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UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY (USEPA)
Region V (HSRL-6J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Dear Ms. Bianchin:

Re: Upper Aquifer Technical Memorandum
American Chemical Service

Please find enclosed a Technical Memorandum for the Upper Aquifer which provides the results of groundwater sampling and a proposed monitoring program.

Sincerely,

CONESTOGA-ROVERS & ASSOCIATES

Ronald Frehner

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ACS Technical Committee

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INTRODUCTION

This Technical Memorandum summarizes the investigation activities and results of the second phase of the Upper Aquifer Investigation conducted at the American Chemical Service, Inc. NPL site in Griffith, Indiana during July and August 1996. The investigation was conducted in accordance with the July 25, 1996 Upper Aquifer Investigation Monitoring Well Installation and Sampling Proposal. Specific Operating Procedures (SOPs) were approved with modifications by the U.S. EPA on June 28, 1996. Investigation activities were also conducted in accordance with the draft Quality Assurance Project Plan (QAPP) and U.S. EPA comments regarding the QAPP.

The purpose of this second phase of the Upper Aquifer Investigation was to install and sample monitoring wells at the site to confirm the approximate extent of groundwater contamination in the upper aquifer delineated by the first phase of the Upper Aquifer Investigation. The first phase of the Upper Aquifer Investigation consisted of a Geoprobe investigation conducted at the ACS site from February through March 1996. Shallow groundwater samples were collected from 110 temporary sampling points (i.e., hydraulic probes) and analyzed with a field gas chromatograph (GC) for a target list of VOCs. The extent of total VOC detections in the upper aquifer delineated by the Geoprobe investigation is shown in Figure 1.

Based on the results of the Geoprobe investigation, 13 monitoring wells, eight piezometers and two staff gauges were installed in the upper aquifer at locations around the perimeter of the ACS site and used to characterize shallow groundwater flow directions and delineate the extent of groundwater contamination in the upper aquifer. The locations of monitoring wells, piezometers and staff gauges installed during the second phase of Upper Aquifer Investigation are shown on Figure 1.

1.1 OBJECTIVES

Specific objectives of the Upper Aquifer Investigation included:

1. Verifying the depth to the upper confining clay layer at each well and piezometer location and adding to the database of upper clay surface elevations measured at the site.

2. Confirming the extent of groundwater contamination at the site delineated by the Geoprobe investigation.

3. Evaluating vertical hydraulic gradients in the upper aquifer within the wetlands area west of the facility.

4. Refining the shallow groundwater flow patterns previously delineated at the site.

1.2 SCOPE OF WORK

The following activities were completed to meet the objectives of the Upper Aquifer Investigation:

- Thirteen monitoring wells and eight piezometers were installed in the upper aquifer.

- Two staff gauges were installed north of the Grand Trunk railroad.

- Newly installed monitoring wells were developed and sampled and groundwater samples were analyzed for full scan TCL organics and TAL metals.

- Water levels were measured in all upper aquifer wells and piezometers located at the site.

2

Field Activities

2.1 DRILLING AND WELL INSTALLATION

2.1.1 Monitoring Well and Piezometer Borings

Prior to initiating drilling activities, the locations of monitoring wells and nested piezometers were staked by Montgomery Watson and a U.S. EPA representative.

Monitoring well and piezometer borings were drilled utilizing an all-terrain, track-mounted drill rig equipped with 4.25 inch inner diameter (ID) hollow stem augers (HSA). Soil samples were collected using a 2-inch diameter split-spoon sampler at 2.5 foot intervals (i.e., 0 to 2.5 ft, 2.5 to 5 ft, etc.) to the top of the upper confining clay. One soil sample was then collected two feet into the clay, to confirm the presence of the upper confining clay layer.

Each boring was logged in accordance with the Unified Soil Classification System (USCS). Drilling was conducted in accordance with the approved Monitoring Well Sampling Proposal and SOP for the Upper Aquifer Investigation (revision: July 25, 1996) with the following exceptions:

- Monitoring well (MW41) was not installed in the original staked location because the water table at this location was present in the upper confining clay rather than the upper aquifer. Several exploratory boreholes were drilled in the area to identify where the upper aquifer was thicker so that the proposed monitoring well could be installed along the eastern edge of the VOC plume. The final location of well MW41 was approved by U.S. EPA and is approximately 60 feet south from the original staked location.

Locations of new monitoring wells, piezometers, and staff gauges are presented on Figure 1. Monitoring well and piezometer construction information is summarized on Table 1. Boring logs for upper aquifer monitoring wells and piezometers are included in Appendix A

2.1.2 Monitoring Well and Piezometer Installation

Thirteen monitoring wells (MW37 through MW49) were installed to further delineate the extent of VOC contamination in the upper aquifer (Figure 1). Monitoring well MW45, located in the southeast area of the site, and MW48 and MW49, located north of the site, were installed within the known extent of the VOC plume. The remaining ten monitoring

wells were installed along the edge of the VOC plume, as defined during the Geoprobe investigation.

All monitoring wells were installed using a 10-foot, 0.010 slot, stainless steel well screen, stainless steel riser, and steel protective casing and lock in accordance with the approved SOP. If soil borings during well installation activities had indicated a saturated thickness greater than 15 feet, two wells would have been installed at that location, one well consisting of a 10-foot well screen at the water table, and another well at the base of the aquifer. Because the saturated thickness encountered at all locations was less than 15 feet, a single upper aquifer well was installed at each location. In areas where the water table was high (i.e., standing water in the wetlands), the well was installed in a manner to assure a proper and adequate seal above the well screen, in accordance with the SOP presented in the Upper Aquifer Investigation Technical Memorandum and Monitoring Well Sampling Proposal and Protocols (revised July 25, 1995).

Eight piezometers (P64 through P71) were installed at four locations (two nested at each location) in the wetlands, west of the ACS facility (Figure 1). The deep piezometer at each location was installed with a 2.5 foot PVC well screen and riser pipe at the base of the upper aquifer (top of the upper confining clay). The shallow piezometer at each location was installed with a 5 foot PVC screen and riser in the upper portion of the aquifer which intersected the water table.

Well construction details for the monitoring wells and piezometers are presented in Appendix B. Monitoring well and piezometer installation was conducted in accordance with the approved Monitoring Well Sampling Proposal and Protocol SOP for the Upper Aquifer Investigation (revision: July 25, 1996).

2.1.3 Staff Gauge Installation

Two staff gauges (SG11 and SG12) were installed in the ditch to the north of the Grand Trunk railroad and the ACS facility to document surface water elevations and aid in evaluating groundwater flow information north of the site. The staff gauge locations are presented on Figure 1.

2.2 MONITORING WELL DEVELOPMENT AND SURVEYING

Following installation of the monitoring wells in the upper aquifer, the wells were developed on July 18-19, 1996 in accordance with the approved Monitoring Well Sampling Proposal and Protocol SOP for the Upper Aquifer Investigation (revision: July 25, 1996). Monitoring well development information is presented in Appendix C.

Monitoring wells and piezometers were later surveyed by Area Survey of Orland Park, Illinois. Survey information, ground surface and casing elevations, and local coordinates (northing and easting) for the 13 new monitoring wells, eight piezometers, and two staff gauges are presented in Appendix D.

2.3 WATER LEVELS

To determine the groundwater flow direction in the upper aquifer and vertical gradients in the wetlands, water level measurements were made at new and existing upper aquifer wells and piezometers on August 27, 1996.

2.4 MONITORING WELL SAMPLING

Prior to sampling, monitoring wells were purged using low-flow methods in accordance with the approved Monitoring Well Sampling Proposal and Protocol SOP for the Upper Aquifer Investigation (revision: July 25, 1996). Field parameters for pH, specific conductivity, temperature, and turbidity were measured and recorded during well purging activities. A summary of groundwater sampling field parameter data is presented on Table 2.

New upper aquifer monitoring wells were sampled between August 5 and 8, 1996 and analyzed for full scan TCL volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated byphenols (PCBs) and TAL inorganic parameters. Monitoring well sampling was performed in accordance with the approved Monitoring Well Sampling Proposal and Protocol SOP for the Upper Aquifer Investigation (revision: July 25, 1996).

3

HYDROGEOLOGY OF THE UPPER AQUIFER

3.1 GEOLOGY

Boring logs generated during phase 2 of the Upper Aquifer Investigation are presented in Appendix A. Soils of the upper aquifer are generally classified as fine to coarse sand with a trace to some silt and clay. The soils were classified with the United Soil Classification System (USCS) symbols of SP, SP-SM, and SM (Appendix A). The thickness of the upper aquifer encountered during this investigation ranged from approximately 11 feet at several locations to 18 feet at MW43 (Table 1). More information on the geology and thickness of the upper aquifer is presented in the June 1991 Remedial Investigation (RI) Report and in the September 1996 Lower Aquifer Investigation Report. Investigations to date indicate that the upper aquifer thickness ranges between approximately 11 and 28 feet across the Site.

The top of the upper clay confining layer was confirmed at all monitoring well and piezometer locations. The upper surface of clay confining layer was encountered typically at an elevation near 620 feet above mean sea level (amsl) (Table 1). More variability in the elevation of the top of the clay confining layer was found in the southeast portion of the site, where the upper clay surface ranged from approximately 613 feet amsl at MW43 to 624 feet amsl at MW47. In other areas of the site, the top of the clay confining layer ranged from 618 feet to 623 feet amsl (Table 1). The elevations of the top of the upper clay confining layer determined with this investigation are consistent with the findings of previous investigations and expand the data base regarding the upper clay surface elevation at the site. The clay confining layer is generally classified with a USCS symbol of CL (Appendix A).

The geology of the upper aquifer and depth to the upper clay confining layer are consistent with the findings of the June 1991 RI and the Lower Aquifer and Barrier Wall Investigations recently performed at the site (January through March 1996).

Depth to water in the upper aquifer monitoring wells ranged between 3.31 feet below top of casing (toc) in MW19 to 21.39 feet below toc in MW6. The groundwater elevation in the upper aquifer ranged from 637.04 feet amsl at MW18 to 625.42 amsl at M-3S located at the Griffith landfill. The saturated thickness of the upper aquifer ranged from 13.7 feet at MW43 to 7.4 feet at MW45.

Two staff gauges installed in the ditch north of the Grand Trunk Railroad and the ACS facility were dry when measured on August 27, 1996.

3.2.2 Groundwater Flow Direction

The water table as measured on August 27, 1996 is depicted on Figure 2. Based on the August 1996 data, the direction of shallow groundwater flow in the upper aquifer is generally to the west in the area west of Colfax Avenue and southeast in the area southeast of the intersection of Colfax Avenue and Reder Road.

The westward orientation of shallow groundwater flow lines at the ACS plant is directed towards the wetland area and dewatering activities in the northwestern corner of the Griffith landfill. Southeast of the intersection of Colfax Avenue and Reder Road, the direction of groundwater flow in the upper aquifer appears to mimic the topography in the area. Groundwater flow in the upper aquifer follows the slope of the land surface to the southeast (Figure 2).

The direction of horizontal groundwater flow in the upper aquifer is consistent with upper aquifer data presented in the June 1991 RI and recent water level data collected on October 30, 1995 and June 5, 1996. Water table maps generated from these two measurement periods were presented in the November 8, 1995 Technical Memorandum and the July 16, 1996 Water Level Memorandum, respectively.

3.2.3 Vertical Gradients in Wetlands

A summary of vertical hydraulic gradients measured in nested piezometers in the wetland area on August 27, 1996 is presented on Table 4. Vertical gradients in the wetland area were generally very low showing little difference in hydraulic head between the upper and lower portions of the upper aquifer. Vertical gradients were upward at P64/P65 (0.009) and P66/P67 (0.005), downward at P70/P71 (0.020) and non-existent at P68/P69 (0.000) (Table 4). Upward gradients observed at the two southern piezometer nests indicate that groundwater is discharging to the wetland in this area of the site. The downward gradient measured at P70/P71 indicates some groundwater movement downward from the upper portions of the aquifer to the lower in this area. Approximately 150 feet west of the P70/P71 piezometer nest, no vertical gradients were measured at piezometer nest P68/P69. The vertical gradient information is consistent with a typical wetland area where shallow groundwater is in close contact with surface water and shallow groundwater recharge and discharge to the wetland fluctuate throughout the year as the water table periodically rises and falls in the area.

4

ANALYTICAL RESULTS

New upper aquifer monitoring wells were sampled at the site between August 5 to 8, 1996 for VOCs, SVOCs, PCBs and metals. Laboratory analytical results for VOCs, SVOCs and PCBs are presented in Appendix E. Laboratory analytical results for metals are included in Appendix F.

Overall, concentrations of VOCs measured in new monitoring wells confirm the edge of the VOC plume delineated by the Geoprobe investigation (Figure 1). Detections of SVOCs in monitoring wells correlate with detections of VOCs, whereas concentrations of total and dissolved trace metals appear to be randomly distributed in new monitoring wells.

4. 1 VOC RESULTS

A summary of VOC detections in new monitoring wells installed at the ACS site is presented in Table 5. VOCs were detected at monitoring wells MW37, MW39, MW45, MW46, MW48 and MW49 (Table 5). Figure 3 summarizes the VOC detections in site monitoring wells.

4.1.1 North Side

The highest concentrations of VOCs were detected at monitoring wells MW48 and MW49 which were located within the known boundaries of the VOC plume in the northern area of the site. Benzene and methylene chloride were detected in these two wells at concentrations exceeding site remediation levels. Also in the northern area of the site, benzene and vinyl chloride were detected at MW39 at concentrations exceeding remediation levels for the final remedy (Table 5). VOCs were not detected at MW38 and benzene was found at an estimated quantity of 0.1 J ug/L at MW37. Considering the western orientation of shallow groundwater flow in this area of the site (Figure 2), monitoring wells MW38 and MW37 bound the limits of VOC contamination north of the site. Although the benzene concentration of 12 ug/L at MW39 exceeds the site remediation level for benzene, the concentration is very low compared to concentrations within the plume as shown at MW48 and MW49. Therefore, the VOC detections at MW39 indicate that the edge of the plume has been identified.

4.1.2 East Side

East of the site, VOCs were not detected at MW40. This is consistent with the results of the Geoprobe investigation which did not identify any target VOC concentrations in the upper aquifer in this area of the site.

4.1.3 Southeast Area

Southeast of the site, VOCs, including benzene, xylenes, chloroethane, chlorobenzene and ethylbenzene were detected in the monitoring well in the center of the plume area (MW45) (Table 5). The concentration of benzene detected at MW45 (530 ug/L) exceeded the remediation level of 5 ug/L listed in Appendix B of the SOW . The remaining wells in this area (MW41 through MW44, and MW47) did not exhibit any VOC contamination and subsequently surround the VOC detections observed in MW45. The concentration of benzene observed in monitoring well MW45 (530 ug/L) correlates to the concentration observed in the same area during the Geoprobe investigation (1100 ug/L at GP134). The lack of VOC detections in monitoring wells surrounding MW45 is also consistent with the Geoprobe investigation since these surrounding monitoring wells were located in non-contaminated areas delineated by the Geoprobe investigation.

4.1.4 Wetland Area to the West

West of the site, concentrations of vinyl chloride, benzene and 4-methyl-2-pentanone were detected at monitoring well MW46 (Table 5) but at such low levels they were only estimated. This was consistent with the results of the Geoprobe investigation which indicated no significant VOC migration in groundwater located beyond the edge of the wetland.

Acetone was not detected in any of the monitoring well samples. This is contrary to the results of the Geoprobe investigation which found low levels of acetone (less than 50 ug/L) in Geoprobe samples from many sampling points near the leading edge of the VOC plume. Because the acetone detections in the Geoprobe investigation samples were not confirmed by the more definitive monitoring well samples, it is likely that the low levels of acetone (less than 50 ug/L) measured in the hydraulic probe investigation were anomalous, possibly the result of instrument cross-contamination during the field GC analysis.

4. 2 SVOCs AND PCBs RESULTS

A summary of SVOC results detections in new monitoring wells installed at the ACS site is presented in Table 5. Laboratory analytical reports for SVOC and PCB results are presented in Appendix E.

SVOC compounds were generally detected in the same monitoring wells exhibiting VOC contamination. Highest SVOC concentrations were found in monitoring wells MW48 and MW49, located within the limits of known groundwater contamination in the northern area of the site, and MW45, located in the central portion of the VOC plume in the southeast area of the site. Phenol was generally detected at the highest concentrations in these wells,

ranging from 41 ug/L at MW45 to 110 ug/L at MW48 (Table 5). Bis-2-chloroethyl-ether (7 ug/l), napthalene (84 ug/l), and 2-methylnapthalene (4 ug/l) were also detected in MW45 and estimated concentrations of bis-2-chloroethyl-ether and 4-methylphenol were detected at MW46.

Bis-2-ethylhexyl-phthalate was detected at estimated concentrations in monitoring wells MW39, MW41, MW42, MW46, and MW48 at concentrations ranging between 3 ug/L and 8 ug/L (Table 5). The concentration of bis-2-ethylhexyl-phthalate at MW41 (8 J ug/L) exceeded the remediation level established for the site (5.8 ug/L). This compound is a common laboratory contaminant which is commonly used in the production of plastics, such as polyvinyl chloride (*Handbook of Environmental Data on Organic Chemicals, Second Edition*, Verschueren, 1983). The phthalates anomaly will be further evaluated in the site monitoring program.

No SVOCs were detected in monitoring wells MW37, MW38, MW40, MW42, MW43, and MW44. Tentatively identified compounds (TICs) were detected in samples at all wells except MW37, MW42, MW43, and MW44 (Appendix E). The greatest number of TICs and highest estimated concentrations were found in samples collected at MW48 and MW49.

PCBs were not detected in any of the groundwater samples collected during the Upper Aquifer Investigation.

4. 3 METALS RESULTS

A summary of metals results is presented on Table 6. Complete validated metal analytical results are presented in Appendix F.

Groundwater samples from new upper aquifer wells were analyzed for both total and dissolved metals (Table 6). Major groundwater constituents, calcium, magnesium, and sodium were generally detected at the highest concentrations in the upper aquifer, followed by detections of minor metals constituents, manganese, potassium and aluminum (Table 6).

Other metals apparently randomly located in upper aquifer monitoring wells included arsenic, barium, beryllium, cadmium, lead, nickel and thallium (Table 6). Arsenic and barium were found in many of the upper aquifer wells; concentrations of arsenic (dissolved) ranged from 1.5 ug/L at MW42 to 25.5 ug/L at MW49, and barium concentrations ranged from 18.5 ug/L at MW41 to 164 ug/L at MW44. Beryllium was detected in two monitoring well samples (MW37 and MW40) at concentrations less than 0.32 ug/L. Cadmium was detected in total and dissolved samples collected at MW37 (dissolved concentration of 0.24 ug/L) and a total metals sample at MW47 (0.2 ug/L). Lead was detected at MW47 at a dissolved concentration of 20 ug/L and a total metals concentration of 38.5 ug/L at MW45. Nickel and thallium were found in a total metals sample collected at MW39; thallium was also detected at MW48 at 1.2 ug/L (Table 6).

Concentrations of arsenic detected at MW43, MW45, MW48 and MW49, beryllium detected at MW37 and MW40, and thallium at MW39 and MW48 exceeded the remediation levels for these constituents listed in Appendix B of the SOW. The random detections of these metals at various monitoring wells at the site suggest that the metal detections are naturally occurring background concentrations.

Due to the low turbidity achieved with the low flow sampling, most total metals analyses are directly comparable to dissolved analyses (Table 6). Aluminum and iron (abundant clay mineral constituents) appear to be most variable between dissolved and total groundwater samples.

5

CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

The following conclusions are based on data developed from the second phase of Upper Aquifer Investigation:

1. The upper aquifer was found to consist of predominantly fine to coarse sand and vary in thickness from approximately 11 feet to 17 feet. The saturated thickness of the upper aquifer ranged from 13.7 feet at MW43 to 7.4 feet at MW45.

2. The top of the upper confining clay was found at elevations ranging from 613 feet at MW43 to 624 feet amsl at MW47. This range of elevations is consistent with the results of previous investigations and adds to the database of upper clay surface elevation measured at the site.

3. The direction of horizontal groundwater flow in the upper aquifer is generally to the west at the ACS facility toward the wetland area and dewatering activities in the northwestern corner of the Griffith landfill. Southeast of the intersection of Colfax Avenue and Reder Road, the horizontal direction of groundwater flow is to the southeast. The horizontal groundwater flow direction is consistent with upper aquifer data presented in the June 1991 RI and recent water level data collected on October 30, 1995 and June 5, 1996.

4. Vertical gradients in the wetland area were generally very low and variable between the upper and lower portions of the upper aquifer, ranging from 0.009 upward to 0.020 downward. The vertical gradient information is consistent with a typical wetland area where shallow groundwater is in close contact with surface water and shallow groundwater recharge and discharge to the wetland fluctuate throughout the year as the water table periodically rises and falls in the area.

5. North of the ACS facility, benzene, methylene chloride and vinyl chloride were detected in upper aquifer monitoring wells above remediation levels. The highest concentrations of VOCs were detected at monitoring wells MW48 and MW49 which were located within the known boundaries of the VOC plume in the northern area of the site. Based on the western orientation of shallow groundwater flow in this area of

the site (Figure 2), monitoring wells MW37, MW38 and MW39 bound the limits of VOC contamination north of the site.

6. VOCs were not detected in the upper aquifer monitoring well (MW40) installed east of the facility. This is consistent with the results of the Geoprobe investigation which did not identify any target VOC concentrations in this area of the site.

7. West of the site, trace concentrations of VOCs were estimated in the water from one monitoring well (MW46). The is consistent with the results of the Geoprobe investigation which indicated no significant contaminant migration beyond the edge of the wetland.

8. Southeast of the intersection of Colfax Avenue and Reder Road, benzene was detected in one monitoring well (MW45) exceeding the site remediation level. MW45 is located inside the known limits of the VOC plume. The other wells in this area surround the VOC plume and provide delineation of the extent of groundwater contamination.

9. Bis-2-ethylhexyl-phthalate was detected at an estimated concentration in one monitoring well exceeding the site remediation level. This compound is a suspected laboratory contaminant. Its significance at the site will be evaluated in the site monitoring plan. No other SVOCs were detected in upper aquifer wells exceeding the remediation levels.

10. Major and minor groundwater metal constituents were detected most frequently in the upper aquifer. Other metals randomly detected in upper aquifer monitoring wells included arsenic, barium, beryllium, cadmium, lead, nickel and thallium.

11. The concentration of benzene detected at MW39 at the northeast area of the site (12 ug/L) exceeded the site remediation level. Because monitoring well MW39 was located at the edge of VOC detections delineated by the Geoprobe investigation, the low concentrations detected in this well are consistent with the Geoprobe investigation results and indicate the edge of the VOC plume.

5.2 RECOMMENDATIONS OF PHASE II UPPER AQUIFER INVESTIGATION

5.2.1 Piezometer Installation

The piezometer P57 will be installed in the northeast area to confirm groundwater flow patterns in this area of the site. The location of proposed piezometer P57 is shown on Figure 4.

5.2.2 Upper Aquifer Monitoring Plan

Monitoring wells installed during the second phase of upper aquifer investigation delineate the horizontal extent of groundwater contamination at the ACS site. These wells will be added to the upper aquifer monitoring plan to provide indications of compliance or contaminant migration in the upper aquifer.

6

UPPER AQUIFER MONITORING PLAN

6.1 INTRODUCTION

This monitoring plan proposes the well locations and sampling parameters for upper aquifer quarterly monitoring activities at the ACS site. The monitoring plan includes collecting water level measurements at the upper aquifer monitoring wells, piezometers, and staff gauges and water quality baseline sampling at 20 upper aquifer wells starting in October 1996. In addition, the plan includes annual sampling of four interior plume wells, and three Griffith landfill wells.

The first round of sampling for the baseline consisted of the full-scan sampling of new upper aquifer wells conducted in August 1996 and the sampling of selected existing upper aquifer wells in October 1996. The second, third and fourth round of sampling will consist of 23 upper aquifer monitoring wells as listed in Table 7 and 23 lower aquifer monitoring wells as listed in Table 14 of the Lower Aquifer Technical Memorandum. All sampling will be conducted in accordance with U.S. EPA approved Specific Operating Procedures (SOPs). A SOP for low flow sample collection is included as Appendix G.

The objectives of the Upper Aquifer Monitoring Plan include the following:

1. Monitor groundwater quality at the boundaries of the known extent of contamination to determine whether the contaminant plume in the upper aquifer is remaining constant or expanding.

2. Measure water levels in the upper aquifer to determine how remedial actions will affect groundwater flow patterns at the site.

3. For remedial design information, monitor groundwater quality in the plume interior to determine how contaminant concentrations change in response to remedial actions.

The locations of monitoring wells proposed for the upper aquifer monitoring plan are shown on Figure 4. To facilitate review of the plan, the locations of the proposed monitoring wells have been grouped on Table 7 according to their location in the north, east, southeast, southwest, wetland or plume interior areas of the site. Each of these areas are discussed separately below.

6.2 SAMPLING LOCATIONS

6.2.1 North Area

Three new monitoring wells are included in the monitoring plan for the northern area of the site (Figure 4). These wells, MW37, MW38, and MW39 bound the limits of VOC contamination north of the site and will provide evidence whether the plume is remaining constant or expanding in this area.

6.2.2 East Side

Four monitoring wells, including one new well (MW40) and three existing wells (MW11, MW12 and MW18) will comprise the baseline sampling points for the eastern portion of the site. These wells are generally located side-gradient in the upper aquifer to the ACS Site and will bound the limits of VOC contamination east of the site.

Monitoring wells MW4, MW5 and MW17 are not included in the upper aquifer monitoring plan. These wells are within the known limits of the contaminant plume east of the site.

6.2.3 Southeast Area

Baseline monitoring in the southeast area will include the five new wells installed during the upper aquifer investigation (MW41, MW42, MW43, MW44, and MW47) and existing monitoring well MW19. These wells surround the VOC detections delineated by the Geoprobe investigation and will monitor potential plume migration in the upper aquifer downgradient from the landfill area.

Monitoring well MW20 is not included in the upper aquifer monitoring plan because it is located within the known limits of the contaminant plume and because of its proximity to MW19. MW6 has been included in this area to monitor the interior of the plume (see Section 6.2.6).

6.2.4 Southwest Area

One monitoring well, MW15, will serve as a sentinel well southwest of the landfill to monitor potential contaminant migration southwestward from the landfill. Other monitoring wells located within the landfill area have not been included in the upper aquifer monitoring plan. These wells are sampled as part of routine landfill monitoring requirements. Sampling results will be obtained from the landfill and included with the results of the ACS Sampling Program (see Section 6.5).

6.2.5 Wetland Area

Three monitoring wells, including one new well (MW46) and two existing wells (MW13 and MW14) will monitor potential VOC migration into the wetland area west of the ACS facility.

Monitoring wells MW2 and MW3 are not included in the upper aquifer monitoring plan because these wells are located within the known limits of the contaminant plume in the

wetland area of the site. Well W-1 is not included because it was installed prior to the RI and has not been previously been used as a monitoring point for the NPL Site.

6.2.6 Plume Interior

Four monitoring wells located within the known limits of contamination will be sampled on an annual basis to measure the behavior of contaminant concentrations within the plume over time. Two wells are located in the northern area of the plume (MW48, MW49) and two wells are located within the plume southeast of the landfill (MW6, MW45).

6.3 SAMPLE ANALYSIS

During the first quarter (August and October 1996 combined), all groundwater samples from the proposed upper aquifer monitoring wells will be analyzed for full-scan Target Compound List (TCL) and Target Analyte List (TAL) parameters (Table 7).

In the first and second quarters of 1997, groundwater samples collected from the north, east, southeast, southwest, and wetland areas of the site will be analyzed for compounds in a Target Indicator List (TIL). The TIL includes those VOCs that have consistently been detected in the contaminant plume (benzene, chloroethane, ethylbenzene, toluene, xylene, chlorobenzene, 1,2-dichloroethene, and 1,1-dichloroethane). In the fourth quarter of the quarterly baseline sampling (third quarter of 1997), all groundwater samples from the proposed upper aquifer monitoring wells will be analyzed for full-scan TCL and TAL parameters (Table 7). These four consecutive quarters of monitoring will form the baseline data base for the monitoring program.

Groundwater samples from plume interior wells will be sampled for TCL analyses. Because these wells are known to be contaminated, the purpose of monitoring concentrations in these wells is to detect how the contaminant concentrations change over an extended period of time. Monitoring these wells on a quarterly basis would not allow sufficient time for changes to occur and show concentration trends. Variability observed in concentrations over a three month period may be more indicative of analytical variability than actual changing concentration conditions. Further, upon completion of the barrier wall and perimeter groundwater containment system, the upper aquifer groundwater flow will be in a transition period, establishing a new flow regime.

6.4 PROCEDURES

6.4.1 Water Level Measurements

Water levels will be collected at each monitoring well, piezometer and staff gauge in the upper aquifer prior to sampling the wells. Water levels will be collected in a single day to minimize potential water level variability with time (as part of the overall site monitoring plan, water levels measurements will be collected in the lower aquifer wells and piezometers within the same 24-hour period as water levels measurements in the upper aquifer).

single day to minimize potential water level variability with time (as part of the overall site monitoring plan, water levels measurements will be collected in the lower aquifer wells and piezometers within the same 24-hour period as water levels measurements in the upper aquifer).

6.4.2 Monitoring Well Sampling

Prior to sampling, all monitoring wells will be purged and sampled using low-flow methods in accordance with the approved Monitoring Well Sampling Proposal and Protocol SOP for the Upper Aquifer Investigation (revision: March 1997). A copy of the approved SOP is included in Appendix G. Field parameters for pH, specific conductance, temperature and turbidity will be measured and recorded during well purging. Sampling activities will be conducted in a typical period of one week.

6.5 SAMPLING SCHEDULE

The 23 upper aquifer monitoring wells listed on Table 7 and the 23 lower aquifer monitoring wells tested in the Lower Aquifer Technical Memorandum (Table 14) will be sampled in March, June, and September of 1997 to complete four consecutive quarters of full scan analyses, for the baseline required by the U.S. EPA.

KS/dlp/PJV/TAB/PJV
J:\1252\042\TECHMEMO\UP-TM-5.DOC

TABLES

Table 1
Monitoring Well Construction Information
Upper Aquifer Investigation
American Chemical Service, Inc. - NPL Site
Griffith, Indiana

Well ID	Coordinates		Ground Elevation (1)	Top of Casing Elevation (1)	Screened Interval		Screen Length (2)	Depth to Clay (ft)	Clay Elevation	Well Material	Year Installed
	Northing	Easting			Top (1)	Bottom (1)					
MW37	7976.0	5395.0	634.0	636.78	631.00	620.80	9.80	14.00	620.00	2" SS	1996
MW38	8216.0	5903.0	633.6	636.51	630.60	620.40	9.45	11.50	622.10	2" SS	1996
MW39	7947.0	6253.0	634.0	637.77	631.00	621.00	9.95	11.00	623.00	2" SS	1996
MW40	6831.0	6349.0	636.6	639.46	633.60	623.40	9.95	13.50	623.10	2" SS	1996
MW41	4517.0	6242.0	629.6	632.74	626.60	616.40	9.95	13.00	616.60	2" SS	1996
MW42	3808.0	6264.0	629.3	632.32	625.30	615.30	9.80	14.00	615.30	2" SS	1996
MW43	3719.0	5880.0	630.2	633.56	625.20	615.20	9.00	18.00	612.20	2" SS	1996
MW44	4303.0	5390.0	630.1	633.04	627.10	616.90	9.95	11.00	619.10	2" SS	1996
MW45	4388.0	5830.0	632.1	635.35	629.10	619.10	9.95	11.00	621.10	2" SS	1996
MW46	7424.0	4526.0	630.2	633.32	627.20	617.20	9.95	11.50	618.70	2" SS	1996
MW47	5084.0	5958.0	637.6	640.54	634.60	624.60	9.98	13.00	624.60	2" SS	1996
MW48	7814.0	5669.0	632.6	636.36	629.60	619.60	9.95	11.50	621.10	2" SS	1996
MW49	7650.0	5551.0	634.2	637.00	631.20	621.00	9.95	12.50	621.70	2" SS	1996
P64	7065.0	4617.0	631.1	634.87	629.10	624.10	4.35	—	—	2" PVC	1996
P65	7063.0	4615.0	631.2	634.77	622.20	620.20	2.00	12.30	618.90	2" PVC	1996
P66	7034.0	4729.0	632.1	636.02	630.10	625.10	4.35	—	—	2" PVC	1996
P67	7034.0	4732.0	632.0	636.06	621.00	618.50	2.00	13.50	618.50	2" PVC	1996
P68	7752.0	4743.0	630.8	634.48	628.80	623.80	4.35	—	—	2" PVC	1996
P69	7751.0	4741.0	630.8	634.66	620.80	618.30	2.50	12.50	618.30	2" PVC	1996
P70	7680.0	4880.0	631.3	635.38	628.55	624.20	4.35	—	—	2" PVC	1996
P71	7682.0	4876.0	631.2	635.32	621.20	618.70	2.50	12.50	618.70	2" PVC	1996

Notes:

2" PVC = 2" Schedule 40 Poly vinyl chloride well screen and casing
2" SS = 2" Stainless steel well screen and casing
P = Piezometer
MW = Monitoring Well

Footnotes:

(1) All elevations shown are in ft. above mean sea level (amsl).
(2) Screen lengths (slotted) are shown as general measurements. For exact screen lengths, see Appendix B of Report.

Table 2
Summary of Field Parameter Results
Upper Aquifer Investigation
American Chemical Service, Inc.
Griffith, Indiana

Upper Aquifer Well Location	Field Parameters				
	pH (std. units)	Conductivity [1] (field measurement)	Conductivity [2] (adjusted to 25°C)	Temperature (deg. C.)	Turbidity (NTU)
MW37	7.00	225	256	19	44
MW38	7.22	385	494	14	4.7
MW39	7.06	1160	1415	16	14
MW40	6.91	210	244	18	10
MW41	7.00	328	353	21.5	6.2
MW42	7.21	980	1089	20	36
MW43	7.25	800	930	18	158
MW44	7.79	610	792	13.5	22.9
MW45	7.44	900	1047	18	25
MW46	6.71	880	1100	15	43
MW47	6.12	90	96	22	16
MW48	6.83	1160	1247	21.5	39
MW49	6.96	590	711	16.5	4.5

Notes:

1 Conductivity (field measurements) values measured in the field in units of umhos/cm

2 Conductivity values corrected for temperature and reported in units of umhos/cm @ 25° C.

NTU - nephelometric turbidity units

Table 3
Upper Aquifer
Groundwater Elevations - August 27, 1996
American Chemical Service, Inc. - NPL Site

UPPER AQUIFER MONITORING WELLS

Location	Reference Points			8/27/96		Well Status
	East	North	TOC	Depth	Elev	
MW-2	5033	6839	638.05	7.43	630.62	Needs Repair - Still functional
MW-3	5299	7314	636.62	6.37	630.25	Moved
MW-4	6112	7126	641.05	6.97	634.08	Good Condition
MW-5	5788	6482	642.13	7.49	634.64	Good Condition
MW-6	5298	5520	655.28	21.39	633.89	Good Condition
MW-11	6377	7329	640.47	6.70	633.77	Good Condition
MW-12	6019	6352	642.74	8.10	634.64	Good Condition
MW-13	5050	7814	634.08	4.56	629.52	Good Condition
MW-14	4882	6995	638.56	9.32	629.24	Good Condition
MW-15	4721	5003	637.89	5.14	632.75	Good Condition
MW-16	5065	6596	638.52	7.81	630.71	Good Condition
MW-17	5656	5677	647.14	12.68	634.46	Good Condition
MW-18	5836	5746	644.89	7.85	637.04	Good Condition
MW-19	5231	4943	635.78	3.31	632.47	Good Condition
MW-20	5095	5028	642.98	10.31	632.67	Good Condition
AM-05	5224	6360	637.28	4.44	632.84	(Test Well)
Red Well	5204	6466	639.01	6.76	632.25	Good Condition
W-1	5305	7323	637.33	7.08	630.25	Good Condition

NEW UPPER AQUIFER MONITORING WELLS

Location	Reference Points			8/27/96		Well Status
	East	North	TOC	Depth	Elev	
MW37	5395	7976	636.78	6.38	630.40	Installed Week of 7/15/96
MW38	5903	8216	636.51	6.15	630.36	Installed Week of 7/15/96
MW39	6253	7947	637.77	6.40	631.37	Installed Week of 7/15/96
MW40	6349	6831	639.46	5.05	634.41	Installed Week of 7/15/96
MW41	6242	4517	632.74	7.03	625.71	Installed Week of 7/15/96
MW42	6264	3808	632.32	6.22	626.10	Installed Week of 7/15/96
MW43	5880	3719	633.56	6.66	626.90	Installed Week of 7/15/96
MW44	5390	4303	633.04	4.37	628.67	Installed Week of 7/15/96
MW45	5830	4388	635.35	6.87	628.48	Installed Week of 7/15/96
MW46	4526	7424	633.32	3.83	629.49	Installed Week of 7/15/96
MW47	5958	5084	640.54	7.09	633.45	Installed Week of 7/15/96
MW48	5669	7814	636.36	5.80	630.56	Installed Week of 7/15/96
MW49	5551	7650	637.00	6.15	630.85	Installed Week of 7/15/96

Table 3
Upper Aquifer
Groundwater Elevations - August 27, 1996
American Chemical Service, Inc. - NPL Site

LEACHATE/UPPER AQUIFER LANDFILL WELLS

	Reference Points			8/27/96		
Location	East	North	TOC	Depth	Elev	Well Status
LW-1	4807	5070	644.57	11.60	632.97	Good Condition
LW-2	4662	5465	649.70	16.44	633.26	Good Condition
M-1S	4362	5743	639.09	7.04	632.05	Good Condition
M-2S	3999	6491	637.12	9.05	628.07	Good Condition
M-3S	4142	6819	631.88	6.46	625.42	Good Condition
M-4S	4953	6537	633.42	4.56	628.86	Good Condition
M-5S	4170	7089	634.17	7.41	626.76	Good Condition

STAFF GAUGES

	Reference Points			8/27/96		
Location	East	North	TOC	Depth	Elev	Status
SG-1	5023	6196	633.98	Dry	Dry	New Gauge Installed 10-2-95
SG-2	4423	6864	633.82	2.05	631.77	New Gauge Installed 10-2-95
SG-3	4180	7123	631.58	Dry	Dry	New Gauge Installed 10-2-95
SG-4	5228	6611	636.14	Gone		Ran over during barrier wall drill
SG-5	5464	7713	632.47	3.55	628.92	New Gauge Installed 10-2-95
SG-6	4495	8075	630.73	2.44	628.29	New Gauge Installed 10-25-95
SG-7	5403	6889	637.21	2.17	635.04	New Gauge Installed 10-2-95
SG-8	5405	5202				Replaced by SG8R
SG-9	3846	6336	632.59	Gone		Gauge has never been found
SG-10	6748	7238	636.47	2.48	633.99	New Gauge Installed 10-2-95
SG-8R	5409	5252	635.03	2.11	632.92	Pond Stafff Gauge
SG-11	5859	8245	634.64	Dry	Dry	Installed 7/19/96
SG-12	5596	7867	634.50	Dry	Dry	Installed 7/19/96

NEW PIEZOMETERS - WETLANDS

Piezometers	Reference Points			8/27/96		
Location	East	North	TOC	Depth	Elev	Status
P-64	4617	7065	634.87	7.25	627.62	Screen @ top of upper aquifer
P-65	4615	7063	634.77	7.10	627.67	Screen @ base of upper aquifer
P-66	4729	7034	636.02	7.82	628.20	Screen @ top of upper aquifer
P-67	4732	7034	636.06	7.82	628.24	Screen @ base of upper aquifer
P-68	4743	7752	634.48	5.68	628.80	Screen @ top of upper aquifer
P-69	4741	7751	634.66	5.86	628.80	Screen @ base of upper aquifer
P-70	4880	7680	635.38	6.70	628.68	Screen @ top of upper aquifer
P-71	4876	7682	635.32	6.77	628.55	Screen @ base of upper aquifer

Table 3
Upper Aquifer
Groundwater Elevations - August 27, 1996
American Chemical Service, Inc. - NPL Site

EXISTING PIEZOMETERS

Piezometers	Reference Points			8/27/96		
Location	East	North	TOC	Depth	Elev	Status
P-1	5700	6365	642.84	8.26	634.58	Good Condition
P-2	5577	6165	645.57	11.10	634.47	Good Condition
P-3	5453	6470	639.87	5.77	634.10	Good Condition
P-4	5432	6228	639.25	4.89	634.36	Good Condition
P-5	5285	6510	636.70	NM	NM	Buried in Brush
P-6	5150	6551	638.75	7.10	631.65	Good Condition
P-7	5950	6630	643.63	9.00	634.63	Good Condition
P-8	6156	6734	639.27	4.94	634.33	Good Condition
P-9	6134	6994	638.88	4.72	634.16	Good Condition
P-10	5413	5852	649.32	15.06	634.26	Good Condition
P-11	5199	5900	649.14	14.90	634.24	Good Condition
P-12	5076	5723	650.08	16.09	–	Product Level
P-13	4878	5735	651.20	17.18	634.02	Good Condition
P-14	5014	5914	645.33	11.43	633.90	New
P-15	5003	6187	639.93	7.64	632.29	New
P-16	4673	5749	648.80	14.44	634.36	New
P-17	4584	6006	654.64	20.50	634.14	New
P-18	4623	6224	649.84	4.90	644.94	New
P-19	4977	5043	639.71	6.92	632.79	Good Condition
P-20	5104	6233	643.10	8.83	634.27	Good Condition
P-21	4569	6537	632.82	6.84	625.98	New
P-22	4636	6732	634.30	7.88	626.42	Good Condition
P-23	4689	7018	636.18	8.14	628.04	Good Condition
P-24	5002	7178	636.06	6.40	629.66	Good Condition
P-25	5131	7510	635.01	5.76	629.25	Re-Installed 10-25-95
P-26	4764	7309	634.23	6.09	628.14	Good Condition
P-27	4904	7020	639.70	10.04	629.66	Good Condition
P-28	5883	7486	644.53	11.47	633.06	Good Condition
P-29	5738	6619	642.37	7.67	634.70	Good Condition
P-30	5626	6793	642.42	7.72	–	Product Level
P-31	5480	7159	641.03	7.69	633.34	Good Condition
P-32	5746	7026	642.32	8.28	634.04	Re-Installed 10-27-95
P-33	5226	7129	640.20	7.77	632.43	Re-Installed 10-27-95
P-34	5279	6692	639.46	6.22	633.24	Good Condition
P-35	5515	6572	641.44	6.94	634.50	Re-Installed 10-27-95
P-36	5410	6851	645.89	11.16	634.73	Re-Installed 10-27-95
P-37	5330	6949	641.37	–	–	Damaged-Former Product Well
P-38	5149	6992	639.87	–	–	Eliminated
P-39	5940	6902	642.00	7.73	634.27	New
P-40	5880	7229	640.10	6.46	633.64	Good Condition
P-41	5702	7353	638.82	5.73	633.09	Good Condition
P-49	5119	6951	638.96	7.08	631.88	**Old P-51**

