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Phase IV As-Built Construction and Final Inspection Report

Groundwater

Former GE Site
RTN 3-0518
Wilmington, Massachusetts

Submitted to:

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Boston, MA

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EXECUTIVE SUMMARY

This report presents a Phase IV As-Built Construction and Final Inspection Report for source control of the chlorinated volatile organic compound (VOC) contaminated portion of the aquifer at the former General Electric (GE) facility located at 50 Fordham Road in Wilmington, Massachusetts. In accordance with 310 CMR 40.0875 and 40.0878 of the Massachusetts Contingency Plan (MCP) this is a technical document designed to present the as-built construction and final inspection by the project's Licensed Site Professional (LSP) of the groundwater remedy previously presented in the *Phase IV Remedy Implementation Plan (Phase IV RIP)* dated December 2002.

Per the Massachusetts Department of Environmental Protection's (MA DEP) Conditional Approval Letter dated March 12, 2003, this report presents the final construction details of the remedial system, the findings of the supplemental bedrock drilling program, and the monitoring programs for 1) the system maintenance and monitoring , and 2) the bedrock groundwater monitoring programs.

The Bioremediation Treatability Study is incomplete at this time. However, preliminary data indicate that the technology is feasible. TRC elected to expand the scope of the study to better constrain the parameters necessary to evaluate the potential for full-scale implementation and system design. Therefore, this report presents the current status and preliminary results of the study. Final results and design (if applicable) will be submitted under separate cover by October 2003.

The groundwater treatment system shakedown was performed during the week of August 4, 2003. The equipment shakedown included debugging of all equipment and controls, functional checks of all equipment and instruments, establishing of the correct rotation of the electrical motors, verification of all interlocks and alarms, etc.

The system start-up was conducted between August 13, and August 20, 2003. The system started successfully but at approximately 3:00 pm on August 13 a lightning strike occurred in the vicinity of the site. As a result, some equipment and parts were damaged by the resultant electrical discharge. A relay was replaced on August 14, 2003. This allowed the system start-up to be reinitiated on August 15, 2003. The remaining damaged equipment that were not critical for system operations were later repaired on September 2, 2003.

System monitoring during start up included the recording of equipment parameters (i.e., temperature, pressure etc.), field monitoring of vapor concentrations, and the collection and analysis of water samples to demonstrate contaminant removal efficiency. The values for the operating parameters were within the expected ranges for the equipment during the startup period. Air monitoring results revealed VOCs were below detectable limits in the effluent, indicating the removal efficiency of the vapor-phase treatment train is greater than the required 95%.

The bulk of the contaminant load within the air stripper influent during start-up contained trichloroethene, tetrachloroethene and the associated breakdown compounds cis-1,2-dichloroethene, 1,1-dichloroethene, 1,1-dichloroethane and vinyl chloride. Several other VOCs were present at slow concentrations in the influent sample collected on August 15, 2003 but were below quantitation limits in subsequent samples. Concentrations of VOCs were below the quantitation limit in the final effluent samples. Analytical results indicate the contaminant removal efficiency is greater than 98 percent for the air stripper and nearly 100 percent for the entire water treatment train.

Two contaminants, acetone and 2-butanone, were detected in the air stripper effluent (at levels below the MCP GW-1 drinking water standards) that were not detected in the air stripper influent. Initially the contaminants were thought to have originated from the poly-vinyl chloride (PVC) cement used to connect the water piping in the treatment building. However, the contaminants should have been removed from the piping via flushing by water after the first day of system operation. The persistence of the contaminants into the third and sixth day of operation indicated another source was likely. Due to the high solubility of acetone and 2-butanone, these contaminants may have been transferred from the air being drawn through the air stripper to the water. TRC is currently investigating the air quality in the vicinity of the treatment building to investigate this possibility. TRC decided to deactive the groundwater pump and treat system on August 22, 2003 in order to prevent the introduction of new contaminants into the treated water stream until the source and solution are evaluated. TRC expects that by extending the air intake of the air stripper blower up beyond the roof of the existing Ametek facility, the emissions from the various facility sources can be avoided. TRC expects to resolve the problem and re-start the system no later than October 2003. TRC will submit all system design modifications to the MA DEP as an addendum to this report.

The supplemental drilling program included the installation of a deep bedrock monitoring well (TRC-301R) located within the wetlands area, hydraulically downgradient of pumping well TRC-202R. In addition, four injection point (IP) rock borings were installed on-site, and retrofitted into individual wells for both monitoring and possible amendment addition for bioremediation.

The information obtained from the drilling program, especially that obtained during the installation of well TRC-301R (located downgradient and along the preferential flow pathway identified on site) supports and enhances the site conceptual model. Furthermore, the contaminant levels observed at well TRC-301R (130 ug/L total VOCs) indicate that this well is located outside of the core area of the groundwater plume.

The Phase V Operations, Maintenance and Monitoring (OM&M) program for the treatment system and a revised source control groundwater monitoring program are also presented herein.

1.0 INTRODUCTION

1.1 Purpose

This report presents the As-Built Construction and Final Inspection of the Phase IV activities for the chlorinated solvent groundwater plume at the former General Electric (GE) Facility site (Site) located at 50 Fordham Road in Wilmington, Massachusetts (Figure 1-1). This report conforms to the requirements under 310 CMR 40.0875 and 40.0878 of the Massachusetts Contingency Plan (MCP). The site is listed as a Tier IA site with Release Tracking Number 3-0518.

Direct regulatory oversight was provided by the Massachusetts Department of Environmental Protection (MA DEP) until recent revisions to the MCP changed MA DEP's involvement with this Site. Effective June 27, 2003, pursuant to the amended provisions of 310 CMR 40.0550 (4), MA DEP approval of comprehensive response actions and any other future actions at the Site are no longer required prior to implementation unless the MA DEP provides a notice to the contrary. In addition, like all other Tier I and Tier II sites, such actions are subject to auditing provisions per 310 CMR 40.1100. In lieu of the MA DEP oversight, the designated Licensed Site Professional (LSP) for the Site is now responsible for ensuring that the response actions are conducted in accordance with the requirements of the MCP. This report represents the completion of the first response action under the sole supervision of the LSP.

The *Phase IV Remedy Implementation Plan for Groundwater (Phase IV RIP)* prepared by TRC Environmental Corporation (TRC) and submitted to MA DEP in November 2002 and subsequently revised in December 2002 presented the design details for the groundwater extraction and treatment system, and a treatability study for in-situ biodegradation (also referred to as bioremediation). Per MA DEP's Conditional Approval Letter dated March 12, 2003, this report presents the final construction details of the remedial system, the findings of the supplemental bedrock drilling program, the monitoring programs for 1) system maintenance and monitoring, and 2) the bedrock groundwater monitoring programs, and the status of the Bioremediation Treatability study.

It should be noted that earlier projections called for a complete report of findings of the Bioremediation Treatability Study with final system designs (if proven feasible) to be presented to MA DEP under separate cover, presumably before the completion of the work summarized herein. However, because of favorable results, TRC elected to expand the scope of the study to better constrain the parameters necessary to evaluate the potential for full-scale implementation and design (if applicable). Therefore, this report presents the current status and preliminary results. Final results will be submitted under separate cover as an addendum to this report.

1.2 Site Description

The former GE site property is an approximately 13-acre parcel of land located east of Fordham Road and north of Concord Street within an industrial park in the towns of Wilmington and North Reading, Massachusetts. Fordham Road is located along the western property boundary with industrial parcels located further to the west of Fordham Road. Commercial and industrial properties are located to the south. Wooded wetlands are located to the east and north. Residential properties are located beyond the wetlands further east and north. The site location is indicated on Figure 1-1. A site plan of the former GE property is presented in Figure 1-2.

The property buildings were used for manufacturing and to support research and development by the GE Aerospace Instruments Control Systems Department from the time they were built in 1970 through August 1989. A portion of Building 2 was subleased to Converse, Inc. (Converse), a sports shoe manufacturer, from 1973 to 1986, and a portion of Building 1A was subleased to Hamilton Standard, a manufacturer of hydrogen generators, from 1983 to 1985. In August 1989, GE's operations at the facility were sold to AMETEK Aerospace Products, Inc. (AMETEK). AMETEK and GSI Lumonics, Inc. (GSI) are the current tenants at the site. The Wilmington Realty Trust currently owns the site.

The former GE facility is one of four MCP Tier IA sites in the Fordham Road and Concord Street portion of the towns of Wilmington and North Reading, Massachusetts. These four sites are part of a single Public Involvement Plan (PIP) dated November 17, 2000. The other three sites include the Roadway Express (Roadway), MSM Industries (MSM), and Sterling Supply (Sterling).

1.3 Prior Remedial Efforts of Groundwater

Prior remedial actions for the groundwater included operation of the Tank Farm Area Remediation System as an Interim Measure from February 1992 to February 2002. This system included groundwater removal from a single well (TF-1) located in the shallow fractured rock portion of the aquifer former Tank Farm Area and treatment via activated carbon. For the first year of the system's operation, groundwater extraction rates averaged 1 to 3 gallons per minute (gpm). In subsequent years, the recovery rate was consistently below 1 gpm and decreased over time such that in the last year of operation the groundwater recovery rate was below 0.1 gpm.

Contaminant concentrations in well TF-1 were reduced significantly during the first two years of system operation; contaminant concentrations stabilized over the later years of operation. With the approval of MA DEP, the system was permanently shut down in February 2002 due to negligible contaminant mass removal rates (based on decreases in groundwater recovery rates and lower contaminant concentrations). Today, chlorinated volatile organic compounds (VOCs) remain in site groundwater in the shallow and deep bedrock aquifers.

1.4 Overview of Remedy Implementation Plan (*Phase IV RIP*)

The *Phase IV RIP* presented the groundwater source control remedy designed to remove, treat and contain the residual source of chlorinated VOCs in bedrock. The target area for groundwater extraction and treatment is bedrock well TRC-202R. This well, as described in the *Comprehensive Review of Groundwater Data Report*, dated September 14, 2001, exhibits a contaminant mass flux along the 95-115 foot depth interval of approximately 20 pounds per day, which is nearly two orders of magnitude greater than the rate extracted from the former remedial system that operated in the Tank Farm Area. In addition to groundwater extraction and treatment, the *Phase IV RIP* includes provisions for an enhanced Bioremediation Treatability Study for bedrock groundwater. This technology, if proven feasible, will enhance the effectiveness and timeliness of the remedial activities.

Specifically, the source control remedy is designed to:

- Extract the bulk mass of contamination in groundwater directly from the identified preferential flow pathway at well TRC-202R.
- Enhance the groundwater extraction (i.e., pump and treat) remediation process of the impacted fractures via bioremediation and/or bioaugmentation.
- Control impacts to and possibly treat residual contamination in the overburden aquifer.

Photographs of the various activities related to the implementation of this remedy are provided in Appendix A.

2.0 CONSTRUCTION – REMEDY IMPLEMENTATION

The implementation of the groundwater remedy included two separate initiatives. The first initiative included the installation of the groundwater pump and treat system, with the installation of trenching, remedial equipment and the retrofit of well TRC-202R for use as a source control recovery well. This was conducted by Innovative Engineering Solutions, Inc. (IESI) with direct oversight and field assistance by TRC. The second initiative included a supplemental drilling program for the installation of a new deep bedrock monitoring well (TRC-301R) located downgradient of the pumping well TRC-202R, and the installation of four bedrock borings for use as possible in-situ biotreatment injection points (IPs) and/or monitoring wells on site. This was conducted directly by TRC project staff.

2.1 Permits and Approvals

Several permits and approvals were needed prior to initiating work at the Site. These included: 1) approvals from the North Reading Conservation Commission (NRCC) regarding potential impacts to the wetlands area, 2) an interim permit from the U.S. Environmental Protection Agency (EPA) under the National Pollutant Discharge Elimination Systems (NPDES) program for the discharge of treated groundwater to the on-site storm drain, and 3) a building permit for the new treatment building from the Town of Wilmington, Massachusetts.

North Reading Conservation Commission (NRCC)

Prior to the start of construction and drilling activities, TRC contacted the NRCC to obtain approvals to: 1) work within the 100-foot buffer zone to the wetland (the eastern-most portion of the parking lot area) for the trenching work, and 2) to access and work in the wetland area to install new monitoring well TRC-301R.

TRC submitted a Request for Determination of Applicability to the NRCC for the trenching and related construction work within the 100-foot buffer zone to the wetland in March 27, 2003, and presented the work plan and answered questions about the project at a NRCC public meeting on April 8, 2003. The NRCC issued a Negative Determination on April 10, 2003, allowing TRC to proceed with the construction work with no special conditions.

In addition, TRC submitted a Request for Determination of Applicability to the NRCC for the installation of bedrock monitoring well TRC-301R (located in the wetland area) in December 2002, and presented the work plan and answered questions about the project at a NRCC public meeting on January 14, 2003. The NRCC issued a Negative Determination on January 21, 2003, allowing TRC to proceed with the well installation with no special conditions to the project.

Copies of the negative determinations are provided as Appendix B.

NPDES Permit Exclusion

In Massachusetts, the Region 1 EPA has primacy for the NPDES permit program. Discharges from groundwater remediation systems have in the past been issued NPDES Permit Exclusion Letters instead of full permits to expedite the remediation of contaminated groundwater. In June 2002, EPA stopped issuing the Permit Exclusion Letters and began to develop a new General NPDES Permit to cover short-term and long-term discharges from remedial activities.

On June 4, 2003, TRC applied for a NPDES permit for the discharge of the groundwater remediation system at the Site. According to EPA Region 1, the new General NPDES Permit has not been promulgated yet and is not expected to be finalized into regulation until 2004. In the interim, EPA Region 1 is granting temporary exclusions for discharges that would otherwise be subject to the new General Permit. For the Former GE Site, EPA Region 1 granted TRC a temporary exclusion permit on June 12, 2003 (NPDES Exclusion # MA 031-072). This temporary exclusion permit will be valid until the new General Permit is finalized, at which time TRC will be expected to apply for the new General Permit.

The temporary exclusion permit includes specific discharge limits for pH (6.5-8.3 s.u.), total suspended solids (30 ppm), 1,1-dichloroethane (70 ppb), cis-1,2-dichloroethylene (70 ppb), trichloroethylene (5 ppb), and tetrachloroethylene (5 ppb). If any other organic compounds are detected during sampling, discharge limits cannot exceed the federal drinking water standards or 100 ppb, whichever is lower. The discharge must also be free of solids, color, and turbidity that would impair the class of the water and any petroleum product that may cause a sheen. The system flowrate cannot exceed design flow of the treatment system. The permit also establishes a specific sampling and analysis schedule and monthly reporting requirements of analysis data to EPA.

A copy of the NPDES permit exclusion letter is provided in Appendix B.

Town of Wilmington Building Permit

Per local by-laws, TRC's contractor obtained a building permit for the new treatment building (shed) from the Town of Wilmington, Massachusetts prior to construction. A copy of the permit is provided in Appendix B.

2.2 Installation of Groundwater Pump and Treat System

2.2.1 Well TRC-202R Retrofit

The bedrock well TRC-202R was modified for use as the groundwater extraction well in accordance with the *Phase IV RIP* and the MA DEP Conditional Approval letter dated March 12, 2003. The original well was constructed of 6-inch diameter steel casing set to a depth of 54 feet below the ground surface, and a 6-inch diameter open borehole extending to a total depth of 320 feet. In order to maximize the VOC removal rate and to

reduce the overall groundwater pumping volume, the well was retrofitted to focus pumping efforts from the 80 to 170 feet below ground surface (bgs) interval, referred to as the "target zone".

Analytical testing of groundwater during the TRC June 2001 pump test of well TRC-202R indicated that approximately 75% of the VOC mass flux is contributed by the 95 to 115 feet interval. Therefore, the 95 to 115 feet interval was the main target for groundwater extraction.

The deeper bedrock yield was drastically lower in terms of both groundwater flow and extracted VOC mass. Because the zone below 170 feet contributed approximately 3% to the overall VOC mass flux, the borehole was grouted from 170 and 320 feet bgs to minimize unnecessary groundwater extraction and to avoid possible cross-contamination of the deeper formation.

The groundwater yield of the bedrock zone above 95 feet is substantial. In particular, the calculated hydraulic conductivity of the weathered bedrock zone between approximately 54 and 80 feet is 4.3 times greater than in the 95-115 foot zone. However, the VOC mass flux from the 54-80 foot zone is only 3.5 % of the total mass flux calculated for the well. Therefore, the upper bedrock zone was isolated from the pumping interval using an inflatable packer.

A 4-inch inside diameter inflatable packer was chosen to isolate the upper interval. The inflatable packer was installed at approximately 80 feet bgs. A standard 4-inch diameter solid casing was installed between the upper end of the packer and the ground surface. A 3-inch diameter groundwater submersible pump was then lowered through the 4-inch diameter casing and the well will be operated in a conventional manner. The modified recovery well design is presented on Figure 2-1. A more detailed description of the modified recovery well TRC-202R follows below.

The TAM International model 563SD-01 inflatable packer was installed with the following construction:

- 5.63-inch outside dimension;
- The packer is inflated via ¼-inch stainless steel tubing;
- Nitrile resin for the packer gland;
- Four inch diameter, schedule 10, stainless steel 304SS through pipe.

As shown on Figure 2-1, the upper end of the solid casing is supported by the existing 6-inch steel casing. The selected packer manufacturer information is provided in Appendix C.

A 3-inch diameter Grundfos model 5Redi-Flo3-170 electric submersible pump was installed in the well for groundwater extraction. The pump is manufactured for environmental applications to resist damage due to chemical attack. The pump is equipped with a 230 VAC, 1-phase, 1/2 horsepower electrical motor. Based on the pump

test results performed by TRC during the June 2001 investigation program, the sustained yield of the 80 to 170 foot zone of TRC-202R is expected to be less than 5 gpm. The maximum pumping rate of the selected pump is 7 gpm @ 70 feet of discharge pressure. The discharge pressure at a nominal flow of 5 gpm is 170 feet. Refer to Appendix B for the pump manufacturer literature.

The pump is suspended at a depth of 78 feet using a 1/8" stainless steel cable rated for 2,000 lbs workload. A 1-inch inside diameter flexible discharge hose conveys water from the pump discharge to an underground 1 ¼" diameter high-density polyethylene (HDPE) pipe. The HDPE pipe conveys water to the air stripper for removal of VOCs. A prefabricated concrete vault 24"Lx24"Wx24"D with a traffic-rated cover contains the pump attachment cable and the necessary plumbing and electrical connections. Refer to Figure 2-1 for more details regarding the recovery well design.

The submersible pump installed in TRC-202R is equipped with a built-in variable-speed drive. This feature maintains the water level in TRC-202R at a pre-set constant level. A submersible pressure transmitter in the well measures the actual water level in the well. The signal from the pressure transmitter is directed to the control unit of the pump (Grundfos CU-300). The microprocessor in CU-300 compares the measured water level in the well with the pre-set value and adjusts the speed of the pump accordingly. Conventional hi/low conductivity level switches are also installed in the well as a back-up system to allow the continued system operation in case of the pressure transmitter failure. Refer to Figure 2-1 for more details regarding the pump configuration.

2.2.2 Trenching

As previously mentioned, prior to construction, TRC obtained approval to work within the 100-foot buffer zone to the wetland (the eastern-most portion of the parking lot area) from the NRCC. In addition, the safety manager of the Ametek facility was contacted to review existing site plans to avoid subsurface electrical, sewer and storm drain lines. In accordance with the Commonwealth of Massachusetts regulations 220 CMR 99.00 and Massachusetts General Law M.G.L.c. 82, s40, "DigSafe" was also contacted 72 hours prior to trenching to mark out all registered electrical, gas, and other supply lines (DigSafe in Wilmington # 20032011031; DigSafe in N. Reading # 20032011067).

By design, the trenching network connected the recovery well TRC-202R and the future potential injection wells to the treatment system equipment enclosure via the underground piping network shown on the Remedial System general Layout (as-Built) on Figure 2-2.

Sedimentation and erosion control measures were installed in accordance with the *Phase IV RIP* prior to the start of trenching. All trenches were excavated to a depth of approximately 48 inches below the grade. All excavated material was inspected for signs of visible contamination, screened with a photo-ionization detector (PID) for the presence of VOCs and stockpiled on site for either reuse or disposal. There were no visible signs

of contamination, and no VOCs were detected above detection limits on the PID for samples that were collected.

The majority of the excavated subsurface material consisted of boulders and rock fragments that were not suitable for use as a backfill material. Therefore, the excavated material was transported to Heffron Materials in Wilmington , Massachusetts on May 21, 2003 for re-use, and gravel was imported for use as trench backfill. See Section 2.4 for further discussion.

Underground piping installed at the site included the following:

- Groundwater pump discharge pipe (one 1 ¼ " HDPE);
- Pipe for transferring amendments for bioremediation to the injection wells (two ½" HDPE lines to each injection well location);
- Conduit for electrical lines (1.25" PVC);
- Conduit for the water level transmitter cable (0.75" PVC).

Note that because the trenching and piping activities were conducted prior to the completion of the bioremediation feasibility study, TRC elected to install the piping for possible transfer of bioremediation amendments in order to avoid additional trenching work in the future. In the event that the technology is proven feasible for the Site, this piping will be incorporated into the final design and system construction. See Section 3.0 for further details.

All piping was installed in the trench as shown in Figure 2-3. All 1 ¼" piping was continuous length HDPE with only three welded joints at TRC-202R. All ½" piping was also continuous length HDPE with no intermediate joints. The piping was surrounded by at least 6 inches of gravel except in the areas where suitable on-site soil was used as a backfill. Spare lines (four ½" HDPE and two 1.25" HDPE) were also installed for future potential use as shown on Figure 2-3.

A total of five pre-cast concrete manholes (2'IDx2D', open bottom) were installed over well GZA-105, and injection point locations IP-1, IP-2, IP-3, and IP-4 (see Section 2.3.2) to protect the well heads and to house piping and valves for the possibility of amendment injection for bioremediation. The TRC-202R existing manhole was found in good condition and was left in-place.

2.2.3 Equipment Installation

The remedial system equipment is housed in a pre-fabricated steel building located on Figures 1-2, 2-2 and 2-3. TRC elected to make minor changes to the size and location of the building (from the designs presented in the *Phase IV RIP*) in order to avoid demolishing an existing shed that is currently used for storage purposes.

The new treatment building measures 20-foot long by 15-foot wide, and is 10 feet high at the roof peak. The building has an 8-foot wide garage door for equipment access. A standard personnel entrance door is located on the side of the building. The building is installed on a 22-foot by 17-foot by 4-inch thick concrete slab on grade foundation. Refer to Figure 2-4 for details.

The building has the following features:

- Interior wall insulation;
- 1.5KW electrical heater with a thermostat;
- Side wall exhaust fan;
- Intake air shutter (24-inch by 24-inch opening);
- Interior lighting; and
- Floor sump.

In lieu of the proposed concrete spill containment berm described in the *Phase IV RIP*, TRC decided to upgrade the design and directed IESI to install a floor sump with a high level switch to automatically de-activate the system in the event of any overflow of spillage.

The treatment system itself consists of three major components: 1) a groundwater treatment process, 2) an air emissions control, and 3) an electrical control system. The dimensional layout of the equipment in the treatment building is shown on Figure 2-4. The treatment equipment process details are presented on the process and instrumentation diagram (P&ID) presented as Figure 2-5.

Groundwater Treatment Process

The recovered groundwater is first directed into a low-profile shallow-tray air stripper where the bulk of the VOCs are removed from the groundwater by stripping. A North East Environmental Systems (NEEP) model 1331 air stripper was installed for this purpose. The air stripper is constructed of 316SS stainless steel to resist corrosion and to prevent the buildup of fouling agents such as iron precipitate and bacteria.

After the air stripper, the groundwater is pumped by a transfer pump through a bag filter (6.6" filter bag housing, 18-inch basket, 1-inch piping connections). A high pressure sensor was installed at the bag filter inlet to indicate when the filter has become clogged, and to shut down the groundwater recovery system when the pressure reaches a pre-set high level (see Figure 2-5).

The groundwater then passes from the bag filter through two liquid-phase granular activated carbon (GAC) absorbers in series for final polishing. Each GAC contains 330 lbs of carbon. In addition, TRC and IESI elected to install a third GAC unit as a backup unit in the event the carbon breakthrough occurs in the first two GAC units. This is an enhancement on the original design presented in the *Phase IV RIP*.

After the polishing phase by the GAC, the water is then discharged into an underground roof drain line that flows into an existing storm drain on Site (see Figure 2-2). The storm drain then discharges to the wetland located to the east of the Site.

Air Emissions Control

The air emissions from the air stripper are controlled using two vapor-phase GAC vessels installed in series to remove VOCs. A third vessel was installed as a backup unit in case of breakthrough. The vessels are ENVIROTROL's model VPM-1000 absorbers (carbon steel with internal epoxy resin coating and stainless steel 316SS carbon supports). Each vessel is 48-inch diameter and 66 inches high.

To increase the vapor-phase GAC system effectiveness and to reduce the frequency of carbon replacement, the vapor-phase GAC inlet moisture content is reduced by a moisture removal system. This consists of an air dryer (a heat exchanger with internal refrigerant tubing), a detached refrigerant condenser unit, and a condensate collection tank with a built-in pump. Moisture condenses inside the heat exchanger and drains periodically into the condensate collection tank. The condensate is then automatically pumped through the air stripper for treatment. Refer to Figures 2-5 and 2-6 for the moisture removal system details.

Electrical Control System

Electrical controls were installed on the groundwater remediation system to enable an automatic operation of the remedial equipment, monitoring of the process parameters, process emergency handling, remote system status communication and selected process parameters monitoring. The overall functions of the remediation system electrical controls are shown on the P&ID drawing (Figure 2-5).

The electrical controls consist of three major components:

- Air stripper/integrated system control panel (NEEP Systems);
- Submersible pump control unit (Grundfos CU-300);
- Remote monitoring unit (Sensaphone 2000).

The overall control functions were integrated with the air stripper control panel supplied by NEEP Systems (i.e., the air stripper vendor). The air stripper is the most complicated component of the remediation system and requires its own control panel. NEEP Systems integrated the air stripper control panel and the rest of the remediation system into a single unit to reduce cost and simplify equipment operation.

A separate control unit (Grundfos CU-300) was installed to operate the groundwater submersible pump. The control unit was configured to maintain a constant level in the recovery well TRC-202R by automatically adjusting the speed of the pump. Refer to CU-300 operational manual (Appendix C) for more details regarding constant level configuration and other functions of the pump control unit.

A remote monitoring unit (Sensaphone 2000) was installed for process parameter monitoring, data collection and alarm notification. Refer to manufacturers' information in Appendix C for more details regarding the features and capabilities of the selected unit. The Sensaphone 2000 has the following features:

- 8 analog or discrete channels to monitor system parameters such as pressure, level, temperature, etc.;
- Data logging capability with up to 32,000 time-stamped data points;
- Remote personal computer (PC) data monitoring and access;
- Notification of the operator in case of alarm conditions via telephone or electronic mail;
- Ability to display data on internet.

The Sensaphone 2000 unit monitors the following groundwater remediation system process parameters:

1. Water level in recovery well TRC-202R (4-20mA analog signal from PTS-100);
2. Status of submersible pump GDP-100 (discrete signal from pump control unit CU-300);
3. Inlet vacuum of Blower B-200 (4-20mA analog signal from PTS-300);
4. Status of Blower B-200 (discrete signal from B-200 motor starter);
5. Inlet GAC temperature (4-20mA analog signal from TTS-300).

The Sensaphone 2000 unit automatically shuts down certain system components using interlocks and/or notifications (via alarms) by telephone or pager when system process parameters indicate system malfunction.

A summary of the interlock and alarm system and the associated control actions is provided below. Note that some of these have been modified from the design presented in the *Phase IV RIP* to enhance system operations. See Section 5.3 for details.

Interlock/Alarm Description	Control Actions
Air stripper high-level alarm (LSHH-200).	1. Shut down submersible pump GDP-100. 2. Notify operator(s) via Sensaphone 2000.
Low-vacuum sensor (PSLL-201). Indicates blower B-200 failure.	1. Shut down air stripper blower B-200. 2. Shut down GDP-100. 3. Notify operator(s) via Sensaphone 2000
High-vacuum sensor (PSHH-201). Indicates air stripper AS-200 clogging.	1. Shut down air stripper blower B-200. 2. Shut down GDP-100. 3. Notify operator(s) via Sensaphone 2000
High-water discharge water pressure sensor (PSHH-202). Indicates bag filter clogging.	1. Shut down transfer pump TP-200. 2. Shut down GDP-100. 3. Notify operator(s) via Sensaphone 2000.

Interlock/Alarm Description	Control Actions
Submersible pump (GDP-100) failure.	1. Notify operator(s) via Sensaphone 2000.
Elevated GAC influent air temperature (T-300). Indicative of condenser CU-301 failure.	1. Notify operator(s) via Sensaphone 2000.
Floor sump switch high level (LSHH-400) alarm. Indicative of water leak in the building.	1. Shut down transfer pump TP-200. 2. Shut down GDP-100. 3. Notify operator(s) via Sensaphone 2000.
Water condensate tank high level (LSHH-300) alarm. Indicative of water condensate pump TP-301 failure.	1. Shut down condenser CU-301. 2. Notify operator(s) via Sensaphone 2000.

2.3 Supplemental Drilling Program

2.3.1 Well TRC-301R

The objective of well TRC-301R was to locate a monitoring well in bedrock, hydraulically downgradient of the source area, to physically intercept the "target zone" defined in recovery well TRC-202R, if present. Per the site conceptual model, the location of well TRC-301R has the highest potential to intercept off-site groundwater migration. It is located along the "preferential pathway" previously identified as extending through well TRC-202R, along a linear trend of N85E. Drilling would advance the borehole to the "target zone" depth (defined in the *Phase IV RIP*), estimated by TRC to be –15 to –35 feet National Geodetic Vertical Datum (NGVD). In order to ensure that the zone was encountered, drilling would continue to a total depth of approximately 170 bgs, equal to 90 feet NGVD.

2.3.1.1 Installation

Well TRC-301R was installed from March 12 through March 28, 2003, in accordance with the *Phase IV RIP*, and the conditions of MA DEP's *Conditional Approval of Phase IV Remedy Implementation Plan – Groundwater* letter dated March 12, 2003.

As shown on Figure 1-2, well TRC-301R is located approximately 600 feet east of well TRC-202R, in the wetland.

Well TRC-301R was constructed by first installing a 4-inch steel casing, grouting it into place, and extending the borehole into rock by drilling through the casing.

Because of the highly weathered bedrock surface observed in the region, a 20-foot casing socket in rock was drilled in order to set a good seal that would prevent groundwater in the overburden aquifer from entering the bedrock well. However, the drillers encountered very competent bedrock along the first five feet of drilling into rock, followed by less competent/more fractured bedrock for the subsequent 5 to 20 feet.

Upon casing installation, the drilling crew discovered that the borehole was crooked, which prevented seating the well casing into the full 20-foot socket. Given that there was no way of correcting the problem, TRC instructed the drilling crew to set the casing in the first five feet of competent bedrock (from 61-66 feet bgs), and grout the socket and casing in-place, extending the grout to ground surface. Given the competent nature of the rock, TRC does not believe that the seal between the rock and overburden aquifers was compromised by reducing the effective socket depth to five feet. This was further confirmed via geophysical survey (see below).

An approximate 4-inch open borehole was then extended through the grouted casing bottom and into bedrock. Continuous rock cores were collected from the bedrock surface to 132 feet bgs, where drilling conditions became difficult due to the angled borehole. These conditions required switching from rock coring to rollerbit technology in order to reach the final depth of 172 feet bgs.

A copy of the boring log and rock core log for monitoring well TRC-301R is provided in Appendix D.

Geologic Observations

During drilling operations, TRC's field geologist observed slightly fractured green-gray granodiorite from 81 to 96 feet bgs. From 96 bgs to approximately 111 feet bgs, the granodiorite transitioned to a light gray to pink granite. This granite extended for the remaining portion of the borehole to the maximum exploration depth of 171 feet bgs.

Field Screening Observations

All drill cuttings and rock cores were screened for VOCs using a PID to aid in targeting material for waste disposal, and to provide field screening data to support future water sampling activities. The screening method consisted of immediately screening fractures in bedrock cores upon removal from the core barrel. In addition, the rock cuttings were regularly screened directly from the drilling washtub.

Elevated PID field screening results (maximum of 204 ppmv) were recorded from 84 to 96 feet bgs, and very low PID field screening results (maximum of 16 ppmv) were recorded from 99-101 feet bgs and 111 to 115 feet bgs.

Borehole Geophysical Survey

The objective of the geophysical logging was to identify and gather additional data on the fracture zones that are also water bearing zones in the borehole.

On April 1, 2003, geophysical logging of open borehole TRC-301R was completed. The geophysical tools utilized included conventional measurements (caliper, fluid temperature, and fluid resistivity), heat-pulse flowmeter measurements (under both ambient and pumping conditions), and acoustic televiewer imaging.

In general, the geophysical logs reveal a stable formation with limited water bearing zones. The heat pulse flowmeter under ambient conditions revealed no measurable flow into the borehole. However, under pumping conditions, several water bearing fracture zones were identified from 66 – 110 feet bgs. No measurable flow was recorded below 110 feet bgs.

In addition, a minor inflection on the fluid resistivity log between 113 to 126 feet bgs suggests a possible hydraulically active zone.

There is no evidence that the well casing is leaking (i.e., that groundwater from the overburden enters the rock borehole directly from the seal area at the overburden-rock interface).

The geophysical logs are provided in Appendix E.

Hydrogeologic Data Analysis

TRC analyzed the field boring log, the rock core log, and the geophysical logs to identify distinct fracture zones that are also productive water bearing zones in the TRC-301R borehole. In general, the four areas of the borehole between 66 and 110 feet bgs that provided water to the borehole using the heatpulse flowmeter under pumping conditions coincide with rock core fractures and the observed lithology transition. A fifth area located 113 to126 feet bgs could also be hydraulically active based solely on the resistivity log results.

As summarized in the table below, the elevation of the water bearing zone identified in well TRC-301R (15 to -29 NGDV) falls within the elevation of the target zone in pumping well TRC-202R (-15 to -35 NGDV).

	Well TRC-202R		**Well TRC-301R**	
	Open Borehole	**"Target Zone"**	**Open Borehole**	**Water Bearing Zone**
Feet bgs	80 to 170	95 to 115	66 to 172	66 to 110
NGVD	0 to -90	-15 to -35	15 to -92	15 to -29

bgs = below ground surface.
NGVD = National Geodetic Vertical Datum.

VOC Analysis of Groundwater

To profile the water quality in borehole TRC-301R, TRC elected to use six passive diffusion bag (PDB) samplers, centered across distinct fractures from 70-116 feet bgs. They are identified as zones A through F sequentially with depth (see Table 2-1 for depth interval information). In addition to sampling the water bearing zone between 66-110 feet bgs, TRC decided to obtain a sample at 116 feet bgs (zone F) to evaluate the water bearing capacity of this fracture that displayed a fluid resistivity inflection. Per industry

standards and TRC's PDB standard operating procedure (*SOP No.: E9202-001, Passive Diffusion Bag Sample Deployment and Recovery in Dedicated Tether Wells)* the samplers were filled with de-ionized water, hung on a tether at each pre-determined sampling point, and allowed to equilibrate for two weeks.

On May 6, 2003, the PDBs were recovered from the borehole, transferred into standard pre-preserved VOA vials, and sent to an off-site laboratory for VOC analysis via MCP Method 8260B.

Similar low-levels of VOCs were observed along the entire length of the borehole, indicating that no distinct stratification is present. Only trichloroethene (TCE) and tetrachloroethene (PCE) were detected at levels above the MCP GW-1 standard of 5 µg/L (i.e., drinking water standard). The maximum TCE concentration of 41 µg/L was observed at 71.5 feet bgs (sample zone A). The maximum PCE concentration of 7.8 µg/L was observed at 104 feet bgs (sample zone E).

A summary of the VOC samples collected from TRC-301R is provided in Table 2-1. The laboratory report from this sampling event is provided in Appendix F.

2.3.1.2 Well TRC-301R and the Conceptual Site Model

The observations obtained from the installation of well TRC-301R further enhance the site conceptual model as follows:

- The only water bearing zone in well TRC-301R, 15 to –29 feet NGVD (66-110 feet bgs), is at a similar elevation to the "target zone" in TRC-202R.
- Low-level VOC detections are from the only water-bearing zone of the TRC-301R borehole, 15 to –29 feet NGVD (66-110 feet bgs)
- The VOC levels observed in well TRC-301R are orders of magnitude lower than those observed at well TRC-202R.
- The VOC levels in well TRC-301R are similar to those observed in the deep overburden wells in the same area, like well PS-1.
- Competent rock found at depths greater than 110 feet bgs constrains the depth of the groundwater plume in the area of well TRC-301R.

2.3.1.3 Borehole Modification

To alleviate MA DEP concerns regarding the long-term impacts of the 104-foot open borehole at TRC-301R, TRC proposes to seal the bottom of the borehole from 110-170 feet bgs (where no productive volumes of water are found) by pressure grouting from the bottom up. The remaining 44-foot open borehole, with the bottom located less than 50 feet below the bedrock surface, will preserve the water bearing fractures discussed herein,

for groundwater monitoring purposes. TRC does not recommend retrofitting this portion of the borehole with individual wells because: 1) the water bearing zones revealed similar VOC levels, and 2) the fractures are closely spaced, and are most likely interconnected. Grouting between nested wells within the borehole would most likely plug the fractures and essentially block off any water bearing capacity.

Based on the VOC sampling results and the analysis of the field logs, TRC has selected the fracture zone at 85 feet bgs (87.5 feet from the top of casing) to be the sampling location for the long term groundwater monitoring program (LTGMP) in deep bedrock. TRC selected this zone based on: 1) it has the highest field screening PID result from the rock cores; and 2) it correlates to the zone with the highest VOC levels observed in the boring (sample "C" in the VOC profiling analysis). Further discussions regarding groundwater monitoring can be found in Section 7.0.

2.3.2 Injection Points (IP)

Four injection point (IP) locations (IP-1, IP-2, IP-3, and IP-4) were selected along the preferential pathway for the possible injection of amendments for bioremediation. Because the Bioremediation Treatability Study was not complete at the time that the drilling program was initiated, TRC elected to proceed with the installation of these bedrock borings, and use them as future monitoring wells in the event that the bioremediation technology was infeasible. Since this time, preliminary results of the Bioremediation Treatability Study are positive, and TRC anticipates using the wells for both monitoring and amendment addition. See Section 3.0 for further discussion.

From April 7 through April 16, 2003, the IP-1, IP-2, IP-3, and IP-4 boreholes were completed in bedrock. Auger and mud-rotary drilling techniques were utilized to advance casing through overburden and to grout casing into competent bedrock. Air-rotary techniques were then utilized to advance six-inch open boreholes from the top of bedrock to a predetermined design depth of 120 feet bgs, with exception to IP-2 which was extended to125 feet bgs due to field conditions. Boring logs for each injection point are provided in Appendix D.

Following completion of each borehole and the removal of all drilling fluids, the boreholes were allowed to stabilize to ambient conditions. Then, short-duration groundwater yield tests were completed to determine the viability of each borehole. A submersible pump was installed and a pumping pressure was placed on each borehole. The pumping rate varied until a sustainable head elevation was identified under a known pumping pressure. The results are as follows:

Borehole Identification	Sustainable Yield (gpm)
IP-1	0.5
IP-2	1.0
IP-3	0.1
IP-4	0.5

On April 18 and 24, 2003, geophysical borehole logging was completed at the IP boreholes. The objective of the geophysical logging was to identify and gather data on the fracture zones that are also water bearing zones in the borehole. The geophysical tools utilized included conventional measurements (caliper, fluid temperature, and fluid resistivity), heat-pulse flowmeter measurements (under both ambient and pumping conditions), and acoustic televiewer imaging. A copy of the geophysical report and the logging results is provided in Appendix E.

Based on detailed analysis of the field logs and the geophysical logging, TRC selected groundwater screening locations within each open borehole. As a result, one sampling zone was selected from each IP borehole, except IP-2, which had two zones targeted for groundwater sampling due to two distinct zones with the potential to provide productive volumes of water.

On June 2, 2003, groundwater screening samples were collected using dedicated tubing and a submersible pump. The pump intake was placed at the sampling zone and pumped at the sustainable yield for a minimum of 30 minutes, then the flow rate was decreased to 100 – 400 ml/ minute for five minutes and the sample was collected.

The groundwater screening samples were sent to an offsite laboratory for VOC analysis (MCP Method 8260B). The sample depth in each IP borehole, the corresponding open borehole interval, and the VOC detections for each borehole are summarized on Table 2-2.

Analysis of the VOC samples indicated contamination is present at elevated levels in each borehole. As a result, TRC further analyzed the field and geophysical logs to identify zones within each borehole that could be isolated as a singular groundwater monitoring point or a combined use point (for both biological-injection and groundwater quality monitoring). For illustrative purposes, those distinct zones within each borehole are marked on the conventional geophysical logs provided in Appendix E, and are summarized in Table 2-3. A brief summary of why each zone was selected is provided below.

IP-1 Final Construction

Zone 1 (28-48 feet bgs):	◦ Water bearing fractures present.
Zone 2 (54-74 feet bgs):	◦ Water bearing fractures present; ◦ Fracture at 60 feet corresponds to the field screening VOC sample collected at 60 feet.
Zone 3(95-115 feet bgs):	◦ No measurable flow. ◦ Multiple fractures identified as open are present and the zone is located in the "target zone". ◦ This may result in a dry well; however as a conservative approach, construction of the well has been completed.

IP-2 Final Construction

Zone 1 (17.5-38 feet bgs):	◦ Open fractures present.
Zone 2 (46-66 feet bgs):	◦ Water bearing open fractures and fluid resistivity inflections present. ◦ Corresponds to one of the two VOC sampling intervals completed (60 feet bgs).
Zone 3 (72-92 feet bgs):	◦ Open fractures present.
Zone 4 (98-122 feet bgs):	◦ Water bearing fractures at 100-104 feet; ◦ Open fractures throughout; ◦ Corresponds to the second of two VOC sample locations (110 feet bgs). ◦ A twenty-five foot screen is required due to actual formation conditions.

IP-3 Final Construction

Zone 1 (48-61 feet bgs):	◦ Caliper variations and fluid resistivity inflections present. ◦ The VOC groundwater sample was collected at 60 feet and could have been drawn from either Zone 1 or Zone 2.
Zone 2 (64-84 feet bgs):	◦ Open fractures and fluid resistivity inflections suggest that the very limited water in this borehole bears may be produced in this zone.
Zone (86-120 feet bgs):	◦ No viable monitoring/injection zones identified. This zone was grouted closed.

IP-4 Final Construction

Zone 1 (38-48 feet bgs):	◦ Water bearing fractures present; ◦ Likely a water bearing fracture at the fluid resistivity inflection at 41 feet. ◦ A 10-foot screen is being utilized, as casing is present to 38 feet bgs.
Zone 2 (54-74 feet bgs):	◦ Water bearing fractures present; ◦ A large caliper enlargement is present at 59 feet; ◦ Corresponds to the VOC sample collected at 60 feet.
Zone 3 (80-115 feet bgs):	◦ Many open fractures along this interval, without measurable inflow; ◦ The 35-foot screen is necessary due to the back-to-back open fractures from 83-114 feet bgs. ◦ Corresponds directly to the open interval at pumping well TRC-202R.

From July 7 through July 10, 2003, the IP zones were constructed with two-inch diameter, 10-slot PVC screens, except Zone 1 in IP-2 (17.5-38 feet), which was constructed with a one-inch diameter screen. Grout was utilized as a divider seal between each zone, except between Zones 1 and 2 in IP-3 where the formation conditions only allowed for a three-foot divider seal of bentonite. Sand pack was set around the screened interval of each zone, PVC risers were extended to just below ground surface, and temporary roadboxes were installed at ground surface until the trenching and final well-head protections were installed (see Section 2.2.2).

All bedrock zones were developed following construction by purging at least three well volumes or going to dry conditions, pumping directly along the screened interval with a submersible pump. Well construction details are illustrated on the boring logs. Boring logs and well development records are provided in Appendix D.

During well development activities, TRC used multiple water level meters to monitor the hydraulic interconnections between each well. This information will be used in the future to evaluate the efficacy of amendment addition if bioremediation activities are conducted. Specifically, baseline water levels were recorded from a pumping well (e.g., IP-2R1) and non-pumping wells (IP2-R2, IP2-R3, & IP2-R4) within the same borehole. Then water level readings were recorded throughout the development process. As water level elevations dropped in the pumping well (e.g., IP2-R1), water levels were recorded in non-pumping wells of the same borehole. If water levels dropped in the non-pumping wells, a hydraulic interconnection was noted. This was repeated for each well developed.

As shown on Table 2-4, each IP borehole has at least two zones (e.g. IP-1R1 and IP1-R2) that demonstrate hydraulic interconnection characteristics. Actual field records of these observations are recorded on the well development records provided in Appendix D.

2.3.3 Well BRW-1

As documented in the TRC report *Comprehensive Review of Groundwater Data*, dated September 14, 2001, well BRW-1 was drilled out to remove the PVC well screen and sand pack as part of the planned well abandonment procedures.

During drilling operations at well BRW-1, TRC observed a hydraulic connection between well TRC-202R and well BRW-1. Specifically, when drilling reached a depth of approximately 140 feet bgs in BRW-1, groundwater was observed to exit boring TRC-202R (90 feet away). It was concluded that the hydraulic connection in TRC-202R occurred above 120 feet bgs (above the location of a temporary packer in TRC-202R at that time).

In 2001, TRC proceeded to conduct a borehole geophysical survey of BRW-1 to obtain as much information as possible to evaluate the observed hydraulic connection and potential for cross-contamination in the fractured rock aquifer. The geophysical logs (presented in TRC's *Comprehensive Review of Groundwater Data*, September 14, 2001),

shows that dense fracturing exists along the length of the boring, particularly from 50-65 feet bgs, 85 to 105 feet bgs, and 112 to 146 feet bgs. However, based on the heat-pulse flow meter data, most of the water in BRW-1 enters the well between 130.5 and 148 feet bgs, and flows upward in the well. This depth interval is the same depth that, during drilling operations, caused water to flow out of well TRC-202R.

Comparison of the borehole geophysical survey data to that of well TRC-202R indicates that the fracture orientations can provide a hydraulic connection between BRW-1 at 140 feet bgs, and well TRC-202R as shallow as 33 feet bgs (corresponding to the bedrock-overburden interface at TRC-202R).

TRC originally proposed in the *Phase IV RIP* to leave BRW-1 as an open borehole for deep bedrock monitoring of a productive groundwater bearing zone identified between 130.5 and 148 feet bgs, a point that is cross gradient and due north of new pumping well TRC-202R. As part of the injection point well construction, TRC elected to retrofit BRW-1 with PVC screened intervals, to include the 130.5 – 148 foot zone and then add as many additional zones as possible for potential groundwater sampling locations in the future. BRW-1 well construction details are presented on Table 2-5.

From July 7 through July 10, 2003, TRC retrofitted BRW-1. All zones were constructed with 10-slot PVC screens, except Zone 1, which was constructed as an open borehole. Grout was utilized as a divider seal between each zone. Sand pack was set around the screened interval of each zone, PVC risers were extended to just below ground surface and in the existing roadbox.

All bedrock zones were developed following construction by purging at least three well volumes directly from the screened interval with a submersible pump. Well construction details are illustrated on a well construction log. Well construction and well development logs are provided in Appendix D.

Similar to the IP well development methodology, during well development activities, TRC used multiple water level meters to monitor the hydraulic interconnections between each monitoring zone. Specifically, baseline water levels were recorded from a pumping well (e.g., BRW-1-R1) and non-pumping wells (BRW-1-R2, BRW-1-R3, & BRW-1-R4) constructed within the same borehole. Then water level readings were recorded throughout the development process. As water level elevations dropped in the pumping well (e.g., BRW-1-R1), water levels were recorded in non-pumping wells of the same borehole. If water levels dropped in the non-pumping wells, a hydraulic interconnection was realized. This was repeated for each well developed.

Unlike the IP wells that demonstrated interconnection between zones, no hydraulic interconnection characteristics were observed between the four monitoring zones of BRW-1 (see Table 2-4). Actual field records of these observations are recorded on the well development records provided in Appendix D.

2.4 Waste Disposal

2.4.1 Drill Cuttings

During the construction of the injection wells (IP-1, IP-2, IP-3, and IP-4) and TRC-301R, drilling cuttings were generated at locations downgradient of the original source areas at the Site. The contaminants of concern for the drill cuttings are VOCs related to the TCE tank and the Stoddard fuel tank that may have migrated through overburden and/or fractures in the bedrock.

Drill Cutting Description

The drill cutting material was containerized in 73 drums, 1/3 to 3/4 full and totaling an estimated 10-12 cubic yards. The material was described as fine-grained consisting of ground soil, rock, and drilling mud. The cuttings were saturated with water when placed in the drums. All free liquids were removed from the top of the material in each drum.

Analytical Testing

Each drum was screened for VOCs with a PID during generation. TRC utilized the sparse low-level PID detections, visual observations, and points of generation to target those drums with the highest potential to contain elevated contaminant levels. Of those drums, four drums (Drum Nos.: 03-10, 03-27, 03-50 and 03-74) were selected as representative of the material as a whole and appropriate for profiling.

Grab samples were collected from each drum for the following analysis:

- VOCs, MCP Method 8260B;
- Total petroleum hydrocarbons (TPH), SW-846 Method 8100; and
- Total organic carbon, SW-846 Method 9060, modified.

The VOC grab samples were field preserved in accordance with EPA SW-846 Method 5035.

Composite samples were collected from the four drums for the following analysis:

- Ignitability, SW-846 Method 1010;
- Semi-volatile organic compounds (SVOCs), SW-846 Method 8270C;
- Polychlorinated biphenyls (PCBs), SW-846 Method 8082; and
- RCRA 8 Metals (total), SW-846 Methods 6020/7471A.

All samples were shipped to Woods Hole Group, a Massachusetts and New Hampshire certified laboratory, for laboratory analysis. A summary of the analytical results is provided in Appendix G as Table G-1. Copies of the laboratory analytical reports are provided in Appendix G.

