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Entered

SUPPLEMENTAL REMEDIAL INVESTIGATION

PHASE IV - EASTERN AREA

CHEMICAL LEAMAN TANK LINES, INC.

TONAWANDA, NEW YORK FACILITY

PREPARED FOR:

QUALITY DISTRIBUTION, INC.
150 EAST PENNSYLVANIA AVENUE, SUITE 125
DOWNINGTON, PA 19335

PREPARED BY:

URS CORPORATION
77 GOODELL STREET
BUFFALO, NY 14203

SEPTEMBER 2004

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1.0 INTRODUCTION

1.1 Purpose of Report

Quality Distribution, Inc. (QDI), as the parent company of Chemical Leaman Tank Lines, Inc. (CLTL), is responsible for the management of the former CLTL site in the City of Tonawanda, New York (Figure 1-1). The site is currently classified by the New York State Department of Environmental Conservation (NYSDEC) as a Class 2 inactive hazardous waste disposal site. Pursuant to an Order on Consent with the NYSDEC, QDI conducted Remedial Investigations (RI) at the site in three phases from approximately August 2000 to April 2002 to investigate whether contamination remains onsite at actionable levels. The results of the RI are presented in the, "*Remedial Investigation Report – Chemical Leaman Tank Lines, Inc. Tonawanda, New York Facility*" prepared by URS, dated August 2002.

The results of the RI indicated that the highest levels of groundwater contamination at the site have historically occurred on the east side of the property, as measured in well B-05R (Figure 1-2). It was concluded that the groundwater contamination in this east area appeared to be related to soil contamination by volatile organic compounds (VOCs) occurring within an essentially linear, well-defined and generally shallow pattern along the east property line.

Groundwater data collected during the RI indicated that the groundwater flow direction is predominantly to the south toward Ellicott Creek, with a gradient steepening across the site in a southward direction. Superimposed on this general groundwater flow pattern was a pronounced mounding effect, resulting in outward radial flow, that appeared to coincide with spring-like conditions when the water table is relatively high (Figure 1-3). The location of the mound varied somewhat, but was generally in the central portion of the site in the vicinity of the former lagoons. It has been speculated that the flow to the east, away from the former lagoon area, toward Wales Avenue might be explained by the presence of a storm sewer beneath the road that acts as a local hydraulic sink. It was further speculated that the Wales Avenue sewer might intercept groundwater during mounding conditions and discharge it to Ellicott Creek.

SOURCE: New York GIS Clearinghouse, Statewide Digital Orthoimagery Repository, 1995.

1000 0 1000 Feet

URS	CHEMICAL LEAMAN SITE LOCATION	FIGURE 1-1

J:\35665.01\db\GIS\chem_leaman.apr SITE LOCATION
7/23/2002

N

FILLMORE AVENUE

B-07

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

SHED

OFFICE

TRUCK WASH BAYS

B-01

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

B-05R

TRAILER

FORMER LAGOONS

SIDEWALK

WALES AVENUE

B-06

B-02

B-03

B-04

B-08

B-09

B-10

ELLICOTT CREEK

Legend

⌖ Monitoring Well

150 0 150 Feet

CHEMICAL LEAMAN
SITE PLAN

URS

FIGURE 1-2

J:\35665.01\db\GIS\welev.apr SITE PLAN
10/28/2003

N

FILLMORE AVENUE

B-07, 569.25

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

SHED

OFFICE

TRUCK WASH BAYS

B-01, 570.00

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

TRAILER

B-05R, 569.50

SIDEWALK

WALES AVENUE

B-06, 569.29

570.0

B-02, 569.43

B-03, 569.73

B-04, 569.97

569.0

568.0

567.0

566.0

565.0

ELLICOTT CREEK

SG-02, 564.82

Legend

- Monitoring Well
- Staff Gauge
- 570.00 Groundwater Elevation Contour
- Groundwater Flow Direction

Location ID — B-02, 569.43 — Groundwater Elevation (ft)

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(APRIL 29, 2001)

URS

FIGURE 1-3

J:\35665.01\dbl\GIS\welev.apr 04/29/01 GROUNDWATER ELEVATION MAP
10/28/2003

In order to determine whether contamination might be migrating offsite to the east into the storm sewer under mounding conditions, a Supplemental Investigation (SI) program was developed to collect additional groundwater and analytical data from the eastern portion of the CLTL site. The Supplemental Investigation program was initiated in June 2003 and was essentially completed in July 2004. The purpose of this Supplemental Investigation report is to present a summary of the work performed and the results of the investigations.

2.0 SUPPLEMENTAL INVESTIGATION

2.1 Scope of Work

The scope of work for the SI was developed in response to NYSDEC comments dated February 7 and April 21, 2003 on the RI report. The proposed investigation activities are outlined in URS correspondence dated March 17 and May 8, 2003, and summarized below.

In order to investigate the hydraulic relationship and potential contaminant migration between the groundwater mounding (central portion of site) and the storm sewer along Wales Avenue, the following investigative activities were to be completed:

- Five geoprobe borings (B-11 through B-15) were to be installed in the eastern portion of the site to the top of the clay-confining unit (approximately 21 to 25 feet depth).

- Soil samples were to be collected continuously in each boring with a macrocore sampler, screened for VOCs with a PID and logged by a geologist.

- Following completion of each boring, a one-inch diameter, PVC, flush-mount, "mini-well" was to be installed to allow monitoring of groundwater levels and/or sampling. The screened interval of the proposed mini-wells was to be consistent with the screened interval of the existing monitoring wells and was to be positioned in the same hydrogeologic units/depths as the existing monitoring wells. The wells were to be developed and allowed to stabilize.

- The top of riser and ground surface elevations were to be surveyed for the new "mini-wells".

- Groundwater level readings were to be obtained in the five new "mini-wells" and the 10 existing on-site wells at two-week intervals for the first three months following installation. Readings were to be obtained monthly thereafter. The groundwater levels were to be utilized to produce groundwater contour maps.

- If the groundwater data indicated that mounding was occurring in the central portion of the site, with radial flow towards Wales Avenue, groundwater samples were to be collected from all of the existing wells plus the new "mini-wells" and submitted for analysis of VOCs only.

- Concurrently with the well sampling, water samples were to be collected from the storm sewer catch basins along Wales Avenue. At least one sample was to be collected from a catch basin located upgradient from the site to determine background water quality. Additionally, the sewer outfall at Ellicott Creek was to be inspected to determine if there is water discharging from the pipe and /or the bedding around the pipe. Water samples were to be collected from both discharges, as applicable. The storm sewer samples were to be analyzed for VOCs.

- This data was to be utilized to further delineate the hydrogeologic flow regime in the eastern portion of the site and to assess the potential off-site migration of contaminants to the Wales Avenue storm sewer.

2.2 Summary of Investigations

2.2.1 Monitoring Well Installation

The drilling and monitoring well installation portions of the NYSDEC-approved field investigation activities commenced on June 16, 2003 and were completed on June 23, 2003. These activities included the following:

- The installation of five geoprobe borings (B-11 through B-15) into the upper portion of the clay confining unit (20.0 to 23.0 feet). Soil samples were collected continuously in each boring using a 2-inch diameter by four foot long macrocore sampler equipped with a clear acetate liner. The soil cores were screened for volatile organic compounds (VOCs) with a photo-ionization detector (PID) and logged by a geologist. Copies of the boring logs are contained in Appendix A. The locations are shown on Figure 2-1.

- Following completion of each boring a one-inch diameter, polyvinyl chloride (PVC) "mini-well" was installed at each location. The depth of the screened interval in each new well was selected to match those in the existing on-site monitoring wells as close as practicable. All new wells are flush-mount except for B-15, which was finished with a stick-up protective casing due to its location in tall grass. The monitoring well construction details are presented in Appendix B.

- One round of water levels was taken following the completion of all five new wells.

- A week later the newly installed monitoring wells were developed using a peristaltic pump until parameters (i.e. pH, temperature and conductivity) stabilized and turbidity reduced to less than 50 NTU. Copies of the well development logs are contained in Appendix C. Another round of water level readings was taken, and all new wells were surveyed for vertical and horizontal location. To ensure consistency and accuracy, all the existing wells also were re-surveyed.

- The existing staff gauge (SG-02) in Ellicott Creek at the end of Wales Avenue, was modified and re-surveyed for elevation to ensure accuracy of water elevations.

2.2.2 Temporary Well Point Installation

Following completion of the initial two months of groundwater level monitoring, it was determined that groundwater levels in the eastern portion of the site were very 'flat', and there were no monitoring wells installed in the immediate vicinity of the lagoons to provide data on groundwater elevations in the central portion of the site. Consequently it was proposed, and approved by the NYSDEC, to install two temporary driven well points in the central and southern portion of the lagoon area.

Subsequently, two temporary well points (TP-01 and TP-02) consisting of a two foot section of 1 – ¼ inch Johnson wire-wound screen coupled to 1 – ¼ inch steel riser pipe were installed in the lagoon area of the site (Figure 2-1) on August 12, 2003. Both temporary well points were installed to depths of about 9 feet bgs. Additionally, while the well points were being installed, an existing standpipe was discovered in the center lagoon area. This standpipe consisted

N

FILLMORE AVENUE

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

B-07

SHED

OFFICE

TRUCK WASH BAYS

CB-NW

CB-NE

B-01

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

B-05R

TRAILER

TP-01

B-11

B-13

STANDPIPE

TP-02

B-12

B-14

B-06

SIDEWALK

WALES AVENUE

B-15

B-02

B-03

B-04

CB-SW

CB-SE

B-08

B-09

B-10

ELLICOTT CREEK

VICKERS STREET

OUTFALL

SG-02

Legend

- Monitoring Well
- Piezometer
- Staff Gauge

150 0 150 Feet

CHEMICAL LEAMAN
SITE INVESTIGATION LOCATION PLAN

URS

FIGURE 2-1

J:\35665.01\db\GIS\wellev.apr SITE INVESTIGATION LOCATION PLAN
8/6/2004

of 4-inch diameter steel pipe extending to a depth of about 8 – 9 feet bgs. The elevations and horizontal locations of the two well points and the standpipe were determined and plotted on the base maps. These well points/standpipes were intended solely for the collection of groundwater elevation data. No environmental sampling was performed at these locations. The groundwater data obtained from these points was used to supplement the data from the 15 monitoring wells and "fill-in" the area around the lagoons on the groundwater contour maps.

2.2.3 Water Level Readings

As required in the NYSDEC-approved Work Plan, water level readings were obtained at routine intervals in all 15 onsite wells and at the staff gauge in Ellicott Creek. These readings were used to calculate groundwater elevations at each location. A historical summary of the groundwater readings is contained in Table 2-1. The groundwater elevations subsequently were plotted and contoured to produce groundwater contour maps of the site for each monitoring event. These maps are presented on Figures 2-2 to 2-16 respectively. The maps were evaluated to determine if mounding was in fact occurring, so that sampling of the monitoring wells, catch basins and storm sewer outfall could be performed.

A total of 15 rounds of water levels were collected and evaluated as part of this supplemental investigation.

2.2.4 Monitoring Wells and Storm Sewer Sampling

2.2.4.1 Monitoring Wells

Once the water level readings confirmed that mounding was in fact occurring on the site, the groundwater sampling program was conducted (June 4 – 7, 2004). Initially, all 15 onsite monitoring wells were purged utilizing low-flow methods to minimize the impact on flow conditions and turbidity in the well. This consisted of lowering low-density polyethylene (LDPE) tubing down to the mid-point of the saturated screen length. The tubing was then connected to a Geopump 2® purging device that was set to purge between 0.2 liters to 0.7 liters per minute to

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
B-01	1098309.179	1074132.709	574.54	576.46	576.28	A	0						
MNW								8/8/2000 0000	7.25	569.03	0.00	569.03	
MNW								9/29/2000 0000	7.50	568.78	0.00	568.78	
MNW								4/19/2001 0000	5.94	570.34	0.00	570.34	
MNW								4/24/2001 0000	6.10	570.18	0.00	570.18	
MNW								4/29/2001 0000	6.28	570.00	0.00	570	
MNW								4/4/2002 0000	4.64	571.64	0.00	571.64	
MNW								4/17/2002 0000	4.55	571.73	0.00	571.73	
MNW								6/13/2002 0000	6.37	569.91	0.00	569.91	
MNW								5/24/2003 0000	4.33	571.95	0.00	571.95	
MNW								6/17/2003 0000	5.63	570.65	0.00	570.65	
MNW								6/23/2003 0000	6.24	570.04	0.00	570.04	
MNW								7/15/2003 0000	7.36	568.92	0.00	568.92	
MNW								8/12/2003 0000	6.86	569.42	0.00	569.42	
MNW								8/19/2003 0000	7.38	568.90	0.00	568.9	
MNW								9/11/2003 0000	8.98	567.30	0.00	567.3	
MNW								10/3/2003 0000	7.78	568.50	0.00	568.5	
MNW								1/13/2004 0000	6.22	570.06	0.00	570.06	
MNW								2/11/2004 0000	6.41	569.87	0.00	569.87	
MNW								3/22/2004 0000	2.21	574.07	0.00	574.07	
MNW								4/2/2004 0000	4.21	572.07	0.00	572.07	
MNW								4/21/2004 0000	4.42	571.86	0.00	571.86	
MNW								5/3/2004 0000	5.03	571.25	0.00	571.25	
MNW								6/3/2004 0000	5.36	570.92	0.00	570.92	
MNW								7/22/2004 0840	6.05	570.23	0.00	570.23	
B-02	1097861.891	1073906.582	573.47	576.55	575.88	A	0						
MNW								8/8/2000 0000	8.50	567.38	0.00	567.38	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW								9/29/2000 0000	8.60	567.28	0.00	567.28	
MNW								4/19/2001 0000	6.27	569.61	0.00	569.61	
MNW								4/24/2001 0000	6.35	569.53	0.00	569.53	
MNW								4/29/2001 0000	6.45	569.43	0.00	569.43	
MNW								4/4/2002 0000	5.63	570.25	0.00	570.25	
MNW								4/17/2002 0000	5.73	570.15	0.00	570.15	
MNW								6/13/2002 0000	6.93	568.95	0.00	568.95	
MNW								5/24/2003 0000	6.16	569.72	0.00	569.72	
MNW								6/17/2003 0000	6.51	569.37	0.00	569.37	
MNW								6/23/2003 0000	6.78	569.10	0.00	569.1	
MNW								7/15/2003 0000	8.19	567.69	0.00	567.69	
MNW								8/12/2003 0000	9.09	566.79	0.00	566.79	
MNW								8/19/2003 0000	9.38	566.50	0.00	566.5	
MNW								9/11/2003 0000	11.26	564.62	0.00	564.62	
MNW								10/3/2003 0000	11.37	564.51	0.00	564.51	
MNW								1/13/2004 0000	11.01	564.87	0.00	564.87	
MNW								2/11/2004 0000	6.54	569.34	0.00	569.34	
MNW								3/22/2004 0000	5.41	570.47	0.00	570.47	
MNW								4/2/2004 0000	5.54	570.34	0.00	570.34	
MNW								4/21/2004 0000	5.61	570.27	0.00	570.27	
MNW								5/3/2004 0000	5.85	570.03	0.00	570.03	
MNW								6/3/2004 0000	6.83	569.05	0.00	569.05	
MNW								7/22/2004 0955	8.32	567.56	0.00	567.56	
B-03	1097849.433	1074063.551	574.75	576.99	576.79	A	0						
MNW								8/8/2000 0000	9.45	567.34	0.00	567.34	
MNW								9/29/2000 0000	9.00	567.79	0.00	567.79	
MNW								4/19/2001 0000	6.58	570.21	0.00	570.21	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW								4/24/2001 0000	6.82	569.97	0.00	569.97	
MNW								4/29/2001 0000	7.06	569.73	0.00	569.73	
MNW								4/4/2002 0000	5.39	571.40	0.00	571.4	
MNW								4/17/2002 0000	5.47	571.32	0.00	571.32	
MNW								6/13/2002 0000	7.79	569.00	0.00	569	
MNW								5/24/2003 0000	8.93	567.86	0.00	567.86	
MNW								6/17/2003 0000	7.22	569.57	0.00	569.57	
MNW								6/23/2003 0000	7.80	568.99	0.00	568.99	
MNW								7/15/2003 0000	9.67	567.12	0.00	567.12	
MNW								8/12/2003 0000	9.95	566.84	0.00	566.84	
MNW								8/19/2003 0000	10.61	566.18	0.00	566.18	
MNW								9/11/2003 0000	12.25	564.54	0.00	564.54	
MNW								10/3/2003 0000	12.10	564.69	0.00	564.69	
MNW								1/13/2004 0000	12.11	564.68	0.00	564.68	
MNW								2/11/2004 0000	7.11	569.68	0.00	569.68	
MNW								3/22/2004 0000	5.55	571.24	0.00	571.24	
MNW								4/2/2004 0000	5.14	571.65	0.00	571.65	
MNW								4/21/2004 0000	5.33	571.46	0.00	571.46	
MNW								5/3/2004 0000	5.70	571.09	0.00	571.09	
MNW								6/3/2004 0000	6.80	569.99	0.00	569.99	
MNW								7/22/2004 0948	9.17	567.62	0.00	567.62	
B-04	1097825.654	1074222.932	573.42	576.04	575.80	A	0						
MNW								8/8/2000 0000	9.40	566.40	0.00	566.4	
MNW								9/29/2000 0000	9.05	566.75	0.00	566.75	
MNW								4/19/2001 0000	4.96	570.84	0.00	570.84	
MNW								4/24/2001 0000	5.41	570.39	0.00	570.39	
MNW								4/29/2001 0000	5.83	569.97	0.00	569.97	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW								4/4/2002 0000	3.64	572.16	0.00	572.16	
MNW								4/17/2002 0000	3.65	572.15	0.00	572.15	
MNW								6/13/2002 0000	7.12	568.68	0.00	568.68	
MNW								5/24/2003 0000	4.28	571.52	0.00	571.52	
MNW								6/17/2003 0000	6.23	569.57	0.00	569.57	
MNW								6/23/2003 0000	7.22	568.58	0.00	568.58	
MNW								7/15/2003 0000	9.58	566.22	0.00	566.22	
MNW								8/12/2003 0000	9.58	566.22	0.00	566.22	
MNW								8/19/2003 0000	10.25	565.55	0.00	565.55	
MNW								9/11/2003 0000	11.91	563.89	0.00	563.89	
MNW								10/3/2003 0000	11.56	564.24	0.00	564.24	
MNW								1/13/2004 0000	11.32	564.48	0.00	564.48	
MNW								2/11/2004 0000	5.61	570.19	0.00	570.19	
MNW								3/22/2004 0000	3.74	572.06	0.00	572.06	
MNW								4/2/2004 0000	3.18	572.62	0.00	572.62	
MNW								4/21/2004 0000	3.36	572.44	0.00	572.44	
MNW								5/3/2004 0000	3.73	572.07	0.00	572.07	
MNW								6/3/2004 0000	5.63	570.17	0.00	570.17	
MNW								7/22/2004 0940	8.55	567.25	0.00	567.25	
B-05R	1098247.902	1074390.938	574.04	573.98	573.71	A	0						
MNW								8/8/2000 0000	5.00	568.71	0.00	568.71	
MNW								9/29/2000 0000	4.85	568.86	0.00	568.86	
MNW								4/19/2001 0000	4.28	569.43	0.00	569.43	
MNW								4/24/2001 0000	4.24	569.47	0.00	569.47	
MNW								4/29/2001 0000	4.21	569.50	0.00	569.5	
MNW								4/4/2002 0000	2.91	570.80	0.00	570.8	
MNW								4/17/2002 0000	3.58	570.13	0.00	570.13	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW								6/13/2002 0000	4.14	569.57	0.00	569.57	
MNW								5/24/2003 0000	1.11	572.60	0.00	572.6	
MNW								6/17/2003 0000	3.68	570.03	0.00	570.03	
MNW								6/23/2003 0000	4.16	569.55	0.00	569.55	
MNW								7/15/2003 0000	5.23	568.48	0.00	568.48	
MNW								8/12/2003 0000	4.18	569.53	0.00	569.53	
MNW								8/19/2003 0000	5.25	568.46	0.00	568.46	
MNW								9/11/2003 0000	6.66	567.05	0.00	567.05	
MNW								10/3/2003 0000	5.17	568.54	0.00	568.54	
MNW								1/13/2004 0000	4.86	568.85	0.00	568.85	
MNW								3/22/2004 0000	2.87	570.84	0.00	570.84	
MNW								4/2/2004 0000	2.18	571.53	0.00	571.53	
MNW								4/21/2004 0000	2.89	570.82	0.00	570.82	
MNW								5/3/2004 0000	3.24	570.47	0.00	570.47	
MNW								6/3/2004 0000	3.37	570.34	0.00	570.34	
MNW								7/22/2004 0920	3.97	569.74	0.00	569.74	
B-06	1098013.116	1073758.847	576.44	579.04	579.09	A	0						
MNW								8/8/2000 0000	11.60	567.49	0.00	567.49	
MNW								9/29/2000 0000	11.60	567.49	0.00	567.49	
MNW								4/19/2001 0000	9.43	569.66	0.00	569.66	
MNW								4/24/2001 0000	9.57	569.52	0.00	569.52	
MNW								4/29/2001 0000	9.80	569.29	0.00	569.29	
MNW								4/4/2002 0000	7.56	571.53	0.00	571.53	
MNW								4/17/2002 0000	7.70	571.39	0.00	571.39	
MNW								6/13/2002 0000	10.41	568.68	0.00	568.68	
MNW								5/24/2003 0000	6.13	572.96	0.00	572.96	
MNW								6/17/2003 0000	9.73	569.36	0.00	569.36	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW								6/23/2003 0000	10.31	568.78	0.00	568.78	
MNW								7/15/2003 0000	12.33	566.76	0.00	566.76	
MNW								8/12/2003 0000	12.04	567.05	0.00	567.05	
MNW								8/19/2003 0000	12.80	566.29	0.00	566.29	
MNW								9/11/2003 0000	14.02	565.07	0.00	565.07	
MNW								10/3/2003 0000	13.72	565.37	0.00	565.37	
MNW								1/13/2004 0000	12.93	566.16	0.00	566.16	
MNW								2/11/2004 0000	9.72	569.37	0.00	569.37	
MNW								3/22/2004 0000	5.23	573.86	0.00	573.86	
MNW								4/2/2004 0000	7.41	571.68	0.00	571.68	
MNW								4/21/2004 0000	7.59	571.50	0.00	571.5	
MNW								5/3/2004 0000	8.58	570.51	0.00	570.51	
MNW								6/3/2004 0000	9.50	569.59	0.00	569.59	
MNW								7/22/2004 000	11.52	567.57	0.00	567.57	
B-07	1098561.657	1074028.727	574.28	574.81	574.00	A	0						
MNW								8/8/2000 0000	5.45	568.55	0.00	568.55	
MNW								9/29/2000 0000	5.10	568.90	0.00	568.9	
MNW								4/19/2001 0000	4.39	569.61	0.00	569.61	
MNW								4/24/2001 0000	4.62	569.38	0.00	569.38	
MNW								4/29/2001 0000	4.75	569.25	0.00	569.25	
MNW								4/4/2002 0000	2.49	571.51	0.00	571.51	
MNW								4/17/2002 0000	2.89	571.11	0.00	571.11	
MNW								6/13/2002 0000	4.73	569.27	0.00	569.27	
MNW								5/24/2003 0000	2.88	571.12	0.00	571.12	
MNW								6/17/2003 0000	3.78	570.22	0.00	570.22	
MNW								6/23/2003 0000	4.49	569.51	0.00	569.51	
MNW								7/15/2003 0000	5.74	568.26	0.00	568.26	

NM - No Measurement

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Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW								8/12/2003 0000	3.84	570.16	0.00	570.16	
MNW								8/19/2003 0000	5.49	568.51	0.00	568.51	
MNW								9/11/2003 0000	6.97	567.03	0.00	567.03	
MNW								10/3/2003 0000	5.54	568.46	0.00	568.46	
MNW								1/13/2004 0000	5.06	568.94	0.00	568.94	
MNW								2/11/2004 0000	4.06	569.94	0.00	569.94	
MNW								3/22/2004 0000	2.95	571.05	0.00	571.05	
MNW								4/2/2004 0000	1.56	572.44	0.00	572.44	
MNW								4/21/2004 0000	2.48	571.52	0.00	571.52	
MNW								5/3/2004 0000	2.91	571.09	0.00	571.09	
MNW								6/3/2004 0000	3.29	570.71	0.00	570.71	
MNW								7/22/2004 0835	3.73	570.27	0.00	570.27	
B-08	1097730.257	1073940.94	572.26	574.26	574.12	A	0						
MNW								4/4/2002 0000	4.28	569.84	0.00	569.84	
MNW								4/17/2002 0000	4.31	569.81	0.00	569.81	
MNW								6/13/2002 0000	5.39	568.73	0.00	568.73	
MNW								5/24/2003 0000	4.60	569.52	0.00	569.52	
MNW								6/17/2003 0000	4.90	569.22	0.00	569.22	
MNW								6/23/2003 0000	5.14	568.98	0.00	568.98	
MNW								7/15/2003 0000	6.48	567.64	0.00	567.64	
MNW								8/12/2003 0000	7.68	566.44	0.00	566.44	
MNW								8/19/2003 0000	8.07	566.05	0.00	566.05	
MNW								9/11/2003 0000	11.11	563.01	0.00	563.01	
MNW								10/3/2003 0000	11.80	562.32	0.00	562.32	
MNW								1/13/2004 0000	11.29	562.83	0.00	562.83	
MNW								2/11/2004 0000	4.91	569.21	0.00	569.21	
MNW								3/22/2004 0000	3.24	570.88	0.00	570.88	

NM - No Measurement

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Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW								4/2/2004 0000	4.04	570.08	0.00	570.08	
MNW								4/21/2004 0000	4.18	569.94	0.00	569.94	
MNW								5/3/2004 0000	4.32	569.80	0.00	569.8	
MNW								6/3/2004 0000	4.56	569.56	0.00	569.56	
MNW								7/22/2004 0952	6.70	567.42	0.00	567.42	
B-09	1097700.44	1074101.86	571.99	574.28	574.00	A	0						
MNW								4/4/2002 0000	4.32	569.68	0.00	569.68	
MNW								4/17/2002 0000	4.62	569.38	0.00	569.38	
MNW								6/13/2002 0000	7.75	566.25	0.00	566.25	
MNW								5/24/2003 0000	6.65	567.35	0.00	567.35	
MNW								6/17/2003 0000	7.65	566.35	0.00	566.35	
MNW								6/23/2003 0000	8.00	566.00	0.00	566	
MNW								7/15/2003 0000	9.38	564.62	0.00	564.62	
MNW								8/12/2003 0000	10.05	563.95	0.00	563.95	
MNW								8/19/2003 0000	10.68	563.32	0.00	563.32	
MNW								9/11/2003 0000	13.05	560.95	0.00	560.95	
MNW								10/3/2003 0000	13.21	560.79	0.00	560.79	
MNW								1/13/2004 0000	13.03	560.97	0.00	560.97	
MNW								2/11/2004 0000	7.54	566.46	0.00	566.46	
MNW								3/22/2004 0000	6.09	567.91	0.00	567.91	
MNW								4/2/2004 0000	5.61	568.39	0.00	568.39	
MNW								4/21/2004 0000	5.96	568.04	0.00	568.04	
MNW								5/3/2004 0000	6.57	567.43	0.00	567.43	
MNW								6/3/2004 0000	7.18	566.82	0.00	566.82	
MNW								7/22/2004 0944	9.02	564.98	0.00	564.98	
B-10	1097721.39	1074348.21	571.97	574.03	573.63	A	0						
MNW								4/4/2002 0000	2.48	571.15	0.00	571.15	