Table 3
Upper Aquifer
Groundwater Elevations - August 27, 1996
American Chemical Service, Inc. - NPL Site

EXISTING PIEZOMETERS (continued)

P-50	5129	6964	639.59	8.10	631.49	Good Condition
P-51	3876	6859	635.07	7.39	627.68	Installed 10-25-95
P-52	4100	7845	636.66	7.73	628.93	Revised 2-15-96)
P-53	4597	8015	636.18	6.49	629.69	Installed 10-24-95
P-54	4936	8081	638.28	7.80	630.48	Installed 10-2-95
P-55	5628	7979	636.08	6.13	629.95	Installed 10-25-95
P-56	6405	7665	639.46	6.30	633.16	Installed 10-23-95
P-57						Not Yet Installed
P-58	6454	6932	638.30	4.00	634.30	Installed 10-24-95
P-59	6389	6590	639.22	5.05	634.17	Installed 10-24-95
P-60	6111	6051	640.23	5.47	634.76	Installed 10-26-95
P-61	5533	5284	638.58	5.74	632.84	Installed 10-24-95
P-62	5665	4945	637.06	5.65	631.41	Installed 10-24-95
P-63	5483	7689	637.70	7.31	630.39	Installed 10-23-95
EW-1	5113	6942	639.50	7.85	631.65	Good Condition

Notes

Shading indicates that water elevation was not used in developing contour map

NM - Not measured

Table 4
Vertical Gradient Calculations
Upper Aquifer Investigation
American Chemical Service, Inc. - NPL Site
Griffith, Indiana

Piezometer Nest	Screen Interval		Screen Midpoint	Seperation (feet)	Groundwater Elevation			Hydraulic Gradient
	Top	Bottom			Upper	Lower	delta	
P64	629.05	624.10	626.58	5	627.62			
P65	622.20	620.20	621.20			627.67	0.05	0.009
P66	629.45	625.10	627.28	8	628.2			
P67	620.50	618.50	619.50			628.24	0.04	0.005
P68	628.15	623.80	625.98	6	628.8			
P69	621.10	618.60	619.85			628.8	0	0.00
P70	628.55	624.20	626.38	6	628.68			
P71	621.00	619.00	620.00			628.55	-0.13	-0.02

Notes:
(-) = Downward Vertical Gradient
(+) = Upward Vertical Gradient
Water Levels Collected by Montgomery Watson on August 27, 1996

Table 5
Summary of Analytical Results- Detected Organics
Upper Aquifer Investigation
American Chemical Service, Inc. - NPL Site
Griffith, Indiana

		Sample Designation																			
	Remediation	Edge of Plume (North and East)				Southeast Plume Area					Edge SE Plume Area		Wetlands	Inside Plume			Trip Blanks		Field Blanks		
VOCs	**Levels (ug/L)**	**MW37**	**MW38**	**MW39**	**MW40**	**MW41**	**MW42**	**MW43**	**MW44**	**MW45**	**MW47**	**MW47-Dup**	**MW46**	**MW48**	**MW49**	**MW49-Dup**	**TB01**	**TB02**	**TB03**	**FB01**	**FB02**
Chloromethane	8.4																	0.2 J		0.8 J	0.9 J
Vinyl Chloride	0.25			**0.9**									0.2 J								
Chloroethane				5						82 J				1000	480 J	450 J					
Methylene Chloride	5.0													**70 J**	**70 J**		0.2 J	1 J		0.7	
Acetone	2300 - 192																	17 J	9 J	19 J	21 J
1,1-Dichloroethane	2200 -183			0.3 J																	
cis-1,2-Dichloroethene	330 - 28			0.1 J																	
trans-1,2-Dichloroethene				4																	
Chloroform																				0.8 J	0.8 J
1,2-Dichloroethane										25 UJ							0.5 J		0.5 J	0.2 J	
Bromodichloromethane																				0.2 J	0.2 J
Benzene	5.0	0.1J		**12**						**530**			0.8 J	**9100**	**5000**	**5100**					
4-methyl-2-pentanone	640 - 53												3 J								
Chlorobenzene										16J											
Ethylbenzene	390 - 33									10J											
Toluene																					0.1 J
Xylenes										60											
1,4-Dichlorobenzene	3.3																0.1 J		0.1 J		
SVOCs																	NA	NA	NA		
Phenol										41				110	93	100				3 J	
bis(2-chloroethyl) ether	21.0									7J			3 J								
2,2'-oxybis(1-chloropropane)																26					
4-methylphenol													3 J								
Isophorone	19														1 J	2J					
Naphthalene										84											
2-methylnaphthalene										4J											
2,6-Dinitrotoluene														0.9 J							
bis(2-ethylhexyl)phthalate	5.8			4 J		**8 J**	4 J						3 J								

Notes:
Concentrations reported in micrograms per liter (ug/L)
J - Concentration estimated below detection limit
U - Compound not detected
NA - Trip blanks not analyzed for SVOCs

Table 6
Inorganic Analytical Results
American Chemical Services, Inc - NPL site
Griffith, Indiana

		APD-GWMW37-01						APD-GWMW38-01						APD-GWMW39-01					
		137903			137910			137801			137807			137905			137912		
	Remediation	Total			Dissolved			Total			Dissolved			Total			Dissolved		
	Level	8/7/96			8/6/96			8/7/96			8/7/96			8/6/96			8/6/96		
Analyte	ug/L	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL
Aluminum		1410	/	50.0		B/U	144		B/U	118		B/U	113		/U	273		B/U	59.0
Antimony			U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0
Arsenic	8.8		U/	1.0		U/	1.0	3.9	B/	1.0	3.2	B/	1.0	1.8	B/	1.0	1.6	B/	1.0
Barium		23.5	B/	10.0	20	B/	10.0	36.5	B/	10.0	38.5	B/	10.0	81.0	B/	10.0	73.0	B/	10.0
Beryllium	0.02	**0.26**	B/	0.20	**0.32**	B/	0.20		UN/UJ	0.20		UN/UJ	0.20		U/	0.20		U/	0.20
Cadmium		0.47	B/	0.20	0.24	B/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20
Calcium		34300	/	1000	34000	/	1000	63500	/	1000	64000	/	1000	125000	/	1000	120000	/	1000
Chromium			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Cobalt			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Copper			B/U	20.5		B/U	16.0		B/U	12.0		B/U	13.0		B/U	15.5		B/U	23.0
Iron			*/UJ	1240.0		*/UJ	228	6440	*/J	20.0	6450	*/J	20.0	9710	*/J	20.0	7690	*/J	20.0
Lead			S/U	8.6		S/U	8.8		U/	1.5		B/U	1.6		U/	1.5		U/	1.5
Magnesium		9160	/	1000	8500	/	1000	22000	/	1000	22400	/	1000	22300	/	1000	21400	/	1000
Manganese	3300 - 275	273	E*/J	10.0	256	E*/J	10.0	**511**	E*/J	10.0	**516**	E*/J	10.0	**1060**	E*/J	10.0	**802**	E*/J	10.0
Mercury			U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20
Nickel			U*/UJ	20.0		U*/UJ	20.0		U/	20.0		U/	20.0	712	*/J	20.0		U*/UJ	20.0
Potassium		1500	B/	100	1230	B/	100	494	B/	100	499	B/	100	5180	/	100	5160	/	100
Selenium			U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0
Silver			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Sodium		5460	/	2000	6310	/	2000	5130	/	2000	5580	/	2000	117000	/	2000	116000	/	2000
Thallium	2.4 - 0.2		U/	1.0		U/	1.0		U/	1.0		U/	1.0	**1.0**	B/	1.0		U/	1.0
Vanadium			U/	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0
Zinc			U/	10.0		B/U	13.5		U/	10.0		U/	10.0		U/	10.0		U/	10.0

1. All results in ug/L. Dissolved results area from field 0.45 um filtered sample aliquot. Totals were not filtered.
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Table 6
Inorganic Analytical Results
American Chemical Services, Inc - NPL site
Griffith, Indiana

		APD-GWMW40-01						APD-GWMW41-01						APD-GWMW42-01					
		137802			137808			137805			137811			137806			137812		
	Remediation	Total			Dissolved			Total			Dissolved			Total			Dissolved		
	Level	8/7/96			8/7/96			8/7/96			8/7/96			8/7/96			8/7/96		
Analyte	ug/L	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL
Aluminum		406	/	50.0		/U	274		B/U	89.5		B/U	96.5	808	/	50.0		B/U	144
Antimony			U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0
Arsenic	8.8	1.3	B/	1.0		U/	1.0		U/	1.0		U/	1.0	2.1	B/	1.0	1.5	B/	1.0
Barium		26	B/	10.0	31.5	B/	10.0	19.0	B/	10.0	18.5	B/	10.0	90	B/	10.0	85	B/	10.0
Beryllium	0.02	**0.21**	BN/J	0.20	**0.24**	B/J	0.20		UN/UJ	0.20		UN/UJ	0.20		UN/UJ	0.20		UN/UJ	0.20
Cadmium			U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20
Calcium		30000	/	1000	31000	/	1000	44000	/	1000	43300	/	1000	139000	/	1000	136000	/	1000
Chromium			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Cobalt			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Copper			B/U	12.5		/U	25.0		B/U	10.5		B/U	10.5		B/U	16.5		B/U	13.0
Iron			*/UJ	1190		*/UJ	1480		*/UJ	1670		*/UJ	1680		*/UJ	3340		*/UJ	1950.0
Lead			/U	10.8		/U	4.1		U/	1.5		U/	1.5		S/U	5.7		U/	1.5
Magnesium		9540	/	1000	9940	/	1000	13300	/	1000	13500	/	1000	49800	/	1000	49300	/	1000
Manganese	3300 - 275	**852**	*E/J	10.0	**877**	*E/J	10.0	**414**	E*/J	10.0	**395**	E*/J	10.0	**928**	E*/J	10.0	**932**	E*/J	10.0
Mercury			U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20
Nickel			U/	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0
Potassium		1280	B/	100	1410	B/	100	331	B/	100	308	B/	100	1700	B/	100	1450	B/	100
Selenium			U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0
Silver			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Sodium		4120	B/	2000	3270	B/	2000	3480	B/	2000	4010	B/	2000	12700	/	2000	12400	/	2000
Thallium	2.4 - 0.2		U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0
Vanadium			U/	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0
Zinc			U/	10.0		/U	75.5		U/	10.0		U/	10.0		U/	10.0		U/	10.0

1. All results in ug/L. Dissolved results area from field 0.45 um filtered sample aliquot. Totals were not filtered.
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Table 6
Inorganic Analytical Results
American Chemical Services, Inc - NPL site
Griffith, Indiana

		APD-GWMW43-01						APD-GWMW44-01						APD-GWMW45-01					
		137915			137919			137916			137920			137917			137921		
	Remediation	Total			Dissolved			Total			Dissolved			Total			Dissolved		
	Level	8/8/96			8/8/96			8/8/96			8/8/96			8/8/96			8/8/96		
Analyte	ug/L	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL
Aluminum		2920	/	50.0		B/U	82.5		B/U	175		B/U	79.0	776	/	50.0		B/U	97.5
Antimony			U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0
Arsenic	8.8	**17.6**	S/	1.0	**12.3**	S/	1.0	6.0	BS/	1.0	6.6	BS/	1.0	**21.5**	/	1.0	**25.9**	S/	1.0
Barium		63.0	B/	10.0	49.0	B/	10.0	106	B/	10.0	164	B/	10.0	84.5	B/	10.0	82.5	B/	10.0
Beryllium	0.02		U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20
Cadmium			U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20
Calcium		115000	/	1000	108000	/	1000	90500	/	1000	98000	/	1000	97100	/	1000	93200	/	1000
Chromium		36.0	/	10.0		U/	10.0		U/	10.0		U/	10.0	29.0	/	10.0		U/	10.0
Cobalt		10.0	U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Copper			/U	38.5		B/U	14.0		B/U	15.5		U/	10.0		B/U	21.0		B/U	19.0
Iron		13900	*/J	20.0	7280	*/J	20.0		*UJ	1480		*/UJ	2050	9570	*/J	20.0	8050	*/J	20.0
Lead			S/U	7.5		US/	1.5		U/	1.5		U/	1.5	38.5	S/	1.5		W/U	3.5
Magnesium		48100	/	1000	45000	/	1000	37200	/	1000	60700	/	1000	27500	/	1000	24700	/	1000
Manganese	3300 - 275	**374**	E*/J	10.0	262	E*/J	10.0	38.5	E*/J	10.0		E*/UJ	45.5	**641**	E*/J	10.0	**612**	E*/J	10.0
Mercury			U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20
Nickel			B*/UJ	26.5		U*/UJ	20.0		B*/UJ	23.0		U*/UJ	20.0		B*/UJ	35.0		U*/UJ	20.0
Potassium		1800	B/	100	491	B/	100	990	B/	100	982	B/	100	5350	/	100	5070	/	100
Selenium			US/	2.0		US/	2.0		U/	2.0		U/	2.0		U/	2.0		US/	2.0
Silver			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Sodium		10100	/	2000	9240	/	2000	19700	/	2000	33100	/	2000	70900	/	2000	68100	/	2000
Thallium	2.4 - 0.2		U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0
Vanadium			U/	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0
Zinc			/U	29.0		U/	10.0		U/	10.0		U/	10.0		B/U	15.0		U/	10.0

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Table 6
Inorganic Analytical Results
American Chemical Services, Inc - NPL site
Griffith, Indiana

		APDGWMW46-01						APD-GWMW47-01						APD-GWMW47-91					
		137907			137914			137803			137809			137804			137810		
	Remediation	Total			Dissolved			Total			Dissolved			Total			Dissolved		
	Level	8/5/96			8/5/96			8/7/96			8/7/96			8/7/96			8/7/96		
Analyte	ug/L	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL
Aluminum		821	/	50.0		B/U	121		/U	383		B/U	102	476	/	50.0		B/U	141
Antimony			U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0
Arsenic	8.8	3.7	B/	1.0	4.1	BS/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0
Barium		132	B/	10.0	131	B/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Beryllium	0.02		U/	0.20		U/	0.20		UN/UJ	0.20		UN/UJ	0.20		UN/UJ	0.20		UN/UJ	0.20
Cadmium			U/	0.20		U/	0.20	0.2	B/	0.20		U/	0.20		U/	0.20		U/	0.20
Calcium		115000	/	1000	115000	/	1000	8530	/	1000	8760	/	1000	8890	/	1000	8550	/	1000
Chromium			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Cobalt			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Copper			B/U	13.0		/U	34.5		B/U	15.0		B/U	15.5		B/U	14.5		B/U	13.0
Iron		21700	*/J	20.0	21900	*/J	20.0		*/UJ	254		*/UJ	162		*/UJ	346		B*/UJ	88.5
Lead			S/U	5.0		US/	1.5	23.0	S/	1.5	20	/	1.5	23	/	1.5	31.2	/	1.5
Magnesium		30500	/	1000	30200	/	1000	2630	B/	1000	2650	B/	1000	2740	B/	1000	2750	B/	1000
Manganese	3300 - 275	**1510**	E*/J	10.0	**1510**	E*/J	10.0	27.0	*E/J	10.0	19	*E/J	10.0	26.5	*E/J	10.0	22	E*/J	10.0
Mercury			U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20
Nickel			U*/UJ	20.0		U*/UJ	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0
Potassium		1450	B/	100	1180	B/	100	1090	B/	100	1100	B/	100	1170	B/	100	1220	B/	100
Selenium			U/	2.0		US/	2.0		U/	2.0		U/	2.0		UW/	2.0		US/	2.0
Silver			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Sodium		62200	/	2000	60900	/	2000	3020	B/	2000	3290	B/	2000	4100	B/	2000	3710	B/	2000
Thallium	2.4 - 0.2		U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0
Vanadium			U/	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0
Zinc			U/	10.0		U/	10.0		/U	10.0		U/	10.0		U/	10.0		U/	10.0

1. All results in ug/L. Dissolved results area from field 0.45 um filtered sample aliquot. Totals were not filtered.
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Table 6
Inorganic Analytical Results
American Chemical Services, Inc - NPL site
Griffith, Indiana

		APD-GWMW48-01						APD-GWMW49-01						APD-GWMW49-91					
		137904			137911			137901			137908			137902			137909		
	Remediation	Total			Dissolved			Total			Dissolved			Total			Dissolved		
	Level	8/6/96			8/6/96			8/6/96			8/6/96			8/6/96			8/6/96		
Analyte	ug/L	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL
Aluminum			/U	254		B/U	99.5		B/U	110		B/U	99.0		B/U	61.5		B/U	89.0
Antimony			U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0
Arsenic	8.8	**11.3**	/	1.0	**14.2**	S/	1.0	**24.5**	/	1.0	**25.5**	/	1.0	**25**	/	1.0	**22.3**	/	1.0
Barium		160	B/	10.0	152	B/	10.0	96.5	B/	10.0	95.5	B/	10.0	100	B/	10.0	98.5	B/	10.0
Beryllium	0.02		U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20
Cadmium			U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20
Calcium		142000	/	1000	138000	/	1000	81200	/	1000	84100	/	1000	80900	/	1000	83500	/	1000
Chromium			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Cobalt			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Copper			B/U	13.5		B/U	11.5		B/U	11.0		B/U	11.5		B/U	13.5		B/U	12.0
Iron		30800	*/J	20.0	30300	*/J	20.0	20100	*/J	20.0	18600	*/J	20.0	20100	*/J	20.0	18800	*/J	20.0
Lead			S/U	3.4		U/	1.5		U/	1.5		S/U	4.5		U/	1.5		S/U	4.6
Magnesium		20100	/	1000	19300	/	1000	10700	/	1000	10900	/	1000	10500	/	1000	10700	/	1000
Manganese	3300 - 275	**688**	E*/J	10.0	**566**	E*/J	10.0	**1950**	E*/J	10.0	**1860**	E*/J	10.0	**2000**	E*/J	10.0	**1960**	E*/J	10.0
Mercury			U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20		U/	0.20
Nickel			U*/UJ	20.0		B*/UJ	32.0		U*/UJ	20.0		U*/UJ	20.0		B*/UJ	21.0		U*/UJ	20.0
Potassium		7560	B/	100	7390	B/	100	3760	B/	100	3690	B/	100	3640	B/	100	3530	B/	100
Selenium			US/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0
Silver			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0
Sodium		52100	/	2000	51000	/	2000	21300	/	2000	22700	/	2000	20600	/	2000	20300	/	2000
Thallium	2.4 - 0.2	**1.1**	B/	1.0	**1.2**	B/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0
Vanadium			U/	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0		U/	20.0
Zinc			U/	10.0		B/U	11.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0

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Table 6
Inorganic Analytical Results
American Chemical Services, Inc - NPL site
Griffith, Indiana

		APD-GWFB01-01						APD-GWFB02-01					
		137906			137913			137918			137922		
	Remediation	Total			Dissolved			Total			Dissolved		
	Level	8/6/96			8/6/96			8/8/96			8/8/96		
Analyte	ug/L	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL	Conc	LQ/DVQ	RDL
Aluminum			B/U	76.0		B/U	60.5		B/U	57.0		U/	50.0
Antimony			U/	2.0		U/	2.0		U/	2.0		U/	2.0
Arsenic	8.8		U/	1.0		U/	1.0		U/	1.0		U/	1.0
Barium			U/	10.0		U/	10.0		U/	10.0		U/	10.0
Beryllium	0.02		U/	0.20		U/	0.20		U/	0.20		U/	0.20
Cadmium			U/	0.20		U/	0.20		U/	0.20		U/	0.20
Calcium			U/	1000		U/	1000		U/	1000		U/	1000
Chromium			U/	10.0		U/	10.0		U/	10.0		U/	10.0
Cobalt			U/	10.0		U/	10.0		U/	10.0		U/	10.0
Copper			B/U	13.5		B/U	18.5		B/U	10.5		U/	10.0
Iron			B*/UJ	375		B*/UJ	30.0		B*/UJ	23.0		U*/UJ	20.0
Lead		3.1	/	1.5	3.0	/	1.5	2.9	B/	1.5		U/	1.5
Magnesium			U/	1000		U/	1000		U/	1000		U/	1000
Manganese	3300 - 275		UE*/UJ	10.0		UE*/UJ	10.0		EU*/UJ	10.0		EU*/UJ	10.0
Mercury			U/	0.20		U/	0.20		U/	0.20		U/	0.20
Nickel			U*/UJ	20.0		U*/UJ	20.0		U*/UJ	20.0		U*/UJ	20.0
Potassium			U/	100	104	B/	100		U/	100		U/	100
Selenium			U/	2.0		U/	2.0		U/	2.0		U/	2.0
Silver			U/	10.0		U/	10.0		U/	10.0		U/	10.0
Sodium			U/	2000		U/	2000		U/	2000		U/	2000
Thallium	2.4 - 0.2		U/	1.0		U/	1.0		U/	1.0		U/	1.0
Vanadium			U/	20.0		U/	20.0		U/	20.0		U/	20.0
Zinc			U/	10.0		B/U	10.0		U/	10.0		U/	10.0

1. All results in ug/L. Dissolved results area from field 0.45 um filtered sample aliquot. Totals were not filtered.
2. LQ/DVQ = Laboratory Qualifier/Data Validation Qualifier Definitions:

B This Flag is applied to a value greater than or equal to the instrument detection limit (IDL), but less than the Practical Quantitation Limit. (e.g., used by the EPA to indicate the results is "bracketed" by the ICL and CRDL. This laboratory qualifier does not indicate blank contamination for inorganic analyses.)

E Interferences were encountered during the ICP Analysis.

U Indicates analyte was analyzed for, but was not detected above the Reported Detection Limit (RDL). If the U flag is in the DVQ position, the analyte was detected in the blank and the result has been qualified as undetected, with the RDL set at the sample concentration.

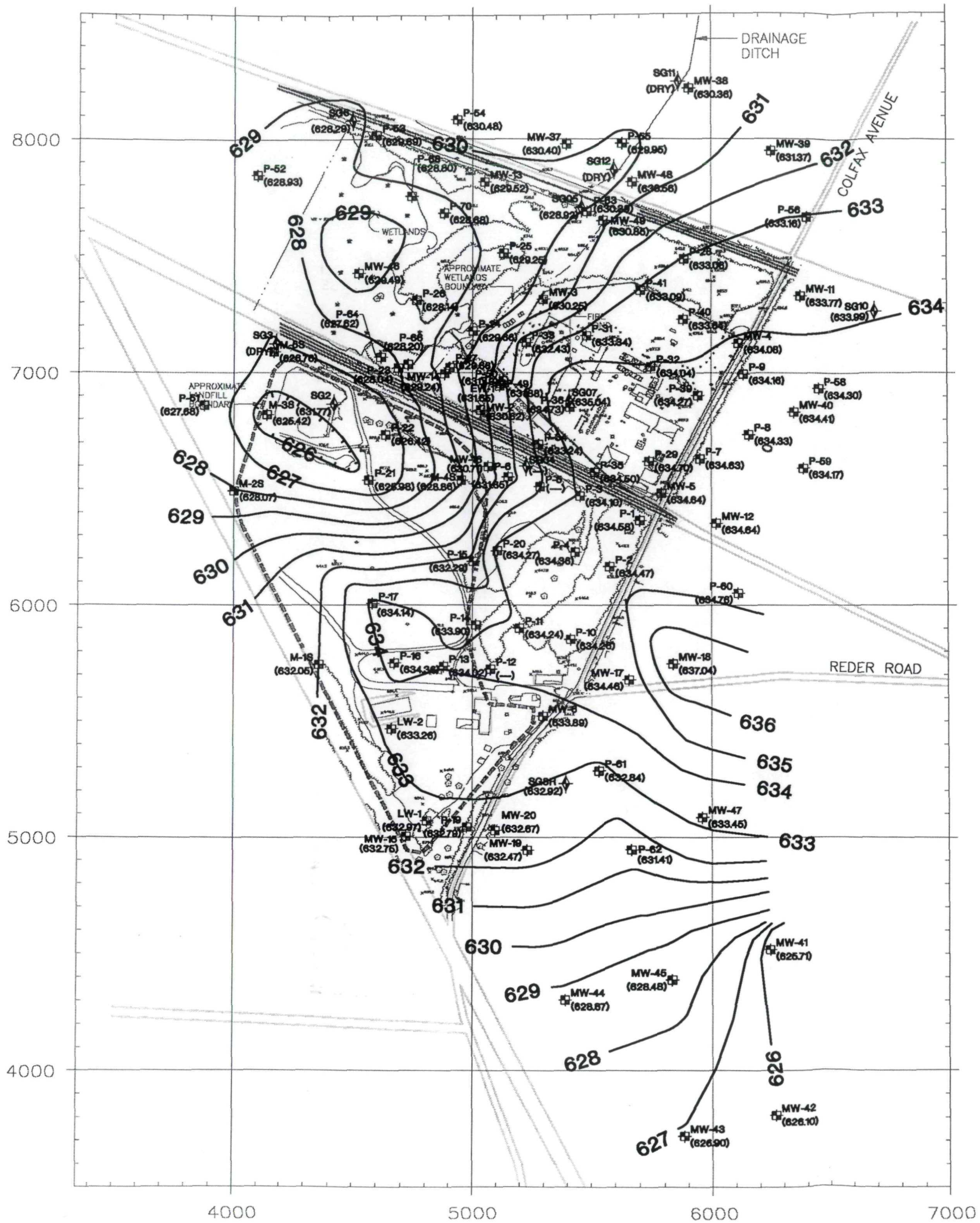
Bold indicates exceedence of low end of Remediation levels

Table 7
Upper Aquifer Sampling Plan
American Chemical Service, Inc. NPL Site
Griffith, Indiana

	Area of Site	Well Identification	Site Location	Completed in 1996		1997		
				August	October	March	June	September
1	North	MW37	Downgradient	TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL
2		MW38	Downgradient	TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL
3		MW39	Side-gradient	TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL
4	East	MW11	Side-gradient		TAL/TCL	TAL/TCL	TAL/TCL	TAL/TCL
5		MW40	East of site	TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL
6		MW12			TAL/TCL	TAL/TCL	TAL/TCL	TAL/TCL
7		MW18			TAL/TCL	TAL/TCL	TAL/TCL	TAL/TCL
8	Southeast	MW47	Downgradient	TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL
9		MW41	southeast of landfill	TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL
10		MW42		TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL
11		MW43		TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL
12		MW44		TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL
13		MW19			TAL/TCL	TAL/TCL	TAL/TCL	TAL/TCL
14	Southwest	MW15	Southwest of landfill		TAL/TCL	TAL/TCL	TAL/TCL	TAL/TCL
15		M1S	Griffith Landfill	not sampled		TAL/TCL	TAL/TCL	TAL/TCL
16		M3S	Griffith Landfill	not sampled		TAL/TCL	TAL/TCL	TAL/TCL
24		M4S	Griffith Landfill	not sampled		TAL/TCL	TAL/TCL	TAL/TCL
17	Wetlands	MW14	Downgradient		TAL/TCL	TAL/TCL	TAL/TCL	TAL/TCL
18		MW46	in wetland area	TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL
19		MW13			TAL/TCL	TAL/TCL	TAL/TCL	TAL/TCL
20	Plume Interior	MW48	North side of site	TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL
21		MW49	North side of site	TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL
22		MW6	southeast of landfill		TAL/TCL	TAL/TCL	TAL/TCL	TAL/TCL
23		MW45	southeast of landfill	TAL/TCL		TAL/TCL	TAL/TCL	TAL/TCL

Notes:
TCL Target Compound List (VOCs, SVOCs, pesticides & PCBs)
TAL Target Analyte List (Metals)

FIGURES



LEGEND

MW-12	UPPER AQUIFER WELL LOCATION AND NUMBER
M-18	LEACHATE/UPPER AQUIFER WELL LOCATION AND NUMBER
P-61	PIEZOMETER LOCATION AND NUMBER
SG10	STAFF GAUGE LOCATION AND NUMBER
(630.62)	MEASURED WATER TABLE ELEVATION, IN FT. AMSL
(—)	NOT MEASURED
635	GROUNDWATER ELEVATION CONTOUR

NOTES

1. GROUNDWATER LEVELS FOR WATER TABLE CONTOURS WERE MEASURED AT THE SITE ON AUGUST 27, 1996.

north

0 500 1000

SCALE IN FEET

FIGURE 2

Drawn By CCM
Date
Developed By DAP
Approved By
Reference
Revisions

UPPER AQUIFER WATER TABLE ELEVATIONS
AUGUST 27, 1996

UPPER AQUIFER TECH MEMO
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Drawing Number
4077.0071 **B1**

MONTGOMERY WATSON

QUALITY CONTROL	Graphic Standards CCM	9-10-96	Technical Review	Management Review
	Lead Professional		Project Manager	Other

This document has been developed for a specific application and may not be used without the written approval of Montgomery Watson.

A

Soil Boring Logs
Monitoring Wells and Piezometers

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW37
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 634.0
Northing: 7976.0
Easting: 5395.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		20	M	6		Dark Brown, Sandy, Silty TOPSOIL		3.0	
						Loose, Yellow-Brown to Light Orange-Brown, Fine to Medium SAND, Little to Some Silt (SM)		1.0	
2		13	W	13				0.0	
						Medium Dense, Light Gray-Brown, Fine to Coarse SAND, Little to Some Silt (SM)			
					5				
3		15	W	10		Medium Dense,Light Gray/Brown, Fine to Medium SAND, Little to Some Silt (SM)		0.0	
						Medium Dense, Light Gray, Fine to Coarse SAND, Little to Some Silt (SM)			
						Medium Dense, Light Gray, Fine to Medium SAND, Little to Some Silt (SM)			
4		20	W	10				0.0	
					10				
5		20	W	13				0.0	
						Stiff, Gray, Silty CLAY, Trace Fine Sand (CL)			
						1" Clay Seam			
6		19	W/M	13		Fine to Coarse SAND, Little Silt (SM)		0.0	
						3" CLAY Seam at 13.5 ft			
						Very Stiff, Light Gray, Silty CLAY, Trace Fine to Coarse SAND (CL)			
					15				
7		12	M					0.0	
						End of Boring at 16.0 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 3.0 ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/16/96 End 7/16/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770.ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW38
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 633.6
Northing: 8216.0
Easting: 5903.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		21	M	4		Black, Sandy, Silty TOPSOIL		0.0	
						Loose, Brown, Fine to Medium SAND, Little to Some Silt (SM)			
2		14	W	9				0.0	
					5	Loose, Gray, Fine to Medium SAND, Little to Some Silt, Trace Clay (SM)			
3		20	W	11				0.0	
						Medium Dense, Fine to Coarse SAND and GRAVEL, Little to Some Silt (SM/GM)			
4		18	W	21				0.0	
					10				
5		12	W	5				0.0	
						Very Stiff, Gray, Silty CLAY, Little to Some, Fine to Coarse Sand (CL)			
6		20	M	19				0.0	
					15				
						End of Boring at 15.0 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 3.0 ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling ____ ____ ____ ____
Depth to Water ____ ____ ____ ____
Depth to Cave in ____ ____ ____ ____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/17/96 End 7/17/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770_ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project **American Chemical Service, Inc.**

Location **Griffith, Indiana**

Boring No. **MW39**
Job No. **4077.0075**
Sheet **1** of **1**
Surface Elevation **634.0**
Northing: **7947.0**
Easting: **6253.0**

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		18	M	2		Dark Brown/Black TOPSOIL		0.0	
2		18	W	5		Medium Dense, Gray, Fine to Coarse SAND, Trace Gravel (SP)		0.0	
3		18	W	9	5				
						Medium Dense, Gray, Fine to Coarse SAND, Little Gravel (SP)			
4		20	W	10				0.0	
5			M	9	10	Medium Dense, Gray, Fine to Coarse SAND, Little Gravel, Little Silt (SP)			
						Medium Stiff, Gray, Silty CLAY (CL)			
6		12	M	15				0.0	
					15	End of Boring at 15.0 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling ____ ____ ____ ____
Depth to Water ____ ____ ____ ____
Depth to Cave in ____ ____ ____ ____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **7/16/96** End **7/16/96**
Driller **Stearns** Chief **CSY** Rig **CME 850**
Logger **MEV** Editor **CSY**
Drill Method **4 1/4 ID HSA**

J\4077\Gint\40770 ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW40
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 636.6
Northing: 6831.0
Easting: 6349.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		18	M	3		Black, Silty, Fine to Medium, Sandy TOPSOIL		0.0	
						Loose, Yellow-Brown, Fine to Medium SAND, Little to Some Silt (SM)			
2		18	W	5				0.0	
3		18	W	3	5	Loose, Light Gray and Brown, Mottled, Fine to Coarse SAND, Trace Gravel, Little to Some Silt (SM), Broken Shells		0.0	
4		18	W	6				0.0	
						Loose, Light Gray, Fine to Coarse SAND, Little to Some, Fine to Coarse Gravel, Little to Some Silt (SM)			
5		10	W	9	10			0.0	
						Loose, Light Gray, Fine to Coarse SAND, Little to Some Silt (SM)			
6		16	W	12				0.0	
						Stiff, Light Gray, Clayey SILT and Silty CLAY Interbedded (CL)			
7		10	M		15				
						End of Boring at 16.0 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 3.0 ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling ____ ____ ____ ____
Depth to Water ____ ____ ____ ____
Depth to Cave in ____ ____ ____ ____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/16/96 End 7/16/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770_ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW41
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 629.6
Northing: 4517.0
Easting: 6242.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		18	M	6		Loose, Dark Brown, Silty, Clayey, Sandy TOPSOIL		8.6	
						Loose, Light Gray, Silty, Fine to Medium SAND, Trace to Little Clay (SM), Lacustrian, Some Bedding Plains Apparent			
2		22	M	2				0.0	
3		22	M	2	5	(2) 1" Sandy Clay Seams at 6.5' and 6.8'			
						Soft, Light Gray, Silty CLAY and Clayey SILT, Little Fine Sand (CL-ML), Plastic, Lacustrian, Some Bedding Apparent			
		20	M	9					
5		16	M	6	10			0.0	
6				14		Very Stiff, Light Gray, Silty CLAY, Little Fine to Coarse Sand, Trace Fine Gravel (CL)			
					15	End of Boring at 15.0 ft Note: MW41 will be placed in this boring. Located approximately 60 ft south of original MW41.			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.

Time After Drilling				
Depth to Water				
Depth to Cave in				

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/17/96 End 7/17/96
Driller Stearns Chief CSY Rig CME 850
Logger MEV Editor CSY
Drill Method 4 1/4 ID HSA

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW41R1
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation
Northing:
Easting:

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		10	W	4		Soft to Medium Stiff, Brown Grading to Light Gray, Silty CLAY, Trace Fine Sand (CL)			
2		24	W	4					
					5	End of Boring at 5.0 ft Note: Raining hard, unable to use PID, Located 25' north and 25' west of original MW41 location.			
					10				
					15				
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.

Time After Drilling				
Depth to Water				
Depth to Cave in				

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/18/96 End 7/18/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770 ID: PSDETBT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW41R2
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation
Northing:
Easting:

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		14	W	3		Medium Stiff, Dark Brown, Silty CLAY, Trace to Little, Fine to Medium Sand (CL)			
2		16	M	3		Medium Stiff, Light Gray with Yellow-Brown Mottling, Silty CLAY, Trace to Little Fine Sand (CL)			
					5	End of Boring at 5.0 ft Note: Located 25' north and 25' west of MW41R1.			
					10				
					15				
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/18/96 End 7/18/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770_ID: PSDETRT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW41R3
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation
Northing:
Easting:

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	TYPE	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		12	M/W	2		Soft, Dark Brown, Silty CLAY, Little Fine to Medium Sand (CL)			
						Soft, Light Gray and Yellow-Brown, Silty CLAY, Little Fine to Medium Sand (CL)			
2		22	M/W	2					
					5	End of Boring at 5.0 ft Note: Located 75' north and west, respectively from original MW41 location.			
					10				
					15				
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/18/96 End 7/18/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Glint\40770 ID: PSDETRT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW41R4
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation
Northing:
Easting:

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		10	M/W	2		Soft, Dark Brown, Silty, Clayey TOPSOIL, Little Fine to Medium Sand			
						Soft, Light Gray and Yellow-Orange Brown, Silty CLAY, Little Fine to Medium Sand (CL), Lacustrine (Some Bedding Apparent)			
2		20	M/W	4					
3		19	M/W	3	5				
						Very Stiff, Gray, Silty CLAY, Trace to Little, Fine to Coarse Sand, Trace Fine Gravel (CL)			
4		24	M	21					
					10	End of Boring at 10.0 ft Note: Located 75' west of original MW41 boring location.			
					15				
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/18/96 End 7/18/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770 ID: PSDETRT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW41R5
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation
Northing:
Easting:

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	TYPE	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		12	M/W	6		Dark Brown, Silty, Clayey TOPSOIL, Little Sand			
						Soft to Medium Stiff, Gray with Brown Mottling, Silty CLAY (CL)			
2		18	W/M	4					
3		20	M/W	1	5	Decreasing Brown Color			
						End of Boring at 7.0 ft			
						Note: Located 90' northwest of MW41R4.			
					10				
					15				
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/18/96 End 7/18/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW41R6
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation
Northing:
Easting:

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES		
No.	TYPE	Rec. (in.)	Mois-ture	N Value	Depth (ft.)		qu (qa) (tsf)	PID (ppm)	Remarks
1		22	M	4		Soft, Dark Brown, Silty, Clayey TOPSOIL, Little Fine to Medium Sand			
						Soft, Orange-Brown, Silty CLAY, Little to Some, Fine to Medium Sand (CL)			
2		18	M/W	4		Soft, Light Brown, Silty CLAY, Little to Some Sand (CL) 3" Fine to Medium SAND Seam, Some Silt at 4.2'			
3		16	M/W	2	5	Thin Bedding Planes Visable			
						Very Stiff, Gray, Silty CLAY, Trace to Little, Fine to Coarse Sand and Fine Gravel (CL)			
		20	M	18	10				
						End of Boring at 10.0 ft Note: Located approximately half way between MW47 and original MW41 location.			
					15				
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/18/96 End 7/18/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770_ID. PSDETRT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW41R7
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation
Northing:
Easting:

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		12	M	4		Medium Dense, Brown/Dark Brown TOPSOIL			
2		17	W	4		Medium Dense, Light Brown/Gray, Silty SAND (SM)			
3		20	W	1	5	Medium Stiff, Light Brown/Gray, Silty CLAY (CL)			
4		22	W	2		Medium Stiff, Gray, Silty CLAY, Trace Sand (CL)			
5		22	W	4	10				
6		24	M	18		Medium Stiff, Gray, Silty CLAY (CL)			
					15	End of Boring at 15.0 ft Boring backfilled with 3/4 gravel mix, 1/4 holeplug. Did not set well due to Clay formation.			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 3.0 ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/18/96 End 7/18/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770 ID: PSDETRT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW42
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 629.3
Northing: 3808.0
Easting: 6264.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		18	M	3		Dark Brown TOPSOIL			
2		18	M	2		Medium Stiff, Gray, Silty SAND (SM)			
3		16	W	9	5				
						Medium Dense, Gray, Fine to Coarse SAND, Trace Gravel (SP)			
4		12	W	4					
5		12	W	8	10				
6		18	W	8					
						Stiff, Gray, Silty CLAY (CL)			
7		12	M	8	15				
						End of Boring at 17.0 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling ____ ____ ____ ____
Depth to Water ____ ____ ____ ____
Depth to Cave in ____ ____ ____ ____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/17/96 End 7/17/96
Driller Stearns Chief CSY Rig CME 850
Logger MEV Editor CSY
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770 ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW43
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 630.2
Northing: 3719.0
Easting: 5880.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		20	M	4		Dark Brown TOPSOIL			
						Medium Stiff, Light Brown/Gray, Silty SAND (SM)			
2		20	M	3				0.0	
					5	Medium Dense, Gray, Silty SAND, Some Gravel (SM)			
3		20	W	4				0.0	
						Medium Dense, Gray, Fine to Coarse SAND, Little Gravel (SP)			
4		20	W	7		Medium Dense, Gray, Silty SAND (SM)			
5		24	W	7	10				
6		22	W	3		Medium Dense, Gray, Fine to Coarse SAND (SP)		0.0	
7		22	W	2	15			0.0	
8			M	5					
						Medium Stiff, Gray, Silty CLAY (CL)			
						End of Boring at 20.0 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 5.0 ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling ____ ____ ____ ____
Depth to Water ____ ____ ____ ____
Depth to Cave in ____ ____ ____ ____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/17/96 End 7/17/96
Driller Stearns Chief CSY Rig CME 850
Logger MEV Editor CSY
Drill Method 4 1/4 ID HSA

J4077\Gint\40770 ID: PSDETRT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project American Chemical Service, Inc.