Analysis of the analytical results indicates the following:

- Where present, contaminant levels in the soil drums were at trace levels;
- Contaminant levels did not trigger reportable concentrations of the MCP;
- The contaminant concentrations were well below the S-1 soil standards of Commonwealth of Massachusetts and the S-1 soil standards of the State of New Hampshire;
- The contaminant concentrations were well below the published acceptance criteria of soil recycling facility Environmental Soil Management, Inc. (ESMI) of New Hampshire.

Off-site Treatment and Recycling

In accordance with the MCP under 310 CMR 40.0032, the soil was transported from the Site to ESMI, a licensed thermal desorption facility in the state of New Hampshire, under a generic Department of Transportation bill of lading for thermal treatment and beneficial reuse. The profile of the material was accepted by ESMI on July 30, 2003. The material was transported to ESMI by Clean Harbors on August 15, 2003. A copy of the bill of lading is provided in Appendix G.

2.4.2 Drilling Fluids

Groundwater and drilling fluids generated during project implementation, totaling approximately 2,400 gallons, were containerized at the point of generation, centrally located on-site during the construction of the treatment system. These fluids will be treated in the new treatment system once the system enters the final start-up phase.

2.4.3 Trench Cuttings

Soil cuttings were generated from clean fill during the installation of the underground lines from well TRC-202R and the newly installed injection points, IP-1, IP-2, IP-3, and IP-4. A total of approximately 213 tons (140 cubic yards) of material was generated. Although the material was from clean fill, the material was screened for VOCs with a PID as a confirmatory step. No elevated VOCs were detected. The material was transported to Heffron Materials in Wilmington, Massachusetts for re-use. A copy of the weight slip is are provided in Appendix G.

3.0 BIOREMEDIATION TREATABILITY STUDY

IESI, under contract with TRC, is conducting the Bioremediation Treatability Study. As previously mentioned, earlier projections called for a complete report of findings of the Bioremediation Treatability Study with final system designs (if proven feasible) to be presented to MA DEP under separate cover sometime before the completion of the work summarized herein. However, because of favorable preliminary results, TRC approved the expansion of the scope of the study to better constrain the parameters necessary to evaluate full-scale implementation. Therefore, this report presents the current status and preliminary results. Final results and design (if applicable) will be submitted under separate cover as an addendum to this report.

3.1 Scope of Work

The first task in completing the Bioremediation Treatability Study was a biochemical investigation sampling program, in which the following eight (8) monitoring wells were sampled:

- TRC-202R,
- EMW-11R2,
- GZA-101,
- GZA-102R,
- WE-6R,
- EMW-10,
- GZA-13, and
- STM-9.

Three (3) laboratories participated in the analysis of these samples for selected parameters, divided as follows:

- *Field parameters:* Dissolved Oxygen, REDOX Potential, Temperature, pH, and Conductivity – Analyzed by Hydrolab Model Minisond.
- *Fifteen (15) biochemical parameters:* Nitrate, Iron, Manganese, Sulfate, Sulfide, Carbon Dioxide, Methane, Ethane, Ethene, Organic Acids, Dissolved Hydrogen, Nitrogen, Phosphorous, Chloride, and PCR – Analyzed by Bioremediation Consulting, Inc. (BCI).
- *Two (2) groundwater parameters:* VOCs (SW-846 Method 8260) and total organic carbon (TOC) – Analyzed by Severn Trent Laboratories.

PCR is a genetic test for the presence of ethenogene bacteria. This test was not included in the original Work Plan (presented in Appendix H). However, based on a site-specific discussion with BCI, this test was included, and the results were used to select two wells for the bench-scale study.

The second task, the bench-scale microcosm study, was performed using groundwater from wells EMW-11R2 and GZA-102R. These wells were selected based on the results of the biochemical investigation. Both of these wells tested positive for ethenogens. In addition, the locations of these wells were important to characterize the potential for bioremediation at different areas of the Site.

3.2 Preliminary Results and Current Status

Preliminary results indicate that dechlorination does occur, and that the chlorinated VOCs in the groundwater degrade with the addition of electron donors (i.e., a food supply). Furthermore, the lab determined that some electron donors are more favorable to the degradation process than others. Therefore, it appears that the bioremediation technology is feasible for the Site.

In addition, the preliminary results indicate that groundwater in the area of well EMW 11R2 is considerably more bioactive than the groundwater in the area of well GZA-102R.

Because of the observed variations of bioactivity across the Site, the laboratory is currently investigating the degradation process using bacterial cultures from another site where the bacteria population proved to be very successful in degrading chlorinated VOCs. The results of this investigation will determine whether bioaugmentation (i.e., the introduction of new bacterial cultures to the Site) is necessary for full-scale implementation of a bioremediation effort. TRC anticipates submitting the final report of findings to MA DEP by October 2003.

4.0 DEVIATIONS OR SIGNIFICANT MODIFICATIONS FROM REMEDY IMPLEMENTATION PLAN

A summary of the deviations from the *Phase IV RIP* is provided below. The technical deviations have been described in greater detail in their respective sections of this report.

Deviations in Groundwater Treatment System Design

- Equipment shed was decreased in size from 25' x 20' design to 20' x 15' due to space limitations.
- A floor sump with a high level switch was installed in the shed rather than spill containment berms as designed to allow for improved spill containment and management.
- A third GAC unit was installed for groundwater polishing treatment to ensure maximum contaminant removal.
- The blower was changed from the air dryer inlet to the air dryer outlet to increase the efficiency of the vapor-phase GAC units.
- Condenser unit is located outside the shed, rather than inside the shed, for better heat dissipation and noise reduction inside the treatment building.
- It is anticipated that the air stripper air intake will be changed from the current designed configuration to a separate air intake stack mounted on top of the shed. This will minimize the potential of drawing VOC emissions from the AMETEK facility into the air stream of the treatment system. Final modifications, if any, will be submitted in the addendum report.

Other Technical Deviations

- Drilling fluids created during the drilling activities have not yet been treated by the groundwater treatment system. Once the system is restarted and startup procedures are completed, the fluids will be treated by the system.
- Well BRW-1 has been retrofitted with screened intervals rather than left as an open borehole as previously proposed. BRW-1 well construction details are presented in Table 2-5.

Other Deviations

- The Grant of Environmental Restriction (GER) as described in the *Phase IV RIP* has not been implemented at the site. This document is a deed restriction that would prevent any use of the contaminated groundwater that could cause a risk to human health or the environment. A GER requires MA DEP approval to be implemented. At this point, TRC will delay pursuing the GER until the groundwater treatment and bioremediation systems are in full operation and can be evaluated for their effectiveness and efficiency in reducing the groundwater contaminant plume. After such evaluation, the GER will be pursued if it is still deemed to be necessary to minimize risk.

5.0 FINAL INSPECTION – SYSTEM STARTUP OPERATIONS – GROUNDWATER PUMP AND TREAT

5.1 Shakedown/Start-Up

The groundwater treatment system shakedown was performed during the week of August 4, 2003. The equipment shakedown included debugging of all equipment and controls, functional checks of all equipment and instruments, establishing of the correct rotation of the electrical motors, verification of all interlocks and alarms, etc.

The system start-up was conducted between August 13, and August 20, 2003. The system started successfully but at approximately 3:00 pm on August 13 a lightning strike occurred in the vicinity of the site. As a result, some equipment and parts were damaged by the resultant electrical discharge. These included the submersible pressure transducer, the intrinsically-safe relay in the control panel, and the 24V DC power supply of the CU-300 groundwater pump control unit.

The item critical for the system operation (the relay) was replaced on August 14, 2003. The control system and the alarms and interlocks were checked again and the system start-up was reinitiated on August 15, 2003. The groundwater treatment system was initially operated using the back-up high/low level switches in the well because the submersible pressure transducer and the CU-300 control unit were damaged. The pressure transducer and the CU-300 control unit were later replaced on September 2, 2003 and the micro frequency drive is now ready for full operations.

5.2 System Monitoring

System monitoring during start up includes the recording of equipment parameters (i.e., temperature, pressure etc.), field monitoring of vapor concentrations, and the collection and analysis of water samples to demonstrate contaminant removal efficiency. The frequency of system monitoring follows the schedule of water treatment system sampling required in the NPDES exclusion permit. The system parameters were measured and the analytical samples were collected on the first (8/15/03), third (8/17/03) and sixth (8/20/03) day of the system operation.

The operating parameters measured and recorded to date are summarized in Table 5-1. A brief description of these parameters is presented below:

Groundwater Treatment Process

1. Pumping rates and cumulative flow at the system influent and discharge (FMT-201 and FMT-202).
2. Pressure before and after the bag filter, between the GAC units and at the effluent (PG-201, PG-202, PG-203, and PG-204).
3. Treated groundwater pH.

Air Emission Control Process

1. Vacuum at the air stripper discharge (PG-301), vacuum at the blower's inlet (PG-302), GAC inlet pressure (PG-303), GAC midstream pressure (PG-304), discharge stack pressure (PG-305).
2. Airflow rate (FM-301).
3. Temperature at the air dryer inlet (TG-301), the air dryer outlet (TG-302) and the GAC inlet (TG-303).
4. Vapor concentration at the following locations: GAC influent (SP-301), GAC midstream (SP-302), and GAC effluent (SP-303).

The values for the operating parameters were within the expected ranges for the equipment during the startup period.

As previously described, the backup system was used to regulate groundwater pumping from well TRC-202R because lightening damaged the pump's micro-frequency drive system. The low water level switch of the backup system was placed in the well at approximately 25 feet below the grade, and the high level switch was placed at approximately 10 feet below the grade. A relatively low groundwater pumping rate was expected from this switch configuration. The initial average groundwater pumping rate for the start-up period (between August 15, and August 17, 2003) was 1.9 gpm. The micro-frequency drive system was later repaired on September 2, 2003.

The air discharge from the air stripper was monitored in the field for the presence of VOCs after the air stripper blower (SP-301), between the two vapor-phase GAC units (SP-302) and after the second GAC unit (SP-303). Air monitoring was conducted using a PID. Air monitoring results are presented in Table 5-1. No VOCs were detected in the effluent indicating the removal efficiency of the vapor-phase treatment train is greater than the required 95%.

Water samples were collected from the influent of the air stripper (SP-200), the influent of the first GAC unit (SP-201), and the influent and effluent of the second GAC unit (SP-202 and SP-203). The water samples were immediately preserved (with hydrochloric acid for VOCs) and shipped to the analytical laboratory and analyzed for VOCs and/or total suspended solids (TSS) within 72 hours. Analytical laboratory reports are included in Appendix I and the results of the analyses are presented in Table 5-2. The bulk of the contaminant load within the air stripper influent sample was due to the presence of trichloroethene, tetrachloroethene and the associated breakdown compounds cis-1,2-dichloroethene, 1,1-dichloroethene, 1,1-dichloroethane and vinyl chloride. Several other VOCs were present at low concentrations in the influent sample collected on August 15, 2003 but were below quantitation limits in subsequent samples. Concentrations of VOCs were below the quantitation limits in the final effluent samples. Analytical results indicate the contaminant removal efficiency was greater than 98 percent for the air stripper and nearly 100 percent for the entire water treatment train. A data validation report for these analyses appears in Appendix I.

Two contaminants, acetone and 2-butanone, were detected in the air stripper effluent (SP-202) that were not detected in the air stripper influent. Initially the contaminants were thought to have originated from the PVC cement used to connect the water piping in the treatment building. However, the contaminants should have been removed from the piping via flushing by water after the first day of system operation. The persistence of the contaminants into the third and sixth day of operation indicated another source was likely. Due to the high solubility of acetone and 2-butanone, these contaminants may have been transferred from the air being drawn through the air stripper to the water. TRC is currently investigating the air quality in the vicinity of the treatment building to investigate this possibility. The groundwater pump and treat system was deactivated on August 22, 2003 in order to prevent the introduction of new contaminants into the treated water stream.

At this time, TRC is planning to extend the air intake of the air stripper blower up beyond the roof of the existing Ametek facility in order to escape the emissions from the various facility sources. Once this is complete, TRC will re-initiate start-up procedures, and confirm that the introduction of these air-based VOCs are minimized and or eliminated. Once this modification is complete and the system operational, TRC will submit a system design modification to the MA DEP as an addendum to this report. TRC expects to re-start the system no later than October 2003.

In order to meet the requirements set by the MA DEP in the Conditional Approval Letter, TRC will be collecting air samples for gas chromatography (GC) laboratory analysis of VOCs when the system is reactivated, and periodically thereafter, in order to evaluate the removal efficiency of the GAC units for the air effluent. This will be done in addition to the PID monitoring. Results of this analysis will be presented in the subsequent Phase V OM&M Report.

5.3 Modifications or Adjustments

The groundwater treatment system was installed in accordance with the plans and specifications presented in *Phase IV RIP* submitted to the MA DEP by TRC in December 2002. Only minor modifications and adjustments have been made during the system installation. Most of these modifications and adjustments were improvements over the submitted design. The as-built drawings attached in this report illustrate the actual system configuration. The brief summary of these modifications and adjustments is presented in the table below.

Item as described in *Phase IV RIP*	**Actually installed**	**Reason(s) for change**
Equipment enclosure footprint 25'x20'	Equipment enclosure footprint 20'x15'	Site space limitations
Stainless steel 304 as material of construction for air stripper	Stainless steel 316 used.	Stainless steel 316 is more corrosion resistant than 304.

Item as described in *Phase IV RIP*	Actually installed	Reason(s) for change
-	Floor sump with high level switch	Additional spill containment and management feature
Blower at air dryer inlet	Blower at air dryer outlet	Increase contaminant removal efficiency of vapor-phase GAC units
Condenser unit located inside	Condenser unit located outside	Better heat dissipation, inside noise reduction, less heat build-up inside
Low level probe in well and timer as back-up for transmitter	Low and High level probes in well as back-up for transmitter	Improved functioning of back-up system

6.0 PHASE IV COMPLETION STATEMENT

This report fulfills the MCP requirements for both the As-Built Construction Report and Final Inspection Report under 310 CMR 40.0875 and 40.0878. As discussed in the previous sections, the activities completed for site groundwater were in accordance with the *Phase IV RIP* and associated MA DEP conditions and approvals. Deviations from the *Phase IV RIP* have been previously discussed and such deviations did not result in a negative impact of the *Phase IV RIP* objective.

The *Phase IV RIP* objective was to install a groundwater treatment system that will focus on the areas where the greatest quantities of contaminant mass can be removed or destroyed, and on the prevention of further contaminant migration to off-site areas. This objective was achieved by the installation of the groundwater extraction and treatment system and additional well points at TRC-301R and the injection point wells. In order to enhance the response action, the *Phase IV RIP* also proposes to employ in-situ biotreatment in the event that the Bioremediation Treatability Study indicates that the technology is appropriate for the Site. Per the *Phase IV RIP*, this report of findings and any proposed design will be submitted under separate cover.

Initial operation data of the groundwater treatment system indicate it is operating within design parameters and is achieving the desired results in effluent concentrations. Initial studies with biotreatment show the feasibility of success. Additional studies are being completed to determine the optimal final design of the biotreatment system.

Because of the achievement of the *Phase IV RIP* objective, MCP Phase IV response actions for the groundwater of the Former GE Site are considered to be complete with the submission of this report. The Bioremediation Treatability Study Report of findings, and any system modifications discussed herein will be submitted as an addendum to this report, and any additional response actions will be conducted under Phase V (see Section 7.0).

7.0 PHASE V OPERATION, MAINTENANCE & MONITORING (OM&M)

Phase V Operations, Maintenance, and Monitoring (OM&M) will be completed in accordance with the program outlined in the *Phase IV RIP*, and 310 CMR 40.0890. A brief summary of the major components related to the Phase V remedial system OM&M is presented in Section 7.1. A schedule for Phase V OM & M follows in Section 7.2.

In addition, TRC revisited the proposed deep bedrock and source control groundwater monitoring programs, and has refined the monitoring well network and sampling frequency based on the new data obtained during the supplemental drilling program presented herein. A summary of the revised programs is presented in Section 7.3.

7.1 Remedial System Components

The main components of this system are housed in the remedial system equipment building, and include the following:

Extraction Well and Pump: Groundwater is pumped to the remedial equipment building for treatment.

Air Stripper: Groundwater is initially pumped through a low-profile air stripper to remove the bulk of the VOC contamination. The vapor effluent from the air stripper passes through a series of vapor phase GAC units.

Vapor Granular Activated Carbon System: Two 1,000 lb. vapor phase GAC units (and one additional as a stand-by unit) treat the air stripper effluent prior to discharging to the atmosphere.

Liquid Granular Activated Carbon System: Any trace VOCs remaining in the treated groundwater effluent from the air stripper are removed using three 330 lb. liquid phase GAC units connected in series. Effluent is discharged to the on site storm drain system.

Gauges, Controls, and Valves: A variety of pressure and vacuum gauges, flow meters, sample ports, and valves are present to monitor and control the systems.

Bioremediation Amendment Delivery System: To be determined following completion of Bioremediation Treatability Study.

7.2 OM&M Schedule

OM&M activities will include inspection and maintenance of the monitoring of the system to ensure the effectiveness of the treatment and monitoring of select monitoring wells to support source control monitoring. At a minimum, maintenance will be conducted as suggested by the manufacturer and will be performed as part of the routine system monitoring. In cases of potential system malfunctions and shutdowns,

maintenance will be conducted on an as-needed basis to ensure timely and efficient operation of the remediation system.

All maintenance activities, inspection and monitoring results are documented, and will be submitted to the Department in report form as described in 310 CMR 40.0892.

The OM&M plan and schedule will be revised and updated as warranted in response to changes in site conditions, modifications to remedial systems, or as otherwise necessary to ensure that the Comprehensive Remedial Action achieves design standards and remedial goals.

The program will include:

- Bi-weekly liquid and vapor process systems monitoring.
- Bi-weekly vapor monitoring at GAC influent, GAC midstream, and GAC effluent.
- Monthly groundwater monitoring at an untreated, GAC influent, GAC midstream, and treated effluent locations.
- Monthly groundwater elevation measurements at the pumping well and vicinity wells impacted by drawdown.
- Source control monitoring in nearby groundwater monitoring wells.

Table 7-1 presents the OM&M schedule.

7.3 Source Control Groundwater Monitoring

TRC targeted a series of monitoring wells in the vicinity of TRC-202R that have the highest potential to provide long term trend data on the performance of the remedial system and demonstration of source control. A baseline sampling event was completed to provide a pre-treatment groundwater baseline, and to support the selection of a subset of wells for source control monitoring wells for long-term monitoring. See Section 2.3.2 for construction details on the newly installed injection point wells. See Section 2.3.3 for details on the retrofitting of BRW-1.

Baseline Sampling

In August 2003, baseline groundwater sampling was completed at all monitoring wells targeted by TRC as potential source control monitoring wells. The monitoring wells were sampled with passive diffusion bag (PDB) samplers, set two-weeks prior to sampling, except for well GZA-105R that was sampled using a peristaltic pump and low-flow sampling techniques because the small well diameter precluded use of PDB. Each sample was analyzed by Woods Hole Group, a Massachusetts certified laboratory, for VOCs via MCP Method 8260B.

The monitoring wells selected for baseline sampling and the VOC sampling results of each are presented on Table 7-2. In addition, the laboratory reports and a data validation report are presented in Appendix J. Note the sampling locations designated IP-01, IP-02, IP-03, and IP-04 are samples collected in June 2003, prior to retrofitting the boreholes with distinct injection/ sampling zones.

It should be noted that acetone was detected in samples BRW-1R2-8/03, BRW-1R3-8/03, BRW-1R4-8/03, MW-901-8/03, IP-4R3-8/03, IP-3R1-8/03, IP-3R2-8/03, IP-2R1-8/03, IP-2R2-8/03, IP-2R3-8/03, IP-2R4-8/03, and TRC-301R-8/03 and 2-butanone was detected in sample TRC-301R-8/03, but at levels well below the associated GW-1 standard. Following data validation and a full investigation of the field activities, TRC determined that the source of acetone was the deionized water used to fill the passive diffusion bag samplers; this same water was also used to prepare the equipment blank and associated trip blank.

The well locations and sampling results are presented graphically in cross-section on Figures 7-1 and 7-2, and in plan view on Figures 7-3 and 7-4. As depicted in these figures, the baseline sampling results reveal distinct shallow and deep bedrock zones of VOC contamination. The maximum contaminant levels were observed in the deep bedrock portion of the aquifer, within the target zone for remediation. Based on data collected to date, the bottom of the contaminant plume is constrained at depth by the non-water-bearing competent rock identified via drilling and geophysical survey results immediately below these deep bedrock monitoring points.

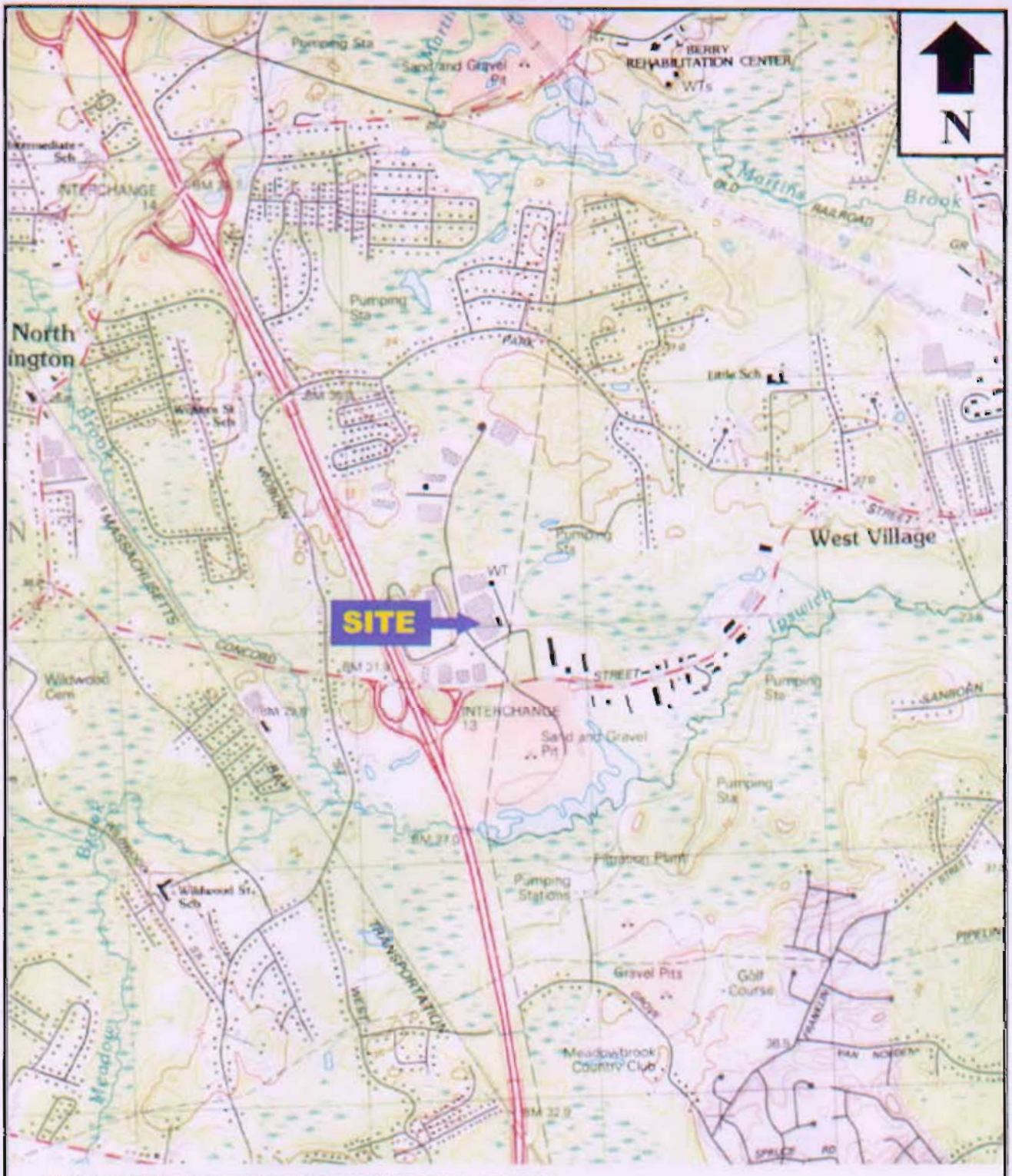
Source Control Monitoring

Per MA DEP's Conditional Approval Letter dated March 12, 2003, TRC is required to complete quarterly groundwater sampling in the source control monitoring wells for a minimum of one year. Based on the first year's results and trend analysis, TRC may request to change the sampling frequency.

TRC has selected several shallow and deep groundwater monitoring wells using the results of the baseline groundwater sampling event for source control monitoring. This represents a refinement of the monitoring well network previously outlined in the *Phase IV RIP*. Specifically, well TRC-301R will be monitored as part of the on-going Long-Term Groundwater Monitoring Program (LTGMP) because of its distance from the pumping well as well as the confirmed low-levels of VOCs. In addition, well EMW-11R3 will also be sampled as part of the LTGMP rather than the source control monitoring program because it is located outside (i.e., below) the target zone for remediation. Note that the groundwater sampling per the LTGMP is scheduled to occur in September 2003, and biannual thereafter. The wells selected for source control monitoring are presented in Table 7-3.

The first quarterly source control groundwater sampling event will be completed in December 2003. All sampling results will be summarized in the Phase V OM&M Reports following each sampling event.

FIGURES



BASE MAP IS A PORTION OF THE FOLLOWING 7.5' x 15' USGS TOPOGRAPHIC QUADRANGLE: READING, MA 1987

0 1000 2000

Scale in Feet



QUADRANGLE LOCATION

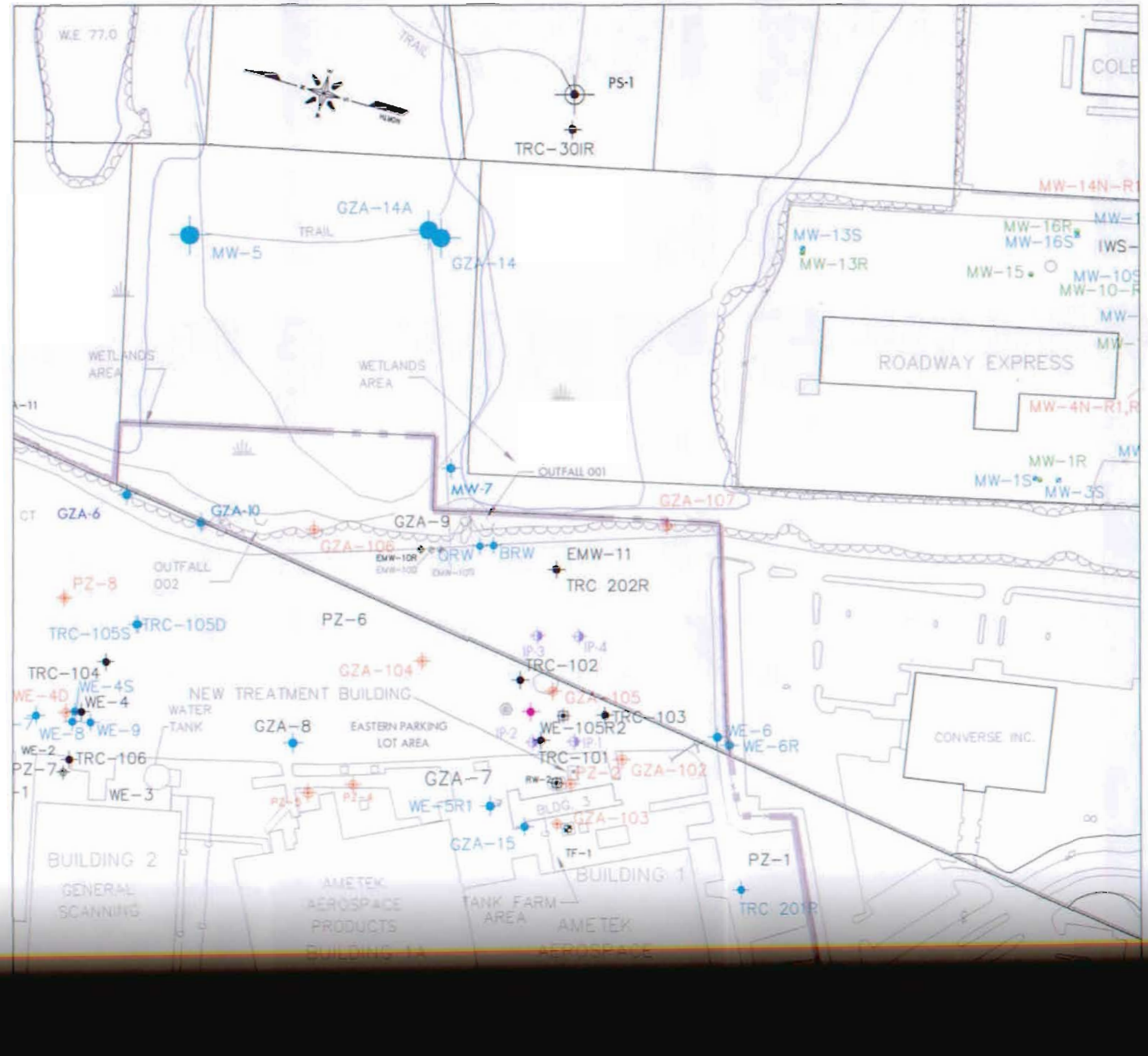
E9202/RIP PHASE 4 QW\TOPO

TRC
Boott Mills South
Foot of John Street
Lowell, MA 01852
(978) 970-5600

FORMER GE SITE
WILMINGTON/NORTH READING, MASSACHUSETTS

FIGURE 1-1
SITE LOCATION MAP

Date: 2/02 | Project No. E9202



LEGEND

- BUILDING
- E 967000 — MASS. STATE PLANE COORDINATE GRID SYSTEM
- APPROXIMATE PROPERTY LINE
- APPROXIMATE TOWN LINE
- APPROXIMATE EDGE OF WATER/STREAM
- APPROXIMATE EDGE OF WETLANDS/SWAMP
- APPROXIMATE EDGE OF PAVEMENT
- FENCE LINE
- CATCH BASIN
- WATER SUPPLY WELL
- MULTI-LEVEL MONITORING WELL/PIEZOMETER LOCATION
- SINGLE-LEVEL MONITORING WELL/PIEZOMETER LOCATION
- ABANDONED MONITORING WELL
- RECOVERY WELL
- SOIL BORING INSTALLED BY WEHRAN IN SEPTEMBER, 1991
- GROUNDWATER RECOVERY WELL
- INJECTION WELL
- PROPERTY LINE

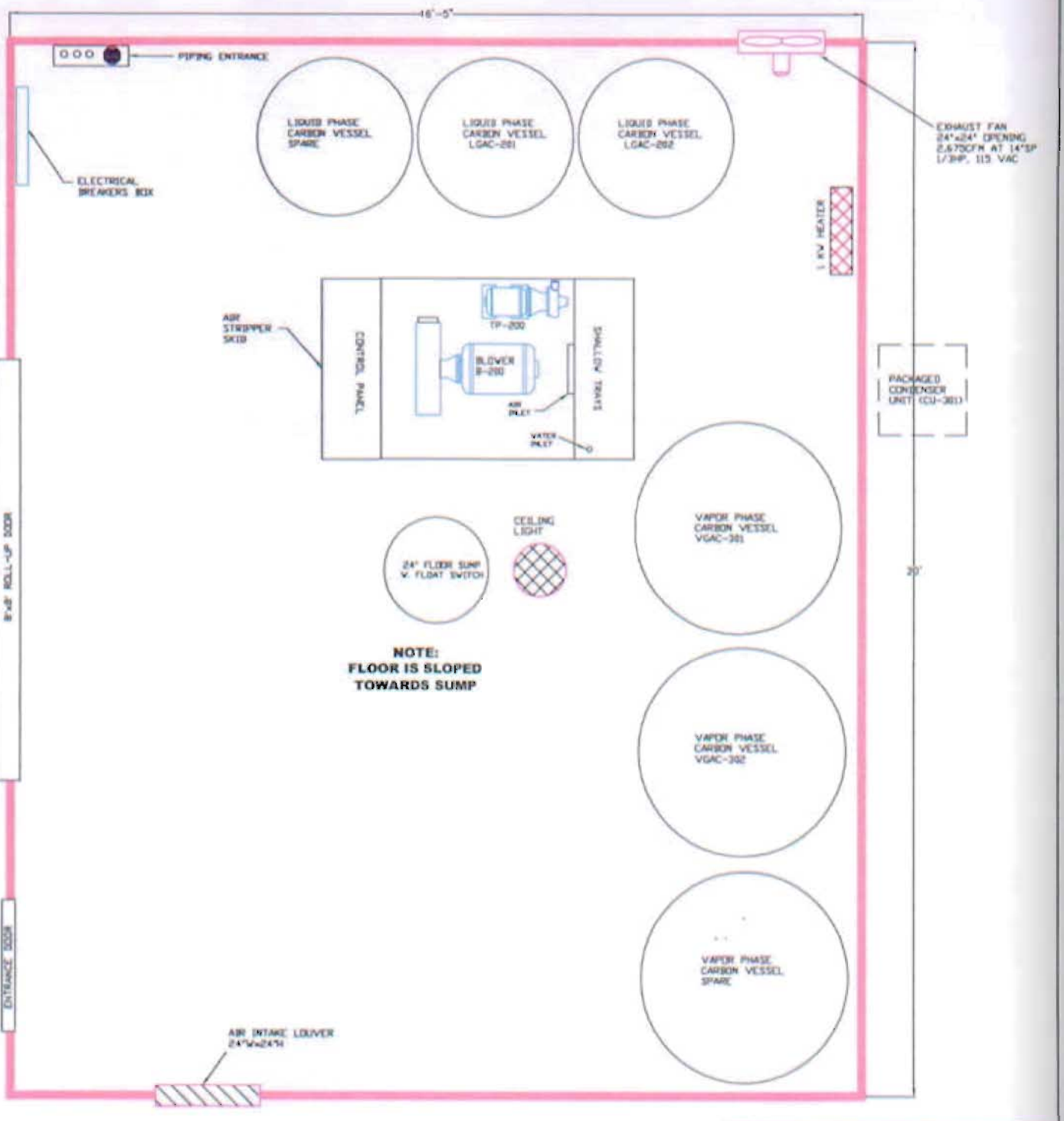
0 150' 300'

SCALE IN FEET

TRC
Boot Mills South
Foot of John Street
Lowell, MA 01852
(978) 970-5600

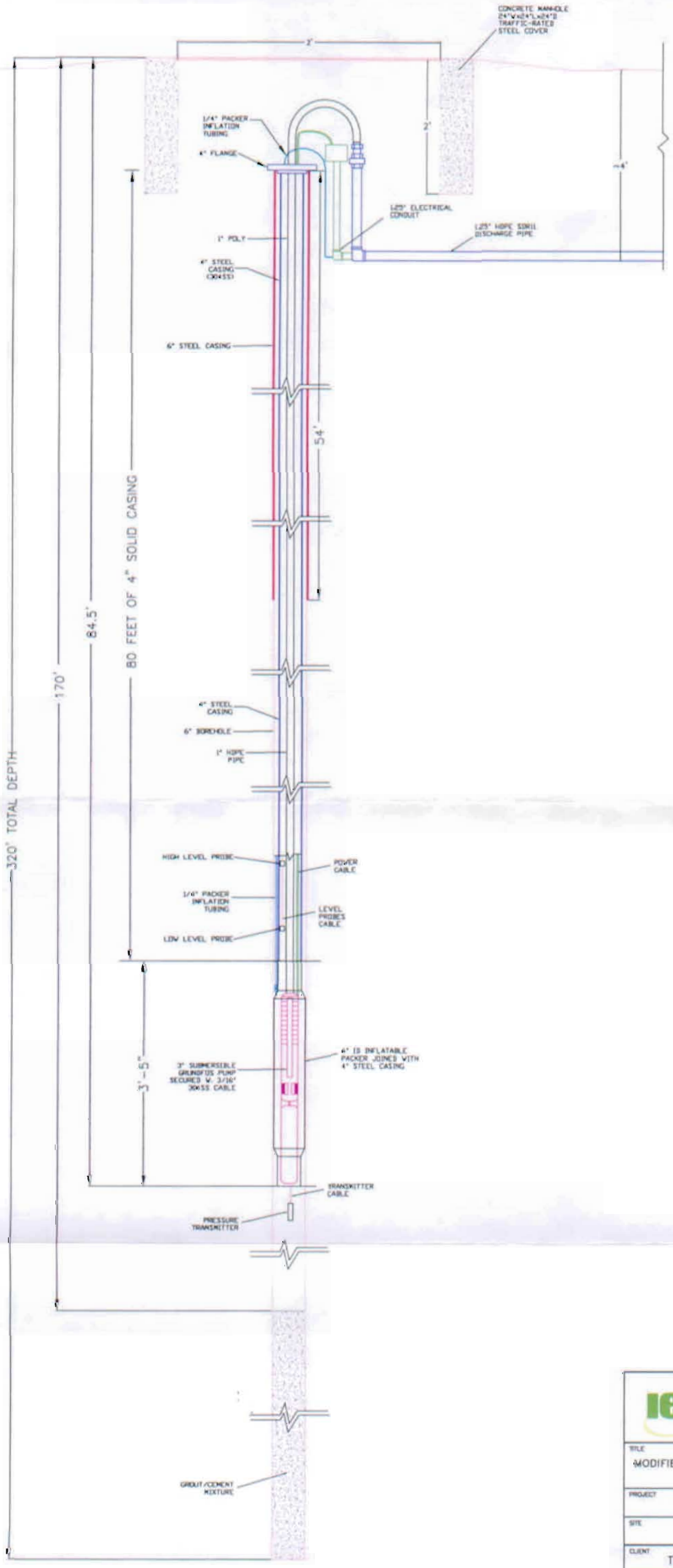
FORMER GE SITE
WILMINGTON/NORTH READING, MASSACHUSETTS

/RIP PHASE 4 GW/COMPLETIONREPORT/site.DWG



E:\2021\GW COMPLETION\EQUIPMENT ASBUILT

TITLE: REMEDIAL EQUIPMENT LAYOUT (AS-BUILT)				
PROJECT: PHASE IV COMPLETION REPORT				
SITE: FORMER GE FACILITY				
CLIENT: TRC ENVIRONMENTAL CORPORATION				
DESIGNED: BD	CHECKED: BD	FILENAME: equip_asbuilt	DATE: 7/29/03	FIGURE: 2-4



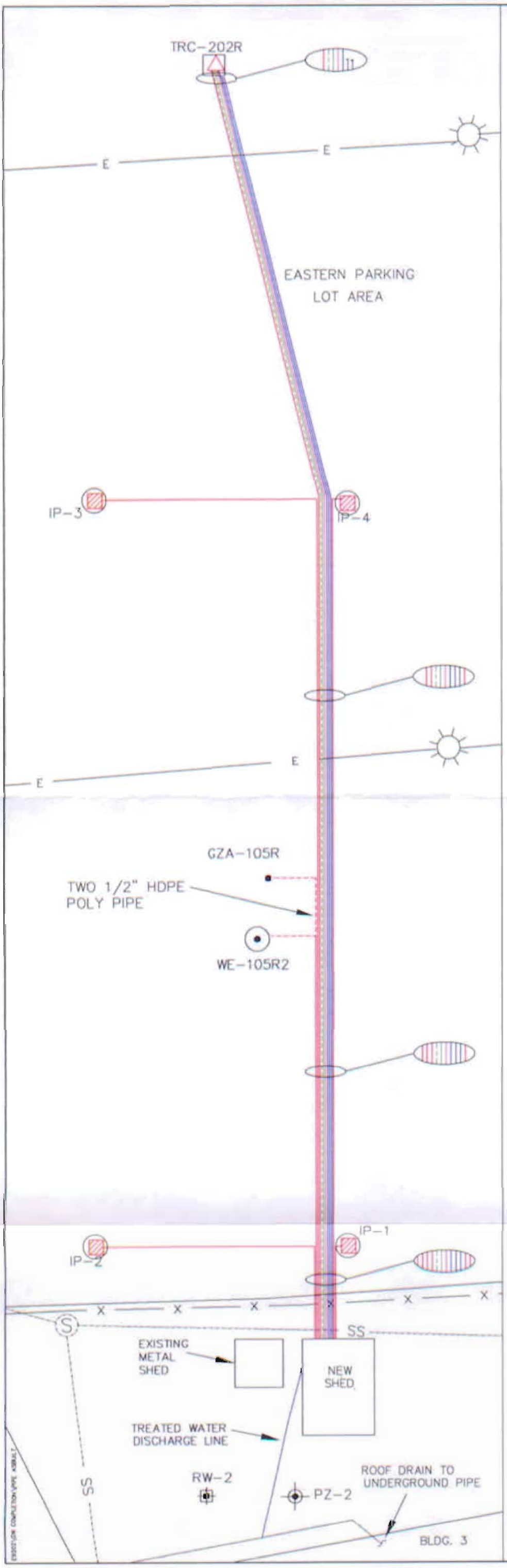
iesi TRC

TITLE	MODIFIED RECOVERY WELL DETAIL (AS-BUIL
PROJECT	PHASE IV COMPLETION REPORT
SITE	FORMER GE FACILITY
CLIENT	TRC ENVIRONMENTAL CORPORATION

DESIGNED	CHECKED	FILENAME	DATE	FIGURE
BD	BD	well_updated	8/19/03	2

E:\2003\GW COMPLETION\2GW ASBUILT


OUTFALL 001
INV. 77.90
ORW-1
BRW-1
EMW-11
10" ACCMP
0 10 20 30 FT
SCALE
TRC-202R
EASTERN PARKING
LOT AREA
1/2" HDPE
INJECTION PIPE
IP-3
IP-4
TOWN OF NORTH READING
TOWN OF WILMINGTON
MAIN TRENCH WITH:
1/2" HDPE INJECTION PIPE,
1.25" WATER PIPE,
ELECTRICAL CONDUIT,
TRANSMITTER CABLE CONDUIT,
PACKER INFLATION AIR LINE
CB
RIM 81.20
INV. 78.60
TRC-102
GZA-105D
GZA-105R
GZA-105S
WE-105R2
TRC-103
CONCRETE
PAD
TRC-101
1/2" HDPE
INJECTION PIPE
IP-1
IP-2
CHAIN LINK FENCE
SMH1
GATE
CW-1
CW-2
GZA-102
EXISTING
METAL
SHED
NEW
SHED
GUARD
SHACK
NEW TRENCH TO
STORM DRAIN FOR
TREATED WATER
DISCHARGE
SMH
RIM 82.25
INV. 76.36
GZA-7
RW-2
PZ-2
WE-5R1
CB
RIM 82.00
INV 79.56
BLDG. 3
GZA-15
GZA-103
TF-1
LEGEND
BUILDING
APPROXIMATE EDGE OF PAVEMENT
FENCE LINE
CULVERT WELL
MULTI-LEVEL MONITORING WELL LOCATION
SINGLE-LEVEL MONITORING WELL LOCATION
ABANDONED MONITORING WELL
PRODUCT RECOVERY WELL
GROUNDWATER RECOVERY WELL
NEW GROUNDWATER EXTRACTION WELL
BIOREMEDIATION INJECTION WELL
iesi
REMEDIAL SYSTEM GENERAL LAYOUT (A
PHASE IV COMPLETION REPOR
FORMER GE FACILITY
TRC ENVIRONMENTAL CORPORATI
BD
BD
layout_asbuilt
9/8/03
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LEGEND

- 3/4" TRANSMITTER CABLE CONDUIT
- 1.25" ELECTRICAL CONDUIT
- 1/2" HDPE PIPE BUNDLE
  ONE LINE DENOTES FOUR PIPES
  (INJECTION LINES)
- 1/4" 316SS TUBING (PACKER INFLAT
  AIR LINE)
- 1.25" HDPE PIPE (WATER)
- APPROXIMATE EDGE OF PAVEMENT
- FENCE LINE
- IP-4 NEW INJECTION WELL
- EXISTING MONITORING WELL
- GROUNDWATER EXTRACTION WELL
- NEW PRECAST VAULT
- EXISTING VAULT

NOTE:
ONE OF THE 1/2" HDPE PIPE BUNDLES WERE SPLIT SUCH THAT TWO PIPES TERMINATE AT GZA-105R AND TWO PIPES AT WE-105R2

SCALE
0 10 20 FT

iesi TR

TITLE: UNDERGROUND PIPING SCHEMATIC (AS-

PROJECT: PHASE IV COMPLETION REPORT

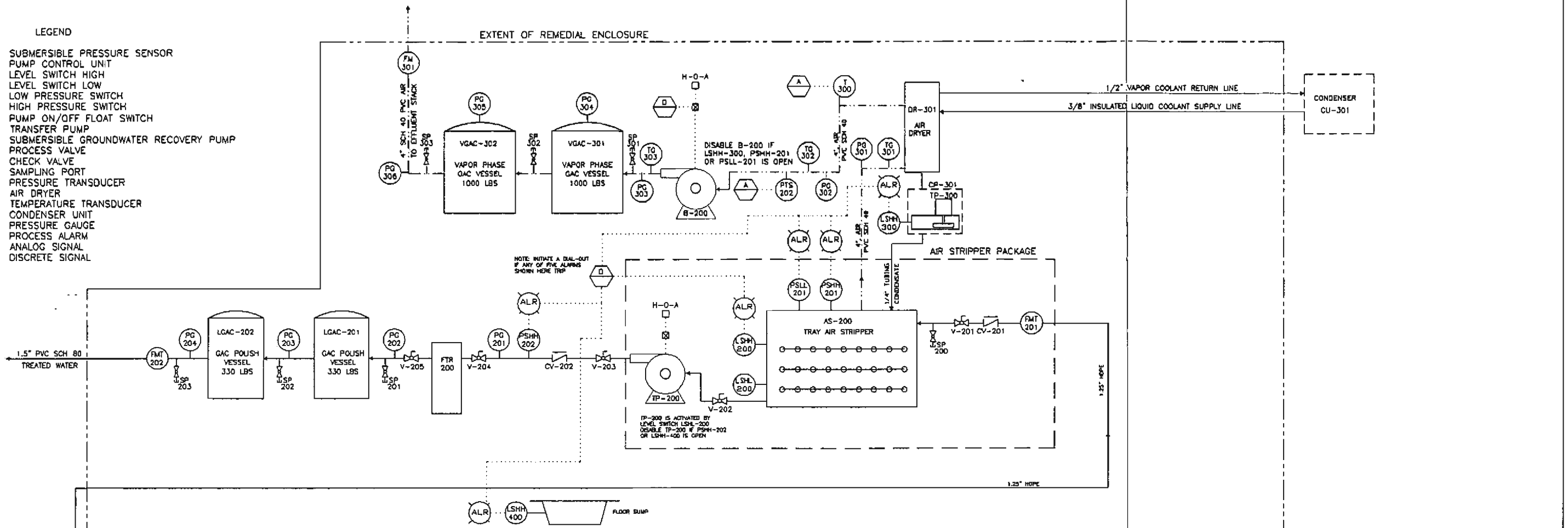
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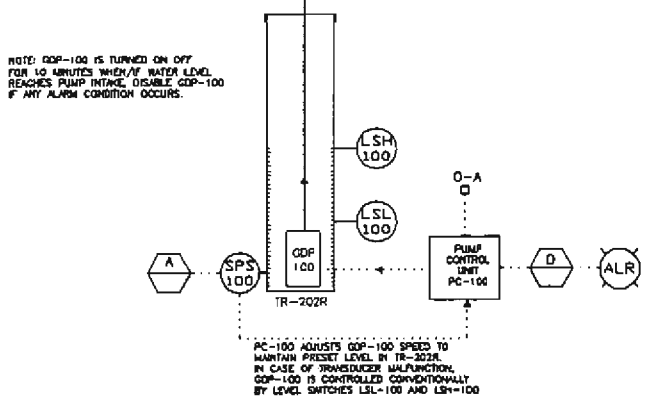
CLIENT: TRC ENVIRONMENTAL CORPORATIC

DESIGNED	CHECKED	FILENAME	DATE
BD	BD	pipe_asbuilt	8/19/03

LEGEND

SPS	SUBMERSIBLE PRESSURE SENSOR
PC	PUMP CONTROL UNIT
LSHH	LEVEL SWITCH HIGH
LSLL	LEVEL SWITCH LOW
LSHL	LOW PRESSURE SWITCH
PSLL	HIGH PRESSURE SWITCH
PSHH	PUMP ON/OFF FLOAT SWITCH
TP	TRANSFER PUMP
GDP	SUBMERSIBLE GROUNDWATER RECOVERY PUMP
V	PROCESS VALVE
CV	CHECK VALVE
SP	SAMPLING PORT
PTS	PRESSURE TRANSDUCER
DR	AIR DRYER
T	TEMPERATURE TRANSDUCER
CU	CONDENSER UNIT
PG	PRESSURE GAUGE
ALR	PROCESS ALARM
A	ANALOG SIGNAL
D	DISCRETE SIGNAL



