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Groundwater Monitoring Summary Report
March 2004 (First Quarter)
American Chemical Service, Inc. National Priorities List Site
Griffith, Indiana

PREPARED FOR:

ACS RD/RA EXECUTIVE COMMITTEE

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SECTION 1.0 – EXECUTIVE SUMMARY

MWH Americas (MWH) has prepared this Groundwater Monitoring Summary Report to present the results from the March 2004 groundwater sampling event at the American Chemical Service, Inc. (ACS) National Priorities List (NPL) Site in Griffith, Indiana. These activities were performed in accordance with the revised long-term groundwater monitoring plan (LTGMP) and the Quality Assurance Project Plan (QAPP). The United States Environmental Protection Agency (U.S. EPA) and Indiana Department of Environmental Management (IDEM) approved the QAPP in November 2001 and the revised LTGMP in June 2002.

During the March 2004 sampling event, water level measurements were collected at 79 monitoring wells, piezometers, and staff gauges, and groundwater samples were collected at the 16 upper aquifer wells and 16 lower aquifer wells in the monitoring network. These groundwater samples were analyzed for indicator parameters. Additionally, lower aquifer well MW34 was sampled and analyzed for volatile organic compounds (VOCs), and the sample from upper aquifer monitoring well MW44 was analyzed for total and dissolved inorganics (metals and cyanide). The sample from well MW44 was analyzed for these additional parameters due to exceedances of inorganics in recent samples. Also, several monitoring wells were re-developed.

March 2004 groundwater elevations in the upper and lower aquifers were within the typical range for spring conditions. Hydraulic gradients remained consistent with those recorded during previous sampling rounds.

Groundwater samples collected from 16 upper aquifer monitoring wells indicate that groundwater plumes to the north and south of the ACS Site are not expanding, and that concentrations within the plumes are decreasing. Benzene exceeded the maximum baseline concentration in the sample from interior well MW06, and chloroethane exceeded the maximum baseline concentration in the sample from interior well MW19. Several compounds were detected in the sample from upgradient well MW11, and the 1,1-dichloroethane concentration (40 μg/l) in the sample exceeded its maximum baseline concentration (10 μg/l). All results for this sample are estimated concentrations and are likely biased 'high' based on the results of the surrogate recoveries. Benzene and chloroethane concentrations detected in samples from other upper aquifer wells were below their respective maximum baseline concentrations. There were no exceedances in upper aquifer groundwater samples analyzed for bis(2-chloro-ethyl)ether or inorganics during March 2004.

Groundwater results at 16 lower aquifer wells continue to show fluctuating concentrations. Benzene exceeded the

maximum baseline concentration in the sample collected from MW10C; however, concentrations of benzene in samples collected from this well have decreased since March 2003. Chloroethane exceeded the maximum baseline concentration in the sample collected from MW29; recent chloroethane concentrations in samples from this well have shown an increasing trend. Benzene was not detected in the sample collected from MW29 during March 2004. Results from the sample collected at well MW09R, a well nested with MW29, show that benzene and chloroethane concentrations continue to decrease at this well. Concentrations of benzene in the sample collected from MW56 decreased but remained in the same general concentration range as previous results. The benzene concentration from the sample collected at downgradient well MW53 exceeded the maximum baseline concentration during March 2004. Recent benzene concentrations in the samples collected from this well have shown a slowly increasing trend. The concentration of bis(2-chloroethyl)ether in the sample collected from lower aquifer well MW09R was below its maximum baseline concentration.

In response to the baseline exceedances and/or increasing concentration trends at upper aquifer wells MW06, MW11, ~~and~~ MW19, and MW49, MWH proposes to continue monitoring the concentrations in these wells according to the LTGMP.

In response to the baseline exceedances and/or increasing concentration trends at lower aquifer wells MW10C, MW29, and MW53, MWH is preparing a Work Plan for a phased lower aquifer investigation to determine the source and potential migration pathway of the benzene detections. Upon approval by the Agencies, MWH will conduct the investigation. MWH will continue monitoring the concentrations in these wells according to the LTGMP.

SECTION 2.0 – MARCH 2004 DATA COLLECTION ACTIVITIES

The groundwater monitoring activities conducted at the Site during March 2004 followed the LTGMP and included measuring water levels and collecting and analyzing samples from monitoring wells. Some additional sampling and analysis and well development were also completed during March 2004.

2.1 WATER LEVEL MEASUREMENTS

Water level measurements were collected at 79 upper and lower aquifer wells, piezometers, and surface water staff gauges on March 15, 2004. Water levels were not measured at three locations in the monitoring network (P93, P94, and MW10C). Piezometers P93 and P94 were damaged and are scheduled to be replaced in conjunction with the Lower Aquifer Groundwater Investigation field activities. Well MW10C currently contains a groundwater pump and associated piping which prevents water level measurement. **Table 1** contains the water level measurements, map coordinates (reference points), top of well casing elevations, and calculated groundwater elevations for the 79 measurement points.

2.2 GROUNDWATER SAMPLING

Groundwater sampling activities were conducted from March 15 through 23, 2004. Each monitoring well was sampled using low-flow methods in accordance with the Groundwater Sampling Standard Operating Procedure (SOP) developed for the revised LTGMP. Lower aquifer wells MW10C and MW56 were sampled through their dedicated purge pumps, which were temporarily slowed down to low-flow conditions (<500 milliliters per minute) for purging and sampling. Field parameters (pH, specific conductivity, temperature, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity) were measured during well purging, and the values recorded upon stabilization are presented in **Table 2**.

The groundwater samples were sent overnight under chain-of-custody to CompuChem Laboratory, Cary, North Carolina, where they were analyzed for the parameters summarized in **Table 3**. The table lists the upper and lower aquifer monitoring wells in the monitoring well network, the parameters analyzed in the samples collected from each well during the March 2004 event, and a summary of the additional activities detailed in Section 2.3. In accordance with the revised LTGMP, the March 2004 analytical results were compared to the 1997

maximum baseline concentrations. The comparison tables are provided in **Appendix A**.

2.3 ADDITIONAL ACTIVITIES

During recent years increasing turbidity levels have been noticed in several upper aquifer wells. The primary reason for increased turbidity is a red-colored particulate matter observed in the water. This material is prevalent during initial stages of purging, but usually is only present in trace amounts at stabilization. However, this material also causes difficulties for the pumps which adversely affects low-flow sampling conditions. One of these wells, MW44, has also recently had exceedances of several metals in samples collected from this well. It is not known if these particulates are the cause of the higher concentrations of inorganics detected in some samples.

Following the Corrective Actions presented in the September 2003 Groundwater Monitoring Summary Report, upper aquifer well MW44 was re-developed on March 12, 2004, and the sample from this well was analyzed for total and dissolved inorganics. The dissolved inorganics sample was collected by sampling groundwater through a disposable 0.45 micron filter.

The development procedures provided in the LTGMP were followed, and involved surging the well for approximately three minutes and purging approximately 35 gallons.

When MW44 was sampled on March 17, 2004, a significant improvement was observed in the clarity of the water. Therefore, several other upper aquifer wells known to have high turbidity were also developed. MW11 and MW12 were developed after they were sampled; each well was surged for several minutes and approximately 30 gallons were pumped from each well. Wells MW48 and MW49 were also pumped at a high rate immediately prior to sampling to remove some of the red particulate matter observed in the water during sampling. Approximately ten gallons of water was pumped from wells MW48 and MW49. The purged water was contained and transported to the Groundwater Treatment Plant for treatment.

Deteriorating sample tubing was also replaced in wells MW11, MW12, MW44 and MW53. The same type of tubing (teflon-lined polyethylene) was used. The tubing was delivered clean and new from the vendor, and the outside of the tubing was washed with an alconox wash and rinse prior to inserting into the well. The old tubing was discarded.

SECTION 3.0 – MARCH 2004 GROUNDWATER DATA EVALUATION

3.1 GROUNDWATER FLOW SYSTEM DATA

The groundwater elevations listed in **Table 1** were used to develop a water table contour map (**Figure 1**) for the upper aquifer and a potentiometric surface contour map for the lower aquifer (**Figure 2**).

During March 2004, the groundwater flow pattern in the upper aquifer was consistent with previous monitoring events. Regional groundwater flow is generally east to west. It is diverted to the north and south by the barrier wall as it approaches the site. The gradient northwest of the site is relatively flat due to the effects of the PGCS trench, barrier wall, and discharge points from the groundwater treatment plant. Groundwater to the south of the site flows to the south and southeast.

The groundwater flow pattern in the lower aquifer is northward at a relatively low hydraulic gradient. This is consistent with historical groundwater data. The hydraulic gradient calculated between wells MW50 and MW52 was 0.00041 feet per feet (ft/ft) during March 2004. The average hydraulic gradient calculated from measurements in the lower aquifer since 1995 is 0.00040 ft/ft.

3.2 MONITORING WELL ANALYTICAL DATA

Following the LTGMP, samples from 16 wells in the upper aquifer and 17 wells in the lower aquifer were analyzed for indicator VOCs, which include benzene, chloroethane, 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethane, cis-1,2-dichloro-ethene, trans-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride. Samples from wells MW06, MW19, and MW09R were analyzed for the indicator SVOC bis(2-chloroethyl)ether, and samples from wells MW06, MW15, and MW43 were analyzed for the indicator metal arsenic. Additionally, the sample from upper aquifer well MW44 was analyzed for total and dissolved inorganics (metals and cyanide). In accordance with LTGMP, the analytical results from the upper and lower aquifer monitoring wells were compared to the 1997 maximum baseline concentrations and to data from previous sampling rounds.

3.2.1 Upper Aquifer Results

Table 4 summarizes the compounds detected in the samples from the 16 upper aquifer wells collected during March 2004. **Table 5** presents the results of the total and dissolved inorganic analyses for the sample collected from MW44 during March 2003, September 2003, and

March 2004. **Figure 3** shows the upper aquifer well locations and compounds detected on a map with the monitoring wells sampled at the ACS Site. Graphs presenting the concentrations of benzene and chloroethane versus time for the upper aquifer monitoring wells are provided in **Appendix B**. The validation narrative and laboratory analytical reports for samples from the upper aquifer are provided in **Appendix C**.

VOC Results

Benzene and chloroethane impacts have been observed outside of the barrier wall in two areas of the upper aquifer. North of the site, these detections have consistently occurred in samples collected from wells MW48 and MW49. South of the site, benzene and chloroethane detections have extended from samples collected at MW06 to MW19 and MW45. The groundwater monitoring program in the upper aquifer has focused on monitoring concentrations upgradient, within, and downgradient of these impacted areas.

- Upgradient wells: Benzene and chloroethane were not detected in samples collected from upgradient monitoring wells MW12 or MW17. Tetrachloroethene, which has previously been detected at trace concentrations in samples from MW17, was detected at an estimated concentration of 1.6 µg/l in the sample from MW17 during March 2004. Several VOCs were also detected in the sample collected from well MW11. The concentration of 1,1-dichloroethane in the sample from MW11 (40 µg/l) exceeded the maximum baseline concentration (10 µg/l). Benzene was not detected, but chloroethane was detected at 9.9 µg/l. Several other VOCs, including cis-1,2-dichloroethene, trichloroethene, and vinyl chloride were detected in the sample from MW11. All detected compounds in the sample were found to be biased "high" due to the surrogate recovery results exceeding the limits established in the QAPP. A few compounds detected in the sample from MW11 were also detected in the equipment blank sample.

- Interior wells: Benzene and chloroethane were detected in samples collected from several interior wells. The concentrations of benzene and chloroethane in the sample collected from MW06 increased since the previous sampling event, and the benzene concentration (980 µg/l) exceeded the maximum baseline concentration (320 µg/l). However, these concentrations are not the highest detected previously at this location. The chloroethane concentration in the sample collected from MW19 (35 µg/l) is slightly higher than in previous sampling events and exceeded its maximum baseline concentration of 20 µg/l. Benzene and chloroethane concentrations in the sample from MW45 were consistent with previous results and continue to show

decreasing trends. Concentrations of benzene in the samples collected from wells MW48 and MW49 remained elevated (590 µg/l and 1,100 µg/l, respectively), but were below the maximum baseline concentrations for these wells.

- Downgradient wells: No indicator VOCs were detected in samples from downgradient wells in the upper aquifer, except in the sample from MW39, where trans-1,2-dichloroethene was detected at an estimated concentration of 2.2 µg/l. Well MW39 is located transgradient of the ACS site and downgradient of well MW11.

- Tentatively Identified Compounds: A few Tentatively Identified Compounds (TICs) were detected in the samples from upper aquifer wells. Ethyl ether, detected in some samples from lower aquifer wells, was detected at MW06 (71 µg/l) and MW19 (9.8 µg/l). Other TICs included di-n-propyl ether, acetic acid, diethyl sulfide, sulfur dioxide, ethyloxyethene, alkanes, and various methane-related compounds.

SVOC Results

The indicator compound bis(2-chloroethyl)ether was detected in samples from upper aquifer monitoring wells MW06 (12 µg/l) and MW19 (12 µg/l). Both detections were less than the maximum baseline concentrations for these wells.

Inorganic Results

The indicator compound arsenic was detected in the samples from wells MW06 (51.3 µg/l), MW15 (34.7 µg/l), and MW43 (22.3 µg/l) during March 2004. All of these detections were less than the maximum baseline concentrations for these wells.

As discussed in Section 2.3, MW44 was re-developed due to increasing turbidity levels, and the sample from this well was analyzed for total and dissolved (field-filtered) inorganics. **Table 5** summarizes the total and dissolved inorganic results in the sample from MW44 during the March 2004 sampling event, as well as the results from the March 2003 and September 2003 sampling events. This table shows the results of the development of well MW44. All total and dissolved inorganic concentrations in the sample from well MW44 during March 2004 were below their respective MCLs. The concentration of chromium in the sample from MW44 decreased from 148 µg/l in September 2003 (prior to development) to below detectable levels in March 2004.

3.2.2 Lower Aquifer Results

Table 6 summarizes the detected compounds in the samples collected from the 17 lower aquifer monitoring wells during March 2004. **Figure 4** shows the lower aquifer well locations and detected compounds on a map of the ACS Site. Graphs presenting the concentrations of benzene and chloroethane versus time for the lower

aquifer monitoring wells are provided in **Appendix B**. The validation narrative and laboratory analytical reports for samples from the lower aquifer are provided in **Appendix C**.

VOC Results

In the past, benzene and chloroethane have been detected in the samples collected from lower aquifer monitoring wells MW09, ATMW4D, and MW10C. Failure of the surface seal at MW09 and ATMW4D probably provided the path that allowed benzene and chloroethane to migrate locally into the lower aquifer. These wells have been properly abandoned and replaced by MW09R and MW56. It is unclear if the detections in samples from MW10C or MW53 are a downgradient indication of the migration from MW09 or ATMW4D.

- Upgradient well: No VOCs were detected in the sample collected from lower aquifer monitoring well MW28, located south of the site.

- Interior wells: Benzene and chloroethane were the only indicator VOCs detected in the samples collected from interior wells MW09R, MW10C, MW29, and MW56. No VOCs were detected in the sample from MW34. Concentrations of benzene in the sample collected from MW10C (980 µg/l) and chloroethane in the sample collected from MW29 (45 µg/l) exceeded maximum baseline concentrations during March 2004. No other concentrations exceeded their maximum baseline concentrations.

- Downgradient wells: VOCs were not detected in any samples collected from downgradient monitoring wells, with the exception of benzene in the sample collected from MW53 (11 µg/l). This concentration exceeded the maximum baseline concentration of 10 µg/l for this well.

- Tentatively Identified Compounds: A few TICs were detected in the samples from lower aquifer wells. Ethyl ether was detected in samples from MW23 (7.5 µg/l), MW09R (7.8 µg/l), MW10C (2,600 µg/l), MW51 (1,700 µg/l), MW52 (3,000 µg/l), and MW53 (13 µg/l). Other TICs included 1,4-dioxane, tetrahydrofuran, sulfur dioxide, di-n-propyl ether, and acetic acid.

SVOC Results

The indicator compound bis(2-chloroethyl)ether was detected at 7.8 µg/l in the sample collected from lower aquifer well MW09R during March 2004. The concentration was below the maximum baseline concentration (10 µg/l) for this well.

3.2.3 Discussion

Site source areas are currently contained within the barrier wall, which is preventing migration of contaminants to adjacent areas in the upper aquifer. The

groundwater monitoring program is structured specifically to monitor groundwater outside the barrier wall.

Upper Aquifer

VOCs

North of the Site, sampling results since 1997 from interior wells MW48 and MW49 continue to show generally decreasing concentration trends. Years of monitoring data at these wells show that concentrations fluctuate on a seasonal pattern, with concentrations being higher during the summer and fall months and lower when sampled in winter and spring. The March 2004 benzene concentration in the sample from MW48 (590 µg/l) is slightly higher than the concentration from the previous spring sample (March 2003, 440 µg/l); however, the overall trend in benzene concentrations at this well is downward. The benzene concentration in the sample from MW49 (1,100 µg/l) was also higher than the March 2003 sample (530 µg/l). Chloroethane concentrations in the samples from MW48 and MW49 during March 2004 were consistent with previous events. The March 2004 results in the samples from MW48 and MW49 were below their maximum baseline concentrations.

Several of the upper aquifer monitoring wells located south of the Site also exhibit seasonal variability. Concentrations in samples from MW06 are generally higher when sampled in the winter and spring months and lower when sampled in the summer and fall months. The March 2004 benzene concentration in the sample from MW06 (980 µg/l) is higher than the concentration from the previous spring sample (March 2003, 180 µg/l). Variable concentrations are also seen in samples collected from interior well MW19, located 500 feet downgradient of MW06. While the benzene concentrations in samples from this well have been below 5 µg/l over the last few sampling events, the March 2004 chloroethane results (35 µg/l) were higher than in September 2003 (20 µg/l). In contrast, concentrations in samples collected from interior well MW45, located 1000 feet downgradient of MW06, show decreasing concentrations trends for benzene and chloroethane over the last several years. Benzene and chloroethane concentrations have been below 5 µg/l during the last few sampling events. Concentration trends at this well are shown in the graph in **Appendix B**.

Tetrachloroethene was detected at trace amounts in the sample from upgradient well MW17 during March 2004. Tetrachloroethene and trichloroethene have occasionally been detected at trace amounts in samples collected from this well during previous sampling events. Benzene and chloroethane have not historically been detected in samples collected from this well, which was located downgradient from the Kapica-Pazmey area prior to installation of the barrier wall. After installation of the barrier wall, the local groundwater gradient reversed causing well MW17 to be situated upgradient of the Site.

This well replaced upgradient well MW18 in the monitoring well network, after MW18 became obstructed and was abandoned in March 2002.

Several chlorinated VOCs were detected in the sample collected from upgradient well MW11 during March 2004. Most of these compounds have either not been detected in previous samples collected from this well, or have only been detected occasionally at trace amounts. Cross-contamination is not considered as a cause of the detections in the sample from MW11 during March 2004 because:

- MW11 was sampled between wells MW12 and MW23, and samples from those wells did not have any detections of VOCs, and
- MW11 was developed after it was sampled.

Data validation determined that the detected compounds in the sample from MW11 were biased high because the recovery of surrogate compounds in the sample were outside of required quality control limits. Some of the compounds were also detected in the associated equipment blank. However, this equipment blank was collected after several other wells were sampled, and none of these compounds were detected in the other samples.

Trace amounts of VOCs have occasionally been detected at some downgradient wells. However, the concentrations at these downgradient wells generally:

- Are below maximum baseline concentrations,
- Show decreasing trends, or
- Are only occasionally detected.

Data from upper aquifer monitoring wells indicate that VOC contamination has not spread beyond historical limits. Perimeter monitoring wells have been generally free of benzene and chloroethane detections and concentrations within the plume have generally been decreasing.

SVOCs

The LTGMP requires that upper aquifer monitoring wells MW06 and MW19 be analyzed annually for bis(2-chloroethyl)ether. In March 2004, the concentrations of this compound in the samples from these wells were below their maximum baseline concentrations. The concentrations in these samples were slightly less than the concentrations detected in the March 2003 samples, but were generally consistent with historical results.

Inorganics

The LTGMP requires that samples from monitoring wells MW06, MW15, and MW43 be analyzed annually for arsenic. The arsenic concentration in the sample from

MW06 (51.2 µg/l) exceeded the U.S. EPA MCL (50 µg/l) but was below the maximum baseline concentration for this well. Arsenic was also detected in the samples from MW15 and MW43, but the concentrations were below the respective maximum baseline concentrations and the MCL. The concentrations of arsenic in samples collected from MW06, MW15 and MW43 have shown decreasing trends over the last several monitoring events.

During the March 2003 sampling event, several metal analytes were detected above their respective U.S. EPA MCLs in the samples collected from wells MW42 and MW44. These wells are located at the outer boundary of the original benzene plume to the south of the site. This plume has diminished, and the primary groundwater contaminants, benzene and chloroethane, have only occasionally been detected at these locations and then only at trace concentrations. In September 2003, samples from these wells were again analyzed for metals. All of the concentrations detected in the samples from wells MW42 and MW44 were below the EPA MCLs, except for chromium, which was detected in the sample from MW44 at a concentration of 148 µg/l.

These exceedances of chromium at MW44 may be a secondary effect of natural attenuation in the benzene plume. The natural attenuation causes a reducing environment which can mobilize certain metals. This may be the cause of the elevated detections of chromium in the groundwater samples. High turbidity readings may have also resulted in higher concentrations of inorganic compounds than are actually present in the sample.

In order to further understand the possible causes for the elevated inorganic results in the samples collected at MW44, this well was developed prior to sampling, and the samples were analyzed for total and dissolved metals. During the purging and sampling of this well, a significant improvement was observed in the clarity and turbidity levels of the groundwater.

The chromium concentrations in both the total and dissolved samples from MW44 during March 2004 were below detection limits. This presents a significant decrease from previous results. Several other inorganic analytes also decreased after development, including iron, nickel, potassium, and possibly copper and zinc. These results seem to indicate that the elevated turbidity may have caused the increased concentrations of the inorganic compounds in previous samples from this well.

Little difference was observed between the results of the total and dissolved metals samples collected from MW44 during this sampling event. This seems to indicate that the development of the well improved the water quality by lowering turbidity levels in the groundwater collected at this well.

Lower Aquifer

VOCs

In the lower aquifer, the groundwater results continue to show isolated detections, apparently related to localized effects. Before MW09 was replaced, samples collected from it contained concentrations of benzene and chloroethane as high as 290 and 2,900 µg/l, respectively. Since MW09R replaced MW09, the benzene and chloroethane concentrations have decreased to the current concentrations of 8.3 and 22 µg/l, respectively.

Nested with well MW09R are wells MW29 and MW34. MW29 is screened in the middle portion of the lower aquifer, and MW34 is screened in the lower part of the lower aquifer. Chloroethane concentrations in samples collected from well MW29 have gradually increased over the last several sampling events and have exceeded maximum baseline concentrations since September 2002. The increasing concentration of chloroethane is likely due to diffusion because of the concentration gradient. Benzene was not detected in the sample collected from MW29 during March 2004, and historically has only occasionally been detected at trace amounts in samples collected from this well. Well MW34 was sampled for VOCs during March 2004, and no compounds were detected in the sample.

In samples collected from downgradient well MW53, located along the northern boundary of the Site northwest of the ACS facility, benzene concentrations have increased gradually from below detection limits in 1997 to 11 µg/l in March 2004, the highest detection of benzene at this well to date. Historical groundwater elevations indicate a small downward gradient at this location. It is unclear if the benzene concentrations in samples collected from MW53 are hydraulically connected to the detections in samples collected from MW10C or MW09R, which are screened higher up in the lower aquifer. Also, prior to collecting this sample in March 2004, the tubing in MW53 was replaced with clean, unused tubing.

In response to consistently elevated benzene concentrations in samples collected from interior wells MW10C and MW56, a purging system was installed at these wells and has been operating since October 2002. This system extracts groundwater at a rate of about 2 gallons per minute at each well, and the water is directed to the groundwater treatment plant where it is treated and discharged to the wetlands. Flow meters installed at each well are inspected regularly to provide a measure of the gallons pumped. As of the end of March 2003, the system has pumped about 1,913,000 gallons of groundwater from these wells (**Appendix D**). These low-rate extraction pumps operating in MW10C and MW56 may be a factor in the variability observed in VOC concentrations in samples collected from these wells. The concentrations of benzene in the samples collected from these two wells in March 2004 have decreased from previous results.

SVOCs

The LTGMP requires that samples from monitoring well MW09R be analyzed annually for bis(2-chloroethyl)ether. This compound was detected in the sample collected from this well in March 2004, but at concentrations below the maximum baseline concentration. Concentrations of this compound in samples collected from MW09R have decreased slightly over the last several years of monitoring.

SECTION 4.0 – CONCLUSIONS

The March 2004 water levels and groundwater samples were collected from wells at the ACS Site to meet the following objectives from the revised LTGMP:

1. **Collect water level data to confirm that groundwater flow regimes in the upper and lower aquifers are consistent with historical flow patterns.**

   The groundwater flow regimes determined from March 2004 data are consistent with past conditions for both the upper and lower aquifers.

2. **Collect water level data to confirm that the Barrier Wall Extraction System (BWES) and Perimeter Groundwater Containment System (PGCS) are affecting the upper aquifer hydraulic gradients as planned.**

   The data indicate the barrier wall is containing the groundwater enclosed within the wall. The regional groundwater flow from the east is diverted toward the north and south around the barrier wall. The groundwater diverted to the north is collected in the PGCS extraction trench. Groundwater diverted south flows along the barrier wall and continues to the south and southeast. These results are consistent with previous observations.

3. **Collect and analyze groundwater samples from upgradient monitoring wells in the upper and lower aquifers to confirm background ground water quality.**

   There were no detections of benzene or chloroethane in samples from upgradient monitoring wells in both the upper and lower aquifer wells, except for chloroethane in the sample from at MW11. Trace amounts of other VOCs were detected in samples collected from these wells, but the detections do not represent increasing trends.

4. **Collect and analyze groundwater samples from upper and lower aquifer monitoring wells to provide indication of any changes in groundwater quality at downgradient boundaries.**

   Benzene and chloroethane were not detected in samples from downgradient wells screened in the upper aquifer. Arsenic was detected in samples collected from downgradient wells MW15 and MW43; the concentrations were below the MCL, and may be related to a secondary effect of natural attenuation.

Benzene was detected in the sample collected from downgradient monitoring well MW53 screened in the lower aquifer. Benzene concentrations have gradually increased in samples collected from MW53 during the last several sampling events.

5. **Collect and analyze groundwater samples from the interior of the areas of contaminated groundwater to document how concentrations change with time as the remediation progresses.**

Sampling data from the upper aquifer indicate that concentrations within contaminated areas outside the barrier wall continue to decrease. The concentrations of benzene and chloroethane in samples from interior wells MW06, MW45, MW48, and MW49 have generally decreased over the last several years. These decreasing trends in the upper aquifer are likely the combined result of the barrier wall, the PGCS, and the ORC treatments in these areas. Concentrations in the samples collected from MW06, MW19 and MW49 during March 2004 showed slight increases since September 2003, but have overall demonstrated decreasing trends during recent sampling events.

In samples collected from lower aquifer interior wells, concentrations of benzene and chloroethane continue to be variable. Concentrations of benzene and chloroethane in samples from MW09R have shown decreasing trends, while chloroethane concentrations in samples from adjacent nested well MW29 have continued to slowly increase. Benzene and chloroethane concentrations in samples collected from MW10C and MW56 have decreased, but continue to remain elevated. A purging system is operating at MW10C and MW56 to capture impacted groundwater and prevent its migration in the lower aquifer.

Corrective Actions

According to the LTGMP, MWH is to propose corrective actions for analytical results that exceed maximum baseline concentrations or that demonstrate increasing trends. The following lists the exceedances (underlined) and the corrective action to be taken:

- Baseline exceedances or increasing concentrations in samples collected from upper aquifer wells MW06, MW11, MW19, and MW49: MWH will continue monitoring these wells as described in the LTGMP.

- Baseline exceedances or increasing concentrations in samples collected from lower aquifer wells MW29, MW10C, MW53, and MW56: MWH is preparing a lower aquifer investigation to collect data on the confining clay layer and the VOC detections observed in the samples from these wells.

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Table 1
Groundwater Elevation Data - March 2004
American Chemical Service NPL Site
Griffith, Indiana

Monitoring Point Designation	Reference Points			March 15, 2004		Notes
	East	North	TOC	Level	Elevation	
Upper Aquifer Monitoring Wells						
MW06	5298	5520	655.28	22.55	632.73	
MW11	6377	7329	640.47	6.20	634.27	
MW12	6019	6352	642.74	8.34	634.40	
MW13	5050	7814	634.08	3.27	630.81	
MW14	4882	6995	638.56	7.88	630.68	
MW15	4721	5003	637.89	5.25	632.64	
MW17	5656	5677	647.10	14.05	633.05	
MW19	5231	4943	635.78	3.35	632.43	
MW37	5395	7976	636.78	4.65	632.13	
MW38	5903	8216	636.51	4.31	632.20	
MW39	6253	7947	637.77	4.35	633.42	
MW40	6349	6831	639.46	4.92	634.54	
MW41	6242	4517	632.74	3.54	629.20	
MW42	6264	3808	632.32	4.62	627.70	
MW43	5880	3719	633.56	5.25	628.31	
MW44	5390	4303	633.04	3.09	629.95	
MW45	5830	4388	635.35	5.00	630.35	
MW46	4526	7424	633.32	2.70	630.62	
MW47	5958	5084	640.54	6.31	634.23	
MW48	5669	7814	636.36	4.20	632.16	
MW49	5551	7650	637.00	4.87	632.13	
M4S	4953	6537	633.42	2.43	630.99	

Notes:
All depth measurements and elevations are in units of feet. TOC = top of casing
Elevation is in feet above mean sea level.

Table 1
Groundwater Elevation Data - March 2004
American Chemical Service NPL Site
Griffith, Indiana

Monitoring Point Designation	Reference Points			March 15, 2004		Notes
	East	North	TOC	Level	Elevation	
Staff Gauges & Piezometers						
P13	4878	5735	651.20	18.25	632.95	
P17	4584	6006	654.64	21.35	633.29	
P23	4689	7018	636.18	5.56	630.62	
P25	5131	7510	635.01	4.17	630.84	
P26	4764	7309	634.23	3.65	630.58	
P27	4904	7020	639.70	8.60	631.10	
P28	5883	7486	644.53	10.68	633.85	
P31	5480	7159	641.03	9.95	631.08	
P32	5746	7026	642.32	12.25	630.07	
P36	5410	6851	645.89	16.21	629.68	
P40	5931	7241	638.77	4.57	634.20	
P41	5663	7377	637.23	3.43	633.80	
P49	5145	6949	638.98	9.80	629.18	
SG8R	5409	5252	634.70	1.80	632.90	
SG8R2	5409	5242	632.67	NM	NM	Not measured since SG8R was measured.
SG5	5464	7713	633.36	3.20	630.16	
SG13	4819	7209	631.53	4.95	630.48	TOC is the 6.0' mark on staff gauge
SG14	5109	6523	635.44	3.60	633.04	TOC is the 6.0' mark on staff gauge
PGCS Piezometer Sets						
P81	5577	7581	636.19	4.04	632.15	
P82	5577	7572	635.77	3.61	632.16	
P83	5577	7561.6	635.95	3.80	632.15	
P84	5322	7603	634.35	3.37	630.98	
P85	5326	7594	634.08	3.05	631.03	
P86	5329	7585	634.41	3.25	631.16	
P87	5121	7466	633.88	3.06	630.82	
P88	5130	7460	633.90	3.11	630.79	
P89	5137	7454	634.02	3.18	630.84	
P90	4881	7152	634.45	3.93	630.52	
P91	4889	7145	634.59	4.08	630.51	
P92	4896	7138.1	633.87	3.30	630.57	

Notes:

All depth measurements and elevations are in units of feet. TOC = top of casing

Elevation is in feet above mean sea level.

CAS/ALC/jmf
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Table 1
Groundwater Elevation Data - March 2004
American Chemical Service NPL Site
Griffith, Indiana

Monitoring Point Designation	Reference Points			March 15, 2004		Notes
	East	North	TOC	Level	Elevation	
BWES Water Level and Piezometer Pairs						
P93	5136	7067	638.79	CNM	CNM	Does not exist - Scheduled to be replaced in 2004
P94	5146	7061	638.98	CNM	CNM	Does not exist - Scheduled to be replaced in 2004
P95	5146	6532	638.58	5.80	632.78	
P96	5156	6537	641.26	14.17	627.09	
P105	5885	6678	638.86	4.28	634.58	
P106	5871	6685	638.10	9.81	628.29	
P107	5766	7339	637.42	3.78	633.64	
P108	5757	7324	638.13	7.65	630.48	
P109	5740	6387	644.30	10.01	634.29	
P110	5705	6382	647.68	20.02	627.66	
P111	5551	5950	650.03	16.64	633.39	
P112	5525	5960	653.36	26.40	626.96	
P113	5309	5693	657.53	30.65	626.88	
ORCPZ102	5331	5612	652.47	19.65	632.82	
P114	5035	5729	653.69	26.40	627.29	
P115	4970	5708	652.50	19.62	632.88	
P116	5031	6087	646.26	19.36	626.90	
P117	5014	6087	643.93	10.45	633.48	
P118	5402	6539	645.52	18.37	627.15	

Notes:

All depth measurements and elevations are in units of feet.
Elevation is in feet above mean sea level.

TOC = top of casing
CNM = could not measure (reason given under "Notes" column)

Table 1
Groundwater Elevation Data - March 2004
American Chemical Service NPL Site
Griffith, Indiana

Monitoring Point Designation	Reference Points			March 15, 2004		Notes
	East	North	TOC	Level	Elevation	
Lower Aquifer Wells						
MW07	6113	6732	641.46	18.45	623.01	
MW08	5934	7506	640.43	17.83	622.60	
MW09R	4893	6990	639.05	16.22	622.83	
MW10C	5229	7554	637.45	CNM	CNM	Could not measure due to pump in well
MW23	4717	7404	633.31	10.48	622.83	
MW24	4596	8033	635.22	12.78	622.44	
MW28	5657	5695.6	648.77	25.26	623.51	
MW50	5269	5383	649.43	25.90	623.53	
MW51	5198	7767	634.16	11.80	622.36	
MW52	4996	7814	632.74	10.20	622.54	
MW54R	5589.8	7592.2	637.51	14.79	622.72	
M4D	4949	6538	633.32	10.30	623.02	

Notes:

All depth measurements and elevations are in units of feet.
Elevation is in feet above mean sea level.

TOC = top of casing
CNM = could not measure (reason given under "Notes" column)

Table 2
Field Parameter Data - March 2004
American Chemical Service NPL Site
Griffith, Indiana

Well ID	pH (std. units)	Electrical Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)
Upper Aquifer Monitoring Wells						
MW06	6.83	2.900	15.9	27	0.7	-98
MW11	6.41	0.400	8.3	45	0.7	104
MW12	6.67	0.460	10.6	35	1.4	-34
MW13	7.01	1.700	7.7	49	0.8	-90
MW14	6.65	0.410	9.4	66	2.8	94
MW15	6.93	4.700	11.9	29	0.7	-69
MW17	6.65	0.860	12.9	28	6.0	76
MW19	7.43	5.900	8.5	30	0.8	-153
MW37	6.35	0.350	7.4	10	0.8	-4
MW39	7.09	1.900	8.0	12	0.9	-95
MW42	6.67	1.300	7.6	110	0.9	61
MW43	6.49	1.600	7.6	110	1.4	-26
MW44	7.28	2.000	7.8	11	1.1	-92
MW45	7.02	1.600	6.8	220	1.7	-93
MW48	7.00	1.100	7.9	14	0.1	-103
MW49	6.60	1.100	8.2	13	0.6	-46

Notes:

Values are those recorded upon stabilization during groundwater purging

mS/cm = milliSiemens per centimeter

°C = Degrees Centrigrade

NTU = nephelometric turbidity units

mg/L = milligrams per liter

mV = millivolts

Table 2
Field Parameter Data - March 2004
American Chemical Service NPL Site
Griffith, Indiana

Well ID	pH (std. units)	Electrical Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)
Lower Aquifer Monitoring Wells						
MW08	7.83	0.530	11.0	0	0.7	-155
MW09R	7.46	1.400	11.9	41	0.4	-158
MW10C	7.28	1.800	11.3	9	0.1	-122
MW23	7.25	1.500	9.5	22	0.6	-100
MW28	7.37	1.000	12.5	28	0.8	-124
MW29	7.05	1.500	11.5	36	1.3	-99
MW30	7.30	1.100	9.6	18	1.9	-128
MW31	7.60	0.760	10.9	5	0.4	-147
MW32	7.56	0.870	11.8	6	0.7	-138
MW33	7.02	2.100	9.3	10	0.3	-96
MW34	7.61	1.400	10.7	12	0.9	-144
MW51	7.41	1.600	10.6	15	0.3	-133
MW52	7.34	1.600	11.5	66	0.6	-120
MW53	6.91	4.100	9.0	31	0.8	-84
MW54R	7.59	1.200	12.0	40	1.3	-184
MW55	7.59	1.100	10.6	11	1.0	-125
MW56	7.40	1.400	13.5	5	0.1	-156

Notes:
Values are those recorded upon stabilization during groundwater purging
mS/cm = milliSiemens per centimeter
°C = Degrees Centrigrade
NTU = nephelometric turbidity units
mg/L = milligrams per liter
mV = millivolts

Table 3
Summary of Groundwater Sampling Activities - March 2004
American Chemical Service, Inc. NPL Site
Griffith, Indiana

Monitoring Well ID	Location with Respect to Area of Groundwater Contamination	Date Sampled	Indicator VOCs	Indicator SVOC	Indicator Metal	Total & Dissolved Inorganics	Quality Control Sample ID	Date Redeveloped	Tubing Replaced
Upper Aquifer Monitoring Wells									
MW06	Interior	3/23/2004	X	X	X				
MW11	Upgradient	3/16/2004	X					3/17/2004	Yes
MW12	Upgradient	3/15/2004	X					3/17/2004	Yes
MW13	Downgradient[1]	3/22/2004	X				DUP02		
MW14	Downgradient	3/22/2004	X						
MW15	Downgradient	3/19/2004	X		X				
MW17	Upgradient	3/19/2004	X						
MW19	Interior	3/23/2004	X	X					
MW37	Downgradient	3/18/2004	X						
MW39	Transgradient	3/19/2004	X						
MW42	Downgradient	3/17/2004	X						
MW43	Downgradient	3/17/2004	X		X				
MW44	Downgradient	3/17/2004	X			X	DUP01, MS/MSD	3/12/2004	Yes
MW45	Interior	3/17/2004	X						
MW48	Interior	3/23/2004	X				DUP04	3/23/2004	
MW49	Interior	3/23/2004	X					3/23/2004	

Notes:

[1] - MW13 was originally an interior well.

X - Indicates sample was analyzed for selected parameter.

Indicator Volatile Organic Compounds (VOCs) - Includes the parameters 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethane, benzene, chloroethane, cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, trans-1,2-dichloroethene, and vinyl chloride.

Indicator Semi-Volatile Organic Compound (SVOC) - Includes the parameter bis(2-chloroethyl)ether.

Indicator Metal - Includes the parameter arsenic.

Dissolved Inorganics sample field filtered with a 0.45 μm filter.

Table 3
Summary of Groundwater Sampling Activities - March 2004
American Chemical Service, Inc. NPL Site
Griffith, Indiana

Monitoring Well ID	Location with Respect to Area of Groundwater Contamination	Date Sampled	Indicator VOCs	Indicator SVOC	Indicator Metal	Total & Dissolved Inorganics	Quality Control Sample ID	Date Redeveloped	Tubing Replaced
Lower Aquifer Monitoring Wells									
MW08	Downgradient	3/16/2004	X						
MW09R	Interior	3/22/2004	X	X			DUP03, MS/MSD		
MW10C	Interior	3/22/2004	X						
MW23	Downgradient	3/16/2004	X						
MW28	Upgradient	3/19/2004	X						
MW29	Interior	3/22/2004	X						
MW30	Downgradient	3/18/2004	X						
MW31	Downgradient	3/16/2004	X						
MW32	Downgradient	3/16/2004	X						
MW33	Downgradient	3/18/2004	X						
MW34*	Interior	3/22/2004	X						
MW51	Downgradient	3/16/2004	X						
MW52	Downgradient	3/22/2004	X						
MW53	Downgradient	3/22/2004	X						Yes
MW54R	Downgradient	3/19/2004	X						
MW55	Downgradient	3/18/2004	X						
MW56	Interior	3/22/2004	X						

Notes:

X - Indicates sample was analyzed for selected parameter.

Indicator Volatile Organic Compounds (VOCs) - Includes the parameters 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethane, benzene, chloroethane, cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, trans-1,2-dichloroethene, and vinyl chloride.

Indicator Semi-Volatile Organic Compound (SVOC) - Includes the parameter bis(2-chloroethyl)ether.

* Monitoring well MW34 was added for this sampling round only and is not part of the monitoring well network in the LTGMP.

Table 4
Summary of Detections in Samples from Upper Aquifer Monitoring Wells - March 2004
American Chemical Service NPL Site
Griffith, Indiana

	MW06			MW11			MW12			MW13			MW14			MW15		
	Interior			Upgradient			Upgradient			Downgradient			Downgradient			Downgradient		
Parameter (ug/l)	Mar-04		*BV*	Mar-04		*BV*	Mar-04		*BV*	Mar-04		*BV*	Mar-04		*BV*	Mar-04		*BV*
Volatile Organic Compounds																		
1,1-Dichloroethane	5	U/		**40**	/J	*10*	5	U/		5	U/		5	U/		5	U/	
1,1-Dichloroethene	5	U/		5	U/		5	U/		5	U/		5	U/		5	U/	
1,2-Dichloroethane	5	U/		**1.6**	J/J	*10*	5	U/		5	U/		5	U/		5	U/	
Benzene	**980**	D/B	*320*	5	U/		5	U/		5	U/		5	U/		5	U/	
Chloroethane	**180**		*720*	**9.9**	/J	*10*	5	U/		5	U/		5	U/		5	U/	
cis-1,2-Dichloroethene	5	U/		**96**	/BJ	*NA*	5	U/		5	U/		5	U/		5	U/	
Tetrachloroethene	5	U/		7.8	/UBJ	*10*	5	U/		5	U/		5	U/		5	U/	
trans-1,2-Dichloroethene	5	U/		**1.2**	J/J	*NA*	5	U/		5	U/		5	U/		5	U/	
Trichloroethene	5	U/		**5.1**	/BJ	*10*	5	U/		5	U/		5	U/		5	U/	
Vinyl Chloride	5	U/		**6.4**	/J	*10*	5	U/		5	U/		5	U/		5	U/	
Semi-volatile Organic Compounds																		
Bis(2-chloroethyl)ether	**12**		*56*	NA			NA			NA			NA			NA		
Inorganics																		
Arsenic	**51.3**		*72*	NA			NA			NA			NA			**34.7**		*59*

Notes:

ug/l = micrograms per liter.

BV = Baseline Value (only provided for detected compounds).

X/ = Data qualifier added by laboratory.

/X = Data qualifier added by data validator.

U = Compound was analyzed for but not detected.

J = Estimated value; concentration is below reporting limit.

NA - Not available

B = Indicates analyte detected in associated blank.

UB = Analyte is not detected at or above the indicated concentration due to blank contamination.

D = Results based on diluted sample.

Bold result indicates the compound was detected.

Bold and Boxed results indicates an exceedance of the compound's baseline value.

Table 4
Summary of Detections in Samples from Upper Aquifer Monitoring Wells - March 2004
American Chemical Service NPL Site
Griffith, Indiana

	MW17		MW19		MW37		MW39		MW42		MW43	
	Upgradient		Interior		Downgradient		Transgradient		Downgradient		Downgradient	
Parameter (ug/l)	**Mar-04**	***BV***	**Mar-04**	***BV***	**Mar-04**	***BV***	**Mar-04**	***BV***	**Mar-04**	***BV***	**Mar-04**	***BV***
Volatile Organic Compounds												
1,1-Dichloroethane	U/		5 U/		5 U/		5 U/		5 U/		5 U/	
1,1-Dichloroethene	U/		5 U/		5 U/		5 U/		5 U/		5 U/	
1,2-Dichloroethane	U/		5 U/		5 U/		5 U/		5 U/		5 U/	
Benzene	U/		5 J/UB		5 U/		5 U/		5 U/		5 U/	
Chloroethane	U/		**35**	*20*	5 U/		5 U/		5 U/		5 U/	
cis-1,2-Dichloroethene	U/		5 U/		5 U/		5 U/		5 U/		5 U/	
Tetrachloroethene	**1.6** J/	*10*	5 U/		5 U/		5 U/		5 U/		5 U/	
trans-1,2-Dichloroethene	U/		5 U/		5 U/		**2.2** J/	*NA*	5 U/		5 U/	
Trichloroethene	U/		5 U/		5 U/		5 U/		5 U/		5 U/	
Vinyl Chloride	U/		5 U/		5 U/		5 U/		5 U/		5 U/	
Semi-volatile Organic Compounds												
Bis(2-chloroethyl)ether	NA		**12**	*12*	NA		NA		NA		NA	
Inorganics												
Arsenic	NA		NA		NA		NA		NA		**22.3**	*81*

Notes:

ug/l = micrograms per liter.

BV = Baseline Value (only provided for detected compounds).

X/ = Data qualifier added by laboratory.

/X = Data qualifier added by data validator.

U = Compound was analyzed for but not detected.

J = Estimated value; concentration is below reporting limit.

NA - Not available

B = Indicates analyte detected in associated blank.

UB = Analyte is not detected at or above the indicated concentration due to blank contamination.

D = Results based on diluted sample.

Bold result indicates the compound was detected.

Bold and Boxed results indicates an exceedance of the compound's baseline value.

Table 4
Summary of Detections in Samples from Upper Aquifer Monitoring Wells - March 2004
American Chemical Service NPL Site
Griffith, Indiana

	MW44			MW45			MW48			MW49		
	Downgradient			Interior			Interior			Interior		
Parameter (ug/l)	**Mar-04**		***BV***	**Mar-04**		***BV***	**Mar-04**		***BV***	**Mar-04**		***BV***
Volatile Organic Compounds												
1,1-Dichloroethane	5	U/		5	U/			U/			U/	
1,1-Dichloroethene	5	U/		5	U/			U/			U/	
1,2-Dichloroethane	5	U/		5	U/			U/			U/	
Benzene	5	U/		**3.7**	J/	*1,045*	**590**	D/B	*9,500*	**1,100**	D/B	*6,750*
Chloroethane	5	U/		**2.7**	J/	*215*	**22**		*1,000*	**52**		*715*
cis-1,2-Dichloroethene	5	U/		5	U/			U/			U/	
Tetrachloroethene	5	U/		5	U/			U/			U/	
trans-1,2-Dichloroethene	5	U/		5	U/			U/			U/	
Trichloroethene	5	U/		5	U/			U/			U/	
Vinyl Chloride	5	U/		5	U/			U/			U/	
Semi-volatile Organic Compounds												
Bis(2-chloroethyl)ether	NA			NA			NA			NA		
Inorganics												
Arsenic	NA			NA			NA			NA		

Notes:

ug/l = micrograms per liter.

BV = Baseline Value (only provided for detected compounds).

X/ = Data qualifier added by laboratory.

/X = Data qualifier added by data validator.

U = Compound was analyzed for but not detected.

J = Estimated value; concentration is below reporting limit.

NA - Not available

B = Indicates analyte detected in associated blank.

UB = Analyte is not detected at or above the indicated concentration due to blank contamination.

D = Results based on diluted sample.

Bold result indicates the compound was detected.

Bold and Boxed results indicates an exceedance of the compound's baseline value.

Table 5
Summary of Inorganic Results in Samples from Monitoring Well MW44 - March 2003 through March 2004
American Chemical Service NPL Site
Griffith, Indiana

Analyte	U.S. EPA	MDL	PQL	MW44			MW44			MW44 - Total			MW44 - Dissolved		
	MCL	(ug/l)	(ug/l)	March 03	LQ	DV	Sept 03	LQ	DV	March 04	LQ	DV	March 04	LQ	DV
Aluminum	NA	29.5	100	88.7	B	UB		U		35.5	B	UB		U	
Antimony	6	1.8	10	**24.6**				U		3.3	B	UB		U	
Arsenic	50	3.6	10	**302**			15.2			8.8	B		15.7		
Barium	2,000	1.3	10	1,330		B	133			191	B	B	168	B	
Beryllium	4	0.2	5		U			U			U			U	
Cadmium	5	0.3	5		U			U			U			U	
Calcium	NA	12.3	1,000	288,000			98,900		B	156,000		B	143,000		
Chromium	100	0.4	5	**6,180**	*	BJ	**148**			5.8		UB		U	
Cobalt	NA	0.9	5		U		1	B		3.5	B	UB	4.4	B	
Copper	1,300	1.2	5	83			4.5	B	UB	2.3	B	UB	1.1	B	UB
Cyanide	200	0.4	10	1.1	B	UB	NA				U		0.98	B	
Iron	NA	12.2	100	249,000		B	6,080		B	2,860		B	2,410		
Lead	15	1.3	3		U		1.5	B			U			U	
Magnesium	NA	3.9	1,000	96,300		B	41,600		B	60,300		B	55,400		
Manganese	NA	1.8	10	300		B	48.8		B	85.7		B	76.7		
Mercury	2	0.1	0.2		U			U			U			U	
Nickel	NA	1.2	5	204			7.3			4.1	B	UB	4.2	B	
Potassium	NA	26.9	1,000	2,100	E	J	2,250	BE	UBJ	664	B		740	B	
Selenium	50	2.1	5	9.1		UB		U			U		5.3		
Silver	NA	0.8	0.5		U			U			U			U	
Sodium	NA	154	2,000	210,000		B	30,800	E	BJ	66,000		B	60,000		
Thallium	2	3.8	10	**15.7**	N	UBJ		U			UN			U	
Vanadium	NA	0.7	20	21.9			2.5	B			U			U	
Zinc	NA	0.6	20	29.8			18.9	B	UB	3.9	B	UB		U	

Notes:
All results in micrograms per liter (ug/l).
Bold results exceed MCL
MCL = Maximum Contaminant Level
NA = MCL does not exist for this analyte
MDL = Method Detection Limit (Approximate)
PQL = Practical Quantitation Limit
LQ = Data qualifier added by laboratory
DV = Data qualifier added by validation
NA = Not analyzed

LQ Flags
U = Indicates compound not detected above the MDL
B = Compound was detected above the MDL but below the PQL.
It is considered an estimated concentration.
E = Serial dilution not within 10%. Concentration is estimated.
N = Sample spike recovery is outside of control limits.
* = Sample and sample duplicate results are not within control limits.

DV Flags
B = Compound was detected in sample and in associated blank.
J = Indicates an estimated value.
UB = Compound not detected above indicated concentration due to blank contamination
UJ = Compound not detected, and detection limit is an estimated value.