Location Griffith, Indiana

Boring No. MW44
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 630.0
Northing: 4303.0
Easting: 5390.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		12	M	5		Black, Silty, Sandy TOPSOIL		0.0	
						Loose, Tan, Fine to Medium SAND, Little to Some Silt (SM)			
2		18	W	5		Soft to Medium Stiff, Silty CLAY, Little Fine Sand (Plastic) (CL)		0.0	
3		16	W	3	5			0.0	
						Loose, Light Gray, Fine to Medium SAND, Little to Some Silt (SM)			
						Medium Stiff, Light Gray, Silty CLAY (CL)			
4		19	M	7				0.0	
5		18	W	6	10	Loose, Light Gray, Fine to Medium SAND, Little to Some Silt (SM)		0.0	
						Medium Stiff, Light Gray, Silty CLAY, Trace Fine Sand (CL)			
6		20	M	12		Stiff, Light Gray, Silty CLAY, Trace Fine to Coarse Sand (CL)		0.0	
					15	End of Boring at 15.0 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 3.0 ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/17/96 End 7/17/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770_ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW45
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 632.1
Northing: 4388.0
Easting: 5830.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		8	M	1		Dark Brown/Black TOPSOIL			
2		18	W	4		Medium Dense, Gray, Fine to Coarse SAND, Some Gravel (SP)			
3		18	W	6	5				
		12	W	4					
5		18	W	11	10				
						Medium Stiff, Gray, Silty CLAY, Trace Gravel (CL)			
6		12	M	12					
					15	End of Boring at 15.0 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling ____ ____ ____ ____
Depth to Water ____ ____ ____ ____
Depth to Cave in ____ ____ ____ ____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/17/96 End 7/17/96
Driller Stearns Chief CSY Rig CME
Logger MEV Editor CSY 850
Drill Method 4 1/4 ID HSA

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MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW46
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 630.2
Northing: 7424.0
Easting: 4526.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		16	M	2		Dark Brown TOPSOIL		0.0	
						Medium Dense, Gray, Fine to Coarse SAND, Some Gravel (SP)		0.0	
2		12	W	5				0.0	
3		16	W	8	5	Medium Dense, Gray, Fine to Coarse SAND, Trace Gravel, Trace Silt (SP)		0.0	
		18	W	16				0.0	
5		20	W	4	10				
						Stiff, Gray, Silty CLAY, Trace Sand and Gravel (CL)			
6		12	W	12				0.0	
					15	End of Boring at 15.0 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 3.0 ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/16/96 End 7/16/96
Driller Stearns Chief CSY Rig CME 850
Logger MEV Editor CSY
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770 ID: PSDETRT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW47
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 637.6
Northing: 5084.0
Easting: 5958.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		16	M	2		Medium Dense, Brown, Fine to Medium SAND (SP)		4.4	
					▽				
2		18	M	5				3.2	
3		20	W	4	5			1.6	
						Medium Dense, Gray, Fine to Medium, Silty SAND (SM)			
4		18	W	7				0.0	
						Medium Dense, Gray, Fine to Medium SAND (SP)			
5		18	W	2	10			0.6	
6		20	W	10		Medium Stiff, Gray, Silty CLAY (CL)		0.0	
					15				
						End of Boring at 15.0 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 3.0 ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/17/96 End 7/17/96
Driller Stearns Chief CSY Rig CME 850
Logger MEV Editor CSY
Drill Method 4 1/4 ID HSA

J4077Gint\40770 ID: PSDETRT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW48
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 632.6
Northing: 7814.0
Easting: 5669.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		20	M	1		Dark Brown TOPSOIL		1.5	
						Medium Dense, Gray, Fine to Coarse SAND, Some Gravel (SP)			
2		18	W	8				70.0	Strong Odor
3		16	W	9	5	Medium Dense, Gray, Fine to Coarse SAND, Trace Silt			
		24	W	18					Odor
5		24	W	11	10			0.3	
						Stiff, Gray, Silty CLAY (CL)			
6		12	M	10					Slight Odor
					15	End of Boring at 14.0 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/16/96 End 7/16/96
Driller Stearns Chief CSY Rig CME 850
Logger MEV Editor CSY
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770 ID: PSDETRT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. MW49
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 634.2
Northing: 7650.0
Easting: 5551.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	PID (ppm)	Remarks
1		24	M	4		Loose, Black, Silty, Sandy TOPSOIL		1.0	
						Loose, Yellow-Brown, Fine toMedium SAND, Little to Some Silt (SM)			
						Loose, Black, Silty, Sandy TOPSOIL (Burried)			
						Loose, Yellow-Brown to Tan, Fine to Medium SAND, Little to Some Silt (SM)			
2		12	W	4				0.0	
					5				
3		20	W	8		Loose, Light Gray, Fine to Coarse SAND, Little to Some Silt (SM)		3.0	
						Medium Dense, Light Gray, Fine to Medium SAND, Some Silt (Prodominantly Fine) (SM)			
4		19	W	22				6.0	
					10				
5		18	W	15				19.0	
						Very Stiff, Light Gray, Silty CLAY, Trace Sand (CL)			
6		22	M	23				1.0	
					15				
						End of Boring at 15.0 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.

Time After Drilling				
Depth to Water				
Depth to Cave in				

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/16/96 End 7/16/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor CSY
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770 ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project American Chemical Service, Inc.

Location Griffith, Indiana

Boring No. P64
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 631.1
Northing: 7065.0
Easting: 4617.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES		
No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)		qu (qa) (tsf)	PID (ppm)	Remarks
						Boring Blind Drilled from 0 to 7.0 ft, See Boring P65 for Geologic Descriptions			
					5				
						End of Boring at 7.0 ft			
					10				
					15				
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling ____ ____ ____ ____
Depth to Water ____ ____ ____ ____
Depth to Cave in ____ ____ ____ ____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/14/96 End 7/14/96
Driller Stearns Chief CSY Rig CME 850
Logger MEV Editor CSY
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770 ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. P65
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 631.2
Northing: 7063.0
Easting: 4615.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		16	M	2		Dark Brown TOPSOIL		0.2	
2		24	M	7		Medium Dense, Light Brown, Fine to Coarse SAND (SP)		0.1	
					5	Medium Dense, Gray, Fine to Coarse SAND, Trace Silt (SP)			
3		12	M	7				0.0	
4			M	10		Medium Dense, Gray, Silty SAND (SM)		0.0	
5		8	M	16	10			0.0	
6			M	13		Dense, Gray, Silty CLAY, Trace Gravel (CL)			
					15	End of Boring at 13.0 ft Note: P64 installed adjacent to P65 at water table. Blind drilled to 7.0 ft.			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/14/96 End 7/14/96
Driller Stearns Chief CSY Rig CME 850
Logger MEV Editor CSY
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770 ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project American Chemical Service, Inc.

Location Griffith, Indiana

Boring No. P66
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 632.1
Northing: 7034.0
Easting: 4729.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES		
No.	Type	Rec. (in.)	Mois-ture	N Value	Depth (ft.)		qu (qa) (tsf)	PID (ppm)	Remarks
						Boring Blind Drilled from 0 to 7.5 ft, See Boring P67 for Geologic Descriptions			
					5				
						End of Boring at 7.5 ft			
					10				
					15				
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 3.0 ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/15/96 End 7/15/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770 ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. P67
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 632.0
Northing: 7034.0
Easting: 4732.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		18	M	3		Black, Fine to Medium, Sandy, Silty TOPSOIL		0.0	
						Very Loose, Light Gray, Fine to Medium SAND, Little to Some Silt (SM)			
2		18	W	7		Loose, Yellow-Brown, Fine to Medium SAND (Predominantly Fine), Little to Some Silt (SM)		0.0	
3		6	W	5	5			0.0	PID went out, bad battery
						Loose, Light Gray, Fine to Medium SAND (Predominantly Fine), Little to Some Silt (SM)			
4		16	W	7		Soft, Light Gray, Silty SAND, Some Clay (SC-SM)			
5		18	W	5	10	Loose, Gray, Fine to Coarse SAND, Little to Some Silt (SM)			
						Loose, Light Gray, Fine to Medium SAND (Predominantly Fine), Little to Some Silt (SM)			
6		18	W	10		Stiff, Light Gray, Silty, Sandy CLAY, Trace Fine Gravel (CL)			
7		12	M		15				
						End of Boring at 16.0 ft Note: P66 installed adjacent to P67 at water table, Blind Drilled to 7.5 ft			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 3.0 ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling ____ ____ ____ ____
Depth to Water ____ ____ ____ ____
Depth to Cave in ____ ____ ____ ____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/15/96 End 7/15/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770 ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project **American Chemical Service, Inc.**

Location **Griffith, Indiana**

Boring No. **P68**
Job No. **4077.0075**
Sheet **1** of **1**
Surface Elevation **630.8**
Northing: **7752.0**
Easting: **4743.0**

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES		
No.	Type	Rec. (in.)	Mois-ture	N Value	Depth (ft.)		qu (qa) (tsf)	PID (ppm)	Remarks
						Boring Blind Drilled from 0 to 7.0 ft, See Boring P69 for Geologic Descriptions			
					5				
						End of Boring at 7.0 ft			
					10				
					15				
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **7/16/96** End **7/16/96**
Driller **Stearns** Chief **CSY** Rig **CME 850**
Logger **MEV** Editor **CSY**
Drill Method **4 1/4 ID HSA**

J:\4077\Gint\40770_ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. P69
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 630.8
Northing: 7751.0
Easting: 4741.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	TYPE	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	PID (ppm)	Remarks
1		6	M	2		Dark Brown TOPSOIL		2.2	
						Medium Dense, Gray, Fine to Coarse SAND, Some Gravel (SP)			
2		12	W	5				1.9	
					5				
3		12	W	8		Medium Dense, Gray, Fine to Coarse SAND, Trace Silt (SP)		4.3	
4		18	W	5				0.0	
					10				
5		18	W	6		Medium Dense, Gray, Fine to Coarse SAND, Trace Gravel and Silt (SP)		0.0	
						Dense, Gray, Silty CLAY, Trace Gravel (CL)			
6		12	M	19				0.0	
					15				
						End of Boring at 15.0 ft Note: P68 installed adjacent to P69 at water table. Blind drilled to 7.0 ft.			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.

Time After Drilling				
Depth to Water				
Depth to Cave in				

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/16/96 End 7/16/96
Driller Stearns Chief CSY Rig CME 850
Logger MEV Editor CSY
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770_ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project **American Chemical Service, Inc.**

Location **Griffith, Indiana**

Boring No. **P70**
Job No. **4077.0075**
Sheet **1** of **1**
Surface Elevation **631.3**
Northing: **7680.0**
Easting: **4880.0**

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES		
No.	TYPE	Rec. (in.)	Mois-ture	N Value	Depth (ft.)		qu (qa) (tsf)	PID (ppm)	Remarks
						Boring Blind Drilled from 0 to 7.5 ft, See Boring P71 for Geologic Descriptions			
					5				
						End of Boring at 7.5 ft			
					10				
					15				
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ **3.0** ft. Upon Completion of Drilling ▼ _____ ft.
Time After Drilling _____ _____ _____ _____
Depth to Water _____ _____ _____ _____
Depth to Cave in _____ _____ _____ _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **7/16/96** End **7/16/96**
Driller **Stearns** Chief **CSY** Rig **CME 850**
Logger **CSY** Editor **MEV**
Drill Method **4 1/4 ID HSA**

J:\4077\Gint\40770 ID: DETROIT2

MONTGOMERY WATSON

LOG OF TEST BORING

Project: American Chemical Service, Inc.

Location: Griffith, Indiana

Boring No. P71
Job No. 4077.0075
Sheet 1 of 1
Surface Elevation 631.2
Northing: 7682.0
Easting: 4876.0

41551 Eleven Mile Road, P.O. Box 8012, Novi, MI 48376, TEL. (810) 344-0205

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	Remarks
1		16	M	2		Loose, Black, Fine to Medium, Sandy, Silty TOPSOIL		0.0	
2		16	W	11	▽	Medium Dense, Light Gray, Fine to Coarse SAND, Little to Some Silt (SM)		0.0	
3		14	W	10	5			0.0	
4		16	W	4		Medium Dense, Light Gray, Fine to Medium SAND (Predominantly Fine), Little to Some Silt (SM)		0.0	
5		18	W	6	10	1" to 3" Silty, Sandy CLAY Seams at 10.5' and 11.6'		0.0	
6		22	W/M	16		Stiff, Light Gray, Silty CLAY, Little Fine Sand, Trace Fine to Medium Gravel (CL)		6.0 16.0	
					15	End of Boring at 15.0 ft Note: P70 drilled next to P71, blind drilled to 7.5 ft.			
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 3.0 ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 7/16/96 End 7/16/96
Driller Stearns Chief CSY Rig CME 850
Logger CSY Editor MEV
Drill Method 4 1/4 ID HSA

J:\4077\Gint\40770 ID: PSDETRT2

B

WELL CONSTRUCTION INFORMATION MONITORING WELLS AND PIEZOMETERS

MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well 7976.0 ft. ■ N. ☐ S. 5395.0 ft. ■ E. ☐ W.	Well Name MW37
Type of Well Water Table Observation Well ■ Piezometer ☐	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/16/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	C. Yantz - Montgomery Watson J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation 637.09 ft. MSL

3' stickup

Well casing top elevation 636.78 ft. MSL

Land surface elevation 634.0 ft. MSL

Surface Seal, bottom 632.0 ft. MSL or 2.0 ft.

USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐

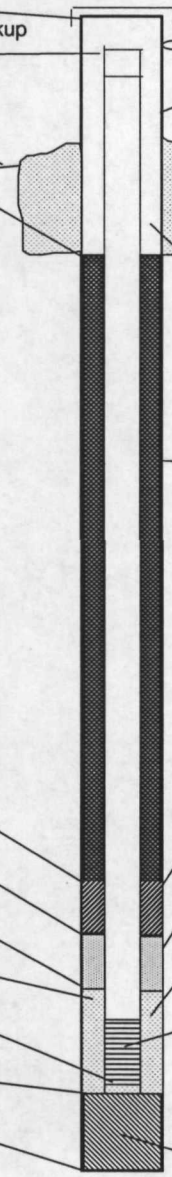
Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	634.0	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	632.0	ft. MSL or	2.0	ft.
Screen joint, top	631.0	ft. MSL or	3.0	ft.
Well bottom	620.8	ft. MSL or	13.3	ft.
Filter pack, bottom	618.0	ft. MSL or	16.0	ft.
Borehole, bottom	618.0	ft. MSL or	16.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		



Cap and lock? ■ Yes ☐ No

Protective cover pipe:
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ Other ■

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added 3 cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐ Other ■
Stainless Steel

Screen material: Stainless Steel
Screen type: Factory cut ☐ Continuous slot ■ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9.8 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

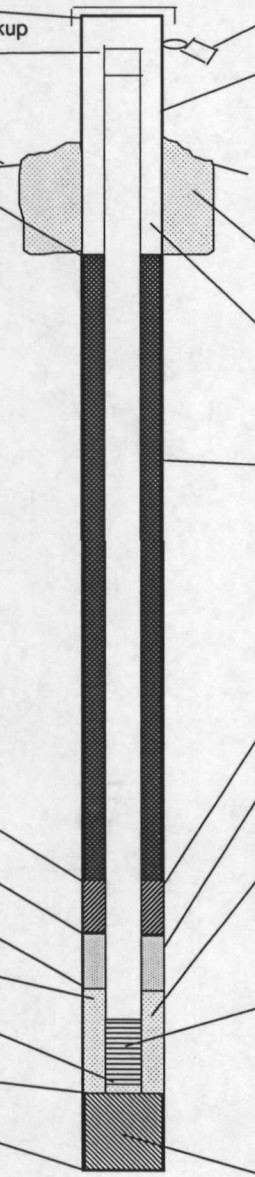
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well 8216.0 ft. ■ N. ☐ S. 5903.0 ft. ■ E. ☐ W.	Well Name MW38
Type of Well Water Table Observation Well ■ Piezometer ☐	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/17/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm) C. Yantz - Montgomery Watson
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation 636.82 ft. MSL

Well casing top elevation 636.51 ft. MSL

Land surface elevation 633.6 ft. MSL

Surface Seal, bottom 631.6 ft. MSL or 2.0 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	633.6	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	631.6	ft. MSL or	2.0	ft.
Screen joint, top	630.6	ft. MSL or	3.0	ft.
Well bottom	620.4	ft. MSL or	13.3	ft.
Filter pack, bottom	618.6	ft. MSL or	15.0	ft.
Borehole, bottom	618.6	ft. MSL or	15.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		

Cap and lock? ■ Yes ☐ No

Protective cover pipe:
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ Other ■

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global filter Pack / #7
Volume added 3 cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐
Stainless Steel Other ■

Screen material: Stainless Steel
Screen type: Factory cut ☐ Continuous slot ■ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9.45 ft.

Backfill material (below filter pack): None ☐
Filter Pack Material Other ■

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

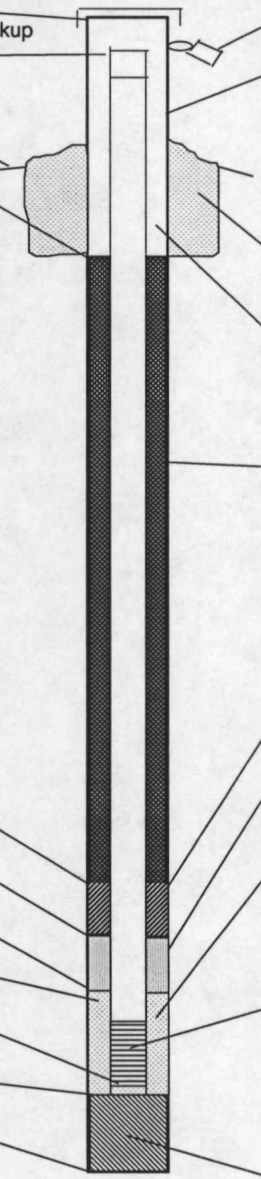
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well 7947.0 ft. ■ N. ☐ S. 6253.0 ft. ■ E. ☐ W.	Well Name MW39
Type of Well Water Table Observation Well ■ Piezometer ☐	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/16/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	MEV - Montgomery Watson J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation 638.16 ft. MSL

Well casing top elevation 637.77 ft. MSL

Land surface elevation 634.0 ft. MSL

Surface Seal, bottom 632.0 ft. MSL or 2.0 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: _____

	ELEVATION		DEPTH	
Bentonite seal, top	634.0	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	632.0	ft. MSL or	2.0	ft.
Screen joint, top	631.0	ft. MSL or	3.0	ft.
Well bottom	621.0	ft. MSL or	13.0	ft.
Filter pack, bottom	619.0	ft. MSL or	15.0	ft.
Borehole, bottom	619.0	ft. MSL or	15.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		

Cap and lock? ■ Yes ☐ No

Protective cover pipe:
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐
holeplug Other ■

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global filter Pack / #7
Volume added _____ cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐
Stainless Steel Other ■

Screen material: Stainless Steel

Screen type: Factory cut ☐ Continuous slot ■ Other ☐

Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9.95 ft.

Backfill material (below filter pack): None ☐
Filter Pack Material Other ■

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

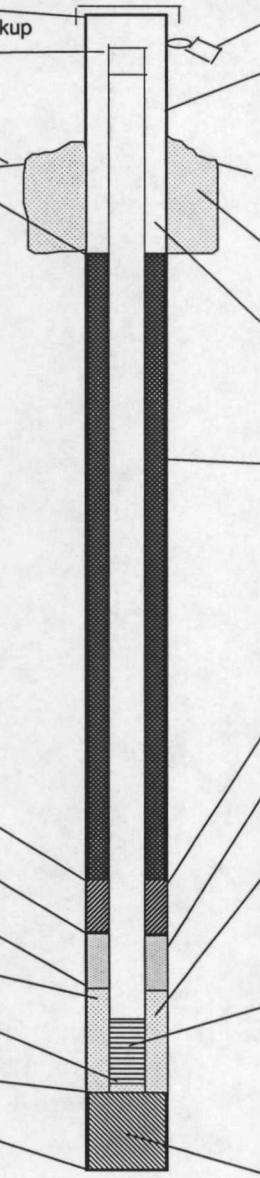
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well ■ N. 6831.0 ft. ☐ S. ■ E. 6349.0 ft. ☐ W.	Well Name MW40
Type of Well Water Table Observation Well ■ Piezometer ☐	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/16/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm) C. Yantz - Montgomery Watson
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation 639.79 ft. MSL

Well casing top elevation 639.46 ft. MSL

Land surface elevation 636.6 ft. MSL

Surface Seal, bottom 634.3 ft. MSL or 2.3 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	636.6	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	634.3	ft. MSL or	2.3	ft.
Screen joint, top	633.6	ft. MSL or	3.0	ft.
Well bottom	623.4	ft. MSL or	13.3	ft.
Filter pack, bottom	620.6	ft. MSL or	16.0	ft.
Borehole, bottom	620.6	ft. MSL or	16.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		

Cap and lock? ■ Yes ☐ No

Protective cover pipe:
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐
Hole plug Other ■

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global filter Pack / #7
Volume added 3.5 cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐
Stainless Steel Other ■

Screen material: Stainless Steel

Screen type: Factory cut ☐ Continuous slot ■ Other ☐

Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9.95 ft.

Backfill material (below filter pack): None ☐
Filter Pack Material Other ■

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well 4517.0 ft. ■ N. ☐ S. 6242.0 ft. ■ E. ☐ W.	Well Name MW41
Type of Well Water Table Observation Well ■ Piezometer ☐	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/16/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	C. Yantz - Montgomery Watson J. Huntoon - Stearns Drilling Co.

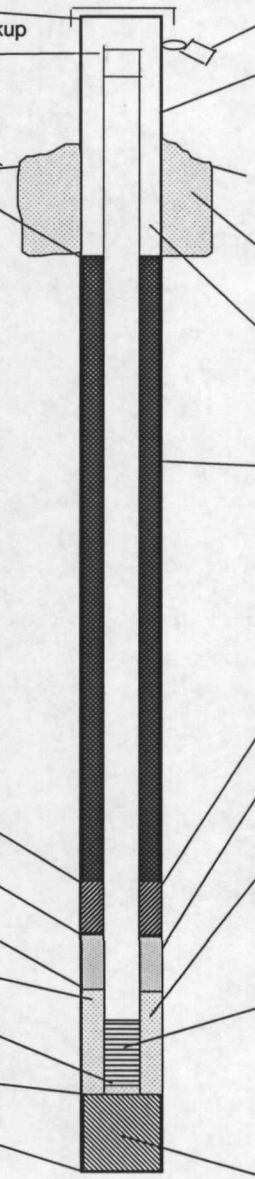
Protective pipe, top elevation 633.07 ft. MSL

3' stickup

Well casing top elevation 632.74 ft. MSL

Land surface elevation 629.6 ft. MSL

Surface Seal, bottom 627.6 ft. MSL or 2.0 ft.



USCS classification of soil near screen:

GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	629.6	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	627.6	ft. MSL or	2.0	ft.
Screen joint, top	626.6	ft. MSL or	3.0	ft.
Well bottom	616.4	ft. MSL or	13.3	ft.
Filter pack, bottom	614.6	ft. MSL or	15.0	ft.
Borehole, bottom	614.6	ft. MSL or	15.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		

Cap and lock? ■ Yes ☐ No

Protective cover pipe:
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in. Hole plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global filter Pack / #7
Volume added _____ cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐ Other ■
Stainless Steel

Screen material: Stainless Steel

Screen type: Factory cut ☐ Continuous slot ■ Other ☐

Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9.95 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

J:\4077\gint\MW41-MWC.xls

MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well ■ N. 3808.0 ft. ☐ S. ■ E. 6264.0 ft. ☐ W.	Well Name MW42
Type of Well Water Table Observation Well ■ Piezometer ☐	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/17/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	MEV - Montgomery Watson J. Huntoon - Stearns Drilling Co.

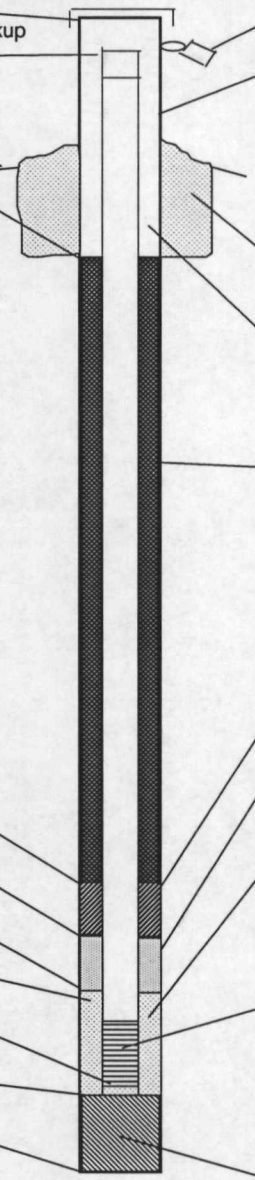
Protective pipe, top elevation 632.64 ft. MSL

3' stickup

Well casing top elevation 632.32 ft. MSL

Land surface elevation 629.3 ft. MSL

Surface Seal, bottom 627.3 ft. MSL or 2.0 ft.



USCS classification of soil near screen:

GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	NA	ft. MSL or	NA	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	NA	ft. MSL or	NA	ft.
Screen joint, top	625.3	ft. MSL or	4.0	ft.
Well bottom	615.3	ft. MSL or	14.0	ft.
Filter pack, bottom	612.3	ft. MSL or	17.0	ft.
Borehole, bottom	612.3	ft. MSL or	17.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		

Cap and lock? ■ Yes ☐ No

Protective cover pipe: 3 posts around casing
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐
Hole plug Other ■

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global filter Pack / #7
Volume added _____ cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐
Stainless Steel Other ■

Screen material: Stainless Steel
Screen type: Factory cut ☐ Continuous slot ■ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9.8 ft.

Backfill material (below filter pack): None ☐
Filter Pack Material Other ■

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

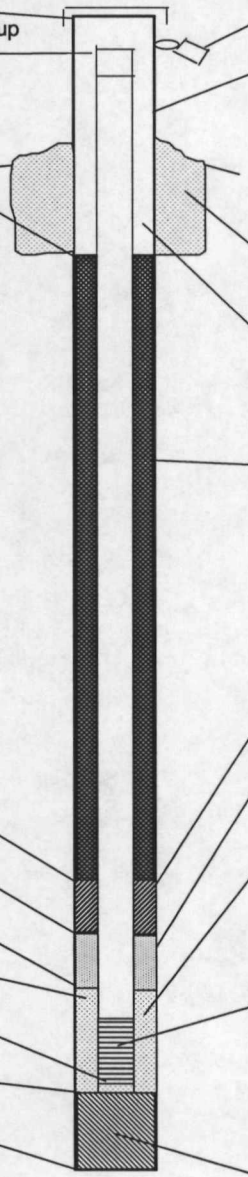
Facility/Project Name	Local Grid Location of Well	Well Name
American Chemical Service, Inc.	■ N. 3719.0 ft. ☐ S. ■ E. 5880.0 ft. ☐ W.	MW43
Type of Well: Water Table Observation Well ■ Piezometer ☐	Grid Origin Location: Lat. ____ Long. ____ or St. Plane ft. N, ft. E.	Date Well Installed: 7/17/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary: NA ft.	Location of Well Relative to Waste/Source: ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	MEV - Montgomery Watson J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation 633.88 ft. MSL

Well casing top elevation 633.56 ft. MSL

Land surface elevation 630.2 ft. MSL

Surface Seal, bottom 628.2 ft. MSL or 2.0 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	630.2	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	627.2	ft. MSL or	3.0	ft.
Screen joint, top	625.2	ft. MSL or	5.0	ft.
Well bottom	615.2	ft. MSL or	15.0	ft.
Filter pack, bottom	610.2	ft. MSL or	20.0	ft.
Borehole, bottom	610.2	ft. MSL or	20.0	ft.

Borehole, diameter 8.0 in.

O.D. well casing 2.2 in.

I.D. well casing 2.0 in.

Cap and lock? ■ Yes ☐ No

Protective cover pipe: 3 posts around casing
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe:

Surface seal: Bentonite ■ Concrete ☐ Other ☐
Redi-Mix at 1.5' bgs

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐ Bentonite-sand slurry ☐ Bentonite slurry ☐ Bentonite-cement grout ☐
____ Lbs/gal mud weight...
____ Lbs/gal mud weight.....
____ % Bentonite.....
____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.
Hole plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added ____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added ____ cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐ Other ■
Sch. 40 Stainless Steel

Screen material: Stainless Steel

Screen type: Factory cut ☐ Continuous slot ■ Other ☐

Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

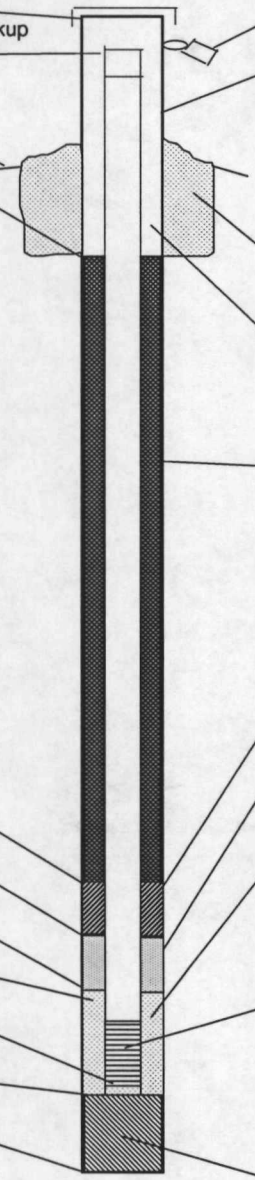
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well ■ N. ☐ S. 4303.0 ft. ■ E. ☐ W. 5390.0 ft.	Well Name MW44
Type of Well Water Table Observation Well ■ Piezometer ☐	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/17/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	C. Yantz - Montgomery Watson J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation 633.36 ft. MSL

Well casing top elevation 633.04 ft. MSL

Land surface elevation 630.1 ft. MSL

Surface Seal, bottom 628.1 ft. MSL or 2.0 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	630.1	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	628.1	ft. MSL or	2.0	ft.
Screen joint, top	627.1	ft. MSL or	3.0	ft.
Well bottom	616.9	ft. MSL or	13.3	ft.
Filter pack, bottom	615.1	ft. MSL or	15.0	ft.
Borehole, bottom	615.1	ft. MSL or	15.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		

Cap and lock? ■ Yes ☐ No

Protective cover pipe:
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐
Redi-Mix at 1.5' bgs

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above
How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.
Hole plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added 4 cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐ Other ■
Stainless Steel

Screen material: Stainless Steel
Screen type: Factory cut ☐ Continuous slot ■ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9.95 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

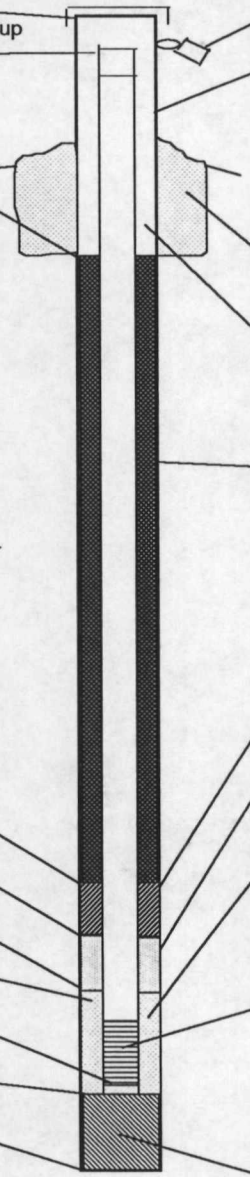
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well ■ N. ☐ S. 4388.0 ft. ■ E. ☐ W. 5830.0 ft.	Well Name MW45
Type of Well Water Table Observation Well ■ Piezometer ☐	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/16/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm) MEV - Montgomery Watson
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation 635.69 ft. MSL

Well casing top elevation 635.35 ft. MSL

Land surface elevation 632.1 ft. MSL

Surface Seal, bottom 630.1 ft. MSL or 2.0 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	632.1	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	630.3	ft. MSL or	1.8	ft.
Screen joint, top	629.1	ft. MSL or	3.0	ft.
Well bottom	619.1	ft. MSL or	13.0	ft.
Filter pack, bottom	617.1	ft. MSL or	15.0	ft.
Borehole, bottom	617.1	ft. MSL or	15.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		

Cap and lock? ■ Yes ☐ No

Protective cover pipe:
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐
Redi-Mix at 1.5' bgs

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.
Hole plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added _____ cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐ Other ■
Stainless Steel

Screen material: Stainless Steel

Screen type: Factory cut ☐ Continuous slot ■ Other ☐

Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9.95 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

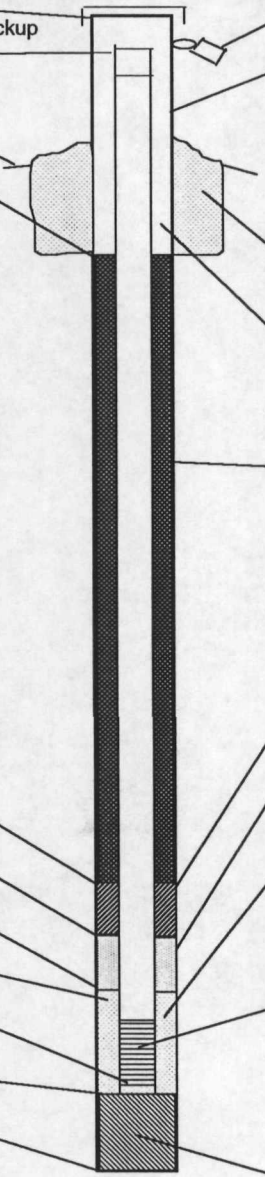
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well 7424.0 ft. ■ N. ☐ S. 4526.0 ft. ■ E. ☐ W.	Well Name MW46
Type of Well Water Table Observation Well ■ Piezometer ☐	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/16/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	MEV - Montgomery Watson J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation 633.80 ft. MSL

Well casing top elevation 633.32 ft. MSL

Land surface elevation 630.2 ft. MSL

Surface Seal, bottom 628.2 ft. MSL or 2.0 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water:
City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	630.2	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	628.4	ft. MSL or	1.8	ft.
Screen joint, top	627.2	ft. MSL or	3.0	ft.
Well bottom	617.2	ft. MSL or	13.0	ft.
Filter pack, bottom	615.2	ft. MSL or	15.0	ft.
Borehole, bottom	615.2	ft. MSL or	15.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		

Cap and lock? ■ Yes ☐ No

Protective cover pipe:
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐
Redi-Mix at 1.5' bgs

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.
Hole plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added _____ cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐ Other ■
Stainless Steel

Screen material: Stainless Steel
Screen type: Factory cut ☐ Continuous slot ■ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9.95 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

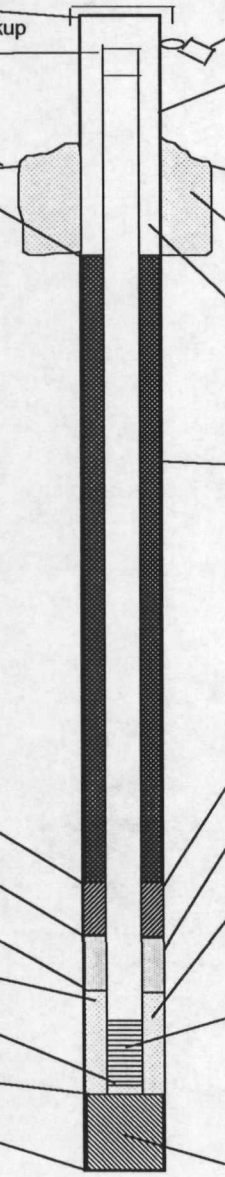
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well ■ N. 5084.0 ft. ☐ S. ■ E. 5958.0 ft. ☐ W.	Well Name MW47
Type of Well Water Table Observation Well ■ Piezometer ☐	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/17/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	MEV - Montgomery Watson J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation 640.96 ft. MSL

Well casing top elevation 640.54 ft. MSL

Land surface elevation 637.6 ft. MSL

Surface Seal, bottom 635.6 ft. MSL or 2.0 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	637.6	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	635.8	ft. MSL or	1.8	ft.
Screen joint, top	634.6	ft. MSL or	3.0	ft.
Well bottom	624.6	ft. MSL or	13.0	ft.
Filter pack, bottom	622.6	ft. MSL or	15.0	ft.
Borehole, bottom	622.6	ft. MSL or	15.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		

Cap and lock? ■ Yes ☐ No

Protective cover pipe:
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐
Redi-Mix at 1.5' bgs

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.
Hole plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added _____ cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐ Other ■
Stainless Steel

Screen material: Stainless Steel
Screen type: Factory cut ☐ Continuous slot ■ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9.98 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

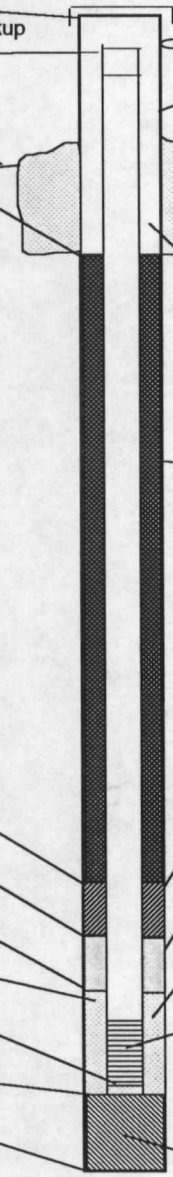
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well ■ N. ■ E. 7814.0 ft. ☐ S. 5669.0 ft. ☐ W.	Well Name MW48
Type of Well Water Table Observation Well ■ Piezometer ☐	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/16/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm) MEV - Montgomery Watson
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation 636.67 ft. MSL

Well casing top elevation 636.36 ft. MSL

Land surface elevation 632.6 ft. MSL

Surface Seal, bottom 630.6 ft. MSL or 2.0 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water:
City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	632.6	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	630.5	ft. MSL or	2.1	ft.
Screen joint, top	629.6	ft. MSL or	3.0	ft.
Well bottom	619.6	ft. MSL or	13.0	ft.
Filter pack, bottom	618.6	ft. MSL or	14.0	ft.
Borehole, bottom	618.6	ft. MSL or	14.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		

Cap and lock? ■ Yes ☐ No

Protective cover pipe:
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐
Redi-Mix at 1.5' bgs

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.
Hole plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added _____ cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐ Other ■
Stainless Steel

Screen material: Stainless Steel
Screen type: Factory cut ☐ Continuous slot ■ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9.95 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

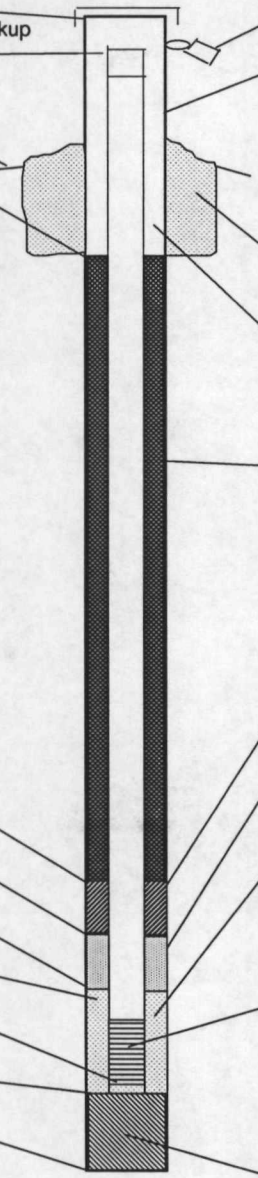
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well 7650.0 ft. ■ N. ☐ S. 5551.0 ft. ■ E. ☐ W.	Well Name MW49
Type of Well Water Table Observation Well ■ Piezometer ☐	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/16/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm) C. Yantz - Montgomery Watson
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation 637.35 ft. MSL

Well casing top elevation 637.00 ft. MSL

Land surface elevation 634.2 ft. MSL

Surface Seal, bottom 632.2 ft. MSL or 2.0 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	634.2	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	632.2	ft. MSL or	2.0	ft.
Screen joint, top	631.2	ft. MSL or	3.0	ft.
Well bottom	621.0	ft. MSL or	13.3	ft.
Filter pack, bottom	619.2	ft. MSL or	15.0	ft.
Borehole, bottom	619.2	ft. MSL or	15.0	ft.

Borehole, diameter 8.0 in.

O.D. well casing 2.2 in.

I.D. well casing 2.0 in.

Cap and lock? ■ Yes ☐ No

Protective cover pipe:
Inside diameter: 4.0 in.
Length: 5.0 ft.
Material: Steel ■ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐
Redi-Mix at 1.5' bgs

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.
Hole plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added 3 cu ft

Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐ Other ■
Stainless Steel

Screen material: Stainless Steel

Screen type: Factory cut ☐ Continuous slot ■ Other ☐

Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 9.95 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

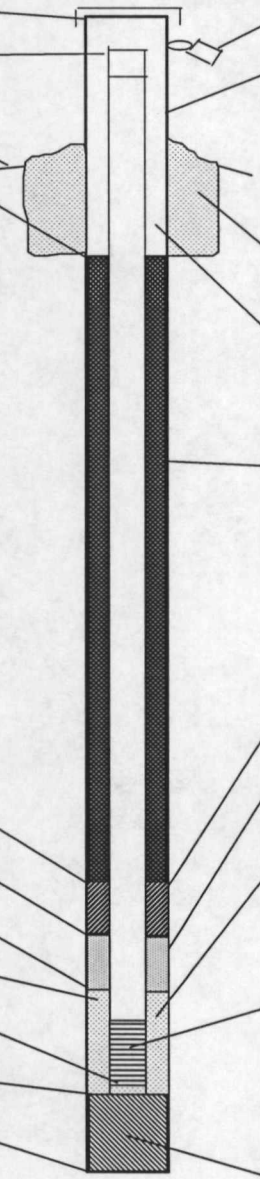
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well 7065.0 ft. ■ N. ☐ S. 4617.0 ft. ■ E. ☐ W.	Well Name P64
Type of Well Water Table Observation Well ☐ Piezometer ■	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/16/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	MEV - Montgomery Watson J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation NA ft. MSL

Well casing top elevation 634.87 ft. MSL

Land surface elevation 631.1 ft. MSL

Surface Seal, bottom _____ ft. MSL or _____ ft.