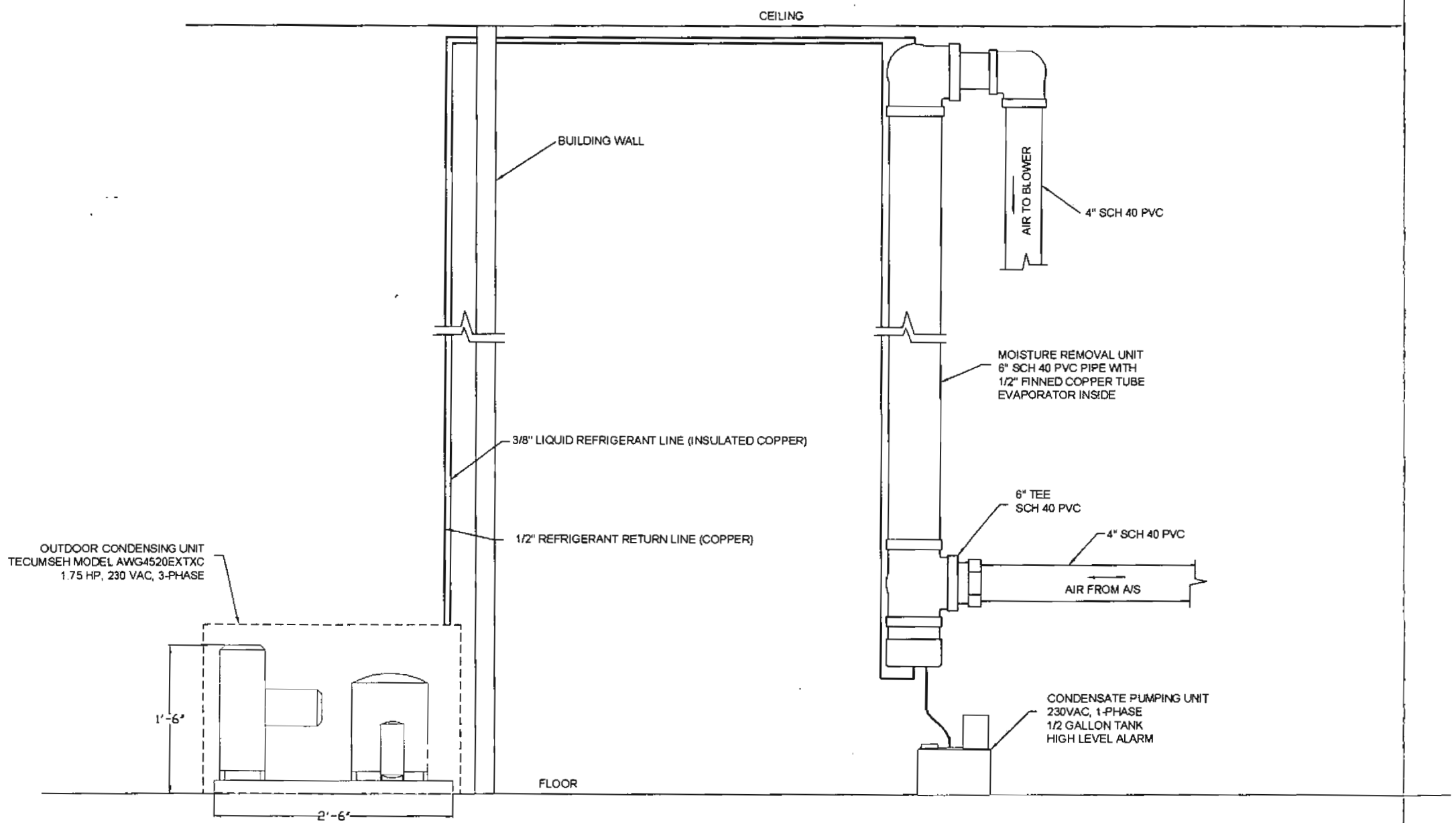


E9202\GW COMPLETION\GW PID ASBUILT

iesi TRC

TITLE	GROUNDWATER RECOVERY SYSTEM P&ID (AS-BUILT)
PROJECT	PHASE IV COMPLETION REPORT
SITE	FORMER GE FACILITY
CLIENT	TRC ENVIRONMENTAL CORPORATION

DESIGNED	CHECKED	FILENAME	DATE	FIGURE
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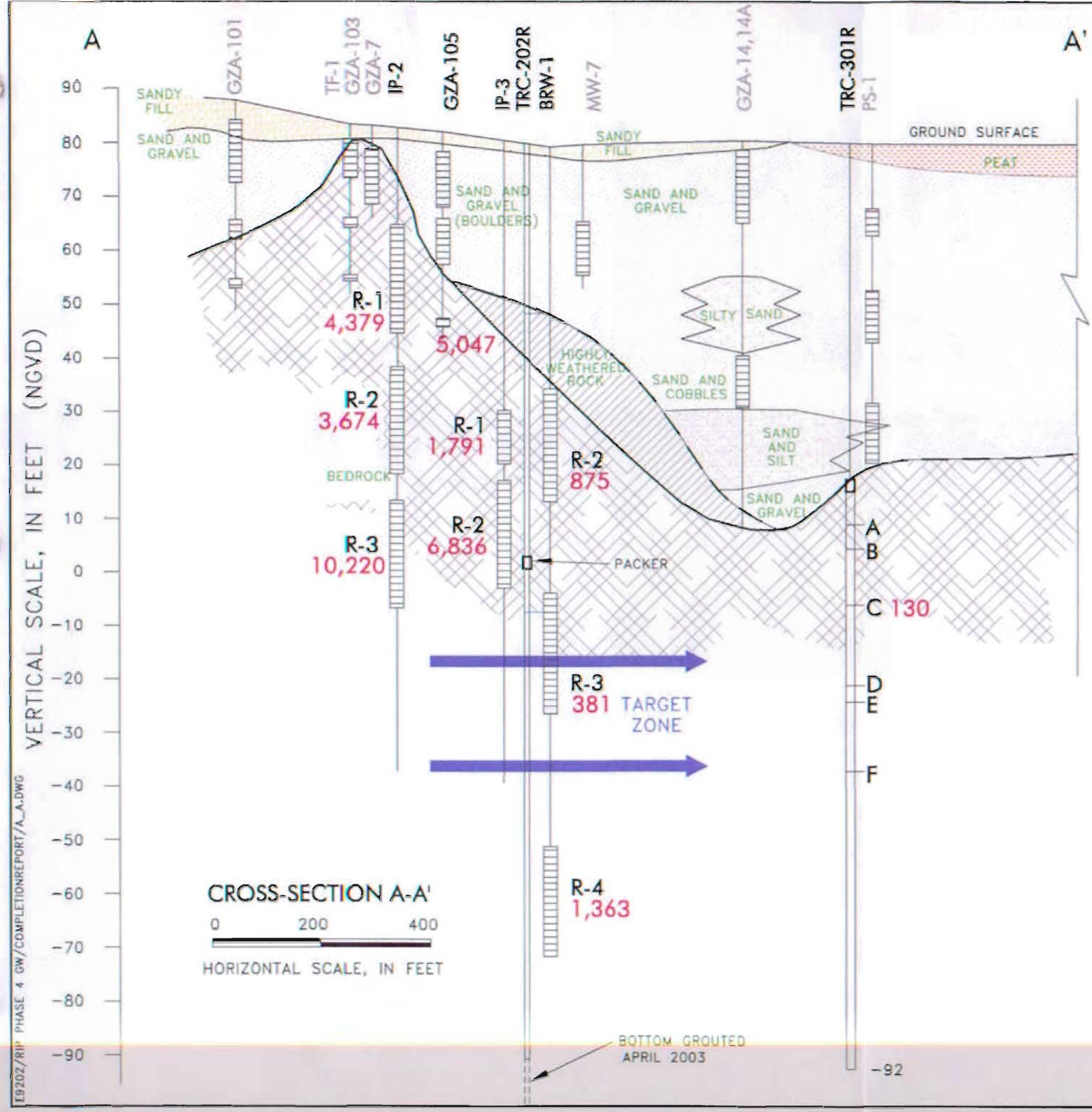
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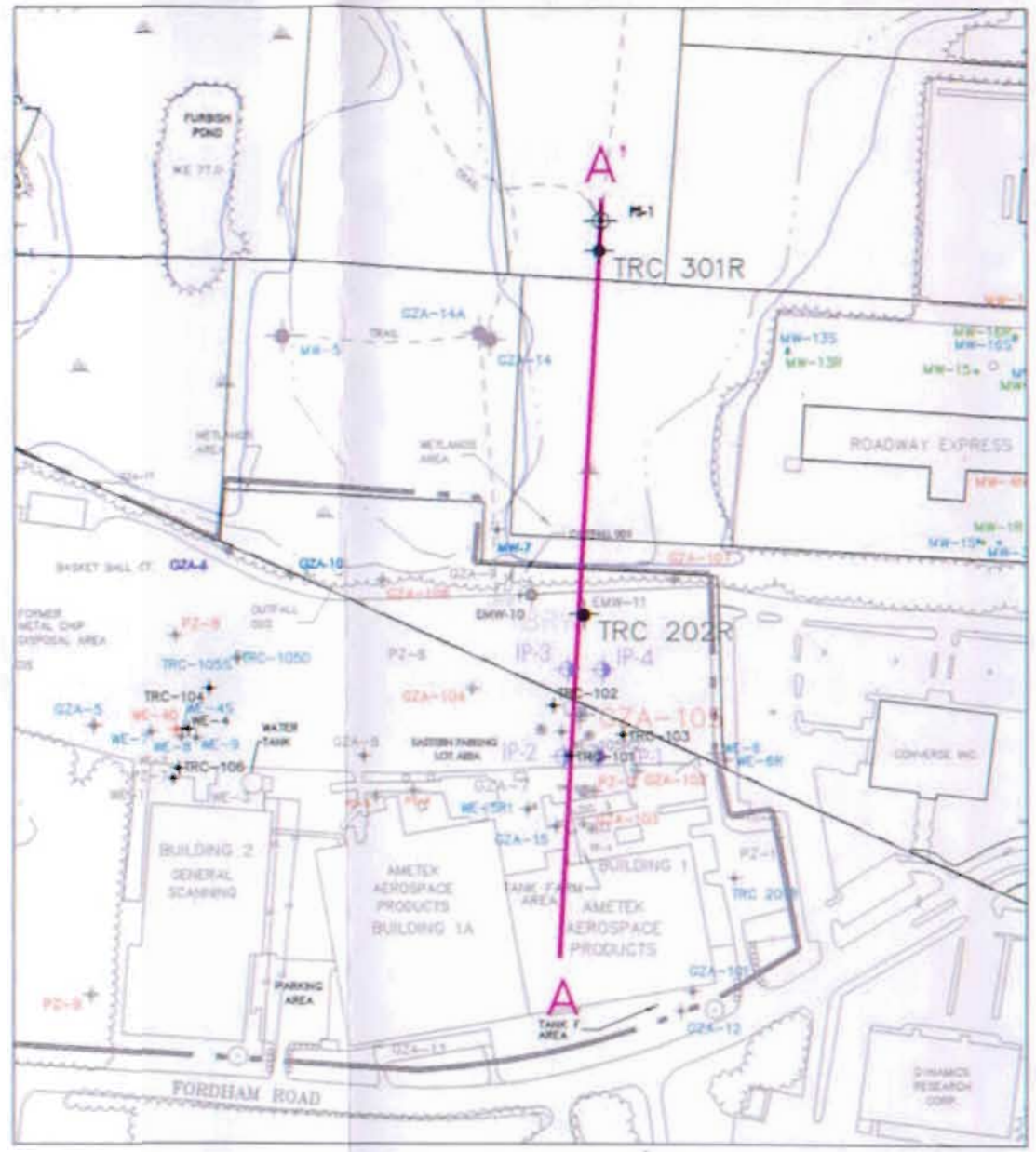
E9202\GW COMPLETION\DRYER ASBUILT

IESI TRC

TITLE	MOISTURE REMOVAL EQUIPMENT (AS-BUILT)
PROJECT	PHASE IV COMPLETION REPORT
SITE	FORMER GE FACILITY
CLIENT	TRC ENVIRONMENTAL CORPORATION

DESIGNED	CHECKED	FILENAME	DATE	FIGURE
BO	BD	Ph4_cooling	8/19/03	2-6



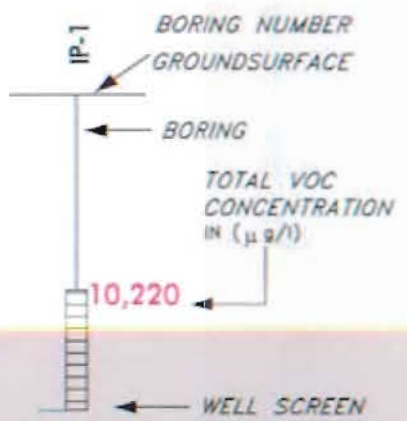


CROSS SECTION LOCATION PLAN

0 300' 600'

SCALE IN FEET

LEGEND



TRC
Boot Mills South
Foot of John Street
Lowell, MA 01852
(978) 970-5600

FORMER GE SITE
WILMINGTON/NORTH READING, MASSACHUSETTS

FIGURE 7-1
CROSS-SECTION A-A'
BASELINE VOC CONCENTRATIONS
AUGUST 2003

Date: 09/03 Project No. E9202

E9202/RIP PHASE 4 GW/COMPLETIONREPORT/A_A.DWG

B

B'

GZA-101

TF-1
GZA-103
GZA-7
IP-1

GZA-105

IP-4
TRC-202R
EMW-11

MW-7

GZA-14,14A

TRC-301R
PS-1

SANDY FILL

SAND AND GRAVEL

SAND AND GRAVEL (BOULDERS)

SANDY FILL

GROUND SURFACE

PEAT

SAND AND GRAVEL

SILTY SAND

HIGHLY WEATHERED ROCK

SAND AND COBBLES

SAND AND SILT

SAND AND GRAVEL

BEDROCK

PACKER

BOTTOM GROUTED APRIL 2003

5,047

R-1
16,480

R-1
8,827

R-2
26,960

R-2
8,230

R-1
8,768

R-3
6,438

R-3
21,910

TARGET ZONE

R-2
10,950

A
B
C 130
D
E
F

VERTICAL SCALE, IN FEET (NGVD)

90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-92

CROSS-SECTION A-A'

0 200 400

HORIZONTAL SCALE, IN FEET

LEGEND

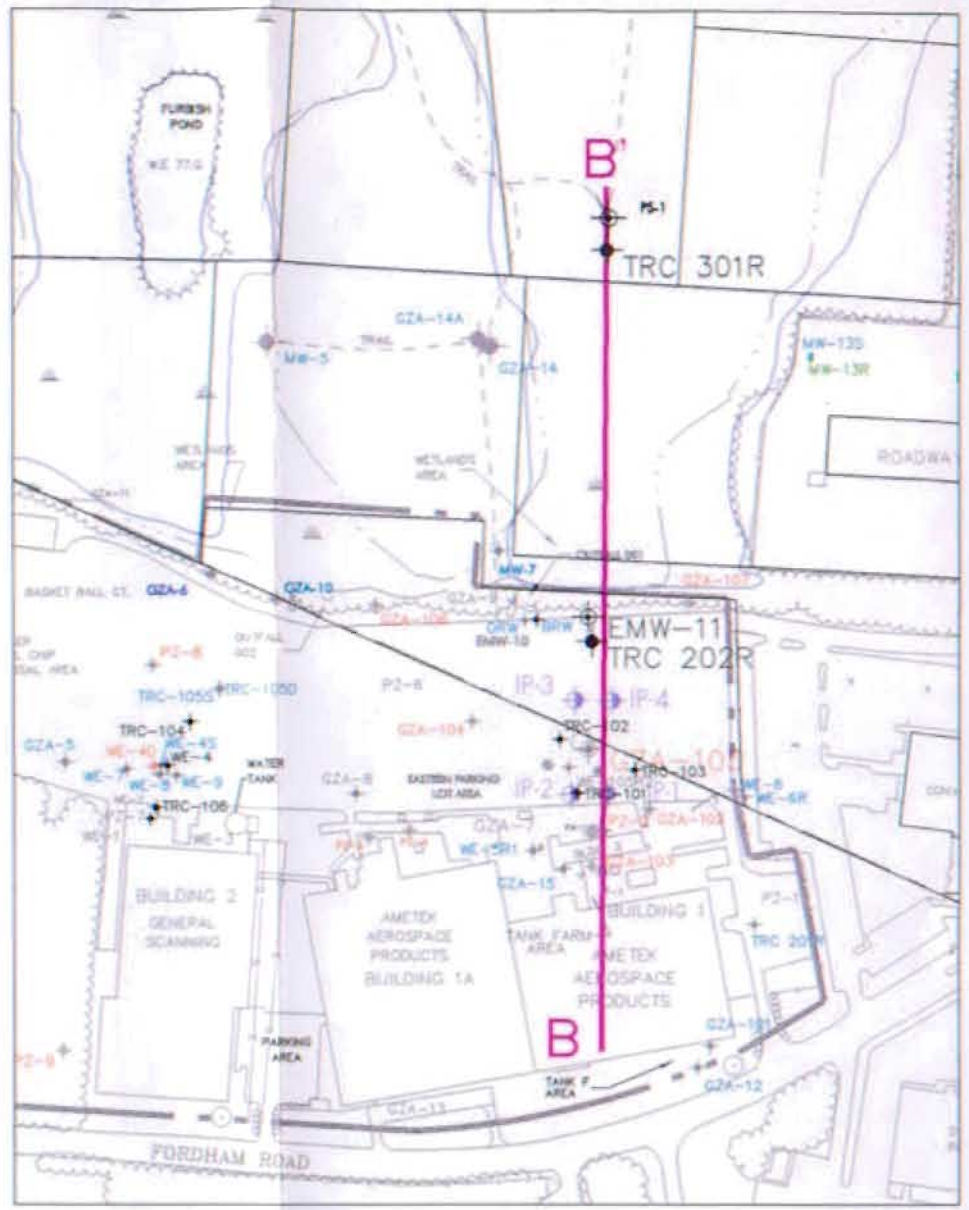
IP-1 BORING NUMBER
GROUNDSURFACE

BORING

TOTAL VOC CONCENTRATION IN (µg/l)

26,960

WELL SCREEN



CROSS SECTION LOCATION PLAN

0 300' 600'

SCALE IN FEET

TRC

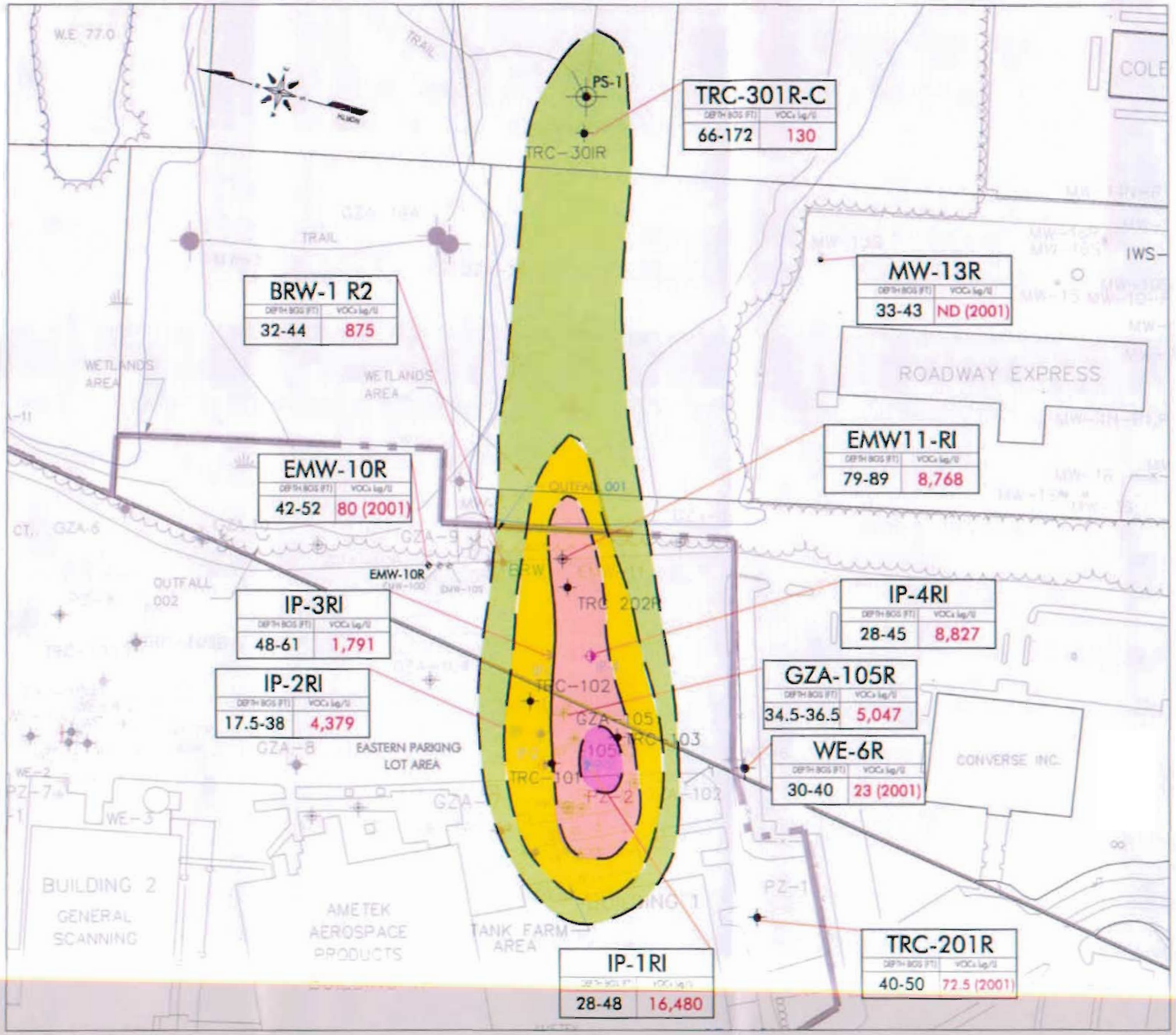
Boot Mills South
Foot of John Street
Lowell, MA 01852
(978) 970-5600

FORMER GE SITE
WILMINGTON/NORTH READING, MASSACHUSETTS

FIGURE 7-2
CROSS-SECTION B-B'
BASELINE VOC CONCENTRATIONS
AUGUST 2003

Date: 09/03 Project No. E9202

E9202/RIP PHASE 4 GW/COMPLETIONREPORT/B_B.DWG



E9202/RIP PHASE 4 GW/COMPLETIONREPORT/SHALLOWBED.DWG

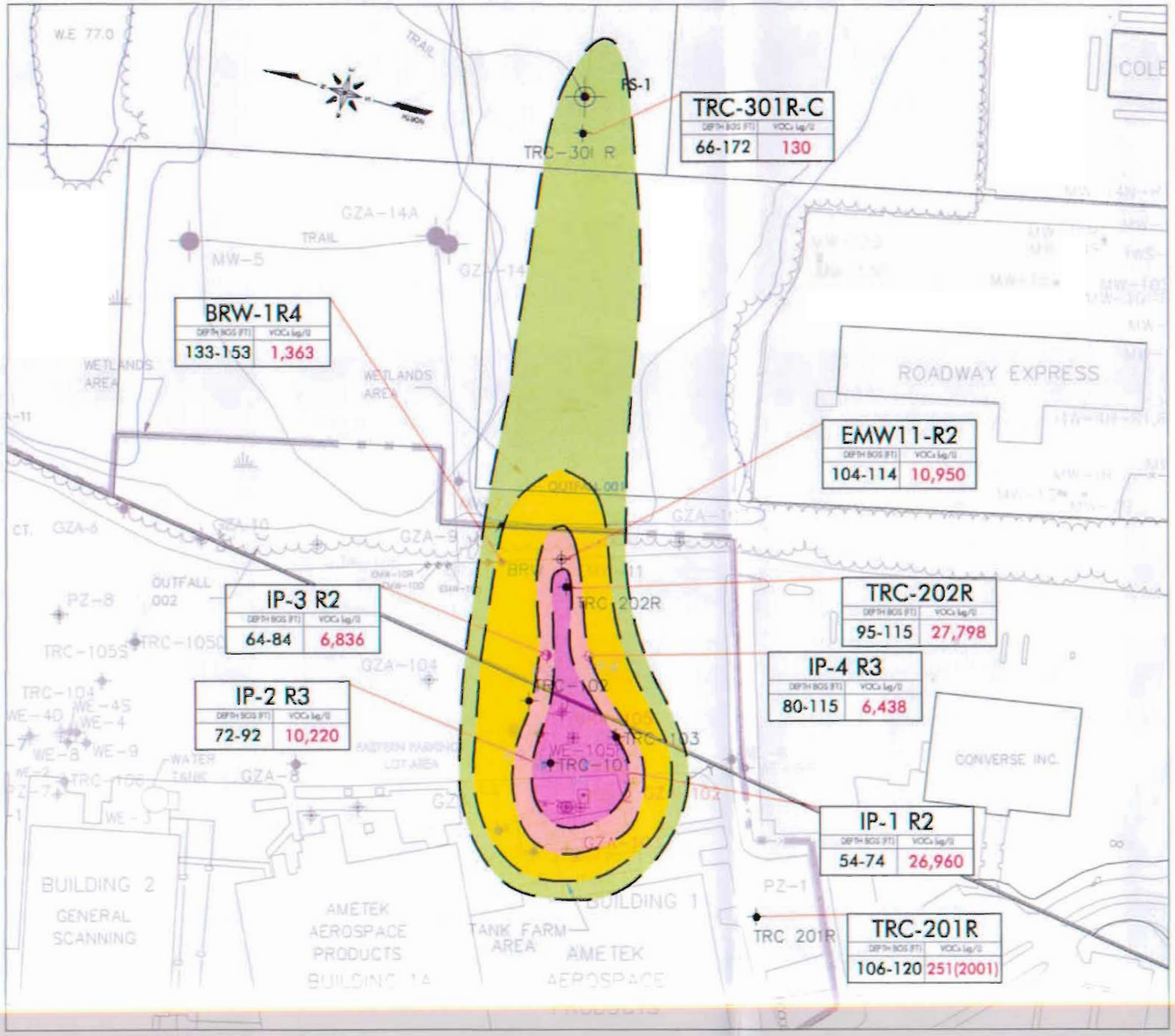
TRC

Boot Mills South
Foot of John Street
Lowell, MA 01852
(978) 970-5600

FORMER GE SITE
WILMINGTON/NORTH READING, MASSACHUSETTS

FIGURE 7-3
TOTAL VOC CONCENTRATION IN SHALLOW BEDROCK AUGUST 2003

Date: 09/03 | Project No. E9202



E9202/RIP PHASE 4 GW/COMPLETIONREPORT/deepBED.DWG

TRC

Boot Mills South
Foot of John Street
Lowell, MA 01852
(978) 970-5600

FORMER GE SITE
WILMINGTON/NORTH READING, MASSACHUSETTS

FIGURE 7-4
TOTAL VOC CONCENTRATION IN DEEP BEDROCK AUGUST 2003

Date: 09/03 | Project No. E9202

TABLES

Table 2-1. Analytical Results for Well TRC-301R*
Former GE Facility, Wilmington, MA

Sample Date: 5/6/03										
	Sample Results (ug/L)							Historic Overburden Results		
Sample ID	**A**	**B**	**C**	**D**	**E**	**F**	**MCP GW-1**	**PS-1 (09/2001)**		
Depth from TOC (ft)	71.5	78.5	87.5	99	104	116				
Depth into rock (ft)	8.5	15.5	24.5	36	41	53		**D**	**M**	**S**
Parameter										
2-Butanone (MEK)	4.3	4.5	4.4	4.5	4.6	4.5	350	BDL	BDL	BDL
cis-1,2-Dichloroethene	25	23	22	22	21	20	70	10	2	6.6
Trichloroethene	**41**	**39**	**38**	**38**	**39**	**37**	5	**55**	**11**	**7.4**
Tetrachloroethene	**7.7**	**6.5**	**6.9**	**7.5**	**7.8**	**7.6**	5	**20**	**15**	BDL

Notes:
* Reflects only detected VOCs per EPA Method 8260B
TOC = Top of Casing
ug/L = parts per billion

Table 2-2. Injection Point Analytical Results, June 2, 2003
Former GE Facility, Wilmington, MA

	RESULTS (ug/L)					
Sample ID	**IP-1**	**IP-2**	**IP-2**	**IP-3**	**IP-4**	**MCP GW-1**
Open Borehole Interval (bgs)	**27-120**	**17.5-125**	**17.5-125**	**48-120**	**38-120**	**Standard**
Sample Depth BGS (ft)	**60**	**60**	**110**	**60**	**60**	
Parameter						
1,1-Dichloroethane	270	ND (200)	190	130	200	70
cis-1,2-Dichloroethene	ND (200)	ND (200)	ND (100)	ND (100)	ND (100)	70
Trichloroethene	17,000	9,600	8,900	5,500	8,500	5
Tetrachloroethene	8,100	7,900	7,200	3,500	5,900	5

Note: High TCE/ PCE resulted in the high detection limits: 50% dilution required.
ND- Not detected at specified quantitation limit
ug/L - parts per billion
bgs - below ground surface

Table 2-3. Injection Point Well Construction Details
Former GE Facility, Wilmington, MA

Well Materials	Depth (bgs)			
	IP-1	IP-2	IP-3	IP-4
Divider Seal Thickness	20.7	13.7	39.8	28.2
Screen Interval - Zone No. 1	28-48	17.5-38	48-61	38-48
Divider Seal Thickness	3.5	6.0	2.5	4.0
Screen Interval - Zone No. 2	54-74	46-66	64-84	54-74
Divider Seal Thickness	16	5.2	28.5	4.1
Screen Interval - Zone No. 3	95-115(a)	72-92	NA	80-115(a, b)
Divider Seal Thickness	NA	4.2	NA	NA
Screen Interval - Zone No. 4	NA	98-122	NA	NA

Notes:
All dimensions are in feet.
All screens are 10 slot PVC with diameters of 2 inches, except Zone 1 in IP-2 which is 1 inch diameter.
(a) without regard to measurable inflow; "more open" fractures observed; could be a dry well.
(b) exact interval as pumping interval in TRC-202R
NA = Not Applicable.
bgs = below ground surface

Table 2-4. Hydraulic Interconnections Between Zones of Each IP Well and Well BRW-1
Former GE Facility, Wilmington, MA

Pumping Screen Interval	RESULTS (BY INJECTION POINT)				
	IP-1	IP-2	IP-3	IP-4	BRW-1
R 1	HI @ R2	HI @ R2 and R3(a)	HI @ R2	H @:R2 and R3	No HI
R 2	HI @ R1	HI @ R1 and R3(a)	HI @ R1	HI @ R1and R3	No HI
R 3	No HI	HI @ R1(b), R2(b) and R4(b)	NA	HI @ R1and R2	No HI
R 4	NA	HI @ R1(a), R2and R3	NA	NA	No HI
Sustainable Yield (gpm)	0.5	1.0	0.1	0.5	NA

Notes:
HI = Hydraulic interconnection observed between zones during well development activities; interconnected zone noted.
(a)= interconnection is apparent but slight relative to other zones.
(b)= interconnection is negligible.
NA = Not applicable
gpm = gallons per minute

Table 2-5. Summary of Construction Details for Well BRW-1 Retrofit
Former GE Facility, Wilmington, MA

Zone Intervals	Depth bgs (feet)
Open Borehole - Zone No. 1	32-44
Divider Seal Thickness	2
Screen Interval - Zone No. 2	46-66
Divider Seal Thickness	12
Screen Interval - Zone No. 3	85-105
Divider Seal Thickness	18.9
Screen Interval - Zone No. 4	133-153

Notes:
All dimensions are in feet.
All screens are 10 slot PVC with diameters of 2 inches, except Zones 1 in IP-2 & BRW-1 which are 1 inch diameter.
bgs = below ground surface

Table 5-1. Groundwater Treatment System Operating Parameters and Monitoring Results
Former GE Facility, Wilmington, MA

Date and time of measurement	Groundwater Parameters							Vapor Stream Parameters												
	Total GW pumped[1] gallons	Average pumping rate[2] gpm	Treated GW pH at discharge point	Liquid phase pressure measurements[3], psi				Vapor phase pressure and vacuum measurements, in.w.c.						Calculated air flow rate[4] CFM	VOC Vapor concentration[5], ppmv			Temperature, °F		
				Bag filter inlet (PG-201)	LGAC-201 inlet (PG-202)	LGAC-202 inlet (PG-203)	Discharge (PG-204)	Air stripper vac. (PG-301)	Blower vac. (PG-302)	VGAC-301 inlet pres. (PG-303)	VGAC-302 inlet pres. (PG-304)	VGAC-302 discharge pres.	Diff. Pressure (PG-306)		301 Inlet (SP-301)	302 Inlet (SP-302)	Discharge (SP-303)	Air Dryer Inlet (TG-301)	Air Dryer Outlet (TG-302)	VGAC-301 Inlet (TG-303)
8/15/03 14:00	0	2.5	6.7	10	8	8	8	23	18	8	4	0	0.27	181	10	ND	ND	65	45	63
8/17/03 19:30	5778	1.9	6.8	10	8	8	8	22	17	7	4	0	0.26	178	5	ND	ND	63	44	65
8/20/03 11:00	12636	1.8	6.8	9	8	8	8	23	18	8	4	0	0.3	191	4	ND	ND	65	43	64

Notes

[1]Based on FMT-201 reading. FMT-202 is used as a back-up.

[2]Average for the period between monitoring.

[3]Refer to P&ID for gauges and instruments locations.

[4]Pitot tube (FM-301) with differential pressure gauge (PG-306) is utilized to calculate the effluent air flow rate.

[5]With Photo-ionization detector

GW = groundwater

gpm = gallons per minute

CFM = cubic feet per minute

ND = Not Detected

w.c. = water column

Table 5-2. Groundwater Treatment System - Groundwater Analytical Results
Former GE Facility, Wilmington, MA

Location Name		A/S Influent			GAC 1 Influent			GAC 2 Influent			Treated Effluent			NPDES Discharge Standards		Method 1 MCP
Analyte	Date	08/15/03	08/17/03	08/20/03	08/15/03	08/17/03	08/20/03	08/15/03	08/17/03	08/20/03	08/15/03	08/17/03	08/20/03	MCLs	Max. Allowable Conc.	GW-1
Dichlorodifluoromethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
Chloromethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
Vinyl chloride	ug/L	**51**	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	2	2	2
Bromomethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	10
Chloroethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
Fluorotrichloromethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
1,1-Dichloroethene	ug/L	**160**	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	7	7	7
Acetone	ug/L	<5	<500	<250	**31**	**130**	**34**	<5	<5	**9**	<5	<5	<5		100	3000
Methyl iodide	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
Carbon disulfide	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
Methylene chloride	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	5	
trans-1,2-Dichloroethene	ug/L	**14**	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	100	100	100
Methyl tert-butyl ether	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	70
1,1-Dichloroethane	ug/L	**420 E**	**110 J**	**110 J**	<5	<5	<5	<5	<5	<5	<5	<5	<5		70	70
Vinyl Acetate	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
2-Butanone (MEK)	ug/L	<5	<500	<250	**19**	**83**	**24**	<5	<5	<5	<5	<5	<5		100	350
cis-1,2-Dichloroethene	ug/L	**480 E**	**170 J**	**200 J**	<5	<5	<5	<5	<5	<5	<5	<5	<5	70	70	70
2,2-Dichloropropane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
Bromochloromethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
Chloroform	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	80	80	5
1,1,1-Trichloroethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	200	100	200
1,1-Dichloropropene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	0.5
Carbon tetrachloride	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	5	5
1,2-Dichloroethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	5	5
Benzene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	5	5
Trichloroethene	ug/L	**18000**	**6600**	**6700**	<5	**13**	<5	<5	<5	<5	<5	<5	<5	5	5	5
1,2-Dichloropropane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	5	5
Dibromomethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
Bromodichloromethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	80	80	5
cis-1,3-Dichloropropene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	0.5
4-Methyl-2-pentanone	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
Toluene	ug/L	**12**	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	1000	100	1000
trans-1,3-Dichloropropene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	0.5
1,1,2-Trichloroethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	5	5
1,3-Dichloropropane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
Tetrachloroethene	ug/L	**14000**	**5300**	**4400**	<5	**8**	<5	<5	<5	<5	<5	<5	<5	5	5	5
2-Hexanone	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	350
Chlorodibromomethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	80	80	
Ethylenedibromide	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.05	0.05	0.2
Chlorobenzene	ug/L	**3 J**	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	100	100	100
1,1,1,2-Tetrachloroethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	5
Ethylbenzene	ug/L	**1 J**	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	700	100	700
o-Xylene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	10000	100	10000
m & p-Xylene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	10000	100	10000
Xylenes (total)	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	10000	100	10000
Styrene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	100	100	100
Bromoform	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	80	80	5
Isopropylbenzene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
1,1,2,2-Tetrachloroethane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	2
Bromobenzene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
1,2,3-Trichloropropane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
n-Propylbenzene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
2-Chlorotoluene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
1,3,5-Trimethylbenzene	ug/L	**1 J**	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
4-Chlorotoluene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
tert-Butylbenzene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
1,2,4-Trimethylbenzene	ug/L	**2 J**	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
sec-Butylbenzene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
p-Isopropyltoluene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
1,3-Dichlorobenzene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	600
1,4-Dichlorobenzene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	75	75	5
n-Butylbenzene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
1,2-Dichlorobenzene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	600	100	600
1,2-Dibromo-3-chloropropane	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.2	0.2	
1,2,4-Trichlorobenzene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5	70	70	70
Hexachlorobutadiene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	0.6
Naphthalene	ug/L	<5	<500	<250	<5	<5	**1 JB**	<5	<5	**2 JB**	<5	<5	**4 JB**		100	20
1,2,3-Trichlorobenzene	ug/L	<5	<500	<250	<5	<5	<5	<5	<5	<5	<5	<5	<5		100	
Total suspended solids (TSS)	mg/L	<10	N/A	N/A	<10	N/A	N/A	<10	N/A	N/A	<10	<10	<10		30	

Notes:
1. "<" denotes analyte was not detected at concentrations above the given quantitation limit.
2. Method 1 MCP Standards are taken from the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000.
3. MCLs are taken from the USEPA National Primary Drinking Water Regulations (July 2002).
4. All detected analytes are shown in bold type.
5. Compounds exceeding listed standards are shown in bold and shaded type.

B - Detected in associated laboratory method blank.
E - Estimated concentration; exceeds upper limit of calibration.
J - Estimated value.
N/A - Not Analyzed for TSS

Table 7-1. Operations, Maintenance and Monitoring (OM) Schedule
Former GE Facility, Wilmington, MA

	MONITORING ACTIVITIES								
	Bi-Weekly						Monthly		Quarterly
	Flow Rate (FMT)	Cummulative Flow (FMT)	Pressure (PG)	Temp. (TG)	Vacuum (PG)	Vapor Concentration	Groundwater Sampling (SP)	Groundwater Elevations	Source Control Monitoring**
LOCATIONS									
Liquid Phase									
Influent: FMT-201; SP-201	X	X					X		
Before Bag Filter: PG-201			X						
After Bag Filter: PG-202			X						
GAC Influent: SP-202							X		
GAC Midstream: PG-203; SP-203			X				X		
Effluent: FMT-202; PG-204;TG-200;SP-204	X	X	X	X			X		
TRC-202R								X	
EMW-11R1, R2								X	X
BRW-R2, R3, R4								X	X
GZA-105R									X
IP-1R2									X
IP-2R1, R3									X
IP-3R2								X	X
IP-4R1, R3								X	X
Vapor Phase									
VGAC: FM-301	X								
Air Stripper Discharge: PG-301; TG-301				X	X				
Blower Influent: PG-302; TG-302				X	X				
Blower Effluent: TG-303				X					
GAC Inlet: PG-303; SP-301			X			X			
GAC Midstream: PG-304; SP-302			X			X			
GAC Effluent: SP-303						X			
Discharge Stack: PG-305			X						

Notes

** Off-site laboratory analysis; schedule subject to modification following Year 1.

*** With Photo-ionization Detector

Table 7-2. Baseline Sample Results - Source Control Monitoring
Former GE Facility, Wilmington, MA

Location Name	Sample Name	Screened Interval (feet bgs)	Sample Event Date	Total VOC	Dichlorodifluoromethane	Chloromethane	Vinyl chloride	Bromomethane	Chloroethane	Fluorotrichloromethane	Diethyl ether	Acetone	1,1-Dichloroethene	Carbon disulfide	Methylene chloride	Methyl tert-butyl ether	trans-1,2-Dichloroethene	Diisopropyl ether	1,1-Dichloroethane	Ethyl Tertiary Butyl Ether	2-Butanone (MEK)	cis-1,2-Dichloroethene	2,2-Dichloropropane	Bromochloromethane	Chloroform
Method 1, GW-1 Standards							2	10				3,000	7		5	70	100		70		350	70			5
BRW-1R2	BRW-1R2-8/03	46 - 66	8/6/2003	874.7	<10	<10	6.7	<10	<10	<10	<10	43	<10	<10	<25	<10	<10	<10	20	<10	<10	83	<10	<10	<10
BRW-1R3	BRW-1R3-8/03	85 - 105	8/6/2003	381	<4	<4	<4	<4	<4	<4	<4	38	<4	<4	<10	<4	<4	<4	11	<4	<4	43	<4	<4	<4
BRW-1R4	BRW-1R4-8/03	133 - 153	8/6/2003	1315	<20	<20	<20	<20	<20	<20	<20	48 J	<20	<20	<50	<20	<20	<20	23	<20	<20	42	<20	<20	<20
	MW-90J-8/03		Duplicate	1282	<20	<20	<20	<20	<20	<20	<20	40 J	<20	<20	<50	<20	<20	<20	23	<20	<20	39	<20	<20	<20
EMW-11R1	EMW11R1-901	79 - 89	9/19/2001	1582.7	NA	<5	26	<5	<5	<5	NA	<25	6.7	NA	22	<5	<5	NA	28	NA	<5	220	<5	<5	<5
	EMW-11R1-9/02		9/17/2002	BDL	NA	<20	NA	<20	<20	<20	NA	<100	<20	NA	<100	<20	NA	NA	<20	NA	<20	<20	<20	<20	<20
	EMW-11R1-8/03		8/6/2003	8620	<100	<100	500	<100	<100	<100	<100	<250	58 J	<100	<250	<100	90 J	<100	130	<100	<100	1200	<100	<100	<100
EMW-11R2	EMW11R2-901	104 - 114	9/19/2001	27120	NA	<100	250	<100	<100	<100	NA	<500	<100	NA	350	<100	<100	NA	370	NA	<100	750	<100	<100	<100
	TRC-901A		Duplicate	28220	NA	<100	240	<100	<100	<100	NA	<500	110	NA	350	<100	<100	NA	390	NA	<100	730	<100	<100	<100
	EMW-11R2-9/02		9/18/2002	BDL	NA	<200	NA	<200	<200	<200	NA	NA	<200	NA	<1000	<200	<200	NA	NA	NA	<200	NA	<200	<200	<200
	EMW-11R2-8/03		8/6/2003	10623	<40	<40	1300	<40	<40	<40	<40	< 100	43	<40	< 100	<40	100	<40	180	<40	<40	6400	<40	<40	<40
GZA-105R	GZA-105R	34.5 - 36.5	7/26/1999	45	NA	<2	6	<2	<2	<1	NA	<10	<1	NA	<1	<1	<1	NA	1	NA	<10	13	<1	<1	<1
	GZA-105R		1/7/2000	8246	NA	<200	<200	<200	<200	<100	NA	<1000	<100	NA	66	<100	<100	NA	130	NA	<1000	150	<100	<100	<100
	GZA-105R		7/7/2000	32010	NA	<400	<400	<400	<400	<200	NA	<2000	<200	NA	<200	<200	<200	NA	370	NA	<2000	140	<200	<200	<200
	GZA105R-PT-6/01		6/25/2001	15263	NA	<50	<50	<50	<50	<50	NA	<250	53	NA	210	<50	<50	NA	220	NA	<50	180	<50	<50	<50
	GZA105R-901		9/19/2001	9580	NA	<50	<50	<50	<50	<50	NA	<250	<50	NA	100	<50	<50	NA	140	NA	<50	140	<50	<50	<50
	GZA-105R-9/02		9/17/2002	BDL	NA	<100	<100	<100	<100	<100	NA	<500	<100	NA	<500	<100	<100	NA	NA	NA	<100	NA	<100	<100	<100
	GZA-105R-8/03		8/7/2003	5020	<40	<40	<40	<40	<40	<40	<40	<100	27 J	<40	<100	<40	<40	<40	160	<40	<40	280	<40	<40	<40
IP-01	IP-1/60'	60	6/2/2003	25370	<200	<200	<200	<500	<200	<200	<200	<500	<200	<200	<200	<200	<200	<200	270	<200	<200	<200	<200	<200	<200
IP-01R1	IP-1R1-8/03	28 - 48	8/6/2003	16330	<200	<200	<200	<200	<200	<200	<200	<500	<200	<200	<500	<200	<200	<200	230	<200	<200	150 J	<200	<200	<200
IP-01R2	IP-1R2-8/03	54 - 74	8/6/2003	26620	<200	<200	<200	<200	<200	<200	<200	<500	<200	<200	<500	<200	<200	<200	320	<200	<200	180 J	<200	<200	<200
IP-01R3	IP-1R3-8/03	95 - 115	8/6/2003	21760	<200	<200	<200	<200	<200	<200	<200	<500	<200	<200	<500	<200	<200	<200	260	<200	<200	150 J	<200	<200	<200
IP-02	IP-2/60'	60	6/2/2003	17500	<200	<200	<200	<500	<200	<200	<200	<500	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
	IP-2/110'	110	6/2/2003	16290	<100	<100	<100	<250	<100	<100	<100	<250	<100	<100	<100	<100	<100	<100	190	<100	<100	<100	<100	<100	<100
IP-02R1	IP-2R1-8/03	17.5 - 38	8/6/2003	4379	<40	<40	<40	<40	<40	<40	<40	120	<40	<40	<100	<40	<40	<40	96	<40	<40	53	<40	<40	<40
IP-02R2	IP-2R2-8/03	46 - 66	8/6/2003	3482	<40	<40	32 J	<40	<40	<40	<40	120	20 J	<40	<100	<40	<40	<40	82	<40	<40	140 J	<40	<40	<40
IP-02R3	IP-2R3-8/03	72 - 92	8/6/2003	9980	<100	<100	<100	<100	<100	<100	<100	150 J	<100	<100	<250	<100	<100	<100	180	<100	<100	90 J	<100	<100	<100
IP-02R4	IP-2R4-8/03	98 - 122	8/6/2003	8860	<100	<100	<100	<100	<100	<100	<100	150 J	<100	<100	<250	<100	<100	<100	160	<100	<100	73 J	<100	<100	<100
IP-03	IP-3/60'	60	6/2/2003	9130	<100	<100	<100	<250	<100	<100	<100	<250	<100	<100	<100	<100	<100	<100	130	<100	<100	<100	<100	<100	<100
IP-03R1	IP-3R1-8/03	48 - 61	8/6/2003	1791	<20	<20	<20	<20	<20	<20	<20	120	<20	<20	<50	<20	<20	<20	63	<20	<20	38	<20	<20	<20
IP-03R2	IP-3R2-8/03	64 - 84	8/6/2003	6620	<100	<100	<100	<100	<100	<100	<100	160 J	<100	<100	<250	<100	<100	<100	130	<100	<100	56 J	<100	<100	<100
IP-04	IP-4/60'	60	6/2/2003	14600	<100	<100	<100	<250	<100	<100	<100	<250	<100	<100	<100	<100	<100	<100	200	<100	<100	<100	<100	<100	<100
IP-04R1	IP-4R1-8/03	38 - 48	8/6/2003	8750	<100	<100	<100	<100	<100	<100	<100	<250	<100	<100	<250	<100	<100	<100	150	<100	<100	77 J	<100	<100	<100
IP-04R2	IP-4R2-8/03	54 - 74	8/6/2003	8160	<100	<100	<100	<100	<100	<100	<100	<250	<100	<100	<250	<100	<100	<100	160	<100	<100	70 J	<100	<100	<100
IP-04R3	IP-4R3-8/03	80 - 115	8/6/2003	6120	<100	<100	<100	<100	<100	<100	<100	160 J	<100	<100	<250	<100	<100	<100	120	<100	<100	58 J	<100	<100	<100
TRC-301R	TRC-301R-A	66-172	5/6/2003	78	<2	<2	<2	<2	<2	<2	<2	<5	<2	<2	<5	<2	<2	<2	<2	<2	4.3	25	<2	<2	<2
	TRC-301R-B		5/6/2003	73	<2	<2	<2	<2	<2	<2	<2	<5	<2	<2	<5	<2	<2	<2	<2	<2	4.5	23	<2	<2	<2
	TRC-301R-C		5/6/2003	71.3	<2	<2	<2	<2	<2	<2	<2	<5	<2	<2	<5	<2	<2	<2	<2	<2	4.4	22	<2	<2	<2
	TRC-301R-D		5/6/2003	72	<2	<2	<2	<2	<2	<2	<2	<5	<2	<2	<5	<2	<2	<2	<2	<2	4.5	22	<2	<2	<2
	TRC-301R-E		5/6/2003	72.4	<2	<2	<2	<2	<2	<2	<2	<5	<2	<2	<5	<2	<2	<2	<2	<2	4.6	21	<2	<2	<2
	TRC-301R-F		5/6/2003	69.1	<2	<2	<2	<2	<2	<2	<2	<5	<2	<2	<5	<2	<2	<2	<2	<2	4.5	20	<2	<2	<2
	TRC-301R-8/03-C	87.5	8/6/2003	127.3	<2	<2	<2	<2	<2	<2	<2	17	1.2 J	<2	<5	<2	<2	<2	1.9 J	<2	3.1	65	<2	<2	<2

Notes:
1. Unless otherwise specified, analytical results in micrograms per Liter (ug/L).
2. "<" denotes analyte was not detected at concentrations above the given quantitation limit.
3. NA - Sample not analyzed for the specified analyte.
4. BDL - Below Detection Limit.
5. Shaded analyte name indicates analyte detected in sample.
6. Groundwater Standards are taken from the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000. Exceedance of applicable Method 1 GW-1 Standard is indicated in bold and shaded type.

J - Estimated value; below quantitation limit
NA* - Not Applicable; laboratory reported results as 1,3-dichloropropene (total)
NA (+) - Not Applicable; laboratory reported results as xylenes (total).