CAS/ALC/jmf
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Table 6
Summary of Detections in Samples from Lower Aquifer Monitoring Wells- March 2004
American Chemical Service NPL Site
Griffith, Indiana

	MW08			MW09R			MW10C			MW23			MW28		
	Downgradient			Interior			Interior			Downgradient			Upgradient		
Parameter (ug/l)	**Mar-04**		***BV***	**Mar-04**		***BV***	**Mar-04**		***BV***	**Mar-04**		***BV***	**Mar-04**		***BV***
Volatile Organic Compounds															
1,1-Dichloroethane	5	U/		5	U/		25	U/		5	U/		5	U/	
1,1-Dichloroethene	5	U/		5	U/		25	U/		5	U/		5	U/	
1,2-Dichloroethane	5	U/		5	U/		25	U/		5	U/		5	U/	
Benzene	5	U/		**8.3**		*310*	**980**		*150*	5	U/		5	U/	
Chloroethane	5	U/		**22**		*2,900*	**110**		420	5	U/		5	U/	
cis-1,2-Dichloroethene	5	U/		5	U/		25	U/		5	U/		5	U/	
Tetrachloroethene	5	U/		5	U/		25	U/		5	U/		5	U/	
trans-1,2-Dichloroethene	5	U/		5	U/		25	U/		5	U/		5	U/	
Trichloroethene	5	U/		5	U/		25	U/		5	U/		5	U/	
Vinyl Chloride	5	U/		5	U/		25	U/		5	U/		5	U/	
Semi-volatile Organic Compounds															
Bis(2-chloroethyl)ether	NA			**7.8**	J/	*10*	NA			NA			NA		
Inorganics															
Arsenic	NA			NA			NA			NA			NA		

Notes:

ug/l = micrograms per liter.

BV = Baseline Value (only provided for detected compounds).

NA - Not available

X/ = Data qualifier added by laboratory.

/X = Data qualifier added by data validator.

U = Compound was analyzed for but not detected.

J = Estimated value; concentration is below reporting limit.

Bold result indicates the compound was detected.

Bold and Boxed results indicates an exceedance of the compound's baseline value.

Table 6
Summary of Detections in Samples from Lower Aquifer Monitoring Wells- March 2004
American Chemical Service NPL Site
Griffith, Indiana

	MW29		MW30		MW31		MW32		MW33		MW-34	
	Interior		Downgradient		Downgradient		Downgradient		Downgradient		Interior	
Parameter (ug/l)	**Mar-04**	***BV***	**Mar-04**	***BV***	**Mar-04**	***BV***	**Mar-04**	***BV***	**Mar-04**	***BV***	**Mar-04**	***BV***
Volatile Organic Compounds												
1,1-Dichloroethane	5 U/		5 U/		5 U/		5 U/		5 U/		5 U/	
1,1-Dichloroethene	5 U/		5 U/		5 U/		5 U/		5 U/		5 U/	
1,2-Dichloroethane	5 U/		5 U/		5 U/		5 U/		5 U/		5 U/	
Benzene	5 U/		5 U/		5 U/		5 U/		5 U/		5 U/	
Chloroethane	**45**	*10*	5 U/		5 U/		5 U/		5 U/		5 U/	
cis-1,2-Dichloroethene	5 U/		5 U/		5 U/		5 U/		5 U/		5 U/	
Tetrachloroethene	5 U/		5 U/		5 U/		5 U/		5 U/		5 U/	
trans-1,2-Dichloroethene	5 U/		5 U/		5 U/		5 U/		5 U/		5 U/	
Trichloroethene	5 U/		5 U/		5 U/		5 U/		5 U/		5 U/	
Vinyl Chloride	5 U/		5 U/		5 U/		5 U/		5 U/		5 U/	
Semi-volatile Organic Compounds												
Bis(2-chloroethyl)ether	NA		NA		NA		NA		NA		NA	
Inorganics												
Arsenic	NA		NA		NA		NA		NA		NA	

Notes:

ug/l = micrograms per liter.

BV = Baseline Value (only provided for detected compounds).

NA - Not available

X/ = Data qualifier added by laboratory.

/X = Data qualifier added by data validator.

U = Compound was analyzed for but not detected.

J = Estimated value; concentration is below reporting limit.

Bold result indicates the compound was detected.

Bold and Boxed results indicates an exceedance of the compound's baseline value.

Table 6
Summary of Detections in Samples from Lower Aquifer Monitoring Wells- March 2004
American Chemical Service NPL Site
Griffith, Indiana

	MW51			MW52			MW53			MW54R			MW55			MW56		
	Downgradient			Downgradient			Downgradient			Downgradient			Downgradient			Interior		
Parameter (ug/l)	**Mar-04**		***BV***	**Mar-04**		***BV***	**Mar-04**		***BV***	**Mar-04**		***BV***	**Mar-04**		***BV***	**Mar-04**		***BV***
Volatile Organic Compounds																		
1,1-Dichloroethane	5	U/		5	U/		5	U/		5	U/		5	U/UJ		25	U/	
1,1-Dichloroethene	5	U/		5	U/		5	U/		5	U/		5	U/UJ		25	U/	
1,2-Dichloroethane	5	U/		5	U/		5	U/		5	U/		5	U/UJ		25	U/	
Benzene	5	U/		5	U/		**11**		*10*	5	U/		5	U/UJ		**600**		*NA*
Chloroethane	5	U/		5	U/		5	U/		5	U/		5	U/UJ		25	U/	
cis-1,2-Dichloroethene	5	U/		5	U/		5	U/		5	U/		5	U/UJ		25	U/	
Tetrachloroethene	5	U/		5	U/		5	U/		5	U/		5	U/UJ		25	U/	
trans-1,2-Dichloroethene	5	U/		5	U/		5	U/		5	U/		5	U/UJ		25	U/	
Trichloroethene	5	U/		5	U/		5	U/		5	U/		5	U/UJ		25	U/	
Vinyl Chloride	5	U/		5	U/		5	U/		5	U/		5	U/UJ		25	U/	
Semi-volatile Organic Compounds																		
Bis(2-chloroethyl)ether	NA			NA			NA			NA			NA			NA		
Inorganics																		
Arsenic	NA			NA			NA			NA			NA			NA		

Notes:

ug/l = micrograms per liter.

BV = Baseline Value (only provided for detected compounds).

NA - Not available

X/ = Data qualifier added by laboratory.

/X = Data qualifier added by data validator.

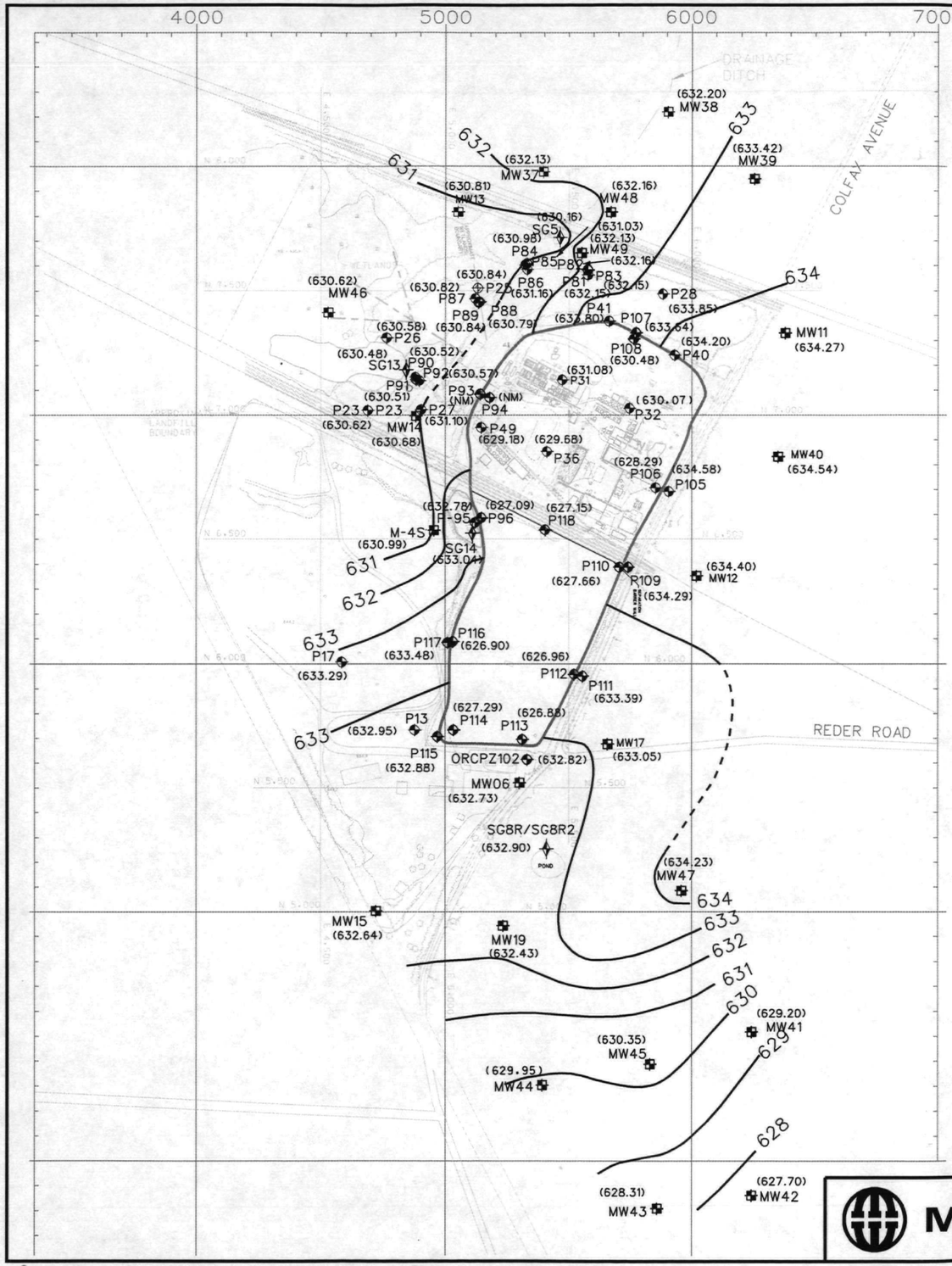
U = Compound was analyzed for but not detected.

J = Estimated value; concentration is below reporting limit.

Bold result indicates the compound was detected.

Bold and Boxed results indicates an exceedance of the compound's baseline value.

CAS/ALC/jmf
J:\209\0603 ACS\0304 GW Monitoring\March 2004\Report\Tables\Mar04-T6-LowerAquifer results.xls
2090603.030401



LEGEND

- BARRIER WALL
- PERIMETER GROUND WATER CONTAINMENT SYSTEM
- UPPER AQUIFER WELL LOCATION AND DESIGNATION
- P61 PIEZOMETER LOCATION AND DESIGNATION
- STAFF GAUGE LOCATION AND DESIGNATION
- (632.42) GROUNDWATER ELEVATION
- 631 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE APPROXIMATE)
- INDICATES A DEPRESSION
- (NM) NOT MEASURED

NOTE:

1. P93 AND P94 DO NOT EXIST.
2. GROUNDWATER ELEVATIONS WERE MEASURED ON MARCH 15, 2004
3. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL.

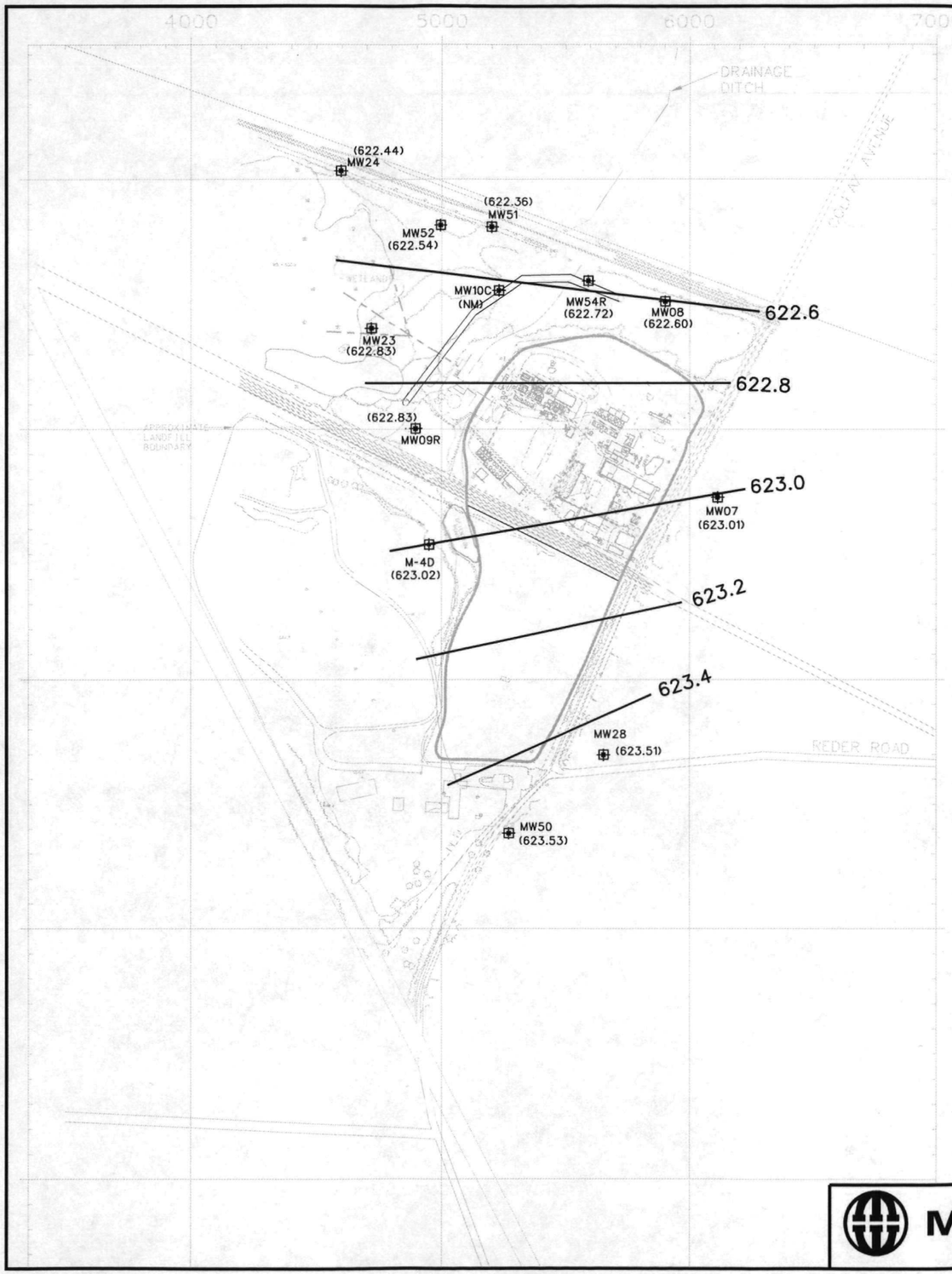
N

0 500 1000

SCALE IN FEET

MWH	SCALE	AMERICAN CHEMICAL SERVICE, INC. NPL SITE GRIFFITH, INDIANA	UPPER AQUIFER WATER TABLE CONTOUR MAP MARCH 2004	FIGURE
	AS SHOWN			1

JOB No. 2090603 FILE: J:/209/0603 acs/drawings/March 2004/Figure 1.dgn CAS/ALC



LEGEND

	BARRIER WALL
MW52	LOWER AQUIFER WELL LOCATION AND DESIGNATION
(622.60)	GROUNDWATER ELEVATION
623.0	GROUNDWATER ELEVATION CONTOUR (DASHED WHERE APPROXIMATE)
(NM)	NOT MEASURED

NOTES:

1. GROUNDWATER ELEVATIONS WERE MEASURED ON MARCH 15, 2004.
2. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL.

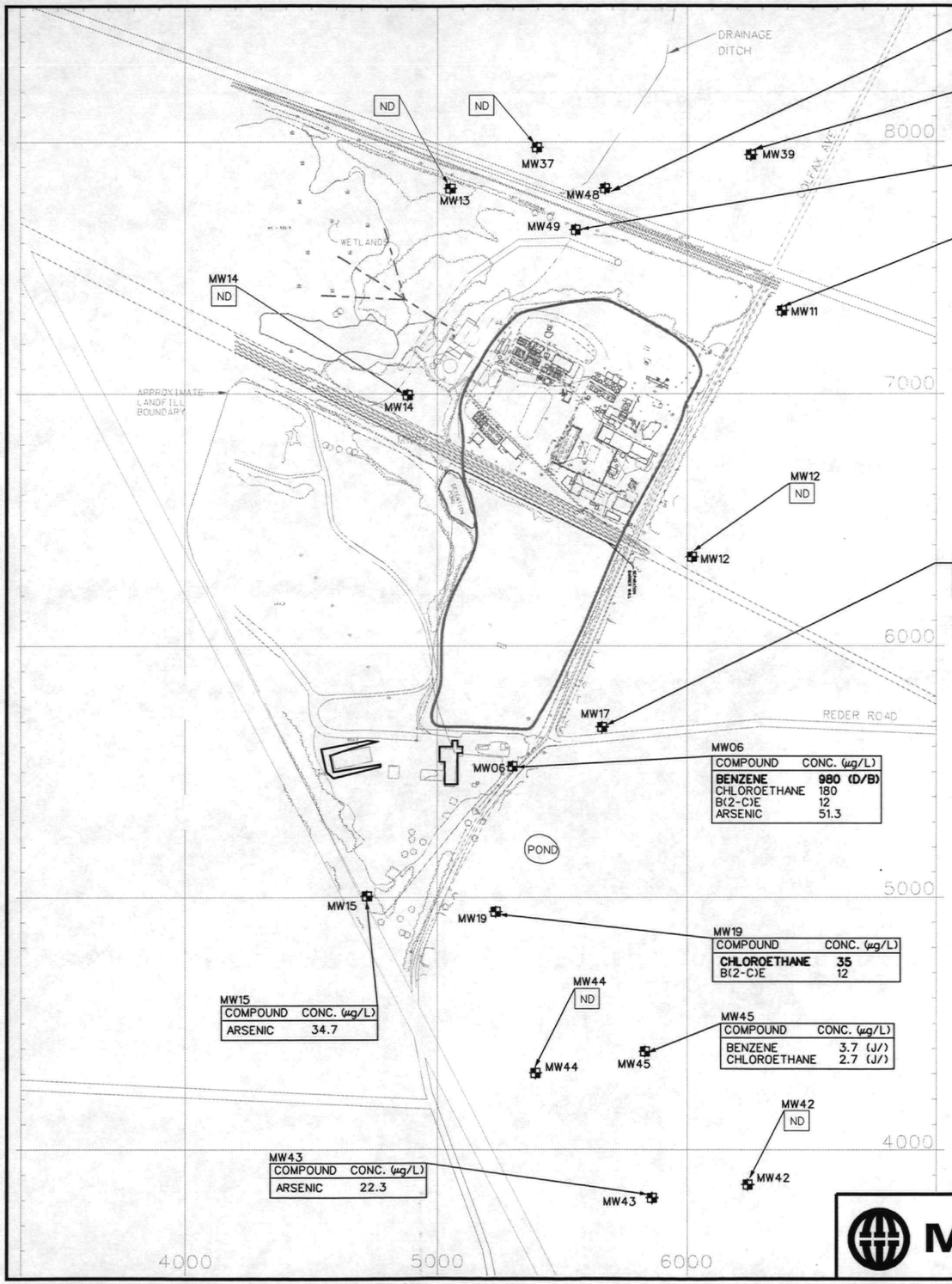
N

0 500 1000

SCALE IN FEET

MWH	SCALE	AMERICAN CHEMICAL SERVICE, INC. NPL SITE GRIFFITH, INDIANA	LOWER AQUIFER POTENTIOMETRIC SURFACE CONTOUR MAP MARCH 2004	FIGURE
	AS SHOWN			2

JOB No. 2090603 FILE: J:/209/0603 acs/drawins/March 2004/Figure 2.dgn CAS/ALC



MW48

COMPOUND	CONC. (µg/L)
BENZENE	590 (D/B)
CHLOROETHANE	22

MW39

COMPOUND	CONC. (µg/L)
TRANS-1,2-DICHLOROETHENE	2.2 (J/)

MW49

COMPOUND	CONC. µg/L)
BENZENE	1,100 (D/B)
CHLOROETHANE	52

MW11

COMPOUND	CONC. (µg/L)
1,1-DICHLOROETHANE	**40.0 (/J)**
1,2-DICHLOROETHANE	1.6 (J/J)
CHLOROETHANE	9.9 (/J)
CIS-1,2-DICHLOROETHENE	96 (/BJ)
TRANS-1,2-DICHLOROETHENE	1.2 (J/J)
TRICHLOROETHENE	5.1 (/BJ)
VINYL CHLORIDE	6.4 (/J)

MW17

COMPOUND	CONC. (µg/L)
TETRACHLOROETHENE	1.6 (J/)

MW06

COMPOUND	CONC. (µg/L)
BENZENE	**980 (D/B)**
CHLOROETHANE	180
B(2-C)E	12
ARSENIC	51.3

MW19

COMPOUND	CONC. (µg/L)
CHLOROETHANE	**35**
B(2-C)E	12

MW15

COMPOUND	CONC. (µg/L)
ARSENIC	34.7

MW45

COMPOUND	CONC. (µg/L)
BENZENE	3.7 (J/)
CHLOROETHANE	2.7 (J/)

MW43

COMPOUND	CONC. (µg/L)
ARSENIC	22.3

LEGEND

MW11	UPPER AQUIFER WELL LOCATION AND DESIGNATION
	BARRIER WALL
	PERIMETER GROUND WATER CONTAINMENT SYSTEM
µg/L	MICROGRAMS PER LITER
(J)	INDICATES AN ESTIMATED VALUE (LAB/VALIDATED)
(D)	INDICATES SAMPLE WAS DILUTED (LAB/VALIDATED)
(B)	INDICATES COMPOUND WAS DETECTED IN ASSOCIATED BLANK (LAB/VALIDATED)
ND	NO COMPOUNDS DETECTED
B(2-C)E	BIS(2-CHLOROETHYL)ETHER

NOTES:
1. CONCENTRATIONS IN BOLD EXCEEDED BASELINE VALUES.

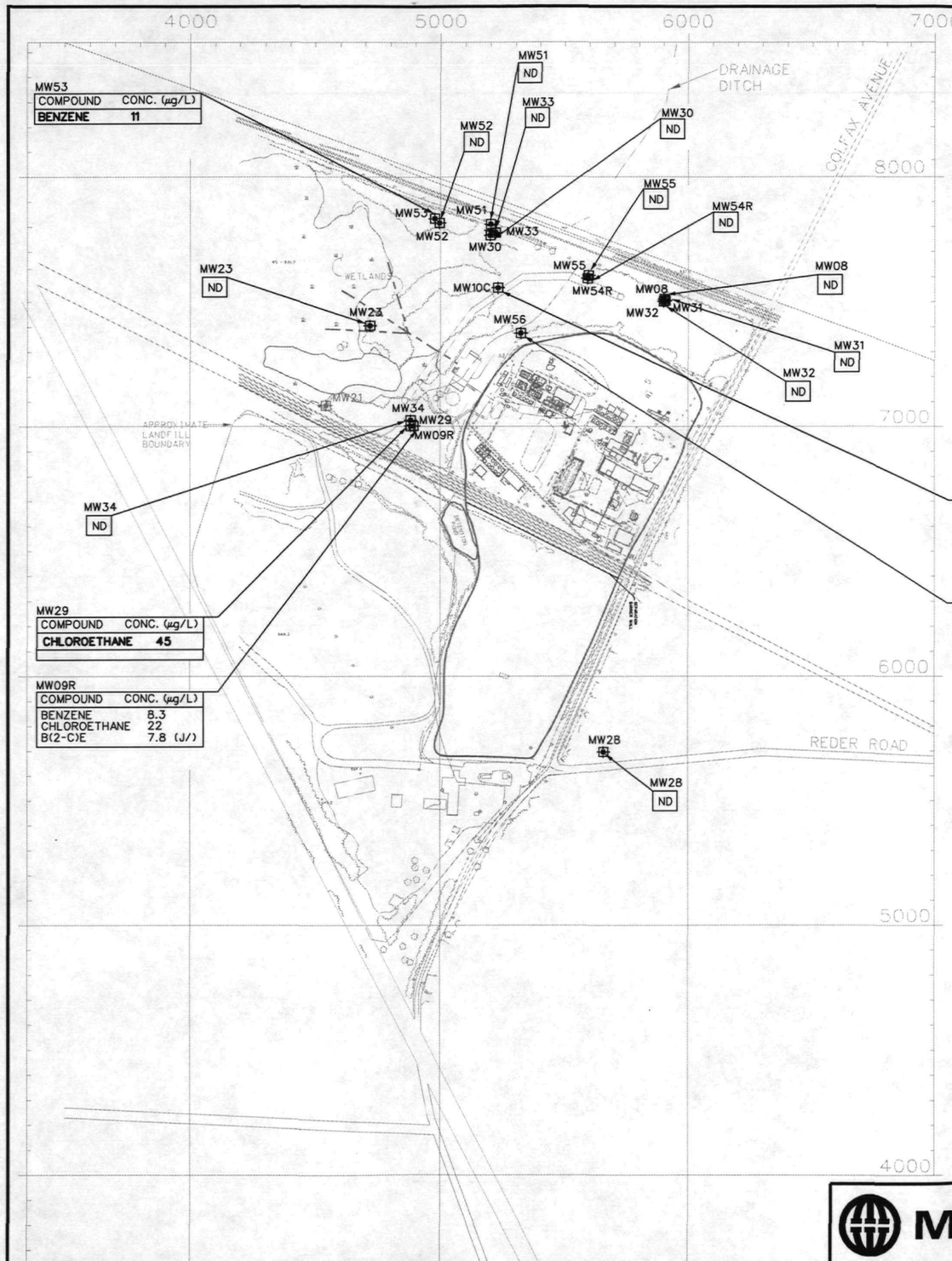
N

0 500 1000

SCALE IN FEET

MWH	SCALE	AMERICAN CHEMICAL SERVICE, INC. NPL SITE GRIFFITH, INDIANA	DETECTED COMPOUNDS IN SAMPLES FROM UPPER AQUIFER MONITORING WELLS MARCH 2004	FIGURE
	AS SHOWN			3

JOB No. 2090603 FILE: J:/209/0603 acs/DRAWINGS/MARCH 2004/FIG_3.dgn CAS/ALC



LEGEND

	BARRIER WALL
	PERIMETER GROUND WATER CONTAINMENT SYSTEM
MW53	LOWER AQUIFER WELL LOCATION AND DESIGNATION
µg/L	MICROGRAMS PER LITER
(D)	INDICATES SAMPLE WAS DILUTED (LAB/VALIDATED)
(J)	INDICATES AN ESTIMATED VALUE (LAB/VALIDATED)
ND	NO COMPOUNDS DETECTED
B(2-C)E	BIS(2-CHLOROETHYL)ETHER

NOTE: CONCENTRATIONS IN BOLD EXCEEDED BASELINE VALUES

N

0 500 1000

SCALE IN FEET

MWH	SCALE AS SHOWN	AMERICAN CHEMICAL SERVICE, INC. NPL SITE GRIFFITH, INDIANA	DETECTED COMPOUNDS IN SAMPLES FROM LOWER AQUIFER MONITORING WELLS MARCH 2004	FIGURE 4

JOB No. 2090603 FILE: J:/209/0603 acs/DRAWINGS/March 2004/FIG_4.dgn CAS/ALC

Appendix A
Comparison of March 2004 Results to Maximum Baseline Concentrations

VOC Results

SVOC Results

Inorganic Results

Monitoring Well Volatile Organic Results - March 2004
Comparison to Maximum Baseline Detections
American Chemical Service NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detect during Baseline	March 2004			
				Result	LQ	DQ	Detect Limit
MW-06	1,1-Dichloroethane	UG/L	21		U		5
MW-06	1,1-Dichloroethene	UG/L	50		U		5
MW-06	1,2-Dichloroethane	UG/L	50		U		5
MW-06	Benzene	UG/L	320	**980**	D	B	31
MW-06	Chloroethane	UG/L	720	180			5
MW-06	cis-1,2-Dichloroethene	UG/L			U		5
MW-06	Tetrachloroethene	UG/L	50		U		5
MW-06	trans-1,2-Dichloroethene	UG/L			U		5
MW-06	Trichloroethene	UG/L	50		U		5
MW-06	Vinyl chloride	UG/L	50		U		5
MW-08	1,1-Dichloroethane	UG/L	10		U		5
MW-08	1,1-Dichloroethene	UG/L	10		U		5
MW-08	1,2-Dichloroethane	UG/L	10		U		5
MW-08	Benzene	UG/L	10		U		5
MW-08	Chloroethane	UG/L	10		U		5
MW-08	cis-1,2-Dichloroethene	UG/L			U		5
MW-08	Tetrachloroethene	UG/L	10		U		5
MW-08	trans-1,2-Dichloroethene	UG/L			U		5
MW-08	Trichloroethene	UG/L	10		U		5
MW-08	Vinyl chloride	UG/L	10		U		5
MW-09R	1,1-Dichloroethane	UG/L	200		U		5
MW-09R	1,1-Dichloroethene	UG/L	200		U		5
MW-09R	1,2-Dichloroethane	UG/L	200		U		5
MW-09R	Benzene	UG/L	310	8.3			5
MW-09R	Chloroethane	UG/L	2,900	22			5
MW-09R	cis-1,2-Dichloroethene	UG/L			U		5
MW-09R	Tetrachloroethene	UG/L	200		U		5
MW-09R	trans-1,2-Dichloroethene	UG/L			U		5
MW-09R	Trichloroethene	UG/L	200		U		5
MW-09R	Vinyl chloride	UG/L	200		U		5
MW-10C	1,1-Dichloroethane	UG/L	150		U		25
MW-10C	1,1-Dichloroethene	UG/L	150		U		25
MW-10C	1,2-Dichloroethane	UG/L	150		U		25
MW-10C	Benzene	UG/L	150	**980**			25
MW-10C	Chloroethane	UG/L	420	110			25
MW-10C	cis-1,2-Dichloroethene	UG/L			U		25
MW-10C	Tetrachloroethene	UG/L	150		U		25
MW-10C	trans-1,2-Dichloroethene	UG/L			U		25
MW-10C	Trichloroethene	UG/L	150		U		25
MW-10C	Vinyl chloride	UG/L	129		U		25
MW-11	1,1-Dichloroethane	UG/L	10	**40**		J	5
MW-11	1,1-Dichloroethene	UG/L	10		U		5
MW-11	1,2-Dichloroethane	UG/L	10	1.6	J	J	5
MW-11	Benzene	UG/L	10		U		5
MW-11	Chloroethane	UG/L	10	9.9		J	5
MW-11	cis-1,2-Dichloroethene	UG/L		96		BJ	5

BOLD = Exceedance of Highest Baseline Detection

NA = Not Applicable

For an explanation of Laboratory Qualifiers (LQ) and Data Validation Qualifiers (DQ), please see Appendices C and D.

CAS/ALC
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2090603.030401

Monitoring Well Volatile Organic Results - March 2004
Comparison to Maximum Baseline Detections
American Chemical Service NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detect during Baseline	March 2004			
				Result	LQ	DQ	Detect Limit
MW-11	Tetrachloroethene	UG/L	10	7.8		UBJ	5
MW-11	trans-1,2-Dichloroethene	UG/L		1.2	J	J	5
MW-11	Trichloroethene	UG/L	10	5.1		BJ	5
MW-11	Vinyl chloride	UG/L	10	6.4		J	5
MW-12	1,1-Dichloroethane	UG/L	10		U		5
MW-12	1,1-Dichloroethene	UG/L	10		U		5
MW-12	1,2-Dichloroethane	UG/L	10		U		5
MW-12	Benzene	UG/L	10		U		5
MW-12	Chloroethane	UG/L	10		U		5
MW-12	cis-1,2-Dichloroethene	UG/L			U		5
MW-12	Tetrachloroethene	UG/L	10		U		5
MW-12	trans-1,2-Dichloroethene	UG/L			U		5
MW-12	Trichloroethene	UG/L	10		U		5
MW-12	Vinyl chloride	UG/L	10		U		5
MW-13	1,1-Dichloroethane	UG/L	50		U		5
MW-13	1,1-Dichloroethene	UG/L	50		U		5
MW-13	1,2-Dichloroethane	UG/L	50		U		5
MW-13	Benzene	UG/L	610		U		5
MW-13	Chloroethane	UG/L	570		U		5
MW-13	cis-1,2-Dichloroethene	UG/L			U		5
MW-13	Tetrachloroethene	UG/L	50		U		5
MW-13	trans-1,2-Dichloroethene	UG/L			U		5
MW-13	Trichloroethene	UG/L	50		U		5
MW-13	Vinyl chloride	UG/L	50		U		5
MW-14	1,1-Dichloroethane	UG/L	100		U		5
MW-14	1,1-Dichloroethene	UG/L	100		U		5
MW-14	1,2-Dichloroethane	UG/L	100		U		5
MW-14	Benzene	UG/L	41		U		5
MW-14	Chloroethane	UG/L	1,000		U		5
MW-14	cis-1,2-Dichloroethene	UG/L			U		5
MW-14	Tetrachloroethene	UG/L	100		U		5
MW-14	trans-1,2-Dichloroethene	UG/L			U		5
MW-14	Trichloroethene	UG/L	100		U		5
MW-14	Vinyl chloride	UG/L	100		U		5
MW-15	1,1-Dichloroethane	UG/L	10		U		5
MW-15	1,1-Dichloroethene	UG/L	10		U		5
MW-15	1,2-Dichloroethane	UG/L	10		U		5
MW-15	Benzene	UG/L	10		U		5
MW-15	Chloroethane	UG/L	10		U		5
MW-15	cis-1,2-Dichloroethene	UG/L			U		5
MW-15	Tetrachloroethene	UG/L	10		U		5
MW-15	trans-1,2-Dichloroethene	UG/L			U		5
MW-15	Trichloroethene	UG/L	10		U		5
MW-15	Vinyl chloride	UG/L	10		U		5
MW-17	1,1-Dichloroethane	UG/L			U		5
MW-17	1,1-Dichloroethene	UG/L			U		5

BOLD = Exceedance of Highest Baseline Detection
NA = Not Applicable

For an explanation of Laboratory Qualifiers (LQ) and Data Validation Qualifiers (DQ), please see Appendices C and D.

CAS/ALC
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2090603.030401

Monitoring Well Volatile Organic Results - March 2004
Comparison to Maximum Baseline Detections
American Chemical Service NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detect during Baseline	March 2004			
				Result	LQ	DQ	Detect Limit
MW-17	1,2-Dichloroethane	UG/L			U		5
MW-17	Benzene	UG/L			U		5
MW-17	Chloroethane	UG/L			U		5
MW-17	cis-1,2-Dichloroethene	UG/L			U		5
MW-17	Tetrachloroethene	UG/L		1.6	J		5
MW-17	trans-1,2-Dichloroethene	UG/L			U		5
MW-17	Trichloroethene	UG/L			U		5
MW-17	Vinyl chloride	UG/L			U		5
MW-19	1,1-Dichloroethane	UG/L	10		U		5
MW-19	1,1-Dichloroethene	UG/L	10		U		5
MW-19	1,2-Dichloroethane	UG/L	10		U		5
MW-19	Benzene	UG/L	10	1.7	J	UB	5
MW-19	Chloroethane	UG/L	20	**35**			5
MW-19	cis-1,2-Dichloroethene	UG/L			U		5
MW-19	Tetrachloroethene	UG/L	10		U		5
MW-19	trans-1,2-Dichloroethene	UG/L			U		5
MW-19	Trichloroethene	UG/L	10		U		5
MW-19	Vinyl chloride	UG/L	10		U		5
MW-23	1,1-Dichloroethane	UG/L	10		U		5
MW-23	1,1-Dichloroethene	UG/L	10		U		5
MW-23	1,2-Dichloroethane	UG/L	10		U		5
MW-23	Benzene	UG/L	10		U		5
MW-23	Chloroethane	UG/L	10		U		5
MW-23	cis-1,2-Dichloroethene	UG/L			U		5
MW-23	Tetrachloroethene	UG/L	10		U		5
MW-23	trans-1,2-Dichloroethene	UG/L			U		5
MW-23	Trichloroethene	UG/L	10		U		5
MW-23	Vinyl chloride	UG/L	10		U		5
MW-28	1,1-Dichloroethane	UG/L	10		U		5
MW-28	1,1-Dichloroethene	UG/L	10		U		5
MW-28	1,2-Dichloroethane	UG/L	10		U		5
MW-28	Benzene	UG/L	10		U		5
MW-28	Chloroethane	UG/L	10		U		5
MW-28	cis-1,2-Dichloroethene	UG/L			U		5
MW-28	Tetrachloroethene	UG/L	10		U		5
MW-28	trans-1,2-Dichloroethene	UG/L			U		5
MW-28	Trichloroethene	UG/L	10		U		5
MW-28	Vinyl chloride	UG/L	10		U		5
MW-29	1,1-Dichloroethane	UG/L	10		U		5
MW-29	1,1-Dichloroethene	UG/L	10		U		5
MW-29	1,2-Dichloroethane	UG/L	10		U		5
MW-29	Benzene	UG/L	10		U		5
MW-29	Chloroethane	UG/L	10	**45**			5
MW-29	cis-1,2-Dichloroethene	UG/L			U		5
MW-29	Tetrachloroethene	UG/L	10		U		5
MW-29	trans-1,2-Dichloroethene	UG/L			U		5

BOLD = Exceedance of Highest Baseline Detection

NA = Not Applicable

For an explanation of Laboratory Qualifiers (LQ) and Data Validation Qualifiers (DQ), please see Appendices C and D.

CAS/ALC
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2090603.030401

Monitoring Well Volatile Organic Results - March 2004
Comparison to Maximum Baseline Detections
American Chemical Service NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detect during Baseline	March 2004			
				Result	LQ	DQ	Detect Limit
MW-29	Trichloroethene	UG/L	10		U		5
MW-29	Vinyl chloride	UG/L	10		U		5
MW-30	1,1-Dichloroethane	UG/L	10		U		5
MW-30	1,1-Dichloroethene	UG/L	10		U		5
MW-30	1,2-Dichloroethane	UG/L	10		U		5
MW-30	Benzene	UG/L	10		U		5
MW-30	Chloroethane	UG/L	10		U		5
MW-30	cis-1,2-Dichloroethene	UG/L			U		5
MW-30	Tetrachloroethene	UG/L	10		U		5
MW-30	trans-1,2-Dichloroethene	UG/L			U		5
MW-30	Trichloroethene	UG/L	10		U		5
MW-30	Vinyl chloride	UG/L	10		U		5
MW-31	1,1-Dichloroethane	UG/L	10		U		5
MW-31	1,1-Dichloroethene	UG/L	10		U		5
MW-31	1,2-Dichloroethane	UG/L	10		U		5
MW-31	Benzene	UG/L	10		U		5
MW-31	Chloroethane	UG/L	10		U		5
MW-31	cis-1,2-Dichloroethene	UG/L			U		5
MW-31	Tetrachloroethene	UG/L	10		U		5
MW-31	trans-1,2-Dichloroethene	UG/L			U		5
MW-31	Trichloroethene	UG/L	10		U		5
MW-31	Vinyl chloride	UG/L	10		U		5
MW-32	1,1-Dichloroethane	UG/L	10		U		5
MW-32	1,1-Dichloroethene	UG/L	10		U		5
MW-32	1,2-Dichloroethane	UG/L	10		U		5
MW-32	Benzene	UG/L	10		U		5
MW-32	Chloroethane	UG/L	10		U		5
MW-32	cis-1,2-Dichloroethene	UG/L			U		5
MW-32	Tetrachloroethene	UG/L	10		U		5
MW-32	trans-1,2-Dichloroethene	UG/L			U		5
MW-32	Trichloroethene	UG/L	10		U		5
MW-32	Vinyl chloride	UG/L	10		U		5
MW-33	1,1-Dichloroethane	UG/L	10		U		5
MW-33	1,1-Dichloroethene	UG/L	10		U		5
MW-33	1,2-Dichloroethane	UG/L	10		U		5
MW-33	Benzene	UG/L	10		U		5
MW-33	Chloroethane	UG/L	10		U		5
MW-33	cis-1,2-Dichloroethene	UG/L			U		5
MW-33	Tetrachloroethene	UG/L	10		U		5
MW-33	trans-1,2-Dichloroethene	UG/L			U		5
MW-33	Trichloroethene	UG/L	10		U		5
MW-33	Vinyl chloride	UG/L	10		U		5
MW-34	1,1-Dichloroethane	UG/L	10		U		5
MW-34	1,1-Dichloroethene	UG/L	10		U		5
MW-34	1,2-Dichloroethane	UG/L	10		U		5
MW-34	Benzene	UG/L	10		U		5

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CAS/ALC
J:\209\0603 ACS\Database\ACS GW_2002.mdb [rptNewResults10VOCs]
2090603.030401

Monitoring Well Volatile Organic Results - March 2004
Comparison to Maximum Baseline Detections
American Chemical Service NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detect during Baseline	March 2004			
				Result	LQ	DQ	Detect Limit
MW-34	Chloroethane	UG/L	10		U		5
MW-34	cis-1,2-Dichloroethene	UG/L			U		5
MW-34	Tetrachloroethene	UG/L	10		U		5
MW-34	trans-1,2-Dichloroethene	UG/L			U		5
MW-34	Trichloroethene	UG/L	10		U		5
MW-34	Vinyl chloride	UG/L	10		U		5
MW-37	1,1-Dichloroethane	UG/L	10		U		5
MW-37	1,1-Dichloroethene	UG/L	10		U		5
MW-37	1,2-Dichloroethane	UG/L	10		U		5
MW-37	Benzene	UG/L	10		U		5
MW-37	Chloroethane	UG/L	10		U		5
MW-37	cis-1,2-Dichloroethene	UG/L			U		5
MW-37	Tetrachloroethene	UG/L	10		U		5
MW-37	trans-1,2-Dichloroethene	UG/L			U		5
MW-37	Trichloroethene	UG/L	10		U		5
MW-37	Vinyl chloride	UG/L	10		U		5
MW-39	1,1-Dichloroethane	UG/L	10		U		5
MW-39	1,1-Dichloroethene	UG/L	10		U		5
MW-39	1,2-Dichloroethane	UG/L	10		U		5
MW-39	Benzene	UG/L	12		U		5
MW-39	Chloroethane	UG/L	10		U		5
MW-39	cis-1,2-Dichloroethene	UG/L			U		5
MW-39	Tetrachloroethene	UG/L	10		U		5
MW-39	trans-1,2-Dichloroethene	UG/L		2.2	J		5
MW-39	Trichloroethene	UG/L	10		U		5
MW-39	Vinyl chloride	UG/L	10		U		5
MW-42	1,1-Dichloroethane	UG/L	10		U		5
MW-42	1,1-Dichloroethene	UG/L	10		U		5
MW-42	1,2-Dichloroethane	UG/L	10		U		5
MW-42	Benzene	UG/L	10		U		5
MW-42	Chloroethane	UG/L	10		U		5
MW-42	cis-1,2-Dichloroethene	UG/L			U		5
MW-42	Tetrachloroethene	UG/L	10		U		5
MW-42	trans-1,2-Dichloroethene	UG/L			U		5
MW-42	Trichloroethene	UG/L	10		U		5
MW-42	Vinyl chloride	UG/L	10		U		5
MW-43	1,1-Dichloroethane	UG/L	10		U		5
MW-43	1,1-Dichloroethene	UG/L	10		U		5
MW-43	1,2-Dichloroethane	UG/L	10		U		5
MW-43	Benzene	UG/L	10		U		5
MW-43	Chloroethane	UG/L	10		U		5
MW-43	cis-1,2-Dichloroethene	UG/L			U		5
MW-43	Tetrachloroethene	UG/L	10		U		5
MW-43	trans-1,2-Dichloroethene	UG/L			U		5
MW-43	Trichloroethene	UG/L	10		U		5
MW-43	Vinyl chloride	UG/L	10		U		5

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CAS/ALC
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2090603.030401

Monitoring Well Volatile Organic Results - March 2004
Comparison to Maximum Baseline Detections
American Chemical Service NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detect during Baseline	March 2004			
				Result	LQ	DQ	Detect Limit
MW-44	1,1-Dichloroethane	UG/L	10		U		5
MW-44	1,1-Dichloroethene	UG/L	10		U		5
MW-44	1,2-Dichloroethane	UG/L	10		U		5
MW-44	Benzene	UG/L	10		U		5
MW-44	Chloroethane	UG/L	10		U		5
MW-44	cis-1,2-Dichloroethene	UG/L			U		5
MW-44	Tetrachloroethene	UG/L	10		U		5
MW-44	trans-1,2-Dichloroethene	UG/L			U		5
MW-44	Trichloroethene	UG/L	10		U		5
MW-44	Vinyl chloride	UG/L	10		U		5
MW-45	1,1-Dichloroethane	UG/L	80		U		5
MW-45	1,1-Dichloroethene	UG/L	80		U		5
MW-45	1,2-Dichloroethane	UG/L	80		U		5
MW-45	Benzene	UG/L	1,045	3.7	J		5
MW-45	Chloroethane	UG/L	215	2.7	J		5
MW-45	cis-1,2-Dichloroethene	UG/L			U		5
MW-45	Tetrachloroethene	UG/L	80		U		5
MW-45	trans-1,2-Dichloroethene	UG/L			U		5
MW-45	Trichloroethene	UG/L	80		U		5
MW-45	Vinyl chloride	UG/L	80		U		5
MW-48	1,1-Dichloroethane	UG/L	500		U		5
MW-48	1,1-Dichloroethene	UG/L	500		U		5
MW-48	1,2-Dichloroethane	UG/L	500		U		5
MW-48	Benzene	UG/L	9,500	590	D	B	25
MW-48	Chloroethane	UG/L	1,000	22			5
MW-48	cis-1,2-Dichloroethene	UG/L			U		5
MW-48	Tetrachloroethene	UG/L	500		U		5
MW-48	trans-1,2-Dichloroethene	UG/L			U		5
MW-48	Trichloroethene	UG/L	500		U		5
MW-48	Vinyl chloride	UG/L	500		U		5
MW-49	1,1-Dichloroethane	UG/L	500		U		5
MW-49	1,1-Dichloroethene	UG/L	500		U		5
MW-49	1,2-Dichloroethane	UG/L	500		U		5
MW-49	Benzene	UG/L	6,750	1,100	D	B	42
MW-49	Chloroethane	UG/L	715	52			5
MW-49	cis-1,2-Dichloroethene	UG/L			U		5
MW-49	Tetrachloroethene	UG/L	500		U		5
MW-49	trans-1,2-Dichloroethene	UG/L			U		5
MW-49	Trichloroethene	UG/L	500		U		5
MW-49	Vinyl chloride	UG/L	500		U		5
MW-51	1,1-Dichloroethane	UG/L	100		U		5
MW-51	1,1-Dichloroethene	UG/L	100		U		5
MW-51	1,2-Dichloroethane	UG/L	100		U		5
MW-51	Benzene	UG/L	100		U		5
MW-51	Chloroethane	UG/L	100		U		5
MW-51	cis-1,2-Dichloroethene	UG/L			U		5

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CAS/ALC
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2090603.030401

Monitoring Well Volatile Organic Results - March 2004
Comparison to Maximum Baseline Detections
American Chemical Service NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detect during Baseline	March 2004			
				Result	LQ	DQ	Detect Limit
MW-51	Tetrachloroethene	UG/L	100		U		5
MW-51	trans-1,2-Dichloroethene	UG/L			U		5
MW-51	Trichloroethene	UG/L	100		U		5
MW-51	Vinyl chloride	UG/L	100		U		5
MW-52	1,1-Dichloroethane	UG/L	100		U		5
MW-52	1,1-Dichloroethene	UG/L	100		U		5
MW-52	1,2-Dichloroethane	UG/L	100		U		5
MW-52	Benzene	UG/L	100		U		5
MW-52	Chloroethane	UG/L	100		U		5
MW-52	cis-1,2-Dichloroethene	UG/L			U		5
MW-52	Tetrachloroethene	UG/L	100		U		5
MW-52	trans-1,2-Dichloroethene	UG/L			U		5
MW-52	Trichloroethene	UG/L	100		U		5
MW-52	Vinyl chloride	UG/L	100		U		5
MW-53	1,1-Dichloroethane	UG/L	10		U		5
MW-53	1,1-Dichloroethene	UG/L	10		U		5
MW-53	1,2-Dichloroethane	UG/L	10		U		5
MW-53	Benzene	UG/L	10	**[illegible]**			5
MW-53	Chloroethane	UG/L	10		U		5
MW-53	cis-1,2-Dichloroethene	UG/L			U		5
MW-53	Tetrachloroethene	UG/L	10		U		5
MW-53	trans-1,2-Dichloroethene	UG/L			U		5
MW-53	Trichloroethene	UG/L	10		U		5
MW-53	Vinyl chloride	UG/L	10		U		5
MW-54R	1,1-Dichloroethane	UG/L	10		U		5
MW-54R	1,1-Dichloroethene	UG/L	10		U		5
MW-54R	1,2-Dichloroethane	UG/L	10		U		5
MW-54R	Benzene	UG/L	10		U		5
MW-54R	Chloroethane	UG/L	10		U		5
MW-54R	cis-1,2-Dichloroethene	UG/L			U		5
MW-54R	Tetrachloroethene	UG/L	10		U		5
MW-54R	trans-1,2-Dichloroethene	UG/L			U		5
MW-54R	Trichloroethene	UG/L	10		U		5
MW-54R	Vinyl chloride	UG/L	10		U		5
MW-55	1,1-Dichloroethane	UG/L	10		U	UJ	5
MW-55	1,1-Dichloroethene	UG/L	10		U	UJ	5
MW-55	1,2-Dichloroethane	UG/L	10		U	UJ	5
MW-55	Benzene	UG/L	10		U	UJ	5
MW-55	Chloroethane	UG/L	10		U	UJ	5
MW-55	cis-1,2-Dichloroethene	UG/L			U	UJ	5
MW-55	Tetrachloroethene	UG/L	10		U	UJ	5
MW-55	trans-1,2-Dichloroethene	UG/L			U	UJ	5
MW-55	Trichloroethene	UG/L	10		U	UJ	5
MW-55	Vinyl chloride	UG/L	10		U	UJ	5
MW-56	1,1-Dichloroethane	UG/L			U		25
MW-56	1,1-Dichloroethene	UG/L			U		25

BOLD = Exceedance of Highest Baseline Detection

NA = Not Applicable

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CAS/ALC
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2090603.030401

Monitoring Well Volatile Organic Results - March 2004
Comparison to Maximum Baseline Detections
American Chemical Service NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detect during Baseline	March 2004			
				Result	LQ	DQ	Detect Limit
MW-56	1,2-Dichloroethane	UG/L			U		25
MW-56	Benzene	UG/L		600			25
MW-56	Chloroethane	UG/L			U		25
MW-56	cis-1,2-Dichloroethene	UG/L			U		25
MW-56	Tetrachloroethene	UG/L			U		25
MW-56	trans-1,2-Dichloroethene	UG/L			U		25
MW-56	Trichloroethene	UG/L			U		25
MW-56	Vinyl chloride	UG/L			U		25

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CAS/ALC
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2090603.030401

Monitoring Well Inorganic Results - March 2004
Comparison to Maximum Baseline Detections
American Chemical Service NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detect during Baseline	March 2004			
				Result	LQ	DQ	Detect Limit
MW-06	Arsenic	UG/L	72	51.3			10
MW-15	Arsenic	UG/L	59	34.7			10
MW-43	Arsenic	UG/L	81	22.3			10
MW-44	Aluminum	UG/L	1,710	35.5	B	UB	200
MW-44	Aluminum (Dissolved)	UG/L		21.2	U		200
MW-44	Antimony	UG/L	2.0	**3.3**	B	UB	10
MW-44	Antimony (Dissolved)	UG/L		2.1	U		10
MW-44	Arsenic	UG/L	41	8.8	B		10
MW-44	Arsenic (Dissolved)	UG/L		15.7			10
MW-44	Barium	UG/L	150	**191**	B	B	200
MW-44	Barium (Dissolved)	UG/L		168	B		200
MW-44	Beryllium	UG/L	1.0	0.2	U		5
MW-44	Beryllium (Dissolved)	UG/L		0.2	U		5
MW-44	Cadmium	UG/L	1.0	0.2	U		5
MW-44	Cadmium (Dissolved)	UG/L		0.2	U		5
MW-44	Calcium	UG/L	94,000	**156,000**		B	5,000
MW-44	Calcium (Dissolved)	UG/L		143,000			5,000
MW-44	Chromium (Dissolved)	UG/L		0.6	U		5
MW-44	Chromium (Total)	UG/L	31	5.8		UB	5
MW-44	Cobalt	UG/L	10	3.5	B	UB	5
MW-44	Cobalt (Dissolved)	UG/L		4.4	B		5
MW-44	Copper	UG/L	27	2.3	B	UB	5
MW-44	Copper (Dissolved)	UG/L		1.1	B	UB	5
MW-44	Cyanide (Dissolved)	UG/L		0.98	B		10
MW-44	Cyanide (Total)	UG/L	10	0.6	U		10
MW-44	Iron	UG/L	14,700	2,860		B	100
MW-44	Iron (Dissolved)	UG/L		2,410			100
MW-44	Lead	UG/L	1.5	1.3	U		3
MW-44	Lead (Dissolved)	UG/L		1.3	U		3
MW-44	Magnesium	UG/L	38,450	**60,300**		B	5,000
MW-44	Magnesium (Dissolved)	UG/L		55,400			5,000
MW-44	Manganese	UG/L	108	85.7		B	10
MW-44	Manganese (Dissolved)	UG/L		76.7			10
MW-44	Mercury	UG/L	0.20	**0.64**	U		0.64
MW-44	Mercury (Dissolved)	UG/L		0.64	U		0.64
MW-44	Nickel	UG/L	23	4.1	B	UB	40
MW-44	Nickel (Dissolved)	UG/L		4.2	B		40
MW-44	Potassium	UG/L	2,040	664	B		5,000
MW-44	Potassium (Dissolved)	UG/L		740	B		5,000
MW-44	Selenium	UG/L	2.0	2	U		5
MW-44	Selenium (Dissolved)	UG/L		5.3			5
MW-44	Silver	UG/L	10	0.5	U		5
MW-44	Silver (Dissolved)	UG/L		0.5	U		5
MW-44	Sodium	UG/L	20,800	**66,000**		B	5,000
MW-44	Sodium (Dissolved)	UG/L		60,000			5,000
MW-44	Thallium	UG/L	3.0	**3.2**	UN		10

BOLD = Exceedance of Highest Baseline Detection

NA = Not Applicable

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CAS/ALC
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2090603.030401

Monitoring Well Inorganic Results - March 2004
Comparison to Maximum Baseline Detections
American Chemical Service NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detect during Baseline	March 2004			
				Result	LQ	DQ	Detect Limit
MW-44	Thallium (Dissolved)	UG/L		3.2	U		10
MW-44	Vanadium	UG/L	20	0.6	U		20
MW-44	Vanadium (Dissolved)	UG/L		0.6	U		20
MW-44	Zinc	UG/L	28	3.9	B	UB	20
MW-44	Zinc (Dissolved)	UG/L		2	U		20

BOLD = Exceedance of Highest Baseline Detection
NA = Not Applicable

For an explanation of Laboratory Qualifiers (LQ) and Data Validation Qualifiers (DQ), please see Appendices C and D.