NM - No Measurement

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Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW								4/17/2002 0000	2.75	570.88	0.00	570.88	
MNW								6/13/2002 0000	5.94	567.69	0.00	567.69	
MNW								5/24/2003 0000	4.22	569.41	0.00	569.41	
MNW								6/17/2003 0000	5.71	567.92	0.00	567.92	
MNW								6/23/2003 0000	6.30	567.33	0.00	567.33	
MNW								7/15/2003 0000	8.35	565.28	0.00	565.28	
MNW								8/12/2003 0000	7.81	565.82	0.00	565.82	
MNW								8/19/2003 0000	8.60	565.03	0.00	565.03	
MNW								9/11/2003 0000	10.26	563.37	0.00	563.37	
MNW								10/3/2003 0000	9.54	564.09	0.00	564.09	
MNW								1/13/2004 0000	9.33	564.30	0.00	564.3	
MNW								2/11/2004 0000	5.13	568.50	0.00	568.5	
MNW								3/22/2004 0000	3.60	570.03	0.00	570.03	
MNW								4/2/2004 0000	2.91	570.72	0.00	570.72	
MNW								4/21/2004 0000	3.57	570.06	0.00	570.06	
MNW								5/3/2004 0000	4.14	569.49	0.00	569.49	
MNW								6/3/2004 0000	5.24	568.39	0.00	568.39	
MNW								7/22/2004 0935	7.05	566.58	0.00	566.58	
B-11	1098160.58	1074283.33	575.40	575.40	575.26	A	0						
MNW								6/17/2003 0000	5.32	569.94	0.00	569.94	
MNW								6/23/2003 0000	5.78	569.48	0.00	569.48	
MNW								7/15/2003 0000	6.93	568.33	0.00	568.33	
MNW								8/12/2003 0000	6.34	568.92	0.00	568.92	
MNW								8/19/2003 0000	7.08	568.18	0.00	568.18	
MNW								9/11/2003 0000	8.37	566.89	0.00	566.89	
MNW								10/3/2003 0000	7.38	567.88	0.00	567.88	
MNW								1/13/2004 0000	7.64	567.62	0.00	567.62	

NM - No Measurement

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Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW								3/22/2004 0000	NM	-	NM	-	Unable to Locate
MNW								4/2/2004 0000	3.80	571.46	0.00	571.46	
MNW								4/21/2004 0000	4.28	570.98	0.00	570.98	
MNW								5/3/2004 0000	4.65	570.61	0.00	570.61	
MNW								6/3/2004 0000	5.07	570.19	0.00	570.19	
MNW								7/22/2004 0925	5.89	569.37	0.00	569.37	
B-12	1098047.73	1074301.41	574.31	574.31	574.18	A	0						
MNW								6/17/2003 0000	4.09	570.09	0.00	570.09	
MNW								6/23/2003 0000	4.61	569.57	0.00	569.57	
MNW								7/15/2003 0000	5.84	568.34	0.00	568.34	
MNW								8/12/2003 0000	5.50	568.68	0.00	568.68	
MNW								8/19/2003 0000	6.09	568.09	0.00	568.09	
MNW								9/11/2003 0000	7.41	566.77	0.00	566.77	
MNW								10/3/2003 0000	6.66	567.52	0.00	567.52	
MNW								1/13/2004 0000	6.27	567.91	0.00	567.91	
MNW								3/22/2004 0000	NM	-	NM	-	Unable to Locate
MNW								4/2/2004 0000	2.67	571.51	0.00	571.51	
MNW								4/21/2004 0000	2.92	571.26	0.00	571.26	
MNW								5/3/2004 0000	3.37	570.81	0.00	570.81	
MNW								6/3/2004 0000	3.95	570.23	0.00	570.23	
MNW								7/22/2004 0909	4.99	569.19	0.00	569.19	
B-13	1098158.65	1074382.45	574.33	574.33	574.15	A	0						
MNW								6/17/2003 0000	3.84	570.31	0.00	570.31	
MNW								6/23/2003 0000	4.62	569.53	0.00	569.53	
MNW								7/15/2003 0000	5.85	568.30	0.00	568.3	
MNW								8/12/2003 0000	4.71	569.44	0.00	569.44	
MNW								8/19/2003 0000	5.92	568.23	0.00	568.23	

NM - No Measurement

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Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW								9/11/2003 0000	7.21	566.94	0.00	566.94	
MNW								10/3/2003 0000	6.04	568.11	0.00	568.11	
MNW								1/13/2004 0000	5.81	568.34	0.00	568.34	
MNW								3/22/2004 0000	3.37	570.78	0.00	570.78	
MNW								4/2/2004 0000	2.59	571.56	0.00	571.56	
MNW								4/21/2004 0000	2.98	571.17	0.00	571.17	
MNW								5/3/2004 0000	3.36	570.79	0.00	570.79	
MNW								6/3/2004 0000	3.89	570.26	0.00	570.26	
MNW								7/22/2004 0917	5.01	569.14	0.00	569.14	
B-14	1098048.56	1074390.54	573.64	573.64	573.50	A	0						
MNW								6/17/2003 0000	3.56	569.94	0.00	569.94	
MNW								6/23/2003 0000	4.03	569.47	0.00	569.47	
MNW								7/15/2003 0000	5.23	568.27	0.00	568.27	
MNW								8/12/2003 0000	4.65	568.85	0.00	568.85	
MNW								8/19/2003 0000	5.40	568.10	0.00	568.1	
MNW								9/11/2003 0000	6.73	566.77	0.00	566.77	
MNW								10/3/2003 0000	5.84	567.66	0.00	567.66	
MNW								1/13/2004 0000	5.29	568.21	0.00	568.21	
MNW								3/22/2004 0000	2.21	571.29	0.00	571.29	Well Area Flooded
MNW								4/2/2004 0000	2.20	571.30	0.00	571.3	
MNW								4/21/2004 0000	2.49	571.01	0.00	571.01	
MNW								5/3/2004 0000	2.88	570.62	0.00	570.62	
MNW								6/3/2004 0000	3.37	570.13	0.00	570.13	
MNW								7/22/2004 0915	4.22	569.28	0.00	569.28	
B-15	1097931.74	1074341.17	572.90	576.29	576.10	A	0						
MNW								6/17/2003 0000	6.13	569.97	0.00	569.97	
MNW								6/23/2003 0000	6.77	569.33	0.00	569.33	

NM - No Measurement

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Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
MNW								7/15/2003 0000	8.32	567.78	0.00	567.78	
MNW								8/12/2003 0000	7.58	568.52	0.00	568.52	
MNW								8/19/2003 0000	8.55	567.55	0.00	567.55	
MNW								9/11/2003 0000	9.98	566.12	0.00	566.12	
MNW								10/3/2003 0000	9.04	567.06	0.00	567.06	
MNW								1/13/2004 0000	8.97	567.13	0.00	567.13	
MNW								2/11/2004 0000	6.10	570.00	0.00	570	
MNW								3/22/2004 0000	NM	-	NM	-	No Access
MNW								4/2/2004 0000	4.37	571.73	0.00	571.73	
MNW								4/21/2004 0000	4.70	571.40	0.00	571.4	
MNW								5/3/2004 0000	5.04	571.06	0.00	571.06	
MNW								6/3/2004 0000	5.77	570.33	0.00	570.33	
MNW								7/22/2004 0913	7.07	569.03	0.00	569.03	
SG-01	1097681.761	1073462.153	NA	NA	564.94	A	0						
SG								8/8/2000 0000	0.00	564.94	0.00	564.94	
SG								9/29/2000 0000	0.04	564.90	0.00	564.9	
SG-02	1097566.611	1074471.014	NA	NA	566.88	A	0						
SG								6/17/2003 0000	2.16	564.72	0.00	564.72	
SG								6/23/2003 0000	1.64	565.24	0.00	565.24	
SG								7/15/2003 0000	2.21	564.67	0.00	564.67	
SG								8/12/2003 0000	2.15	564.73	0.00	564.73	
SG								8/19/2003 0000	1.83	565.05	0.00	565.05	
SG								9/11/2003 0000	2.25	564.63	0.00	564.63	
SG								10/3/2003 0000	2.5	564.38	0.00	564.38	Approx. Static Depth
SG								1/13/2004 0000	NM	-	NM	-	No Access Due To Snow
SG								3/22/2004 0000	2.23	564.65	0.00	564.65	26.75 Inches
SG								4/2/2004 0000	2.09	564.79	0.00	564.79	

NM - No Measurement

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Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
SG								4/21/2004 0000	2.08	564.80	0.00	564.8	
SG								5/3/2004 0000	2.00	564.88	0.00	564.88	
SG								7/22/2004 0930	1.34	565.54	0.00	565.54	
SG-02A	1097566.611	1074471.014	NA	NA	564.84	A	0						
SG								8/8/2000 0000	-0.10	564.94	0.00	564.94	
SG								9/29/2000 0000	-0.04	564.88	0.00	564.88	
SG								4/19/2001 0000	0.12	564.72	0.00	564.72	
SG								4/24/2001 0000	-0.73	565.57	0.00	565.57	
SG								4/29/2001 0000	0.02	564.82	0.00	564.82	
SG								4/4/2002 0000	-0.31	565.15	0.00	565.15	
SG								4/17/2002 0000	0.02	564.82	0.00	564.82	
SG								6/13/2002 0000	0.02	564.82	0.00	564.82	
STANDPIPE	1098115.379	1074119.507	575.51	NA	579.60	A	0						
PZ								8/12/2003 0000	11.38	568.22	0.00	568.22	
PZ								8/19/2003 0000	11.34	568.26	0.00	568.26	
PZ								9/11/2003 0000	12.45	567.15	0.00	567.15	
PZ								10/3/2003 0000	12.69	566.91	0.00	566.91	
PZ								1/13/2004 0000	11.28	568.32	0.00	568.32	
PZ								2/11/2004 0000	9.51	570.09	0.00	570.09	
PZ								3/22/2004 0000	6.72	572.88	0.00	572.88	
PZ								4/2/2004 0000	6.44	573.16	0.00	573.16	
PZ								4/21/2004 0000	6.97	572.63	0.00	572.63	
PZ								5/3/2004 0000	7.62	571.98	0.00	571.98	
PZ								6/3/2004 0000	8.23	571.37	0.00	571.37	
PZ								7/22/2004 0905	10.48	569.12	0.00	569.12	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

TABLE 2-1
GROUNDWATER ELEVATION READINGS
CHEMICAL LEAMAN

Location ID / Type	Northing	Easting	Ground Elevation (ft)	Casing Elevation (ft)	Meas.point (Riser)Elev.(ft)	Geol. Zone	Specific Gravity	Date / Time	Depth to Water (ft)	Water Elev. (ft)	Product Thick. (ft)	Corrected Water Elev. (ft)	Remark
TP-01	1098169.889	1074079.839	574.21	NA	577.46	A	0						
PZ								8/12/2003 0000	11.30	566.16	0.00	566.16	
PZ								8/19/2003 0000	9.31	568.15	0.00	568.15	
PZ								9/11/2003 0000	10.55	566.91	0.00	566.91	
PZ								10/3/2003 0000	11.91	565.55	0.00	565.55	
PZ								1/13/2004 0000	11.78	565.68	0.00	565.68	
PZ								2/11/2004 0000	7.58	569.88	0.00	569.88	
PZ								3/22/2004 0000	5.96	571.50	0.00	571.5	
PZ								4/2/2004 0000	5.61	571.85	0.00	571.85	
PZ								4/21/2004 0000	5.71	571.75	0.00	571.75	
PZ								5/3/2004 0000	6.20	571.26	0.00	571.26	
PZ								6/3/2004 0000	6.67	570.79	0.00	570.79	
PZ								7/22/2004 0850	8.38	569.08	0.00	569.08	
TP-02	1098046.975	1074076.420	575.40	NA	578.39	A	0						
PZ								8/12/2003 0000	12.19	566.20	0.00	566.2	
PZ								8/19/2003 0000	10.69	567.70	0.00	567.7	
PZ								9/11/2003 0000	11.68	566.71	0.00	566.71	
PZ								10/3/2003 0000	11.96	566.43	0.00	566.43	
PZ								1/13/2004 0000	11.91	566.48	0.00	566.48	
PZ								2/11/2004 0000	7.96	570.43	0.00	570.43	
PZ								3/22/2004 0000	6.01	572.38	0.00	572.38	
PZ								4/2/2004 0000	6.05	572.34	0.00	572.34	
PZ								4/21/2004 0000	5.99	572.40	0.00	572.4	
PZ								5/3/2004 0000	6.29	572.10	0.00	572.1	
PZ								6/3/2004 0000	7.01	571.38	0.00	571.38	
PZ								7/22/2004 0900	9.46	568.93	0.00	568.93	

NM - No Measurement

The value noted in the column labeled Specific Gravity is an assumed value for free product, if found.

Geologic Zone:
A Aquifer

Type:
MNW Monitoring Well
PZ Piezometer

N

FILLMORE AVENUE

B-07, 570.22

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

SHED

OFFICE

TRUCK WASH BAYS

B-01, 570.65

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

TRAILER

B-05R, 570.03

570.0

B-11, 569.94

B-13, 570.31

SIDEWALK

B-12, 570.09

B-14, 569.94

WALES AVENUE

B-06, 569.36

570.0

B-15, 569.97

B-02, 569.37

B-03, 569.57

B-04, 569.57

569.0

568.0

B-08, 569.22

B-10, 567.92

567.0

B-09, 566.35

566.0

ELLICOTT CREEK

SG-02, 564.72

Legend

- Monitoring Well
- Staff Gauge
- 570.00 Groundwater Elevation Contour
- Groundwater Flow Direction

Location ID — B-02, 569.37 — Groundwater Elevation (ft)

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(JUNE 17, 2003)

URS

FIGURE 2-2

J:\35665.01\db\GIS\welev.apr 06/17/03 GROUNDWATER ELEVATION MAP
8/6/2004

N

FILLMORE AVENUE

B-07, 569.51

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

SHED

OFFICE

TRUCK WASH BAYS

570.0

B-01, 570.04

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

TRAILER

B-05R, 569.55

B-11, 569.48

B-13, 569.53

B-12, 569.57

B-14, 569.47

SIDEWALK

WALES AVENUE

B-06, 568.78

B-15, 569.33

B-02, 569.10

569.0

B-03, 568.99

B-04, 568.58

568.0

B-08, 568.98

567.0

B-10, 567.33

B-09, 566.00

566.0

ELLICOTT CREEK

SG-02, 565.24

Legend

- Monitoring Well
- Staff Gauge
- 570.00 Groundwater Elevation Contour
- Groundwater Flow Direction

Location ID — B-02, 569.10 — Groundwater Elevation (ft)

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(JUNE 23, 2003)

URS

FIGURE 2-3

J:\35665.01\dbGIS\welev.apr 08/23/03 GROUNDWATER ELEVATION MAP 8/6/2004

N

FILLMORE AVENUE

B-07, 568.26

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

SHED

OFFICE

TRUCK WASH BAYS

B-01, 568.92

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

TRAILER

B-05R, 568.48

B-11, 568.33

B-13, 568.30

SIDEWALK

B-12, 568.34

B-14, 568.27

B-06, 566.76

568.0

WALES AVENUE

B-15, 567.78

B-02, 567.69

567.0

B-03, 567.12

B-04, 566.22

566.0

B-08, 567.64

B-09, 564.62

565.0

B-10, 565.28

ELLICOTT CREEK

SG-02, 564.67

Legend

- Monitoring Well
- Staff Gauge
- 566.00 Groundwater Elevation Contour
- Groundwater Flow Direction
- Location ID — B-02, 567.69 — Groundwater Elevation (ft)

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(JULY 15, 2003)

URS

FIGURE 2-4

J:\35685.01\db\GIS\welev.apr 07/15/03 GROUNDWATER ELEVATION MAP
8/6/2004

N

FILLMORE AVENUE

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

B-07, 570.16

OFFICE

SHED

TRUCK WASH BAYS

570.0

B-01, 569.42

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

B-05R, 569.53

TRAILER

569.0

TP-01, 566.16

B-11, 568.92

B-13, 569.44

STANDPIPE, 568.22

TP-02, 566.20

B-12, 568.68

B-14, 568.85

SIDEWALK

WALES AVENUE

B-06, 567.05

568.0

B-15, 568.52

B-02, 566.79

B-03, 566.84

567.0

B-04, 566.22

566.0

B-08, 566.44

565.0

B-10, 565.82

B-09, 563.95

ELLICOTT CREEK

SG-02, 564.73

Legend

- Monitoring Well
- Piezometer
- Staff Gauge
- 568.0 Groundwater Elevation Contour
- Groundwater Flow Direction

Location ID — B-02, 566.79 — Groundwater Elevation (ft)

NOTE:
- TP-01, TP-02 and STANDPIPE were not used to generate groundwater elevation contours.

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(AUGUST 12, 2003)

URS

FIGURE 2-5

J:\35665.01\db\GIS\welev_apr 08\12\03 GROUNDWATER ELEVATION MAP 8/6/2004

N

FILLMORE AVENUE

B-07, 568.51

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

SHED

OFFICE

TRUCK WASH BAYS

B-01, 568.90

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

TRAILER

B-05R, 568.46

TP-01, 568.15

B-11, 568.18

B-13, 568.23

STANDPIPE, 568.26

568.0

TP-02, 567.70

B-12, 568.09

B-14, 568.10

SIDEWALK

B-06, 566.29

WALES AVENUE

567.0

B-15, 567.55

B-02, 566.50

B-03, 566.18

566.0

B-04, 565.55

565.0

B-08, 566.05

564.0

B-10, 565.03

B-09, 563.32

ELLICOTT CREEK

SG-02, 565.05

Legend

- Monitoring Well
- Piezometer
- Staff Gauge
- 568.0 — Groundwater Elevation Contour
- Groundwater Flow Direction
- Location ID — B-02, 566.50 — Groundwater Elevation (ft)

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(AUGUST 19, 2003)

URS

FIGURE 2-6

J:\35665.001\tdb\GIS\welev.apr 08/19/03 GROUNDWATER ELEVATION MAP 8/6/2004

N

B-07, 567.03

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

SHED

OFFICE

TRUCK WASH BAYS

B-01, 567.30

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

B-05R, 567.05

TRAILER

TP-01, 566.91

B-11, 566.89

B-13, 566.94

STANDPIPE, 567.15

568.0

TP-02, 566.71

B-12, 566.77

B-14, 566.77

B-06, 565.07

567.0

B-15, 566.12

WALES AVENUE

SIDEWALK

B-02, 564.62

B-03, 564.54

566.0

B-04, 563.89

565.0

B-08, 563.01

564.0

B-10, 563.37

B-09, 560.95

ELLICOTT CREEK

SG-02, 564.63

Legend

- Monitoring Well
- Piezometer
- Staff Gauge
- 567.00 Groundwater Elevation Contour
- Groundwater Flow Direction

Location ID — B-02, 564.62 — Groundwater Elevation (ft)

150 0 150 Feet

J:\35665.01\db\GIS\welev.apr 09/11/03 GROUNDWATER ELEVATION MAP 8/6/2004

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(SEPTEMBER 11, 2003)

URS

FIGURE 2-7

N

FILLMORE AVENUE

B-07, 568.46

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

SHED

OFFICE

TRUCK WASH BAYS

B-01, 568.50

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

568.5

568.0

TRAILER

B-05R, 568.54

TP-01, 565.55

567.5

B-11, 567.88

B-13, 568.11

STANDPIPE, 566.91

567.0

TP-02, 566.43

B-12, 567.52

B-14, 567.66

SIDEWALK

B-06, 565.37

566.5

566.0

B-15, 567.06

WALES AVENUE

565.5

565.0

B-02, 564.51

B-03, 564.69

564.5

B-04, 564.24

564.0

563.5

563.0

562.5

562.0

561.5

B-08, 562.32

B-10, 564.09

B-09, 560.79

ELLICOTT CREEK

SG-02, 564.38

Legend

- Monitoring Well
- Piezometer
- Staff Gauge
- 565.0 Groundwater Elevation Contour
- Groundwater Flow Direction

Location ID — B-02, 564.51 — Groundwater Elevation (ft)

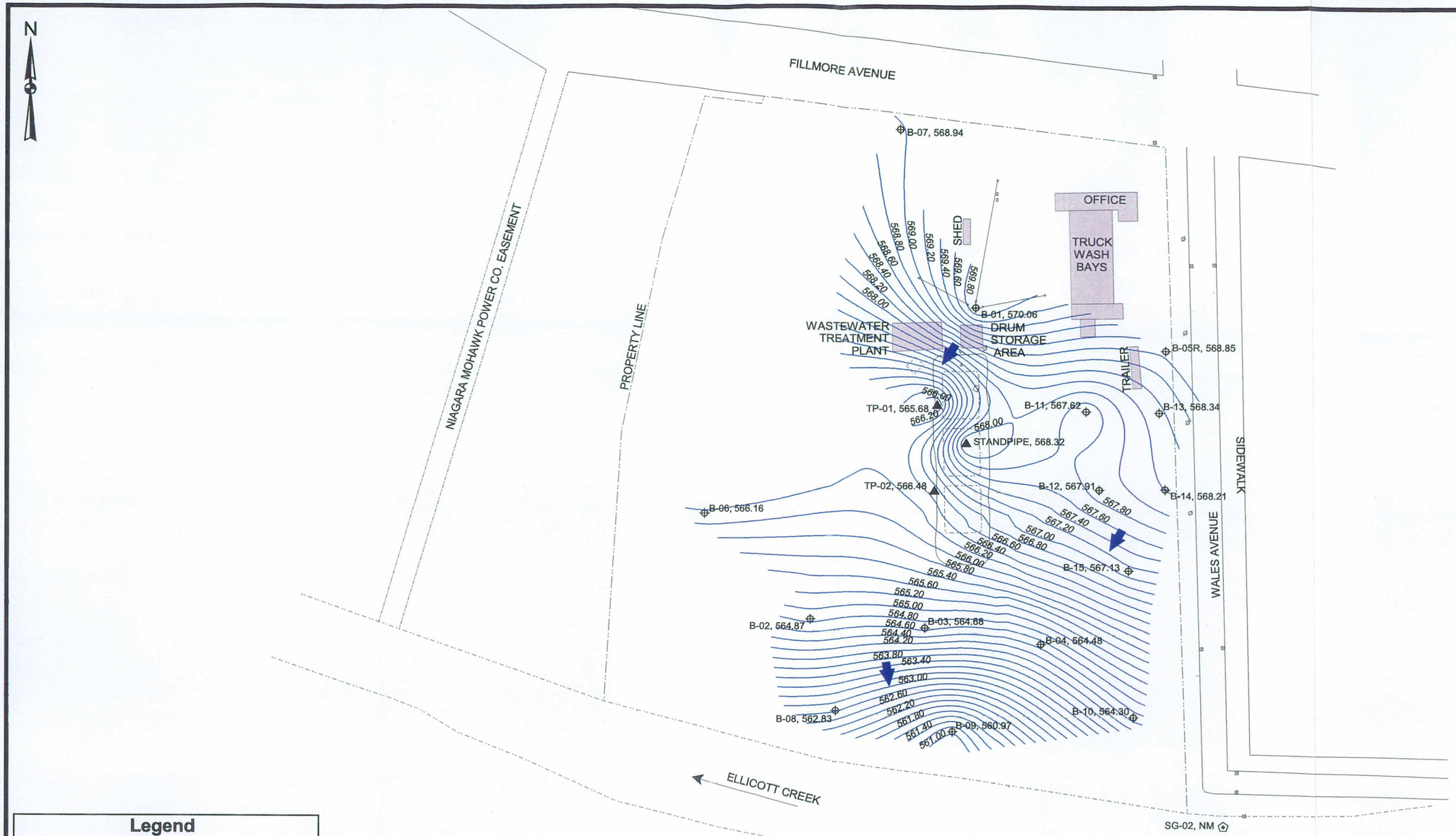
150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(OCTOBER 3, 2003)

URS

FIGURE 2-8

J:\35665.01\db\GIS\welev.apr 10/3/03 GROUNDWATER ELEVATION MAP
8/6/2004



Legend

- Monitoring Well
- Piezometer
- Staff Gauge
- 565.00 Groundwater Elevation Contour
- Groundwater Flow Direction

Location ID — B-02, 564.87 — Groundwater Elevation (ft)

NOTE:
NM - Not Monitored

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(JANUARY 13, 2004)

URS

FIGURE 2-9

J:\35665.01\dbl\GIS\wselev.apr (0.2 ft C.I.) 01/13/04 GROUNDWATER ELEVATION MAP
8/6/2004

N

FILLMORE AVENUE

B-07, 569.94

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

SHED

OFFICE

TRUCK WASH BAYS

B-01, 569.87

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

TRAILER

TP-01, 569.88

STANDPIPE, 570.09

TP-02, 570.43

570.4

B-06, 569.37

B-15, 570.00

WALES AVENUE

SIDEWALK

570.2

570.0

569.8

569.6

569.4

569.2

568.8

568.4

568.0

567.6

567.2

566.8

B-02, 569.34

B-03, 569.68

B-04, 570.19

B-08, 569.21

B-10, 568.50

B-09, 566.46

ELLICOTT CREEK

Legend

- Monitoring Well
- Piezometer
- Staff Gauge
- 570.0 Groundwater Elevation Contour
- Groundwater Flow Direction

Location ID — B-02, 569.34 — Groundwater Elevation (ft)

NOTE: Monitoring wells B-05R, and B-11 to B-14 were buried under heavy snow and ice and were not accessible.