Table 7-2. Baseline Sample Results - Source Control Monitoring
Former GE Facility, Wilmington, MA

Location Name	Sample Name	Screened Interval (feet bgs)	Sample Event Date	1,1,1-Trichloroethane	1,1-Dichloropropene	Carbon tetrachloride	Benzene	Tert-amyl-methyl ether (TAME)	Tetrahydrofuran	1,2-Dichloroethane	Trichloroethene	1,2-Dichloropropane	Dibromomethane	1,4-Dioxane	Bromodichloromethane	4-Methyl-2-pentanone	1,3-Dichloropropene (Total)	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Toluene	1,1,2-Trichloroethane	2-Hexanone	Tetrachloroethene	1,3-Dichloropropane	Location Name
Method 1, GW-1 Standards				200		5	5			5	5	5			5	350	0.5	0.5	0.5	1,000	5		5		
BRW-1R2	BRW-1R2-8/03	46 - 66	8/6/2003	<10	<10	<10	<10	<10	<10	<10	630	<10	<10	<500	<10	<10	<20	NA*	NA*	<10	<10	<10	92	<10	BRW-1R2
BRW-1R3	BRW-1R3-8/03	85 - 105	8/6/2003	<4	<4	<4	<4	<4	<4	<4	260	<4	<4	<200	<4	<4	<8	NA*	NA*	<4	<4	<4	29	<4	BRW-1R3
BRW-1R4	BRW-1R4-8/03	133 - 153	8/6/2003	<20	<20	<20	<20	<20	<20	<20	1000	<20	<20	<1000	<20	<20	<40	NA*	NA*	<20	<20	<20	250	<20	BRW-1R4
	MW-901-R/03		Duplicate	<20	<20	<20	<20	<20	<20	<20	980	<20	<20	<1000	<20	<20	<40	NA*	NA*	<20	<20	<20	240	<20	
EMW-11R1	EMW11R1-901	79 - 89	9/19/2001	<5	<5	<5	<5	NA	NA	<5	950	<5	<5	NA	<5	<5	NA	<1.2	<1	<5	<5	<5	330	<5	EMW-11R1
	EMW-11R1-9/02		9/17/2002	<20	<20	<20	<20	NA	NA	<20	NA	<20	<20	NA	<20	<20	NA	<10	<10	<20	<20	<20	NA	<20	
	EMW-11R1-8/03		8/6/2003	<100	<100	<100	<100	<100	<100	<100	8500	<100	<100	<5000	<100	<100	<200	NA*	NA*	<100	<100	<100	200	<100	
EMW-11R2	EMW11R2-901	104 - 114	9/19/2001	<100	<100	<500	<100	NA	NA	<100	17000	<100	<100	NA	<100	<100	NA	<23	<21	<100	<100	<100	9200	<100	EMW-11R2
	TRC-901A		Duplicate	<100	<100	<500	<100	NA	NA	<100	18000	<100	<100	NA	<100	<100	NA	<23	<21	<100	<100	<100	8400	<100	
	EMW-11R2-9/02		9/18/2002	<200	<200	<200	<200	NA	NA	<200	NA	<200	<200	NA	<200	<200	NA	<100	<100	<200	<200	<200	NA	<200	
	EMW-11R2-8/03		8/6/2003	<40	<40	<40	<40	<40	<40	<40	1400	<40	<40	<2000	<40	<40	<80	NA*	NA*	<40	<40	<40	27.3	<40	
GZA-105R	GZA-105R	34.5 - 36.5	7/26/1999	<1	<1	<1	<1	NA	NA	<1	18	<1	<1	NA	<1	<10	NA	<0	<0	<1	<1	<10	4	<1	GZA-105R
	GZA-105R		1/7/2000	<100	<100	<100	<100	NA	NA	<100	4900	<100	<100	NA	<100	<1000	NA	<50	<50	<100	<100	<1000	3800	<100	
	GZA-105R		7/7/2000	<200	<200	<200	<200	NA	NA	<200	6300	<200	<200	NA	<200	<2000	NA	<100	<100	<200	<200	<2000	5400	<200	
	GZA105R-PT-6/01		6/25/2001	<50	<50	<50	<50	NA	NA	<50	8500	<50	<50	NA	<50	<50	NA	<12	<10	<50	<50	<50	6100	<50	
	GZA105R-901		9/19/2001	<50	<50	<250	<50	NA	NA	<50	5800	<50	<50	NA	<50	<50	NA	<12	<10	<50	<50	<50	3700	<50	
	GZA-105R-9/02		9/17/2002	<100	<100	<100	<100	NA	NA	<100	NA	<100	<100	NA	<100	<100	NA	<50	<50	<100	<100	<100	NA	<100	
	GZA-105R-8/03		8/7/2003	<40	<40	<40	<40	<40	<40	<40	3900	<40	<40	<2000	<40	<40	<80	NA*	NA*	<40	<40	<40	680	<40	
IP-01	IP-1/60'	60	6/2/2003	<200	<200	<200	<200	<200	<200	<200	17000	<200	<200	<5000	<200	<200	<400	NA*	NA*	<200	<200	<200	8100	<200	IP-01
IP-01R1	IP-1R1-8/03	28 - 48	8/6/2003	<200	<200	<200	<200	<200	<200	<200	14000	<200	<200	<10000	<200	<200	<400	NA*	NA*	<200	<200	<200	2100	<200	IP-01R1
IP-01R2	IP-1R2-8/03	54 - 74	8/6/2003	<200	<200	<200	<200	<200	<200	<200	22000	<200	<200	<10000	<200	<200	<400	NA*	NA*	<200	<200	<200	4300	<200	IP-01R2
IP-01R3	IP-1R3-8/03	95 - 115	8/6/2003	<200	<200	<200	<200	<200	<200	<200	17000	<200	<200	<10000	<200	<200	<400	NA*	NA*	<200	<200	<200	4500	<200	IP-01R3
IP-02	IP-2/60'	60	6/2/2003	<200	<200	<200	<200	<200	<200	<200	9600	<200	<200	<5000	<200	<200	<400	NA*	NA*	<200	<200	<200	7900	<200	IP-02
	IP-2/110'	110	6/2/2003	<100	<100	<100	<100	<100	<100	<100	8900	<100	<100	<2500	<100	<100	<200	NA*	NA*	<100	<100	<100	7200	<100	
IP-02R1	IP-2R1-8/03	17.5 - 38	8/6/2003	<40	<40	<40	<40	<40	<40	<40	3200	<40	<40	<2000	<40	<40	<80	NA*	NA*	<40	<40	<40	910	<40	IP-02R1
IP-02R2	IP-2R2-8/03	46 - 66	8/6/2003	<40	<40	<40	<40	<40	<40	<40	2800	<40	<40	<2000	<40	<40	<80	NA*	NA*	<40	<40	<40	480	<40	IP-02R2
IP-02R3	IP-2R3-8/03	72 - 92	8/6/2003	<100	<100	<100	<100	<100	<100	<100	8400	<100	<100	<5000	<100	<100	<200	NA*	NA*	<100	<100	<100	1400	<100	IP-02R3
IP-02R4	IP-2R4-8/03	98 - 122	8/6/2003	<100	<100	<100	<100	<100	<100	<100	7000	<100	<100	<5000	<100	<100	<200	NA*	NA*	<100	<100	<100	1700	<100	IP-02R4
IP-03	IP-3/60'	60	6/2/2003	<100	<100	<100	<100	<100	<100	<100	5500	<100	<100	<2500	<100	<100	<200	NA*	NA*	<100	<100	<100	3500	<100	IP-03
IP-03R1	IP-3R1-8/03	48 - 61	8/6/2003	<20	<20	<20	<20	<20	<20	<20	1400	<20	<20	<1000	<20	<20	<40	NA*	NA*	<20	<20	<20	170	<20	IP-03R1
IP-03R2	IP-3R2-8/03	64 - 84	8/6/2003	<100	<100	<100	<100	<100	<100	<100	5200	<100	<100	<5000	<100	<100	<200	NA*	NA*	<100	<100	<100	1300	<100	IP-03R2
IP-04	IP-4/60'	60	6/2/2003	<100	<100	<100	<100	<100	<100	<100	8500	<100	<100	<2500	<100	<100	<200	NA*	NA*	<100	<100	<100	3900	<100	IP-04
IP-04R1	IP-4R1-8/03	38 - 48	8/6/2003	<100	<100	<100	<100	<100	<100	<100	6700	<100	<100	<5000	<100	<100	<200	NA*	NA*	<100	<100	<100	1900	<100	IP-04R1
IP-04R2	IP-4R2-8/03	54 - 74	8/6/2003	<100	<100	<100	<100	<100	<100	<100	6600	<100	<100	<5000	<100	<100	<200	NA*	NA*	<100	<100	<100	1400	<100	IP-04R2
IP-04R3	IP-4R3-8/03	80 - 115	8/6/2003	<100	<100	<100	<100	<100	<100	<100	5000	<100	<100	<5000	<100	<100	<200	NA*	NA*	<100	<100	<100	1100	<100	IP-04R3
TRC-301R	TRC-301R-A	66-172	5/6/2003	<2	<2	<2	<2	<2	<2	<2	41	<2	<2	<50	<2	<2	<4	NA*	NA*	<2	<2	<2	2.9	<2	TRC-301R
	TRC-301R-B		5/6/2003	<2	<2	<2	<2	<2	<2	<2	39	<2	<2	<50	<2	<2	<4	NA*	NA*	<2	<2	<2	6.5	<2	
	TRC-301R-C		5/6/2003	<2	<2	<2	<2	<2	<2	<2	38	<2	<2	<50	<2	<2	<4	NA*	NA*	<2	<2	<2	6.9	<2	
	TRC-301R-D		5/6/2003	<2	<2	<2	<2	<2	<2	<2	38	<2	<2	<50	<2	<2	<4	NA*	NA*	<2	<2	<2	7.5	<2	
	TRC-301R-E		5/6/2003	<2	<2	<2	<2	<2	<2	<2	39	<2	<2	<50	<2	<2	<4	NA*	NA*	<2	<2	<2	7.8	<2	
	TRC-301R-F		5/6/2003	<2	<2	<2	<2	<2	<2	<2	37	<2	<2	<50	<2	<2	<4	NA*	NA*	<2	<2	<2	7.6	<2	
	TRC-301R-8/03-C	87.5	8/6/2003	<2	<2	<2	<2	<2	<2	<2	38	<2	<2	<100	<2	<2	<4	NA*	NA*	<2	<2	<2	4.2	<2	

Notes:
1. Unless otherwise specified, analytical results in micrograms per Liter (ug/L).
2. "<" denotes analyte was not detected at concentrations above the given quantitation limit.
3. NA - Sample not analyzed for the specified analyte.
4. BDL - Below Detection Limit.
5. Shaded analyte name indicates analyte detected in sample.
6. Groundwater Standards are taken from the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000. Exceedance of applicable Method 1 GW-1 Standard is indicated in bold and shaded type.
J - Estimated value; below quantitation limit
NA* - Not Applicable; laboratory reported results as 1,3-dichloropropene (total)
NA (+) - Not Applicable; laboratory reported results as xylenes (total).

Notes:
1. Unless otherwise
2. "<" denotes analy
3. NA - Sample not
4. BDL - Below Det
5. Shaded analyte na
6. Groundwater Stan
J - Estimated value; b
NA* - Not Applicab
NA (+) - Not Applic

Table 7-2. Baseline Sample Results - Source Control Monitoring
Former GE Facility, Wilmington, MA

Sample Name	Screened Interval (feet bgs)	Sample Event Date	Chlorodibromomethane	Ethylenedibromide	Chlorobenzene	1,1,1,2-Tetrachloroethane	Ethylbenzene	m- & p- Xylenes	o-Xylene	Xylenes (total)	Styrene	Bromoform	Isopropylbenzene	1,1,2,2-Tetrachloroethane	Bromobenzene	1,2,3-Trichloropropane	n-Propylbenzene	2-Chlorotoluene	1,3,5-Trimethylbenzene	4-Chlorotoluene	tert-Butylbenzene	1,2,4-Trimethylbenzene	sec-Butylbenzene	Location Name
Method 1, GW-1 Standards			**5**	**0.02**	**100**	**5**	**700**	**10,000**	**10,000**	**10,000**	**100**	**5**		**2**										
BRW-1R2-8/03	46 - 66	8/6/2003	<10	<10	<10	<10	<10	NA (+)	NA (+)	<30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	BRW-1R2
BRW-1R3-8/03	85 - 105	8/6/2003	<4	<4	<4	<4	<4	NA (+)	NA (+)	<12	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	BRW-1R3
BRW-1R4-8/03	133 - 153	8/6/2003	<20	<20	<20	<20	<20	NA (+)	NA (+)	<60	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	BRW-1R4
MW-901-8/03		Duplicate	<20	<20	<20	<20	<20	NA (+)	NA (+)	<60	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	
EMW11R1-901	79 - 89	9/19/2001	<5	<5	<5	<5	<5	<10	<5	NA	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	EMW-11R1
EMW-11R1-9/02		9/17/2002	<20	<20	<20	<20	<20	<40	<20	NA	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	
EMW-11R1-8/03		8/6/2003	<100	<100	<100	<100	<100	NA (+)	NA (+)	<300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
EMW11R2-901	104 - 114	9/19/2001	<100	<100	<100	<100	<100	<200	<100	NA	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	EMW-11R2
TRC-901A		Duplicate	<100	<100	<100	<100	<100	<200	<100	NA	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
EMW-11R2-9/02		9/18/2002	<200	<200	<200	<200	<200	<400	<200	NA	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	
EMW-11R2-8/03		8/6/2003	<40	<40	<40	<40	<40	NA (+)	NA (+)	<120	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	
GZA-105R	34.5 - 36.5	7/26/1999	<1	<1	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	1	<1	GZA-105R
GZA-105R		1/7/2000	<100	<100	<100	<100	<100	<100	<100	NA	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
GZA-105R		7/7/2000	<200	<200	<200	<200	<200	<200	<200	NA	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	
GZA105R-PT-6-01		6/25/2001	<50	<50	<50	<50	<50	<100	<50	NA	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
GZA105R-901		9/19/2001	<50	<50	<50	<50	<50	<100	<50	NA	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
GZA-105R-9/02		9/17/2002	<100	<100	<100	<100	<100	<200	<100	NA	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
GZA-105R-8/03		8/7/2003	<40	<40	<40	<40	<40	NA (+)	NA (+)	<120	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	
IP-1/60'	60	6/2/2003	<200	<200	<200	<200	<200	NA (+)	NA (+)	<600	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	IP-01
IP-1R1-8/03	28 - 48	8/6/2003	<200	<200	<200	<200	<200	NA (+)	NA (+)	<600	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	IP-01R1
IP-1R2-8/03	54 - 74	8/6/2003	<200	<200	<200	<200	<200	NA (+)	NA (+)	<600	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	IP-01R2
IP-1R3-8/03	95 - 115	8/6/2003	<200	<200	<200	<200	<200	NA (+)	NA (+)	<600	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	IP-01R3
IP-2/60'	60	6/2/2003	<200	<200	<200	<200	<200	NA (+)	NA (+)	<600	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	IP-02
IP-2/110'	110	6/2/2003	<100	<100	<100	<100	<100	NA (+)	NA (+)	<300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
IP-2R1-8/03	17.5 - 38	8/6/2003	<40	<40	<40	<40	<40	NA (+)	NA (+)	<120	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	IP-02R1
IP-2R2-8/03	46 - 66	8/6/2003	<40	<40	<40	<40	<40	NA (+)	NA (+)	<120	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	IP-02R2
IP-2R3-8/03	72 - 92	8/6/2003	<100	<100	<100	<100	<100	NA (+)	NA (+)	<300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	IP-02R3
IP-2R4-8/03	98 - 122	8/6/2003	<100	<100	<100	<100	<100	NA (+)	NA (+)	<300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	IP-02R4
IP-3/60'	60	6/2/2003	<100	<100	<100	<100	<100	NA (+)	NA (+)	<300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	IP-03
IP-3R1-8/03	48 - 61	8/6/2003	<20	<20	<20	<20	<20	NA (+)	NA (+)	<60	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	IP-03R1
IP-3R2-8/03	64 - 84	8/6/2003	<100	<100	<100	<100	<100	NA (+)	NA (+)	<300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	IP-03R2
IP-4/60'	60	6/2/2003	<100	<100	<100	<100	<100	NA (+)	NA (+)	<300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	IP-04
IP-4R1-8/03	38 - 48	8/6/2003	<100	<100	<100	<100	<100	NA (+)	NA (+)	<300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	IP-04R1
IP-4R2-8/03	54 - 74	8/6/2003	<100	<100	<100	<100	<100	NA (+)	NA (+)	<300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	IP-04R2
IP-4R3-8/03	80 - 115	8/6/2003	<100	<100	<100	<100	<100	NA (+)	NA (+)	<300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	IP-04R3
TRC-301R-A	66-172	5/6/2003	<2	<2	<2	<2	<2	NA (+)	NA (+)	<6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	TRC-301R
TRC-301R-B		5/6/2003	<2	<2	<2	<2	<2	NA (+)	NA (+)	<6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
TRC-301R-C		5/6/2003	<2	<2	<2	<2	<2	NA (+)	NA (+)	<6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
TRC-301R-D		5/6/2003	<2	<2	<2	<2	<2	NA (+)	NA (+)	<6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
TRC-301R-E		5/6/2003	<2	<2	<2	<2	<2	NA (+)	NA (+)	<6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
TRC-301R-F		5/6/2003	<2	<2	<2	<2	<2	NA (+)	NA (+)	<6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
TRC-301R-8/03-C	87.5	8/6/2003	<2	<2	<2	<2	<2	NA (+)	NA (+)	<6	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	

specified, analytical results in micrograms per Liter (ug/L;
yte was not detected at concentrations above the given quantitation limit.
analyzed for the specified analyte
lection Limit
ume indicates analyte detected in sample
ndards are taken from the Massachusetts Comingency Plan (MCP) 310 CMR 40.0000. Exceedance of applicable Method 1 GW-1 Standard is indicated in bold and shaded typ
below quantitation limi
ple; laboratory reported results as 1,3-dichloropropene (total)
cable; laboratory reported results as xylenes (total).

Notes:
1. Unless otherwise
2. "<" denotes analy
3. NA - Sample not
4. BDL - Below Det
5. Shaded analyte na
6. Groundwater Stan
J - Estimated value; t
NA* - Not Applicab
NA (+) - Not Applic

Table 7-2. Baseline Sample Results - Source Control Monitoring
Former GE Facility, Wilmington, MA

Sample Name	Screened Interval (feet bgs)	Sample Event Date	1,3-Dichlorobenzene	p-Isopropyltoluene	1,4-Dichlorobenzene	n-Butylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dichlorobenzene	1,2,4-Trichlorobenzene	Hexachlorobutadiene	Naphthalene	1,2,3-Trichlorobenzene
Method 3, GW-1 Standards			600		5			600	70	0.6	20	
BRW-1R2-8/03	46 - 66	8/6/2003	<10	<10	<10	<10	<25	<10	<25	<25	<25	<25
BRW-1R3-8/03	85 - 105	8/6/2003	<4	<4	<4	<4	<10	<4	<10	<10	<10	<10
BRW-1R4-8/03	133 - 153	8/6/2003	<20	<20	<20	<20	<50	<20	<50	<50	<50	<50
MW-901-8/03		Duplicate	<20	<20	<20	<20	<50	<20	<50	<50	<50	<50
EMW11R1-901	79 - 89	9/19/2001	<5	<5	<5	<5	<25	<5	<5	<25	<5	<5
EMW-11R1-9/02		9/17/2002	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
EMW-11R1-8/03		8/6/2003	<100	<100	<100	<100	<250	<100	<250	<250	<250	<250
EMW11R2-901	104 - 114	9/19/2001	<100	<100	<100	<100	<500	<100	<100	<500	<100	<100
TRC-901A		Duplicate	<100	<100	<100	<100	<500	<100	<100	<500	<100	<100
EMW-11R2-9/02		9/18/2002	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
EMW-11R2-8/03		8/6/2003	<40	<40	<40	<40	<100	<40	<100	<100	<100	<100
GZA-105R	34.5 - 36.5	7/26/1999	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
GZA-105R		1/7/2000	<100	<100	<100	<100	<100	<100	<100	<60	<500	<100
GZA-105R		7/7/2000	<200	<200	<200	<200	<200	<200	<200	<120	<1000	<200
GZA105R-PT-6/01		6/25/2001	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
GZA105R-901		9/19/2001	<50	<50	<50	<50	<250	<50	<50	<250	<50	<50
GZA-105R-9/02		9/17/2002	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
GZA-105R-8/03		8/7/2003	<40	<40	<40	<40	<100	<40	<100	<100	<100	<100
IP-1/60'	60	6/2/2003	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
IP-1R1-8/03	28 - 48	8/6/2003	<200	<200	<200	<200	<500	<200	<500	<500	<500	<500
IP-1R2-8/03	54 - 74	8/6/2003	<200	<200	<200	<200	<500	<200	<500	<500	<500	<500
IP-1R3-8/03	95 - 115	8/6/2003	<200	<200	<200	<200	<500	<200	<500	<500	<500	<500
IP-2/60'	60	6/2/2003	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
IP-2/110'	110	6/2/2003	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
IP-2R1-8/03	17.5 - 38	8/6/2003	<40	<40	<40	<40	<100	<40	<100	<100	<100	<100
IP-2R2-8/03	46 - 66	8/6/2003	<40	<40	<40	<40	<100	<40	<100	<100	<100	<100
IP-2R3-8/03	72 - 92	8/6/2003	<100	<100	<100	<100	<250	<100	<250	<250	<250	<250
IP-2R4-8/03	98 - 122	8/6/2003	<100	<100	<100	<100	<250	<100	<250	<250	<250	<250
IP-3/60'	60	6/2/2003	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
IP-3R1-8/03	48 - 61	8/6/2003	<20	<20	<20	<20	<50	<20	<50	<50	<50	<50
IP-3R2-8/03	64 - 84	8/6/2003	<100	<100	<100	<100	<250	<100	<250	<250	<250	<250
IP-4/60'	60	6/2/2003	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
IP-4R1-8/03	38 - 48	8/6/2003	<100	<100	<100	<100	<250	<100	<250	<250	<250	<250
IP-4R2-8/03	54 - 74	8/6/2003	<100	<100	<100	<100	<250	<100	<250	<250	<250	<250
IP-4R3-8/03	80 - 115	8/6/2003	<100	<100	<100	<100	<250	<100	<250	<250	<250	<250
TRC-301R-A	66-172	5/6/2003	<2	<2	<2	<2	<5	<2	<2	<2	<2	<2
TRC-301R-B		5/6/2003	<2	<2	<2	<2	<5	<2	<2	<2	<2	<2
TRC-301R-C		5/6/2003	<2	<2	<2	<2	<5	<2	<2	<2	<2	<2
TRC-301R-D		5/6/2003	<2	<2	<2	<2	<5	<2	<2	<2	<2	<2
TRC-301R-E		5/6/2003	<2	<2	<2	<2	<5	<2	<2	<2	<2	<2
TRC-301R-F		5/6/2003	<2	<2	<2	<2	<5	<2	<2	<2	<2	<2
TRC-301R-8/03-C	87.5	8/6/2003	<2	<2	<2	<2	<5	<2	<5	<5	<5	<5

specified, analytical results in micrograms per Liter (ug/L;
yte was not detected at concentrations above the given quantitation Limit.
analyzed for the specified analyte
tection Limit
me indicates analyte detected in sample
ndards are taken from the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000. Exceedance of applicable Method 1 GW-1 Standard is indicated in bold and shaded typ
below quantitation limi
le; laboratory reported results as 1,3-dichloropropene (total)
cable; laboratory reported results as xylenes (total).

Table 7-3. Source Control Groundwater Monitoring Program Schedule
Former GE Facility, Wilmington, MA

Well ID	SPECIFICATIONS					INITIAL SCHEDULE (a)			
	Well Diameter (inches)	Screen/ Borehole Interval (ft)	Total Depth feet & inch*	Port or PDB Centerline from TOC (ft)	Sampling Method	Dec-03	Mar-04	Jun-04	Sep-04
Shallow Bedrock									
GZA-105R	0.5	34.5 - 36.5	36.75	35	PP	X	X	X	X
EMW-11R1	0.75	79-89	89' 2"	86	SD-PDB	X	X	X	X
BRW-1R2	2	46-66	66' 2.25"	62	PDB	X	X	X	X
IP-2RI	1	17.5 - 38	37' 8.75"	33	SD-PDB	X	X	X	X
IP-4R1	2	38-48	48' 4.5"	41	PDB	X	X	X	X
Deep Bedrock									
EMW-11R2	0.75	104-114	114' 2"	111	SD-PDB	X	X	X	X
BRW-1R4	2	133-153	152' 9.5"	140	PDB	X	X	X	X
IP-1R2	2	54-74	74' 1.25"	60	PDB	X	X	X	X
IP-2R3	2	72-92	92' 2.25"	87	PDB	X	X	X	X
IP-3R2	2	64-84	84' 2.75"	76	PDB	X	X	X	X
IP-4R3	2	80-115	115' 1"	111	PDB	X	X	X	X

Notes:
PDB = Passive diffusion bag sampler
PP = Peristaltic pump
* = From top of casing.
(a) = TRC will propose a Long Term Schedule following a detailed analysis of four rounds of quarterly data gathering.

APPENDIX A

PHOTOGRAPHS



Photo 1 – Trenching through the parking lot.



Photo 2 – Trenching across parking lot



Photo 3 – Open trench with crushed stone bedding (installed). Sediment controls can be seen in the background.



Photo 4 – Wide-angle view of trenches across parking lot.



Photo 5 – Rock splitter is used to cut through shallow bedrock ledge near perimeter fence in trench close to treatment building.



Photo 6 – Same view of trench after excavation of bedrock.



Photo 7 – Installation of piping and hookup to pumping well TRC-202R



Photo 8 – Installation of piping and conduit in trench.



Photo 9 – Backfilling of trench.



Photo 10 – Close-up view of manholes at injection points IP-3 and IP-4, with injection piping visible at manholes.



Photo 11 – Backfilling trench.



Photo 12 – Parking lot surface trimmed and prepared for repaving.



Photo 13 – Wide-angle view of site shows trenches leading to the treatment building site.



Photo 14 – Trenches compacted prior to repaving.



Photo 15 – Wide-angle view of repaved trenches in parking lot.



Photo 16 – Topsoil removed from new treatment building site.



Photo 17 – Preparation of base for treatment building concrete pad.



Photo 18 – View of concrete pad for treatment building with sump in center.



Photo 19 – Construction of prefabricated treatment building.



Photo 20 – Full exterior of nearly completed treatment building.



Photo 21 – Interior view of prefabricated treatment building, and pre-construction forms for ramp leading to entrance.



Photo 22 – Paving of ramp leading to treatment building.



Photo 23 – View of treatment building (post-construction).



Photo 24 – View of groundwater treatment system inside treatment building. (Air dryer located on left, air stripper (stainless steel) on right, and granular activated carbon [GAC] units for water in back.)



Photo 25 – View of groundwater treatment system inside treatment building. (Air stripper (stainless steel) on left, and granular activated carbon [GAC] units for air on right.)



Photo 26 – Clearing an old trail to the staging area for drilling new well TRC-301R.



Photo 27 –All-terrain drill rig mobilized to the new monitoring well TRC-301R location. Setting up drill rig on top of ice in the wetland.



Photo 28 – Setting casing at monitoring well TRC-301R.



Photo 29 – Completing borehole geophysical survey of the borehole at monitoring well TRC-301R.



Photo 30 – View of containerized drill cuttings and water generated during the installation of monitoring well TRC-301R that were temporarily stored outside the wetlands in the staging area.



Photo 31 – Removal of the all-terrain drill rig from the wetlands at the TRC-301R monitoring well location.

NRCC Determination of Applicability for 100-Foot Buffer Zone

L2003-240

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BARBARA STATS
TOWN CLERK
NORTH READING, MASS

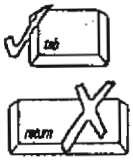
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 2 – Determination of Applicability

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

A. General Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



From:

North Reading
Conservation Commission

To: Applicant

TRC Environmental Corporation (TRC)
Name
Boott Mills S., Foot of John Street
Mailing Address
Lowell | MA | 01852
City/Town | State | Zip Code

Property Owner (if different from applicant):

Wilmington Realty Trust
Name
20 Laundale Drive
Mailing Address
Stoneham | MA | 02180
City/Town | State | Zip Code

1. Title and Date of Final Plans and Other Documents:

TRC Erosion and Sedimentation Control Plan, Phase IV Remedy Implementation Plan (RIP) Former GE Facility Figure 2 & 3 — Title
2/20/03 — Final Date (or Revised Date if applicable)

2. Date Request Filed:

3/31/03

B. Determination

Pursuant to the authority of M.G.L. c. 131, § 40, the Conservation Commission considered your Request for Determination of Applicability, with its supporting documentation, and made the following Determination.

Project Description (if applicable):

Modify bedrock well TRC202R for use as a groundwater extraction well.

Project Location:

50 Fordham Road — Street Address
North Reading — City/Town
2 — Assessors Map/Plat Number
12 — Parcel/Lot Number

B. Determination (cont.)

The following Determination(s) is/are applicable to the proposed site and/or project relative to the Wetlands Protection Act and regulations:

Positive Determination
Note: No work within the jurisdiction of the Wetlands Protection Act may proceed until a final Order of Conditions (issued following submittal of a Notice of Intent or Abbreviated Notice of Intent) has been received from the issuing authority (i.e., Conservation Commission or the Department of Environmental Protection).

☐ 1. The area described on the referenced plan(s) is an area subject to protection under the Act. Removing, filling, dredging, or altering of the area requires the filing of a Notice of Intent.

☐ 2a. The boundary delineations of the following resource areas described on the referenced plan(s) are confirmed as accurate. Therefore, the resource area boundaries confirmed in this Determination are binding as to all decisions rendered pursuant to the Wetlands Protection Act and its regulations regarding such boundaries for as long as this Determination is valid.

_____

_____

_____

☐ 2b. The boundaries of resource areas listed below are not confirmed by this Determination, regardless of whether such boundaries are contained on the plans attached to this Determination or to the Request for Determination.

_____

_____

_____

☐ 3. The work described on referenced plan(s) and document(s) is within an area subject to protection under the Act and will remove, fill, dredge, or alter that area. Therefore, said work requires the filing of a Notice of Intent.

☐ 4. The work described on referenced plan(s) and document(s) is within the Buffer Zone and will alter an Area subject to protection under the Act. Therefore, said work requires the filing of a Notice of Intent.

☐ 5. The area and/or work described on referenced plan(s) and document(s) is subject to review and approval by:

_____
Name of Municipality

Pursuant to the following municipal wetland ordinance or bylaw:

_____
Name Ordinance or Bylaw Citation

B. Determination (cont.)

☐ 6. The following area and/or work, if any, is subject to a municipal ordinance or bylaw but not subject to the Massachusetts Wetlands Protection Act:

☐ 7. If a Notice of Intent is filed for the work in the Riverfront Area described on referenced plan(s) and document(s), which includes all or part of the work described in the Request, the applicant must consider the following alternatives. (Refer to the wetland regulations at 10.58(4)c. for more information about the scope of alternatives requirements):

- ☐ Alternatives limited to the lot on which the project is located.
- ☐ Alternatives limited to the lot on which the project is located, the subdivided lots, and any adjacent lots formerly or presently owned by the same owner.
- ☐ Alternatives limited to the original parcel on which the project is located, the subdivided parcels, any adjacent parcels, and any other land which can reasonably be obtained within the municipality.
- ☐ Alternatives extend to any sites which can reasonably be obtained within the appropriate region of the state.

Negative Determination

Note: No further action under the Wetlands Protection Act is required by the applicant. However, if the Department is requested to issue a Superseding Determination of Applicability, work may not proceed on this project unless the Department fails to act on such request within 35 days of the date the request is post-marked for certified mail or hand delivered to the Department. Work may then proceed at the owner's risk only upon notice to the Department and to the Conservation Commission. Requirements for requests for Superseding Determinations are listed at the end of this document.

☐ 1. The area described in the Request is not an area subject to protection under the Act or the Buffer Zone.

☐ 2. The work described in the Request is within an area subject to protection under the Act, but will not remove, fill, dredge, or alter that area. Therefore, said work does not require the filing of a Notice of Intent.

☒ 3. The work described in the Request is within the Buffer Zone, as defined in the regulations, but will not alter an Area subject to protection under the Act. Therefore, said work does not require the filing of a Notice of Intent, subject to the following conditions (if any).

☐ 4. The work described in the Request is not within an Area subject to protection under the Act (including the Buffer Zone). Therefore, said work does not require the filing of a Notice of Intent, unless and until said work alters an Area subject to protection under the Act.

B. Determination (cont.)

☐ 5. The area described in the Request is subject to protection under the Act. Since the work described therein meets the requirements for the following exemption, as specified in the Act and the regulations, no Notice of Intent is required:

Exempt Activity (site applicable statuatory/regulatory provisions)

☐ 6. The area and/or work described in the Request is not subject to review and approval by:

Name of Municipality

Pursuant to a municipal wetlands ordinance or bylaw.

Name | Ordinance or Bylaw Citation

C. Authorization

This Determination is issued to the applicant and delivered as follows:

☐ by hand delivery on

Date

☑ by certified mail, return receipt requested on

April 10, 2003
Date

This Determination is valid for **three years** from the date of issuance (except Determinations for Vegetation Management Plans which are valid for the duration of the Plan). This Determination does not relieve the applicant from complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.

This Determination must be signed by a majority of the Conservation Commission. A copy must be sent to the appropriate DEP Regional Office (see Appendix A) and the property owner (if different from the applicant). Signatures:

William W. Reed
Martha E. Creegan

Paul Dick

4-8-03
Date

D. Appeals

The applicant, owner, any person aggrieved by this Determination, any owner of land abutting the land upon which the proposed work is to be done, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate Department of Environmental Protection Regional Office (see Appendix A) to issue a Superseding Determination of Applicability. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and Fee Transmittal Form (see Appendix E: Request for Departmental Action Fee Transmittal Form) as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Determination. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant if he/she is not the appellant. The request shall state clearly and concisely the objections to the Determination which is being appealed. To the extent that the Determination is based on a municipal ordinance or bylaw and not on the Massachusetts Wetlands Protection Act or regulations, the Department of Environmental Protection has no appellate jurisdiction.

Determination of Applicability
Address: 50 Fordham Road, North Reading, MA.
Applicant: TRC Environmental Corporation

On this ____8th_____ day of ___April, 2003_____
day Month/year

Before me personally appeared

_____William Reed_____

to me known to be the person described in and who executed the foregoing instrument and acknowledged that he/she executed the same as his/her free act and deed.

Kathleen L Mroz
Notary Public

__November 1, 2007_____
My commission expires

NRCC Determination of Applicability for Well TRC-301R

L2003-240

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

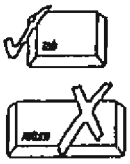
WPA Form 2 – Determination of Applicability

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

RECEIVED
BARBARA STATS
TOWN CLERK
NORTH READING, MASS
2003 JAN 21 P 2:39

A. General Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



From:

North Reading
Conservation Commission

To: Applicant

TRC Environmental Corporation (TRC)
Name
Boott Mills S., Foot of John Street
Mailing Address
Lowell | MA | 01852
City/Town | State | Zip Code

Property Owner (if different from applicant):

Lockheed-Martin Corporation
Name
6801 Rockledge Road
Mailing Address
Bethesda | MD | 20817
City/Town | State | Zip Code

1. Title and Date of Final Plans and Other Documents:

Site Location Plan, Former GE Site Wilmington, North Reading, MA.
Title

12/02
Final Date (or Revised Date if applicable)

2. Date Request Filed:

12/30/02

B. Determination

Pursuant to the authority of M.G.L. c. 131, § 40, the Conservation Commission considered your Request for Determination of Applicability, with its supporting documentation, and made the following Determination.

Project Description (if applicable):

Construction of a groundwater monitoring well

Project Location:

Off Concord Street
Street Address

North Reading
City/Town

2
Assessors Map/Plat Number

9
Parcel/Lot Number

B. Determination (cont.)

The following Determination(s) is/are applicable to the proposed site and/or project relative to the Wetlands Protection Act and regulations:

Positive Determination
Note: No work within the jurisdiction of the Wetlands Protection Act may proceed until a final Order of Conditions (issued following submittal of a Notice of Intent or Abbreviated Notice of Intent) has been received from the issuing authority (i.e., Conservation Commission or the Department of Environmental Protection).

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☐ 2a. The boundary delineations of the following resource areas described on the referenced plan(s) are confirmed as accurate. Therefore, the resource area boundaries confirmed in this Determination are binding as to all decisions rendered pursuant to the Wetlands Protection Act and its regulations regarding such boundaries for as long as this Determination is valid.

_____

_____

_____

☐ 2b. The boundaries of resource areas listed below are not confirmed by this Determination, regardless of whether such boundaries are contained on the plans attached to this Determination or to the Request for Determination.

_____

_____

_____

☐ 3. The work described on referenced plan(s) and document(s) is within an area subject to protection under the Act and will remove, fill, dredge, or alter that area. Therefore, said work requires the filing of a Notice of Intent.

☐ 4. The work described on referenced plan(s) and document(s) is within the Buffer Zone and will alter an Area subject to protection under the Act. Therefore, said work requires the filing of a Notice of Intent.

☐ 5. The area and/or work described on referenced plan(s) and document(s) is subject to review and approval by:

_____
Name of Municipality

Pursuant to the following municipal wetland ordinance or bylaw:

_____
Name Ordinance or Bylaw Citation

B. Determination (cont.)

☐ 6. The following area and/or work, if any, is subject to a municipal ordinance or bylaw but not subject to the Massachusetts Wetlands Protection Act:

☐ 7. If a Notice of Intent is filed for the work in the Riverfront Area described on referenced plan(s) and document(s), which includes all or part of the work described in the Request, the applicant must consider the following alternatives. (Refer to the wetland regulations at 10.58(4)c. for more information about the scope of alternatives requirements):

- ☐ Alternatives limited to the lot on which the project is located.
- ☐ Alternatives limited to the lot on which the project is located, the subdivided lots, and any adjacent lots formerly or presently owned by the same owner.
- ☐ Alternatives limited to the original parcel on which the project is located, the subdivided parcels, any adjacent parcels, and any other land which can reasonably be obtained within the municipality.
- ☐ Alternatives extend to any sites which can reasonably be obtained within the appropriate region of the state.

Negative Determination
Note: No further action under the Wetlands Protection Act is required by the applicant. However, if the Department is requested to issue a Superseding Determination of Applicability, work may not proceed on this project unless the Department fails to act on such request within 35 days of the date the request is post-marked for certified mail or hand delivered to the Department. Work may then proceed at the owner's risk only upon notice to the Department and to the Conservation Commission. Requirements for requests for Superseding Determinations are listed at the end of this document.

☐ 1. The area described in the Request is not an area subject to protection under the Act or the Buffer Zone.

☐ 2. The work described in the Request is within an area subject to protection under the Act, but will not remove, fill, dredge, or alter that area. Therefore, said work does not require the filing of a Notice of Intent.

☒ 3. The work described in the Request is within the Buffer Zone, as defined in the regulations, but will not alter an Area subject to protection under the Act. Therefore, said work does not require the filing of a Notice of Intent, subject to the following conditions (if any).

☐ 4. The work described in the Request is not within an Area subject to protection under the Act (including the Buffer Zone). Therefore, said work does not require the filing of a Notice of Intent, unless and until said work alters an Area subject to protection under the Act.

B. Determination (cont.)

☐ 5. The area described in the Request is subject to protection under the Act. Since the work described therein meets the requirements for the following exemption, as specified in the Act and the regulations, no Notice of Intent is required:

Exempt Activity (site applicable statuatory/regulatory provisions)

☐ 6. The area and/or work described in the Request is not subject to review and approval by:

Name of Municipality

Pursuant to a municipal wetlands ordinance or bylaw.

Name | Ordinance or Bylaw Citation

C. Authorization

This Determination is issued to the applicant and delivered as follows:

☐ by hand delivery on

Date

☑ by certified mail, return receipt requested on

1/21/03
Date

This Determination is valid for **three years** from the date of issuance (except Determinations for Vegetation Management Plans which are valid for the duration of the Plan). This Determination does not relieve the applicant from complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.

This Determination must be signed by a majority of the Conservation Commission. A copy must be sent to the appropriate DEP Regional Office (see Appendix A) and the property owner (if different from the applicant). Signatures:

Paul Dick
Martha E. Curry
William W. Reed
Martin Meyers

1/14/03
Date

D. Appeals

The applicant, owner, any person aggrieved by this Determination, any owner of land abutting the land upon which the proposed work is to be done, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate Department of Environmental Protection Regional Office (see Appendix A) to issue a Superseding Determination of Applicability. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and Fee Transmittal Form (see Appendix E: Request for Departmental Action Fee Transmittal Form) as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Determination. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant if he/she is not the appellant. The request shall state clearly and concisely the objections to the Determination which is being appealed. To the extent that the Determination is based on a municipal ordinance or bylaw and not on the Massachusetts Wetlands Protection Act or regulations, the Department of Environmental Protection has no appellate jurisdiction.

Determination of Applicability
Address: Off Concord Street, Map 2, Parcel 9
Applicant: TRC Environmental Corporation

On this 14th day of January, 2003
day Month/year

Before me personally appeared

William Reed

to me known to be the person described in and who executed the foregoing instrument and acknowledged that he/she executed the same as his/her free act and deed.

Kathleen L. Mayo
Notary Public

November 1, 2007
My commission expires

NPDES Permit Exclusion Letter

L2003-240

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

June 12, 2003

Ms. Paola Macchiaroli, Ph.D.
TRC Environmental Corp.
Boott Mills South
Foot of John Street
Lowell, MA 01852

Re: Former General Electric Site, Wilmington, MA; **NPDES Exclusion # MA 03I-072**

Dear Ms. Macchiaroli:

As of June 3, 2002, the On-Scene Coordinators (OSC's) in the Emergency Planning & Response Branch of EPA-New England (EPA-NE) have no longer been issuing National Pollutant Discharge Elimination (NPDES) Permit "Exclusion" letters in the states of Massachusetts and New Hampshire. EPA is, however, still the permitting authority for point source water discharge permits in these two states. Since the early 90's, EPA-NE granted exclusions to the NPDES permit process under the authority of Section 122.3(d) of the NPDES regulations to allow expedited testing and cleanup of contaminated sites for which a discharge of groundwater and incidental surface water was required following appropriate treatment. This process was necessary due to the large number of cleanups requiring permits and the time-frame necessary to issue individual NPDES permits.

Exclusion letters were developed for each site following submission and review of an application with various site information, test data, treatment type, and other facts. Discharge effluent limits, monitoring requirements and other special conditions were set out in the letters signed by the OSC in charge. EPA-NE has determined that we can no longer issue these exclusions except in circumstances where a response action is under the direct control of the OSC (either EPA or the USCG) as outlined in the National Contingency Plan (NCP). These determinations are made following notification to the National Response Center of a release of a reportable quantity of oil or hazardous substances.

We are in the process of developing a new General NPDES Permit to cover short and long term discharges from remediation activities. We expect the lead time needed to become covered by the General Permit to be about the same as the current exclusion waiver process. We hope to have the General Permit published in the Federal Register as final and effective in the near future. Until the effective date of the new General Permit, EPA-NE is requesting that you provide treatment of any such discharges to waters of the United States consistent with the limits and other requirements traditionally established in the Exclusion letters process.

Please refer to "ATTACHMENT A" to this letter for the interim requirements for discharge.

In your June 4, 2003 cover letter to EPA which included your application for the NPDES exclusion authorization, you explained that the discharge from the groundwater treatment facility at this site is co-mingled in a common catch basin with another NPDES permitted discharge from AMETEK Aerospace, Inc., the current occupant of the buildings at this location. This other discharge is a non-contact cooling water discharge covered under EPA's general permit. In the conference call you had with John Hackler of our NPDES Unit, it was explained that for NPDES compliance purposes, the discharge from AMETEK and from the groundwater remediation system can be separately monitored before co-mingling and ultimate discharge to wetlands and the Ipswich River. This is acceptable to EPA and a copy of this exclusion authorization is being forwarded to Mr. Shafner, plant manager at AMETEK, as you requested.

If you have any questions or concerns about this letter please contact John Hackler of the NPDES Program at (617) 918-1551.

Sincerely yours,

Roger A. Janson

Roger Janson, Associate Director
Surface Water Programs

cc. MADEP, BWSC
A. Shafner, AMETEK
O. Vergara, EPA

**** FORMER GENERAL ELECTRIC SITE, WILMINGTON, MA****

ATTACHMENT A

The discharge(s) referenced in the accompanying letter must be in accordance with the following provisions:

1. No discharge of oil, sufficient to cause a sheen (as defined in 40 CFR 110), occurs to the drainage system. The discharge of a sheen of oil or gasoline constitutes an oil spill and must be reported immediately to the National Response Center (NRC) at (800) 424-8802.

2. Security provisions are maintained to assure that system failure, vandalism, or other incidents will be addressed in a timely fashion, preventing the loss of oil or contaminated water to the drainage system.

3. The flow rate shall be maintained within acceptable operating parameters and shall not exceed the design flow of the treatment system. There shall be no bypass of the treatment system unless unavoidable to prevent loss of life, personal injury, or severe property damage. No filter backwash or other maintenance waters shall be discharged without treatment.

4. Sampling and analysis, in accordance with EPA Methods, must be performed for the following chemicals with the listed limits being applicable:

CONVENTIONAL

Flow	Continuous/Totalizer
pH	6.5-8.3 S.U.
Total Suspended Solids (TSS)	30 ppm

ORGANICS

1,1-Dichloroethane (DCA)	70 ppb
cis-1,2-Dichloroethylene (DCE)	70 ppb
Tetrachloroethylene (PCE)	5 ppb
Trichloroethylene (TCE)	5 ppb

Should sampling indicate the presence of additional chemicals, discharge concentrations should not exceed the Federal Drinking Water Standards (MCL's) or 100 ppb, whichever is lower, in the effluent.

Solids - These waters shall be free from floating, suspended, and settleable solids in concentrations or combinations that would impair any use assigned to this class, that would cause esthetically objectionable conditions, or that would impair the benthic biota or degrade the chemical composition of the bottom sediments.

Color and Turbidity - These waters shall be free from color and turbidity in concentrations or combinations that are esthetically objectionable conditions or that would impair the use assigned to this class.

Laboratory samples must be obtained from the influent to treatment, and from the effluent to the drainage system once each day for the first, third and sixth day of discharge. These samples must be analyzed with a 72-hour turnaround time. If the system is working properly, sampling for the remainder of the month shall be weekly and then monthly thereafter. The turnaround time for these samples shall ensure that no more than seven days pass between the sampling event and when the results are received and reviewed by the contractor.

If analysis indicates that the effluent limits have been exceeded, then the system must be shut down immediately and the problem corrected. Upon restarting the system, a sample must be taken and there must be 24 hour turnaround for the results. If the analysis indicates that the problem has been corrected, then the sampling schedule shall resume. If not, then the system shall be shut down again and repaired.

5. Analytical Reports, with quality control information, are to be reported to EPA and the MADEP or NHDES Project Manager by the 28th of the following month. Reports to EPA should be sent to:

NPDES Permit Unit
Mail Code (CPE)
Office of Ecosystem Protection
Environmental Protection Agency
One Congress St., Suite 1100
Boston, MA 02114-2023

RE: NPDES [please include assigned reference # on all correspondence]

6. You, or your contractor, must maintain copies of all analytical reports, and quality control information for a period of 3 years from the date of the report.

You should consider these requirements to be in effect immediately.

Town of Wilmington Building Permit

L2003-240

Town of Wilmington

Office of the Inspector of Buildings

Permit No: 2403070 Fee: $50 - Date: 5/21/03

This may certify that La Mountain Bros. has permission to

Utility Bldg situated on

50 Fordham Rd Map 91 Parcel 131

The person accepting this permit shall in every respect conform to the terms of the application on file in this office and to the provisions of the Town of Wilmington and the Commonwealth of Massachusetts Statutes and Ordinances relating to the Construction, Alteration and Maintenance of Buildings. At the completion of each work phase as noted below, an inspection shall be scheduled and work shall not proceed until approval is certified by the appropriate inspector.

DW Paul

Inspector of Buildings

REQUIRED INSPECTIONS

Building	Approved By	Electrical	Approved By	Plumbing	Approved By	Gas	Approved By
Excavation		Underground		Underground		Underground	
Foundation		Rough		Rough		Rough	
Framing		FINAL		FINAL		FINAL	
Chimney							
Firestopping							
Insulation							
FINAL							

APPENDIX C

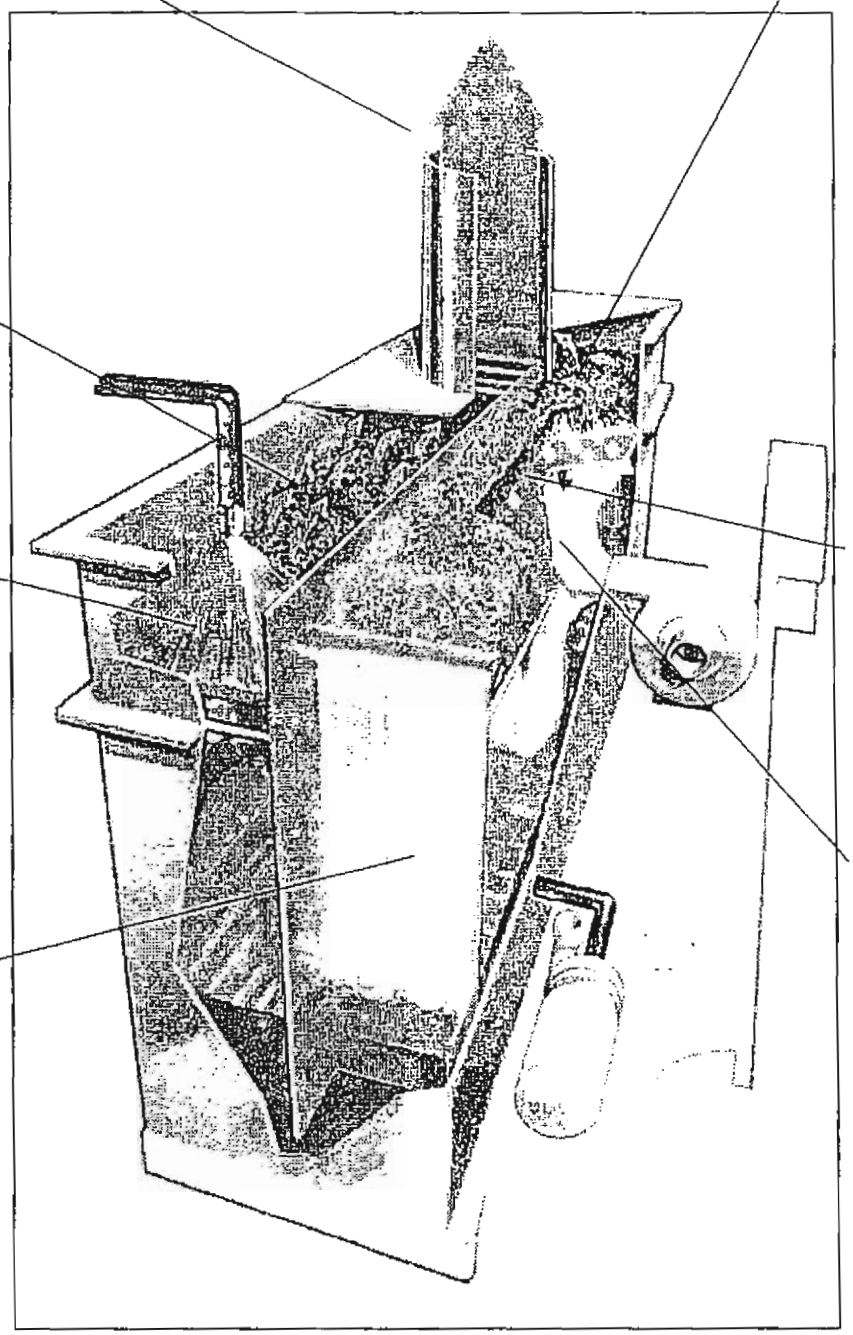
EQUIPMENT MANUFACTURER INFORMATION

The ShallowTray Process

Air is vented to the atmosphere or to vapor phase treatment of choice.