CAS/ALC
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2090603.030401

Monitoring Well Semi-Volatile Organic Results - March 2004
Comparison to Maximum Baseline Detections
American Chemical Service NPL Site
Griffith, Indiana

Well	Analyte	Units	Highest Detect during Baseline	March 2004			
				Result	LQ	DQ	Detect Limit
MW-06	bis(2-chloroethyl) ether	UG/L	56	12			10
MW-09R	bis(2-chloroethyl) ether	UG/L	50	7.8	J		10
MW-19	bis(2-chloroethyl) ether	UG/L	12	12			10

BOLD = Exceedance
NA = Not Applicable

For an explanation of Laboratory Qualifiers (LQ) and Data Validation Qualifiers (DQ), please see Appendices C and D.

CAS/ALC
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Appendix B
Concentration Vs. Time Plots

Upper Aquifer Monitoring Wells

MW06
MW11
MW12
MW13
MW14
MW15
MW17
MW19
MW37
MW39
MW42
MW43
MW44
MW45
MW48
MW49

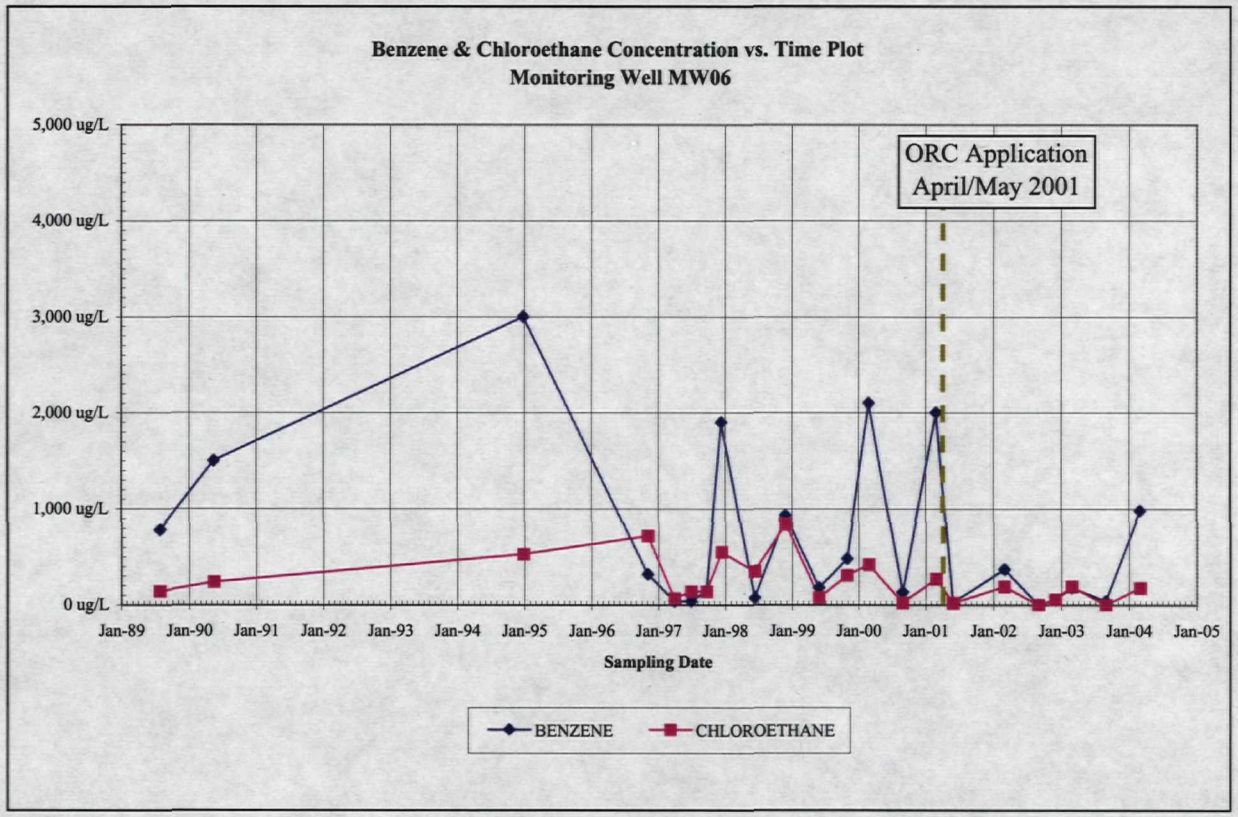
Lower Aquifer Monitoring Wells

MW08
MW09R
MW10C
MW23
MW28
MW29
MW30
MW31
MW32
MW33
MW34
MW51
MW52
MW53
MW54R
MW55
MW56

Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW06

DATE	BENZENE	CHLOROETHANE
BASELINE	**320**	**720**
August-89	780 ug/L	140 ug/L
May-90	1,500 ug/L	240 ug/L
December-94	3,000 ug/L	530 ug/L
November-96	320 ug/L	720 ug/L
April-97	35 ug/L	67 ug/L
July-97	39 ug/L	140 ug/L
September-97	140 ug/L	140 ug/L
December-97	1,900 ug/L	550 ug/L
June-98	72 ug/L	350 ug/L
December-98	930 ug/L	840 ug/L
June-99	180 ug/L	78 ug/L
November-99	480 ug/L	310 ug/L
March-00	2,100 ug/L	420 ug/L
September-00	130 ug/L	22 ug/L
March-01	2,000 ug/L	270 ug/L
June-01	26 ug/L	18 ug/L
March-02	370 ug/L	190 ug/L
September-02	BDL	BDL
December-02	54 ug/L	56 ug/L
March-03	180 ug/L	190 ug/L
September-03	39 ug/L	BDL
March-04	980 ug/L	180 ug/L

BDL = Below the Detection Limit



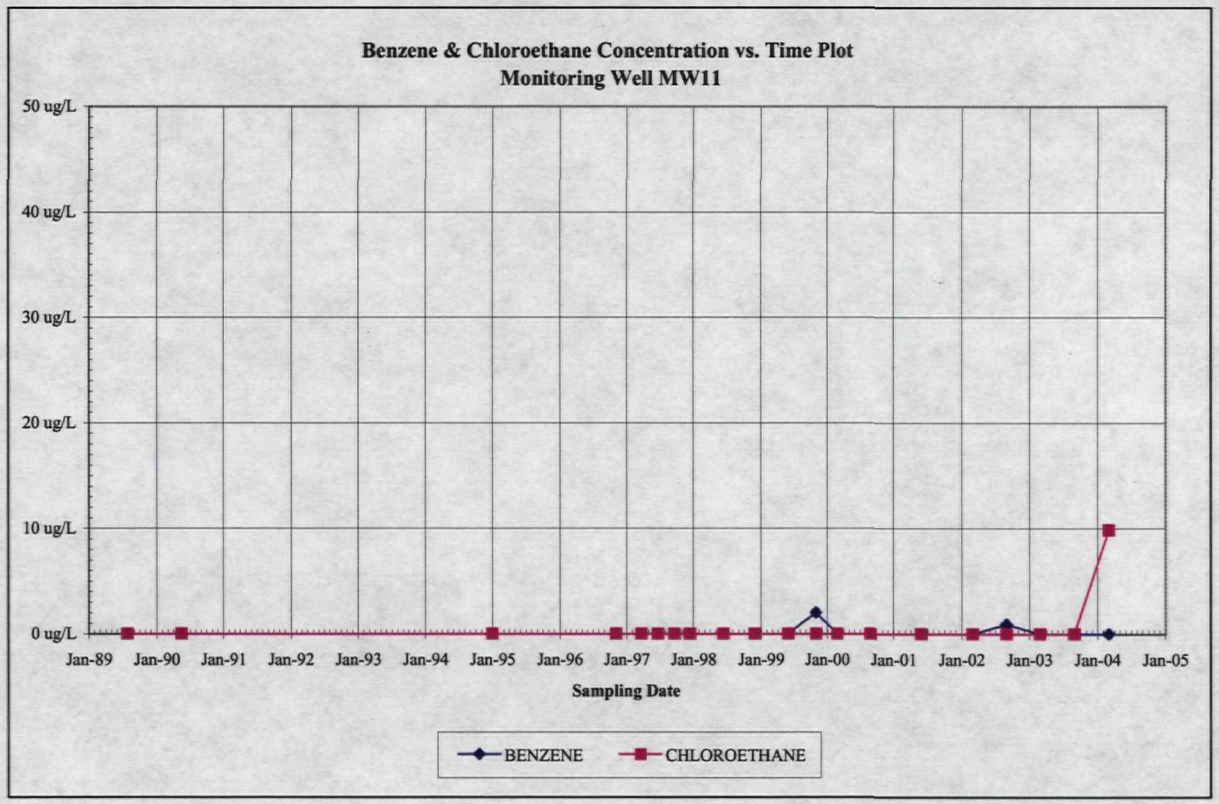
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_UA_Electronic.xls[MW06]

5/18/2004

Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW11

DATE	BENZENE	CHLOROETHANE
BASELINE	10	10
August-89	BDL	BDL
May-90	BDL	BDL
January-95	BDL	BDL
November-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	2 ug/L	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	0.9 ug/L	BDL
March-03	BDL	BDL
September-03	BDL	BDL
March-04	BDL	9.9

BDL = Below the Detection Limit



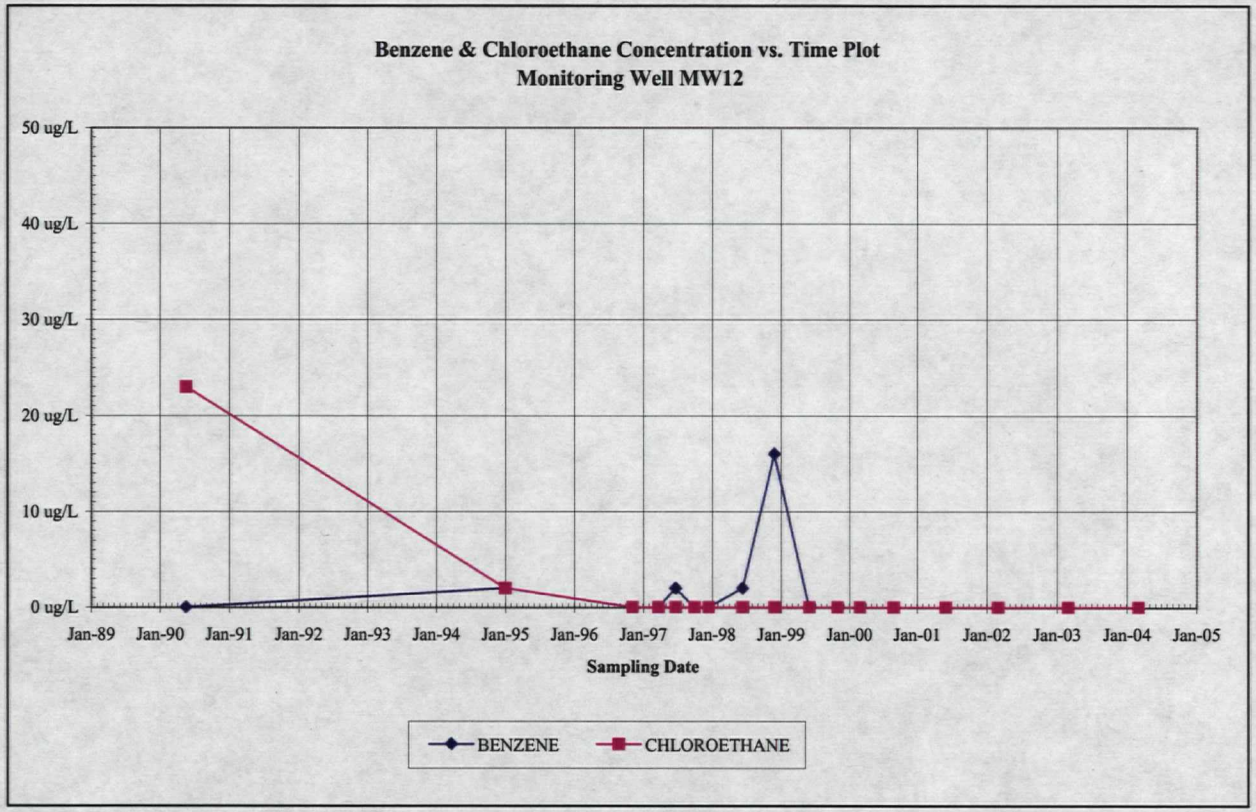
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_UA_Electronic.xls[MW11]

5/18/2004

Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW12

DATE	BENZENE	CHLOROETHANE
BASELINE	**10**	**10**
August-89		
May-90	BDL	23 ug/L
January-95	2 ug/L	2 ug/L
November-96	BDL	BDL
March-97	BDL	BDL
June-97	2 ug/L	BDL
October-97	BDL	BDL
December-97	BDL	BDL
June-98	2 ug/L	BDL
December-98	16 ug/L	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
March-03	BDL	BDL
March-04	BDL	BDL

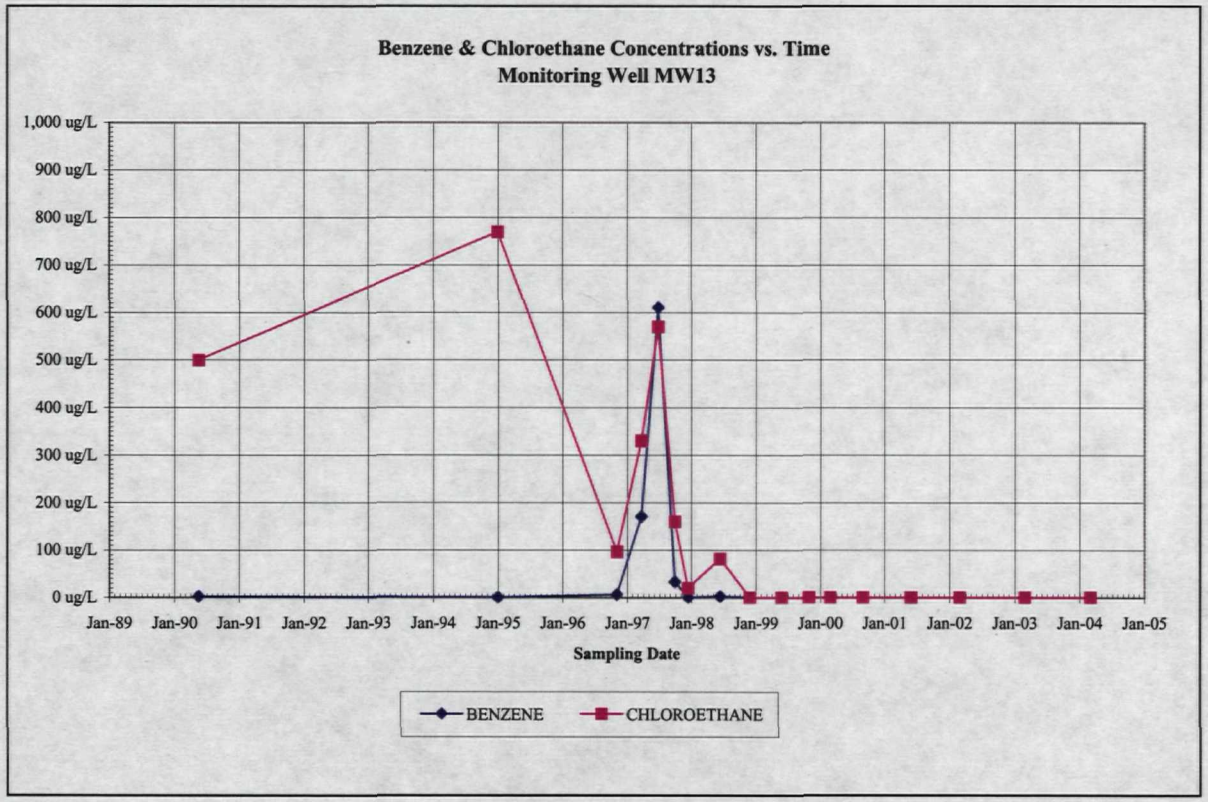
BDL = Below the Detection Limit



Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW13

DATE	BENZENE	CHLOROETHANE
BASELINE	**610**	**570**
August-89		
May-90	2 ug/L	500 ug/L
January-95	BDL	770 ug/L
November-96	6 ug/L	97 ug/L
March-97	170 ug/L	330 ug/L
June-97	610 ug/L	570 ug/L
October-97	33 ug/L	160 ug/L
December-97	BDL	20 ug/L
June-98	2 ug/L	82 ug/L
December-98	BDL	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
March-03	BDL	BDL
March-04	BDL	BDL

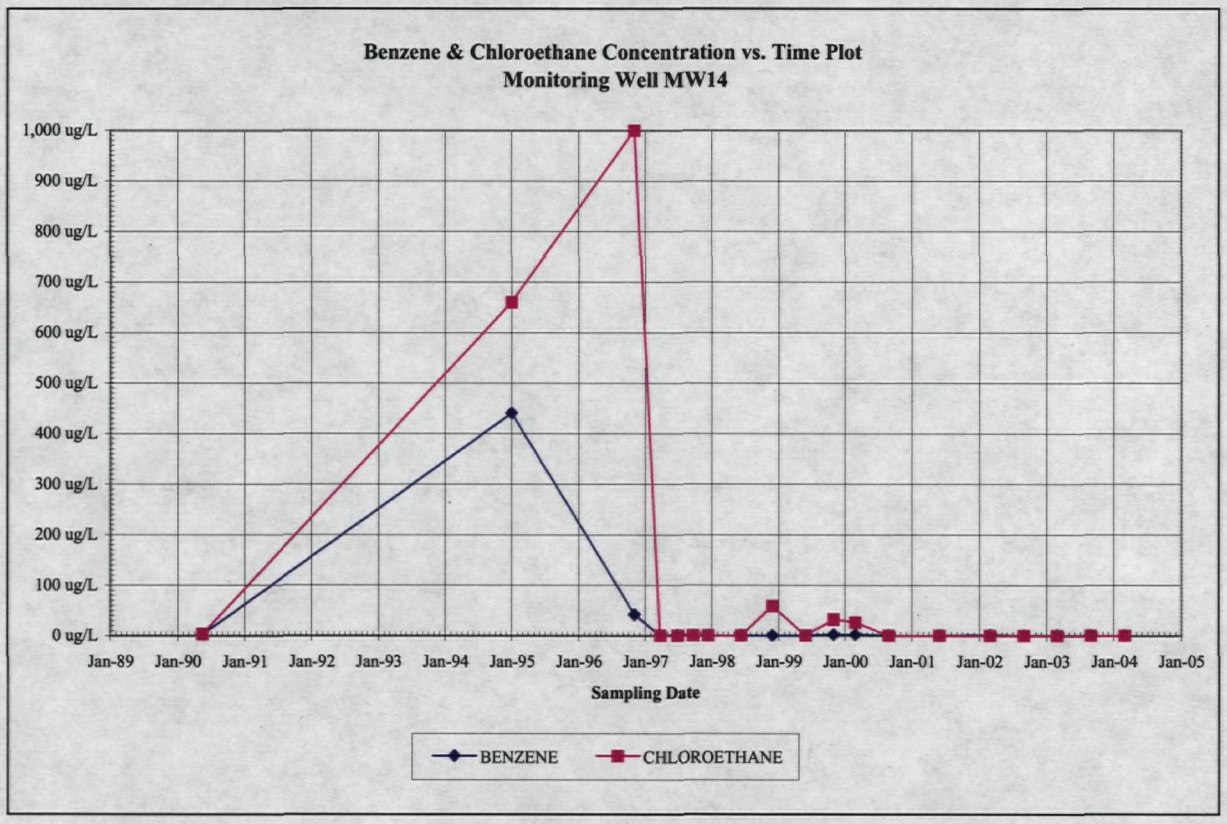
BDL = Below the Detection Limit



Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW14

DATE	BENZENE	CHLOROETHANE
BASELINE	**41**	**1000**
August-89		
May-90	2 ug/L	3 ug/L
January-95	440 ug/L	660 ug/L
November-96	41 ug/L	1,000 ug/L
March-97	BDL	BDL
June-97	1 ug/L	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	BDL	59 ug/L
June-99	BDL	BDL
November-99	2 ug/L	32 ug/L
March-00	2 ug/L	26 ug/L
September-00	BDL	BDL
June-01	BDL	BDL
March-02	1 ug/L	BDL
September-02	BDL	BDL
March-03	0.7 ug/L	BDL
September-03	BDL	BDL
March-04	BDL	BDL

BDL = Below the Detection Limit



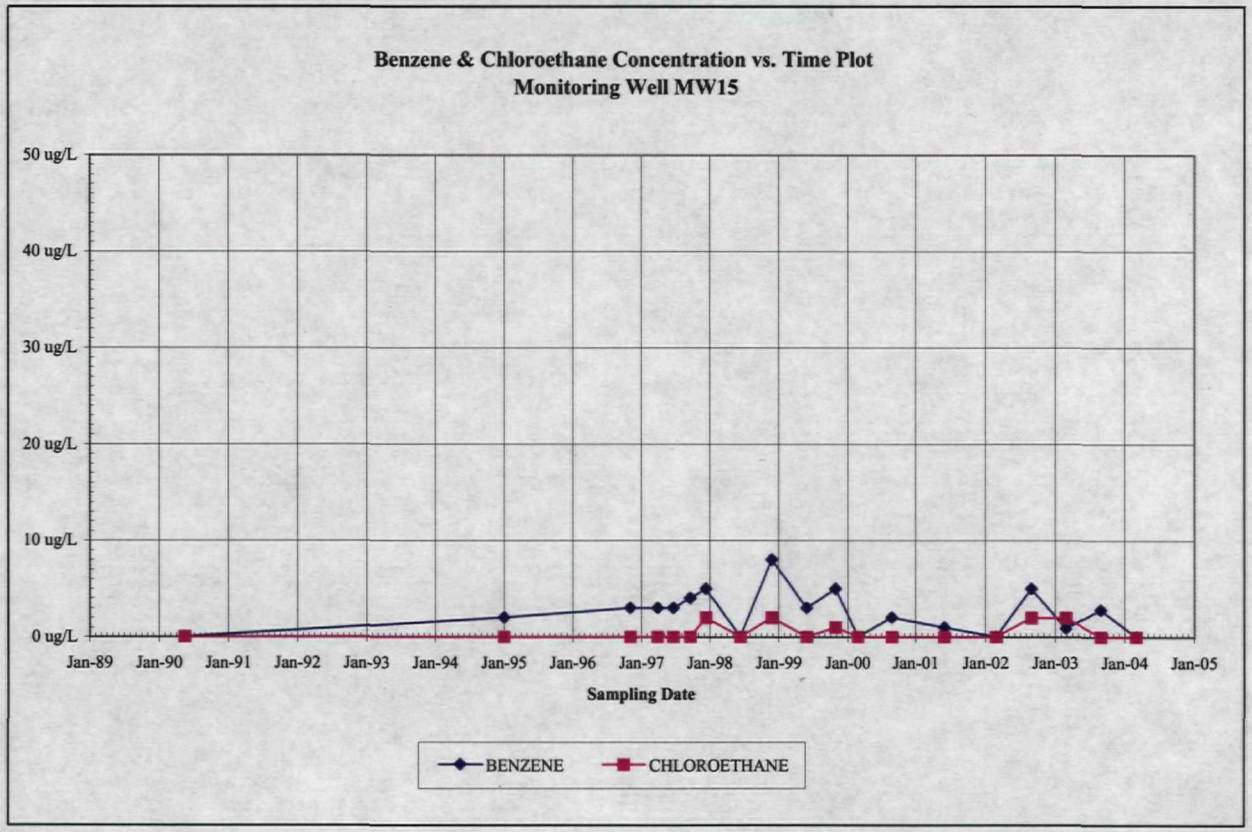
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_UA_Electronic.xls[MW14]

5/18/2004

Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW15

DATE	BENZENE	CHLOROETHANE
BASELINE	**10**	**10**
August-89		
May-90	BDL	BDL
January-95	2 ug/L	BDL
November-96	3 ug/L	BDL
April-97	3 ug/L	BDL
June-97	3 ug/L	BDL
September-97	4 ug/L	BDL
December-97	5 ug/L	2 ug/L
June-98	BDL	BDL
December-98	8 ug/L	2 ug/L
June-99	3 ug/L	BDL
November-99	5 ug/L	1 ug/L
March-00	BDL	BDL
September-00	2 ug/L	BDL
June-01	1 ug/L	BDL
March-02	BDL	BDL
September-02	5 ug/L	2 ug/L
March-03	1 ug/L	2 ug/L
September-03	2.8 ug/L	BDL
March-04	BDL	BDL

BDL = Below the Detection Limit



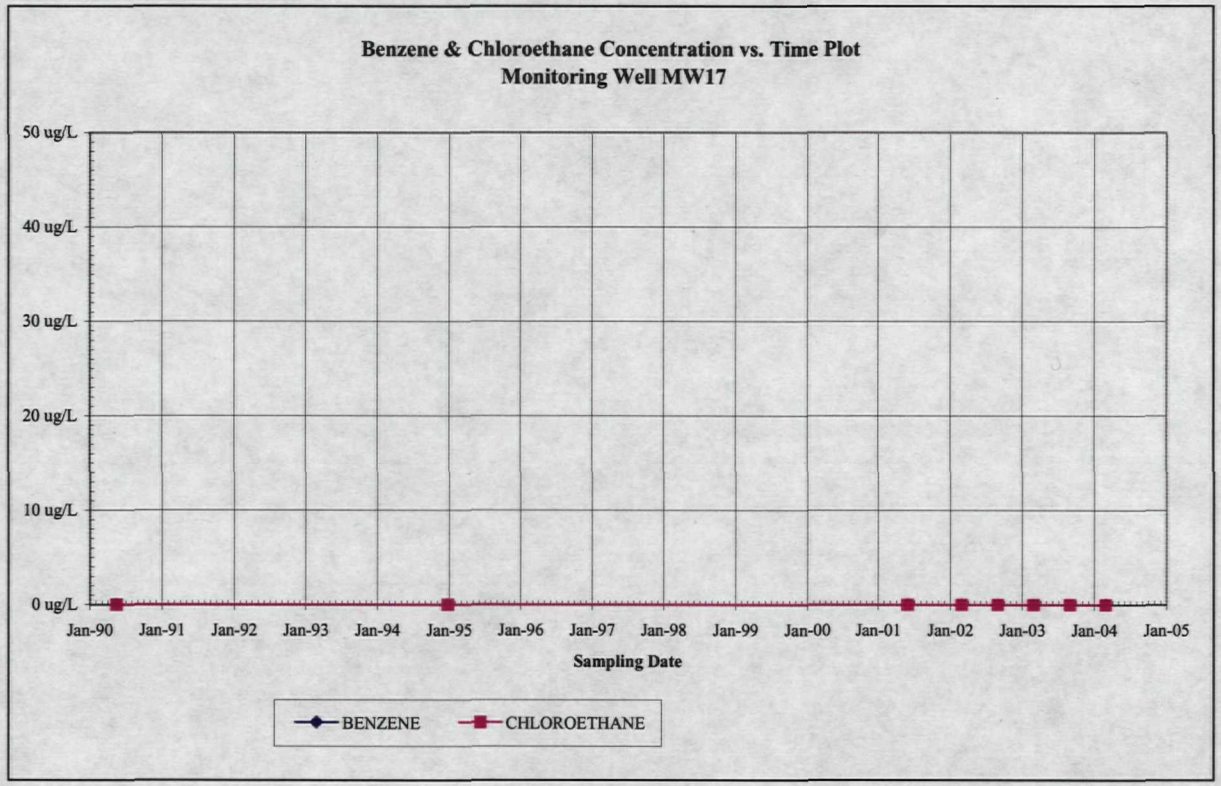
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_UA_Electronic.xls[MW15]

5/18/2004

Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW17

DATE	BENZENE	CHLOROETHANE
BASELINE	**10**	**10**
May-90	BDL	BDL
December-94	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	BDL	BDL
September-03	BDL	BDL
March-04	BDL	BDL

BDL = Below the Detection Limit
Baseline values adopted from nearby abandoned well MW18



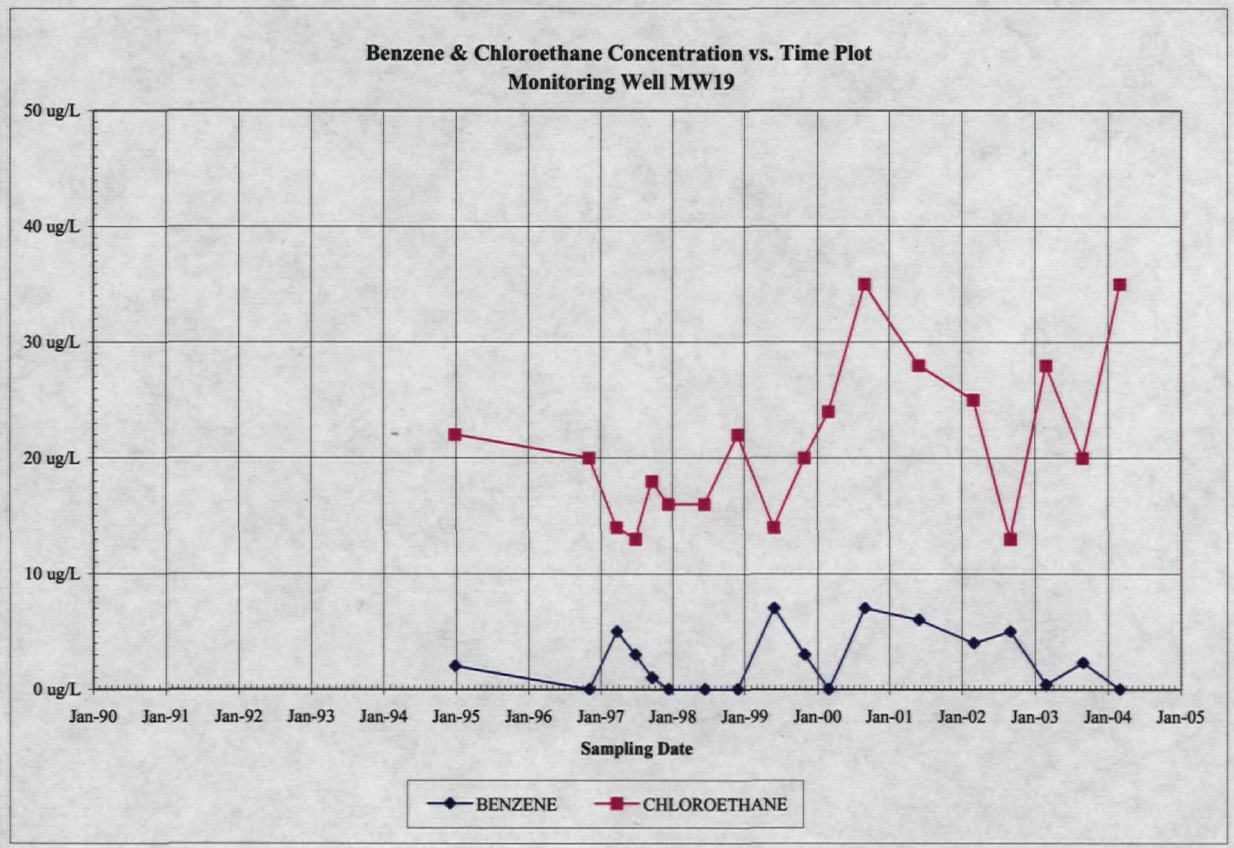
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_UA_Electronic.xls[MW17]

5/18/2004

Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW19

DATE	BENZENE	CHLOROETHANE
BASELINE	**10**	**20**
August-89		
May-90		
December-94	2 ug/L	22 ug/L
November-96	BDL	20 ug/L
March-97	5 ug/L	14 ug/L
June-97	3 ug/L	13 ug/L
September-97	1 ug/L	18 ug/L
December-97	BDL	16 ug/L
June-98	BDL	16 ug/L
December-98	BDL	22 ug/L
June-99	7 ug/L	14 ug/L
November-99	3 ug/L	20 ug/L
March-00	BDL	24 ug/L
September-00	7 ug/L	35 ug/L
June-01	6 ug/L	28 ug/L
March-02	4 ug/L	25 ug/L
September-02	5 ug/L	13 ug/L
March-03	0.4 ug/L	28 ug/L
September-03	2.3 ug/L	20 ug/L
March-04	BDL	35 ug/L

BDL = Below the Detection Limit



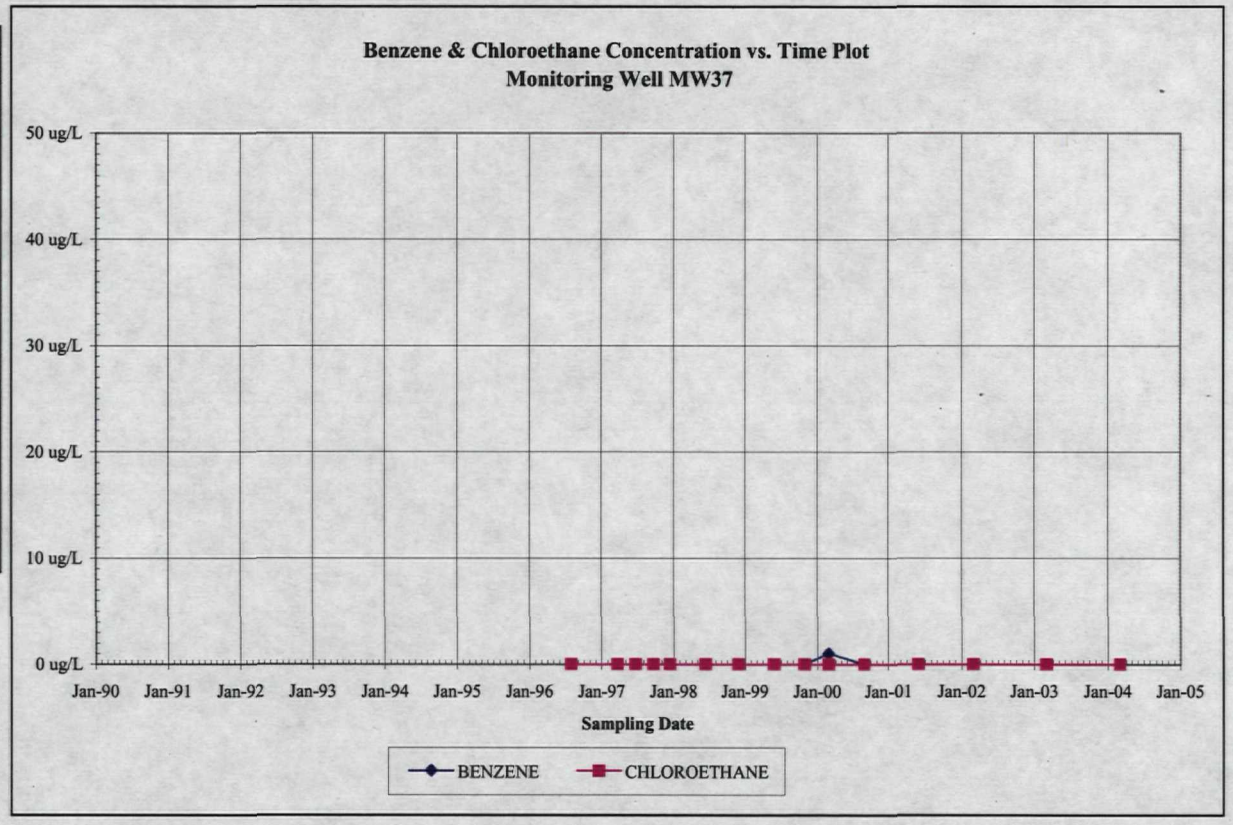
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_UA_Electronic.xls[MW19]

5/18/2004

Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW37

DATE	BENZENE	CHLOROETHANE
BASELINE	10	10
August-89		
May-90		
December-94		
August-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	1 ug/L	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
March-03	BDL	BDL
March-04	BDL	BDL

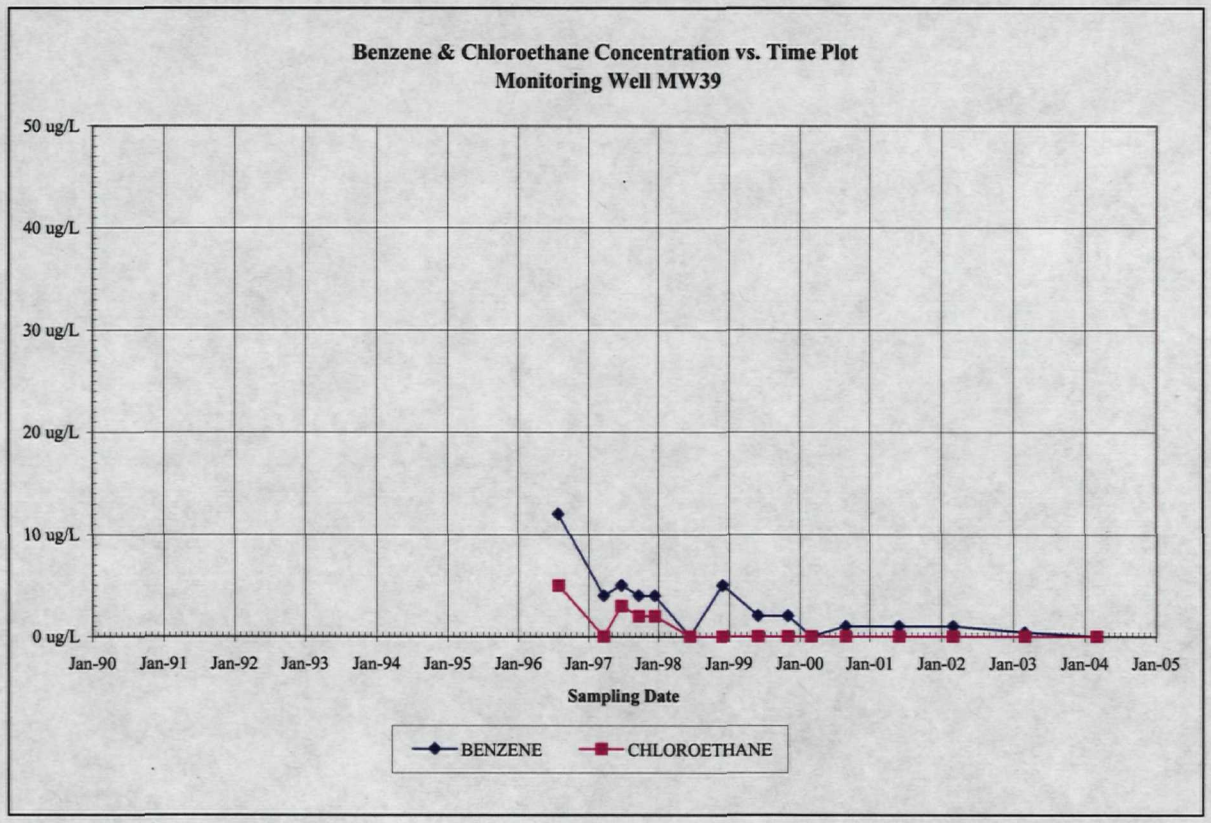
BDL = Below the Detection Limit



Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW39

DATE	BENZENE	CHLOROETHANE
BASELINE	12	10
August-89		
May-90		
December-94		
August-96	12 ug/L	5 ug/L
March-97	4 ug/L	BDL
June-97	5 ug/L	3 ug/L
September-97	4 ug/L	2 ug/L
December-97	4 ug/L	2 ug/L
June-98	BDL	BDL
December-98	5 ug/L	BDL
June-99	2 ug/L	BDL
November-99	2 ug/L	BDL
March-00	BDL	BDL
September-00	1 ug/L	BDL
June-01	1 ug/L	BDL
March-02	1 ug/L	BDL
March-03	0.4 ug/L	BDL
March-04	BDL	BDL

BDL = Below the Detection Limit



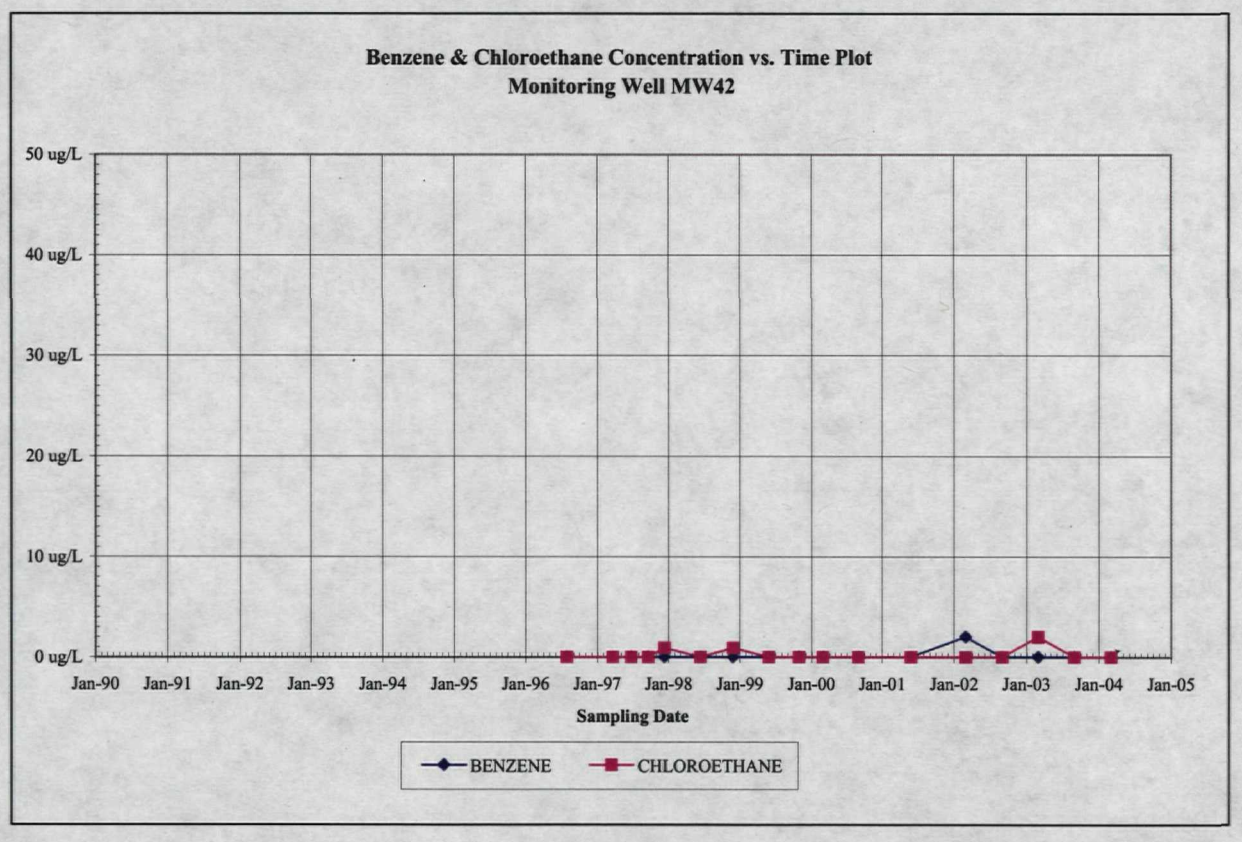
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_UA_Electronic.xls[MW39]

5/18/2004

Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW42

DATE	BENZENE	CHLOROETHANE
BASELINE	10	10
August-89		
May-90		
December-94		
August-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	0.9 ug/L
June-98	BDL	BDL
December-98	BDL	0.9 ug/L
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	2 ug/L	BDL
September-02	BDL	BDL
March-03	BDL	2 ug/L
September-03	BDL	BDL
March-04	BDL	BDL

BDL = Below the Detection Limit



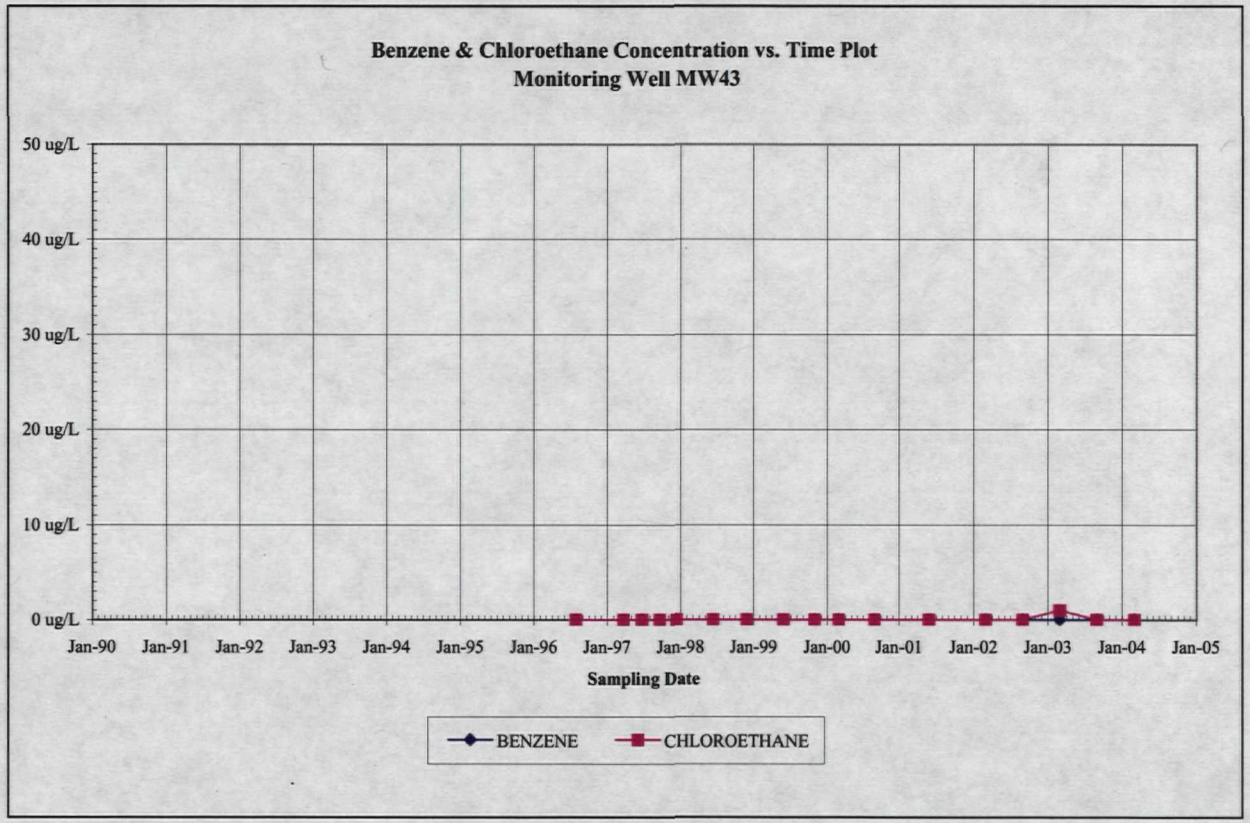
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_UA_Electronic.xls[MW42]