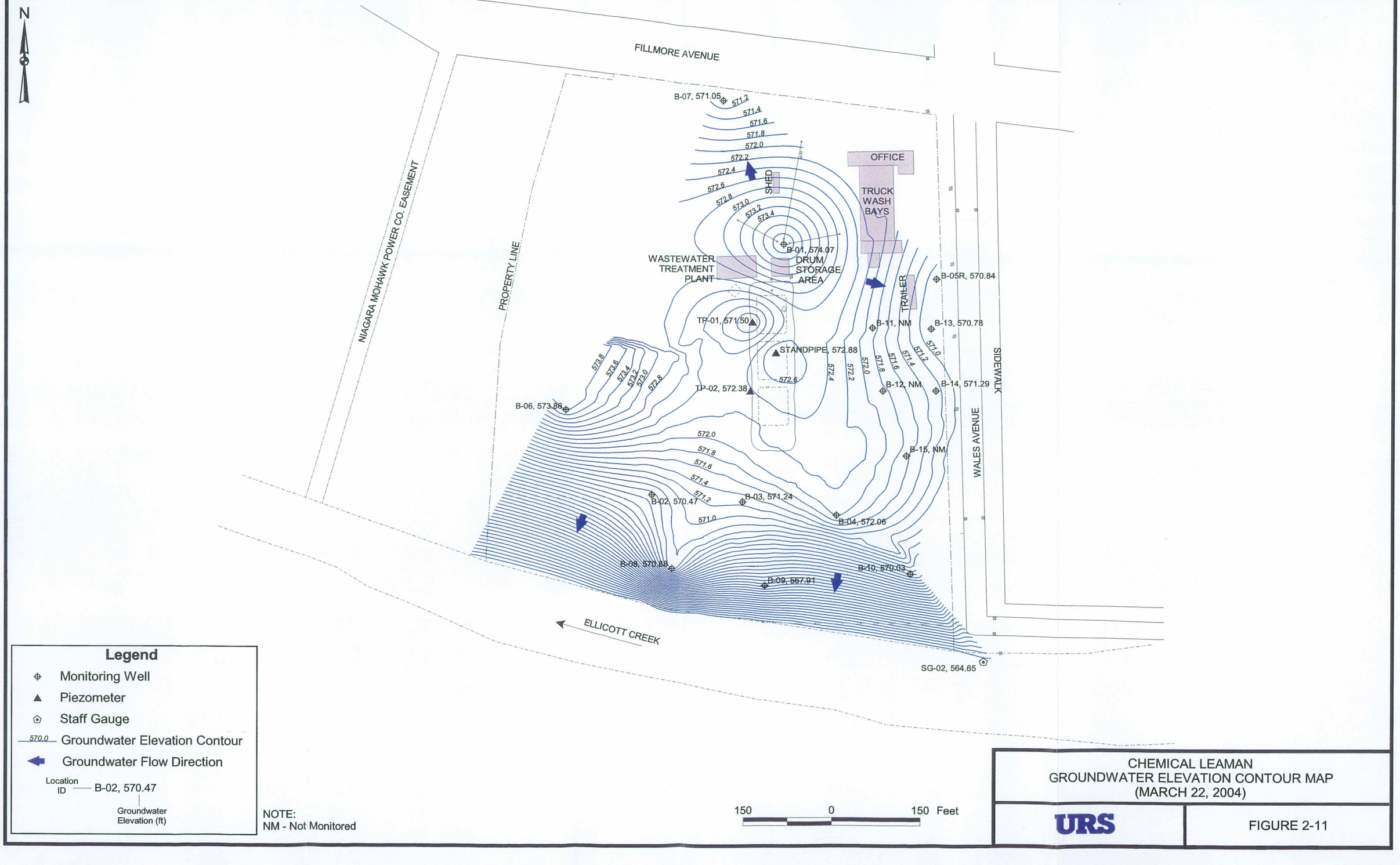
150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(FEBRUARY 11, 2004)

URS

FIGURE 2-10

J:\35665.011db\GIS\welev.apr (0.2 ft C.I.) 02/11/04 GROUNDWATER ELEVATION MAP
8/6/2004



Legend

- Monitoring Well
- Piezometer
- Staff Gauge
- 570.0 — Groundwater Elevation Contour
- Groundwater Flow Direction
- Location ID — B-02, 570.47 — Groundwater Elevation (ft)

NOTE:
NM - Not Monitored

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(MARCH 22, 2004)

URS

FIGURE 2-11

J:\35665.01\db\GIS\welev.apr (0.2 FT C.I.) 03/22/04 GROUNDWATER ELEVATION MAP
8/6/2004

N

FILLMORE AVENUE

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

B-07, 572.44

572.4

572.2

572.0

SHED

OFFICE

TRUCK WASH BAYS

B-01, 572.07

DRUM STORAGE AREA

WASTEWATER TREATMENT PLANT

TRAILER

B-05R, 571.53

TP-01, 571.85

B-11, 571.46

B-13, 571.56

STANDPIPE, 573.16

TP-02, 572.34

B-12, 571.51

B-14, 571.30

SIDEWALK

WALES AVENUE

B-06, 571.68

571.8

571.6

571.4

571.2

572.0

572.2

572.4

571.6

571.8

572.0

572.2

B-15, 571.73

571.4

B-02, 570.34

B-03, 571.65

B-04, 572.62

B-08, 570.08

B-09, 568.39

B-10, 570.72

ELLICOTT CREEK

SG-02, 564.79

Legend

- Monitoring Well
- Piezometer
- Staff Gauge
- 570.0 Groundwater Elevation Contour
- Groundwater Flow Direction
- Location ID — B-02, 570.34 — Groundwater Elevation (ft)

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(APRIL 2, 2004)

URS

FIGURE 2-12

J:\35665.01\db\GIS\welev.apr (0.2 FT. C.I.) 04/02/04 GROUNDWATER ELEVATION MAP
8/6/2004

N

FILLMORE AVENUE

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

B-07, 571.52

SHED

OFFICE

TRUCK WASH BAYS

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

B-01, 571.86

B-05R, 570.82

TRAILER

TP-01, 571.75

B-11, 570.98

B-13, 571.17

STANDPIPE, 572.63

SIDEWALK

TP-02, 572.40

572.4

B-12, 571.26

B-14, 571.01

B-06, 571.50

571.0

571.2

571.4

571.6

571.8

572.0

572.2

WALES AVENUE

B-15, 571.40

B-02, 570.27

B-03, 571.46

B-04, 572.44

B-08, 569.94

B-10, 570.06

B-09, 568.04

ELLICOTT CREEK

SG-02, 564.80

Legend

- Monitoring Well
- Piezometer
- Staff Gauge
- 570.0 Groundwater Elevation Contour
- Groundwater Flow Direction

Location ID — B-02, 570.27 — Groundwater Elevation (ft)

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(APRIL 21, 2004)

URS

FIGURE 2-13

J:\35665.01\db\GIS\swelev.apr (0.2 FT C.I.) 04/21/04 GROUNDWATER ELEVATION MAP
8/6/2004

N

FILLMORE AVENUE

B-07, 571.09

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

SHED

OFFICE

TRUCK WASH BAYS

B-01, 571.25

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

TRAILER

B-05R, 570.47

TP-01, 571.26

B-11, 570.61

B-13, 570.79

STANDPIPE, 571.98

SIDEWALK

570.0

TP-02, 572.10

B-12, 570.81

B-14, 570.62

B-06, 570.51

571.8

571.6

571.4

571.2

571.0

570.8

B-15, 571.06

WALES AVENUE

B-02, 570.03

B-03, 571.09

B-04, 572.07

B-08, 569.80

B-09, 567.43

B-10, 569.49

ELLICOTT CREEK

SG-02, 564.88

Legend

- Monitoring Well
- Piezometer
- Staff Gauge
- 570.0 Groundwater Elevation Contour
- Groundwater Flow Direction
- Location ID — B-02, 570.03 — Groundwater Elevation (ft)

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(MAY 3, 2004)

URS

FIGURE 2-14

J:\35665.011db\GIS\wellev.apr (0.2 FT C.I.) 05/03/04 GROUNDWATER ELEVATION MAP
8/kl/2004

N

FILLMORE AVENUE

B-07, 570.71

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

OFFICE

SHED

TRUCK WASH BAYS

B-01, 570.92

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

TRAILER

B-05R, 570.34

TP-01, 570.79

B-11, 570.19

B-13, 570.26

STANDPIPE, 571.37

SIDEWALK

TP-02, 571.38

B-12, 570.23

B-14, 570.13

B-06, 569.59

571.2

571.0

570.8

570.6

570.4

570.2

570.0

569.8

569.6

569.4

569.2

569.0

568.8

568.6

568.2

567.8

567.4

567.2

567.0

B-15, 570.33

WALES AVENUE

B-02, 569.05

B-03, 569.99

B-04, 570.17

B-08, 569.56

B-10, 568.39

B-09, 566.82

ELLICOTT CREEK

Legend

- Monitoring Well
- Piezometer
- Staff Gauge
- 570.0 Groundwater Elevation Contour
- Groundwater Flow Direction
- Location ID — B-02, 569.05 — Groundwater Elevation (ft)

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(JUNE 3, 2004)

URS

FIGURE 2-15

J:\35665.01\db\GIS\welev.apr (0.2 FT C.I.) 06/03/04 GROUNDWATER ELEVATION MAP
8/6/2004

N

FILLMORE AVENUE

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

B-07, 570.27

570.2

570.0

569.8

SHED

OFFICE

TRUCK WASH BAYS

WASTEWATER TREATMENT PLANT

B-01, 570.23

DRUM STORAGE AREA

B-05R, 570.47

569.6

569.4

569.2

TRAILER

TP-01, 569.08

B-11, 569.37

B-13, 569.14

569.0

569.2

STANDPIPE, 569.12

568.8

568.6

TP-02, 568.93

B-12, 569.19

B-14, 570.62

568.4

568.2

B-06, 567.57

568.0

567.8

567.6

567.4

567.2

567.0

566.8

566.6

566.4

566.2

566.0

565.8

565.6

SIDEWALK

WALES AVENUE

B-15, 569.03

B-02, 567.56

B-03, 567.62

B-04, 567.25

B-08, 567.42

565.4

565.2

B-09, 564.98

B-10, 566.58

ELLICOTT CREEK

SG-02, 565.54

Legend

- Monitoring Well
- Piezometer
- Staff Gauge
- 570.00 Groundwater Elevation Contour
- Groundwater Flow Direction

Location ID — B-02, 567.56

Groundwater Elevation (ft)

150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ELEVATION CONTOUR MAP
(JULY 22, 2004)

URS

FIGURE 2-16

J:\35665.01\dt\GIS\welev apr 07\22\04 GROUND WATER ELEVATION MAP 8\6\2004

minimize the water level drawdown. From the Geopump 2®, tubing was connected to a collection vesicle (i.e. bucket). Purged water would flow through the tubing and into the bucket. The tubing allowed for easy field parameter collection and sampling. Field parameters were collected using a YSI® Flowthru cell and HACH® Turbidity meter. Field parameters and water levels were checked every 3 to 5 minutes depending on flow rate until three consecutive parameter readings were within tolerance limits (see purge logs) and the water level stabilized. VOC samples were collected directly from the tubing attachment. The bottle was sealed, placed in an ice-filled cooler, and transported to the Analytical Services Center (ASC) laboratory in Lancaster, New York under proper chain-of-custody at the end of each day. All instruments were decontaminated between wells using an Alconox wash and de-ionized water rinse and fresh tubing was used between wells. This process was repeated until all 15 monitoring wells were sampled. Appropriate Quality Assurance samples also were collected. The samples were analyzed for VOCs in accordance with NYSDEC ASP procedures. Copies of the well purging records are contained in Appendix C.

2.2.4.2 Storm Sewers

As outlined in the approved investigation work plan, surface water/groundwater samples were collected from four catch basins associated with the storm sewer along Wales Avenue. Two catch basins on the west side of the street (CB-NW and CB-SW) and two on the east side of the street (CB-NE and CB-SE) were utilized to collect the samples. The locations are shown on Figure 2-1. The two northernmost basins are located almost directly east of the Truck Wash Building, and are essentially upgradient of the study area during non-mounding periods of the year. The two southern basins are located east of monitoring well B-04, and essentially downgradient of the study area during non-mounding periods of the year. The grates were removed from each of the catch basins and a 'grab-sampler' was used to collect a sample of the water. The water sample was placed in a laboratory sample bottle, sealed, placed in an ice-filled cooler and transported under proper chain-of-custody to ASC at the end of the day. The four samples were analyzed for VOCs in accordance with NYSDEC ASP procedures.

The catch basins were approximately 2.5 – 3.0 feet deep. At the time of sampling there was a few inches of water in the catch basins and flow was very minimal to the south.

Additionally, a water sample was collected from the outfall of the storm sewer where it discharges to Ellicott Creek (Figure 2-1). The outfall consists of a 30 inch diameter corrugated metal pipe set in the bank of the creek. At the time of sampling, flow in the pipe was about 0.5 inches deep, and estimated to be on the order of 1-2 gpm. There was no observable "underflow" in the gravel bedding beneath the outfall pipe, as the bedding was not exposed, and no water was observed seeping from the soil. A 'grab-sampler' was used to collect a sample of the water. The water sample was placed in a laboratory sample bottle, sealed, placed in an ice-filled cooler and transported under proper chain-of-custody to ASC at the end of the day. The sample was analyzed for VOCs in accordance with NYSDEC ASP procedures.

3.0 RESULTS OF INVESTIGATIONS

3.1 Groundwater Flow Conditions

As discussed above, groundwater level readings were obtained during the period of June 17, 2003 through July 22, 2004 and utilized to develop groundwater contour maps. Based on these maps, groundwater flow directions at the site from June 2003 up until March 2004 (Figures 2-2 to 2-11) were relatively constant. In general, groundwater flow was southerly across the site towards Ellicott Creek, with the gradient steepening in the southern portion of the site (i.e. south of monitoring wells B-02, B-03 and B-04). The groundwater surface appears to be reflective of surficial topography in that it is flat in the area north of monitoring wells B-02, B-03 and B-04, wherein the ground surface is very level, and slopes steeply in that portion of the site south of monitoring wells B-02, B-03 and B-04, wherein the ground surface slopes steeply toward the creek. There was no appreciable evidence of mounding noted on the site during this period. This groundwater data is consistent with data collected during the RI for the summer months.

More specifically, in the eastern portion of the site in the vicinity of B-05R and the five new monitoring wells (B-11 to B-15), the groundwater contour maps indicate that the groundwater surface is very flat during the early summer months (i.e. June and July). Groundwater elevations between the various monitoring points in this area only varied on the order of 0.1 to 0.47 feet during this period (Figures 2-2 to 2-4). Whereas the groundwater elevations in monitoring wells in this area are very similar, there is a general decrease in the groundwater elevations in a southerly direction.

During the period of August 2003 to March 2004, the difference in groundwater elevations between the various points in the eastern area was more notable, being on the order of 1.0 to 1.5 feet from B-05R to B-15. The groundwater contour maps (Figures 2-5 to 2-10) indicate that the primary component of flow during this period is to the south with a minor component trending to the south-southwest. During this period, the groundwater flow direction is roughly parallel to the alignment of Wales Avenue or slightly from Wales Avenue towards the site.

Beginning with the March 22, 2004 readings (Figure 2-11), and continuing through June 3, 2004 (Figures 2-11 to 2- 15), groundwater mounding at the site is evident. Although the location of the mound varies somewhat during this period, it is generally centered in the vicinity of the former lagoons. This is consistent with the groundwater data collected during the RI in the spring months (i.e. April 2001). As shown on these maps, the groundwater flow is radial outward from the former lagoon area. In the eastern portion of the site (i.e. wells B-05R and B-11 through B-15), groundwater flow is relatively flat with a slight gradient (i.e. on the order of 0.008 ft/ft) to the east towards Wales Avenue.

Based on the information gathered during this SI, it appears that the inverts of the four storm sewer catch basins and the interconnecting pipes along Wales Avenue are above the water table during most times of the year. The ground elevation around B-05R and B-13 is about 574 ft. The catch basins in this area are only about 2.5 – 3.0 feet below ground surface, or roughly elevation 571 - 571.5 feet. This places the bottom of the catch basins about the same elevation as the top of the groundwater surface (typically 571 ± feet) during mounding conditions. During the remainder of the year, when the groundwater surface is lower, the storm sewers would not intersect the groundwater at all. As a result, the storm sewers are not likely to act as a groundwater "sink" as initially speculated, with the possible exception of during mounding conditions. And even then, the influence on groundwater flow is likely to be minimal.

3.2 Nature and Extent of Contamination

3.2.1 Soils

During drilling of geoprobe borings B-11 to B-15, no soil staining and/or PID readings were observed in any of the borings with the exception of B-13 (Appendix A). In this boring, black stained soils were noted at 1.5 – 3.0, 4.0 – 7.0, and 8.0 – 8.5 feet. Additionally PID readings ranging from 14.7 to 16.8 ppm were observed between the ground surface and 8.0 feet. The PID readings dropped to around 4 ppm below 8 feet, but persisted to a depth of about 16 feet before they dissipated to 0.0.

This is consistent with results obtained from soil borings GP-26, GP-27, GP-28 and GP-29 that were installed during the RI in the same area as B-13. These borings all showed PID readings in the range of 10 – 100 ppm. Additionally, soil samples from GP-28 (2 – 6 foot depth) showed elevated levels of acetone, phenol and 1,2,4 – Trichlorobenzene.

3.2.2 Groundwater

All analytical data generated during this SI was reviewed and validated by URS chemists. The resulting Data Usability Summary Report (DUSR) is included as Appendix D, and serves as the basis for the analytical results discussed below. A summary of the detected VOCs is presented in Table 3-1. As in the RI, the concentrations of the detected VOCs have been compared with the standards contained in NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations*, June 1998. Specifically, for the groundwater samples, the standards for Class GA (potable groundwater) have been utilized. A summary of the constituents that exhibit concentrations that exceed the Class GA standards is presented on Table 3-1 and Figure 3-1. For comparison purposes, the VOCs detected in soil and groundwater samples during the RI at concentrations exceeding the Class GA standards are presented on Figure 3-2.

Based on the groundwater data collected during the RI and the Supplemental Investigation, the following conclusions have been drawn concerning the nature and extent of groundwater contamination at the CLTL site. For ease of review, the applicable sections of the RI Report that discuss groundwater quality in the various areas of the site have been reproduced below. Each section from the RI is followed by a discussion of the results from the SI. Additionally, a discussion of the changes, if any, that have occurred since the RI is presented.

3.2.2.1 Upgradient and Sidegradient Areas (Wells B-07 and B-06):

Wells B-07 and B-06 are located hydraulically upgradient and sidegradient, respectively, from the formerly active portion of the CLTL facility, based on a predominant north-to-south groundwater flow direction (i.e. during non-mounding periods).

CHEMICAL LEAMAN
TABLE 3-1
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS

Location ID			B-01	B-02	B-03	B-04	B-05R
Sample ID			B-01	B-02	B-03	B-04	B-05R
Matrix			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Depth Interval (ft)			-	-	-	-	-
Date Sampled			06/04/04	06/04/04	06/07/04	06/07/04	06/04/04
Parameter	Units	Criteria*					
Volatiles							
1,1,1-Trichloroethane	UG/L	5		1.36 J			
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	5		1.54 J			
1,1-Dichloroethane	UG/L	5		11.3			
1,1-Dichloroethene	UG/L	5					1.37 J
1,2,4-Trichlorobenzene	UG/L	5					2.88 J
1,2-Dichlorobenzene	UG/L	3					54.0
1,2-Dichloroethane	UG/L	0.6		3.66 J			
1,3-Dichlorobenzene	UG/L	3			1.03 J		12.0
1,4-Dichlorobenzene	UG/L	3					30.0
Acetone	UG/L	50					
Benzene	UG/L	1	16.4	3.70 J	4.36 J		2.21 J
Chlorobenzene	UG/L	5	280 D		6.98	2.80 J	8.45
Chloroethane	UG/L	5		1.92 J			
Chloroform	UG/L	7		4.46 J			
cis-1,2-Dichloroethene	UG/L	5		5.73		1.30 J	12.2
Cyclohexane	UG/L	-	1.71 J				
Isopropylbenzene	UG/L	5	0.408 J				
Methylene chloride	UG/L	5		1.26 J			
Tetrachloroethene	UG/L	5					56.5
Toluene	UG/L	5		0.828 J			0.151 J
trans-1,2-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5		10.3			35.6
Vinyl chloride	UG/L	2		2.21 J	19.0	2.30 J	6.90 J

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA.

Flags assigned during chemistry validation are shown.

(oval) Concentration Exceeds Criteria.

Only Detected Results Reported.

CHEMICAL LEAMAN
TABLE 3-1
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS

Location ID			B-06	B-07	B-08	B-09	B-10
Sample ID			B-06	B-07	B-08	B-09	B-10
Matrix			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Depth Interval (ft)			-	-	-	-	-
Date Sampled			06/04/04	06/04/04	06/07/04	06/07/04	06/07/04
Parameter	**Units**	**Criteria***					
Volatiles							
1,1,1-Trichloroethane	UG/L	5					
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	5					
1,1-Dichloroethane	UG/L	5			3.76 J		
1,1-Dichloroethene	UG/L	5					
1,2,4-Trichlorobenzene	UG/L	5					
1,2-Dichlorobenzene	UG/L	3					
1,2-Dichloroethane	UG/L	0.6					
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
Acetone	UG/L	50				2.00 J	
Benzene	UG/L	1					0.556 J
Chlorobenzene	UG/L	5					
Chloroethane	UG/L	5					
Chloroform	UG/L	7					
cis-1,2-Dichloroethene	UG/L	5			7.91		
Cyclohexane	UG/L	-					
Isopropylbenzene	UG/L	5					
Methylene chloride	UG/L	5					
Tetrachloroethene	UG/L	5					
Toluene	UG/L	5					
trans-1,2-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5			1.39 J		
Vinyl chloride	UG/L	2				1.70 J	26.8

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

Only Detected Results Reported.

CHEMICAL LEAMAN
TABLE 3-1
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS

Location ID			B-11	B-12	B-13	B-14	B-15
Sample ID			B-11	B-12	B-13	B-14	B-15
Matrix			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Depth Interval (ft)			-	-	-	-	-
Date Sampled			06/04/04	06/04/04	06/04/04	06/04/04	06/07/04
Parameter	**Units**	**Criteria***					
Volatiles							
1,1,1-Trichloroethane	UG/L	5					
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	5					
1,1-Dichloroethane	UG/L	5	19.4				
1,1-Dichloroethene	UG/L	5		8.98			
1,2,4-Trichlorobenzene	UG/L	5					
1,2-Dichlorobenzene	UG/L	3					
1,2-Dichloroethane	UG/L	0.6					
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
Acetone	UG/L	50					
Benzene	UG/L	1	4.39 J	454 D	1.01 J	1,420 D	10.9
Chlorobenzene	UG/L	5					1.34 J
Chloroethane	UG/L	5					
Chloroform	UG/L	7					
cis-1,2-Dichloroethene	UG/L	5	1,180 D	6,640 D		1,870 D	37.7
Cyclohexane	UG/L	-					
Isopropylbenzene	UG/L	5					
Methylene chloride	UG/L	5					
Tetrachloroethene	UG/L	5			0.394 J		
Toluene	UG/L	5					
trans-1,2-Dichloroethene	UG/L	5	32.3	62.4		50.2	2.77 J
Trichloroethene	UG/L	5	10.4	2.80 J	6.84	17.8	3.81 J
Vinyl chloride	UG/L	2	444 D	255 DJ		758 D	139

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds Criteria.

Only Detected Results Reported.

CHEMICAL LEAMAN
TABLE 3-1
SUMMARY OF ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS

Location ID			CBNE	CBNW	CBSE	CBSW	OUTFALL-1
Sample ID			CBNE	CBNW	CBSE	CBSW	OUTFALL-1
Matrix			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Depth Interval (ft)			-	-	-	-	-
Date Sampled			06/04/04	06/04/04	06/04/04	06/04/04	06/04/04
Parameter	**Units**	**Criteria***					
Volatiles							
1,1,1-Trichloroethane	UG/L	5					2.48 J
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	5					
1,1-Dichloroethane	UG/L	5					
1,1-Dichloroethene	UG/L	5					
1,2,4-Trichlorobenzene	UG/L	5					
1,2-Dichlorobenzene	UG/L	3					
1,2-Dichloroethane	UG/L	0.6					
1,3-Dichlorobenzene	UG/L	3					
1,4-Dichlorobenzene	UG/L	3					
Acetone	UG/L	50	12.0	6.81 J		8.82 J	
Benzene	UG/L	1					
Chlorobenzene	UG/L	5					
Chloroethane	UG/L	5					
Chloroform	UG/L	7					
cis-1,2-Dichloroethene	UG/L	5	1.34 J	6.84	0.956 J	1.05 J	5.32
Cyclohexane	UG/L	-					
Isopropylbenzene	UG/L	5					
Methylene chloride	UG/L	5					
Tetrachloroethene	UG/L	5	0.506 J				
Toluene	UG/L	5					
trans-1,2-Dichloroethene	UG/L	5					
Trichloroethene	UG/L	5			1.45 J		1.92 J
Vinyl chloride	UG/L	2					

*Criteria- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 Addendum). Class GA.

Flags assigned during chemistry validation are shown.

(oval) Concentration Exceeds Criteria.

Only Detected Results Reported.

N

FILLMORE AVENUE

NIAGARA MOHAWK POWER CO. EASEMENT

PROPERTY LINE

B-07
No Compounds Detected

B-05R
1,2-Dichlorobenzene, 54.0
1,3-Dichlorobenzene, 12.0
1,4-Dichlorobenzene, 30.0
Benzene, 2.21
Chlorobenzene, 8.45
cis-1,2-Dichloroethene, 12.2
Tetrachloroethene, 56.5
Trichloroethene, 35.6
Vinyl chloride, 6.90

CBNW
cis-1,2-Dichloroethene, 6.84

CBNE
No Compounds Exceed Criteria

B-01
Benzene, 16.4
Chlorobenzene, 280

SHED

TRUCK WASH BAYS

WASTEWATER TREATMENT PLANT

DRUM STORAGE AREA

TRAILER

B-11
1,1-Dichloroethane, 19.4
Benzene, 4.39
cis-1,2-Dichloroethene, 1180
trans-1,2-Dichloroethene, 32.3
Trichloroethene, 10.4
Vinyl chloride, 444

FORMER LAGOONS

B-13
Benzene, 1.01
cis-1,2-Dichloroethene, 5.59
Trichloroethene, 6.84

B-14
Benzene, 1420
cis-1,2-Dichloroethene, 1870
trans-1,2-Dichloroethene, 50.2
Trichloroethene, 17.8
Vinyl chloride, 758

B-06
No Compounds Detected

B-03
Benzene, 4.36
Chlorobenzene, 6.98
Vinyl chloride, 19.0

B-12
1,1-Dichloroethene, 8.98
Benzene, 454
cis-1,2-Dichloroethene, 6640
trans-1,2-Dichloroethene, 62.4
Vinyl chloride, 255

WALES AVENUE

B-02
1,1-Dichloroethane, 11.3
1,2-Dichloroethane, 3.66
Benzene, 3.70
cis-1,2-Dichloroethene, 5.73
Trichloroethene, 10.3
Vinyl chloride, 2.21

B-04
Vinyl chloride, 2.30

B-15
Benzene, 10.9
cis-1,2-Dichloroethene, 37.7
Vinyl chloride, 139

B-10
Vinyl chloride, 26.8

B-08
cis-1,2-Dichloroethene, 7.91

CBSE
No Compounds Exceed Criteria

CBSW
No Compounds Exceed Criteria

B-09
No Compounds Exceed Criteria

ELLICOTT CREEK

SG-02A

OUTFALL
cis-1,2-Dichloroethene, 5.32

Legend

- Monitoring Well Location
- Catch Basin

B-08
cis-1,2-Dichloroethene, 7.91

Location ID — Compound Exceeding Criteria — Concentration (ug/L)

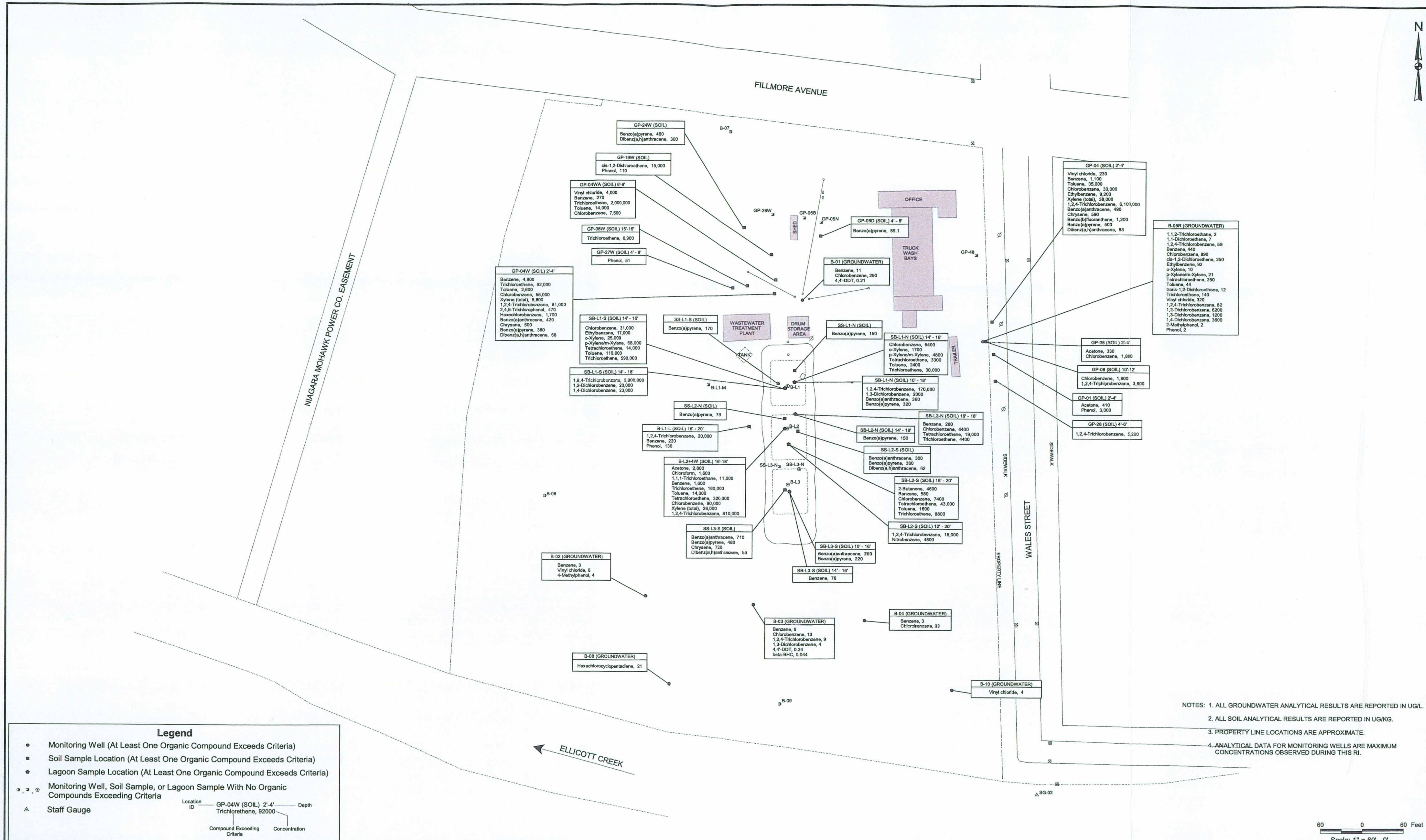
150 0 150 Feet

CHEMICAL LEAMAN
GROUNDWATER ANALYTICAL RESULTS (JUNE 2004)