Water travels around the full length of the baffled tray, becoming progressively cleaner.

Turbulent frothing maximizes volatilization and scours the stripper tray.



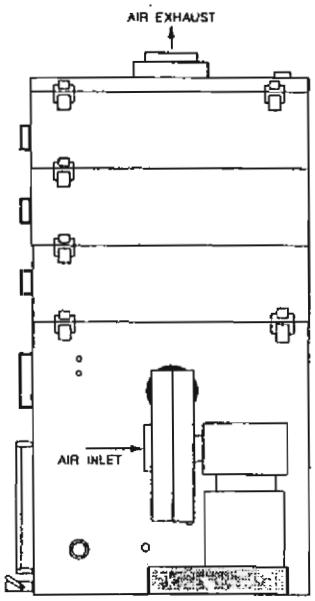
3/16" (4.8mm) holes resist fouling.

Contaminated water inlet.

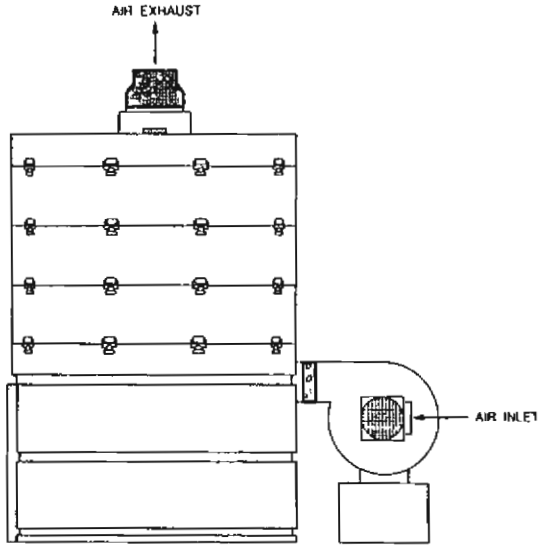
Fan blows fresh air up through hundreds of holes into the water.

Treated water falls into holding tank.

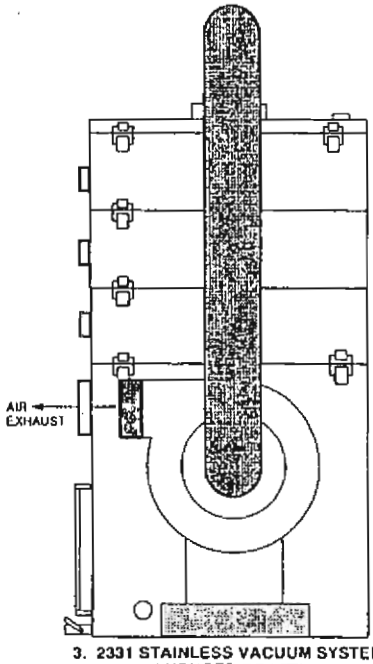
The ShallowTray Basic System



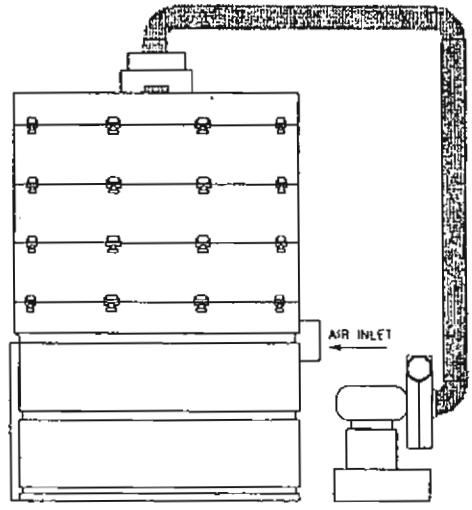
1. 2331 STAINLESS PRESSURE SYSTEM (FORCED DRAFT)



2. 2331-P LLDPE PRESSURE SYSTEM (FORCED DRAFT)



3. 2331 STAINLESS VACUUM SYSTEM (INDUCED DRAFT)



4. 2331-P LLDPE PRESSURE SYSTEM (INDUCED DRAFT)

Basic System Components

Component manufacturer information sheets ("cutsheets") are included in the Components Information Section (Section 7) at the back of this manual.

Blower

The blowers on the ShallowTray low profile air stripper units are typically type B spark resistant with a cast aluminum wheel, direct driven @ 3450 rpm with motor options of Totally Enclosed Fan Cooled (TEFC) or Explosion Proof (EXP). Each blower is selected by our engineering staff to exceed the minimum cubic feet per minute (CFM) air flow requirements at the nominal working pressure (inches of W.C.) of each system. It is critical that the blower damper be opened wide enough to provide the unit with the designated minimum fresh air flow.

It is also critical that water does not enter the blower housing while the blower is in operation; this will damage your blower and void the warranty. The high water level alarm switch prevents this from happening. Make sure it is installed properly.

The motor horsepower is selected to provide a reasonable operating range. However, there is potential for the blower motor to overload if it is not working against sufficient pressure drop. Therefore, the blower must be protected with a thermal overload switch. Also, the blower damper should be set so that the blower produces at least the minimum air flow requirement (see table below), and does not exceed the nameplate amperage limit of the motor.

Damper

There is a damper on the blower, used to make air flow rate (SCFM) adjustments to your system. Open the damper to increase air flow rate, and close the damper to decrease air flow rate. Note that air pressure may vary as the air flow rate is changed.

To get the most accurate air flow measurement, we recommend installing an air flow meter in the air piping.

If this is not possible, then an estimated air flow can be obtained by measuring the stripper pressure or vacuum. For initial start-up, simply adjust the damper until the air pressure is at least the minimum required for your system. (Refer to the pressure gauge description for minimum pressure readings).

The table below gives the minimum and maximum air flow rates for each ShallowTray series.

ShallowTray Model	Air Flow Minimum		Maximum	
1300 & 1300P	150 cfm	(250m³/hr)	**195 cfm**	**(330m3/hr)**
2300 & 2300P	300 cfm	(500m³/hr)	**390 cfm**	**(660m3/hr)**
2600	600 cfm	(1020m³/hr)	**780 cfm**	**(1320m3/hr)**
3600	900 cfm	(1530m³/hr)	**1170 cfm**	**(1990m3/hr)**
31200	1800 cfm	(3060m³/hr)	**2340 cfm**	**(3980m3/hr)**
41200	2400 cfm	(4080m³/hr)	**3210 cfm**	**(5450m3/hr)**

Beware when making damper adjustments after initial start-up. Fouling may occur in the system which may reduce the air flow rate, and may increase the air pressure reading.

Demister

A wire mesh mist eliminator pad is installed beneath the air exhaust port, located on the top cover of the unit. The purpose of the mist eliminator pad is to remove water droplets that would have blown through the vent line. It is possible, though unlikely, that the mist eliminator pad may become plugged or fouled. If this occurs the mist eliminator pad is easily removed for cleaning. Disconnect the vent line, take off the top cover, and remove the retaining plates on the bottom side of the cover. The mist eliminator pad can be cleaned with a pressure washer, or replaced with a new one.

Gasket

A black nitrile (or neoprene on the 2300P) sponge gasket is used to form an airtight/watertight seal around the sump tank and stripper trays. If there are any problems with the gaskets, please contact North East Environmental Products. A replacement gasket can be glued to the sealing flange using an industrial contact adhesive. We recommend using Rubatex adhesive # R-27780. Please contact North East Environmental Products prior to making any gasket repairs or adjustments.

Sight Tube

The sight tube provides a means of easily viewing the water level in the sump tank. Make sure the valve to the sight tube is open during stripper operation.

Spray Nozzle

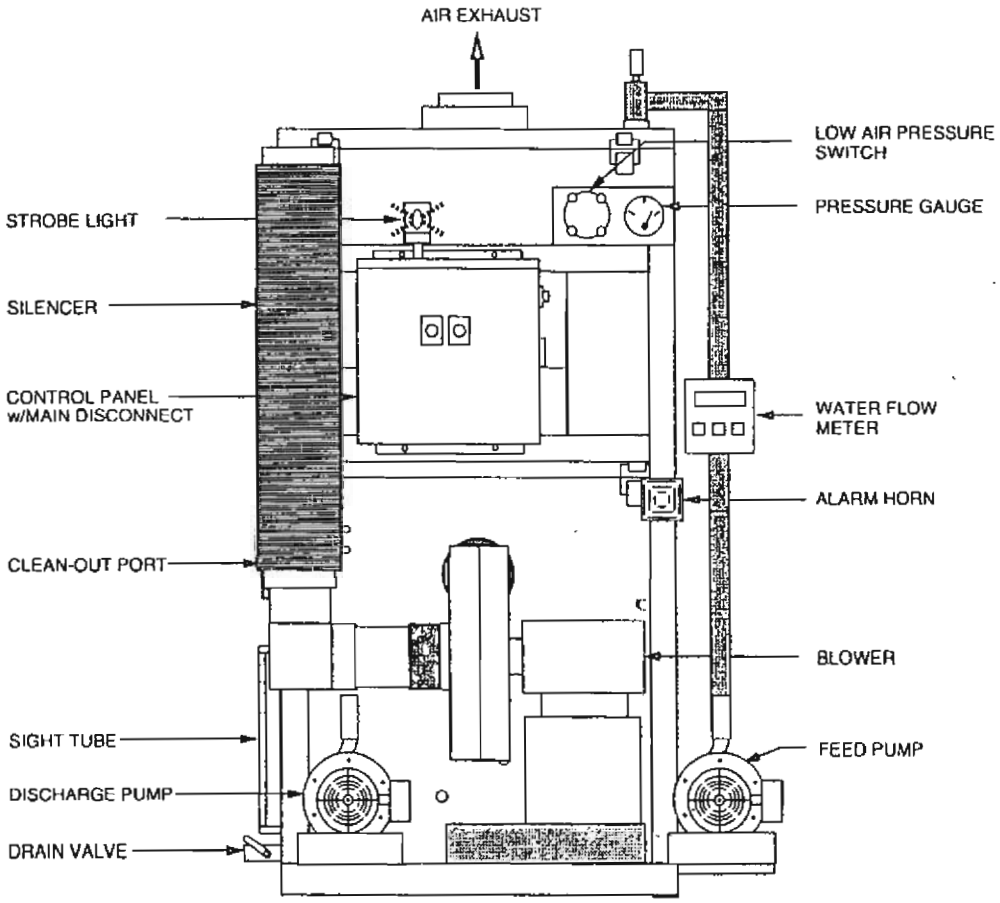
A spray nozzle is installed in all units except those with a gravity feed option. The nozzle directs the contaminated water to the first inlet chamber and begins the volatilization process. The nozzle is typically rated for 15 psig at the system's maximum water flow rate.

It is recommended that a strainer be installed somewhere in the inlet process water line, especially during initial start-up, to prevent sediment from plugging the nozzle.

If the nozzle becomes plugged, it is easily removed by first removing the top cover and then unscrewing the nozzle from the inlet piping. Clean it with a wire brush or a pipe cleaner. If the nozzle causes too much back pressure or becomes plugged too often, it can be removed without any serious effects on the system's performance. Units that have a gravity feed system should not use a spray nozzle – it causes too much back pressure. In these cases, the inlet piping should extend below the water level of the inlet chamber to provide a water seal.

Note: System performance is based on ShallowTray operation without a nozzle, and warranty is valid whether a nozzle is installed or not.

ShallowTray System Options



2331 STAINLESS PRESSURE SYSTEM WITH OPTIONS

NOT ALL OPTIONS SHOWN

VAPOR PHASE ADSORBERS

General Description

Envirotrol's vapor phase adsorbers are prefabricated steel vessels engineered to remove contaminants and/or odors from air at moderate flow rates with low pressure drop. The steel adsorbers are provided with lifting lugs and are mounted on a fork truck mobile base for easy placement and carbon exchange service. Envirotrol provides a complete turnkey service to handle carbon reactivation and exchange of these adsorbers. They are available in four sizes to best suit your application and they can be provided on a lease or purchase basis. These adsorbers can be utilized by industrial, municipal or commercial users in a variety of air purification applications including but not limited to the following:

- Emergency Air Quality Control
- Tank or Sump Air Vents
- Soil Vapor Extraction
- Air Stripper Off-Gas
- Work Environments

Features and Benefits

- **Adaptable** - adsorber is charged with the carbon best suited for your application.
- **Dependable** - Operates continuously with minimal maintenance.
- **Durable** - Adsorber is heavy steel construction lined with a high performance epoxy resin for superior corrosion resistance and long life.
- **Efficient** - Recycle of adsorber vessels and carbon optimizes treatment economics.
- **Identifiable** - Individual serial numbers are assigned to each adsorber to facilitate tracking and documentation.
- **Portable** - Easily transported and installed at almost any location.
- **Versatile** - Easily configured as single or multiple unit systems to handle higher flows.

Operating Parameters

Conditions	Limits
Maximum Working Pressure	**15 PSI**
Temperature Limit	**140° F**

Drum adsorbers are furnished with FNPT fittings at the inlet, outlet and drain positions as shown and the drain fitting is furnished with a plug. Other optional fittings such as flanges or quick-disconnects can be provided as required. All dimensions and capacities are approximate.

Materials of Construction

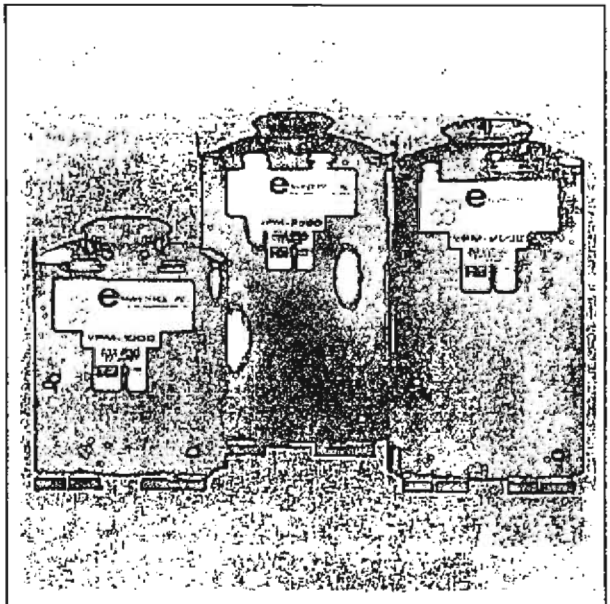
Component	Description
Adsorber Vessel	Carbon Steel
Internal Coating	Epoxy Resin
External Coating	Industrial Enamel
Carbon Bed Support Screen	316 Stainless Steel

Dimensions & Capacities

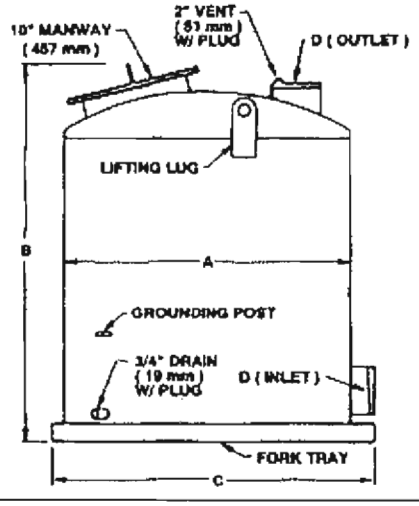
Adsorbers	A Inches	B Inches	C Inches	D Inches	Max Flow CFM	Carbon Fill (lbs.)	Ship Weight (lbs.)
VPM-1000	48	66	54	8	1000	1000	2100
VPM-2000	48	90	54	8	800	2000	3550
VPM-2500	54	90	60	8	1000	2500	4150
VPM-3000	60	91	66	8	1200	3000	5100

The standard vessel is furnished with MNPT inlet and outlet fittings. The vent and drain are FNPT fittings furnished with a plug. The man way is furnished with a bolted-on cover and neoprene gasket. Other optional fittings can be provided as required. All dimensions and capacities are approximate.

The standard vessel is furnished with MNPT inlet and outlet fittings. The vent and drain are FNPT fittings furnished with a plug. The man way is furnished with a bolted-on cover and neoprene gasket. Other optional fittings can be provided as required. All dimensions and capacities are approximate.



STANDARD CONFIGURATION

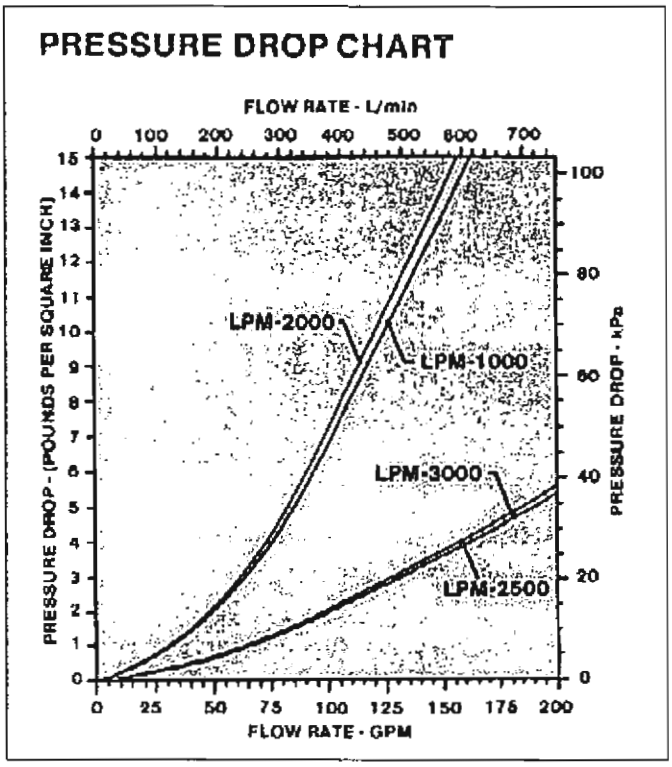


Installation and Operation

Vapor phase adsorbers are delivered filled with activated carbon and ready to install. The vessels are self supporting and should be installed on a level, accessible area near the influent source. Installation is easy, requiring flexible hose or pipe connection to the vessel's MNPT inlet and outlet fittings. Hard piped systems require flexible pipe connectors to prevent damage to the vessel's fittings and to make adsorber change-out easier. When the inlet and outlet connections are complete, the vapor phase adsorber is on-line.

Please consult the pressure drop chart to the right to determine your operating parameters. If required, two or more vapor phase adsorbers can be interconnected for series or parallel operation.

Pressure Drop Information



The pressure drop across a liquid phase adsorber unit is a function of the liquid flow rate as shown on the above pressure drop chart. Additionally, sufficient retention time must be provided within the carbon bed.

For this reason, the recommended maximum liquid flow rate through each type of adsorber is as follows:

Type	Limits
VPM-1000	1000 CFM (1699 m^3/hr)
VPM-2000	800 CFM (1359 m^3/hr)
VPM-2500	1000 CFM (1699 m^3/hr)
VPM-3000	1200 CFM (2039 m^3/hr)

If higher flows or lower pressure drops are required, multiple vapor phase adsorbers may be installed in parallel operation.

Carbon Change-Out Service

Envirotrol offers a complete turnkey service to change-out activated carbon at your site. This service includes vacuum of the spent carbon, delivery and installation of the fresh carbon and return of the spent carbon to our reactivation facilities. Additionally, Envirotrol offers complete turnkey service to handle carbon reactivation and recycle of the vapor phase adsorbers via our facilities. This is done by disconnecting and draining the adsorber and shipping the adsorber with carbon to Envirotrol.

Top

Application Limitations

The vapor phase adsorber is offered to be used for high flow air purification applications that typically involve the adsorption of volatile organic contaminants with concentrations much less than 1000 parts per million. If the vapor phase adsorbers is to be used in low flow air applications with organic concentrations at or near 1000 parts per million then high heat build-up could occur within the carbon bed due to the heat of adsorption. This heat build-up can be controlled by diluting the high influent contaminant concentration with forced air. The increased air flow dissipate the heat of adsorption and carry it away. The pressure drop chart to the right will assist you in determining an appropriate air flow rate.

Special care should be taken in intermittent flow applications involving ketones, aldehydes or organic acids because these organic compounds can promote unmanageable heat release within the carbon bed. Please contact your **Envirotrol Technical Sales Manager** concerning these applications.

A **Pressure Relief Valve** should be installed between the influent source and the adsorber's inlet if the adsorption system will operate at or near the adsorber's maximum working pressure. This will prevent damage to the adsorber vessel and the influent source due to over pressurization.

The use of **flame arresters, backflow preventers and vacuum relief** should be considered for vapor phase applications that are suspected of promoting heat build-up within the carbon. The inclusion of these equipment items into an adsorption system is primarily for the protection of the influent source. If you are unaware of the reaction of an organic vapor on activated carbon, please contact your Envirotrol Technical Sales Representative for assistance.

All of the optional equipment items described above and other appropriate accessories can be furnished by Envirotrol as required.

For Your Protection

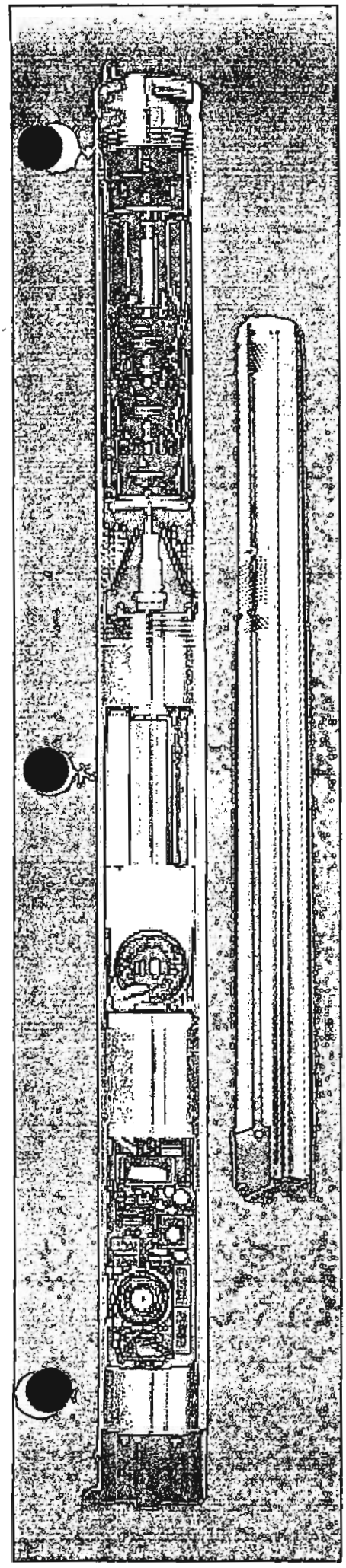
The information and recommendations in this publication are, to the best of our knowledge, reliable. Suggestions made concerning uses or applications are only the opinion of Envirotrol Inc., and users should make their own tests to determine the suitability of these products for their own particular purposes. However, because of numerous factors affecting results, Envirotrol Inc., makes no warranty of any kind, expresses or implied, including those of merchantability and fitness for purpose, other than that the material conforms to its applicable current Standard Specifications. Statements herein, therefore, should not be construed as representations or warranties. The responsibility of Envirotrol for claims arising out of breach of warranty, negligence, strict liability, or otherwise is limited to the purchase price of the materials.

Statements concerning the use of the products or formulations described herein are not to be construed as recommending the infringement of any patent and no liability for infringement arising out of any such use is assumed.

Standards specifications, although, current at the time of publication, are subject to change without notice.

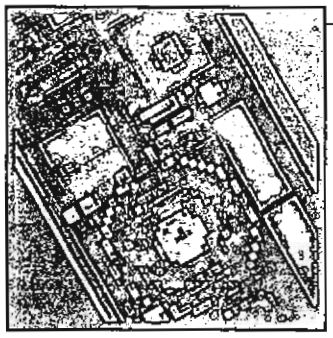
Caution

Whenever workers enter a vessel containing carbon, all precautions must be taken since dangerously low levels of oxygen may be encountered. Atmosphere sampling and work procedures for potentially low oxygen areas should be followed.



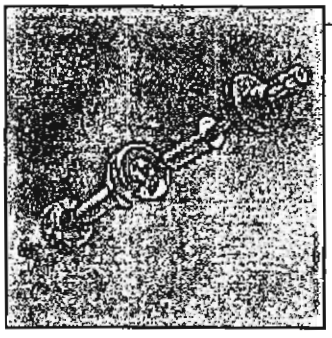
Redi-Flo3

Grundfos brings environmental pumping systems into the 21st century with the new Redi-Flo3 submersible pump.



Advanced Electronics

By combining advanced electronics, permanent-magnet motors, and Grundfos' own micro-frequency converter, we are now able to control and communicate with pumps in ways never before possible. A few of the features that come out of this combination are Fluid Level Control, Soft-Start and integrated Dry-Run Protection.



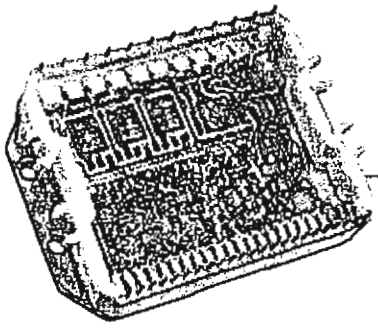
Permanent-Magnet Motor

The Redi-Flo3 features a newly developed permanent-magnet motor, controlled by advanced electronics, featuring Grundfos' micro-frequency converter.

As a result of the high and flat performance curve of the motor, a wider performance ratio can be covered by fewer models as compared to pumps with conventional motors.

The motor has a soft-start system which allows the pump to start with gradually increasing speed and with the highest possible starting torque.

The starting torque is 1.5 times greater than a conventional 3-wire motor.

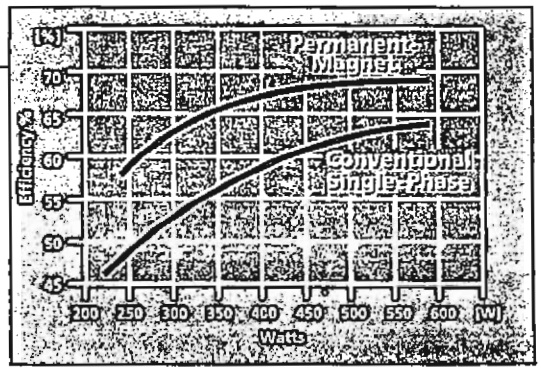


Micro-Frequency Converter

The Grundfos' designed micro-frequency converter controls the permanent-magnet motor.

Motor Efficiency Curve

Permanent-magnet motors produce a high efficiency over a wide load range as compared to conventional single-phase motors.

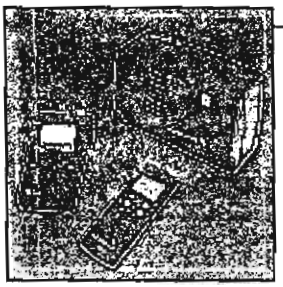


GRUNDFOS®

Leaders in Pump Technology

Redi-Flo3

Technical Data



Status Box/R100 Infrared Remote

The optional Redi-Flo3 status box and R100 at the surface allows you to communicate with the pumps integrated electronics through the standard power leads. No additional wires are required! This feature provides the direct use of multiple sensors, digital input and relays without adding any extra electronics and cost. Pump status readout and parameter changes can easily be performed at the surface with the R100 or the Redi-Flo3 PC Tool.



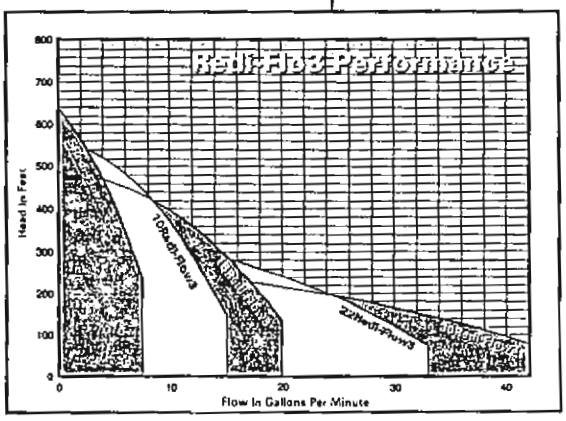
Rugged Design

Redi-Flo3 pump design uses "floating" impellers. Each impeller has its own tungsten carbide/ ceramic bearing. This design and the environmentally tough 316 stainless steel and PVDF construction provide excellent wear resistance and solids handling capability.



Reliable Check Valves

Reliable built-in spring loaded check valves let you operate the pump in any position from vertical to horizontal.



ELECTRIC

Supply Voltage:	1x200-240V, 50/60 Hz
Operation via Generator:	The generator output must be equal to the motor P1[KW] +10%.
Starting Current:	The motor starting current is equa to the highest value stated on the motor nameplate.
Starting:	Soft-start
Run-up Time:	Maximum: 2 seconds
Motor Protection:	The motor is protected against: dry-run, overvoltage, undervoltage, overload, over temperature.
Power Factor:	PF = 1
Power Lead:	Continuous length Tefzel Cable Kit.

PIPING CONNECTION

Discharge Port:	5-Redi-Flo3 - 1" NPT 10-15-Redi-Flo3 - 1.1/4" NPT 22-30-Redi-Flo3 - 1.1/2" NPT

APPROXIMATE DIMENSIONS AND WEIGHT

Motor Dimensions (MSE 3-NE):	
0.33-0.50A Hp	20.9" length x 2.68" diameter
0.50-0.75B Hp	20.9" length x 2.68" diameter
1.0-1.5C Hp	22.3" length x 2.68" diameter
Motor Weights (MSE 3-NE):	
0.33-0.50A Hp	6.0 lbs
0.50-0.75B Hp	7.1 lbs
1.0-1.5C Hp	8.2 lbs
Pump End Dimensions:	
Pump Diameter:	2.68"
Pump Diameter, incl. cable guard:	2.91"
Pump End Dimensions (min. and max.):	
5-Redi-Flo3	10.6" to 18.0"
10-Redi-Flo3	10.6" to 16.9"
15-Redi-Flo3	10.6" to 16.9"
22-Redi-Flo3	10.6" to 16.9"
30-Redi-Flo3	10.6" to 13.7"
Pump End Weights (min. and max.):	
All Models	2.2 lbs to 3.5 lbs
Well Diameter (minimum):	3"

GRUNDFOS®

Leaders in Pump Technology

Available from:

Grundfos Pumps Corporation
3131 N. Business Park Avenue, Fresno, CA 93727
(559) 292-8000 FAX (559) 291-1357

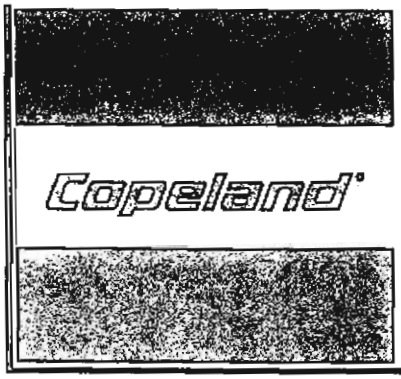
Grundfos Canada, Inc.
2941 Brighton Rd.
Oakville, Ontario L6H 6C9, Canada
(905) 829-9533 FAX (905) 829-9512

Bombas Grundfos de Mexico, S.A. de C.V.
Boulevard TLC #15, Parque Industrial Stiva Aeropuerto
C.P. 66600 Apodaca, N.L. Mexico
52-8-144-4000 FAX 52-8-144-4010

Visit our website at www.us.grundfos.com

Performance curves and technical information listed as a range only and subject to change without notice. Consult Grundfos product data for exact pump specifications.

LRFSL-005 | 4/00
PRINTED IN U.S.A.



Condensing Unit

Copeland offers a full line of condensing units to complement all compressors. Various heat rejecting coils and many standard and optional system components are available mounted on a cost-effective base. Copeland Condensing Unit Division offers a wide array of application designs like: Air & water cooled, transport and many others to meet specialized customer requirements.

Packaged Condenser Unit

C7AB-0150-CAV-001

200/220 Volts, 50 Hz, 1Ø
R-12

MECHANICAL

Unit Height (in)	Unit Length (in)	Unit Width (in)	Ship Weight (lbs)
19.06	33.38	20	190

Condenser Type	Copevap Water Storage	Air Flow (ft^3/min)	Receiver Capacity (lbs)
Air Cooled	NA	1350	22

Liquid	Suction	Discharge	Water Inlet	Water Outlet
3/8 FL	7/8 SWT	0.500	*	*

ELECTRICAL

Max Fuse Size	Min Circuit Ampacity	Compressor LRA High	Compressor LRA Low	Compressor LRA Half Winding	Compressor RLA
20	15.3	55.0	*	*	9.9

PERFORMANCE

Rating Conditions

Sub Cooling (°F)	Return Gas Temp (°F)	Notes
5	65	Batch Update with data generated by Onward Technologies. Reviewed and approved by Bruce Gumbert.

Rating Data at 90°F Ambient Temperature

Evaporator Temp(°F)	Capacity(BTU/hr)
0	5320
5	6060
10	6850
15	7680
20	8560
25	9480
30	10500
35	11500
40	12500
45	13600

Rating Data at 100°F Ambient Temperature

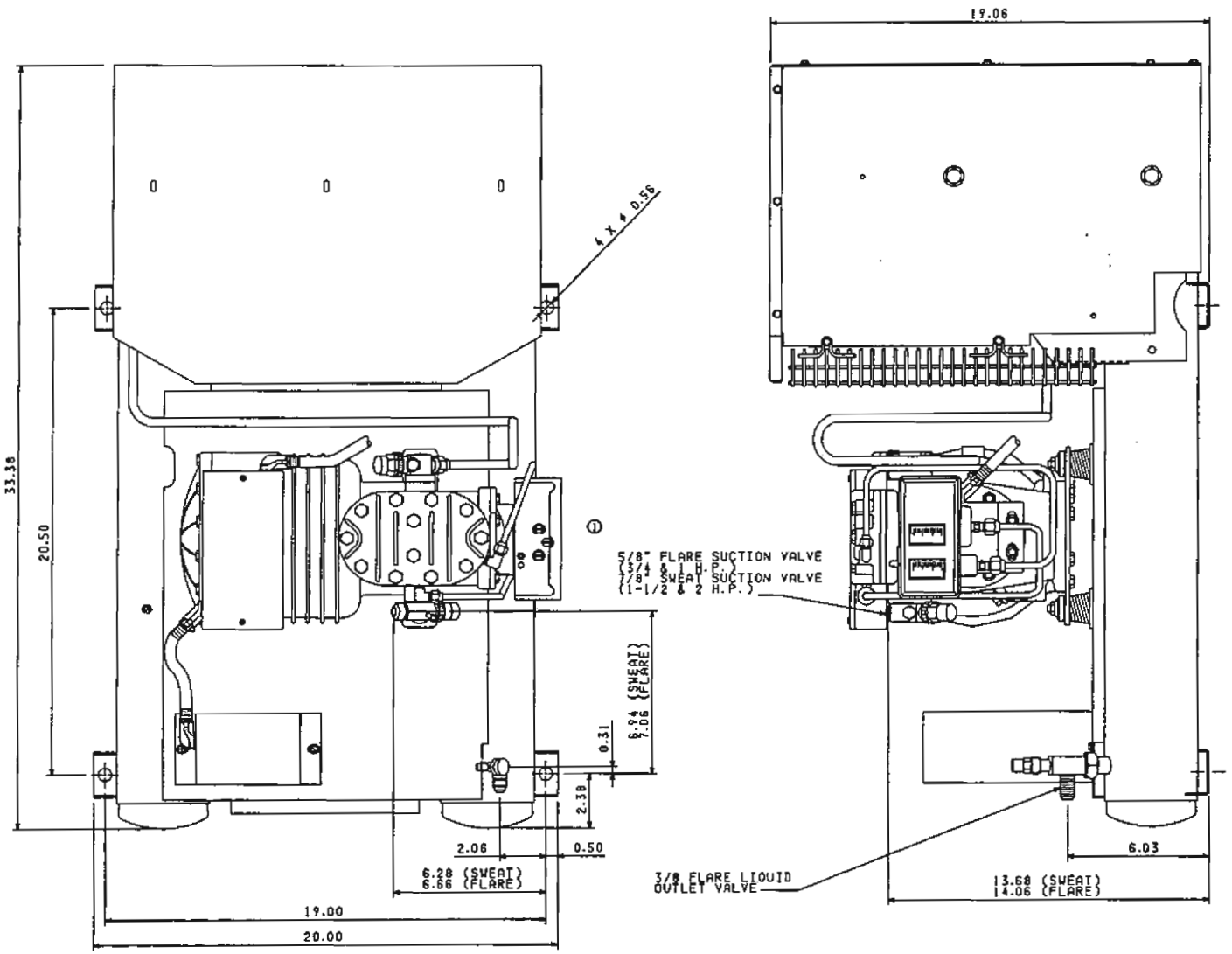
Evaporator Temp(°F)	Capacity(BTU/hr)
0	4900
5	5600
10	6330
15	7100
20	7920
25	8770
30	9670
35	10600
40	11600
45	12600

Rating Data at 110°F Ambient Temperature

Evaporator Temp(°F)	Capacity(BTU/hr)
0	4470
5	5110
10	5780
15	6490
20	7230
25	8020
30	8840
35	9710
40	10600
45	11600

Rating Data at 120°F Ambient Temperature

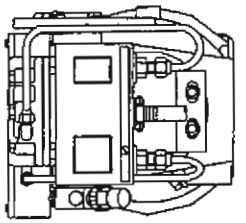
Evaporator Temp(°F)	Capacity(BTU/hr)
0	4000
5	4590
10	5190
15	5840
20	6520
25	7230
30	7970



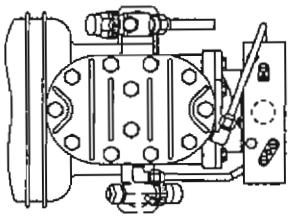
"C" LINE 3/4 THRU 2 H.P.
SINGLE PHASE WITH "K" COMPRESSOR

SPECIFICATIONS	
ES NO.	DESCRIPTION

NOTES:
1. PUMPDOWN AT 90% CAPACITY
R-12 22.0 LBS.
R-22 20.0 LBS.
R-502 21.0 LBS.



END VIEW ②③



TOP VIEW ②③

ALTERNATE VIEWS
USING ALCO CONTROLS

33-0694-517	3	CONTROL TUBING REVISED	1-13-94	JLB	RS
33-0395-522	2	ALTERNATE VIEWS ADDED	1-18-93	DN	RS
33-0291-500	1	PRESSURE CONTROL RELOCATED	2-1-91	DN	RS
33-0490-516		RELEASE	1-30-90	TR	

CHANGE NOTICE NO.	REV. NO.	REVISIONS	DATE	BY	CHK'D

MATERIAL SPECIFICATIONS | DRAWN BY T.R. 4-25-90 | CHECKED BY R.S. 4-27-90 | APPROVED BY | DATE | SCALE HALF | DO NOT SCALE THIS DRAWING | SUPERSEDES DWG. NO. | DATED | REV. NO.

TITLE: REF DWG-COPE UNIT ASSM

DRAWING NUMBER: 496-0470-00

SHT 4 SIZE

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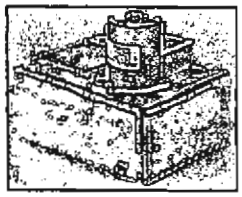
2-PLACES ±
3-PLACES ±
ANGULAR TOLERANCE ±

A2/A4



INSTALLATION
OPERATION
MAINTENANCE

A L 2



Commercial Condensate Removal Pumps
From Hartell

Hartell Pumps
Division of Milton Roy Co.

70 Industrial Drive
Ivyland, PA
18974

Phone: 215-322-0730
Fax: 215-322-2944
Web: www.hartell.com
Email: info@hartell.com

INTRODUCTION

HARTELL condensate pumps are designed to collect and automatically remove the water produced from an air conditioner evaporative coil and/or a gas-condensing furnace. This pump has been carefully engineered to provide long, trouble free service and is of the highest quality workmanship and materials.

These pumps have been thoroughly inspected and tested, then carefully packaged to insure safe delivery and operation. When you receive your pump, examine it carefully to determine that there are no damaged or broken parts. If damage is detected, notify the firm from where the pump was purchased. They will assist with a repair or replacement.

See the precautions listed below before continuing.

CAUTION: READ ALL INSTRUCTIONS CAREFULLY BEFORE STARTING INSTALLATION

- Pump should only be used with liquids compatible with pump component materials. Do not use to pump flammable or explosive fluids. Do not use in explosive atmospheres.
- The pump is designed for grounded installation. To reduce the risk of electrical shock be certain that it is connected to a properly grounded, grounding receptacle.
- In any installation where property damage and/or personal injury might result from an inoperative or leaking pump due to power outages, discharge line blockage, or any other reason, a back up system(s) (aux. switch) and/or alarm should be used.
- Do not handle pump with wet hands or when standing on a wet or damp surface, or in water.
- Shut off the electrical power at the fuse box before making any connections. All wiring must comply with local codes.

ONE YEAR LIMITED WARRANTY

HARTELL A2/A4 and AL2 series condensate pumps are guaranteed to be free from defects in workmanship or materials and to function satisfactorily, when properly installed, for a period of ONE (1) years from date of installation. HARTELL will replace, without charge, any HARTELL product found to be defective upon examination at our factory if returned within the guarantee period, transportation charges prepaid.

This guarantee does not apply if the product has been misapplied or mechanically damaged, HARTELL assumes no liability for resultant damages of any kind arising out of the use of its products.

INSTALLATION

Carefully unpack the pump and select a location on the floor. The pump must be level and the inlet must be below the lowest drain, either coil or furnace. Remove and discard the shipping pin that is located in the side of the switch cover box. This releases the float for fully automatic operation. (Not used on A2SA)

PIPING—Run flexible tubing or pipe from the evaporator and furnace to the pump. Insert the pipe into the drain inlet hole. Make sure the pipe does not interfere with the float. Cut an angle on the inlet pipe so that it doesn't close off against the bottom of the pump. See Figure 1 – exploded detail.

Connect 3/8" NPT piping to the discharge port. Extend this piping or tubing straight up as high as necessary. (Do not extend this tubing past the head/GPH of the pump installed). Do not kink the tubing, as this will block the flow. From this high point, slope the discharge tubing downward to a point above the drain, then turn down and extend to a point below or level with the bottom of the condensate pump. If it is not possible to slope the discharge tubing downwards, make an inverted "U" trap directly above the pump at the highest point. (Figure 1) Installation of a check valve is highly recommended. A check valve prevent

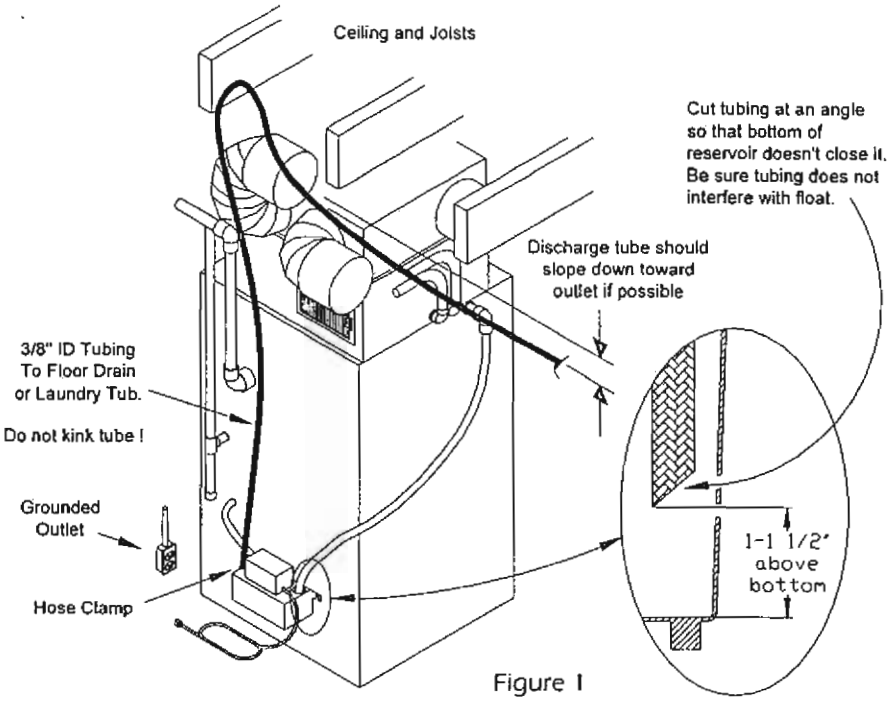


Figure 1

ELECTRICAL CONNECTIONS—review precautions on previous page

LINE VOLTAGE—Connect power cord to the proper voltage as indicated on the motor nameplate. Connect only to a source of constant power, not an intermittent source such as a fan or limit control circuit. Connect the back and white wires to the appropriate voltage source and the green wire to ground.

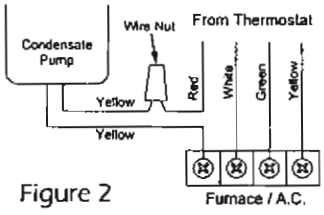


Figure 2

Models with an "X" designation are equipped with a LOW VOLTAGE—AUXILIARY SAFETY SWITCH–Connect the leads of auxiliary safety switch to the thermostat control circuit of the air conditioner/furnace. This will disrupt the thermostat demand in a high water condition. (Figure 2)

CAUTION –Thermostat demand disruption should not be utilized if cooling or heating requirements are a necessity. An alarm system should be used with the auxiliary switch instead.

A2-X-1965 WIRING FOR DUAL VOLTAGE—The A2-X-1965 Dual Voltage Condensate pump is wired for 115 volts from the manufacturer. *NOTE: read entire procedure before starting.*

To connect to 115 v power supply wire as follows.

1. Connect the orange and white wire to the power supply lines.
2. Connect the green (ground) wire to the ground supplied.

To connect to 230 v power supply wire as follows. (Figure 3)

1. Remove the switch cover.
2. Remove the blue/yellow motor wire connector from the switch.
3. Cut the female connector from the blue/yellow motor wires.
4. Cut the wire connector from the black/red motor wires.
5. Strip the yellow motor wire and install a 1/4 in. female connector.
6. Place the yellow motor wire onto the switch as shown.
7. Strip the red and blue motor wires and connect together with wire nut to insulate.
8. Strip the black motor wire and add a wire nut to insulate.
9. Pull the orange, green & white wires through the side switch cover grommet.
10. The yellow auxiliary wires should remain in the same position as shipped.

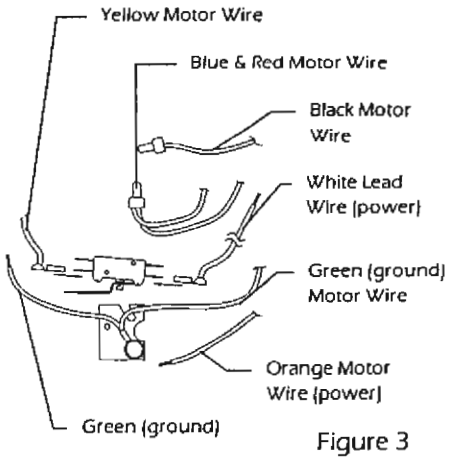


Figure 3

11. Connect the orange and white wires to the 230 volt power supply.
12. Connect the green (ground) wire to the ground source.

OPERATION

After proper installation, the operation of the HARTELL condensate pump is automatic. Water is collected in the reservoir and pumped out when the float raises to a pre-set point. As the water level goes down the float turns off the motor at another pre-set point. Under most circumstances the pump requires little maintenance for efficient operation. If a problem occurs, please refer to the maintenance instructions below.

MAINTENANCE

In normal applications, this pump requires no scheduled maintenance for efficient operation. However, to extend motor bearing life it is recommended that they be oiled every six months with S.A.E. 20. If a problem develops, the following guidelines can help to return the pump to service.

PUMP DOES NOT RUN

- Check to see that the power to the system (air conditioner and/or furnace) is on to allow production of condensate.
- Check that the pump is plugged in and the circuit is active (i.e. fuse or breaker not blown).
- Check the level of water in the reservoir; the level must be within 2" of the reservoir top to activate the switch. (The inlet tube may be blocked and require cleaning if no water is entering the reservoir).
- If there is a proper amount of water in the reservoir, the float may be stuck due to dirt or algae formation. (Flush the reservoir with warm water and a mild soap or detergent). See note below.

PUMP MOTOR RUNS WITH NO DISCHARGE

- Inspect the discharge tubing for its full length to make sure it is clear; make sure the tubing end is not plugged.
- Make sure the check valve is not clogged. (If clogged, UNPLUG THE PUMP, remove the fitting and clean with mild soap or detergent). See not below.
- The discharge port of the impeller chamber may be clogged due to an accumulation of debris. (See instructions below on how to disassemble unit and clean chamber).

NOTE: In case of extreme algae formation, UNPLUG THE PUMP, and fill the reservoir with a commercially available algaecide. Follow directions for destroying the algae. After the proper waiting period DUMP the algaecide out of the reservoir. Rinse with water, repeat if necessary. Be careful not to clog the check valve when starting the pump after this thorough cleaning.