USCS classification of soil near screen:

GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ☐ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	631.1	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	630.1	ft. MSL or	1.0	ft.
Screen joint, top	629.1	ft. MSL or	2.0	ft.
Well bottom	624.1	ft. MSL or	7.0	ft.
Filter pack, bottom	624.1	ft. MSL or	7.0	ft.
Borehole, bottom	624.1	ft. MSL or	7.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		

Cap and lock? ☐ Yes ■ No

Protective cover pipe:
Inside diameter: _____ in.
Length: _____ ft.
Material: Steel ☐ Other ☐
NA
Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe: Bentonite ■ Annular space seal ☐ Other ☐
NA

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ☐
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added _____ cu ft

Well casing: Flush threaded PVC schedule 40 ■ Flush threaded PVC schedule 80 ☐ Other ☐

Screen material: Sch 40 PVC

Screen type: Factory cut ■ Continuous slot ☐ Other ☐

Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 4.35 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well 7063.0 ft. ■ N. ☐ S. 4615.0 ft. ■ E. ☐ W.	Well Name P65
Type of Well Water Table Observation Well ☐ Piezometer ■	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/14/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	MEV - Montgomery Watson J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation NA ft. MSL

Well casing top elevation 634.77 ft. MSL

Land surface elevation 631.2 ft. MSL

Surface Seal, bottom 629.2 ft. MSL or 2.0 ft.

USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐
Hollow Stem Auger ■
4.25" Other ☐

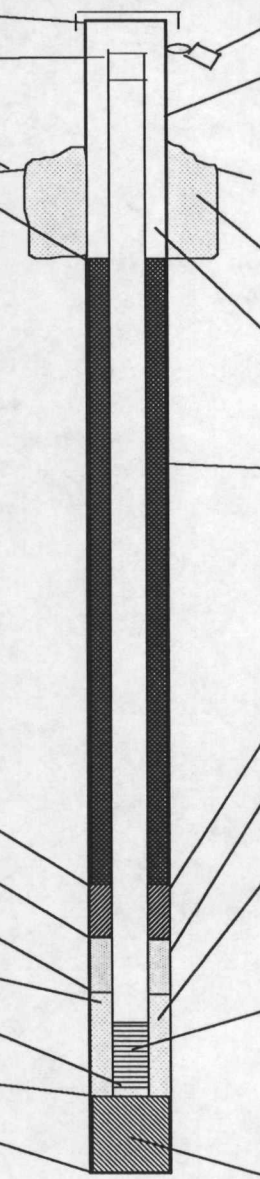
Drilling fluid used: Water ☐ Air ☐
Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water:
City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	630.7	ft. MSL or	0.5	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	627.2	ft. MSL or	4.0	ft.
Screen joint, top	622.2	ft. MSL or	6.0	ft.
Well bottom	620.2	ft. MSL or	11.0	ft.
Filter pack, bottom	619.7	ft. MSL or	11.5	ft.
Borehole, bottom	618.2	ft. MSL or	13.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.2	in.		
I.D. well casing	2.0	in.		



Cap and lock? ☐ Yes ☐ No

Protective cover pipe:
Inside diameter: _____ in.
Length: _____ ft.
Material: Steel ☐
NA Other ☐
Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■
Concrete ☐
Other ☐

Material between well casing and protective pipe:
Bentonite ☐
Annular space seal ☐
NA Other ☐

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐
Tremie pumped ☐
Gravity ☐

Bentonite seal: Bentonite granules ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐
Other ☐

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added _____ cu ft

Well casing: Flush threaded PVC schedule 40 ■
Flush threaded PVC schedule 80 ☐
Other ☐

Screen material: Sch 40 PVC
Screen type: Factory cut ■
Continuous slot ☐
Other ☐

Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 2 ft.

Backfill material (below filter pack): None ☐
Filter Pack Material Other ■

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

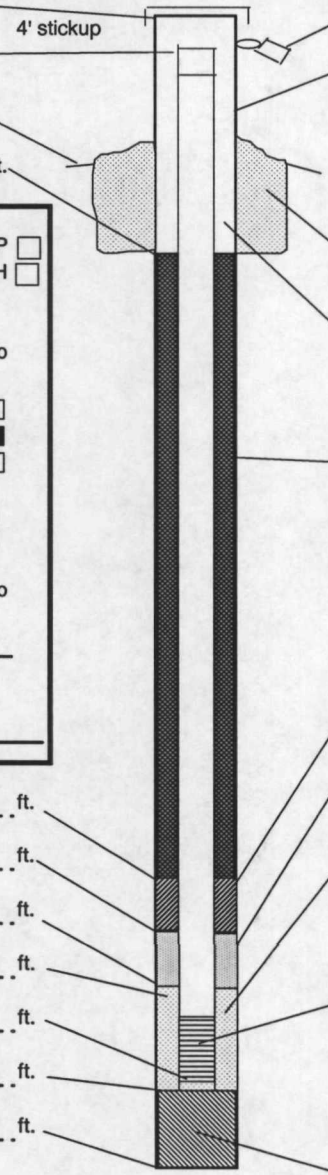
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well ■ N. 7034.0 ft. ☐ S. ■ E. 4729.0 ft. ☐ W.	Well Name P66
Type of Well Water Table Observation Well ☐ Piezometer ■	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/15/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm) C. Yantz - Montgomery Watson
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation NA ft. MSL

Well casing top elevation 636.02 ft. MSL

Land surface elevation 632.1 ft. MSL

Surface Seal, bottom 631.1 ft. MSL or 1.0 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ☐

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	632.1	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	631.1	ft. MSL or	1.0	ft.
Screen joint, top	630.1	ft. MSL or	2.0	ft.
Well bottom	625.1	ft. MSL or	7.0	ft.
Filter pack, bottom	624.6	ft. MSL or	7.5	ft.
Borehole, bottom	624.6	ft. MSL or	7.5	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.4	in.		
I.D. well casing	2.0	in.		

Cap and lock? ☐ Yes ■ No

Protective cover pipe:
Inside diameter: _____ in.
Length: _____ ft.
Material: Steel ☐ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe: Bentonite ☐ Annular space seal ☐ Other ☐
NA

Annular space seal: Granular Bentonite ☐ Bentonite-sand slurry ☐ Bentonite slurry ☐ Bentonite-cement grout ☐
_____ Lbs/gal mud weight...
_____ Lbs/gal mud weight.....
_____ % Bentonite.....
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ☐

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ☐
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.
Hole Plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added 2.5 cu ft

Well casing: Flush threaded PVC schedule 40 ■ Flush threaded PVC schedule 80 ☐ Other ☐

Screen material: Sch 40 PVC
Screen type: Factory cut ■ Continuous slot ☐ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 4.35 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

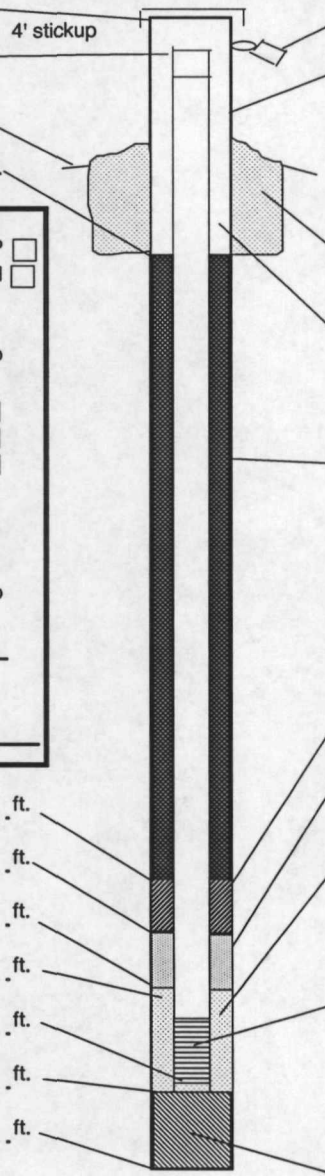
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well 7034.0 ft. ■ N. ☐ S. 4732.0 ft. ■ E. ☐ W.	Well Name P67
Type of Well Water Table Observation Well ☐ Piezometer ■	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/15/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	C. Yantz - Montgomery Watson R. Bennett - Stearns Drilling Co.

Protective pipe, top elevation NA ft. MSL

Well casing top elevation 636.06 ft. MSL

Land surface elevation 632.0 ft. MSL

Surface Seal, bottom 631.5 ft. MSL or 0.5 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ■

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	623.5	ft. MSL or	8.5	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	622.4	ft. MSL or	9.6	ft.
Screen joint, top	621.0	ft. MSL or	11.0	ft.
Well bottom	618.5	ft. MSL or	13.5	ft.
Filter pack, bottom	616.0	ft. MSL or	16.0	ft.
Borehole, bottom	616.0	ft. MSL or	16.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.4	in.		
I.D. well casing	2.0	in.		

Cap and lock? ☐ Yes ■ No

Protective cover pipe:
Inside diameter: _____ in.
Length: _____ ft.
Material: Steel ☐ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe: Bentonite ☐ Annular space seal ☐ Other ☐
NA

Annular space seal: Granular Bentonite ☐ Bentonite-sand slurry ☐ Bentonite slurry ☐ Bentonite-cement grout ☐
_____ Lbs/gal mud weight...
_____ Lbs/gal mud weight.....
_____ % Bentonite.....
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ■

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ☐
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.
Hole Plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added 1.5 cu ft

Well casing: Flush threaded PVC schedule 40 ■ Flush threaded PVC schedule 80 ☐ Other ☐

Screen material: Sch 40 PVC
Screen type: Factory cut ■ Continuous slot ☐ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 2 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

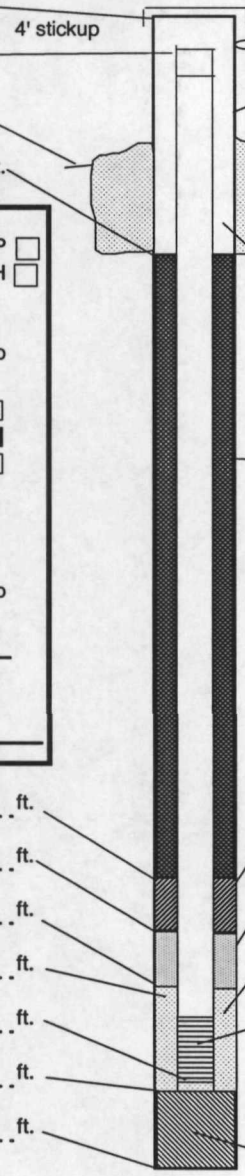
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well ■ N. ■ E. 7752.0 ft. ☐ S. 4743.0 ft. ☐ W.	Well Name P68
Type of Well Water Table Observation Well ☐ Piezometer ■	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/15/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm) MEV - Montgomery Watson
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	R. Bennett - Stearns Drilling Co.

Protective pipe, top elevation NA ft. MSL

Well casing top elevation 634.48 ft. MSL

Land surface elevation 630.8 ft. MSL

Surface Seal, bottom 630.3 ft. MSL or 0.5 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ■

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water:
City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	630.8	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	629.8	ft. MSL or	1.0	ft.
Screen joint, top	628.8	ft. MSL or	2.0	ft.
Well bottom	623.8	ft. MSL or	7.0	ft.
Filter pack, bottom	623.8	ft. MSL or	7.0	ft.
Borehole, bottom	623.8	ft. MSL or	7.0	ft.

Borehole, diameter 8.0 in.

O.D. well casing 2.4 in.

I.D. well casing 2.0 in.

Cap and lock? ☐ Yes ■ No

Protective cover pipe:
Inside diameter: NA in.
Length: _____ ft.
Material: Steel ☐ Other ☐
NA
Additional protection? ☐ Yes ☐ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe: Bentonite ☐ Annular space seal ☐ Other ☐
NA

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ■

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ☐
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.
Hole Plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added _____ cu ft

Well casing: Flush threaded PVC schedule 40 ■ Flush threaded PVC schedule 80 ☐ Other ☐

Screen material: Sch 40 PVC
Screen type: Factory cut ■ Continuous slot ☐ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 4.35 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

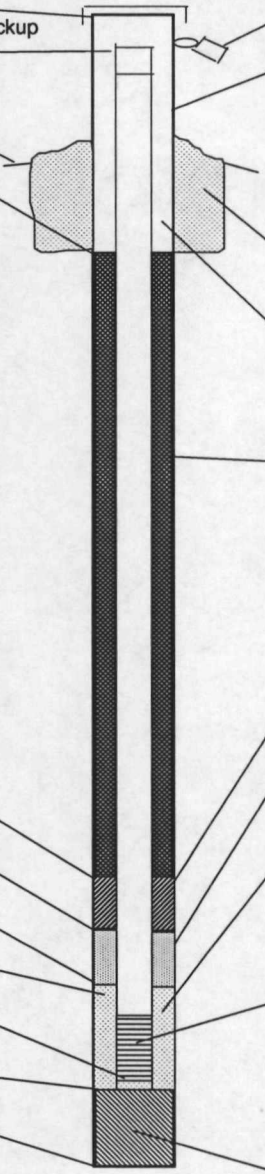
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well 7751.0 ft. ■ N. ☐ S. 4741.0 ft. ■ E. ☐ W.	Well Name P69
Type of Well Water Table Observation Well ☐ Piezometer ■	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/16/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	MEV - Montgomery Watson R. Bennett - Stearns Drilling Co.

Protective pipe, top elevation NA ft. MSL

Well casing top elevation 634.66 ft. MSL

Land surface elevation 630.8 ft. MSL

Surface Seal, bottom 630.3 ft. MSL or 0.5 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ■

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water:
City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	624.0	ft. MSL or	6.8	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	622.8	ft. MSL or	8.0	ft.
Screen joint, top	620.8	ft. MSL or	10.0	ft.
Well bottom	618.3	ft. MSL or	12.5	ft.
Filter pack, bottom	615.8	ft. MSL or	15.0	ft.
Borehole, bottom	615.8	ft. MSL or	15.0	ft.

Borehole, diameter 8.0 in.

O.D. well casing 2.4 in.

I.D. well casing 2.0 in.

Cap and lock? ☐ Yes ■ No

Protective cover pipe:
Inside diameter: NA in.
Length: _____ ft.
Material: Steel ☐ Other ☐
NA
Additional protection? ☐ Yes ☐ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe: Bentonite ☐ Annular space seal ☐ Other ☐
NA

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ■

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ☐
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.
Hole Plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added _____ cu ft

Well casing: Flush threaded PVC schedule 40 ■ Flush threaded PVC schedule 80 ☐ Other ☐

Screen material: Sch 40 PVC
Screen type: Factory cut ■ Continuous slot ☐ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 2.5 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

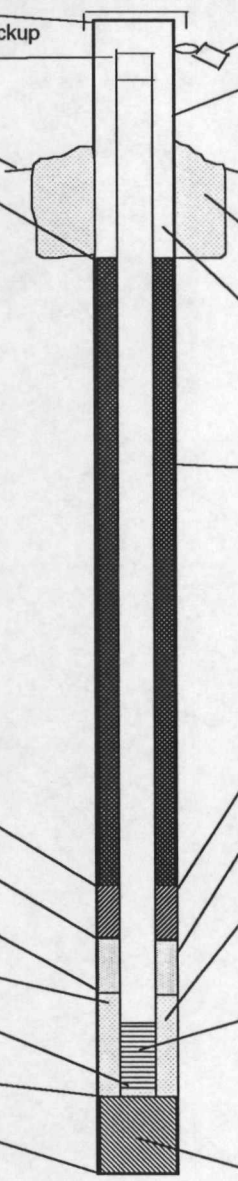
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well 7680.0 ft. ■ N. ☐ S. 4880.0 ft. ■ E. ☐ W.	Well Name P70
Type of Well Water Table Observation Well ☐ Piezometer ■	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/16/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm)
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	C. Yantz - Montgomery Watson J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation NA ft. MSL

Well casing top elevation 635.38 ft. MSL

Land surface elevation 631.3 ft. MSL

Surface Seal, bottom 630.3 ft. MSL or 1.0 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ■

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water: City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	631.3	ft. MSL or	0.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	630.3	ft. MSL or	1.0	ft.
Screen joint, top	629.3	ft. MSL or	2.0	ft.
Well bottom	624.3	ft. MSL or	7.0	ft.
Filter pack, bottom	623.8	ft. MSL or	7.5	ft.
Borehole, bottom	623.8	ft. MSL or	7.5	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.4	in.		
I.D. well casing	2.0	in.		

Cap and lock? ☐ Yes ■ No

Protective cover pipe:
Inside diameter: NA in.
Length: _____ ft.
Material: Steel ☐ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe: Bentonite ☐ Annular space seal ☐ Other ☐
NA

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ■

Bentonite seal: Bentonite granules ■ Bentonite pellets ☐ Other ☐
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in.
Hole Plug

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added _____ cu ft

Well casing: Flush threaded PVC schedule 40 ■ Flush threaded PVC schedule 80 ☐ Other ☐

Screen material: Sch 40 PVC
Screen type: Factory cut ■ Continuous slot ☐ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 4.35 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONTGOMERY WATSON

STICK-UP MONITORING WELL CONSTRUCTION SUMMARY

JOB NO. 4077.0075

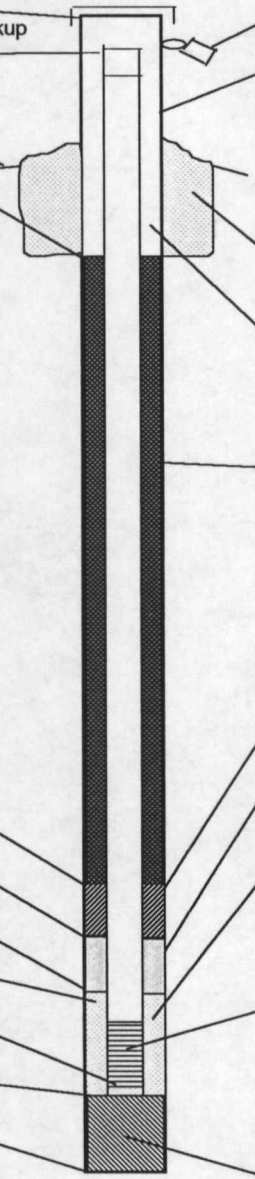
Facility/Project Name American Chemical Service, Inc.	Local Grid Location of Well 7682.0 ft. ■ N. ☐ S. 4876.0 ft. ■ E. ☐ W.	Well Name P71
Type of Well Water Table Observation Well ☐ Piezometer ■	Grid Origin Location Lat. _____ Long. _____ or St. Plane ft. N, ft. E.	Date Well Installed 7/16/96
	Section Location of Waste/Source ☐ E. ☐ W.	Well Installed By: (Person's Name and Firm) C. Yantz - Montgomery Watson
Distance Well Is From Waste/Source Boundary NA ft.	Location of Well Relative to Waste/Source ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known	J. Huntoon - Stearns Drilling Co.

Protective pipe, top elevation NA ft. MSL

Well casing top elevation 635.32 ft. MSL

Land surface elevation 631.2 ft. MSL

Surface Seal, bottom 630.7 ft. MSL or 0.5 ft.



USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ■ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

Sieve analysis attached? ☐ Yes ■ No

Drilling method used: Rotary ☐ Hollow Stem Auger ■ Other ☐
4.25"

Drilling fluid used: Water ☐ Air ☐ Drilling Mud ☐ None ■

Drilling additives used? ☐ Yes ■ No

Describe _____

Source of water:
City of Griffith

	ELEVATION		DEPTH	
Bentonite seal, top	624.2	ft. MSL or	7.0	ft.
Fine sand, top	NA	ft. MSL or	NA	ft.
Filter pack, top	623.2	ft. MSL or	8.0	ft.
Screen joint, top	621.2	ft. MSL or	10.0	ft.
Well bottom	618.7	ft. MSL or	12.5	ft.
Filter pack, bottom	616.2	ft. MSL or	15.0	ft.
Borehole, bottom	616.2	ft. MSL or	15.0	ft.
Borehole, diameter	8.0	in.		
O.D. well casing	2.4	in.		
I.D. well casing	2.0	in.		

Cap and lock? ☐ Yes ■ No

Protective cover pipe:
Inside diameter: NA in.
Length: _____ ft.
Material: Steel ☐ Other ☐

Additional protection? ☐ Yes ■ No
If yes, describe: _____

Surface seal: Bentonite ■ Concrete ☐ Other ☐

Material between well casing and protective pipe:
Bentonite ☐ Annular space seal ☐ Other ☐
NA

Annular space seal: Granular Bentonite ☐
_____ Lbs/gal mud weight... Bentonite-sand slurry ☐
_____ Lbs/gal mud weight..... Bentonite slurry ☐
_____ % Bentonite..... Bentonite-cement grout ☐
_____ cu ft volume added for any of the above

How installed: Tremie ☐ Tremie pumped ☐ Gravity ■

Bentonite seal: Bentonite granules ■
☐ 1/4 in. ■ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐
Hole Plug Other ☐

Fine sand material: Manufacturer, product name & mesh size
NA
Volume added _____ cu ft

Filter pack material: Manufacturer, product name & mesh size
Global Drilling Supplies / Global Filter Pack / #7
Volume added 1.5 cu ft

Well casing: Flush threaded PVC schedule 40 ■ Flush threaded PVC schedule 80 ☐ Other ☐

Screen material: Sch 40 PVC
Screen type: Factory cut ■ Continuous slot ☐ Other ☐
Manufacturer Johnson
Slot size: 0.010 in.
Slotted length: 2.5 ft.

Backfill material (below filter pack): None ☐ Other ■
Filter Pack Material

I hereby certify that the information on this form is true and correct to the best of my knowlege.

Signature	Firm
	MONTGOMERY WATSON

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MONITORING WELL DEVELOPMENT DATA

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name: American Chemical Service, Inc. | Well No.: MW37
Location: Griffith, Indiana | Project No.: 4077.0075
Developed By: Cliff Yantz | Checked By:

Can this well be purged dry? ☐ Yes ■ No

2. Well development method

- surged with bailer and bailed ☐
- surged with bailer and pumped ■
- surged with block and bailed ☐
- surged with block and pumped ☐
- surged with block, bailed and pumped ☐
- compressed air ☐
- bailed only ☐
- pumped only ☐
- pumped slowly ☐
- Other ☐

3. Time spent developing well: 13 min.

4. Total well depth (TOC) (From well construction summary): 16.3 ft.

Measured well depth (Before): 15.5 ft.

Measured well depth (After): 16.3 ft.

5. Inside diameter of well: 2.00 in.

6. Volume of water in filter pack and well casing: 11.5 gal.

Volume of water removed from well: 84.0 gal.

Relative recovery rate: 7 gal. per. 1 min.

8. Volume of water added (if any): 0.0 gal.

9. Source of water added: NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 3.62 ft.	4.00 ft.
Date:	b. 7 / 19 / 96 (mm dd yy)	7 / 19 / 96 (mm dd yy)
Time:	c. 9 : 09 ■ a.m. ☐ p.m.	9 : 97 ■ a.m. ☐ p.m.
11 Sediment in well bottom:	8.0 inches	0.0 inches
12 Water Observations:	Clear ☐ Turbid ■ (Describe)	Clear ■ Turbid ☐ (Describe)
Color	Gray	Clear
Odor		
Turbidity	Very	Slight
HNu	--	--

Filter Pack Vol. (gallons) $0.057(R^2 - r^2)ls$ = 9.4

Well casing Vol. (gallons) $0.16r^2 l$ = 2.1

Saturated length of sand pack (ft.) (ls) 11.0

Length of water column (ft.) (l) 12.68

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered) _____ mg/l (BEFORE) _____ mg/l (AFTER)

14. COD (250 ml Unfiltered Sulfuric) _____ mg/l (BEFORE) _____ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
9:34	12	7.6	610	15		Gray	None	77	
9:36	24	7.5	580	14		Lt Gray	None	61	
9:38	36	7.6	560	14		Cloudy	None	21	
9:40	48	7.6	560	14		Cloudy	None	11	
9:41	60	7.6	550	14		Clear	None	7	
9:43	72	7.5	550	14		Clear	None	5	
9:45	84	7.5	540	14		Clear	None	3	

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name	American Chemical Service, Inc.	Well No.	MW38
Location	Griffith, Indiana	Project No.	4077.0075
Developed By	Cliff Yantz	Checked By	

Can this well be purged dry? ☐ Yes ■ No

2. Well development method

- surged with bailer and bailed ☐
- surged with bailer and pumped ■
- surged with block and bailed ☐
- surged with block and pumped ☐
- surged with block, bailed and pumped ☐
- compressed air ☐
- bailed only ☐
- pumped only ☐
- pumped slowly ☐
- Other _____ ☐

3. Time spent developing well 15 min.

4. Total well depth (TOC) (From well construction summary) 16.3 ft.

Measured well depth (Before) 16.0 ft.

Measured well depth (After) 16.3 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 11.4 gal.

Volume of water removed from well 120.0 gal.

Relative recovery rate 9 gal. per 1 min.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 3.97 ft.	4.10 ft.
Date:	b. 7 / 19 / 96 (mm dd yy)	7 / 19 / 96 (mm dd yy)
Time:	c. 7 : 08 ■ a.m. ☐ p.m.	7 : 47 ■ a.m. ☐ p.m.
11 Sediment in well bottom:	2.0 inches	0.0 inches
12 Water Observations:	Clear ☐ Turbid ■ (Describe)	Clear ■ Turbid ☐ (Describe)
Color	Gray	Clear
Odor	Musty	Musty
Turbidity	Very	–
HNu	–	–

Filter Pack Vol. (gallons) $0.057(R^2 - r^2)ls$ = 9.4

Well casing Vol. (gallons) $0.16r^2 l$ = 2.0

Saturated length of sand pack (ft.) (ls) 11.0

Length of water column (ft.) (l) 12.33

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered)	_____ mg/l	_____ mg/l
14. COD (250 ml Unfiltered Sulfuric)	_____ mg/l (BEFORE)	_____ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
7:33	12	7.6	610	15		Gray	None	77	
7:35	24	7.5	580	14		Lt Gray	None	61	
7:36	36	7.6	560	14		Cloudy	None	21	
7:37	48	7.6	560	14		Cloudy	None	11	
9:41	60	7.6	550	14		Clear	None	7	
9:43	72	7.5	550	14		Clear	None	5	
9:45	84	7.5	540	14		Clear	None	3	

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name: American Chemical Service, Inc. | Well No.: MW39
Location: Griffith, Indiana | Project No.: 4077.0075
Developed By: Cliff Yantz | Checked By:

Can this well be purged dry? ☐ Yes ■ No

2. Well development method

- surged with bailer and bailed ☐
- surged with bailer and pumped ■
- surged with block and bailed ☐
- surged with block and pumped ☐
- surged with block, bailed and pumped ☐
- compressed air ☐
- bailed only ☐
- pumped only ☐
- pumped slowly ☐
- Other ☐

3. Time spent developing well: 30 min.

4. Total well depth (TOC) (From well construction summary): 17.0 ft.

Measured well depth (Before): 16.6 ft.

Measured well depth (After): 17.0 ft.

5. Inside diameter of well: 2.00 in.

6. Volume of water in filter pack and well casing: 11.5 gal.

Volume of water removed from well: 120.0 gal.

Relative recovery rate: 2.5 gal. per. 1 min.

8. Volume of water added (if any): 0.0 gal.

9. Source of water added: NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 3.98 ft.	4.08 ft.
Date:	b. 7 / 19 / 96 (mm dd yy)	7 / 19 / 96 (mm dd yy)
Time:	c. 7 : 58 ■ a.m. ☐ p.m.	8 : 55 ■ a.m. ☐ p.m.
11 Sediment in well bottom:	4.0 inches	0.0 inches
12 Water Observations:	Clear ☐ Turbid ■ (Describe)	Clear ■ Turbid ☐ (Describe)
Color	Gray	Clear
Odor	H2S	H2S
Turbidity	Very	–
HNu	–	–

Filter Pack Vol. (gallons) $0.057(R^2 - r^2)ls$ = 9.4

Well casing Vol. (gallons) $0.16r^2 l$ = 2.1

Saturated length of sand pack (ft.) (ls) 11.0

Length of water column (ft.) (l) 13.02

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered) ____ mg/l (BEFORE) ____ mg/l (AFTER)

14. COD (250 ml Unfiltered Sulfuric) ____ mg/l (BEFORE) ____ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
8:26	12	7.8	1100	16		Gray	Musty	71	
8:31	24	7.9	1100	15			Musty	99	
8:36	36	8.0	1100	15		Lt Gray	Musty	14	
8:41	48	8.0	1100	15		Clear	Musty	2	
8:46	60	7.9	1100	14		Clear	Musty	2	
8:51	72	8.0	1100	14		Clear	Musty	0	

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name	American Chemical Service, Inc.	Well No.	MW40
Location	Griffith, Indiana	Project No.	4077.0075
Developed By	Cliff Yantz	Checked By	

'an this well be purged dry? ☐ Yes ■ No

2. Well development method

- surged with bailer and bailed ☐
- surged with bailer and pumped ■
- surged with block and bailed ☐
- surged with block and pumped ☐
- surged with block, bailed and pumped ☐
- compressed air ☐
- bailed only ☐
- pumped only ☐
- pumped slowly ☐
- Other _____ ☐

3. Time spent developing well 28 min.

4. Total well depth (TOC) 16.0 ft.
(From well construction summary)

Measured well depth (Before) 16.0 ft.

Measured well depth (After) 16.3 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 11.5 gal.

olume of water removed from well 79.0 gal.

Relative recovery rate 2.5 gal. per. 1 min.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 3.13 ft.	3.41 ft.
Date:	b. 6 / 19 / 96 (mm dd yy) ■ a.m.	6 / 19 / 96 (mm dd yy) ■ a.m.
Time:	c. 5 : 50 ☐ p.m.	6 : 40 ☐ p.m.
11 Sediment in well bottom:	3.0 inches	0.0 inches
12 Water Observations:	Clear ☐ Turbid ■ (Describe)	Clear ■ Turbid ☐ (Describe)
Color	Gray	Clear
Odor	Musty	Musty
Turbidity	Turbid	Clear
HNu	–	–

Filter Pack Vol. (gallons) $0.057(R^2 - r^2)ls$ = 9.4

Well casing Vol. (gallons) $0.16r^2 l$ = 2.1

Saturated length of sand pack (ft.) (ls) 11.0

Length of water column (ft.) (l) 12.87

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered)	_____ mg/l	_____ mg/l
14. COD (250 ml Unfiltered Sulfuric)	_____ mg/l (BEFORE)	_____ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
6:17	12	7.1	490	16		Gray	Musty	41	
6:21	24	7.7	420	15		Gray	Musty	99	
6:27	36	7.7	400	16		Lt Gray	Musty	28	
6:30	48	7.7	400	15		Clear	Musty	8	
6:34	60	7.7	390	15		Clear	Musty	4	
6:37	72	7.7	390	15		Clear	Musty	3	

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name: American Chemical Service, Inc. | Well No.: MW41
Location: Griffith, Indiana | Project No.: 4077.0075
Developed By: MEV | Checked By:

Can this well be purged dry? ■ Yes ☐ No

2. Well development method

- surged with bailer and bailed ☐
- surged with bailer and pumped ☐
- surged with block and bailed ■
- surged with block and pumped ☐
- surged with block, bailed and pumped ☐
- compressed air ☐
- bailed only ☐
- pumped only ☐
- pumped slowly ☐
- Other _____ ☐

3. Time spent developing well: 40 min.

4. Total well depth (TOC) (From well construction summary): 13.3 ft.

Measured well depth (Before): ___ ft.

Measured well depth (After): 13.3 ft.

5. Inside diameter of well: 2.00 in.

6. Volume of water in filter pack and well casing: 12.7 gal.

Volume of water removed from well: 60.0 gal.

Relative recovery rate _____ gal. per _____ min.

8. Volume of water added (if any): 0.0 gal.

9. Source of water added: NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 4.30 ft.	3.41 ft.
Date:	b. 7 / 19 / 96 (mm dd yy)	7 / 19 / 96 (mm dd yy)
Time:	c. 9 : 00 ■ a.m. ☐ p.m.	9 : 40 ■ a.m. ☐ p.m.
11 Sediment in well bottom:	___ inches	0.0 inches
12 Water Observations:	Clear ☐ Turbid ■ (Describe)	Clear ■ Turbid ☐ (Describe)
Color	Brown	Semi-turbid
Odor	None	None
Turbidity	Turbid	Semi-turbid
HNu	–	–

Filter Pack Vol. (gallons) $0.057(R^2 - r^2)ls$ = 9.4

Well casing Vol. (gallons) $0.16r^2 l$ = 2.1

Saturated length of sand pack (ft.) (ls) 11.0

Length of water column (ft.) (l) 12.68

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered) _____ mg/l (BEFORE) _____ mg/l (AFTER)

14. COD (250 ml Unfiltered Sulfuric) _____ mg/l (BEFORE) _____ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
9:46	12	6.8	515	17		Semi-Clear		999	
10:45	12	6.9	321	17.8		Lt. Brown		999	
1:30	12	7.0	587	16.1		Lt. Brown		999	
1:45	12	7.0	350	17.8		Semi-Clear		613	
2:30	12	6.7	847	15.7		Semi-Clear		999	

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name: American Chemical Service, Inc. | Well No.: MW42
Location: Griffith, Indiana | Project No.: 4077.0075
Developed By: MEV | Checked By:

an this well be purged dry? ☐ Yes ■ No

2. Well development method

- surged with bailer and bailed ■
- surged with bailer and pumped ☐
- surged with block and bailed ☐
- surged with block and pumped ☐
- surged with block, bailed and pumped ☐
- compressed air ☐
- bailed only ☐
- pumped only ☐
- pumped slowly ☐
- Other ☐

3. Time spent developing well 13 min.

4. Total well depth (TOC) 140.0 ft.
(From well construction summary)

Measured well depth (Before) ___ ft.

Measured well depth (After) 140.0 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 12.7 gal.

Volume of water removed from well 120.0 gal.

Relative recovery rate ___ gal. per ___ min.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 3.42 ft.	5.12 ft.
Date:	b. 7 / 19 / 96 (mm dd yy)	7 / 19 / 96 (mm dd yy)
Time:	c. 8 : 00 ■ a.m. ☐ p.m.	8 : 53 ■ a.m. ☐ p.m.
11 Sediment in well bottom:	___ inches	0.0 inches
12 Water Observations:	Clear ☐ Turbid ■ (Describe)	Clear ■ Turbid ☐ (Describe)
Color	Brown	Semi-Clear
Odor	None	None
Turbidity	Turbid	Semi-turbid
HNu	--	--

Filter Pack Vol. (gallons) $0.057(R^2 - r^2)ls$ = 9.4

Well casing Vol. (gallons) $0.16r^2 l$ = 2.1

Saturated length of sand pack (ft.) (ls) 11.0

Length of water column (ft.) (l) 12.68

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered)	___ mg/l	___ mg/l
14. COD (250 ml Unfiltered Sulfuric)	___ mg/l (BEFORE)	___ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
8:35	12	6.93	873	15.4		Brown		999	
8:37	12	7.00	933	14.7		Brown		999	
8:40	12	6.99	817	14.6		Lt. Brown		999	
8:42	12	7.08	890	14.5		Lt. Brown		999	
8:44	12	7.08	880	14.6		Lt. Brown		999	
8:45	12	7.13	860	14.5		Lt. Brown		999	
8:47	12	7.14	840	14.2		Lt. Brown		999	
8:49	12	7.15	840	14.2		Semi-Clear		999	
8:51	12	7.19	840	14.1		Semi-Clear		971	
8:53	12	7.20	830	13.8		Semi-Clear		672	

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name	American Chemical Service, Inc.	Well No.	MW43
Location	Griffith, Indiana	Project No.	4077.0075
Developed By	MEV	Checked By	

Can this well be purged dry? ☐ Yes ■ No

2. Well development method

- surged with bailer and bailed ☐
- surged with bailer and pumped ■
- surged with block and bailed ☐
- surged with block and pumped ☐
- surged with block, bailed and pumped ☐
- compressed air ☐
- bailed only ☐
- pumped only ☐
- pumped slowly ☐
- Other _____ ☐

3. Time spent developing well 24 min.

4. Total well depth (TOC) 15.0 ft.
(From well construction summary)

Measured well depth (Before) ___ ft.

Measured well depth (After) 15.0 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 12.7 gal.

Volume of water removed from well 96.0 gal.

Relative recovery rate _____ gal. per _____ min.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 3.32 ft.	4.84 ft.
Date:	b. 7 / 19 / 96 (mm dd yy) ■ a.m.	7 / 19 / 96 (mm dd yy) ■ a.m.
Time:	c. 7 : 55 ☐ p.m.	8 : 19 ☐ p.m.
11 Sediment in well bottom:	___ inches	0.0 inches
12 Water Observations:	Clear ☐ Turbid ■ (Describe)	Clear ■ Turbid ☐ (Describe)
Color	Brown	Clear
Odor	None	None
Turbidity	Turbid	None
HNu	–	–

Filter Pack Vol. (gallons) $0.057(R^2 - r^2)ls$ = 9.4

Well casing Vol. (gallons) $0.16r^2 l$ = 2.1

Saturated length of sand pack (ft.) (ls) 11.0

Length of water column (ft.) (l) 12.68

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered)	_____ mg/l	_____ mg/l
14. COD (250 ml Unfiltered Sulfuric)	_____ mg/l (BEFORE)	_____ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
7:55	12	7.02	900	18.7		Brown		999	
8:00	12	7.21	860	17.0		Brown		999	Turbid meter blinking
8:02	12	7.26	810	16.6		Lt. Brown		999	
8:05	12	7.30	790	16.6		Lt. Brown		999	
8:08	12	7.37	770	16.3		Lt. Brown		999	
8:12	12	7.38	760	16.2		Lt. Brown		999	
8:15	12	7.39	740	15.8		Lt. Brown		999	
8:19	12	7.43	750	15.9		Semi-Clear		999	

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name	American Chemical Service, Inc.	Well No.	MW44
Location	Griffith, Indiana	Project No.	4077.0075
Developed By	MEV	Checked By	

ın this well be purged dry? ☐ Yes ■ No

2. Well development method

- surged with bailer and bailed ☐
- surged with bailer and pumped ■
- surged with block and bailed ☐
- surged with block and pumped ☐
- surged with block, bailed and pumped ☐
- compressed air ☐
- bailed only ☐
- pumped only ☐
- pumped slowly ☐
- Other _____ ☐

3. Time spent developing well 17 min.

4. Total well depth (TOC) 13.3 ft.
(From well construction summary)

Measured well depth (Before) ___ ft.

Measured well depth (After) 13.3 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 12.7 gal.

olume of water removed from well 84.0 gal.

Relative recovery rate _____ gal. per _____ min.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 2.20 ft.	___ ft.
Date:	b. 7 / 19 / 96 (mm dd yy) ■ a.m.	7 / 19 / 96 (mm dd yy) ■ a.m.
Time:	c. 11 : 23 ☐ p.m.	11 : 40 ☐ p.m.
11 Sediment in well bottom:	___ inches	0.0 inches
12 Water Observations:	Clear ☐ Turbid ■ (Describe)	Clear ■ Turbid ☐ (Describe)
Color	Brown	Semi-Clear
Odor	–	–
Turbidity	Turbid	None
HNu	–	–

Filter Pack Vol. (gallons) $0.057(R^2 - r^2)ls$ = 9.4

Well casing Vol. (gallons) $0.16r^2 l$ = 2.1

Saturated length of sand pack (ft.) (ls) 11.0

Length of water column (ft.) (l) 12.68

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered)	_____ mg/l	_____ mg/l
14. COD (250 ml Unfiltered Sulfuric)	_____ mg/l (BEFORE)	_____ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
11:23	12	7.62	12400	17.4		Brown		105	
11:25	12	7.75	14600	14.6		Brown		106	Turbid meter blinking
11:29	12	7.74	13700	13.7		Brown		999	
11:32	12	7.72	13100	13.1		Lt. Brown		999	
11:34	12	7.71	13100	13.1		Lt. Brown		999	
11:37	12	7.72	13300	13.3		Semi-Clear		999	
11:40	12	7.74	12900	12.9		Semi-Clear		332	

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name	American Chemical Service, Inc.	Well No.	MW45
Location	Griffith, Indiana	Project No.	4077.0075
Developed By	MEV	Checked By	

an this well be purged dry? ☐ Yes ■ No

2. Well development method

- surged with bailer and bailed ☐
- surged with bailer and pumped ■
- surged with block and bailed ☐
- surged with block and pumped ☐
- surged with block, bailed and pumped ☐
- compressed air ☐
- bailed only ☐
- pumped only ☐
- pumped slowly ☐
- Other _____ ☐

3. Time spent developing well 82 min.

4. Total well depth (TOC) 15.0 ft.
(From well construction summary)

Measured well depth (Before) ___ ft.

Measured well depth (After) 15.0 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 12.7 gal.

olume of water removed from well 84.0 gal.

