.001 mg/L	<0.001 mg/L
LCS	101%	75.0-125%
Matrix Spike 31658-2	125%	75.0-125%
Matrix Spike 31537-4	121%	75.0-125%

TABLE 4									
Quality Control Summary									
VOC 8021/465E									
03/11/2000									
	Method Blank	*CV 1st*	*CV 2nd*	*31644-5*	*31644-5*		*CV*	*MS*	*RPD*
Compound	*ug/L*			*MS*	*MSD*	*RPD*	*Limit*	*Limit*	*Limit*
1,1,1,2-Tetrachloroethene	<0.3	123	123	90.1	94.7	4.95	85.0-115	72.3-149	18.2
1,1,1-Trichloroethane	<0.3	109	121	125	95.7	26.5	85.0-115	68.0-151	35.7
1,1,2,2-Tetrachloroethane	<0.4	120	109	73.6	78.6	6.59	85.0-115	62.8-159	20.4
1,1,2-Trichloroethane	<0.3	117	110	83.6	86.2	3.10	85.0-115	72.2-144	17.8
1,1-Dichloroethane	<0.3	116	101	128	105	19.7	85.0-115	80.4-130	12.4
1,1-Dichloroethene	<0.3	101	82.5	111	88.9	21.7	85.0-115	62.0-125	10.1
1,1-Dichloropropene	<0.3	87.4	77.7	105	80.5	26.5	85.0-115	77.4-121	9.46
1,2,3-Trichlorobenzene	<0.4	87.7	110	44.8	60.9	30.6	85.0-115	57.5-130	19.2
1,2,3-Trichloropropane	<0.4	125	123	70.1	74.5	6.02	85.0-115	66.0-138	20.4
1,2,4-Trichlorobenzene	<0.5	90.3	97.4	68.0	56.8	17.9	85.0-115	57.7-129	12.4
1,2,4-Trimethylbenzene	<0.4	104	102	85.5	72.0	17.1	85.0-115	54.8-144	21.3
1,2-Dibromo-3-chloropropane	<0.3	114	105	54.0	57.8	6.89	85.0-115	68.2-145	24.9
1,2-Dibromoethane	<0.3	121	124	81.6	81.6	0.05	85.0-115	52.8-152	18.2
1,2-Dichlorobenzene	<0.4	98.7	99.3	144	132	8.68	85.0-115	68.1-118	11.2
1,2-Dichloroethane	<0.3	102	113	103	79.5	26.1	85.0-115	79.8-134	25.3
1,2-Dichloropropane	<0.2	112	117	91.8	91.1	0.77	85.0-115	79.5-136	16.4
1,3,5-Trimethylbenzene	<0.4	104	101	100	83.5	17.8	85.0-115	72.7-129	10.2
1,3-Dichlorobenzene	<0.4	99.4	101	82.5	67.9	19.4	85.0-115	64.3-133	9.87
1,3-Dichloropropane	<0.3	108	90.8	81.4	85.9	5.39	85.0-115	70.3-148	17.7
1,4-Dichlorobenzene	<0.4	99.7	100	81.9	67.6	19.1	85.0-115	72.0-137	17.3
2,2-Dichloropropane	<0.3	106	114	112	97.6	14.0	85.0-115	54.8-163	13.1
2-Chlorotoluene	<0.4	100	103	93.5	77.5	18.8	85.0-115	64.5-123	11.7
4-Chlorotoluene	<0.4	103	103	125	109	13.4	85.0-115	63.6-134	9.56
Acetone	<1.0	118	63.2	59.0	44.3	28.3	85.0-115	30.8-174	33.1
Allyl Chloride	<2.0	100	83.6	100.9	82.0	20.8	85.0-115	54.1-131	27.9
Benzene	<0.2	90.1	83.4	94.2	72.7	25.8	85.0-115	45.6-157	11.4
Bromobenzene	<0.4	99.5	99.4	84.5	69.4	19.7	85.0-115	71.1-116	9.73
Bromochloromethane	<0.3	114	130	104	92.7	11.5	85.0-115	76.5-135	13.6
Bromodichloromethane	<0.3	118	132	43.4	88.8	2.29	85.0-115	56.6-167	14.7
Bromoform	<0.4	131	134	58.0	58.7	1.15	85.0-115	46.6-141	18.3
Bromomethane	<0.3	130	125	89.1	84.0	5.85	85.0-115	28.3-156	53.7
Carbon Tetrachloride	<0.3	110	121	111	101	9.72	85.0-115	82.1-136	17.7
Chlorobenzene	<0.4	94.7	95.7	91.4	74.8	19.9	85.0-115	79.2-114	9.16
Chloroethane	<0.3	123	117	117	104	12.0	85.0-115	37.6-160	43.4
Chloroform	<0.3	110	132	113	101	11.3	85.0-115	86.6-130	18.5
Chloromethane	<0.3	140	123	112	91.3	20.2	85.0-115	23.1-155	20.5
cis-1,2-Dichloroethene	<0.3	84.9	79.7	123	95.0	25.9	85.0-115	82.2-119	9.53
cis-1,3-Dichloropropene	<0.3	87.2	77.2	90.4	72.1	22.6	85.0-115	61.4-123	12
Dibromochloromethane	<0.3	114	116	71.9	72.6	0.93	85.0-115	57.2-151	22
Dibromomethane	<0.3	114	123	83	79.7	4.56	85.0-115	70.4-136	15.4
Dichlorodifluoromethane	<0.2	123	96.8	117	86.6	30.0	85.0-115	0-267	59.5
Dichlorofluormethane	<0.2	113	116	118	106	10.7	85.0-115	57.5-150	40.8
Ethyl Ether	<0.3	74.5	72.0	82.8	64.5	24.8	85.0-115	65.0-134	20
Ethylbenzene	<0.3	97.3	97.3	101	82.6	20.0	85.0-115	52.2-141	15.2
Hexachlorobutadiene	<0.5	89.3	94.8	75.7	67.8	11.0	85.0-115	75.7--140	28.4
Isopropylbenzene	<0.3	98.8	100	101	84.1	18.7	85.0-115	79.4-116	8.96
m&p-Xylenes	<0.6	98.5	99.3	100	82.7	19.0	85.0-115	70.8-126	9.28
Methyl Ethyl Ketone	<0.5	99.5	60.3	56.1	28.5	65.3	85.0-115	13.7-187	46.3
Methyl Iso Butyl Ketone	<0.2	87.7	77.9	93.2	57.7	47.2	85.0-115	52.0-139	37
Methyl Tert Butyl Ether	<0.2	74.0	71.4	80.6	63.8	23.3	85.0-115	41.1-167	16.6
Methylene Chloride	<0.7	131	95.8	118	98.2	18.2	85.0-115	75.7-132	17.9

TABLE 4 Continued									
Quality Control Summary									
VOC 8021/465E									
03/11/2000									
	Method Blank	*CV 1st*	*CV 2nd*	*31644-5*	*31644-5*		*LCS*	*MS*	*RPD*
Compound	*ug/L*			*MS*	*MSD*	*RPD*	*Limit*	*Limit*	*Limit*
Naphthalene	0.3	87.5	106	36.6	68.8	61.1	85.0-115	75.0-125	20
n-Butylbenzene	<0.4	98.5	98.7	95.4	78.1	19.9	85.0-115	50.3-156	10.1
n-Propylbenzene	<0.4	101	100	94.2	77.8	19.1	85.0-115	67.3-130	10.6
o-Xylene	<0.3	100	101	94.7	77.6	19.8	85.0-115	77.8-142	8.7
p-Isopropyltoluene	<0.4	98.6	100	94.2	78.0	18.9	85.0-115	70.6-123	9.35
sec-Butylbenzene	<0.4	100	99.4	98.3	81.7	18.4	85.0-115	73.3-129	8.81
Styrene	<0.3	103	100	84.9	69.8	19.6	85.0-115	66.8-117	12.5
tert-Butylbenzene	<0.4	101	101	99.3	82.2	18.8	85.0-115	76.3-129	8.88
Tetrachloroethene	<0.4	90.6	91.1	106	86.8	19.5	85.0-115	26.7-127	10.1
Tetrahydrofuran	<1.0	64.8	62.0	0.0	0.0	#DIV/0!	85.0-115	35.3-174	26.2
Toluene	<0.3	94.7	94.1	98.6	80.8	19.9	85.0-115	83.0-111	9.23
trans-1,2-Dichloroethene	<0.3	88.6	77.7	112	90.6	21.1	85.0-115	69.9-131	10.1
trans-1,3-Dichloropropene	<0.3	87.4	78.6	112	95.2	16.0	85.0-115	68.0-116	10.4
Trichloroethene	<0.3	88.0	83.8	90.2	70.3	24.8	85.0-115	43.8-164	9.63
Trichlorofluoromethane	<0.2	120.5	110.9	132	117	[illegible]	85.0-115	57.6-150	22.2
Vinyl Chloride	<0.2	94.7	75.9	112	85.6	26.5	85.0-115	20.2-167	18.5

OK

TABLE 5				
Quality Control Summary				
VOC 8021/465E				
03/14/2000				
	Method Blank	*CV 1st*	*CV 2nd*	*LCS*
Compound	*ug/L*			*Limit*
1,2,4-Trimethylbenzene	<0.4	123	123	85.0-115
Acetone	<1.0	109	121	85.0-115
Ethylbenzene	<0.3	120	109	85.0-115
Methyl Ethyl Ketone	<0.5	117	110	85.0-115
o-Xylene	<0.3	116	101	85.0-115
m,p-Xylenes	<0.6	101	82.5	85.0-115
Naphthalene	<0.3	87.4	77.7	85.0-115

100
100

The Calibration Verifications (LCS) on 3/10/00 were high for chloromethane, bromomethane, 1,2-Dibromomethane, Bromoform and 1,2,3-Trichloropropane, however all the samples were non-detect for these compounds.

Tetrahydrofuran was masked by a matrix interfent in the matrix spikes for sample #5.

Only the compounds listed in Table 5 were reported from 3/14/00.

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA–ROVERS & ASSOCIATES
1801 OLD HWY. 8, SUITE 114
ST. PAUL, MN 55112 (~~612~~)639–0913(651)

SHIPPED TO (Laboratory Name): Spectrum LAB

REFERENCE NUMBER: 13311

SAMPLER'S SIGNATURE: [signature] ✓ PRINTED NAME: SHIELD

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS: VOC's	MTBE/BTEX	Dis. LEAD	REMARKS
1	3-7-00	14:05	MW-000307-DS-01	WATER	4	3	1		CALL
2	3-7-00	15:14	MW-000307-DS-02	"	4	3	1		MR ANDERSON
3	3-7-00	16:35	MW-000307-DS-03	"	4	3	1		WITH QUESTIONS
	3-7-00	16:35	MW-000307-DS-04	"	4	3	1		
1	3-7-00	14:05	MW-000307-DS-05	↓	4	3	1		651 639-0913
			TRIP Blank (TEMP)	↓	2		●		

TOTAL NUMBER OF CONTAINERS: 22 HEALTH/CHEMICAL HAZARDS:

RELINQUISHED BY: ① [signature]	DATE: 3-8-00 TIME:	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: WAY BILL No.

White –Fully Executed Copy
Yellow –Receiving Laboratory Copy
Pink –Shipper Copy
Goldenrod –Sampler Copy

SAMPLE TEAM: SHIELD

RECEIVED FOR LABORATORY BY: [signature]
DATE: 3/8/00 TIME: 11:14

No 03523

1001 JULY 19/93 REV.0 (F–42)

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA-ROVERS & ASSOCIATES
1801 OLD HWY. 8, SUITE 114
ST. PAUL, MN 55112 (612)639-0913(651)

SHIPPED TO (Laboratory Name): Spectrum Lab

REFERENCE NUMBER: 13311

SAMPLER'S SIGNATURE: _____ PRINTED NAME: SHIELD

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS: VOC's, METALS, Dis. LEAD	REMARKS
1	3-7-00	1400	CJ-000307-DS-01 RB	WATER	4	3 1	CALL
2	3-7-00	1514	CJ-000307-DS-02 MW-3		4	3 1	MR ANDERSON
3	3-7-00	1635	CJ-000307-DS-03 MW-1 Dup.		4	3 1	WITH QUESTIONS
	3-7-00	1655	CJ-000307-DS-04 MW-1		4	3 1	
1	3-7-00	1600	CJ-000307-DS-05 MW-2		4	3 1	651/639-0913
			Trip Blank ITEM 9		2	*	

TOTAL NUMBER OF CONTAINERS: 22 HEALTH/CHEMICAL HAZARDS:

RELINQUISHED BY: ① SHIELD	DATE: 3-8-00 TIME:	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: WAY BILL No.

White —Fully Executed Copy
Yellow —Receiving Laboratory Copy
Pink —Shipper Copy
Goldenrod —Sampler Copy

SAMPLE TEAM: SHIELD

RECEIVED FOR LABORATORY BY: _____ № 03523

DATE: _____ TIME: _____

1001 JULY 19/93 REV.0 (F-42)

13311

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MN FILE COPY

LABORATORY ANALYSIS REPORT

DATE:	*June 15, 2000*	***PAGE:***	*1 Of 5*
CLIENT:	*Conestoga-Rovers & Associates* *1801 Old Highway 8* *Suite 114* *St. Paul, MN 55112*	***PROJECT NO.:*** ***COLLECTION DATE:*** ***COLLECTED BY:*** ***RECEIVED DATE:*** ***PROJECT DESCRP.:***	*060200-200153* *6/01/00* *Client* *6/02/00* *13311*
CONTACT:	*Grant Anderson*		

RECEIVED
JUN 26 2000
CRA, INC.

MW-1

				Sample No.:	***34259-1***
				Sample ID.:	***W-000601-DS-01***
ANALYSIS	***UNITS***	***MDL***	***PQL***		***RESULT***
EPA 8020/WIS DNR GRO					
Date Analyzed: 6/09/00					
Methyl tert butyl ether	*ug/L*	*0.28*	*10*		*ND*
Benzene	*ug/L*	*1.0*	*10*		*ND*
Toluene	*ug/L*	*1.0*	*10*		*ND*
Ethylbenzene	*ug/L*	*1.0*	*10*		*ND*
*m,p-Xylene**	*ug/L*	*2.4*	*10*		*ND*
o-Xylene	*ug/L*	*1.1*	*10*		*ND*
Gasoline Range Organics	*ug/L*	*23*	*100*		*ND*

Surrogate Recovery	***Detector***	***% Recovery***
1-Chloro-4-Fluorobenzene	*PID*	*102%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead, Dissolved (239.2)	*ug/L*	*1.0*	*ND*	*6/15/00*

** means Coeluting Compounds*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***ug/L** means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)*

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LABORATORY ANALYSIS REPORT

DATE:	June 15, 2000	**PAGE:**	2 Of 5
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	060200-200153 6/01/00 Client 6/02/00 13311
CONTACT:	Grant Anderson		

MW-2

				Sample No.:	34259-2
				Sample ID.:	W-000601-DS-02
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO[d]				
Date Analyzed: 6/09/00				
Methyl tert butyl ether	ug/L	1.4	50	[r]17
Benzene	ug/L	5.0	50	[r]7.0
Toluene	ug/L	5.0	50	ND
Ethylbenzene	ug/L	5.0	50	[r]47
m,p-Xylene*	ug/L	12	50	110
o-Xylene	ug/L	5.5	50	[r]6.0
Gasoline Range Organics	ug/L	115	500	2600

Surrogate Recovery	**Detector**	**% Recovery**
1-Chloro-4-Fluorobenzene	PID	107%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead, Dissolved (239.2)	ug/L	1.0	ND	6/15/00

[d]A dilution was necessary due to levels present; therefore, detection limits were raised.
[r]Result is above MDL, but below PQL.
* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE:	*June 15, 2000*	***PAGE:***	*3 Of 5*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*060200-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*6/01/00*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*6/02/00*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Grant Anderson*		

MW-3

		Sample No.:		***34259-3***
		Sample ID.:		***W-000601-DS-03***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
EPA 8020/WIS DNR GRO[(d)]				
Date Analyzed: 6/09/00				
Methyl tert butyl ether	*ug/L*	*0.56*	*20*	*[(r)]7.0*
Benzene	*ug/L*	*2.0*	*20*	*23*
Toluene	*ug/L*	*2.0*	*20*	*[(r)]19*
Ethylbenzene	*ug/L*	*2.0*	*20*	*ND*
*m,p-Xylene**	*ug/L*	*4.8*	*20*	*400*
o-Xylene	*ug/L*	*2.2*	*20*	*63*
Gasoline Range Organics	*ug/L*	*46*	*200*	*1400*

Surrogate Recovery	***Detector***	***% Recovery***
1-Chloro-4-Fluorobenzene	*PID*	*108%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead, Dissolved (239.2)	*ug/L*	*1.0*	*ND*	*6/15/00*

[(d)]A dilution was necessary due to levels present; therefore, detection limits were raised.
[(r)]Result is above MDL, but below PQL.
** means Coeluting Compounds*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***ug/L** means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)*

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LABORATORY ANALYSIS REPORT

DATE:	June 15, 2000	**PAGE:**	4 Of 5
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	060200-200153 6/01/00 Client 6/02/00 13311
CONTACT:	Grant Anderson		

MW-3 (dup.)

				Sample No.:	**34259-4**
				Sample ID.:	**W-000601-DS-04**
ANALYSIS	**UNITS**	**MDL**	**PQL**		**RESULT**
EPA 8020/WIS DNR GRO[d]					
Date Analyzed: 6/09/00					
Methyl tert butyl ether	ug/L	0.56	20		[r]7.0
Benzene	ug/L	2.0	20		25
Toluene	ug/L	2.0	20		[r]19
Ethylbenzene	ug/L	2.0	20		ND
m,p-Xylene*	ug/L	4.8	20		400
o-Xylene	ug/L	2.2	20		61
Gasoline Range Organics	ug/L	46	200		1400

Surrogate Recovery	**Detector**	**% Recovery**
1-Chloro-4-Fluorobenzene	PID	102%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead, Dissolved (239.2)	ug/L	1.0	ND	6/15/00

[d]A dilution was necessary due to levels present; therefore, detection limits were raised.
[r]Result is above MDL, but below PQL.
* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE:	*June 15, 2000*	***PAGE:***	*5 Of 5*
CLIENT:	*Conestoga-Rovers & Associates*	***PROJECT NO.:***	*060200-200153*
	1801 Old Highway 8	***COLLECTION DATE:***	*6/01/00*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*6/02/00*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Grant Anderson*		

		Sample No.:		***34259-5***
		Sample ID.:		***Trip Blank***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
EPA 8020/WIS DNR GRO				
Date Analyzed: 6/09/00				
Methyl tert butyl ether	*ug/L*	*0.28*	*10*	*ND*
Benzene	*ug/L*	*1.0*	*10*	*ND*
Toluene	*ug/L*	*1.0*	*10*	*ND*
Ethylbenzene	*ug/L*	*1.0*	*10*	*ND*
*m,p-Xylene**	*ug/L*	*2.4*	*10*	*ND*
o-Xylene	*ug/L*	*1.1*	*10*	*ND*
Gasoline Range Organics	*ug/L*	*23*	*100*	*ND*

Surrogate Recovery	***Detector***	***% Recovery***
1-Chloro-4-Fluorobenzene	*PID*	*98.7%*

** means Coeluting Compounds*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***ug/L** means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)*

This report has been reviewed by me for technical accuracy and completeness. The analyses were performed using EPA or other approved methodologies and the results were reported on an "as received" basis unless otherwise noted. The results reported relate only to the items tested. Please contact me if you have any questions or comments regarding this report. Spectrum Labs, Inc. appreciates the opportunity to provide this analytical service for you.

Report Submitted By,

Gerard Herro
Laboratory Manager

GJH:wmc
cra34259

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA–ROVERS & ASSOCIATES
1801 OLD HWY. 8, SUITE 114
ST. PAUL, MN 55112 (612)639–0913

SHIPPED TO (Laboratory Name): Spectrum

REFERENCE NUMBER: 13311

SAMPLER'S SIGNATURE: [signature] PRINTED NAME: SHIELD

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS: MTBE GRO/BTEX	PARAMETERS: Dissolved Lead	REMARKS
1	6-1		W-000601-DS-01	WATER	4	X	X	CALL GRANT ANDERSON with any questions
2	6-1		-02		4	X	X	
3	6-1		-03		4	X	X	
4	6-1		-04		4	X	X	
5	6-1		~~TRIP BLANK~~			X		
			TEMP		1			
6			TRIP		1	X		
								130

TOTAL NUMBER OF CONTAINERS: 18 HEALTH/CHEMICAL HAZARDS:

RELINQUISHED BY: ① [signature]	DATE: 6-2-00 TIME: 10:40 a	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: SELF WAY BILL No.

White –Fully Executed Copy
Yellow –Receiving Laboratory Copy
Pink –Shipper Copy
Goldenrod –Sampler Copy

SAMPLE TEAM: SHIELD

RECEIVED FOR LABORATORY BY: [signature] DATE: 6/2/00 TIME: 1040

№ 02743

1001 JULY 19/93 REV.0 (F–42)

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA-ROVERS & ASSOCIATES
1801 OLD HWY. 8, SUITE 114
ST. PAUL, MN 55112 (612)639-0913

SHIPPED TO (Laboratory Name): Spectrum

REFERENCE NUMBER: 13311

SAMPLER'S SIGNATURE: [signature] PRINTED NAME: SHEILD

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	PARAMETERS: MTBE 8260 Total		Dissolved Lead							REMARKS
1	6-1		W-000601-DS-01 MW-1	WATER	4	X		X							Call Grant
2	6-1		↓ -02 MW-2	↓	4	X		X							Anderson
3	6-1		↓ -03 MW-3	↓	4	X		X							w/ Tierney Gosch MS
4	6-1		↓ -04 MW 3 Dup.	↓	4	X		X							= 1
5	6-1		~~[illegible]~~	↓		~~X~~									
			TEMP	↓	1										
			TRIP	↓	1	X									

TOTAL NUMBER OF CONTAINERS: 18

HEALTH/CHEMICAL HAZARDS:

RELINQUISHED BY: ① [signature]	DATE: 6-2-00 TIME: 1540 [illegible]	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ②	DATE: TIME:	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: SELF WAY BILL No.

White —Fully Executed Copy
Yellow —Receiving Laboratory Copy
Pink —Shipper Copy
Goldenrod —Sampler Copy

SAMPLE TEAM: SHEILD

RECEIVED FOR LABORATORY BY: [illegible]
DATE: [illegible] TIME: [illegible]

Nº 02743

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QUALITY CONTROL SUMMARY/CASE NARRATIVE

Client:	*Conestoga-Rovers & Associates*
Spectrum Project #:	***060200-200153***
Parameters:	*NA*
Date Samples Received:	***06/02/2000***
Page:	*1*

SUMMARY OF EVENTS:

The samples were received at Spectrum Labs, Inc. intact and in good condition. Table 1 summarizes the Spectrum sample numbers assigned to the samples as well as the dates received.

TABLE 1
Summary of Samples Received

Description	Date Received	Spectrum Labs ID Number
W-000601-DS-01	06/02/2000	34259-1
W-000601-DS-02	06/02/2000	34259-2
W-000601-DS-03	06/02/2000	34259-3
W-000601-DS-04	06/02/2000	34259-4
Trip Blank	06/02/2000	34259-5

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To Grant Anderson	Date 6/30 — # of pages ▶ 2
Co./Dept.	From G. Warren
Phone #	Co.
Fax # 639-0923	Phone #
	Fax #

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QUALITY CONTROL SUMMARY/CASE NARRATIVE

Client: Conestoga-Rovers & Associates
Spectrum Project #: 060200-200153
Parameters: NA
Date Samples Received: 06/02/2000
Page: 2

TABLE 2
Quality Control Summary
BTEX/GRO/Lead

Compound	%Recovery ICV	%Recovery CCV	% Spike Rec	% Spike Rec Limit	RPD
Benzene	97.3	97.9	99.3	80-120	0.48
Toluene	103	102	101	80-120	0.21
Ethylbenzene	108	109	107	80-120	0.45
m,p-Xylenes	109	109	108	80-120	0.34
o-Xylene	108	109	104	80-120	0.07
GRO	114	106	107	80-120	1.5
Lead	99.1	99.7	NA	NA	NA

The above Tables summarize the Quality Control Data associated with 13311

If you have any questions about this report please do not hesitate to contact me.