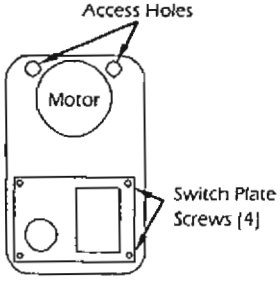
DISASSEMBLY (Omit Step 5 for "A" models) (Omit Step 4 for "AL" models)

1. Turn off power supply at fuse box and then drain water from reservoir.
2. Remove the four switch plate screws and carefully remove the switch/float assembly from the reservoir.
3. Remove the three impeller cover plate screws and loosen impeller cover plate.
4. Remove the four reservoir cover plate screws and remove the motor/cover assembly.
5. Remove the three motor bracket screws and remove the motor/bracket assembly. Remove the four reservoir access cover screws.
6. Remove all debris from inside the reservoir and wipe with damp cloth.

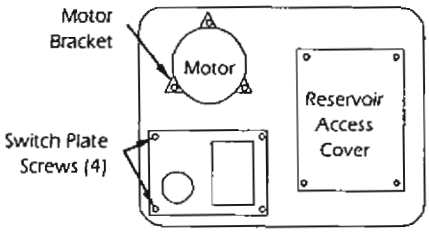
REASSEMBLY

Apply a small amount of gasket sealer (e.g., Silicone, Permatex, etc.) around the impeller chamber and reassemble by reversing the above procedure.

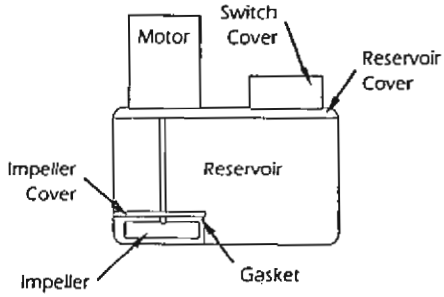
Top View of "A" Series



Top View of "AL" Series



Side View of "A" Series



Keep these sheets with the pump. They may be valuable if service is needed under the terms of the warranty.

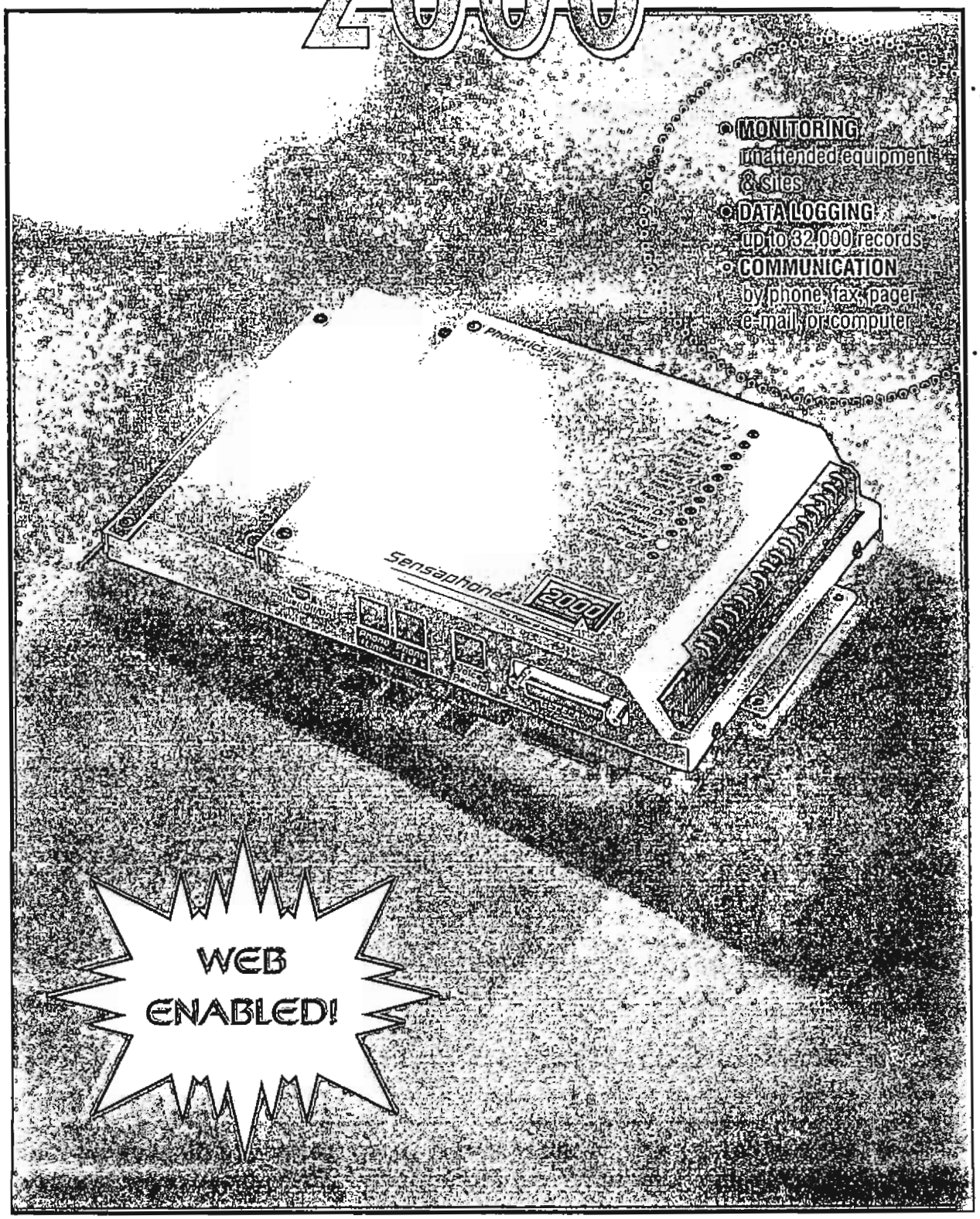
Model # _____ Date of installation: _____

Installer: _____ Date Code: _____

Dealer: _____

A SENSAPHONE REMOTE MONITORING SYSTEM

SENSAPHONE® 2000



SENSAPHONE

HOW DID YOU MANAGE WITHOUT IT?

SENSAPHONE® 2000

SENSAPHONE 2000 COMBINES ADVANCED REMOTE MONITORING WITH THE MOST FLEXIBLE DIALOUT CAPABILITIES

A CRITICAL TOOL THAT KEEPS YOU INFORMED ABOUT YOUR PROCESS EQUIPMENT 24 HOURS A DAY

Each Sensaphone 2000 can monitor and report on up to 8 remote, analog or digital inputs; and it can send those reports to as many as 32 locations. The information it collects is organized into easy-to-read reports and delivered wherever you want it, whenever you need it. Sensaphone 2000 saves you valuable time and keeps you aware of important functions and activities.

An essential tool for environmental monitoring in a variety of applications, Sensaphone 2000 supplies the critical information needed to prevent costly problems and maintain peak performance at virtually any kind of industrial facility.

If you need to know, you need Sensaphone 2000!

MONITORS 8 DIGITAL OR ANALOG INPUTS

Sensaphone 2000 allows you to select up to 8 inputs—digital or analog—to monitor conditions such as room temperature, outside temperature, power supply, humidity, tank levels, tank temperature, pressure, flow rates, flooding, HVAC controllers, etc. When there's a problem, it alerts you immediately. Whatever you need to know, Sensaphone 2000 can tell you.

You can program ranges to suit your specific monitoring requirements, and all programming can be done locally or from virtually any remote location. Digital functions include open/closed dry contact input and/or pulse counting. Analog can be read as a percentage or via a user-defined lookup table.

COMMUNICATES WITH UP TO 32 PRESELECTED DESTINATIONS

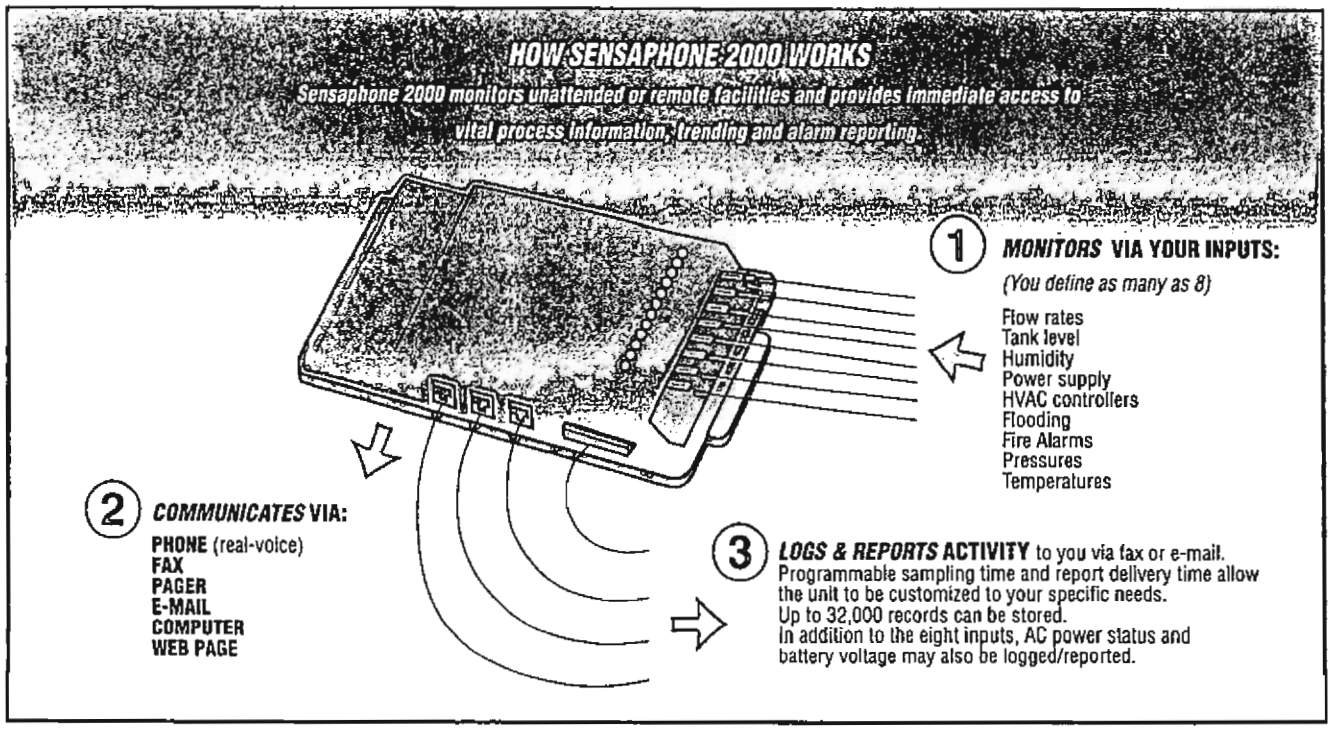
The Sensaphone 2000 Remote Monitoring System offers an amazing array of communication options. Using voice messages you record, it calls and reports to as many as 32 different phone numbers; and it selects different numbers to call based on a schedule you create. It can send alarm information directly to your PC. If the programmed phone number is a fax, it will compose and send a fax report. To pagers and beepers it sends the appropriate alarm information. When used in combination with the Manager 2000 software program, the Sensaphone 2000 is also sophisticated and versatile enough to send messages to e-mail addresses, or to assemble report data into a web page, which it then posts to your web site.

Use Sensaphone 2000's various methods of communication to send regular reports and/or transmit alarm messages. The system's versatility makes it quick and easy to reach the right people, and that's especially important in an emergency.

Sensaphone 2000 can easily be programmed to send the preselected information or alarm messages to whatever destination you choose.

IMMEDIATE ACCESS TO VITAL PROCESS INFORMATION

All it takes is a phone call to receive a voice status report or a data connection for more detailed information. You can check on any site and access critical information at any time from



anywhere. The knowledge you need is always just a phone call away.

BUILT-IN DATA LOGGER

With its internal data logging features, Sensaphone 2000 allows you to log activity such as trends, usage and other factors. It can store as many as 32,000 time-stamped records for verifying activity and charting trends over long periods.

All data is stored in the system's nonvolatile memory, protecting data even during loss of both AC and battery power.

BACKED BY ALL THE SUPPORT AND EXPERTISE OF PHONETICS, INC.

Phonetics, Inc. is a pioneer in the design and manufacture of remote monitoring systems. We continue to be at the forefront, setting industry standards for technical innovation.

With an installed base of more than 200,000 Sensaphone products—from small models to sophisticated industrial systems—Phonetics prides itself on providing flexibility and features at an affordable price.

Your Sensaphone 2000 comes with responsive technical support and a comprehensive warranty.

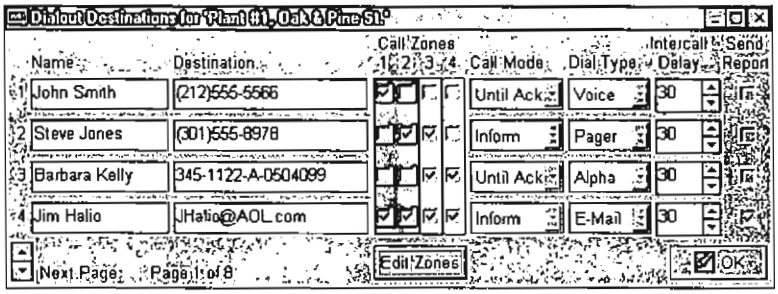
Contact the Phonetics Sales Department for further details at (610) 558-2700, or visit our website at www.sensaphone.com

INCLUDES FREE MICROSOFT WINDOWS™ COMPATIBLE SOFTWARE

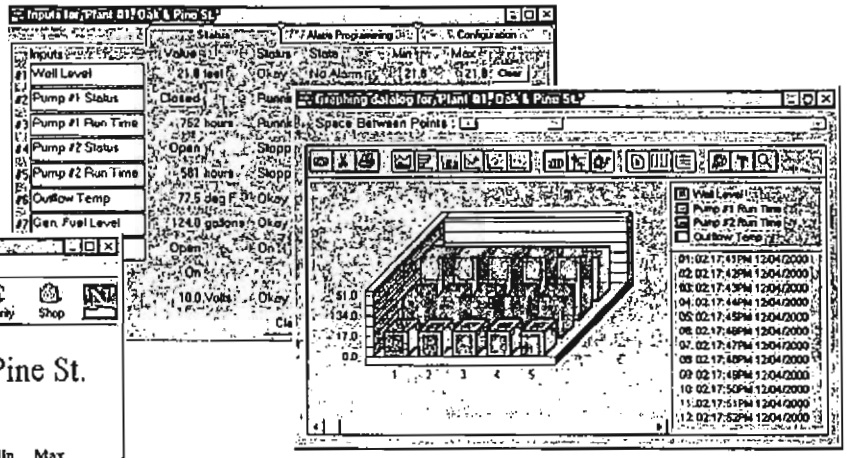
State-of-the-art, user-friendly software makes the Sensaphone 2000 easy to program and easy to use, from any local or remote PC. Use this flexible software to view input activity in real time, to analyze and graph stored data, and even to process incoming alarms.

The software, which is compatible with Windows 3.1, 95, 98, ME, NT, and 2000, includes these important features:

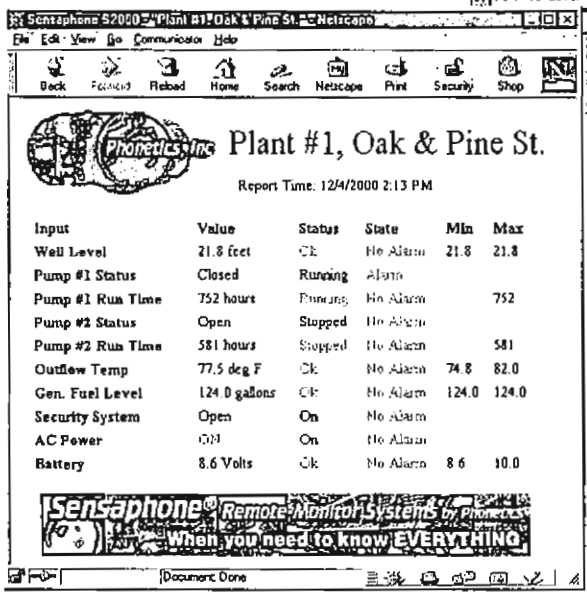
- Easy point-and-click programming.
- Real-time graphics screen.
- Wide range of report options, generated at times you've specified.
- Allows you to create Web pages that update at scheduled times.
- Allows you to view data log information in a grid, or plot it using 3D charts and graphs.
- Lets you maintain multiple remote Sensaphone 2000 units to a centralized PC.
- Enables you to receive and process alarms from multiple units.
- Automatic Web Page generation.



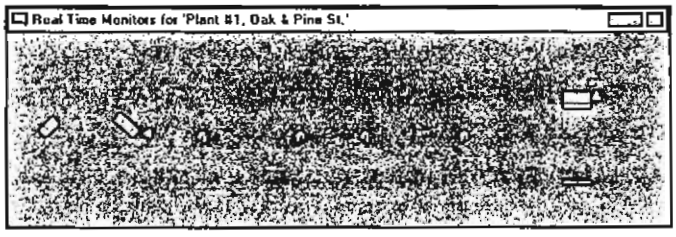
Choose any combination of communication methods for Sensaphone 2000 to send its reports or alarm messages.



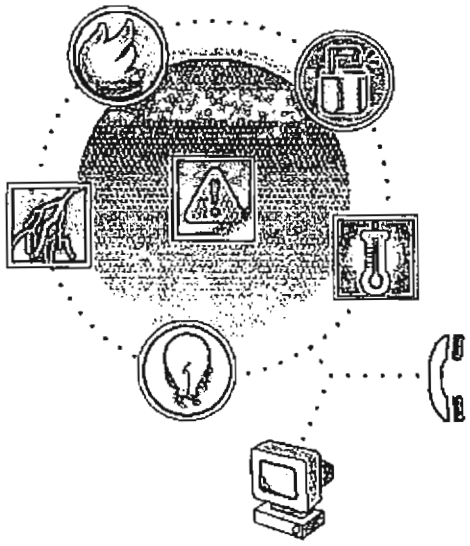
You choose the formats in which you want to see real-time or stored data displayed.



Colorful charts, gauges, graphs and web pages bring the data to life.



SENSAPHONE® 2000



SPECIFICATIONS

Dialing Parameters:

Programmable call list for each input

Alarm acknowledgment:
touch tones, callback, or modem

Call progress monitoring:
detect dialtone, busy signals & ringback

Programmable time between calls:
10 seconds to 60 minutes

Destinations:

32 destinations

36-digit telephone numbers

64 character E-mail addresses

Inputs:

8 Universal Inputs & 1 AC Power:
Normally Open/Normally Closed dry contact

2.8K/10K thermistor

4-20mA current loop,

or 0-5V analog voltage

10 bit resolution

Communication Types:

Voice, fax, modem, E-mail, numeric pager, alphanumeric pager, web page

Speech technology:

User-recordable voice for eight input alarm messages and one ID message

Data Logging:

Up to 32,000 samples (all samples include one data and time)

1 second to 200 hour sampling rate

User programmable channel selection —inputs 1-8

AC power & Ni-Cad battery backup

Communication Ports:

RS232 programming port

Used for local programming & set-up

DB25 female DCE

38,400 bps

Built-in Data Modem:

Data throughput 14,400 bps

14,400 bps Fax

Protocols: V.32bis, V.32, V.22bis, V.22A/B, V.23, V.21, Bell 212A & 103

Local Indicators:

Inputs 1–8 Alarm Status LEDs

System On LED

Power Alarm LED

Phone LED

Battery OK LED

Power Requirements:

External transformer 120VAC

60Hz 10W (UL-listed power supply)

(6) C-cell Rechargeable Ni-Cad batteries (not included)

10 hour battery backup

Operating Temperature Range:

0–50° C (32-122° F)

Humidily:

0–90% RH, non-condensing

Size:

12.1"w x 7.2"h x 1.6"d

Shipping Weight:

3 lbs.

BR008 © 1.2001 by Phonetics, Inc.

Phonetics, Inc.

901 Tryens Road Aston, PA 19014 Phone (610) 558-2700 Fax (610) 558-0222 www.sensaphone.com

APPENDIX D

BORING LOGS
AND
WELL CONSTRUCTION DETAILS

TRC-301R

L2003-240

TRC

Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	TRC-301R	1 of 5
		Well No. NA	

Location Description: Wetlands- ~600 ft West of the Eastern Parking Lot

TRC Geologist: Sandy Weymouth

Drilling Contractor/Foreman	Drill Rig Make/Model	Auger/Drive Casing Size/Type
American Drilling/Brad, Carl	CME 550	5" Drive & Wash/ 3.75"rollerbit/HV core

Sampler Description	Drilling Method	Coordinates
2 ft standard split spoon	Drive & Wash/Rollerbit/HV Core	X= Y=
Filter Seal Amount/Type: NA	**Rollerbit/Core Bit Diameter:** 3.75"	**Ref. El.:**
Sand Pack Amount/Type: NA	**Hammer Weight/Fall:** 140/30	**Riser Stick Up:** NA
Screen Length/Type: NA	**Water Table Depth:** NA	**Surface Elevation:** ~77 feet NGVD
Riser Length/Type: NA	**Total Depth:** 172'bgs.	**Date Start:** 3/12/03 **Date Finish:** 3/28/03

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well Construction
1	SS-1	WOR	24/4	Dark brown, wet, PEAT, organics.		ND		Casing Grouted To Surface
		WOR						
2		WOR						
				Drive and Wash.				
3								
4								
5	SS-2	WOR	24/8	Dark brown, wet, PEAT, organics.		ND		
		WOR						
6		WOR						
				Drive and Wash.				
7								
8								
9								
10	SS-3	WOR	24/14	Top 7": Dark brown, wet, PEAT, organics.		1.7		
		WOR		Bottom 7": Gray, wet, medium SAND, trace fine to coarse sand.		1.4		
11		6						
		5						
12				Drive and Wash.				
13								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

1) Field screening results with Photovac 2020 PID.
2) WOR= Sampler advanced with weight of rods and hammer (no blow counts).

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. TRC-301R	Sheet
Former GE Site	E9202-6502-02500	Well No.	_2_ of _5_

Location Description: Wetlands- ~600 ft West of the Eastern Parking Lot

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well Construction
	SS-4	1	24/13	Gray, wet, well sorted, medium SAND, trace fine sand, biotite and muscovite flakes present.		ND		
15		1						
		1						
		1						
16				Drive and Wash.				
17								
18								
19	S-5	5	24/10	Top 7.5": Light brown, wet, well sorted, medium SAND, some fine sand, rusty staining. Bottom 2.5"; Light Brown, wet, poorly sorted, medium SAND, some fine to coarse gravel, some fine sand.		ND		
		3						
20		6						
		12						
21				Drive and Wash. ½ gallon of mud added.				
22								
23								
24	SS-6	6	24/5	Brown, wet, poorly sorted, fine to coarse angular GRAVEL, little fine to coarse sand.		ND		
		10						
25		11						
		7						
26				Drive and Wash. ½ gallon of mud added.				
27								
28								
29	SS-7	8	24/7	Brown, wet, poorly sorted, fine to medium angular GRAVEL, little fine to coarse sand, trace coarse gravel.		ND		
		9						
30		8						
		10						
31								
				Drive and Wash.				

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

1) Field screening results with Photovac 2020 PID.

TRC

Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	TRC-301R	_3_ of _5_
		Well No.	

Location Description: Wetlands- ~600 ft West of the Eastern Parking Lot

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well Construction
33				Drive and Wash.				
34	SS-8	7	24/8	Brown, wet, poorly sorted, fine to medium angular GRAVEL, little fine to coarse sand, trace coarse gravel.		ND		
35		5						
		4						
36		12						
37				Drive and Wash.				
38								
39	S-9	11	24/4	Gray, wet, well sorted, medium SAND.		ND		
40		12						
		6						
41		10		Drive and Wash.				
42								
43								
44	SS-10	13	24/8	Gray, wet, well sorted, fine SAND, trace medium sand.		ND		
45		7						
		6						
46		7		Drive and Wash. Roller-bitted through more competent material (boulder?) at ~48'.				
47								
48								
49								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

1) Field screening results with Photovac 2020 PID.

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. TRC-301R	Sheet
Former GE Site	E9202-6502-02500	Well No.	_4_ of _5_

Location Description: Wetlands- ~600 ft West of the Eastern Parking Lot

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well Construction
	SS-11	25	24/4	Gray/green, wet, angular GRAVEL.		ND		
50		27						
		16						
		16						
51				Drive and Wash.				
52								
53								
54	S-12	36	24/6	Gray, wet, poorly sorted, TILL.		ND		
		34						
55		17						
		13						
56				Drive and Wash to ~57' and roller-bitted ahead to 60'. ~1/2 gallon of mud added.				
57								
58								
59								
60	SS-13	14	14/12	Gray, wet, poorly sorted, TILL .		ND		
		30						
61		100/2'		Refusal on bedrock at ~61'.				
				5" Rollerbit advanced 20' into bedrock to 81'. Rollerbit rate for the first 5' was 1" every 10 minutes. Rate from 68' to 81' was ½" to 1" per minute. 4" steel casing with a spin shoe was driven to 66'. Could not safely advance 4" casing past 66'. The borehole was grouted from 81' to the 4"casing. The 4" casing was set in grout at 66'. The 4" casing was then grouted into bedrock and through the overburden to the surface. The grout on the inside of the 4" casing and the grout from 61' to 81' was rollerbitted out to prepare for the HV diamond core. Subsequent Geophysical Analysis of the borehole indicates all (cont. p.5)				4" casing set at 66' and Grouted to surface
62								
63								
64								
65								
66								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

1) Field screening results with Photovac 2020 PID.

TRC

Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	TRC-301R	_5_ of _5_
		Well No.	

Location Description: Wetlands- ~600 ft West of the Eastern Parking Lot

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well Construction
68				(cont. from p.4) grout was washed out from 66'-81'and considered open borehole (see geophysical logs).				
69								
70								
71								
72								
73								
74								
75								
76								
77								
78								
79								
80								
81				End of rollerbitting. Refer to the rock core log for rock description.				

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

1) Field screening results with Photovac 2020 PID.

TRC Rock Core Log	Project: Former GE Facility, Phase IV RIP	Project No. E9202-6502-02500	Sheet 1 of 7
	Contractor Personnel: American Drilling/Carl, Brad, Bill	TRC Personnel: Sandy Weymouth	
Boring/Well Number: TRC-301R	Drill Rig/Equipment: CME 550-HV Diamond Core (81'-132')/ 3.75" Rollerbit (132'-172')	Elevation: ~77 feet NGVD Orientation: Date Start: 3/12/03 Date Finish: 3/28/03	

Depth	Comments: Tests, Instrumentation, Coring Rate and Smoothness, Coring Fluid Loss	Core Run Length and Recovery (%)	Core Loss Zone	Box Number	Discontinuities: RQD	Fractures Per Foot (open)	Description: Tightness, Planarity, Smoothness, Filling, Staining, Orientation	Lithology: Mineralogy, Classification, Color, Grain Size, Alteration, Cementation, Hardness, Weathered State	Field Screening* (PPM)
81	5min/ft	81-86' 5' 100%	X	1	95%		No fractures.	Green/gray, granodiorite with pink feldspar, quartz. 1" pegmatite.	ND
82	10min/ft						No fractures.	Green/gray, granodiorite with pink feldspar, quartz.	ND
83	5min/ft					1	1 open fracture. 1 closed fracture with staining.	Green/gray, granodiorite with pink feldspar, quartz. 1" pegmatite.	ND
84	6min/ft					1	1 fracture with rusty staining.	Green/gray, granodiorite with pink feldspar, quartz.	80
85	5min/ft					1	1 fracture with rusty staining.	Green/gray, granodiorite with pink feldspar, quartz.	150
86	5min/ft	86-91' 5' 100%	X	1	90%	3	Rusty fractures 5 closed fractures.	Green/gray, granodiorite with pink feldspar, quartz.	37
87	6min/ft						1 closed fracture.	Green/gray, granodiorite with pink feldspar, quartz.	6
88	6min/ft						1 closed fracture.	Green/gray, granodiorite with pink feldspar, quartz.	8
89	6min/ft						1 closed fracture.	Green/gray, granodiorite with pink feldspar, quartz. 2" pegmatite.	6
90	6min/ft						Closed rusty vertical fractures.	Green/gray, granodiorite with pink feldspar, quartz.	35
91	5min/ft	91-96' 5' 100%	X	1	96%	2	Rusty fractures. 1 closed fractture with calcite.	Green/gray, granodiorite with pink feldspar, quartz.	119
92	6min/ft						Closed vertical fractures with calcite.	Green/gray, granodiorite with pink feldspar, quartz.	204
93	8min/ft						Closed fractures with calcite.	Green/gray, granodiorite with pink feldspar, quartz.	64
94	6min/ft						Closed fractures with calcite.	Green/gray, granodiorite with pink feldspar, quartz.	89
95	4min/ft						Closed fractures with calcite.	Green/gray, granodiorite with pink feldspar, quartz.	69
96									

Notes: *Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen fractures (fresh and weathered) of core following removal from barrel. Cuttings from the wash tub were screened during rollerbitting.

TRC

Rock Core Log

Project: Former GE Facility, Phase IV RIP	**Project No.** E9202-6502-02500	**Sheet 2 of 7**
Contractor Personnel: American Drilling/Carl, Brad, Bill	**TRC Personnel:** Sandy Weymouth	
Boring/Well Number: TRC-301R	**Drill Rig/Equipment:** CME 550-HV Diamond Core (81'-132')/ 3.75" Rollerbit (132'-172')	**Elevation:** ~77 feet NGVD **Orientation:** **Date Start:** 3/12/03 **Date Finish:** 3/28/03

Depth	Comments: Tests, Instrumentation, Coring Rate and Smoothness, Coring Fluid Loss	Core Run Length and Recovery (%)	Core Loss Zone	Box Number	Discontinuities: RQD	Fractures Per Foot (open)	Description: Tightness, Planarity, Smoothness, Filling, Staining, Orientation	Lithology: Mineralogy, Classification, Color, Grain Size, Alteration, Cementation, Hardness, Weathered State	Field Screening (PPM)
96	4min/ft	91-96' 5' 100%	X	1	100%		2 closed fractures.	Course-grained pink pegmatite.	2
97	5min/ft						Closed vertical Fractures w/calcite.	Gray/green to pink, medium-grained granodiorite.	2.5
98	6min/ft						Closed slightly Rusty fractures Some w/calcite.	Green/gray to pink, medium-grained, granodiorite. Dark green, fine-grained diorite intrusion.	2.2
99	7min/ft						Closed slightly Rusty fractures Some w/calcite.	Green/gray to pink, medium-grained granodiorite. Dark green, fine-grained diorite intrusion.	1.5
100	6min/ft						Closed vertical Fractures w/calcite.	Green/gray to pink, granodiorite with pegmatite intrusion.	2
101	5min/ft	101-106' 5' 100%	X	2	100%		Closed slightly Rusty fractures Some w/calcite.	Green/gray, granodiorite with pink feldspar, quartz.	ND
102	7min/ft						Closed rusty Fractures.	Green/gray to pink, medium to coarse-grained granodiorite.	ND
103	6min/ft						1 closed fracture.	Green/gray to pink, medium to coarse-grained granodiorite.	ND
104	7min/ft						Some closed fractures.	Green/gray to pink, medium to coarse-grained granodiorite.	ND
105	6min/ft						Closed fractures w/calcite.	Green/gray to pink, medium to coarse-grained granodiorite.	ND
106	4min/ft	106-111' 5' 100%	X	2	86%		Closed fractures w/calcite.	Green/gray to pink, medium to coarse-grained granodiorite.	ND
107	5min/ft						Closed fractures w/calcite.	Green/gray to pink, medium to coarse-grained granodiorite.	ND
108	6min/ft						Closed fractures w/calcite.	Green/gray to pink, medium-grained, granodiorite. Darker at top 6". Increasing quartz.	ND
109	5min/ft					3	Very rusty fractures.	Rusty green/gray to pink, medium to coarse-grained granodiorite. Increasing quartz. 8" fracture zone.	ND
110	5min/ft					2	Very rusty fractures.	Rusty green/gray to pink, medium to coarse-grained granodiorite. Color is gray at bottom (no pink or green).	ND
111									

Notes: *Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen fractures (fresh and weathered) of core following removal from barrel. Cuttings from the wash tub were screened during rollerbitting.

TRC

Rock Core Log

	Project: Former GE Facility, Phase IV RIP	**Project No.** E9202-6502-02500	**Sheet 3 of 7**
	Contractor Personnel: American Drilling/Carl, Brad, Bill	**TRC Personnel:** Sandy Weymouth	
Boring/Well Number: TRC-301R	**Drill Rig/Equipment:** CME 550-HV Diamond Core (81'-132')/ 3.75" Rollerbit (132'-172')	**Elevation:** ~77 feet NGVD **Orientation:** **Date Start:** 3/12/03 **Date Finish:** 3/28/03	

Depth	Comments: Tests, Instrumentation, Coring Rate and Smoothness, Coring Fluid Loss	Core Run Length and Recovery (%)	Core Loss Zone	Box Number	Discontinuities: RQD	Fractures Per Foot (open)	Description: Tightness, Planarity, Smoothness, Filling, Staining, Orientation	Lithology: Mineralogy, Classification, Color, Grain Size, Alteration, Cementation, Hardness, Weathered State	Field Screening (PPM)
111	4min/ft	111-116' 5' 100%	X	2	100%		Closed fractures w/calcite.	Light gray to pink, medium-grained granite.	10.7
112	5min/ft						Closed fractures w/calcite.	Light gray to pink, medium-grained granite.	14.1
113	6min/ft						Closed fractures w/calcite.	Light gray to pink, medium-grained granite. 1" pegmatite intrusion.	8.8
114	9min/ft						Closed fractures w/calcite.	Light gray to pink, medium-grained granite.	15.7
115	6min/ft						Closed fractures w/calcite.	Light gray to pink, medium-grained granite. Pegmatite intrusion.	13.4
116	4min/ft	116-121' 5' 100%	X	2	100%		Closed fractures w/muscovite.	Medium to coarse-grained pegmatite.	ND
117	5min/ft						Closed fractures w/muscovite.	Coarse-grained pegmatite.	ND
118	5min/ft						Closed fractures w/muscovite.	Coarse-grained pegmatite.	ND
119	5min/ft						Closed fractures w/muscovite.	Coarse-grained pegmatite.	ND
120	4min/ft						Closed fractures w/muscovite.	Top 6": Coarse-grained pegmatite. Bottom 6": Gray/green to pink, medium-grained granodiorite.	ND
121	NA min/ft	121-125'8" 4'8" 93%	56"-60"	3	100%		Closed fractures w/calcite.	Light gray to pink, medium-grained granite. ½" quartz vein.	ND
122	NA min/ft						Closed fractures w/calcite.	Light gray to pink, medium-grained granite.	ND
123	NA min/ft						Closed fractures w/calcite.	Light gray to pink, medium-grained granite.	ND
124	NA min/ft					3	Closed fractures w/calcite.	Light gray to pink, medium-grained granite. Pegmatite intrusion.	ND
125	NA min/ft					2	Closed fractures w/calcite.	Light gray to pink, medium-grained granite. Pegmatite intrusion.	ND
126									

Notes: *Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen fractures (fresh and weathered) of core following removal from barrel. Cuttings from the wash tub were screened during rollerbitting.

TRC

Rock Core Log

	Project: Former GE Facility, Phase IV RIP	**Project No.** E9202-6502-02500	**Sheet 4 of 7**
	Contractor Personnel: American Drilling/Carl, Brad, Bill	**TRC Personnel:** Sandy Weymouth	
Boring/Well Number: TRC-301R	**Drill Rig/Equipment:** CME 550-HV Diamond Core (81'-132')/ 3.75" Rollerbit (132'-172')	**Elevation:** ~77 feet NGVD **Orientation:** **Date Start:** 3/12/03 **Date Finish:** 3/28/03	

Depth	Comments: Tests, Instrumentation, Coring Rate and Smoothness, Coring Fluid Loss	Core Run Length and Recovery (%)	Core Loss Zone	Box Number	Discontinuities: RQD	Fractures Per Foot (open)	Description: Tightness, Planarity, Smoothness, Filling, Staining, Orientation	Lithology: Mineralogy, Classification, Color, Grain Size, Alteration, Cementation, Hardness, Weathered State	Field Screening (PPM)
127	NA min/ft	125'8" - 126'8"' 1' 100%	X	3	100%		Closed fractures w/calcite.	Top 6": Pink, coarse-grained pegmatite.	ND
128	NA min/ft	126'8" - 131'8"' 5' 100%	X	3	100%		Closed fractures w/calcite.	Gray to pink, medium-grained granite.	ND
129	NA min/ft						Closed fractures w/calcite.	Gray to pink, medium to coarse-grained granite.	ND
130	NA min/ft						Closed fractures w/calcite.	Gray/white to pink, medium to coarse-grained granite. Slightly weathered.	ND
131	NA min/ft						Slightly rusty closed fractures w/calcite.	Gray/white to pink, medium to coarse-grained granite. Slightly weathered.	ND
132	NA min/ft						Closed fractures.	Dark green to gray, fine-grained diorite with white/purple clasts of quartz.	ND
133	Coring halted due to straying borehole. Begin rollerbitting at ½" to 1.5"/minute.							Rollerbit cuttings light gray to white.	ND
134	NA min/ft							Rollerbit cuttings light gray to white.	
135	NA min/ft							Rollerbit cuttings light gray to white.	
136	NA min/ft							Rollerbit cuttings light gray to white.	
137	NA min/ft							Rollerbit cuttings light gray to white.	
138	NA min/ft							Rollerbit cuttings light gray to white.	
139	NA min/ft							Rollerbit cuttings light gray to white.	
140	NA min/ft							Rollerbit cuttings light gray to white.	

Notes: *Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen fractures (fresh and weathered) of core following removal from barrel. Cuttings from the wash tub were screened during rollerbitting.

TRC Rock Core Log	Project: Former GE Facility, Phase IV RIP	Project No. E9202-6502-02500	Sheet 5 of 7
	Contractor Personnel: American Drilling/Carl, Brad, Bill	TRC Personnel: Sandy Weymouth	
Boring/Well Number: TRC-301R	Drill Rig/Equipment: CME 550-HV Diamond Core (81'-132')/ 3.75" Rollerbit (132'-172')	Elevation: ~77 feet NGVD Orientation: Date Start: 3/12/03 Date Finish: 3/28/03	

Depth	Comments: Tests, Instrumentation, Coring Rate and Smoothness, Coring Fluid Loss	Core Run Length and Recovery (%)	Core Loss Zone	Box Number	Discontinuities: RQD	Fractures Per Foot (open)	Description: Tightness, Planarity, Smoothness, Filling, Staining, Orientation	Lithology: Mineralogy, Classification, Color, Grain Size, Alteration, Cementation, Hardness, Weathered State	Field Screening (PPM)
	NA min/ft							Rollerbit cuttings light gray to white.	ND
142	NA min/ft							Rollerbit cuttings light gray to white.	ND
143	NA min/ft							Rollerbit cuttings light gray to white.	ND
144	NA min/ft							Rollerbit cuttings light gray to white.	ND
145	NA min/ft							Rollerbit cuttings light gray to white.	ND
146	NA min/ft							Rollerbit cuttings light gray to white.	ND
147	NA min/ft							Rollerbit cuttings light gray to white.	ND
148	NA min/ft							Rollerbit cuttings light gray to white.	ND
149	NA min/ft							Rollerbit cuttings light gray to white.	ND
150	NA min/ft							Rollerbit cuttings light gray to white.	ND
151	NA min/ft							Rollerbit cuttings light gray to white.	ND
152	NA min/ft							Rollerbit cuttings light gray to white.	ND
153	NA min/ft							Rollerbit cuttings light gray to white.	ND
154	NA min/ft							Rollerbit cuttings light gray to white.	ND
155	NA min/ft							Rollerbit cuttings light gray to white.	ND

Notes: *Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen fractures (fresh and weathered) of core following removal from barrel. Cuttings from the wash tub were screened during rollerbitting.

TRC Rock Core Log	Project: Former GE Facility, Phase IV RIP	Project No. E9202-6502-02500	Sheet 6 of 7
	Contractor Personnel: American Drilling/Carl, Brad, Bill	TRC Personnel: Sandy Weymouth	
Boring/Well Number: TRC-301R	Drill Rig/Equipment: CME 550-HV Diamond Core (81'-132')/ 3.75" Rollerbit (132'-172')	Elevation: ~77 feet NGVD Orientation: Date Start: 3/12/03 Date Finish: 3/28/03	

Depth	Comments: Tests, Instrumentation, Coring Rate and Smoothness, Coring Fluid Loss	Core Run Length and Recovery (%)	Core Loss Zone	Box Number	Discontinuities: RQD	Fractures Per Foot (open)	Description: Tightness, Planarity, Smoothness, Filling, Staining, Orientation	Lithology: Mineralogy, Classification, Color, Grain Size, Alteration, Cementation, Hardness, Weathered State	Field Screening (PPM)
	NA min/ft							Rollerbit cuttings light gray to white.	ND
157	NA min/ft							Rollerbit cuttings light gray to white.	ND
158	NA min/ft							Rollerbit cuttings light gray to white.	ND
159	NA min/ft							Rollerbit cuttings light gray to white.	ND
160	NA min/ft							Rollerbit cuttings light gray to white.	ND
161	NA min/ft							Rollerbit cuttings light gray to white.	ND
162	NA min/ft							Rollerbit cuttings light gray to white.	ND
163	NA min/ft							Rollerbit cuttings light gray to white.	ND
164	NA min/ft							Rollerbit cuttings light gray to white.	ND
165	NA min/ft							Rollerbit cuttings light gray to white.	ND
166	NA min/ft							Rollerbit cuttings light gray to white.	ND
167	NA min/ft							Rollerbit cuttings light gray to white.	ND
168	NA min/ft							Rollerbit cuttings light gray to white.	ND
169	NA min/ft							Rollerbit cuttings light gray to white.	ND
170	NA min/ft							Rollerbit cuttings light gray to white.	ND

Notes: *Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen fractures (fresh and weathered) of core following removal from barrel. Cuttings from the wash tub were screened during rollerbitting.

TRC

Rock Core Log

Project: Former GE Facility, Phase IV RIP	**Project No.** E9202-6502-02500	**Sheet 7 of 7**
Contractor Personnel: American Drilling/Carl, Brad, Bill	**TRC Personnel:** Sandy Weymouth	
Boring/Well Number: TRC-301R	**Drill Rig/Equipment:** CME 550-HV Diamond Core (81'-132')/ 3.75" Rollerbit (132'-172')	**Elevation:** ~77 feet NGVD **Orientation:** **Date Start:** 3/12/03 **Date Finish:** 3/28/03

Depth	Comments: Tests, Instrumentation, Coring Rate and Smoothness, Coring Fluid Loss	Core Run Length and Recovery (%)	Core Loss Zone	Box Number	Discontinuities: RQD	Fractures Per Foot (open)	Description: Tightness, Planarity, Smoothness, Filling, Staining, Orientation	Lithology: Mineralogy, Classification, Color, Grain Size, Alteration, Cementation, Hardness, Weathered State	Field Screening (PPM)
	NA min/ft							Rollerbit cuttings light gray to white.	ND
172	Finished rollerbitting at ~172' bgs.								
173									
174									
175									
176									
177									
178									
179									
180									
181									
182									
183									
184									
185									

Notes: *Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen fractures (fresh and weathered) of core following removal from barrel. Cuttings from the wash tub were screened during rollerbitting.

Injection Points (IP)

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-1	Sheet
Former GE Site	E9202-6502-02500	Well No. NA	1 of 7

Location Description	TRC Geologist
Eastern Parking Lot- ~247' Southwest of TRC-202R	Sandy Weymouth

Drilling Contractor/Foreman	Drill Rig Make/Model	Auger/Drive Casing Size/Type
American Drilling/Dave, Rodney, Dewane	CME85(auger) /DrillTech 25(mud/air rotary)	8" Augers (0'-12.5')/7 7/8" rollerbit (13'- 27')

Sampler Description	Drilling Method	Coordinates
NA	Auger/Mud Rotary/Air Rotary	X= Y=
Filter Seal Amount/Type: NA	Air Hammer Bit Diameter: 6"(27'-120')	Ref. El.:
Sand Pack Amount/Type: NA	Hammer Weight/Fall: NA	Riser Stick Up: NA
Screen Length/Type: NA	Water Table Depth: NA	Surface Elevation: NA
Riser Length/Type: NA	Total Depth: 120'bgs.	Date Start: 4/10/03 Date Finish: 4/15/03

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA	Asphalt.				Casing Grouted To Surface
1				Gray, crushed stone FILL.				
2				Brown, sand and gravel FILL.				
3						ND		
4								
5								
6						49-119		
7								Surface of Grout at 6.3 ft
8								
9								
10				Boulders encountered at 9.5' and 11'. 8" air hammer used to advance past the boulders. Augers eventually advanced to 12.5' and could not go further due to boulders.		7.5-12		
11								
12								
13				Drilling method switched to mud rotary. Weathered Rock encountered at 13'.				

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_2_ of _7_
Location Description: Eastern Parking Lot- ~247' Southwest of TRC-202R		TRC Geologist: Sandy Weymouth	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA			ND		
15								
16								
17								
18								
19								
20								
21								
22				Competent bedrock encountered.				
23								
24								
25								
26								Grout to 26 ft; Bentonite 26-27 ft
27				End of mud rotary. 6" casing set at 27' and grouted to the surface. Begin air rotary drilling.				Sand
28								IP-1-R1 well screen 28-48 ft
29				Light gray, granite, muscovite-rich, rusty weathering.		ND		
30								
31								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_3_ of _7_

Location Description: Eastern Parking Lot- ~247' Southwest of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
33								
34								
35								
36				Light gray, granite, muscovite-rich, rusty weathering.		ND		
37								
38								
39								
40				Pink/gray granite, rusty weathering.		ND		
41								
42								
43								
44								
45								
46								
47								
48								
49								

Bottom of IP-1-R1 screen at 48 ft

Sand to 50 ft

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_4_ of _7_

Location Description: Eastern Parking Lot- ~247' Southwest of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA	Light gray/green, granite, large quartz crystals, increasing darker minerals, rusty weathering.		ND		
51								Grout 50-52 ft
52								
53								Bentonite 52-53.5 ft
54								Sand
55								IP-1-R2 well screen 54-74 ft
56								
57								
58								
59								
60				Pink/light gray, granite, rusty weathering.		ND		
61								
62								
63								
64								
65								
66								
67								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_5_ of _7_
Location Description: Eastern Parking Lot- ~247' Southwest of TRC-202R		TRC Geologist: Sandy Weymouth	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
69								
70				Light to medium gray, granite.		ND		
71								
72								
73								Bottom of IP-1-R2 screen at 74 ft
74								
75								Sand to 77 ft
76								
77								
78								
79								Grout 77-89.9 ft
80				Light to medium gray, granite.		ND		
81								
82								
83								
84								
85								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_6_ of _7_
Location Description: Eastern Parking Lot- ~247' Southwest of TRC-202R		TRC Geologist: Sandy Weymouth	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
87								
88								
89								Grout to 89.9 ft
90				Green/light gray, granite, increasing green minerals and quartz.		ND		
91								Bentonite 89.9-93 ft
92								
93								
94								Sand
95								
96								
97								
98								IP-1-R3 well screen 95-115 ft
99								
100				Green/ light gray, granite, increasing quartz.		ND		
101								
102								
103								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_7_ of _7_

Location Description: Eastern Parking Lot- ~247' Southwest of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Stratigraphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA			ND		
105								
106								
107								
108								
109								
110				Dark green/gray, diorite, calcite crystals.		ND		
111								
112								
113								
114								
115								Bottom of IP-1-R3 screen at 115 ft
116								
117								
118								
119								
120				End of boring.				Bottom of sand at 120.5 ft

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	IP-2	1 of 8
		Well No. NA	

Location Description: Eastern Parking Lot- ~245' West of TRC-202R

TRC Geologist: Sandy Weymouth

Drilling Contractor/Foreman	Drill Rig Make/Model	Auger/Drive Casing Size/Type
American Drilling/Dave, Rodney, Dewane	DrillTech 25(mud/air rotary)	7 7/8" rollerbit (0'- 17.5')

Sampler Description: NA	**Drilling Method:** Mud Rotary/Air Rotary	**Coordinates:** X= Y=
Filter Seal Amount/Type: NA	**Air Hammer Bit Diameter:** 6"(17.5'-125')	**Ref. El.:**
Sand Pack Amount/Type: NA	**Hammer Weight/Fall:** NA	**Riser Stick Up:** NA
Screen Length/Type: NA	**Water Table Depth:** NA	**Surface Elevation:** NA
Riser Length/Type: NA	**Total Depth:** 125'bgs.	**Date Start:** 4/14/03 **Date Finish:** 4/16/03

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA	Asphalt.				Casing Grouted To Surface → Grout 2.3-15 ft
1				Gray, crushed stone FILL.				
2				Brown, sand and gravel FILL.		ND		
3								
4								
5								
6								
7								
8								
9								
10								
11								
12				Competent bedrock encountered at 12'.				
13								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements from top of casing. The following are the measurements of stick-ups from top of casing: IP-2-R1: +3"; R2: +1.5"; R3: 1.25"; R4: +1"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-2	Sheet
Former GE Site	E9202-6502-02500	Well No.	_2_ of _8_
Location Description: Eastern Parking Lot- ~245' West of TRC-202R		TRC Geologist: Sandy Weymouth	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
15								Bentonite 15-16 ft
16								
17								Sand
18				End of mud rotary. 6" casing set at 17.5' and grouted to the surface. Begin air rotary drilling.				
19				Refer to the boring log for IP-1 for rock description.		ND		IP-2-R1 well screen 17.5-38 ft
20								
21								
22								
23								
24								
25						ND		
26								
27								
28								
29								
30								
31								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

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*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	IP-1	_3_ of _8_
		Well No.	