Relative recovery rate _____ gal. per _____ min.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 5.40 ft.	___ ft.
Date:	b. 7 / 19 / 96 (mm dd yy)	/ / (mm dd yy)
Time:	c. 12 : 00 ☐ a.m. ■ p.m.	1 : 22 ☐ a.m. ■ p.m.
11 Sediment in well bottom:	___ inches	___ inches
12 Water Observations:	Clear ☐ Turbid ■ (Describe)	Clear ■ Turbid ☐ (Describe)
Color	Brown	Clear
Odor	Mothballs	Mothballs
Turbidity	Turbid	None
HNu	–	–

Filter Pack Vol. (gallons) $0.057(R^2 - r^2)ls$ = 9.4

Well casing Vol. (gallons) $0.16r^2 l$ = 2.1

Saturated length of sand pack (ft.) (ls) 11.0

Length of water column (ft.) (l) 12.68

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered)	_____ mg/l	_____ mg/l
14. COD (250 ml Unfiltered Sulfuric)	_____ mg/l (BEFORE)	_____ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
12:00		7.01	973	17.3		Brown	Mothballs	999	
12:01		7.08	941	17.2		Brown	Mothballs	999	Turbid meter blinking
12:03		7.02	986	17.1		Brown	Mothballs	999	
12:04		7.06	893	17		Lt. Brown	Mothballs	999	
12:05		6.85	920	17.1		Brown	Mothballs	860	
1:20		7.08	950	17.6		Semi-Clear	Mothballs	615	
1:22		7.07	930	17.3		Clear	Mothballs	246	

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name	American Chemical Service, Inc.	Well No.	MW46
Location	Griffith, Indiana	Project No.	4077.0075
Developed By	C. Yantz	Checked By	

Can this well be purged dry? ☐ Yes ■ No

2. Well development method

- surged with bailer and bailed ☐
- surged with bailer and pumped ■
- surged with block and bailed ☐
- surged with block and pumped ☐
- surged with block, bailed and pumped ☐
- compressed air ☐
- bailed only ☐
- pumped only ☐
- pumped slowly ☐
- Other _____ ☐

3. Time spent developing well 27 min.

4. Total well depth (TOC) 16.0 ft.
(From well construction summary)

Measured well depth (Before) 15.6 ft.

Measured well depth (After) 15.6 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 11.7 gal.

Volume of water removed from well 132.0 gal.

Relative recovery rate 5 gal. per 1 min.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 1.83 ft.	1.85 ft.
Date:	b. 2 / 18 / 96 (mm dd yy)	2 / 8 / 96 (mm dd yy)
Time:	c. 5 : 57 ☐ a.m. ■ p.m.	6 : 50 ☐ a.m. ■ p.m.
11 Sediment in well bottom:	3.1 inches	0.0 inches
12 Water Observations:	Clear ☐ Turbid ■ (Describe)	Clear ☐ Turbid ■ (Describe)
Color	Gray	Lt. Gray
Odor	Musty H2S	Musty H2S
Turbidity	Very	Slightly
HNu	–	–

Filter Pack Vol. (gallons) $0.057(R^2 - r^2)ls$ = 9.4

Well casing Vol. (gallons) $0.16r^2 l$ = 2.3

Saturated length of sand pack (ft.) (ls) 11.0

Length of water column (ft.) (l) 13.77

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered)	_____ mg/l	_____ mg/l
14. COD (250 ml Unfiltered Sulfuric)	_____ mg/l (BEFORE)	_____ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
6:23	12	7000	17.0	17.0		Gray	Musty	330	
6:27	24	6600	17.0	17.0		Gray	Musty	99	
6:29	36	6400	15.0	15.0		Gray	Musty	99	
6:31	48	6300	15.0	15.0		Gray	Musty/H2S	99	
6:33	60	6200	12.0	12.0		Gray	Musty/H2S	99	
6:35	72	6200	12.0	12.0		Lt. Gray	Musty/H2S	99	
6:36	84	6200	12.0	12.0		Lt. Gray	Musty/H2S	99	
6:38	96	6200	13.0	13.0		Lt. Gray	Musty/H2S	64	
6:42	108	6300	12.0	12.0		Lt. Gray	Musty/H2S	67	
6:44	120	6300	12.0	12.0		Lt. Gray	Musty/H2S	88	
6:46	132	6300	12.0	12.0		Lt. Gray		54	

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name	American Chemical Service, Inc.	Well No.	MW47
Location	Griffith, Indiana	Project No.	4077.0075
Developed By	MEV	Checked By	

Can this well be purged dry? ☐ Yes ■ No

2. Well development method

surged with bailer and bailed	■
surged with bailer and pumped	☐
surged with block and bailed	☐
surged with block and pumped	☐
surged with block, bailed and pumped	☐
compressed air	☐
bailed only	☐
pumped only	☐
pumped slowly	☐
Other _____	☐

3. Time spent developing well 19 min.

4. Total well depth (TOC) 13.0 ft.
(From well construction summary)

Measured well depth (Before) ___ ft.

Measured well depth (After) 13.0 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 12.7 gal.

Volume of water removed from well 60.0 gal.

Relative recovery rate _____ gal. per _____ min.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 4.75 ft.	5.46 ft.
Date:	b. 7 / 19 / 96 (mm dd yy)	7 / 19 / 96 (mm dd yy)
Time:	c. ___ : ___ ■ a.m. ☐ p.m.	___ : ___ ☐ a.m. ☐ p.m.
11 Sediment in well bottom:	___ inches	___ inches
12 Water Observations:	Clear ☐ Turbid ■ (Describe)	Clear ■ Turbid ☐ (Describe)
Color	Brown	Clear
Odor	–	–
Turbidity	Turbid	None
HNu	–	–

Filter Pack Vol. (gallons)	$0.057(R^2 - r^2)ls$ =	9.4
Well casing Vol. (gallons)	$0.16r^2 l$ =	2.1
Saturated length of sand pack (ft.)	(ls)	11.0
Length of water column (ft.)	(l)	12.68

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered)	_____ mg/l	_____ mg/l
14. COD (250 ml Unfiltered Sulfuric)	_____ mg/l (BEFORE)	_____ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
10:16	12	7.50	153	2.2		Brown	–	999	
10:20	12	7.13	127	20.1		Lt. Brown	–	999	
10:25	12	7.07	120	20.1		Semi-Clear	–	385	
10:29	12	6.96	116	19.6		Clear	–	196	
10:35	12	6.94	113	19.4		Clear	–	117	

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name	American Chemical Service, Inc.	Well No.	MW48
Location	Griffith, Indiana	Project No.	4077.0075
Developed By	C. Yantz	Checked By	

an this well be purged dry? ☐ Yes ■ No

2. Well development method

- surged with bailer and bailed ☐
- surged with bailer and pumped ■
- surged with block and bailed ☐
- surged with block and pumped ☐
- surged with block, bailed and pumped ☐
- compressed air ☐
- bailed only ☐
- pumped only ☐
- pumped slowly ☐
- Other _____ ☐

3. Time spent developing well 15 min.

4. Total well depth (TOC) 17.0 ft.
(From well construction summary)

Measured well depth (Before) 17.0 ft.

Measured well depth (After) 17.0 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 11.6 gal.

olume of water removed from well 72.0 gal.

Relative recovery rate 4.5 gal. per. 1 min.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 3.68 ft.	3.85 ft.
Date:	b. 7 / 19 / 96 (mm dd yy) ■ a.m.	7 / 19 / 96 (mm dd yy) ■ a.m.
Time:	c. 9 : 54 ☐ p.m.	9 : 35 ☐ p.m.
11 Sediment in well bottom:	1.0 inches	0.0 inches
12 Water Observations:	Clear ☐	Clear ■
	Turbid ■	Turbid ☐
	(Describe)	(Describe)
Color	Gray	Clear
Odor	Propane	Propane
Turbidity	Very	–
HNu	–	–

Filter Pack Vol. (gallons) $0.057(R^2 - r^2)ls$ = 9.4

Well casing Vol. (gallons) $0.16r^2 l$ = 2.2

Saturated length of sand pack (ft.) (ls) 11.0

Length of water column (ft.) (l) 13.32

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered)	_____ mg/l	_____ mg/l
14. COD (250 ml Unfiltered Sulfuric)	_____ mg/l (BEFORE)	_____ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
10:19	12	7.4	1200	15.0		Gray	Propane/H2S	99	
10:21	24	7.4	1100	14.0		Gray	Propane/H2S	99	
10:23	36	7.5	1100	14.0		Lt. Gray	Propane/H2S	62	
10:25	48	7.4	1100	14.0		Cloudy	Propane/H2S	15	
10:27	60	7.4	100	14.0		Clear	Propane/H2S	6	
10:30	72	7.4	1100	14.0		Clear	Propane/H2S	4	

MONTGOMERY WATSON

MONITORING WELL DEVELOPMENT SUMMARY

Project Name	American Chemical Service, Inc.	Well No.	MW49
Location	Griffith, Indiana	Project No.	4077.0075
Developed By	C. Yantz	Checked By	

an this well be purged dry? ☐ Yes ■ No

2. Well development method

- surged with bailer and bailed ☐
- surged with bailer and pumped ■
- surged with block and bailed ☐
- surged with block and pumped ☐
- surged with block, bailed and pumped ☐
- compressed air ☐
- bailed only ☐
- pumped only ☐
- pumped slowly ☐
- Other _____ ☐

3. Time spent developing well 13 min.

4. Total well depth (TOC) 16.3 ft.
(From well construction summary)

Measured well depth (Before) 16.0 ft.

Measured well depth (After) 16.3 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 11.5 gal.

Volume of water removed from well 84.0 gal.

Relative recovery rate 6.5 gal. per. 1 min.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

	Before Development	After Development
10 Depth to Water (from top of well casing)	a. 3.53 ft.	3.70 ft.
Date:	b. 7 / 19 / 96 (mm dd yy)	7 / 19 / 96 (mm dd yy)
Time:	c. 10 : 43 ■ a.m. ☐ p.m.	11 : 22 ■ a.m. ☐ p.m.
11 Sediment in well bottom:	2.0 inches	0.0 inches
12 Water Observations:	Clear ☐	Clear ■
	Turbid ■	Turbid ☐
	(Describe)	(Describe)
Color	Gray	Clear
Odor	Musty	Musty
Turbidity	Very	–
HNu	–	–

Filter Pack Vol. (gallons) $0.057(R^2 - r^2)ls$ = 9.4

Well casing Vol. (gallons) $0.16r^2 l$ = 2.1

Saturated length of sand pack (ft.) (ls) 11.0

Length of water column (ft.) (l) 12.77

R = Radius of borehole (in.) r = Well radius (in.)

Collect groundwater sample if drilling fluids were used and well is at solid waste facility:

13 Total suspended solids (500 ml Unfiltered)	_____ mg/l	_____ mg/l
14. COD (250 ml Unfiltered Sulfuric)	_____ mg/l (BEFORE)	_____ mg/l (AFTER)

Time	Gallons Purged	pH	Spec. Cond.	T deg. C	Spec. Cond. at 25 deg. C	Color	Odor	Turb.	Comment
11:10	12	7.6	570	15.0		Gray	Musty/H2S	82	
11:12	24	7.4	560	15.0		Gray	Musty/H2S	99	
11:14	36	7.5	560	14.0		Lt. Gray	Musty/H2S	99	
11:15	48	7.4	560	14.0		Cloudy	Musty/H2S	34	
11:16	60	7.4	570	14.0		Cloudy	Musty/H2S	12	
11:18	72	7.4	570	14.0		Clear	Musty/H2S	5	
11:20	84	7.4	570	14.0		Clear	Musty/H2S	4	

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AREA SURVEY REPORT

Area Survey Company
11340 West 159th Street Orland Park, Illinois 60462 • Phone (708) 349-7364 • FAX (708) 349-7372

September 4, 1996

AMERICAN CHEMICAL SERVICE SITE

GRIFFITH, INDIANA

Description	North Coordinate	East Coordinate	Top of Casing Elevation	Top of PVC Elevation	Ground Elevation
MW-37	7976	5395	637.09	636.78	634.0
MW-38	8216	5903	636.82	636.51	633.6
MW-39	7947	6253	638.16	637.77	634.0
MW-40	6831	6349	639.79	639.46	636.6
MW-41	4517	6242	633.07	632.74	629.6
MW-42	3808	6264	632.64	632.32	629.3
MW-43	3719	5880	633.88	633.56	630.2
MW-44	4303	5390	633.36	633.04	630.1
MW-45	4388	5830	635.69	635.35	632.1
MW-46	7424	4526	633.80	633.32	630.2
MW-47	5084	5958	640.96	640.54	637.6
MW-48	7814	5669	636.67	636.36	632.6
MW-49	7650	5551	637.35	637.00	634.2
P-64	7065	4617	NA	634.87	631.1
P-65	7063	4615	NA	634.77	631.2
P-66	7034	4729	NA	636.02	632.1
P-67	7034	4732	NA	636.06	632.0
P-68	7752	4743	NA	634.48	630.8
P-69	7751	4741	NA	634.66	630.8
P-70	7680	4880	NA	635.38	631.3
P-71	7682	4876	NA	635.32	631.2
SG-11	8245	5859	NA	634.64	631.5
SG-12	7867	5596	NA	634.50	631.0

E

IEA Analytical Laboratory Results - Organics

VALIDATION NARRATIVE

ACS
Project 4077.0076
Validated By: JAH

VOCs, SVOCs, PCBs in Monitoring Well Water

Date: 9/13/96

This narrative covers the validation of 15 groundwater samples from ACS for low concentration (LC) VOC, and routine concentration SVOC and PCB analysis by IEA laboratories using CLP methodologies. Validation was performed using the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Analysis Review* (2/94). The data is validated as acceptable for use in site evaluation with the following comments:

Hold Times All hold times were met, with the exception of the VOC LC storage blank, which exceeded holdtimes and is estimated (J/UJ). The purpose of this blank is to evaluate whether the samples were contaminated during storage. The only significant detect in the storage blank was acetone, which was also detected in the other blanks. This compound was qualified based on the field blank, therefore, the hold time exceedance does not affect the quality of the investigative sample data.

Calibration All VOC instrument tuning and calibration criteria was acceptable, except for acetone, 2-butanone, 2-hexanone and 4-methyl-2-pentanone. For these compounds, the reference factor (RF) was less than 0.05; all associated non- detect sample results were qualified as unusable ("R"). Detects would be qualified as estimated. Note that acetone results were also qualified as undetected for blank contamination, which is over-ridden by the RF unusable flag. Note that the calibration results are within the contract required criteria, but outside the stricter data validation requirements. All SVOC and pesticide criteria were acceptable.

Blanks Method blanks, two trip blanks and one field blank were analyzed. The VOC method blanks contained methylene chloride and acetone. The trip blanks contained methylene chloride, acetone, 1,2-dichloroethane and 1,4-dichlorobenzene. The field blank contained methylene chloride, acetone, chloromethane, 1,2-dichloroethane, chloroform, chloromethane, and bromodichloromethane. Sample results were qualified using the 5x/10x rule as undetected at the sample result or the CRQL, whichever was greater. Several SVOC TICs were also detected in the SVOC method and field blanks; associated sample detects have been qualified as unusable. No detects were observed in the pesticide/PCB blank analysis.

Internal Standards All internal standard results were within acceptable validation limits, with the exception of TB02 for VOCs. The compounds detected in this blank (methylene chloride and acetone) were also detected in other blanks, therefore this QC exceedance does not significantly affect the usability of this data.

Surrogates All surrogate recoveries were within QC limits, with the exception of the pesticide analysis, where the surrogate recoveries were low. Given that the analysis was for PCBs and not pesticides, the multi-peak nature of PCBs, the fact that the CRQL is not a sample specific value and is basically already an estimate, and that PCBs were not detected, The PCB non-detect data was not qualified as estimated.

Matrix Spikes All matrix spike recoveries and RPDs were within acceptable validation QC limits.

Field Duplicates Field duplicate results were within acceptable QC limits.

Sample Results All calculations are acceptable. Overall data quality by the laboratory was good, with no significant instrument related problems observed. Calibration exceedances for the low concentration VOCs are not unusual; most occurred on "poor response compounds". The SOW allows these exceedances, while the functional guidelines do not. The poor response is due to the low standard concentrations in the calibration, and do not indicate a significant instrument problem, but rather well documented difficulties with specific compounds. VOCs and SVOCs were detected in the samples, but PCBs were not.

IEA Assigned Number Index

Case No.: 1589-172

SDG No.: 08103

IEA Lab Sample Number	Sample Number	Abbreviated Sample Number
9608103-01	APD-GWMW46-01	MW46
9608103-21	HB08103	VSBLK90
9608135-02	APD-GWMW49-01	MW49
9608135-03	APD-GWMW49-91	MW499
9608135-04	APD-GWMW37-01	MW37
9608135-05	APD-GWMW48-01	MW48
9608135-06	APD-GWMW39-01	MW39
9608135-07	APD-GWFB01-01	FB01
9608135-08	APD-GWTB01-01	TB01
9608147-09	APD-GWMW38-01	MW38
9608147-10	APD-GWMW40-01	MW40
9608147-11	APD-GWMW47-01	MW47
9608147-12	APD-GWMW47-91	MW479
9608147-13	APD-GWMW41-01	MW41
9608147-14	APD-GWMW42-01	MW42
9608147-15	APD-GWTB02-01	TB02
9608147-16	APD-GWPW01-01	PW01
9608147-17	APD-GWPW01-91	PW019

Review Date: Reviewed by:

eview of Contract Data; ~~SMO~~ SDG Case No. 08103
Site Name: ACS Contract Lab: IEA
Contract No.: Project No.: 4077.0076
SMO Traffic No's:
Sample Matrix: Low Level ✓ Med. Level ____ High Level ____ Soil/Seq ____
Water ✓ Waste ____

ACS- UPPER AQUIFER
VOC = Low Concentration

I. HOLDING TIMES

Water: VOA A SV A PEST A
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - All contract and 40 CFR 136 holding times met.
P - Provisional - Some contract and 40 CFR 136 holding times exceeded.
U - Unacceptable - All holding times exceeded.

REMARKS: Sampled 8/5,6,7/96
VOC Run 8/13 - 8/16 ✓ (5 Blk past hold - I/UI)
SVOC Ext 8/12 7 days
PPCB Ext 8/12 7 days

I. GC/MS TUNING AND PERFORMANCE

Water: VOA (BFB) A SV (DFTPP) A
Sed/Soil: VOA (BFB) ____ SV (DFTPP) ____

A - Acceptable - All criteria met, spectra of good quality.
P - Provisional - All criteria not met, spectra of reasonable quality; date usable.
U - Unacceptable - Criteria not met, spectra of poor quality, data unusable.

BFB

MSD5
8-13 (INIT) ✓
8-14 (919) ✓
8-14 (2141) ✓
8-15 (1249) ✓
8-16 (0722) ✓

MSD9
8-6 (INIT) ✓
8-15 (2050) ✓
8-22 (0838) ✓

DFTPP

MSD4
8-7 (INIT) ✓
8-15 (1057) ✓
8-16 (0811) ✓

10 Case No.: ACS Contract Lab: IEA

V. SURROGATE SPIKE RESULTS

Water: VOA A SV A PEST P
Sed/Soil: VOA ____ SV ____ PEST ____

NOTE: Sample data flagged on individual basis.

A. Individual sample flagging criteria.

Acceptable - All surrogate recoveries within criteria.
Suspect - Any surrogate recoveries outside criteria and/or recoveries of <10% substantiated as a matrix effect.
Invalid - Any recoveries of <10% that are unsubstantiated as a matrix effect.

		No. Samples	No. Suspect	No. Invalid
Water:	VOA	26 x 1	1	0
	SV	17 x 8	0	0
	PEST	18 x 4	20	0
Sed/Soil:	VOA			
	SV			
	PEST			

B. Summary of Surrogates

A - Acceptable - <10% of samples reported as suspect.
P - Provisional - >10% but <50% of samples reported as suspect.
U - Unacceptable - >50% of samples reported as suspect and/or >10% samples reported as invalid.

REMARKS:

VOC - 1 high

PPCB - lots low (34-59)
3 high (154-189)

O Case No.: ACS Contract Lab: IEA

III. INITIAL AND CONTINUING CALIBRATION CHECKS

Water: VOA P SV A PEST A
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - All criteria met.
P - Provisional - Some criteria not met, data usable, see remarks.
U - Unacceptable - Criteria not met, data unusable, see remarks.

REMARKS: See Summary Sheets - ketones RF low, %D high
VOC - Acetone, 2-But, MIBK, 2-Hex all J/R (Normal for Low Conc SOW)

IV. BLANK ANALYSIS

Water: VOA P SV A PEST A
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - No contaminants above minimum detection limit, no interference with sample results, appropriate blank for each GC/MS system and extraction method.

P - Provisional - Contaminants present but minimal interference with sample results.

U - Unacceptable - Gross contamination, too much interference to use data for certain components or the entire fraction, appropriate blanks not analyzed.

Blk	MeCl2	Acetone	2-But	2-Hex	4-M-2-P	1,2-DCA	1,4-DCB	CCl3	MeCl	B-Cl2
VBLSR	0.14	(1.2)	(0.51)	(0.56)	–	–	–	–	–	–
VBLK 5S	–	(2.4)	(0.16)	–	–	–	–	–	–	–
VBLK 5T	(0.9)	(8.0)	(0.17)	(.27)	–	–	–	–	–	–
VBLK5U	–	(1.9)	(0.35)	(0.22)	(0.24)	–	–	–	–	–
VBLK9F	0.22	4.7	(0.61)	(0.38)	(0.95)	–	–	–	–	–
VBLK90	–	(0.89)	(0.95)	(0.23)	(0.61)	–	–	–	–	–
VSBLK90	–	7.2	(0.41)	(0.35)	(0.81)	–	–	–	–	–
TB01	0.16	(11.0)	(0.34)	(0.50)	(0.15)	0.51	0.12	–	–	–
TB02	1.22	16.7	(3.99)	(0.77)	(0.39)	(0.26)	–	–	–	–
FB01	0.69	18.6	(0.79)	(0.60	(0.30)	0.24	–	0.83	.78	.19

Blk	Di-n-phth	BEHP	2,6-Di-n-toluene
SBLK01	(5.35)	(0.95)	(14.)
SBLK03	(5.31)	–	(13.9)

(quant report only)

10 Case No.: ACS Contract Lab: IEA

VI. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

LCSSR, 9F

MW48

A. MATRIX SPIKE RESULTS:

Water: VOA A SV A PEST A (PCB1260)
Sed/Soil: VOA ____ SV ____ PEST ____

NOTE: No action taken on Matrix Spike Results alone.

A - Acceptable - <10% of compounds outside criteria.
P - Provisional - >10% but <50% of compounds outside criteria.
U - Unacceptable - >50% of compounds outside criteria and/or >10% of compounds with recoveries of <10%.

		No. Compounds	No. Outside Criteria	No. <10% Recovery
Water:	VOA	5 x 2	1	0
	SV	11 x 2	0	0
	PEST	1 x 2	0	0
Sed/Soil: LCS	VOA	11 x 2	0	0
	SV			
	PEST			

Benzene = 36 (R 60-140%)

DUPLICATE RESULTS

Water: VOA A SV A PEST A
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - <10% of compounds outside criteria.
P - Provisional - >10% but <50% of compounds outside criteria.
U - Unacceptable - >50% of compounds outside criteria and/or >10% of compounds with recoveries of <10%.

		No. Compounds	No. Outside Criteria
Water:	VOA	5	1 (Benz)
	SV	11	0
	PEST	1	0
Sed/Soil:	VOA		
	SV		
	PEST		

REMARKS:

Case No.: ACS Contract Lab: IEA

VII. FIELD DUPLICATES

Water: VOA A SV A PEST A
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - All compounds are within 25% of each other for waters or within 50% of each other for soils.

P - Provisional - Some compounds are greater than 25% RPD for waters and greater than 50% RPD for soils, see remarks.

U - Unacceptable - Professional judgement, see remarks.

REMARKS:

	~~GWMW~~	MW47-01	MW47-91	$\bar{x}$		
	Cl-me (Blk) ND	0.5 U ✓	.3 U ✓		ND	
		MW47-01	MW47-91			
	Cl-et	480	450	465	6.5%	✓
	Benzene	5,000	5,100	5050	2.0%	✓
	Phenol	93	100	96.5	7.2	✓
	Isophorone	1	2	1.5	66 %	✓
	2,2'-oxybis —	ND	26		200	✓

Case No.: ACS Contract Lab: IEA

VIII. INTERNAL STANDARD PERFORMANCE

Water: VOA A SV A PEST NA
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - Is area counts between - 50% to +100% from associated calibration standard and ±30 seconds from associated calibration standards.

P - Provisional - Most all area counts between -50% to +100% and ±30 seconds, from associated calibration standard, see remarks.

U - Unacceptable - Extremely low area counts or major abrupt drop-off of sensitivity or greater than ±30 second time shift, see remarks.

REMARKS: VOC TBOZ - CBZ, DFB low (No significant hits except $MeCl_2$)
SVOC ok

COMPOUND IDENTIFICATION

Water: VOA A SV A PEST NA
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - All compounds within retention time windows, spectral criteria met.
P - Provisional - Some criteria not met, data usable, see remarks.
U - Unacceptable - Criteria not met, data unusable, see remarks.

REMARKS: all ok

,MO Case No.: ACS Contract Lab: IEA

X. COMPOUND QUANTIFICATION AND REPORTED D.L.

Water: VOA A SV A PEST A
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - Compounds were quantified, as well as the adjustment of the CRQL, was calculated according for the SOW or SAS.

P - Provisional - Some criteria not met, data usable, see remarks.

U - Unacceptable - Gross problems, interferences, unacceptable RT and RRF shifts, see remarks.

REMARKS:

all ok

XI. SYSTEM PERFORMANCE

Water: VOA A SV A PEST A
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - No indication of instrument problems such as baseline shifts, I.S. absolute area changes, etc.
P - Provisional - Indication of minor problems, see remarks.
U - Unacceptable - Indication of instrument problems, see remarks.

REMARKS:

all ok.

Volatile TCLs
Calibration Outliers

CASE/SDG ACS CONTRACTOR IEA

Instrument MSD 9	Init Cal			Cont. Cal			Cont. Cal			Cont. Cal			Cont. Cal		
Date	8-6-96			8-15 (2323)			8-22 (0913)								
	RF	RSD	*	RF	%D		RF	%D		RF	%D		RF	%D	
Chloromethane															
Bromomethane															
Vinyl chloride															
Chloroethane															
Methylene chloride															
Acetone	.012	60.7	J/R	.007	43		.005	57.4							
Carbon disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
1,2-Dichloroethene (total)															
Chloroform															
1,2-Dichloroethane															
2-Butanone	.021		J/R	.007	64.5		.009	56.2							
1,1,1-Trichloroethane															
Carbon tetrachloride															
Bromodichloromethane															
1,2-Dichloropropane															
cis-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
trans-1,3-Dichloropropene															
Bromoform															
4-Methyl-2-pentanone				.039	59.3	J/R	.048	50.5	J/R						
2-Hexanone				.021	60.7	J/R	.021	61.7	J/R						
Tetrachloroethene															
Toluene															
1,1,2,2-Tetrachloroethane															
Chlorobenzene															
Ethylbenzene															
Styrene															
Xylenes (total)															

Init. Cal.				
	VBLK9F	VBLK90		
	LCS9F	VSBLK90		
	MW48 MS			
	MSD			
	MW39			
	MW38			
	MW40			
	MW47			
	MW479			
	TB02			

Volatile TCLs
Calibration Outliers

CASE/SDG ACS CONTRACTOR IEA

Instrument MSD5	Init Cal			Cont. Cal			Cont. Cal			Cont. Cal			Cont. Cal		
Date	8-13			8-14 (0002)			8/14 (1214)			8/15 (1323)			8-16 (0750)		
	RF	RSD	*	RF	%D		RF	%D		RF	%D		RF	%D	
Chloromethane															
Bromomethane															
Vinyl chloride															
Chloroethane		34.7	J/					37.7	J/						
Methylene chloride															
Acetone	.007	53.0	J/R	.006			.005			.005	32.		.006		
Carbon disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
1,2-Dichloroethene (total)															
Chloroform															
1,2-Dichloroethane															
2-Butanone	.009		J/R	.009			.007			.007			.010		
1,1,1-Trichloroethane															
Carbon tetrachloride															
Bromodichloromethane															
1,2-Dichloropropane															
cis-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
trans-1,3-Dichloropropene															
Bromoform															
4-Methyl-2-pentanone	.041		J/R	.042			.035			.031			.035		
2-Hexanone	.018		J/R	.021			.019			.013	31.4		.017		
Tetrachloroethene															
Toluene															
1,1,2,2-Tetrachloroethane															
Chlorobenzene															
Ethylbenzene															
Styrene															
Xylenes (total)															
	Init. Cal.			VB LK59			VBLK 55			VBLK 57					
				LCS59			MW49			TB01					
				MW46						MW49					
										MW37					
										MW48					

Semivolatiles TCLs
Calibration Outliers

CASE/SDG ACS CONTRACTOR IEA

Instrument MSD 4	Init Cal			Cont. Cal			Cont. Cal			Cont. Cal			Cont. Cal		
Date	8-7-96			8-15 (1023)			8-16 (0829)								
	RF	RSD	*	RF	%D		RF	%D		RF	%D		RF	%D	
Phenol															
bis(2-chloroethyl) ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
1,2-Dichlorobenzene															
2-Methylphenol															
2,2-oxybis 1-chloropropane															
4-Methylphenol															
N-Nitroso-di-n-propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
bis(2-chloroethoxy)methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethylphthalate															
Acenaphthene															
2,6-Dinitrotoluene															
3-Nitroaniline															
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															
	Init. Cal.			SBLK01			MW49								
				SBLO2			499								
				MW46			46								
				MW39			39								
							FB01								
							MW38								
							MW40								
							MW47								
							MW479								
							MW41								
							MW42								
							MW48MS								
							MSD								

✓ ✓ ✓

Semivolatiles TCLs
Calibration Outliers

CASE/SDG _____ CONTRACTOR _____

Instrument	Init Cal			Cont. Cal			Cont. Cal			Cont. Cal			Cont. Cal		
Date	8-7			8-15			8-16								
	RF	RSD	*	RF	%D		RF	%D		RF	%D		RF	%D	
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenylphenyl ether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl phenyl ether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Carbazole															
Di-n-butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3'-Dichlorobenzidine															
Benzo(a)anthracene															
Chrysene															
bis(2-ethylhexyl)phthalate															
Di-n-octylphthalate															
Benzo(b)fluoranthene															
Benzo(k)fluoranthene															
Benzo(a)pyrene															
Indeno(1,2,3-cd)anthracene															
Dibenz(g,h,i)perylene															

CASE ACS
LAB IEA

PESTICIDE/PCB DATA REVIEW
SOW OLM02.1

RUN #				
INSTRUMENT #	HP 5890P2	HP5890P3		
RUN DATE	8/12-8/21	8/15-8/22		
COLUMN	DB-1701	RTX-35		
FORM VI PEST-1 Retention time windows within limits	✓	✓		
FORM VI PEST-2 Percent RSD within QC limits for single component cmpds < 20 %	✓	✓		
FORM VI PEST-3 Multicomponent cmpd calibrations within QC limits	✓	✓		
FORM VI PEST-4 Resolution check greater than 60 %	✓	✓		
FORM VII PEST-1 Continuing calibration verification, breakdown acceptable	✓	✓	< 25 % RPD BD < 20 %	
FORM VII PEST-2 Continuing calibration verification, RPD acceptable < 25 %	✓	✓		
FORM VIII Analytical sequence correct, Surrogate shift within QC limits.	✓	✓		
Form IX	✓	✓	% R	80-120 %

Affected Samples

All Spls

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- ☐ PECFA
- ☐ WI LUST
- ☐ ACT 307
- ☐ REPORT DRY WT
- ☐ OTHER:

TURNAROUND
- ☐ 2 WEEKS (standard)
- ☐ 1 WEEK
- ☐ 3 DAYS
- ☐ 1 DAY

PROJECT NAME: AC-5

PROJECT #: 4-77.073

CITY: Griffith

STATE: IN

SAMPLER(S): [illegible]

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	VOCs	SVOCs	RCRA							REMARKS	LAB USE ONLY MATRIX	LAB USE ONLY LAB NO.
5-5-96	15:30		APD-GWM-96-01	6	X	X	X							[illegible]		

SPECIAL INSTRUCTIONS:

Cooler seals
92 00421
92 00422

TAMPER EVIDENT SEAL INTACT? ____YES ____NO ____NOT PRESENT

SEAL NO.: _____

SAMPLES RECEIVED ON ICE? ____YES ____NO TEMP: _____ °C

PROJ. MGR.: Pete Pratt

SIGNATURE	DATE	TIME	SIGNATURE	DATE	TIME
RELINQUISHED BY: [illegible]	5-5-96	17:00	RECEIVED BY:		
RELINQUISHED BY			RECEIVED BY:		
RELINQUISHED BY:			RECEIVED BY:		
RELINQUISHED BY			RECEIVED FOR LABORATORY BY: [illegible]	[illegible]	[illegible]

C-O-C No. 013761

NAME OF COURIER: [illegible]

AIRBILL NUMBER: 361 243 757 3

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- [ ] PECFA
- [ ] WI LUST
- [ ] ACT 307
- [ ] REPORT DRY WT
- [x] OTHER:

TURNAROUND
- [x] 2 WEEKS (standard)
- [ ] 1 WEEK
- [ ] 3 DAYS
- [ ] 1 DAY

PROJECT NAME: ACS

PROJECT #: 97.07.0073

CITY: Griffith

STATE: Indiana

SAMPLER(S): [illegible]

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	VOCs	SVOCs	PCBs						REMARKS	LAB USE ONLY MATRIX	LAB USE ONLY LAB NO.
8-6-96	10:00	Grab	APD-GW MW47-01	6	x	x	x						7-32641,42,43,44	GW	
8-6-96	10:00		APD-GW MW47-01	6	x	x	x						7-32657,58,59,60		
8-6-96	11:30		APD-GW MW37-01	6	x	x	x						7-32701,02,03,04		
8-6-96	14:00		APD-GW MW48-01	6	x	x	x						7-32683,84,85,86,87		
8-6-96	14:00		APD-GW MW48-01 MS/MSD	8	x	x	x						7-32681,82,83,84		
													65,66,67,68		
8-6-96	1615		APD-GW MW39-01	6	x	x	x						7-32749,50,51,52	GW	
8-6-96	1500		APD-GW TB01-01	6	x	x	x						7-32655,56,163,164		
8-6-96	—		APD-GW TT301-01	1	✓								7-32689		

SPECIAL INSTRUCTIONS:

NOTE - APD-GW MW48-01 ALSO MS/MSD
PAIRS 7-32684, 85, 86, 87, 88, 89, 90

TAMPER EVIDENT SEAL INTACT? ____YES ____NO ____NOT PRESENT

SEAL NO.: _____

SAMPLES RECEIVED ON ICE? ____YES ____NO TEMP: _____°C

PROJ. MGR.: [illegible]

COC Seal No's 92-00434, 92-00435, 92-00128

	SIGNATURE	DATE	TIME		SIGNATURE	DATE	TIME
RELINQUISHED BY:	[illegible]	8-6-96	1600	RECEIVED BY:			
RELINQUISHED BY				RECEIVED BY:			
RELINQUISHED BY:				RECEIVED BY:			
RELINQUISHED BY				RECEIVED FOR LABORATORY BY:	[illegible]	[illegible]	

C-O-C No. 013765

NAME OF COURIER: FED EX

AIRBILL NUMBER: 3692432545

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- [ ] PECFA
- [ ] WI LUST
- [ ] ACT 307
- [ ] REPORT DRY WT
- [x] OTHER:

TURNAROUND
- [x] 2 WEEKS (standard)
- [ ] 1 WEEK
- [ ] 3 DAYS
- [ ] 1 DAY

PROJECT NAME: ACS

PROJECT #: 4[illegible].073

CITY: Griffith

STATE: Indiana

SAMPLER(S): [illegible]

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	VOCs	SVOCs	TX BS							REMARKS	LAB USE ONLY MATRIX	LAB USE ONLY LAB NO.
8-7-96	0800	G	APD-GW MW38-01	6	X	X	X							[illegible]	[illegible]	
8-7-96	[illegible]	G	APD-GW MW40-01	6	X	X	X							[illegible]	[illegible]	
8-7-96	1145	G	APD-GW MW47-01	6	X	X	X							[illegible]	[illegible]	
8-7-96	1145	G	APD-GW MW47-91	6	X	X	X							[illegible]	[illegible]	
8-7-96	1430	G	APD-GW MW41-01	6	X	X	X							[illegible]	[illegible]	
8-7-96	1540	G	APD-GW MW42-01	6	X	X	X							[illegible]	[illegible]	
8-7-96	1570	G	APD-GW TB02-01	1	X									[illegible]		

SPECIAL INSTRUCTIONS:

TAMPER EVIDENT SEAL INTACT? ____YES ____NO ____NOT PRESENT

SEAL NO.: _____

SAMPLES RECEIVED ON ICE? ____YES ____NO TEMP: _____°C

PROJ. MGR.: [illegible]

COC Seal # 92-00031, 92-00431, 92-00430

	SIGNATURE	DATE	TIME		SIGNATURE	DATE	TIME
RELINQUISHED BY:	[illegible]	8-7-96	1730	RECEIVED BY:			
RELINQUISHED BY				RECEIVED BY:			
RELINQUISHED BY:				RECEIVED BY:			
RELINQUISHED BY				RECEIVED FOR LABORATORY BY:			

C-O-C No. 013761

NAME OF COURIER: [illegible]

AIRBILL NUMBER: [illegible]

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- [ ] PECFA
- [ ] WI LUST
- [ ] ACT 307
- [ ] REPORT DRY WT
- [x] OTHER:

TURNAROUND
- [x] 2 WEEKS (standard)
- [ ] 1 WEEK
- [ ] 3 DAYS
- [ ] 1 DAY

PROJECT NAME: PCS. Private Well Sampling
PROJECT #: 4077.0073
CITY: Griffith
STATE: Indiana
SAMPLER(S): [illegible]

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	TCL VOCs	TCL SVOCs	TCL PCBs							REMARKS	LAB USE ONLY: MATRIX	LAB NO.
8-7-96	1:50p	X	APD-GWPW01-01	4	2	2								TAG #'s 9-32945,46,47,48		
8-7-96	1:50p	X	APD-GWPW01-91	4	2	2								9-32949,50,51,52		

SPECIAL INSTRUCTIONS:
Sample that Fedex Lost Wed. July 17, 1996

TAMPER EVIDENT SEAL INTACT? ____YES ____NO ____NOT PRESENT
SEAL NO.: 92-00431
SAMPLES RECEIVED ON ICE? ____YES ____NO TEMP: _____°C

PROJ. MGR.: Pete Vagt

COC Sol # 92-00431

SIGNATURE	DATE	TIME	SIGNATURE	DATE	TIME
RELINQUISHED BY: [illegible]	8-7-96	1500	RECEIVED BY:		
RELINQUISHED BY			RECEIVED BY:		
RELINQUISHED BY:			RECEIVED BY:		
RELINQUISHED BY			RECEIVED FOR LABORATORY BY:		

C-O-C No. 013776

NAME OF COURIER: Fedex
AIRBILL NUMBER: 3699 3720 16

IEA SDG NARRATIVE VOLATILE FRACTION

PROJECT: 1589-172 BATCH: 08103 METHOD: 6/91 SOW

Samples: Fifteen (15) Water Samples and One (1) Holding Blank

These samples were received at Industrial and Environmental Analysts, Inc. (IEA) on August 06, 07, and 08, 1996. Each sample was assigned a 9-character "IEA" lab identification number (lab ID) and a client abbreviated sample ID for simplicity in forms generation. This package makes reference to these ID's as listed on the IEA Assigned Number Index. In addition the pH for the water samples are listed on this index. All analyses were performed according to the EPA 6/91 SOW and meet the requirements of the IEA Quality Assurance Program. Please see the enclosed data package for your results and Chain of Custody (COC) documentation.

The 6/91 SOW calls for the Laboratory Control Sample (LCS) to be calculated in nanograms. The nanogram sample amount on the Form 3LCA is calculated from the concentration of the analyte as reported on the raw data and rounded using EPA rounding rules. The percent recovery is then calculated using the "Amount Recovered" values as displayed on the Form 3LCA.

The form 6 and 7 indicate that the minimum Relative Response Factor (RRF) must be 0.010 and the maximum percent Relative Standard Deviation (%RSD) and/or percent difference (%D) must be less than 40.0%. However, the form does not indicate the exceptions which are the ketones and 1,2-Dibromo-3-chloropropane. Table D-5 VOA section D page 47 of the 6/91 SOW states, "At the present time, the Agency has not set minimum RRF or %RSD criteria for Acetone, 2-Butanone, 1,2-Dibromo-3-chloropropane, 2-Hexanone, and 4-Methyl-2-pentanone."

There is an air peak that is common to all of the volatile analyses and a solvent peak common to some volatile analyses. These peaks are present at the beginning of the Reconstructed Ion Chromatograms (RIC) and are labeled. These peaks are not searched as Tentatively Identified Compounds (TIC's).

The "J" flag used on the Form I VOA designates an estimated concentration between the Contract Required Quantitation Limit (CRQL) and the Method Detection Limit (MDL), not accounting for dilution of the sample prior to analysis. This flag is also used on the Form I VOA-TIC to indicate an estimated amount for all non-target concentrations.

The "B" flag used on the Form I VOA and/or the Form I VOA-TIC indicates that this compound was present in the associated method blank.

The "M" flag used on the data system report form designates that a manual integration was required to provide an accurate quantification of that analyte. Manual integrations have been initialled and dated by the analyst.

IEA SDG NARRATIVE VOLATILE FRACTION

The nonconformances associated with the analysis of the samples in this case are as follows:

The storage blank for the project (VSBLK9O) was analyzed past the method specified holding time.

Sample number 15 (client ID TB02) has internal standard recoveries below the method specified limit. This sample could not be reanalyzed due to insufficient sample volume.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his designee, as verified by the following signature.

Brian D. Neptune 08/27/96

Brian D. Neptune
Lead Analyst, GC/MS Final Review
IEA, Inc.

IEA SDG NARRATIVE SEMIVOLATILE FRACTION

PROJECT: 1589-172 BATCH: 08103 METHOD: SOW 1/91

Samples: Thirteen (13) Water Samples

The samples were received at Industrial and Environmental Analysts, Inc. (IEA) from 08/06/96 through 08/08/96. Each sample was assigned a 9-character "IEA" lab identification number (lab ID) and an abbreviated client ID which is referenced on the IEA Assigned Number Index. All analyses are performed in accordance with EPA approved methodologies and meet the requirements of the IEA Quality Assurance Program. Please see the enclosed data package for your results and Chain of Custody documentation.

The chromatographic separation of the analytes was performed using a Restek 30 X 0.32 XTI-5 fused silica capillary column with a 0.5 μm bonded phase film thickness.