Sincerely,

Gerard Herro
Lab Manager

13311

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LABORATORY ANALYSIS REPORT

DATE: July 20, 1999 **PAGE:** 1 Of 41

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

CONTACT: Grant Anderson

PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

BH-14, 14-16'

		Sample No.:		L24044-1
		Sample ID.:		S-990629-DS-01
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO				
Date Analyzed: 7/12,15/99				
Methyl tert butyl ether	mg/kg	0.2	1.0	ND
Benzene	mg/kg	0.2	1.0	ND
Toluene	mg/kg	0.2	1.0	[r]0.6
Ethylbenzene	mg/kg	0.2	1.0	[r]0.7
m,p-Xylene*	mg/kg	0.3	1.0	1.3
o-Xylene	mg/kg	0.2	1.0	ND
Gasoline Range Organics	mg/kg	10	20	[d]270

Surrogate Recovery	**Detector**	**7/12 % Rec**	**7/15 % Rec**
1-chloro-4-Fluorobenzene	PID	[s]220%	110%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	8.0	7/15/99

[r]Result is above MDL, but below PQL.
[d]A dilution was necessary due to levels present; therefore, detection limits were raised.
[s]High surrogate recovery due to matrix interference.
* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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LABORATORY ANALYSIS REPORT

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	1801 Old Highway 8	***COLLECTION DATE:***	*6/29/99-7/01/99*
	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*7/06/99*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Grant Anderson*		

BH-15, 14-16

		Sample No.:		***L24044-2***
		Sample ID.:		***S-990629-DS-02***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
EPA 8020/WIS DNR GRO				
Date Analyzed: 7/12/99				
Methyl tert butyl ether	*mg/kg*	*0.2*	*1.0*	*ND*
Benzene	*mg/kg*	*0.2*	*1.0*	*ND*
Toluene	*mg/kg*	*0.2*	*1.0*	*ND*
Ethylbenzene	*mg/kg*	*0.2*	*1.0*	*ND*
*m,p-Xylene**	*mg/kg*	*0.3*	*1.0*	*ND*
o-Xylene	*mg/kg*	*0.2*	*1.0*	*ND*
Gasoline Range Organics	*mg/kg*	*1.0*	*2.0*	*44*

Surrogate Recovery	***Detector***	***% Recovery***
1-chloro-4-Fluorobenzene	*PID*	*(s)134%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead (6010B)	*mg/kg*	*5.0*	*ND*	*7/15/99*

(s)High surrogate recovery due to matrix interference.
** means Coeluting Compounds*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***mg/kg** means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)*

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LABORATORY ANALYSIS REPORT

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CONTACT:	Grant Anderson		

BH-16, 14-16'

		Sample No.:		**L24044-3**
		Sample ID.:		**S-990630-DS-03**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO[(d)]				
Date Analyzed: 7/12/99				
Methyl tert butyl ether	mg/kg	2.0	10	ND
Benzene	mg/kg	2.0	10	ND
Toluene	mg/kg	2.0	10	ND
Ethylbenzene	mg/kg	2.0	10	ND
m,p-Xylene*	mg/kg	3.0	10	ND
o-Xylene	mg/kg	2.0	10	ND
Gasoline Range Organics	mg/kg	10	20	320

Surrogate Recovery	**Detector**	**% Recovery**
1-chloro-4-Fluorobenzene	PID	121%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	17	7/15/99

[(d)] A dilution was necessary due to levels present; therefore, detection limits were raised.
* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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LABORATORY ANALYSIS REPORT

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CLIENT: Conestoga-Rovers & Associates
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COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

BH-17, 16-18'

		Sample No.:		L24044-4
		Sample ID.:		S-990630-DS-04
ANALYSIS	UNITS	MDL	PQL	RESULT
EPA 8020/WIS DNR GRO				
Date Analyzed: 7/12/99				
Methyl tert butyl ether	mg/kg	0.2	1.0	ND
Benzene	mg/kg	0.2	1.0	ND
Toluene	mg/kg	0.2	1.0	ND
Ethylbenzene	mg/kg	0.2	1.0	ND
m,p-Xylene*	mg/kg	0.3	1.0	ND
o-Xylene	mg/kg	0.2	1.0	ND
Gasoline Range Organics	mg/kg	1.0	2.0	37

Surrogate Recovery	Detector	% Recovery
1-chloro-4-Fluorobenzene	PID	(s)133%

ANALYSIS	UNITS	PQL	RESULT	ANALYSIS DATE
Lead (6010B)	mg/kg	5.0	10	7/15/99

(s)High surrogate recovery due to matrix interference.
* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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LABORATORY ANALYSIS REPORT

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St. Paul, MN 55112

PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

BH-18, 14-16

		Sample No.:		L24044-5
		Sample ID.:		S-990630-DS-05
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO				
Date Analyzed: 7/12/99				
Methyl tert butyl ether	mg/kg	0.2	1.0	ND
Benzene	mg/kg	0.2	1.0	ND
Toluene	mg/kg	0.2	1.0	ND
Ethylbenzene	mg/kg	0.2	1.0	[r]0.2
m,p-Xylene*	mg/kg	0.3	1.0	[r]0.5
o-Xylene	mg/kg	0.2	1.0	[r]0.6
Gasoline Range Organics	mg/kg	1.0	2.0	120

Surrogate Recovery	**Detector**	**% Recovery**
1-chloro-4-Fluorobenzene	PID	[s]166%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	7.6	7/15/99

[r] Result is above MDL, but below PQL.
[s] High surrogate recovery due to matrix interference.
* means Coeluting Compounds
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MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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CONTACT:	*Grant Anderson*		

BH-19, 10-14

				Sample No.:	L24044-6
				Sample ID.:	S-990630-DS-06
ANALYSIS	***UNITS***	***MDL***	***PQL***		***RESULT***
EPA 8020/WIS DNR GRO					
Date Analyzed: 7/12,15/99					
Methyl tert butyl ether	*mg/kg*	*0.2*	*1.0*		*ND*
Benzene	*mg/kg*	*0.2*	*1.0*		*ND*
Toluene	*mg/kg*	*0.2*	*1.0*		*ND*
Ethylbenzene	*mg/kg*	*0.2*	*1.0*		*ND*
*m,p-Xylene**	*mg/kg*	*0.3*	*1.0*		*ND*
o-Xylene	*mg/kg*	*0.2*	*1.0*		*ND*
Gasoline Range Organics	*mg/kg*	*1.5*	*2.0*		*ND*

Surrogate Recovery	***Detector***	***% Recovery***
1-chloro-4-Fluorobenzene	*PID*	*125%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead (6010B)	*mg/kg*	*5.0*	*16*	*7/15/99*

** means Coeluting Compounds*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***mg/kg** means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)*

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CONTACT:	Grant Anderson		

BH-20 12-14'

		Sample No.:		**L24044-7**
		Sample ID.:		**S-990630-DS-07**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO				
Date Analyzed: 7/12/99				
Methyl tert butyl ether	mg/kg	0.2	1.0	ND
Benzene	mg/kg	0.2	1.0	ND
Toluene	mg/kg	0.2	1.0	ND
Ethylbenzene	mg/kg	0.2	1.0	ND
m,p-Xylene*	mg/kg	0.3	1.0	ND
o-Xylene	mg/kg	0.2	1.0	ND
Gasoline Range Organics	mg/kg	1.0	2.0	ND

Surrogate Recovery	**Detector**	**% Recovery**
1-chloro-4-Fluorobenzene	PID	100%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	19	7/15/99

* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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LABORATORY ANALYSIS REPORT

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St. Paul, MN 55112

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COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

BH20 12-14' (dup.)

		Sample No.:		L24044-8
		Sample ID.:		S-990630-DS-08
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
EPA 8020/WIS DNR GRO				
Date Analyzed: 7/12/99				
Methyl tert butyl ether	mg/kg	0.2	1.0	ND
Benzene	mg/kg	0.2	1.0	ND
Toluene	mg/kg	0.2	1.0	ND
Ethylbenzene	mg/kg	0.2	1.0	ND
m,p-Xylene*	mg/kg	0.3	1.0	ND
o-Xylene	mg/kg	0.2	1.0	ND
Gasoline Range Organics	mg/kg	1.0	2.0	ND

Surrogate Recovery	**Detector**	**% Recovery**
1-chloro-4-Fluorobenzene	PID	106%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (6010B)	mg/kg	5.0	14	7/15/99

* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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LABORATORY ANALYSIS REPORT

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	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*7/06/99*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Grant Anderson*		

BH-21 16-18'

				Sample No.:	***L24044-9***
				Sample ID.:	***S-990701-DS-09***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***	
EPA 8020/WIS DNR GRO					
Date Analyzed: 7/12/99					
Methyl tert butyl ether	*mg/kg*	*0.2*	*1.0*	*(r)0.4*	
Benzene	*mg/kg*	*0.2*	*1.0*	*ND*	
Toluene	*mg/kg*	*0.2*	*1.0*	*(r)0.6*	
Ethylbenzene	*mg/kg*	*0.2*	*1.0*	*1.1*	
*m,p-Xylene**	*mg/kg*	*0.3*	*1.0*	*3.4*	
o-Xylene	*mg/kg*	*0.2*	*1.0*	*(r)0.5*	
Gasoline Range Organics	*mg/kg*	*1.0*	*2.0*	*200*	

Surrogate Recovery	***Detector***	***% Recovery***
1-chloro-4-Fluorobenzene	*PID*	*(s)176%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead (6010B)	*mg/kg*	*5.0*	*6.9*	*7/15/99*

(r)Result is above MDL, but below PQL.
(s)High surrogate recovery due to matrix interference.
** means Coeluting Compounds*
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***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***mg/kg** means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)*

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COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

BH 22 6-8'

		Sample No.:		L24044-10
		Sample ID.:		S-990701-DS-10
ANALYSIS	UNITS	MDL	PQL	RESULT
EPA 8020/WIS DNR GRO				
Date Analyzed: 7/12,15/99				
Methyl tert butyl ether	mg/kg	0.2	1.0	ND
Benzene	mg/kg	0.2	1.0	ND
Toluene	mg/kg	0.2	1.0	ND
Ethylbenzene	mg/kg	0.2	1.0	ND
m,p-Xylene*	mg/kg	0.3	1.0	ND
o-Xylene	mg/kg	0.2	1.0	ND
Gasoline Range Organics	mg/kg	1.0	2.0	ND

Surrogate Recovery	Detector	% Recovery
1-chloro-4-Fluorobenzene	PID	123%

ANALYSIS	UNITS	PQL	RESULT	ANALYSIS DATE
Lead (6010B)	mg/kg	5.0	28	7/15/99

* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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	Suite 114	***COLLECTED BY:***	*Client*
	St. Paul, MN 55112	***RECEIVED DATE:***	*7/06/99*
		PROJECT DESCRP.:	*13311*
CONTACT:	*Grant Anderson*		

BH-14

		Sample No.:		***L24044-11***
		Sample ID.:		***W-990629-DS-01***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULTS***
EPA 8021/MDH 465E List[(dd)]				
Date Analyzed: 7/08,09/99				
Acetone	*ug/L*	*10*	*50*	*[(r)]16*
Allyl Chloride	*ug/L*	*20*	*50*	*ND*
Benzene	*ug/L*	*2.0*	*10*	*70*
Bromobenzene	*ug/L*	*4.0*	*10*	*ND*
Bromochloromethane	*ug/L*	*3.0*	*10*	*ND*
Bromodichloromethane	*ug/L*	*3.0*	*10*	*ND*
Bromoform	*ug/L*	*4.0*	*10*	*ND*
Bromomethane	*ug/L*	*3.0*	*20*	*ND*
n-Butylbenzene	*ug/L*	*4.0*	*10*	*230*
sec-Butylbenzene	*ug/L*	*4.0*	*10*	*43*
tert-Butylbenzene	*ug/L*	*4.0*	*10*	*ND*
Carbon tetrachloride	*ug/L*	*3.0*	*10*	*ND*
Chlorobenzene	*ug/L*	*4.0*	*10*	*ND*
Chloroethane	*ug/L*	*3.0*	*20*	*ND*
Chloroform	*ug/L*	*3.0*	*10*	*ND*
Chloromethane	*ug/L*	*3.0*	*20*	*ND*
2-Chlorotoluene	*ug/L*	*4.0*	*10*	*ND*
4-Chlorotoluene	*ug/L*	*4.0*	*10*	*ND*
1,2-Dibromo-3-chloropropane	*ug/L*	*3.0*	*10*	*ND*
Dibromochloromethane	*ug/L*	*3.0*	*10*	*ND*
1,2-Dibromoethane	*ug/L*	*3.0*	*10*	*ND*
Dibromomethane	*ug/L*	*3.0*	*10*	*ND*
1,2-Dichlorobenzene	*ug/L*	*4.0*	*10*	*ND*
1,3-Dichlorobenzene	*ug/L*	*4.0*	*10*	*ND*
1,4-Dichlorobenzene	*ug/L*	*4.0*	*10*	*ND*
Dichlorodifluoromethane	*ug/L*	*2.0*	*20*	*ND*
1,1-Dichloroethane	*ug/L*	*3.0*	*10*	*ND*
1,2-Dichloroethane	*ug/L*	*3.0*	*10*	*ND*
1,1-Dichloroethene	*ug/L*	*3.0*	*10*	*ND*
cis-1,2-Dichloroethene	*ug/L*	*3.0*	*10*	*ND*
trans-1,2-Dichloroethene	*ug/L*	*3.0*	*10*	*ND*
Dichlorofluoromethane	*ug/L*	*2.0*	*20*	*ND*
1,2-Dichloropropane	*ug/L*	*2.0*	*10*	*ND*
1,3-Dichloropropane	*ug/L*	*3.0*	*10*	*ND*
2,2-Dichloropropane	*ug/L*	*3.0*	*10*	*ND*
1,1-Dichloropropene	*ug/L*	*3.0*	*10*	*ND*
cis-1,3-Dichloropropene	*ug/L*	*3.0*	*10*	*ND*
trans-1,3-Dichloropropene	*ug/L*	*3.0*	*10*	*ND*

[(dd)]A dilution was necessary due to sample matrix; therefore, detection limits were raised.
[(r)]Result is above MDL, but below PQL.
***ND** means Not Detected*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***ug/L** means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)*

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LABORATORY ANALYSIS REPORT

DATE: July 20, 1999 **PAGE:** 12 Of 41

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		L24044-11
		Sample ID.:		W-990629-DS-01
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List[dd]				
Date Analyzed: 7/08,09/99				
Ethyl Ether	ug/L	3.0	20	ND
Ethyl benzene	ug/L	3.0	10	ND
Hexachlorobutadiene	ug/L	5.0	10	ND
Isopropylbenzene	ug/L	3.0	10	11
p-Isopropyltoluene	ug/L	4.0	10	[r]7.0
Methyl ethyl ketone	ug/L	5.0	20	ND
Methyl isobutyl ketone	ug/L	2.0	20	22
Methyl tert butyl ether	ug/L	2.0	20	ND
Methylene Chloride	ug/L	7.0	20	ND
Naphthalene	ug/L	3.0	20	18
n-Propylbenzene	ug/L	4.0	10	140
Styrene	ug/L	3.0	10	ND
1,1,1,2-Tetrachloroethane	ug/L	3.0	10	ND
1,1,2,2-Tetrachloroethane	ug/L	4.0	10	ND
Tetrachloroethene	ug/L	4.0	10	ND
Tetrahydrofuran	ug/L	10	20	320
Toluene	ug/L	3.0	10	[r]3.5
1,2,3-Trichlorobenzene	ug/L	4.0	10	ND
1,2,4-Trichlorobenzene	ug/L	5.0	10	ND
1,1,1-Trichloroethane	ug/L	3.0	10	ND
1,1,2-Trichloroethane	ug/L	3.0	10	ND
Trichloroethene	ug/L	3.0	10	ND
Trichlorofluoromethane	ug/L	2.0	20	ND
1,1,2-Trichlorotrifluoroethane	ug/L	9.0	20	ND
1,2,3-Trichloropropane	ug/L	4.0	10	ND
1,2,4-Trimethylbenzene	ug/L	4.0	10	28
1,3,5-Trimethylbenzene	ug/L	4.0	10	190
Vinyl Chloride	ug/L	2.0	20	ND
o-Xylene	ug/L	3.0	10	ND
m,p-Xylene*	ug/L	6.0	10	ND

Surrogate	**Detector**	**Limit**	**% Rec.**
4-Fluorochlorobenzene	PID	80 - 120	113%
4-Fluorochlorobenzene	ELCD	80 - 120	95.1%

[dd]A dilution was necessary due to sample matrix; therefore, detection limits were raised.
[r]Result is above MDL, but below PQL.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE:	*July 20, 1999*	***PAGE:***	*13 Of 41*
CLIENT:	*Conestoga-Rovers & Associates* *1801 Old Highway 8* *Suite 114* *St. Paul, MN 55112*	***PROJECT NO.:*** ***COLLECTION DATE:*** ***COLLECTED BY:*** ***RECEIVED DATE:*** ***PROJECT DESCRP.:***	*070699-200153* *6/29/99-7/01/99* *Client* *7/06/99* *13311*
CONTACT:	*Grant Anderson*		

		Sample No.:		***L24044-11***
		Sample ID.:		***W-990629-DS-01***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
WIS DNR GRO[(d)]				
Date Analyzed: 7/12,15/99				
Gasoline Range Organics	*ug/L*	*200*	*1000*	*4600*

Surrogate Recovery	***Detector***	***% Recovery***
1-Chloro-4-Fluorobenzene	*PID*	*104%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead (239.2)	*ug/L*	*1.0*	*4.0*	*7/14/99*

[(d)]*A dilution was necessary due to levels present; therefore, detection limits were raised.*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit.*
***PQL** means Practical Quantification Limit.*
***ug/L** means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).*

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LABORATORY ANALYSIS REPORT

DATE: July 20, 1999 **PAGE:** 14 Of 41

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

R.B (BH 14)

CONTACT: Grant Anderson

ANALYSIS	UNITS	MDL	POL	Sample No.: L24044-12 Sample ID.: W-990629-DS-02 RESULTS
EPA 8021/MDH 465E List				
Date Analyzed: 7/08/99				
Acetone	ug/L	1.0	5	(r)(cc) 1.2
Allyl Chloride	ug/L	2.0	5	ND
Benzene	ug/L	0.2	1	(r) 0.2
Bromobenzene	ug/L	0.4	1	ND
Bromochloromethane	ug/L	0.3	1	ND
Bromodichloromethane	ug/L	0.3	1	ND
Bromoform	ug/L	0.4	1	ND
Bromomethane	ug/L	0.3	2	ND
n-Butylbenzene	ug/L	0.4	1	ND
sec-Butylbenzene	ug/L	0.4	1	ND
tert-Butylbenzene	ug/L	0.4	1	ND
Carbon tetrachloride	ug/L	0.3	1	ND
Chlorobenzene	ug/L	0.4	1	ND
Chloroethane	ug/L	0.3	2	ND
Chloroform	ug/L	0.3	1	ND
Chloromethane	ug/L	0.3	2	ND
2-Chlorotoluene	ug/L	0.4	1	ND
4-Chlorotoluene	ug/L	0.4	1	ND
1,2-Dibromo-3-chloropropane	ug/L	0.3	1	ND
Dibromochloromethane	ug/L	0.3	1	ND
1,2-Dibromoethane	ug/L	0.3	1	ND
Dibromomethane	ug/L	0.3	1	ND
1,2-Dichlorobenzene	ug/L	0.4	1	ND
1,3-Dichlorobenzene	ug/L	0.4	1	ND
1,4-Dichlorobenzene	ug/L	0.4	1	ND
Dichlorodifluoromethane	ug/L	0.2	2	ND
1,1-Dichloroethane	ug/L	0.3	1	ND
1,2-Dichloroethane	ug/L	0.3	1	ND
1,1-Dichloroethene	ug/L	0.3	1	ND
cis-1,2-Dichloroethene	ug/L	0.3	1	ND
trans-1,2-Dichloroethene	ug/L	0.3	1	ND
Dichlorofluoromethane	ug/L	0.2	2	ND
1,2-Dichloropropane	ug/L	0.2	1	ND
1,3-Dichloropropane	ug/L	0.3	1	ND
2,2-Dichloropropane	ug/L	0.3	1	ND
1,1-Dichloropropene	ug/L	0.3	1	ND
cis-1,3-Dichloropropene	ug/L	0.3	1	ND
trans-1,3-Dichloropropene	ug/L	0.3	1	ND

(cc) Result appears to be due to a laboratory contamination.
(r) Result is above MDL, but below PQL.
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE: July 20, 1999 **PAGE:** 15 Of 41

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

Sample No.: L24044-12
Sample ID.: W-990629-DS-02

ANALYSIS	UNITS	MDL	PQL	RESULTS
EPA 8021/MDH 465E List				
Date Analyzed: 7/08/99				
Ethyl Ether	ug/L	0.3	2	ND
Ethyl benzene	ug/L	0.3	1	ND
Hexachlorobutadiene	ug/L	0.5	1	ND
Isopropylbenzene	ug/L	0.3	1	ND
p-Isopropyltoluene	ug/L	0.4	1	ND
Methyl ethyl ketone	ug/L	0.5	2	(r)(cc) 1.2
Methyl isobutyl ketone	ug/L	0.2	2	ND
Methyl tert butyl ether	ug/L	0.2	2	ND
Methylene Chloride	ug/L	0.7	2	ND
Naphthalene	ug/L	0.3	2	ND
n-Propylbenzene	ug/L	0.4	1	ND
Styrene	ug/L	0.3	1	ND
1,1,1,2-Tetrachloroethane	ug/L	0.3	1	ND
1,1,2,2-Tetrachloroethane	ug/L	0.4	1	ND
Tetrachloroethene	ug/L	0.4	1	ND
Tetrahydrofuran	ug/L	1.0	2	ND
Toluene	ug/L	0.3	1	ND
1,2,3-Trichlorobenzene	ug/L	0.4	1	ND
1,2,4-Trichlorobenzene	ug/L	0.5	1	ND
1,1,1-Trichloroethane	ug/L	0.3	1	ND
1,1,2-Trichloroethane	ug/L	0.3	1	ND
Trichloroethene	ug/L	0.3	1	ND
Trichlorofluoromethane	ug/L	0.2	2	ND
1,1,2-Trichlorotrifluoroethane	ug/L	0.9	2	ND
1,2,3-Trichloropropane	ug/L	0.4	1	ND
1,2,4-Trimethylbenzene	ug/L	0.4	1	ND
1,3,5-Trimethylbenzene	ug/L	0.4	1	ND
Vinyl Chloride	ug/L	0.2	2	ND
o-Xylene	ug/L	0.3	1	ND
m,p-Xylene*	ug/L	0.6	1	ND

Surrogate	Detector	Limit	% Rec.
4-Fluorochlorobenzene	PID	80 - 120	98.0%
4-Fluorochlorobenzene	ELCD	80 - 120	89.6%

(cc) Result appears to be due to a laboratory contamination.
(r) Result is above MDL, but below PQL.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

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CLIENT:	*Conestoga-Rovers & Associates* *1801 Old Highway 8* *Suite 114* *St. Paul, MN 55112*	***PROJECT NO.:*** ***COLLECTION DATE:*** ***COLLECTED BY:*** ***RECEIVED DATE:*** ***PROJECT DESCRP.:***	*070699-200153* *6/29/99-7/01/99* *Client* *7/06/99* *13311*
CONTACT:	*Grant Anderson*		

		Sample No.:		***L24044-12***
		Sample ID.:		***W-990629-DS-02***
ANALYSIS	***UNITS***	***MDL***	***PQL***	***RESULT***
WIS DNR GRO				
Date Analyzed: 7/12/99				
Gasoline Range Organics	*ug/L*	*20*	*100*	*ND*

Surrogate Recovery	***Detector***	***% Recovery***
1-Chloro-4-Fluorobenzene	*PID*	*84.0%*

ANALYSIS	***UNITS***	***PQL***	***RESULT***	***ANALYSIS DATE***
Lead (239.2)	*ug/L*	*1.0*	*ND*	*7/14/99*

ND *means Not Detected or below reported MDL*
MDL *means Method Detection Limit.*
PQL *means Practical Quantification Limit.*
ug/L *means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).*

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LABORATORY ANALYSIS REPORT

DATE: July 20, 1999 **PAGE:** 17 Of 41

CLIENT: Conestoga-Rovers & Associates
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PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

BH-15

CONTACT: Grant Anderson

ANALYSIS	UNITS	MDL	PQL	Sample No.: L24044-13 Sample ID.: W-990629-DS-03 RESULTS
EPA 8021/MDH 465E List[dd]				
Date Analyzed: 7/08/99				
Acetone	ug/L	10	50	[r][cc] 38
Allyl Chloride	ug/L	20	50	ND
Benzene	ug/L	2.0	10	63
Bromobenzene	ug/L	4.0	10	ND
Bromochloromethane	ug/L	3.0	10	ND
Bromodichloromethane	ug/L	3.0	10	ND
Bromoform	ug/L	4.0	10	ND
Bromomethane	ug/L	3.0	20	ND
n-Butylbenzene	ug/L	4.0	10	75
sec-Butylbenzene	ug/L	4.0	10	15
tert-Butylbenzene	ug/L	4.0	10	ND
Carbon tetrachloride	ug/L	3.0	10	ND
Chlorobenzene	ug/L	4.0	10	ND
Chloroethane	ug/L	3.0	20	ND
Chloroform	ug/L	3.0	10	ND
Chloromethane	ug/L	3.0	20	ND
2-Chlorotoluene	ug/L	4.0	10	ND
4-Chlorotoluene	ug/L	4.0	10	ND
1,2-Dibromo-3-chloropropane	ug/L	3.0	10	ND
Dibromochloromethane	ug/L	3.0	10	ND
1,2-Dibromoethane	ug/L	3.0	10	ND
Dibromomethane	ug/L	3.0	10	ND
1,2-Dichlorobenzene	ug/L	4.0	10	ND
1,3-Dichlorobenzene	ug/L	4.0	10	ND
1,4-Dichlorobenzene	ug/L	4.0	10	ND
Dichlorodifluoromethane	ug/L	2.0	20	ND
1,1-Dichloroethane	ug/L	3.0	10	ND
1,2-Dichloroethane	ug/L	3.0	10	ND
1,1-Dichloroethene	ug/L	3.0	10	ND
cis-1,2-Dichloroethene	ug/L	3.0	10	ND
trans-1,2-Dichloroethene	ug/L	3.0	10	ND
Dichlorofluoromethane	ug/L	2.0	20	ND
1,2-Dichloropropane	ug/L	2.0	10	ND
1,3-Dichloropropane	ug/L	3.0	10	ND
2,2-Dichloropropane	ug/L	3.0	10	ND
1,1-Dichloropropene	ug/L	3.0	10	ND
cis-1,3-Dichloropropene	ug/L	3.0	10	ND
trans-1,3-Dichloropropene	ug/L	3.0	10	ND

[dd] A dilution was necessary due to sample matrix; therefore, detection limits were raised.
[r] Result is above MDL, but below PQL.
[cc] Result appears to be due to a laboratory contamination.
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE: July 20, 1999 **PAGE:** 18 Of 41

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
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PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		L24044-13
		Sample ID.:		W-990629-DS-03
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List[dd]				
Date Analyzed: 7/08/99				
Ethyl Ether	ug/L	3.0	20	ND
Ethyl benzene	ug/L	3.0	10	ND
Hexachlorobutadiene	ug/L	5.0	10	ND
Isopropylbenzene	ug/L	3.0	10	17
p-Isopropyltoluene	ug/L	4.0	10	ND
Methyl ethyl ketone	ug/L	5.0	20	31
Methyl isobutyl ketone	ug/L	2.0	20	25
Methyl tert butyl ether	ug/L	2.0	20	ND
Methylene Chloride	ug/L	7.0	20	[c]540
Naphthalene	ug/L	3.0	20	[r]5.3
n-Propylbenzene	ug/L	4.0	10	56
Styrene	ug/L	3.0	10	ND
1,1,1,2-Tetrachloroethane	ug/L	3.0	10	ND
1,1,2,2-Tetrachloroethane	ug/L	4.0	10	ND
Tetrachloroethene	ug/L	4.0	10	ND
Tetrahydrofuran	ug/L	10	20	340
Toluene	ug/L	3.0	10	ND
1,2,3-Trichlorobenzene	ug/L	4.0	10	ND
1,2,4-Trichlorobenzene	ug/L	5.0	10	ND
1,1,1-Trichloroethane	ug/L	3.0	10	ND
1,1,2-Trichloroethane	ug/L	3.0	10	ND
Trichloroethene	ug/L	3.0	10	ND
Trichlorofluoromethane	ug/L	2.0	20	ND
1,1,2-Trichlorotrifluoroethane	ug/L	9.0	20	ND
1,2,3-Trichloropropane	ug/L	4.0	10	ND
1,2,4-Trimethylbenzene	ug/L	4.0	10	280
1,3,5-Trimethylbenzene	ug/L	4.0	10	85
Vinyl Chloride	ug/L	2.0	20	ND
o-Xylene	ug/L	3.0	10	ND
m,p-Xylene*	ug/L	6.0	10	ND

Surrogate	**Detector**	**Limit**	**% Rec.**
4-Fluorochlorobenzene	PID	80 - 120	108%
4-Fluorochlorobenzene	ELCD	80 - 120	92.7%

[dd] A dilution was necessary due to sample matrix; therefore, detection limits were raised.
[r] Result is above MDL, but below PQL.
[c] Result appears to be due to a laboratory contamination. Similar contamination was detected in method blank.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

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CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	070699-200153 6/29/99-7/01/99 Client 7/06/99 13311
CONTACT:	Grant Anderson		

				Sample No.:	**L24044-13**
				Sample ID.:	**W-990629-DS-03**
ANALYSIS	**UNITS**	**MDL**	**PQL**		**RESULT**
WIS DNR GRO					
Date Analyzed: 7/12/99					
Gasoline Range Organics	ug/L	20	100		3200
Surrogate Recovery	**Detector**		**% Recovery**		
1-Chloro-4-Fluorobenzene	PID		(s)134%		

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (239.2)	ug/L	1.0	ND	7/14/99

(s)High surrogate recovery due to matrix interference.
ND means Not Detected or below reported MDL
MDL means Method Detection Limit.
PQL means Practical Quantification Limit.
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).