Location Description: Eastern Parking Lot- ~245' West of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
33								
34								
35								
36								
37						ND		
38								
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								

Well construction: Sand to 39 ft; Grout 39-44 ft; Bentonite 44-45 ft; Sand; IP-2-R2 well screen 46-66 ft

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-2	Sheet
Former GE Site	E9202-6502-02500	Well No.	_4_ of _8_
Location Description: Eastern Parking Lot- ~245' West of TRC-202R		TRC Geologist: Sandy Weymouth	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA			ND		
51								
52								
53								
54								
55								
56								
57								
58								
59								
60								
61								
62								
63						ND		
64								
65								
66								Sand to 66.3 ft
67								Grout 66.3-71 ft

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-2	Sheet
Former GE Site	E9202-6502-02500	Well No.	_5_ of _8_
Location Description: Eastern Parking Lot- ~245' West of TRC-202R		TRC Geologist: Sandy Weymouth	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
69								
70								
71								Bentonite 71-71.5 ft
72								Sand
73								
74								IP-2-R3 well screen 72-92 ft
75						ND		
76								
77								
78								
79								
80								
81								
82								
83								
84								
85								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-2	Sheet
Former GE Site	E9202-6502-02500	Well No.	_6_ of _8_

Location Description: Eastern Parking Lot- ~245' West of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
87								
88						ND		
89								
90								
91								
92								Sand to 92.8 ft
93								
94								Grout 92.8-96 ft
95								
96								Bentonite 96-97 ft
97								
98								Sand
99								
100						ND		IP-2-R4 well screen 98-122 ft
101								
102								
103								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	IP-2	_7_ of _8_
		Well No.	

Location Description: Eastern Parking Lot- ~245' West of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
105								
106								
107								
108								
109								
110								
111								
112								
113						ND		
114								
115								
116								
117								
118								
119								
120								
121								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	IP-2	_8_ of _8_
		Well No.	

Location Description: Eastern Parking Lot- ~485' Southwest of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					Sand to 124 ft
123								
124								
125				End of boring.				

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	IP-3	1 of 7
		Well No. NA	

Location Description: Eastern Parking Lot- ~97' West of TRC-202R

TRC Geologist: Sandy Weymouth

Drilling Contractor/Foreman	Drill Rig Make/Model	Auger/Drive Casing Size/Type
American Drilling/Dave, Rodney, Dewane	DrillTech 25(mud/air rotary)	7 7/8" rollerbit (0'- 48')

Sampler Description: NA	**Drilling Method:** Auger/Mud Rotary/Air Rotary	**Coordinates:** X= Y=
Filter Seal Amount/Type: NA	**Air Hammer Bit Diameter:** 6"(48'-120')	**Ref. El.:**
Sand Pack Amount/Type: NA	**Hammer Weight/Fall:** NA	**Riser Stick Up:** NA
Screen Length/Type: NA	**Water Table Depth:** NA	**Surface Elevation:** NA
Riser Length/Type: NA	**Total Depth:** 120'bgs.	**Date Start:** 4/10/03 **Date Finish:** 4/14/03

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA	Asphalt.				
1				Dark brown, angular sand and gravel FILL.		ND		Casing Grouted To Surface
2								
3								
4								
5								
6								
7								
8								
9								
10								Grout 6.25-43.3 ft
11								
12								
13								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

* All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-3-R1: +2"; R2: +1"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-3	Sheet
Former GE Site	E9202-6502-02500	Well No.	_2_ of _7_
Location Description: Eastern Parking Lot- ~97' West of TRC-202R		TRC Geologist: Sandy Weymouth	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

* All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-3-R1: +2"; R2: +1"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-3	Sheet
Former GE Site	E9202-6502-02500	Well No.	_3_ of _7_

Location Description: Eastern Parking Lot- ~97' West of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
33								
34								
35								
36								
37								
38				Weathered bedrock encountered.				
39								
40								
41								
42				Competent bedrock encountered.				
43								
44								
45								
46								
47								
48				End of mud rotary. 6" casing set at 48' and grouted to the surface. Begin air rotary drilling.		ND		
49				Refer to the boring log for IP-4 for rock description.				

Bentonite 43.3-46 ft

Sand

IP-3-R1 well screen 48-61 ft

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

* All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-3-R1: +2"; R2: +1"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-3	Sheet
Former GE Site	E9202-6502-02500	Well No.	_4_ of _7_
Location Description: Eastern Parking Lot- ~97' West of TRC-202R		TRC Geologist: Sandy Weymouth	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
51								
52								
53								
54								
55								
56								
57								
58								
59								
60						ND		
61								Sand to 61.5 ft
62								Bentonite 61.5-64 ft
63								
64								
65								IP-3-R2 well screen 64-84 ft
66								
67								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace	0-10%	some	20-35%
little	10-20%	and	35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

* All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-3-R1: +2"; R2: +1"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-3	Sheet
Former GE Site	E9202-6502-02500	Well No.	_5_ of _7_

Location Description: Eastern Parking Lot- ~97' West of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
69								
70								
71								
72								
73								
74								
75								
76								
77								
78								
79								
80						ND		
81								
82								
83								
84								
85								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

* All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-3-R1: +2"; R2: +1"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-3	Sheet
Former GE Site	E9202-6502-02500	Well No.	_6_ of _7_
Location Description: Eastern Parking Lot- ~97' West of TRC-202R		TRC Geologist: Sandy Weymouth	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
87								
88								Sand to 91 ft
89								
90								
91								
92								
93								
94								
95								Grout 91-119.5 ft
96								
97								
98								
99								
100						ND		
101								
102								
103								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

* All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-3-R1: +2"; R2: +1"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-3	Sheet
Former GE Site	E9202-6502-02500	Well No.	_7_ of _7_

Location Description: Eastern Parking Lot- ~97' West of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
105								
106								
107								
108								
109								
110								
111								
112								
113								
114								
115								
116								
117								
118								
119								Grout to 119.5 ft
120				End of boring.				

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

* All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-3-R1: +2"; R2: +1"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	IP-4	1 of 7
		Well No. NA	

Location Description	TRC Geologist
Eastern Parking Lot- ~100' Southwest of TRC-202R	Sandy Weymouth

Drilling Contractor/Foreman	Drill Rig Make/Model	Auger/Drive Casing Size/Type
American Drilling/Dave, Rodney, Dewane	CME85(auger) /DrillTech 25(mud/air rotary)	8" Augers (0'-28')/7 7/8" rollerbit (28'- 38')

Sampler Description	Drilling Method	Coordinates
NA	Auger/Mud Rotary/Air Rotary	X= Y=

Filter Seal Amount/Type: NA	Air Hammer Bit Diameter: 6"(38'-120')	Ref. El.:
Sand Pack Amount/Type: NA	Hammer Weight/Fall: NA	Riser Stick Up: NA
Screen Length/Type: NA	Water Table Depth: NA	Surface Elevation: NA
Riser Length/Type: NA	Total Depth: 120'bgs.	Date Start: 4/7/03 Date Finish: 4/15/03

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA	Asphalt.				Casing Grouted To Surface
1				Dark brown, angular sand and gravel FILL.				
2								
3								
4								
5						ND		
6				Dark brown, angular sand and gravel FILL, cobbles.				
7								
8								
9								
10								
11								Grout 8.67-35.9 ft
12								
13								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing at IP-4- R1: +1.5"; R2: +1.25"; R3: +0.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-4	Sheet
Former GE Site	E9202-6502-02500	Well No.	_2_ of _7_
Location Description: Eastern Parking Lot- ~100' Southwest of TRC-202R		TRC Geologist: Sandy Weymouth	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
15				Boulder encountered. Air hammer used to advance augers.				
16								
17				Dark brown, sand and angular gravel, cobbles.		ND		
18								
19								
20								
21								
22								
23								
24								
25								
26								
27				Boulder encountered. Air hammer used to advance augers.				
28				Augers will not advance past 28'. Augers will be left in place and the casing will be set using mud rotary.		ND		
29								
30				Weathered bedrock encountered with mud rotary.				
31								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing at IP-4- R1: +1.5"; R2: +1.25"; R3: +0.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-4	Sheet
Former GE Site	E9202-6502-02500	Well No.	_3_ of _7_

Location Description: Eastern Parking Lot- ~100' Southwest of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
33				Competent bedrock encountered.		ND		
34								
35								
36								Bentonite 35.9-36.9
37								Sand
38				End of mud rotary. 6" casing set at 38' and grouted to the surface. Begin air rotary drilling.				
39								
40				Dark green/gray, granodiorite.				
41								IP-4-R1 well screen 38-48 ft
42								
43								
44								
45								
46								
47								
48								Sand to 49.5 ft
49								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing at IP-4-R1: +1.5"; R2: +1.25"; R3: +0.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-4	Sheet
Former GE Site	E9202-6502-02500	Well No.	_4_ of _7_

Location Description: Eastern Parking Lot- ~100' Southwest of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA	Dark green/gray, granodiorite.		ND		Grout 49.5-53 ft; Bentonite to 53.5 ft; Sand; IP-4-R2 well screen 54-74 ft
51								
52								
53								
54								
55								
56								
57								
58								
59								
60				Dark green/gray, granodiorite, increasing quartz minerals.		ND		
61								
62								
63								
64								
65								
66								
67								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing at IP-4-R1: +1.5"; R2: +1.25"; R3: +0.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-4	Sheet
Former GE Site	E9202-6502-02500	Well No.	_5_ of _7_
Location Description: Eastern Parking Lot- ~100' Southwest of TRC-202R		TRC Geologist: Sandy Weymouth	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
69								
70				Light gray/green, granite.		ND		
71								
72								
73								
74								Sand to 74.9 ft
75								
76								Grout 74.9-77.9 ft
77								
78								Bentonite 77.9-79 ft
79								
80				Light gray/green, granite.		ND		Sand
81								
82								IP-4-R3 well screen 80-115 ft
83								
84								
85								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing at IP-4-R1: +1.5"; R2: +1.25"; R3: +0.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-4	Sheet
Former GE Site	E9202-6502-02500	Well No.	_6_ of _7_

Location Description: Eastern Parking Lot- ~100' Southwest of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
87								
88								
89								
90				Light gray/green, granite.		ND		
91								
92								
93								
94								
95								
96								
97								
98								
99								
100				Light gray/green, granite, increasing pink feldspar.		ND		
101								
102								
103								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing at IP-4- R1: +1.5"; R2: +1.25"; R3: +0.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. IP-4	Sheet
Former GE Site	E9202-6502-02500	Well No.	_7_ of _7_

Location Description: Eastern Parking Lot- ~100' Southwest of TRC-202R

TRC Geologist: Sandy Weymouth

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
105								
106								
107								
108								
109								
110				Dark green/gray, diorite, calcite crystals.		ND		
111								
112								
113								
114								
115								
116								Sand to 116.3 ft
117								
118								
119								
120				End of boring.				

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

Field Screening completed with a Photovac 2020 PID. The method of screening was to immediately screen cuttings from the augers, air hammer, or rollerbit as they came out of the borehole. All results in parts per million (ppm).

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing at IP-4- R1: +1.5"; R2: +1.25"; R3: +0.75"

TRC

Field Data Record
Well Development

Project: Lockheed Phase IV | Project No.: | Date/Time: 7/14/03 1130 | Sheet 1 of ___

TRC Personnel: K. Marshall, T. Major

Well Identification: IP-1-R1

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch; [ ] 4 inch; [ ] 6 inch; [ ] ___

WELL MATERIAL: [X] PVC; [ ] SS; [ ] ___

Well Depth 48'5½" ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 5.81 ft.

Height of Water Column 42.7 ft. x [ ] .10 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ___ gal/ft (___ in.)

Volume of Water in Well = 6.8 gallon(s)

_____ Total gallons to purge

[Vol. = r^2h(0.163)]

FD SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS

Time		1135	1145	1207	1225						
pH (Std. Units) TURB		—	39.6	22.9	—						
Eh (millivolts) Volume		0	7	14	18						
Conduct. (µmhos/cm)											
Temp. (C) Purge Rt		0	1	0.25	0.50						
Turb. (NTU)	R1	5.81	28.95	39.8	DRY						
DO (mg/l)	R2	5.99	6.10	7.02	—						
	R3	108.35	108.31	108.2	—						
Purge Volume (gal)											
pH (Std. Units)											
Eh (millivolts)											
Conduct. (µmhos/cm)											
Temp. (C)											
Turb. (NTU)											
DO (mg/l)											

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump	[ ]	[ ]
Submersible Pump	[ ]	[ ]
Bailer	[ ]	[ ]
Waterra	[ ]	[ ]
PVC/Silicon Tubing	[ ]	[ ]
Teflon/Silicon Tubing	[ ]	[ ]
Air Lift	[ ]	[ ]
In-line Filter	[ ]	[ ]
Pressure Vacuum Filter	[ ]	[ ]
Measuring Tape	[ ]	[ ]
_____	[ ]	[ ]

EQUIPMENT ID: Grundfos pumps w/dedicated tubing, LaMotte Turbidity Meter, Honda Generators, 2% Solinst WLIs

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED	
Tap Water	[ ]
Alconox	[ ]
Tap Water	[ ]
HNO3 (1 or 10%)	[ ]
Tap Water	[ ]
Methanol	[ ]
Hexane	[ ]
Acetone	[ ]
Air Dry	[ ]
DI Water	[ ]
Air Dry	[ ]
None	[ ]

AF-203b

Signed: Kristen Marshall

Rev: 8 July 1991

TRC

Field Data Record
Well Development

Project: Lockheed Phase II | Project No.: | Date/Time: 7/10/03 2035 | Sheet 1 of __

TRC Personnel: K. Marshall, T. Maier

Well Identification: IP-1-R2

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] ____

WELL MATERIAL: [X] PVC [ ] SS [ ] ____

Well Depth 14'1/4" ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 4.08 ft.

Height of Water Column 10.02 ft. x [X] .16 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ___ gal/ft (__ in.)

Volume of Water in Well = 11.2 gallon(s)

_____ Total gallons to purge

[Vol. = r^2 h(0.163)]

PID SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS

Purge Volume (gal)		0	2040	2047							
pH (Std. Units) TURB		—	29.1	459							
Eh (millivolts) Volume		0	11	22							
Conduct. (µmhos/cm)											
Temp. (C) Purge Rt		0	1gpm	1gpm							
Turb. (NTU)	R1	4.82	5.00	5.25							
DO (mg/l)	R2	4.08	62.00								
	R3	112.51	112.35	112.25							
Purge Volume (gal)											
pH (Std. Units)											
Eh (millivolts)											
Conduct. (µmhos/cm)											
Temp. (C)											
Turb. (NTU)											
DO (mg/l)											

TIME
NTU)
(gal)
gpm)
rw

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump	[ ]	[ ]
Submersible Pump	[ ]	[ ]
Bailer	[ ]	[ ]
Waterra	[ ]	[ ]
PVC/Silicon Tubing	[ ]	[ ]
Teflon/Silicon Tubing	[ ]	[ ]
Air Lift	[ ]	[ ]
In-line Filter	[ ]	[ ]
Pressure Vacuum Filter	[ ]	[ ]
Measuring Tape	[ ]	[ ]
_____	[ ]	[ ]

EQUIPMENT ID: Grundfos pump w/ dedicated tubing, 3 Solinst WCMs, Calibrite 2020 Turbidity meter, Horiba Conductivity meter.

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED	
Tap Water	[ ]
Alconox	[ ]
Tap Water	[ ]
HNO3 (1 or 10%)	[ ]
Tap Water	[ ]
Methanol	[ ]
Hexane	[ ]
Acetone	[ ]
Air Dry	[ ]
DI Water	[ ]
Air Dry	[ ]
None	[ ]

Signed: Kristen E Marshall

Rev. 9 July 1991

TRC

Field Data Record
Well Development

Project: Lockheed Phase II Project No.: Date/Time: 7/10/03 1930 Sheet 1 of ___

TRC Personnel: K. Marshall, T. Majer

Well Identification: ~~IP-2-R3~~ IP-1-R3

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] ___ inch

WELL MATERIAL: [X] PVC [ ] SS [ ] ___

Well Depth 11.52 ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 5.31 ft.

Height of Water Column 10.9 ft. x [ ] .10 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ___ gal/ft (___ in.)

Volume of Water in Well = 12.9 gal(s)

___ Total gallons to purge

[Vol. = r^2 x h x 0.163]

FID SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS

		1930									
Purge Volume (gal)		0	1955	2025							
pH (Std. Units) TIME		-	9.87	8.88							
Eh (millivolts) Volume (NTU)		0	18								
Conduct. (µmhos/cm) (gal)											
Temp. (C) Purge (gpm)		0	0.25	0.50							
Turb. (NTU)	R1	2.86	4.06	4.54							
DO (mg/l)	R2	4.08	4.97	5.40							
	R3	5.31	95.90	~114 (neg)							
	R4										
Purge Volume (gal)											
pH (Std. Units)											
Eh (millivolts)											
Conduct. (µmhos/cm)											
Temp. (C)											
Turb. (NTU)											
DO (mg/l)											

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump	[ ]	[ ]
Submersible Pump	[ ]	[ ]
Bailer	[ ]	[ ]
Waterra	[ ]	[ ]
PVC/Silicon Tubing	[ ]	[ ]
Teflon/Silicon Tubing	[ ]	[ ]
Air Lift	[ ]	[ ]
In-line Filter	[ ]	[ ]
Pressure Vacuum Filter	[ ]	[ ]
Measuring Tape	[ ]	[ ]
_____	[ ]	[ ]

EQUIPMENT ID: Grundfos pump w/ dedicated tubing, 3 Solinst WLM, LaMotte Turbidity meter, Honda generator

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED	
Tap Water	[ ]
Alconox	[ ]
Tap Water	[ ]
HNO3 (1 or 10%)	[ ]
Tap Water	[ ]
Methanol	[ ]
Hexane	[ ]
Acetone	[ ]
Air Dry	[ ]
DI Water	[ ]
Air Dry	[ ]
None	[ ]

Signed: Kirsten E. Marshall

Rev: 8 July 1991

TRC

Field Data Record
Well Development

Project: Lockheed Phase II	Project No.:	Date/Time: 7/11/03 1255	Sheet 1 of ___

TRC Personnel: K. Marshall, T. Majer

Well Identification: IP-2-R1

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

Well Depth 37.87' ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 5.85 ft.

WELL DIAMETER: [ ] 2 inch [ ] 4 inch [ ] 6 inch [X] 1"

Height of Water Column 31.95 ft. x [ ] .16 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [X] .04 gal/ft (1 in.)

Volume of Water in Well = 1.3 gallon(s)

_____ Total gallons to purge

[Vol. = $\pi r^2 h$(0.163)]

PID SCREENING MEAS.

Background	NA
Well Mouth	NA

WELL MATERIAL: [X] PVC [ ] SS [ ]

FIELD WATER QUALITY MEASUREMENTS (1255)

Purge Volume (gal)		0	1305	1330	1340						
pH (Std. Units) Turb (NTU)		—	15.1	64.3	114						
Eh (millivolts) Volume (gal)		0	1.5	3.0	4.5						
Conduct. (µmhos/cm)											
Temp. (C) Purge Rate (L/min)		0	450	450	450						
Turb. (NTU)	R1	5.00	19.30	25.09	26.39						
DO (mg/l)	R2	32.00	39.95	51.4	39.7						
	R3	9.94	9.16	8.69	8.50						
	R4	5.51	5.51	5.51	5.51						
Purge Volume (gal)											
pH (Std. Units)											
Eh (millivolts)											
Conduct. (µmhos/cm)											
Temp. (C)											
Turb. (NTU)											
DO (mg/l)											

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump		
Submersible Pump		
Bailer		
Waterra		
PVC/Silicon Tubing		
Teflon/Silicon Tubing		
Air Lift		
In-line Filter		
Pressure Vacuum Filter		
Measuring Tape		
_____		

EQUIPMENT ID: Peristaltic pump w/ dedicated tubing, 2 Solinst water level meters, Lamotte 2020 Turbidity meter

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED

Tap Water	
Alconox	
Tap Water	
HNO3 (1 or 10%)	
Tap Water	
Methanol	
Hexane	
Acetone	
Air Dry	
DI Water	
Air Dry	
None	

AF-300a

Signed: Kristen S. Marshall

Rev. 8 July 1991

26 Gal

TRC

Field Data Record
Well Development

Project: Lockheed Phase IV	Project No.:	Date/Time: 7/10/03	Sheet 1 of 1

TRC Personnel: K. Marshall, T. Majer

Well Identification: IP-2-R3

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] _____

WELL MATERIAL: [X] PVC [ ] SS [ ] _____

Well Depth 92'2¼" ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 5.23 ft.

Height of Water Column 86.97 ft. x [X] .16 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] _____ gal/ft (_____ in.)

Volume of Water in Well = 14.2 gallon(s)

_____ Total gallons to purge

[Vol. = r^2 h(0.163)]

PID SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS

~~Purge Volume (gal)~~		0	1855	1907	1910							
~~pH (Std. Units)~~ TURB		—	16.1	65.5	26.6							
~~Eh (millivolts)~~ Volume		0	15	30	33							
Conduct. (umhos/cm)												
Temp (C) Purge Rate		0	1 gpm	0.5 gpm	0.5 gpm							
Turb. (NTU)	R1	5.61	5.67	5.70	5.71							
DO (mg/l)	R2	5.86	5.78	5.77	5.75							
	R3	2.53	65.50	84.20	91.0							
	R4	5.76	5.67	5.62	5.62							
Purge Volume (gal)												
pH (Std. Units)												
Eh (millivolts)												
Conduct. (umhos/cm)												
Temp. (C)												
Turb. (NTU)												
DO (mg/l)												

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump		
Submersible Pump		
Bailer		
Waterra		
PVC/Silicon Tubing		
Teflon/Silicon Tubing		
Air Lift		
In-line Filter		
Pressure Vacuum Filter		
Measuring Tape		
_____		

EQUIPMENT ID: Grundfos pump w/dedicated tubing, 3 Solinst water, LaMotte 2020 Turbidity Meter, Honda Generator

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED	
Tap Water	
Alconox	
Tap Water	
HNO3 (1 or 10%)	
Tap Water	
Methanol	
Hexane	
Acetone	
Air Dry	
DI Water	
Air Dry	
None	

Signed: Kristin Marshall

Rev: 8 July 1991

TRC

Field Data Record
Well Development

Project: Lakewood Phase IV Project No.: Date/Time: 7/10/03 1730 Sheet 1 of ___

TRC Personnel: K. Marshall, T. Major

Well Identification: IP-2-R4

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] ___

WELL MATERIAL: [X] PVC [ ] SS [ ] ___

Well Depth 122'3" ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 5.50 ft.

Height of Water Column 116.75 ft. x [X] .10 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ___ gal/ft (___ in.)

Volume of Water in Well = 19.0 gallon(s)

_____ Total gallons to purge

[Vol. = r^2 h(0.163)]

FID SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS

~~Purge Volume (gal)~~		0	1755	1812	1825						
~~pH (Std. Units)~~ TIME		—	11.7	4.06	1.24						
~~Eh (millivolts)~~ Volume (gal)		0	20	40	60						
Conduct. (umhos/cm)											
~~Temp. (C)~~ Purge Rt (gal/min)		0	1 gpm	1 gpm	1 gpm						
~~Turb. (NTU)~~	R1	5.44	5.50	5.55	5.58						
~~DO (mg/l)~~	R2	3.60	9.81	5.94	6.01						
	R3	4.90	5.32	5.66	5.91						
	R4	5.50	12.88	14.69	14.87						
Purge Volume (gal)											
pH (Std. Units)											
Eh (millivolts)											
Conduct. (umhos/cm)											
Temp. (C)											
Turb. (NTU)											
DO (mg/l)											

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump	[ ]	[ ]
Submersible Pump	[ ]	[ ]
Bailer	[ ]	[ ]
Waterra	[ ]	[ ]
PVC/Silicon Tubing	[ ]	[ ]
Teflon/Silicon Tubing	[ ]	[ ]
Air Lift	[ ]	[ ]
In-line Filter	[ ]	[ ]
Pressure Vacuum Filter	[ ]	[ ]
Measuring Tape	[ ]	[ ]
_____	[ ]	[ ]

EQUIPMENT ID: Grundfos pump w/ dedicated tubing, 3 Solinst well, Lamotte 2020 Turbidity Meter, Honda Generator

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED	
Tap Water	[ ]
Alconox	[ ]
Tap Water	[ ]
HNO3 (1 or 10%)	[ ]
Tap Water	[ ]
Methanol	[ ]
Hexane	[ ]
Acetone	[ ]
Air Dry	[ ]
DI Water	[ ]
Air Dry	[ ]
None	[ ]

Signed: Krystina S Marshall

TRC

Field Data Record
Well Development

Project:	Project No.:	Date/Time:	Sheet ___ of ___
Lockheed Phase IX		7/11/03	

TRC Personnel: K. Marshall, T. Major

Well Identification: IP-2-R2

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] ___ inch

WELL MATERIAL: [X] PVC [ ] SS [ ] ___

Well Depth 66'5¼" ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 5.75 ft.

Height of Water Column 60.7 ft. x [ ] .16 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ___ gal/ft (___ in.)

Volume of Water in Well = 9.7 gallons

_____ Total gallons to purge

[Vol. = $\pi r^2 h$(0.163)]

PID SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS (1235)

TIME		0	1250	1810	1330						
(NTU)	TURB	—	23.3	9.44	249.						
(gal)	Volume	0	10	20	30						
	Conduct. (µmhos/cm)										
(gpm)	Purge Rt	0	0.4	0.4	0.4						
	R1	5.85	5.00	19.3	25.09						
	R2	5.75	32.00	39.95	51.4						
	R3	10.41	9.74	9.16	8.69						
	R4	5.49	5.51	5.51	5.51						
Purge Volume (gal)											
pH (Std. Units)											
Eh (millivolts)											
Conduct. (µmhos/cm)											
Temp. (C)											
Turb. (NTU)											
DO (mg/l)											

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump	[ ]	[ ]
Submersible Pump	[ ]	[ ]
Bailer	[ ]	[ ]
Waterra	[ ]	[ ]
PVC/Silicon Tubing	[ ]	[ ]
Teflon/Silicon Tubing	[ ]	[ ]
Air Lift	[ ]	[ ]
In-line Filter	[ ]	[ ]
Pressure Vacuum Filter	[ ]	[ ]
Measuring Tape	[ ]	[ ]
_____	[ ]	[ ]

EQUIPMENT ID: Grundfos pump w/ dedicated tubing, 8 Solinst WLMs, LaMotte 2020 Turbidity Meter, Honda Generator

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED

Tap Water	[ ]
Alconox	[ ]
Tap Water	[ ]
HNO3 (1 or 10%)	[ ]
Tap Water	[ ]
Methanol	[ ]
Hexane	[ ]
Acetone	[ ]
Air Dry	[ ]
DI Water	[ ]
Air Dry	[ ]
None	[ ]

Signed: Kristin E. Marshall

AF-302 Rev. 8 July 1991

TRC

Field Data Record
Well Development

Project: Lockheed Phase II Project No.: Date/Time: 8/11/03 0630 Sheet 1 of ___

TRC Personnel: K. Marshall, T. Major

Well Identification: IP-3-R1

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up ___ ft. (from ground)

Riser Stick-up (from ground) ___ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] ___

WELL MATERIAL: [X] PVC [ ] SS [ ] ___

Well Depth 61'3¼" ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 2.60 ft.

Height of Water Column 58.65 ft. x [X] .10 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ___ gal/ft (___ in.)

Volume of Water in Well = 9.4 gallon(s)

___ Total gallons to purge

[Vol. = $\pi r^2 h$(0.163)]

PID SCREENING MEAS.

Background	NA
Well Mouth	NR

FIELD WATER QUALITY MEASUREMENTS (P6 SP)

Purge Volume (gal)		0	0655	0715	0717						
pH (Std. Units) TURB (NTU)		—	8.17	150	—						
Eh (millivolts) Vol (gal)		0	10	20	21						
Conduct. (µmhos/cm)											
Temp (C) Purge R1 (gpm)		0	0.3	0.4	—						
Turb. (NTU)	R1	2.60	48.3	59.6	DRY						
DO (mg/l) DTW	R2	3.50	4.26	4.61	—						
Purge Volume (gal)											
pH (Std. Units)											
Eh (millivolts)											
Conduct. (µmhos/cm)											
Temp. (C)											
Turb. (NTU)											
DO (mg/l)											

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump		
Submersible Pump		
Bailer		
Waterra		
PVC/Silicon Tubing		
Teflon/Silicon Tubing		
Air Lift		
In-line Filter		
Pressure Vacuum Filter		
Measuring Tape		
___		

EQUIPMENT ID: Grundfos pump w/ dedicated tubing, 3 Solvent WRM, Lamotte 2020 Turbidity Meter, Honda Generator

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED	
Tap Water	
Alconox	
Tap Water	
HNO3 (1 or 10%)	
Tap Water	
Methanol	
Hexane	
Acetone	
Air Dry	
DI Water	
Air Dry	
None	

Signed: Kristin E Marshall

Rev: 6 July 1991

TRC

Field Data Record
Well Development

Project: Lockheed Phase IV	Project No.:	Date/Time: 7/11/03 0620	Sheet 1 of 1

TRC Personnel: K. Marshall, T. Majer

Well Identification: IP-3-R2

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] ____

WELL MATERIAL: [X] PVC [ ] SS [ ] ____

Well Depth 84'2¾" ft. [X] top of riser [ ] top of casing — [X] measured [ ] historical

Water Depth 3.55 ft.

Height of Water Column 80.65 ft. x [X] .16 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ____ gal/ft (____ in.)

Volume of Water in Well = 12.9 gallon(s)

_____ Total gallons to purge

[Vol. = r^2 h(0.163)]

PID SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS

Purge Volume (gal)	0	145	0887				0810	0814			
pH (Std. Units) TURB	—	15.1	1.75	let recharge			begin purging again				
Eh (millivolts) Volume	0	13	26	for a few				28			
Conduct. (µmhos/cm)				minutes to							
Temp (C) Purge At	0	0.4	0.4	complete 2nd				0.5			
Turb. (NTU) R1	35.6	51.8	79.7 (84)	well volume			77.0	83.2 (84 AGAIN)			
DO (mg/l) R2	3.55	62.3	58.2				—	—			
R3											
Purge Volume (gal)											
pH (Std. Units)											
Eh (millivolts)											
Conduct. (µmhos/cm)											
Temp. (C)											
Turb. (NTU)											
DO (mg/l)											

EQUIPMENT

	PURGE	SAMPLE
Peristaltic Pump		
Submersible Pump		
Bailer		
Waterra		
PVC/Silicon Tubing		
Teflon/Silicon Tubing		
Air Lift		
In-line Filter		
Pressure Vacuum Filter		
Measuring Tape		
_____		

EQUIPMENT ID: Grundfos pump w/ dedicated tubing, F Solinst WL M., Lamotte Turbidity Meter, Honda Generator

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED

Tap Water	
Alconox	
Tap Water	
HNO3 (1 or 10%)	
Tap Water	
Methanol	
Hexane	
Acetone	
Air Dry	
DI Water	
Air Dry	
None	

Signed: Kristen Marshall

Rev. 8 July 1991

TRC

Field Data Record
Well Development

Project: Lockheed Phase III | Project No.: | Date/Time: 8/10/13 1630 | Sheet 1 of ___

TRC Personnel: K. Marshall, T. Majer

Well Identification: IP-4-R2

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] ___

WELL MATERIAL: [X] PVC [ ] SS [ ] ___

Well Depth 14'1¼" ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 4.33 ft.

Height of Water Column 9.77 ft. x [X] .10 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ___ gal/ft (___ in.)

Volume of Water in Well = 11.4 gallon(s)

_____ Total gallons to purge

[Vol. = r^2h(0.163)]

FID SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS

TIME	1630	1650	1705	1715							
Purge Volume (gal)	0	1650	1705	1715							
pH (Std. Units) (NTU)	TVAB	22.3	11.2	46.0							
Eh (millivolts) (gal)	Volume	12	24	36							
Conduct. (µmhos/cm)											
Temp (C) (L/min)	Proj. Rt	0.75									
Turb. (NTU)	R1	12.20	24.45	14.84	15.23						
DO (mg/l)	R2	4.33	13.6	41.8	35.4						
	R3	01.1	108.8	106.45	104.9						
Purge Volume (gal)											
pH (Std. Units)											
Eh (millivolts)											
Conduct. (µmhos/cm)											
Temp. (C)											
Turb. (NTU)											
DO (mg/l)											

TWS

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump	[ ]	[ ]
Submersible Pump	[ ]	[ ]
Bailer	[ ]	[ ]
Waterra	[ ]	[ ]
PVC/Silicon Tubing	[ ]	[ ]
Teflon/Silicon Tubing	[ ]	[ ]
Air Lift	[ ]	[ ]
In-line Filter	[ ]	[ ]
Pressure Vacuum Filter	[ ]	[ ]
Measuring Tape	[ ]	[ ]
_____	[ ]	[ ]

EQUIPMENT ID: Grundfos pump w/ dedicated tubing, YSI WQM, Labotte 2020 Turbidity meter, Horiba thermometer

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED	
Tap Water	[ ]
Alconox	[ ]
Tap Water	[ ]
HNO3 (1 or 10%)	[ ]
Tap Water	[ ]
Methanol	[ ]
Hexane	[ ]
Acetone	[ ]
Air Dry	[ ]
DI Water	[ ]
Air Dry	[ ]
None	[ ]

Signed: Kristine E. Marshall

TRC

Field Data Record
Well Development

Project: Lockheed Phase IV | Project No.: | Date/Time: 7/10/03 1445 | Sheet 1 of ___

TRC Personnel: K. Marshall, T. Majer

Well Identification: IP-4-R3

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] ____

WELL MATERIAL: [X] PVC [ ] SS [ ] ____

Well Depth 115'1" ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 3.88 ft.

Height of Water Column 111.22 ft. x [X] .10 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ____ gal/ft (__ in.)

Volume of Water in Well = 18.1 gallon(s)

[Vol. = r^2 h(0.163)] _____ Total gallons to purge

FID SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS (4 SS)

Purge Volume (gal)		0	1500	1510	1527	1550	1612			
pH (Std. Units)	Turb	—	78.6	65.1	14.4	15.5	8.30			
Eh (millivolts)	Vol	0	4	20	18	36	48			
Conduct. (µmhos/cm)										
Temp. (C)	Purge Rt	0	1 gal	750 mL	0.5 gal	0.5 gal	0.5 g			
Turb. (NTU)	R1	2.66	2.88	3.99	6.68	9.05	NA			
DO (mg/l)	R2	4.46	4.30	4.50	5.05	5.10	5.15			
	R3	3.88	23.2	56.7	82.7	101.4	DRY AT 1.4 GPM			
Purge Volume (gal)										
pH (Std. Units)										
Eh (millivolts)										
Conduct. (µmhos/cm)										
Temp. (C)										
Turb. (NTU)										
DO (mg/l)										

TIME (NTU) (gal)

DTW

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump		
Submersible Pump		
Bailer		
Waterra		
PVC/Silicon Tubing		
Teflon/Silicon Tubing		
Air Lift		
In-line Filter		
Pressure Vacuum Filter		
Measuring Tape		
_____		

EQUIPMENT ID: Grundfos pump w/dedicated tubing, 3 Solinst water level probe 2020 Turbidity meter.

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED	
Tap Water	
Alconox	
Tap Water	
HNO3 (1 or 10%)	
Tap Water	
Methanol	
Hexane	
Acetone	
Air Dry	
DI Water	
Air Dry	
None	

Signed: Kristen E. Marshall

Rev. 6 July 1991

BRW-1

TRC

Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	BRW-1	1 of 11
		Well No. NA	

Location Description	TRC Geologist
Eastern Parking Lot	Kirstin Marshall

Drilling Contractor/Foreman	Drill Rig Make/Model	Auger/Drive Casing Size/Type
American Drilling/Chris, John	NA	NA

Sampler Description	Drilling Method	Coordinates
NA	NA	X= Y=

Filter Seal Amount/Type: NA	Air Hammer Bit Diameter: NA	Ref. El.:
Sand Pack Amount/Type: NA	Hammer Weight/Fall: NA	Riser Stick Up: NA
Screen Length/Type: NA	Water Table Depth: NA	Surface Elevation: NA
Riser Length/Type: NA	Total Depth: 160.7'bgs.	Date Start: 7/7/03 Date Finish: 7/10/03

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					Casing Grouted To Surface
1								
2								
3								
4								
5								
6								
7								
8								Open borehole 0-44.3 ft
9								
10								
11								
12								
13								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: IP-1-R1: +1.5"; R2: +1"; R3: +0.25"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. BRW-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_2_ of _11_
Location Description: Eastern Parking Lot		TRC Geologist: Kirstin Marshall	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Stratl-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace	0-10%	some	20-35%
little	10-20%	and	35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: BRW-1-R1: NA; R2: -1.25"; R3: -4"; R4: -2.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. BRW-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_3_ of _11_
Location Description: Eastern Parking Lot		TRC Geologist: Kirstin Marshall	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace	0-10%	some	20-35%
little	10-20%	and	35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: BRW-1-R1: NA; R2: -1.25"; R3: -4"; R4: -2.75"

TRC

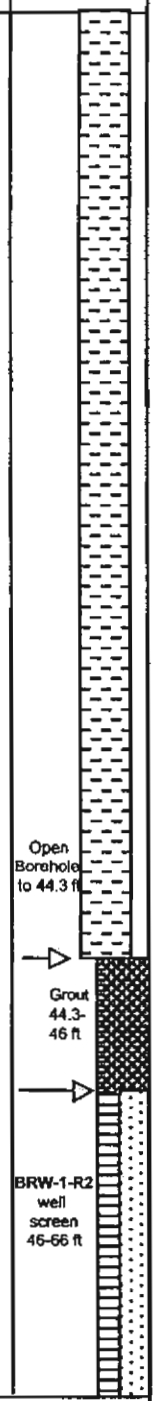
Soil Boring Log

Project/Client	Project No.	Boring No. BRW-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_4_ of _11_

Location Description: Eastern Parking Lot

TRC Geologist: Kirstin Marshall

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
33								
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								



Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: BRW-1-R1: NA; R2: -1.25"; R3: -4"; R4: -2.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. BRW-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_5_ of _11_
Location Description: Eastern Parking Lot		TRC Geologist: Kirstin Marshall	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
51								
52								
53								
54								
55								
56								
57								
58								
59								
60								
61								
62								
63								
64								
65								
66								Sand to 70 ft
67								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: BRW-1-R1: NA; R2: -1.25"; R3: -4"; R4: -2.75"

TRC

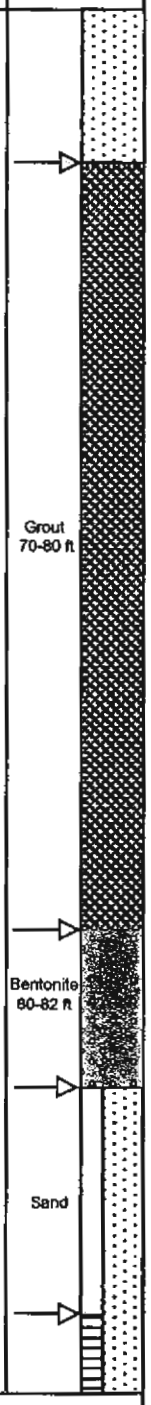
Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	BRW-1	6_ of _11_
		Well No.	

Location Description: Eastern Parking Lot

TRC Geologist: Kirstin Marshall

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
69								
70								
71								
72								
73								
74								
75								
76								
77								
78								
79								
80								
81								
82								
83								
84								
85								



Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: BRW-1-R1: NA; R2: -1.25"; R3: -4"; R4: -2.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. BRW-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_7_ of _11_
Location Description: Eastern Parking Lot		TRC Geologist: Kirstin Marshall	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
87								
88								BRW-1-R3 well screen 85-105 ft
89								
90								
91								
92								
93								
94								
95								
96								
97								
98								
99								
100								
101								
102								
103								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

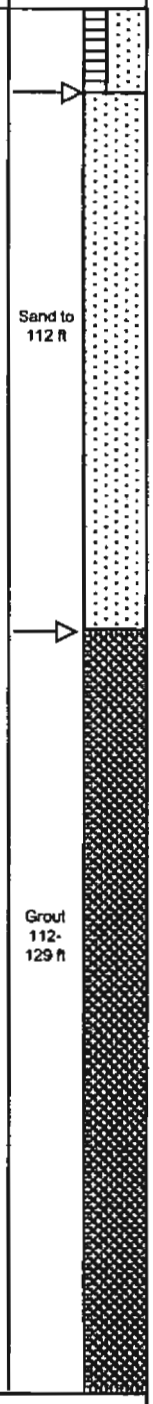
*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: BRW-1-R1: NA; R2: -1.25"; R3: -4"; R4: -2.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	BRW-1	_8_ of _11_
		Well No.	
Location Description: Eastern Parking Lot		TRC Geologist: Kirstin Marshall	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
105								
106								
107								
108								Sand to 112 ft
109								
110								
111								
112								
113								
114								
115								
116								Grout 112-129 ft
117								
118								
119								
120								
121								



Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: BRW-1-R1: NA; R2: -1.25"; R3: -4"; R4: -2.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. BRW-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_9_ of _11_
Location Description: Eastern Parking Lot		TRC Geologist: Kirstin Marshall	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
123								
124								
125								
126								
127								
128								
129								Bentonite 129-130.9 ft
130								
131								Sand
132								
133								BRW-1-R4 well screen 133-155 ft
134								
135								
136								
137								
138								
139								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace	0-10%	some	20-35%
little	10-20%	and	35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: BRW-1-R1: NA; R2: -1.25"; R3: -4"; R4: -2.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No.	Sheet
Former GE Site	E9202-6502-02500	BRW-1	_10_ of _11_
		Well No.	
Location Description: Eastern Parking Lot		TRC Geologist: Kirstin Marshall	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					
141								
121								
143								
144								
145								
146								
147								
148								
149								
150								
151								
152								
153								→
154								
155								
156								
157								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: BRW-1-R1: NA; R2: -1.25"; R3: -4"; R4: -2.75"

TRC

Soil Boring Log

Project/Client	Project No.	Boring No. BRW-1	Sheet
Former GE Site	E9202-6502-02500	Well No.	_11_ of _11
Location Description: Eastern Parking Lot		TRC Geologist: Kirstin Marshall	

Depth	Sample Number	Blows/ RQD	Pen/Rec Core Rec	Sample Description	Strati-graphic Description	Field Testing	Lab Sample Number	Well * Construction
	NA	NA	NA					Sand to 160.7 ft
159								
160								
161								
162								
163								
164								
165								
166								
167								
168								
169								
170								
171								
172								
173								
174								
175								

Granular Soils

Blows/ft	Density
0-4	v. loose
4-10	loose
10-30	m. dense
30-50	dense
>50	v. dense

Proportions

trace 0-10% some 20-35%
little 10-20% and 35-50%

Cohesive Soils

Blows/ft	Density
>2	v. soft
2-4	soft
4-8	m. stiff
8-15	stiff
15-30	v. stiff
>30	hard

Grain Size (USCS)

silt/clay	<0.08 mm
f. sand	0.43-0.08 mm
m. sand	2.0-0.43 mm
c. sand	4.8-2.0 mm
f. gravel	19-4.8 mm
c. gravel	75-19 mm
cobble	300-75 mm
boulder	>300 mm

Notes

*All well measurements are from top of casing. The following are the measurements of stick-ups from top of casing: BRW-1-R1: NA; R2: -1.25"; R3: -4"; R4: -2.75"

TRC

Field Data Record
Well Development

Project: Lockheed Phase III | Project No.: | Date/Time: 7/11/03 | Sheet 1 of 1

TRC Personnel: R. Marshall, T. Meijer

Well Identification: BRW-1-R1 (open borehole)

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] ____

WELL MATERIAL: [X] PVC [ ] SS [ ] ____

Well Depth 44.34 ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 2.61 ft.

Height of Water Column 41.64 ft. x [X] .16 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ____ gal/ft (__ in.)

Volume of Water in Well = 6.7 gallon(s)

_____ Total gallons to purge

[Vol. = r^2 h(0.163)]

FID SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS (1058)

Purge Volume (gal)		0	1103	1110	1115						
pH (Std. Units) TIME		—	17.4	34.2	17.6						
Eh (millivolts) Volume		0	7	14	21						
Conduct. (umhos/cm)											
Temp (C) Purge Rt		0	1	1	1						
Turb. (NTU)	R1	2.61	2.79	2.77	2.65						
DO (mg/l)	R2	8.83	2.86	2.71	2.76						
	R3	2.35	2.36	2.32	2.32						
	R4	2.42	2.42	2.39	2.39						
Purge Volume (gal)											
pH (Std. Units)											
Eh (millivolts)											
Conduct. (umhos/cm)											
Temp. (C)											
Turb. (NTU)											
DO (mg/l)											

(NTU) (gal) (gpm)

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump		
Submersible Pump		
Bailer		
Waterra		
PVC/Silicon Tubing		
Teflon/Silicon Tubing		
Air Lift		
In-line Filter		
Pressure Vacuum Filter		
Measuring Tape		
_____		

EQUIPMENT ID: Grundfos pump w/ dedicated tubing, 3 Solinst levels, Calibrite Turbidity meter, Honda Generator

DESCRIPTION OF DECON. PROC.

* Note that WLs were actually rising a little

DECON. FLUID USED

Tap Water	
Alconox	
Tap Water	
HNO3 (1 or 10%)	
Tap Water	
Methanol	
Hexane	
Acetone	
Air Dry	
DI Water	
Air Dry	
None	

Signed: Kenneth Marshall

Rev. 8 July 19

TRC

Field Data Record
Well Development

Project: Lockheed Martin IV | Project No.: | Date/Time: 7/11/03 0910 | Sheet 1 of 1

TRC Personnel: Y. Marshall, T. Major

Well Identification: BRW-1-R2

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] ____

WELL MATERIAL: [X] PVC [ ] SS [ ] ____

Well Depth 66'2" ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 3.26 ft.

Height of Water Column 62.94 ft. x [X] .16 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ____ gal/ft (____ in.)

Volume of Water in Well = 10.1 gallon(s)

_____ Total gallons to purge

[Vol. = r^2 x [8.163]]

PID SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS 09/5

Purge Vol. (gal)	0	0925	0930		0950	0955	1035	1040	1050
pH (Std. Units) TOB	—	8.24			pump	not working	purging	2.56	48.6
Eh (millivolts) Volume	0	10	18		dry,	working	again	20	30
Conduct. (umhos/cm)			pump		again	again			
Temp. (C) Purge Rt	0	1.0	controller stops working		working	- waiting for replacement pump		0.75	0.75
Turbidity (NTU) R1	2.61	2.70	over, it's too wet		now.			2.65	2.66
DO (mg/l) R2	3.26	12.76			start			9.11	9.50
R3	2.40	2.40			purging			2.35	2.37
R4	2.50	2.47			again			2.42	2.42
Purge Volume (gal)									
pH (Std. Units)									
Eh (millivolts)									
Conduct. (umhos/cm)									
Temp. (C)									
Turb. (NTU)									
DO (mg/l)									

TIME (MIN) (gal) 3gpm TW

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump	[ ]	[ ]
Submersible Pump	[ ]	[ ]
Bailer	[ ]	[ ]
Waterra	[ ]	[ ]
PVC/Silicon Tubing	[ ]	[ ]
Teflon/Silicon Tubing	[ ]	[ ]
Air Lift	[ ]	[ ]
In-line Filter	[ ]	[ ]
Pressure Vacuum Filter	[ ]	[ ]
Measuring Tape	[ ]	[ ]
_____	[ ]	[ ]

EQUIPMENT ID: Groundfos pump w/ dedicated tubing, 3 Solinst WLIs, Lamotte 2020 Turbidity Meter, Honda Generator

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED	
Tap Water	[ ]
Alconox	[ ]
Tap Water	[ ]
HNO3 (1 or 10%)	[ ]
Tap Water	[ ]
Methanol	[ ]
Hexane	[ ]
Acetone	[ ]
Air Dry	[ ]
DI Water	[ ]
Air Dry	[ ]
None	[ ]

Signed: Kristen Marshall

TRC

Field Data Record
Well Development

Project: Lockheed Phase II | Project No.: | Date/Time: 7/10/03 1345 | Sheet 1 of ___

TRC Personnel: K. Marshall, T. Major

Well Identification: BRW-1-R3

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] ___

WELL MATERIAL: [X] PVC [ ] SS [ ] ___

Well Depth 105'2" ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth 2.34 ft.

Height of Water Column ___ ft. x [ ] .16 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ___ gal/ft (___ in.)

Volume of Water in Well = 16.8 gal(s)

_____ Total gallons to purge

[Vol. = r^2 h(0.163)]

FID SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS

TIME		0	1400	1410	1415	1422					
	Turb	—	>1000	658	121	94.1					
(gal)	Volume	0	8	20	40	60					
			13.8	12.8	11.78	7.7					
	Pump Rate	0	2.515	1.5	1.5	1.5					
TW	Turb. (NTU) R1	2.75	2.75	2.75	2.75	2.75					
	DO (mg/l) R2	2.60	2.61	2.62	2.63	2.65					
	——— R4	2.35	2.38	2.40	2.42	2.43					
Purge Volume (gal)											
pH (Std. Units)											
Eh (millivolts)											
Conduct. (µmhos/cm)											
Temp. (C)											
Turb. (NTU)											
DO (mg/l)											

EQUIPMENT	PURGE	SAMPLE
Peristaltic Pump	[ ]	[ ]
Submersible Pump	[ ]	[ ]
Bailer	[ ]	[ ]
Waterra	[ ]	[ ]
PVC/Silicon Tubing	[ ]	[ ]
Teflon/Silicon Tubing	[ ]	[ ]
Air Lift	[ ]	[ ]
In-line Filter	[ ]	[ ]
Pressure Vacuum Filter	[ ]	[ ]
Measuring Tape	[ ]	[ ]
_____	[ ]	[ ]

EQUIPMENT ID: Grundfos pumps w/ dedicated tubing; 3 weeks (Solinst), Laquatte Turbidity Meter; Honda Generator

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED	
Tap Water	[ ]
Alconox	[ ]
Tap Water	[ ]
HNO3 (1 or 10%)	[ ]
Tap Water	[ ]
Methanol	[ ]
Hexane	[ ]
Acetone	[ ]
Air Dry	[ ]
DI Water	[ ]
Air Dry	[ ]
None	[ ]

F-2015

Signed: Kristin Marshall

Rev. 8 July 1991

TRC

Field Data Record
Well Development

Project: | Project No.: | Date/Time: 1200 | Sheet ___ of ___

TRC Personnel: K. Marshall, T. Majer

Well Identification: BRW-1-R4

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	X	
Concrete Collar Intact	X	
PVC Stick-up Intact	X	
Well Cap Present	X	
Security Lock Present	X	

Protective Casing Stick-up _____ ft. (from ground)

Riser Stick-up (from ground) _____ ft.