The "J" flag used on the Form I SV indicates an estimated concentration between the CRQL and the Method Detection Limit (MDL). This flag also identifies the estimated concentration of the non-target compounds reported on the Form I SV-TIC.

The "N" flag used on the Form I SV-TIC indicates that there is the presumptive evidence of a compound based on the mass spectral library search and the interpretation of the mass spectral interpretation specialist.

The "B" flag used on the Form I SV-TIC indicates that this compound was present in the associated extraction blank.

The "X" flag is used to designate a non-target which can be attributed to laboratory contamination on the Form I SV-TIC.

The "M" flag used on the data system report form designates that a manual integration was required to provide an accurate quantification of that analyte. Manual integrations have been initialed and dated by the analyst.

The "E" flag was used on the Form I SV for the Matrix Spike/Matrix Spike Duplicate (MW48MS/MSD) to denote that the concentration exceeded the calibration range identified in the methodology.

Instrument data printouts identify the compound 2,2'-oxybis(1-Chloropropane) with CAS number 108-60-1. Alternative nomenclature for this compound is bis(2-Chloroisopropyl)ether which is included on report forms submitted.

Samples MW48 (960813505), MW49 (960813502), and MW499 (960813503) have been reported at two-fold dilutions due to the presence of target compounds.

I certify that this data package is in compliance with the procedures and methods defined for this project, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data (if applicable) as submitted has been authorized by the laboratory manager or his designee, as verified by the following signature.

David F. Morse 08/27/96

David F. Morse
GC/MS SV Lead Analyst
IEA, Inc.

IEA SDG NARRATIVE PESTICIDE FRACTION

CASE: 1589-172 SDG NO.: 08103 Method: SOW OLM01.9 for PCB's

Samples: Thirteen (13) Water Samples

The samples were received at Industrial and Environmental Analysts, Inc. (IEA) on 08/06/96, 08/07/96 and 08/08/96. Each sample was assigned a 9-character "IEA" lab identification number (lab ID). All analyses are performed in accordance with EPA approved methodologies and meet the requirements of the IEA Quality Assurance Program. Please see the enclosed data package for your results and Chain of Custody documentation.

The chromatographic separation of the analytes was performed using a J & W 30 m X 0.53 mm DB-1701 fused silica capillary column with a 1.0 μm bonded phase film thickness and a Restek 30 m X 0.53 mm Rt_x-35 fused silica capillary column with a 1.0 μm bonded phase film thickness.

The filenames have an extension of ".D" to denote the use of the ASCII file generated by the data system to produce the forms. Two significant figures were reported for the "calculated amount" on Form VII PEST-1 and -2. All of the initial pesticide chromatograms were missing the scaling factor; however, the scaling factor (in mV scale) appeared for the re-plotted chromatograms.

Florisil column cleanup was performed on all sample extracts as required by the SOW.

The "*" used on the Form II PEST and Form III PEST designates percent recoveries which are outside the advisory QC limits.

Surrogate TCX had recoveries below advisory limits for most of the samples on the RTX-35 column only. Aroclor-1260 was used for the spike compound in the MS/MSD, and had recoveries within limits in both.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his designee, as verified by the following signature.

Kerry S. Hinshaw 08/27/96

Kerry S. Hinshaw
Semivolatiles Manager
IEA, Inc.

8LCA

LOW CONC. WATER VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab File ID (Standard): 0815I01.D Date Analyzed: 08/15/96

Instrument ID: MSD9 Time Analyzed: 2323

GC Column:DB-624 ID: 0.53 (mm)

		IS1(CBZ) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	1044196	17.03	1370725	10.59	563176	22.55
	UPPER LIMIT	1461874	17.36	1919015	10.92	788446	22.88
	LOWER LIMIT	626518	16.70	822435	10.26	337906	22.22
	CLIENT SAMPLE No.						
01	VBLK9F	1112972	17.05	1429737	10.67	547314	22.57
02	LCS9F	1077335	17.02	1425315	10.63	609186	22.55
03	MW48MS	1132248	17.06	1354597	10.61	561302	22.60
04	MW48MSD	1150489	17.06	1354645	10.66	584252	22.59
05	MW39	1110364	17.06	1326860	10.58	571032	22.61
06	MW38	1096650	17.06	1332748	10.59	561096	22.61
07	MW40	1074965	17.04	1288563	10.61	526860	22.58
08	MW47	926419	17.09	1183975	10.66	429907	22.64
09	MW479	1051814	17.08	1270973	10.62	496318	22.61
10	TB02	395061*	17.09	358903*	10.62	247782*	22.67
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (CBZ) = Chlorobenzene-d5
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = + 40% of internal standard area
AREA LOWER LIMIT = - 40% of internal standard area
RT UPPER LIMIT = + 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VSBLK90

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960810321 Date Received: 08/07/96

Lab File ID: 0822903.D Date Analyzed: 08/22/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0 Past hold

CAS NO.	COMPOUND	CONCENTRATION (ug/L)		Q
74-87-3	Chloromethane	UJ	1	U
74-83-9	Bromomethane		1	U
75-01-4	Vinyl Chloride		1	U
75-00-3	Chloroethane		1	U
75-09-2	Methylene Chloride		2	U
67-64-1	Acetone	J	7	
75-15-0	Carbon Disulfide		1	U
75-35-4	1,1-Dichloroethene	UJ	1	U
75-34-3	1,1-Dichloroethane		1	U
156-59-2	cis-1,2-Dichloroethene		1	U
156-60-5	trans-1,2-Dichloroethene		1	U
67-66-3	Chloroform		1	U
107-06-2	1,2-Dichloroethane		1	U
78-93-3	2-Butanone		5	U
74-97-5	Bromochloromethane		1	U
71-55-6	1,1,1-Trichloroethane		1	U
56-23-5	Carbon Tetrachloride		1	U
75-27-4	Bromodichloromethane		1	U
78-87-5	1,2-Dichloropropane		1	U
10061-01-5	cis-1,3-Dichloropropene		1	U
79-01-6	Trichloroethene		1	U
124-48-1	Dibromochloromethane		1	U
79-00-5	1,1,2-Trichloroethane		1	U
71-43-2	Benzene		1	U
10061-02-6	trans-1,3-Dichloropropene		1	U
75-25-2	Bromoform		1	U
108-10-1	4-Methyl-2-Pentanone		5	U
591-78-6	2-Hexanone		5	U
127-18-4	Tetrachloroethene		1	U
79-34-5	1,1,2,2-Tetrachloroethane		1	U
106-93-4	1,2-Dibromoethane		1	U
108-88-3	Toluene		1	U
108-90-7	Chlorobenzene		1	U
100-41-4	Ethylbenzene		1	U
100-42-5	Styrene		1	U
1330-20-7	Xylenes (total)		1	U
541-73-1	1,3-Dichlorobenzene		1	U
106-46-7	1,4-Dichlorobenzene		1	U
95-50-1	1,2-Dichlorobenzene		1	U
96-12-8	1,2-Dibromo-3-chloropropane		1	U

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VSBLK90

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960810321 Date Received: 08/07/96

Lab File ID: 0822903.D Data Analyzed: 08/22/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK5R

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: VBLK5R Date Received: / /

Lab File ID: 0814503.D Date Analyzed: 08/14/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	0.1	J
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLK5R

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: VBLK5R Date Received: / /

Lab File ID: 0814503.D Data Analyzed: 08/14/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
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16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK5S

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: VBLK5S Date Received: / /

Lab File ID: 0814E03.D Date Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLK5S

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: VBLK5S Date Received: / /

Lab File ID: 0814E03.D Data Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK5T

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: VBLK5T Date Received: / /

Lab File ID: 0815502.D Date Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	0.9	J
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLK5T

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: VBLK5T Date Received: / /

Lab File ID: 0815502.D Data Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK5U

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: VBLK5U Date Received: / /

Lab File ID: 0816502.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLK5U

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: VBLK5U Date Received: / /

Lab File ID: 0816502.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1. 128370	Butylated Hydroxytoluene	27.460	2	YNJ
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1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK9F

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: VBLK9F Date Received: / /

Lab File ID: 0815I02.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	0.2	J
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLK9F

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: VBLK9F Date Received: / /

Lab File ID: 0815I02.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1. 128370	Butylated Hydroxytoluene	25.210	12	NYJ
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LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK90

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: VBLK90 Date Received: / /

Lab File ID: 0822902.D Date Analyzed: 08/22/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLK90

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: VBLK90 Date Received: / /

Lab File ID: 0822902.D Data Analyzed: 08/22/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1. 128370	Butylated Hydroxytoluene	26.750	11	NJY
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK01

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: SBLK01

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815402.D

Level: (low/med) LOW Date Received: / /

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/07/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK01

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: SBLK01

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815402.D

Level: (low/med) LOW Date Received: / /

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/07/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLK01

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: SBLK01

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815402.D

Level: (low/med) LOW Date Received: / /

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/07/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	1,2-Cyclohexanediol isomer	9.760	2	XJ
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK03

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: SBLK03

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815404.D

Level: (low/med) LOW Date Received: / /

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK03

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: SBLK03

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815404.D

Level: (low/med) LOW Date Received: / /

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLK03

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: SBLK03

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815404.D

Level: (low/med) LOW Date Received: / /

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	5.850	3	J
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

PBLK22

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: PBLK22

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_088.D

% Moisture: _____ decanted: (Y/N)___ Date Received: / /

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/09/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/21/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

PBLK23

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: PBLK23

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_022.D

% Moisture: _____ decanted: (Y/N)___ Date Received: / /

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/15/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

PBLK24

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: PBLK24

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_048.D

% Moisture: _____ decanted: (Y/N)___ Date Received: / /

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/16/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

ORGANICS
DATA VALIDATION NARRATIVE

Site Name ACS Project # _____

SMO Case # (SAS #) _____ #Samples/Matrix 5 gw samples - full organics

Laboratory IEA Hours for Review _____

SOW # _____ EPA Validation Guidelines # _____

Sample Numbers MW43, MW44, MW45, FB02, TB03

Validated By Steve Wiskes Date 9/12/96

Reviewed By _____ Date _____

SUMMARY OF REVIEW:

Five groundwater samples were ~~collected~~ validated for VOCs, SVOCs and PCBs. The data is quantitative and acceptable with the following limitations.

- Acetone and 2-butanone are qualified (R) unusable if not detected, and (J) estimated if detected because of low response factors (<0.01). Several cpd.s in VOC + SVOC fraction also had %D in response factors over the QC limits - if detected the cpd. is qualified (J) estimated, if not detected - no qualifier.

- Numerous cpd.s were detected in the trip blank and field blank for VOCs. The 5x or 10x rule were applied and cpd.s detected in samples at less than 5x's or 10x's the amount in the associated blank were qualified (U) not detected.

Steve Wiskes

view Date: Reviewed by:

Review of Contract Data; SMO Case No. _____
Site Name: ACS Contract Lab: IEA
Contract No.: _____ Project No.: 4077.0076
SMO Traffic No's: _____
Sample Matrix: Low Level X Med. Level ____ High Level ____ Soil/Seq ____
Water X Waste ____

I. HOLDING TIMES

Water: VOA A SV A PEST A
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - All contract and 40 CFR 136 holding times met.
P - Provisional - Some contract and 40 CFR 136 holding times exceeded.
U - Unacceptable - All holding times exceeded.

REMARKS: - all VOCs analyzed within 14 days.
- all SVOCs were extracted within 5 days of sample collection
- all PCBs were extracted within 7 days and analyzed with 30 days of sample collection

II. GC/MS TUNING AND PERFORMANCE

Water: VOA (BFB) A SV (DFTPP) A
Sed/Soil: VOA (BFB) ____ SV (DFTPP) ____

A - Acceptable - All criteria met, spectra of good quality.
P - Provisional - All criteria not met, spectra of reasonable quality; date usable.
U - Unacceptable - Criteria not met, spectra of poor quality, data unusable.

SMO Case No.: _____ Contract Lab: _____

V. SURROGATE SPIKE RESULTS

Water: VOA A SV A PEST P
Sed/Soil: VOA ____ SV ____ PEST ____

NOTE: Sample data flagged on individual basis.

A. Individual sample flagging criteria.

Acceptable - All surrogate recoveries within criteria.
Suspect - Any surrogate recoveries outside criteria and/or recoveries of <10% substantiated as a matrix effect.
Invalid - Any recoveries of <10% that are unsubstantiated as a matrix effect.

		No. Samples	No. Suspect	No. Invalid
Water:	VOA	9	0	0
	SV	9	0	0
	PEST	5	0	0
Sed/Soil:	VOA			
	SV			
	PEST			

B. Summary of Surrogates

A - Acceptable - <10% of samples reported as suspect.
P - Provisional - >10% but <50% of samples reported as suspect.
U - Unacceptable - >50% of samples reported as suspect and/or >10% samples reported as invalid.

REMARKS:

VOC - 0 of 9 BFB recoveries are out QC limits ✓
SVOC - 0 of 72 recoveries are out of QC limits ✓
Pest - 5 of 20 recoveries are out of QC (Aldrin only) no action

SMO Case No.: _____ Contract Lab: _____

III. INITIAL AND CONTINUING CALIBRATION CHECKS

Water: VOA P SV P PEST ____
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - All criteria met.
P - Provisional - Some criteria not met, data usable, see remarks.
U - Unacceptable - Criteria not met, data unusable, see remarks.

REMARKS: VOC - Acetone and 2 butanone had RF's less than .01 - ~~all~~ each are qualified (R) unusable if not detected or (J) estimated if detected. Chloroethane had a 32.6%D and 35% RSD - if detected conc. is qualified (J) if not detected No action.
SVOC several cpds had %D out. if detected cpd is estimated (J) if not detected no qualifier

IV. BLANK ANALYSIS

Water: VOA P SV A PEST A
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - No contaminants above minimum detection limit, no interference with sample results, appropriate blank for each GC/MS system and extraction method.

P - Provisional - Contaminants present but minimal interference with sample results.

U - Unacceptable - Gross contamination, too much interference to use data for certain components or the entire fraction, appropriate blanks not analyzed.

VOC.
VBLK5Y - N.D.
TB03 - Acetone - 9 ug/L
1,2 DCA - 0.5 ug/L
1,4 DCB - 0.1 ug/L

FB02 chloromethane 0.9 ug/L
Acetone ← 2 ug/L
Chloroform - 0.8 ug/L
Bromodichloromethane 0.2 ug/L
Toluene 0.1 ug/L

any cpd.s detected in samples at conc. less than 10x the conc of acetone + toluene + 5x's the other cpd.s detected are qualified U or UJ not detected

SVOC FB02 N.D. of TCL
TIC's detected

SBLK06 - N.D.

Case No.: _____ Contract Lab: _____

VI. MATRIX SPIKE/MATRIX SPIKE DUPLICATE No MS/MSD for VOC

A. ~~MATRIX SPIKE RESULTS:~~ for SVOC LCS for VOC

Water:	VOA	A	SV	A	PEST	A
Sed/Soil:	VOA		SV		PEST	

NOTE: No action taken on Matrix Spike Results alone.

A - Acceptable - <10% of compounds outside criteria.
P - Provisional - >10% but <50% of compounds outside criteria.
U - Unacceptable - >50% of compounds outside criteria and/or >10% of compounds with recoveries of <10%.

- 0 of 11 recoveries outside limits LCS for VOC

		No. Compounds	No. Outside Criteria	No. <10% Recovery
Water:	VOA			
	SV	11	0	0
	PEST	1	0	0
Sed/Soil:	VOA			
	SV			
	PEST			

B. DUPLICATE RESULTS

Water:	VOA		SV		PEST	
Sed/Soil:	VOA		SV		PEST	

A - Acceptable - <10% of compounds outside criteria.
P - Provisional - >10% but <50% of compounds outside criteria.
U - Unacceptable - >50% of compounds outside criteria and/or >10% of compounds with recoveries of <10%.

		No. Compounds	No. Outside Criteria
Water:	VOA		
	SV	11	0
	PEST	1	0
Sed/Soil:	VOA		
	SV		
	PEST		

REMARKS:

SVOC - 0 of 22 recoveries outside of QC
0 of 11 RPD's outside of QC

PCB - 0 of 1 rec. out ✓
0 of 2 RPD's out ✓

O Case No.: _____ Contract Lab: _____

I. FIELD DUPLICATES No duplicate collected

Water: VOA ____ SV ____ PEST ____
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - All compounds are within 25% of each other for waters or within 50% of each other for soils.

P - Provisional - Some compounds are greater than 25% RPD for waters and greater than 50% RPD for soils, see remarks.

U - Unacceptable - Professional judgement, see remarks.

REMARKS:

SMO Case No.: _____ Contract Lab: _____

VIII. INTERNAL STANDARD PERFORMANCE

Water:	VOA	A	SV	A	PEST	A (external std)
Sed/Soil:	VOA		SV		PEST	

A - Acceptable - Is area counts between - 50% to +100% from associated calibration standard and ±30 seconds from associated calibration standards.

P - Provisional - Most all area counts between -50% to +100% and ±30 seconds, from associated calibration standard, see remarks.

U - Unacceptable - Extremely low area counts or major abrupt drop-off of sensitivity or greater than ±30 second time shift, see remarks.

REMARKS:

VOC - all area counts + R.T.s acceptable
SVOC - all area counts + R.T.'s acceptable

IX. COMPOUND IDENTIFICATION

Water:	VOA	A	SV	A	PEST	A
Sed/Soil:	VOA		SV		PEST	

A - Acceptable - All compounds within retention time windows, spectral criteria met.
P - Provisional - Some criteria not met, data usable, see remarks.
U - Unacceptable - Criteria not met, data unusable, see remarks.

REMARKS:

SMO Case No.: _____ Contract Lab: _____

X. COMPOUND QUANTIFICATION AND REPORTED D.L.

Water: VOA A SV A PEST A
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - Compounds were quantified, as well as the adjustment of the CRQL, was calculated according for the SOW or SAS.

P - Provisional - Some criteria not met, data usable, see remarks.

U - Unacceptable - Gross problems, interferences, unacceptable RT and RRF shifts, see remarks.

REMARKS:

XI. SYSTEM PERFORMANCE

Water: VOA A SV A PEST A
Sed/Soil: VOA ____ SV ____ PEST ____

A - Acceptable - No indication of instrument problems such as baseline shifts, I.S. absolute area changes, etc.
P - Provisional - Indication of minor problems, see remarks.
U - Unacceptable - Indication of instrument problems, see remarks.

REMARKS:

CASE _____
LAB _____

PESTICIDE/PCB DATA REVIEW
SOW OLM02.1

RUN #				
INSTRUMENT #	HP5890P1	HP5890P2		
RUN DATE	8/15/96	8/13/96		
COLUMN	RTX 35	DB 1701		
FORM VI PEST-1 Retention time windows within limits	✓	✓		
FORM VI PEST-2 Percent RSD within QC limits for single component cmpds	✓	✓		
FORM VI PEST-3 Multicomponent cmpd calibrations within QC limits	✓	✓		
FORM VI PEST-4 Resolution check greater than 60 %	✓	✓		
FORM VII PEST-1 Continuing calibration verification, breakdown acceptable	✓	✓		
FORM VII PEST-2 Continuing calibration verification, RPD acceptable	✓	✓		
FORM VIII Analytical sequence correct, Surrogate shift within QC limits.	✓	✓		

Affected Samples

Volatile TCLs
Calibration Outliers

CASE/SDG _____ CONTRACTOR _____

Instrument MSD5	Init Cal			Cont. Cal			Cont. Cal			Cont. Cal			Cont. Cal		
Date	8/13/96			8/16/96			8/20/96								
	RF	RSD	*	RF	%D		RF	%D		RF	%D		RF	%D	
Chloromethane															
Bromomethane															
Vinyl chloride															
Chloroethane		35	J					32	J						
Methylene chloride															
Acetone	.007	53	RJ	.007		RJ	.007		RJ						
Carbon disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
1,2-Dichloroethene (total)															
Chloroform															
1,2-Dichloroethane															
2-Butanone	.009		RJ	.009		RJ	.009		RJ						
1,1,1-Trichloroethane															
Carbon tetrachloride															
Bromodichloromethane															
1,2-Dichloropropane															
cis-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
trans-1,3-Dichloropropene															
Bromoform															
4-Methyl-2-pentanone															
2-Hexanone															
Tetrachloroethene															
Toluene															
1,1,2,2-Tetrachloroethane															
Chlorobenzene															
Ethylbenzene															
Styrene															
Xylenes (total)															

Init. Cal	Std 5	Std 5		
VSTd 1	VBLK4	VBLK5Y		
2	TB3	LCS5Y		
5	FB2	VSBLK5Y		
10	MW43			
25	MW44			
10	MW45			

Semivolatiles TCLs
Calibration Outliers

CASE/SDG _____ CONTRACTOR _____

Instrument MSD4	Init Cal			Cont. Cal			Cont. Cal			Init MSD14 ~~Cont.~~ Cal			Cont. Cal		
Date	8/7/96			8/15/96			8/16/96			8/5/96			8/5/96		
	RF	RSD	*	RF	%D		RF	%D		RF	%D		RF	%D	
Phenol															
bis(2-chloroethyl) ether															
2-Chlorophenol								25	J						
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
1,2-Dichlorobenzene															
2-Methylphenol															
2,2-oxybis 1-chloropropane															
4-Methylphenol															
N-Nitroso-di-n-propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
bis(2-chloroethoxy)methane					26	J		27	J						
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
Chloroaniline															
Hexachlorobutadiene														27	J
4-Chloro-3-methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethylphthalate															
Acenaphthene															
2,6-Dinitrotoluene															
3-Nitroaniline															
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															

Init. Cal.			
20	SB1K07	MW45	50
50	MW43		80
80	MW44		120
120	FB02		160
160			

Semivolatiles TCLs
Calibration Outliers

CASE/SDG _____ CONTRACTOR _____

Instrument Date	Init Cal			Cont. Cal			Cont. Cal			Cont. Cal			Cont. Cal		
	RF	RSD	*	RF	%D		RF	%D		RF	%D		RF	%D	
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenylphenyl ether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-methylphenol															
N-Nitrosodiphenylamine					20 J										
4-Bromophenyl phenyl ether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Carbazole															
Di-n-butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3'-Dichlorobenzidine															
nzo(a)anthracene															
rysene															
bis(2-ethylhexyl)phthalate															
Di-n-octylphthalate															
Benzo(b)fluoranthene															
Benzo(k)fluoranthene															
Benzo(a)pyrene															
Indeno(1,2,3-cd)anthracene															
Dibenz(g,h,i)perylene															

CS-GW

DCS

MW43 N.D.

MW44 N.D.

MW45

chloroethane $\frac{226735 \; (\times 25)(5)}{\cancel{2337971 \; (.228)} \; 2103365 \; (.163)} = 82$ ✓

Benzene $\frac{7577815 \; (5) \; 25}{1504929 \; (1.185)} = 530$ ✓

chlorobenzene $\frac{186631 \; (5) \; (25)}{1504925 \; 1.000} = 16$ ✓

ethylbenzene $\frac{234429 \; (5)(25)}{1504929 \; 1.872} = 10.4$ ✓

Xylenes $\frac{447008 \; (5)(25)}{1504929 \; (.614)} = 60$ ✓

TB03

Acetone $\frac{23737 \; (5)}{2110258 \; .006}$ 9.4 ✓

1,2 DCA $\frac{54784 \; (5)}{2110258 \; (.260)} = .52$ ✓

1,4 DCB $\frac{37333 \; (5)}{157499 \; (1.652)} = .07$ ✓

FB02

chloromethane $\frac{80219 \; (5)}{2013905 \; (.228)}$ .8

acetone $\frac{53547 \; 5}{2013905 \; .006} = 22$ ✓

chloroform $\frac{222588}{2013905} \frac{5}{(.660)}$ = .83 ✓

Bromodichloromethane $\frac{333338}{2013905} \frac{(5)}{(.621)}$ = 0.13 ✓

toluene $\frac{51251}{1517153} \frac{(5)}{(1.457)}$ = 0.1

initial Calibration

Acetone

RRF

1	$\frac{23411}{1705462} \frac{5}{1}$	=	.014
2	$\frac{27602}{1648860} \frac{5}{(2)}$	=	.008
5	$\frac{50482}{1725150} \frac{5}{25}$	=	.006
10	$\frac{106011}{1874300} \frac{5}{50}$	=	.006
20	$\frac{163229}{1629229} \frac{5}{20}$	=	.004 ✓
25	$\frac{2010545}{1080600} \frac{}{25}$	=	.004 ✓

RRF = .007 ✓

σ - 0037

%RSD = 53% ✓

Continuing Calibration

6/96 RRFs Benzene : $\frac{1868660}{1576858} \frac{1}{5}$ = 1.185 ✓

%D $\frac{1.207 - 1.185}{1.207}$ = 1.8%

8/20/96

RRFs toluene $\frac{2294650}{1371628} \frac{}{5}$ 1.673 ✓

%D $\frac{1.482 - 1.673}{1.482}$ 12.8%

MS04 Initial Calibration

Phenol

20	$\frac{601092}{525773}$	$\frac{40}{20}$	= 2.286 ✓
50	$\frac{1349012}{480047}$	$\frac{40}{50}$	= 2.248 ✓
80	$\frac{2208652}{501334}$	$\frac{40}{80}$	= 2.203 ✓
120	$\frac{3171837}{516972}$	$\frac{40}{120}$	= 2.045 ✓
160	$\frac{3905817}{491597}$	$\frac{40}{160}$	= 1.986 ✓

RRF = 2.154

σ = .13

%RSD = 6.1%

MS014 Naphthalene

20	$\frac{656083}{1192867}$	$\frac{40}{20}$	= 1.100 ✓
50	$\frac{1720885}{1372562}$	$\frac{40}{50}$	= 1.003 ✓
80	$\frac{2386 37}{1297504}$	$\frac{40}{80}$	= .956 ✓
120	$\frac{3249715}{1215243}$	$\frac{40}{120}$	= .891 ✓
160	$\frac{4472377}{1244668}$	$\frac{40}{160}$	= .898 ✓

RRF = .970 ✓

σ = 0.086

%RSD = 8.8% ✓

Continuing Cal

Phenol

RRF50 $\frac{1891265}{611058}$ $\frac{4}{5}$ = 2.476 ✓

%D 2.154 - 2.476 = 15% ✓

int. 8/16/96 Naphthalene

RRF50 $\frac{2868855 \quad 4}{2183357 \quad 5}$ 1.051 ✓

%D $\frac{.997 - 1.051}{.997}$ = 5.4% ✓

int. Cal 8/15/96

Chrysene $\frac{1882652 (4)}{1255109 (5)}$ = 1.264 ✓

%D $\frac{1.216 - 1.264}{1.216}$ = 3.9% ✓

FB02 N.D.

MW43 N.D.

MW44 N.D.

MW45

phenol $\frac{1409786 \quad 40}{541276 \quad 2.522}$ = 41 ✓

bis(2-chloroethyl)ether $\frac{195348 \quad 40}{541276 \quad 1.946}$ = 7 ✓

Naphthalene $\frac{4789956 \quad 40}{2149312 \quad 1.055}$ = 84 ✓

2 methyl Naph $\frac{163297 \quad 40}{2149312 \quad .676}$ = 4.4 ✓

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK5U

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: VBLK5U Date Received: / /

Lab File ID: 0816502.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLK5U

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: VBLK5U Date Received: / /

Lab File ID: 0816502.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1. 128370	Butylated Hydroxytoluene	27.460	2	YNJ
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1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK5Y

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: VBLK5Y Date Received: / /

Lab File ID: 0820503.D Date Analyzed: 08/20/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLK5Y

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: VBLK5Y Date Received: / /

Lab File ID: 0820503.D Data Analyzed: 08/20/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1. 128370	Butylated Hydroxytoluene	27.500	3	YNJ
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK06

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: SBLK06

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 8151409A.D

Level: (low/med) LOW Date Received: / /

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK06

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: SBLK06

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 8151409A.D

Level: (low/med) LOW Date Received: / /

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U
65-85-0	Benzoic acid	50	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLK06

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: SBLK06

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 8151409A.D

Level: (low/med) LOW Date Received: / /

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO

SBLK07

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: SBLK07

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815405.D

Level: (low/med) LOW Date Received: / /

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO

SBLK07

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: SBLK07

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815405.D

Level: (low/med) LOW Date Received: / /

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLK07

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: SBLK07

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815405.D

Level: (low/med) LOW Date Received: / /

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 1

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	108930	Cyclohexanol	6.440	7	NJ
2.					
3.					
4.					
5.					
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APD-GWMW 37-01
8-6-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW37

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813504 Date Received: 08/07/96

Lab File ID: 0815505.D Date Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)		Q
74-87-3	Chloromethane	U	0.9	J
74-83-9	Bromomethane		1	U
75-01-4	Vinyl Chloride		1	U
75-00-3	Chloroethane		1	U
75-09-2	Methylene Chloride		2	U
67-64-1	Acetone	R	5	U
75-15-0	Carbon Disulfide		1	U
75-35-4	1,1-Dichloroethene		1	U
75-34-3	1,1-Dichloroethane		1	U
156-59-2	cis-1,2-Dichloroethene		1	U
156-60-5	trans-1,2-Dichloroethene		1	U
67-66-3	Chloroform		1	U
107-06-2	1,2-Dichloroethane	U	0.2	J
78-93-3	2-Butanone	R	5	U
74-97-5	Bromochloromethane		1	U
71-55-6	1,1,1-Trichloroethane		1	U
56-23-5	Carbon Tetrachloride		1	U
75-27-4	Bromodichloromethane		1	U
78-87-5	1,2-Dichloropropane		1	U
10061-01-5	cis-1,3-Dichloropropene		1	U
79-01-6	Trichloroethene		1	U
124-48-1	Dibromochloromethane		1	U
79-00-5	1,1,2-Trichloroethane		1	U
71-43-2	Benzene		0.1	J
10061-02-6	trans-1,3-Dichloropropene		1	U
75-25-2	Bromoform		1	U
108-10-1	4-Methyl-2-Pentanone	R	5	U
591-78-6	2-Hexanone	R	5	U
127-18-4	Tetrachloroethene		1	U
79-34-5	1,1,2,2-Tetrachloroethane		1	U
106-93-4	1,2-Dibromoethane		1	U
108-88-3	Toluene		1	U
108-90-7	Chlorobenzene		1	U
100-41-4	Ethylbenzene		1	U
100-42-5	Styrene		1	U
1330-20-7	Xylenes (total)		1	U
541-73-1	1,3-Dichlorobenzene		1	U
106-46-7	1,4-Dichlorobenzene		1	U
95-50-1	1,2-Dichlorobenzene		1	U
96-12-8	1,2-Dibromo-3-chloropropane		1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW37

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813504 Date Received: 08/07/96

Lab File ID: 0815505.D Data Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW37

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813504

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815413.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW37

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813504

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815413.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW37

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813504

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815413.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. ~~108930~~	~~Cyclohexanol~~	~~6.440~~	~~10~~	~~XNJ~~ R
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VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW37

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813504

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_026.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/07/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/16/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

VALIDATED

APD-60MW33-01
8-7-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW38

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814709 Date Received: 08/08/96

Lab File ID: 0815I10.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	U 0.8	J
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	U 0.3	J
67-64-1	Acetone	~~U~~ R 8	
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	R 5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	R 5	U
591-78-6	2-Hexanone	R 5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW38

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814709 Date Received: 08/08/96

Lab File ID: 0815I10.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW38

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814709

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816408.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW38

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814709

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816408.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW38

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814709

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816408.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	~~Unknown~~	~~5.850~~	~~6~~	~~BJ~~	R
2.	Unknown	6.510	3	J	
3. ~~930687~~	~~2-Cyclohexen-1-one~~	~~7.400~~	~~2~~	~~XNJ~~	R
4. ~~134623~~	~~Diethyltoluamide~~	~~17.030~~	~~11~~	~~NJ~~	R
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VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW38

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814709

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_049.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/08/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/16/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

VALIDATED

APD-GWMW-54-01
8-6-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW39

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813506 Date Received: 08/07/96

Lab File ID: 0815I06.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)		Q
74-87-3	Chloromethane	U	1	
74-83-9	Bromomethane		1	U
75-01-4	Vinyl Chloride		0.9	J
75-00-3	Chloroethane		5	
75-09-2	Methylene Chloride	U	0.4	J
67-64-1	Acetone	R U	8	
75-15-0	Carbon Disulfide		1	U
75-35-4	1,1-Dichloroethene		1	U
75-34-3	1,1-Dichloroethane		0.3	J
156-59-2	cis-1,2-Dichloroethene		0.1	J
156-60-5	trans-1,2-Dichloroethene		4	
67-66-3	Chloroform		1	U
107-06-2	1,2-Dichloroethane	U	0.7	J
78-93-3	2-Butanone	R	5	U
74-97-5	Bromochloromethane		1	U
71-55-6	1,1,1-Trichloroethane		1	U
56-23-5	Carbon Tetrachloride		1	U
75-27-4	Bromodichloromethane		1	U
78-87-5	1,2-Dichloropropane		1	U
10061-01-5	cis-1,3-Dichloropropene		1	U
79-01-6	Trichloroethene		1	U
124-48-1	Dibromochloromethane		1	U
79-00-5	1,1,2-Trichloroethane		1	U
71-43-2	Benzene		12	
10061-02-6	trans-1,3-Dichloropropene		1	U
75-25-2	Bromoform		1	U
108-10-1	4-Methyl-2-Pentanone	R	5	U
591-78-6	2-Hexanone	R	5	U
127-18-4	Tetrachloroethene		1	U
79-34-5	1,1,2,2-Tetrachloroethane		1	U
106-93-4	1,2-Dibromoethane		1	U
108-88-3	Toluene		1	U
108-90-7	Chlorobenzene		1	U
100-41-4	Ethylbenzene		1	U
100-42-5	Styrene		1	U
1330-20-7	Xylenes (total)		1	U
541-73-1	1,3-Dichlorobenzene		1	U
106-46-7	1,4-Dichlorobenzene		1	U
95-50-1	1,2-Dichlorobenzene		1	U
96-12-8	1,2-Dibromo-3-chloropropane		1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW39

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813506 Date Received: 08/07/96

Lab File ID: 0815I06.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.				
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VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW39

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813506

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816406.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW39

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813506

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816406.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	4	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW39

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813506

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816406.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 11

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	5.850	5	~~JB~~
2.	Unknown	6.510	2	J
3.	Unknown	6.560	2	J
4. 112367	Ethane, 1,1'-oxybis[2-ethoxy	10.110	6	NJ
5.	Unknown	13.060	2	J
6.	Unknown	16.250	29	J
7.	Unknown	16.340	2	J
8. 101100	Propanoic acid, 2-(3-chlorop	17.100	5	NJ
9. 88197	Benzenesulfonamide, 2-methyl	17.600	3	NJ
10. 70553	Benzenesulfonamide, 4-methyl	18.050	5	NJ
11.	Unknown	24.880	8	J
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VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW39

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813506

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_028.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/07/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/16/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

VALIDATED

APD-GWMW40-01
8-7-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW40

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814710 Date Received: 08/08/96

Lab File ID: 0815I11.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)		Q
74-87-3	Chloromethane	U	1	
74-83-9	Bromomethane		1	U
75-01-4	Vinyl Chloride		1	U
75-00-3	Chloroethane		1	U
75-09-2	Methylene Chloride		2	U
67-64-1	Acetone	RU	9	
75-15-0	Carbon Disulfide		1	U
75-35-4	1,1-Dichloroethene		1	U
75-34-3	1,1-Dichloroethane		1	U
156-59-2	cis-1,2-Dichloroethene		1	U
156-60-5	trans-1,2-Dichloroethene		1	U
67-66-3	Chloroform		1	U
107-06-2	1,2-Dichloroethane		1	U
78-93-3	2-Butanone	R	5	U
74-97-5	Bromochloromethane		1	U
71-55-6	1,1,1-Trichloroethane		1	U
56-23-5	Carbon Tetrachloride		1	U
75-27-4	Bromodichloromethane		1	U
78-87-5	1,2-Dichloropropane		1	U
10061-01-5	cis-1,3-Dichloropropene		1	U
79-01-6	Trichloroethene		1	U
124-48-1	Dibromochloromethane		1	U
79-00-5	1,1,2-Trichloroethane		1	U
71-43-2	Benzene		1	U
10061-02-6	trans-1,3-Dichloropropene		1	U
75-25-2	Bromoform		1	U
108-10-1	4-Methyl-2-Pentanone	R	5	U
591-78-6	2-Hexanone	R	5	U
127-18-4	Tetrachloroethene		1	U
79-34-5	1,1,2,2-Tetrachloroethane		1	U
106-93-4	1,2-Dibromoethane		1	U
108-88-3	Toluene		1	U
108-90-7	Chlorobenzene		1	U
100-41-4	Ethylbenzene		1	U
100-42-5	Styrene		1	U
1330-20-7	Xylenes (total)		1	U
541-73-1	1,3-Dichlorobenzene		1	U
106-46-7	1,4-Dichlorobenzene		1	U
95-50-1	1,2-Dichlorobenzene		1	U
96-12-8	1,2-Dibromo-3-chloropropane		1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW40

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814710 Date Received: 08/08/96

Lab File ID: 0815I11.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.				
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VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW40

Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814710

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816409.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW40

a_ Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

ab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814710

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816409.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW40

ıb Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814710

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816409.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 6

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	822673	~~2-Cyclohexen-1-ol~~	~~6.510~~	~~3~~	~~XNJ~~	R
2.	108941	Cyclohexanone	6.620	4	XNJ	
3.	930687	~~2-Cyclohexen-1-one~~	~~7.400~~	~~3~~	~~XNJ~~	
4.		1,2-Cyclohexanediol isomer	9.780	9	XJ	
5.	98862	Acetophenone	9.870	9	NJ	
6.	134623	Diethyltoluamide	17.030	3	NJ	R
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VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW40

b Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814710

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_050.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/08/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

VALIDATED

HRD-GW11W7P-01
8-7-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW41

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814713 Date Received: 08/08/96

Lab File ID: 0816504.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)		Q
74-87-3	Chloromethane	U	1	
74-83-9	Bromomethane		1	U
75-01-4	Vinyl Chloride		1	U
75-00-3	Chloroethane		1	U
75-09-2	Methylene Chloride		2	U
67-64-1	Acetone	RU	10	
75-15-0	Carbon Disulfide		1	U
75-35-4	1,1-Dichloroethene		1	U
75-34-3	1,1-Dichloroethane		1	U
156-59-2	cis-1,2-Dichloroethene		1	U
156-60-5	trans-1,2-Dichloroethene		1	U
67-66-3	Chloroform		1	U
107-06-2	1,2-Dichloroethane		1	U
78-93-3	2-Butanone	R	5	U
74-97-5	Bromochloromethane		1	U
71-55-6	1,1,1-Trichloroethane		1	U
56-23-5	Carbon Tetrachloride		1	U
75-27-4	Bromodichloromethane		1	U
78-87-5	1,2-Dichloropropane		1	U
10061-01-5	cis-1,3-Dichloropropene		1	U
79-01-6	Trichloroethene		1	U
124-48-1	Dibromochloromethane		1	U
79-00-5	1,1,2-Trichloroethane		1	U
71-43-2	Benzene		1	U
10061-02-6	trans-1,3-Dichloropropene		1	U
75-25-2	Bromoform		1	U
108-10-1	4-Methyl-2-Pentanone	R	5	U
591-78-6	2-Hexanone	R	5	U
127-18-4	Tetrachloroethene		1	U
79-34-5	1,1,2,2-Tetrachloroethane		1	U
106-93-4	1,2-Dibromoethane		1	U
108-88-3	Toluene		1	U
108-90-7	Chlorobenzene		1	U
100-41-4	Ethylbenzene		1	U
100-42-5	Styrene		1	U
1330-20-7	Xylenes (total)		1	U
541-73-1	1,3-Dichlorobenzene		1	U
106-46-7	1,4-Dichlorobenzene		1	U
95-50-1	1,2-Dichlorobenzene		1	U
96-12-8	1,2-Dibromo-3-chloropropane		1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW41

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814713 Date Received: 08/08/96

Lab File ID: 0816504.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW41

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814713

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816412.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW41

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814713

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816412.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	8	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW41

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814713

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816412.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	~~Unknown~~	~~5.850~~	~~10~~	~~BJ~~	R
2.	Unknown	6.520	2	J	
3. 930687	~~2-Cyclohexen-1-one~~	~~7.400~~	~~2~~	~~XNJ~~	R
4. 98862	Acetophenone	9.870	3	NJ	
~~5. 134623~~	~~Diethyltoluamide~~	~~17.030~~	~~4~~	~~NJ~~	R
6. 112458	Unknown	19.425	2	NJ	
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VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW41

ıb Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814713

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_053.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/08/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

VALIDATED

APD-GWMW42-01
8-7-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW42

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814714 Date Received: 08/07/96

Lab File ID: 0816503.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)		Q
74-87-3	Chloromethane	U	1	
74-83-9	Bromomethane		1	U
75-01-4	Vinyl Chloride		1	U
75-00-3	Chloroethane		1	U
75-09-2	Methylene Chloride		2	U
67-64-1	Acetone	R U	6	
75-15-0	Carbon Disulfide		1	U
75-35-4	1,1-Dichloroethene		1	U
75-34-3	1,1-Dichloroethane		1	U
156-59-2	cis-1,2-Dichloroethene		1	U
156-60-5	trans-1,2-Dichloroethene		1	U
67-66-3	Chloroform		1	U
107-06-2	1,2-Dichloroethane	U	0.3	J
78-93-3	2-Butanone	R	5	U
74-97-5	Bromochloromethane		1	U
71-55-6	1,1,1-Trichloroethane		1	U
56-23-5	Carbon Tetrachloride		1	U
75-27-4	Bromodichloromethane		1	U
78-87-5	1,2-Dichloropropane		1	U
10061-01-5	cis-1,3-Dichloropropene		1	U
79-01-6	Trichloroethene		1	U
124-48-1	Dibromochloromethane		1	U
79-00-5	1,1,2-Trichloroethane		1	U
71-43-2	Benzene		1	U
10061-02-6	trans-1,3-Dichloropropene		1	U
75-25-2	Bromoform		1	U
108-10-1	4-Methyl-2-Pentanone	R	5	U
591-78-6	2-Hexanone	R	5	U
127-18-4	Tetrachloroethene		1	U
79-34-5	1,1,2,2-Tetrachloroethane		1	U
106-93-4	1,2-Dibromoethane		1	U
108-88-3	Toluene		1	U
108-90-7	Chlorobenzene		1	U
100-41-4	Ethylbenzene		1	U
100-42-5	Styrene		1	U
1330-20-7	Xylenes (total)		1	U
541-73-1	1,3-Dichlorobenzene		1	U
106-46-7	1,4-Dichlorobenzene		1	U
95-50-1	1,2-Dichlorobenzene		1	U
96-12-8	1,2-Dibromo-3-chloropropane		1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW42

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814714 Date Received: 08/07/96

Lab File ID: 0816503.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW42

ıb Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814714

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816413.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW42

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814714

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816413.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	4	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW42

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814714

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816413.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 4

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	5.850	7	BJ
2.	822673	2-Cyclohexen-1-ol	6.520	2	XNJ
3.	930687	2-Cyclohexen-1-one	7.400	2	XNJ
4.	134623	Diethyltoluamide	17.030	19	NJ
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VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW42

b Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814714

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_054.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/08/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

VALIDATED

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

AHP-GWMW43-01

MW43

8/8/96

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: 960821601 Date Received: 08/09/96

Lab File ID: 0816508.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) VALIDATED Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	14 0.6	J
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	RH 7	
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	R 5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW43

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: 960821601 Date Received: 08/09/96

Lab File ID: 0816508.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

VALIDATED

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.
APD-GWMW43-01
MW43
8-8-96

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821601

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815407.D

Level: (low/med) LOW Date Received: 08/09/96

VALIDATED

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW43

\b Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821601

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815407.D

Level: (low/med) LOW Date Received: 08/09/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

VALIDATED

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW43

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821601

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815407.D

Level: (low/med) LOW VALIDATED Date Received: 08/09/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 134623	Diethyltoluamide	17.030	N.P. ~~17~~	~~NJ~~
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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW43

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

VALIDATED

Matrix: (soil/water) WATER Lab Sample ID: 960821601

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P1081496_037.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/09/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 08/14/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

VALIDATED

CLIENT SAMPLE NO.