URS

FIGURE 3-1

J:\35665.01\db\GIS\chem.apr JUNE 2004 GROUNDWATER ANALYTICAL RESULTS
8/6/2004


N
FILLMORE AVENUE
NIAGARA MOHAWK POWER CO. EASEMENT
WALES STREET
SIDEWALK
SIDEWALK
PROPERTY LINE
ELLICOTT CREEK
OFFICE
TRUCK WASH BAYS
SHED
WASTEWATER TREATMENT PLANT
DRUM STORAGE AREA
TRAILER
TANK
B-07
B-06
B-09
GP-28W
GP-06B
GP-05N
GP-48
B-L1-M
B-L1
B-L2
B-L3
SS-L3-N
SB-L3-N
SG-02
GP-24W (SOIL)
Benzo(a)pyrene, 460
Dibenz(a,h)anthracene, 300
GP-19W (SOIL)
cis-1,2-Dichloroethene, 15,000
Phenol, 110
GP-04WA (SOIL) 6'-8'
Vinyl chloride, 4,000
Benzene, 270
Trichloroethene, 2,000,000
Toluene, 14,000
Chlorobenzene, 7,500
GP-08W (SOIL) 15'-16'
Trichloroethene, 6,900
GP-27W (SOIL) 4' - 8'
Phenol, 51
GP-04W (SOIL) 2'-4'
Benzene, 4,800
Trichloroethene, 92,000
Toluene, 2,600
Chlorobenzene, 55,000
Xylene (total), 5,800
1,2,4-Trichlorobenzene, 81,000
2,4,5-Trichlorophenol, 470
Hexachlorobenzene, 1,700
Benzo(a)anthracene, 420
Chrysene, 500
Benzo(a)pyrene, 380
Dibenz(a,h)anthracene, 68
SB-L1-S (SOIL) 14' - 16'
Chlorobenzene, 31,000
Ethylbenzene, 17,000
o-Xylene, 25,000
p-Xylene/m-Xylene, 68,000
Tetrachloroethene, 14,000
Toluene, 110,000
Trichloroethene, 590,000
SS-L1-S (SOIL)
Benzo(a)pyrene, 170
SB-L1-S (SOIL) 14' - 18'
1,2,4-Trichlorobenzene, 3,200,000
1,2-Dichlorobenzene, 20,000
1,4-Dichlorobenzene, 23,000
SS-L2-N (SOIL)
Benzo(a)pyrene, 79
B-L1-L (SOIL) 18' - 20'
1,2,4-Trichlorobenzene, 20,000
Benzene, 220
Phenol, 130
B-L2+4W (SOIL) 16'-18'
Acetone, 2,800
Chloroform, 1,600
1,1,1-Trichloroethane, 11,000
Benzene, 1,600
Trichloroethene, 160,000
Toluene, 14,000
Tetrachloroethene, 320,000
Chlorobenzene, 90,000
Xylene (total), 26,000
1,2,4-Trichlorobenzene, 810,000
SS-L3-S (SOIL)
Benzo(a)anthracene, 710
Benzo(a)pyrene, 480
Chrysene, 720
Dibenz(a,h)anthracene, 53
B-02 (GROUNDWATER)
Benzene, 3
Vinyl chloride, 6
4-Methylphenol, 4
B-08 (GROUNDWATER)
Hexachlorocyclopentadiene, 21
B-03 (GROUNDWATER)
Benzene, 6
Chlorobenzene, 13
1,2,4-Trichlorobenzene, 9
1,3-Dichlorobenzene, 4
4,4'-DDT, 0.24
beta-BHC, 0.044
B-04 (GROUNDWATER)
Benzene, 3
Chlorobenzene, 33
B-10 (GROUNDWATER)
Vinyl chloride, 4
SB-L3-S (SOIL) 10' - 16'
Benzo(a)anthracene, 280
Benzo(a)pyrene, 220
SB-L3-S (SOIL) 14' - 16'
Benzene, 76
GP-06D (SOIL) 4' - 8'
Benzo(a)pyrene, 89.1
B-01 (GROUNDWATER)
Benzene, 11
Chlorobenzene, 290
4,4'-DDT, 0.21
SS-L1-N (SOIL)
Benzo(a)pyrene, 150
SB-L1-N (SOIL) 14' - 16'
Chlorobenzene, 5400
o-Xylene, 1700
p-Xylene/m-Xylene, 4800
Tetrachloroethene, 3300
Toluene, 2400
Trichloroethene, 30,000
SB-L1-N (SOIL) 10' - 18'
1,2,4-Trichlorobenzene, 170,000
1,3-Dichlorobenzene, 2000
Benzo(a)anthracene, 360
Benzo(a)pyrene, 320
SB-L2-N (SOIL) 16' - 18'
Benzene, 280
Chlorobenzene, 4400
Tetrachloroethene, 19,000
Trichloroethene, 4400
SB-L2-N (SOIL) 14' - 18'
Benzo(a)pyrene, 150
SS-L2-S (SOIL)
Benzo(a)anthracene, 300
Benzo(a)pyrene, 360
Dibenz(a,h)anthracene, 62
SB-L2-S (SOIL) 18' - 20'
2-Butanone, 4600
Benzene, 580
Chlorobenzene, 7400
Tetrachloroethene, 43,000
Toluene, 1600
Trichloroethene, 8800
SB-L2-S (SOIL) 12' - 20'
1,2,4-Trichlorobenzene, 15,000
Nitrobenzene, 4800
GP-04 (SOIL) 2'-4'
Vinyl chloride, 230
Benzene, 1,100
Toluene, 35,000
Chlorobenzene, 30,000
Ethylbenzene, 9,200
Xylene (total), 38,000
1,2,4-Trichlorobenzene, 6,100,000
Benzo(a)anthracene, 490
Chrysene, 590
Benzo(b)fluoranthene, 1,200
Benzo(a)pyrene, 500
Dibenz(a,h)anthracene, 83
B-05R (GROUNDWATER)
1,1,2-Trichloroethane, 2
1,1-Dichloroethene, 7
1,2,4-Trichlorobenzene, 59
Benzene, 440
Chlorobenzene, 890
cis-1,2-Dichloroethene, 250
Ethylbenzene, 92
o-Xylene, 10
p-Xylene/m-Xylene, 21
Tetrachloroethene, 250
Toluene, 44
trans-1,2-Dichloroethene, 12
Trichloroethene, 140
Vinyl chloride, 320
1,2,4-Trichlorobenzene, 82
1,2-Dichlorobenzene, 6200
1,3-Dichlorobenzene, 1200
1,4-Dichlorobenzene, 3600
2-Methylphenol, 2
Phenol, 2
GP-08 (SOIL) 2'-4'
Acetone, 330
Chlorobenzene, 1,800
GP-08 (SOIL) 10'-12'
Chlorobenzene, 1,800
1,2,4-Trichlorobenzene, 3,600
GP-01 (SOIL) 2'-4'
Acetone, 410
Phenol, 3,000
GP-28 (SOIL) 4'-6'
1,2,4-Trichlorobenzene, 5,200
Legend
Monitoring Well (At Least One Organic Compound Exceeds Criteria)
Soil Sample Location (At Least One Organic Compound Exceeds Criteria)
Lagoon Sample Location (At Least One Organic Compound Exceeds Criteria)
Monitoring Well, Soil Sample, or Lagoon Sample With No Organic Compounds Exceeding Criteria
Staff Gauge
Location ID
GP-04W (SOIL) 2'-4'
Trichlorethene, 92000
Depth
Compound Exceeding Criteria
Concentration
NOTES: 1. ALL GROUNDWATER ANALYTICAL RESULTS ARE REPORTED IN UG/L.
2. ALL SOIL ANALYTICAL RESULTS ARE REPORTED IN UG/KG.
3. PROPERTY LINE LOCATIONS ARE APPROXIMATE.
4. ANALYTICAL DATA FOR MONITORING WELLS ARE MAXIMUM CONCENTRATIONS OBSERVED DURING THIS RI.
60 0 60 Feet
Scale: 1" = 60' - 0'

WARNING
IT IS VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON OTHER THAN WHOSE SEAL APPEARS ON THIS DRAWING, TO ALTER IN ANY WAY AN ITEM ON THIS DRAWING. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

NO.	DATE	DESCRIPTION	NO.	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: DJS
DRAWN BY: SPM
CHECKED BY: DJS
PROJ. ENGR. DWR

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JOB No. 35665.01.20000

CHEMICAL LEAMAN
TOWN OF TONWANDA NEW YORK

PHASE III REMEDIAL INVESTIGATION

ORGANIC COMPOUND EXCEEDENCES IN SOIL AND GROUNDWATER SAMPLES

Scale: 1" = 60' - 0' | Date: AUG. 2002 | FIGURE 3-2

This drawing was computer generated. Any changes and/or revisions should be made to the CADD drawing file.

RI Results: Groundwater at the location of these wells has not been impacted by site activities, as indicated by the fact that there were no exceedances of Class GA groundwater standards in either well by organic compounds (VOCs, SVOCs, Pest/PCBs); and the only compounds detected in either well (Acetone and bis(2-Ethylhexyl)phthalate) occurred at trace levels and are common laboratory contaminants. Several metals exceeded Class GA standards in one or both wells, including: Antimony, Iron, Lead, Magnesium, Manganese, Sodium and Thallium. However, based upon the location of the wells and the absence of organic contaminants within them, it is concluded that these metals are not site-related contaminants.

SI Results: No VOCs were detected in either of these wells during the SI. Consequently, the conclusion reached during the RI that groundwater at the location of these wells has not been impacted by site activities is still valid.

3.2.2.2 Area North of Former Wastewater Treatment Plant:

Well B-01 is located in this area, which is upgradient from the former lagoons under predominant groundwater flow conditions.

RI Results: Organic contaminants detected in this well at concentrations exceeding Class GA criteria were: Benzene (10 and 11 micrograms per liter (µg/L), or parts per billion (ppb)); Chlorobenzene (240 and 290 µg/L); and 4,4'-DDT (0.21 µg/L during the first Phase I groundwater sampling event only). The Class GA criteria for these compounds are 1 µg/L (Benzene), 5 µg/L (Chlorobenzene), and 0.2 µg/L (4-4'-DDT). The only metals exceeding criteria were also detected as exceedances in the upgradient and sidegradient wells, and are not considered to be site-related. The above results are similar to those observed during the 1991 and 1993 sampling of well B-01 for aromatic hydrocarbons (Benzene and Chlorobenzene). However, the chlorinated hydrocarbons exceeding Class GA standards during the previous sampling (1,2-Dichloroethene and Vinyl Chloride) were not detected during this RI. The pesticide 4,4'-DDT is not considered to be a significant groundwater contaminant in the area, since it exceeded its Class GA standard (0.20 µg/L) only marginally during the first Phase I sampling event, and was not detected at all during the second.

SI Results: During this SI, the only VOCs detected in B-01 at concentrations exceeding Class GA standards were benzene and chlorobenzene at 16.4 ug/L and 280 ug/L, respectively. These are the same two aromatic hydrocarbons that were detected in B-01 during the RI. The concentrations were relatively unchanged from the previous concentrations (i.e. 11 ug/L and 290 ug/L).

3.2.2.3 Area South of Former Lagoons

Six wells were monitored in the area south (downgradient) of the former lagoons area: B-02, B-03, B-04, B-08, B-09 and B-10.

RI Results: Wells B-02 through B-04, which were installed in 1981 and are located along a line approximately 150 feet south of Lagoon #3 (Figure 3- 2), showed the following results:

The following compounds exceeded Class GA standards in one or more of these three wells: Benzene (6 µg/L); Chlorobenzene (23 µg/L); Vinyl Chloride (6 µg/L); 1,2,4-TCB (9 µg/L); 1,3-DCB (4 µg/L); 4-Methylphenol (4 µg/L); 4,4'-DDT (0.24 µg/L); beta-BHC (0.044 µg/L); and generally the same set of metals that exceeded standards in the upgradient and sidegradient wells.

The above (maximum) concentrations for benzene and chlorobenzene are much less than observed during the 1991 and 1993 sampling events. For example, benzene was previously detected in well B-03 at 130 µg/L in 1991 and 710 µg/L in 1993, versus 3 µg/L and 6 µg/L during the two RI Phase I sampling events. On the other hand, the other RI organic compound exceedances, though very low-level, were not observed during 1991 or 1993 sampling events. Vinyl chloride was not used or handled at the site, and may be a natural attenuation daughter product of the chlorinated organic contaminants detected in site soils and groundwater.

Wells B-08 through B-10, which were installed during the Phase III RI, are located along a line between wells B-02 through B-04 and Ellicott Creek (Figure 3- 2). Analytical results from

these wells during the RI indicate that the only organic compounds exceeding Class GA standards were Vinyl Chloride (4 µg/L in well B-10) and Hexachloropentadiene (21 µg/L in well B-08). The latter compound has not been detected in any other onsite well except B-09 (at 5 µg/L), nor in any of the soil samples from the site.

SI Results: During this SI the following VOCs exceeded the Class GA standards in one or more of wells B-02 to B-04: benzene (4.36 µg/L); chlorobenzene (6.98 µg/L); vinyl chloride (19.0 µg/L). These compounds were previously detected in these wells at similar or slightly higher concentrations. The aromatic hydrocarbons previously detected in these wells (i.e. 1,2,4-dichlorobenzene and 1,3-dichlorobenzene) were not detected this time. Additionally, the following chlorinated hydrocarbons, which were not previously observed at concentrations exceeding the SCGs, were detected: 1,1-DCA (11.3 µg/L); 1,2-DCA (3.66 µg/L); cis-1,2-DCE (5.73 µg/L); and, TCE (10.3 µg/L).

The only VOCs detected in wells B-08 through B-10 at concentrations exceeding Class GA standards were vinyl chloride (26.8 µg/L) in well B-10 and cis-1,2-DCE (7.91 µg/L) in well B-08. No compounds exceeding Class GA standards were detected in well B-09.

The above data indicate that groundwater contamination from the CLTL site is not moving at significant concentrations toward, or discharging into, Ellicott Creek via the predominant north-to-south flow pathway across the site.

3.2.2.4 East Area (Wells B-05R and B-11 to B-15)

Well B-05R and the five newly installed wells B-11 to B-15 are located in the area east of the lagoons, between the lagoons and Wales Avenue.

RI Results: Groundwater on the east side of the site remains contaminated, as indicated by the data from well B-05R (Figure 3-2). Metals are not a concern, since they occur at similar concentrations in upgradient and sidegradient wells. However, there are numerous organic compounds that exceed Class GA groundwater standards in this well. The following list indicates

the categories of these contaminants and the maximum concentrations of individual compounds within each category that exceed Class GA criteria:

Aromatic hydrocarbons – Benzene (440 µg/L); Toluene (44 µg/L); Ethylbenzene (92 µg/L); Xylenes (30 µg/L); Chlorobenzene (890 µg/L); 1,2,4-TCB (82 µg/L); 1,2-DCB (6,200 µg/L); 1,3-DCB (1,200 µg/L); 1,4-DCB (3,600 µg/L)

Chlorinated hydrocarbons – PCE (250 µg/L); TCE (140 µg/L); 1,1,2-Trichloroethene (2 µg/L); cis-1,2-Dichloroethene (250 µg/L); trans-1,2-Dichloroethene (12 µg/L); Vinyl Chloride (320 µg/L)

Phenolic compounds – Phenol (2 µg/L); 2-Methylphenol (2 µg/L)

SI Results: During this SI, the VOCs detected at concentrations exceeding the Class GA standards included the following:

Aromatic hydrocarbons – Benzene (2.21 µg/L); Chlorobenzene (8.45 µg/L); 1,2-DCB (54.0 µg/L); 1,3-DCB (12.0 µg/L); 1,4-DCB (30.0 µg/L)

Chlorinated hydrocarbons – PCE (56.5 µg/L); TCE (35.6 µg/L); cis-1,2-Dichloroethene (12.2ug/L); Vinyl Chloride (6.90 µg/L)

Based on the recent data, the number and concentrations of VOCs detected in B-05R has reduced considerably. There are only five aromatic hydrocarbons vs nine previously, and the concentrations are about two orders of magnitude lower. Similarly, only four chlorinated hydrocarbons vs. six previously were detected, and the concentrations were only about 20 percent of the previous levels.

This would indicate that contamination in groundwater in the vicinity of B-05R, is still present, however, at considerably reduced levels.

As noted above, five new monitoring wells (B-11 through B-15) were installed in the area bounded by the former lagoons on the west, Wales Avenue on the east, B-05R to the north and B-04 to the south (Figure 3- 1) to investigate contamination in the east area of the site. Several VOCs were detected in these wells. The following list indicates the categories of these contaminants and the maximum concentrations of individual compounds within each category that exceed the SCGs:

Aromatic hydrocarbons – Benzene (1420 µg/L)

Chlorinated hydrocarbons – TCE (17.8 µg/L); cis-1,2-Dichloroethene (6640 µg/L); trans-1,2-Dichloroethene (62.4 µg/L); Vinyl Chloride (758 µg/L); 1,1-DCA (19.4 ug/L); 1,1-DCE (8.98 ug/L).

For the most part, these compounds are not the same as those detected in the shallow soils along the eastern edge of the site. They are similar to some of the constituents detected in well B-05R, although they are generally at higher concentrations. Additionally, the aromatic hydrocarbons detected in B-05R, with the exception of benzene, are not present in the five east area wells. Benzene and TCE were observed in the soils associated with the lagoons. Benzene was observed at similar concentrations to those observed in groundwater in B-11 to B-15. TCE was observed at much high concentrations (590,000 ug/L) in the Lagoon 2 area. The remaining chlorinated hydrocarbons observed in wells B-11 to B-15 are typical daughter products resulting from TCE degradation. In that wells B-11 to B-15 are downgradient of the lagoons during periods of mounding and cross gradient during the rest of the year, it is possible that the source of the benzene and chlorinated hydrocarbons is the soils under the lagoon. Alternatively, based on the fact that the concentrations of the VOCs in the five east area wells are typically higher than the concentrations observed in the soils along the eastern edge of the site and/or the groundwater in B-05R, it is possible that localized spills or leaks associated with tanker trucks parked in the east area may have been the source of the contamination.

3.2.2.5 Storm Sewer Along Wales Avenue and Outfall to Ellicott Creek

As shown on Figure 3-1, there are catch basins located on the north and south sides of Fillmore Avenue, the west and east sides of Wales Avenue, and the north and south sides of Vickers Avenue. These catch basins are interconnected and ultimately discharge via a 30-inch diameter corrugated metal pipe (CMP) to Ellicott Creek.

RI Results: These storm sewers/catch basins were not sampled during the RI.

SI Results: VOCs were detected in the water samples in all four catch basins located along Wales Avenue and the outfall to Ellicott Creek. The catch basins on Fillmore Avenue and Vickers Avenue were not sampled during the SI. However, only cis-1,2-DCE was detected in

CB-NW and the outfall at concentrations (i.e. 6.84 and 5.32 ug/L, respectively) that slightly exceed the Class GA standards (i.e. 5.0 ug/L). (There is no surface water standard for this compound). This compound was observed at higher concentrations in B-05R and all five of the east area wells. It was not observed in the soils associated with the lagoons.

Throughout most of the year (i.e. non-mounding periods), the groundwater surface elevation is below the storm sewer invert elevation. It is possible that there is some very limited migration of VOCs from the site to the east towards Wales Avenue and into the storm sewers during mounding periods. During the remainder of the year, groundwater flow is to the south, parallel to the storm sewer alignment, or to the southwest, towards the site. During these periods, it is unlikely that any VOCs are discharged to the east and/or into the storm sewers.

3.3 Summary and Conclusions:

Based on the results from the RI and SI the following conclusions were made:

- Groundwater on the north (upgradient) and west (sidegradient) sides of the CLTL site has not been impacted by site operations. In the area north of the former lagoons and wastewater treatment plant, groundwater is contaminated by two aromatic hydrocarbons (Benzene and Chlorobenzene) that exceed Class GA groundwater standards.

- Downgradient from the lagoons, approaching Ellicott Creek, contaminant concentrations diminish, and there does not appear to be any significant evidence of groundwater contaminant migration offsite to the Creek via the primary north-to-south groundwater flow pathway.

- Groundwater on the east side of the site, at well B-05R, remains contaminated, by a number of aromatic hydrocarbons and chlorinated hydrocarbons. However, no phenolic compounds were observed during the latest round of sampling. Additionally, the number of organic constituents detected and the concentrations were considerably less than in earlier sampling events.

- Groundwater in the area east of the lagoons (Wells B-11 to B-15) is contaminated by a number of aromatic hydrocarbons and chlorinated hydrocarbons that exceed the Class GA standards. For the most part these constituents include benzene and TCE and a number of daughter products typical of TCE degradation. During the RI, Benzene, PCE and TCE were detected in soils under the lagoons, but were not detected in soils along the eastern edge of the site. The source of the contaminants may be the spills or leaks that may have occurred historically in the tanker truck parking area.

- Water samples collected from the storm sewer along Wales Avenue and the outfall to Ellicott Creek under mounding conditions, indicated concentrations of one VOC (cis-1,2 – dichloroethene) at levels that just slightly exceed the Class GA standards. There is no standard for this compound for surface waters.

- The analytical data indicates that some organic contaminants may be entering the storm sewer along Wales Avenue during mounding periods. However, throughout most of the year (i.e. non-mounding periods) the groundwater surface is below the storm sewer invert elevation. The storm sewers do not typically act as a groundwater 'sink'. Therefore, the source of the organic contaminants is uncertain.

In general, groundwater contamination does not appear to be moving offsite in a southward direction toward Ellicott Creek. Likewise, it appears that contaminant migration offsite to the east and/or into the storm sewers along Wales Avenue is unlikely during most of the year, and could only occur under mounding conditions in the Spring when groundwater flow is to the east. During the remainder of the year, groundwater flow is to the south, parallel to the storm sewer alignment, or to the southwest towards the site. Whereas, the water in the storm sewers discharges to Ellicott Creek, the contaminant concentration does not contravene any surface water standards.

APPENDIX A

BORING LOGS

URS Corporation

GEOPROBE BORING LOG

BORING NO: B-11
SHEET: 1 of 1
PROJECT NO.: 11170332.00001

PROJECT: Chemical Leaman RI/FS-Phase IV
CLIENT: Chemical Leaman Tank Lines
BORING CONTRACTOR: Zebra Environmental Corp.
BORING LOCATION:
GROUND ELEVATION: 575.40
DATE STARTED: 6/16/03
DRILLER: C. Donovan
GEOLOGIST: R. Murphy
REVIEWED BY: R. Henschel

GROUNDWATER:

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		Macro-core		
Dia.		2"		
Length		48"		
Liner		Acetate		

SAMPLE

DEPTH FEET	STRATA	"S" NO.	% Rec.	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	PID (ppm)	REMARKS
				Gray	not logged	0-1.0' Fill: Gravel and Silty Sand.	Fill	0.0	dry
		1	83%	Gray		Clayey Silt to Silty Clay, with brown mottling, trace to some very fine sand.	CL-ML		moist
4									wet at 3.9'
		2	100%	Reddish Brown		-more Fine Sand		0.0	
8									
		3	100%			Silty Fine to Very Fine Sand	SM	0.0	
12									
		4	38%	Brown		-12.0-16.0 Less fines, less cohesive, very wet.		0.0	
16									
		5	100%	Dark Gray		16.0-22.5' Silty Fine to Very Fine Sand with occassional silty clay stringers (1/8"-1/16" thick)		0.0	Drove Sample # 5 extra foot because clay was expected at 21'.
20									
		6	100%					0.0	
23				Light Gray		22.5-23.0' Clayey Silt and angular f. gravel			
				Red		23.0' Clay	CL		Clay observed on end of sampler.
						End of Boring at 23.0'			

Comments: Boring advanced using a track mounted Geoprobe Assembly.
Installed 1-inch PVC piezometer at 23.0 feet bgs.

BORING NO.: **B-11**

URS Corporation

GEOPROBE BORING LOG

PROJECT:	Chemical Leaman RI/FS-Phase IV
CLIENT:	Chemical Leaman Tank Lines
BORING CONTRACTOR:	Zebra Environmental Corp.
GROUNDWATER:	

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		Macro-core		
Dia.		2"		
Length		48"		
Liner		Acetate		

BORING NO: B-12
SHEET: 1 of 1
PROJECT NO.: 11170332.00001
BORING LOCATION:
GROUND ELEVATION: 574.31
DATE STARTED: 6/16/03
DRILLER: C. Donovan
GEOLOGIST: R. Murphy
REVIEWED BY: R. Henschel

SAMPLE

DEPTH FEET	STRATA	"S" NO.	% Rec.	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	PID (ppm)	REMARKS
		1	80%	Gray / Reddish Brown / Black/Gray	not logged	0-1.0' Fill: Gravel and Silty Sand.	Fill	0.0	dry
4						1.0-1.5' Silty Clay, possibly reworked. 1.5-4.0' Silty Clay with brown mottling.	CL		moist
		2	90%	Gray → Reddish Brown		Silty Very Fine to Fine Sand, trace clay.	SM	0.0	wet at 4.5'
8									
		3	90%			-9.5-10.5 Less fines, less cohesive, very wet.		0.0	
12				Gray to R. Brown					
		4	68%	D. Gray to D. Brown		Silty Fine to Very Fine Sand with occasional silty clay layers (1/8"-1/12" thick)		0.0	
16									
		5	75%					0.0	
20									
		6	75%	D. Brown Red		20.0-20.5' Gravelly Coarse Sand		0.0	
22						20.5-22.0' Clay	CL		
						End of Boring at 22.0'			

Comments: Boring advanced using a track mounted Geoprobe Assembly.
Installed 1-inch PVC piezometer at 20.5 feet bgs.