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LABORATORY ANALYSIS REPORT

DATE: July 20, 1999 **PAGE:** 20 Of 41

CLIENT: Conestoga-Rovers & Associates
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St. Paul, MN 55112

PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

BH-16

CONTACT: Grant Anderson

ANALYSIS	UNITS	MDL	PQL	Sample No.: L24044-14 Sample ID.: W-990630-DS-04 RESULTS
EPA 8021/MDH 465E List[d]				
Date Analyzed: 7/08/99				
Acetone	ug/L	100	500	[r]430
Allyl Chloride	ug/L	200	500	ND
Benzene	ug/L	20	100	[r]67
Bromobenzene	ug/L	40	100	ND
Bromochloromethane	ug/L	30	100	ND
Bromodichloromethane	ug/L	30	100	ND
Bromoform	ug/L	40	100	ND
Bromomethane	ug/L	30	200	ND
n-Butylbenzene	ug/L	40	100	140
sec-Butylbenzene	ug/L	40	100	ND
tert-Butylbenzene	ug/L	40	100	ND
Carbon tetrachloride	ug/L	30	100	ND
Chlorobenzene	ug/L	40	100	ND
Chloroethane	ug/L	30	200	ND
Chloroform	ug/L	30	100	ND
Chloromethane	ug/L	30	200	ND
2-Chlorotoluene	ug/L	40	100	ND
4-Chlorotoluene	ug/L	40	100	ND
1,2-Dibromo-3-chloropropane	ug/L	30	100	ND
Dibromochloromethane	ug/L	30	100	ND
1,2-Dibromoethane	ug/L	30	100	ND
Dibromomethane	ug/L	30	100	ND
1,2-Dichlorobenzene	ug/L	40	100	ND
1,3-Dichlorobenzene	ug/L	40	100	ND
1,4-Dichlorobenzene	ug/L	40	100	ND
Dichlorodifluoromethane	ug/L	20	200	ND
1,1-Dichloroethane	ug/L	30	100	ND
1,2-Dichloroethane	ug/L	30	100	ND
1,1-Dichloroethene	ug/L	30	100	ND
cis-1,2-Dichloroethene	ug/L	30	100	ND
trans-1,2-Dichloroethene	ug/L	30	100	ND
Dichlorofluoromethane	ug/L	20	200	ND
1,2-Dichloropropane	ug/L	20	100	ND
1,3-Dichloropropane	ug/L	30	100	ND
2,2-Dichloropropane	ug/L	30	100	ND
1,1-Dichloropropene	ug/L	30	100	ND
cis-1,3-Dichloropropene	ug/L	30	100	ND
trans-1,3-Dichloropropene	ug/L	30	100	ND

[d]*A dilution was necessary due to levels present; therefore, detection limits were raised.*
[r]*Result is above MDL, but below PQL.*
ND *means Not Detected*
MDL *means Method Detection Limit*
PQL *means Practical Quantification Limit*
ug/L *means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)*

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LABORATORY ANALYSIS REPORT

DATE: July 20, 1999 **PAGE:** 21 Of 41

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		L24044-14
		Sample ID.:		W-990630-DS-04
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List[d]				
Date Analyzed: 7/08/99				
Ethyl Ether	ug/L	30	200	ND
Ethyl benzene	ug/L	30	100	370
Hexachlorobutadiene	ug/L	50	100	ND
Isopropylbenzene	ug/L	30	100	110
p-Isopropyltoluene	ug/L	40	100	ND
Methyl ethyl ketone	ug/L	50	200	400
Methyl isobutyl ketone	ug/L	20	200	[r]93
Methyl tert butyl ether	ug/L	20	200	ND
Methylene Chloride	ug/L	70	200	[c]6100
Naphthalene	ug/L	30	200	440
n-Propylbenzene	ug/L	40	100	260
Styrene	ug/L	30	100	ND
1,1,1,2-Tetrachloroethane	ug/L	30	100	ND
1,1,2,2-Tetrachloroethane	ug/L	40	100	ND
Tetrachloroethene	ug/L	40	100	ND
Tetrahydrofuran	ug/L	100	200	ND
Toluene	ug/L	30	100	ND
1,2,3-Trichlorobenzene	ug/L	40	100	ND
1,2,4-Trichlorobenzene	ug/L	50	100	ND
1,1,1-Trichloroethane	ug/L	30	100	ND
1,1,2-Trichloroethane	ug/L	30	100	ND
Trichloroethene	ug/L	30	100	ND
Trichlorofluoromethane	ug/L	20	200	ND
1,1,2-Trichlorotrifluoroethane	ug/L	90	200	ND
1,2,3-Trichloropropane	ug/L	40	100	ND
1,2,4-Trimethylbenzene	ug/L	40	100	2000
1,3,5-Trimethylbenzene	ug/L	40	100	440
Vinyl Chloride	ug/L	20	200	ND
o-Xylene	ug/L	30	100	ND
m,p-Xylene*	ug/L	60	100	730

Surrogate	**Detector**	**Limit**	**% Rec.**
4-Fluorochlorobenzene	PID	80 - 120	97.4%
4-Fluorochlorobenzene	ELCD	80 - 120	94.6%

[d] A dilution was necessary due to levels present; therefore, detection limits were raised.
[r] Result is above MDL, but below PQL.
[c] Result appears to be due to a laboratory contamination. Similar contamination was detected in method blank.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE:	July 20, 1999	**PAGE:**	22 Of 41
CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	070699-200153 6/29/99-7/01/99 Client 7/06/99 13311
CONTACT:	Grant Anderson		

		Sample No.:		L24044-14
		Sample ID.:		W-990630-DS-04
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
WIS DNR GRO[d]				
Date Analyzed: 7/14/99				
Gasoline Range Organics	ug/L	400	2000	12,000

Surrogate Recovery	**Detector**	**% Recovery**
1-Chloro-4-Fluorobenzene	PID	114%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (239.2)	ug/L	1.0	6.0	7/14/99

[d]*A dilution was necessary due to levels present; therefore, detection limits were raised.*
***ND** means Not Detected or below reported MDL*
***MDL** means Method Detection Limit.*
***PQL** means Practical Quantification Limit.*
***ug/L** means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).*

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LABORATORY ANALYSIS REPORT

DATE: July 20, 1999 **PAGE:** 23 Of 41

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

BH-19

CONTACT: Grant Anderson

ANALYSIS	UNITS	Sample No.: / Sample ID.: MDL	PQL	L24044-15 / W-990630-DS-05 RESULTS
EPA 8021/MDH 465E List[dd]				
Date Analyzed: 7/08,09/99				
Acetone	ug/L	2.0	10	[r]3.8
Allyl Chloride	ug/L	4.0	10	ND
Benzene	ug/L	0.4	2	[r]0.4
Bromobenzene	ug/L	0.8	2	ND
Bromochloromethane	ug/L	0.6	2	ND
Bromodichloromethane	ug/L	0.6	2	ND
Bromoform	ug/L	1.0	2	ND
Bromomethane	ug/L	0.6	4	ND
n-Butylbenzene	ug/L	0.8	2	ND
sec-Butylbenzene	ug/L	0.8	2	ND
tert-Butylbenzene	ug/L	0.8	2	ND
Carbon tetrachloride	ug/L	0.6	2	ND
Chlorobenzene	ug/L	0.8	2	ND
Chloroethane	ug/L	0.6	4	ND
Chloroform	ug/L	0.6	2	ND
Chloromethane	ug/L	0.6	4	ND
2-Chlorotoluene	ug/L	0.8	2	ND
4-Chlorotoluene	ug/L	0.8	2	ND
1,2-Dibromo-3-chloropropane	ug/L	0.6	2	ND
Dibromochloromethane	ug/L	0.6	2	ND
1,2-Dibromoethane	ug/L	0.6	2	ND
Dibromomethane	ug/L	0.6	2	ND
1,2-Dichlorobenzene	ug/L	0.8	2	ND
1,3-Dichlorobenzene	ug/L	0.8	2	ND
1,4-Dichlorobenzene	ug/L	0.8	2	ND
Dichlorodifluoromethane	ug/L	1.4	4	ND
1,1-Dichloroethane	ug/L	0.6	2	ND
1,2-Dichloroethane	ug/L	0.6	2	ND
1,1-Dichloroethene	ug/L	0.6	2	ND
cis-1,2-Dichloroethene	ug/L	0.6	2	ND
trans-1,2-Dichloroethene	ug/L	0.6	2	ND
Dichlorofluoromethane	ug/L	0.4	4	ND
1,2-Dichloropropane	ug/L	0.4	2	ND
1,3-Dichloropropane	ug/L	0.6	2	ND
2,2-Dichloropropane	ug/L	0.6	2	ND
1,1-Dichloropropene	ug/L	0.6	2	ND
cis-1,3-Dichloropropene	ug/L	0.6	2	ND
trans-1,3-Dichloropropene	ug/L	0.6	2	ND

[dd]A dilution was necessary due to sample matrix; therefore, detection limits were raised.
[r]Result is above MDL, but below PQL.
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

DATE: July 20, 1999 **PAGE:** 24 Of 41

CLIENT: Conestoga-Rovers & Associates
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Suite 114
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PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		L24044-15
		Sample ID.:		W-990630-DS-05
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List[dd]				
Date Analyzed: 7/08,09/99				
Ethyl Ether	ug/L	0.6	4	ND
Ethyl benzene	ug/L	0.6	2	ND
Hexachlorobutadiene	ug/L	1.0	2	ND
Isopropylbenzene	ug/L	0.6	2	ND
p-Isopropyltoluene	ug/L	0.8	2	ND
Methyl ethyl ketone	ug/L	1.0	4	ND
Methyl isobutyl ketone	ug/L	0.4	4	ND
Methyl tert butyl ether	ug/L	0.4	4	ND
Methylene Chloride	ug/L	1.4	4	[r]2.1
Naphthalene	ug/L	0.6	4	ND
n-Propylbenzene	ug/L	0.8	2	ND
Styrene	ug/L	0.6	2	ND
1,1,1,2-Tetrachloroethane	ug/L	0.6	2	ND
1,1,2,2-Tetrachloroethane	ug/L	0.8	2	ND
Tetrachloroethene	ug/L	0.8	2	ND
Tetrahydrofuran	ug/L	2.0	4	ND
Toluene	ug/L	0.6	2	ND
1,2,3-Trichlorobenzene	ug/L	0.8	2	ND
1,2,4-Trichlorobenzene	ug/L	1.0	2	ND
1,1,1-Trichloroethane	ug/L	0.6	2	ND
1,1,2-Trichloroethane	ug/L	0.6	2	ND
Trichloroethene	ug/L	0.6	2	ND
Trichlorofluoromethane	ug/L	0.8	4	ND
1,1,2-Trichlorotrifluoroethane	ug/L	1.8	4	ND
1,2,3-Trichloropropane	ug/L	0.8	2	ND
1,2,4-Trimethylbenzene	ug/L	0.8	2	ND
1,3,5-Trimethylbenzene	ug/L	0.8	2	ND
Vinyl Chloride	ug/L	0.4	4	ND
o-Xylene	ug/L	0.6	2	ND
m,p-Xylene*	ug/L	1.2	2	ND

Surrogate	**Detector**	**Limit**	**% Rec.**
4-Fluorochlorobenzene	PID	80 - 120	99.9%
4-Fluorochlorobenzene	ELCD	80 - 120	80.8%

[dd] A dilution was necessary due to sample matrix; therefore, detection limits were raised.
[r] Result is above MDL, but below PQL.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	070699-200153 6/29/99-7/01/99 Client 7/06/99 13311
CONTACT:	Grant Anderson		

		Sample No.:		**L24044-15**
		Sample ID.:		**W-990630-DS-05**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
WIS DNR GRO				
Date Analyzed: 7/14/99				
Gasoline Range Organics	ug/L	20	100	ND
Surrogate Recovery	**Detector**		**% Recovery**	
1-Chloro-4-Fluorobenzene	PID		106%	

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (239.2)	ug/L	1.0	ND	7/14/99

ND means Not Detected or below reported MDL
MDL means Method Detection Limit.
PQL means Practical Quantification Limit.
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).

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LABORATORY ANALYSIS REPORT

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CLIENT: Conestoga-Rovers & Associates
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PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

BH-19 (dup)

CONTACT: Grant Anderson

ANALYSIS	UNITS	MDL	PQL	Sample No.: L24044-16 Sample ID.: W-990630-DS-06 RESULTS
EPA 8021/MDH 465E List[dd]				
Date Analyzed: 7/08,09/99				
Acetone	ug/L	2.0	10	[r]3.2
Allyl Chloride	ug/L	4.0	10	ND
Benzene	ug/L	0.4	2	ND
Bromobenzene	ug/L	0.8	2	ND
Bromochloromethane	ug/L	0.6	2	ND
Bromodichloromethane	ug/L	0.6	2	ND
Bromoform	ug/L	1.0	2	ND
Bromomethane	ug/L	0.6	4	ND
n-Butylbenzene	ug/L	0.8	2	ND
sec-Butylbenzene	ug/L	0.8	2	ND
tert-Butylbenzene	ug/L	0.8	2	ND
Carbon tetrachloride	ug/L	0.6	2	ND
Chlorobenzene	ug/L	0.8	2	ND
Chloroethane	ug/L	0.6	4	ND
Chloroform	ug/L	0.6	2	ND
Chloromethane	ug/L	0.6	4	ND
2-Chlorotoluene	ug/L	0.8	2	ND
4-Chlorotoluene	ug/L	0.8	2	ND
1,2-Dibromo-3-chloropropane	ug/L	0.6	2	ND
Dibromochloromethane	ug/L	0.6	2	ND
1,2-Dibromoethane	ug/L	0.6	2	ND
Dibromomethane	ug/L	0.6	2	ND
1,2-Dichlorobenzene	ug/L	0.8	2	ND
1,3-Dichlorobenzene	ug/L	0.8	2	ND
1,4-Dichlorobenzene	ug/L	0.8	2	ND
Dichlorodifluoromethane	ug/L	1.4	4	ND
1,1-Dichloroethane	ug/L	0.6	2	ND
1,2-Dichloroethane	ug/L	0.6	2	ND
1,1-Dichloroethene	ug/L	0.6	2	ND
cis-1,2-Dichloroethene	ug/L	0.6	2	ND
trans-1,2-Dichloroethene	ug/L	0.6	2	ND
Dichlorofluoromethane	ug/L	0.4	4	ND
1,2-Dichloropropane	ug/L	0.4	2	ND
1,3-Dichloropropane	ug/L	0.6	2	ND
2,2-Dichloropropane	ug/L	0.6	2	ND
1,1-Dichloropropene	ug/L	0.6	2	ND
cis-1,3-Dichloropropene	ug/L	0.6	2	ND
trans-1,3-Dichloropropene	ug/L	0.6	2	ND

[dd]A dilution was necessary due to sample matrix; therefore, detection limits were raised.
[r]Result is above MDL, but below PQL.
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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CLIENT: Conestoga-Rovers & Associates
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PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		L24044-16
		Sample ID.:		W-990630-DS-06
ANALYSIS	UNITS	MDL	PQL	RESULTS
EPA 8021/MDH 465E List[(dd)]				
Date Analyzed: 7/08,09/99				
Ethyl Ether	ug/L	0.6	4	ND
Ethyl benzene	ug/L	0.6	2	ND
Hexachlorobutadiene	ug/L	1.0	2	ND
Isopropylbenzene	ug/L	0.6	2	ND
p-Isopropyltoluene	ug/L	0.8	2	ND
Methyl ethyl ketone	ug/L	1.0	4	ND
Methyl isobutyl ketone	ug/L	0.4	4	ND
Methyl tert butyl ether	ug/L	0.4	4	ND
Methylene Chloride	ug/L	1.4	4	ND
Naphthalene	ug/L	0.6	4	ND
n-Propylbenzene	ug/L	0.8	2	ND
Styrene	ug/L	0.6	2	ND
1,1,1,2-Tetrachloroethane	ug/L	0.6	2	ND
1,1,2,2-Tetrachloroethane	ug/L	0.8	2	ND
Tetrachloroethene	ug/L	0.8	2	ND
Tetrahydrofuran	ug/L	2.0	4	ND
Toluene	ug/L	0.6	2	ND
1,2,3-Trichlorobenzene	ug/L	0.8	2	ND
1,2,4-Trichlorobenzene	ug/L	1.0	2	ND
1,1,1-Trichloroethane	ug/L	0.6	2	ND
1,1,2-Trichloroethane	ug/L	0.6	2	ND
Trichloroethene	ug/L	0.6	2	ND
Trichlorofluoromethane	ug/L	0.8	4	ND
1,1,2-Trichlorotrifluoroethane	ug/L	1.8	4	ND
1,2,3-Trichloropropane	ug/L	0.8	2	ND
1,2,4-Trimethylbenzene	ug/L	0.8	2	ND
1,3,5-Trimethylbenzene	ug/L	0.8	2	ND
Vinyl Chloride	ug/L	0.4	4	ND
o-Xylene	ug/L	0.6	2	ND
m,p-Xylene*	ug/L	1.2	2	ND

Surrogate	Detector	Limit	% Rec.
4-Fluorochlorobenzene	PID	80 - 120	99.1%
4-Fluorochlorobenzene	ELCD	80 - 120	85.9%

[(dd)] A dilution was necessary due to sample matrix; therefore, detection limits were raised.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

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CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	070699-200153 6/29/99-7/01/99 Client 7/06/99 13311
CONTACT:	Grant Anderson		

		Sample No.:		L24044-16
		Sample ID.:		W-990630-DS-06
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
WIS DNR GRO				
Date Analyzed: 7/14/99				
Gasoline Range Organics	ug/L	20	100	ND

Surrogate Recovery	**Detector**	**% Recovery**
1-Chloro-4-Fluorobenzene	PID	105%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (239.2)	ug/L	1.0	ND	7/14/99

ND means Not Detected or below reported MDL
MDL means Method Detection Limit.
PQL means Practical Quantification Limit.
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).

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LABORATORY ANALYSIS REPORT

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CLIENT: Conestoga-Rovers & Associates
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PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

BH-20

CONTACT: Grant Anderson

		Sample No.:		L24044-17
		Sample ID.:		W-990630-DS-07
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List[d]				
Date Analyzed: 7/08/99				
Acetone	ug/L	10	50	63
Allyl Chloride	ug/L	20	50	ND
Benzene	ug/L	2.0	10	35
Bromobenzene	ug/L	4.0	10	ND
Bromochloromethane	ug/L	3.0	10	ND
Bromodichloromethane	ug/L	3.0	10	ND
Bromoform	ug/L	4.0	10	ND
Bromomethane	ug/L	3.0	20	ND
n-Butylbenzene	ug/L	4.0	10	100
sec-Butylbenzene	ug/L	4.0	10	21
tert-Butylbenzene	ug/L	4.0	10	ND
Carbon tetrachloride	ug/L	3.0	10	ND
Chlorobenzene	ug/L	4.0	10	ND
Chloroethane	ug/L	3.0	20	ND
Chloroform	ug/L	3.0	10	ND
Chloromethane	ug/L	3.0	20	ND
2-Chlorotoluene	ug/L	4.0	10	ND
4-Chlorotoluene	ug/L	4.0	10	ND
1,2-Dibromo-3-chloropropane	ug/L	3.0	10	ND
Dibromochloromethane	ug/L	3.0	10	ND
1,2-Dibromoethane	ug/L	3.0	10	ND
Dibromomethane	ug/L	3.0	10	ND
1,2-Dichlorobenzene	ug/L	4.0	10	ND
1,3-Dichlorobenzene	ug/L	4.0	10	ND
1,4-Dichlorobenzene	ug/L	4.0	10	ND
Dichlorodifluoromethane	ug/L	2.0	20	ND
1,1-Dichloroethane	ug/L	3.0	10	ND
1,2-Dichloroethane	ug/L	3.0	10	ND
1,1-Dichloroethene	ug/L	3.0	10	ND
cis-1,2-Dichloroethene	ug/L	3.0	10	ND
trans-1,2-Dichloroethene	ug/L	3.0	10	ND
Dichlorofluoromethane	ug/L	2.0	20	ND
1,2-Dichloropropane	ug/L	2.0	10	ND
1,3-Dichloropropane	ug/L	3.0	10	ND
2,2-Dichloropropane	ug/L	3.0	10	ND
1,1-Dichloropropene	ug/L	3.0	10	ND
cis-1,3-Dichloropropene	ug/L	3.0	10	ND
trans-1,3-Dichloropropene	ug/L	3.0	10	ND

[d]*A dilution was necessary due to levels present; therefore, detection limits were raised.*
***ND** means Not Detected*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***ug/L** means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)*

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CLIENT: Conestoga-Rovers & Associates
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PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		L24044-17
		Sample ID.:		W-990630-DS-07
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List[d]				
Date Analyzed: 7/08/99				
Ethyl Ether	ug/L	3.0	20	ND
Ethyl benzene	ug/L	3.0	10	ND
Hexachlorobutadiene	ug/L	5.0	10	ND
Isopropylbenzene	ug/L	3.0	10	79
p-Isopropyltoluene	ug/L	4.0	10	ND
Methyl ethyl ketone	ug/L	5.0	20	95
Methyl isobutyl ketone	ug/L	2.0	20	41
Methyl tert butyl ether	ug/L	2.0	20	ND
Methylene Chloride	ug/L	7.0	20	[c]600
Naphthalene	ug/L	3.0	20	[r]4.3
n-Propylbenzene	ug/L	4.0	10	200
Styrene	ug/L	3.0	10	ND
1,1,1,2-Tetrachloroethane	ug/L	3.0	10	ND
1,1,2,2-Tetrachloroethane	ug/L	4.0	10	ND
Tetrachloroethene	ug/L	4.0	10	ND
Tetrahydrofuran	ug/L	10	20	ND
Toluene	ug/L	3.0	10	ND
1,2,3-Trichlorobenzene	ug/L	4.0	10	ND
1,2,4-Trichlorobenzene	ug/L	5.0	10	ND
1,1,1-Trichloroethane	ug/L	3.0	10	ND
1,1,2-Trichloroethane	ug/L	3.0	10	ND
Trichloroethene	ug/L	3.0	10	ND
Trichlorofluoromethane	ug/L	2.0	20	ND
1,1,2-Trichlorotrifluoroethane	ug/L	9.0	20	ND
1,2,3-Trichloropropane	ug/L	4.0	10	ND
1,2,4-Trimethylbenzene	ug/L	4.0	10	190
1,3,5-Trimethylbenzene	ug/L	4.0	10	220
Vinyl Chloride	ug/L	2.0	20	ND
o-Xylene	ug/L	3.0	10	ND
m,p-Xylene*	ug/L	6.0	10	ND

Surrogate	**Detector**	**Limit**	**% Rec.**
4-Fluorochlorobenzene	PID	80 - 120	104%
4-Fluorochlorobenzene	ELCD	80 - 120	98.9%

[d] A dilution was necessary due to levels present; therefore, detection limits were raised.
[r] Result is above MDL, but below PQL.
[c] Result appears to be due to a laboratory contamination. Similar contamination was detected in method blank.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

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CLIENT:	Conestoga-Rovers & Associates 1801 Old Highway 8 Suite 114 St. Paul, MN 55112	**PROJECT NO.:** **COLLECTION DATE:** **COLLECTED BY:** **RECEIVED DATE:** **PROJECT DESCRP.:**	070699-200153 6/29/99-7/01/99 Client 7/06/99 13311
CONTACT:	Grant Anderson		

		Sample No.:		**L24044-17**
		Sample ID.:		**W-990630-DS-07**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
WIS DNR GRO[(d)]				
Date Analyzed: 7/14/99				
Gasoline Range Organics	ug/L	200	1000	4400

Surrogate Recovery	**Detector**	**% Recovery**
1-Chloro-4-Fluorobenzene	PID	110%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (239.2)	ug/L	1.0	2.0	7/14/99

ND means Not Detected or below reported MDL
MDL means Method Detection Limit.
PQL means Practical Quantification Limit.
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).

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LABORATORY ANALYSIS REPORT

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CLIENT: Conestoga-Rovers & Associates
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PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

BH 22

CONTACT: Grant Anderson

		Sample No.:		L24044-18
		Sample ID.:		W-990701-DS-08
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List[dd]				
Date Analyzed: 7/08,09/99				
Acetone	ug/L	2.0	10	[r]3.0
Allyl Chloride	ug/L	4.0	10	ND
Benzene	ug/L	0.4	2	ND
Bromobenzene	ug/L	0.8	2	ND
Bromochloromethane	ug/L	0.6	2	ND
Bromodichloromethane	ug/L	0.6	2	ND
Bromoform	ug/L	1.0	2	ND
Bromomethane	ug/L	0.6	4	ND
n-Butylbenzene	ug/L	0.8	2	ND
sec-Butylbenzene	ug/L	0.8	2	ND
tert-Butylbenzene	ug/L	0.8	2	ND
Carbon tetrachloride	ug/L	0.6	2	ND
Chlorobenzene	ug/L	0.8	2	ND
Chloroethane	ug/L	0.6	4	ND
Chloroform	ug/L	0.6	2	ND
Chloromethane	ug/L	0.6	4	ND
2-Chlorotoluene	ug/L	0.8	2	ND
4-Chlorotoluene	ug/L	0.8	2	ND
1,2-Dibromo-3-chloropropane	ug/L	0.6	2	ND
Dibromochloromethane	ug/L	0.6	2	ND
1,2-Dibromoethane	ug/L	0.6	2	ND
Dibromomethane	ug/L	0.6	2	ND
1,2-Dichlorobenzene	ug/L	0.8	2	ND
1,3-Dichlorobenzene	ug/L	0.8	2	ND
1,4-Dichlorobenzene	ug/L	0.8	2	ND
Dichlorodifluoromethane	ug/L	1.4	4	ND
1,1-Dichloroethane	ug/L	0.6	2	ND
1,2-Dichloroethane	ug/L	0.6	2	ND
1,1-Dichloroethene	ug/L	0.6	2	ND
cis-1,2-Dichloroethene	ug/L	0.6	2	ND
trans-1,2-Dichloroethene	ug/L	0.6	2	ND
Dichlorofluoromethane	ug/L	0.4	4	ND
1,2-Dichloropropane	ug/L	0.4	2	ND
1,3-Dichloropropane	ug/L	0.6	2	ND
2,2-Dichloropropane	ug/L	0.6	2	ND
1,1-Dichloropropene	ug/L	0.6	2	ND
cis-1,3-Dichloropropene	ug/L	0.6	2	ND
trans-1,3-Dichloropropene	ug/L	0.6	2	ND

[dd]*A dilution was necessary due to sample matrix; therefore, detection limits were raised.*
[r]*Result is above MDL, but below PQL.*
***ND** means Not Detected*
***MDL** means Method Detection Limit*
***PQL** means Practical Quantification Limit*
***ug/L** means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)*

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LABORATORY ANALYSIS REPORT

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CLIENT: Conestoga-Rovers & Associates
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PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		L24044-18
		Sample ID.:		W-990701-DS-08
ANALYSIS	UNITS	MDL	PQL	RESULTS
EPA 8021/MDH 465E List[dd]				
Date Analyzed: 7/08,09/99				
Ethyl Ether	ug/L	0.6	4	ND
Ethyl benzene	ug/L	0.6	2	ND
Hexachlorobutadiene	ug/L	1.0	2	ND
Isopropylbenzene	ug/L	0.6	2	ND
p-Isopropyltoluene	ug/L	0.8	2	ND
Methyl ethyl ketone	ug/L	1.0	4	[r]2.6
Methyl isobutyl ketone	ug/L	0.4	4	ND
Methyl tert butyl ether	ug/L	0.4	4	ND
Methylene Chloride	ug/L	1.4	4	ND
Naphthalene	ug/L	0.6	4	ND
n-Propylbenzene	ug/L	0.8	2	ND
Styrene	ug/L	0.6	2	ND
1,1,1,2-Tetrachloroethane	ug/L	0.6	2	ND
1,1,2,2-Tetrachloroethane	ug/L	0.8	2	ND
Tetrachloroethene	ug/L	0.8	2	ND
Tetrahydrofuran	ug/L	2.0	4	ND
Toluene	ug/L	0.6	2	2.8
1,2,3-Trichlorobenzene	ug/L	0.8	2	ND
1,2,4-Trichlorobenzene	ug/L	1.0	2	ND
1,1,1-Trichloroethane	ug/L	0.6	2	ND
1,1,2-Trichloroethane	ug/L	0.6	2	ND
Trichloroethene	ug/L	0.6	2	ND
Trichlorofluoromethane	ug/L	0.8	4	ND
1,1,2-Trichlorotrifluoroethane	ug/L	1.8	4	ND
1,2,3-Trichloropropane	ug/L	0.8	2	ND
1,2,4-Trimethylbenzene	ug/L	0.8	2	ND
1,3,5-Trimethylbenzene	ug/L	0.8	2	ND
Vinyl Chloride	ug/L	0.4	4	ND
o-Xylene	ug/L	0.6	2	ND
m,p-Xylene*	ug/L	1.2	2	ND