5/18/2004

Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW43

DATE	BENZENE	CHLOROETHANE
BASELINE	**10**	**10**
August-89		
May-90		
December-94		
August-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	BDL	1 ug/L
September-03	BDL	BDL
March-04	BDL	BDL

BDL = Below the Detection Limit



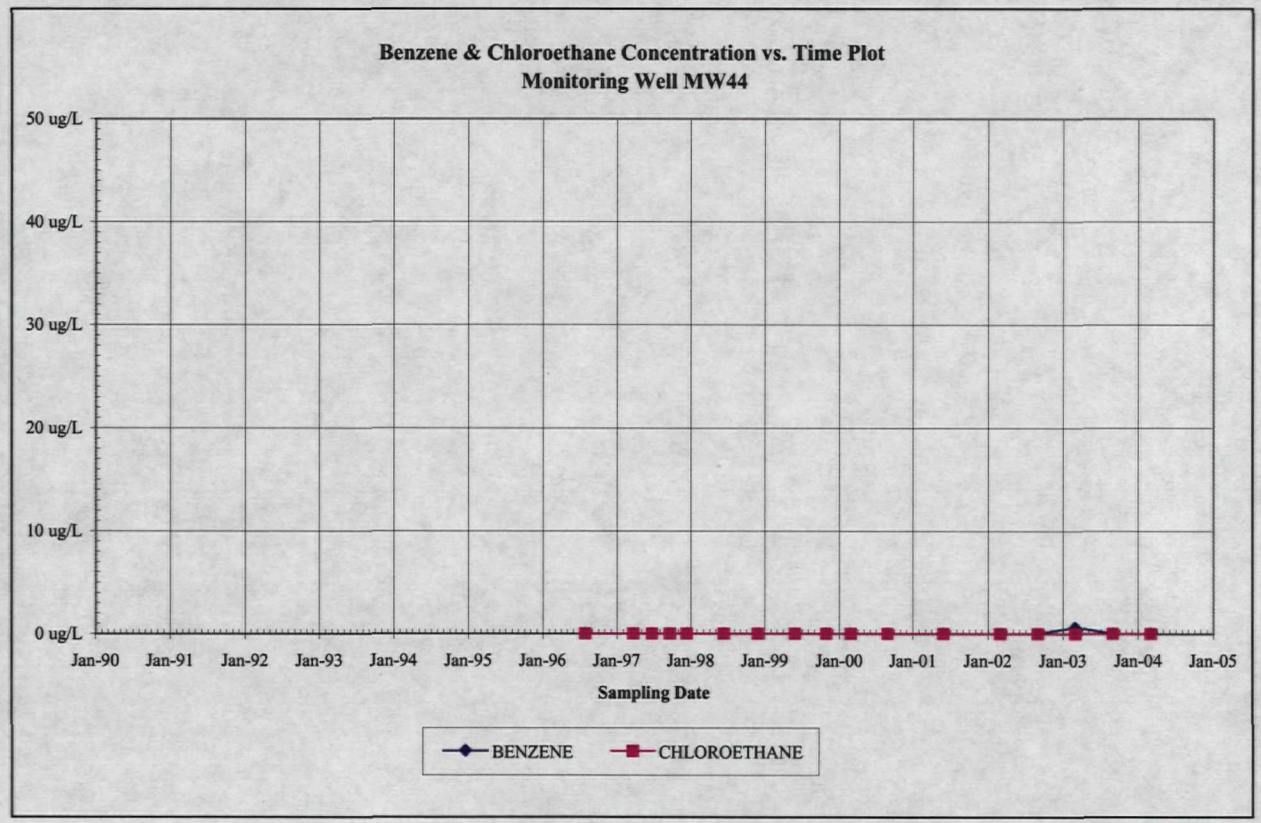
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_UA_Electronic.xls[MW43]

5/18/2004

Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW44

DATE	BENZENE	CHLOROETHANE
BASELINE	10	10
August-89		
May-90		
December-94		
August-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	0.6 ug/L	BDL
September-03	BDL	BDL
March-04	BDL	BDL

BDL = Below the Detection Limit



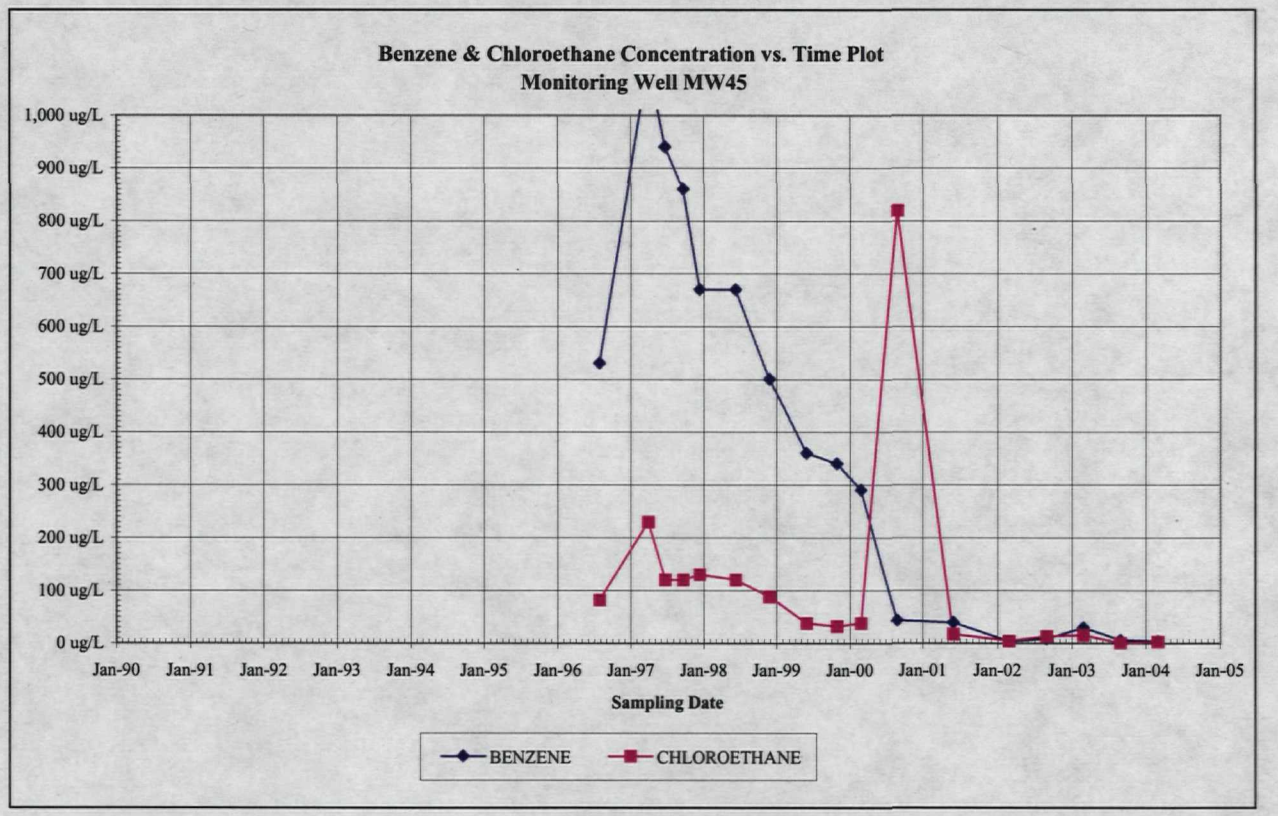
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_UA_Electronic.xls[MW44]

5/18/2004

Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW45

DATE	BENZENE	CHLOROETHANE
BASELINE	**1045**	**215**
August-89		
May-90		
December-94		
August-96	530 ug/L	82 ug/L
April-97	1,100 ug/L	230 ug/L
June-97	940 ug/L	120 ug/L
September-97	860 ug/L	120 ug/L
December-97	670 ug/L	130 ug/L
June-98	670 ug/L	120 ug/L
December-98	500 ug/L	88 ug/L
June-99	360 ug/L	38 ug/L
November-99	340 ug/L	32 ug/L
March-00	290 ug/L	38 ug/L
September-00	43 ug/L	820 ug/L
June-01	39 ug/L	17 ug/L
March-02	3 ug/L	4 ug/L
September-02	8 ug/L	13 ug/L
March-03	29 ug/L	15 ug/L
September-03	5 ug/L	BDL
March-04	3.7 ug/L	2.7 ug/L

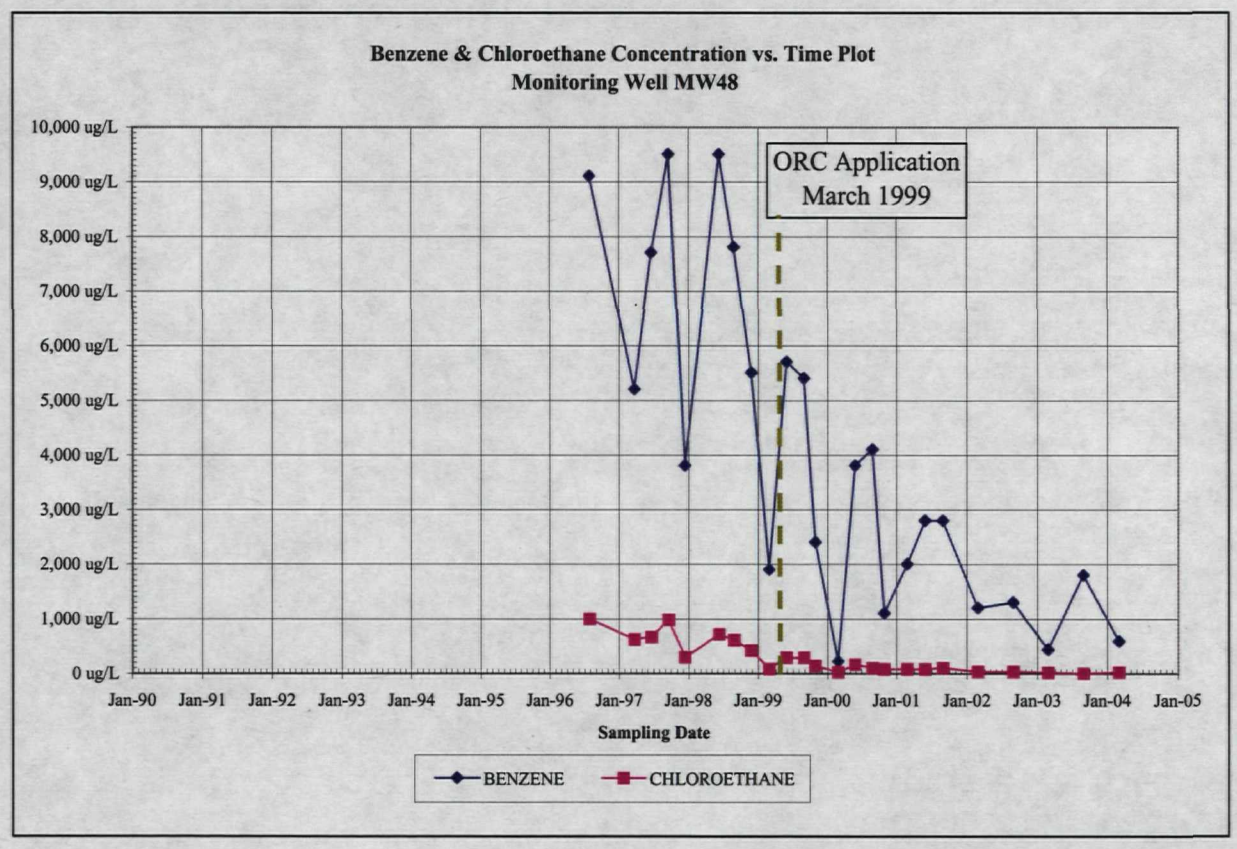
BDL = Below the Detection Limit



Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW48

DATE	BENZENE	CHLOROETHANE
BASELINE	9500	1000
August-89		
May-90		
December-94		
August-96	9,100 ug/L	1,000 ug/L
March-97	5,200 ug/L	620 ug/L
June-97	7,700 ug/L	670 ug/L
September-97	9,500 ug/L	980 ug/L
December-97	3,800 ug/L	300 ug/L
June-98	9,500 ug/L	720 ug/L
September-98	7,800 ug/L	610 ug/L
December-98	5,500 ug/L	420 ug/L
March-99	1,900 ug/L	83 ug/L
June-99	5,700 ug/L	290 ug/L
September-99	5,400 ug/L	290 ug/L
November-99	2,400 ug/L	140 ug/L
March-00	220 ug/L	24 ug/L
June-00	3,800 ug/L	160 ug/L
September-00	4,100 ug/L	100 ug/L
November-00	1,100 ug/L	78 ug/L
March-01	2,000 ug/L	78 ug/L
June-01	2,800 ug/L	80 ug/L
September-01	2,800 ug/L	100 ug/L
March-02	1,200 ug/L	33 ug/L
September-02	1,300 ug/L	32 ug/L
March-03	440 ug/L	15 ug/L
September-03	1,800 ug/L	BDL
March-04	590 ug/L	22 ug/L

BDL = Below the Detection Limit



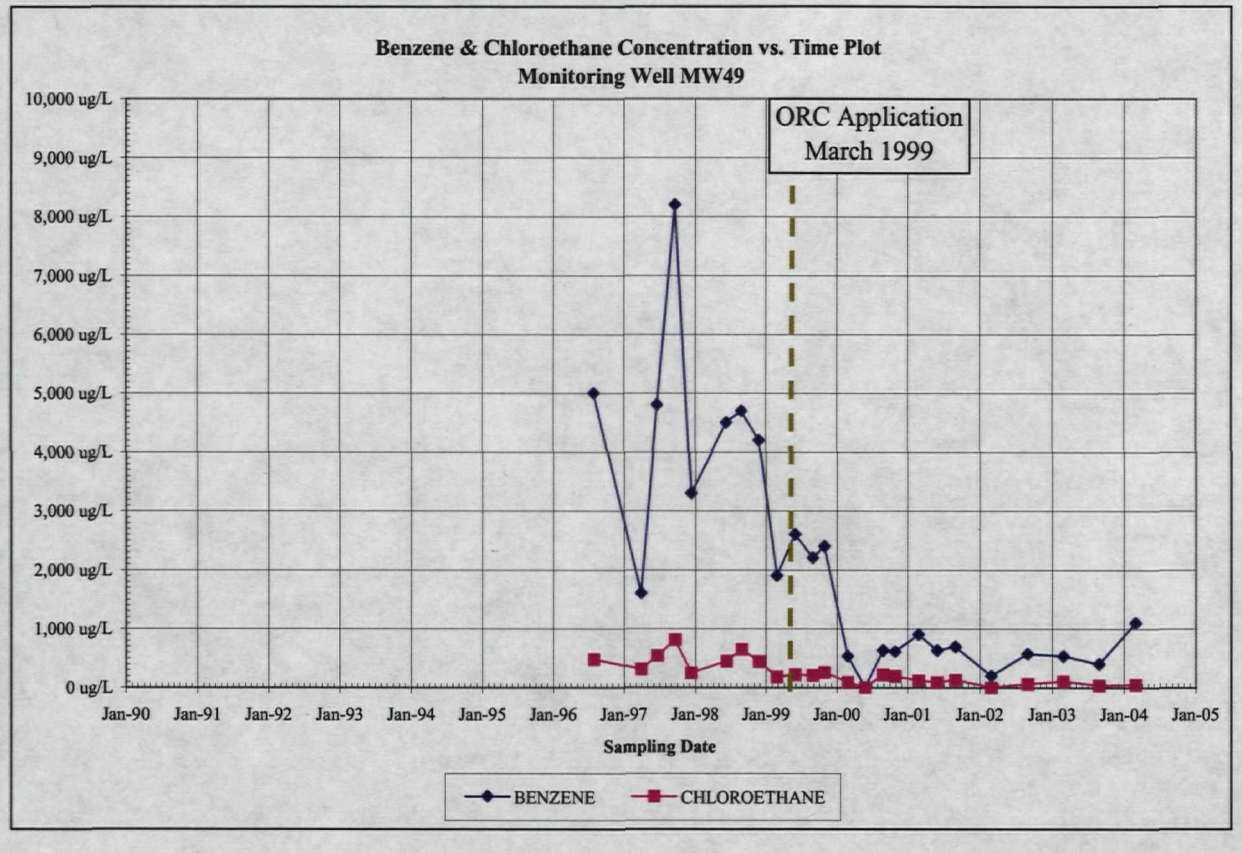
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_UA_Electronic.xls[MW48]

5/18/2004

Concentration vs. Time Plot for
Upper Aquifer Monitoring Well MW49

DATE	BENZENE	CHLOROETHANE
BASELINE	**6750**	**715**
August-89		
May-90		
December-94		
August-96	5,000 ug/L	480 ug/L
April-97	1,600 ug/L	310 ug/L
June-97	4,800 ug/L	540 ug/L
September-97	8,200 ug/L	810 ug/L
December-97	3,300 ug/L	250 ug/L
June-98	4,500 ug/L	450 ug/L
September-98	4,700 ug/L	650 ug/L
December-98	4,200 ug/L	440 ug/L
March-99	1,900 ug/L	180 ug/L
June-99	2,600 ug/L	220 ug/L
September-99	2,200 ug/L	210 ug/L
November-99	2,400 ug/L	260 ug/L
March-00	530 ug/L	91 ug/L
June-00	BDL	BDL
September-00	630 ug/L	220 ug/L
November-00	610 ug/L	190 ug/L
March-01	900 ug/L	120 ug/L
June-01	630 ug/L	91 ug/L
September-01	690 ug/L	130 ug/L
March-02	200 ug/L	BDL
September-02	570 ug/L	60 ug/L
March-03	530 ug/L	110 ug/L
September-03	400 ug/L	38 ug/L
March-04	1,100 ug/L	52 ug/L

BDL = Below the Detection Limit



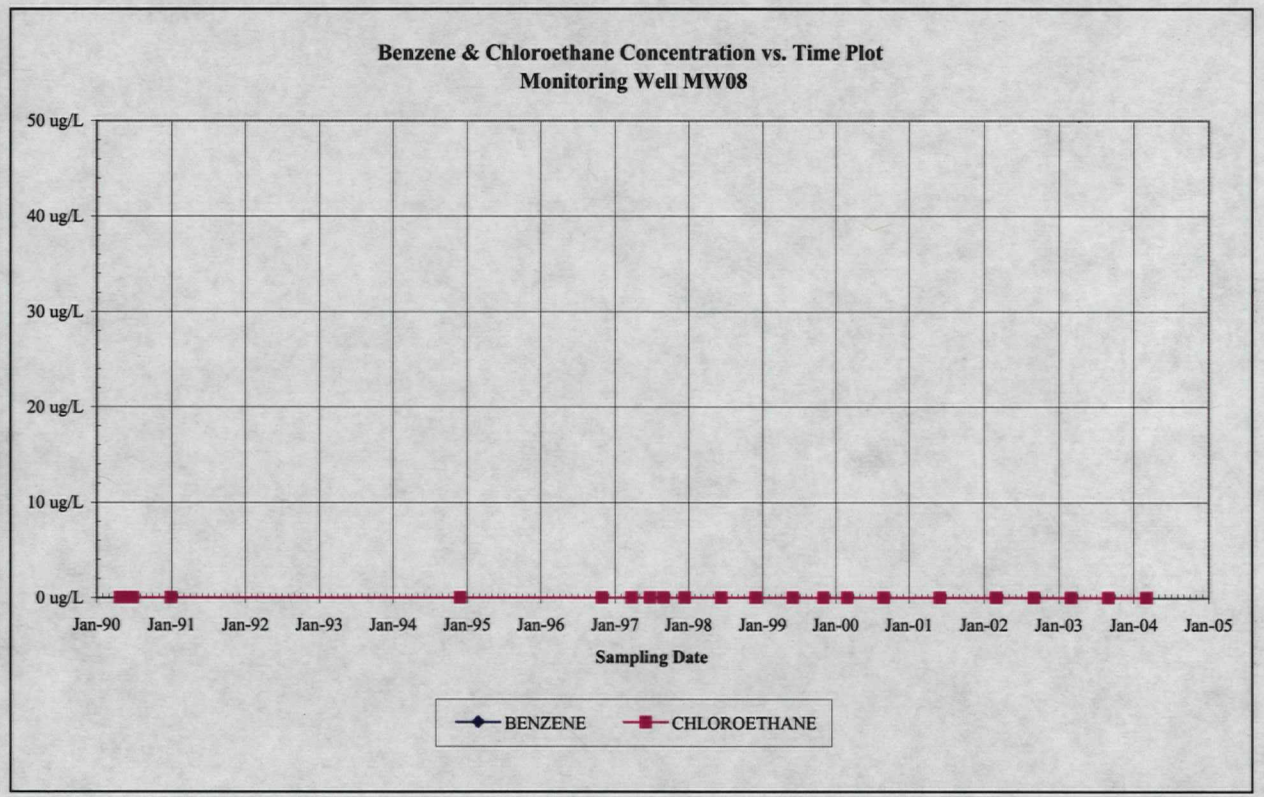
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_UA_Electronic.xls[MW49]

5/18/2004

Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW08

DATE	BENZENE	CHLOROETHANE
BASELINE	**10**	**10**
May-90	BDL	BDL
July-90	BDL	BDL
January-91	BDL	BDL
December-94	BDL	BDL
November-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	BDL	BDL
September-03	BDL	BDL
March-04	BDL	BDL

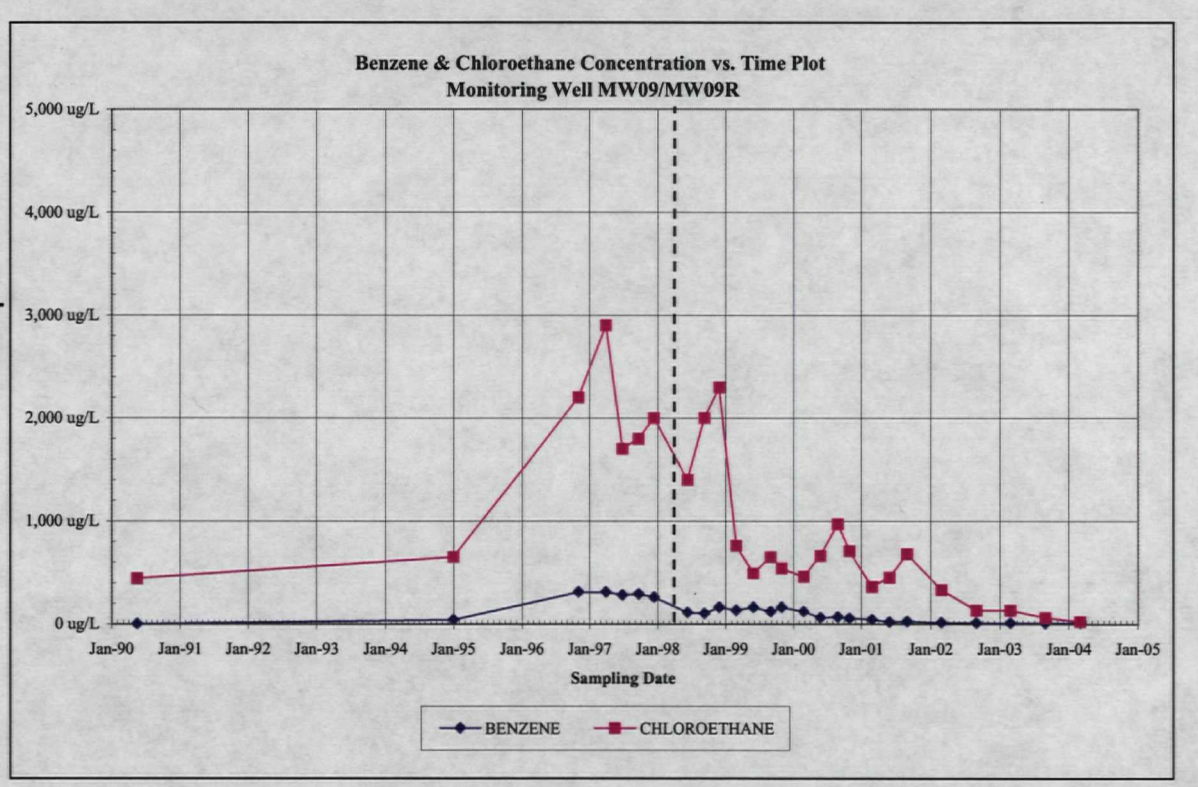
BDL = Below the Detection Limit



Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW09/MW09R

DATE	BENZENE	CHLOROETHANE	
BASELINE	**310**	**2900**	
August-89			
May-90	BDL	440 ug/L	
January-95	40 ug/L	650 ug/L	
November-96	310 ug/L	2,200 ug/L	
April-97	310 ug/L	2,900 ug/L	
June-97	280 ug/L	1,700 ug/L	
September-97	290 ug/L	1,800 ug/L	
December-97	260 ug/L	2,000 ug/L	MW09
June-98	110 ug/L	1,400 ug/L	MW09R
September-98	100 ug/L	2,000 ug/L	
December-98	160 ug/L	2,300 ug/L	
March-99	130 ug/L	760 ug/L	
June-99	160 ug/L	490 ug/L	
September-99	120 ug/L	650 ug/L	
November-99	160 ug/L	540 ug/L	
March-00	120 ug/L	460 ug/L	
June-00	60 ug/L	660 ug/L	
September-00	65 ug/L	970 ug/L	
November-00	55 ug/L	710 ug/L	
March-01	41 ug/L	360 ug/L	
June-01	19 ug/L	450 ug/L	
September-01	23 ug/L	680 ug/L	
March-02	11 ug/L	330 ug/L	
September-02	9 ug/L	130 ug/L	
March-03	8 ug/L	130 ug/L	
September-03	6.6 ug/L	61 ug/L	
March-04	8.3 ug/L	22 ug/L	

BDL = Below the Detection Limit



- - - - - - Line indicates change to replacement well

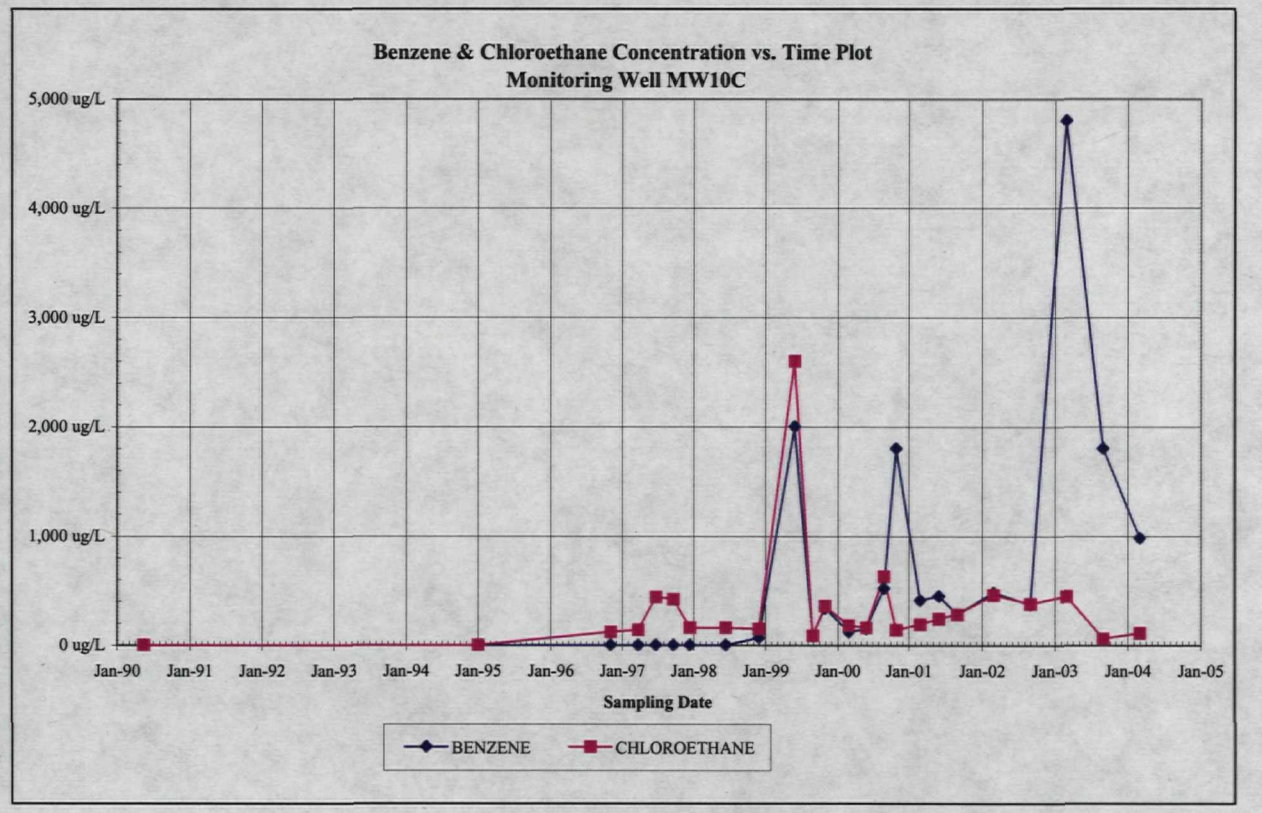
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_LA_Electronic.xls[MW09R]

5/18/2004

Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW10C

DATE	BENZENE	CHLOROETHANE
BASELINE	**150**	**420**
August-89		
May-90	BDL	BDL
January-95	BDL	BDL
November-96	BDL	120 ug/L
March-97	BDL	140 ug/L
June-97	BDL	440 ug/L
September-97	BDL	420 ug/L
December-97	BDL	160 ug/L
June-98	BDL	160 ug/L
December-98	66 ug/L	150 ug/L
June-99	2,000 ug/L	2,600 ug/L
September-99	83 ug/L	88 ug/L
November-99	340 ug/L	360 ug/L
March-00	120 ug/L	180 ug/L
June-00	150 ug/L	160 ug/L
September-00	520 ug/L	630 ug/L
November-00	1,800 ug/L	140 ug/L
March-01	410 ug/L	190 ug/L
June-01	450 ug/L	240 ug/L
September-01	280 ug/L	280 ug/L
March-02	480 ug/L	460 ug/L
September-02	370 ug/L	380 ug/L
March-03	4,800 ug/L	450 ug/L
September-03	1,800 ug/L	60 ug/L
March-04	980 ug/L	110 ug/L

BDL = Below the Detection Limit



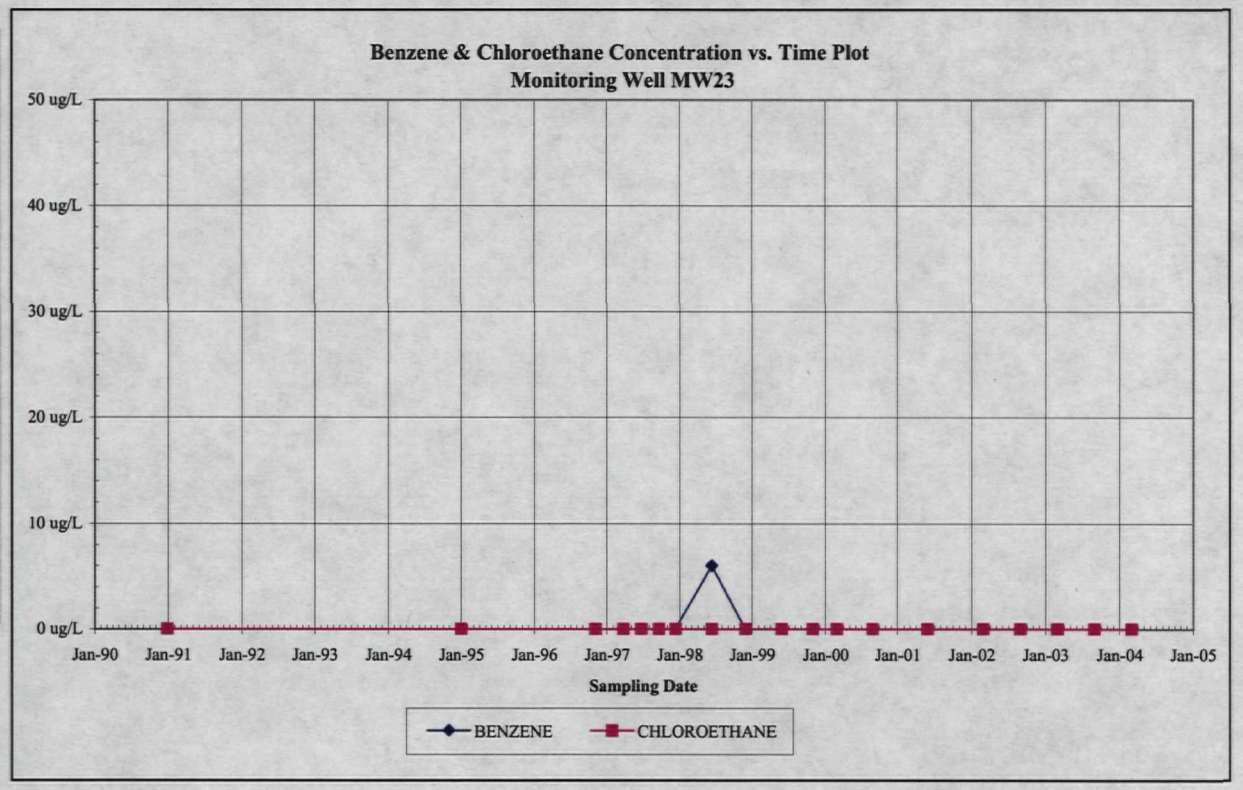
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_LA_Electronic.xls[MW10C]

5/18/2004

Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW23

DATE	BENZENE	CHLOROETHANE
BASELINE	10	10
August-89		
January-91	BDL	BDL
January-95	BDL	BDL
November-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	6 ug/L	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	BDL	BDL
September-03	BDL	BDL
March-04	BDL	BDL

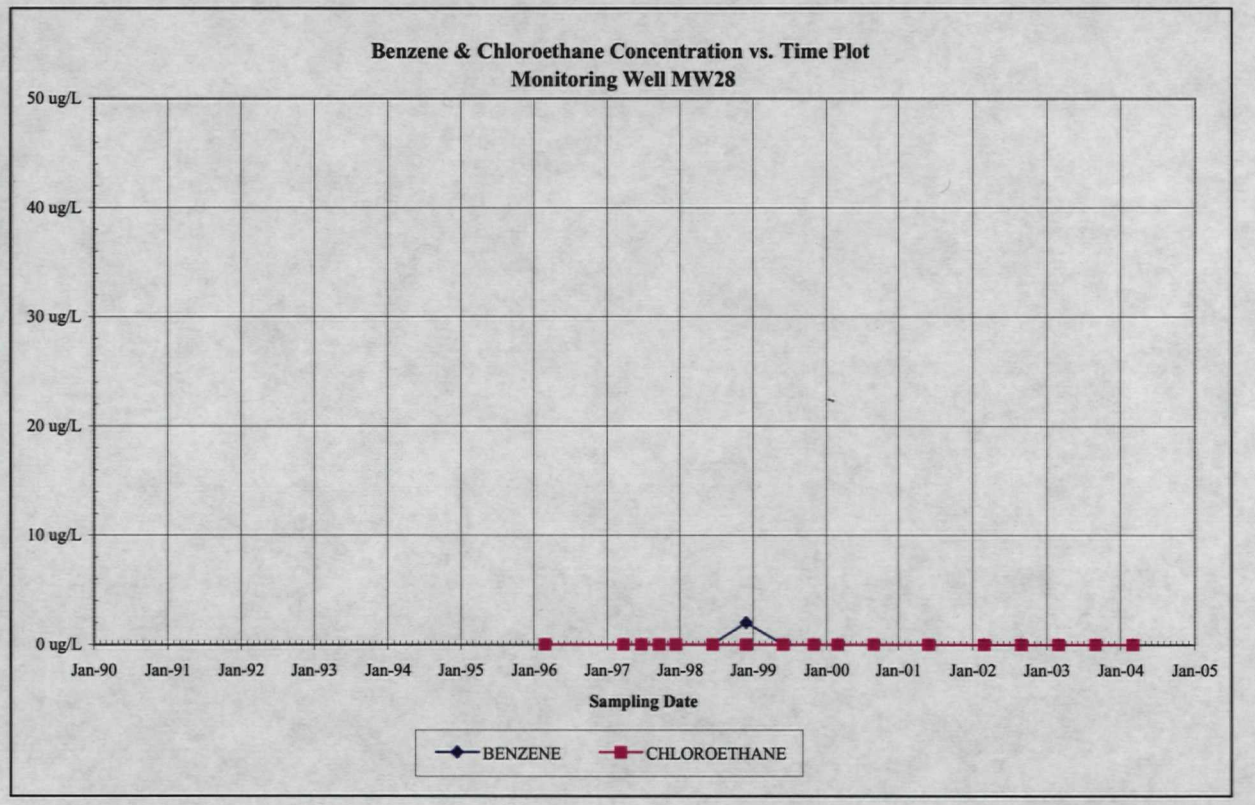
BDL = Below the Detection Limit



Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW28

DATE	BENZENE	CHLOROETHANE
BASELINE	10	10
August-89		
May-90		
January-95		
March-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	2 ug/L	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	BDL	BDL
September-03	BDL	BDL
March-04	BDL	BDL

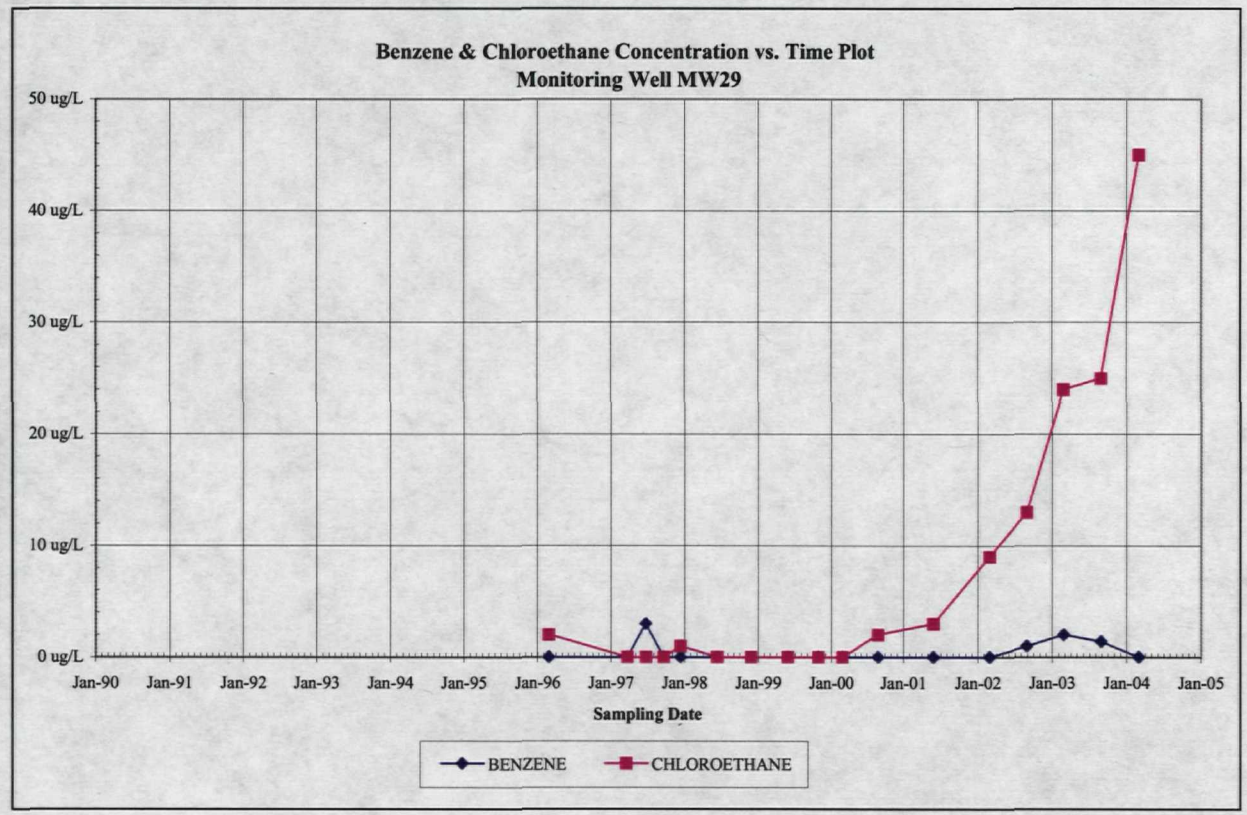
BDL = Below the Detection Limit



Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW29

DATE	BENZENE	CHLOROETHANE
BASELINE	10	10
August-89		
May-90		
January-95		
March-96	BDL	2 ug/L
March-97	BDL	BDL
June-97	3 ug/L	BDL
September-97	BDL	BDL
December-97	BDL	1 ug/L
June-98	BDL	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	2 ug/L
June-01	BDL	3 ug/L
March-02	BDL	9 ug/L
September-02	1 ug/L	13 ug/L
March-03	2 ug/L	24 ug/L
September-03	1.4 ug/L	25 ug/L
March-04	BDL	45 ug/L

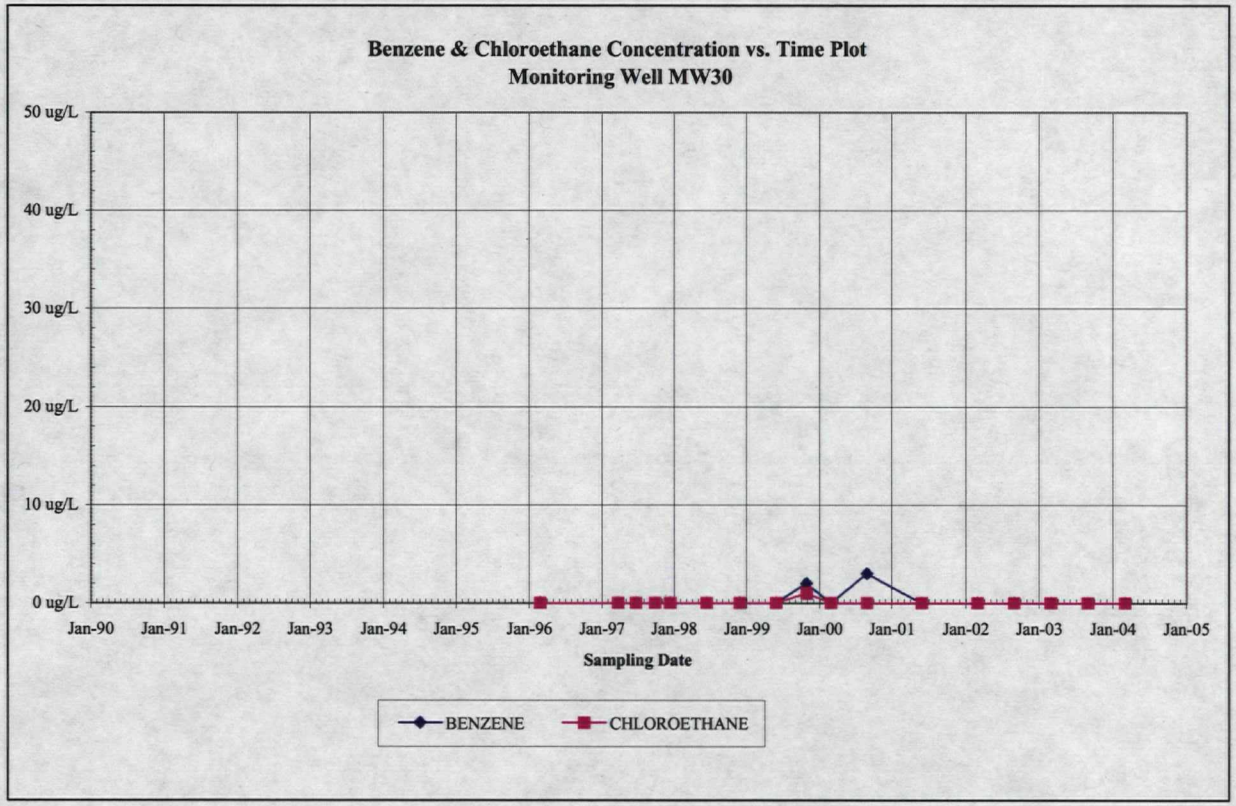
BDL = Below the Detection Limit



Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW30

DATE	BENZENE	CHLOROETHANE
BASELINE	**10**	**10**
August-89		
May-90		
January-95		
March-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
October-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	2 ug/L	1 ug/L
March-00	BDL	BDL
September-00	3 ug/L	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	BDL	BDL
September-03	BDL	BDL
March-04	BDL	BDL

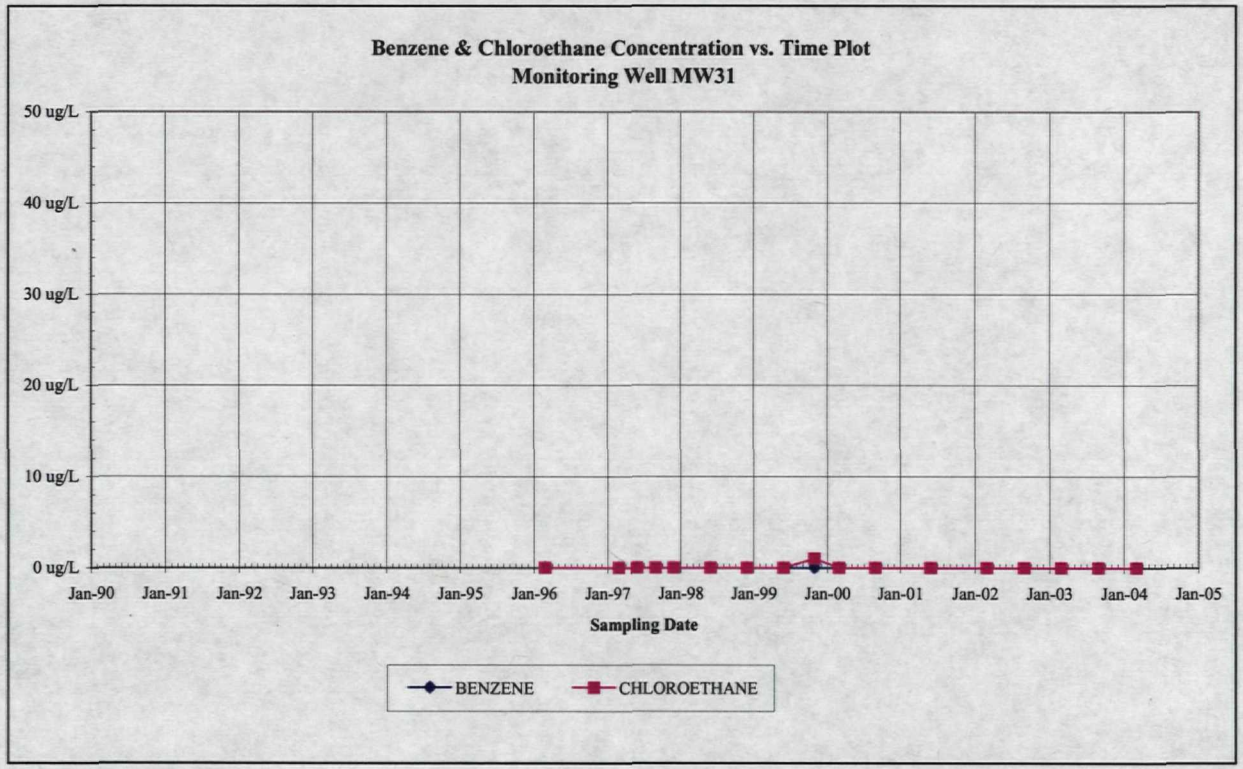
BDL = Below the Detection Limit



Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW31

DATE	BENZENE	CHLOROETHANE
BASELINE	10	10
August-89		
May-90		
January-95		
March-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	BDL	1 ug/L
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	BDL	BDL
September-03	BDL	BDL
March-04	BDL	BDL

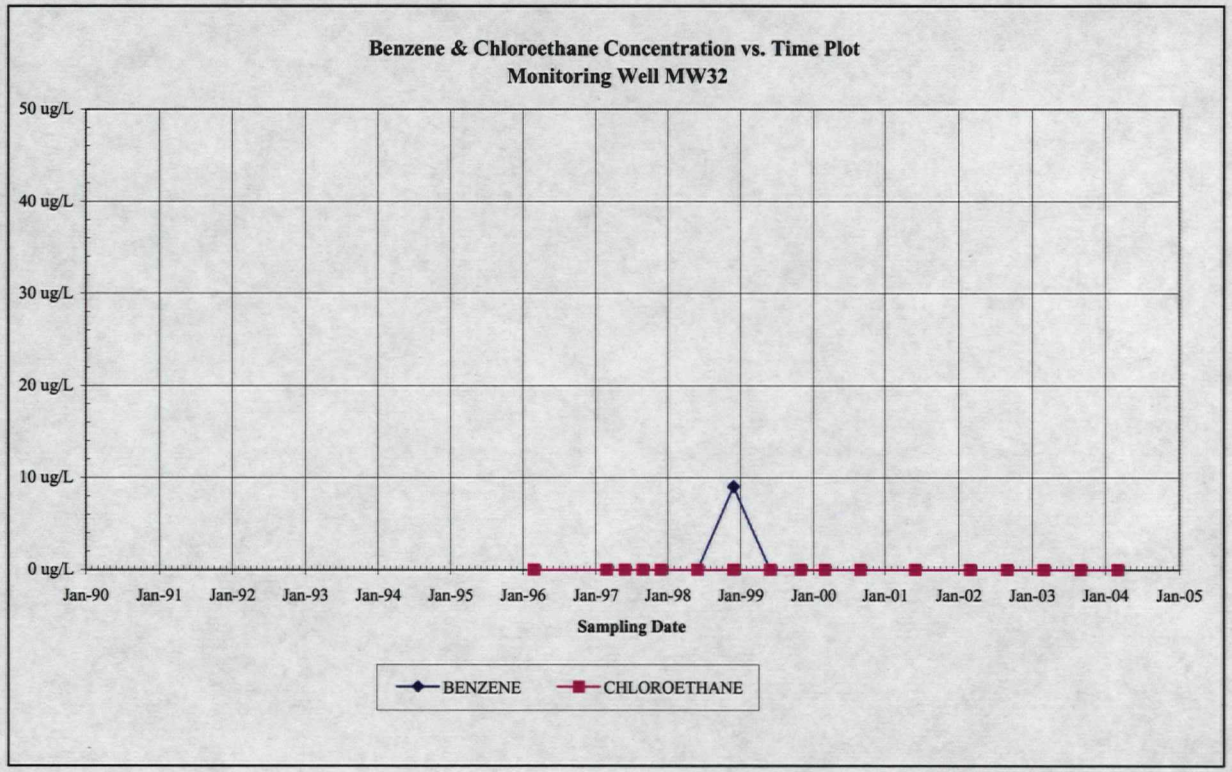
BDL = Below the Detection Limit



Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW32

DATE	BENZENE	CHLOROETHANE
BASELINE	10	10
August-89		
May-90		
January-95		
March-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	9 ug/L	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	BDL	BDL
September-03	BDL	BDL
March-04	BDL	BDL