APD-GWMW44-01

MW44

8/8/96

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: 960821602 Date Received: 08/09/96

Lab File ID: 0816509.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1.4 ~~0.9~~	J
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	R 5	U
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1.0u ~~0.3~~	J
78-93-3	2-Butanone	R 5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1.0u ~~0.1~~	J
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VALIDATED

CLIENT SAMPLE NO.

MW44

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: 960821602 Date Received: 08/09/96

Lab File ID: 0816509.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.
APD-GWMW44-01

MW44

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 VALIDATED 8-8-96 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821602

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815408.D

Level: (low/med) LOW Date Received: 08/09/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW44

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821602

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815408.D

Level: (low/med) LOW Date Received: 08/09/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW44

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 VALIDATED SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821602

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815408.D

Level: (low/med) LOW Date Received: 08/09/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW44

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

VALIDATED

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821602

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P1081496_038.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/09/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/14/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

VALIDATED

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.
ARD-GWMW45-01

MW45

8/8/96

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: 960821603 Date Received: 08/09/96

Lab File ID: 0816510.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 25.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	25	U
74-83-9	Bromomethane	25	U
75-01-4	Vinyl Chloride	25	U
75-00-3	Chloroethane	J 82	
75-09-2	Methylene Chloride	50	U
67-64-1	Acetone	R ~~45~~ 170	
75-15-0	Carbon Disulfide	25	U
75-35-4	1,1-Dichloroethene	25	U
75-34-3	1,1-Dichloroethane	25	U
156-59-2	cis-1,2-Dichloroethene	25	U
156-60-5	trans-1,2-Dichloroethene	25	U
67-66-3	Chloroform	25	U
107-06-2	1,2-Dichloroethane	~~12~~ ~~25~~ ~~45~~ 20	J
78-93-3	2-Butanone	R 120	U
74-97-5	Bromochloromethane	25	U
71-55-6	1,1,1-Trichloroethane	25	U
56-23-5	Carbon Tetrachloride	25	U
75-27-4	Bromodichloromethane	25	U
78-87-5	1,2-Dichloropropane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
79-01-6	Trichloroethene	25	U
124-48-1	Dibromochloromethane	25	U
79-00-5	1,1,2-Trichloroethane	25	U
71-43-2	Benzene	530	
10061-02-6	trans-1,3-Dichloropropene	25	U
75-25-2	Bromoform	25	U
108-10-1	4-Methyl-2-Pentanone	120	U
591-78-6	2-Hexanone	120	U
127-18-4	Tetrachloroethene	25	U
79-34-5	1,1,2,2-Tetrachloroethane	25	U
106-93-4	1,2-Dibromoethane	25	U
108-88-3	Toluene	25	U
108-90-7	Chlorobenzene	16	J
100-41-4	Ethylbenzene	10	J
100-42-5	Styrene	25	U
1330-20-7	Xylenes (total)	60	
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

1LCE VALIDATED

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW45

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: 960821603 Date Received: 08/09/96

Lab File ID: 0816510.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 25.0

Number TICs found: 2

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.		Trimethylbenzene Isomer	22.320	210	J
2.		Substituted Benzene	23.320	70	J
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

VALIDATED

CLIENT SAMPLE NO.
APD-GWMW45-01

MW45

8/8/96

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821603

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816402.D

Level: (low/med) LOW Date Received: 08/09/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	41	
111-44-4	bis(2-Chloroethyl)ether	7	J
95-57-8	2-Chlorophenol	20	U
541-73-1	1,3-Dichlorobenzene	20	U
106-46-7	1,4-Dichlorobenzene	20	U
95-50-1	1,2-Dichlorobenzene	20	U
95-48-7	2-Methylphenol	20	U
108-60-1	2,2'-oxybis(1-Chloropropane)	20	U
106-44-5	4-Methylphenol	20	U
621-64-7	N-Nitroso-di-n-propylamine	20	U
67-72-1	Hexachloroethane	20	U
98-95-3	Nitrobenzene	20	U
78-59-1	Isophorone	20	U
88-75-5	2-Nitrophenol	20	U
105-67-9	2,4-Dimethylphenol	20	U
111-91-1	bis(2-Chloroethoxy)methane	20	U
120-83-2	2,4-Dichlorophenol	20	U
120-82-1	1,2,4-Trichlorobenzene	20	U
91-20-3	Naphthalene	84	
106-47-8	4-Chloroaniline	20	U
87-68-3	Hexachlorobutadiene	20	U
59-50-7	4-Chloro-3-methylphenol	20	U
91-57-6	2-Methylnaphthalene	4	J
77-47-4	Hexachlorocyclopentadiene	20	U
88-06-2	2,4,6-Trichlorophenol	20	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	20	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	20	U
208-96-8	Acenaphthylene	20	U
606-20-2	2,6-Dinitrotoluene	20	U
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	20	U

VALIDATED

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW45

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821603

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816402.D

Level: (low/med) LOW Date Received: 08/09/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	20	U
121-14-2	2,4-Dinitrotoluene	20	U
84-66-2	Diethylphthalate	20	U
7005-72-3	4-Chlorophenyl-phenylether	20	U
86-73-7	Fluorene	20	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	20	U
101-55-3	4-Bromophenyl-phenylether	20	U
118-74-1	Hexachlorobenzene	20	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	20	U
120-12-7	Anthracene	20	U
86-74-8	Carbazole	20	U
84-74-2	Di-n-butylphthalate	20	U
206-44-0	Fluoranthene	20	U
129-00-0	Pyrene	20	U
85-68-7	Butylbenzylphthalate	20	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	20	U
218-01-9	Chrysene	20	U
117-81-7	bis(2-Ethylhexyl)phthalate	20	U
117-84-0	Di-n-octylphthalate	20	U
205-99-2	Benzo(b)fluoranthene	20	U
207-08-9	Benzo(k)fluoranthene	20	U
50-32-8	Benzo(a)pyrene	20	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenz(a,h)anthracene	20	U
191-24-2	Benzo(g,h,i)perylene	20	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VALIDATED

CLIENT SAMPLE NO.

MW45

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821603

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816402.D

Level: (low/med) LOW Date Received: 08/09/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

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

Number TICs found: 12

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Substituted Benzene	8.000	6	J
2.	Substituted Benzene	8.100	19	J
3.	Substituted Benzene	8.570	100	J
4.	Substituted Benzene	9.090	72	J
5.	Unknown	10.110	22	J
6.	Unknown	11.230	5	J
7. 27129879	Benzenemethanol, 3,5-dimethy	12.850	4	NJ
8. 611018	Benzoic acid, 2,4-dimethyl-	14.090	7	NJ
9.	Unknown	15.100	8	J
10. 134623	~~Diethyltoluamide~~	17.030	~~7~~	~~NJ~~
11. 101100	Propanoic acid, 2-(3-chlorop	17.090	4	NJ
12. 76733	Secobarbital	19.570	9	NJ
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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

VALIDATED

CLIENT SAMPLE NO.

MW45

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821603

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P1081496_039.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/09/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 08/14/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

APD-GWMW 96-01
8-5-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW46

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960810301 Date Received: 08/06/96

Lab File ID: 0814505.D Date Analyzed: 08/14/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	U 0.6	J
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	0.2	J
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	R ~~U~~ 8	
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	U 0.3	J
78-93-3	2-Butanone	R 5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	0.8	J
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	J 3	J
591-78-6	2-Hexanone	R 5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW46

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960810301 Date Received: 08/06/96

Lab File ID: 0814505.D Data Analyzed: 08/14/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW46

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960810301

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815406.D

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/07/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	3	J
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	3	J
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW46

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960810301

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815406.D

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/07/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	3	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW46

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960810301

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815406.D

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/07/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 11

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	5.860	13	J
2.	Unknown	6.070	11	J
3.	Unknown	6.440	2	J
4. 112367	Ethane, 1,1'-oxybis[2-ethoxy	10.120	4	NJ
5. 65850	Benzoic acid	11.550	8	NJ
6.	Unknown	12.770	11	J
7.	Unknown	13.990	13	J
8. 88197	Benzenesulfonamide, 2-methyl	17.580	2	NJ
9. 70553	Benzenesulfonamide, 4-methyl	18.030	2	NJ
10.	Unknown	20.980	3	J
11. 10544500	Sulfur, mol. (S8)	22.020	2	NJ
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VALIDATED

3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW46

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960810301

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_090.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/06/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/09/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/21/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

VALIDATED

APD-GWMW47-01
8-7-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW47

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814711 Date Received: 08/08/96

Lab File ID: 0815I12.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)		Q
74-87-3	Chloromethane	U	0.5	J
74-83-9	Bromomethane		1	U
75-01-4	Vinyl Chloride		1	U
75-00-3	Chloroethane		1	U
75-09-2	Methylene Chloride	U	0.3	J
67-64-1	Acetone	U R	8	
75-15-0	Carbon Disulfide		1	U
75-35-4	1,1-Dichloroethene		1	U
75-34-3	1,1-Dichloroethane		1	U
156-59-2	cis-1,2-Dichloroethene		1	U
156-60-5	trans-1,2-Dichloroethene		1	U
67-66-3	Chloroform		1	U
107-06-2	1,2-Dichloroethane		1	U
78-93-3	2-Butanone	R	5	U
74-97-5	Bromochloromethane		1	U
71-55-6	1,1,1-Trichloroethane		1	U
56-23-5	Carbon Tetrachloride		1	U
75-27-4	Bromodichloromethane		1	U
78-87-5	1,2-Dichloropropane		1	U
10061-01-5	cis-1,3-Dichloropropene		1	U
79-01-6	Trichloroethene		1	U
124-48-1	Dibromochloromethane		1	U
79-00-5	1,1,2-Trichloroethane		1	U
71-43-2	Benzene		1	U
10061-02-6	trans-1,3-Dichloropropene		1	U
75-25-2	Bromoform		1	U
108-10-1	4-Methyl-2-Pentanone	R	5	U
591-78-6	2-Hexanone	R	5	U
127-18-4	Tetrachloroethene		1	U
79-34-5	1,1,2,2-Tetrachloroethane		1	U
106-93-4	1,2-Dibromoethane		1	U
108-88-3	Toluene		1	U
108-90-7	Chlorobenzene		1	U
100-41-4	Ethylbenzene		1	U
100-42-5	Styrene		1	U
1330-20-7	Xylenes (total)		1	U
541-73-1	1,3-Dichlorobenzene		1	U
106-46-7	1,4-Dichlorobenzene		1	U
95-50-1	1,2-Dichlorobenzene		1	U
96-12-8	1,2-Dibromo-3-chloropropane		1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW47

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814711 Date Received: 08/08/96

Lab File ID: 0815I12.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW47

b Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814711

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816410.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW47

ıb Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814711

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816410.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW47

ıb Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814711

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816410.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	~~Unknown~~	~~5.850~~	~~6~~	~~BJ~~ R
2.	Unknown	6.510	2	J
3. ~~930687~~	~~2-Cyclohexen-1-one~~	~~7.400~~	~~2~~	~~XNJ~~ R
4. ~~134623~~	~~Diethyltoluamide~~	~~17.030~~	~~2~~	~~NJ~~ R
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VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW47

ıb Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814711

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_051.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/08/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

VALIDATED

APD-GWMW 7-91
8-7-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW479

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814712 Date Received: 08/08/96

Lab File ID: 0815I13.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	U 0.3	J
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	U 0.5	J
67-64-1	Acetone	R U 8	
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	R 5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	R 5	U
591-78-6	2-Hexanone	R 5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW479

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814712 Date Received: 08/08/96

Lab File ID: 0815I13.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW479

ıb Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814712

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816411.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW479

ıb Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814712

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816411.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW479

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814712

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816411.D

Level: (low/med) LOW Date Received: 08/08/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	Unknown	5.850	8	BJ	R
2. 822673	2-Cyclohexen-1-ol	6.510	2	XNJ	R
3. 930687	2-Cyclohexen-1-one	7.400	3	XNJ	R
4. 98862	Acetophenone	9.870	2	NJ	
5. 134623	Diethyltoluamide	17.030	14	NJ	R
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VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW479

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960814712

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_052.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/08/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

VALIDATED

HPD-GWMW 18-01
8-6-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW48

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813505 Date Received: 08/07/96

Lab File ID: 0815508.D Date Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 500.0

CAS NO.	COMPOUND		CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane		500	U
74-83-9	Bromomethane		500	U
75-01-4	Vinyl Chloride		500	U
75-00-3	Chloroethane		1000	
75-09-2	Methylene Chloride		70	J
67-64-1	Acetone	R	2500	U
75-15-0	Carbon Disulfide		500	U
75-35-4	1,1-Dichloroethene		500	U
75-34-3	1,1-Dichloroethane		500	U
156-59-2	cis-1,2-Dichloroethene		500	U
156-60-5	trans-1,2-Dichloroethene		500	U
67-66-3	Chloroform		500	U
107-06-2	1,2-Dichloroethane		500	U
78-93-3	2-Butanone	R	2500	U
74-97-5	Bromochloromethane		500	U
71-55-6	1,1,1-Trichloroethane		500	U
56-23-5	Carbon Tetrachloride		500	U
75-27-4	Bromodichloromethane		500	U
78-87-5	1,2-Dichloropropane		500	U
10061-01-5	cis-1,3-Dichloropropene		500	U
79-01-6	Trichloroethene		500	U
124-48-1	Dibromochloromethane		500	U
79-00-5	1,1,2-Trichloroethane		500	U
71-43-2	Benzene		9100	
10061-02-6	trans-1,3-Dichloropropene		500	U
75-25-2	Bromoform		500	U
108-10-1	4-Methyl-2-Pentanone	R	2500	U
591-78-6	2-Hexanone	R	2500	U
127-18-4	Tetrachloroethene		500	U
79-34-5	1,1,2,2-Tetrachloroethane		500	U
106-93-4	1,2-Dibromoethane		500	U
108-88-3	Toluene		500	U
108-90-7	Chlorobenzene		500	U
100-41-4	Ethylbenzene		500	U
100-42-5	Styrene		500	U
1330-20-7	Xylenes (total)		500	U
541-73-1	1,3-Dichlorobenzene		500	U
106-46-7	1,4-Dichlorobenzene		500	U
95-50-1	1,2-Dichlorobenzene		500	U
96-12-8	1,2-Dibromo-3-chloropropane		500	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW48

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813505 Date Received: 08/07/96

Lab File ID: 0815508.D Data Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 500.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.				
2.				
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VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW48

\b Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813505

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816405.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	110	
111-44-4	bis(2-Chloroethyl)ether	20	U
95-57-8	2-Chlorophenol	20	U
541-73-1	1,3-Dichlorobenzene	20	U
106-46-7	1,4-Dichlorobenzene	20	U
95-50-1	1,2-Dichlorobenzene	20	U
95-48-7	2-Methylphenol	20	U
108-60-1	2,2'-oxybis(1-Chloropropane)	20	U
106-44-5	4-Methylphenol	20	U
621-64-7	N-Nitroso-di-n-propylamine	20	U
67-72-1	Hexachloroethane	20	U
98-95-3	Nitrobenzene	20	U
78-59-1	Isophorone	20	U
88-75-5	2-Nitrophenol	20	U
105-67-9	2,4-Dimethylphenol	20	U
111-91-1	bis(2-Chloroethoxy)methane	20	U
120-83-2	2,4-Dichlorophenol	20	U
120-82-1	1,2,4-Trichlorobenzene	20	U
91-20-3	Naphthalene	20	U
106-47-8	4-Chloroaniline	20	U
87-68-3	Hexachlorobutadiene	20	U
59-50-7	4-Chloro-3-methylphenol	20	U
91-57-6	2-Methylnaphthalene	20	U
77-47-4	Hexachlorocyclopentadiene	20	U
88-06-2	2,4,6-Trichlorophenol	20	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	20	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	20	U
208-96-8	Acenaphthylene	20	U
606-20-2	2,6-Dinitrotoluene	0.9	J
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	20	U

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW48

b Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813505

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816405.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	20	U
121-14-2	2,4-Dinitrotoluene	20	U
84-66-2	Diethylphthalate	20	U
7005-72-3	4-Chlorophenyl-phenylether	20	U
86-73-7	Fluorene	20	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	20	U
101-55-3	4-Bromophenyl-phenylether	20	U
118-74-1	Hexachlorobenzene	20	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	20	U
120-12-7	Anthracene	20	U
86-74-8	Carbazole	20	U
84-74-2	Di-n-butylphthalate	20	U
206-44-0	Fluoranthene	20	U
129-00-0	Pyrene	20	U
85-68-7	Butylbenzylphthalate	20	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	20	U
218-01-9	Chrysene	20	U
117-81-7	bis(2-Ethylhexyl)phthalate	20	U
117-84-0	Di-n-octylphthalate	20	U
205-99-2	Benzo(b)fluoranthene	20	U
207-08-9	Benzo(k)fluoranthene	20	U
50-32-8	Benzo(a)pyrene	20	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenz(a,h)anthracene	20	U
191-24-2	Benzo(g,h,i)perylene	20	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW48

\b Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813505

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816405.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

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

Number TICs found: 20

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110816	Disulfide, diethyl	7.180	86	NJ
2. 873949	Cyclohexanone, 3,3,5-trimeth	9.420	310	NJ
3. 112367	Ethane, 1,1'-oxybis[2-ethoxy	10.130	27	NJ
4.	Unknown	10.580	53	J
5. 631674	Ethanethioamide, N,N-dimethy	10.740	10	NJ
6.	Unknown	11.080	52	J
7. 144194	1,3-Pentanediol, 2,2,4-trime	11.270	35	NJ
8. 6165442	Cyclohexane, 1,1'-(1,4-butan	12.130	16	NJ
9.	Unknown	12.310	28	J
10.	Unknown	12.940	20	J
11.	Chlorinated benzoic acid iso	14.170	48	J
12.	Unknown	14.510	22	J
13.	Unknown	14.640	12	J
14. 499069	Benzoic acid, 3,5-dimethyl-	14.880	10	NJ
15.	Unknown	16.310	140	J
16.	Unknown	16.390	7	J
17. 101100	Propanoic acid, 2-(3-chlorop	17.170	31	NJ
18. 76733	Secobarbital	19.610	15	NJ
19.	Unknown	20.470	25	J
20.	Unknown	24.920	67	J
21.				
22.				
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VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW48

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813505

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_027.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/07/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/16/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

VALIDATED

APD-GWMW77-01
8-6-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW49

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813502 Date Received: 08/07/96

Lab File ID: 0814E04.D Date Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 500.0

CAS NO.	COMPOUND		CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane		500	U
74-83-9	Bromomethane		500	U
75-01-4	Vinyl Chloride		500	U
75-00-3	Chloroethane		480	J
75-09-2	Methylene Chloride	U	70	J
67-64-1	Acetone	R	2500	U
75-15-0	Carbon Disulfide		500	U
75-35-4	1,1-Dichloroethene		500	U
75-34-3	1,1-Dichloroethane		500	U
156-59-2	cis-1,2-Dichloroethene		500	U
156-60-5	trans-1,2-Dichloroethene		500	U
67-66-3	Chloroform		500	U
107-06-2	1,2-Dichloroethane		500	U
78-93-3	2-Butanone	R	2500	U
74-97-5	Bromochloromethane		500	U
71-55-6	1,1,1-Trichloroethane		500	U
56-23-5	Carbon Tetrachloride		500	U
75-27-4	Bromodichloromethane		500	U
78-87-5	1,2-Dichloropropane		500	U
10061-01-5	cis-1,3-Dichloropropene		500	U
79-01-6	Trichloroethene		500	U
124-48-1	Dibromochloromethane		500	U
79-00-5	1,1,2-Trichloroethane		500	U
71-43-2	Benzene		5000	
10061-02-6	trans-1,3-Dichloropropene		500	U
75-25-2	Bromoform		500	U
108-10-1	4-Methyl-2-Pentanone	R	2500	U
591-78-6	2-Hexanone	R	2500	U
127-18-4	Tetrachloroethene		500	U
79-34-5	1,1,2,2-Tetrachloroethane		500	U
106-93-4	1,2-Dibromoethane		500	U
108-88-3	Toluene		500	U
108-90-7	Chlorobenzene		500	U
100-41-4	Ethylbenzene		500	U
100-42-5	Styrene		500	U
1330-20-7	Xylenes (total)		500	U
541-73-1	1,3-Dichlorobenzene		500	U
106-46-7	1,4-Dichlorobenzene		500	U
95-50-1	1,2-Dichlorobenzene		500	U
96-12-8	1,2-Dibromo-3-chloropropane		500	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW49

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813502 Date Received: 08/07/96

Lab File ID: 0814E04.D Data Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 500.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
1.				
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VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW49

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813502

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816403.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH:

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

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW49

ıb Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813502

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816403.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	20	U
121-14-2	2,4-Dinitrotoluene	20	U
84-66-2	Diethylphthalate	20	U
7005-72-3	4-Chlorophenyl-phenylether	20	U
86-73-7	Fluorene	20	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	20	U
101-55-3	4-Bromophenyl-phenylether	20	U
118-74-1	Hexachlorobenzene	20	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	20	U
120-12-7	Anthracene	20	U
86-74-8	Carbazole	20	U
84-74-2	Di-n-butylphthalate	20	U
206-44-0	Fluoranthene	20	U
129-00-0	Pyrene	20	U
85-68-7	Butylbenzylphthalate	20	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	20	U
218-01-9	Chrysene	20	U
117-81-7	bis(2-Ethylhexyl)phthalate	20	U
117-84-0	Di-n-octylphthalate	20	U
205-99-2	Benzo(b)fluoranthene	20	U
207-08-9	Benzo(k)fluoranthene	20	U
50-32-8	Benzo(a)pyrene	20	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenz(a,h)anthracene	20	U
191-24-2	Benzo(g,h,i)perylene	20	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW49

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813502

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816403.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

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

Number TICs found: 17

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	9.200	11	J
2. 873949	Cyclohexanone, 3,3,5-trimeth	9.430	360	NJ
3. 112367	Ethane, 1,1'-oxybis[2-ethoxy	10.110	14	NJ
4.	Unknown	10.520	38	J
5.	Unknown	11.120	12	J
6.	Unknown	12.130	14	J
7.	Chlorinated benzoic acid iso	14.030	20	J
8.	Unknown	14.130	7	J
9.	Unknown	14.450	13	J
10. 499069	Benzoic acid, 3,5-dimethyl-	14.820	8	NJ
11.	Unknown	15.800	7	J
12.	Unknown	16.300	180	J
13.	Unknown	16.700	9	J
~~14. 134623~~	~~Diethyltoluamide~~	~~17.040~~	~~15~~	~~NJ~~ R
15. 76733	Secobarbital	19.590	12	NJ
16.	Unknown	20.460	27	J
17.	Unknown	24.910	46	J
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FORM I SV-TIC 3/90

VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW49

ıb Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813502

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_091.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/07/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/09/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/21/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

VALIDATED

APD - GLSMW 11-11
8-6-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW499

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813503 Date Received: 08/07/96

Lab File ID: 0815504.D Date Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 250.0

CAS NO.	COMPOUND		CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane		250	U
74-83-9	Bromomethane		250	U
75-01-4	Vinyl Chloride		250	U
75-00-3	Chloroethane		450	J
75-09-2	Methylene Chloride		500	U
67-64-1	Acetone	R	1200	U
75-15-0	Carbon Disulfide		250	U
75-35-4	1,1-Dichloroethene		250	U
75-34-3	1,1-Dichloroethane		250	U
156-59-2	cis-1,2-Dichloroethene		250	U
156-60-5	trans-1,2-Dichloroethene		250	U
67-66-3	Chloroform		250	U
107-06-2	1,2-Dichloroethane		250	U
78-93-3	2-Butanone	R	1200	U
74-97-5	Bromochloromethane		250	U
71-55-6	1,1,1-Trichloroethane		250	U
56-23-5	Carbon Tetrachloride		250	U
75-27-4	Bromodichloromethane		250	U
78-87-5	1,2-Dichloropropane		250	U
10061-01-5	cis-1,3-Dichloropropene		250	U
79-01-6	Trichloroethene		250	U
124-48-1	Dibromochloromethane		250	U
79-00-5	1,1,2-Trichloroethane		250	U
71-43-2	Benzene		5100	
10061-02-6	trans-1,3-Dichloropropene		250	U
75-25-2	Bromoform		250	U
108-10-1	4-Methyl-2-Pentanone	R	1200	U
591-78-6	2-Hexanone	R	1200	U
127-18-4	Tetrachloroethene		250	U
79-34-5	1,1,2,2-Tetrachloroethane		250	U
106-93-4	1,2-Dibromoethane		250	U
108-88-3	Toluene		250	U
108-90-7	Chlorobenzene		250	U
100-41-4	Ethylbenzene		250	U
100-42-5	Styrene		250	U
1330-20-7	Xylenes (total)		250	U
541-73-1	1,3-Dichlorobenzene		250	U
106-46-7	1,4-Dichlorobenzene		250	U
95-50-1	1,2-Dichlorobenzene		250	U
96-12-8	1,2-Dibromo-3-chloropropane		250	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW499

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813503 Date Received: 08/07/96

Lab File ID: 0815504.D Data Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 250.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW499

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813503

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816404.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	100	
111-44-4	bis(2-Chloroethyl)ether	20	U
95-57-8	2-Chlorophenol	20	U
541-73-1	1,3-Dichlorobenzene	20	U
106-46-7	1,4-Dichlorobenzene	20	U
95-50-1	1,2-Dichlorobenzene	20	U
95-48-7	2-Methylphenol	20	U
108-60-1	2,2'-oxybis(1-Chloropropane)	26	
106-44-5	4-Methylphenol	20	U
621-64-7	N-Nitroso-di-n-propylamine	20	U
67-72-1	Hexachloroethane	20	U
98-95-3	Nitrobenzene	20	U
78-59-1	Isophorone	2	J
88-75-5	2-Nitrophenol	20	U
105-67-9	2,4-Dimethylphenol	20	U
111-91-1	bis(2-Chloroethoxy)methane	20	U
120-83-2	2,4-Dichlorophenol	20	U
120-82-1	1,2,4-Trichlorobenzene	20	U
91-20-3	Naphthalene	20	U
106-47-8	4-Chloroaniline	20	U
87-68-3	Hexachlorobutadiene	20	U
59-50-7	4-Chloro-3-methylphenol	20	U
91-57-6	2-Methylnaphthalene	20	U
77-47-4	Hexachlorocyclopentadiene	20	U
88-06-2	2,4,6-Trichlorophenol	20	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	20	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	20	U
208-96-8	Acenaphthylene	20	U
606-20-2	2,6-Dinitrotoluene	20	U
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	20	U

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW499

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813503

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816404.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	20	U
121-14-2	2,4-Dinitrotoluene	20	U
84-66-2	Diethylphthalate	20	U
7005-72-3	4-Chlorophenyl-phenylether	20	U
86-73-7	Fluorene	20	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	20	U
101-55-3	4-Bromophenyl-phenylether	20	U
118-74-1	Hexachlorobenzene	20	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	20	U
120-12-7	Anthracene	20	U
86-74-8	Carbazole	20	U
84-74-2	Di-n-butylphthalate	20	U
206-44-0	Fluoranthene	20	U
129-00-0	Pyrene	20	U
85-68-7	Butylbenzylphthalate	20	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	20	U
218-01-9	Chrysene	20	U
117-81-7	bis(2-Ethylhexyl)phthalate	20	U
117-84-0	Di-n-octylphthalate	20	U
205-99-2	Benzo(b)fluoranthene	20	U
207-08-9	Benzo(k)fluoranthene	20	U
50-32-8	Benzo(a)pyrene	20	U
193-39-5	Indeno(1,2,3-cd)pyrene	20	U
53-70-3	Dibenz(a,h)anthracene	20	U
191-24-2	Benzo(g,h,i)perylene	20	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

MW499

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813503

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816404.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted:08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyz 08/16/96

Injection Volume: 2.0(uL) Dilution Fa :: 2.0

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

Number TICs found: 14

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	9.210	12	J
2. 873949	Cyclohexanone, 3,3,5-trimeth	9.430	400	NJ
3. 112367	Ethane, 1,1'-oxybis[2-ethoxy	10.120	14	NJ
4.	Unknown	10.530	36	J
5.	Unknown	11.120	11	J
6. 16022085	Bicyclo[3.1.1]heptan-2-one,	12.120	15	NJ
7.	Chlorinated benzoic acid iso	14.030	20	J
8.	Unknown	14.450	12	J
9.	Unknown	16.310	180	J
10.	Unknown	16.720	10	J
11. 101100	Propanoic acid, 2-(3-chlorop	17.140	20	NJ
12. 76733	Secobarbital	19.600	11	NJ
13.	Unknown	20.470	25	J
14.	Unknown	24.910	38	J
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VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW499

.b Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813503

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_025.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/07/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/15/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

FORM I PEST

VALIDATED

APD-GWTB01-01
8-6-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TB01

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813508 Date Received: 08/07/96

Lab File ID: 0815503.D Date Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)		Q
74-87-3	Chloromethane		1	U
74-83-9	Bromomethane		1	U
75-01-4	Vinyl Chloride		1	U
75-00-3	Chloroethane		1	U
75-09-2	Methylene Chloride		0.2	J
67-64-1	Acetone	R	5	U
75-15-0	Carbon Disulfide		1	U
75-35-4	1,1-Dichloroethene		1	U
75-34-3	1,1-Dichloroethane		1	U
156-59-2	cis-1,2-Dichloroethene		1	U
156-60-5	trans-1,2-Dichloroethene		1	U
67-66-3	Chloroform		1	U
107-06-2	1,2-Dichloroethane		0.5	J
78-93-3	2-Butanone	R	5	U
74-97-5	Bromochloromethane		1	U
71-55-6	1,1,1-Trichloroethane		1	U
56-23-5	Carbon Tetrachloride		1	U
75-27-4	Bromodichloromethane		1	U
78-87-5	1,2-Dichloropropane		1	U
10061-01-5	cis-1,3-Dichloropropene		1	U
79-01-6	Trichloroethene		1	U
124-48-1	Dibromochloromethane		1	U
79-00-5	1,1,2-Trichloroethane		1	U
71-43-2	Benzene		1	U
10061-02-6	trans-1,3-Dichloropropene		1	U
75-25-2	Bromoform		1	U
108-10-1	4-Methyl-2-Pentanone	R	5	U
591-78-6	2-Hexanone	R	5	U
127-18-4	Tetrachloroethene		1	U
79-34-5	1,1,2,2-Tetrachloroethane		1	U
106-93-4	1,2-Dibromoethane		1	U
108-88-3	Toluene		1	U
108-90-7	Chlorobenzene		1	U
100-41-4	Ethylbenzene		1	U
100-42-5	Styrene		1	U
1330-20-7	Xylenes (total)		1	U
541-73-1	1,3-Dichlorobenzene		1	U
106-46-7	1,4-Dichlorobenzene		0.1	J
95-50-1	1,2-Dichlorobenzene		1	U
96-12-8	1,2-Dibromo-3-chloropropane		1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

TB01

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813508 Date Received: 08/07/96

Lab File ID: 0815503.D Data Analyzed: 08/15/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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VALIDATED

APD-GWT302-01
8-7-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TB02

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814715 Date Received: 08/08/96

Lab File ID: 0815I14.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)		Q
74-87-3	Chloromethane		0.2	J
74-83-9	Bromomethane		1	U
75-01-4	Vinyl Chloride		1	U
75-00-3	Chloroethane		1	U
75-09-2	Methylene Chloride		1	J
67-64-1	Acetone	J	17	
75-15-0	Carbon Disulfide		1	U
75-35-4	1,1-Dichloroethene		1	U
75-34-3	1,1-Dichloroethane		1	U
156-59-2	cis-1,2-Dichloroethene		1	U
156-60-5	trans-1,2-Dichloroethene		1	U
67-66-3	Chloroform		1	U
107-06-2	1,2-Dichloroethane		1	U
78-93-3	2-Butanone	R	5	U
74-97-5	Bromochloromethane		1	U
71-55-6	1,1,1-Trichloroethane		1	U
56-23-5	Carbon Tetrachloride		1	U
75-27-4	Bromodichloromethane		1	U
78-87-5	1,2-Dichloropropane		1	U
10061-01-5	cis-1,3-Dichloropropene		1	U
79-01-6	Trichloroethene		1	U
124-48-1	Dibromochloromethane		1	U
79-00-5	1,1,2-Trichloroethane		1	U
71-43-2	Benzene		1	U
10061-02-6	trans-1,3-Dichloropropene		1	U
75-25-2	Bromoform		1	U
108-10-1	4-Methyl-2-Pentanone	R	5	U
591-78-6	2-Hexanone	R	5	U
127-18-4	Tetrachloroethene		1	U
79-34-5	1,1,2,2-Tetrachloroethane		1	U
106-93-4	1,2-Dibromoethane		1	U
108-88-3	Toluene		1	U
108-90-7	Chlorobenzene		1	U
100-41-4	Ethylbenzene		1	U
100-42-5	Styrene		1	U
1330-20-7	Xylenes (total)		1	U
541-73-1	1,3-Dichlorobenzene		1	U
106-46-7	1,4-Dichlorobenzene		1	U
95-50-1	1,2-Dichlorobenzene		1	U
96-12-8	1,2-Dibromo-3-chloropropane		1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

TB02

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960814715 Date Received: 08/08/96

Lab File ID: 0815I14.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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VALIDATED

1LCA VALIDATED

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.
APO-GWTB03-01
TB03
8/8/96

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: 960821605 Date Received: 08/09/96

Lab File ID: 0816506.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	J 9	
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	0.5	J
78-93-3	2-Butanone	R 5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	0.1	J
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

TB03

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: 960821605 Date Received: 08/09/96

Lab File ID: 0816506.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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APD-GWI-B01-01
8-6-96

1LCA
LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FB01

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813507 Date Received: 08/07/96

Lab File ID: 0816505.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND		CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane		0.8	J
74-83-9	Bromomethane		1	U
75-01-4	Vinyl Chloride		1	U
75-00-3	Chloroethane		1	U
75-09-2	Methylene Chloride		0.7	J
67-64-1	Acetone	J	19	
75-15-0	Carbon Disulfide		1	U
75-35-4	1,1-Dichloroethene		1	U
75-34-3	1,1-Dichloroethane		1	U
156-59-2	cis-1,2-Dichloroethene		1	U
156-60-5	trans-1,2-Dichloroethene		1	U
67-66-3	Chloroform		0.8	J
107-06-2	1,2-Dichloroethane		0.2	J
78-93-3	2-Butanone	R	5	U
74-97-5	Bromochloromethane		1	U
71-55-6	1,1,1-Trichloroethane		1	U
56-23-5	Carbon Tetrachloride		1	U
75-27-4	Bromodichloromethane		0.2	J
78-87-5	1,2-Dichloropropane		1	U
10061-01-5	cis-1,3-Dichloropropene		1	U
79-01-6	Trichloroethene		1	U
124-48-1	Dibromochloromethane		1	U
79-00-5	1,1,2-Trichloroethane		1	U
71-43-2	Benzene		1	U
10061-02-6	trans-1,3-Dichloropropene		1	U
75-25-2	Bromoform		1	U
108-10-1	4-Methyl-2-Pentanone	R	5	U
591-78-6	2-Hexanone	R	5	U
127-18-4	Tetrachloroethene		1	U
79-34-5	1,1,2,2-Tetrachloroethane		1	U
106-93-4	1,2-Dibromoethane		1	U
108-88-3	Toluene		1	U
108-90-7	Chlorobenzene		1	U
100-41-4	Ethylbenzene		1	U
100-42-5	Styrene		1	U
1330-20-7	Xylenes (total)		1	U
541-73-1	1,3-Dichlorobenzene		1	U
106-46-7	1,4-Dichlorobenzene		1	U
95-50-1	1,2-Dichlorobenzene		1	U
96-12-8	1,2-Dibromo-3-chloropropane		1	U

VALIDATED 1

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

FB01

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-172 SAS No.: SDG No.: 08103

Lab Sample ID: 960813507 Date Received: 08/07/96

Lab File ID: 0816505.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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FORM I LCV-TIC VALIDATED 6/91

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FB01

b Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813507

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816407.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	3	J
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

VALIDATED

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FB01

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813507

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816407.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

FB01

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813507

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0816407.D

Level: (low/med) LOW Date Received: 08/07/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/12/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/16/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 8

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	1,2-Cyclohexanediol isomer	9.770	4	XJ
2. 124072	Octanoic Acid	11.550	2	NJ
3.	Unknown	13.450	3	J
4.	Unknown	16.760	13	J
5. 134623	Diethyltoluamide	17.030	6	NJ
6.	Unknown	17.960	3	J
7. 544638	Tetradecanoic acid	18.930	4	NJ
8. 80057	Phenol, 4,4'-(1-methylethyli	23.110	6	NJ
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VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FB01

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-172 SDG No.: 08103

Matrix: (soil/water) WATER Lab Sample ID: 960813507

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P2081296_029.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/07/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:08/12/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/16/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2------	Aroclor-1016	1.0	U
11104-28-2------	Aroclor-1221	2.0	U
11141-16-5------	Aroclor-1232	1.0	U
53469-21-9------	Aroclor-1242	1.0	U
12672-29-6------	Aroclor-1248	1.0	U
11097-69-1------	Aroclor-1254	1.0	U
11096-82-5------	Aroclor-1260	1.0	U

VALIDATED

VALIDATED

1LCA

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.
APD-GWFB02-01

FB02

8/8/96

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: 960821604 Date Received: 08/09/96

Lab File ID: 0816507.D Date Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION (ug/L)	Q
74-87-3	Chloromethane	0.9	J
74-83-9	Bromomethane	1	U
75-01-4	Vinyl Chloride	1	U
75-00-3	Chloroethane	1	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	J 21	
75-15-0	Carbon Disulfide	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
67-66-3	Chloroform	0.8	J
107-06-2	1,2-Dichloroethane	1	U
78-93-3	2-Butanone	R 5	U
74-97-5	Bromochloromethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
75-27-4	Bromodichloromethane	0.2	J
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	5	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-88-3	Toluene	0.1	J
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
100-42-5	Styrene	1	U
1330-20-7	Xylenes (total)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	U

VALIDATED

1LCE

LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

FB02

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 6/91

Lab Code: IEA Case No.: 1589-175 SAS No.: SDG No.: 08216

Lab Sample ID: 960821604 Date Received: 08/09/96

Lab File ID: 0816507.D Data Analyzed: 08/16/96

Purge Volume: 25.0 (mL) Dilution Factor: 1.0

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L)	Q
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

VALIDATED

CLIENT SAMPLE NO.
AQ-GWFB02-01
FB02
8-8-96

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821604

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815410.D

Level: (low/med) LOW Date Received: 08/09/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FB02

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821604

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815410.D

Level: (low/med) LOW Date Received: 08/09/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VALIDATED

CLIENT SAMPLE NO.

FB02

ab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821604

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0815410.D

Level: (low/med) LOW Date Received: 08/09/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/13/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/15/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 872504	2-Pyrrolidinone, 1-methyl-	9.360	8	NJ
2. 99934	Acetophenone, 4'-hydroxy-	15.270	3	NJ
3. 134623	Diethyltoluamide	17.030	5	NJ
4. 80057	Phenol, 4,4'-(1-methylethyli	23.110	2	NJ
5.	Unknown	28.110	2	J
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
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20.				
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22.				
23.				
24.				
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27.				
28.				
29.				
30.				

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

VALIDATED

CLIENT SAMPLE NO.

FB02

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-175 SDG No.: 08216

Matrix: (soil/water) WATER Lab Sample ID: 960821604

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P1081496_040.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 08/09/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 08/14/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/17/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

F

MONTGOMERY WATSON ANALYTICAL RESULTS - METALS

Data Validation Narrative

Project Name ACS
Project Number 4077.0076

September 22, 1996
Login # 13478 & 13479

This deliverable package prepared by Montgomery Watson Laboratories includes 12+22 total and dissolved groundwater samples for CLP metals (no CN^-) analysis. The data was validated according to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/94).