Surrogate	Detector	Limit	% Rec.
4-Fluorochlorobenzene	PID	80 - 120	98.6%
4-Fluorochlorobenzene	ELCD	80 - 120	81.4%

[dd] A dilution was necessary due to sample matrix; therefore, detection limits were raised.
[r] Result is above MDL, but below PQL.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

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CONTACT:	Grant Anderson		

		Sample No.:		**L24044-18**
		Sample ID.:		**W-990701-DS-08**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
WIS DNR GRO				
Date Analyzed: 7/14/99				
Gasoline Range Organics	ug/L	20	100	ND

Surrogate Recovery	**Detector**	**% Recovery**
1-Chloro-4-Fluorobenzene	PID	104%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (239.2)	ug/L	1.0	ND	7/14/99

ND means Not Detected or below reported MDL
***MDL** means Method Detection Limit.*
***PQL** means Practical Quantification Limit.*
***ug/L** means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).*

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PROJECT NO.: 070699-200153
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COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

BH-23

CONTACT: Grant Anderson

		Sample No.:		L24044-19
		Sample ID.:		W-990701-DS-09
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List[dd]				
Date Analyzed: 7/08,09/99				
Acetone	ug/L	2.0	10	[r]2.9
Allyl Chloride	ug/L	4.0	10	ND
Benzene	ug/L	0.4	2	[r]0.5
Bromobenzene	ug/L	0.8	2	ND
Bromochloromethane	ug/L	0.6	2	ND
Bromodichloromethane	ug/L	0.6	2	ND
Bromoform	ug/L	1.0	2	ND
Bromomethane	ug/L	0.6	4	ND
n-Butylbenzene	ug/L	0.8	2	ND
sec-Butylbenzene	ug/L	0.8	2	ND
tert-Butylbenzene	ug/L	0.8	2	ND
Carbon tetrachloride	ug/L	0.6	2	ND
Chlorobenzene	ug/L	0.8	2	ND
Chloroethane	ug/L	0.6	4	ND
Chloroform	ug/L	0.6	2	ND
Chloromethane	ug/L	0.6	4	ND
2-Chlorotoluene	ug/L	0.8	2	ND
4-Chlorotoluene	ug/L	0.8	2	ND
1,2-Dibromo-3-chloropropane	ug/L	0.6	2	ND
Dibromochloromethane	ug/L	0.6	2	ND
1,2-Dibromoethane	ug/L	0.6	2	ND
Dibromomethane	ug/L	0.6	2	ND
1,2-Dichlorobenzene	ug/L	0.8	2	ND
1,3-Dichlorobenzene	ug/L	0.8	2	ND
1,4-Dichlorobenzene	ug/L	0.8	2	ND
Dichlorodifluoromethane	ug/L	1.4	4	ND
1,1-Dichloroethane	ug/L	0.6	2	ND
1,2-Dichloroethane	ug/L	0.6	2	ND
1,1-Dichloroethene	ug/L	0.6	2	ND
cis-1,2-Dichloroethene	ug/L	0.6	2	ND
trans-1,2-Dichloroethene	ug/L	0.6	2	ND
Dichlorofluoromethane	ug/L	0.4	4	ND
1,2-Dichloropropane	ug/L	0.4	2	ND
1,3-Dichloropropane	ug/L	0.6	2	ND
2,2-Dichloropropane	ug/L	0.6	2	ND
1,1-Dichloropropene	ug/L	0.6	2	ND
cis-1,3-Dichloropropene	ug/L	0.6	2	ND
trans-1,3-Dichloropropene	ug/L	0.6	2	ND

[dd]A dilution was necessary due to sample matrix; therefore, detection limits were raised.
[r]Result is above MDL, but below PQL.
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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LABORATORY ANALYSIS REPORT

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CLIENT: Conestoga-Rovers & Associates
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PROJECT NO.: 070699-200153
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COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		L24044-19
		Sample ID.:		W-990701-DS-09
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List[(dd)]				
Date Analyzed: 7/08,09/99				
Ethyl Ether	ug/L	0.6	4	ND
Ethyl benzene	ug/L	0.6	2	ND
Hexachlorobutadiene	ug/L	1.0	2	ND
Isopropylbenzene	ug/L	0.6	2	ND
p-Isopropyltoluene	ug/L	0.8	2	ND
Methyl ethyl ketone	ug/L	1.0	4	ND
Methyl isobutyl ketone	ug/L	0.4	4	ND
Methyl tert butyl ether	ug/L	0.4	4	ND
Methylene Chloride	ug/L	1.4	4	ND
Naphthalene	ug/L	0.6	4	ND
n-Propylbenzene	ug/L	0.8	2	ND
Styrene	ug/L	0.6	2	ND
1,1,1,2-Tetrachloroethane	ug/L	0.6	2	ND
1,1,2,2-Tetrachloroethane	ug/L	0.8	2	ND
Tetrachloroethene	ug/L	0.8	2	ND
Tetrahydrofuran	ug/L	2.0	4	ND
Toluene	ug/L	0.6	2	[(r)]1.1
1,2,3-Trichlorobenzene	ug/L	0.8	2	ND
1,2,4-Trichlorobenzene	ug/L	1.0	2	ND
1,1,1-Trichloroethane	ug/L	0.6	2	ND
1,1,2-Trichloroethane	ug/L	0.6	2	ND
Trichloroethene	ug/L	0.6	2	ND
Trichlorofluoromethane	ug/L	0.8	4	ND
1,1,2-Trichlorotrifluoroethane	ug/L	1.8	4	ND
1,2,3-Trichloropropane	ug/L	0.8	2	ND
1,2,4-Trimethylbenzene	ug/L	0.8	2	ND
1,3,5-Trimethylbenzene	ug/L	0.8	2	ND
Vinyl Chloride	ug/L	0.4	4	ND
o-Xylene	ug/L	0.6	2	ND
m,p-Xylene*	ug/L	1.2	2	ND

Surrogate	**Detector**	**Limit**	**% Rec.**
4-Fluorochlorobenzene	PID	80 - 120	98.0%
4-Fluorochlorobenzene	ELCD	80 - 120	97.1%

[(dd)] A dilution was necessary due to sample matrix; therefore, detection limits were raised.
[(r)] Result is above MDL, but below PQL.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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CONTACT:	Grant Anderson		

		Sample No.:		**L24044-19**
		Sample ID.:		**W-990701-DS-09**
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULT**
WIS DNR GRO				
Date Analyzed: 7/14,17/99				
Gasoline Range Organics	ug/L	20	100	ND

Surrogate Recovery	**Detector**	**% Recovery**
1-Chloro-4-Fluorobenzene	PID	99.9%

ANALYSIS	**UNITS**	**PQL**	**RESULT**	**ANALYSIS DATE**
Lead (239.2)	ug/L	1.0	ND	7/14/99

ND means Not Detected or below reported MDL
MDL means Method Detection Limit.
PQL means Practical Quantification Limit.
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb).

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PROJECT NO.: 070699-200153
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COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		L24044-20
		Sample ID.:		Trip Blank
ANALYSIS	UNITS	MDL	PQL	RESULTS
EPA 8021/MDH 465E List				
Date Analyzed: 7/08/99				
Acetone	ug/L	1.0	5	(r)(cc)2.0
Allyl Chloride	ug/L	2.0	5	ND
Benzene	ug/L	0.2	1	ND
Bromobenzene	ug/L	0.4	1	ND
Bromochloromethane	ug/L	0.3	1	ND
Bromodichloromethane	ug/L	0.3	1	ND
Bromoform	ug/L	0.4	1	ND
Bromomethane	ug/L	0.3	2	ND
n-Butylbenzene	ug/L	0.4	1	ND
sec-Butylbenzene	ug/L	0.4	1	ND
tert-Butylbenzene	ug/L	0.4	1	ND
Carbon tetrachloride	ug/L	0.3	1	ND
Chlorobenzene	ug/L	0.4	1	ND
Chloroethane	ug/L	0.3	2	ND
Chloroform	ug/L	0.3	1	ND
Chloromethane	ug/L	0.3	2	ND
2-Chlorotoluene	ug/L	0.4	1	ND
4-Chlorotoluene	ug/L	0.4	1	ND
1,2-Dibromo-3-chloropropane	ug/L	0.3	1	ND
Dibromochloromethane	ug/L	0.3	1	ND
1,2-Dibromoethane	ug/L	0.3	1	ND
Dibromomethane	ug/L	0.3	1	ND
1,2-Dichlorobenzene	ug/L	0.4	1	ND
1,3-Dichlorobenzene	ug/L	0.4	1	ND
1,4-Dichlorobenzene	ug/L	0.4	1	ND
Dichlorodifluoromethane	ug/L	0.2	2	ND
1,1-Dichloroethane	ug/L	0.3	1	ND
1,2-Dichloroethane	ug/L	0.3	1	ND
1,1-Dichloroethene	ug/L	0.3	1	ND
cis-1,2-Dichloroethene	ug/L	0.3	1	ND
trans-1,2-Dichloroethene	ug/L	0.3	1	ND
Dichlorofluoromethane	ug/L	0.2	2	ND
1,2-Dichloropropane	ug/L	0.2	1	ND
1,3-Dichloropropane	ug/L	0.3	1	ND
2,2-Dichloropropane	ug/L	0.3	1	ND
1,1-Dichloropropene	ug/L	0.3	1	ND
cis-1,3-Dichloropropene	ug/L	0.3	1	ND
trans-1,3-Dichloropropene	ug/L	0.3	1	ND

(r) Result is above MDL, but below PQL.
(cc) Result appears to be due to a laboratory contamination.
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

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PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

		Sample No.:		L24044-20
		Sample ID.:		Trip Blank
ANALYSIS	**UNITS**	**MDL**	**PQL**	**RESULTS**
EPA 8021/MDH 465E List				
Date Analyzed: 7/08/99				
Ethyl Ether	ug/L	0.3	2	ND
Ethyl benzene	ug/L	0.3	1	ND
Hexachlorobutadiene	ug/L	0.5	1	ND
Isopropylbenzene	ug/L	0.3	1	ND
p-Isopropyltoluene	ug/L	0.4	1	ND
Methyl ethyl ketone	ug/L	0.5	2	(r)(cc) 1.1
Methyl isobutyl ketone	ug/L	0.2	2	ND
Methyl tert butyl ether	ug/L	0.2	2	ND
Methylene Chloride	ug/L	0.7	2	ND
Naphthalene	ug/L	0.3	2	ND
n-Propylbenzene	ug/L	0.4	1	ND
Styrene	ug/L	0.3	1	ND
1,1,1,2-Tetrachloroethane	ug/L	0.3	1	ND
1,1,2,2-Tetrachloroethane	ug/L	0.4	1	ND
Tetrachloroethene	ug/L	0.4	1	ND
Tetrahydrofuran	ug/L	1.0	2	ND
Toluene	ug/L	0.3	1	ND
1,2,3-Trichlorobenzene	ug/L	0.4	1	ND
1,2,4-Trichlorobenzene	ug/L	0.5	1	ND
1,1,1-Trichloroethane	ug/L	0.3	1	ND
1,1,2-Trichloroethane	ug/L	0.3	1	ND
Trichloroethene	ug/L	0.3	1	ND
Trichlorofluoromethane	ug/L	0.2	2	ND
1,1,2-Trichlorotrifluoroethane	ug/L	0.9	2	ND
1,2,3-Trichloropropane	ug/L	0.4	1	ND
1,2,4-Trimethylbenzene	ug/L	0.4	1	ND
1,3,5-Trimethylbenzene	ug/L	0.4	1	ND
Vinyl Chloride	ug/L	0.2	2	ND
o-Xylene	ug/L	0.3	1	ND
m,p-Xylene*	ug/L	0.6	1	ND

Surrogate	**Detector**	**Limit**	**% Rec.**
4-Fluorochlorobenzene	PID	80 - 120	100%
4-Fluorochlorobenzene	ELCD	80 - 120	86.3%

(r) Result is above MDL, but below PQL.
(cc) Result appears to be due to a laboratory contamination.
* means Coeluting Compounds
ND means Not Detected
MDL means Method Detection Limit
PQL means Practical Quantification Limit
ug/L means Micrograms Per Liter which is equivalent to Parts Per Billion (ppb)

SPECTRUM LABS INC
301 West County Road E2 • St. Paul, MN 55112-6859
651.633.0101 • FAX 651.633.1402
www.spectrum-labs.com

LABORATORY ANALYSIS REPORT

DATE: July 20, 1999 **PAGE:** 40 Of 41

CLIENT: Conestoga-Rovers & Associates
1801 Old Highway 8
Suite 114
St. Paul, MN 55112

PROJECT NO.: 070699-200153
COLLECTION DATE: 6/29/99-7/01/99
COLLECTED BY: Client
RECEIVED DATE: 7/06/99
PROJECT DESCRP.: 13311

CONTACT: Grant Anderson

BH-23, 6-8'

		Sample No.:		L24044-21
		Sample ID.:		S-990701-DS-11
ANALYSIS	UNITS	MDL	PQL	RESULT
EPA 8020/WIS DNR GRO				
Date Analyzed: 7/12/99				
Methyl tert butyl ether	mg/kg	0.2	1.0	ND
Benzene	mg/kg	0.2	1.0	ND
Toluene	mg/kg	0.2	1.0	ND
Ethylbenzene	mg/kg	0.2	1.0	ND
m,p-Xylene*	mg/kg	0.3	1.0	ND
o-Xylene	mg/kg	0.2	1.0	ND
Gasoline Range Organics	mg/kg	1.0	2.0	ND

Surrogate Recovery	Detector	% Recovery
1-chloro-4-Fluorobenzene	PID	109%

ANALYSIS	UNITS	PQL	RESULT	ANALYSIS DATE
Lead (6010B)	mg/kg	5.0	16	7/15/99

* means Coeluting Compounds
ND means Not Detected or below reported MDL
MDL means Method Detection Limit
PQL means Practical Quantification Limit
mg/kg means Milligrams Per Kilogram which is equivalent to Parts Per Million (ppm)

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LABORATORY ANALYSIS REPORT

DATE:	*July 20, 1999*	***PAGE:***	*41 Of 41*
CLIENT:	*Conestoga-Rovers & Associates* *1801 Old Highway 8* *Suite 114* *St. Paul, MN 55112*	***PROJECT NO.:*** ***COLLECTION DATE:*** ***COLLECTED BY:*** ***RECEIVED DATE:*** ***PROJECT DESCRP.:***	*070699-200153* *6/29/99-7/01/99* *Client* *7/06/99* *13311*
CONTACT:	*Grant Anderson*		

This report has been reviewed by me for technical accuracy and completeness. The analyses were performed using EPA or other approved methodologies and the results were reported on an "as received" basis unless otherwise noted. Organic soil analyses were reported on a dry weight basis. The results reported relate only to the items tested. Please contact me if you have any questions or comments regarding this report. Spectrum Labs, Inc. appreciates the opportunity to provide this analytical service for you.

Report Submitted By,

Gerard Herro
Laboratory Manager

GJH:wmc
cra201-1

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA–ROVERS & ASSOCIATES
1801 OLD HWY. 8, SUITE 114
ST. PAUL, MN 55112 (612)639–0913

SHIPPED TO (Laboratory Name): Spectrum Lab

REFERENCE NUMBER: 13311 – 1 of 2

SAMPLER'S SIGNATURE: [redacted] PRINTED NAME: D. SHIELD

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	GRO	MTBE	BTEX	VOC's	LEAD	REMARKS
24044-1	6-29-99		S-990629-DS-01	Soil	3	/	/	/		/	CALL Grant Anderson if you Have any Questions concerning the Analyte list.
-2	"		S-990629-DS-02	"	3	/	/	/		/	
-3	6-30-99		S-990630-DS-03	"	3	/	/	/		/	
-4	"		S-990630-DS-04	"	3	/	/	/		/	
-5	"		S-990630-DS-05	"	3	/	/	/		/	
-6	"		S-990630-DS-06	"	3	/	/	/		/	
-7	"		S-990630-DS-07	"	3	/	/	/		/	
-8	"		S-990630-DS-08	"	3	/	/	/		/	
-9	7-1-99		S-990701-DS-09	"	3	/	/	/		/	
-10	7-1-99		S-990701-DS-10	"	3	/	/	/		/	
-11	6-29-99		W-990629-DS-01	WATER	4	/	/		/	/	
-12	"		W-990629-DS-02	"	4	/	/		/	/	
-13	"		W-990629-DS-03	"	4	/	/		/	/	
-14	6-30-99		W-990630-DS-04	"	4	/	/		/	/	
-15	"		W-990630-DS-05	"	4	/	/		/	/	
-16	"		W-990630-DS-06	"	4	/	/		/	/	
-17	"		W-990630-DS-07	"	4	/	/		/	/	
TOTAL NUMBER OF CONTAINERS					58	HEALTH/CHEMICAL HAZARDS					

RELINQUISHED BY: ① [redacted]	DATE: 7-2-99 TIME:	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ②	DATE: 7-6-99 TIME: 9:02	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: Self WAY BILL No.

White –Fully Executed Copy
Yellow –Receiving Laboratory Copy
Pink –Shipper Copy
Goldenrod –Sampler Copy

SAMPLE TEAM: SHIELD

RECEIVED FOR LABORATORY BY: Patrick Lynch
DATE: 7/6/99 TIME: 9:00

№ 03388

1001 JULY 19/93 REV.0 (F–42)

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA-ROVERS & ASSOCIATES
1801 OLD HWY. 8, SUITE 114
ST. PAUL, MN 55112 (612)639-0913

SHIPPED TO (Laboratory Name): Spectrum Labs

REFERENCE NUMBER: 13311 — 2 of 2

SAMPLER'S SIGNATURE: [signature]
PRINTED NAME: D. SHEILD

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	GRO	MTBE	BTEX	VOCs	LEAD	REMARKS
-18	7-1-99		W-990701-DS-08	WATER	4	/	/		/	/	CALL if you have
-19	7-1-99		W-990701-DS-09	↓	4	/	/		/	/	Any Questions
-20			TRIP	↓	1				/		Concerning
-21	7/1/99		S-990701-DS-11	soil							Analyte List
											-21 was added to chain per conversation with client 7/6 PC

TOTAL NUMBER OF CONTAINERS: 5 | HEALTH/CHEMICAL HAZARDS:

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
① [signature]	DATE: ~~7-7-99~~ TIME:	②	DATE: TIME:
②	DATE: 7-6-99 TIME: 9:02	③	DATE: TIME:
③	DATE: TIME:	④	DATE: TIME:

METHOD OF SHIPMENT: Self   WAY BILL No.

White —Fully Executed Copy
Yellow —Receiving Laboratory Copy
Pink —Shipper Copy
Goldenrod —Sampler Copy

SAMPLE TEAM: SHEILD

RECEIVED FOR LABORATORY BY: [signature]
DATE: 7/6/99 TIME: 9:00

№ 03387

1001 JULY 19/93 REV.0 (F-42)

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA-ROVERS & ASSOCIATES
1801 OLD HWY. 8, SUITE 114
ST. PAUL, MN 55112 (612)639-0913

SHIPPED TO (Laboratory Name): Spectrum Lab

REFERENCE NUMBER: 13311 — 1 of 2

SAMPLER'S SIGNATURE: [illegible] **PRINTED NAME:** D. Shield

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	GRO	MTBE	BTEX	VOCs	LEAD	REMARKS
	6-29-99		S-990629-DS-01 BH-14, 14-16'	Soil	3	✓	✓	✓		✓	Call Grant
	↓		S-990629-DS-02 BH-15, 14-16'	↓	3	✓	✓	✓		✓	Anderson if you
	6-30-99		S-990630-DS-03 BH-16, 14-16'	↓	3	✓	✓	✓		✓	have Qs Regarding
	↓		S-990630-DS-04 BH-17, 16-18'	↓	3	✓	✓	✓		✓	[illegible]
	↓		S-990630-DS-05 BH-18 14-16'	↓	3	✓	✓	✓		✓	the analyte list.
	↓		S-990630-DS-06 BH-19 10-14'	↓	3	✓	✓	✓		✓	
	↓		S-990630-DS-07 BH-20 12-14'	↓	3	✓	✓	✓		✓	
	↓		S-990630-DS-08 BH-20 Dup. 12-14'	↓	3	✓	✓	✓		✓	
	7-1-99		S-990701-DS-09 BH-21 16-18'	↓	3	✓	✓	✓		✓	
	7-1-99		S-990701-DS-10 BH-22 6-8'	↓	3	✓	✓	✓		✓	
	6-29-99		W-990629-DS-01 BH-14	Water	4	✓	✓		✓	✓	
	↓		W-990629-DS-02 BH-14 RB	↓	4	✓	✓		✓	✓	
	↓		W-990629-DS-03 BH-15	↓	4	✓	✓		✓	✓	
	6-30-99		W-990630-DS-04 BH-16	↓	4	✓	✓		✓	✓	
	↓		W-990630-DS-05 BH-19	↓	4	✓	✓		✓	✓	
	↓		W-990630-DS-06 BH-19 Dup	↓	4	✓	✓		✓	✓	
	↓		W-990630-DS-07 BH-20	↓	4	✓	✓		✓	✓	

TOTAL NUMBER OF CONTAINERS: 58 **HEALTH/CHEMICAL HAZARDS:**

RELINQUISHED BY: ① [illegible]	DATE: 7-6-99 TIME:	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ②	DATE: 7-6-99 TIME: 9:02	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: self **WAY BILL No.**

White — Fully Executed Copy
Yellow — Receiving Laboratory Copy
Pink — Shipper Copy
Goldenrod — Sampler Copy

SAMPLE TEAM: Shield

RECEIVED FOR LABORATORY BY: [illegible] **DATE:** 7/6/99 **TIME:** 9:02

№ 03388

1001 JULY 19/93 REV.0 (F-42)

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA-ROVERS & ASSOCIATES
1801 OLD HWY. 8, SUITE 114
ST. PAUL, MN 55112 (612)639-0913

SHIPPED TO (Laboratory Name): Spectrum Labs

REFERENCE NUMBER: 13311 — 2 of 2

SAMPLER'S SIGNATURE: [signature] PRINTED NAME: D. Shield

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. OF CONTAINERS	GRO	MTBE	BTEX	VOC's	LEAD					REMARKS
	7-1-99		W-990701-DS-08 BH-22	Water	4	✓	✓		✓	✓					[illegible]
	7-1-99		W-990701-DS-09 BH-23	"	4	✓	✓		✓	✓					[illegible]
			TRIP	"	1				✓						[illegible]
	7-1-99		S-990701-DS-11 BA-23 6-8'			✓	✓	✓		✓					[illegible]

TOTAL NUMBER OF CONTAINERS: 5

HEALTH/CHEMICAL HAZARDS:

RELINQUISHED BY: ① [signature]	DATE: 7-7-99 (struck through) TIME:	RECEIVED BY: ②	DATE: TIME:
RELINQUISHED BY: ②	DATE: 7-6-99 TIME: 9:02	RECEIVED BY: ③	DATE: TIME:
RELINQUISHED BY: ③	DATE: TIME:	RECEIVED BY: ④	DATE: TIME:

METHOD OF SHIPMENT: Self

WAY BILL No.