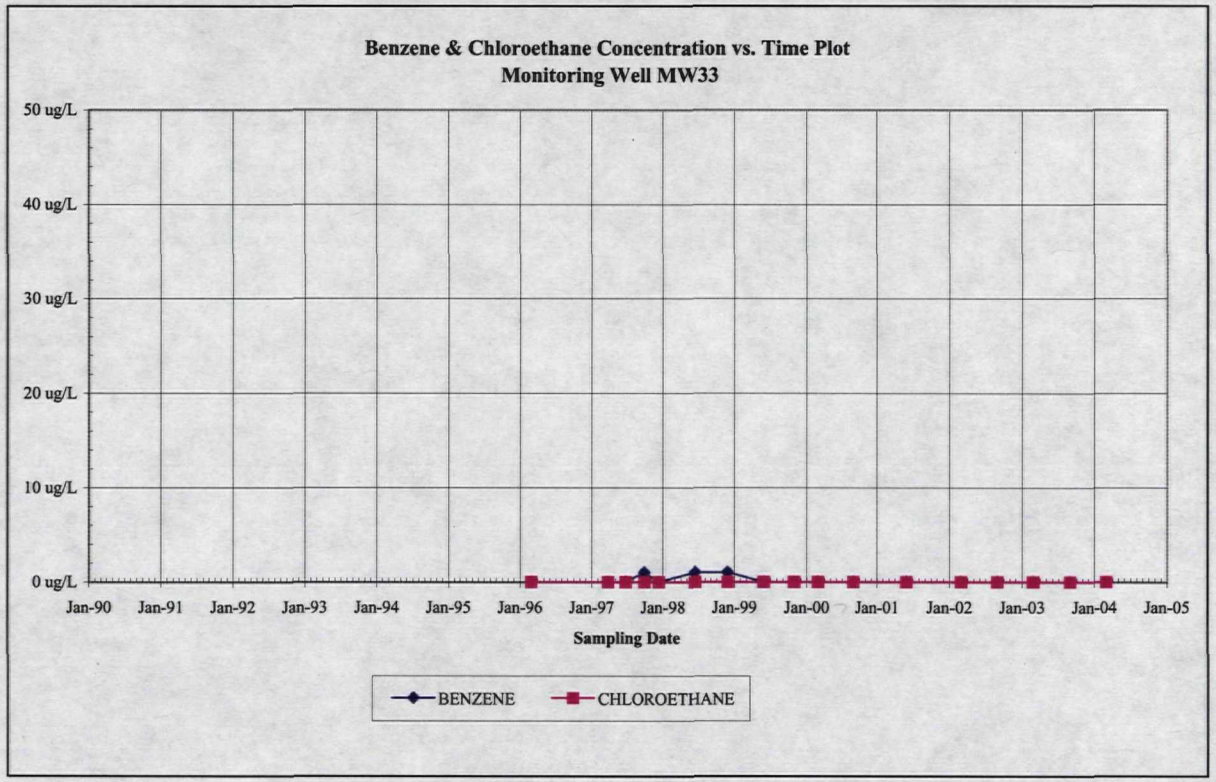
BDL = Below the Detection Limit



Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW33

DATE	BENZENE	CHLOROETHANE
BASELINE	10	10
August-89		
May-90		
January-95		
March-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
October-97	1 ug/L	BDL
December-97	BDL	BDL
June-98	1 ug/L	BDL
December-98	1 ug/L	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	BDL	BDL
September-03	BDL	BDL
March-04	BDL	BDL

BDL = Below the Detection Limit



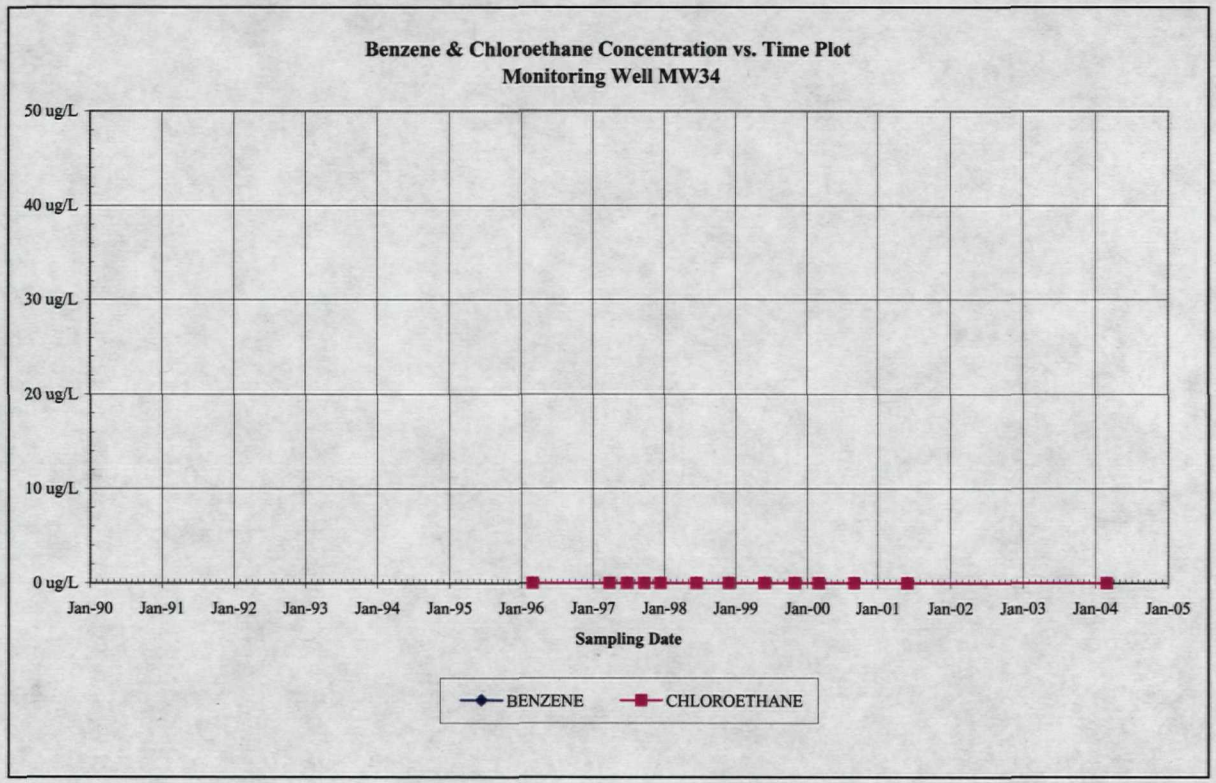
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_LA_Electronic.xls[MW33]

5/18/2004

Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW34

DATE	BENZENE	CHLOROETHANE
BASELINE	10	10
August-89		
May-90		
January-95		
March-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-04	BDL	BDL

BDL = Below the Detection Limit



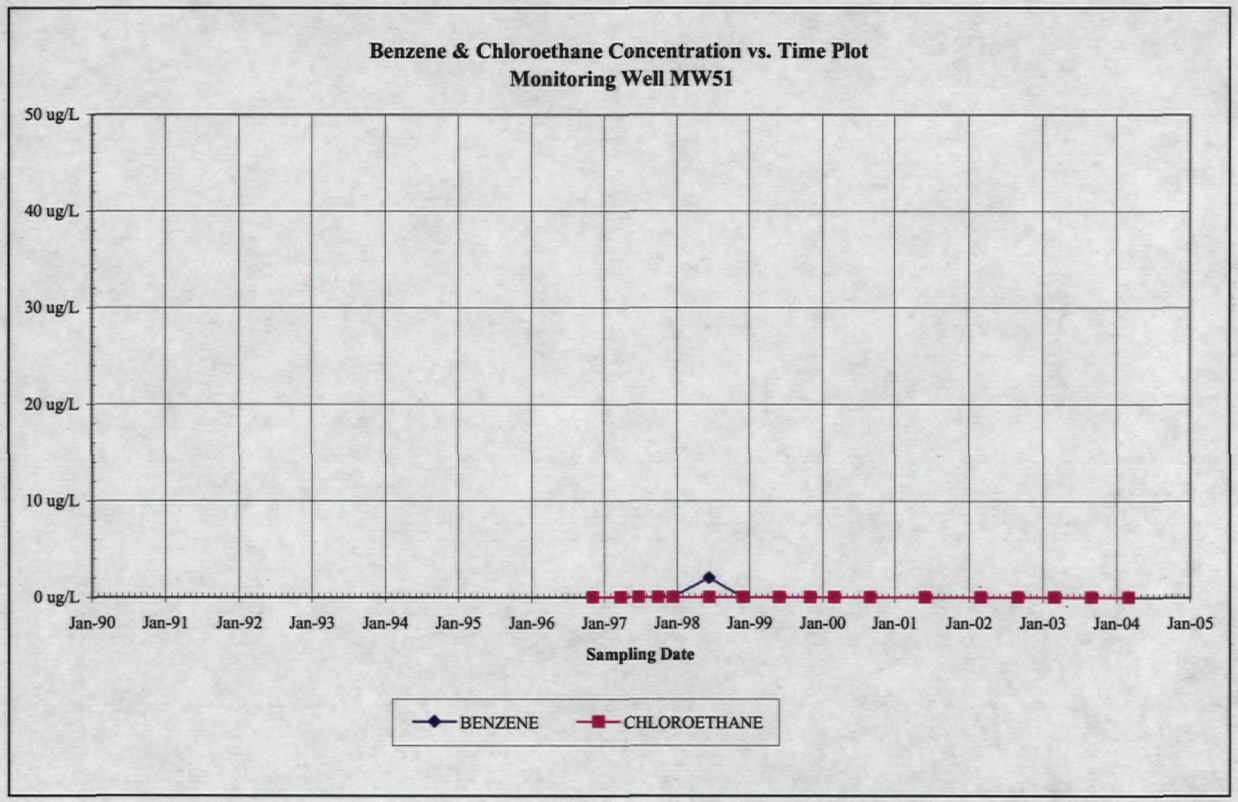
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_IMPwells.xls[MW34]

5/26/2004

Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW51

DATE	BENZENE	CHLOROETHANE
BASELINE	100	100
August-89		
May-90		
January-95		
November-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
October-97	BDL	BDL
December-97	BDL	BDL
June-98	2 ug/L	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	BDL	BDL
September-03	BDL	BDL
March-04	BDL	BDL

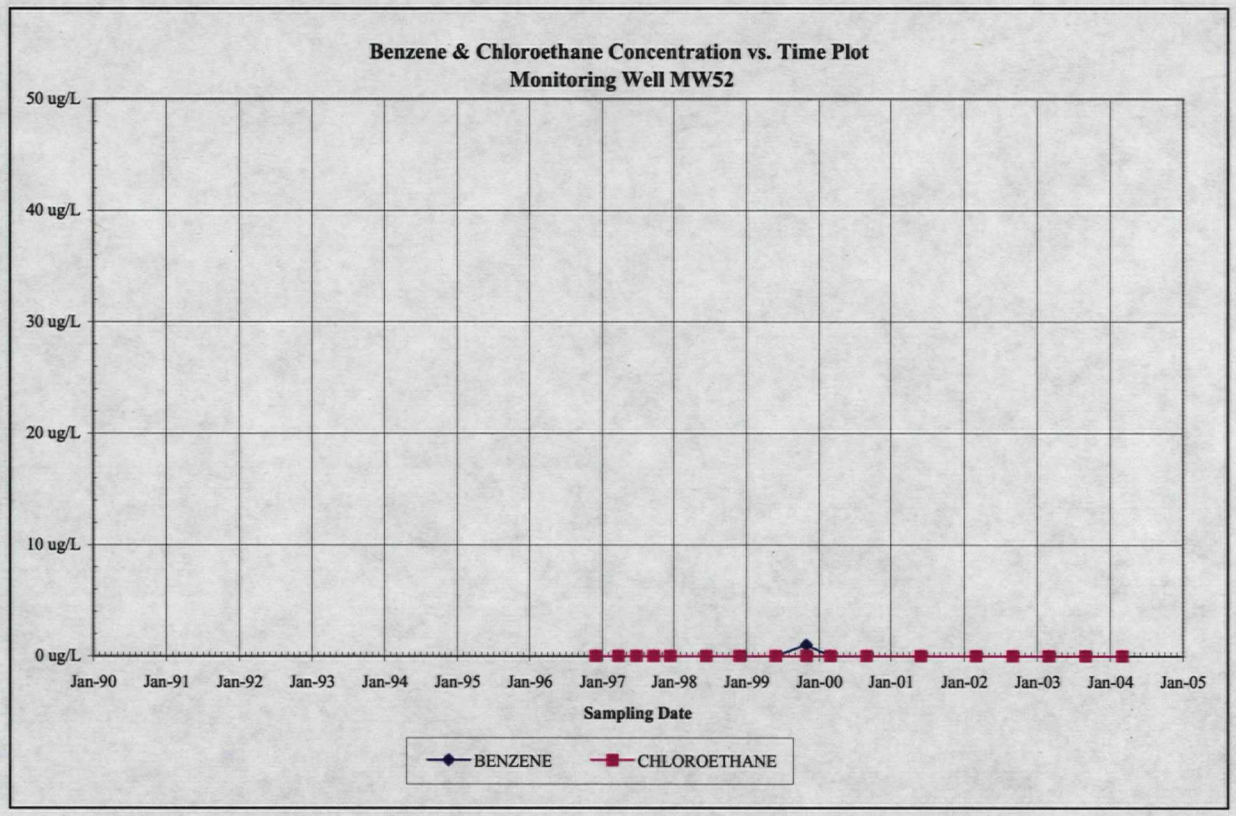
BDL = Below the Detection Limit



Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW52

DATE	BENZENE	CHLOROETHANE
BASELINE	100	100
August-89		
May-90		
January-95		
December-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	1 ug/L	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	BDL	BDL
September-03	BDL	BDL
March-04	BDL	BDL

BDL = Below the Detection Limit



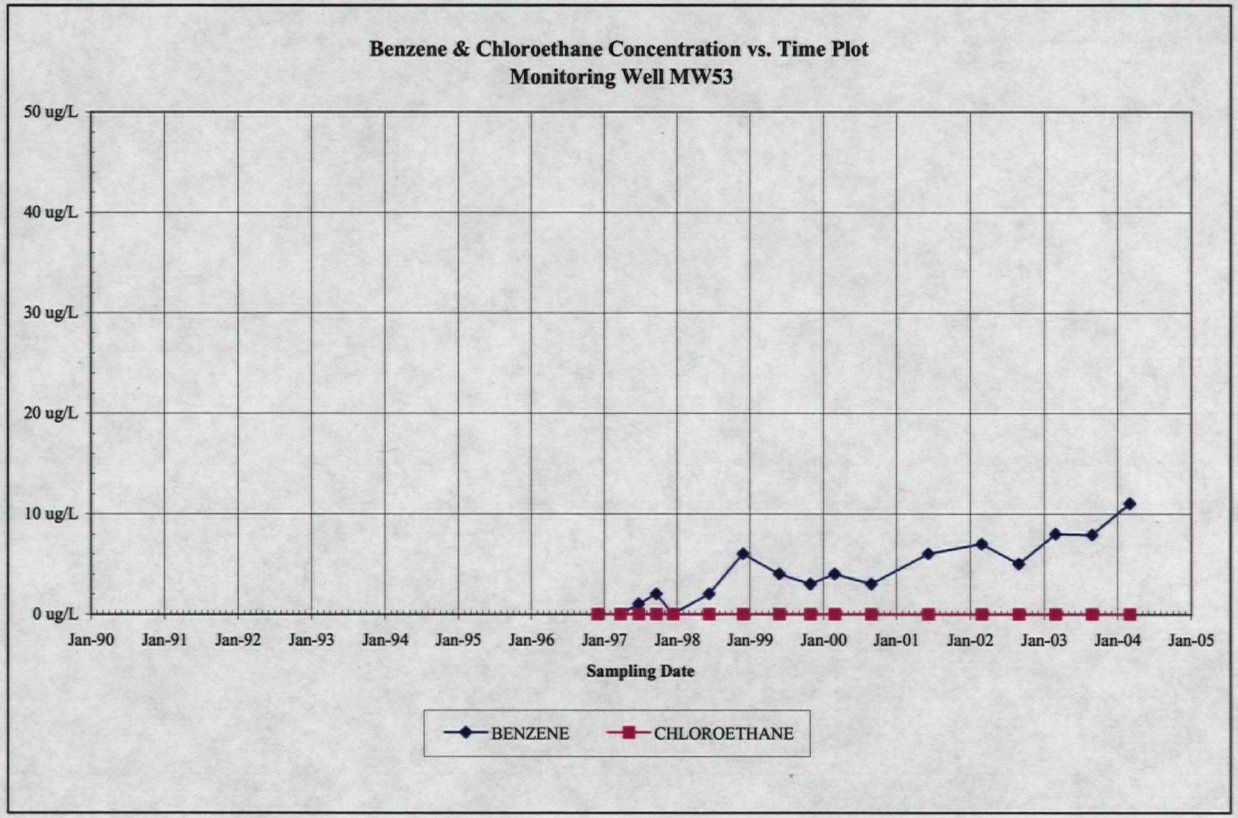
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_LA_Electronic.xls[MW52]

5/18/2004

Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW53

DATE	BENZENE	CHLOROETHANE
BASELINE	**10**	**10**
August-89		
May-90		
January-95		
December-96	BDL	BDL
March-97	BDL	BDL
June-97	1 ug/L	BDL
September-97	2 ug/L	BDL
December-97	BDL	BDL
June-98	2 ug/L	BDL
December-98	6 ug/L	BDL
June-99	4 ug/L	BDL
November-99	3 ug/L	BDL
March-00	4 ug/L	BDL
September-00	3 ug/L	BDL
June-01	6 ug/L	BDL
March-02	7 ug/L	BDL
September-02	5 ug/L	BDL
March-03	8 ug/L	BDL
September-03	7.9 ug/L	BDL
March-04	11 ug/L	BDL

BDL = Below the Detection Limit



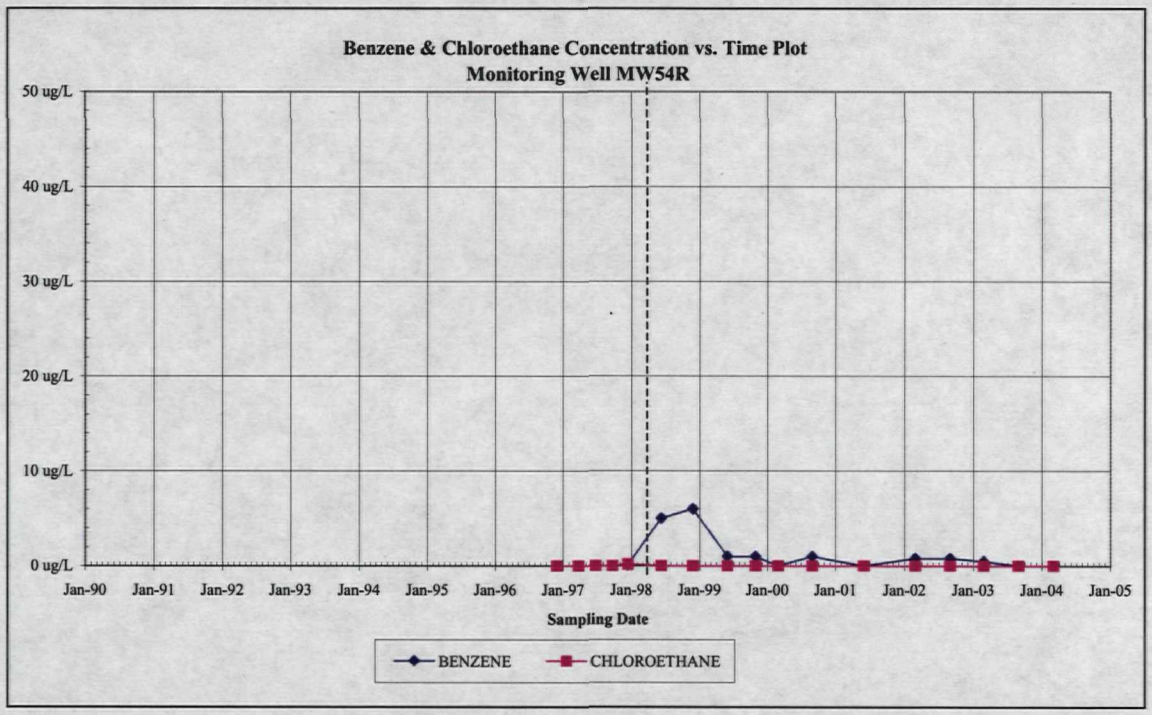
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_LA_Electronic.xls[MW53]

5/18/2004

Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW54R

DATE	BENZENE	CHLOROETHANE	
BASELINE	10	10	
August-89			
May-90			
January-95			
December-96	BDL	BDL	
March-97	BDL	BDL	
June-97	BDL	BDL	
September-97	BDL	BDL	
December-97	0.1 ug/L	0.2 ug/L	
June-98	5 ug/L	BDL	<- MW54R
December-98	6 ug/L	BDL	
June-99	1 ug/L	BDL	
November-99	1 ug/L	BDL	
March-00	BDL	BDL	
September-00	1 ug/L	BDL	
June-01	BDL	BDL	
March-02	1 ug/L	BDL	
September-02	1 ug/L	BDL	
March-03	0.5 ug/L	BDL	
September-03	BDL	BDL	
March-04	BDL	BDL	

BDL = Below the Detection Limit
MW54 was damaged by a vehicle and was replaced with MW54R



---------- Line indicates change to replacement well

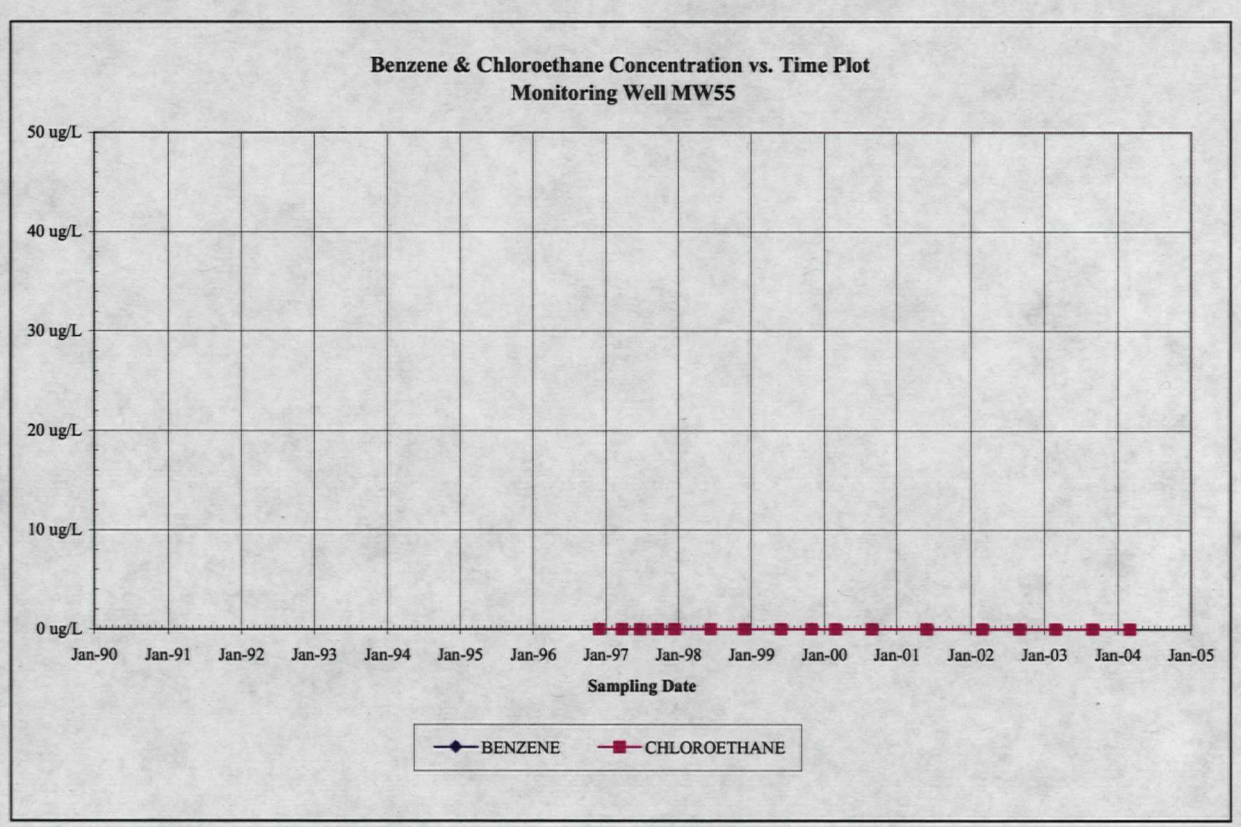
CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_LA_Electronic.xls[MW54R]

5/18/2004

Concentration vs. Time Plot for
Lower Aquifer Monitoring Well MW55

DATE	BENZENE	CHLOROETHANE
BASELINE	10	10
August-89		
May-90		
January-95		
December-96	BDL	BDL
March-97	BDL	BDL
June-97	BDL	BDL
September-97	BDL	BDL
December-97	BDL	BDL
June-98	BDL	BDL
December-98	BDL	BDL
June-99	BDL	BDL
November-99	BDL	BDL
March-00	BDL	BDL
September-00	BDL	BDL
June-01	BDL	BDL
March-02	BDL	BDL
September-02	BDL	BDL
March-03	BDL	BDL
September-03	BDL	BDL
March-04	BDL	BDL

BDL = Below the Detection Limit

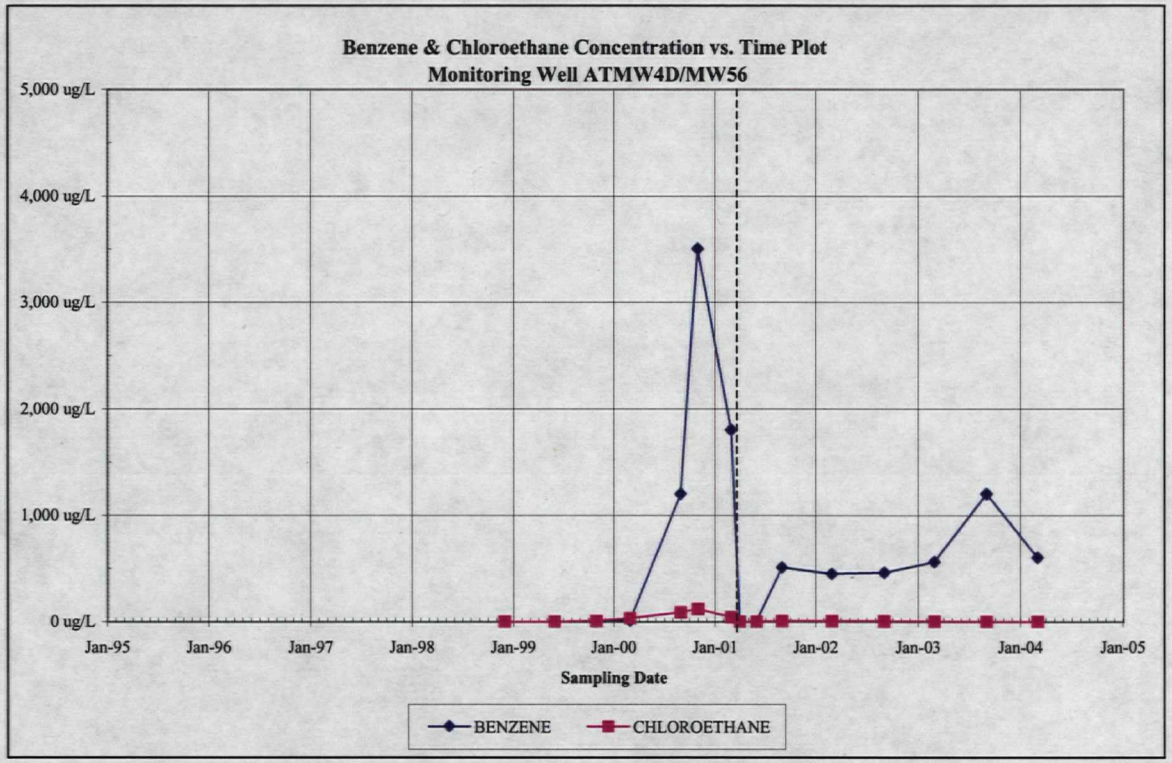


CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_LA_Electronic.xls[MW55]

5/18/2004

Concentration vs. Time Plot for
Lower Aquifer Monitoring Well ATMW4D-MW56

DATE	BENZENE	CHLOROETHANE	
BASELINE	-	-	
December-98	BDL	BDL	
June-99	BDL	BDL	
November-99	3 ug/L	9 ug/L	
March-00	12 ug/L	34 ug/L	
September-00	1,200 ug/L	88 ug/L	
November-00	3,500 ug/L	120 ug/L	
March-01	1,800 ug/L	42 ug/L	ATMW4D
April-01	BDL	BDL	MW56
June-01	BDL	BDL	
September-01	510 ug/L	10 ug/L	
March-02	450 ug/L	8 ug/L	
September-02	460 ug/L	6 ug/L	
March-03	560 ug/L	4 ug/L	
September-03	1,200 ug/L	BDL	
March-04	600 ug/L	BDL	



---------- Line indicates change to replacement wel

CAS/ALC
J:209\0603 ACS\Database\Timetrnd_GWMP_LA_Electronic.xls[ATMW4D-MW56]

5/18/2004

Appendix C
Laboratory Analytical Reports and Data Validation Narratives

VOC Results

Laboratory Form I - Upper Aquifer Wells
Laboratory Form I - Lower Aquifer Wells
Laboratory Form I - Quality Control Samples
Data Validation Narrative - SDG 2478
Data Validation Narrative - SDG 2495
Data Validation Narrative - SDG 2514

SVOC Results

Laboratory Form I – SVOC
Data Validation Narrative - SDG 2495
Data Validation Narrative - SDG 2514

Inorganic Results

Laboratory Form I – Inorganics
Data Validation Narrative (Metals) – SDG 2478
Data Validation Narrative (Metals) – SDG 2479
Data Validation Narrative (Metals) – SDG 2495
Data Validation Narrative (Metals) – SDG 2514
Data Validation Narrative (Cyanide) – SDG 2478
Data Validation Narrative (Cyanide) – SDG 2479
Data Validation Narrative (Cyanide) – SDG 2495

PARCC Review

DATA REPORTING QUALIFIERS (continued)

C : This flag applies to GC or HPLC results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, this flag is not applied; a laboratory-defined flag is used instead (see the X/Y/Z qualifier.)

B : This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates probable blank contamination and warns the data user to take appropriate action. This flag is used for a TIC as well as for a positively identified target compound. The combination of flags BU or UB is not an allowable policy. Blank contaminants are flagged B only when they are detected in the sample.

E : This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than the upper level of the calibration range, the sample or extract will be diluted and reanalyzed. All such compounds with a response greater than the upper level of the calibration range will have the concentration flagged with an E on Form I for the original analysis.

D : If a sample or extract is reanalyzed at a higher dilution factor, for example when the concentration of an analyte exceeds the upper calibration range, the DL suffix is appended to the sample number on Form I for the more diluted sample, and **all** reported concentrations on that Form I are flagged with the D flag. This flag alerts data users that any discrepancies between the reported concentrations may be due to dilution of the sample or extract.

NOTE 1: The D flag is not applied to compounds which are not detected in the sample analysis i.e. compounds reported with the CRQL (or Reporting Limit) and the U flag.

NOTE 2: Separate Form Is are used for reporting the original analysis (Client Sample No. XXXXX) and the more diluted sample analysis (Client Sample No. XXXXXDL) i.e. the results from both analyses <u>are not combined</u> on a single Form I.

A : This flag indicates that a TIC is a suspected aldol-condensation product.

X/Y/Z : Other specific flags may be required to properly define the results. If used, the flags will be fully described in the SDG Narrative. The laboratory-defined flags are limited to X, Y and Z.

DATA REPORTING QUALIFIERS

On the Form I, under the column labeled "Q" for qualifier, each result is flagged with the specific data reporting qualifiers listed below, as appropriate. Up to five qualifiers may be reported on Form I for each compound. The qualifiers used are:

U : This flag indicates the compound was analyzed for but not detected. The Contract Required Quantitation Limit (CRQL), or reporting limit, will be adjusted to reflect any dilution and, for soils, the percent moisture.

J : This flag indicates an estimated value. The flag is used as detailed below:

1. When estimating a concentration for tentatively identified compounds (TICs) where a response factor of 1.0 is assumed for the TIC analyte,

2. When the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the CRQL (or Reporting Limit) but greater than zero, and

3. When the retention time data indicate the presence of a compound that meets the pesticide/Aroclor or other GC or HPLC identification criteria, and the result is less than the CRQL (or Reporting Limit) but greater than zero. For example, if the CRQL (or Reporting Limit) is 10 µg/L, but a concentration of 3 µg/L is calculated, it is reported as 3J.

N : This flag indicates presumptive evidence of a compound. This flag is only used for TICs, where the identification is based on a mass spectral library search. For generic characterization of a TIC such as 'chlorinated hydrocarbon', the N flag is not used.

P : In the EPA's Contract Laboratory Program (CLP), this flag is used for a pesticide/Aroclor target analyte, when there is greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on Form I and flagged with a P.
For SW-846 GC and HPLC analyses, when the Relative Percent Difference (RPD) is greater than 40% and there is no evidence of chromatographic anomalies or interferences, then the higher of the two values is reported and flagged with a P. When the RPD is equal to or less than 40%, our policy is to also report the higher of the two values, although the choice could be a project specific issue. For certain HPLC analyses, if one of the HPLC columns displays co-elution of target analytes, all results are reported from a primary column displaying no co-elution. Results are still flagged with a P if the RPD between columns is greater than 40%.

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW0623

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251413

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251413B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	180	
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	5.9	J
75-09-2	Methylene Chloride	1.4	J
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	990	E
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW0623

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251413

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251413B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	2.0	J
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	22	
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW0623

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251413

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251413B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 7

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 115-07-1	PROPENE	1.17	5.0	NJ
2. 503-17-3	2-BUTYNE	1.76	14	NJ
3. 60-29-7	ETHYL ETHER	1.87	69	NJ
4.	BRANCHED ALKANE	2.15	5.3	J
5. 108-20-3	DIISOPROPYL ETHER	2.93	5.9	J
6. 111-43-3	DI-N-PROPYL ETHER	4.00	14	J
7. 873-94-9	CYCLOHEXANONE, 3,3,5-TRIMETH	6.71	55	NJ
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW0623DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251413

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251413DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 6.2

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	31	U
74-87-3	Chloromethane	31	U
75-01-4	Vinyl Chloride	31	U
74-83-9	Bromomethane	30	DJ
75-00-3	Chloroethane	150	D
75-69-4	Trichlorofluoromethane	31	U
75-35-4	1,1-Dichloroethene	31	U
75-15-0	Carbon disulfide	31	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	31	U
67-64-1	Acetone	78	U
75-09-2	Methylene Chloride	31	U
156-60-5	trans-1,2-Dichloroethene	31	U
1634-04-4	Methyl-tert-butyl ether	31	U
75-34-3	1,1-Dichloroethane	31	U
156-59-2	cis-1,2-Dichloroethene	31	U
78-93-3	2-butanone	78	U
67-66-3	Chloroform	31	U
71-55-6	1,1,1-Trichloroethane	31	U
56-23-5	Carbon Tetrachloride	31	U
71-43-2	Benzene	980	D
107-06-2	1,2-Dichloroethane	31	U
79-01-6	Trichloroethene	31	U
78-87-5	1,2-Dichloropropane	31	U
75-27-4	Bromodichloromethane	31	U
10061-01-5	cis-1,3-Dichloropropene	31	U
108-10-1	4-Methyl-2-pentanone	78	U
108-88-3	Toluene	31	U
10061-02-6	trans-1,3-Dichloropropene	31	U
79-00-5	1,1,2-Trichloroethane	43	D
127-18-4	Tetrachloroethene	31	U
591-78-6	2-hexanone	78	U
124-48-1	Dibromochloromethane	31	U
106-93-4	1,2-Dibromoethane	31	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW0623DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251413

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251413DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 6.2

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	31	U
100-41-4	Ethylbenzene	31	U
100-42-5	Styrene	31	U
75-25-2	Bromoform	31	U
98-82-8	Isopropyl Benzene	31	U
79-34-5	1,1,2,2-Tetrachloroethane	31	U
541-73-1	1,3-Dichlorobenzene	31	U
106-46-7	1,4-Dichlorobenzene	31	U
95-50-1	1,2-Dichlorobenzene	31	U
96-12-8	1,2-Dibromo-3-Chloropropane	31	U
120-82-1	1,2,4-Trichlorobenzene	14	DJ
1330-20-7	Xylene (total)	22	DJ
79-20-9	Methyl acetate	31	U
110-82-7	Cyclohexane	31	U
108-87-2	Methylcyclohexane	31	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW0623DL

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251413

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251413DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 6.2

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 60-29-7	ETHYL ETHER	1.87	71	NJD
2.				
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW11-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247802

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247802R2B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	1.9	J
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	6.4	
74-83-9	Bromomethane	0.85	J
75-00-3	Chloroethane	9.9	
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	0.80	J
156-60-5	trans-1,2-Dichloroethene	1.2	J
1634-04-4	Methyl-tert-butyl ether	3.7	J
75-34-3	1,1-Dichloroethane	40	
156-59-2	cis-1,2-Dichloroethene	96	
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	1.3	J
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	1.6	J
79-01-6	Trichloroethene	5.1	
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	7.8	
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW11-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247802

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247802R2B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	3.0	J
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	4.1	JB
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW11-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247802

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247802R2B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75-43-4	METHANE, DICHLOROFLUORO-	1.72	5.5	NJ
2. 0-00-0	ETHENE, ETHYLOXY-	1.84	11	NJ
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW12-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247801

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247801RB62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	970	E
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW12-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247801

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247801RB62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	3.7	J
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	4.5	JB
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW12-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247801

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247801RB62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	BRANCHED ALKANE	6.59	11	J
2.				
3.				
4.				
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW12-23DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247801

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247801D2B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.7

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	8.4	U
74-87-3	Chloromethane	8.4	U
75-01-4	Vinyl Chloride	8.4	U
74-83-9	Bromomethane	8.4	U
75-00-3	Chloroethane	8.4	U
75-69-4	Trichlorofluoromethane	8.4	U
75-35-4	1,1-Dichloroethene	8.4	U
75-15-0	Carbon disulfide	8.4	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	8.4	U
67-64-1	Acetone	430	D
75-09-2	Methylene Chloride	8.4	U
156-60-5	trans-1,2-Dichloroethene	8.4	U
1634-04-4	Methyl-tert-butyl ether	8.4	U
75-34-3	1,1-Dichloroethane	8.4	U
156-59-2	cis-1,2-Dichloroethene	8.4	U
78-93-3	2-butanone	21	U
67-66-3	Chloroform	8.4	U
71-55-6	1,1,1-Trichloroethane	8.4	U
56-23-5	Carbon Tetrachloride	8.4	U
71-43-2	Benzene	8.4	U
107-06-2	1,2-Dichloroethane	8.4	U
79-01-6	Trichloroethene	8.4	U
78-87-5	1,2-Dichloropropane	8.4	U
75-27-4	Bromodichloromethane	8.4	U
10061-01-5	cis-1,3-Dichloropropene	8.4	U
108-10-1	4-Methyl-2-pentanone	21	U
108-88-3	Toluene	8.4	U
10061-02-6	trans-1,3-Dichloropropene	8.4	U
79-00-5	1,1,2-Trichloroethane	8.4	U
127-18-4	Tetrachloroethene	8.4	U
591-78-6	2-hexanone	21	U
124-48-1	Dibromochloromethane	8.4	U
106-93-4	1,2-Dibromoethane	8.4	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW12-23DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247801

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247801D2B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.7

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	3.0	DJ
100-41-4	Ethylbenzene	8.4	U
100-42-5	Styrene	8.4	U
75-25-2	Bromoform	8.4	U
98-82-8	Isopropyl Benzene	8.4	U
79-34-5	1,1,2,2-Tetrachloroethane	8.4	U
541-73-1	1,3-Dichlorobenzene	8.4	U
106-46-7	1,4-Dichlorobenzene	8.4	U
95-50-1	1,2-Dichlorobenzene	8.4	U
96-12-8	1,2-Dibromo-3-Chloropropane	8.4	U
120-82-1	1,2,4-Trichlorobenzene	6.8	DJB
1330-20-7	Xylene (total)	8.4	U
79-20-9	Methyl acetate	8.4	U
110-82-7	Cyclohexane	8.4	U
108-87-2	Methylcyclohexane	8.4	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW12-23DL

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247801

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247801D2B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.7

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW1323

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251401

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251401RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	24	
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	2.0	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW1323

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251401

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251401RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW1323

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251401

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251401RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 64-19-7	ACETIC ACID	4.49	36	NJ
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWDUP0223

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251404

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251404RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	4.4	J
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	25	
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	1.1	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWDUP0223

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251404

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251404RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWDUP0223

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251404

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251404RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW1423

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251407

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251407RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW1423

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251407

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251407RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW1423

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251407

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251407RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW15-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249503

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249503B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW15-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249503

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249503B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW15-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249503

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249503B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	LABORATORY ARTIFACT	15.92	20	JB
2.	LABORATORY ARTIFACT	17.12	24	JB
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW17-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249501

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249501B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	1.3	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	1.6	J
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW17-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249501

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249501B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW17-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249501

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249501B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	LABORATORY ARTIFACT	12.25	6.3	J
2. 556-67-2	CYCLOTETRASILOXANE, OCTAMETH	14.52	16	NJ
3.	LABORATORY ARTIFACT	15.91	31	JB
4.	LABORATORY ARTIFACT	17.11	32	JB
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW1923

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251412

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251412B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	4.5	J
75-00-3	Chloroethane	35	
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	9.0	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	1.7	J
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW1923

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251412

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251412B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW1923

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251412

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251412B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 60-29-7	ETHYL ETHER	1.87	9.8	NJ
2.				
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW37-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247817

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247817B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	0.76	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW37-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247817

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247817B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW37-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247817

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247817B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 3

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	556-67-2	CYCLOTETRASILOXANE, OCTAMETH	14.52	14	NJ
2.		LABORATORY ARTIFACT	15.91	23	JB
3.		LABORATORY ARTIFACT	17.11	12	JB
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGW39-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247820

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247820B62

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	5.6	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	2.2	J
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	1.5	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGW39-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247820

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247820B62

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGW39-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247820

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247820B62

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW42-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247809

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247809B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	9.9	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	0.97	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW42-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247809

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247809B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	3.9	JB
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW42-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247809

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247809B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW43-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247810

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247810R262

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	19	
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	5.0	J
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW43-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247810

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247810R262

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW43-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247810

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247810R262

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW44-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247811

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247811B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	6.6	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	7.2	J
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	2.5	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW44-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247811

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247811B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	4.1	JB
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW44-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247811

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247811B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWDUP01-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247812

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247812B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWDUP01-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247812

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247812B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	4.0	JB
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWDUP01-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247812

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247812B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW45-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247813

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247813RB62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	2.7	J
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	5.6	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	3.7	J
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW45-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247813

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247813RB62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	1.8	J
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW45-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247813

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247813RB62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW4823

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251415

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251415B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	22	
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	4.9	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	790	E
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	1.5	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW4823

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251415

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251415B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW4823

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251415

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251415B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 352-93-2	DIETHYL SULFIDE	4.32	6.3	NJ
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW4823DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251415

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251415DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	25	U
74-87-3	Chloromethane	25	U
75-01-4	Vinyl Chloride	25	U
74-83-9	Bromomethane	25	U
75-00-3	Chloroethane	18	DJ
75-69-4	Trichlorofluoromethane	25	U
75-35-4	1,1-Dichloroethene	25	U
75-15-0	Carbon disulfide	25	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	25	U
67-64-1	Acetone	63	U
75-09-2	Methylene Chloride	25	U
156-60-5	trans-1,2-Dichloroethene	25	U
1634-04-4	Methyl-tert-butyl ether	25	U
75-34-3	1,1-Dichloroethane	25	U
156-59-2	cis-1,2-Dichloroethene	25	U
78-93-3	2-butanone	63	U
67-66-3	Chloroform	25	U
71-55-6	1,1,1-Trichloroethane	25	U
56-23-5	Carbon Tetrachloride	25	U
71-43-2	Benzene	590	D
107-06-2	1,2-Dichloroethane	25	U
79-01-6	Trichloroethene	25	U
78-87-5	1,2-Dichloropropane	25	U
75-27-4	Bromodichloromethane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
108-10-1	4-Methyl-2-pentanone	63	U
108-88-3	Toluene	25	U
10061-02-6	trans-1,3-Dichloropropene	25	U
79-00-5	1,1,2-Trichloroethane	35	D
127-18-4	Tetrachloroethene	25	U
591-78-6	2-hexanone	63	U
124-48-1	Dibromochloromethane	25	U
106-93-4	1,2-Dibromoethane	25	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW4823DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251415

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251415DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	25	U
100-41-4	Ethylbenzene	25	U
100-42-5	Styrene	25	U
75-25-2	Bromoform	25	U
98-82-8	Isopropyl Benzene	25	U
79-34-5	1,1,2,2-Tetrachloroethane	25	U
541-73-1	1,3-Dichlorobenzene	25	U
106-46-7	1,4-Dichlorobenzene	25	U
95-50-1	1,2-Dichlorobenzene	25	U
96-12-8	1,2-Dibromo-3-Chloropropane	25	U
120-82-1	1,2,4-Trichlorobenzene	25	U
1330-20-7	Xylene (total)	25	U
79-20-9	Methyl acetate	25	U
110-82-7	Cyclohexane	25	U
108-87-2	Methylcyclohexane	25	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW4823DL

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251415

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251415DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

Number TICs found: 0

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWDUP0423

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251418

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251418B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	24	
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	840	E
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	1.2	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWDUP0423

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251418

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251418B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWDUP0423

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251418

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251418B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

Number TICs found: 1

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	352-93-2	DIETHYL SULFIDE	4.32	6.7	NJ
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWDUP0423DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251418

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251418DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	25	U
74-87-3	Chloromethane	25	U
75-01-4	Vinyl Chloride	25	U
74-83-9	Bromomethane	25	U
75-00-3	Chloroethane	18	DJ
75-69-4	Trichlorofluoromethane	25	U
75-35-4	1,1-Dichloroethene	25	U
75-15-0	Carbon disulfide	25	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	25	U
67-64-1	Acetone	63	U
75-09-2	Methylene Chloride	25	U
156-60-5	trans-1,2-Dichloroethene	25	U
1634-04-4	Methyl-tert-butyl ether	25	U
75-34-3	1,1-Dichloroethane	25	U
156-59-2	cis-1,2-Dichloroethene	25	U
78-93-3	2-butanone	63	U
67-66-3	Chloroform	25	U
71-55-6	1,1,1-Trichloroethane	25	U
56-23-5	Carbon Tetrachloride	25	U
71-43-2	Benzene	720	D
107-06-2	1,2-Dichloroethane	25	U
79-01-6	Trichloroethene	25	U
78-87-5	1,2-Dichloropropane	25	U
75-27-4	Bromodichloromethane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
108-10-1	4-Methyl-2-pentanone	63	U
108-88-3	Toluene	25	U
10061-02-6	trans-1,3-Dichloropropene	25	U
79-00-5	1,1,2-Trichloroethane	25	U
127-18-4	Tetrachloroethene	25	U
591-78-6	2-hexanone	63	U
124-48-1	Dibromochloromethane	25	U
106-93-4	1,2-Dibromoethane	25	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWDUP0423DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251418

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251418DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	25	U
100-41-4	Ethylbenzene	25	U
100-42-5	Styrene	25	U
75-25-2	Bromoform	25	U
98-82-8	Isopropyl Benzene	25	U
79-34-5	1,1,2,2-Tetrachloroethane	25	U
541-73-1	1,3-Dichlorobenzene	25	U
106-46-7	1,4-Dichlorobenzene	25	U
95-50-1	1,2-Dichlorobenzene	25	U
96-12-8	1,2-Dibromo-3-Chloropropane	25	U
120-82-1	1,2,4-Trichlorobenzene	25	U
1330-20-7	Xylene (total)	25	U
79-20-9	Methyl acetate	25	U
110-82-7	Cyclohexane	25	U
108-87-2	Methylcyclohexane	25	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWDUP0423DL

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251418

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251418DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW4923

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251414

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251414B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	52	
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	1100	E
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW4923

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251414

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251414B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW4923

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251414

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251414B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 7446-09-5	SULFUR DIOXIDE	1.27	7.6	NJ
2. 352-93-2	DIETHYL SULFIDE	4.32	9.1	NJ
3. 873-94-9	CYCLOHEXANONE, 3,3,5-TRIMETH	6.71	11	NJ
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW4923DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251414

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251414DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 8.3

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	42	U
74-87-3	Chloromethane	42	U
75-01-4	Vinyl Chloride	42	U
74-83-9	Bromomethane	42	U
75-00-3	Chloroethane	41	DJ
75-69-4	Trichlorofluoromethane	42	U
75-35-4	1,1-Dichloroethene	42	U
75-15-0	Carbon disulfide	42	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	42	U
67-64-1	Acetone	100	U
75-09-2	Methylene Chloride	42	U
156-60-5	trans-1,2-Dichloroethene	42	U
1634-04-4	Methyl-tert-butyl ether	42	U
75-34-3	1,1-Dichloroethane	42	U
156-59-2	cis-1,2-Dichloroethene	42	U
78-93-3	2-butanone	100	U
67-66-3	Chloroform	42	U
71-55-6	1,1,1-Trichloroethane	42	U
56-23-5	Carbon Tetrachloride	42	U
71-43-2	Benzene	1100	D
107-06-2	1,2-Dichloroethane	42	U
79-01-6	Trichloroethene	42	U
78-87-5	1,2-Dichloropropane	42	U
75-27-4	Bromodichloromethane	42	U
10061-01-5	cis-1,3-Dichloropropene	42	U
108-10-1	4-Methyl-2-pentanone	100	U
108-88-3	Toluene	42	U
10061-02-6	trans-1,3-Dichloropropene	42	U
79-00-5	1,1,2-Trichloroethane	42	U
127-18-4	Tetrachloroethene	42	U
591-78-6	2-hexanone	100	U
124-48-1	Dibromochloromethane	42	U
106-93-4	1,2-Dibromoethane	42	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW4923DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251414

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251414DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 8.3

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	42	U
100-41-4	Ethylbenzene	42	U
100-42-5	Styrene	42	U
75-25-2	Bromoform	42	U
98-82-8	Isopropyl Benzene	42	U
79-34-5	1,1,2,2-Tetrachloroethane	42	U
541-73-1	1,3-Dichlorobenzene	42	U
106-46-7	1,4-Dichlorobenzene	42	U
95-50-1	1,2-Dichlorobenzene	42	U
96-12-8	1,2-Dibromo-3-Chloropropane	42	U
120-82-1	1,2,4-Trichlorobenzene	42	U
1330-20-7	Xylene (total)	42	U
79-20-9	Methyl acetate	42	U
110-82-7	Cyclohexane	42	U
108-87-2	Methylcyclohexane	42	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW4923DL