BORING NO.: **B-12**

URS Corporation

GEOPROBE BORING LOG

PROJECT:	Chemical Leaman RI/FS-Phase IV
CLIENT:	Chemical Leaman Tank Lines
BORING CONTRACTOR:	Zebra Environmental Corp.
GROUNDWATER:	

BORING NO: B-13
SHEET: 1 of 1
PROJECT NO.: 11170332.00001
BORING LOCATION:
GROUND ELEVATION: 574.33
DATE STARTED: 6/16/03
DRILLER: C. Donovan
GEOLOGIST: R. Murphy
REVIEWED BY: R. Henschel

DATE	TIME	LEVEL	TYPE

TYPE	CAS.	SAMPLER	CORE	TUBE
Dia.		2"		
Length		48"		
Liner		Acetate		

SAMPLE

DEPTH FEET	STRATA	"S" NO.	% Rec.	COLOR	CONSISTENCY / HARDNESS	MATERIAL	USCS	PID (ppm)	REMARKS
		1	83%	Gray Gray	not logged	0-1.5' Fill: Slag Gravel and Silty Sand.	Fill	14.7	dry
						1.5-3.0' Stained Silty Clay, trace wood.	CL		moist, highest PID reading from black stained wood.
4						Silty Clay w/ brown mottling , trace vf sand			wet at 4.0'
		2	100%					16.8	-black staining 4.0-7.0'
8				Brown/Gray		7.0-8.0 Silty Fine Sand	SM		
		3	100%	Gray to R. Brown		8.0-9.5' Silty Clay to Clayey Silt	CL-ML	4.1	-black staining 8.0-8.5'
						9.5-12.0' Silty Very Fine to Fine Sand	SM		
12						-11.5-12.0 Less cohesive, very wet.			
		4	38%	Brown Dark Gray		12.0-21.0' Silty Fine to Very Fine Sand with occassional silty clay stringers (1/8"-1/4" thick)		4.0	
16									
		5	100%					0.0	Drove Sample # 5 extra foot because clay was expected at 21'.
20									
						21.0' Clay, trace angular gravel.	CL		Clay observed on end of sampler.
23						End of Boring at 21.0'			

Comments: Boring advanced using a track mounted Geoprobe Assembly.
Installed 1-inch PVC piezometer at 21.0 feet bgs.

BORING NO.: **B-13**

20.3

URS Corporation

GEOPROBE BORING LOG

PROJECT: Chemical Leaman RI/FS-Phase IV
CLIENT: Chemical Leaman Tank Lines
BORING CONTRACTOR: Zebra Environmental Corp.
GROUNDWATER:

BORING NO: B-14
SHEET: 1 of 1
PROJECT NO.: 11170332.00001
BORING LOCATION:
GROUND ELEVATION: 573.64
DATE STARTED: 6/16/03
DRILLER: C. Donovan
GEOLOGIST: R. Murphy
REVIEWED BY: R. Henschel

DATE	TIME	LEVEL	TYPE	CAS.	SAMPLER	CORE	TUBE
			TYPE		Macro-core		
			Dia.		2"		
			Length		48"		
			Liner		Acetate		

DEPTH FEET	STRATA	SAMPLE "S" NO.	SAMPLE % Rec.	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	PID (ppm)	REMARKS
		1	90%	Gray/ Brown	not logged	0-1.5' Fill: Gravel and Silty Sand.	Fill	0.0	dry
						1.5-3.0' -oxidized Silty Clay, some fine sand, trace organics	CL		moist
4				Gray		3.0-5.0' Silty Fine Sand, trace to some clay. with greenish brown mottling	SM		wet at 3.9'
		2	90%	Brown-Light Gray		5.0-12.0' Silty Fine Sand.		0.0	
8									
		3	-					0.0	Sample 3 fell out of liner when removing. Could not measure recovery.
12									
		4	70%	Dark Gray to Gray		12.0-19.5' Silty Fine to Very Fine Sand with occassional silty clay stringers (1/8"-1/16" thick)		0.0	
16									
		5	67%					0.0	
20		6	80%	Brown		19.5-21.0' Silty Very Fine Sand Coarse Sand and Fine Gravel at top of clay		0.0	
22				Red		21.0-22.0' Clay	CL		
						End of Boring at 22.0'			

Comments: Boring advanced using a track mounted Geoprobe Assembly.
Installed 1-inch PVC piezometer at 20.5 feet bgs.

BORING NO.: B-14

URS Corporation

GEOPROBE BORING LOG

BORING NO: B-15
SHEET: 1 of 1
PROJECT NO.: 11170332.00001
BORING LOCATION: 572.90
GROUND ELEVATION:
DATE STARTED: 6/16/03
DRILLER: C. Donovan
GEOLOGIST: R. Murphy
REVIEWED BY: R. Henschel

PROJECT: Chemical Leaman RI/FS-Phase IV
CLIENT: Chemical Leaman Tank Lines
BORING CONTRACTOR: Zebra Environmental Corp.
GROUNDWATER:

DATE	TIME	LEVEL	TYPE

	CAS.	SAMPLER	CORE	TUBE
TYPE		Macro-core		
Dia.		2"		
Length		48"		
Liner		Acetate		

SAMPLE

DEPTH FEET	STRATA	"S" NO.	% Rec.	COLOR	CONSISTENCY HARDNESS	MATERIAL	USCS	PID (ppm)	REMARKS
		1	70%	Brown Black Gray to Brown	not logged	0-1.5' Fill: Topsoil, Gravel and Silty Sand.	Fill	0.0	dry
						1.5-2.0' Silty Clay, possibly reworked. 2.0-5.0' Silty Clay with brown mottling. -1" Fine Sand layer at 3.5'	CL		moist
4									
		2	100%	Brown		Silty Very Fine Sand, trace to some clay, trace gravel to 8.0'.	SM	0.0	wet at 5.0'
8									
		3	100%			-9.5-12.0 Less fines, less cohesive, very wet.		0.0	
12									
		4	63%	D. Gray		Silty Fine to Very Fine Sand with occasional silty clay layers (1/8"-1/4" thick)		0.0	
16						16-16.5' Gravelly Fine to Very Fine Sand		0.0	
		5	100%	Red		16.5-20.0' Clay	CL		
20									
						End of Boring at 20.0'			

Comments: Boring advanced using a track mounted Geoprobe Assembly.
Installed 1-inch PVC piezometer at 20.0 feet bgs.

BORING NO.: B-15

APPENDIX B

MONITORING WELL CONSTRUCTION DETAILS

DRILLING SUMMARY

Geologist:
Rob Murphy

Drilling Company:
Zebra Environmental Corp.

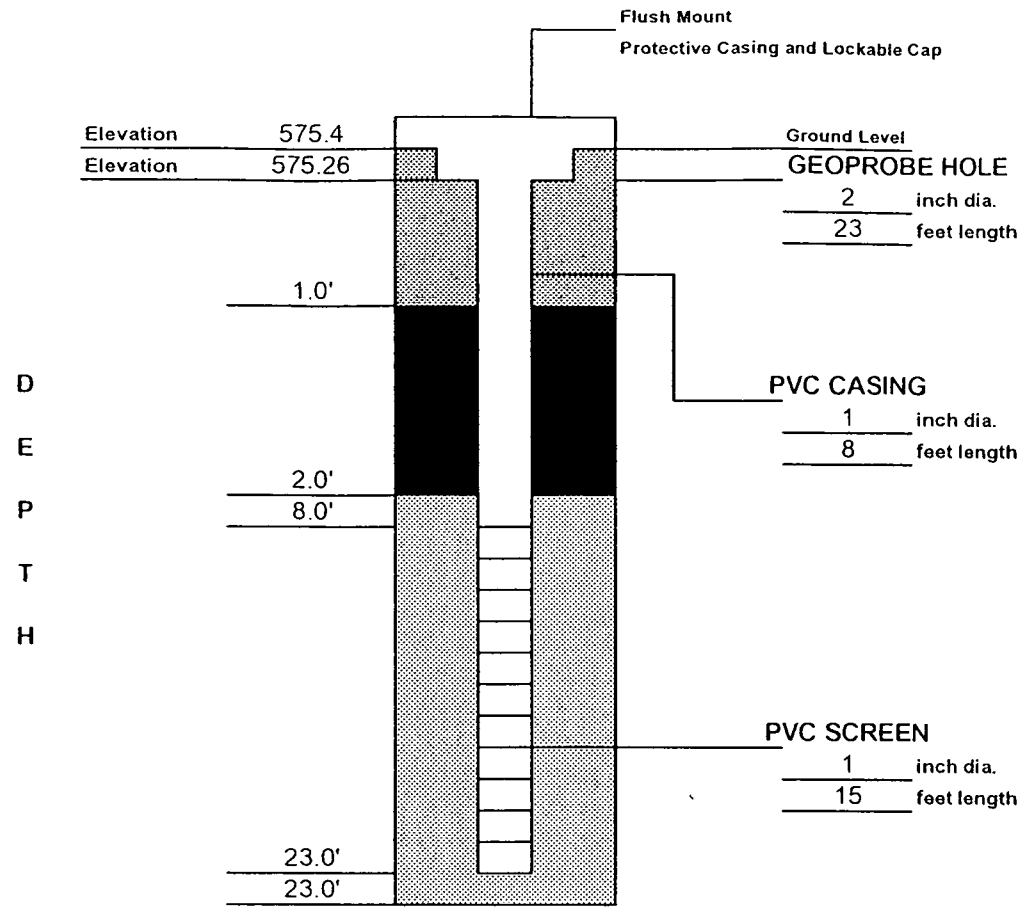
Driller:
Chris Donovan

Rig Make/Model:
Track Geoprobe Unit

Date:
6/16/2003

GEOLOGIC LOG

Depth(ft.)	Description
0-1	FILL: Gravel and Silty Sand
1-8	CLAYEY SILT to SILTY CLAY, trace to some fine sand
8-16	SILTY FINE to VERY FINE SAND, with occassional silty clay stringers
16-22.5	SILTY FINE to VERY FINE SAND, with occassional silty clay stringers
22.5-23	CLAYEY SILT and Gravel
23.0	CLAY



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: At grade steel roadbox	Type: 1" PVC	Type: Filpro #0 sand Setting: 2.0'-23.0'
Monitor: 1" PVC	Slot Size: 0.010"	SEAL MATERIAL
	Setting: 8.0'-23.0'	Type: Bentonite chips Setting: 1.0'-2.0'

COMMENTS:

LEGEND

- Cement
- Bentonite Seal
- Silica Sandpack

Client: Chemical Leaman	Location: Chemical Leaman Site	Project No.: 11170332.00001
URS Corporation	MONITORING WELL CONSTRUCTION DETAILS	Well Number: **B-11**

J:\35665.01\excel\ChemLeamanBoring Logs2003\Well Construction Diagrams (6-03)\B-11
9/17/2004

DRILLING SUMMARY

Geologist:
Rob Murphy

Drilling Company:
Zebra Environmental Corp.

Driller:
Chris Donovan

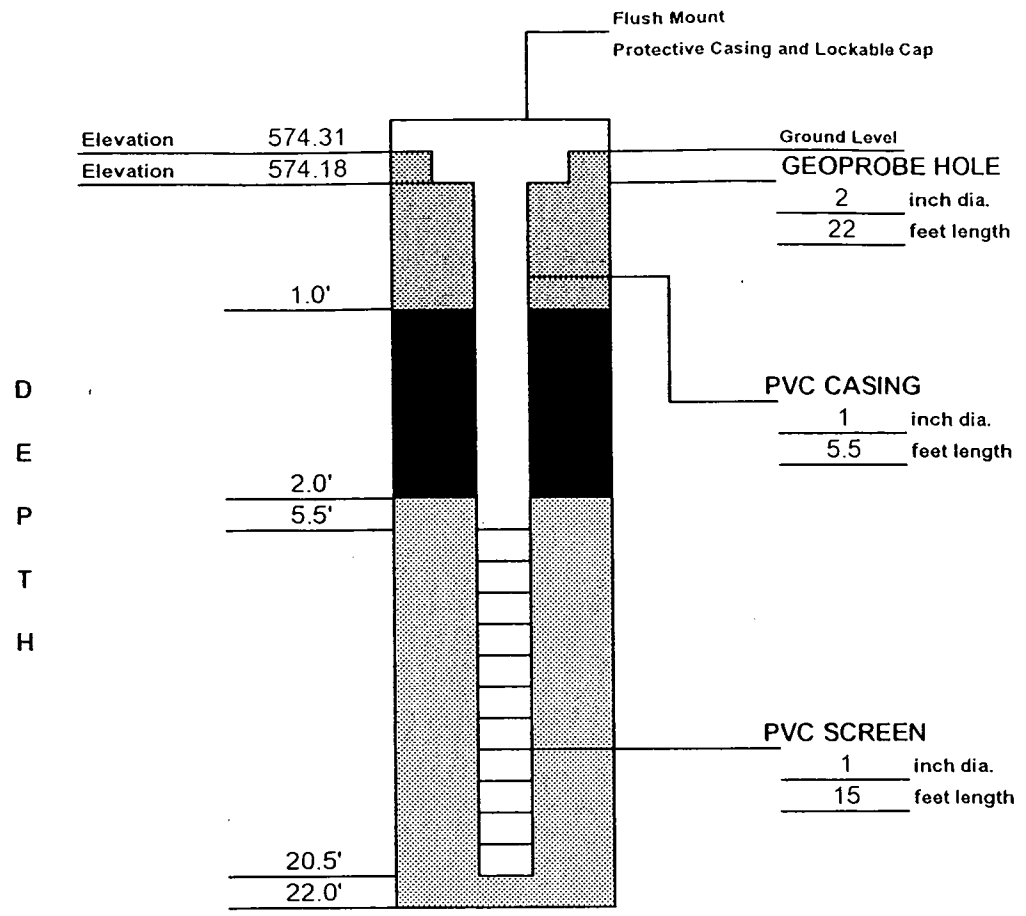
Rig Make/Model:
Track Geoprobe Unit

Date:
6/16/2003

GEOLOGIC LOG

Depth(ft.)	Description
0-1	FILL: Gravel and Silty Sand
1-4	SILTY CLAY
4-12	SILTY FINE to VERY FINE SAND, trace clay
12-20	SILTY FINE to VERY FINE SAND, with occassional silty clay stringers
20-20.5	GRAVELLY COARSE SAND
20.5-22.0	CLAY

WELL DESIGN



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: At grade steel roadbox	**Type:** 1" PVC	**Type:** Filpro #0 sand **Setting:** 2.0'-22.0'
Monitor: 1" PVC	**Slot Size:** 0.010"	**SEAL MATERIAL**
	Setting: 5.5'-20.5'	**Type:** Bentonite chips **Setting:** 1.0'-2.0'

COMMENTS:

LEGEND

- Cement
- Bentonite Seal
- Silica Sandpack

Client: Chemical Leaman	**Location: Chemical Leaman Site**	**Project No.: 11170332.00001**
URS Corporation	MONITORING WELL CONSTRUCTION DETAILS	**Well Number: B-12**

J:\35665.01\excel\ChemLeamanBoring Logs2003\Well Construction Diagrams (6-03)\B-12
9/17/2004

DRILLING SUMMARY

Geologist:
Rob Murphy

Drilling Company:
Zebra Environmental Corp.

Driller:
Chris Donovan

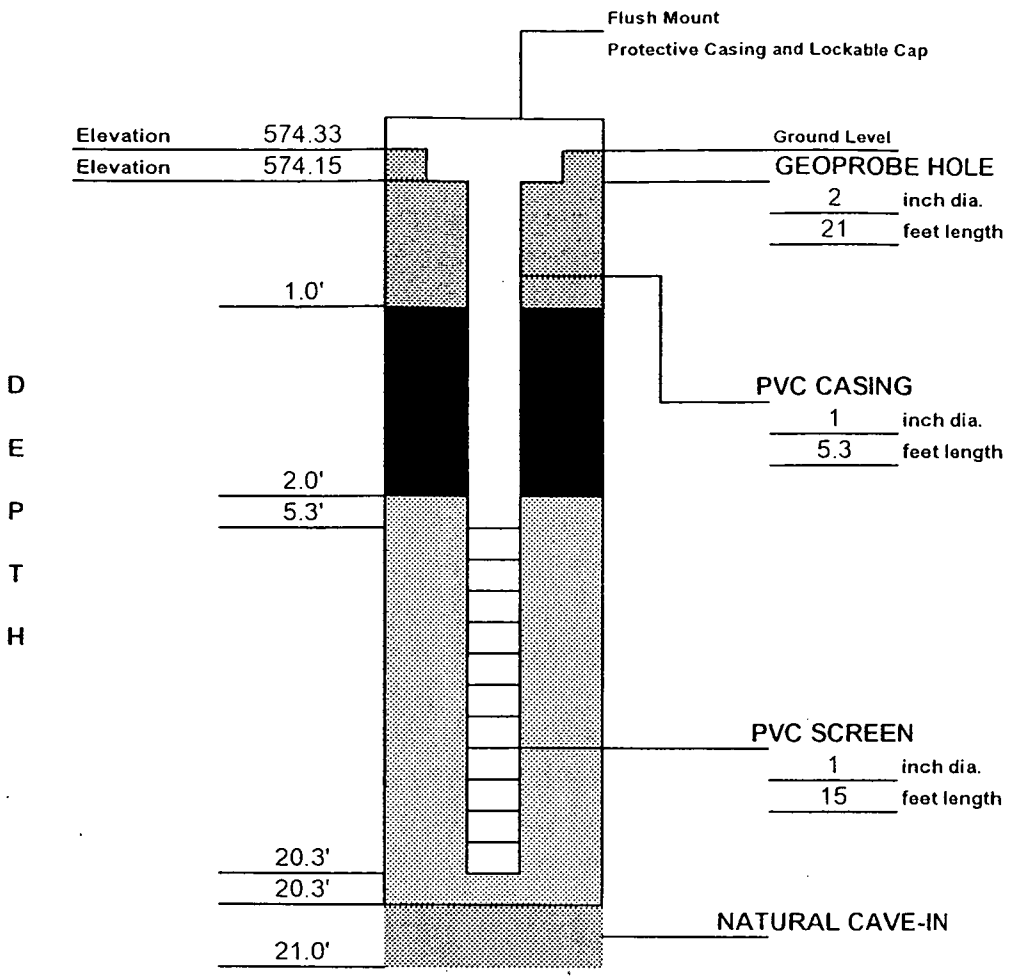
Rig Make/Model:
Track Geoprobe Unit

Date:
6/16/2003

GEOLOGIC LOG

Depth(ft.)	Description
0-1.5	FILL: Slag Gravel and Silty Sand
1-7	SILTY CLAY
7-8	SILTY FINE SAND
8-9.5	SILTY CLAY to CLAYEY SILT
9.5-12	SILTY VERY FINE to FINE SAND
12-21	SILTY FINE to VERY FINE SAND, with occassional silty clay stringers
21	CLAY

WELL DESIGN



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: At grade steel roadbox	Type: 1" PVC	Type: Filpro #0 sand Setting: 2.0'-20.3'
Monitor: 1" PVC	Slot Size: 0.010"	SEAL MATERIAL
	Setting: 5.3'-20.3'	Type: Bentonite chips Setting: 1.0'-2.0'

COMMENTS:

Attempted to set well at 21.0', well came up to 20.3' when pulling up casing.

LEGEND

- Cement
- Bentonite Seal
- Silica Sandpack

Client: Chemical Leaman	Location: Chemical Leaman Site	Project No.: 11170332.00001
URS Corporation	MONITORING WELL CONSTRUCTION DETAILS	Well Number: **B-13**

J:\35665.01\excel\ChemLeamanBoring Logs2003\Well Construction Diagrams (6-03)\B-13
9/17/2004

DRILLING SUMMARY

Geologist:
Rob Murphy

Drilling Company:
Zebra Environmental Corp.

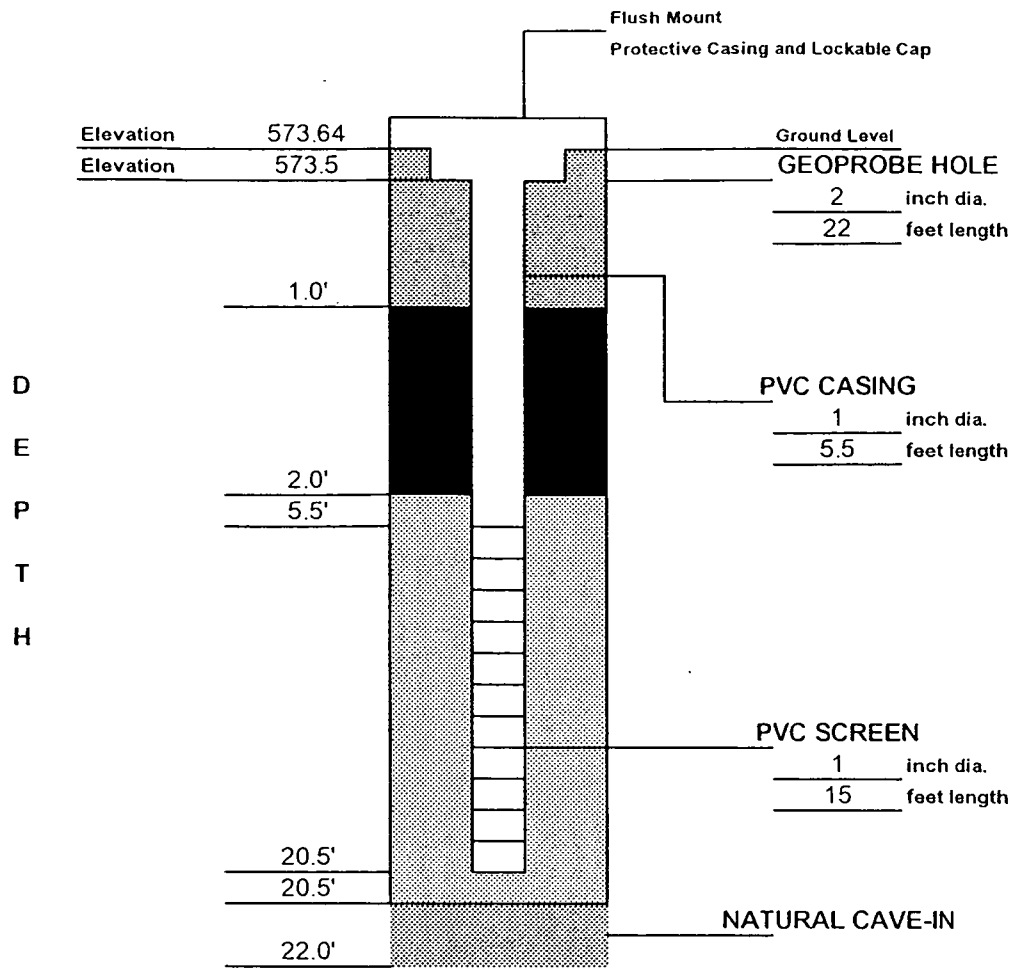
Driller:
Chris Donovan

Rig Make/Model:
Track Geoprobe Unit

Date:
6/16/2003

GEOLOGIC LOG

Depth(ft.)	Description
0-1.5	FILL: Gravel and Silty Sand
1.5-3.0	SILTY CLAY, some fine sand, trace organics
3-12	SILTY FINE SAND, trace to some clay
12-19.5	SILTY FINE to VERY FINE SAND, with occassional silty clay stringers
19.5-21	SILTY VERY FINE SAND
21-22	CLAY



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface: At grade steel roadbox	**Type:** 1" PVC	**Type:** Filpro #0 sand **Setting:** 2.0'-20.5'
Monitor: 1" PVC	**Slot Size:** 0.010"	**SEAL MATERIAL**
	Setting: 5.5'-20.5'	**Type:** Bentonite chips **Setting:** 1.0'-2.0'

COMMENTS:

Attempted to set well at 21', well came up to 20.5' when pulling up casing. Due to small diameter hole, the hole was orignally sanded to high. When placing roadbox, Drillers hand dug to 2' to place bentonite seal.

LEGEND

- Cement
- Bentonite Seal
- Silica Sandpack

Client: Chemical Leaman	**Location: Chemical Leaman Site**	**Project No.: 11170332.00001**
URS Corporation	MONITORING WELL CONSTRUCTION DETAILS	**Well Number: B-14**

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9/17/2004

DRILLING SUMMARY

Geologist:
Rob Murphy

Drilling Company:
Zebra Environmental Corp.

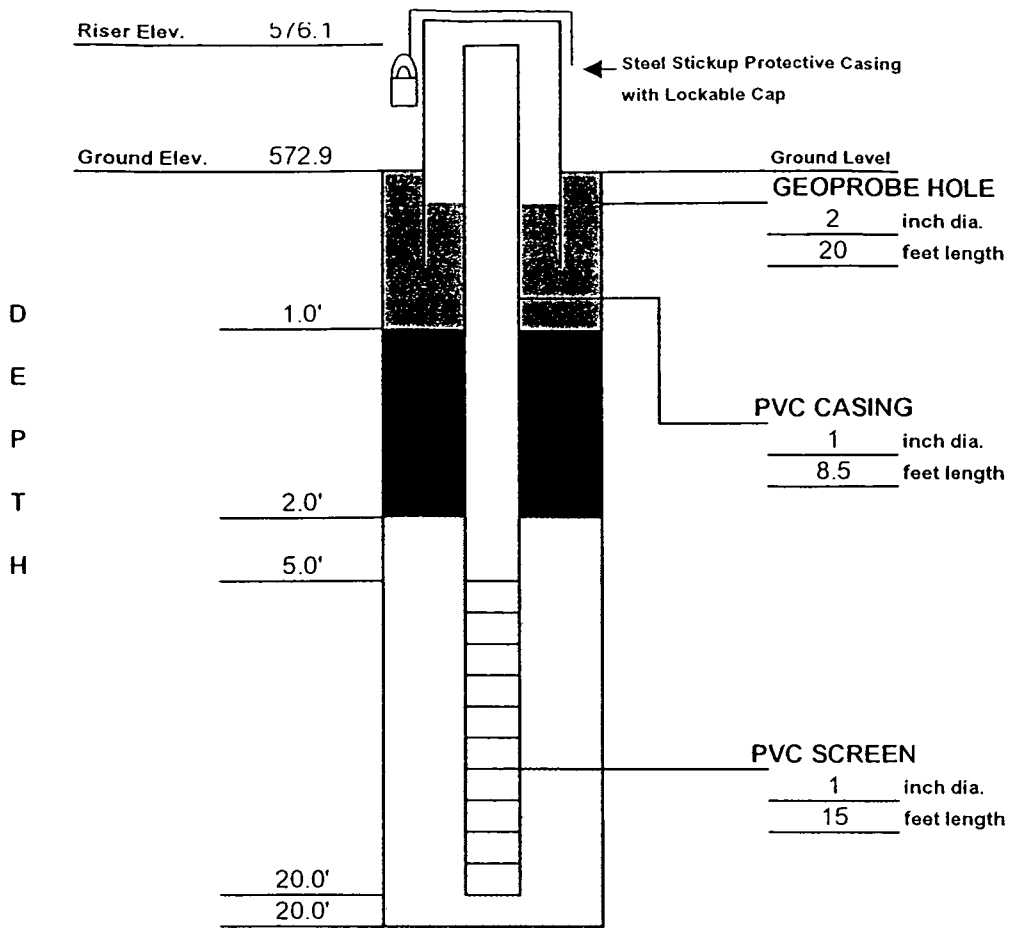
Driller:
Chris Donovan

Rig Make/Model:
Track Mounted Geoprobe

Date:
6/16/2003

GEOLOGIC LOG

Depth(ft.)	Description
0-1.5	FILL: Topsoil, Gravel and Silty Sand
1.5-5.0	SILTY CLAY
5.0-12.0	SILTY FINE SAND trace to some clay.
12-16.5	SILTY FINE to VERY FINE SAND, with occassional silty clay stringers
16.5-20	CLAY



WELL DESIGN

CASING MATERIAL	*SCREEN MATERIAL*	*FILTER MATERIAL*
Surface: Steel stickup protective casing	**Type:** 1" Schedule 40 PVC	**Type:** Filpro #0 Well Gravel
Monitor: 1" Schedule 40 PVC	**Slot Size:** 0.010"	**Setting:** 2.0'-20.0'
	Setting: 5.0'-20.0'	*SEAL MATERIAL*
		Type: CETCO Pure Gold Medium Bentonite Chips
		Setting: 1.0'-2.0'

COMMENTS:

LEGEND

- Cement
- Bentonite Seal
- Silica Sandpack

Client: Chemical Leaman Tank Lines	**Location: Chemical Leaman Site**	**Project No.: 11170332.00001**
URS Corporation	MONITORING WELL CONSTRUCTION DETAILS	**Well Number: B-15**

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9/17/2004

APPENDIX C

WELL DEVELOPMENT AND PURGING LOGS

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: Chemical Leaman RI/FS-Phase IV WELL NO.: B-11

PROJECT NO.: 11170332.00001 Page: 1 of 1

STAFF: Rob Murphy

DATE(S): 6/23/03

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	21.30	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	5.93	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	15.37	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.6	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	20	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

Time	1738	1743	1749	1755	1801						
PARAMETERS	Initial	5	10	15	20						
pH	6.39	6.44	6.49	6.5	6.83						
SPEC. COND. (umhos)	NM	NM	NM	NM	NM						
TEMPERATURE (°F)	65.7	60.9	57.0	56.6	57.1						
TURBIDITY (NTU)	>999	195	53.8	17.6	12.9						
DISSOLVED OXYGEN (ppm)											
Eh (mV)											

COMMENTS: Pumped water with an Isco peristaltic pump and disposable HDPE tubing.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: Chemical Leaman RI/FS-Phase IV WELL NO.: B-12

PROJECT NO.: 11170332.00001 Page: 1 of 1

STAFF: Rob Murphy

DATE(S): 6/23/03

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	20.20	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	4.69	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	15.51	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.6	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	20	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

Time	1645	1652	1657	1703	1710						
PARAMETERS	Initial	5	10	15	20						
pH	8.95	8.44	8.82	8.90	8.50						
SPEC. COND. (umhos)	NM	NM	NM	NM	NM						
TEMPERATURE (°F)	58.7	56.9	56.2	56.2	54.4						
TURBIDITY (NTU)	>999	93.0	19.5	7.53	5.91						
DISSOLVED OXYGEN (ppm)											
Eh (mV)											

COMMENTS: Pumped water with an Isco peristaltic pump and disposable HDPE tubing.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: Chemical Leaman RI/FS-Phase IV WELL NO.: B-13

PROJECT NO.: 11170332.00001 Page: 1 of 1

STAFF: Rob Murphy

DATE(S): 6/23/03

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	18.65	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	4.68	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	13.97	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.6	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	20	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

Time	1843	1849	1858	1906	1913						
PARAMETERS	Initial	5	10	15	20						
pH	6.77	6.58	6.55	6.53	6.55						
SPEC. COND. (umhos)	NM	NM	NM	NM	NM						
TEMPERATURE (°F)	65.7	56.2	54.7	54.6	54.4						
TURBIDITY (NTU)	>999	305.0	110	7.91	3.06						
DISSOLVED OXYGEN (ppm)											
Eh (mV)											

COMMENTS: Pumped water with an Isco peristaltic pump and disposable HDPE tubing.