White —Fully Executed Copy
Yellow —Receiving Laboratory Copy
Pink —Shipper Copy
Goldenrod —Sampler Copy

SAMPLE TEAM: Shield

RECEIVED FOR LABORATORY BY: [signature]
DATE: 7-6-99 TIME: 9:00

No 03307

1001 JULY 19/93 REV.0 (F-42)

TABLE 1	
Summary of Samples Received	
Description	*Spectrum Labs ID Number*
S-990629-DS-01	L24044-1
S-990629-DS-02	L24044-2
S-990630-DS-03	L24044-3
S-990630-DS-04	L24044-4
S-990630-DS-05	L24044-5
S-990630-DS-06	L24044-6
S-990630-DS-07	L24044-7
S-990630-DS-08	L24044-8
S-990701-DS-09	L24044-9
S-990701-DS-10	L24044-10
W-990629-DS-01	L24044-11
W-990629-DS-02	L24044-12
W-990629-DS-03	L24044-13
W-990630-DS-04	L24044-14
W-990630-DS-05	L24044-15
W-990630-DS-06	L24044-16
W-990630-DS-07	L24044-17
W-990701-DS-08	L24044-18
W-990701-DS-09	L24044-19
Trip Blank	L24044-20
S-990701-DS-11	L24044-21

The samples were received intact and in good condition on 7/06/99 at 9:00 am by Patrick Lynch

TABLE 2									
Quality Control Summary									
VOC 8020/GRO									
7/12/99 Soil									
Compound	Method Blank	LCS	LCSD	RPD	LCS	LCSD	RPD	MS	RPD
		% Rec	% Rec		% Rec	% Rec		Limit	Limit
Methyl Tert Butyl Ether	<0.2 ug/Kg	108	103	9.08	110	111	2.93	68.6-110	20
Benzene	<0.2 ug/Kg	102	107	8.19	95.0	96.5	3.07	69.0-114	20
Toluene	<0.2 ug/Kg	108	108	1.56	90.7	92.3	3.39	85.3-114	20
Ethylbenzene	<0.2 ug/Kg	113	113	1.45	95.4	95.9	1.01	89.5-120	20
p,m-Xylene	<0.3 ug/Kg	99.6	97.6	4.15	86.1	86.4	0.59	85.9-119	20
o-Xylene	<0.2 ug/Kg	107	107	0.55	90.4	91.8	2.92	90.9-122	20
GRO	<1.0 ug/Kg	119	118	1.43	113	116	3.66	80.0-120	20
1-Chloro-4-Fluorobenzene PID	132%	132	129		117	116		78.5-122	

TABLE 3									
Quality Control Summary									
VOC 8020/GRO									
7/15/99 Soil									
Compound	Method Blank	LCS	LCSD	RPD	LCS	LCSD	RPD	MS	RPD
		% Rec	% Rec		% Rec	% Rec		Limit	Limit
Methyl Tert Butyl Ether	<0.2 ug/Kg	92.9	98.9	12.1	103	103	1.21	68.6-110	20
Benzene	<0.2 ug/Kg	104	99.7	8.24	105	108	5.03	69.0-114	20
Toluene	<0.2 ug/Kg	99.2	94.7	9.61	100	103	4.85	85.3-114	20
Ethylbenzene	<0.2 ug/Kg	104	98.1	11.3	106	108	4.62	89.5-120	20
p,m-Xylene	<0.3 ug/Kg	93.4	88.2	11.8	94.8	96.2	2.83	85.9-119	20
o-Xylene	<0.2 ug/Kg	98.5	95.7	5.87	99.6	102	4.27	90.9-122	20
GRO	<1.0 ug/Kg	114	114	1.55	118	119	0.35	80.0-120	20
1-Chloro-4-Fluorobenzene PID	122%	120	105		131	125		78.5-122	

TABLE 4							
Quality Control Summary							
GRO							
7/14/99 Water							
Compound	LCS	Method	24044-15	24044-15	RPD	MS	RPD
	Calibration	Blank	MS	MSD		Limit	Limit
	Verification		% Rec	% Rec			
	% Rec						
GRO	114	<20 ug/L	98.3	99.2	1.78	80.0-120%	20
1-Chloro-4-Fluorobenzene PID	111	112	102	110		70.0-130%	

TABLE 5			
Quality Control Summary			
GRO			
7/16/99 Water			
Compound	LCS	Method	Limit
	Calibration	Blank	
	Verification		
	% Rec		
GRO	104	<20 ug/L	80.0-120%
1-Chloro-4-Fluorobenzene PID	104	112	70.0-130%

TABLE 6					
Quality Control Summary					
VOC 8021/465E					
7/6/99 Water					
	Method Blank	*LCS*	*24044-15 MS*	*24044-15 MSD*	*MS/MSD*
Compound	*ug/L*	*% Rec*	*% Rec*	*% Rec*	*Limits*
1,1,1,2-Tetrachloroethene	<0.3	94.3	101	102	72.3-149
1,1,1-Trichloroethane	<0.3	97.8	110	113	68.0-151
1,1,2,2-Tetrachloroethane	<0.4	90.3	106	108	62.8-159
1,1,2-Trichloroethane	<0.3	92.7	99	101	72.2-144
1,1-Dichloroethane	<0.3	111	105	109	80.4-130
1,1-Dichloroethene	<0.3	93.4	98	98.6	62.0-125
1,1-Dichloropropene	<0.3	92.5	101	99.5	77.4-121
1,2,3-Trichlorobenzene	<0.4	104	108	115	57.5-130
1,2,3-Trichloropropane	<0.4	90.7	102	105	66.0-138
1,2,4-Trichlorobenzene	<0.5	104	108	113	57.7-129
1,2,4-Trimethylbenzene	<0.4	96.9	98.2	99.5	54.8-144
1,2-Dibromo-3-chloropropane	<0.3	99.7	117	104	68.2-145
1,2-Dibromoethane	<0.3	110	116	120	52.8-152
1,2-Dichlorobenzene	<0.4	95.8	96	97.5	68.1-118
1,2-Dichloroethane	<0.3	97.6	101	104	79.8-134
1,2-Dichloropropane	<0.2	91.3	97.2	98.4	79.5-136
1,3,5-Trimethylbenzene	<0.4	96.5	100	102	72.7-129
1,3-Dichlorobenzene	<0.4	98.5	100	99.1	64.3-133
1,3-Dichloropropane	<0.3	96.9	104	105	70.3-148
1,4-Dichlorobenzene	<0.4	96.9	97.5	98.9	72.0-137
2,2-Dichloropropane	<0.3	90.5	111	113	54.8-163
2-Chlorotoluene	<0.4	97.5	97.6	98.9	64.5-123
4-Chlorotoluene	<0.4	97.6	99.1	100	63.6-134
Acetone	1.5	99.0	83.2	84.2	30.8-174
Allyl Chloride	<2.0	103	95.2	94.6	54.1-131
Benzene	<0.2	92.8	94.6	95.8	45.6-157
Bromobenzene	<0.4	98.2	95	96.5	71.1-116
Bromochloromethane	<0.3	102	105	108	76.5-135
Bromodichloromethane	<0.3	91.4	96.2	98.8	56.6-167
Bromoform	<0.4	95.0	95	98.6	46.6-141
Bromomethane	<0.3	93.8	101	105	28.3-156
Carbon Tetrachloride	<0.3	99.3	114	117	82.1-136
Chlorobenzene	<0.4	97.4	95.2	96.9	79.2-114
Chloroethane	<0.3	95.4	107	111	37.6-160
Chloroform	<0.3	102	106	110	86.6-130
Chloromethane	<0.3	99.2	90.8	96	23.1-155
cis-1,2-Dichloroethene	<0.3	94.1	95.6	93.8	82.2-119
cis-1,3-Dichloropropene	<0.3	96.9	96.3	96.4	61.4-123
Dibromochloromethane	<0.3	96.6	98.9	101	57.2-151
Dibromomethane	<0.3	101	104	106	70.4-136
Dichlorodifluoromethane	<0.2	91.8	92.6	101	0-267
Dichlorofluormethane	<0.2	101	115	118	57.5-150
Ethyl Ether	<0.3	95.9	92.2	93.4	65.0-134
Ethylbenzene	<0.3	97.7	98.2	99.5	52.2-141
Hexachlorobutadiene	<0.5	92.9	96.8	105	75.7–140
Isopropylbenzene	<0.3	97.5	99.7	101	79.4-116
m&p-Xylenes	<0.6	98.1	98.4	99.7	70.8-126
Methyl Ethyl Ketone	<0.5	95.4	99.1	95.0	13.7-187
Methyl Iso Butyl Ketone	<0.2	92.5	93	95.6	52.0-139
Methyl Tert Butyl Ether	<0.2	91.9	89.8	92.8	41.1-167
Methylene Chloride	56	920	*	*	75.7-132

RPD	*RPD*
	Limits
1.18	18.2
3.48	35.7
2.26	20.4
1.74	17.8
4.03	12.4
0.66	10.1
1.08	9.46
6.45	19.2
2.46	20.4
0.4	12.4
1.33	21.3
11.7	24.9
3.24	18.2
1.56	11.2
3.35	25.3
1.27	16.4
2	10.2
0.97	9.87
0.89	17.7
1.45	17.3
1.91	13.1
1.28	11.7
1.01	9.56
1.16	33.1
0.53	27.9
1.21	11.4
1.62	9.73
3.37	13.6
2.65	14.7
3.74	18.3
4.09	53.7
2.29	17.7
1.77	9.16
3.13	43.4
3.28	18.5
5.56	20.5
2	9.53
0.12	12
2.12	22
1.98	15.4
9.04	59.5
2.92	40.8
1.21	20
1.34	15.2
8.38	28.4
1.78	8.96
1.33	9.28
4.23	46.3
2.68	37
3.4	16.6
*	17.9

TABLE 6 Continued	
Quality Control Summary	
VOC 8021/465E	
7/6/99 Water	
	Method Blank
Compound	*ug/L*
Naphthalene	<0.3
n-Butylbenzene	<0.4
n-Propylbenzene	<0.4
o-Xylene	<0.3
p-Isopropyltoluene	<0.4
sec-Butylbenzene	<0.4
Styrene	<0.3
tert-Butylbenzene	<0.4
Tetrachloroethene	<0.4
Tetrahydrofuran	<1.0
Toluene	<0.3
trans-1,2-Dichloroethene	<0.3
trans-1,3-Dichloropropene	<0.3
Trichloroethene	<0.3
Trichlorofluoromethane	<0.2
Vinyl Chloride	<0.2

The Method Blank contained concentrations less
limit for all compounds with the exception of acet
methylene chloride (56 ug/L).
The source of the methylene chloride is believed t
laboratory distilled water. The laboratory water
(reverse osmosis, distillation and carbon filtratio
It is believed hat the ccarbon filter used to polish
spent and vould no longer remove volatile organi
The carbon filter has since been changed and the

The carbon filter has since been changed and the

LCS % Rec	24044-15 MS % Rec	24044-15 MSD % Rec	MS/MSD Limits	RPD	RPD Limit
108	117	123	75.0-125	4.99	20
95.3	104	107	50.3-156	2.64	10.1
97.4	101	103	67.3-130	1.73	10.6
98.3	97.8	99.6	77.8-142	1.86	8.7
96.5	101	104	70.6-123	2.35	9.35
93.6	98.7	104	73.3-129	5.38	8.81
98.5	97.2	98.2	66.8-117	1.03	12.5
97.1	99.3	101	76.3-129	2.01	8.88
95.7	98	99.9	26.7-127	2.01	10.1
90.9	99	95.8	35.3-174	3.24	26.2
97.4	95.8	98.1	83.0-111	2.39	9.23
94.9	96	97.6	69.9-131	1.63	10.1
97.9	94.8	96.5	68.0-116	1.82	10.4
93.4	91.7	92.9	43.8-164	1.31	9.63
91.3	111	112	57.6-150	1.35	22.2
93.3	96.1	95.2	20.2-167	0.95	18.5

hat the method detection
ne (1.5 ug/L) and

to have been the
s taken through a rigorous process
) before being used.
the water prior to use was
compounds.
problem corrected.

problem corrected.

Table 7		
Lead 6010B		
7/14/99 Soil		
Sample	Result	Limit
Method Blank	<5 mg/Kg	<5 mg/Kg
LCS	119%	75.0-125%
Duplicate L24044-8	2.39%	20%
Matrix Spike L24044-8	90.3%	75.0-125%
Matrix Spike L24044-4	90.4%	75.0-125%

Table 8		
Lead 239.2		
7/15/99 Water		
Sample	Result	Limit
Method Blank	<1.0 ug/L	<1.0ug/L
LCS	94.5%	90.0-110%
Matrix Spike 24044-11	109%	75.0-125%
Matrix Spike 24044-14	106%	75.0-125%

The sample containers for the water samples analyzed for lead requested dissolved lead analysis. This was not indicated on the Chain of Custody. The samples were analyzed "as received".

APPENDIX C

METHODOLOGIES AND PROCEDURES, INCLUDING FIELD SCREENING OF SOIL, OTHER FIELD ANALYSES, SOIL BORING, SOIL SAMPLING, WELL INSTALLATION, AND WATER SAMPLING

METHODOLOGIES AND PROCEDURES
APPENDIX C

SOIL CONTAMINATION ASSESSMENT

- Twenty-five soil borings were completed in the vicinity of the former gasoline UST area and the former pump island to depths of approximately 25 feet. One of these was completed to 46 feet below ground surface (bgs). Soil borings were advanced using a Geoprobe drilling rig, push probe, or hollow stem auger drill rig. All drilling equipment was steam cleaned before arriving at the Site between borings (to prevent cross contamination) and before leaving the Site. Decontamination water was collected and stored on Site for characterization and off Site disposal.
- Three of these soil borings were converted to groundwater monitoring wells.
- Groundwater was developed and sampled in accordance with procedures in MPCA Fact Sheet # 3.23 using dedicated tubing and a peristaltic pump at low flow purge of less than 500 ml. per minute.
- Drill logs were completed for each boring and monitoring well and well construction diagrams were completed for the monitoring wells.
- Continuous field screening of collected soil borings was conducted using a photoionization detector (PID) capable of detecting petroleum-related compounds. Notes were kept in both the field book and boring logs. Standard head space analysis procedures using polyethylene bags were followed as outlined in MPCA's fact sheet # 3.22.
- At least one soil sample was collected from each soil boring for laboratory analysis of total petroleum hydrocarbons (TPHs)-gasoline range organics (GRO), benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tert butyl ether (MTBE), and lead.
- All soil borings were sealed according to Minnesota Department of Health (MDH) regulations. Soil cuttings were containerized in 55-gallon drums and stored on Site pending disposal off Site at the client's direction.
- Slug tests were performed at each monitoring well to determine hydrogeologic characteristics of soil and groundwater. Specific methodologies follow at the end of this Appendix.

Groundwater Contamination Assessment

- Groundwater samples were collected from seven of the soil borings using the Geoprobe drilling equipment. All samples were taken with a peristaltic pump using new dedicated polyethylene tubing at a low purge rate of typically less than 500 ml per minute.
- Collected groundwater samples were analyzed for GRO, MTBE, dissolved lead, and VOCs.
- Quality assurance/quality control (QA/QC) samples were collected and analyzed. QA/QC samples consisted of a trip blank (VOCs/BTEX), field blank (VOCs/BTEX), and a duplicate sample (all parameters).

- Collected purge water was containerized in a 55-gallon drum and temporarily stored on Site prior to off-Site disposal.

WATER WELL SURVEY

- A walking survey of properties within 500 feet of the plume was conducted to identify any potential water well users.
- The City utility billing department was contacted to verify municipal water service to the McKnight Village Apartments. There were no other residences within 500 feet of the plume.
- A review of the water well database, County well index, and other sources was conducted to identify water wells within one-half mile of the Site.

VAPOR RISK ASSESSMENT

- A visual survey walk of the Site, the hotel basement, utilities, and structures was conducted to assess the potential for vapor migration and possible safety and health issues.

SURFACE WATER CONTAMINATION ASSESSMENT

- The area within one-quarter mile of the Site was walked and a search for surface water was visually conducted to assess their potential for impact from the Site releases.

Data Set: M:\MW-3HO.AQT
Date: 05/02/00
Time: 11:46:41

PROJECT INFORMATION

Company: CRA
Client: MBN
Project: 13311
Location: I-94 Holiday Inn
Test Date: 4/20/00
Test Well: MW-3

AQUIFER DATA

Saturated Thickness: 7.81 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-3

X Location: 0. ft
Y Location: 0. ft

No. of observations: 7

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
1.	1.5	4.	0.3	7.	0.1
2.	0.7	5.	0.2		
3.	0.4	6.	0.2		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

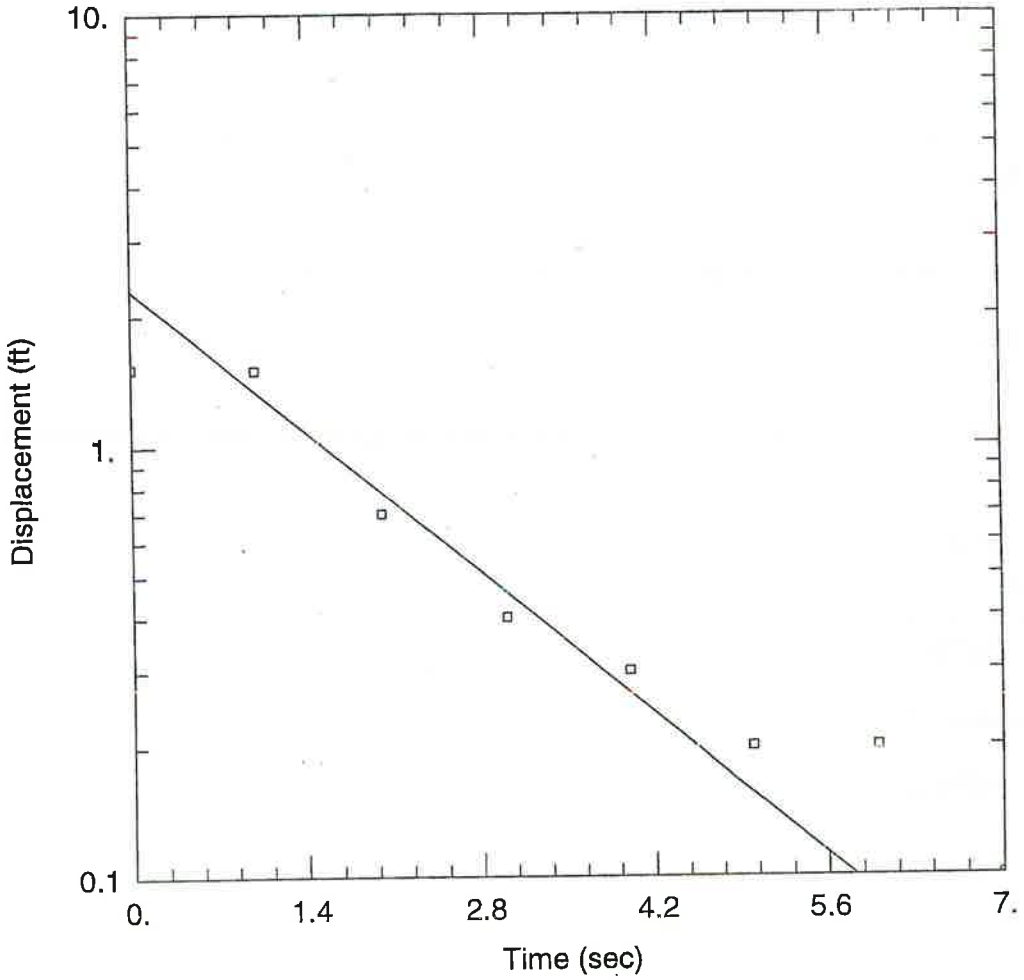
Estimated Parameters

Parameter	Estimate	
K	0.001772	ft/sec
y0	2.297	ft

$0.001772 \text{ ft/sec} \times 30.48 = 5.5 \times 10^{-2} \text{ cm/sec}$

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters



WELL TEST ANALYSIS

Data Set: M:\MW-3HO.AQT
Date: 05/02/00 Time: 11:46:23

PROJECT INFORMATION

Company: CRA
Client: MBN
Project: 13311
Test Location: I-94 Holiday Inn
Test Well: MW-3
Test Date: 4/20/00

AQUIFER DATA

Saturated Thickness: 7.81 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.52 ft
Casing Radius: 0.083 ft
Screen Length: 10. ft
Water Column Height: 7.81 ft
Wellbore Radius: 0.26 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001772 ft/sec 5.5×10^{-2} cm/sec
y0 = 2.297 ft

Parameter	Estimate	Std. Error	
K	0.001919	0.0002156	ft/sec
y0	2.594	0.2797	ft

Parameter Correlations

	K	y0
K	1.00	0.88
y0	0.88	1.00

Residual Statistics

for weighted residuals

Sum of Squares ... 0.04082 ft^2
Variance ..... 0.008164 ft^2
Std. Deviation..... 0.09036 ft
Mean ..... 0.02602 ft
No. of Residuals ... 7.
No. of Estimates ... 2

Data Set: M:\MW-2HO.AQT
Date: 05/02/00
Time: 10:43:25

PROJECT INFORMATION

Company: CRA
Client: MBN
Project: 13311
Location: I-94 Holiday Inn
Test Date: 4/20/00
Test Well: MW-2

AQUIFER DATA

Saturated Thickness: 9.1 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-2

X Location: 0. ft
Y Location: 0. ft

No. of observations: 8

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
1.	1.52	4.	0.2	7.	0.1
2.	0.8	5.	0.2	8.	0.1
3.	0.4	6.	0.1		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

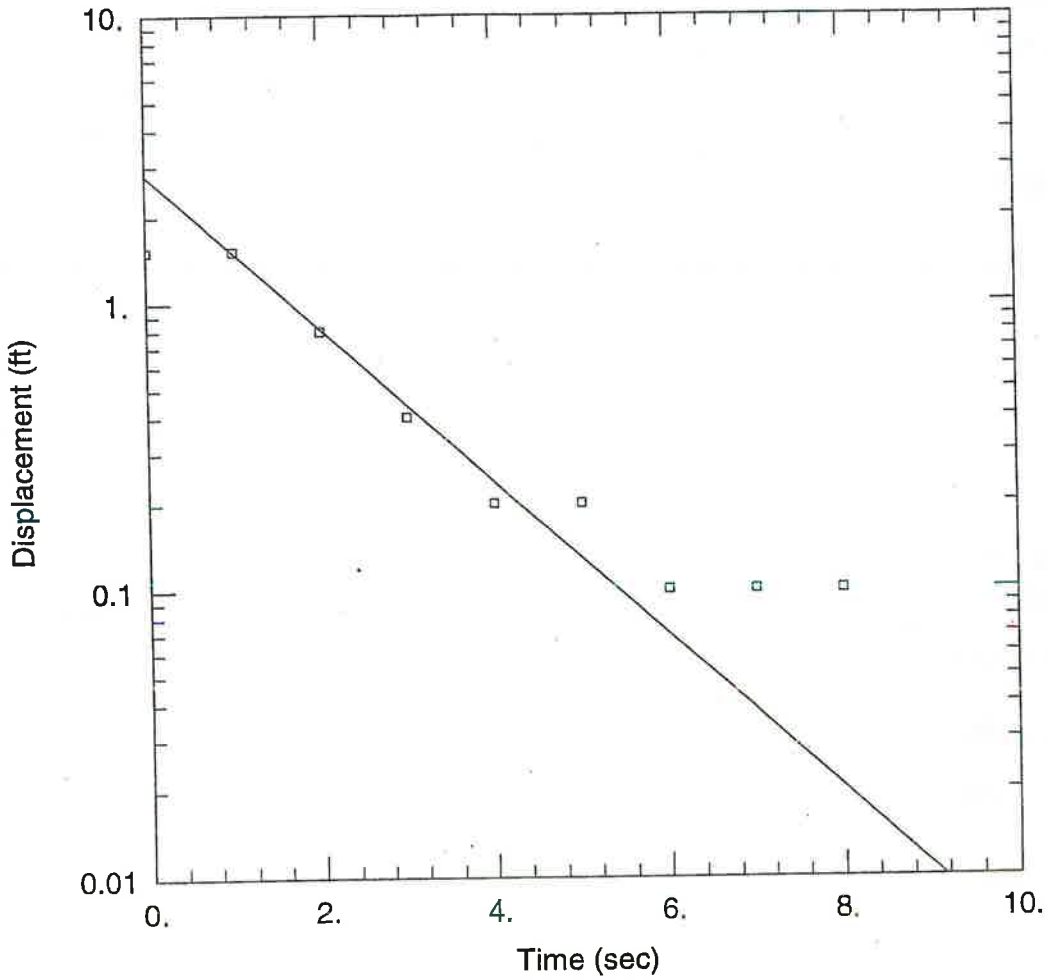
Estimated Parameters

Parameter	Estimate	
K	0.001968	ft/sec
y0	2.741	ft

$\times 30.48 = 6.4 \times 10^{-2}$ cm/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters



WELL TEST ANALYSIS

Data Set: M:\MW-2HO.AQT
Date: 05/02/00 Time: 10:40:08

PROJECT INFORMATION

Company: CRA
Client: MBN
Project: 13311
Test Location: I-94 Holiday Inn
Test Well: MW-2
Test Date: 4/20/00

AQUIFER DATA

Saturated Thickness: 9.1 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.52 ft
Casing Radius: 0.083 ft
Screen Length: 10. ft
Water Column Height: 9.1 ft
Wellbore Radius: 0.26 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.002101 ft/sec 6.4×10^{-2} cm/sec
y0 = 2.786 ft

Parameter	Estimate	Std. Error	
K	0.002101	0.0001457	ft/sec
y0	2.786	0.1894	ft

Parameter Correlations

	K	y0
K	1.00	0.88
y0	0.88	1.00

Residual Statistics

for weighted residuals

Sum of Squares ... 0.01971 ft^2
Variance ..... 0.003285 ft^2
Std. Deviation..... 0.05731 ft
Mean ..... 0.02111 ft
No. of Residuals ... 8.
No. of Estimates ... 2

Data Set: M:\MW1I94.AQT
Date: 04/24/00
Time: 09:38:57

PROJECT INFORMATION

Company: Cra
Client: MBE
Project: 13311
Location: St. Paul
Test Date: 4/19/00
Test Well: MW-1

AQUIFER DATA

Saturated Thickness: 6.5 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW 1

X Location: 0. ft
Y Location: 0. ft

No. of observations: 8

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
1.	1.	4.	0.067	7.	0.021
2.	0.1	5.	0.044	8.	0.021
3.	0.14	6.	0.044		

SOLUTION

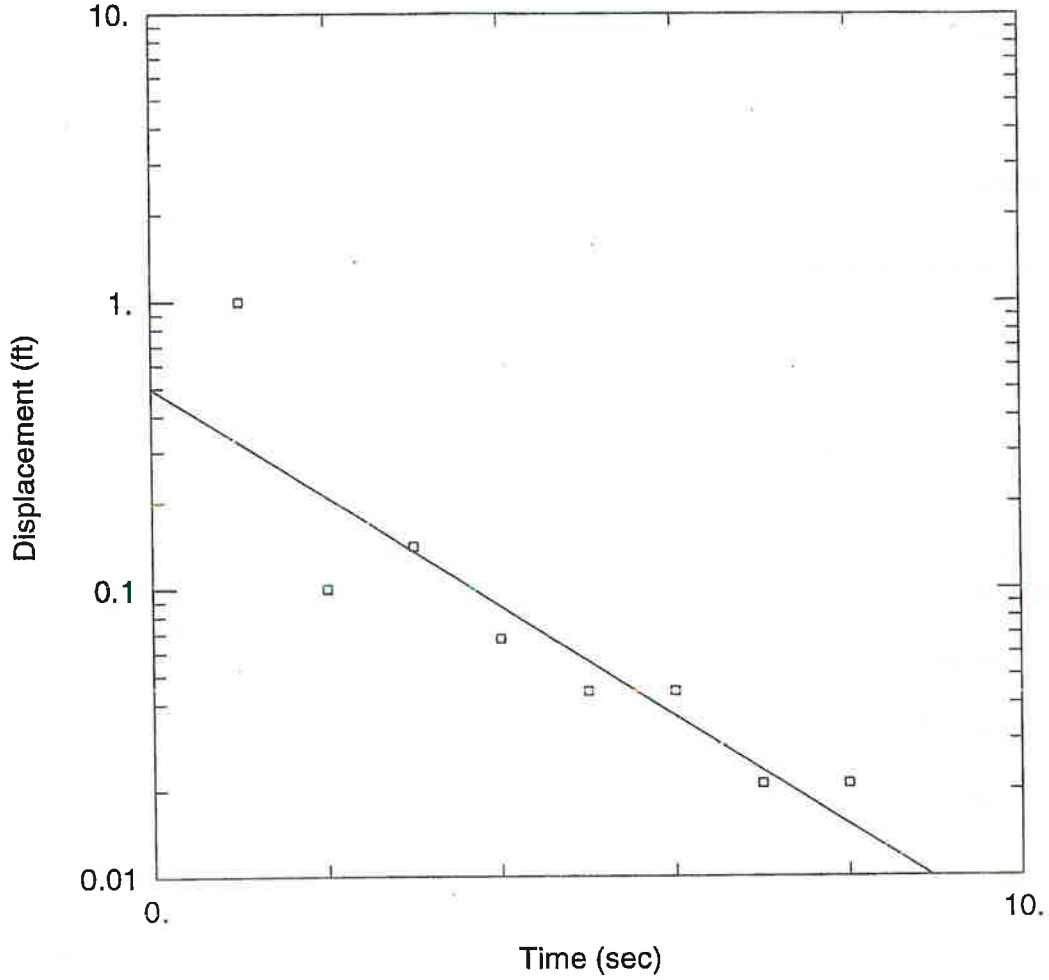
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001318	ft/sec
y0	0.4982	ft

$\times 30.48 = .04$ or $4. \times 10^{-2}$ cm/sec
$= cm/sec$



WELL TEST ANALYSIS

Data Set: M:\MW1I94.AQT
Date: 04/24/00 Time: 09:37:44

PROJECT INFORMATION

Company: Cra
Client: MBE
Project: 13311
Test Location: St. Paul
Test Well: MW-1
Test Date: 4/19/00

AQUIFER DATA

Saturated Thickness: 6.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.52 ft
Casing Radius: 0.083 ft
Screen Length: 10. ft
Water Column Height: 6.24 ft
Wellbore Radius: 0.26 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001318 ft/sec 4.0×10^{-2} cm/sec
y0 = 0.4982 ft

Reference

Moench, A.F., 1997. Flow to a well of finite diameter in a homogeneous, anisotropic water table aquifer, Water Resources Research, vol. 33, no. 6, pp. 1397-1407.

Tutorial

Access the tutorial for this solution from the on-line User's Guide in AQTESOLV for Windows.