This data is acceptable for use with the following comments:

Blanks — Sample runs included method blanks (ICB/CCB), prep blanks (PB) and field blanks (FB). Metals detected in blanks include aluminum, copper, iron, nickel, zinc, lead, and potassium. Samples with these metals detected at concentrations less than 5 times the greatest associated blank concentration are flagged "U" (undetected at the reported sample concetration). In the case of iron, copper, and zinc, the blank result may also have caused QC exceedences for duplicate spike and/or ICP serial dilution criteria.

Beryllium — Sample 1378-07 spike recovery of 127% exceeded the QC limits of 75-125%. Associated samples are flagged "N" by the lab and "J" for validation.

Iron — Duplicate QC was exceeded for sample 1378-08. Associated samples are flagged "*" by the lab and "J" for validation.

Manganese — Duplicate QC was exceeded for sample 1379-05. Associated samples are flagged "*" by the lab and "J" for validation. ICP serial dilution QC was exceeded on sample 1379-11 (11.8% difference); all associated samples are flagged "E" by the lab and "J" for validation.

Nickel — Duplicate QC was exceeded for sample 1379-05. Associated samples are flagged "*" by the lab and "J" for validation.

"E" Flag — The software used to generate the CLP forms (Telecations) contains a bug that results in the flag "E" being applied on the Form I without reason, in this case for Sb, Be, and Cd. The "E" flag is to be applied for interference problems based on either ICP serial dilution (%D >10%) or furnace QC criteria (a sample failing two post-digestion spikes 85-115% recovery), neither of which was a problem for these GFAA metals. The ICP Fe analysis of 1379-11 failed Yttrium recovery

criteria, but was not re-analyzed because 1379-04 was also analyzed (i.e., 1379-11 was redundant and not required by the SOW QC criteria).

Additional flags associated with this data include "S" and "W", indicating furnace post digestion spike QC criteria was exceeded. "S" indicates the sample was rerun by method of standard addition. "W" indicates the same criteria was exceeded, but that sample absorbance was less than 50% spike absorbance.

Overall data quality was good, with few significant problems associated with the data. Most out of control QC criteria was only slightly out of range (e.g., PDS recoveries outside QC limits were generally between 75-84%, the spike exceedance for Be was 127%, etc.). Reporting problems with the software package were due to the large size of the SDG and were all resolved.

JAH/jah
J:\MWATS\DMGMT\L1378.DOC
4522.0076

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: MWL Contract: 4077.0073

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: SD1378

SOW No.: 3/90

Sample Description	Lab Sample ID.	EPA Sample No.	LIMS Sample ID.
APD-GWFB01-01	1379-006	137906	L13479-006
APD-GWMW46-01	1379-007	137907	L13479-007
APD-GWMW49-01 Filtered	1379-008	137908	L13479-008
APD-GWMW49-91 Filtered	1379-009	137909	L13479-009
APD-GWMW37-01 Filtered	1379-010	137910	L13479-010
APD-GWMW48-01 Filtered	1379-011	137911	L13479-011
APD-GWMW39-01 Filtered	1379-012	137912	L13479-012
APD-GWFB-01 Filtered	1379-013	137913	L13479-013
APD-GWMW46-01 Filtered	1379-014	137914	L13479-014
APD-GWMW43-01	1379-015	137915	L13479-015
APD-GWMW44-01	1379-016	137916	L13479-016
APD-GWMW45-01	1379-017	137917	L13479-017
APD-GWFB02-01	1379-018	137918	L13479-018
APD-GWMW43-01 Filtered	1379-019	137919	L13479-019
APD-GWMW44-01 Filtered	1379-020	137920	L13479-020
APD-GWMW45-01 Filtered	1379-021	137921	L13479-021
APD-GWFB02-01 Filtered	1379-022	137922	L13479-022

Were ICP interelement corrections applied? Yes/No ____

Were ICP background corrections applied? Yes/No ____

If yes - were raw data generated before application of background corrections? Yes/No ____

Comments:

Release of the data contained in this hardcopy data package has been authorized by the Laboratory manager or the Manager's designee, as verified by the following signature.

Lab Manager: _____

Date: _____

[V-CLP-1]
7/87

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: MWL Contract: 4077.0073

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: SD1378

SOW No.: 3/90

Sample Description	Lab Sample ID.	EPA Sample No.	LIMS Sample ID.
APD-GWMW38-01	1378-001	137801	L13478-001
APD-GWMW40-01	1378-002	137802	L13478-002
APD-GWMW47-01	1378-003	137803	L13478-003
APD-GWMW47-91	1378-004	137804	L13478-004
APD-GWMW41-01	1378-005	137805	L13478-005
APD-GWMW42-01	1378-006	137806	L13478-006
APD-GWMW38-01 Filtered	1378-007	137807	L13478-007
APD-GWMW40-01 Filtered	1378-008	137808	L13478-008
APD-GWMW47-01 Filtered	1378-009	137809	L13478-009
APD-GWMW47-91 Filtered	1378-010	137810	L13478-010
PD-GWMW41-01 Filtered	1378-011	137811	L13478-011
APD-GWMW42-01 Filtered	1378-012	137812	L13478-012
APD-GWMW49-01	1379-001	137901	L13479-001
APD-GWMW49-91	1379-002	137902	L13479-002
APD-GWMW37-01	1379-003	137903	L13479-003
APD-GWMW48-01	1379-004	137904	L13479-004
APD-GWMW39-01	1379-005	137905	L13479-005

Were ICP interelement corrections applied? Yes/No (No) _____

Were ICP background corrections applied? (Yes)/No _____

If yes - were raw data generated before application of background corrections? Yes/No (No) _____

Comments:

Release of the data contained in this hardcopy data package has been authorized by the Laboratory manager or the Manager's designee, as verified by the following signature.

Lab Manager: _____

Date: _____

[V-CLP-1]
7/87

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- [ ] PECFA
- [ ] WI LUST
- [ ] ACT 307
- [ ] REPORT DRY WT
- [x] OTHER:

TURNAROUND
- [x] ~~2 WEEKS~~ (standard)
- [ ] 1 WEEK
- [ ] 3 DAYS
- [ ] 1 DAY

PROJECT NAME: ACS
PROJECT #: 4077.0073
CITY: GRIFFITH
STATE: INDIANA
SAMPLER(S):

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	Total Metals	Dissolved Metals	Dissolved Metals						REMARKS	LAB USE ONLY MATRIX	LAB USE ONLY LAB NO.
8-7-96	0800	G	APD-GW mw38-01 1	~~2~~	x	x							9-32715,16	1	13478-001
8-7-96	1000	G	APD-GW mw40-01 1	~~2~~	x	x							9-32723,24		-002
8-7-96	1145	G	APD-GW mw47-01 1	~~2~~	x	x							9-32631,32		-003
8-7-96	1145	G	APD-GW mw47-91 1	~~2~~	x	x							9-32655,56		-004
8-7-96	1430	G	APD-GW mw41-01 1	~~2~~	x	x							9-32731 32		-005
8-7-96	1540	G	APD-GW mw42-01 1	~~2~~	x	x							9-32739,40		-006
			APD-GW MW 38-01 filtered	1			X								007
			APD-GW MW 40-01 filtered	1			X								008
			APD-GW MW 47-01 filtered	1			X								009
			APD-GW MW 47-91 filtered	1			X								010
			APD-GW-MW 41-01 filtered	1			X							✓	011
			APD-GW mw 42-01 filtered	1			X								012

SPECIAL INSTRUCTIONS:

PROJ. MGR.: PETE VAGI

TAMPER EVIDENT SEAL INTACT? ✓ YES ___ NO ___ NOT PRESENT
SEAL NO.: 92-000,40
SAMPLES RECEIVED ON ICE? ✓ YES ___ NO TEMP: ___ °C

	SIGNATURE	DATE	TIME		SIGNATURE	DATE	TIME
RELINQUISHED BY:		8-7-96	1730	RECEIVED BY:			
RELINQUISHED BY				RECEIVED BY:			
RELINQUISHED BY:				RECEIVED BY:			
RELINQUISHED BY				RECEIVED FOR LABORATORY BY:		8/8/96	1:00 pm

C-O-C No. 013766

NAME OF COURIER: FED EX
AIRBILL NUMBER: 3692437405

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- [ ] PECFA
- [ ] WI LUST
- [ ] ACT 307
- [ ] REPORT DRY WT
- [x] OTHER:

TURNAROUND
- [ ] ~~2 WEEKS (standard)~~
- [ ] 1 WEEK
- [ ] 3 DAYS
- [ ] 1 DAY

PROJECT NAME: ACS

PROJECT #: 4677.0073

CITY: GRIFFITH

STATE: INDIANA

SAMPLER(S):

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	CLP	Total Metals	~~Dissolved Metals~~ Dissolved Metals							REMARKS	LAB USE ONLY MATRIX	LAB USE ONLY LAB NO.
8-8-96	0845		APD-GW mw43-01 1	2	✓	✓								9-32747,48	1	13479-015
8-8-96	0930		APD-GW mw44-01 1	2	✓	✓								9-32607,08		-016
8-8-96	1015		APD-GW mw45-01 1	2	✓	✓								9-32615,16		-017
8-8-96	1045		APD-GW FB02-01 1	2	✓	✓								9-32679,80		-018
8-8			APD GW MW 43-01 filtered	1			✓									-019
8-8			APD GW mw 44-01 filtered	1			✓									-020
8-8			APD GW MW 45-01 filtered	1			✓									-021
8-8			APD GW FB 02-01 filtered	1			✓								✓	-022

SPECIAL INSTRUCTIONS:

CLP

TAMPER EVIDENT SEAL INTACT? ___YES ___NO X NOT PRESENT

SEAL NO.: _____

SAMPLES RECEIVED ON ICE? X YES ___NO TEMP: _____°C

PROJ. MGR.: PETE VAGT

	SIGNATURE	DATE	TIME		SIGNATURE	DATE	TIME
RELINQUISHED BY:	[signature]	8-9-96	0845	RECEIVED BY:			
RELINQUISHED BY				RECEIVED BY:			
RELINQUISHED BY:				RECEIVED BY:			
RELINQUISHED BY				RECEIVED FOR LABORATORY BY:	[signature]	8/9/96	2:15 pm

C-O-C No. 013640

NAME OF COURIER: ~~FED EX~~ Hand Delivered

AIRBILL NUMBER: _____

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- ☐ PECFA
- ☐ WI LUST
- ☐ ACT 307
- ☐ REPORT DRY WT
- ☐ OTHER:

TURN AROUND
- ☐ 2 WEEKS (standard)
- ☐ 1 WEEK
- ☐ 3 DAYS
- ☐ 1 DAY

PROJECT NAME: ACS

PROJECT #: 4077.0073

CITY:

STATE:

SAMPLER(S):

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	Dissolved Metals								REMARKS	LAB USE ONLY MATRIX	LAB USE ONLY LAB NO.
8-6			APD-GW MW 39-01 Filtered	1	X									1	13479-012
8-6			APD-GW FB01-01 "	1	X									↓	-013
8-5			APD-GW MW 46-01 "	1	X									↓	-014

SPECIAL INSTRUCTIONS:

RECEIVED: ☑ INTACT ☑ ON ICE TEMP _____ °F

PROJ. MGR.:

SIGNATURE	PRINT NAME	COMPANY / TITLE	DATE	TIME
RELINQUISHED BY:				
RECEIVED BY:				
RELINQUISHED BY: L. Collins	L. Collins	mw/Lab tech	8/8/96	2:00 pm
RECEIVED BY:				

C-O-C No. 12894

NAME OF COURIER: _____

AIRBILL NUMBER: _____

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- [ ] PECFA
- [ ] WI LUST
- [ ] ACT 307
- [ ] REPORT DRY WT
- [x] OTHER:

TURNAROUND
- [x] ~~2 WEEKS~~ (standard)
- [ ] 1 WEEK
- [ ] 3 DAYS
- [ ] 1 DAY

PROJECT NAME: ACS
PROJECT #: 4077.0073
CITY: Griffith
STATE: Indiana
SAMPLER(S): [illegible]

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	CLP Total metals	CLP Dissolved metals	Dissolved metals	REMARKS	LAB USE ONLY MATRIX	LAB USE ONLY LAB NO.
8-6-96	1600	Grab	APD-GWmw49-01	2	x	x		9-32647, 48	I	13479-001
8-6-96	1600		APD-GWmw49-91	2	x	x		9-32663, 64		-002
8-6-96	11:30		APD-GWmw37-01	2	x	x		9-32707, 08		-003
8-6-96	14:00		APD-GWmw48-01	2	x	x		9-32639, 40		-004
8-6-96	1615		APD-GWmw39-01	2	x	x		9-32755, 56		-005
8-6-96	1500		APD-GWFB01-01	2	x	x		9-32671, 72		-006
8-5-96	1530		APD-GWmw46-01	2	x	x		9-32623, 24		-007
8-6			APD-GWmw49-01 Filtered				X			-008
8-6			APD-GWmw49-91 "				X			-009
8-6			APD-GWmw37-01 "				X			-010
8-6			APD-GWmw48-01 "				X			-011

SPECIAL INSTRUCTIONS:
CLP
COC Seal No. 92-00130

TAMPER EVIDENT SEAL INTACT? ✓ YES ___ NO ___ NOT PRESENT
SEAL NO.: ___
SAMPLES RECEIVED ON ICE? ✓ YES ___ NO TEMP. ___ °C

PROJ. MGR.: Pete Vast

	SIGNATURE	DATE	TIME		SIGNATURE	DATE	TIME
RELINQUISHED BY:	[illegible]	8-6-96	1800	RECEIVED BY:			
RELINQUISHED BY				RECEIVED BY:			
RELINQUISHED BY:				RECEIVED BY:			
RELINQUISHED BY				RECEIVED FOR LABORATORY BY:	[illegible]	8/8/96	2:00 pm

C-O-C No. 013764

NAME OF COURIER: FedEx
AIRBILL NUMBER: 3692437534

ICP

I HOLDTIME- Sampled 8/5-8, Run 9/5,11,12,13,16,17,18/96

II CALIBRATION

Curve- Blk + 2-3 stds

ICV/CCV- 1/10, 90-110%

CRI- 37-152% Rec

See Back

III BLANKS

	Al*	Co	Cu*	Fe*	Ni* (CCB4)	Zn*	Pb (Not ICP)	K (Not ICP)
ICB/CCB	78	-13	20.5	843	33.5	-		
PB	75	-	13.5	138	-	20.6		
5x	390	169	102.5	4,215	167.5	100	5.5	520
FB T	76		13.5	37.5		-	3.1	-
D	60.5		18.5	30		10	3.0	104

Flag "U" if < 5x value

IV ICP INTERFERENCE CHECK SAMPLE

% Rec 80-120% (Mg, Mn, Ca) ✓ 90-110 ✓

V SPIKES

137801 - 87-105% ✓ Fe ok

137904 - 11-106%

1378-07 - 84-120% Fe ok ✓

139711 66-118

VI DUPLICATES (*) Filtered Mn, Ni, total Fe, Zn — No Flag

137802D - <23 RPD

137905 - <25% except Mn 22.2% Ni 129% (Blk)

137808 <25% except Cu ± IDL(10) also in Blk; Fe-(in Blk)*; Zn - 75.5, <10 ! <5x Blk

137912 <25% on ECRQ

VII LCS

80-120% ✓

VIII ICP SERIAL DILUTIONS (E) on Mn only

1370904 <10% D

137801 if Spl > 50x IDL ✓

Cu, Fe Show Blk

IX 137911 - Mn = 11.8% Fe >50x, "D" dilution No good (yt sug low) but not rerun

E flag not appropriate

IX SRV

Calcs + transcriptions 10% check

X OVERALL - Data acceptable - Flags for blanks (U)

MB 72

PB = 138 (690)

Fe CCBy = 843 (4215)

1378-01	6440	
-02	1190	*
-05	1670	*
-06	3340	*
-07	6450	
-08	1480	*
-10	88	*
-11	1680	*
-12	1950	*
1379-01	20,100	
-02	20,100	
-03	1240	*
-04	30,800	
-05	9710	
-06	38	*
-07	21,700	
-08	16,600	
-09	18,800	

PB = 145 (725)

-03	254	*
-04	346	*
-09	163	*
-11	30300	
-12	7690	
-13	36	*
-14	21,900	
-15	13900	
-16	1450	
-17	9570	
-18	23	*
-19	7280	
-20	2050	*
-21	8050	
-22	<20	

CCB, = 31

B <20

-10 227 *

K

I Holdtime - Sampled 8/5-8 Run 8/26

II CALIBRATION

Curve - Blk + 3 Stds r > .995

ICV/CCV - 1/10, 90-110%

CRA - 100.4%

III BLANKS

ICB/CCB - 1/10, < 100

PB < 100 ug/L

IV SPIKES

1378-01	102.9%	1378-07	101.6%
137904	95.0%	1379-11	99.1%

V DUPLICATES

1378-02	6.5 RPD	1378-08	± CRDL
137905	1.7 RPD	1379-012	1.6 RPD

VI LCS

106.9%

VII SRV

Calcs + transcriptions checked

VIII OVERALL

Data acceptable

Sb

I HOLDTIME- Sampled 8/5-8, Run 9/5, 9/6

II CALIBRATION

Curve - Blk + 3 Stds

ICV/CCV - 1/10, 90-110%

CRA - 99.3%, 112.1%

III BLANKS

ICB/CCB - 1/10, < 2

PB < 2 ug/L

IV SPIKES

137861	99.2%	137807	94.9%
137904	95.6%	137911	101.5%

V6 DUPLICATES

137802	ND	137808	ND
137905	ND	137912	ND

VI LCS

106.5, 96.8%

VII FURNACE QC

Dup Inj < 20% RSD or < CRDL

PDS 85-115%

VIII OVERALL

Data acceptable. "E" flag on Form 1's due to telecations bug

As

I HOLDTIME - Sampled 8/5-8 Run 8/27, 8/29

II CALIBRATION

Curve = Blk + 3 Stds r > 0.995

ICV/CCV - 1/10, 90-110%

CRA - 107.7% 98.0%

III BLANKS

ICB/CCB - 1/10, < 1 µg/L

PB - < 1

IV SPIKES

137801 97.7% 137807 100.6%

137904 92.5% 137911 99.2%

V DUPLICATES

137802 1.3 / <1 > ± CRDL 137808 ND

137905 3.4 RPD 137912 1.56 / <1 > ± CRDL

VI LCS

102.6%, 94.8%, 105.4%, 108.4%

VII FURNACE QC

Dup Inj < 20% RSD

PDS 85-115% on MSA (1379-11, -14, -15, -16, -19, -20, -21)

VIII SRV

Calcs + transcriptions checked

IX OVERALL

Data acceptable

Be

I HOLDTIME - Sampled 8/5-8/96, Run 9-9, 9-10

II CALIBRATION

Curve - Blk + 3 stds, r > 0.995 -

ICV/CCV - 1/10, 90-110 %

CRA - 102, 98.0 %

III BLANKS

ICB/CCB - 1/10, <0.2 ug/L

PB - <0.2

IV SPIKES (N)

1378-01 - 122% 1378-07 127-0/1.00 = 127% (N)

1379-04 119% 1379-11 117 %

Tolerances flagged all as "E" in error

V DUPLICATES

1378-02 4.9 RPD 1378-0 13.3 RPD

1379-05 ND 1379-12 ND

VI LCS

99 %, 94 %

VII FURNACE QC

Dup Inj <20% RSD or < CRQL

PDS 85-115 %

VIII SRV

Calcs + Transcriptions checked

IX OVERALL

Data acceptable

(2)

I HOLDTIME - Sampled 8/5-8, Run 9/5, 6

II CALIBRATION

Curve - Blk + 3 Stds

ICV/CCV - 1/10, 90-110%

CRA 96%, 102%

III BLANKS

ICB/CCB - 1/10, < .2 mg/L

PB - < 0.2

IV SPIKES

1378-01	105%	✓	137807	105%	✓
1379-04	111%	✓	1379-11	111%	✓

V DUPLICATES

137802	ND	137808	ND
137905	ND	137912	ND

VI LCS

98.0, 100%

VII FURNACE QC

Dup Inj < 20% RSD or < CRDL

PDS 85-115% or MSA (137903 (S) ✓)

VIII SRV

Calcs + transcriptions checked

IX OVERALL

Data acceptable - Telecations bug flagged all "E" in error

Pb

I HOLDTIME- Sampled 8/5-8, Run 8/30, 9/4, 9/5, 9/10

II CALIBRATION

Curve - Blk + 4 stds, r > .995 ✓

ICV/CCV - 1/10, 90-110%

CRA - 100%, 101.3%, 103.3%, 100%

III BLANKS

ICB/CCB - 1/10, < 1.5 ug/L

PB - < 1.5 ug/L

FB - Total 3.1, Filtered 3.0 ug/L 15 ug/L

IV SPIKES

137801 99.6 138807 91.6%

137904 117.8% 137911 88.8%

V DUPLICATES

137802 19.2 RPD 137808 6.2 RPD

137905 ND 137912 ND

VI LCS

102.6, 94.8, 105.4, 108.4%

VII FURNACE QC

Dup Inj 8 < 20% RSD or < CRDL

PDS 85-115% or MSA (ALL 74-84% Rec on Spike 1378-03, 06, 1379-03, -04, -07, -08, -09, -10, -14, -15, -17, -19.)

VIII SRV 1379-21 = W 84.7% R

Calcs + Transcriptions checked

IX OVERALL

Data acceptable except all results < 15 ug/L flagged "U" due to blanks

Se

I HOLDTIME - Sampled 8/5-8/96, Run 8/30, 9/4, 9/5

II CALIBRATION

Curve - Blk + 4 Stds r ≥ 0.995

ICV/CCV - 1/10, 90-110%

CRA - 102.2%, 103.4%, 107.8%

III BLANKS

ICB/CCB - 1/10, < 2.0 ug/L

PB - < 2.0

FB's - < 2

IV SPIKES

137801	105.9%	137807	95.9%
137904	87.7%	137911	85.0%

V DUPLICATES

137802	ND	137808	ND
137905	ND	137912	ND

VI LCS

104.8, 94.8, ~~98.5~~

VII FURNACE QC

Dup Inj < 20% RSD or < CRDL

PDS - 85-115% or MSA (1378-10, 1379-04, -14, -15, -19, -21)

W - 1378-04 (84.7% R.)

VIII SRV

Calcs + transcriptions checked

IX OVERALL

Data acceptable

T1

I HOLDTIME- Sampled 8/5-8/96 Run 9/9

II CALIBRATION

Curve- Blk + 3 Stds r > 0.995

ICV/CCV- 1/10, 90-110%

CRA 108.8%

III BLANKS

ICB/CCB- 1/10, <1.0

PB - <1

IV SPIKES

137801	100.8%	137807	99.9%
137904	95.0%	137911	95.3%

V DUPLICATES

137802	ND	137808	ND
137905	1.02 / <1 > ±CRDL	137912	<1.0 / 1.1 > ±CRDL

VI LCS

107.7 %

VII FURNACE QC

Dup Inj ≤20% RSD or <CRDL

PDS 85-115%

VIII SRV

Calcs + transcriptions checked

IX OVERALL

Data Acceptable, No Flags

Hg

I HOLDTIME - Sampled 8/5-8 Run 8/21

II CALIBRATION

Curve - Blk + 4 Stds . r > 0.995

ICV/CCV - 1/10 85-115 %

CRA - 125 %

III BLANKS

ICB/CCB - 1/10, < 0.20

FB - < 0.2

IV SPIKES

137801	104 %	137807	101.0 %
137904	91.0 %	137911	91.0 %

V DUPLICATES

137802	ND	137808	ND
137905	ND	137912	ND

VI LCS

98.7 %

VII SRV

Calcs + transcriptions checked

VIII OVERALL

Data acceptable

APD-GMW38-01

8-7-96

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

137801

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1378-001

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 Total

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 118	B		P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	3.9	B		F
7440-39-3	Barium	36.5	B		P
7440-41-7	Beryllium	UJ 0.20	U	E N	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	63500			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 12.0	B		P
7439-89-6	Iron	J 6440		E*	P
7439-92-1	Lead	1.5	U		F
7439-95-4	Magnesium	22000			P
7439-96-5	Manganese	J 511		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	494	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	5130			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW38-01 F

8-7-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137807

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1378-007

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 113	B		P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	3.2	B		F
7440-39-3	Barium	38.5	B		P
7440-41-7	Beryllium	UJ 0.20	U	~~E~~ N	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	64000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 13.0	B		P
7439-89-6	Iron	J 6450		~~E~~*	P
7439-92-1	Lead	U 1.6	B		F
7439-95-4	Magnesium	22400			P
7439-96-5	Manganese	J 516		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	499	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	5580			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWM0440-01

8-7-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137802

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1378-002

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 Total

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	406			P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	1.3	B		F
7440-39-3	Barium	26.0	B		P
7440-41-7	Beryllium	J 0.21	B	E N	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	30000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 12.5	B		P
7439-89-6	Iron	UJ 1190		E*	P
7439-92-1	Lead	U 10.8			F
7439-95-4	Magnesium	9540			P
7439-96-5	Manganese	J 852		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1280	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	4120	B		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW40-01 F

8-7-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137808

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1378-008

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 274			P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	31.5	B		P
7440-41-7	Beryllium	UJ 0.24	B	E N	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	31000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 25.0			P
7439-89-6	Iron	UJ 1480		E*	P
7439-92-1	Lead	U 4.1			F
7439-95-4	Magnesium	9940			P
7439-96-5	Manganese	J 877		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1410	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	3270	B		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	U 75.5			P
	Cyanide				

changed by JAM

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW47-01

8-7-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137803

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1378-003

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 Total

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 383			P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	10.0	U		P
7440-41-7	Beryllium	UJ 0.20	U	E N	F
7440-43-9	Cadmium	0.20	B	E	F
7440-70-2	Calcium	8530			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 15.0	B		P
7439-89-6	Iron	UJ 254		E*	P
7439-92-1	Lead	23.0		S	F
7439-95-4	Magnesium	2630	B		P
7439-96-5	Manganese	J 27.0		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1090	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	3020	B		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APP-GWMW47-01F

8-7-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137809

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1378-009

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 102	B		P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	10.0	U		P
7440-41-7	Beryllium	UJ 0.20	U	~~E~~ N	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	8760			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 15.5	B		P
7439-89-6	Iron	UJ 162		~~E~~*	P
7439-92-1	Lead	20.0			F
7439-95-4	Magnesium	2650	B		P
7439-96-5	Manganese	J 19.0		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1100	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	3290	B		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changed by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW47-91

8-7-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137804

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1378-004

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	476			P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	10.0	U		P
7440-41-7	Beryllium	UJ 0.20	U	EN	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	8890			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 14.5	B		P
7439-89-6	Iron	UJ 346		E*	P
7439-92-1	Lead	23.0			F
7439-95-4	Magnesium	2740	B		P
7439-96-5	Manganese	J 26.5		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1170	B		A
7782-49-2	Selenium	2.0	U	W	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	4100	B		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by IAP

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

VALIDATED

3/90

APD-GWM 47-91 F

8-7-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137810

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1378-010

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	u 141	B		P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	10.0	U		P
7440-41-7	Beryllium	uJ 0.20	U	EN	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	8550			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	u 13.0	B		P
7439-89-6	Iron	uJ 88.5	B	E*	P
7439-92-1	Lead	31.2			F
7439-95-4	Magnesium	2750	B		P
7439-96-5	Manganese	J 22.0		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1220	B		A
7782-49-2	Selenium	2.0	U	S	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	3710	B		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW41-01

8-7-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137805

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1378-005

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 89.5	B		P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	19.0	B		P
7440-41-7	Beryllium	UJ 0.20	U	E N	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	44000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 10.5	B		P
7439-89-6	Iron	UJ 1670		E*	P
7439-92-1	Lead	1.5	U		F
7439-95-4	Magnesium	13300			P
7439-96-5	Manganese	J 414		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	331	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	3480	B		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by IAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

VALIDATED

3/90

APD-GWMW41-01F

8-7-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137811

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1378-011

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 96.5	B		P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	18.5	B		P
7440-41-7	Beryllium	UJ 0.20	U	EN	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	43300			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 10.5	B		P
7439-89-6	Iron	UJ 1680		E*	P
7439-92-1	Lead	1.5	U		F
7439-95-4	Magnesium	13500			P
7439-96-5	Manganese	J 395		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	308	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	4010	B		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changed by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW42-01

8-7-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137806

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1378-006

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	808			P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	2.1	B		F
7440-39-3	Barium	90.0	B		P
7440-41-7	Beryllium	UJ 0.20	U	E N	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	139000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 16.5	B		P
7439-89-6	Iron	UJ 3340		E*	P
7439-92-1	Lead	U 5.7		S	F
7439-95-4	Magnesium	49800			P
7439-96-5	Manganese	J 928		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1700	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	12700			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 3/90

VALIDATED

APD-GWMW42-01F

8-7-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137812

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1378-012

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	u 144	B		P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	1.5	B		F
7440-39-3	Barium	85.0	B		P
7440-41-7	Beryllium	us 0.20	U	~~E~~ N	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	136000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	u 13.0	B		P
7439-89-6	Iron	us 1950		~~E~~*	P
7439-92-1	Lead	1.5	U		F
7439-95-4	Magnesium	49300			P
7439-96-5	Manganese	J 932		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1450	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	12400			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW49-01

8-6-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137901

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-001

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 110	B		P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	24.5			F
7440-39-3	Barium	96.5	B		P
7440-41-7	Beryllium	0.20	U	~~E~~	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	81200			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 11.0	B		P
7439-89-6	Iron	J 20100		~~E~~*	P
7439-92-1	Lead	1.5	U		F
7439-95-4	Magnesium	10700			P
7439-96-5	Manganese	J 1950		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	3760	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	21300			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

Changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW49-01 F

8-6-96

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137908

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-008

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 99.0	B		P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	25.5			F
7440-39-3	Barium	95.5	B		P
7440-41-7	Beryllium	0.20	U	E	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	84100			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 11.5	B		P
7439-89-6	Iron	J 18600		E*	P
7439-92-1	Lead	U 4.5		S	F
7439-95-4	Magnesium	10900			P
7439-96-5	Manganese	J 1860		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	3690	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	22700			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW99-91

8-6-96

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137902

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-002

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 61.5	B		P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	25.0			F
7440-39-3	Barium	100	B		P
7440-41-7	Beryllium	0.20	U	~~E~~	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	80900			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 13.5	B		P
7439-89-6	Iron	J 20100		~~E~~*	P
7439-92-1	Lead	1.5	U		F
7439-95-4	Magnesium	10500			P
7439-96-5	Manganese	J 2000		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 21.0	B	*	P
7440-09-7	Potassium	3640	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	20600			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWM49-91F

8-6-96

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137909

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-009

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 89.0	B		P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	22.3			F
7440-39-3	Barium	98.5	B		P
7440-41-7	Beryllium	0.20	U	E	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	83500			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 12.0	B		P
7439-89-6	Iron	J 18800		E*	P
7439-92-1	Lead	U 4.6		S	F
7439-95-4	Magnesium	10700			P
7439-96-5	Manganese	J 1960		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	3530	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	20300			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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3/90

APD-GWMW37-01

8-7-96

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137903

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-003

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1410			P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	23.5	B		P
7440-41-7	Beryllium	0.26	B	~~E~~	F
7440-43-9	Cadmium	0.47	B	~~E~~	F
7440-70-2	Calcium	34300			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 20.5	B		P
7439-89-6	Iron	UJ 1240		E*	P
7439-92-1	Lead	U 8.6		S	F
7439-95-4	Magnesium	9160			P
7439-96-5	Manganese	J 273		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	1500	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	5460			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAP

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW37-01F

8-6-96

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137910

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-010

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 144	B		P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	20.0	B		P
7440-41-7	Beryllium	0.32	B	E	F
7440-43-9	Cadmium	0.24	B	E	F
7440-70-2	Calcium	34000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 16.0	B		P
7439-89-6	Iron	UJ 228		E*	P
7439-92-1	Lead	U 8.8		S	F
7439-95-4	Magnesium	8500			P
7439-96-5	Manganese	J 256		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	1230	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	6310			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	U 13.5	B		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW48-01

8-6-96

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137904

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-004

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 254			P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	11.3			F
7440-39-3	Barium	160	B		P
7440-41-7	Beryllium	0.20	U	~~E~~	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	142000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 13.5	B		P
7439-89-6	Iron	J 30800		~~E~~*	P
7439-92-1	Lead	U 3.4		S	F
7439-95-4	Magnesium	20100			P
7439-96-5	Manganese	J 688		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	7560	B		A
7782-49-2	Selenium	2.0	U	S	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	52100			P
7440-28-0	Thallium	1.1	B		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changed by IAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts: ART

Comments:

VALIDATED

APD-GWMN48-01F

8-6-96

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137911

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-011

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0

DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 99.5	B		P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	14.2		S	F
7440-39-3	Barium	152	B		P
7440-41-7	Beryllium	0.20	U	~~E~~	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	138000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 11.5	B		P
7439-89-6	Iron	J 30300		~~E~~*	P
7439-92-1	Lead	1.5	U		F
7439-95-4	Magnesium	19300			P
7439-96-5	Manganese	J 566		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 32.0	B	*	P
7440-09-7	Potassium	7390	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	51000			P
7440-28-0	Thallium	1.2	B		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	U 11.0	B		P
	Cyanide				

Changes by IAK

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 3/90

VALIDATED

APD-GWMW39-01

8-6-96

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137905

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-005

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0

TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 273			P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	1.8	B		F
7440-39-3	Barium	81.0	B		P
7440-41-7	Beryllium	0.20	U	E	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	125000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 15.5	B		P
7439-89-6	Iron	J 9710		E*	P
7439-92-1	Lead	1.5	U		F
7439-95-4	Magnesium	22300			P
7439-96-5	Manganese	J 1060		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	J 712		*	P
7440-09-7	Potassium	5180			A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	117000			P
7440-28-0	Thallium	1.0	B		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW39-01F

8-6-96

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137912

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-012

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 59.0	B		P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	1.6	B		F
7440-39-3	Barium	73.0	B		P
7440-41-7	Beryllium	0.20	U	~~E~~	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	120000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 23.0	B		P
7439-89-6	Iron	J 7690		~~E~~*	P
7439-92-1	Lead	1.5	U		F
7439-95-4	Magnesium	21400			P
7439-96-5	Manganese	J 802		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	5160			A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	116000			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

VALIDATED

3/90

APD-GWFB01-01

8-6-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137906

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-006

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 76.0	B		P
7440-36-0	Antimony	2.0	U	~~B~~	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	10.0	U		P
7440-41-7	Beryllium	0.20	U	~~E~~	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	1000	U		P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 13.5	B		P
7439-89-6	Iron	UJ 37.5	B	~~E~~*	P
7439-92-1	Lead	~~U~~ JAH 3.1			F
7439-95-4	Magnesium	1000	U		P
7439-96-5	Manganese	UJ 10.0	U	E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	100	U		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	2000	U		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWFB-01 F

8-6-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137913

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-013

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 60.5	B		P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	10.0	U		P
7440-41-7	Beryllium	0.20	U	E	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	1000	U		P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 18.5	B		P
7439-89-6	Iron	UJ 30.0	B	E*	P
7439-92-1	Lead	3.0			F
7439-95-4	Magnesium	1000	U		P
7439-96-5	Manganese	UJ 10.0	U	E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	104	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	2000	U		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	U 10.0	B		P
	Cyanide				

changes by TAR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW46-01

8-5-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137907

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-007

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0

TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	821			P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	3.7	B		F
7440-39-3	Barium	132	B		P
7440-41-7	Beryllium	0.20	U	E	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	115000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 13.0	B		P
7439-89-6	Iron	J 21700		E*	P
7439-92-1	Lead	U 5.0		S	F
7439-95-4	Magnesium	30500			P
7439-96-5	Manganese	UJ 1510		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	1450	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	62200			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAK

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts: ART

Comments:

VALIDATED

APD-GWM0346-01F

8-8-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137914

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-014

Level (low/med): LOW Date Received: 08/08/96

% Solids: 0.0

DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 121	B		P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	4.1	B	S	F
7440-39-3	Barium	131	B		P
7440-41-7	Beryllium	0.20	U	~~E~~	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	115000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 34.5			P
7439-89-6	Iron	J 21900		~~E~~*	P
7439-92-1	Lead	1.5	U	S	F
7439-95-4	Magnesium	30200			P
7439-96-5	Manganese	J 1510		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	1180	B		A
7782-49-2	Selenium	2.0	U	S	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	60900			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 3/90

VALIDATED

APD-GWMW43-01

8-8-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137915

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-015

Level (low/med): LOW Date Received: 08/09/96

% Solids: 0.0 TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2920			P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	17.6		S	F
7440-39-3	Barium	63.0	B		P
7440-41-7	Beryllium	0.20	U	E	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	115000			P
7440-47-3	Chromium	36.0			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 38.5			P
7439-89-6	Iron	J 13900		E*	P
7439-92-1	Lead	U 7.5		S	F
7439-95-4	Magnesium	48100			P
7439-96-5	Manganese	J 374		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 26.5	B	*	P
7440-09-7	Potassium	1800	B		A
7782-49-2	Selenium	2.0	U	S	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	10100			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	U 29.0			P
	Cyanide				

Danger by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts: ART

Comments:

VALIDATED

APD-GWMW43-01F
8-8-96

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137919

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-019

Level (low/med): LOW Date Received: 08/09/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	d 82.5	B		P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	12.3		S	F
7440-39-3	Barium	49.0	B		P
7440-41-7	Beryllium	0.20	U	E	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	108000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	u 14.0	B		P
7439-89-6	Iron	J 7280		E*	P
7439-92-1	Lead	1.5	U	S	F
7439-95-4	Magnesium	45000			P
7439-96-5	Manganese	J 262		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	491	B		A
7782-49-2	Selenium	2.0	U	S	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	9240			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

dangers in IAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW44-01

8-8-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137916

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-016

Level (low/med): LOW Date Received: 08/09/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 175	B		P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	6.0	B	S	F
7440-39-3	Barium	106	B		P
7440-41-7	Beryllium	0.20	U	~~E~~	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	90500			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 15.5	B		P
7439-89-6	Iron	UJ 1480		~~E~~*	P
7439-92-1	Lead	1.5	U		F
7439-95-4	Magnesium	37200			P
7439-96-5	Manganese	J 38.5		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 23.0	B	*	P
7440-09-7	Potassium	990	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	19700			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW44-01F

8-8-96

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137920

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-020

Level (low/med): LOW Date Received: 08/09/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 79.0	B		P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	6.6	B	S	F
7440-39-3	Barium	164	B		P
7440-41-7	Beryllium	0.20	U	E	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	98000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	UJ 2050		E*	P
7439-92-1	Lead	1.5	U		F
7439-95-4	Magnesium	60700			P
7439-96-5	Manganese	UJ 45.5		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	982	B		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	33100			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changed by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW45-01

8-8-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137917

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-017

Level (low/med): LOW Date Received: 08/09/96

% Solids: 0.0 TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	776			P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	21.5			F
7440-39-3	Barium	84.5	B		P
7440-41-7	Beryllium	0.20	U	~~E~~	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	97100			P
7440-47-3	Chromium	29.0			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 21.0	B		P
7439-89-6	Iron	J 9570		E*	P
7439-92-1	Lead	38.5		S	F
7439-95-4	Magnesium	27500			P
7439-96-5	Manganese	J 641		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 35.0	B	*	P
7440-09-7	Potassium	5350			A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	70900			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	U 15.0	B		P
	Cyanide				

Changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWMW4S-01F

8-8-96

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137921

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-021

Level (low/med): LOW Date Received: 08/09/96

% Solids: 0.0 DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 97.5	B		P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	25.9		S	F
7440-39-3	Barium	82.5	B		P
7440-41-7	Beryllium	0.20	U	E	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	93200			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 19.0	B		P
7439-89-6	Iron	J 8050		E*	P
7439-92-1	Lead	U 3.5		W	F
7439-95-4	Magnesium	24700			P
7439-96-5	Manganese	J 612		E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	5070			A
7782-49-2	Selenium	2.0	U	S	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	68100			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

Changes by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWFB02-01
8-8-96

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137918

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-018

Level (low/med): LOW Date Received: 08/09/96

% Solids: 0.0 TOTAL

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	U 57.0	B		P
7440-36-0	Antimony	2.0	U	E	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	10.0	U		P
7440-41-7	Beryllium	0.20	U	E	F
7440-43-9	Cadmium	0.20	U	E	F
7440-70-2	Calcium	1000	U		P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	U 10.5	B		P
7439-89-6	Iron	UJ 23.0	B	E*	P
7439-92-1	Lead	2.9	B		F
7439-95-4	Magnesium	1000	U		P
7439-96-5	Manganese	UJ 10.0	U	E*	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	100	U		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	2000	U		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changed by JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED

APD-GWFB02-01 F
8-8-96

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

137922

Lab Name: MWL Contract: 4077.0073

Lab Code: Case No.: SAS No.: SDG No.: SD1378

Matrix (soil/water): WATER Lab Sample ID: 1379-022

Level (low/med): LOW Date Received: 08/09/96

% Solids: 0.0

DISSOLVED

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	50.0	U		P
7440-36-0	Antimony	2.0	U	~~E~~	F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	10.0	U		P
7440-41-7	Beryllium	0.20	U	~~E~~	F
7440-43-9	Cadmium	0.20	U	~~E~~	F
7440-70-2	Calcium	1000	U		P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	UJ 20.0	U	~~E~~*	P
7439-92-1	Lead	1.5	U		F
7439-95-4	Magnesium	1000	U		P
7439-96-5	Manganese	UJ 10.0	U	~~E~~* E	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	UJ 20.0	U	*	P
7440-09-7	Potassium	100	U		A
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	2000	U		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	20.0	U		P
7440-66-6	Zinc	10.0	U		P
	Cyanide				

changed by JAH

JAH

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

VALIDATED