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251414

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251414DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 8.3

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW08-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247804

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247804B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	39	
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW08-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247804

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247804B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	4.0	JB
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW08-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247804

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247804B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW09R23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251410

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251410B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	22	
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	5.5	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	8.3	
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW09R23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251410

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251410B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW09R23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251410

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251410B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 7446-09-5	SULFUR DIOXIDE	1.27	12	NJ
2. 60-29-7	ETHYL ETHER	1.87	7.8	NJ
3. 111-43-3	DI-N-PROPYL ETHER	4.00	18	J
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWDUP0323

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251411

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251411B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	4.7	J
75-00-3	Chloroethane	26	
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	4.9	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	9.7	
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWDUP0323

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251411

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251411B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWDUP0323

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251411

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251411B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	1.27	14	J
2. 60-29-7	ETHYL ETHER	1.87	6.5	NJ
3. 111-43-3	DI-N-PROPYL ETHER	4.00	18	NJ
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW10C23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251405

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251405DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	25	U
74-87-3	Chloromethane	25	U
75-01-4	Vinyl Chloride	25	U
74-83-9	Bromomethane	25	U
75-00-3	Chloroethane	110	
75-69-4	Trichlorofluoromethane	25	U
75-35-4	1,1-Dichloroethene	25	U
75-15-0	Carbon disulfide	25	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	25	U
67-64-1	Acetone	63	U
75-09-2	Methylene Chloride	25	U
156-60-5	trans-1,2-Dichloroethene	25	U
1634-04-4	Methyl-tert-butyl ether	25	U
75-34-3	1,1-Dichloroethane	25	U
156-59-2	cis-1,2-Dichloroethene	25	U
78-93-3	2-butanone	63	U
67-66-3	Chloroform	25	U
71-55-6	1,1,1-Trichloroethane	25	U
56-23-5	Carbon Tetrachloride	25	U
71-43-2	Benzene	980	
107-06-2	1,2-Dichloroethane	25	U
79-01-6	Trichloroethene	25	U
78-87-5	1,2-Dichloropropane	25	U
75-27-4	Bromodichloromethane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
108-10-1	4-Methyl-2-pentanone	63	U
108-88-3	Toluene	25	U
10061-02-6	trans-1,3-Dichloropropene	25	U
79-00-5	1,1,2-Trichloroethane	25	U
127-18-4	Tetrachloroethene	25	U
591-78-6	2-hexanone	63	U
124-48-1	Dibromochloromethane	25	U
106-93-4	1,2-Dibromoethane	25	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW10C23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251405

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251405DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	25	U
100-41-4	Ethylbenzene	25	U
100-42-5	Styrene	25	U
75-25-2	Bromoform	25	U
98-82-8	Isopropyl Benzene	25	U
79-34-5	1,1,2,2-Tetrachloroethane	25	U
541-73-1	1,3-Dichlorobenzene	25	U
106-46-7	1,4-Dichlorobenzene	25	U
95-50-1	1,2-Dichlorobenzene	25	U
96-12-8	1,2-Dibromo-3-Chloropropane	25	U
120-82-1	1,2,4-Trichlorobenzene	25	U
1330-20-7	Xylene (total)	25	U
79-20-9	Methyl acetate	25	U
110-82-7	Cyclohexane	25	U
108-87-2	Methylcyclohexane	25	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW10C23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251405

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251405DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 60-29-7	ETHYL ETHER	1.87	2600	NJ
2.				
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW23-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247803

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247803B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	42	
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW23-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247803

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247803B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	3.9	JB
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW23-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247803

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247803B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 1

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	60-29-7	ETHYL ETHER	1.81	7.5	NJ
2.					
3.					
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW28-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249502

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249502B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW28-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249502

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249502B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW28-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249502

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249502B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	LABORATORY ARTIFACT	12.26	5.0	J
2.	LABORATORY ARTIFACT	15.92	34	JB
3.	LABORATORY ARTIFACT	17.11	34	JB
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW2923

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251409

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251409B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	45	
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	4.9	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	1.0	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW2923

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251409

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251409B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW2923

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251409

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251409B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW30-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247815

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247815B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	14	
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW30-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247815

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247815B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW30-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247815

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247815B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-91-1	1,4-DIOXANE	10.64	6.0	NJ
2.	LABORATORY ARTIFACT	15.92	17	JB
3.	LABORATORY ARTIFACT	17.12	16	JB
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW31-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247805

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247805B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	14	
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW31-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247805

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247805B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	3.9	JB
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW31-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247805

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247805B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW32-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247806

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247806B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	5.1	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	0.74	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW32-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247806

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247806B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	3.9	JB
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW32-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247806

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247806B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW33-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247816

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247816B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW33-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247816

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247816B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW33-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247816

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247816B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 8

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		BRANCHED ALKANE	5.91	18	J
2.		UNKNOWN	6.87	6.8	J
3.		LABORATORY ARTIFACT	8.40	9.4	J
4.	109-99-9	FURAN, TETRAHYDRO-	8.62	140	NJ
5.		UNKNOWN	9.46	11	J
6.	123-91-1	1,4-DIOXANE	10.64	14	NJ
7.		LABORATORY ARTIFACT	15.94	22	JB
8.		LABORATORY ARTIFACT	17.13	23	JB
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW3423

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251408

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251408RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW3423

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251408

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251408RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW3423

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251408

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251408RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 1

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	1.27	6.6	J
2.					
3.					
4.					
5.					
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW51-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247807

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247807B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	8.0	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW51-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247807

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247807B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW51-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247807

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247807B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	1.81	1700	J
2.	UNKNOWN	2.47	11	J
3. 123-91-1	1,4-DIOXANE	4.48	7.0	NJ
4.				
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW5223

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251402

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251402RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	4.3	JB
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	10	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW5223

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251402

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251402RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	3.2	J
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW5223

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251402

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251402RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	1.51	6.4	J
2. 60-29-7	ETHYL ETHER	1.88	3000	NJ
3.	UNKNOWN	2.69	13	J
4. 64-19-7	ACETIC ACID	4.50	9.7	NJ
5. 123-91-1	1,4-DIOXANE	4.61	6.7	NJ
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW5323

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251403

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251403RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	7.9	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	11	
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	1.2	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW5323

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251403

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251403RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	1.9	JB
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW5323

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251403

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251403RB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 7

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 60-29-7	ETHYL ETHER	1.88	13	NJ
2.	BRANCHED ALKANE	2.15	17	J
3. 75-65-0	2-PROPANOL, 2-METHYL-	2.69	8.4	J
4. 646-06-0	1,3-DIOXOLANE	3.68	7.6	NJ
5.	UNKNOWN	4.15	5.5	J
6. 64-19-7	ACETIC ACID	4.51	13	NJ
7. 123-91-1	1,4-DIOXANE	4.61	21	NJ
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGW54R-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247819

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247819B62

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	8.4	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	0.94	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGW54R-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247819

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247819B62

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGW54R-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247819

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247819B62

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW55-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247818

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247818B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW55-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247818

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247818B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW55-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247818

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247818B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	LABORATORY ARTIFACT	15.92	25	JB
2.	LABORATORY ARTIFACT	17.12	20	JB
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW5623

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251406

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251406DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	25	U
74-87-3	Chloromethane	25	U
75-01-4	Vinyl Chloride	25	U
74-83-9	Bromomethane	25	U
75-00-3	Chloroethane	25	U
75-69-4	Trichlorofluoromethane	25	U
75-35-4	1,1-Dichloroethene	25	U
75-15-0	Carbon disulfide	25	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	25	U
67-64-1	Acetone	63	U
75-09-2	Methylene Chloride	25	U
156-60-5	trans-1,2-Dichloroethene	25	U
1634-04-4	Methyl-tert-butyl ether	25	U
75-34-3	1,1-Dichloroethane	25	U
156-59-2	cis-1,2-Dichloroethene	25	U
78-93-3	2-butanone	63	U
67-66-3	Chloroform	25	U
71-55-6	1,1,1-Trichloroethane	25	U
56-23-5	Carbon Tetrachloride	25	U
71-43-2	Benzene	600	
107-06-2	1,2-Dichloroethane	25	U
79-01-6	Trichloroethene	25	U
78-87-5	1,2-Dichloropropane	25	U
75-27-4	Bromodichloromethane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
108-10-1	4-Methyl-2-pentanone	63	U
108-88-3	Toluene	25	U
10061-02-6	trans-1,3-Dichloropropene	25	U
79-00-5	1,1,2-Trichloroethane	25	U
127-18-4	Tetrachloroethene	25	U
591-78-6	2-hexanone	63	U
124-48-1	Dibromochloromethane	25	U
106-93-4	1,2-Dibromoethane	25	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW5623

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251406

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251406DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	25	U
100-41-4	Ethylbenzene	25	U
100-42-5	Styrene	25	U
75-25-2	Bromoform	25	U
98-82-8	Isopropyl Benzene	25	U
79-34-5	1,1,2,2-Tetrachloroethane	25	U
541-73-1	1,3-Dichlorobenzene	25	U
106-46-7	1,4-Dichlorobenzene	25	U
95-50-1	1,2-Dichlorobenzene	25	U
96-12-8	1,2-Dibromo-3-Chloropropane	25	U
120-82-1	1,2,4-Trichlorobenzene	25	U
1330-20-7	Xylene (total)	25	U
79-20-9	Methyl acetate	25	U
110-82-7	Cyclohexane	25	U
108-87-2	Methylcyclohexane	25	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWMW5623

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251406

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251406DB62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWFB01-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247808

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247808B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	10	J
75-09-2	Methylene Chloride	1.4	J
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.1	
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	1.2	J
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	1.5	J
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	1.0	J
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	9.6	
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	1.9	J
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWFB01-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247808

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247808B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	1.1	J
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	3.8	JB
1330-20-7	Xylene (total)	3.5	J
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWFB01-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247808

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247808B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/24/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWFB02-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249505

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249505B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	14	
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	1.6	J
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	4.2	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWFB02-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249505

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249505B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWFB02-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249505

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249505B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	LABORATORY ARTIFACT	15.95	6.4	JB
2.	LABORATORY ARTIFACT	17.14	33	JB
3.				
4.				
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWFB0323

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251416

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251416B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	21	
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	1.7	J
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	2.0	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWFB0323

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251416

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251416B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWFB0323

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251416

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251416B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 7446-09-5	SULFUR DIOXIDE	1.27	16	NJ
2.				
3.				
4.				
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWFB0423

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251417

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251417B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	7.8	J
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	1.7	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWFB0423

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251417

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251417B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWFB0423

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251417

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251417B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 7446-09-5	SULFUR DIOXIDE	1.27	9.1	NJ
2.				
3.				
4.				
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWTB01-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247814

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247814B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWTB01-23

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247814

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247814B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	4.2	JB
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWTB01-23

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 247814

Sample wt/vol: 5 (g/ml) ML Lab File ID: 247814B62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWTB02-27

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249504

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249504B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWTB02-27

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249504

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249504B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWTB02-27

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249504

Sample wt/vol: 5 (g/ml) ML Lab File ID: 249504B52

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: not dec. _____ Date Analyzed: 03/26/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	LABORATORY ARTIFACT	12.26	6.2	J
2.	LABORATORY ARTIFACT	15.92	38	JB
3.	LABORATORY ARTIFACT	17.11	47	JB
4.	LABORATORY ARTIFACT	18.28	6.4	JB
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWTB0323

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251419

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251419B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl Chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
75-15-0	Carbon disulfide	5.0	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5.0	U
67-64-1	Acetone	13	U
75-09-2	Methylene Chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl-tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
79-01-6	Trichloroethene	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWTB0323

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251419

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251419B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropyl Benzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-Chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
1330-20-7	Xylene (total)	5.0	U
79-20-9	Methyl acetate	5.0	U
110-82-7	Cyclohexane	5.0	U
108-87-2	Methylcyclohexane	5.0	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

ACSGWTB0323

Lab Name: COMPUCHEM Contract: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251419

Sample wt/vol: 5 (g/ml) ML Lab File ID: 251419B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/01/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW09R23MS

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 27395

Sample wt/vol: 5 (g/ml) ML Lab File ID: 27395B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	36	
74-87-3	Chloromethane	40	
75-01-4	Vinyl Chloride	45	
74-83-9	Bromomethane	37	
75-00-3	Chloroethane	78	
75-69-4	Trichlorofluoromethane	45	
75-35-4	1,1-Dichloroethene	46	
75-15-0	Carbon disulfide	49	
76-13-1	1,1,2-trichloro-1,2,2-triflu	44	
67-64-1	Acetone	120	
75-09-2	Methylene Chloride	49	
156-60-5	trans-1,2-Dichloroethene	45	
1634-04-4	Methyl-tert-butyl ether	47	
75-34-3	1,1-Dichloroethane	48	
156-59-2	cis-1,2-Dichloroethene	50	
78-93-3	2-butanone	110	
67-66-3	Chloroform	48	
71-55-6	1,1,1-Trichloroethane	42	
56-23-5	Carbon Tetrachloride	40	
71-43-2	Benzene	55	
107-06-2	1,2-Dichloroethane	52	
79-01-6	Trichloroethene	48	
78-87-5	1,2-Dichloropropane	52	
75-27-4	Bromodichloromethane	51	
10061-01-5	cis-1,3-Dichloropropene	47	
108-10-1	4-Methyl-2-pentanone	110	
108-88-3	Toluene	47	
10061-02-6	trans-1,3-Dichloropropene	46	
79-00-5	1,1,2-Trichloroethane	54	
127-18-4	Tetrachloroethene	40	
591-78-6	2-hexanone	110	
124-48-1	Dibromochloromethane	51	
106-93-4	1,2-Dibromoethane	51	

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW09R23MS

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 27395

Sample wt/vol: 5 (g/ml) ML Lab File ID: 27395B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	48	
100-41-4	Ethylbenzene	46	
100-42-5	Styrene	46	
75-25-2	Bromoform	49	
98-82-8	Isopropyl Benzene	44	
79-34-5	1,1,2,2-Tetrachloroethane	53	
541-73-1	1,3-Dichlorobenzene	45	
106-46-7	1,4-Dichlorobenzene	46	
95-50-1	1,2-Dichlorobenzene	47	
96-12-8	1,2-Dibromo-3-Chloropropane	51	
120-82-1	1,2,4-Trichlorobenzene	47	
1330-20-7	Xylene (total)	130	
79-20-9	Methyl acetate	55	
110-82-7	Cyclohexane	42	
108-87-2	Methylcyclohexane	38	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW09R23MSD

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 27396

Sample wt/vol: 5 (g/ml) ML Lab File ID: 27396B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	38	
74-87-3	Chloromethane	40	
75-01-4	Vinyl Chloride	46	
74-83-9	Bromomethane	42	
75-00-3	Chloroethane	72	
75-69-4	Trichlorofluoromethane	45	
75-35-4	1,1-Dichloroethene	44	
75-15-0	Carbon disulfide	47	
76-13-1	1,1,2-trichloro-1,2,2-triflu	43	
67-64-1	Acetone	110	
75-09-2	Methylene Chloride	49	
156-60-5	trans-1,2-Dichloroethene	45	
1634-04-4	Methyl-tert-butyl ether	49	
75-34-3	1,1-Dichloroethane	48	
156-59-2	cis-1,2-Dichloroethene	50	
78-93-3	2-butanone	110	
67-66-3	Chloroform	48	
71-55-6	1,1,1-Trichloroethane	42	
56-23-5	Carbon Tetrachloride	40	
71-43-2	Benzene	56	
107-06-2	1,2-Dichloroethane	52	
79-01-6	Trichloroethene	51	
78-87-5	1,2-Dichloropropane	51	
75-27-4	Bromodichloromethane	51	
10061-01-5	cis-1,3-Dichloropropene	48	
108-10-1	4-Methyl-2-pentanone	110	
108-88-3	Toluene	46	
10061-02-6	trans-1,3-Dichloropropene	47	
79-00-5	1,1,2-Trichloroethane	54	
127-18-4	Tetrachloroethene	41	
591-78-6	2-hexanone	110	
124-48-1	Dibromochloromethane	49	
106-93-4	1,2-Dibromoethane	51	

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW09R23MSD

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 27396

Sample wt/vol: 5 (g/ml) ML Lab File ID: 27396B62

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: not dec. _____ Date Analyzed: 04/02/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	48	
100-41-4	Ethylbenzene	44	
100-42-5	Styrene	47	
75-25-2	Bromoform	49	
98-82-8	Isopropyl Benzene	43	
79-34-5	1,1,2,2-Tetrachloroethane	51	
541-73-1	1,3-Dichlorobenzene	45	
106-46-7	1,4-Dichlorobenzene	44	
95-50-1	1,2-Dichlorobenzene	47	
96-12-8	1,2-Dibromo-3-Chloropropane	53	
120-82-1	1,2,4-Trichlorobenzene	47	
1330-20-7	Xylene (total)	140	
79-20-9	Methyl acetate	53	
110-82-7	Cyclohexane	41	
108-87-2	Methylcyclohexane	39	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW44-23MS

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 26919

Sample wt/vol: 5 (g/ml) ML Lab File ID: 26919RB62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	42	
74-87-3	Chloromethane	45	
75-01-4	Vinyl Chloride	46	
74-83-9	Bromomethane	50	
75-00-3	Chloroethane	49	
75-69-4	Trichlorofluoromethane	44	
75-35-4	1,1-Dichloroethene	46	
75-15-0	Carbon disulfide	52	
76-13-1	1,1,2-trichloro-1,2,2-triflu	47	
67-64-1	Acetone	140	
75-09-2	Methylene Chloride	51	
156-60-5	trans-1,2-Dichloroethene	48	
1634-04-4	Methyl-tert-butyl ether	53	
75-34-3	1,1-Dichloroethane	50	
156-59-2	cis-1,2-Dichloroethene	50	
78-93-3	2-butanone	140	
67-66-3	Chloroform	51	
71-55-6	1,1,1-Trichloroethane	47	
56-23-5	Carbon Tetrachloride	47	
71-43-2	Benzene	51	
107-06-2	1,2-Dichloroethane	53	
79-01-6	Trichloroethene	48	
78-87-5	1,2-Dichloropropane	53	
75-27-4	Bromodichloromethane	54	
10061-01-5	cis-1,3-Dichloropropene	51	
108-10-1	4-Methyl-2-pentanone	140	
108-88-3	Toluene	49	
10061-02-6	trans-1,3-Dichloropropene	52	
79-00-5	1,1,2-Trichloroethane	55	
127-18-4	Tetrachloroethene	44	
591-78-6	2-hexanone	140	
124-48-1	Dibromochloromethane	53	
106-93-4	1,2-Dibromoethane	53	

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW44-23MS

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 26919

Sample wt/vol: 5 (g/ml) ML Lab File ID: 26919RB62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	51	
100-41-4	Ethylbenzene	48	
100-42-5	Styrene	51	
75-25-2	Bromoform	52	
98-82-8	Isopropyl Benzene	48	
79-34-5	1,1,2,2-Tetrachloroethane	53	
541-73-1	1,3-Dichlorobenzene	48	
106-46-7	1,4-Dichlorobenzene	49	
95-50-1	1,2-Dichlorobenzene	50	
96-12-8	1,2-Dibromo-3-Chloropropane	52	
120-82-1	1,2,4-Trichlorobenzene	46	
1330-20-7	Xylene (total)	150	
79-20-9	Methyl acetate	52	
110-82-7	Cyclohexane	45	
108-87-2	Methylcyclohexane	42	

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW44-23MSD

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 26920

Sample wt/vol: 5 (g/ml) ML Lab File ID: 26920RB62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	44	
74-87-3	Chloromethane	44	
75-01-4	Vinyl Chloride	45	
74-83-9	Bromomethane	51	
75-00-3	Chloroethane	49	
75-69-4	Trichlorofluoromethane	44	
75-35-4	1,1-Dichloroethene	45	
75-15-0	Carbon disulfide	47	
76-13-1	1,1,2-trichloro-1,2,2-triflu	54	
67-64-1	Acetone	130	
75-09-2	Methylene Chloride	50	
156-60-5	trans-1,2-Dichloroethene	47	
1634-04-4	Methyl-tert-butyl ether	54	
75-34-3	1,1-Dichloroethane	49	
156-59-2	cis-1,2-Dichloroethene	50	
78-93-3	2-butanone	140	
67-66-3	Chloroform	50	
71-55-6	1,1,1-Trichloroethane	47	
56-23-5	Carbon Tetrachloride	47	
71-43-2	Benzene	48	
107-06-2	1,2-Dichloroethane	52	
79-01-6	Trichloroethene	45	
78-87-5	1,2-Dichloropropane	50	
75-27-4	Bromodichloromethane	52	
10061-01-5	cis-1,3-Dichloropropene	48	
108-10-1	4-Methyl-2-pentanone	130	
108-88-3	Toluene	45	
10061-02-6	trans-1,3-Dichloropropene	49	
79-00-5	1,1,2-Trichloroethane	53	
127-18-4	Tetrachloroethene	41	
591-78-6	2-hexanone	130	
124-48-1	Dibromochloromethane	50	
106-93-4	1,2-Dibromoethane	49	

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW44-23MSD

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix: (soil/water) WATER Lab Sample ID: 26920

Sample wt/vol: 5 (g/ml) ML Lab File ID: 26920RB62

Level: (low/med) LOW Date Received: 03/18/04

% Moisture: not dec. _____ Date Analyzed: 03/31/04

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-90-7	Chlorobenzene	45	
100-41-4	Ethylbenzene	43	
100-42-5	Styrene	44	
75-25-2	Bromoform	49	
98-82-8	Isopropyl Benzene	44	
79-34-5	1,1,2,2-Tetrachloroethane	49	
541-73-1	1,3-Dichlorobenzene	42	
106-46-7	1,4-Dichlorobenzene	43	
95-50-1	1,2-Dichlorobenzene	43	
96-12-8	1,2-Dibromo-3-Chloropropane	50	
120-82-1	1,2,4-Trichlorobenzene	42	
1330-20-7	Xylene (total)	130	
79-20-9	Methyl acetate	50	
110-82-7	Cyclohexane	45	
108-87-2	Methylcyclohexane	42	

LDC Report# 11826A1

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS-89

Collection Date: March 15 through March 19, 2004

LDC Report Date: April 29, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: CompuChem

Sample Delivery Group (SDG): 2478

Sample Identification

ACS-GW-MW12-23	ACS-GW-MW39-23
ACS-GW-MW12-23DL	ACS-GW-MW44-23MS
ACS-GW-MW11-23	ACS-GW-MW44-23MSD
ACS-GW-MW23-23	
ACS-GW-MW08-23	
ACS-GW-MW31-23	
ACS-GW-MW32-23	
ACS-GW-MW51-23	
ACS-GW-FB01-23	
ACS-GW-MW42-23	
ACS-GW-MW43-23	
ACS-GW-MW44-23	
ACS-GW-DUP01-23	
ACS-GW-MW45-23	
ACS-GW-TB01-23	
ACS-GW-MW30-23	
ACS-GW-MW33-23	
ACS-GW-MW37-23	
ACS-GW-MW55-23	
ACS-GW-MW54R-23	

Introduction

This data review covers 23 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

The review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
3/23/04	Acetone	28.34	ACS-GW-MW23-23 ACS-GW-MW08-23 ACS-GW-MW31-23 ACS-GW-MW32-23 ACS-GW-MW51-23 ACS-GW-FB01-23 ACS-GW-MW42-23 VBLKAP	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
VBLKJH	3/26/04	Laboratory artifact (15.92) Laboratory artifact (17.11) Laboratory artifact (18.28)	12 ug/L 44 ug/L 6.3 ug/L	ACS-GW-MW30-23 ACS-GW-MW33-23 ACS-GW-MW37-23 ACS-GW-MW55-23
VBLKFB	3/26/04	1,2,4-Trichlorobenzene	4.2 ug/L	ACS-GW-MW12-23DL ACS-GW-MW11-23 ACS-GW-DUP01-23 ACS-GW-TB01-23
VBLKAP	3/23/04	1,2,4-Trichlorobenzene	4.1 ug/L	ACS-GW-MW23-23 ACS-GW-MW08-23 ACS-GW-MW31-23 ACS-GW-MW32-23 ACS-GW-MW51-23 ACS-GW-FB01-23 ACS-GW-MW42-23
VBLKDV	3/25/04	1,2,4-Trichlorobenzene	4.5 ug/L	ACS-GW-MW12-23 ACS-GW-MW44-23

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
ACS-GW-MW30-23	Laboratory artifact (15.92) Laboratory artifact (17.11)	17 ug/L 16 ug/L	17B ug/L 16B ug/L
ACS-GW-MW33-23	Laboratory artifact (15.94) Laboratory artifact (17.13)	22 ug/L 23 ug/L	22B ug/L 23B ug/L
ACS-GW-MW37-23	Laboratory artifact (15.91) Laboratory artifact (17.11)	23 ug/L 12 ug/L	23B ug/L 12B ug/L
ACS-GW-MW55-23	Laboratory artifact (15.92) Laboratory artifact (17.12)	25 ug/L 20 ug/L	25B ug/L 20B ug/L
ACS-GW-DUP01-23	1,2,4-Trichlorobenzene	4.0 ug/L	5.0UB ug/L

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
ACS-GW-MW11-23	1,2,4-Trichlorobenzene	4.1 ug/L	5.0UB ug/L
ACS-GW-MW12-23DL	1,2,4-Trichlorobenzene	6.8 ug/L	8.4UB ug/L
ACS-GW-TB01-23	1,2,4-Trichlorobenzene	4.2 ug/L	5.0UB ug/L
ACS-GW-FB01-23	1,2,4-Trichlorobenzene	3.8 ug/L	5.0UB ug/L
ACS-GW-MW08-23	1,2,4-Trichlorobenzene	4.0 ug/L	5.0UB ug/L
ACS-GW-MW23-23	1,2,4-Trichlorobenzene	3.9 ug/L	5.0UB ug/L
ACS-GW-MW31-23	1,2,4-Trichlorobenzene	3.9 ug/L	5.0UB ug/L
ACS-GW-MW32-23	1,2,4-Trichlorobenzene	3.9 ug/L	5.0UB ug/L
ACS-GW-MW42-23	1,2,4-Trichlorobenzene	3.9 ug/L	5.0UB ug/L
ACS-GW-MW12-23	1,2,4-Trichlorobenzene	4.5 ug/L	5.0UB ug/L
ACS-GW-MW44-23	1,2,4-Trichlorobenzene	4.1 ug/L	5.0UB ug/L

Sample ACS-GW-TB01-23 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
ACS-GW-TB01-23	3/17/04	1,2,4-Trichlorobenzene	4.2 ug/L	ACS-GW-MW12-23 ACS-GW-MW12-23DL ACS-GW-MW11-23 ACS-GW-MW23-23 ACS-GW-MW08-23 ACS-GW-MW31-23 ACS-GW-MW32-23 ACS-GW-MW51-23 ACS-GW-FB01-23 ACS-GW-MW42-23 ACS-GW-MW43-23 ACS-GW-MW44-23 ACS-GW-DUP01-23 ACS-GW-MW45-23

Sample ACS-GW-FB01-23 were identified as a field blank. No volatile contaminants were found in this blank with the following exceptions:

Field Blank ID	Sampling Date	Compound	Concentration	Associated Samples
ACS-GW-FB01-23	3/16/04	Methylene chloride Acetone cis-1,2-Dichloroethene 1,1,1-Trichloroethane Benzene Trichloroethene Toluene Tetrachloroethene 1,2,4-Trichlorobenzene	1.4 ug/L 10 ug/L 5.1 ug/L 1.2 ug/L 1.5 ug/L 1.0 ug/L 9.6 ug/L 1.9 ug/L 3.8 ug/L	ACS-GW-MW11-23 ACS-GW-MW23-23 ACS-GW-MW08-23 ACS-GW-MW31-23 ACS-GW-MW32-23 ACS-GW-MW51-23

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ACS-GW-MW12-23	1,2,4-Trichlorobenzene	4.5 ug/L	5.0UB ug/L
ACS-GW-MW12-23DL	1,2,4-Trichlorobenzene	6.8 ug/L	8.4UB ug/L
ACS-GW-MW11-23	1,2,4-Trichlorobenzene Methylene chloride cis-1,2-Dichloroethene 1,1,1-Trichloroethane Trichloroethene Tetrachloroethene	4.1 ug/L 0.80 ug/L 96 ug/L 1.3 ug/L 5.1 ug/L 7.8 ug/L	5.0UB ug/L 5.0UB ug/L 96B ug/L 5.0UB ug/L 5.1B ug/L 7.8UB ug/L
ACS-GW-MW23-23	1,2,4-Trichlorobenzene Acetone	3.9 ug/L 42 ug/L	5.0UB ug/L 42UB ug/L
ACS-GW-MW08-23	1,2,4-Trichlorobenzene Acetone	4.0 ug/L 39 ug/L	5.0UB ug/L 39UB ug/L
ACS-GW-MW31-23	1,2,4-Trichlorobenzene Acetone	3.9 ug/L 14 ug/L	5.0UB ug/L 14UB ug/L
ACS-GW-MW32-23	1,2,4-Trichlorobenzene Acetone Toluene	3.9 ug/L 5.1 ug/L 0.74 ug/L	5.0UB ug/L 13UB ug/L 5.0UB ug/L
ACS-GW-MW51-23	Acetone	8.0 ug/L	13UB ug/L
ACS-GW-FB01-23	1,2,4-Trichlorobenzene	3.8 ug/L	5.0UB ug/L

Sample	Compound	Reported Concentration	Modified Final Concentration
ACS-GW-MW42-23	1,2,4-Trichlorobenzene	3.9 ug/L	5.0UB ug/L
ACS-GW-MW44-23	1,2,4-Trichlorobenzene	4.1 ug/L	5.0UB ug/L
ACS-GW-DUP01-23	1,2,4-Trichlorobenzene	4.1 ug/L	5.0UB ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
ACS-GW-MW23-23	Bromofluorobenzene	127 (80-120)	All TCL compounds	J (all detects)	P
ACS-GW-MW11-23	Bromofluorobenzene	122 (80-120)	All TCL compounds	J (all detects)	P
ACS-GW-MW12-23DL	Bromofluorobenzene	123 (80-120)	All TCL compounds	J (all detects)	A
ACS-GW-DUP01-23	Bromofluorobenzene	128 (80-120)	All TCL compounds	J (all detects)	P
ACS-GW-MW55-23	Bromofluorobenzene	79 (80-120)	All TCL compounds	J (all detects) UJ (all non-detects)	P

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
ACS-GW-MW12-23	Acetone	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples ACS-GW-MW44-23 and ACS-GW-DUP01-23 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	ACS-GW-MW44-23	ACS-GW-DUP01-23	
1,2,4-Trichlorobenzene	4.1	4.0	2
Acetone	6.6	13U	200
2-Butanone	7.2	13U	200
Vinyl chloride	2.5	5.0U	200

ACS-89
Volatiles - Data Qualification Summary - SDG 2478

SDG	Sample	Compound	Flag	A or P	Reason
2478	ACS-GW-MW23-23 ACS-GW-MW08-23 ACS-GW-MW31-23 ACS-GW-MW32-23 ACS-GW-MW51-23 ACS-GW-FB01-23 ACS-GW-MW42-23	Acetone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
2478	ACS-GW-MW23-23 ACS-GW-MW11-23 ACS-GW-DUP01-23	All TCL compounds	J (all detects)	P	Surrogate recovery (%R)
2478	ACS-GW-MW12-23DL	All TCL compounds	J (all detects)	A	Surrogate recovery (%R)
2478	ACS-GW-MW55-23	All TCL compounds	J (all detects) UJ (all non-detects)	P	Surrogate recovery (%R)
2478	ACS-GW-MW12-23	Acetone	J (all detects)	A	Compound quantitation and CRQLs

ACS-89
Volatiles - Laboratory Blank Data Qualification Summary - SDG 2478

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
2478	ACS-GW-MW30-23	Laboratory artifact (15.92) Laboratory artifact (17.11)	17B ug/L 16B ug/L	A
2478	ACS-GW-MW33-23	Laboratory artifact (15.94) Laboratory artifact (17.13)	22B ug/L 23B ug/L	A
2478	ACS-GW-MW37-23	Laboratory artifact (15.91) Laboratory artifact (17.11)	23B ug/L 12B ug/L	A
2478	ACS-GW-MW55-23	Laboratory artifact (15.92) Laboratory artifact (17.12)	25B ug/L 20B ug/L	A
2478	ACS-GW-DUP01-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-MW11-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-MW12-23DL	1,2,4-Trichlorobenzene	8.4UB ug/L	A

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
2478	ACS-GW-TB01-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-FB01-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-MW08-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-MW23-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-MW31-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-MW32-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-MW42-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-MW12-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-MW44-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A

ACS-89
Volatiles - Field Blank Data Qualification Summary - SDG 2478

SDG	Sample	Compound	Modified Final Concentration	A or P
2478	ACS-GW-MW12-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-MW12-23DL	1,2,4-Trichlorobenzene	8.4UB ug/L	A
2478	ACS-GW-MW11-23	1,2,4-Trichlorobenzene Methylene chloride cis-1,2-Dichloroethene 1,1,1-Trichloroethane Trichloroethene Tetrachloroethene	5.0UB ug/L 5.0UB ug/L 96B ug/L 5.0UB ug/L 5.1B ug/L 7.8UB ug/L	A
2478	ACS-GW-MW23-23	1,2,4-Trichlorobenzene Acetone	5.0UB ug/L 42UB ug/L	A
2478	ACS-GW-MW08-23	1,2,4-Trichlorobenzene Acetone	5.0UB ug/L 39UB ug/L	A
2478	ACS-GW-MW31-23	1,2,4-Trichlorobenzene Acetone	5.0UB ug/L 14UB ug/L	A

SDG	Sample	Compound	Modified Final Concentration	A or P
2478	ACS-GW-MW32-23	1,2,4-Trichlorobenzene Acetone Toluene	5.0UB ug/L 13UB ug/L 5.0UB ug/L	A
2478	ACS-GW-MW51-23	Acetone	13UB ug/L	A
2478	ACS-GW-FB01-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-MW42-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-MW44-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A
2478	ACS-GW-DUP01-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A

LDC Report# 11826C1

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS-89

Collection Date: March 18 through March 19, 2004

LDC Report Date: April 29, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: CompuChem

Sample Delivery Group (SDG): 2495

Sample Identification

ACS-GW-MW17-23
ACS-GW-MW28-23
ACS-GW-MW15-23
ACS-GW-TB02-27
ACS-GW-FB02-23

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

The review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

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Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

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J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
VBLKJH	3/26/04	Laboratory artifact (15.92) Laboratory artifact (17.11) Laboratory artifact (18.28)	12 ug/L 44 ug/L 6.3 ug/L	All samples in SDG 2495

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
ACS-GW-FB02-23	Laboratory artifact (15.95) Laboratory artifact (17.14)	6.4 ug/L 33 ug/L	6.4B ug/L 33B ug/L
ACS-GW-MW15-23	Laboratory artifact (15.92) Laboratory artifact (17.12)	20 ug/L 24 ug/L	20B ug/L 24B ug/L
ACS-GW-MW17-23	Laboratory artifact (15.91) Laboratory artifact (17.11)	31 ug/L 32 ug/L	31B ug/L 32B ug/L
ACS-GW-MW28-23	Laboratory artifact (15.92) Laboratory artifact (17.11)	34 ug/L 34 ug/L	34B ug/L 34B ug/L
ACS-GW-TB02-27	Laboratory artifact (15.92) Laboratory artifact (17.11)	38 ug/L 47 ug/L	38B ug/L 47B ug/L

Sample ACS-GW-TB02-27 was identified as a trip blank. No volatile contaminants were found in this blank.

Sample ACS-GW-FB02-23 were identified as a field blank. No volatile contaminants were found in this blank with the following exceptions:

Field Blank ID	Sampling Date	Compound	Concentration	Associated Samples
ACS-GW-FB02-23	3/18/04	Acetone cis-1,2-Dichloroethene Toluene	14 ug/L 1.6 ug/L 4.2 ug/L	No associated samples in this SDG

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

ACS-89
Volatiles - Data Qualification Summary - SDG 2495

No Sample Data Qualified in this SDG

ACS-89
Volatiles - Laboratory Blank Data Qualification Summary - SDG 2495

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
2495	ACS-GW-FB02-23	Laboratory artifact (15.95) Laboratory artifact (17.14)	6.4B ug/L 33B ug/L	A
2495	ACS-GW-MW15-23	Laboratory artifact (15.92) Laboratory artifact (17.12)	20B ug/L 24B ug/L	A
2495	ACS-GW-MW17-23	Laboratory artifact (15.91) Laboratory artifact (17.11)	31B ug/L 32B ug/L	A
2495	ACS-GW-MW28-23	Laboratory artifact (15.92) Laboratory artifact (17.11)	34B ug/L 34B ug/L	A
2495	ACS-GW-TB02-27	Laboratory artifact (15.92) Laboratory artifact (17.11)	38B ug/L 47B ug/L	A

ACS-89
Volatiles - Field Blank Data Qualification Summary - SDG 2495

No Sample Data Qualified in this SDG

LDC Report# 11826D1

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS-89

Collection Date: March 22 through March 23, 2004

LDC Report Date: April 30, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: CompuChem

Sample Delivery Group (SDG): 2514

Sample Identification

ACS-GW-MW13-23
ACS-GW-MW52-23
ACS-GW-MW53-23
ACS-GW-DUP02-23
ACS-GW-MW10C-23
ACS-GW-MW56-23
ACS-GW-MW14-23
ACS-GW-MW34-23
ACS-GW-MW29-23
ACS-GW-MW09R-23
ACS-GW-DUP03-23
ACS-GW-MW19-23
ACS-GW-MW06-23
ACS-GW-MW06-23DL
ACS-GW-MW49-23
ACS-GW-MW49-23DL
ACS-GW-MW48-23
ACS-GW-MW48-23DL
ACS-GW-FB03-23
ACS-GW-FB04-23
ACS-GW-DUP04-23
ACS-GW-DUP04-23DL
ACS-GW-TB03-23
ACS-GW-MW09R-23MS
ACS-GW-MW09R-23MSD

Introduction

This data review covers 25 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

The review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all system performance check compounds (SPCCs) were within method criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/2/04	Bromomethane	43.97	ACS-GW-MW06-23DL ACS-GW-MW49-23DL ACS-GW-MW48-23DL ACS-GW-DUP04-23DL VBLKJO	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
VBLKHG	3/31/04	Bromomethane 1,2,4-Trichlorobenzene	4.6 ug/L 2.0 ug/L	ACS-GW-DUP03-23 ACS-GW-MW19-23 ACS-GW-MW06-23

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
ACS-GW-MW19-23	Bromomethane	4.3 ug/L	5.0UB ug/L
ACS-GW-MW06-23	1,2,4-Trichlorobenzene	1.9 ug/L	5.0UB ug/L

Sample ACS-GW-TB03-23 was identified as a trip blank. No volatile contaminants were found in this blank.

Samples ACS-GW-FB03-23 and ACS-GW-FB04-23 were identified as field blanks. No volatile contaminants were found in these blanks with the following exceptions:

Field Blank ID	Sampling Date	Compound	Concentration	Associated Samples
ACS-GW-FB03-23	3/23/04	Acetone Benzene Toluene	21 ug/L 1.7 ug/L 2.0 ug/L	ACS-GW-MW19-23 ACS-GW-MW06-23 ACS-GW-MW06-23DL ACS-GW-MW49-23 ACS-GW-MW49-23DL ACS-GW-MW48-23 ACS-GW-MW48-23DL ACS-GW-DUP04-23 ACS-GW-DUP04-23DL

Field Blank ID	Sampling Date	Compound	Concentration	Associated Samples
ACS-GW-FB04-23	3/23/04	Acetone Toluene	7.8 ug/L 1.7 ug/L	ACS-GW-MW19-23 ACS-GW-MW06-23 ACS-GW-MW06-23DL ACS-GW-MW49-23 ACS-GW-MW49-23DL ACS-GW-MW48-23 ACS-GW-MW48-23DL ACS-GW-DUP04-23 ACS-GW-DUP04-23DL

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ACS-GW-MW06-23	Acetone Benzene	5.9 ug/L 990 ug/L	13UB ug/L 990B ug/L
ACS-GW-MW06-23DL	Benzene	980 ug/L	980B ug/L
ACS-GW-MW19-23	Acetone Benzene	9.0 ug/L 1.7 ug/L	13UB ug/L 5.0UB ug/L
ACS-GW-MW48-23	Acetone Benzene Toluene	4.9 ug/L 790 ug/L 1.5 ug/L	5.0UB ug/L 790B ug/L 5.0UB ug/L
ACS-GW-MW48-23DL	Benzene	590 ug/L	590B ug/L
ACS-GW-MW49-23	Benzene	1100 ug/L	1100B ug/L
ACS-GW-MW49-23DL	Benzene	1100 ug/L	1100B ug/L
ACS-GW-DUP04-23	Benzene Toluene	840 ug/L 1.2 ug/L	840B ug/L 5.0UB ug/L
ACS-GW-DUP04-23DL	Benzene	720 ug/L	720B ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
ACS-GW-MW13-23	Bromofluorobenzene	132 (80-120)	All TCL compounds	J (all detects)	P
ACS-GW-MW52-23	Bromofluorobenzene	123 (80-120)	All TCL compounds	J (all detects)	P

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
ACS-GW-MW06-23 ACS-GW-MW49-23 ACS-GW-MW48-23 ACS-GW-DUP04-23	Benzene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples ACS-GW-MW13-23 and ACS-GW-DUP02-23, samples ACS-GW-MW09R-23 and ACS-GW-DUP03-23, samples ACS-GW-MW48-23 and ACS-GW-DUP04-23, and samples ACS-GW-MW48-23DL and ACS-GW-DUP04-23DL were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	ACS-GW-DUP02-23	ACS-GW-MW13-23	
Acetone	25	24	4
Toluene	1.1	2.0	58

Compound	Concentration (ug/L)		RPD
	ACS-GW-DUP03-23	ACS-GW-MW09R-23	
Chloroethane	26	22	17
Acetone	4.9	5.5	12
Benzene	9.7	8.3	16

Compound	Concentration (ug/L)		RPD
	ACS-GW-DUP04-23	ACS-GW-MW48-23	
Chloroethane	24	22	9
Benzene	840	790	6
Toluene	1.2	1.5	22

Compound	Concentration (ug/L)		RPD
	ACS-GW-MW48-23DL	ACS-GW-DUP04-23DL	
Chloroethane	18	18	0
Benzene	590	720	20

ACS-89
Volatiles - Data Qualification Summary - SDG 2514

SDG	Sample	Compound	Flag	A or P	Reason
2514	ACS-GW-MW06-23DL ACS-GW-MW49-23DL ACS-GW-MW48-23DL ACS-GW-DUP04-23DL	Bromomethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
2514	ACS-GW-MW13-23 ACS-GW-MW52-23	All TCL compounds	J (all detects)	P	Surrogate recovery (%R)
2514	ACS-GW-MW06-23 ACS-GW-MW49-23 ACS-GW-MW48-23 ACS-GW-DUP04-23	Benzene	J (all detects)	A	Compound quantitation and CRQLs

ACS-89
Volatiles - Laboratory Blank Data Qualification Summary - SDG 2514

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
2514	ACS-GW-MW19-23	Bromomethane	5.0UB ug/L	A
2514	ACS-GW-MW06-23	1,2,4-Trichlorobenzene	5.0UB ug/L	A

ACS-89
Volatiles - Field Blank Data Qualification Summary - SDG 2514

SDG	Sample	Compound	Modified Final Concentration	A or P
2514	ACS-GW-MW06-23	Acetone Benzene	13UB ug/L 990B ug/L	A
2514	ACS-GW-MW06-23DL	Benzene	980B ug/L	A
2514	ACS-GW-MW19-23	Acetone Benzene	13UB ug/L 5.0UB ug/L	A
2514	ACS-GW-MW48-23	Acetone Benzene Toluene	5.0UB ug/L 790B ug/L 5.0UB ug/L	A
2514	ACS-GW-MW48-23DL	Benzene	590B ug/L	A

SDG	Sample	Compound	Modified Final Concentration	A or P
2514	ACS-GW-MW49-23	Benzene	1100B ug/L	A
2514	ACS-GW-MW49-23DL	Benzene	1100B ug/L	A
2514	ACS-GW-DUP04-23	Benzene Toluene	840B ug/L 5.0UB ug/L	A
2514	ACS-GW-DUP04-23DL	Benzene	720B ug/L	A

DATA REPORTING QUALIFIERS

On the Form I, under the column labeled "Q" for qualifier, each result is flagged with the specific data reporting qualifiers listed below, as appropriate. Up to five qualifiers may be reported on Form I for each compound. The qualifiers used are:

U : This flag indicates the compound was analyzed for but not detected. The Contract Required Quantitation Limit (CRQL), or reporting limit, will be adjusted to reflect any dilution and, for soils, the percent moisture.

J : This flag indicates an estimated value. The flag is used as detailed below:

1. When estimating a concentration for tentatively identified compounds (TICs) where a response factor of 1.0 is assumed for the TIC analyte,

2. When the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the CRQL (or Reporting Limit) but greater than zero, and

3. When the retention time data indicate the presence of a compound that meets the pesticide/Aroclor or other GC or HPLC identification criteria, and the result is less than the CRQL (or Reporting Limit) but greater than zero. For example, if the CRQL (or Reporting Limit) is 10 µg/L, but a concentration of 3 µg/L is calculated, it is reported as 3J.

N : This flag indicates presumptive evidence of a compound. This flag is only used for TICs, where the identification is based on a mass spectral library search. For generic characterization of a TIC such as 'chlorinated hydrocarbon', the N flag is not used.

P : In the EPA's Contract Laboratory Program (CLP), this flag is used for a pesticide/Aroclor target analyte, when there is greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on Form I and flagged with a P.
For SW-846 GC and HPLC analyses, when the Relative Percent Difference (RPD) is greater than 40% and there is no evidence of chromatographic anomalies or interferences, then the higher of the two values is reported and flagged with a P. When the RPD is equal to or less than 40%, our policy is to also report the higher of the two values, although the choice could be a project specific issue.

DATA REPORTING QUALIFIERS (continued)

C : This flag applies to GC or HPLC results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, this flag is not applied; a laboratory-defined flag is used instead (see the X/Y/Z qualifier.)

B : This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates probable blank contamination and warns the data user to take appropriate action. This flag is used for a TIC as well as for a positively identified target compound. The combination of flags BU or UB is not an allowable policy. Blank contaminants are flagged B only when they are detected in the sample.

E : This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than the upper level of the calibration range, the sample or extract will be diluted and reanalyzed. All such compounds with a response greater than the upper level of the calibration range will have the concentration flagged with an E on Form I for the original analysis.

D : If a sample or extract is reanalyzed at a higher dilution factor, for example when the concentration of an analyte exceeds the upper calibration range, the DL suffix is appended to the sample number on Form I for the more diluted sample, and **all** reported concentrations on that Form I are flagged with the D flag. This flag alerts data users that any discrepancies between the reported concentrations may be due to dilution of the sample or extract.

NOTE 1: The D flag is not applied to compounds which are not detected in the sample analysis i.e. compounds reported with the CRQL (or Reporting Limit) and the U flag.

NOTE 2: Separate Form Is are used for reporting the original analysis (Client Sample No. XXXXX) and the more diluted sample analysis (Client Sample No. XXXXXDL) i.e. the results from both analyses are not combined on a single Form I.

A : This flag indicates that a TIC is a suspected aldol-condensation product.

X/Y/Z : Other specific flags may be required to properly define the results. If used, the flags will be fully described in the SDG Narrative. The laboratory-defined flags are limited to X, Y and Z.

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FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWFB02-23

Lab Name: COMPUCHEM Method: 8270C

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249505

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 249505A64

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/04

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/23/04

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	Bis(2-chloroethyl)ether	10	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWDUP0323

Lab Name: COMPUCHEM Method: 8270C

Lab Code: COMPU Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251411

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 251411A64

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/25/04

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/31/04

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4--------	Bis(2-chloroethyl)ether_____	5.9	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW0623

Lab Name: COMPUCHEM Method: 8270C

Lab Code: COMPU Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251413

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 251413A64

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/25/04

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/31/04

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	--------Bis(2-chloroethyl)ether_____	12	_____

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW1923

Lab Name: COMPUCHEM Method: 8270C

Lab Code: COMPU Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251412

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 251412A64

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/25/04

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/31/04

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	--------Bis(2-chloroethyl)ether_____	12	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW09R23

Lab Name: COMPUCHEM Method: 8270C

Lab Code: COMPU Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251410

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 251410A64

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/25/04

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/31/04

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4--------	Bis(2-chloroethyl)ether_____	7.8	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW09R23MS

Lab Name: COMPUCHEM Method: 8270C

Lab Code: COMPU Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 27449

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 27449A64

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/25/04

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/31/04

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	--------Bis(2-chloroethyl)ether_____	55	_____

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW09R23MSD

Lab Name: COMPUCHEM Method: 8270C

Lab Code: COMPU Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 27450

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 27450A64

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/25/04

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/31/04

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	--------Bis(2-chloroethyl)ether_____	53	_____

LDC Report# 11826C2

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	ACS-89
Collection Date:	March 18, 2004
LDC Report Date:	April 29, 2004
Matrix:	Water
Parameters:	Bis-2-chloroethyl ether
Validation Level:	EPA Level IV
Laboratory:	CompuChem
Sample Delivery Group (SDG):	2495

Sample Identification

ACS-GW-FB02-23

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Bis-2-chloroethyl ether.

The review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all bis-2-chloroethyl ether system performance check compounds (SPCCs) were greater than or equal to 0.05 as required.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

All of the continuing calibration RRF values for system performance check compounds (SPCCs) were greater than or equal to 0.05 .

V. Blanks

Method blanks were reviewed for each matrix as applicable. No bis-2-chloroethyl ether contaminants were found in the method blanks.