A lot of sediment removed from within well.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: Chemical Leaman RI/FS-Phase IV WELL NO.: B-14

PROJECT NO.: 11170332.00001 Page: 1 of 1

STAFF: Rob Murphy

DATE(S): 6/23/03

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	19.55	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	4.06	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	15.49	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.6	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	20	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

Time / PARAMETERS	1610 Initial	1616 5	1623 10	1631 15	1640 20						
pH	6.68	6.63	7.11	8.87	8.29						
SPEC. COND. (umhos)	NM	NM	NM	NM	NM						
TEMPERATURE (°F)	63.4	57.9	58.0	57.2	59.6						
TURBIDITY (NTU)	>999	84.3	8.42	56.8	8.95						
DISSOLVED OXYGEN (ppm)											
Eh (mV)											

COMMENTS: Pumped water with an Isco peristaltic pump and disposable HDPE tubing.

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: Chemical Leaman RI/FS-Phase IV WELL NO.: B-15

PROJECT NO.: 11170332.00001 Page: 1 of 1

STAFF: Rob Murphy

DATE(S): 6/23/03

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	23.01	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	6.96	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	16.05	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.04	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.6	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER REMOVED (GAL.)	=	20	8"	2.60

ACCUMULATED VOLUME PURGED (GALLONS)

Time	1521	1527	1534	1540	1546						
PARAMETERS	Initial	5	10	15	20						
pH	6.55	6.36	6.53	6.46	6.76						
SPEC. COND. (umhos)	NM	NM	NM	NM	NM						
TEMPERATURE (°F)	64.0	62.5	59.7	55.7	57.0						
TURBIDITY (NTU)	>999	75.1	65	11.7	9.15						
DISSOLVED OXYGEN (ppm)											
Eh (mV)											

COMMENTS: Pumped water with an Isco peristaltic pump and disposable HDPE tubing.

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-01

Date: 6/4/2004 **Sampling Personnel:** Tim Burmeier/D. Tobin **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 5.33 **Depth to Well Bottom (ft):** 20' **Well Diameter:** 2" **Screen Length (ft):** 10'

Casing: PVC **Vol. in 1 Well Casing (liters):** 9.00 **Estimated Purge Volume (liters):** 10.9

Sample ID: B-01(060404) **Sample Time:** 12:14 **QA/QC:** None

Sample Parameters: VOCs

Comments:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
11:46	7.91	12.04	2.054	90.1	79.4	-85.1	400	6.31	
11:49	7.45	10.44	2.057	0.58	39.9	-80.0	400	7.35	
11:54	7.36	10.41	1.896	0.26	95.6	-68.3	400	8.60	
11:59	7.37	10.39	1.868	0.27	68.8	-67.9	400	9.10	
12:04	7.42	10.48	1.890	0.23	49.5	-65.0	380	9.43	
12:09	7.44	10.45	1.919	0.21	44.6	-63.9	370	9.61	
12:14	7.44	10.41	1.949	0.23	41.8	-63.7	375	9.23	
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-02

Date: 6/4/2004 **Sampling Personnel:** Tim Burmeier/D. Tobin **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 6.24 **Depth to Well Bottom (ft):** 19 **Well Diameter:** 2" **Screen Length (ft):** 10'

Casing: PVC **Vol. In 1 Well Casing (liters):** 7.9 **Estimated Purge Volume (liters):** 8.4

Sample ID: B-02(060404) **Sample Time:** 14:51 **QA/QC:** None

Sample Parameters: VOCs

Comments:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
14:30	7.26	10.95	2.225	6.04	8.9	8.9	450	7.38	
14:33	7.12	10.12	2.212	0.70	3.3	-0.5	410	8.20	
14:36	7.06	10.07	2.185	0.42	4.1	-4.6	390	8.20	
14:39	7.04	10.07	2.164	0.33	4.1	-7.2	390	8.21	
14:42	7.03	10.01	2.151	0.29	3.4	-9.7	400	8.21	
14:45	7.04	9.95	2.139	0.27	4.5	-12.0	400	8.22	
14:48	7.04	9.94	2.126	0.25	5.5	-13.6	400	8.22	
14:51	7.01	9.97	2.108	0.22	4.9	-16.4	400	8.22	
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-3

Date: 6/7/2004 **Sampling Personnel:** Tim Burmeier/J.Christy **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 7.50 **Depth to Well Bottom (ft):** 22.60 **Well Diameter:** 2" **Screen Length (ft):** 10'

Casing: PVC **Vol. in 1 Well Casing (liters):** 9.30 **Estimated Purge Volume (liters):** 11.3

Sample ID: B-3(060704) **Sample Time:** 14:59 **QA/QC:** None

Sample Parameters: VOCs

Comments: None

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
14:38	7.48	14.0	0.989	4.78	101	60.1	700	7.91	
14:41	6.93	10.4	1.021	0.86	34.9	60.0	500	8.04	
14:44	6.67	10.02	1.035	0.37	11.4	49.5	550	8.07	
14:47	6.63	9.62	1.288	0.28	4.42	36.5	500	8.09	
14:50	6.59	9.43	1.854	0.23	5.34	26.3	500	8.09	
14:53	6.65	9.49	1.940	0.21	2.94	18.9	500	8.09	
14:56	6.67	9.51	1.953	0.19	2.34	15.8	500	8.12	
14:59	6.75	9.52	1.950	0.18	1.60	12.0	500	8.12	
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-4

Date: 6/7/2004 **Sampling Personnel:** Tim Burmeier/J.Christy **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 6.82 **Depth to Well Bottom (ft):** 15 **Well Diameter:** 2" **Screen Length (ft):** 10'

Casing: 2" SCH 40 PVC **Vol. In 1 Well Casing (liters):** 5.04 **Estimated Purge Volume (liters):** 9.00

Sample ID: B-4(060704) **Sample Time:** 12:01 **QA/QC:** None

Sample Parameters: VOCs

Comments: Slight sulfur odor

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
11:43	7.68	14.43	1.687	10.19	8.0	-49.9	600	7.75	
11:46	6.79	10.95	1.548	0.86	4.8	-22.7	450	7.79	
11:49	6.54	11.14	1.272	0.42	5.5	-12.6	500	7.92	
11:52	6.41	11.26	1.193	0.63	2.9	-3.1	500	8.23	
11:55	6.30	11.16	1.242	0.70	2.6	0.2	450	8.50	
11:58	6.22	10.99	1.320	0.68	2.5	0.2	450	8.65	
12:01	6.20	10.84	1.420	0.68	3.2	0.6	450	8.75	
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---		

Information: WATER VOLUMES–0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-05R

Date: 6/4/2004 **Sampling Personnel:** Tim Burmeier/D. Tobin **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 3.55 **Depth to Well Bottom (ft):** 14.50 **Well Diameter:** 2" **Screen Length (ft):** 10'

Casing: PVC **Vol. in 1 Well Casing (liters):** 6.70 **Estimated Purge Volume (liters):** 8.0

Sample ID: B-05R(060404) **Sample Time:** 11:08 **QA/QC:** None

Sample Parameters: VOCs

Comments:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
10:46	8.25	11.74	2.204	6.42	>1000	33.8	350	4.14	
10:49	7.57	13.95	1.972	0.83	145	41.0	340	4.25	
10:52	7.51	14.20	2.004	0.63	31.8	44.3	340	4.33	
10:56	7.46	14.23	2.016	0.46	27.4	44.7	400	4.42	
10:59	7.44	14.21	2.003	0.39	24.0	43.1	400	4.52	
11:02	7.42	14.30	1.981	0.32	20.5	41.9	400	4.58	
11:05	7.39	14.10	1.970	0.30	20.3	42.4	400	4.61	
11:08	7.37	14.06	1.952	0.29	20.1	40.7	400	4.63	
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-06

Date: 6/4/2004 **Sampling Personnel:** Tim Burmeier/D. Tobin **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 9.62 **Depth to Well Bottom (ft):** 15.00 **Well Diameter:** 2" **Screen Length (ft):** 10'

Casing: PVC **Vol. in 1 Well Casing (liters):** 3.31 **Estimated Purge Volume (liters):** 6.0

Sample ID: B-06(060404) **Sample Time:** 14:01 **QA/QC:** None

Sample Parameters: VOCs

Comments:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
13:42	7.48	11.37	1.663	12.07	11.3	117	300	9.88	
13:45	7.20	10.60	1.635	1.82	3.8	99.6	300	10.11	
13:48	7.12	10.56	1.634	1.44	4.3	96.7	300	10.21	
13:52	7.07	10.48	1.650	1.28	5.7	97.5	300	10.43	
13:55	7.04	10.36	1.685	1.13	6.9	97.5	300	10.48	
13:58	7.02	10.30	1.697	1.04	6.9	97.9	300	10.58	
14:01	7.00	10.22	1.715	0.99	6.6	97.6	300	10.60	
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-07

Date: 6/4/2004 **Sampling Personnel:** Tim Burmeier/D. Tobin **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 3.39 **Depth to Well Bottom (ft):** 15.00 **Well Diameter:** 2" **Screen Length (ft):** 10'

Casing: PVC **Vol. in 1 Well Casing (liters):** 7.20 **Estimated Purge Volume (liters):** 10.3

Sample ID: B-07(060404) **Sample Time:** 13:01 **QA/QC:** None

Sample Parameters: VOCs

Comments: Rusty

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
12:34	7.43	12.23	1.423	48.1	627	-5.8	390	3.92	
12:37	7.06	12.35	1.397	39.7	384	17.4	380	4.75	
12:40	7.03	12.50	1.327	0.45	355	-8.7	380	5.08	
12:45	7.06	12.62	1.197	0.36	87.5	-16.2	380	5.35	
12:50	7.05	12.83	1.200	0.36	70.0	-16.4	380	5.44	
12:55	6.99	12.59	1.240	0.29	25.2	-18.2	380	5.53	
12:58	6.90	12.53	1.274	0.28	25.8	-19.2	380	5.51	
13:01	6.81	12.54	1.301	0.27	23.4	-21.1	380	5.56	
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{wl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-8

Date: 6/7/2004 **Sampling Personnel:** Tim Burmeier/J.Christy **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 4.80 **Depth to Well Bottom (ft):** 18.50 **Well Diameter:** 2" **Screen Length (ft):** 10'

Casing: PVC **Vol. in 1 Well Casing (liters):** 8.40 **Estimated Purge Volume (liters):** 9.8

Sample ID: B-8(060704) **Sample Time:** 14:05 **QA/QC:** None

Sample Parameters: VOCs

Comments: None

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
13:44	7.66	11.44	1.519	4.91	71.3	-27.5	450	5.12	
13:47	7.10	10.98	1.507	0.41	87.6	-12.8	450	5.18	
13:50	7.03	10.86	1.496	0.32	72.1	-12.9	450	5.18	
13:53	7.02	10.87	1.490	0.26	46.5	-13.9	450	5.18	
13:56	7.02	10.93	1.488	0.18	32.5	-15.0	500	5.18	
13:59	7.01	11.01	1.488	0.18	21.6	-16.4	450	5.18	
14:02	6.99	11.07	1.489	0.17	19.2	-17.7	500	5.18	
14:05	6.95	10.97	1.495	0.19	19.4	-18.3	500	5.18	
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-9

Date: 6/7/2004 **Sampling Personnel:** Tim Burmeier/J.Christy **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 7.69 **Depth to Well Bottom (ft):** 17.00 **Well Diameter:** 2" **Screen Length (ft):** 10'

Casing: 2" SCH 40 PVC **Vol. In 1 Well Casing (liters):** 5.70 **Estimated Purge Volume (liters):** 6.80

Sample ID: B-9(060704) **Sample Time:** 10:45 **QA/QC:** None

Sample Parameters: VOCs

Comments: None

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
10:30	7.44	11.12	2.647	6.99	132.0	20.4	500	8.19	
10:33	7.17	9.76	2.264	0.44	23.7	13.2	450	8.85	
10:36	7.10	9.63	2.253	0.26	13.7	11.2	400	9.18	
10:39	7.06	9.57	2.258	0.16	9.7	8.6	500	9.32	
10:42	7.05	9.53	2.260	0.14	9.7	7.2	400	9.32	
10:45	7.03	9.51	2.258	0.14	9.4	4.7	400	9.33	
Tolerance:	0.1	---	3%	10%	10%	+ or - 10	---		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-10

Date: 6/7/2004 **Sampling Personnel:** Tim Burmeier/J.Christy **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 3.99 **Depth to Well Bottom (ft):** 17.50 **Well Diameter:** 2" **Screen Length (ft):** 10'

Casing: PVC **Vol. in 1 Well Casing (liters):** 8.30 **Estimated Purge Volume (liters):** 6.6

Sample ID: B-10(060704) **Sample Time:** 9:53 **QA/QC:** None

Sample Parameters: VOCs

Comments: None

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
9:28	7.55	10.12	1.610	3.73	329	-44.6	400	6.05	
9:31	7.21	9.59	1.592	0.63	70.9	-19.3	400	6.34	
9:34	7.14	9.47	1.591	0.24	60.8	-13.8	350	6.34	
9:37	7.12	9.44	1.587	0.27	21.9	-11.7	350	6.37	
9:40	7.10	9.23	1.587	0.27	7.4	-9.7	350	6.37	
9:43	7.09	9.19	1.582	0.23	5.3	-7.2	350	6.37	
9:53	7.05	9.16	1.565	0.22	5.2	-7.0	400	6.40	
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-11

Date: 6/4/2004 **Sampling Personnel:** Tim Burmeier/D. Tobin **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 5.23 **Depth to Well Bottom (ft):** 23.00 **Well Diameter:** 1" **Screen Length (ft):** 15'

Casing: PVC **Vol. In 1 Well Casing (liters):** 2.70 **Estimated Purge Volume (liters):** 6.0

Sample ID: B-11(060407) **Sample Time:** 9:47 **QA/QC:** None

Sample Parameters: VOCs

Comments: Rusty water

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
9:22	7.33	14.40	3.377	145.7	451	88.6	230	5.79	
9:25	6.87	12.01	3.689	1.57	558	70.4	230	5.82	
9:28	6.82	12.03	3.767	1.02	332	60.1	240	5.83	
9:31	6.82	11.92	3.842	0.51	81.9	42.8	250	5.85	
9:35	6.82	12.02	3.845	0.39	44.5	39.5	250	5.85	
9:38	6.81	11.97	3.866	0.29	32.3	36.8	250	5.85	
9:41	6.80	12.00	3.881	0.23	20.9	36.0	250	5.84	
9:44	6.80	12.06	3.884	0.19	18.5	35.2	250	5.84	
9:47	6.79	12.13	3.882	0.16	18.9	37.1	250	5.84	
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-12

Date: 6/4/2004 **Sampling Personnel:** Tim Burmeier/D. Tobin **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 4.07 **Depth to Well Bottom (ft):** 20.50 **Well Diameter:** 1" **Screen Length (ft):** 15'

Casing: PVC **Vol. in 1 Well Casing (liters):** 2.50 **Estimated Purge Volume (liters):** 6.20

Sample ID: B-12(060407) **Sample Time:** 8:55 **QA/QC:** MS/MSD

Sample Parameters: VOCs

Comments: None

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
8:28	6.86	12.23	2.678	off scale	>1000	35.7	220	4.53	
8:31	6.77	11.99	2.697	1.59	>1000	37.4	225	4.57	
8:34	6.75	11.48	2.719	0.75	685	36.4	225	4.58	
8:37	6.72	11.40	2.728	0.36	375	35.9	225	4.60	
8:40	6.73	11.29	2.739	0.27	211	35.1	225	4.61	
8:43	6.72	11.34	2.744	0.24	113	34.7	225	4.61	
8:46	6.72	11.29	2.753	0.18	75.2	34.8	250	4.62	
8:49	6.71	11.28	2.759	0.21	49.0	35.0	250	4.63	
8:52	6.71	11.25	2.771	0.19	34.8	35.8	225	4.63	
8:55	6.72	11.24	2.782	0.16	25.7	36.8	250	4.64	
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-13

Date: 6/4/2004 **Sampling Personnel:** Tim Burmeier/D. Tobin **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 3.91 **Depth to Well Bottom (ft):** 20.30 **Well Diameter:** 1" **Screen Length (ft):** 15'

Casing: PVC **Vol. In 1 Well Casing (liters):** 2.50 **Estimated Purge Volume (liters):** 5.5

Sample ID: B-13(060407) **Sample Time:** 10:28 **QA/QC:** None

Sample Parameters: VOCs

Comments:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
10:06	9.32	13.28	0.517	118.9	136	56.0	250	5.22	
10:09	9.61	12.78	0.459	3.1	169	30.1	250	5.56	
10:13	9.65	12.69	0.440	2.9	90.5	26.0	250	5.90	
10:16	9.64	12.50	0.436	2.8	52.0	28.7	260	5.97	
10:19	9.72	12.38	0.436	2.6	43.0	27.3	250	5.98	
10:22	9.70	12.35	0.435	2.6	23.6	27.0	275	5.99	
10:25	9.71	12.27	0.436	2.5	18.2	29.0	275	6.01	
10:28	9.76	12.34	0.436	2.3	18.6	26.5	275	6.02	
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-14

Date: 6/4/2004 **Sampling Personnel:** Tim Burmeier/D. Tobin **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 6/3/04 3.37, 6/4/04 3.53 **Depth to Well Bottom (ft):** 20.50 **Well Diameter:** 1" **Screen Length (ft):** 15'

Casing: PVC **Vol. In 1 Well Casing (liters):** 2.64 **Estimated Purge Volume (liters):** 4.00

Sample ID: B-14(060407) **Sample Time:** 8:01 **QA/QC:** None

Sample Parameters: VOCs

Comments: Turbidity readings not collected on 6/3/04

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
14:10	7.14	12.2	2.822	5.10	--	78.0	500	3.37	
14:15	6.94	13.4	2.840	2.60	--	66.5	250	4.10	
Stopped purging and returned 6/4/04									
7:48	7.55	12.3	2.856	3.50	127	92.6	300	3.97	
7:46	7.16	11.5	2.916	0.51	170	87.8	220	4.02	
7:49	7.05	11.4	2.948	0.50	161	83.2	225	4.04	
7:52	7.00	11.4	2.954	0.44	99.4	80.9	225	4.05	
7:55	6.94	11.6	2.967	0.39	56.8	74.6	225	4.06	
7:58	6.91	11.7	2.980	0.27	54.5	68.2	225	4.06	
8:01	6.87	11.5	2.992	0.26	51.8	64.0	225	4.07	
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: 11170332.00001 **Site:** Chemical Leaman Sampling **Well #:** B-15

Date: 6/7/2004 **Sampling Personnel:** Tim Burmeier/J.Christy **Company:** URS Corporation

Purging/ Sampling Device: Geopump 2 **Tubing Type:** LDPE 1/4" **Pump Inlet:** Midpoint of saturated portion of screen

Measuring Point: Below Top of Riser **Initial Depth to Water (ft):** 6.36 **Depth to Well Bottom (ft):** 20.50 **Well Diameter:** 1" **Screen Length (ft):** 10'

Casing: PVC **Vol. In 1 Well Casing (liters):** 2.20 **Estimated Purge Volume (liters):** 10.8

Sample ID: B-15(060704) **Sample Time:** 8:31 **QA/QC:** None

Sample Parameters: VOCs

Comments:

PURGE PARAMETERS

TIME	pH	TEMP (°C)	COND. (µS)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor) (ft)	Comments
7:43	8.50	12.03	0.572	2.00	16.3	-14.4	300	6.64	
7:46	8.10	10.46	0.569	0.47	44.0	-11.6	350	7.56	
7:49	7.90	10.17	0.583	0.48	41.5	-2.6	300	7.49	
7:52	7.80	10.12	0.605	0.46	26.4	1.3	300	7.50	
7:55	7.60	9.99	0.665	0.51	17.4	8.0	300	7.52	
7:58	7.50	9.93	0.758	0.52	10.7	13.9	300	7.54	
8:01	7.40	9.88	0.877	0.42	5.9	19.2	350	8.55	
8:04	7.20	9.88	1.025	0.39	5.6	23.7	300	8.55	
8:14	7.10	9.91	1.228	0.41	4.46	27.1	350	8.59	
8:24	6.90	9.90	1.391	0.34	2.64	27.7	350	7.61	
8:28	6.90	9.93	1.443	0.34	2.81	27.7	350	7.62	
8:31	6.90	9.92	1.476	0.33	2.71	27.2	350	7.62	
Tolerance:	**0.1**	**—**	**3%**	**10%**	**10%**	**+ or - 10**	**—**		

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

APPENDIX D

DATA USABILITY SUMMARY REPORT

DATA USABILITY SUMMARY REPORT

CHEMICAL LEAMAN TANK LINES, INC.
TONAWANDA, NY FACILITY (SITE # 9-15-014)
SUPPLEMENTAL INVESTIGATION EASTERN AREA

Analyses Performed by:

ECOLOGY AND ENVIRONMENT, INC.

Prepared by:

URS CORPORATION
640 ELLICOTT STREET
BUFFALO, NY 14203

JULY 2004

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APPENDICES

I. INTRODUCTION

This Data Usability Summary Report (DUSR) has been prepared following the guidelines provided in New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation *Guidance for the Development of Data Usability Summary Reports*, dated June 1999. This DUSR discusses groundwater, catch basin, and outfall samples collected on June 4 and 7, 2004.

II. ANALYTICAL METHODOLOGIES

The data being evaluated is from the June 4 and 7, 2004 sampling of 15 groundwater samples, 4 catch basin samples, 1 outfall sample, and 2 trip blanks. The analytical laboratory that performed the analyses is Ecology and Environment, Inc. (Lancaster, NY). The samples were analyzed for the target compound list (TCL) volatile organic compounds (VOCs) following USEPA Method 8260B.

A limited data validation was performed following the guidelines in USEPA Region II *Standard Operating Procedure for the Validation of Organic Data Acquired Using SW-846 Method 8260B* (SOP No. HW-24, Revison I, June 1999). Qualifications applied to the data include "J" (estimated), "UJ" (estimated quantitation limit), or "U" (non-detect). The validated analytical results are presented in Tables 1, 2, and 3. Documentation supporting the qualification of data is presented in Appendix A. Only problems affecting data usability are discussed in this report.

III. DATA DELIVERABLE COMPLETENESS

The laboratory deliverable data packages were in accordance with NYSDEC Analytical Services Protocol (ASP) Category B requirements.

IV. PRESERVATION/HOLDING TIMES/SAMPLE RECEIPT

All samples were received by the laboratory intact and properly preserved, and were analyzed within the technical and contractual holding times.

V. NON-CONFORMANCES

- Continuing Calibrations

The percent difference (%D) between the initial calibration (ICAL) average relative response factor (RRF) and the continuing calibration (CCAL) RRF exceeded the quality control (QC) limit (i.e., >20%D) for 1,2-dibromo-3-chloropropane in a CCAL standard analyzed on June 9, 2004. The non-detect results for 1,2-dibromo-3-chloropropane in associated samples B-02, B-06, B-07, B-11, B-12, B-13, B-14, and TB-1 (6/4/04) have been qualified "UJ."

The %D between the ICAL average RRF and the CCAL RRF exceeded 20% for 1,1,2-trichloro-1,2,2-trifluoromethane, carbon tetrachloride, cyclohexane, dichlorodifluoromethane, isopropylbenzene, methylcyclohexane, and tetrachloroethene in a CCAL standard analyzed on June 9, 2004. The results for these compounds in associated samples B-01, B-03, B-04, CBNE, CBNW, CBSE, CBSW, and Outfall-1 have been qualified "J" or "UJ."

The %D between the ICAL average RRF and the CCAL RRF exceeded the 20% for acetone in the CCAL standard analyzed on June 10, 2004. The results for acetone in associated samples B-5R, B-08, B-09, B-10, B-15, and Trip Blank (6/7/04) have been qualified "J" or "UJ."

Documentation supporting the qualification of data (i.e., Continuing Calibration Forms, analysis run logs) is presented in Appendix A.

- Blanks

The concentration of cis-1,2-dichloroethene in sample B-11 exceeded the linear range of the calibration. The laboratory analyzed an instrument blank (file ID N0827) immediately following the sample. The concentration of cis-1,2-dichloroethene in the instrument blank was less than the reporting limit (i.e. 5 ug/L). The concentration in sample B-13, which was analyzed immediately following the instrument blank was

less than five times the amount detected in the instrument blank. Therefore, the result for cis-1,2-dichloroethene in sample B-13 was qualified "U" at the quantified value.

Documentation supporting the qualification of data (i.e., instrument blank raw data, analysis run log) is presented in Appendix A.

- Dilutions

Samples B-01, B-11, B-12, and B-14 were initially analyzed undiluted, but required secondary dilution analyses because of the high concentration of target compounds. Data qualified "D" indicate results reported from a secondary dilution analysis.

VII. SUMMARY

All sample analyses were found to be compliant with the method criteria, except where previously noted. Those results qualified "J" (estimated) or "UJ" (estimated reporting limit) are considered conditionally usable. Those results qualified "U" are considered non-detect. All other sample results are usable as reported.

DEFINITIONS OF USEPA REGION II DATA QUALIFIERS

U – The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R – The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

D – The sample results are reported from a separate secondary dilution analysis.