Bouwer-Rice (1976) Solution for a Slug Test in an Unconfined Aquifer

Bouwer and Rice (1976) developed an empirical relationship describing the water-level response in an unconfined aquifer due to the instantaneous injection or withdrawal of water from a well:

$$\ln(s_0) - \ln(s_t) = \frac{2KLt}{r_{ce}^2 \ln(r_e / r_{we})}$$

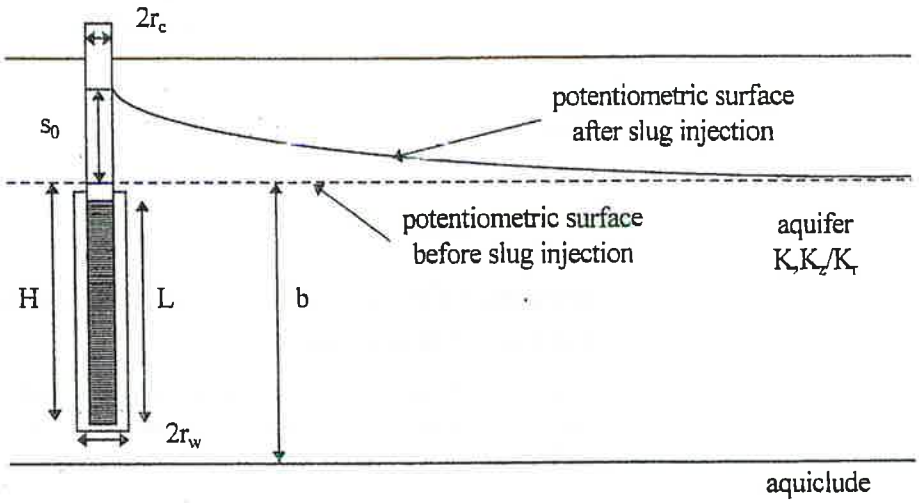
$$r_{ce} = \sqrt{r_c^2 + n(r_w^2 - r_c^2)}$$

$$r_{we} = r_w \sqrt{\frac{K_z}{K_r}}$$

Bouwer and Rice (1976) recommend computing an equivalent casing radius (r_{ce}) to correct for the porosity of the gravel pack when the height of the static water column in the well is less than the screen length. AQTESOLV for Windows automatically computes the equivalent casing radius using the value of porosity (n) specified in the data set (see "Aquifer Data" on page 19); a porosity equal to zero (0.0) results in no correction to the casing radius.

Zlotnik (1994) advises the use of an equivalent wellbore radius (r_{we}) if the aquifer is anisotropic in a vertical plane. AQTESOLV automatically computes the equivalent wellbore radius using the value of anisotropy ratio (K_z/K_r) specified in the data set (See "Aquifer Data" on page 19). An anisotropy ratio equal to unity (1.0) results in no correction to the well radius.

Refer to the "List of Symbols" on page 85 for a description of the parameters and variables contained in the equations.



Assumptions

- aquifer has infinite areal extent
- aquifer is homogeneous and of uniform thickness
- aquifer potentiometric surface is initially horizontal
- a volume of water, V, is injected into or discharged from the well instantaneously
- aquifer is confined or unconfined
- flow is steady

Data Requirements

- test well measurements (time and displacement)
- initial displacement
- casing radius and wellbore radius for test well
- saturated thickness of aquifer
- screen length
- static height of water column above bottom of well
- porosity of gravel pack (optional)
- hydraulic conductivity anisotropy ratio (optional)

References

Bouwer, H., 1989. The Bouwer and Rice slug test--an update, Ground Water, vol. 27, no. 3, pp. 304-309.

Bouwer, H. and R.C. Rice, 1976. A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, Water Resources Research, vol. 12, no. 3, pp. 423-428.

APPENDIX D

GEOLOGIC LOGS FOR EACH WELL OR BORING, INCLUDING WELL AS-BUILTS ON LOG

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME I-94 ST. PAUL Holiday INN
PROJECT NUMBER 1331)
CLIENT MP Properties
LOCATION ST PAUL MN

DRILLING CONTRACTOR Boart Longyear
DRILLER
SURFACE ELEVATION TOC=97.50, GRD=97.96
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION MW-1, MW-1 pilot Boring
DATE/TIME STARTED 3-1-05
DATE/TIME COMPLETED 3-1-05
DRILLING METHOD HSA
CRA SUPERVISOR SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION (ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).)	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		2.	SW - SAND, Little clay and silt, some gravel Well sorted,	1	SS	3	7	7	10	0-2	10.5		
			Grey and Brownish, Oily looking stain	2		4	5	8	7	2-4	17.		
2			SW - Redish Brown,	3		6	4	7	6	4-6	8.7		
	6	18	SW, - cobbles, coarse gravel, Low Recovery.	4		5	4	7	8	6-8	1.8		
8		10	SW-ML, silty sand, trace clay, Brown, moist,	5		7	7	8	7	8-10	0.0		
10		12	SW-ML silty sand,	6		9	10	11	9	10-12	0.0		
12		14	SP-sand med grain Brownish-Red ~~Damp~~, moist,	7		10	10	8	4	12-14	2.4		
14		16	SP-, gravel, cobbles @ 15' SATURATED 15Ft ▼	8		9	4	6	6	14-16	0.0		
	20	22	SW, - sand with little silt, some gravel, well sorted,	9		8	7	4	4	20-22	0.0		
			Grey, SATURATED.	10		3	3	3	4	25-27	0.0		
	25	27	SAME	11		7	8	4	6	30-32	0.0		
	30	32	SAME	12	▼	5	7	7	6	35-37	0.0		
	35	37	SAME			4	4	4	6	40-42	0.0		
	37	40	SW - Sand, well sorted As ABOVE.										

NOTES AND COMMENTS

CRA

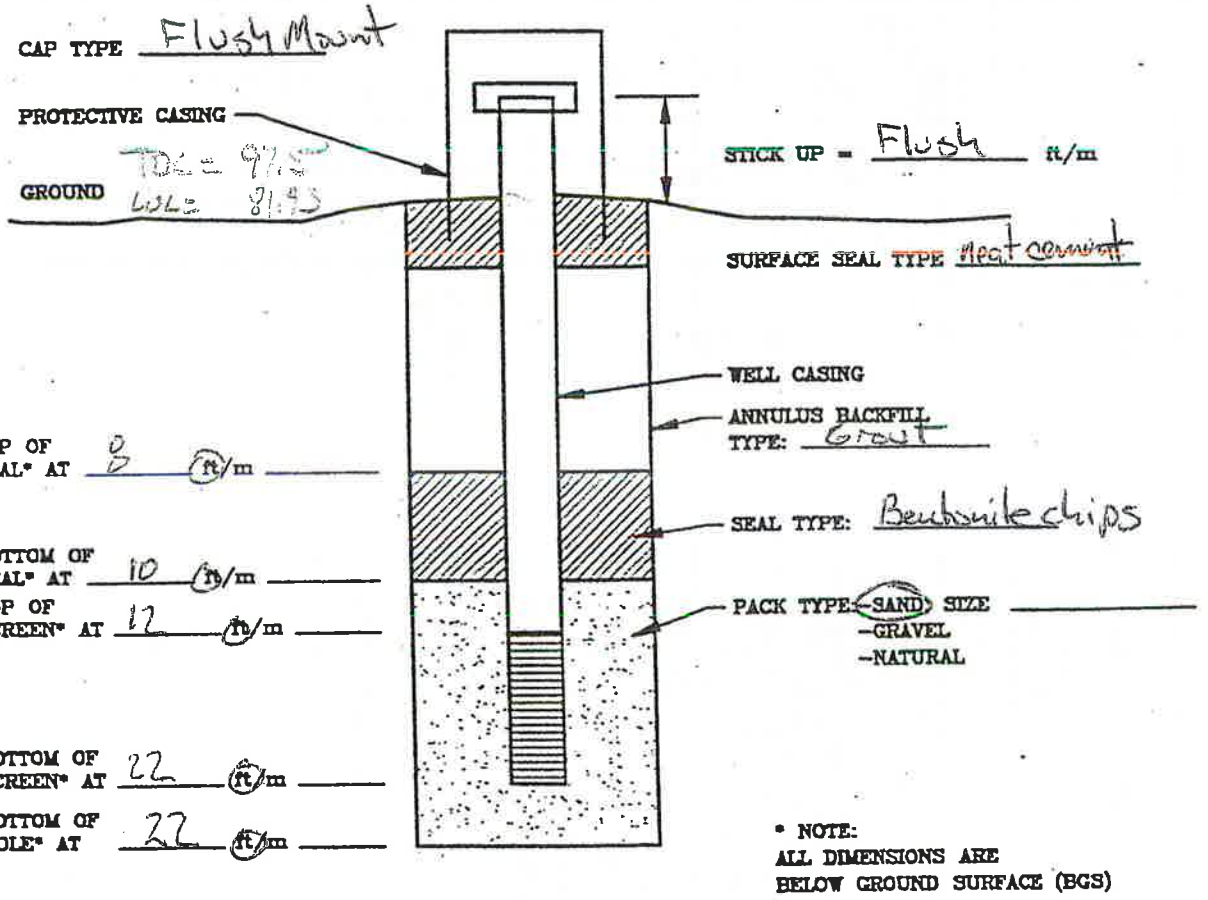
DEPTH OF BOREHOLE CAVING _____ DEPTH OF FIRST GROUNDWATER ENCOUNTER 15Ft TOPSOIL THICKNESS Asphalt.
WATER LEVEL IN OPEN BOREHOLE ON COMPLETION _____, AFTER ____ HOURS ____
COMPLETION DETAILS:

NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

OVERBURDEN INSTRUMENTATION LOG

PROJECT NAME ST PAUL Holiday Inn
PROJECT NUMBER 13311
CLIENT MB Properties
LOCATION ST PAUL, MN

HOLE DESIGNATION MW - 1
DATE COMPLETED 3-1-00
DRILLING METHOD HSA
CRA SUPERVISOR SHEILD



SCREEN TYPE: ☐ continuous slot ☐ perforated ☐ louvre ☐ other: slotted

SCREEN MATERIAL: ☐ stainless steel ☒ plastic ☐ other: _____

SCREEN LENGTH: 10 ft/m SCREEN DIAMETER: 2 in/cm SCREEN SLOT SIZE: 10

WELL CASING MATERIAL: PVC WELL CASING DIAMETER: 2 inches in/cm

HOLE DIAMETER: 6"

DEVELOPMENT: METHOD: surge/pump DURATION: 10 well volumes.

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME I-94 ST. PAUL HolidayINN
PROJECT NUMBER (1331)
CLIENT MP Properties
LOCATION St PAUL MN

DRILLING CONTRACTOR Boart Longyear
DRILLER
SURFACE ELEVATION TOC=95.02 GR=95.19
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION MW-2
DATE/TIME STARTED 3-1-00
DATE/TIME COMPLETED 3-2-00
DRILLING METHOD HSA
CRA SUPERVISOR SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION (ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).)	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		4	SW-SAND, wt Gravel, trace silt and clay, well sorted Reddish Brown, moist Fill.	1	SS	2	4	7	6	0-2	1.0		
				2		3	3	3	3	2-4	0.9		
4		6	SP-SAND, trace silt, + clay, Reddish-Brown (med-grain) moist	3		2	1	2	3	4-6	4.8		
				4		5	5	3	4	6-8	9.5		
6		8	SW-sand, wt gravel, well sorted, Dk Brown, moist	5		4	3	4	1	8-10	NO Recovery		
8		10	-No Recovery.	6		3	7	7	6	10-12	12		
10		12	SW-CL Sandy Clay, semi-Plastic, trace gravel	7		5	4	4	2	12-14	14		
			well sorted, Black Grey oily smell and look.	8		2	2	2	3	14-16	11.7	S-02	
12		14	CL - Clay, Plastic, Grey (Yellow, Red) Green, SAND, Moist (NATIVE?)	9		4	5	2	3	16-18	20.1		
14		16	CL - AS ABOVE. SANDY; very fine SAND (? Pt Below clay)	10		5	2	3	4	18-20	24.		
16		18	CL-SW, Clay and Sandy sand wt Pt-Peat & semi-	11		2	4	5	3	20-22	20.		
			Plastic to Loose, Stratified, Cream, Black, Grey-	12	V								
			Green, Oily-Petrol smell disturbed stratigraphy										
			Fill. Possible saturation @ or near 18ft.										
18		20	SW-Sand, with trace of silt and clay, Grey										
			SATURATED										
20		22	SW - AS ABOVE End of Boring										

NOTES AND COMMENTS

CRA

DEPTH OF BOREHOLE CAVING _____ DEPTH OF FIRST GROUNDWATER ENCOUNTER _____ TOPSOIL THICKNESS _____

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION _____, AFTER ____ HOURS ____

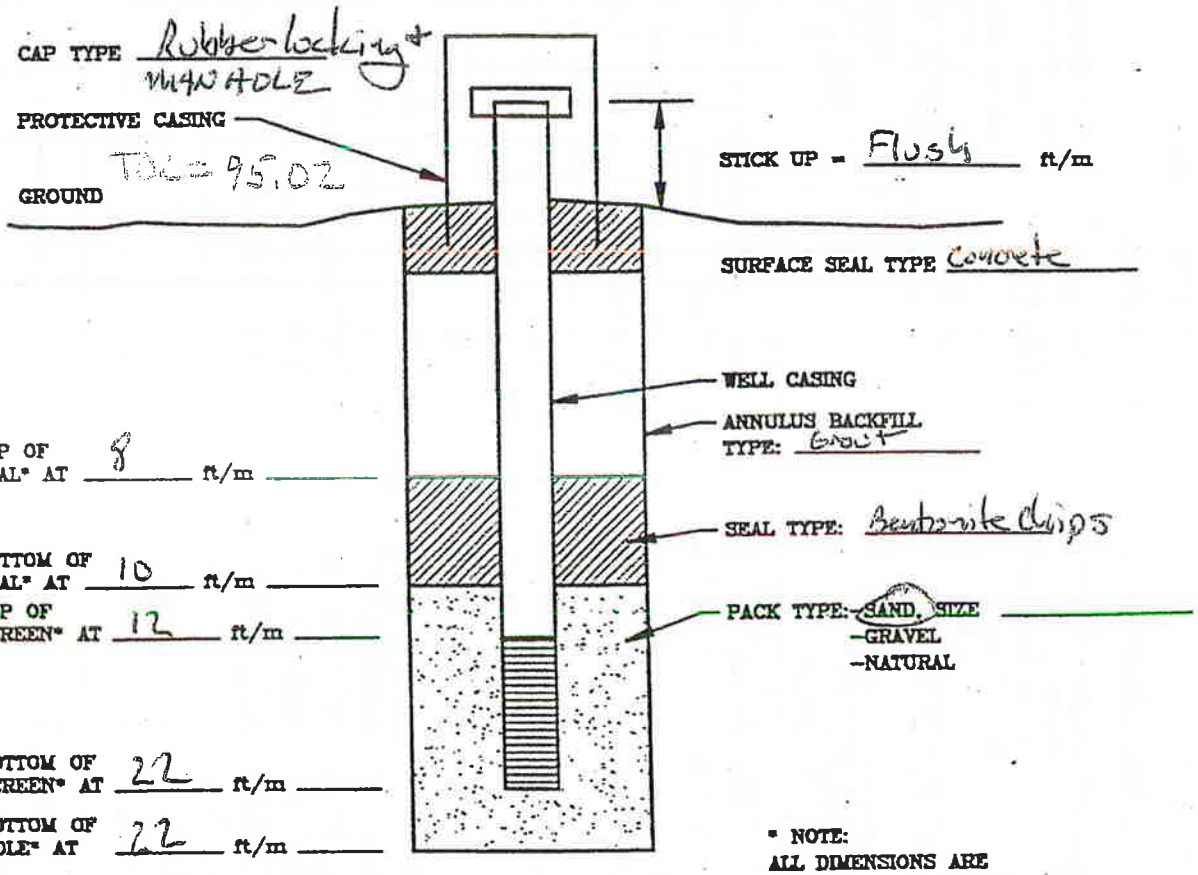
COMPLETION DETAILS: _____

NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

OVERBURDEN INSTRUMENTATION LOG

PROJECT NAME ST PAUL Holiday Inn
PROJECT NUMBER 13311
CLIENT MB Properties
LOCATION ST PAUL, MN

HOLE DESIGNATION MW-2
DATE COMPLETED 3-2-00
DRILLING METHOD HSA 6.25" ID
CRA SUPERVISOR SHEILD



SCREEN TYPE: ☒ ~~continuous~~ slotted ☐ perforated ☐ louvre ☐ other: _____

SCREEN MATERIAL: ☐ stainless steel ☒ plastic ☐ other: _____

SCREEN LENGTH: 10 ft/m SCREEN DIAMETER: 2 in/cm SCREEN SLOT SIZE: 10

WELL CASING MATERIAL: PVC WELL CASING DIAMETER: 2" in/cm

HOLE DIAMETER: 6"

DEVELOPMENT: METHOD: Pump/Surge DURATION: 10 hrs.

STRATIGRAPHY LOG (OVERBURDEN)

PAGE 1 OF 1

PROJECT NAME I-94 ST. PAUL Holiday INN
PROJECT NUMBER 1331)
CLIENT MP Properties
LOCATION ST PAUL MN

DRILLING CONTRACTOR Boart Longyear
DRILLER Bill
SURFACE ELEVATION TOC=95.17, GRD=95.80
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION MW-3
DATE/TIME STARTED 3-2-00
DATE/TIME COMPLETED 3-2-00
DRILLING METHOD HSA
CRA SUPERVISOR SHEILD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0			SW - Sand, Little silt and Clay, trace Gravel, well	1	SS		Auger Cuttings			0-2	12		
			Sorted, Brownish-Red, Moist. Fill	2		2	9	5	8	2-4	28		30%
	2	4	SW - DARK Brown, Asphalt Fill Shingle	3		2	3	3	4	4-6	25		
	4	6	SW - Fill, wet debris, Clay, Gravel, stratified.	4		3	4	4	5	6-8	55		
6		8	Mixed Fill, SW-CL, mixed SAND and till Fragments	5		1	2	2	2	8-10	40		
			Black, Brown, Oily look and Petroleum smell, moist.	6		1	1	2	5	10-12	443.	S-03	
8		10	SW-CL As ABOVE strong odor. (Brick Fill)	7		1	1	1	2	12-14	1998.		
10		12	CL-ML, Silty Clay with Sand, gravel, Organic debris,	8		1	1	1	1	14-16	1898.		
			Black-grey oily strong odor moist (NATIVE?)	9		1	1	2	1	16-18	220		
12		14	CL-Clay, with Silt and very fine sand, trace gravel	10		1	1	2	2	18-20	225		
			Grey green moist, very strong odor, ▼ 13 ft tw	11		1	2	3	4	20-22	106		
14		16	SW - SAND, silt, well Graded, Grey Green oily	12	▼	~~2~~	~~2~~	~~3~~	~~4~~				
			Sheen very strong odor SATURATED										
16		18	SW - wet gravel strong odor, oily sheen.										
18		20	SW - AS ABOVE.										
20		22	SW - AS ABOVE										

NOTES AND COMMENTS

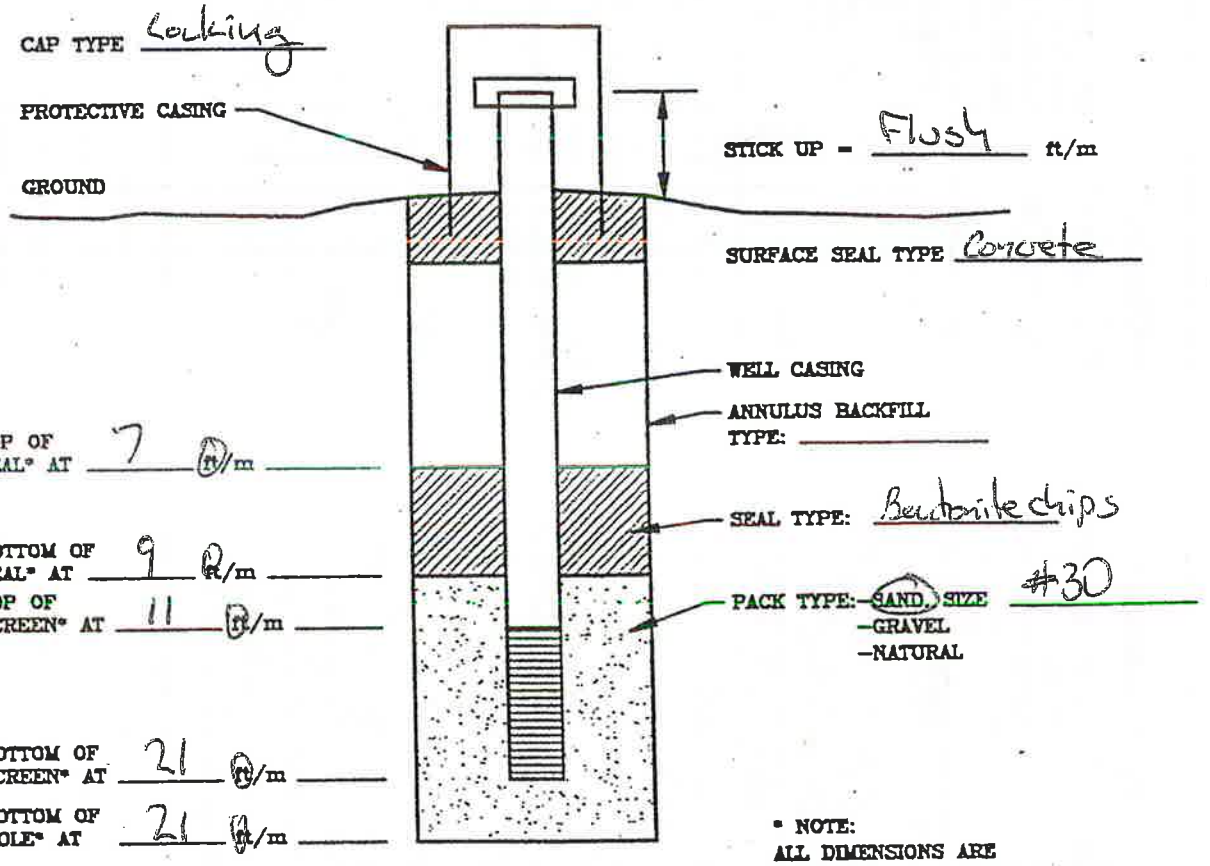
CRA

DEPTH OF BOREHOLE CAVING _____ DEPTH OF FIRST GROUNDWATER ENCOUNTER 13.5 ft TOPSOIL THICKNESS _____
WATER LEVEL IN OPEN BOREHOLE ON COMPLETION _____, AFTER ____ HOURS ____
COMPLETION DETAILS: _____
NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

OVERBURDEN INSTRUMENTATION LOG

PROJECT NAME St Paul Holiday Inn
PROJECT NUMBER 13311
CLIENT MB Properties
LOCATION St Paul, MN

HOLE DESIGNATION MW-3
DATE COMPLETED 3-2-00
DRILLING METHOD HSA 6.25" Aug.
CRA SUPERVISOR SHEILD



SCREEN TYPE: ☐ slotted continuous slot ☐ perforated ☐ louvre ☐ other:

SCREEN MATERIAL: ☐ stainless steel ☑ plastic ☐ other:

SCREEN LENGTH: 10 ft/m SCREEN DIAMETER: 2 in/cm SCREEN SLOT SIZE: 10

WELL CASING MATERIAL: PVC WELL CASING DIAMETER: 2 in/cm

HOLE DIAMETER: 6.00

DEVELOPMENT: METHOD: Purge / Surge DURATION: 10 hrs.

STRATIGRAPHY LOG (OVERBURDEN)

PAGE 1 OF 1

PROJECT NAME Hs-94 Hydrogeology
PROJECT NUMBER 18311
CLIENT
LOCATION

DRILLING CONTRACTOR MATRIX
DRILLER GUY
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-6
DATE STARTED 3-16-99
DATE COMPLETED 3-16-99
DRILLING METHOD Geoprobe
CRA SUPERVISOR D. SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		4	SW, Sand and Gravel, well graded,	1	GP					0-4	7.2	90% [illegible]	
			Reddish Brown Moist	2						4-8	0.0	95%	
4		8	SW - same	3						8-12		95%	
8		12	SW, same, 6" clay seam oily smelling 10ft	4	↓					12-16		100%	
12		16	SW, same, @ 15 Ft sand is saturated, oily	5						16-20		60%	
16		20	SW/GP, sand and gravel, well graded Gravel	6	↓					20-24		50%	
			SATURATED @ 15' grey (15 FT)										
20		24	SW, SAT. Grey, EOBH										

NOTES AND COMMENTS

CRA FORM SP-17

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION STFaul

DRILLING CONTRACTOR MATRIX
DRILLER Gisy
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-7
DATE STARTED 3-16-99
DATE COMPLETED 3-16-99
DRILLING METHOD Geo probe
CRA SUPERVISOR

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS Recovery	GRAIN SIZE
0		11	Fill, Sand, gravel, clay silt, Mottled	1	0-4					0-4	30.0ppm	90%	
			DRY,	2	4-8					4-8	5ppm	80%	
	11	12	CL, clay tr sand & gravel, laminated, organic-	3	8-12					8-12	5ppm	90%	
			debritus, Grey moist. (HARD)	4	12-16					12-16	30ppm	90%	
12		16	CL-Clay/Sand fill & NATIVE							16-20	>1000ppm	80%	
			Clay is Grey Green to Black & has strong odor.							20-24	10ppm	50%	
16		28	Clay SAND MIX AS ABOVE very strong odor										
			wet/not saturated perched? localized.										
18		20	SW SAND, well sorted, SATURATED										
			Grey. (it was difficult to determine if clay was										
			discontinuous between 11 and 18ft?)										
	18'		SATURATED?										

NOTES AND COMMENTS

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION ST PAUL

DRILLING CONTRACTOR MATRIX
DRILLER Guy
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-8
DATE STARTED 3-16-99
DATE COMPLETED 3-16-99
DRILLING METHOD Geoprobe
CRA SUPERVISOR D. SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		10	Fill SAND Clay Gravel mottled moist.	1	GP					0-4	2.0		
10		12	CL/SW Sandy clay well graded, strong	2						4-8	12.0		
			petrolem odor sticky Grey Green/Black	3						8-12	>100		
			Grey mottled	4						12-16	>1000		
12		16	Sandy Clay CL-SW, Mottled very	5						16-20	>2000		
			strong petrolem odor. ↓product sheen in sand.	6						20-24	2ppm		
16		20	SAND SW well graded, oily pool in sand										
			very strong odor SATURATED @ 16' with										
			oil on surface. Looks like product.										
20		24	SW-SAND, well graded, Grey SATURATED										
			some odor (not as strong as Before)										
	24		E.O.B.H.										