Sample ACS-GW-FB02-23 was identified as a field blank. No bis-2-chloroethyl ether contaminants were found in this blank.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

ACS-89
Bis-2-chloroethyl ether - Data Qualification Summary - SDG 2495

No Sample Data Qualified in this SDG

ACS-89
Bis-2-chloroethyl ether - Laboratory Blank Data Qualification Summary - SDG 2495

No Sample Data Qualified in this SDG

ACS-89
Bis-2-chloroethyl ether - Field Blank Data Qualification Summary - SDG 2495

No Sample Data Qualified in this SDG

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWFB02-23

Lab Name: COMPUCHEM Method: 8270C

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix: (soil/water) WATER Lab Sample ID: 249505

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 249505A64

Level: (low/med) LOW Date Received: 03/22/04

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/22/04

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/23/04

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	Bis(2-chloroethyl)ether	10	U

4/30/04

10

LDC #: 11826C2
SDG #: 2495
Laboratory: CompuChem

VALIDATION COMPLETENESS WORKSHEET
Level IV

Date: 4/27/04
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS bis-2-Chloroetheyl ether (EPA SW 846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/18/04
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	no QC sample
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/CRQLs	A	
XIII.	Tentatively identified compounds (TICs)	N	not reported
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	FB = 1

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: water

1	ACS-GW-FB02-23	11	SBLKLE	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 11826C2
SDG #: 2495

VALIDATION FINDINGS CHECKLIST

Reviewer:
2nd Reviewer: AB

Method: Semivolatiles (EPA SW 846 Method 8270C)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were all percent relative standard deviations (%RSD) $\leq$ 30% and relative response factors (RRF) $\geq$ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) $\leq$ 25% and relative response factors (RRF) $\geq$ 0.05?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Was a MS/MSD analyzed every 20 samples of each matrix?			✓	

LDC #: 118262
SDG #: 2495

VALIDATION FINDINGS CHECKLIST

Reviewer: EZ
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds from the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?			✓	
Did compound spectra meet specified EPA "Functional Guidelines" criteria?			✓	
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?			✓	
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			✓	
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

LDC #: 18262
SDG #: 2495

VALIDATION FINDINGS CHECKLIST

Reviewer:
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓	✓		
Target compounds were detected in the field duplicates.			✓	
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

A. Phenol**	P. Bis(2-chloroethoxy)methane	EE. 2,6-Dinitrotoluene	TT. Pentachlorophenol**	III. Benzo(a)pyrene**
B. Bis (2-chloroethyl) ether	Q. 2,4-Dichlorophenol**	FF. 3-Nitroaniline	UU. Phenanthrene	JJJ. Indeno(1,2,3-cd)pyrene
C. 2-Chlorophenol	R. 1,2,4-Trichlorobenzene	GG. Acenaphthene**	VV. Anthracene	KKK. Dibenz(a,h)anthracene
D. 1,3-Dichlorobenzene	S. Naphthalene	HH. 2,4-Dinitrophenol*	WW. Carbazole	LLL. Benzo(g,h,i)perylene
E. 1,4-Dichlorobenzene**	T. 4-Chloroaniline	II. 4-Nitrophenol*	XX. Di-n-butylphthalate	MMM. Bis(2-Chloroisopropyl)ether
F. 1,2-Dichlorobenzene	U. Hexachlorobutadiene**	JJ. Dibenzofuran	YY. Fluoranthene**	NNN. Aniline
G. 2-Methylphenol	V. 4-Chloro-3-methylphenol**	KK. 2,4-Dinitrotoluene	ZZ. Pyrene	OOO. N-Nitrosodimethylamine
H. 2,2'-Oxybis(1-chloropropane)	W. 2-Methylnaphthalene	LL. Diethylphthalate	AAA. Butylbenzylphthalate	PPP. Benzoic Acid
I. 4-Methylphenol	X. Hexachlorocyclopentadiene*	MM. 4-Chlorophenyl-phenyl ether	BBB. 3,3'-Dichlorobenzidine	QQQ. Benzyl alcohol
J. N-Nitroso-di-n-propylamine*	Y. 2,4,6-Trichlorophenol**	NN. Fluorene	CCC. Benzo(a)anthracene	RRR. Pyridine
K. Hexachloroethane	Z. 2,4,5-Trichlorophenol	OO. 4-Nitroaniline	DDD. Chrysene	SSS. Benzidine
L. Nitrobenzene	AA. 2-Chloronaphthalene	PP. 4,6-Dinitro-2-methylphenol	EEE. Bis(2-ethylhexyl)phthalate	TTT.
M. Isophorone	BB. 2-Nitroaniline	QQ. N-Nitrosodiphenylamine (1)**	FFF. Di-n-octylphthalate**	UUU.
N. 2-Nitrophenol**	CC. Dimethylphthalate	RR. 4-Bromophenyl-phenylether	GGG. Benzo(b)fluoranthene	VVV.
O. 2,4-Dimethylphenol	DD. Acenaphthylene	SS. Hexachlorobenzene	HHH. Benzo(k)fluoranthene	WWW.

LDC #: 11826C2
SDG #: 2495

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard
S = Standard deviation of the RRFs, X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (80 std)	Recalculated RRF (80 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	8270 1CA	2/5/00	~~Phenol~~ B (1st internal standard)	1.004	1.004	0.955278	0.9553	3.035	3.035
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						
2			Phenol (1st internal standard)						
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						
3			Phenol (1st internal standard)						
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

INICLC.2S

LDC #: 11226C2
SDG #: 7495

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = Initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	8270 ICAL	2/5/00	~~Phenol~~ B (1st internal standard)	~~1.004~~	~~1.004~~	~~0.9552784~~	~~3.035~~	
			Naphthalene (2nd internal standard)	0.955	1.0151906	1.0151906	6.30	6.30
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					
2			Phenol (1st internal standard)					
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					
3			Phenol (1st internal standard)					
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 11826C2
SDG #: 2495

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: A
2nd reviewer: A

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	100	101.409	101	101	0
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 11826C2
SDG #: 2495

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA

Where: SSC = Spike concentration
SA = Spike added

RPD = I LCS - LCSD I * 2/(LCS + LCSD)

LCS = Laboratory control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: SLESLE

Compound	Spike Added (ug/L)		Spike Concentration ( )		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
~~Phenol~~ B	80	NA	75.71	NA	95	95	NA			
2-Chlorophenol										
1,4-Dichlorobenzene										
N-Nitroso-di-n-propylamine										
1,2,4-Trichlorobenzene										
4-Chloro-3-methylphenol										
Acenaphthene										
4-Nitrophenol										
2,4-Dinitrotoluene										
Pentachlorophenol										
Pyrene										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 11826 C2
SDG #: 2495

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: B
2nd reviewer: R

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example: all ND

Sample I.D. _____ . _____ :

Conc. = ( )( )( )( )( ) / ( )( )( )( )( )

=

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

RECALC.2S

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS-89

Collection Date: March 22 through March 23, 2004

LDC Report Date: April 29, 2004

Matrix: Water

Parameters: Bis-2-chloroethyl ether

Validation Level: EPA Level III

Laboratory: CompuChem

Sample Delivery Group (SDG): 2514

Sample Identification

ACS-GW-MW09R-23
ACS-GW-DUP03-23
ACS-GW-MW19-23
ACS-GW-MW06-23
ACS-GW-MW09R-23MS
ACS-GW-MW09R-23MSD

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Bis-2-chloroethyl ether.

The review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all bis-2-chloroethyl ether system performance check compounds (SPCCs) were greater than or equal to 0.05 as required.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

All of the continuing calibration RRF values for system performance check compounds (SPCCs) were greater than or equal to 0.05 .

V. Blanks

Method blanks were reviewed for each matrix as applicable. No bis-2-chloroethyl ether contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples ACS-GW-MW09R-23 and ACS-GW-DUP03-23 were identified as field duplicates. No bis-2-chloroethyl ether was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	ACS-GW-MW09R-23	ACS-GW-DUP03-23	
Bis(2-chloroethyl)ether	7.8	5.9	28

ACS-89
Bis-2-chloroethyl ether - Data Qualification Summary - SDG 2514

No Sample Data Qualified in this SDG

ACS-89
Bis-2-chloroethyl ether - Laboratory Blank Data Qualification Summary - SDG 2514

No Sample Data Qualified in this SDG

ACS-89
Bis-2-chloroethyl ether - Field Blank Data Qualification Summary - SDG 2514

No Sample Data Qualified in this SDG

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWDUP0323

Lab Name: COMPUCHEM Method: 8270C

Lab Code: COMPU Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251411

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 251411A64

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/25/04

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/31/04

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	Bis(2-chloroethyl)ether	5.9	J

9/30/04

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW0623

Lab Name: COMPUCHEM Method: 8270C

Lab Code: COMPU Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251413

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 251413A64

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/25/04

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/31/04

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	Bis(2-chloroethyl)ether	12	

9/30/04

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW09R23

Lab Name: COMPUCHEM Method: 8270C

Lab Code: COMPU Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251410

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 251410A64

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/25/04

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/31/04

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	Bis(2-chloroethyl)ether	7.8	J

FORM I SV 8270C

4/30/04

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACSGWMW1923

Lab Name: COMPUCHEM Method: 8270C

Lab Code: COMPU Case No.: SAS No.: SDG No.: 2514

Matrix: (soil/water) WATER Lab Sample ID: 251412

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 251412A64

Level: (low/med) LOW Date Received: 03/24/04

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/25/04

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/31/04

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	Bis(2-chloroethyl)ether	12	

FORM I SV 8270C

4/30/04

LDC #: 11826D2
SDG #: 2514
Laboratory: CompuChem

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 4/27/04
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS bis-2-Chloroetheyl ether (EPA SW 846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/22 – 3/23/04
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	A	
IV.	Continuing calibration	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 1+2
XVII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: water

1	ACS-GW-MW09R-23	11	SBLKLN	21		31	
2	ACS-GW-DUP03-23	12		22		32	
3	ACS-GW-MW19-23	13		23		33	
4	ACS-GW-MW06-23	14		24		34	
5	ACS-GW-MW09R-23MS	15		25		35	
6	ACS-GW-MW09R-23MSD	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

A. Phenol**	P. Bis(2-chloroethoxy)methane	EE. 2,6-Dinitrotoluene	TT. Pentachlorophenol**	III. Benzo(a)pyrene**
B. Bis (2-chloroethyl) ether	Q. 2,4-Dichlorophenol**	FF. 3-Nitroaniline	UU. Phenanthrene	JJJ. Indeno(1,2,3-cd)pyrene
C. 2-Chlorophenol	R. 1,2,4-Trichlorobenzene	GG. Acenaphthene**	VV. Anthracene	KKK. Dibenz(a,h)anthracene
D. 1,3-Dichlorobenzene	S. Naphthalene	HH. 2,4-Dinitrophenol*	WW. Carbazole	LLL. Benzo(g,h,i)perylene
E. 1,4-Dichlorobenzene**	T. 4-Chloroaniline	II. 4-Nitrophenol*	XX. Di-n-butylphthalate	MMM. Bis(2-Chloroisopropyl)ether
F. 1,2-Dichlorobenzene	U. Hexachlorobutadiene**	JJ. Dibenzofuran	YY. Fluoranthene**	NNN. Aniline
G. 2-Methylphenol	V. 4-Chloro-3-methylphenol**	KK. 2,4-Dinitrotoluene	ZZ. Pyrene	OOO. N-Nitrosodimethylamine
H. 2,2'-Oxybis(1-chloropropane)	W. 2-Methylnaphthalene	LL. Diethylphthalate	AAA. Butylbenzylphthalate	PPP. Benzoic Acid
I. 4-Methylphenol	X. Hexachlorocyclopentadiene*	MM. 4-Chlorophenyl-phenyl ether	BBB. 3,3'-Dichlorobenzidine	QQQ. Benzyl alcohol
J. N-Nitroso-di-n-propylamine*	Y. 2,4,6-Trichlorophenol**	NN. Fluorene	CCC. Benzo(a)anthracene	RRR. Pyridine
K. Hexachloroethane	Z. 2,4,5-Trichlorophenol	OO. 4-Nitroaniline	DDD. Chrysene	SSS. Benzidine
L. Nitrobenzene	AA. 2-Chloronaphthalene	PP. 4,6-Dinitro-2-methylphenol	EEE. Bis(2-ethylhexyl)phthalate	TTT.
M. Isophorone	BB. 2-Nitroaniline	QQ. N-Nitrosodiphenylamine (1)**	FFF. Di-n-octylphthalate**	UUU.
N. 2-Nitrophenol**	CC. Dimethylphthalate	RR. 4-Bromophenyl-phenylether	GGG. Benzo(b)fluoranthene	VVV.
O. 2,4-Dimethylphenol	DD. Acenaphthylene	SS. Hexachlorobenzene	HHH. Benzo(k)fluoranthene	WWW.

LDC #:_____
SDG #:_____

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds identified in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD
	1	2	
B	~~[illegible]~~ 7.8	5.9	~~[illegible]~~ 28

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

CompuChem
a Division of Liberty Analytical Corp.
501 Madison Avenue Cary, NC 27513

DATA REPORTING QUALIFIERS FOR INORGANICS

On Form I, under the column labeled "C" for concentration qualifier and "Q" for qualifier, each result is flagged with the specific data reporting qualifiers listed below, as appropriate. Up to five qualifiers may be reported on Form I for each analyte.

The C (concentration) qualifiers used are:

U: This flag indicates the analyte was analyzed for but not detected. This reported value was obtained from a reading that was less than the Instrument Detection Limit (IDL). The IDL will be adjusted to reflect any dilution and, for soils, the percent moisture.

B: This flag indicates the analyte was analyzed for and the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

The Q qualifiers used are:

E: This flag indicates an estimated value. This flag is used:

1. When the serial dilution (a five fold dilution for CLP and a five fold dilution for SW-846 method 6010B) results are not within 10%. The analyte concentration must be sufficiently high (minimally a factor of 50X above the IDL in the original sample).

N: This flag indicates the sample spike recovery is outside of control limits:

***:** This flag is used for duplicate analysis when the sample and the sample duplicate results are not within control limits.

The extensions: D, S, SD, L. A, added to the end of the client ID represent as follows:

D: matrix duplicate
S: matrix spike
SD: matrix spike duplicate
L: serial dilution
A: post digestion spike

Method Codes:

P: ICP PLASMA
CV: MERCURY COLD VAPOR AA
CA: MIDI-DISTILLATION SPECTROPHOTOMETRIC

SW846 METALS

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWMW0623

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix (soil/water): WATER Lab Sample ID: 251413

Level (low/med): LOW Date Received: 3/24/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	51.3			P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

SW846 METALS

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWMW15-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix (soil/water): WATER Lab Sample ID: 249503

Level (low/med): LOW Date Received: 3/22/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	34.7			P

Color Before: COLORLESS Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLOUDY Artifacts:

Comments:

SW846 METALS

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWMW43-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix (soil/water): WATER Lab Sample ID: 247810

Level (low/med): LOW Date Received: 3/18/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	22.3			P

Color Before: COLORLESS Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLOUDY Artifacts:

Comments:

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SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWMW44-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2479

Matrix (soil/water): WATER Lab Sample ID: 247901

Level (low/med): LOW Date Received: 3/18/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	21.2	U		P
7440-36-0	Antimony	2.1	U		P
7440-38-2	Arsenic	15.7			P
7440-39-3	Barium	168	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.20	U		P
7440-70-2	Calcium	143000			P
7440-47-3	Chromium	0.60	U		P
7440-48-4	Cobalt	4.4	B		P
7440-50-8	Copper	1.1	B		P
7439-89-6	Iron	2410			P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	55400			P
7439-96-5	Manganese	76.7			P
7439-97-6	Mercury	0.64	U		CV
7440-02-0	Nickel	4.2	B		P
7440-09-7	Potassium	740	B		P
7782-49-2	Selenium	5.3			P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	60000			P
7440-28-0	Thallium	3.2	U		P
7440-62-2	Vanadium	0.60	U		P
7440-66-6	Zinc	2.0	U		P
57-12-5	Cyanide	0.98	B		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: DISSOLVED

8

SW846 METALS

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWMW44-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix (soil/water): WATER Lab Sample ID: 247811

Level (low/med): LOW Date Received: 3/18/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	35.5	B		P
7440-36-0	Antimony	3.3	B		P
7440-38-2	Arsenic	8.8	B		P
7440-39-3	Barium	191	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.20	U		P
7440-70-2	Calcium	156000			P
7440-47-3	Chromium	5.8			P
7440-48-4	Cobalt	3.5	B		P
7440-50-8	Copper	2.3	B		P
7439-89-6	Iron	2860			P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	60300			P
7439-96-5	Manganese	85.7			P
7439-97-6	Mercury	0.64	U		CV
7440-02-0	Nickel	4.1	B		P
7440-09-7	Potassium	664	B		P
7782-49-2	Selenium	2.0	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	66000			P
7440-28-0	Thallium	3.2	U	N	P
7440-62-2	Vanadium	0.60	U		P
7440-66-6	Zinc	3.9	B		P
57-12-5	Cyanide	0.60	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

11

SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWDUP01-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix (soil/water): WATER Lab Sample ID: 247812

Level (low/med): LOW Date Received: 3/18/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	25.5	B		P
7440-36-0	Antimony	2.8	B		P
7440-38-2	Arsenic	9.0	B		P
7440-39-3	Barium	183	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.20	U		P
7440-70-2	Calcium	151000			P
7440-47-3	Chromium	4.4	B		P
7440-48-4	Cobalt	3.7	B		P
7440-50-8	Copper	1.4	B		P
7439-89-6	Iron	2730			P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	58200			P
7439-96-5	Manganese	82.5			P
7439-97-6	Mercury	0.64	U		CV
7440-02-0	Nickel	3.8	B		P
7440-09-7	Potassium	627	B		P
7782-49-2	Selenium	2.0	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	63100			P
7440-28-0	Thallium	3.2	U	N	P
7440-62-2	Vanadium	0.60	U		P
7440-66-6	Zinc	3.3	B		P
57-12-5	Cyanide	0.60	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWFB02-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix (soil/water): WATER Lab Sample ID: 249505

Level (low/med): LOW Date Received: 3/22/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	21.2	U		P
7440-36-0	Antimony	2.9	B		P
7440-38-2	Arsenic	2.1	U		P
7440-39-3	Barium	0.74	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.20	U		P
7440-70-2	Calcium	126	B		P
7440-47-3	Chromium	2.7	B		P
7440-48-4	Cobalt	2.0	B		P
7440-50-8	Copper	2.7	B		P
7439-89-6	Iron	27.7	B		P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	49.1	B		P
7439-96-5	Manganese	0.68	B		P
7439-97-6	Mercury	0.64	U		CV
7440-02-0	Nickel	1.5	B		P
7440-09-7	Potassium	30.3	U		P
7782-49-2	Selenium	2.0	U		P
7440-22-4	Silver	0.69	B		P
7440-23-5	Sodium	500	B		P
7440-28-0	Thallium	3.2	U		P
7440-62-2	Vanadium	0.60	U		P
7440-66-6	Zinc	4.1	B		P
57-12-5	Cyanide	1.3	B		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

MWH Americas, Inc.
175 West Jackson Blvd, Suite 1900
Chicago, IL 60604-2814
ATTN: Mr. Chad Smith

May 13, 2004

SUBJECT: ACS-89, Data Validation

Dear Mr. Smith,

Enclosed is the revised data validation report for the fraction listed below. Please replace the previously submitted report with the enclosed revised report.

SDG#	LDC#	Fraction
2478	11826A4	Metals

Please feel free to contact us if you have any questions.

Sincerely,

Erlinda T. Rauto
Operations Manager/Senior Chemist

V:\LOGIN\MWH\ACS\11826REV.wpd

Revision 1

LDC Report# 11826A4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS-89

Collection Date: March 17, 2004

LDC Report Date: May 13, 2004

Matrix: Water

Parameters: Metals

Validation Level: EPA Level III

Laboratory: CompuChem

Sample Delivery Group (SDG): 2478

Sample Identification

ACS-GW-MW43-23
ACS-GW-MW44-23
ACS-GW-DUP01-23
ACS-GW-MW44-23MS
ACS-GW-MW44-23MSD
ACS-GW-MW44-23DUP

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, and Zinc.

This review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore

qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

*III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Antimony Copper Sodium Zinc	2.654 ug/L 1.096 ug/L 346.872 ug/L 2.385 ug/L	ACS-GW-MW44-23 ACS-GW-DUP01-23
ICB/CCB	Aluminum Barium Beryllium Cadmium Magnesium Manganese	26.9 ug/L 0.4 ug/L 0.3 ug/L 0.5 ug/L 34.6 ug/L 0.4 ug/L	ACS-GW-MW44-23 ACS-GW-DUP01-23

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
ACS-GW-MW44-23	Aluminum	35.5 ug/L	35.5UB ug/L
	Antimony	3.3 ug/L	3.3UB ug/L
	Barium	191 ug/L	191B ug/L
	Copper	2.3 ug/L	2.3UB ug/L
	Magnesium	60300 ug/L	60300B ug/L
	Manganese	85.7 ug/L	85.7B ug/L
	Sodium	66000 ug/L	66000B ug/L
	Zinc	3.9 ug/L	3.9UB ug/L
ACS-GW-DUP01-23	Aluminum	25.5 ug/L	25.5UB ug/L
	Antimony	2.8 ug/L	2.8UB ug/L
	Barium	183 ug/L	183B ug/L
	Copper	1.4 ug/L	1.4UB ug/L
	Magnesium	58200 ug/L	58200B ug/L
	Manganese	82.5 ug/L	82.5B ug/L
	Sodium	63100 ug/L	63100B ug/L
	Zinc	3.3 ug/L	3.3UB ug/L

Sample ACS-GW-FB02-23 was identified as a field blank. No metal contaminants were found in this blank with the following exceptions:

Field Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
ACS-GW-FB02-23	3/18/04	Antimony	2.9 ug/L	ACS-GW-MW43-23
		Barium	0.74 ug/L	ACS-GW-MW44-23
		Calcium	126 ug/L	
		Chromium	2.7 ug/L	
		Cobalt	2.0 ug/L	
		Copper	2.7 ug/L	
		Iron	27.7 ug/L	
		Magnesium	49.1 ug/L	
		Manganese	0.68 ug/L	
		Nickel	1.5 ug/L	
		Silver	0.69 ug/L	
		Sodium	500 ug/L	
		Zinc	4.1 ug/L	

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
ACS-GW-MW43-23	Antimony	3.3 ug/L	3.3UB ug/L
	Barium	191 ug/L	191B ug/L
	Calcium	156000 ug/L	156000B ug/L
	Chromium	5.8 ug/L	5.8UB ug/L
	Cobalt	3.5 ug/L	3.5UB ug/L
	Copper	2.3 ug/L	2.3UB ug/L
	Iron	2860 ug/L	2860B ug/L
	Magnesium	60300 ug/L	60300B ug/L
	Manganese	85.7 ug/L	85.7B ug/L
	Nickel	4.1 ug/L	4.1UB ug/L
	Sodium	66000 ug/L	66000B ug/L
	Zinc	3.9 ug/L	3.9UB ug/L
ACS-GW-MW44-23	Antimony	2.8 ug/L	2.8UB ug/L
	Barium	183 ug/L	183B ug/L
	Calcium	151000 ug/L	151000B ug/L
	Chromium	4.4 ug/L	4.4UB ug/L
	Cobalt	3.7 ug/L	3.7UB ug/L
	Copper	1.4 ug/L	1.4UB ug/L
	Iron	2730 ug/L	2730B ug/L
	Magnesium	58200 ug/L	58200B ug/L
	Manganese	82.5 ug/L	82.5B ug/L
	Nickel	3.8 ug/L	3.8UB ug/L
	Sodium	63100 ug/L	63100B ug/L
	Zinc	3.3 ug/L	3.3UB ug/L

*Added field blank and qualified samples to this section.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
ACS-GW-MW44-23MS/MSD (ACS-GW-MW44-23 ACS-GW-DUP01-23)	Thallium	73.8 (75-125)	-	-	J (all detects) UJ (all non-detects)	A

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

Raw data were not reviewed for this SDG.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples ACS-GW-MW44-23 and ACS-GW-DUP01-23 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	ACS-GW-MW44-23	ACS-GW-DUP01-23	
Aluminum	35.5	25.5	33
Antimony	3.3	2.8	16
Arsenic	8.8	9.0	2
Barium	191	183	4

Analyte	Concentration (ug/L)		RPD
	ACS-GW-MW44-23	ACS-GW-DUP01-23	
Calcium	156000	151000	3
Chromium	5.8	4.4	27
Cobalt	3.5	3.7	6
Copper	2.3	1.4	49
Iron	2860	2730	5
Magnesium	60300	58200	4
Manganese	85.7	82.5	4
Nickel	4.1	3.8	8
Potassium	664	627	6
Sodium	66000	63100	4
Zinc	3.9	3.3	17

ACS-89
Metals - Data Qualification Summary - SDG 2478

No Sample Data Qualified in this SDG

ACS-89
Metals - Laboratory Blank Data Qualification Summary - SDG 2478

SDG	Sample	Analyte	Modified Final Concentration	A or P
2478	ACS-GW-MW44-23	Aluminum	35.5UB ug/L	A
		Antimony	3.3UB ug/L	
		Barium	191B ug/L	
		Copper	2.3UB ug/L	
		Magnesium	60300B ug/L	
		Manganese	85.7B ug/L	
		Sodium	66000B ug/L	
		Zinc	3.9UB ug/L	
2478	ACS-GW-DUP01-23	Aluminum	25.5UB ug/L	A
		Antimony	2.8UB ug/L	
		Barium	183B ug/L	
		Copper	1.4UB ug/L	
		Magnesium	58200B ug/L	
		Manganese	82.5B ug/L	
		Sodium	63100B ug/L	
		Zinc	3.3UB ug/L	

ACS-89
Metals - Field Blank Data Qualification Summary - SDG 2478

SDG	Sample	Analyte	Modified Final Concentration	A or P
2478	ACS-GW-MW43-23	Antimony	3.3UB ug/L	A
		Barium	191B ug/L	
		Calcium	156000B ug/L	
		Chromium	5.8UB ug/L	
		Cobalt	3.5UB ug/L	
		Copper	2.3UB ug/L	
		Iron	2860B ug/L	
		Magnesium	60300B ug/L	
		Manganese	85.7B ug/L	
		Nickel	4.1UB ug/L	
		Sodium	66000B ug/L	
		Zinc	3.9UB ug/L	

SDG	Sample	Analyte	Modified Final Concentration	A or P
2478	ACS-GW-MW44-23	Antimony	2.8UB ug/L	A
		Barium	183B ug/L	
		Calcium	151000B ug/L	
		Chromium	4.4UB ug/L	
		Cobalt	3.7UB ug/L	
		Copper	1.4UB ug/L	
		Iron	2730B ug/L	
		Magnesium	58200B ug/L	
		Manganese	82.5B ug/L	
		Nickel	3.8UB ug/L	
		Sodium	63100B ug/L	
		Zinc	3.3UB ug/L	

SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWMW44-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix (soil/water): WATER Lab Sample ID: 247811

Level (low/med): LOW Date Received: 3/18/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	35.5	B		P	UB
7440-36-0	Antimony	3.3	B		P	UB
7440-38-2	Arsenic	8.8	B		P	
7440-39-3	Barium	191	B		P	~~U~~B
7440-41-7	Beryllium	0.20	U		P	
7440-43-9	Cadmium	0.20	U		P	
7440-70-2	Calcium	156000			P	B
7440-47-3	Chromium	5.8			P	UB
7440-48-4	Cobalt	3.5	B		P	UB
7440-50-8	Copper	2.3	B		P	UB
7439-89-6	Iron	2860			P	B
7439-92-1	Lead	1.3	U		P	
7439-95-4	Magnesium	60300			P	B
7439-96-5	Manganese	85.7			P	B
7439-97-6	Mercury	0.64	U		CV	
7440-02-0	Nickel	4.1	B		P	UB
7440-09-7	Potassium	664	B		P	
7782-49-2	Selenium	2.0	U		P	
7440-22-4	Silver	0.50	U		P	
7440-23-5	Sodium	66000			P	B
7440-28-0	Thallium	3.2	U	N	P	
7440-62-2	Vanadium	0.60	U		P	
7440-66-6	Zinc	3.9	B		P	UB
57-12-5	Cyanide	0.60	U		AS	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

11

9/20/04

SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWDUP01-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix (soil/water): WATER Lab Sample ID: 247812

Level (low/med): LOW Date Received: 3/18/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	25.5	B		P	UB
7440-36-0	Antimony	2.8	B		P	UB
7440-38-2	Arsenic	9.0	B		P	
7440-39-3	Barium	183	B		P	B
7440-41-7	Beryllium	0.20	U		P	
7440-43-9	Cadmium	0.20	U		P	
7440-70-2	Calcium	151000			P	B
7440-47-3	Chromium	4.4	B		P	UB
7440-48-4	Cobalt	3.7	B		P	UB
7440-50-8	Copper	1.4	B		P	UB
7439-89-6	Iron	2730			P	B
7439-92-1	Lead	1.3	U		P	
7439-95-4	Magnesium	58200			P	B
7439-96-5	Manganese	82.5			P	B
7439-97-6	Mercury	0.64	U		CV	
7440-02-0	Nickel	3.8	B		P	UB
7440-09-7	Potassium	627	B		P	
7782-49-2	Selenium	2.0	U		P	
7440-22-4	Silver	0.50	U		P	
7440-23-5	Sodium	63100			P	B
7440-28-0	Thallium	3.2	U	N	P	
7440-62-2	Vanadium	0.60	U		P	
7440-66-6	Zinc	3.3	B		P	UB
57-12-5	Cyanide	0.60	U		AS	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

9

4/30/04

SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWMW43-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix (soil/water): WATER Lab Sample ID: 247810

Level (low/med): LOW Date Received: 3/18/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	22.3			P

Color Before: COLORLESS Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLOUDY Artifacts:

Comments:

10

4/30/04

LDC #: 11826A4
SDG #: 2478
Laboratory: CompuChem

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 4/16/04
Page: 1 of 1
Reviewer: MM
2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6010B/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/17/04
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	SW	3 MS/MSD/Dup
VI.	Duplicate Sample Analysis	A	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	3 but [illegible]
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	(2, 3)
XIV.	Field Blanks	SW	FB=ACS-GW-FB02-23 (SDG 2495)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: All

1	ACS-GW-MW43-23	11		21		31	
2	ACS-GW-MW44-23	12		22		32	
3	ACS-GW-DUP01-23	13		23		33	
4	ACS-GW-MW44-23 MS	14		24		34	
5	↓ MSD	15		25		35	
6	Dup	16		26		36	
7	FB	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 11826A4
SDG #: 2478

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of 1
Reviewer: MH
2nd reviewer: [illegible]

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1	WA	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
2 & 3	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
4, 5 &		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
6	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
ICP Trace		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___

Comments: Mercury by CVAA if performed

"UB" count one with B.

LDC #: 11836A4
SDG #: 2478

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: MB
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000) Soil preparation factor applied:
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: ~~1~~ 2, 3

Analyte	Maximum PB* (mg/Kg)	Maximum PB* (ug/L)	Maximum ICB/CCB* (ug/L)	Blank Action Limit	Sample identification 2	3									
Al			26.9	134.5	25.5	25.5									Al
Sb		2.654		13.27	3.3	2.8									Sb
As															As
Ba			0.4	2.0	191 B	183 B									Ba
Be			0.3	1.5											Ba
Cd			0.5	2.5											Cd
Ca															Ca
Cr															Cr
Co															Co
Cu		1.096		5.48	2.3	1.4									Cu
Fe															Fe
Pb															Pb
Mg			34.6	173	60300 B	58200 B									Mg
Mn			0.4	2.0	84.7 B	82.5 B									Mn
Hg															Hg
Ni															Ni
K															K
Se															Se
Ag															Ag
Na		346.872		1734.36	66000 B	63100 B									Na
Tl															Tl
V															V
Zn		2.385		11.925	3.9	3.3									Zn
B															B
Mo															Mo
Sr															Sr

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. Those sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

BLNKSMP.4S2

LDC#: 11826B4
SDG #: 2498

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: MW
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)
(Y) N N/A Field blanks were identified in this SDG.
(Y) N N/A Were target analytes detected in the field blanks?
Blank units: ug/l **Associated sample units:** ug/l
Sampling date: 3/18/04 Soil factor applied _____
Field blank type: (circle one) (Field Blank) / Rinsate / Other: _____ Associated Samples: 1, 2

Analyte	Blank ID		Sample Identification									
	ACS-GW-FB02-23	Action Level	1	2								
Sb	2.9	14.5	3.3 uB	2.8 uB								
Ba	0.74	3.7	191 B	183 B								
Ca	126	630	156000 B	151000 B								
Cr	2.7	13.5	5.8 uB	4.4 uB								
Co	2.0	10.0	3.5 uB	3.7 uB								
Cu	2.7	13.5	2.3 uB	1.4 uB								
Fe	27.7	138.5	2860 B	2730 B								
Mg	49.1	245.5	60300 B	58200 B								
Mn	0.68	3.4	85.7 B	82.5 B								
Ni	1.5	7.5	4.1 uB	3.8 uB								
Ag	0.69	3.45										
Na	500	2500	66000 B	63100 B								
Zn	4.1	20.5	3.9 uB	3.3 uB								

ALL RESULTS WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

FBLKASC1.4S2

LDC #: 11826B4
SDG #: 2478

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: MD
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA SW 846 Method 6010/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1	415	AQ	TL	73.8			2,3	J/UJ/A

Comments:

MSD.4S2

LDC#: 11826A4
SDG#: 2478

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 6010B/7000)

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD	
	2	3		
Aluminum	35.5	25.5	33	
Antimony	3.3	2.8	16	
Arsenic	8.8	9.0	2	
Barium	191	183	4	
Calcium	156000	151000	3	
Chromium	5.8	4.4	27	
Cobalt	3.5	3.7	6	
Copper	2.3	1.4	49	
Iron	2860	2730	5	
Magnesium	60300	58200	4	
Manganese	85.7	82.5	4	
Nickel	4.1	3.8	8	
Potassium	664	627	6	
Sodium	66000	63100	4	
Zinc	3.9	3.3	17	

V:\FIELD DUPLICATES\FD_Inorganic\11826A4.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS-89

Collection Date: March 17, 2004

LDC Report Date: April 19, 2004

Matrix: Water

Parameters: Dissolved Metals

Validation Level: EPA Level IV

Laboratory: CompuChem

Sample Delivery Group (SDG): 2479

Sample Identification

ACS-GW-MW44-23

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 for Dissolved Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, and Zinc.

This review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Aluminum Copper	40.978 ug/L 1.468 ug/L	All samples in SDG 2479
ICB/CCB	Cadmium Thallium	0.2 ug/L 5.2 ug/L	All samples in SDG 2479

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
ACS-GW-MW44-23	Copper	1.1 ug/L	1.1UB ug/L

No field blanks were identified in this SDG.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

ACS-89
Dissolved Metals - Data Qualification Summary - SDG 2479

No Sample Data Qualified in this SDG

ACS-89
Dissolved Metals - Laboratory Blank Data Qualification Summary - SDG 2479

SDG	Sample	Analyte	Modified Final Concentration	A or P
2479	ACS-GW-MW44-23	Copper	1.1UB ug/L	A

ACS-89
Dissolved Metals - Field Blank Data Qualification Summary - SDG 2479

No Sample Data Qualified in this SDG

SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

11826B

EPA SAMPLE NO.

ACSGWMW44-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2479

Matrix (soil/water): WATER Lab Sample ID: 247901

Level (low/med): LOW Date Received: 3/18/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	21.2	U		P
7440-36-0	Antimony	2.1	U		P
7440-38-2	Arsenic	15.7			P
7440-39-3	Barium	168	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.20	U		P
7440-70-2	Calcium	143000			P
7440-47-3	Chromium	0.60	U		P
7440-48-4	Cobalt	4.4	B		P
7440-50-8	Copper	1.1	B	UB	P
7439-89-6	Iron	2410			P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	55400			P
7439-96-5	Manganese	76.7			P
7439-97-6	Mercury	0.64	U		CV
7440-02-0	Nickel	4.2	B		P
7440-09-7	Potassium	740	B		P
7782-49-2	Selenium	5.3			P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	60000			P
7440-28-0	Thallium	3.2	U		P
7440-62-2	Vanadium	0.60	U		P
7440-66-6	Zinc	2.0	U		P
57-12-5	Cyanide	0.98	B		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture: 4/30/04

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: DISSOLVED

8

LDC #: 11826B4
SDG #: 2479
Laboratory: CompuChem

VALIDATION COMPLETENESS WORKSHEET

Level ~~III~~ IV

Date: 4/16/04
Page: 1 of 1
Reviewer: MB
2nd Reviewer: N

METHOD: Dissolved Metals (EPA SW 846 Method 6010B/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/17/04
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	N	3 client specifics
VI.	Duplicate Sample Analysis	N	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	3 not analyzed
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	N	not required
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: NA

1	ACS-GW-MW44-23	11		21		31	
2	PB	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 11826 B4
SDG #: 2479

VALIDATION FINDINGS CHECKLIST

Page: 1 of 1
Reviewer: MB
2nd Reviewer: [illegible]

Method: Metals (EPA SW 846 Method 6010/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury and 85-115% for cyanide) QC limits?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
Was a midrange cyanide standard distilled?			✓	
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
IV. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
V. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.			✓	
VI. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			
VII. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients ≥ 0.995?			✓	
Do all applicable analysies have duplicate injections?			✓	

LDC #: 11836B4
SDG #: 2479

VALIDATION FINDINGS CHECKLIST

Page: 1 of 1
Reviewer: MR
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
For sample concentrations > RL, are applicable duplicate injection RSD values < 20%?			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	
VII. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the IDL?		✓		
Were all percent differences (%Ds) ≤ 10%?			✓	
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.			✓	
VIII. Internal Standards (EPA SW 846 Method 6020)				
Were all the percent recoveries (%R) within the 30-120% of the intensity of the internal standard in the associated initial calibration?			✓	
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XII. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XIII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 11826B4
SDG #: 2479

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of 1
Reviewer: MB
2nd reviewer: [illegible]

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1	AQ	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
ICP Trace		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___

Comments: Mercury by CVAA if performed

LDC #: 11826B4
SDG #: 2479

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

"UB"

Reviewer: MA
2nd Reviewer: A

METHOD: Trace Metals (EPA SW 846 Method 6010/7000) Soil preparation factor applied: _____
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

					Sample Identification										
Analyte	Maximum PB* (mg/Kg)	Maximum PB* (ug/L)	Maximum ICB/CCB* (ug/L)	Blank Action Limit	1										
Al		40.978		204.89											Al
Sb															Sb
As															As
Ba															Ba
Be															Be
Cd			0.2	1.0											Cd
Ca															Ca
Cr															Cr
Co															Co
Cu		1.468		7.34	1.1										Cu
Fe															Fe
Pb															Pb
Mg															Mg
Mn															Mn
Hg															Hg
Ni															Ni
K															K
Se															Se
Ag															Ag
Na															Na
Tl			5.2	26.0											Tl
V															V
Zn															Zn
B															B
Mo															Mo
Sr															Sr

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

BLNKSMP.4S2

LDC #: 11826B4
SDG #: 2479

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: MB
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration)	Cd	493.3	494	99.9	99.9	Y
	GFAA (Initial calibration)						
ICV	CVAA (Initial calibration)	Hg	3.812	4.1	93.0	92.9	Y
CCV	ICP (Continuing calibration)	Pb	969.49	1000	96.9	96.9	Y
	GFAA (Continuing calibration)						
CCV	CVAA (Continuing calibration)	Hg	4.927	5.0	98.5	98.6	Y
	Cyanide (Initial calibration)						
	Cyanide (Continuing calibation)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

CALCLC.4SW

LDC #: 11826B4
SDG #: 2479

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: MM
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recaluculated using the following formula:

$\%R = \frac{Found}{True} \times 100$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$

Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$

Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	Ba	481.0	475	101.3	101.3	Y
LCS	Laboratory control sample	Ag	1064.6	1000	106.5	106.5	↓
MS	Matrix spike		(SSR-SR)				
↓	Duplicate						
↓	ICP serial dilution						

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

TOTCLC.4SW

LDC #: 118264
SDG #: 2449

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: MV
2nd reviewer: A

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for 1 were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)(%S)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor
%S = Decimal percent solids

Recalculation:

From the raw data

Se = 5.347 ug/l

Sample ID	Analyte	Reported Concentration (ug/l)	Calculated Concentration (ug/l)	Acceptable (Y/N)
1	As	15.7	15.7	Y
	Ba	168	168	
	Ca	143000	143000	
	Co	4.4	4.4	
	Cu	1.1	1.1	
	Fe	2410	2410	
	Mg	55400	55400	
	Mn	76.7	76.7	
	Ni	4.2	4.2	
	K	740	740	
	Se	5.3	5.3	
	Na	60000	60000	

RECALC.4S2

LDC Report# 11826C4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS-89

Collection Date: March 18 through March 19, 2004

LDC Report Date: April 19, 2004

Matrix: Water

Parameters: Metals

Validation Level: EPA Level III

Laboratory: CompuChem

Sample Delivery Group (SDG): 2495

Sample Identification

ACS-GW-MW15-23
ACS-GW-FB02-23

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 7000 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, and Zinc.

This review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Aluminum	22.160 ug/L	ACS-GW-FB02-23
	Antimony	6.496 ug/L	
	Chromium	1.162 ug/L	
	Copper	2.984 ug/L	
	Iron	21.171 ug/L	
	Manganese	0.325 ug/L	
	Sodium	335.241 ug/L	
	Vanadium	0.618 ug/L	
	Zinc	2.678 ug/L	
ICB/CCB	Aluminum	29.5 ug/L	ACS-GW-FB02-23
	Cadmium	0.3 ug/L	
	Magnesium	29.8 ug/L	
	Thallium	5.5 ug/L	

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
ACS-GW-FB02-23	Antimony	2.9 ug/L	2.9UB ug/L
	Chromium	2.7 ug/L	2.7UB ug/L
	Copper	2.7 ug/L	2.7UB ug/L
	Iron	27.7 ug/L	27.7UB ug/L
	Magnesium	49.1 ug/L	49.1UB ug/L
	Manganese	0.68 ug/L	0.68UB ug/L
	Sodium	500 ug/L	500UB ug/L
	Zinc	4.1 ug/L	4.1UB ug/L

Sample ACS-GW-FB02-23 was identified as a field blank. No metal contaminants were found in this blank with the following exceptions:

Field Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
ACS-GW-FB02-23	3/18/04	Antimony	2.9 ug/L	No associated samples in this SDG
		Barium	0.74 ug/L	
		Calcium	126 ug/L	
		Chromium	2.7 ug/L	
		Cobalt	2.0 ug/L	
		Copper	2.7 ug/L	
		Iron	27.7 ug/L	
		Magnesium	49.1 ug/L	
		Manganese	0.68 ug/L	
		Nickel	1.5 ug/L	
		Silver	0.69 ug/L	
		Sodium	500 ug/L	
		Zinc	4.1 ug/L	

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

ACS-89
Metals - Data Qualification Summary - SDG 2495

No Sample Data Qualified in this SDG

ACS-89
Metals - Laboratory Blank Data Qualification Summary - SDG 2495

SDG	Sample	Analyte	Modified Final Concentration	A or P
2495	ACS-GW-FB02-23	Antimony	2.9UB ug/L	A
		Chromium	2.7UB ug/L	
		Copper	2.7UB ug/L	
		Iron	27.7UB ug/L	
		Magnesium	49.1UB ug/L	
		Manganese	0.68UB ug/L	
		Sodium	500UB ug/L	
		Zinc	4.1UB ug/L	

ACS-89
Metals - Field Blank Data Qualification Summary - SDG 2495

No Sample Data Qualified in this SDG

SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWFB02-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix (soil/water): WATER Lab Sample ID: 249505

Level (low/med): LOW Date Received: 3/22/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	21.2	U		P	
7440-36-0	Antimony	2.9	B		P	UB
7440-38-2	Arsenic	2.1	U		P	
7440-39-3	Barium	0.74	B		P	
7440-41-7	Beryllium	0.20	U		P	
7440-43-9	Cadmium	0.20	U		P	
7440-70-2	Calcium	126	B		P	
7440-47-3	Chromium	2.7	B		P	UB
7440-48-4	Cobalt	2.0	B		P	
7440-50-8	Copper	2.7	B		P	UB
7439-89-6	Iron	27.7	B		P	UB
7439-92-1	Lead	1.3	U		P	
7439-95-4	Magnesium	49.1	B		P	UB
7439-96-5	Manganese	0.68	B		P	UB
7439-97-6	Mercury	0.64	U		CV	
7440-02-0	Nickel	1.5	B		P	
7440-09-7	Potassium	30.3	U		P	
7782-49-2	Selenium	2.0	U		P	
7440-22-4	Silver	0.69	B		P	
7440-23-5	Sodium	500	B		P	UB
7440-28-0	Thallium	3.2	U		P	
7440-62-2	Vanadium	0.60	U		P	
7440-66-6	Zinc	4.1	B		P	UB
57-12-5	Cyanide	1.3	B		AS	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

4/20/04

SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWMW15-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix (soil/water): WATER Lab Sample ID: 249503

Level (low/med): LOW Date Received: 3/22/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	34.7			P

Color Before: COLORLESS Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLOUDY Artifacts:

Comments:

9/8/30/04

LDC #: 11826C4
SDG #: 2495
Laboratory: CompuChem

VALIDATION COMPLETENESS WORKSHEET

Level ~~III/IV~~ III

Date: 4/19/04
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6010B/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/18, 19/04
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	N	client specified
VI.	Duplicate Sample Analysis	N	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	not utilized
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	N	not required
XI.	Sample Result Verification	N	Not reviewed for Level III
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	SW	FB=2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: **Indicates sample underwent Level IV review

1	ACS-GW-MW15-23	11		21		31	
2	ACS-GW-FB02-23	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 11836C4
SDG #: 24495

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: MB
2nd reviewer: A

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1	Wa	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
2	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
ICP Trace		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___

Comments: Mercury by CVAA if performed

"UB"

LDC #: 11826C4
SDG #: 2495

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: MH
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/7000) Soil preparation factor applied: _____ 2
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: _____

					Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Blank Action Limit											
Al		22,160	29.5	147.5											Al
Sb		6.496		32.48	2.9										Sb
As															As
Ba															Ba
Be															Be
Cd			0.3	1.5											Cd
Ca															Ca
Cr		1,162		5.81	2.7										Cr
Co															Co
Cu		2.984		14.92	2.7										Cu
Fe		21,171		105.853	27.7										Fe
Pb															Pb
Mg			29.8	149	49.1										Mg
Mn		0.325		1.625	0.68										Mn
Hg															Hg
Ni															Ni
K															K
Se															Se
Ag															Ag
Na		335.241		1676.205	100										Na
Tl			5.5	27.5											Tl
V		0.618		3.09											V
Zn		2.678		13.39	4.1										Zn
B															B
Mo															Mo
Sr															Sr

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

BLNKSMP.4S2

LDC#: 11826C4
SDG #: 2495

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: MY
2nd Reviewer: J

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)
(Y) N N/A Field blanks were identified in this SDG.
(Y) N N/A Were target analytes detected in the field blanks?
Blank units: ug/l **Associated sample units:**
Sampling date: 3/18/04 Soil factor applied
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: none

Analyte	Blank ID		Sample Identification									
	2	Action Level										
Sb	2.9											
Ba	0.74											
Ca	126											
Cr	2.7											
Co	2.0											
Cu	2.7											
Fe	27.7											
Mg	49.1											
Mn	0.68											
Ni	1.5											
Ag	0.69											
Na	500											
Zn	4.1											

ALL RESULTS WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

FBLKASC1.4S2

LDC Report# 11826D4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS-89

Collection Date: March 23, 2004

LDC Report Date: April 19, 2004

Matrix: Water

Parameters: Arsenic

Validation Level: EPA Level III

Laboratory: CompuChem

Sample Delivery Group (SDG): 2514

Sample Identification

ACS-GW-MW06-23

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Arsenic.

This review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

No field blanks were identified in this SDG.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

ACS-89
Arsenic - Data Qualification Summary - SDG 2514

No Sample Data Qualified in this SDG

ACS-89
Arsenic - Laboratory Blank Data Qualification Summary - SDG 2514

No Sample Data Qualified in this SDG

ACS-89
Arsenic - Field Blank Data Qualification Summary - SDG 2514

No Sample Data Qualified in this SDG

SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWMW0623

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2514

Matrix (soil/water): WATER Lab Sample ID: 251413

Level (low/med): LOW Date Received: 3/24/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	51.3			P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

9/8/2004

LDC #: 11826D4
SDG #: 2514
Laboratory: CompuChem

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 4/19/-4
Page: 1 of 1
Reviewer: MM
2nd Reviewer: [illegible]

METHOD: arsenic (EPA SW 846 Method 6010B/~~2000~~)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/23/04
II.	Calibration	A	
III.	Blanks	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	N	3 client specified
VI.	Duplicate Sample Analysis	N	
VII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
VIII.	Internal Standard (ICP-MS)	N	not utilized
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	N	not required
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: AA

1	ACS-GW-MW06-23	11		21		31	
2	PB	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS-89

Collection Date: March 17, 2004

LDC Report Date: April 19, 2004

Matrix: Water

Parameters: Cyanide

Validation Level: EPA Level III

Laboratory: CompuChem

Sample Delivery Group (SDG): 2478

Sample Identification

ACS-GW-MW44-23
ACS-GW-DUP01-23
ACS-GW-MW44-23MS
ACS-GW-MW44-23MSD
ACS-GW-MW44-23DUP

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 9010B/9012A for Cyanide.

This review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No cyanide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples ACS-GW-MW44-23 and ACS-GW-DUP01-23 were identified as field duplicates. No cyanide was detected in any of the samples.

ACS-89
Cyanide - Data Qualification Summary - SDG 2478

No Sample Data Qualified in this SDG

ACS-89
Cyanide - Laboratory Blank Data Qualification Summary - SDG 2478

No Sample Data Qualified in this SDG

ACS-89
Cyanide - Field Blank Data Qualification Summary - SDG 2478

No Sample Data Qualified in this SDG

SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWMW44-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix (soil/water): WATER Lab Sample ID: 247811

Level (low/med): LOW Date Received: 3/18/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	35.5	B		P
7440-36-0	Antimony	3.3	B		P
7440-38-2	Arsenic	8.8	B		P
7440-39-3	Barium	191	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.20	U		P
7440-70-2	Calcium	156000			P
7440-47-3	Chromium	5.8			P
7440-48-4	Cobalt	3.5	B		P
7440-50-8	Copper	2.3	B		P
7439-89-6	Iron	2860			P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	60300			P
7439-96-5	Manganese	85.7			P
7439-97-6	Mercury	0.64	U		CV
7440-02-0	Nickel	4.1	B		P
7440-09-7	Potassium	664	B		P
7782-49-2	Selenium	2.0	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	66000			P
7440-28-0	Thallium	3.2	U	N	P
7440-62-2	Vanadium	0.60	U		P
7440-66-6	Zinc	3.9	B		P
57-12-5	Cyanide	0.60	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

11

4/30/04

SW846 METALS
-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
ACSGWDUP01-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2478

Matrix (soil/water): WATER Lab Sample ID: 247812

Level (low/med): LOW Date Received: 3/18/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	25.5	B		P
7440-36-0	Antimony	2.8	B		P
7440-38-2	Arsenic	9.0	B		P
7440-39-3	Barium	183	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.20	U		P
7440-70-2	Calcium	151000			P
7440-47-3	Chromium	4.4	B		P
7440-48-4	Cobalt	3.7	B		P
7440-50-8	Copper	1.4	B		P
7439-89-6	Iron	2730			P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	58200			P
7439-96-5	Manganese	82.5			P
7439-97-6	Mercury	0.64	U		CV
7440-02-0	Nickel	3.8	B		P
7440-09-7	Potassium	627	B		P
7782-49-2	Selenium	2.0	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	63100			P
7440-28-0	Thallium	3.2	U	N	P
7440-62-2	Vanadium	0.60	U		P
7440-66-6	Zinc	3.3	B		P
57-12-5	Cyanide	0.60	U		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

9

4/30/04

LDC #: 11826A6
SDG #: 2478
Laboratory: CompuChem

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 4/16/04
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Cyanide (EPA SW 846 Method 9010B/9012A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/17/04
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IV	Matrix Spike/Matrix Spike Duplicates	A	3 MS/MSD/Dup
V	Duplicates	A	
VI.	Laboratory control samples	A	LCS
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	(1,2)
X	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: A2

1	ACS-GW-MW44-23	11		21		31	
2	ACS-GW-DUP01-23	12		22		32	
3	ACS-GW-MW44-23 MS	13		23		33	
4	MSD	14		24		34	
5	Dup	15		25		35	
6	MB	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 11826B4
SDG #: 24178

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of 1
Reviewer: MW
2nd Reviewer: [illegible]

METHOD: Inorganics, Method 9010B

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a given method blank?