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
CHEMICAL LEAMAN TANK LINES

Location ID		B-01	B-02	B-03	B-04	B-05R
Sample ID		B-01	B-02	B-03	B-04	B-05R
Matrix		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Depth Interval (ft)		-	-	-	-	-
Date Sampled		06/04/04	06/04/04	06/07/04	06/07/04	06/04/04
Parameter	Units					
Volatiles						
1,1,1-Trichloroethane	UG/L	5.00 U	1.36 J	5.00 U	5.00 U	5.00 U
1,1,2,2-Tetrachloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	5.00 UJ	1.54 J	5.00 UJ	5.00 UJ	5.00 U
1,1,2-Trichloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1-Dichloroethane	UG/L	5.00 U	11.3	5.00 U	5.00 U	5.00 U
1,1-Dichloroethene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	1.37 J
1,2,4-Trichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	2.88 J
1,2-Dibromo-3-chloropropane	UG/L	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U
1,2-Dibromoethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	54.0
1,2-Dichloroethane	UG/L	5.00 U	3.66 J	5.00 U	5.00 U	5.00 U
1,2-Dichloropropane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,3-Dichlorobenzene	UG/L	5.00 U	5.00 U	1.03 J	5.00 U	12.0
1,4-Dichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	30.0
2-Butanone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Hexanone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Methyl-2-pentanone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Acetone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ
Benzene	UG/L	16.4	3.70 J	4.36 J	5.00 U	2.21 J
Bromodichloromethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Bromoform	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Bromomethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon disulfide	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Carbon tetrachloride	UG/L	5.00 UJ	5.00 U	5.00 UJ	5.00 UJ	5.00 U

Flags assigned during chemistry validation are shown.

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Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
CHEMICAL LEAMAN TANK LINES

Location ID		B-01	B-02	B-03	B-04	B-05R
Sample ID		B-01	B-02	B-03	B-04	B-05R
Matrix		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Depth Interval (ft)		-	-	-	-	-
Date Sampled		06/04/04	06/04/04	06/07/04	06/07/04	06/04/04
Parameter	Units					
Volatiles						
Chlorobenzene	UG/L	280 D	5.00 U	6.98	2.80 J	8.45
Chloroethane	UG/L	10.0 U	1.92 J	10.0 U	10.0 U	10.0 U
Chloroform	UG/L	5.00 U	4.46 J	5.00 U	5.00 U	5.00 U
Chloromethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
cis-1,2-Dichloroethene	UG/L	5.00 U	5.73	5.00 U	1.30 J	12.2
cis-1,3-Dichloropropene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Cyclohexane	UG/L	1.71 J	5.00 U	5.00 UJ	5.00 UJ	5.00 U
Dibromochloromethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Dichlorodifluoromethane	UG/L	10.0 UJ	10.0 U	10.0 UJ	10.0 UJ	10.0 U
Ethylbenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Isopropylbenzene	UG/L	0.408 J	5.00 U	5.00 UJ	5.00 UJ	5.00 U
Methyl acetate	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Methyl tert-butyl ether	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Methylcyclohexane	UG/L	5.00 UJ	5.00 U	5.00 UJ	5.00 UJ	5.00 U
Methylene chloride	UG/L	5.00 U	1.26 J	5.00 U	5.00 U	5.00 U
Styrene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Tetrachloroethene	UG/L	5.00 UJ	5.00 U	5.00 UJ	5.00 UJ	56.5
Toluene	UG/L	5.00 U	0.828 J	5.00 U	5.00 U	0.151 J
trans-1,2-Dichloroethene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
trans-1,3-Dichloropropene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Trichloroethene	UG/L	5.00 U	10.3	5.00 U	5.00 U	35.6
Trichlorofluoromethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Vinyl chloride	UG/L	10.0 U	2.21 J	19.0	2.30 J	6.90 J
Xylene (total)	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U

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Detection Limits shown are PQL

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[LOGDATE] >= #6/4/2004# AND [MATRIX] = 'WG'

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
CHEMICAL LEAMAN TANK LINES

Location ID		B-06	B-07	B-08	B-09	B-10
Sample ID		B-06	B-07	B-08	B-09	B-10
Matrix		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Depth Interval (ft)		-	-	-	-	-
Date Sampled		06/04/04	06/04/04	06/07/04	06/07/04	06/07/04
Parameter	Units					
Volatiles						
1,1,1-Trichloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1,2,2-Tetrachloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1,2-Trichloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1-Dichloroethane	UG/L	5.00 U	5.00 U	3.76 J	5.00 U	5.00 U
1,1-Dichloroethene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2,4-Trichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dibromo-3-chloropropane	UG/L	10.0 UJ	10.0 UJ	10.0 U	10.0 U	10.0 U
1,2-Dibromoethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dichloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dichloropropane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,3-Dichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,4-Dichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
2-Butanone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Hexanone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Methyl-2-pentanone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Acetone	UG/L	10.0 U	10.0 U	10.0 UJ	2.00 J	10.0 UJ
Benzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	0.556 J
Bromodichloromethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Bromoform	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Bromomethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon disulfide	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Carbon tetrachloride	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U

Flags assigned during chemistry validation are shown.

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Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
CHEMICAL LEAMAN TANK LINES

Location ID		B-06	B-07	B-08	B-09	B-10
Sample ID		B-06	B-07	B-08	B-09	B-10
Matrix		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Depth Interval (ft)		-	-	-	-	-
Date Sampled		06/04/04	06/04/04	06/07/04	06/07/04	06/07/04
Parameter	Units					
Volatiles						
Chlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Chloroethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloroform	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Chloromethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
cis-1,2-Dichloroethene	UG/L	5.00 U	5.00 U	7.91	5.00 U	5.00 U
cis-1,3-Dichloropropene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Cyclohexane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Dibromochloromethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Dichlorodifluoromethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Ethylbenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Isopropylbenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Methyl acetate	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Methyl tert-butyl ether	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Methylcyclohexane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Methylene chloride	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Styrene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Tetrachloroethene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Toluene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
trans-1,2-Dichloroethene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
trans-1,3-Dichloropropene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Trichloroethene	UG/L	5.00 U	5.00 U	1.39 J	5.00 U	5.00 U
Trichlorofluoromethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Vinyl chloride	UG/L	10.0 U	10.0 U	10.0 U	1.70 J	26.8
Xylene (total)	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U

Flags assigned during chemistry validation are shown.

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Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
CHEMICAL LEAMAN TANK LINES

Location ID		B-11	B-12	B-13	B-14	B-15
Sample ID		B-11	B-12	B-13	B-14	B-15
Matrix		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Depth Interval (ft)		-	-	-	-	-
Date Sampled		06/04/04	06/04/04	06/04/04	06/04/04	06/07/04
Parameter	Units					
Volatiles						
1,1,1-Trichloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1,2,2-Tetrachloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1,2-Trichloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1-Dichloroethane	UG/L	19.4	5.00 U	5.00 U	5.00 U	5.00 U
1,1-Dichloroethene	UG/L	5.00 U	8.98	5.00 U	5.00 U	5.00 U
1,2,4-Trichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dibromo-3-chloropropane	UG/L	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 U
1,2-Dibromoethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dichloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dichloropropane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,3-Dichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,4-Dichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
2-Butanone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Hexanone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Methyl-2-pentanone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Acetone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ
Benzene	UG/L	4.39 J	454 D	1.01 J	1,420 D	10.9
Bromodichloromethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Bromoform	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Bromomethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon disulfide	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Carbon tetrachloride	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U

Flags assigned during chemistry validation are shown.

MADE BY GEK 07/27/04 CHECKED BY JML 07/27/04

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE RESULTS
CHEMICAL LEAMAN TANK LINES

Location ID		B-11	B-12	B-13	B-14	B-15
Sample ID		B-11	B-12	B-13	B-14	B-15
Matrix		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Depth Interval (ft)		-	-	-	-	-
Date Sampled		06/04/04	06/04/04	06/04/04	06/04/04	06/07/04
Parameter	Units					
Volatiles						
Chlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	1.34 J
Chloroethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloroform	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Chloromethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
cis-1,2-Dichloroethene	UG/L	1,180 D	6,640 D	5.59 U	1,870 D	37.7
cis-1,3-Dichloropropene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Cyclohexane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Dibromochloromethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Dichlorodifluoromethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Ethylbenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Isopropylbenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Methyl acetate	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Methyl tert-butyl ether	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Methylcyclohexane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Methylene chloride	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Styrene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Tetrachloroethene	UG/L	5.00 U	5.00 U	0.394 J	5.00 U	5.00 U
Toluene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
trans-1,2-Dichloroethene	UG/L	32.3	62.4	5.00 U	50.2	2.77 J
trans-1,3-Dichloropropene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Trichloroethene	UG/L	10.4	2.80 J	6.84	17.8	3.81 J
Trichlorofluoromethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Vinyl chloride	UG/L	444 D	255 DJ	10.0 U	758 D	139
Xylene (total)	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U

Flags assigned during chemistry validation are shown.

MADE BY GEK 07/27/04 CHECKED BY JML 07/27/04

Detection Limits shown are PQL

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[LOGDATE] >= #5/4/2004# AND [MATRDQ] = 'WG'

TABLE 2
VALIDATED CATCH BASIN AND OUTFALL SAMPLE RESULTS
CHEMICAL LEAMAN TANK LINES

Location ID		CBNE	CBNW	CBSE	CBSW	OUTFALL-1
Sample ID		CBNE	CBNW	CBSE	CBSW	OUTFALL-1
Matrix		Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Depth Interval (ft)		-	-	-	-	-
Date Sampled		06/04/04	06/04/04	06/04/04	06/04/04	06/04/04
Parameter	Units					
Volatiles						
1,1,1-Trichloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	2.48 J
1,1,2,2-Tetrachloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	5.00 UJ	5.00 UJ	5.00 UJ	5.00 UJ	5.00 UJ
1,1,2-Trichloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1-Dichloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,1-Dichloroethene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2,4-Trichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dibromo-3-chloropropane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dibromoethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dichloroethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dichloropropane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,3-Dichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,4-Dichlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
2-Butanone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Hexanone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Methyl-2-pentanone	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Acetone	UG/L	12.0	6.81 J	10.0 U	8.82 J	10.0 U
Benzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Bromodichloromethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Bromoform	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Bromomethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon disulfide	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Carbon tetrachloride	UG/L	5.00 UJ	5.00 UJ	5.00 UJ	5.00 UJ	5.00 UJ

Flags assigned during chemistry validation are shown.

MADE BY GEK 07/27/04 CHECKED BY JML 07/27/04

Detection Limits shown are PQL

TABLE 2
VALIDATED CATCH BASIN AND OUTFALL SAMPLE RESULTS
CHEMICAL LEAMAN TANK LINES

Location ID		CBNE	CBNW	CBSE	CBSW	OUTFALL-1
Sample ID		CBNE	CBNW	CBSE	CBSW	OUTFALL-1
Matrix		Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Depth Interval (ft)		-	-	-	-	-
Date Sampled		06/04/04	06/04/04	06/04/04	06/04/04	06/04/04
Parameter	Units					
Volatiles						
Chlorobenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Chloroethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloroform	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Chloromethane	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
cis-1,2-Dichloroethene	UG/L	1.34 J	6.84	0.956 J	1.05 J	5.32
cis-1,3-Dichloropropene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Cyclohexane	UG/L	5.00 UJ	5.00 UJ	5.00 UJ	5.00 UJ	5.00 UJ
Dibromochloromethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Dichlorodifluoromethane	UG/L	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ	10.0 UJ
Ethylbenzene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Isopropylbenzene	UG/L	5.00 UJ	5.00 UJ	5.00 UJ	5.00 UJ	5.00 UJ
Methyl acetate	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Methyl tert-butyl ether	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Methylcyclohexane	UG/L	5.00 UJ	5.00 UJ	5.00 UJ	5.00 UJ	5.00 UJ
Methylene chloride	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Styrene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Tetrachloroethene	UG/L	0.506 J	5.00 UJ	5.00 UJ	5.00 UJ	5.00 UJ
Toluene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
trans-1,2-Dichloroethene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
trans-1,3-Dichloropropene	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Trichloroethene	UG/L	5.00 U	5.00 U	1.45 J	5.00 U	1.92 J
Trichlorofluoromethane	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Vinyl chloride	UG/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Xylene (total)	UG/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U

Flags assigned during chemistry validation are shown.

MADE BY GEK 07/27/04 CHECKED BY JML 07/27/04

Detection Limits shown are PQL

TABLE 3
VALIDATED FIELD QC SAMPLE RESULTS
CHEMICAL LEAMAN TANK LINES

Location ID		FIELDQC	FIELDQC
Sample ID		TB-1	Trip Blank
Matrix		Quality Control	Quality Control
Depth Interval (ft)		-	-
Date Sampled		06/04/04	06/07/04
Parameter	Units	Trip Blank (1-1)	Trip Blank (1-1)
Volatiles			
1,1,1-Trichloroethane	UG/L	5.00 U	5.00 U
1,1,2,2-Tetrachloroethane	UG/L	5.00 U	5.00 U
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	5.00 U	5.00 U
1,1,2-Trichloroethane	UG/L	5.00 U	5.00 U
1,1-Dichloroethane	UG/L	5.00 U	5.00 U
1,1-Dichloroethene	UG/L	5.00 U	5.00 U
1,2,4-Trichlorobenzene	UG/L	5.00 U	5.00 U
1,2-Dibromo-3-chloropropane	UG/L	10.0 UJ	10.0 U
1,2-Dibromoethane	UG/L	5.00 U	5.00 U
1,2-Dichlorobenzene	UG/L	5.00 U	5.00 U
1,2-Dichloroethane	UG/L	5.00 U	5.00 U
1,2-Dichloropropane	UG/L	5.00 U	5.00 U
1,3-Dichlorobenzene	UG/L	5.00 U	5.00 U
1,4-Dichlorobenzene	UG/L	5.00 U	5.00 U
2-Butanone	UG/L	10.0 U	10.0 U
2-Hexanone	UG/L	10.0 U	10.0 U
4-Methyl-2-pentanone	UG/L	10.0 U	10.0 U
Acetone	UG/L	10.0 U	10.0 UJ
Benzene	UG/L	5.00 U	5.00 U
Bromodichloromethane	UG/L	5.00 U	5.00 U
Bromoform	UG/L	5.00 U	5.00 U
Bromomethane	UG/L	10.0 U	10.0 U
Carbon disulfide	UG/L	5.00 U	5.00 U
Carbon tetrachloride	UG/L	5.00 U	5.00 U

Flags assigned during chemistry validation are shown.

MADE BY GEK 07/27/04 CHECKED BY JML 07/27/04

Detection Limits shown are PQL

TABLE 3
VALIDATED FIELD QC SAMPLE RESULTS
CHEMICAL LEAMAN TANK LINES

Location ID		FIELDQC	FIELDQC
Sample ID		TB-1	Trip Blank
Matrix		Quality Control	Quality Control
Depth Interval (ft)		-	-
Date Sampled		06/04/04	06/07/04
Parameter	Units	Trip Blank (1-1)	Trip Blank (1-1)
Volatiles			
Chlorobenzene	UG/L	5.00 U	5.00 U
Chloroethane	UG/L	10.0 U	10.0 U
Chloroform	UG/L	5.00 U	5.00 U
Chloromethane	UG/L	10.0 U	10.0 U
cis-1,2-Dichloroethene	UG/L	5.00 U	5.00 U
cis-1,3-Dichloropropene	UG/L	5.00 U	5.00 U
Cyclohexane	UG/L	5.00 U	5.00 U
Dibromochloromethane	UG/L	5.00 U	5.00 U
Dichlorodifluoromethane	UG/L	10.0 U	10.0 U
Ethylbenzene	UG/L	5.00 U	5.00 U
Isopropylbenzene	UG/L	5.00 U	5.00 U
Methyl acetate	UG/L	5.00 U	5.00 U
Methyl tert-butyl ether	UG/L	5.00 U	5.00 U
Methylcyclohexane	UG/L	5.00 U	5.00 U
Methylene chloride	UG/L	5.00 U	5.00 U
Styrene	UG/L	5.00 U	5.00 U
Tetrachloroethene	UG/L	5.00 U	5.00 U
Toluene	UG/L	5.00 U	5.00 U
trans-1,2-Dichloroethene	UG/L	5.00 U	5.00 U
trans-1,3-Dichloropropene	UG/L	5.00 U	5.00 U
Trichloroethene	UG/L	5.00 U	5.00 U
Trichlorofluoromethane	UG/L	5.00 U	5.00 U
Vinyl chloride	UG/L	10.0 U	10.0 U
Xylene (total)	UG/L	5.00 U	5.00 U

Flags assigned during chemistry validation are shown.

MADE BY GEK 07/27/04 CHECKED BY JML 07/27/04

Detection Limits shown are PQL

J:\35685.01\db\Program\Program.mdb
Printed: 7/27/2004 5:08:25 PM
[LOGDATE] >= #5/4/2004# AND [MATRIX] = 'WQ'

APPENDIX A

SUPPORT DOCUMENTATION

CHAIN OF CUSTODY RECORD

URS

PROJECT NO. 11170332 | SITE NAME Chemical Leaman

SAMPLERS (PRINT/SIGNATURE) Tim Bukmeier / Tim Bukmeier

DELIVERY SERVICE: SELF | AIRBILL NO.:

LAB EEE | COOLER 1 of 1 | PAGE ____ of ____

TESTS: VOCs

BOTTLE TYPE AND PRESERVATIVE: 40 ML VOAs

LOCATION IDENTIFIER	DATE	TIME	COMP/ GRAB	SAMPLE ID	MATRIX	TOTAL NO.# OF CONTAINERS	REMARKS	SAMPLE TYPE	BEGINNING DEPTH (IN FEET)	ENDING DEPTH (IN FEET)	FIELD LOT NO. # (ERPIMS)
B-14	6-4-04	0801	G	B-14(060404)	WG	3		N			
B-12		0855		B-12(060404)		3		N			
B-12		0855		B-12(060404MS)		3		MS			
B-12		0855		B-12(060404MSD)		3		MSD			
B-11		0947		B-11(060404)		3		N			
~~B-13~~ B-14		1029		B-14(060404)		3		N			
B-05R		1108		B-05R(060404)		3		N			
B-01		1214		B-01(060404)		3		N			
B-07		1301		B-07(060404)		3		N			
B-06		1401		B-06(060404)		3		N			
B-02		1455		B-02(060404)		3		N			
CBNW		1530		CBNW(060404)	WS	3	STORM SEWERS	N			
CBNE	↓	1535	↓	CBNE(060404)	WS	3		N			

MATRIX CODES	AA - AMBIENT AIR SE - SEDIMENT SH - HAZARDOUS SOLID WASTE	SL - SLUDGE WP - DRINKING WATER WW - WASTE WATER	WG - GROUND WATER SO - SOIL DC - DRILL CUTTINGS	WL - LEACHATE GS - SOIL GAS WC - DRILLING WATER	WO - OCEAN WATER WS - SURFACE WATER WQ - WATER FIELD QC	LH - HAZARDOUS LIQUID WASTE LF - FLOATING/FREE PRODUCT ON GW TABLE	
SAMPLE TYPE CODES	TB# - TRIP BLANK SD# - MATRIX SPIKE DUPLICATE	RB# - RINSE BLANK FR# - FIELD REPLICATE	N# - NORMAL ENVIRONMENTAL SAMPLE MS# - MATRIX SPIKE	(# - SEQUENTIAL NUMBER (FROM 1 TO 9) TO ACCOMMODATE MULTIPLE SAMPLES IN A SINGLE DAY)			

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
Tim Bukmeier	6/4/04	1640			
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LAB BY (SIGNATURE)	DATE	TIME
				6/14/04	1644

SPECIAL INSTRUCTIONS: QUESTIONS — CALL GEORGE KISLYK @ 856-563-0

Distribution: Original accompanies shipment, copy to coordinator field files

URSF-075C/1 OF 1/CofCR/GCM

CHAIN OF CUSTODY RECORD

URS

PROJECT NO. 11170332

SITE NAME CHEMICOLEDMAN

SAMPLERS (PRINT/SIGNATURE)

LAB EEE

COOLER _____ of _____

PAGE _____ of _____

DELIVERY SERVICE: SELF AIRBILL NO.: _____

LOCATION IDENTIFIER	DATE	TIME	COMP/ GRAB	SAMPLE ID	MATRIX	TOTAL NO. OF CONTAINERS	TESTS: VOCs	BOTTLE TYPE AND PRESERVATIVE: 40ml VOAs	REMARKS	SAMPLE TYPE	BEGINNING DEPTH (IN FEET)	ENDING DEPTH (IN FEET)	FIELD LOT NO. # (ERPIMS)
CBSW	6/4/04	1540	G	CBSW(060404)	WS	3	3		STORM	N	—	—	—
CBSE	↓	1545	↓	CBSE(060404)	↓	3	3		SEWERS	N	—	—	—
OUTFALL-1	↓	1555	↓	OUTFALL-1(060404)	↓	3	3		OUTFALL	N	—	—	—
TB-1	6/4/04	—	—	TB-1(060404)	WQ	1	1		TRIP BLANK	TB	—	—	—
4													

MATRIX CODES	AA - AMBIENT AIR SE - SEDIMENT SH - HAZARDOUS SOLID WASTE	SL - SLUDGE WP - DRINKING WATER WW - WASTE WATER	WG - GROUND WATER SO - SOIL DC - DRILL CUTTINGS	WL - LEACHATE GS - SOIL GAS WC - DRILLING WATER	WO - OCEAN WATER WS - SURFACE WATER WQ - WATER FIELD QC	LH - HAZARDOUS LIQUID WASTE LF - FLOATING/FREE PRODUCT ON GW TABLE
SAMPLE TYPE CODES	TB# - TRIP BLANK SD# - MATRIX SPIKE DUPLICATE	RB# - RINSE BLANK FR# - FIELD REPLICATE	N# - NORMAL ENVIRONMENTAL SAMPLE MS# - MATRIX SPIKE	(# - SEQUENTIAL NUMBER (FROM 1 TO 9) TO ACCOMMODATE MULTIPLE SAMPLES IN A SINGLE DAY)		

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	SPECIAL INSTRUCTIONS
Tim Bunem	6/4/04	1640				
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LAB BY (SIGNATURE)	DATE	TIME	
				6/4/04	1645	

Distribution: Original accompanies shipment, copy to coordinator field files

URSF-075C/1 OF 1/CofCR/GCM

CHAIN OF CUSTODY RECORD

URS

PROJECT NO.

SITE NAME: CHEMICAL LEMON

SAMPLERS (PRINT/SIGNATURE): I. BURMEISTER / Tim Burmeister

DELIVERY SERVICE: SELF AIRBILL NO.:

TESTS: VOCs

BOTTLE TYPE AND PRESERVATIVE: 100 ML VOAs

LAB: EEE

COOLER 1 of 1

PAGE 1 of 1

LOCATION IDENTIFIER	DATE	TIME	COMP/ GRAB	SAMPLE ID	MATRIX	TOTAL NO.# OF CONTAINERS	REMARKS	SAMPLE TYPE	BEGINNING DEPTH (IN FEET)	ENDING DEPTH (IN FEET)	FIELD LOT NO.# (ERPIMS)
B-15	6-7-04	0831	G	B-15(060704)	WG	3					
B-10	6-7-04	0953	G	B-10(060704)	WG	3					
B-9	6-7-04	10:45	G	B-9(060704)	WG	3					
B-4	6-7-04	12:01	G	B-4(060704)	WG	3					
B-3	6-7-04	14:59	G	B-3(060704)	WG	3					
B-8	6-7-04	14:05	G	B-8(060704)	WG	3					

MATRIX CODES

AA - AMBIENT AIR; SE - SEDIMENT; SH - HAZARDOUS SOLID WASTE; SL - SLUDGE; WP - DRINKING WATER; WW - WASTE WATER; WG - GROUND WATER; SO - SOIL; DC - DRILL CUTTINGS; WL - LEACHATE; GS - SOIL GAS; WC - DRILLING WATER; WO - OCEAN WATER; WS - SURFACE WATER; WQ - WATER FIELD QC; LH - HAZARDOUS LIQUID WASTE; LF - FLOATING/FREE PRODUCT ON GW TABLE

SAMPLE TYPE CODES

TB# - TRIP BLANK; SD# - MATRIX SPIKE DUPLICATE; RB# - RINSE BLANK; FR# - FIELD REPLICATE; N# - NORMAL ENVIRONMENTAL SAMPLE; MS# - MATRIX SPIKE

(# - SEQUENTIAL NUMBER (FROM 1 TO 9) TO ACCOMMODATE MULTIPLE SAMPLES IN A SINGLE DAY)

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
I. Burmeister / Tim Burmeister	6-7-04			6-7-04	1608
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LAB BY (SIGNATURE)	DATE	TIME

SPECIAL INSTRUCTIONS: QUESTIONS? CALL GED, KISLIK @ 956-5634

Distribution: Original accompanies shipment, copy to coordinator field files

URSF-075C/1 OF 1/CofCR/GCM

Ecology & Environment, Inc.

CONTINUING CALIBRATION SUMMARY REPORT

Job Number: 0406072
Batch Number: 200406094n1
Column ID: DB-624
Date Analyzed: 09-JUN-2004
Time Analyzed: 10:47
Initial Cal Start Date/Time: 13-MAY-2004 18
Initial Cal End Date/Time: 13-MAY-2004 22

Initial Cal: N8BW40
Instrument: niles
Fraction: VOA
Data File ID: n0809

COMPOUND	RRF / AMOUNT	RF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
77 1,3,5-Trimethylbenzene	2.45758	2.50053	0.010	-1.74793	100	Averaged	
78 tert-Butylbenzene	1.93266	2.07231	0.010	-7.22584	100	Averaged	
79 1,2,4-Trimethylbenzene	2.35001	2.41183	0.010	-2.63043	100	Averaged	
80 3,4-Dichlorobenzotrifluorid	0.56878	0.58563	0.010	-2.96358	100	Averaged	
81 sec-Butylbenzene	2.59008	2.70852	0.010	-4.57277	100	Averaged	
82 1,3-Dichlorobenzene	1.50507	1.49617	0.010	0.59146	100	Averaged	
83 4-Isopropyltoluene	2.62343	2.69644	0.010	-2.78320	100	Averaged	
85 1,4-Dichlorobenzene	1.59820	1.54685	0.010	3.21302	100	Averaged	
86 2,4-Dichlorobenzotrifluorid	0.53212	0.54349	0.010	-2.13630	100	Averaged	
87 2,5-Dichlorobenzotrifluorid	0.58474	0.59183	0.010	-1.21122	100	Averaged	
88 1,2-Dichlorobenzene	1.48197	1.49355	0.010	-0.78169	100	Averaged	
89 n-Butylbenzene	2.13072	2.26604	0.010	-6.35084	100	Averaged	
90 1,2-Dibromo-3-Chloropropane	0.13319	0.16130	0.010	-21.10749	100	Averaged	
91 Dichlorotoluene(2,4+2,5+2,6	1.19711	1.33491	0.010	-11.51078	100	Averaged	
92 1,3,5-Trichlorobenzene	0.93592	1.00237	0.010	-7.10038	100	Averaged	
93 Dichlorotoluene(2,3+3,4)	1.30834	1.49182	0.010	-14.02397	100	Averaged	
94 1,2,4-Trichlorobenzene	0.83397	0.94147	0.010	-12.89051	100	Averaged	
95 Hexachlorobutadiene	0.27198	0.30205	0.010	-11.05555	100	Averaged	
96 Naphthalene	2.43802	3.19040	0.010	-30.85995	100	Averaged	
97 1,2,3-Trichlorobenzene	0.75339	0.89029	0.010	-18.17152	100	Averaged	
98 2,4,5-Trichlorotoluene	0.43513	0.62961	0.010	-44.69347	100	Averaged	
99 2,3,6-Trichlorotoluene	0.41161	0.55727	0.010	-35.38736	100	Averaged	

M = Summary Compound, $ = Surrogate Compound

Ecology & Environment, Inc.