NOTES AND COMMENTS

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION ST PAUL

DRILLING CONTRACTOR MATRIX
DRILLER GUY
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH 9
DATE STARTED 3-16-99
DATE COMPLETED 3-16-99
DRILLING METHOD Geo Probe
CRA SUPERVISOR D. SPELLS

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		4	Fill Sand and Clay(some) Moist, Mottled	1	GP					0-4	7.0		
			well graded, Black-Grey Brown.	2						4-8	2.0		
4		8	AS ABOVE, Reddish Brown & Dark Brown	3						8-12	50.0		
8		11	Sand Fill as ABOVE	4						12-16	72000	✓	
11		12	Clay, CL, wt Little sand & Gravel Black & Grey	5						16-20	20.0		
			(Some peat?) oily sheen & odor. Moist.	6	↓					2024	2.0		
12		14	SW. Sand, Little Clay, well graded oily sheen										
			moist Reddish Brown.										
14		16	CL-Clay wt Sand Mottled oily sheen in										
			sand lenses very strong oily odor										
	16		SATURATED WATER										
16		20	SAND-SW, wt gravel well graded, Grey & Reddish										
			Mottled,										

NOTES AND COMMENTS

STRATIGRAPHY LOG (OVERBURDEN)

PAGE 1 OF 1

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION Northwest TANK middle

DRILLING CONTRACTOR MATRIX
DRILLER GUY
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-10
DATE STARTED 3-16-99
DATE COMPLETED 3-16-99
DRILLING METHOD ~~HSA~~ Geoprobe
CRA SUPERVISOR D. SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		8	Fill Clayie sand, Mottled, Reddish Brown	1	GP					0-4	1.0		
			(Green, Black) DRY	2	|					4-8	0.5		
8		11.5	Fill Clayie sand Reddish Brown, Moist.	3	|					8-12	1.0		
11.5		12.5'	Peat with Clay organic detritus, Black & Grey oily sheen	4	|					12-16	88.5	✓	
12.5		15	CL: Clay, wt Little sand & silt, organic detritus,	5	|					16-20	66.7		
15		16	SW, sand (SATURATED) well graded, Grey	6	↓					20-24	0.0		
			oily sheen at Clay sand interface (15')										
16		20	SW - sand, well graded, Grey SATURATED										
20		24	SW - AS ABOVE EOH										

NOTES AND COMMENTS

CRA FORM SP-17

STRATIGRAPHY LOG (OVERBURDEN)

PAGE 1 OF 1

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION ST Paul

DRILLING CONTRACTOR MATRIX
DRILLER Guy. Paugette
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-11
DATE STARTED 3-16-99
DATE COMPLETED 3-16-99
DRILLING METHOD ~~EB~~ Geoprobe
CRA SUPERVISOR D. SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS Collected	GRAIN SIZE
0		4	Fill, SAND wt some Clay, Gravel Mottled	1	GP					0-4	0.0	70	
			Red, Grey DK-Brown.	2	|					4-8	0.5	50	
4		8	Same	3	|					8-12	~~12~~	0%	
8		12	NO Recovery	4	|					12-16	7.6	100%	
11.5		12	SAND SW - Well Sorted, Reddish Moist, oily smell	5	|					16-20	350	100%	
12		12.5	Peat/cl. Clay Black, oily smell	6	↓					20-24	1.0	80%	
12.5		15.5	CL Clay, Wt Little SAND, HARD, Plastic, Grey brown										
			moist Organic Detritus.										
15.5		20	SW-SAND well graded, tr silt, Grey, SATURATED										
20		24	SW - AS ABOVE										
			End of Boring										

NOTES AND COMMENTS

STRATIGRAPHY LOG (OVERBURDEN)

PAGE 1 OF 1

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER
CLIENT
LOCATION WASTE OIL WEST

DRILLING CONTRACTOR MATRIX
DRILLER GOSA
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-12
DATE STARTED 3-16-99
DATE COMPLETED 3-16-99
DRILLING METHOD Geoprobe
CRA SUPERVISOR SHEALD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS %rec.	GRAIN SIZE
0		14.5	Fill, SW-SAND, Gravel, silt, well Graded,	1						0-4	0.5	100	
			Brownish Red moist to 8' dry 8-12'	2						4-8	0.5	100	
14.5		16	CL-SW Sandy Clay, Gravel, HARD, Grey/Green	3						8-12	0.5	100	
			moist Collected @ 14.5-16' For sample	4						12-16	15.0	100	
16		24	SW-SAND, well sorted Brown Grey SATURATED	5						16-20	0.0	50	
				6						20-24	0.0	100	
	24		EOBH										

NOTES AND COMMENTS

CRA FORM SP-17

STRATIGRAPHY LOG (OVERBURDEN)

PAGE 1 OF 1

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION WASTE OIL TANKS

DRILLING CONTRACTOR MATRIX
DRILLER
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-13
DATE STARTED 3-16-99
DATE COMPLETED 3-16-99
DRILLING METHOD Geoprobe
CRA SUPERVISOR D. SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		14	Fill sand, tr Gravel & Clay Well graded	1	GP					0-4	0.0	100	
			Reddish Brown Moist	2	|					4-8	0.5	90	
14		16	CL-SW Sandy Clay tr peat, oily smell	3	|					8-12	0.0	80	
			Moist Green/Black/Grey mottled.	4	|					12-16	2.0	100	
16		20	SW - sand, Well graded, Grey Brown, Saturated	5	|					16-20	4.0	80	
18		20	(16-18 is Grey/Brown 18-20 is Reddish Brown)	6	V					20-24	0.0	80	
20		24	SW as above, Brown, Wet										

NOTES AND COMMENTS

CRA FORM SB-17

STRATIGRAPHY LOG (OVERBURDEN)

PAGE 1 OF 1

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION ST PAUL

DRILLING CONTRACTOR Boart Longyear
DRILLER Loram
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-14
DATE STARTED 6-29-99
DATE COMPLETED 6-29-99
DRILLING METHOD Geoprobe
CRA SUPERVISOR D. Sitzlo

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS % recovery	GRAIN SIZE
0		2	SW - Sand well sorted, Mottled, Moist, Fill	1	SS					0-2	38	100	
2		4	SW - As Above, Trace Clay, Fill	2	SS					2-4	229	100	
4		6	SW - Fill	3	SS					4-6	225	100	
6		9.5	SW - Fill	4	SS					6-8	133	100	
9.5		10.5	SM - Sandy silt, well sorted, tr Gravel, Grey	5	SS					8-10	117	100	
			Moist wt, organic detritus.	6	SS					10-12	135	100	
10.5		12	CL - Clay, Sandy, well sorted Grey Moist	7	SS					12-14	100	100	
12		14	SW - Sand, Well sorted, Grey, Moist ▽ 14.0'	8	SS					14-16	1800	100	
14		16	SW, Dark oily product wt strong odor @ 15-16ft	9	SS					16-18	1500	100	
16		18	SW - Same product strong oily 16-18ft	10	SS					18-20	16000	100	
18		20	SW - Trace red clay Fragments @ 20' strong odor	11	SS					20-22	1700	100	
			Product oily stain ends @ 19.5' (Dark grey)	12	SS					22-24	135	100	
20		22	SW - SAND Well sorted, Mottled, Tr. product-sluff										
22		24	Same End of Boring Hole would not stay open.										

NOTES AND COMMENTS: Running (Loose) SAND at 16-18ft Same sand sluff may Be Below 19.5' wt oily odor.

CRA FORM SP-17

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION ST PAUL

DRILLING CONTRACTOR Boart Longyear
DRILLER [illegible]
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-15
DATE STARTED 6-29-99
DATE COMPLETED 6-29-99
DRILLING METHOD Geoprobe
CRA SUPERVISOR D. SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS)			SAMPLE DESCRIPTION	SAMPLE DETAILS										
FROM	AT	TO	ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS % recovered	GRAIN SIZE
0		2	SW-Fill, Sand, debris, gravel, mottled, moist.	1	SS					0-2	52	100	
2		4	SW-Fill, Also tr clay, reddish Brown	2	SS					2-4	164	80	
4		6	same	3	SS					4-6	70	100	
6		~~8~~ 9	Same mixed debris, Brick, rock,	4	SS					6-8	131	100	
	9	11	SM-SW - silty sand with gravel, grey Moist, slight odor.	5	SS					8-10	336	100	
11		12	Cl - clay w/t Gravel + Tr Sand, organic -	6	SS					10-12	170	100	
			detritus - wood, roots, etc. Grey Moist, Moderate odor	7	SS					12-14	106	75	
12		14	SW - sand, well sorted, Grey, moist, Odor	8	SS					14-16	1876	75	
14		16	SP Sand, Med-Fine, Grey SATURATED, strong odor	9	SS					16-18	1676	100	
			green - greasy substance in sand	10	SS					18-20	1162	100	
16		18	SW - sand, well sorted, Grey, SATURATED, oily,	11	SS					20-22	1453	100	
			Very strong odor.	12	SS					22-24	1303	70	
18		20	SAME, tr red clay clasts in sand	13	SS					24-26	1553	70	
20		22	SAME, Very Strong Odor										
	23		Same, slight color change - reddish some gravel.										
23		26											

NOTES AND COMMENTS: Sluffing of Hole @ 20 ft.

STRATIGRAPHY LOG (OVERBURDEN)

PAGE 1 OF 1

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION ST PAUL

DRILLING CONTRACTOR Boart
DRILLER Coram
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-16
DATE STARTED 6-30
DATE COMPLETED 6-30
DRILLING METHOD Geoprobe
CRA SUPERVISOR D. SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS % Recov.	GRAIN SIZE
0		4	SW-Fill, Sand, debris (Brick) Dry	1	0-2					Split spoon	449	100	
4		6	SW-Fill, Sand, tr clay, Brown, Dry	2	2-4						170	80	
6		11	SW-Sand, Moist, Fill	3	4-6						80	100	
	9		- Trace oily clay, odor	4	6-8						162	100	
11		12.5	CL-Clay, Sandy, organic detritus, Grey	5	8-10						242	100	
			Moist, V. strong odor	6	10-12						601	75	
12.5			SW-SAND, well sorted, tr silt, Gravel, Grey, Moist	7	12-14						>2000	90	
			very strong odor.	8	14-16						>200	100	
	14	22	SATURATED, Extreme ODOR	9	16-18						1950	100	
22		26	SW-Sand, well sorted, tr clay clasts, Brown	10	18-20						7200	100	
			Grey ODOR.	11	20-22						1878	100	
				12	22-24						7200	100	
				13	24-26						7200		

NOTES AND COMMENTS:
A little sluff in the top of tubes after 20ft.
24-26 is all sluff

CRA FORM SP-17

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION ST PAUL

DRILLING CONTRACTOR Boart
DRILLER Loraggi
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-17
DATE STARTED 6-30-99
DATE COMPLETED 6-30-99
DRILLING METHOD Geoprobe
CRA SUPERVISOR

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS %Recov.	GRAIN SIZE
0		2	SW - SAND Fill, wt Debris & clay, moist	1	SS					0-2	~~100~~ 755	100	
2		4	same	2						2-4	206 ~~300~~	50	
4		6	same	3						4-6	633	70	
6		10	SW-Sand Fill, tr clay moist, Dk Brown.	4						6-8	438	75	
	11	11.5	PT- Peat/clay wt straw, yellow, Not Decomposed	5						8-10	210	75	
~~10~~			(Fill?)	6						10-12	325	75	
11.5		14	CL- clay, sandy, wt organic Detritus, Mottled	7						12-14	667	75	
			Grey-Green, Moist, Slight ODOR. Plastic	8						14-16	1120	100	
14		16	SW-CL Clayie SAND, Tr gr, Green, ▼	9						16-18	1257	100	
			SATURATED ~~Very~~ wStrong odor	10						18-20	970	100	
16		18	SW, wt Little silt & clay, Green, SATURATED	11						20-22	220	100	
18		20	SP- Sand, fine grain, tr silt, Green, odor	12						22-24	707	100	
20		24	SW SAND, well sorted, Grey Brown, Clay Clasts, SATUR.	13						~~24-26~~	—	~~100~~	

NOTES AND COMMENTS: This Boring interupted at 24' the Rods could not Be pushed Further without getting stuck.

STRATIGRAPHY LOG (OVERBURDEN)

PAGE 1 OF 1

PROJECT NAME I-94 - Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION ST PAUL

DRILLING CONTRACTOR Boart
DRILLER Lorenz
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-18
DATE STARTED 6-30-99
DATE COMPLETED 6-30-99
DRILLING METHOD Geoprobe
CRA SUPERVISOR D. SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS % Recovered	GRAIN SIZE
0		6	SW-Fill, SAND, Debris, Redish Brown, tr Clay, Moist	1	SS					0-2	332	75	
6		9	SW — Some clay pieces. Mottled (Fill).	2						2-4	150	50	
9	10		SW - SAND, trace clay slight odor Fill	3						4-6	30	75	
	10	11	PT-CL, Peat and clay, Tr sand, Moist.	4						6-8	25	100	
			GREEN & Black, ODOR moderate.	5						8-10	50	75	
12		14	~~Clay~~ SW-CL Clayie sand, Moist, Green	6						10-12	50	100	
			Odor, organic debritus. Mottled Green/Rust	7						12-14	300	100	
14		16	SW-Sand well sorted, Black-grey, SATURATED	8						14-16	150	100	
			Very strong odor.	9						16-18	1620	100	
16		18	-SW same strong odor	10						18-20	1625	100	
	19	26	SW - Color change to Grey Brown, Strong Odor	11						20-22	900	100	60% Sluff
				12	V					22-24	150	400	
										24-26	150	100	

NOTES AND COMMENTS

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION ST PAUL

DRILLING CONTRACTOR Boart
DRILLER Cassara
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION B14-19
DATE STARTED 6-30-99
DATE COMPLETED 6-30-99
DRILLING METHOD Geoprobe
CRA SUPERVISOR SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		4	SW - Fill Sand, Gravel, Tr Clay Red-Brown	1	SS					0-2	0.0	75	
4		6	SAME	2						2-4	0.0	75	
6		8	SAME	3						4-6	0.0	90	
8		10	SW - Fill with till clasts - clay	4						6-8	0.0	75	
10	10	12	CL-PT-SW - Fill, Disturbed slight odor	5						8-10	0.0	100	
	↑		Mottled Green/Black/Brown.	6						10-12	0.0	100	
12		14	SAME CL-PT-SW, Disturbed, mottled	7						12-14	7.0	100	
			[Brick Fragment in side of spoon @ 14']0000	8						14-16	14.0	1800	
	15'	20	SP - Color change SAND, Med gr Brown/Red	9						16-18	0.0		
			SATURATED, NO odor.	10						18-20	0.0		
		20	End of Hole Stuff refusal										

NOTES AND COMMENTS

PID Done 18 hrs after drilling

STRATIGRAPHY LOG (OVERBURDEN)

PAGE 1 OF 1

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION ST PAUL

DRILLING CONTRACTOR Boart
DRILLER LORAN
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION 20 BH-20
DATE STARTED 6-30-99
DATE COMPLETED 6-30-99
DRILLING METHOD Geoprobe
CRA SUPERVISOR D. SITZILD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS)			SAMPLE DESCRIPTION	SAMPLE DETAILS								PID	CHEMICAL ANALYSIS	GRAIN SIZE
FROM	AT	TO	ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID Done 18hrs after drilling (ppm)	% recovered	
0		2	Fill-SW-SAND, Debris Gravel, clay, Red-Brown.	1	SS					0-2	52		
2		4	SP-SAND, wedgr trgravel, Red-Brown, Dry.	2						2-4	342		
4		6	SW-SAND well sorted trgravel, trclay, Mottled	3						4-6	30		
6		8	-SAME Brick & coal pieces - Moist.	4						6-8	63		
8		10	SW-Fill, well sorted	5						8-10	50		
10		12	CL-SM SANDY clay, wtsilt, Disturbed,	6						10-12	50		
			Semi Plastic, Grey Green Debris Mottled Brown Wet Debris	7					▽	12-14	75		
14		16	▽ SW-SAND, wellsorted, Littlesilt, Slightodor	8						14-16	12		
~~12~~		~~14~~	Mottled Grey Brown. SATURATED	9						16-18	5		
16		18	SW SAME	10						18-20	0		
18		20	SW SAME										
			End of Hole Refusal sluffing										

NOTES AND COMMENTS

CRA FORM SP-17

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION ST PAUL

DRILLING CONTRACTOR Boart
DRILLER Logan
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-21
DATE STARTED 7-1-93
DATE COMPLETED 7-1-93
DRILLING METHOD Geoprobe
CRA SUPERVISOR SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, COMPONENTS, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS % recovered	GRAIN SIZE
0		6	Fill, SW-SAND, Gravel, Debris, Clay-Till,	1	SS					0-2	0.0	75	
6		12	SW-SAND-Fill, Mostly Clean, Moist, Brown Red,	2	SS					2-4	12	75	
12		19	CL-PT Clay & Peat, Some SAND well sorted	3	SS					4-6	68	50	
			Redish to Blackish, SATURATED.	4	SS					6-8	0.0	75	
14		16	SW-SAND, well sorted, Trsilty Clay, Grey-	5	SS					9-10	43	75	
			Green, Strong petroleum odor.	6	SS					10-12	248	25%	
16		18	SAME, strong petroleum odor	7	SS					12-14	40	75%	
			Very Hard Ground at 18' refusal	8	SS					14-16	2353.	100	
				9	SS					16-18	2650	100	
				10	SS					Refusal			

NOTES AND COMMENTS

STRATIGRAPHY LOG (OVERBURDEN)

PAGE 1 OF 1

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 1811
CLIENT
LOCATION ST Paul

DRILLING CONTRACTOR Boart
DRILLER Loren
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION B4-22
DATE STARTED 7-1-99
DATE COMPLETED 7-1-99
DRILLING METHOD Geoprobe
CRA SUPERVISOR D. SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		2	Fill SAND, SW, wt Debris, Gravel, tr Clay till	1	SS					0-2	155	60%	
2		4	refusal	2						2-4	Heave	0%	
4		8	Fill SW-SAND, Debris, trace Clay till	3						4-6	Heave	60%	
8		12	SW, SAND, wt clay, & silt, well sorted;	4						6-8	75	75	
			DK Grey Green, slight odor, moist;	5						8-10	20	100	
12		14	PT/CL Peat transition into Clay.	6						10-12	20	50	
			Black to Grey Plastic, Moist.	7						12-14	30	100	
14		16 *	CL-Clay, Sandy to semi Plastic-Variable,	8						14-16	13	100	
			Grey Green organic debritus, moist.	9						16-18	4.0	60	
16		18	SW-Sand, Well sorted trace silt, Color	10						18-20	0.0	40	
			change grey to Brown @ 17ft (SATURATED)										
18		20	SW-AS ABOVE END of Boring										

NOTES AND COMMENTS

CRA FORM SP-17

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME I-94 Holiday Inn
PROJECT NUMBER 13311
CLIENT
LOCATION St Paul

DRILLING CONTRACTOR Boart
DRILLER LORAN
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-23
DATE STARTED 7-1-95
DATE COMPLETED 7-1-95
DRILLING METHOD Geoprobe
CRA SUPERVISOR DiSHELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL SYMBOL, (PRIMARY COMPONENT) SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS 6"	6"	6"	6"	SAMPLE INTERVAL	PID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		12	SW-Fill SAND, Debris, Clay Moist	1	SS					0-2	0.0		
			stratified mixed Fill.	2						2-4	0.0		
12		14	CL-Clay, wt sand, silt, and Organic	3						4-6	0.0		
			detritus, plastic Grey Green Brown Mottled	4						6-8	35		
			Moist.	5						8-10	0.0		
14		15	SW-SAND, wt some silt & clay Grey SATURATED	6						12-12	0.0		
15		16	SP Sand, med Grain, Lt Brown, SATURATED.	7						12-14	10.0		
16		20	SP as above	8						14-16	9.9		
	20		Refusal	9						16-18	0.0		
				10						18-20	0.0		

NOTES AND COMMENTS

5' from curb 21 ft from corner.

CRA FORM SP-17

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME I-94 ST. PAUL Holiday INN
PROJECT NUMBER 1331
CLIENT MP Properties
LOCATION ST PAUL MN

DRILLING CONTRACTOR Boart Longyear
DRILLER Bill
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-24
DATE/TIME STARTED 3-2-00
DATE/TIME COMPLETED 3-2-00
DRILLING METHOD HSA
CRA SUPERVISOR SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS ppm	GRAIN SIZE
0		2	SW-Fill, wt till Fragments, sand, silt, gravel, debris	1	SS	-	-	Auger		0-2	0-2	5.6	
			Brown, moist.	2		3	4	4	4		2-4	11	
4		6	SW-As Above	3		3	7	10	8		4-6	9.9	
6		8	SW-Mixed Fill sand (mottled) with Debris. moist.	4		1	2	5	6		6-8	1405.	
8		10	SW- wt wood, Glass, strong odor, (Fill)	5		1	2	2	4		8-10	>2000	
10		12	ML-CL Clayie silt wt very fine sand, Grey Green	6		1	1	1	2		10-12	>2000	
			moist, strong odor.	7		2	2	3	4		12-14	>2000	
12		14	CL-ML silty Clay, trace sand more plastic @ 13 ft	8		1	1	1	1		14-16	1712	
			Grey-Green Strong odor	9		2	4	5	4		16-18	1970	
14		16	SW-Sand, trace clay and silt, well sorted, Grey Green	10		1	2	1	2		18-20	1985.	
			SATURATED, Strong petroleum odor. (very)	11		1	1	2	2		20-22	1833	
16		18	SAME	12	↓	1	2	4	4		22-24	1437	
18		20	SAME			2	2	2	6		24-26	1187	
20		22	SAME										
22		24	" "										
24		26	" " END Boring										

NOTES AND COMMENTS

CRA

DEPTH OF BOREHOLE CAVING _____ DEPTH OF FIRST GROUNDWATER ENCOUNTER _____ TOPSOIL THICKNESS _____

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION _____ AFTER ____ HOURS ____

COMPLETION DETAILS: _____

NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME I-94 ST. PAUL Holiday INN
PROJECT NUMBER 1331)
CLIENT MP Properties
LOCATION ST PAUL MN

DRILLING CONTRACTOR Boart Longyear
DRILLER Bill
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-25
DATE/TIME STARTED 3-2-00
DATE/TIME COMPLETED 3-2-00
DRILLING METHOD HSA
CRA SUPERVISOR SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).
0		4	SW - Sand, with trace of silt + clay, gravel, Fill Brown, Moist
4		6	SW - wt Debris
6		10	SW - Sand, with Gravel to silt, well sorted, Brown Moist Fill
10		12	SW, Debris, concrete,
12		14	SW Debris
14		16;	SW/CL - Clay/SAND, mixed Fill SATURATED with Debris
16		18	SW, with CL, mixed Fill mostly sand, till Fragments.
			~~Not SATURATED~~ NATIVE 17-18 ft.?
18		20	SW - SAND, trace silt, trace Gravel Well sorted, Brown Saturated
20		22	SW, as Above odor
22		26	SW, as Above · gravel @ 26'
	26		End Boring

SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
1	SS	Auger cut				0-2	4.0		
2		2	2	1	2	2-4	12.7		
3		2	1	1	1	4-6	80.8		
4		2	2	3	4	6-8	10.3		
5		3	2	2	2	8-10	8.7		
6		1	2	1	1	10-12	121	S-05	
7		1	2	2	1	12-14	12.7		
8		2	3	2	3	14-16	16		
9		3	3	4	3	16-18	22.8		
10		2	4	3	5	18-20	16.8		
11		3	3	4	3	20-22	23.		
12	↓	3	4	5	4	22-24	23.		
		2	5	3	4	24-26	17.8		

NOTES AND COMMENTS

CRA

DEPTH OF BOREHOLE CAVING _____ DEPTH OF FIRST GROUNDWATER ENCOUNTER _____ TOPSOIL THICKNESS _____

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION _____, AFTER ____ HOURS ____

COMPLETION DETAILS: _____

NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

STRATIGRAPHY LOG (OVERBURDEN)

PAGE 1 OF 1

PROJECT NAME I-94 ST. PAUL Holiday INN
PROJECT NUMBER 1331)
CLIENT MP Properties
LOCATION ST PAUL MN

DRILLING CONTRACTOR Boart Longyear
DRILLER Bill
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-26
DATE/TIME STARTED 3-3-00
DATE/TIME COMPLETED 3-3-00
DRILLING METHOD HSA
CRA SUPERVISOR SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION	SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		8	SW - SAND, Mixed Fill, with till fragments, silty clay Brownish Red moist	1	SS	Augercut				0-2	6.2		
				2		3	5	6	11	2-4	7.0		
	in	8	- Clayie silt Fragment Greenish Grey with Petroleum odor	3		5	9	4	5	4-6	11.1		
			this is Normally found in place @12-18ft across the site.	4		4	5	4	3	6-8	20.0		
8		10.5	SW AS ABOVE.	5		3	4	3	3	8-10	15.8	25% recov.	
10.5		12	ML-CL - Clayie silt, wt Peat (6") at 10.5-11', Firm, Grey	6		3	3	4	5	10-12	39.		
			Green to Black, moist,	7		4	5	5	4	12-14	18.5		
12		14	ML-CL, clayie silt, Firm, Greenish Grey, Redstaining	8		2	3	2	2	14-16	14.6		
			Fractures, SATURATED @13ft	9		2	4	4	4	16-18	13.8		
14		16	SP - SAND, trace silt, fine to very fine gr, Grey SATURATED	10		2	2	3	4	18-20	7.1	25% rec.	
16		18	SP - AS ABOVE	11		6	8	8	6	20-22	12.8		
18		20	SP - AS ABOVE (some Gravel)	12	↓	9	10	10	11	22-24	9.7		
20		22	SW - SAND trace silt, well sorted, medium dense, Red	13		9	11	10	11	24-26	12.5		
			Grey, SATURATED										
22		24	SW - AS ABOVE										
24		26	SW - AS ABOVE										
	26		END of Boring.										