Y N N/A Were any inorganic contaminants detected above the reporting limit in the method blanks? If yes, please see qualifications below.

Conc. units: ug/l **Associated Samples:** All (NO)

Analyte	Blank ID	Maximum ICB/CCB	Blank Action Limit	Sample Identification								
	MB											
CN	5.927				No samples qualified							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC Report# 11826B6

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS-89

Collection Date: March 17, 2004

LDC Report Date: April 30, 2004

Matrix: Water

Parameters: Dissolved Cyanide

Validation Level: EPA Level IV

Laboratory: CompuChem

Sample Delivery Group (SDG): 2479

Sample Identification

ACS-GW-MW44-23

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 9010B/9012A for Dissolved Cyanide.

This review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No cyanide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

V. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VII. Sample Result Verification

All sample result verifications met validation criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

ACS-89
Dissolved Cyanide - Data Qualification Summary - SDG 2479

No Sample Data Qualified in this SDG

ACS-89
Dissolved Cyanide - Laboratory Blank Data Qualification Summary - SDG 2479

No Sample Data Qualified in this SDG

ACS-89
Dissolved Cyanide - Field Blank Data Qualification Summary - SDG 2479

No Sample Data Qualified in this SDG

SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

11826B

EPA SAMPLE NO.

ACSGWMW44-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2479

Matrix (soil/water): WATER Lab Sample ID: 247901

Level (low/med): LOW Date Received: 3/18/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
~~7429-90-5~~	~~Aluminum~~	~~21.2~~	~~U~~		~~P~~
7440-36-0	Antimony	2.1	U		P
7440-38-2	Arsenic	15.7			P
7440-39-3	Barium	168	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.20	U		P
7440-70-2	Calcium	143000			P
7440-47-3	Chromium	0.60	U		P
7440-48-4	Cobalt	4.4	B		P
7440-50-8	Copper	1.1	B		P
7439-89-6	Iron	2410			P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	55400			P
7439-96-5	Manganese	76.7			P
7439-97-6	Mercury	0.64	U		CV
7440-02-0	Nickel	4.2	B		P
7440-09-7	Potassium	740	B		P
7782-49-2	Selenium	5.3			P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	60000			P
7440-28-0	Thallium	3.2	U		P
7440-62-2	Vanadium	0.60	U		P
~~7440-66-6~~	~~Zinc~~	~~2.0~~	~~U~~		~~P~~
57-12-5	Cyanide	0.98	B		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments: DISSOLVED

8

4/30/04

LDC #: 11826B6
SDG #: 2479
Laboratory: CompuChem

VALIDATION COMPLETENESS WORKSHEET

Level ~~III~~ IV

Date: 4/16/04
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

Diss. Ind.

METHOD: Cyanide (EPA SW 846 Method 9010B/9012A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/17/04
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IV	Matrix Spike/Matrix Spike Duplicates	N	client specific
V	Duplicates	N	
VI.	Laboratory control samples	A	LCS
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	ACS-GW-MW44-23	11		21		31	
2	MB	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 11826B6
SDG #: 24179

VALIDATION FINDINGS CHECKLIST

Reviewer: MH
2nd Reviewer: [illegible]

Method: Inorganics (EPA Method see cover)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required?			✓	
Were balance checks performed as required?			✓	
~~Were all initial and continuing calibration verification %Rs within the 90-110% QC~~ limits?	✓			
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
IV. Matrix spike/Matrix spike duplicates and Duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL(≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.			✓	
V. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
VI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 18276B6
SDG #: 2479

VALIDATION FINDINGS CHECKLIST

Reviewer: 4th
2nd Reviewer: 4

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
X. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 11826B6
SDG #: 2479

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: MH
2nd Reviewer: [illegible]

METHOD: Inorganics, Method See cover

The correlation coefficient (r) for the calibration of CN was recalculated. Calibration date: 3/26/04

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found / True x 100 Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution
True = concentration of each analyte in the ICV or CCV source

Type of Analysis	Analyte		Conc. (ug/L) (units)	Area (units)	Recalculated r or %R	Reported r or %R	Acceptable (Y/N)
Initial calibration	CN	Blank	0	~~66128~~ 11576	r= 0.9999	r=0.9999	Y
Calibration verification		Standard 1	10	518083			
		Standard 2	20	927235			
		Standard 3	40	1740701			
		Standard 4	100	4103683			
		Standard 5	200	8471543			
		Standard 6	300	12494829			
		Standard 7	400	16612851			
Calibration verification CCV	CN	200	207.9		104	104	Y
Calibration verification							
Calibration verification							

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

CALCLC.6

LDC #: 11826B6
SDG #: 2479

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: MH
2nd Reviewer: A

METHOD: Inorganics, Method See cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	CN	109.7	99	110.8	110.8	Y
NB	Matrix spike sample		(SSR-SR)				
↓	Duplicate sample						

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

TOTCLC.6

LDC #: 11856B6
SDG #: 2479

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: MH
2nd reviewer: N

METHOD: Inorganics, Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for | reported with a positive detect were recalculated and verified using the following equation:

Concentration = Recalculation:

From the raw data
CN = 0.981 ug/l

#	Sample ID	Analyte	Reported Concentration (ug/l)	Calculated Concentration (ug/l)	Acceptable (Y/N)
1	1	CN	0.98	0.98	Y

Note:

RECALC.6

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS-89

Collection Date: March 18, 2004

LDC Report Date: April 30, 2004

Matrix: Water

Parameters: Cyanide

Validation Level: EPA Level III

Laboratory: CompuChem

Sample Delivery Group (SDG): 2495

Sample Identification

ACS-GW-FB02-23

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 9010B/9012A for Cyanide.

This review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No cyanide contaminants were found in the method blanks.

Sample ACS-GW-FB02-23 was identified as a field blank. No cyanide contaminants were found in this blank with the following exceptions:

Field Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
ACS-GW-FB02-23	3/18/04	Cyanide	1.3 ug/L	No associated samples in this SDG

IV. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

V. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

ACS-89
Cyanide - Data Qualification Summary - SDG 2495

No Sample Data Qualified in this SDG

ACS-89
Cyanide - Laboratory Blank Data Qualification Summary - SDG 2495

No Sample Data Qualified in this SDG

ACS-89
Cyanide - Field Blank Data Qualification Summary - SDG 2495

No Sample Data Qualified in this SDG

SW846 METALS

-1-

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ACSGWFB02-23

Lab Name: COMPUCHEM Contract:

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2495

Matrix (soil/water): WATER Lab Sample ID: 249505

Level (low/med): LOW Date Received: 3/22/04

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
~~7429-90-5~~	~~Aluminum~~	~~21.2~~	~~U~~		~~P~~
7440-36-0	Antimony	2.9	B		P
7440-38-2	Arsenic	2.1	U		P
7440-39-3	Barium	0.74	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.20	U		P
7440-70-2	Calcium	126	B		P
7440-47-3	Chromium	2.7	B		P
7440-48-4	Cobalt	2.0	B		P
7440-50-8	Copper	2.7	B		P
7439-89-6	Iron	27.7	B		P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	49.1	B		P
7439-96-5	Manganese	0.68	B		P
7439-97-6	Mercury	0.64	U		CV
7440-02-0	Nickel	1.5	B		P
7440-09-7	Potassium	30.3	U		P
7782-49-2	Selenium	2.0	U		P
7440-22-4	Silver	0.69	B		P
7440-23-5	Sodium	500	B		P
7440-28-0	Thallium	3.2	U		P
7440-62-2	Vanadium	0.60	U		P
~~7440-66-6~~	~~Zinc~~	~~4.1~~	~~B~~		~~P~~
57-12-5	Cyanide	1.3	B		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

4/30/04

LDC #: 11826C6
SDG #: 2495
Laboratory: CompuChem

VALIDATION COMPLETENESS WORKSHEET

Level ~~IV~~ III

Date: 4/19/04
Page: 1 of 1
Reviewer: MM
2nd Reviewer: A

METHOD: Cyanide (EPA SW 846 Method 9010B/9012A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/18/04
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IV	Matrix Spike/Matrix Spike Duplicates	N	? client specified
V	Duplicates	N	
VI.	Laboratory control samples	A	LCS
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X	Field blanks	SW	FB=1

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples:

1	ACS-GW-FB02-23	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 11826C6
SDG #: 2495

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: MH
2nd Reviewer: [illegible]

METHOD: Inorganics, EPA Method See cover

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target analytes detected in the field blanks?

Blank units: ug/L Associated sample units: _____
Sampling date: 3/18/04 Soil factor applied _____
Field blank type: (circle one) Field Blank / Rinsate / Other: _____ Associated Samples: none

Analyte	Blank ID	Blank Action Limit	Sample Identification									
	1											
CN	1.3											

Blank units: _____ Associated sample units: _____
Sampling date: _____ Soil factor applied _____
Field blank type: (circle one) Field Blank / Rinsate / Other: _____ Associated Samples: _____

Analyte	Blank ID	Blank Action Limit	Sample Identification									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

FBLKASC.6

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

LDC #11826
May 3, 2004

MWH Americas, Inc.
175 West Jackson Blvd, Suite 1900
Chicago, IL 60604-2814
ATTN: Mr. Chad Smith

SUBJECT: ACS-89, Data Validation

Dear Mr. Smith,

SUBJECT: Precision, Accuracy, Representativeness, Comparability, Completeness (PARCC) Summary Report for the ACS-89 Project

Enclosed is the Precision, Accuracy, Representativeness, Comparability, Completeness (PARCC) Summary Report for the ACS-89 project.

We appreciate this opportunity to support MWH Americas, Ic. in the performance of this project. Please feel free to call me at (760) 634-0437 if you have any questions.

Please feel free to contact us if you have any questions.

Sincerely,

ETRauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

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PRECISION, ACCURACY, REPRESENTATIVENESS, COMPARABILITY, COMPLETENESS SUMMARY REPORT

American Chemical Service

5/3/04

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Glossary

CRDL	Contract Required Detection Limit
CRQL	Contract Required Quantitation Limit
DQO	Data Quality Objectives
IDL	Instrument Detection Limit
LCS/LCSD	Laboratory Control Sample / Laboratory Control Sample Duplicate
mg/Kg	Milligrams per Kilogram
MS/MSD	Matrix Spike / Matrix Spike Duplicate
PARCC	Precision,Accuracy,Representativeness,Comparability, Completeness
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance / Quality Control
RPD	Relative Percent Difference
RRF	Relative Response Factor
RL	Reporting Limit
SDG	Sample Delivery Group
ug/Kg	Micrograms per Kilogram
ug/L	Micrograms per Liter
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
%D	Percent Difference
%R	Percent Recovery
%RSD	Percent Relative Standard Deviation

PRECISION, ACCURACY, REPRESENTATIVENESS, COMPARABILITY, COMPLETENESS SUMMARY REPORT
American Chemical Service

1.0 INTRODUCTION

Remedial design/ remedial action was conducted at the American Chemical Service, Inc. NPL Site in Griffith, Indiana. This part of the site investigation included the collection and analyses of 42 groundwater residential well samples and quality control (QC) samples. The analyses were performed by the following methods:

Volatile Organic Compounds by EPA SW 846 Method 8260B
Bis-2-chloroethyl ether by EPA SW 846 Method 8270C
Metals by EPA SW 846 Method 6010B/7470
Cyanide by EPA SW 846 Method 9010A

Analytical services were provided by Compuchem who performed analyses on the groundwater samples. The samples were grouped into sample delivery groups (SDGs) of up to 20 field samples received by the laboratory. The environmental samples are associated with QA/QC samples designed to document the data quality of the entire SDG or a sub-group of samples within an SDG. Table I in Appendix A is a cross-reference table listing each sample, analysis, SDG, collection date, laboratory sample number, and matrix. All shaded samples in Table I in Appendix A were reviewed under EPA Level 4 guidelines.

Approximately ten percent of the analytical data were validated according to EPA Level 4 data validation procedures and ninety percent of the analytical data were validated according to EPA Level 3 data validation procedures. The analytical data were evaluated for quality assurance and quality control (QA/QC) based on the following documents: *The Remedial Design/ Remedial Action PRP-Lead Project at the American Chemical Service, Inc. NPL Site, Griffith, Indiana Quality Assurance Project Plan,* November 2001, *Contract Laboratory Program National Functional Guidelines for Organic Data Review*, October 1999, and the *EPA SW 846 Third Edition, Test Methods for Evaluating Solid Waste.*

This report summarizes the QA/QC evaluation of the data according to precision, accuracy, representativeness, completeness, and comparability (PARCC) relative to the project data quality objectives (DQOs). This report provides a quantitative and qualitative assessment of the data and identifies potential sources of error, uncertainty, and bias that may affect the overall usability.

The PARCC summary report evaluates and summarizes the results of QA/QC data validation for the entire sampling program. Each analytical fraction has a separate section for each of the PARCC criteria. These sections interpret specific QC deviations and their effects on both individual data points and the analyses as a whole. Section 7 presents a summary of the PARCC criteria by comparing quantitative parameters with acceptability criteria defined in the project DQO's. Qualitative PARCC criteria are also summarized in this section.

Precision and Accuracy of Environmental Data

Environmental data quality depends on sample collection procedures, analytical methods and instrumentation, documentation, and sample matrix properties. Both sampling procedures and laboratory analyses contain potential sources of uncertainty, error, and/or bias, which affect the overall quality of a measurement. Errors in sample data may result from incomplete equipment

decontamination, inappropriate sampling techniques, sample heterogeneity, improper filtering, and improper preservation. The accuracy of analytical results is dependent on selecting appropriate analytical methods, maintaining equipment properly, and complying with QC requirements. The sample matrix also is an important factor in the ability to obtain precise and accurate results within a given media.

Environmental and laboratory QA/QC samples assess the effects of sampling procedures and evaluate laboratory contamination, laboratory performance, and matrix effects. QA/QC samples include: trip blanks, equipment rinsate blanks, field duplicates, method blanks, laboratory control samples (LCSs), surrogate spikes, matrix spike/matrix spike duplicates (MS/MSDs), and laboratory duplicates.

Before conducting the PARCC evaluation, the analytical data were validated according to the *Remedial Design/ Remedial Action PRP-Lead Project at the American Chemical Service, Inc. NPL Site, Griffith, Indiana Quality Assurance Project Plan,* November 2001, and the Functional Guidelines for Organic Data Review (USEPA 1999) and EPA SW 846 Third Edition, Test Methods for Evaluating Solid Waste. Samples not meeting the project procedures manual and the Functional Guideline acceptance criteria were qualified with a flag, an abbreviation indicating a deficiency with the data. The following are flags used in data validation.

J — Estimated The associated numerical value is an estimated quantity. The analyte was detected but the reported value may not be accurate or precise. The "J" qualification indicates the data fell outside the QC limits, but the exceedance was not sufficient to cause rejection of the data.

R — Rejected The data is unusable (the compound or analyte may or may not be present). Use of the "R" qualifier indicates a significant variance from functional guideline acceptance criteria. Either resampling or reanalysis is necessary to determine the presence or absence of the rejected analyte.

UB — Analyte was not detected at or above the indicated concentration due to blank contamination. The "UB" flag is used to qualify any result detected in an environmental sample at a concentration less than 10 times the value of the concentration in any associated blank for common laboratory contaminants and less than 5 times the concentration in any associated blank for all other contaminants

B — Analyte was positively detected in a sample and in an associated blank. The "B" flag is used to to qualify any result detected in an environmental sample at a concentration greater than 10 times the value of the concentration in any associated blank for common laboratory contaminants and greater than 5 times the concentration in any associated blank for all other contaminants

UJ — Estimated/Nondetected Analyses were performed for the compound or analyte, but it was not detected and the sample quantitation or detection limit is an estimated quantity due to poor accuracy or precision. This qualification is also used to flag possible false negative results in the case where low bias in the analytical system is indicated by low calibration response, surrogate, internal standard, or other spike recovery.

Once the data are reviewed and qualified according to the *Remedial Design/ Remedial Action PRP-Lead Project at the American Chemical Service, Inc. NPL Site, Griffith, Indiana Quality Assurance Project Plan,* November 2001 and the functional guidelines, the data set is then evaluated using PARCC criteria. PARCC criteria provide an evaluation of overall data usability. The following is a discussion of PARCC criteria as related to the project DQOs.

Precision is a measure of the agreement or reproducibility of analytical results under a given set of conditions. It is a quantity that cannot be measured directly but is calculated from percent recovery data. Precision is expressed as the relative percent difference (RPD):

$$RPD = (D1-D2)/\{1/2(D1+D2)\} \times 100$$

Where D1 and D2 are the reported concentrations for sample and duplicate analyses. Precision is primarily assessed by calculating an RPD from the percent recoveries of the spiked compounds for each sample in the MS/MSD pair. In the absence of an MS/MSD pair, a laboratory duplicate or LCS/LCSD pair can be analyzed as an alternative means of assessing precision. In some cases, samples from multiple SDGs were within one QC batch and therefore are associated with the same laboratory QC samples. An additional measure of sampling precision was obtained by collecting and analyzing field duplicate samples, which were compared using the RPD result as the evaluation criteria.

MS and MSD samples are field samples spiked by the laboratory with target analytes prior to preparation and analysis. These samples measure the overall efficiency of the analytical method in recovering target analytes from an environmental matrix. A LCS is similar to an MS/MSD sample in that the LCS is spiked with the same target analytes prior to preparation and analysis. However, the LCS is prepared using a controlled interference-free matrix instead of a field sample aliquot. Laboratory reagent water is used to prepare aqueous LCS. Non-aqueous LCSs are prepared using solid media approved by the American Society for Testing and Materials (ASTM) for their homogeneity. The LCS measures laboratory efficiency in recovering target analytes from either a solid or aqueous matrix in the absence of matrix interferences.

Laboratory and field sampling precision are further evaluated by calculating RPDs for aqueous field sample duplicate pairs. The sampler collects two field samples at the same location and under identically controlled conditions. The laboratory then analyzes the samples under identical conditions.

An RPD outside the numerical QC limit in either MS/MSD samples or LCS/LCSD indicates imprecision. Imprecision is the variance in the consistency with which the laboratory arrives at a particular reported result. Thus, the actual analyte concentration may be higher or lower than the reported result.

Possible causes of poor precision include sample matrix interference, improper sample collection or handling, inconsistent sample preparation, and poor instrument stability. In some duplicate pairs, results maybe reported in either the primary or duplicate samples at levels below the reporting limit or non-detected. Since these values are considered to be estimates, RPD exceedances from these duplicate pairs do not suggest a significant impact on the data quality.

Accuracy is a measure of the agreement of an experimental determination and the true value of the parameter being measured. It is used to identify bias in a given measurement system. Recoveries outside acceptable QC limits may be caused by factors such as instrumentation, analyst error, or matrix interference. Accuracy is assessed through the analysis of MS, MSD, LCS, and samples containing surrogate spikes. In some cases, samples from multiple SDGs were within one QC batch and therefore are associated with the same laboratory QC samples. Surrogate spikes are either isotopically labeled compounds or compounds that are not typically detected in the samples. Surrogate spikes are added to every blank, environmental sample, MS/MSD, and standard, for volatile organic (VOC) and bis-2-chloroethyl ether analyses.

Percent recovery (%R) is calculated using the following equation:

$$\%R = (A-B)/C \times 100$$

where:
A = measured concentration in the spiked sample
B = measured concentration of the spike compound in the unspiked sample
C = concentration of the spike

The percent recovery of each analyte spiked in MS/MSD samples, LCS, and surrogate compounds added to environmental samples is evaluated with the acceptance criteria specified by the previously noted documents. Spike recoveries outside the acceptable QC accuracy limits provide an indication of bias, where the reported data may overestimate or underestimate the actual concentration of compounds detected or quantitation limits reported for environmental samples.

Representativeness is a qualitative parameter that expresses the degree to which the sample data are characteristic of a population. It is evaluated by reviewing the QC results of blank samples and holding times. Positive detects of compounds in the blank samples identify compounds that may have been introduced into the samples during sample collection, transport, preparation, or analysis. The QA/QC blanks collected and analyzed are method blanks, field blanks and trip blanks.

A method blank is a laboratory grade water or solid matrix that contains the method reagents and has undergone the same preparation and analysis as the environmental samples. The method blank provides a measure of the combined contamination derived from the laboratory source water, glassware, instruments, reagents, and sample preparation steps. Method blanks are prepared for each sample of a similar matrix extracted by the same method at a similar concentration level.

Trip blanks are used to identify possible volatile organic contamination introduced into the sample during transport. A trip blank is a sample bottle filled in the laboratory with reagent-grade water and preserved to a pH less than 2 with hydrochloric acid. It is transported to the site, stored with the sample containers, and returned unopened to the laboratory for analysis.

Contaminants found in both the environmental sample and a blank sample are assumed to be laboratory artifacts if the concentration in the environmental sample is less than 10 times the blank value for common laboratory contaminants; methylene chloride, acetone and 2-butanone or 5 times the blank value for other laboratory contaminants.

Holding times are evaluated to assure that the sample integrity is intact for accurate sample preparation and analysis. Holding times will be specific for each method and matrix analyzed. Holding time exceedances can cause loss of sample constituents due to biodegradation, precipitation, volatization, and chemical degradation.

Comparability is a qualitative expression of the confidence with which one data set may be compared to another. It provides an assessment of the equivalence of the analytical results to data obtained from other analyses. It is important that data sets be comparable if they are used in conjunction with other data sets. The factors affecting comparability include the following: sample collection and handling techniques, matrix type, and analytical method. If these aspects of sampling and analysis are carried out according to standard analytical procedures, the data are considered comparable. Comparability is also dependent upon other PARCC criteria,

because only when precision, accuracy, and representativeness are known can data sets be compared with confidence.

Completeness is defined as the percentage of acceptable sample results compared to the total number of sample results. Completeness is evaluated to determine if an acceptable amount of usable data were obtained so that a valid scientific site assessment can be completed. Completeness equals the total number of sample results for each fraction minus the total number of rejected sample results divided by the total number of sample results multiplied by 100. As specified in the project DQOs, the goal for completeness for target analytes in each analytical fraction is 95 percent.

Percent completeness is calculated using the following equation:

$$\%C = (T - R)/T \times 100$$

where:
%C = percent completeness
T = total number of sample results
R = total number of rejected sample results

Completeness is also determined by comparing the planned number of samples per method and matrix as specified in the FSP or QAPP, with the number determined above.

The following sections present a review of QC data for each analytical method.

2.0 VOLATILE ORGANIC COMPOUNDS

A total of 42 groundwater water samples were analyzed for volatile organic compounds (VOC) by EPA SW 846 Method 8260B. All volatile data were assessed to be valid since none of the 2016 total results were rejected based on QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCC criteria and evaluated based on the DQOs.

2.1 Precision and Accuracy

2.1.1 Instrument Calibration

Initial and continuing calibration results provide a means of evaluating accuracy within a particular SDG. Relative response factor (RRF), percent relative standard deviation (%RSD), and percent difference (%D) are the three major parameters used to measure the effectiveness of instrument calibration. RRF is a measure of the relative spectral response of an analyte compared to its internal standard. %RSD is an expression of the linearity of instrument response. %D is a comparison of a continuing calibration instrumental response with its initial response. %RSD and %D exceedances suggest routine instrumental anomalies, which typically impact all sample results for the affected compounds.

The relative response factors for these compounds were above the criteria for acceptance of 0.05 in the initial calibration and/or the continuing calibration standards

Eleven VOC results were qualified detected estimated (J) and non-detected estimated (UJ). The percent difference between the initial calibration mean relative response factors and the continuing calibration relative response factors for acetone and bromomethane were outside the acceptance criteria of 25 percent. The affected samples are identified in the data validation reports.

2.1.2 Surrogates

Seventy two VOC results were qualified as detected estimated (J) and non-detected (UJ) in several samples. The surrogate percent recovery for bromoflourobenzene was outside the acceptance criteria. The details regarding the qualification of results are provided in the data validation reports.

2.1.3 MS/MSD Samples

No data were qualified based on MS/MSD nonconformances. For those SDGs with MS/MSD results, the recoveries were evaluated against the acceptance criteria.

2.1.4 LCS Samples

No data were qualified based on LCS nonconformances. For those SDGs with LCS results, the recoveries were evaluated against the acceptance criteria.

2.1.5 Internal Standards

No data were qualified based on internal standard nonconformances. The recoveries and retention times were evaluated against the acceptance criteria.

2.1.6 Field Duplicate Samples

The field duplicate samples were evaluated for acceptable precision with RPDs for the compounds. The associated data validation narratives provided details regarding criteria exceeded. Sample data were not qualified on the basis of field duplicate precision.

2.1.7 Compound Quantitation and Target Identification

Due to compound quantitation nonconformances (ie, sample result exceeded calibration range) acetone in sample ACS-GW-MW12-23 and benzene in samples ACS-GW-MW06-23, ACS-GW-MW49-23, ACS-GW-MW48-23 and ACS-GW-DUP04-23 were qualified as detected estimated (J). The details regarding the qualification of results are provided in the data validation reports.

All target identifications were found to be acceptable.

2.2 Representativeness

2.2.1 Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All holding times were met.

2.2.2 Blanks

Method blanks, field blanks and trip blanks were collected and analyzed to evaluate representativeness. The concentration for an individual target compounds in any of the three types of QA/QC blanks were used for data qualification.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation. The corrective action consisted of amending the

laboratory reported results for organic compounds based on the following criteria. The validation qualifier codes used in the blank summary tables are described below.

Results Below the RL If a sample result for the blank contaminant was less than the RL and less than 10 times the blank value for common contaminants or 5 times the blank value for other contaminants, the sample result was amended as a non-detected at the RL for the target compound and qualified with UB

Results Above the RL If a sample result for the blank contaminant was greater than the sample RL and less than 10 times the blank value for common contaminants or 5 times the blank value for other contaminants, the sample result for the blank contaminant was amended as a non-detect at the concentration reported in the sample results and qualified with UB.

If a sample result for the blank contaminant was greater than 10 times the blank value for common contaminants or 5 times the blank value for other contaminants, the result was not amended and qualified with B.

2.2.2.1 Method Blanks

As a result of method blank contamination, several compounds were qualified as non-detected (UB) or detected (B). The details regarding the qualification of results are provided in the data validation reports.

2.2.2.2 Trip Blanks

As a result of trip blank contamination,several compounds were qualified as non-detected (UB) or detected (B). The details regarding the qualification of results are provided in the data validation reports.

2.2.2.3 Field Blanks

As a result of field blank contamination, several compounds were qualified as non-detected (UB) or detected (B). The details regarding the qualification of results are provided in the data validation reports.

2.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the method detection limits attained were at or below the reporting limit. Target compounds detected below the reporting limits flagged (J) by the laboratory should be considered estimated. The comparability of the data is regarded as acceptable.

2.4 Completeness

The completeness level attained for volatile organic field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

3.0 Bis-2-chloroethyl ether

A total of five water samples were analyzed for bis-2-chloroethyl ether by EPA SW846 Method 8270C. All data were assessed to be valid since none of the 5 total results were rejected based

on QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCC criteria and evaluated based on the DQOs.

3.1 Precision and Accuracy

3.1.1 Instrument Calibration

As previously discussed in Section 2.1.1, initial and continuing calibration results provide a means of evaluating accuracy.

The relative response factors met the acceptance criteria of 0.05 in the initial and continuing calibration standards.

No data were qualified based on the relative standard deviation in the initial calibrations and/or percent difference between the initial calibration mean relative response factors and the continuing calibration relative response factors.

3.1.2 Surrogates

No data were qualified based on surrogate recovery nonconformances. In cases where individual recoveries exceeded criteria, the QC exceedance was judged to have no impact on the data quality and no qualifications were made.

3.1.3 MS/MSD Samples

No data were qualified based on MS/MSD nonconformances. For those SDGs with MS/MSD results, the recoveries were evaluated against the acceptance criteria.

3.1.4 LCS Samples

No data were qualified based on LCS nonconformances. For those SDGs with LCS results, the recoveries were evaluated against the acceptance criteria.

3.1.5 Internal Standards

No data were qualified based on internal standard nonconformances. The recoveries and retention times were evaluated against the acceptance criteria.

3.1.6 Field Duplicate Samples

The field duplicate samples were evaluated for acceptable precision with RPDs for the compounds. The associated data validation narratives provided details regarding criteria exceeded. Sample data were not qualified on the basis of field duplicate precision.

3.1.7 Compound Quantitation and Target Identification

All compound quantitation and target compound identifications were found to be acceptable.

3.2 Representativeness

3.2.1 Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All holding times were met.

3.2.2 Blanks

As previously discussed in Section 2.2.2, method blanks and field blanks were analyzed to evaluate representativeness.

3.2.2.1 Method Blanks

No QC issues were associated with the method blanks for this analysis.

3.2.2.2 Field Blanks

No QC issues were associated with the field blanks for this analysis.

3.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the method detection limits attained were at or below the reporting limit. Target compounds detected below the reporting limits flagged (J) by the laboratory should be considered estimated. The comparability of the data is regarded as acceptable.

3.4 Completeness

The completeness level attained for bis-2-choroethyl ether field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

4.0 METALS

A total of seven water samples were analyzed for metals by EPA SW 846 Method 6010B/7470. All metals data were assessed to be valid since none of the 168 total results were rejected based on QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCC criteria and evaluated based on the DQOs.

4.1 Precision and Accuracy

4.1.1 Instrument Calibration

Initial and continuing calibration verification results provide a means of evaluating accuracy within a particular SDG. Correlation coefficient (r) and percent recovery (%R) are the two major parameters used to measure the effectiveness of instrument calibration. The correlation coefficient indicates the linearity of the calibration curve. %R is used to verify the on going calibration acceptability of the analytical system. The most critical of the two calibration parameters, r, has the potential to affect data accuracy across an SDG when it is outside the acceptable QC limits. %R exceedances suggest more routine instrumental anomalies, which typically impact all sample results for the affected analytes.

The correlation coefficients in the initial calibrations and/or percent recoveries in the continuing calibration verifications were within the acceptance criteria of ≥ 0.995 and 90-110 percent, respectively.

4.1.2 MS Samples

No data were qualified based on MS nonconformances. For those SDGs with MS results, the recoveries were evaluated against the acceptance criteria.

4.1.3 Duplicate (DUP) Samples

No data were qualified based on duplicate nonconformances. For those SDGs with DUP results, the relative percent differences/differences were evaluated against the acceptance criteria. In cases where RPDs or differences exceeded criteria, the QC exceedance was judged to have no impact on the data quality and no qualifications were made.

4.1.4 LCS Samples

No data were qualified based on LCS nonconformances. For those SDGs with LCS results, the recoveries were evaluated against the acceptance criteria.

4.1.5 ICP Serial Dilution

No data were qualified based on ICP serial dilution nonconformances. For those SDGs with serial dilution results, the recoveries were evaluated against the acceptance criteria.

4.1.6 ICP Interference Check Sample

No data were qualified based on interference check sample nonconformances. All recoveries were evaluated against the acceptance criteria.

4.1.7 Field Duplicate Samples

The field duplicate samples were evaluated for acceptable precision with RPDs for the analytes. The associated data validation narratives provided details regarding criteria exceeded. Sample data were not qualified on the basis of field duplicate precision.

4.1.8 Sample Result Verification

All sample results were found to be acceptable.

4.2 Representativeness

4.2.1 Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All holding times were met.

4.2.2 Blanks

Method blanks and field blanks were collected and analyzed to evaluate representativeness. The concentration for an individual target compounds in any of the three types of QA/QC blanks were used for data qualification.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation. The corrective action consisted of amending the laboratory reported results for inorganic analytes based on the following criteria. The validation qualifier codes are described below.

Results Above and Below the RL If a sample result for the blank contaminant was less than or greater than the RL and less than 5 times the blank value, the sample result was amended as a non-detected for the target compound and qualified with UB

If a sample result for the blank contaminant was greater than 5 times the blank value, the result was not amended and qualified with B.

4.2.2.1 Method Blanks

As a result of method blank contamination, several analytes were qualified as non-detected estimated (UB) and detected estimated (B). The details regarding the qualification of results are provided in the data validation reports.

4.2.2.2 Field Blanks

No QC issues were associated with the field blanks for this analysis.

4.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the method detection limits attained were at or below the reporting limit. Target analytes detected below the reporting limits flagged (J) by the laboratory should be considered estimated. The comparability of the data is regarded as acceptable.

4.4 Completeness

The completeness level attained for metal field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

5.0 Cyanide

A total of four water samples were analyzed for cyanide by EPA SW 846 Method 9010A. All cyanide data were assessed to be valid since none of the four total results were rejected based on QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCC criteria and evaluated based on the DQOs.

5.1 Precision and Accuracy

5.1.1 Instrument Calibration

As previously discussed in Section 4.1.1, initial and continuing calibration results provide a means of evaluating accuracy.

The correlation coefficients in the initial calibrations and/or percent recoveries in the continuing calibration verifications were within the acceptance criteria of ≥ 0.995 and 90-110 percent, respectively.

5.1.2 MS Samples

No data were qualified based on MS nonconformances. For those SDGs with MS results, the recoveries were evaluated against the acceptance criteria.

5.1.3 Duplicate (DUP) Samples

No data were qualified based on duplicate nonconformances. For those SDGs with duplicate results, the recoveries were evaluated against the acceptance criteria.

5.1.4 LCS Samples

No data were qualified based on LCS nonconformances. For those SDGs with LCS results, the recoveries were evaluated against the acceptance criteria.

5.1.5 Field Duplicate Samples

The field duplicate samples were evaluated for acceptable precision with RPDs for the analytes. The associated data validation narratives provided details regarding criteria exceeded. Sample data were not qualified on the basis of field duplicate precision.

5.1.6 Sample Result Verification

All sample results were found to be acceptable.

5.2 Representativeness

5.2.1 Holding Times

The evaluation of holding times to verify compliance with the method was conducted. All holding times were met.

5.2.2 Blanks

As previously discussed in Section 4.2.2, method blanks and field blanks were analyzed to evaluate representativeness.

5.2.2.1 Method Blanks

No QC issues were associated with the method blanks for this analysis.

5.2.2.1 Field Blanks

No QC issues were associated with the field blanks for this analysis.

5.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the method detection limits attained were at or below the reporting limit. Target analytes detected below the reporting limits flagged (J) by the laboratory should be considered estimated. The comparability of the data is regarded as acceptable.

5.4 Completeness

The completeness level attained for cyanide field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

6.0 VARIANCES IN ANALYTICAL PERFORMANCE

The laboratory used standard analytical methods for all of the analyses throughout the project. No systematic variances in analytical performance were noted according to the laboratory SOW.

7.0 SUMMARY OF PARCC CRITERIA

The validation reports present the PARCC results for all SDGs. Each PARCC criterion is discussed in detail in the following sections.

7.1 Precision and Accuracy

Precision and accuracy were evaluated using data quality indicators such as MS/MSD, LCS, and surrogates. The precision and accuracy of the data set were considered acceptable after integration of qualification of estimated results as specifically noted in the data validation reports.

7.2 Representativeness

All samples for each method and matrix were evaluated for holding time compliance. All samples were associated with a method blank in each individual SDG. The representativeness of the project data is considered acceptable after qualification for blank contamination.

7.3 Comparability

Sampling frequency requirements were met in obtaining duplicates and necessary field blanks. The laboratory used standard analytical methods for their analyses. The analytical results were reported in correct standard units. Holding times, sample preservation, and sample integrity were within QC criteria. The overall comparability is considered acceptable.

7.4 Completeness

Of the 2193 total analytes reported, none of the sample results were rejected. The completeness for all SDGs is as follows:

Parameter/Method	Total Analytes	No. of Rejects	%Completeness
Volatiles	2016	0	100
Bis-2-chloroethyl ether	5	0	100
Metals	168	0	100
Cyanide	4	0	100
Total	**2193**	**0**	**100**

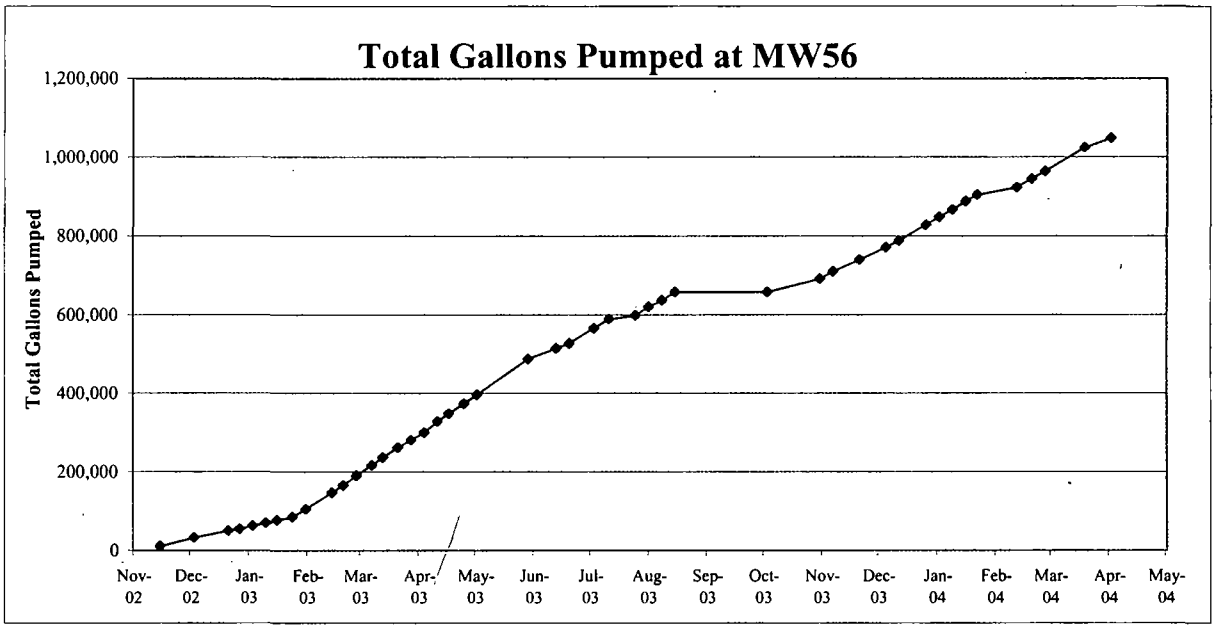
The completeness percentage based on rejected data met the 95 percent DQO goal. A less quantifiable loss of data occurred in the application of blank qualifications.

Pumping Data for Lower Aquifer Monitoring Well MW56
Through March 2004

MW56				
Measurement Date	Flow Rate (GPM)	Total Gallons Pumped	Days Between Measurements	Gallons per Day
11/15/02	1	10,620	---	---
12/03/02	1	31,620	18	1,167
12/21/02	1.5	50,130	18	1,028
12/27/02	1.5	54,870	6	790
01/03/03	1.5	63,460	7	1,227
01/10/03	1.5	70,130	7	953
01/16/03	1.5	77,380	6	1,208
01/24/03	1.5	84,840	8	933
01/31/03	2	105,400	7	2,937
02/14/03	2	147,310	14	2,994
02/20/03	2	166,550	6	3,207
02/27/03	2	190,130	7	3,369
03/07/03	2	215,980	8	3,231
03/13/03	2	236,440	6	3,410
03/21/03	2	261,380	8	3,118
03/28/03	2	279,930	7	2,650
04/04/03	2	299,360	7	2,776
04/11/03	2	327,490	7	4,019
04/17/03	2	348,540	6	3,508
04/25/03	2	373,590	8	3,131
05/02/03	2	395,770	7	3,169
05/29/03	2	486,640	27	3,366
06/13/03	2	514,120	15	1,832
06/20/03	2	526,930	7	1,830
07/03/03	2	565,650	13	2,978
07/11/03	2	589,150	8	2,938
07/25/03	2	598,780	14	688

MW56				
Measurement Date	Flow Rate (GPM)	Total Gallons Pumped	Days Between Measurements	Gallons per Day
08/01/03	2	620,210	7	3,061
08/08/03	2	636,400	7	2,313
08/15/03	2	657,820	7	3,060
10/03/03	2	657,850	49	1
10/31/03	2	690,420	28	1,163
11/07/03	2	709,130	7	2,673
11/21/03	2	738,920	14	2,128
12/05/03	2	770,530	14	2,258
12/12/03	2	787,800	7	2,467
12/26/03	2	827,060	14	2,804
01/02/04	2	846,960	7	2,843
01/09/04	2	866,310	7	2,764
01/16/04	2	886,330	7	2,860
01/22/04	2	903,320	6	2,832
02/12/04	2	921,350	21	859
02/20/04	2	943,660	8	2,789
02/27/04	2	962,930	7	2,753
03/19/04	2	1,024,620	21	2,938
04/02/04	2	1,049,020	14	1,743

GPM - Gallons per minute



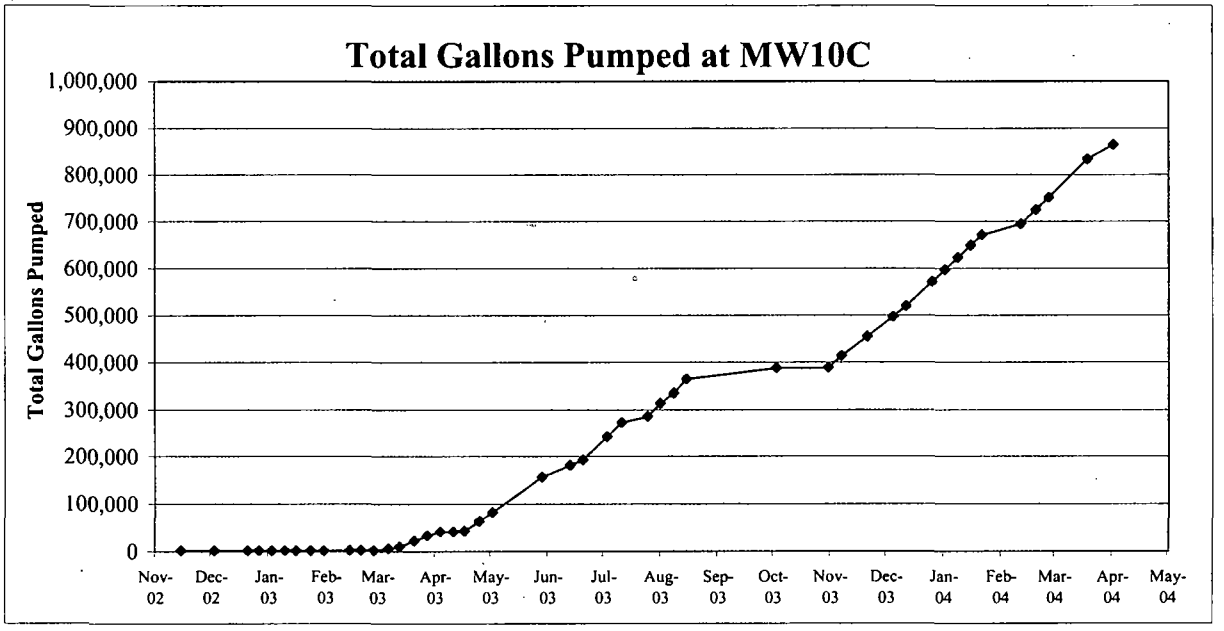
Pumping Data for Lower Aquifer Monitoring Well MW10C
Through March 2004

MW10C				
Measurement Date	Flow Rate (GPM)	Total Gallons Pumped	Days Between Measurements	Gallons per Day
11/15/02	0.5	1,580	---	---
12/03/02	0.5	1,580	18	0
12/21/02	0.5	1,580	18	0
12/27/02	0.5	1,580	6	0
01/03/03	0.5	1,580	7	0
01/10/03	0.5	1,580	7	0
01/16/03	0.5	1,580	6	0
01/24/03	0.5	1,580	8	0
01/31/03	0.5	1,580	7	0
02/14/03	0.5	2,210	14	45
02/20/03	0.5	2,210	6	0
02/27/03	0.5	2,210	7	0
03/07/03	1	5,840	8	454
03/13/03	1	9,350	6	585
03/21/03	1	22,470	8	1,640
03/28/03	1	32,930	7	1,494
04/04/03	1	40,800	7	1,124
04/11/03	1	40,810	7	1
04/17/03	1	42,750	6	323
04/25/03	1	63,370	8	2,578
05/02/03	1	81,750	7	2,626
05/29/03	1	156,790	27	2,779
06/13/03	1	180,950	15	1,611
06/20/03	1	192,880	7	1,704
07/03/03	1	242,300	13	3,802
07/11/03	1	272,930	8	3,829
07/25/03	2	285,410	14	891

MW10C				
Measurement Date	Flow Rate (GPM)	Total Gallons Pumped	Days Between Measurements	Gallons per Day
08/01/03	2	313,850	7	4,063
08/08/03	2	335,510	7	3,094
08/15/03	2	364,550	7	4,149
10/03/03	2	387,450	49	467
10/31/03	2	388,270	28	29
11/07/03	2	414,050	7	3,683
11/21/03	2	454,920	14	2,919
12/05/03	2	496,910	14	2,999
12/12/03	2	519,610	7	3,243
12/26/03	2	571,330	14	3,694
01/02/04	2	597,570	7	3,749
01/09/04	2	622,910	7	3,620
01/16/04	2	649,150	7	3,749
01/22/04	2	671,460	6	3,718
02/12/04	2	695,330	21	1,137
02/20/04	2	725,160	8	3,729
02/27/04	2	751,020	7	3,694
03/19/04	2	832,820	21	3,895
04/02/04	2	864,160	14	2,239

GPM - Gallons per minute

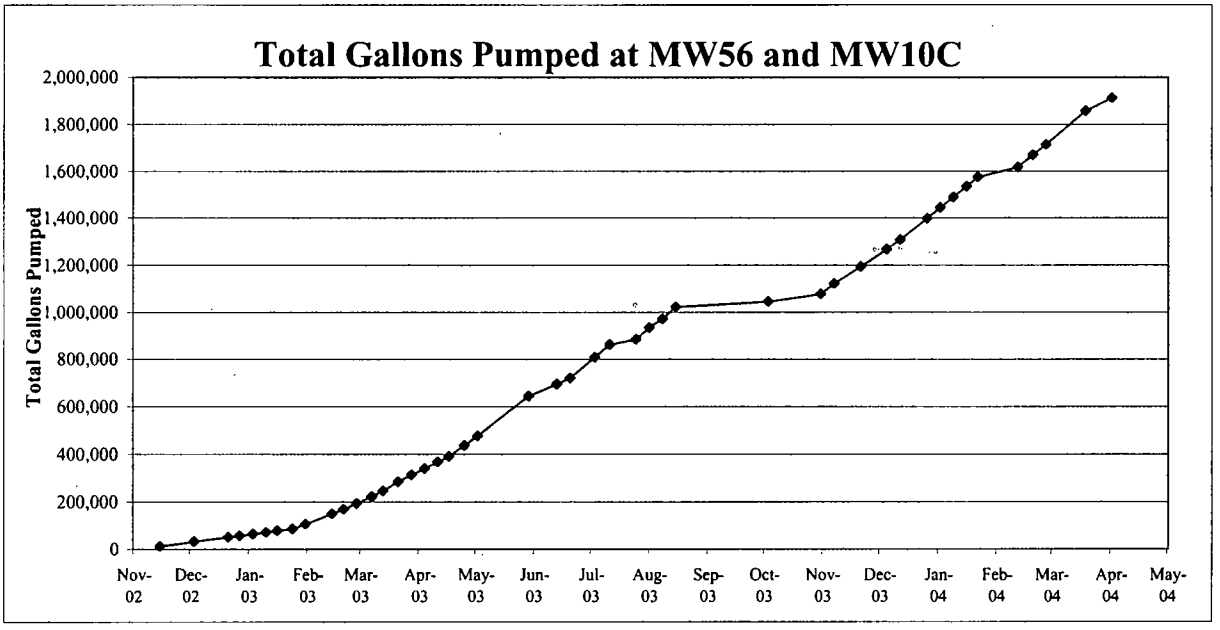
Pump was lowered 2.5 within well on Feb 3, 2003.



J:/209/0603/Database/MW10C_MW56_Mar04.xls[MW10C]

Combined Pumping Data for Lower Aquifer Monitoring Wells MW10C and MW56 Through March 2004

MW56 and MW10C				
Measurement Date	Flow Rate (GPM)	Total Gallons Pumped	Days Between Measurements	Gallons per Day
11/15/02	1.5	12,200	---	---
12/03/02	1.5	33,200	18	1,167
12/21/02	2	51,710	18	1,028
12/27/02	2	56,450	6	790
01/03/03	2	65,040	7	1,227
01/10/03	2	71,710	7	953
01/16/03	2	78,960	6	1,208
01/24/03	2	86,420	8	933
01/31/03	2.5	106,980	7	2,937
02/14/03	2.5	149,520	14	3,039
02/20/03	2.5	168,760	6	3,207
02/27/03	2.5	192,340	7	3,369
03/07/03	3	221,820	8	3,685
03/13/03	3	245,790	6	3,995
03/21/03	3	283,850	8	4,758
03/28/03	3	312,860	7	4,144
04/04/03	3	340,160	7	3,900
04/11/03	3	368,300	7	4,020
04/17/03	3	391,290	6	3,832
04/25/03	3	436,960	8	5,709
05/02/03	3	477,520	7	5,794
05/29/03	3	643,430	27	6,145
06/13/03	3	695,070	15	3,443
06/20/03	3	719,810	7	3,534
07/03/03	3	807,950	13	6,780
07/11/03	3	862,080	8	6,766
07/25/03	4	884,190	14	1,579

MW56 and MW10C				
Measurement Date	Flow Rate (GPM)	Total Gallons Pumped	Days Between Measurements	Gallons per Day
08/01/03	4	934,060	7	7,124
08/08/03	4	971,910	7	5,407
08/15/03	4	1,022,370	7	7,209
10/03/03	4	1,045,300	49	468
10/31/03	4	1,078,690	28	1,193
11/07/03	4	1,123,180	7	6,356
11/21/03	4	1,193,840	14	5,047
12/05/03	4	1,267,440	14	5,257
12/12/03	4	1,307,410	7	5,710
12/26/03	4	1,398,390	14	6,499
01/02/04	4	1,444,530	7	6,591
01/09/04	4	1,489,220	7	6,384
01/16/04	4	1,535,480	7	6,609
01/22/04	4	1,574,780	6	6,550
02/12/04	4	1,616,680	21	1,995
02/20/04	4	1,668,820	8	6,518
02/27/04	4	1,713,950	7	6,447
03/19/04	4	1,857,440	21	6,833
04/02/04	4	1,913,180	14	3,981

GPM - Gallons per minute