CONTINUING CALIBRATION SUMMARY REPORT

Job Number: 0406072
Batch Number: 200406094
Column ID: DB-624
Date Analyzed: 09-JUN-2004
Time Analyzed: 18:15
Initial Cal Start Date/Time: 18-APR-2004 07
Initial Cal End Date/Time: 18-APR-2004 10

Initial Cal: R8BW11
Instrument: robert
Fraction: VOA
Data File ID: r1704

COMPOUND	RRF / AMOUNT	RFSO	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
1 Dichlorodifluoromethane	0.18102	0.13589	0.010	24.92786	100	Averaged	
2 Chloromethane	0.27301	0.22932	0.100	16.00342	100	Averaged	
3 Vinyl Chloride	0.26333	0.21419	0.010	18.66264	20.00000	Averaged	
4 Bromomethane	0.16749	0.16505	0.010	1.45846	100	Averaged	
5 Chloroethane	0.14855	0.13135	0.010	11.58118	100	Averaged	
6 Trichlorofluoromethane	0.15138	0.12244	0.010	19.11215	100	Averaged	
7 1,1-Dichloroethene	0.21616	0.18060	0.010	16.44867	20.00000	Averaged	
8 Acetone	0.07513	0.07704	0.010	-2.53766	100	Averaged	
9 1,1,2-Trichloro-1,2,2-trifl	0.22268	0.15594	0.010	29.97357	100	Averaged	
10 Methyl iodide	0.36232	0.35089	0.010	3.15441	100	Averaged	
11 Carbon Disulfide	0.75602	0.67034	0.010	11.33265	100	Averaged	
12 Methyl Acetate	0.19607	0.21473	0.010	-9.51918	100	Averaged	
13 Methylene Chloride	0.28248	0.26080	0.010	7.67379	100	Averaged	
14 Acrylonitrile	0.06676	0.08341	0.010	-24.94597	100	Averaged	NTC
15 trans-1,2-Dichloroethene	0.26976	0.23016	0.010	14.67918	100	Averaged	
16 Methyl tert-Butyl Ether	0.51280	0.50607	0.010	1.31305	100	Averaged	
17 1,1-Dichloroethane	0.42580	0.37358	0.100	12.26409	100	Averaged	
18 Vinyl Acetate	0.49275	0.53968	0.010	-9.52506	100	Averaged	
M 19 1,2-Dichloroethene (total)	0.27852	0.24954	0.010	10.40528	100	Averaged	
20 cis-1,2-Dichloroethene	0.28728	0.26892	0.010	6.39201	100	Averaged	
21 2-Butanone	0.09831	0.11327	0.010	-15.22541	100	Averaged	
22 2,2-Dichloropropane	0.26300	0.22793	0.010	13.33396	100	Averaged	
23 Bromochloromethane	0.14880	0.14194	0.010	4.60699	100	Averaged	
24 Chloroform	0.42565	0.40275	0.010	5.37937	20.00000	Averaged	
$ 25 Dibromofluoromethane	0.23869	0.24126	0.010	-1.07882	100	Averaged	
26 1,1,1-Trichloroethane	0.35437	0.28904	0.010	18.43515	100	Averaged	
27 Cyclohexane	0.44129	0.29885	0.010	32.27762	100	Averaged	
28 1,1-Dichloropropene	0.30583	0.24181	0.010	20.93298	100	Averaged	NTC
29 Carbon Tetrachloride	0.32572	0.24694	0.010	24.18722	100	Averaged	
$ 30 1,2-Dichloroethane-d4	0.22417	0.23355	0.010	-4.18308	100	Averaged	
31 Benzene	1.03594	0.91621	0.010	11.55846	100	Averaged	
32 1,2-Dichloroethane	0.29491	0.28240	0.010	4.24163	100	Averaged	
34 Trichloroethene	0.25509	0.21764	0.010	14.68300	100	Averaged	
35 Methylcyclohexane	0.42839	0.27421	0.010	35.99028	100	Averaged	
36 1,2-Dichloropropane	0.24880	0.22858	0.010	8.12944	20.00000	Averaged	

M = Summary Compound, $ = Surrogate Compound

Ecology & Environment, Inc.

CONTINUING CALIBRATION SUMMARY REPORT

Job Number: 0406072
Batch Number: 200406094
Column ID: DB-624
Date Analyzed: 09-JUN-2004
Time Analyzed: 18:15
Initial Cal Start Date/Time: 18-APR-2004 07
Initial Cal End Date/Time: 18-APR-2004 10

Initial Cal: R8BW11
Instrument: robert
Fraction: VOA
Data File ID: r1704

	COMPOUND	RRF / AMOUNT	RF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
37	Dibromomethane	0.15509	0.15224	0.010	1.84027	100	Averaged	
38	Bromodichloromethane	0.30999	0.28978	0.010	6.52051	100	Averaged	
39	2-Chloroethyl Vinyl Ether	0.13317	0.15570	0.010	-16.91743	100	Averaged	
40	cis-1,3-Dichloropropene	0.38650	0.37437	0.010	3.13947	100	Averaged	
41	4-Methyl-2-Pentanone	0.29207	0.33273	0.010	-13.92108	100	Averaged	
$ 42	Toluene-d8	1.23029	1.23629	0.010	-0.48721	100	Averaged	
43	Toluene	0.89232	0.76363	0.010	14.42199	20.00000	Averaged	
44	trans-1,3-Dichloropropene	0.44491	0.43269	0.010	2.74584	100	Averaged	
45	1,1,2-Trichloroethane	0.25165	0.23793	0.010	5.45253	100	Averaged	
46	Tetrachloroethene	0.38844	0.30055	0.010	22.62645	100	Averaged	
47	1,3-Dichloropropane	0.50353	0.46116	0.010	8.41475	100	Averaged	
48	2-Hexanone	0.17695	0.20170	0.010	-13.98901	100	Averaged	
49	Dibromochloromethane	0.36226	0.32941	0.010	9.06666	100	Averaged	
50	1,2-Dibromoethane	0.31580	0.31277	0.010	0.95894	100	Averaged	
52	1-Chlorohexane	0.32458	0.21523	0.010	33.68888	100	Averaged	NTC
53	3-Chlorobenzotrifluoride	0.56331	0.42809	0.010	24.00409	100	Averaged	↓
54	Chlorobenzene	1.03296	0.88691	0.300	14.13887	100	Averaged	
55	4-Chlorobenzotrifluoride	0.51716	0.40977	0.010	20.76528	100	Averaged	NTC
56	1,1,1,2-Tetrachloroethane	0.37107	0.33061	0.010	10.90594	100	Averaged	
57	Ethylbenzene	0.54629	0.43775	0.010	19.86872	20.00000	Averaged	
58	Xylene (m+p)	0.67690	0.55276	0.010	18.33975	100	Averaged	
M 59	Xylene (total)	0.66712	0.54688	0.010	18.02393	100	Averaged	
60	Xylene (o)	0.64755	0.53511	0.010	17.36365	100	Averaged	
61	Styrene	1.11496	0.97730	0.010	12.34658	100	Averaged	
62	Bromoform	0.24513	0.24191	0.100	1.31408	100	Averaged	
63	2-Chlorobenzotrifluoride	0.55498	0.44160	0.010	20.42873	100	Averaged	NTC
64	Isopropylbenzene	1.61794	1.20930	0.010	25.25704	100	Averaged	
$ 65	Bromofluorobenzene	0.81367	0.84606	0.010	-3.98105	100	Averaged	
66	Bromobenzene	0.78959	0.73092	0.010	7.43091	100	Averaged	
67	1,1,2,2-Tetrachloroethane	0.74615	0.75041	0.300	-0.57147	100	Averaged	
68	1,2,3-Trichloropropane	0.22831	0.24079	0.010	-5.46541	100	Averaged	
69	trans-1,4-Dichloro-2-butene	0.17002	0.17724	0.010	-4.25174	100	Averaged	
70	n-Propylbenzene	0.85607	0.63991	0.010	25.25073	100	Averaged	NTC
71	2-Chlorotoluene	0.77113	0.64651	0.010	16.16125	100	Averaged	
72	3-Chlorotoluene	0.82862	0.66132	0.010	20.18953	100	Averaged	NTC
73	4-Chlorotoluene	2.37071	1.96917	0.010	16.93750	100	Averaged	

M = Summary Compound, $ = Surrogate Compound

Ecology & Environment, Inc.

CONTINUING CALIBRATION SUMMARY REPORT

Job Number: 0406072
Batch Number: 200406104n1
Column ID: DB-624
Date Analyzed: 10-JUN-2004
Time Analyzed: 06:28
Initial Cal Start Date/Time: 13-MAY-2004 18
Initial Cal End Date/Time: 13-MAY-2004 22

Initial Cal: N8BW40
Instrument: niles
Fraction: VOA
Data File ID: n0835

	COMPOUND	RRF / AMOUNT	RF50	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
1	Dichlorodifluoromethane	0.24197	0.23283	0.010	3.77745	100	Averaged
2	Chloromethane	0.38713	0.38232	0.100	1.24226	100	Averaged
3	Vinyl Chloride	0.37435	0.35551	0.010	5.03258	20.00000	Averaged
4	Bromomethane	0.29780	0.29774	0.010	0.02099	100	Averaged
5	Chloroethane	0.24333	0.24601	0.010	-1.10129	100	Averaged
6	Trichlorofluoromethane	0.34437	0.33988	0.010	1.30530	100	Averaged
8	1,1-Dichloroethene	0.33824	0.30133	0.010	10.91222	20.00000	Averaged
9	Acetone	0.18013	0.14041	0.010	22.04841	100	Averaged
10	1,1,2-Trichloro-1,2,2-trifl	0.33319	0.29605	0.010	11.14447	100	Averaged
11	Methyl iodide	0.40374	0.43377	0.010	-7.43578	100	Averaged
12	Carbon Disulfide	0.81156	0.83337	0.010	-2.68752	100	Averaged
13	Methyl Acetate	0.24123	0.24578	0.010	-1.88648	100	Averaged
14	Methylene Chloride	0.28506	0.30111	0.010	-5.62911	100	Averaged
15	Acrylonitrile	0.09617	0.09548	0.010	0.71530	100	Averaged
16	trans-1,2-Dichloroethene	0.27099	0.28335	0.010	-4.55849	100	Averaged
17	Methyl tert-Butyl Ether	0.52876	0.50937	0.010	3.66668	100	Averaged
19	1,1-Dichloroethane	0.45683	0.47213	0.100	-3.34914	100	Averaged
20	Vinyl Acetate	0.62690	0.55668	0.010	11.20090	100	Averaged
M	21 1,2-Dichloroethene (total)	0.28342	0.29463	0.010	-3.95328	100	Averaged
22	cis-1,2-Dichloroethene	0.29585	0.30591	0.010	-3.39893	100	Averaged
23	2,2-Dichloropropane	0.27811	0.30176	0.010	-8.50090	100	Averaged
24	2-Butanone	0.15606	0.15318	0.010	1.84783	100	Averaged
25	Bromochloromethane	0.15546	0.16276	0.010	-4.69382	100	Averaged
26	Chloroform	0.50258	0.51051	0.010	-1.57789	20.00000	Averaged
$	27 Dibromofluoromethane	0.27919	0.27785	0.010	0.47770	100	Averaged
28	1,1,1-Trichloroethane	0.39778	0.40545	0.010	-1.92737	100	Averaged
29	Cyclohexane	0.40501	0.42980	0.010	-6.11847	100	Averaged
30	1,1-Dichloropropene	0.32901	0.32528	0.010	1.13283	100	Averaged
31	Carbon Tetrachloride	0.39039	0.39982	0.010	-2.41547	100	Averaged
$	32 1,2-Dichloroethane-d4	0.30272	0.29974	0.010	0.98437	100	Averaged
33	Benzene	1.05792	1.07070	0.010	-1.20747	100	Averaged
34	1,2-Dichloroethane	0.37805	0.39305	0.010	-3.96895	100	Averaged
37	Trichloroethene	0.26717	0.26320	0.010	1.48742	100	Averaged
38	Methylcyclohexane	0.40197	0.41615	0.010	-3.52964	100	Averaged
39	1,2-Dichloropropane	0.27400	0.27134	0.010	0.96937	20.00000	Averaged

M = Summary Compound, $ = Surrogate Compound

Ecology & Environment, Inc.

Data file : /var/chem/niles.i/0406094n1r.b/n0827.d
Lab Smp Id: iblk
Inj Date : 09-JUN-2004 21:07
Operator : rj Inst ID: niles.i
Smp Info : iblk
Misc Info : 0406094n1r.b;n8bw40;{},,samp,5ml,,01
Comment :
Method : /var/chem/niles.i/0406094n1r.b/n8bw40.m
Meth Date : 10-Jun-2004 14:31 wangp Quant Type: ISTD
Cal Date : 13-MAY-2004 22:30 Cal File: n0259.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 3.50
Processing Host: chemsrv2

Concentration Formula: Amt * DF * Uf/Vo * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Uf	5.00000	ng unit correction factor
Vo	5.00000	Sample Volume purged (mL)

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
M	21 1,2-Dichloroethene (total)	96				8149	1.20322	1.20(a)
	22 cis-1,2-Dichloroethene	96	6.473	6.455	(0.779)	8149	1.20322	1.20(a)
	27 Dibromofluoromethane	113	7.239	7.209	(0.872)	311803	48.7871	48.8
$	32 1,2-Dichloroethane-d4	65	7.757	7.726	(0.934)	343794	49.6108	49.6
	35 Fluorobenzene	96	8.304	8.274	(1.000)	1144597	50.0000	
	45 Toluene-d8	98	10.877	10.853	(0.817)	1044612	48.6153	48.6
	54 Chlorobenzene-d5	117	13.311	13.287	(1.000)	850852	50.0000	
$	68 Bromofluorobenzene	95	15.385	15.367	(0.881)	361641	51.0498	51.0
	84 1,4-Dichlorobenzene-d4	152	17.466	17.442	(1.000)	444736	50.0000	

QC Flag Legend

M - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

Data File: /var/chem/niles.i/0406094n1r.b/n0827.d

Date : 09-JUN-2004 21:07

Client ID:

Instrument: niles.i

Sample Info: iblk

Purge Volume: 5.0

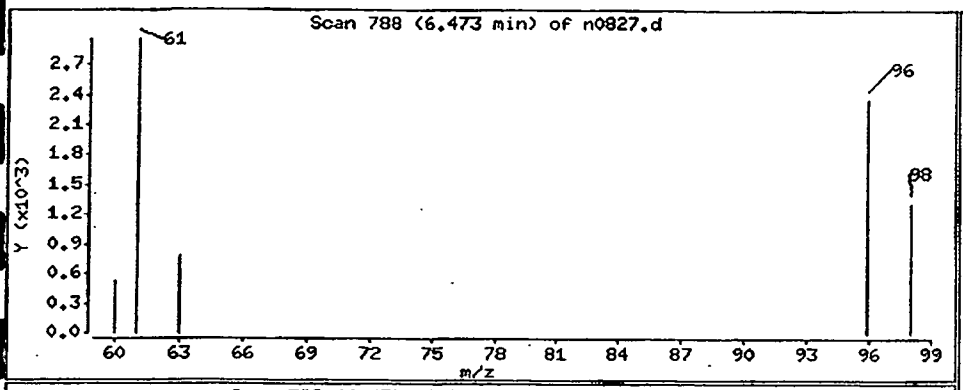
Operator: rj

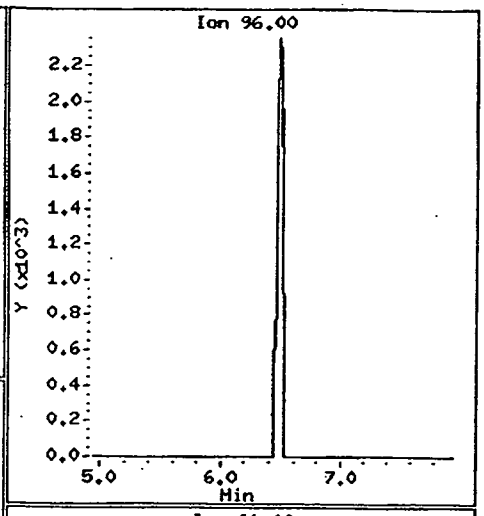
Column phase: DB-624

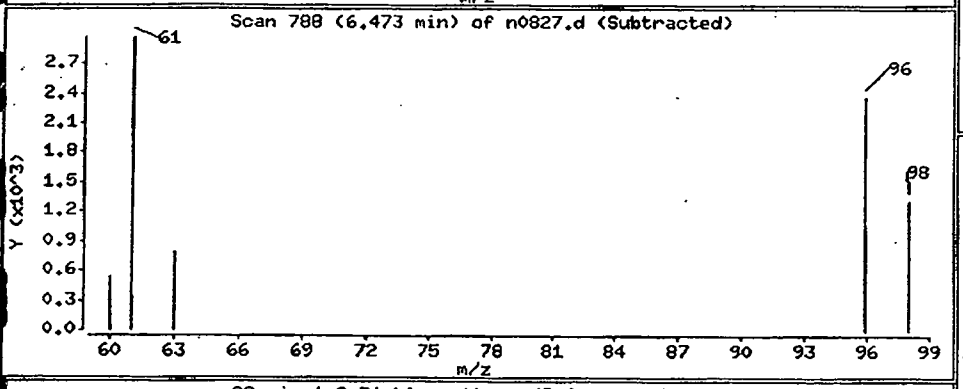
Column diameter: 0.53

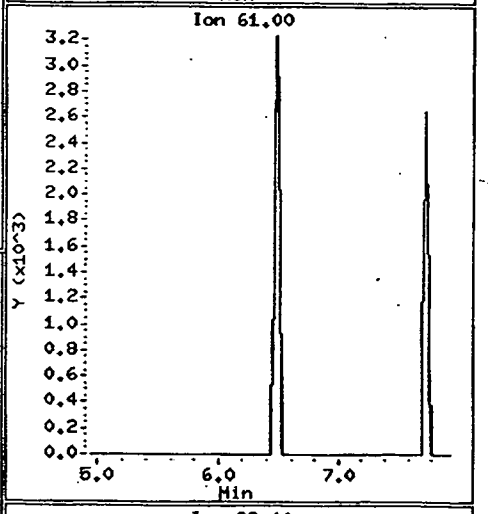
22 cis-1,2-Dichloroethene

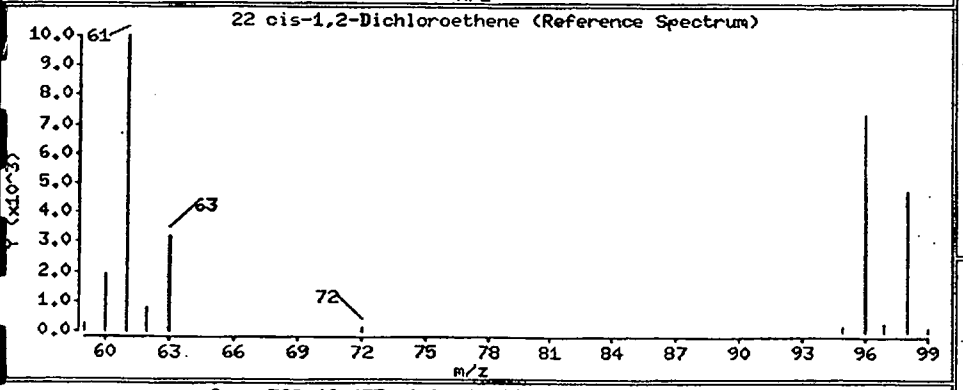
Concentration: 1.20 ug/L

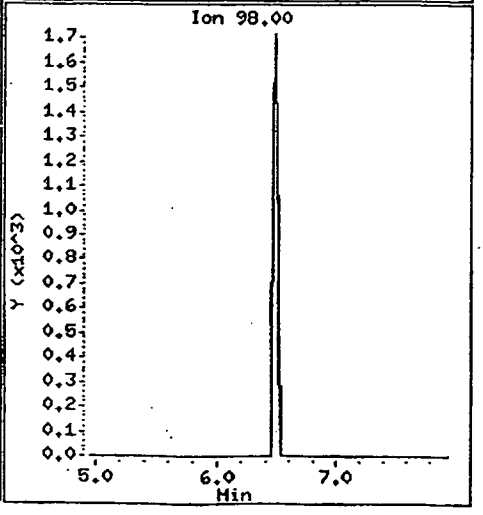


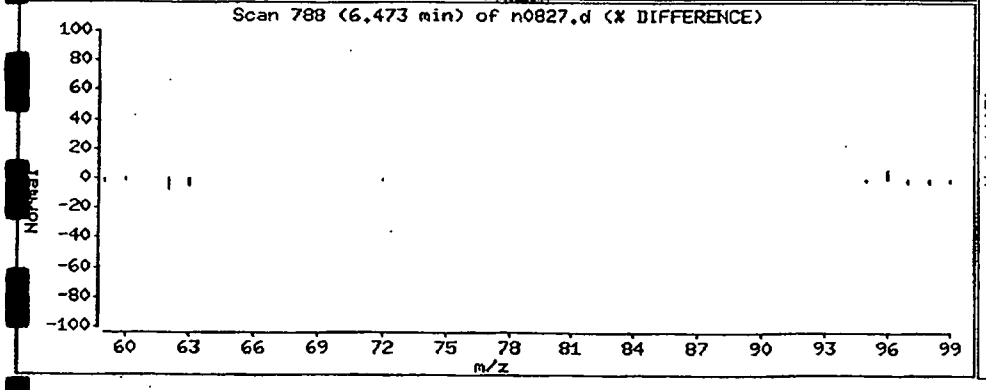












ASC

GCMS VOA INJECTION LOGBOOK

Batch Number	0406094NIR
Method Performed	8260B 5ml
Date Analyzed	6/9/04
Analyst Signature	RJones
Sequence	BFBN
Method	BFBN/n86w40
Maintenance	

Traceability

Daily Calibration Standards	Book-Page-Number
(A) STD250	1734-100-5
(B) FPM250	1734-100-7
(C) CRA250	1734-101-4
Spike Standards: MS 250(D)	1734-101-2
IS/SS (circled) * IS only * SS only (Circle One)	1734-101-8
Tune Reference (BFB)	1734-89-6

Lab Sample ID	Container Number	Dilution Factor	Analyst's Initials	Data Filename	Purge Amt.	pH	ALS No.	Comments and QC Action
BFB 50ng			RJ	n0808	1ul inj			@10:23
VSTD 050			↓	n0809	5ml			20ul A,B,C/100ml + Auto IS/SS
LCS1780-89-1				n0810	↓			20ul D,B,C/100ml ↓
MB1780-89-1				n0811				
MB1780-89-2				n0812				
0406090-01A	01	1X		n0813		7		
IBlK	—	—		n0814		—		
0406072-~~07A~~ 15A RJ 6/9/04	01	1X		n0815		7		
-07A	↓	↓		n0816		7		
-08A				n0817		7		
-09A				n0818		7		
-01A	↓	↓		n0819		7		
IBlK	—	—		n0820		—		
-02A	01	1X		n0821		7		
MS -02A	02	↓		n0822		7		8.6ul D,B,C/43ml
MSD -02A	03	↓		n0823		7		↓
IBlK/IBLK	—	—		n0824/5		—		
-03A	01	1X		n0825/6		7		
IBlK	—	—		n0826/7		—		
-04A	01	1X		n0827/8		7		
IBlK	—	—		n0828/9		—		
-05A	01	1X		n0829/30		7		
IBlK	—	—	↓	n0830	↓	—		↓

↳ n0833

Witnessed and Understood by : Denise Giglia

Date 6/21/04

GCMS VOA INJECTION LOGBOOK

Batch Number	0406104NIR	**Traceability**	
Method Performed	8260B 5 mL Water	Daily Calibration Standards	Book-Page-Number
Date Analyzed	6/10/04	(A) STD250	1734 1005
Analyst Signature	D. Kelly	(B) FRM250	1007
Sequence	BFBN	(C) CRA250	1014
Method	BFBN/N8BW40		
Maintenance	① MS/MSD ALREADY RAN AT 1X & 5X	Spike Standards: MS 250 (D)	1012
		(IS/SS) IS only * SS only (Circle One)	1022
		Tune Reference (BFB)	896

Lab Sample ID	Container Number	Dilution Factor	Analyst's Initials	Data Filename	Purge Amt.	pH	ALS No.	Comments and QC Action
BFB 50ng			DMW	N0834	1 mL			6:03
VSTD050				N0835	5 mL			20uA,B,C/100mL + A,TD 13/SS
LCS-1780-90-1				N0836				20uB,C/100mL 8,6d/43mL
LCSD-1780-90-1				N0837				
MB-1780-90-1				N0838				
*MB-1780-90-2				N0839				
0406072-05A	3	1		N0840		7		
01A	3	10		N0841		7		5/50
02A①	7	40		N0842		7		2.5/100
03A	3	10		N0843		7		5/50
0406091-03A	2	1		N0844		7		
04A	2	1		N0845		7		
05A	2	1		N0846		7		
06A	2	1		N0847		7		
07A	2	1		N0848		7		
0406044-14A	1	1		N0849				
0406040-04A	1	1		N0850	N			
0406039-01A	2	5		N0851	6/10/04 DMW	1*		
0406040-01A	1	1		N0852	N			
IBLK	—	—		N0853		—		
02A	1	1		N0854				
IBLK	—	—		N0855		—		
03A	1	1		N0856				

Witnessed and Understood by : Denise Giglia N0857/58 - IBLKS(2) Date 6/21/04

GCMS VOA INJECTION LOGBOOK

Batch Number	0406094/2C	**Traceability**	
Method Performed	8260	**Daily Calibration Standards**	**Book-Page-Number**
Date Analyzed	6/9/04	STD250	1734-100-5
Analyst Signature	[signature]	B FPM250	1734-100-7
Sequence	BFBR	C CRA250	1734-101-4
Method	BFBR 8lbw11		- -
Maintenance		Spike Standards: MS D MS250	1734-101-2
		IS/SS (circled) * IS only * SS only (Circle One)	1734-100-3
		Tune Reference (BFB)	1738-89-6

Lab Sample ID	Container Number	Dilution Factor	Analyst's Initials	Data Filename	Purge Amt.	pH	ALS No.	Comments and QC Action
BFB 50NG			GP	R1699	1ul			50✓
↓			↓	R1700	↓			50✓
↓			↓	R1701	↓			M6✓
↓			↓	R1702	↓			50✓
↓			↓	R1703	↓			17:50
VSTD050			↓	R1704	5ml			20ul STD, FPM, CRA / 10ml, ADD IS/SS
LCS 1815-42-1			↓	R1705				10ul MS, FPM, CRA/50ml,
MBLK 1815-42-1			↓	R1706				↓
MBLK 1815-42-2			↓	R1707				↓
0406072-14A	1	1	↓	R1708		7		↓
13A	1	1	↓	R1709		7		↓
12A	1	1	↓	R1710		7		↓
11A	1	1	↓	R1711		7		↓
10A	1	1	↓	R1712		7		↓
06A	1	1	↓	R1713		7		↓
not vial / not reported 01A	2	20	↓	R1714		7		2.5ml/50ml
" " 03A	2	20	↓	R1715		7		2.5ml/50ml
06A / 02A	2/4	2/5	↓	R1716/17		5		25ml/45ml, 10ml/50ml
02A MS	5	5	↓	R1718		7		10ul DBC (10ml/50ml),
02A MSD	6	5	↓	R1719		7		10ul DBC (10ml/50ml)
IBLK, IBLK			↓	R1720/21		–		↓
0406891-01A / IBLK	1	1	↓	R1722/23		7		↓
02A / IBLK	1	1	↓	R1724/25		7		↓

Witnessed and Understood by : [signature] **Date** 6/21/04