NOTES AND COMMENTS

CRA

DEPTH OF BOREHOLE CAVING _____ DEPTH OF FIRST GROUNDWATER ENCOUNTER _____ TOPSOIL THICKNESS _____

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION _____ AFTER ____ HOURS ____

COMPLETION DETAILS: _____

NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME: I-94 ST. PAUL Holiday INN
PROJECT NUMBER: 13311
CLIENT: MP Properties
LOCATION: ST PAUL MN

DRILLING CONTRACTOR: Boart Longyear
DRILLER: Bill
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

HOLE DESIGNATION: BH-27
DATE/TIME STARTED: 3-3-00
DATE/TIME COMPLETED: 3-3-00
DRILLING METHOD: HSA
CRA SUPERVISOR: SHEILD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION — ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT), SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS. NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).	SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		9.5	SW-SAND Fill w/ Debris, Brick, Concrete, Red Brown Moist	1	SS	Auger Cuttings				0-2	6.		
			gravel, till-clay clasts. Moist	2	↓	5	6	7	6	2-4	8.3		
9.5		10	ML-CL clayie-silt, trace v. fine sand, soft, Grey-	3		4	5	6	3	4-6	9.3		
			Green, Mottled, vegitative MATTER moist (Fill clast)	4		4	5	3	5	6-8	10.6		
10		12	SW-SAND Fill, sand, gravel silt, wellsorted, Brown Moist	5		4	6	3	2	8-10	[illegible]		
12		14	SP-SAND, fine to med-grain, TAN & Grey, Moist, Petrol odor	6		3	7	3	3	10-12	13.7		
14		16	SW-SAND, mixed Fill, Gravel, wellsorted, SATURATED	7		2	3	3	2	12-14	12		
			water ▼ @ 14' mixed sienna red clay within disturbed.	8		1	2	3	4	14-16	22		
16		26	SW-SAND, trace silt, wellsorted, Grey, saturated	9		2	2	1	2	16-18	11		
			NATIVE	10		1	2	3	2	18-20	8.2		
				11		1	1	3	3	20-22	[illegible]		
				12	↓	1	2	3	1	22-24	10.5		
						1	2	2	1	24-26	10.0		

NOTES AND COMMENTS

DEPTH OF BOREHOLE CAVING ______ DEPTH OF FIRST GROUNDWATER ENCOUNTER ______ TOPSOIL THICKNESS ______

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION ______, AFTER ____ HOURS ____

COMPLETION DETAILS:

NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

CRA

STRATIGRAPHY LOG (OVERBURDEN)

PROJECT NAME I-94 ST. PAUL Holiday INN
PROJECT NUMBER 13311
CLIENT MP Properties
LOCATION ST PAUL MN

DRILLING CONTRACTOR Boart Longyear
DRILLER Bill
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

HOLE DESIGNATION BH-28
DATE/TIME STARTED 3-3-00
DATE/TIME COMPLETED 3-3-00
DRILLING METHOD HSA
CRA SUPERVISOR SHIELD

STRATIGRAPHIC INTERVALS (DEPTHS IN ft/m BGS) FROM	AT	TO	SAMPLE DESCRIPTION ORDER OF DESCRIPTORS: SOIL TYPE SYMBOL(S) – MAIN COMPONENT(S), (NATURE OF DEPOSIT). SECONDARY COMPONENTS, RELATIVE DENSITY/CONSISTENCY, GRAIN SIZE/PLASTICITY, GRADATION/STRUCTURE, COLOUR, MOISTURE CONTENT, SUPPLEMENTARY DESCRIPTORS NOTE: PLASTICITY DETERMINATION REQUIRES THE ADDITION OF MOISTURE IF THE SAMPLE IS TOO DRY TO ROLL (INDICATE IF MOISTURE WAS ADDED OR NOT).	SAMPLE DETAILS: SAMPLE #	SAMPLING METHOD	PENETRATION RECORD SPLIT SPOON BLOWS (RECORD N-VALUES & RECOVERIES) 6"	6"	6"	6"	SAMPLE INTERVAL	PID / FID (ppm)	CHEMICAL ANALYSIS	GRAIN SIZE
0		9	SW - Fill SAND, wt silt, Gravel, Debris, Till Fragments	1	SS	Auger Cuttings				0-2	11.9		
			Reddish Brown VARIABLE, moist,	2		1	2	3	1	2-4	14.5		
9		12	CL-ML silty Clay, trace sand & Gravel, soft	3		2	3	2	1	4-6	15.3		
			Red and Brown Mottled, plant Fragments, moist (some silt oxidiz.)	4		1	2	2	3	6-8	15.6		
12		14	SW - SAND, well sorted, Reddish Brown ▽ ≈ 13 SATURA.	5		4	5	3	5	8-10	16.5		
14		16	SAME.	6		4	5	6	5	10-12	18.		
16		18	SP - SAND, trace silt, fine to very fine grain, Grey	7		1	3	2	3	12-14	16		
18		20	SW - SAND, Little gravel, well sorted, Grey-Reddish	8		1	3	2	1	14-16	17.3	20% rec	
20		26	AS ABOVE SW	9		3	2	2	3	16-18	15.7		
	26		END Boring	10		3	4	4	3	18-20	10.1		
				11		5	3	3	5	20-22	8.4		
				12	▽	4	3	6	3	22-24	10.1		
						3	5	6	5	24-26	15.7		

NOTES AND COMMENTS

CRA

DEPTH OF BOREHOLE CAVING _____ DEPTH OF FIRST GROUNDWATER ENCOUNTER _____ TOPSOIL THICKNESS _____

WATER LEVEL IN OPEN BOREHOLE ON COMPLETION _____, AFTER _____ HOURS _____

COMPLETION DETAILS: _____

NOTE: FOR EACH SPLIT-SPOON SAMPLE, RECORD BLOW COUNTS, N-VALUE, SAMPLE RECOVERY LENGTH, AND SAMPLE INTERVAL.

APPENDIX E

WELL CONSTRUCTION DIAGRAMS AND COPIES OF THE MINNESOTA DEPARTMENT OF HEALTH WELL RECORD

13311

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 103I

MINNESOTA UNIQUE WELL NO. **643851**

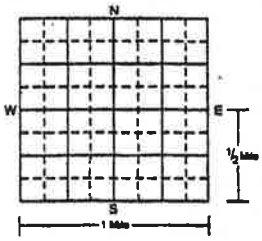
WELL LOCATION

County Name: **Ramsey**

Township Name	Township No.	Range No.	Section No.	Fraction
St Paul	29N	22W	35	SE ¼ SE ¼ SE ¼

House Number, Street Name, City, and Zip Code of Well Location: **2201 Burns Ave** | or Fire Number:

Show exact location of well in section grid with "X". Sketch map of well location. Showing property lines, roads and buildings.



see attached map

PROPERTY OWNER'S NAME: **M.B. Hotel Properties**

Property owner's mailing address if different than well location address indicated above.

17100 South Halsted Street
Harvey, IL 60426

WELL OWNER'S NAME: **Same**

Well owner's mailing address if different than property owner's address indicated above.

Same

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
gravel fill	brn	med	0	6
m-f sand	tan	med	6	23

Use a second sheet, if needed

REMARKS, ELEVATION, SOURCE OF DATA, etc.

3411-2335

MW-1

MINN DEPT OF HEALTH COPY **643851**

WELL DEPTH (completed): **22** ft. | Date Work Completed: **3/1/00**

DRILLING METHOD: ☐ Cable Tool ☐ Driven ☐ Dug ☒ Auger ☐ Rotary ☐ Jetted ☐ _____

DRILLING FLUID: **none** | WELL HYDROFRACTURED? ☐ YES ☒ NO FROM _____ ft. to _____ ft.

USE: ☐ Domestic ☐ Irrigation ☐ Test Well ☒ Monitoring ☐ Community PWS ☐ Noncommunity PWS ☐ Dewatering ☐ Heating/Cooling ☐ Industry/Commercial ☐ Remedial ☐ _____

CASING: ☒ Steel ☐ Plastic | Drive Shoe? ☐ Yes ☒ No ☒ Threaded ☐ Welded ☐ _____

CASING DIAMETER		WEIGHT	HOLE DIAM.
2 in. to 12 ft.		_____ lbs./ft.	8 5/8 in. to 23 ft.
_____ in. to _____ ft.		_____ lbs./ft.	_____ in. to _____ ft.
_____ in. to _____ ft.		_____ lbs./ft.	_____ in. to _____ ft.

SCREEN: yes | Make: johnson | Type: PVC | Slot/Gauze: .010 | Set between: 12 ft. and 22 ft.
OPEN HOLE: from _____ ft. to _____ ft.
Diam.: 2" | Length: 10' | FITTINGS: _____

STATIC WATER LEVEL: 15 ft. ☒ below ☐ above land surface | Date measured: 3/1/00

PUMPING LEVEL (below land surface): N/A ft. after _____ hrs. pumping _____ g.p.m.

WELL HEAD COMPLETION
☐ Pitless adapter manufacturer _____ Model _____
☐ Casing Protection _____ ☐ 12 in. above grade
☒ At-grade (Environmental Wells and Borings ONLY)

GROUTING INFORMATION
Well grouted? ☒ Yes ☐ No
Grout Material: ☒ Neat cement ☐ Bentonite ☐ Concrete ☐ High Solids Bentonite
from 0 to 8 ft. 4 ☐ yds. ☒ bags
from _____ to _____ ft. _____ ☐ yds. ☐ bags
from _____ to _____ ft. _____ ☐ yds. ☐ bags

NEAREST KNOWN SOURCE OF CONTAMINATION: N/A feet _____ direction _____ type
Well disinfected upon completion? ☐ Yes ☒ No

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

ABANDONED WELLS
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

VARIANCE
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

WELL CONTRACTOR CERTIFICATION

This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Boart Longyear — Licensee Business Name — **49653** — Lic. or Reg. No.

Authorized Representative Signature — **3/17/00** — Date

William Zamow — Name of Driller — **3/1/00** — Date

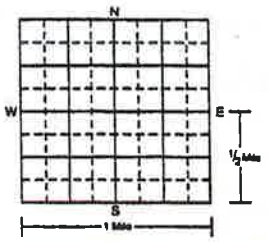
HE-01205-06 (Rev. 9/96)

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

MINNESOTA UNIQUE WELL NO. **643852**

WELL LOCATION
County Name: **Ramsey**
Township Name: **St Paul** | Township No.: **29N** | Range No.: **22W** | Section No.: **35** | Fraction: **SE ¼ SE ¼ SE ¼**
House Number, Street Name, City, and Zip Code of Well Location: **2201 Burns Ave** | or Fire Number:

Show exact location of well in section grid with "X". Sketch map of well location. Showing property lines, roads and buildings.



see attached map

PROPERTY OWNER'S NAME: M.B. Hotel Properties

Property owner's mailing address if different than well location address indicated above.

17100 South Halsted Street
Harvey, IL 60426

WELL OWNER'S NAME: Same

Well owner's mailing address if different than property owner's address indicated above.

Same

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
gravel fill	brn	med	0	6
m-f sand	tan	med	6	23

Use a second sheet, if needed

REMARKS, ELEVATION, SOURCE OF DATA, etc.

3411-2335

MW-2

MINN DEPT OF HEALTH COPY 643852

WELL DEPTH (completed): 22 ft. | Date Work Completed: 3/1/00

DRILLING METHOD: ☐ Cable Tool ☐ Driven ☐ Dug ☒ Auger ☐ Rotary ☐ Jetted ☐ _____

DRILLING FLUID: none | WELL HYDROFRACTURED? ☐ YES ☒ NO FROM _____ ft. to _____ ft.

USE: ☐ Domestic ☐ Irrigation ☐ Test Well ☒ Monitoring ☐ Community PWS ☐ Noncommunity PWS ☐ Dewatering ☐ Heating/Cooling ☐ Industry/Commercial ☐ Remedial ☐ _____

CASING: ☒ Steel ☒ Plastic | Drive Shoe? ☐ Yes ☒ No ☒ Threaded ☐ Welded ☐ _____

CASING DIAMETER / WEIGHT:
2 in. to 12 ft. _____ lbs./ft.
_____ in. to _____ ft. _____ lbs./ft.
_____ in. to _____ ft. _____ lbs./ft.

HOLE DIAM.:
8 5/8 in. to 23 ft.
_____ in. to _____ ft.
_____ in. to _____ ft.

SCREEN: yes | Make: Johnson | Type: PVC | Slot/Gauze: .010 | Set between: 12 ft. and 22 ft.
OPEN HOLE from _____ ft. to _____ ft.
Diam.: 2" | Length: 10' | FITTINGS: _____

STATIC WATER LEVEL: 15 ft. ☒ below ☐ above land surface | Date measured: 3/1/00

PUMPING LEVEL (below land surface): N/A ft. after _____ hrs. pumping _____ g.p.m.

WELL HEAD COMPLETION
☐ Pitless adapter manufacturer _____ Model _____
☐ Casing Protection _____ ☐ 12 in. above grade
☒ At-grade (Environmental Wells and Borings ONLY)

GROUTING INFORMATION
Well grouted? ☒ Yes ☐ No
Grout Material: ☒ Neat cement ☐ Bentonite ☐ Concrete ☐ High Solids Bentonite
from 0 to 8 ft. 4 ☐ yds. ☒ bags
from _____ to _____ ft. _____ ☐ yds. ☐ bags
from _____ to _____ ft. _____ ☐ yds. ☐ bags

NEAREST KNOWN SOURCE OF CONTAMINATION: N/A feet _____ direction _____ type
Well disinfected upon completion? ☐ Yes ☒ No

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

ABANDONED WELLS
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

VARIANCE
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

WELL CONTRACTOR CERTIFICATION
This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Boart Longyear — 49653
Licensee Business Name — *Lic. or Reg. No.*

3/17/00
Authorized Representative Signature — *Date*

William Zamow — 3/1/00
Name of Driller — *Date*

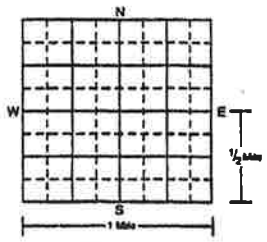
HE-01205-06 (Rev. 2/96)

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

MINNESOTA UNIQUE WELL NO. 643853

WELL LOCATION
County Name: Ramsey
Township Name: St Paul | Township No.: 29N | Range No.: 22W | Section No.: 35 | Fraction: SE ¼ SE ¼ SE ¼
House Number, Street Name, City, and Zip Code of Well Location: 2201 Burns Ave | or Fire Number:

Show exact location of well in section grid with "X". Sketch map of well location. Showing property lines, roads and buildings.



see attached map

PROPERTY OWNER'S NAME: M.B. Hotel Properties

Property owner's mailing address if different than well location address indicated above.

17100 South Halsted Street
Harvey, IL 60426

WELL OWNER'S NAME: Same

Well owner's mailing address if different than property owner's address indicated above.

Same

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
gravel fill	brn	med	0	6
m-f sand	tan	med	6	23

Use a second sheet, if needed

REMARKS, ELEVATION, SOURCE OF DATA, etc.

3411-2335

MW-3

MINN DEPT OF HEALTH COPY 643853

WELL DEPTH (completed): 22 ft. | Date Work Completed: 3/1/00

DRILLING METHOD: ☐ Cable Tool ☐ Driven ☐ Dug ☒ Auger ☐ Rotary ☐ Jetted ☐ _____

DRILLING FLUID: none

WELL HYDROFRACTURED? ☐ YES ☒ NO FROM _____ ft. to _____ ft.

USE: ☐ Domestic ☐ Irrigation ☐ Test Well ☒ Monitoring ☐ Community PWS ☐ Noncommunity PWS ☐ Dewatering ☐ Heating/Cooling ☐ Industry/Commercial ☐ Remedial ☐ _____

CASING: ☐ Steel ☒ Plastic | Drive Shoe? ☐ Yes ☒ No | ☒ Threaded ☐ Welded ☐ _____

CASING DIAMETER		WEIGHT	HOLE DIAM.
2 in. to 12 ft.		_____ lbs./ft.	8 5/8 in. to 23 ft.
_____ in. to _____ ft.		_____ lbs./ft.	_____ in. to _____ ft.
_____ in. to _____ ft.		_____ lbs./ft.	_____ in. to _____ ft.

SCREEN: yes
Make: Johnson
Type: PVC | Diam.: 2"
Slot/Gauze: .010 | Length: 10'
Set between: 12 ft. and 22 ft. FITTINGS: _____

OPEN HOLE from _____ ft. to _____ ft.

STATIC WATER LEVEL: 15 ft. ☒ below ☐ above land surface Date measured: 3/1/00

PUMPING LEVEL (below land surface): N/A ft. after _____ hrs. pumping _____ g.p.m.

WELL HEAD COMPLETION
☐ Pitless adapter manufacturer _____ Model _____
☐ Casing Protection _____ ☐ 12 in. above grade
☒ At-grade (Environmental Wells and Borings ONLY)

GROUTING INFORMATION
Well grouted? ☒ Yes ☐ No
Grout Material: ☒ Neat cement ☐ Bentonite ☐ Concrete ☐ High Solids Bentonite
from 0 to 8 ft. 4 ☐ yds. ☒ bags
from _____ to _____ ft. _____ ☐ yds. ☐ bags
from _____ to _____ ft. _____ ☐ yds. ☐ bags

NEAREST KNOWN SOURCE OF CONTAMINATION: N/A feet _____ direction _____ type
Well disinfected upon completion? ☐ Yes ☒ No

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

ABANDONED WELLS
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

VARIANCE
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

WELL CONTRACTOR CERTIFICATION
This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Boart Longyear — 49653
Licensee Business Name — *Lic. or Reg. No.*

Authorized Representative Signature — *Date* 3/17/00

William Zamow — 3/1/00
Name of Driller — *Date*

HE-01205-06 (Rev. 9/96)

APPENDIX F

COPIES OF WATER SUPPLY WELL LOGS WITH LEGIBLE UNIQUE NUMBERS

Unique No. 00145729

County Name Ramsey

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnsota Statutes Chaper 1031

Update Date 1991/08/23

Entry Date 1991/08/14

Township Name	Township	Range	Dir	Section	Fraction
	29	22	W	36	

Well Depth 95 ft. | Depth Completed 95 ft. | Date Well Completed

Well Name BRADLEY HOUSE APTS.

Drilling Method

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No

From ft. to ft.

Use Irrigation

Casing Drive Shoe? ☐ Yes ☐ N

Hole Diameter

Screen

Open Hole From ft. to ft.

Make Type

Static Water Level 60 ft. from Land surface Date

PUMPING LEVEL (below land surface)

ft. after hrs. pumping g.p.m.

Well Head Completion

Pitless adapter mfr Model

Casing Protection ☐ 12 in. above grade

☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination

100 ft. direction type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed

Mfr name

Model HP Volts

Drop Pipe Length ft. Capacity g.p.m

Type

Any not in use and not sealed well(s) on peoperty? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No.

License Business Name

Name of Driller

REMARKS, EVEVATION, SOURCE OR DATA, etc.

2150 WILSON

MGS Quad St Paul East Elevation

Report Copy

HE-01205-06 (Rev. 9/96)

Unique No. 00200502

County Name Ramsey

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnsota Statutes Chaper 1031

Update Date 1994/02/24

Entry Date 1994/02/24

Township Name	Township	Range	Dir	Section	Fraction
	29	22	W	35	DADACD

Well Depth	Depth Completed	Date Well Completed
563 ft.	563 ft.	19/54/09

Well Name 3M WELL 1

Drilling Method

Contact's Name 3M WELL 1
2301 HUDSON RD
MAPLEWOOD MN

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No
From ft. to ft.

Use Industrial

Casing **Drive Shoe?** ☐ Yes ☐ N

Hole Diameter

Casing Diameter **Weight(lbs/ft)**
20 in. to 0 ft

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
GLACIAL DRIFT			0	120
PLATTEVILLE			120	153
GLENWOOD			153	170
ST PETER			170	300
SHAKOPEE			300	375
NEW RICHMOND			375	380
ONEOTA			380	435
JORDAN			435	520
ST LAWRENCE			520	563

Screen **Open Hole** From ft. to ft.

Make Type

Static Water Level ft. from Date

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

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☐ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination
-999 ft. direction type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed
Mfr name
Model HP Volts
Drop Pipe Length ft. Capacity g.p.m
Type

Any not in use and not sealed well(s) on peoperty? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

MGS Quad St Paul East Elevation 1005

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 27012
License Business Name
Name of Driller

Report Copy

Unique No. 00207968

County Name Ramsey

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnsota Statutes Chaper 1031

Update Date 1991/08/23

Entry Date 1991/08/14

Township Name	Township	Range	Dir	Section	Fraction
	29	22	W	36	CCBDBB

Well Name 3M CO. BLDG. 201

Well Depth	Depth Completed	Date Well Completed
560 ft.	560 ft.	1954/00/00

Drilling Method

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No

From ft. to ft.

Use Industrial

Casing Drive Shoe? ☐ Yes ☐ N

Hole Diameter

Casing Diameter			Weight(lbs/ft)
24	in. to	117 ft	
16	in. to	226 ft	
0	in. to	0 ft	

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
DRIFT			0	126
PLATVILLE LIMEROCK			126	153
ST. PETER SANDROCK			153	318
SHAKOPEE LIMEROCK			318	372
SANDROCK			372	375
SHAKOPEE LIMEROCK			375	475
JORDAN SANDROCK			475	520
ST. LAWRENCE			520	545
LIMEROCK			545	549
ST. LAWRENCE			549	560

Screen

Make

Open Hole From ft. to ft.

Type

Static Water Level 187 ft. from Land surface Date 1954/00/00

PUMPING LEVEL (below land surface)

293 ft. after hrs. pumping 1220 g.p.m.

Well Head Completion

Pitless adapter mfr Model

Casing Protection ☐ 12 in. above grade

☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination

-999 ft. direction type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed

Mfr name

Model HP 0 Volts

Drop Pipe Length ft. Capacity g.p.m

Type

Any not in use and not sealed well(s) on peoperty? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

REMARKS, EVEVATION, SOURCE OR DATA, etc.

CASING: 024 TO 0117;016 TO 0226.

MGS Quad St Paul East Elevation 1002

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 27022

License Business Name Mccarthy Well Co.

Name of Driller

Report Copy

HE-01205-06 (Rev. 9/96)

Unique No. 00207969

County Name Ramsey

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnsota Statutes Chaper 1031

Update Date 1992/01/03

Entry Date 1991/08/14

Township Name	Township	Range	Dir	Section	Fraction
	29	22	W	36	CBCDBB

Well Depth 502 ft. Depth Completed 502 ft. Date Well Completed 1957/00/00

Well Name 3M CO. BLDG. 207

Drilling Method

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No From ft. to ft.

Use Industrial

Casing Drive Shoe? ☐ Yes ☐ N

Hole Diameter

Casing Diameter	Weight(lbs/ft)
24 in. to 105 ft	
16 in. to 224 ft	
0 in. to 0 ft	

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
DRIFT			0	115
PLATVILLE LIMEROCK			115	145
ST. PETER SANDROCK			145	301
SHAKOPEE LIMEROCK			301	432
JORDAN SANDROCK			432	502
ST LAWRENCE SHALE			502	502

Screen ☐ Open Hole From ft. to ft.

Make Type

Static Water Level 183 ft. from Land surface Date 1957/00/00

PUMPING LEVEL (below land surface)

421 ft. after hrs. pumping 1220 g.p.m.

Well Head Completion

Pitless adapter mfr Model

Casing Protection ☐ 12 in. above grade

☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination

-999 ft. direction type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed

Mfr name

Model HP 0 Volts

Drop Pipe Length ft. Capacity g.p.m

Type

Any not in use and not sealed well(s) on peoperty? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

REMARKS, EVEVATION, SOURCE OR DATA, etc.

CASING: 024 TO 0105;016 TO 0224.

MGS Quad St Paul East Elevation 995

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 27022

License Business Name Mccarthy Well Co.

Name of Driller

Report Copy

HE-01205-06 (Rev. 9/96)

Unique No. 00413569

County Name Ramsey

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnsota Statutes Chaper 1031

Update Date 1991/11/24

Entry Date 1991/05/20

Township Name	Township	Range	Dir	Section	Fraction
	28	22	W	1	BABBCC

Well Depth 230 ft. | Depth Completed 230 ft. | Date Well Completed 1986/02/25

Well Name FOX, RICK

Drilling Method Cable Tool

Contact's Name FOX, RICK
199 CRESTVIEW DR
MAPLEWOOD MN

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No
From ft. to ft.

Use Domestic

Casing Drive Shoe? ☑ Yes ☐ N

Hole Diameter 0 in. to 230 ft

Casing Diameter Weight(lbs/ft)
4 in. to 205 ft

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
FINE SAND	LT. BR		0	60
CLAY + ROCKS	DK. BR		60	120
CLAY	YELLO		120	190
SANDROCK	GRAY	SOFT	190	205
SANDROCK	WHITE	HARD	205	230

Screen N

Open Hole From 205 ft. to 230 ft.

Make Type

Static Water Level 120 ft. from Land surface Date 1986/02/25

PUMPING LEVEL (below land surface)
140 ft. after hrs. pumping 20 g.p.m.

Well Head Completion
Pitless adapter mfr BAKER Model
Casing Protection ☐ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination
40 ft. direction S type O
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☑ Not Installed Date Installed Y
Mfr name STA-RITE
Model 8P4D025 HP 0.75 Volts 220
Drop Pipe Length 140 ft. Capacity 12 g.p.m
Type S

Any not in use and not sealed well(s) on peoperty? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

MGS Quad Lake Elmo Elevation 973

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 62555
License Business Name Miggler Well Co.
Name of Driller

Report Copy

HE-01205-06 (Rev. 9/96)

Unique No. 00109749

County Name Ramsey

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnsota Statutes Chaper 1031

Update Date 1991/11/24

Entry Date 1991/08/14

Township Name	Township	Range	Dir	Section	Fraction
	28	22	W	1	BACCAA

Well Depth 235 ft. | Depth Completed 235 ft. | Date Well Completed 1976/06/30

Well Name ROBBINS, WARREN

Drilling Method Cable Tool

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No

From ft. to ft.

Contact's Name ROBBINS, WARREN
140 CRESTVIEW DR
MAPLEWOOD MN

Use Domestic

Casing Drive Shoe? ☑ Yes ☐ N

Casing Diameter 4 in. to 232 ft

Weight(lbs/ft)

Hole Diameter

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
SAND & GRAVEL	BROW	VARIED	0	231
LIMEROCK	YLW&	HARD	231	235

Screen N

Make

Type

Open Hole From 232 ft. to 235 ft.

Static Water Level 160 ft. from Land surface Date 1976/06/30

PUMPING LEVEL (below land surface)
165 ft. after hrs. pumping 15 g.p.m.

Well Head Completion
Pitless adapter mfr
Model
Casing Protection ☐ 12 In. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☐ Yes ☑ No

Nearest Known Source of Contamination
80 ft. direction E type SDF
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☑ Not Installed Date Installed Y
Mfr name REDA
Model 17D9P101 HP 1 Volts 230
Drop Pipe Length ft. Capacity 12 g.p.m.
Type S

Any not in use and not sealed well(s) on peoperty? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 82084
License Business Name Mantyla Well Co.
Name of Driller

MGS Quad Lake Elmo Elevation 930

Report Copy

HE-01205-06 (Rev. 9/96)

APPENDIX G

A LIST OF ADDRESSES WITHIN 500 FEET FROM THE EDGE OF THE PLUME AND CONFIRMATION OF STATUS OF WATER SUPPLY FROM THE CITY UTILITY BILLING DEPARTMENT

APPENDIX G

WELL RECEPTOR INFORMATION/ASSESSMENT

A list of addresses within 500 feet of the edge of the plume:

- 2201 Burns Ave., St. Paul, Minnesota (Holiday Inn)
- 177 North McKnight Rd., St. Paul, Minnesota (McKnight Village Apartments)

No wells were located by referencing the County well index.

The owner of the McKnight Village Apartments, who was also the builder/contractor, stated in a telephone conversation on June 26, 2000, that "The apartments have been on city water since being built in 1970."

CONESTOGA-ROVERS & ASSOCIATES

1801 Old Highway 8 NW, Suite #114
St. Paul, Minnesota 55112
Telephone: (651) 639-0913
Fax: (651) 639-0923
www.CRAworld.com

FACSIMILE

DATE:	July 10, 2000	**REFERENCE NO.:**	13311
TO:	City of St. Paul Water Department	**FACSIMILE NO.:**	651-292-7537
FROM:	Dave Sheild; CRA		

Total Pages (Including Cover Page) 1

☒ **Facsimile is Receiver's Original**

Original Will Follow By:

☐ Mail
☐ Overnight Courier
☐ E-mail

MESSAGE

TO: Customer Service:

I am conducting a water well survey for an environmental report. I need your verification that the following addresses are on City water: 2201 Burns Avenue and 177 North McKnight Road, St. Paul, Minnesota. You assistance is appreciated.

Please send verification to:

Dave Sheild
CONESTOGA-ROVERS & ASSOCIATES
1801 Old Highway 8 NW, Suite 114
St. Paul, Minnesota 55112
651/639-0913
E-mail: dsheild@craworld.com

Thank you.

Enc.

SAINT PAUL REGIONAL WATER SERVICES

Engineering Division
8 4th St E Suite 400
Saint Paul MN 55101

Voice: 651-266-6270
Fax: 651-292-7811

FACSIMILE COVER SHEET

Date: 7.10.00

Total Number of Pages: 2
Including Cover Sheet

PLEASE DELIVER TO:

Name: DAVE SHEILD
Company: CONESTOGA-ROVERS
Fax: 651-639-0923
Phone: _____

FROM:

Name: DAVE MARRUFFO
phone: 651- 266-8613

REMARKS:

REF: 2201 BURNS AVE
177 N. MCKNIGHT RD.

BOTH OF THE ABOVE ADDRESSES ARE SERVICED BY SAINT PAUL REGIONAL WATER

_____ : Hard copy will follow via U.S. Mail

✓ : Hard copy will not follow via U.S. Mail

Engineering

CONESTOGA-ROVERS & ASSOCIATES

1801 Old Highway 8 NW, Suite #114
St. Paul, Minnesota 55112
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St. Paul, Minnesota 55112
651/639-0913
E-mail: dsheild@craworld.com

Thank you.

Enc.