WELL DIAMETER: [X] 2 inch [ ] 4 inch [ ] 6 inch [ ] ____

WELL MATERIAL: [X] PVC [ ] SS [ ] ____

Well Depth: 152'9" ft. [X] top of riser [ ] top of casing [X] measured [ ] historical

Water Depth: 2.36 ft.

Height of Water Column ____ ft. x [ ] .16 gal/ft (2 in.) [ ] .65 gal/ft (4 in.) [ ] 1.5 gal/ft (6 in.) [ ] ____ gal/ft (__ in.)

Volume of Water in Well = 24.4 gallon(s)

____ Total gallons to purge

[Vol. = r^2 h (0.163)]

FID SCREENING MEAS.

Background	NA
Well Mouth	NA

FIELD WATER QUALITY MEASUREMENTS (1215)

TIME	0	1220	1225	1230	1252	1312	1330			
Purge Volume (gal) Turb	—	624	104.6	54.3	39.8	28.1	4.75			
Extracted Volume	0	3	5	8	24	48	72			
Conduct. (µmhos/cm)										
Temp. (C) Purge Rate	1875	1875	1875	1875	1875	1.2 gpl	1.2 gpl			
Turb. (NTU) R1	2.76	2.75	2.75	2.75	2.75	2.75	2.75			
DO (mg/l) Water Level R2	2.64	2.62	2.62	2.62	2.62	2.64	2.64			
R3	2.31	2.33	2.33	2.33	2.33	2.37	2.38			
Purge Volume (gal)										
pH (Std. Units)										
Eh (millivolts)										
Conduct. (µmhos/cm)										
Temp. (C)										
Turb. (NTU)										
DO (mg/l)										

TW

EQUIPMENT

	PURGE	SAMPLE
Peristaltic Pump		
Submersible Pump		
Bailer		
Waterra		
PVC/Silicon Tubing		
Teflon/Silicon Tubing		
Air Lift		
In-line Filter		
Pressure Vacuum Filter		
Measuring Tape		
_____		

EQUIPMENT ID: Grundfos pump w/ dedicated tubing, 3 Solinst WLM, Lamotte Turbidity Meter, Honda Generator

DESCRIPTION OF DECON. PROC.

DECON. FLUID USED

Tap Water	
Alconox	
Tap Water	
HNO3 (1 or 10%)	
Tap Water	
Methanol	
Hexane	
Acetone	
Air Dry	
DI Water	
Air Dry	
None	

F-2005

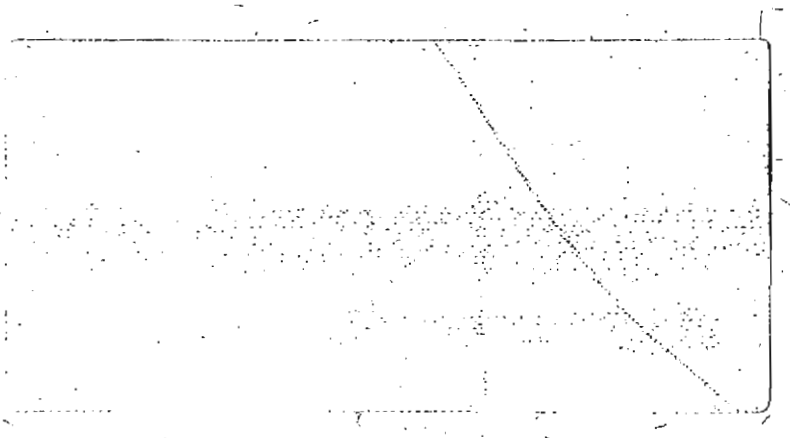
Signed: Kristin E. Marshall

Rev. 8 July 1991

APPENDIX E

GEOPHYSICAL SURVEYS

Well TRC-301R



GEOPHYSICAL APPLICATIONS

INCORPORATED

Borehole Geophysics Logging Report
Former GE Site: TRC301R Well
Wilmington, Massachusetts

Prepared for
TRC ENVIRONMENTAL CORPORATION
April 2003

GEOPHYSICAL
APPLICATIONS
INCORPORATED

April 15, 2003

Mr. Ken Cormier
TRC ENVIRONMENTAL CORPORATION
Foot of John Street - Boott Mills South
Lowell, MA 01852

Subject: Borehole Geophysics Logging Report, Well TRC301R
Former General Electric Site
Wilmington, Massachusetts

Dear Mr. Cormier:

This report describes borehole geophysical logging performed by Geophysical Applications at the above-noted borehole, to help TRC identify and characterize hydraulically-active bedrock fractures encountered by the drillhole.

The logging suite included conventional measurements (caliper, fluid temperature, and fluid resistivity), augmented by heat-pulse flowmeter measurements and acoustic televiewer (ATV) imaging. Draft log plots were previously submitted to TRC.

METHODS OF INVESTIGATION

Survey Control

All borehole logs were referenced to depths below the top of the inner 4-inch steel casing. The geophysical logging winch contains an optical depth encoder, to maintain depth measurements accurate within approximately ± 0.2 feet.

Borehole Geophysical Logging

This borehole is located in a wetland area, and the logging instrumentation was hand-carried to the well by Geophysical Applications and TRC personnel.

A Mount Sopris model 4MXA digital logging winch was used with Mount Sopris heat-pulse flowmeter and caliper sondes to obtain most conventional geophysical-log data. The caliper and fluid resistivity/temperature logs were recorded at 0.1-foot depth increments, as determined by the logging winch's digital depth encoder.

Fluid temperature and fluid resistivity data were recorded during the first logging run, using a relatively slow downward logging speed (approximately five feet per minute) to help identify subtle variations. A sub-assembly on the caliper probe's bottom obtained these fluid measurements. Caliper logging was subsequently performed while pulling that probe upwards through the borehole at approximately 10 feet per minute.

Acoustic televiewer (ATV) data were obtained using an Advanced Logic Technologies (ALT) model ABI40 acoustic televiewer probe and the Mount Sopris logging winch. ATV data were

125 Washington Street • Suite Two • Foxboro • MA • 02035
508-543-1388 • FAX 508-543-1019

recorded at 0.01-foot intervals, with 1.25-degree arc-segments for each scan around the borehole wall, at approximately 2.5 feet per minute.

Flowmeter data were recorded at specific depths, above and below possible bedrock fractures indicated by the caliper and fluid temperature/resistivity logs.

Flow data were recorded in ambient conditions on the downward run, to measure natural groundwater flow between fracture zones encountered by the boring. Flowmeter data were subsequently repeated under low-flow (approximately 0.25 gallons per minute, or gpm) pumping conditions, to help determine depths where groundwater was entering the borehole. Pumping was accomplished using a Whale pump, with a discharge valve to regulate the flow rate.

All geophysical logs were recorded on a laptop computer's hard drive, and transferred to floppy diskette or CD-ROM as a backup precaution.

Post-survey plot scales were adjusted to display as much detail as possible. All conventional and flowmeter logs from the same borehole were merged onto one plot, to aid data correlation. Televiewer logs are presented on separate pages, at an enlarged scale, for clarity.

Equipment Decontamination Procedures

Decontamination consisted of an Alconox scrub and tap water rinse of logging cables and probes between logging runs.

SURVEY LIMITATIONS

Measured geophysical-log depths are estimated to be accurate within ± 0.2 feet, allowing for some slippage of the winches' depth-measurement wheels.

The caliper-probe's arms can measure borehole diameters up to approximately 16 inches. Caliper logs can most-confidently detect fractures that cross a borehole at moderate angles, e.g. less than approximately 70 degrees from horizontal. Caliper logs may not accurately detect near-vertical fractures.

The heat-pulse flowmeter is designed for low flow-rate environments, typically less than 1.0 gpm. Higher flow rates may produce erroneous flowmeter data values.

Hydraulically active fracture zones were inferred by correlating numerous geophysical logs. These interpretations are a subjective judgment based upon available data.

Acoustic and optical televiewer probes rely on three-component magnetometers to orient the recorded images with respect to magnetic north. These images become distorted when the magnetometers approach the steel casing bottom, beginning approximately 1 to 4 feet below the steel.

RESULTS

Logging data and generalized log interpretations are described below. All geophysical logs described in this report are presented in Appendix A. Summary fracture interpretations are provided in Appendix B. These interpretation tables are screen prints of Excel spreadsheets, containing measured fracture depths ("depth" column), down-dip compass directions for each inferred fracture ("azimuth" column; note that this is perpendicular to the fracture strike direction), and dip angle. The "category" column indicates whether the inferred feature was judged to be relatively open (category 105), or less-open (category 100).

Caliper logs are presented in the left-hand conventional log-plot column. Inflections to the right indicate borehole enlargements, for example where the drill bit passed through a fracture zone.

Fluid temperature (FTemp) and fluid resistivity (FRes) logs are presented in the panel to the right of the caliper log. Localized inflections or changes in slope of FTemp or FRes logs typically represent water entering or exiting the borehole. Large inflections at the very bottom of a borehole may represent only accumulated soft sediments with temperature or electrical properties that contrast with the water column.

Heat-pulse flowmeter data are presented on the caliper panel (ambient flow measurements) and on the FTemp/FRes panel (flow measurements while pumping). Shaded boxes to the left of centerline on either panel represent downwards water flow, with the box length indicating the flow magnitude in gpm. Shaded boxes to the right of a panel's centerline represent upwards water flow. Filled circles represent depths where "zero" flow was observed (i.e., flow less than the probe's minimum detectable rate, approximately 0.02 gpm). Flowmeter test depths were selected using field plots of the caliper, fluid temperature, and fluid resistivity logs

Acoustic televiewer (ATV) logs were evaluated using WellCad's image-processing module, to measure fracture dip angles and down-dip azimuths. All fracture down-dip azimuths are referenced to magnetic north. Measured fracture orientations are indicated by tadpole plots, where each filled-circle indicates a fracture's dip angle from horizontal (plotted on a graph that ranges between 0 and 90 degrees from left to right). Each tadpole tail points in the down-dip azimuth, assuming north is straight up on the printed page. Note that the down-dip azimuth indicated by each tadpole tail is perpendicular to the fracture's strike direction.

Fractures represented on both ATV travel-time and amplitude plots are likely to be "open" features. Fractures represented only on the ATV amplitude plots are likely to have smaller apertures, and are therefore judged relatively "less-open". Red tadpoles, and red sine-curve lines superimposed on the ATV plots, represent inferred "open" fractures. Black tadpoles, and black sine curves on the ATV plots, represent interpreted "less-open" features.

Televiewer interpretations were also summarized using rose diagrams, to indicate the predominant down-dip planar-feature azimuth(s) observed in a borehole. Each rose diagram is presented with magnetic north oriented straight up on the printed page. The red rose diagram represents inferred open fractures, and the black rose diagram represents inferred less-open fractures (or possibly other planar features).

A stereo plot also summarizes the open and less-open fracture orientations inferred from the televiewer logs. Each stereo plot was prepared using an equal-angle projection on the southern hemisphere.

Acoustic televiewer raw data are presented via two columns, where each column represents a cylindrical image sliced down the north edge and laid flat on the printed page. Magnetic north is at the left edge of each column, and the plot progresses through east, south, west, and back to north at the right-hand edge.

Annotations on the conventional log plots describe interpreted hydraulically-active fracture depths. Selected observations that may be of particular interest to TRC are described below.

TRC301R

This borehole's caliper lot shows an enlargement between the casing bottom (near 63 feet deep) and approximately 82 feet deep. According to TRC, the casing was intended to be grouted within the length of this socket, but it could not be advanced fully to 82 feet deep. Grout that may have once filled the socket below the casing bottom was apparently washed out during the drilling process; the minor caliper enlargements within the open socket represent bedrock fractures, based on comparison with the ATV log plot.

Ambient flowmeter testing did not disclose measurable water flow. Pumping flowmeter tests only showed measurable flow above 110 feet deep.

Inflow while pumping this borehole occurred primarily between: a) 100 and 110 feet deep (possibly near two open fractures and a subtle FRes slope change near 105 feet), and b) between the steel casing bottom and 72.5 feet deep. The slightly-lower pumping flow rates measured at 72.5 and 85 feet deep suggest that some water flow was slipping past the probe's rubber diverter petals, e.g. at a rough spot on the borehole wall.

Pumping flow tests were repeated above and below distinct FRes and FTemp inflections (near 26.5 to 29 feet deep) that suggested a possible casing-joint leak. Measurable inflow was not observed between those two flowmeter test depths.

Most less-open features dip down towards the northeast and southwest within this borehole. Most open features dip down towards the northeast. The stereoplot diagram shows most plotted open and less-open poles towards the lower left portion of this diagram, representing features that dip down towards the northeast at approximately 25 to 65 degrees from horizontal.

*****

We appreciate this opportunity to provide geophysical services, and we welcome questions concerning this report. Please call the undersigned at 508/543-1388 if we may provide additional information that would benefit TRC's project.

Sincerely,

GEOPHYSICAL APPLICATIONS, INC.

M. Blackey

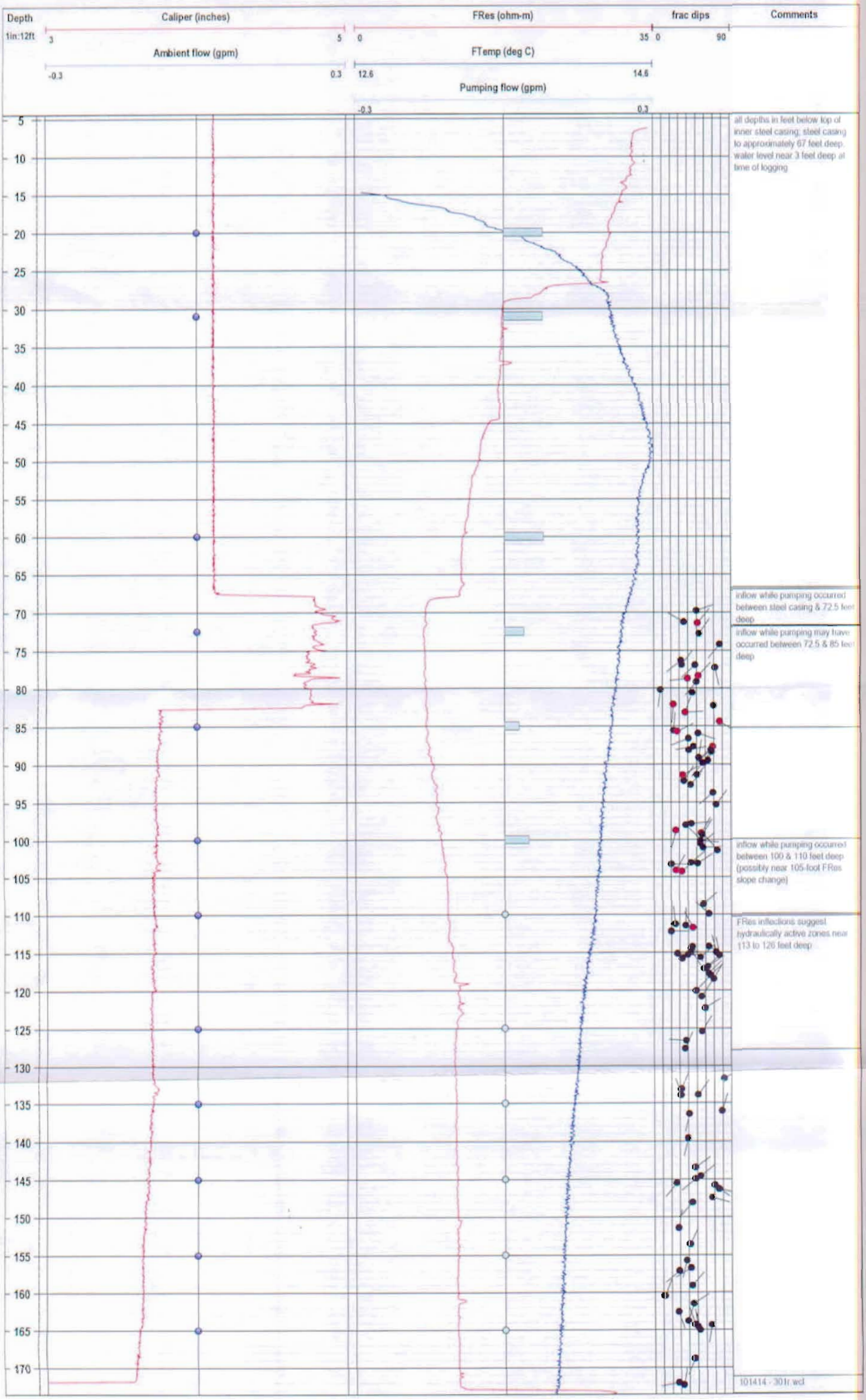
Mark E. Blackey
Principal and Geophysicist

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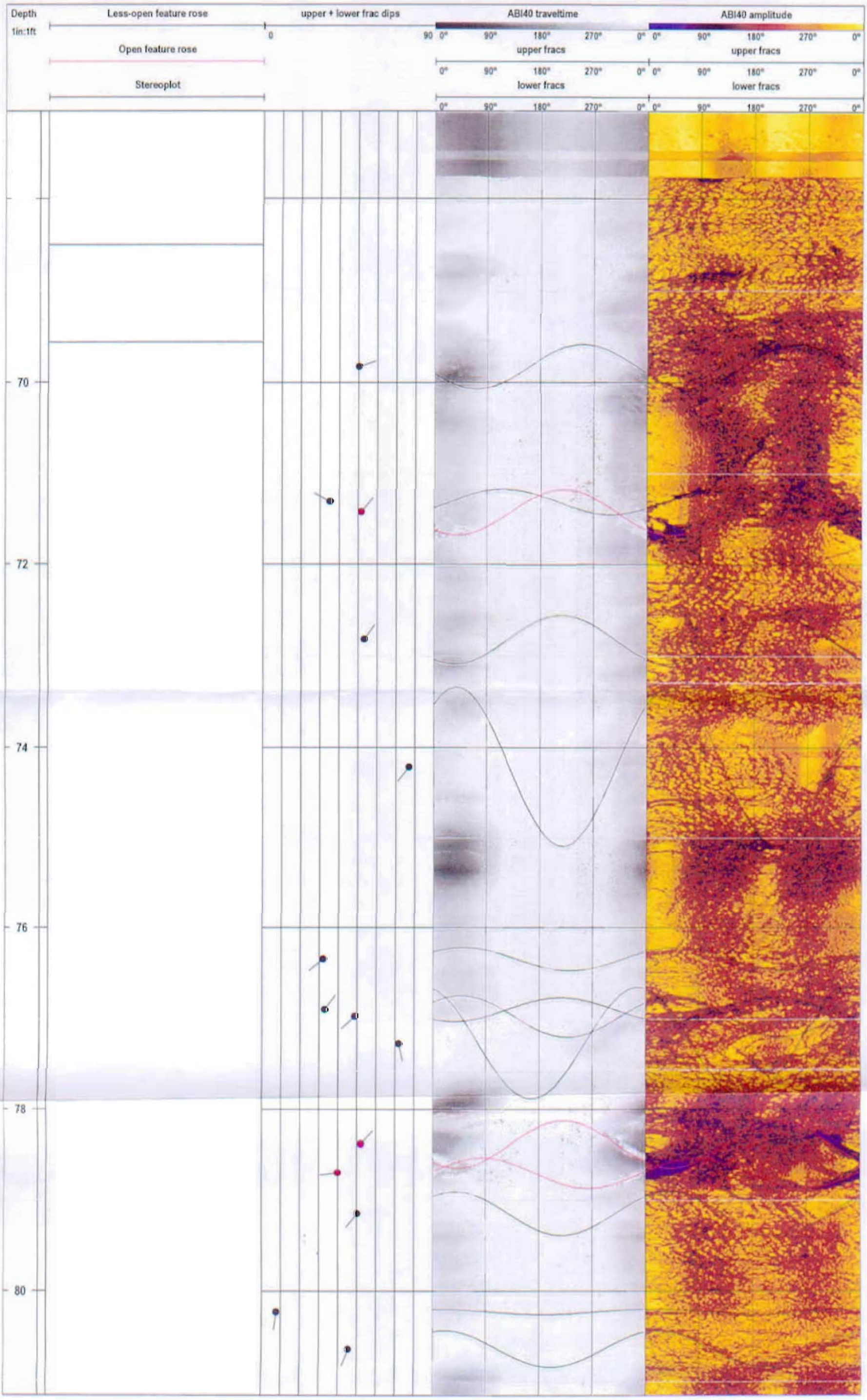
Appendix A

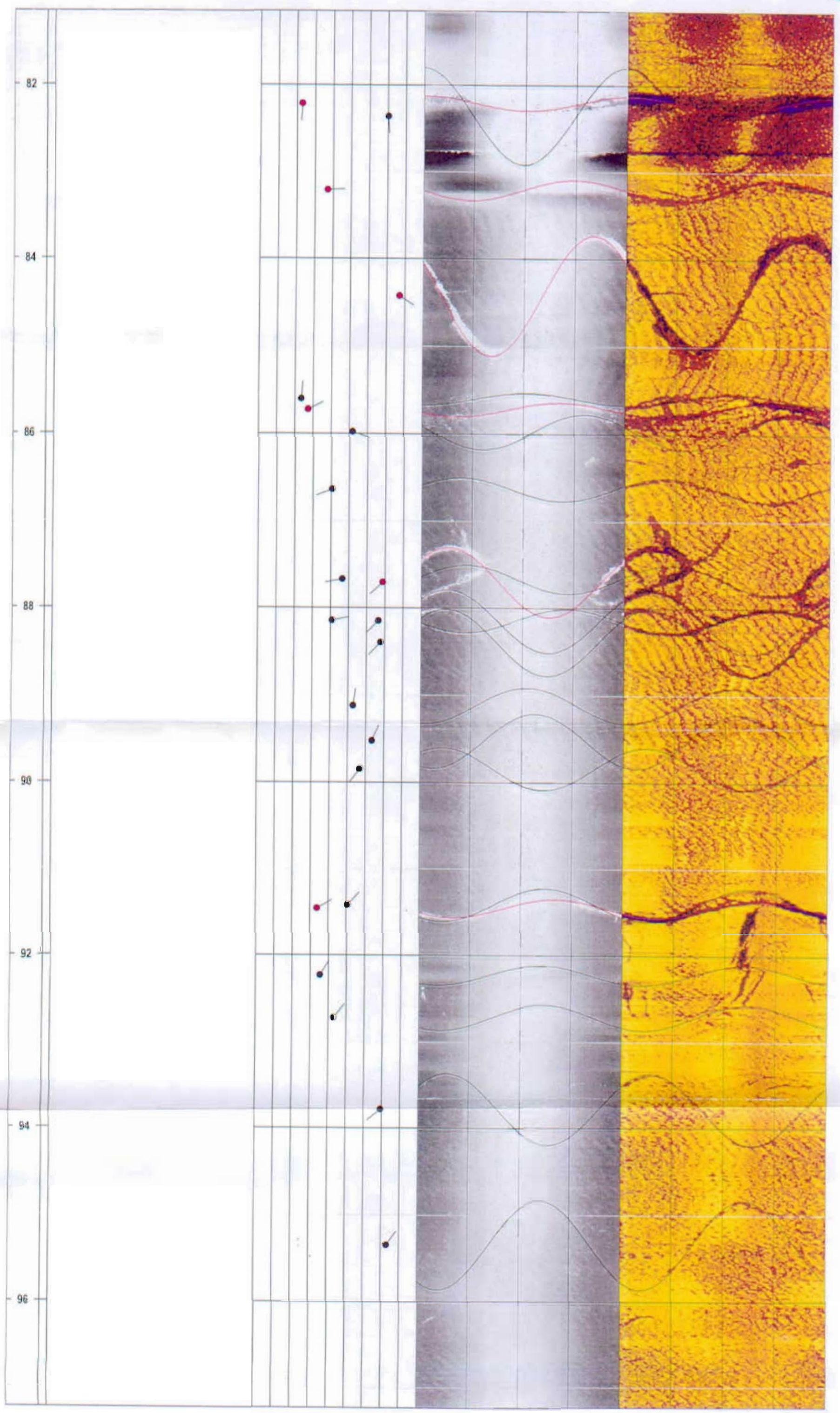
Borehole Geophysics Log Plots

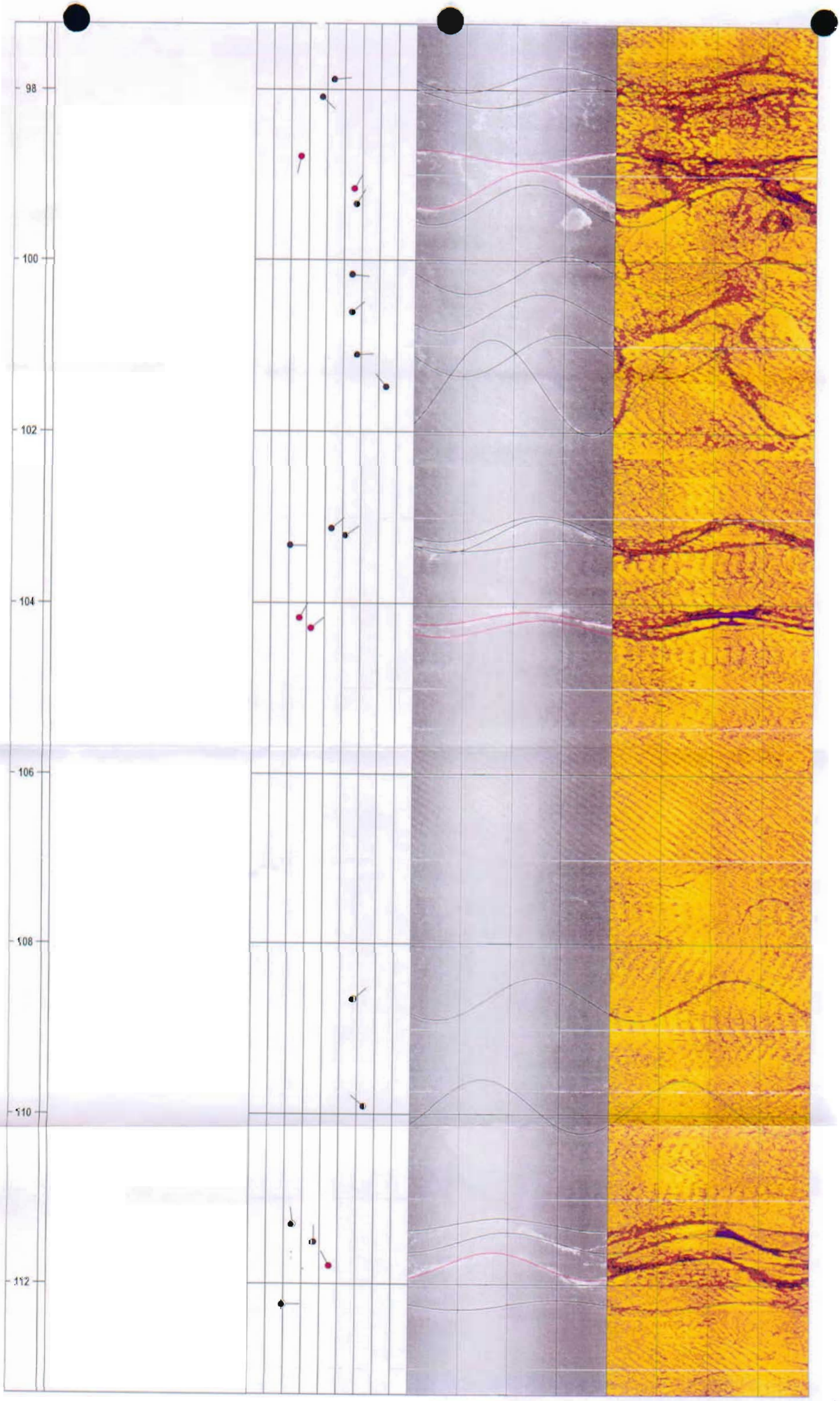
Project - Well: TRC/Wilmington, MA - TRC301R conventional logs

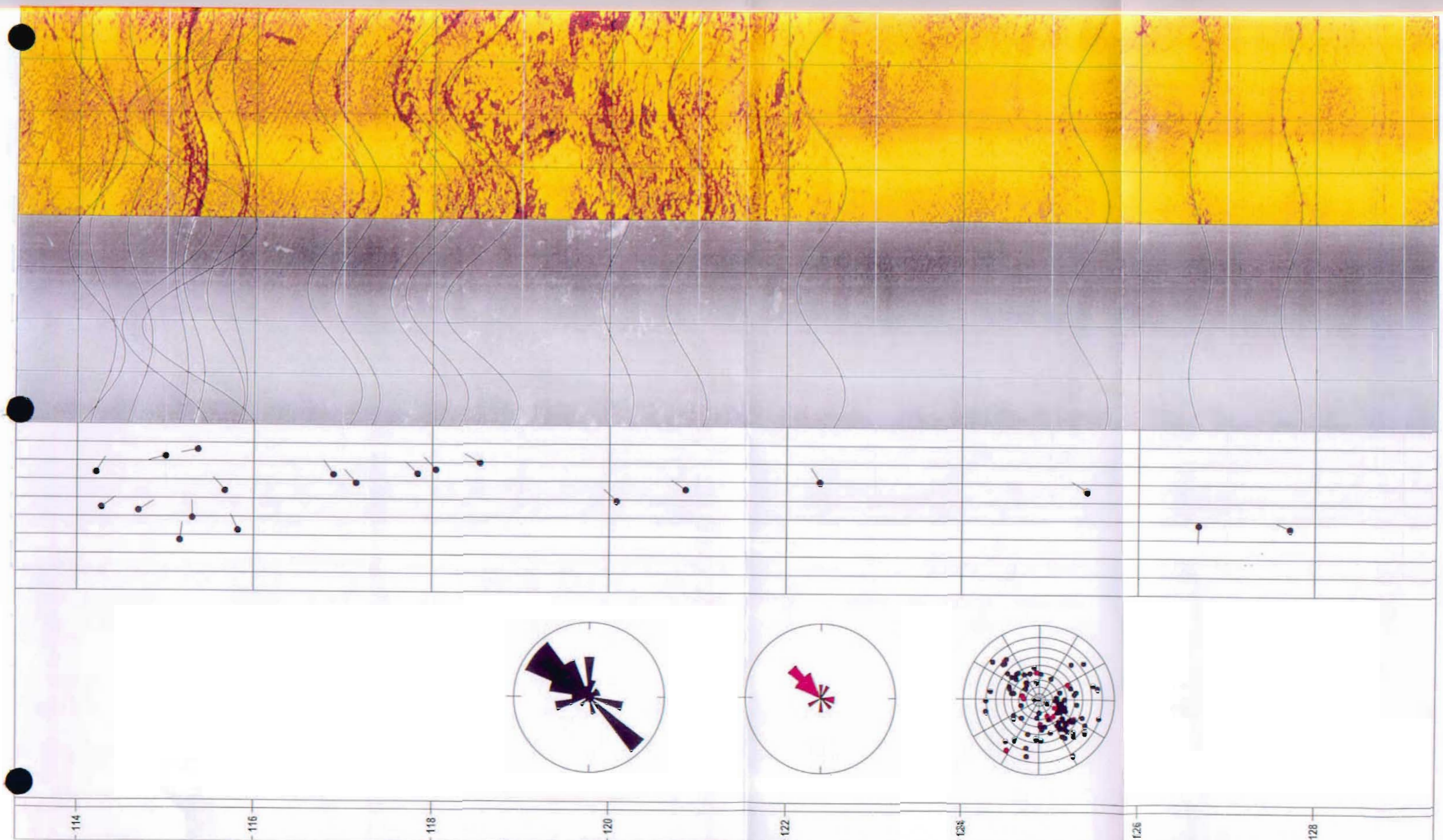


Project - Well: TRC/Wilmington, MA - TRC301R acoustic televiewer log




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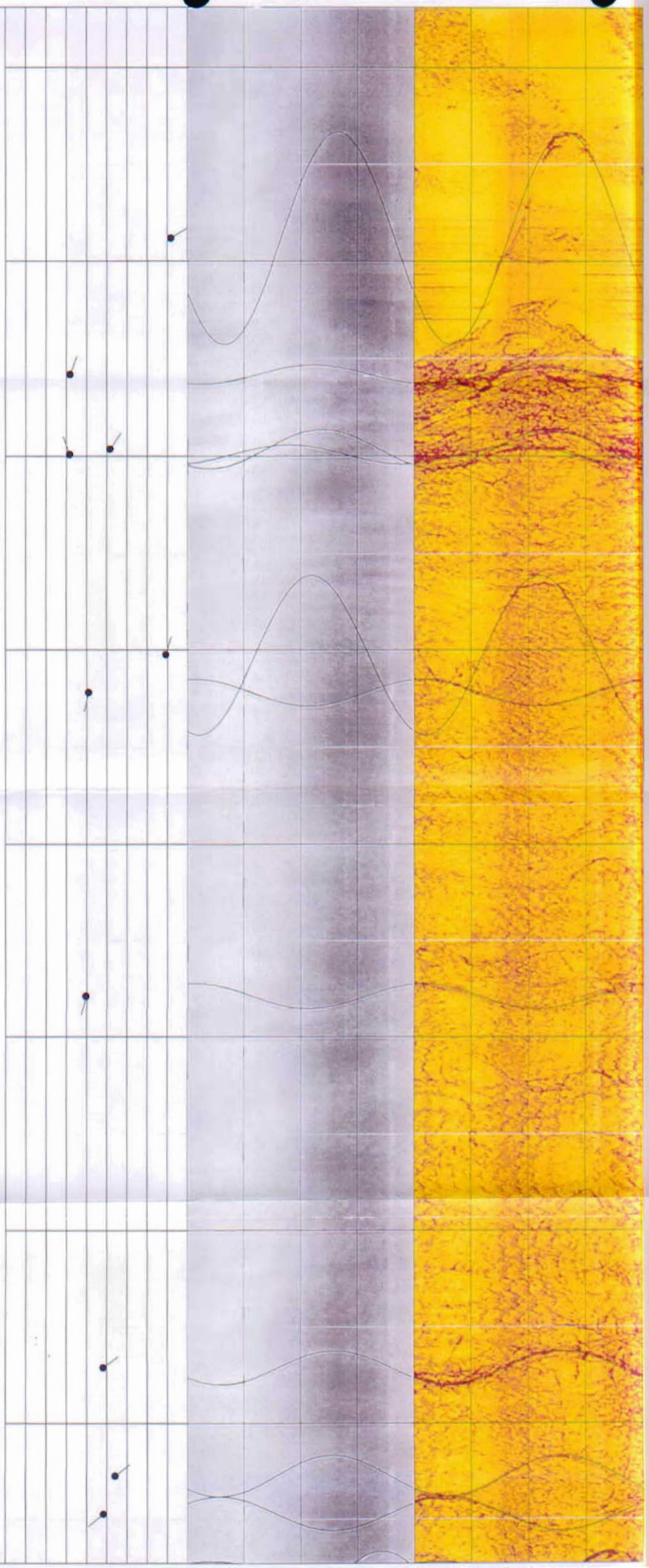
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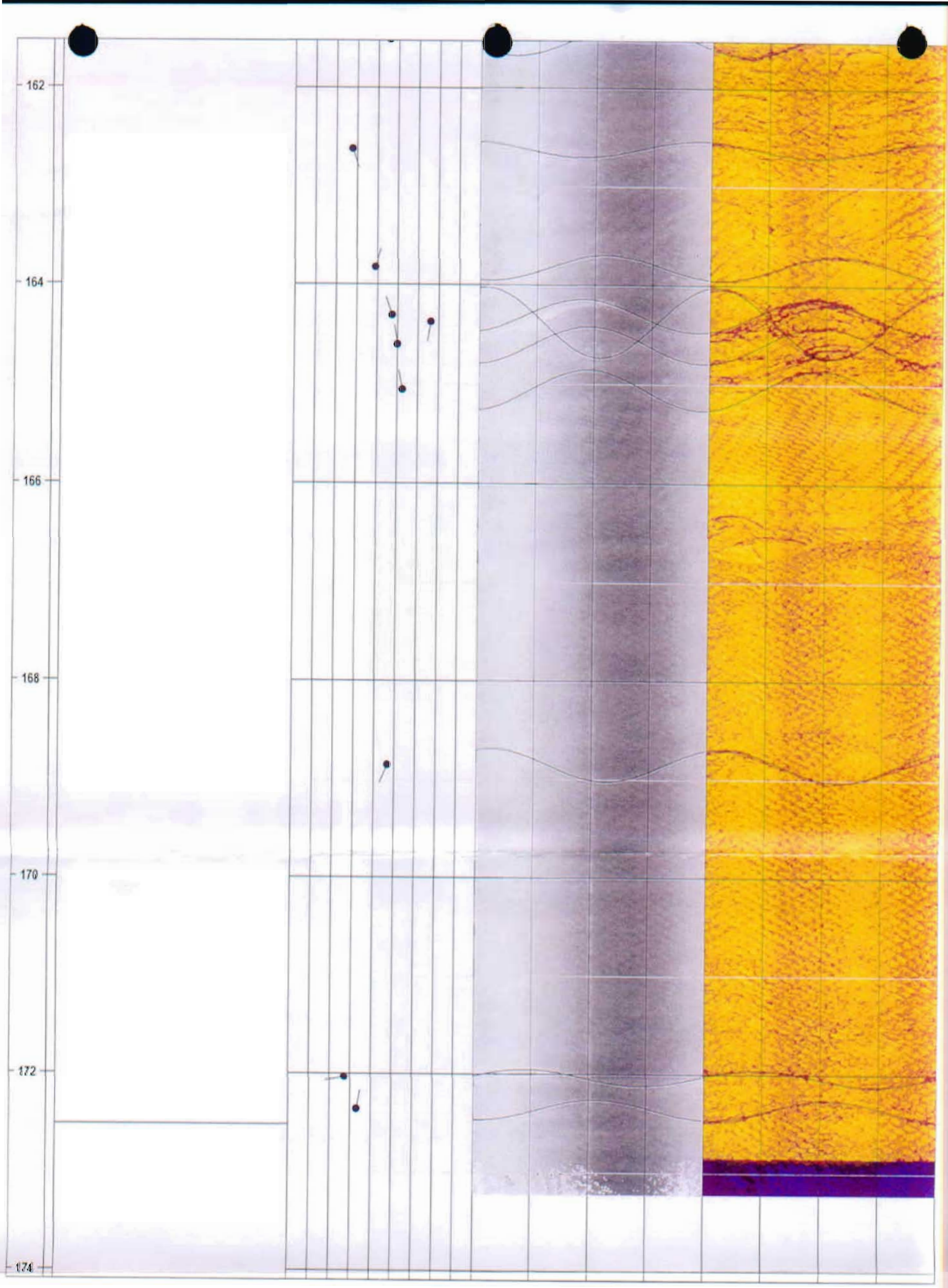
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Caliper logs are presented in the left-hand conventional log-plot column. Inflections to the right indicate borehole enlargements, for example where the drill bit passed through a fracture zone.

Fluid temperature (FTemp) and fluid resistivity (FRes) logs are presented in the panel to the right of the caliper log. Localized inflections or changes in slope of FTemp or FRes logs typically represent water entering or exiting the borehole. Large inflections at the very bottom of a borehole may represent only accumulated soft sediments with temperature or electrical properties that contrast with the water column.

Heat-pulse flowmeter data are presented on the caliper panel (ambient flow measurements) and on the FTemp/FRes panel (flow measurements while pumping). Shaded boxes to the left of centerline on either panel represent downwards water flow, with the box length indicating the flow magnitude in gpm. Shaded boxes to the right of a panel's centerline represent upwards water flow. Filled circles represent depths where "zero" flow was observed (i.e., flow less than the probe's minimum detectable rate, approximately 0.02 gpm). Flowmeter test depths were selected using field plots of the caliper, fluid temperature, and fluid resistivity logs

Acoustic televiewer (ATV) logs were evaluated using WellCad's image-processing module, to measure fracture dip angles and down-dip azimuths. All fracture down-dip azimuths are referenced to magnetic north. Measured fracture orientations are indicated by tadpole plots, where each filled-circle indicates a fracture's dip angle from horizontal (plotted on a graph that ranges between 0 and 90 degrees from left to right). Each tadpole tail points in the down-dip azimuth, assuming north is straight up on the printed page. Note that the down-dip azimuth indicated by each tadpole tail is perpendicular to the fracture's strike direction.

Fractures represented on both ATV travel-time and amplitude plots are likely to be "open" features. Fractures represented only on the ATV amplitude plots are likely to have smaller apertures, and are therefore judged relatively "less-open". Red tadpoles, and red sine-curve lines superimposed on the ATV plots, represent inferred "open" fractures. Black tadpoles, and black sine curves on the ATV plots, represent interpreted "less-open" features.

Televiewer interpretations were also summarized using rose diagrams, to indicate the predominant down-dip planar-feature azimuth(s) observed in a borehole. Each rose diagram is presented with magnetic north oriented straight up on the printed page. The red rose diagram represents inferred open fractures, and the black rose diagram represents inferred less-open fractures (or possibly other planar features).

A stereo plot also summarizes the open and less-open fracture orientations inferred from the televiewer logs. Each stereo plot was prepared using an equal-angle projection on the southern hemisphere.

Acoustic televiewer raw data are presented via two columns, where each column represents a cylindrical image sliced down the north edge and laid flat on the printed page. Magnetic north is at the left edge of each column, and the plot progresses through east, south, west, and back to north at the right-hand edge.

Annotations on the conventional log plots describe interpreted hydraulically-active fracture depths. Selected observations that may be of particular interest to TRC are described below.

TRC301R

This borehole's caliper lot shows an enlargement between the casing bottom (near 63 feet deep) and approximately 82 feet deep. According to TRC, the casing was intended to be grouted within the length of this socket, but it could not be advanced fully to 82 feet deep. Grout that may have once filled the socket below the casing bottom was apparently washed out during the drilling process; the minor caliper enlargements within the open socket represent bedrock fractures, based on comparison with the ATV log plot.

Ambient flowmeter testing did not disclose measurable water flow. Pumping flowmeter tests only showed measurable flow above 110 feet deep.

Inflow while pumping this borehole occurred primarily between: a) 100 and 110 feet deep (possibly near two open fractures and a subtle FRes slope change near 105 feet), and b) between the steel casing bottom and 72.5 feet deep. The slightly-lower pumping flow rates measured at 72.5 and 85 feet deep suggest that some water flow was slipping past the probe's rubber diverter petals, e.g. at a rough spot on the borehole wall.

Pumping flow tests were repeated above and below distinct FRes and FTemp inflections (near 26.5 to 29 feet deep) that suggested a possible casing-joint leak. Measurable inflow was not observed between those two flowmeter test depths.

Most less-open features dip down towards the northeast and southwest within this borehole. Most open features dip down towards the northeast. The stereoplot diagram shows most plotted open and less-open poles towards the lower left portion of this diagram, representing features that dip down towards the northeast at approximately 25 to 65 degrees from horizontal.

*****

We appreciate this opportunity to provide geophysical services, and we welcome questions concerning this report. Please call the undersigned at 508/543-1388 if we may provide additional information that would benefit TRC's project.

Sincerely,

GEOPHYSICAL APPLICATIONS, INC.

M. Blackey

Mark E. Blackey
Principal and Geophysicist

101414 - 101414b.rpt

Appendix A

Borehole Geophysics Log Plots

Appendix B

Fracture Orientations Measured from Acoustic Televiewer Logs

Fracture Orientations from TRC301R Acoustic Televiewer Log
Former General Electric Site
Wilmington, Massachusetts
Prepared for TRC
101414-301ri.wcl

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
69.83	71.6	50.3	100
71.31	299.1	35.4	100
71.42	39.3	51.8	105
72.82	35.7	53.4	100
74.22	218.9	77.2	100
76.34	231.7	32.2	100
76.89	36.9	33.1	100
76.97	228.0	48.9	100
77.26	167.1	72.1	100
78.38	42.1	52.3	105
78.70	263.7	40.2	105
79.15	218.8	50.4	100
80.23	187.8	7.9	100
80.64	200.1	45.6	100
82.22	184.6	23.1	105
82.36	178.2	70.5	100
83.22	86.4	37.2	105
84.43	122.4	77.3	105
85.60	4.9	23.6	100
85.73	64.3	27.5	105
85.98	108.0	52.1	100
86.64	250.0	40.8	100
87.67	260.4	46.6	100
87.71	227.7	68.9	105
88.15	78.1	41.2	100
88.15	226.1	66.8	100
88.40	224.3	67.9	100
89.12	8.2	53.1	100
89.53	23.4	63.6	100
89.84	219.6	57.3	100
91.42	42.7	51.0	100
91.46	60.4	34.1	105
92.23	32.9	35.6	100
92.72	39.1	43.2	100
93.78	230.7	69.6	100
95.35	36.1	73.3	100
97.88	84.8	44.1	100
98.09	133.5	37.6	100
98.79	193.2	25.8	105
99.17	29.5	55.7	105
99.35	31.1	56.9	100
100.17	94.8	54.9	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from TRC301R Acoustic Televiewer Log
Former General Electric Site
Wilmington, Massachusetts
Prepared for TRC
101414-301ri.wcl

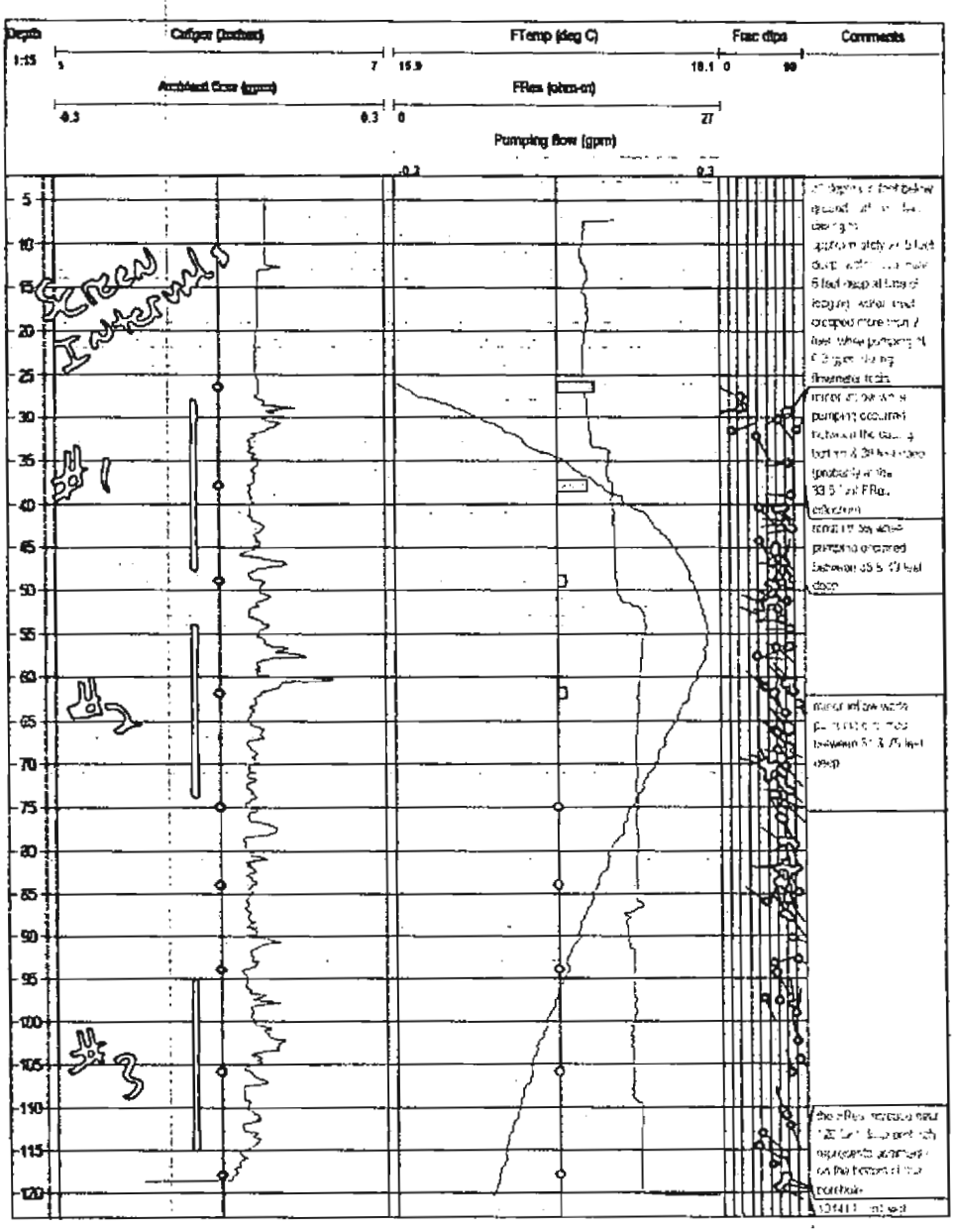
depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
100.61	50.3	54.9	100
101.10	86.7	57.7	100
101.48	320.5	74.4	100
103.13	49.8	43.9	100
103.20	55.5	51.6	100
103.32	90.5	20.8	100
104.18	29.1	26.3	105
104.30	50.9	32.8	105
108.65	48.9	57.9	100
109.91	311.8	64.0	100
111.30	353.6	25.1	100
111.51	0.5	37.0	100
111.79	332.3	45.6	105
112.24	89.5	20.2	100
114.21	121.5	64.1	100
114.27	144.5	45.1	100
114.69	147.7	43.5	100
114.99	345.2	72.8	100
115.16	96.6	27.7	100
115.31	87.3	39.6	100
115.37	348.9	76.5	100
115.67	49.0	54.4	100
115.82	65.3	32.9	100
116.90	56.1	63.4	100
117.15	48.9	58.9	100
117.84	43.9	64.2	100
118.04	46.8	66.3	100
118.53	29.7	69.8	100
120.09	42.5	49.4	100
120.86	34.6	55.8	100
122.38	58.0	60.4	100
125.40	31.1	56.4	100
126.68	273.2	38.1	100
127.71	23.2	36.7	100
131.76	59.0	81.9	100
133.16	21.4	32.0	100
133.93	35.1	51.7	100
133.98	341.1	31.9	100
136.05	18.0	79.4	100
136.44	192.8	41.2	100
139.58	193.8	39.7	100
143.42	53.9	48.4	100

Fracture Orientations from TRC301R Acoustic Televiewer Log
Former General Electric Site
Wilmington, Massachusetts
Prepared for TRC
101414-301ri.wcl

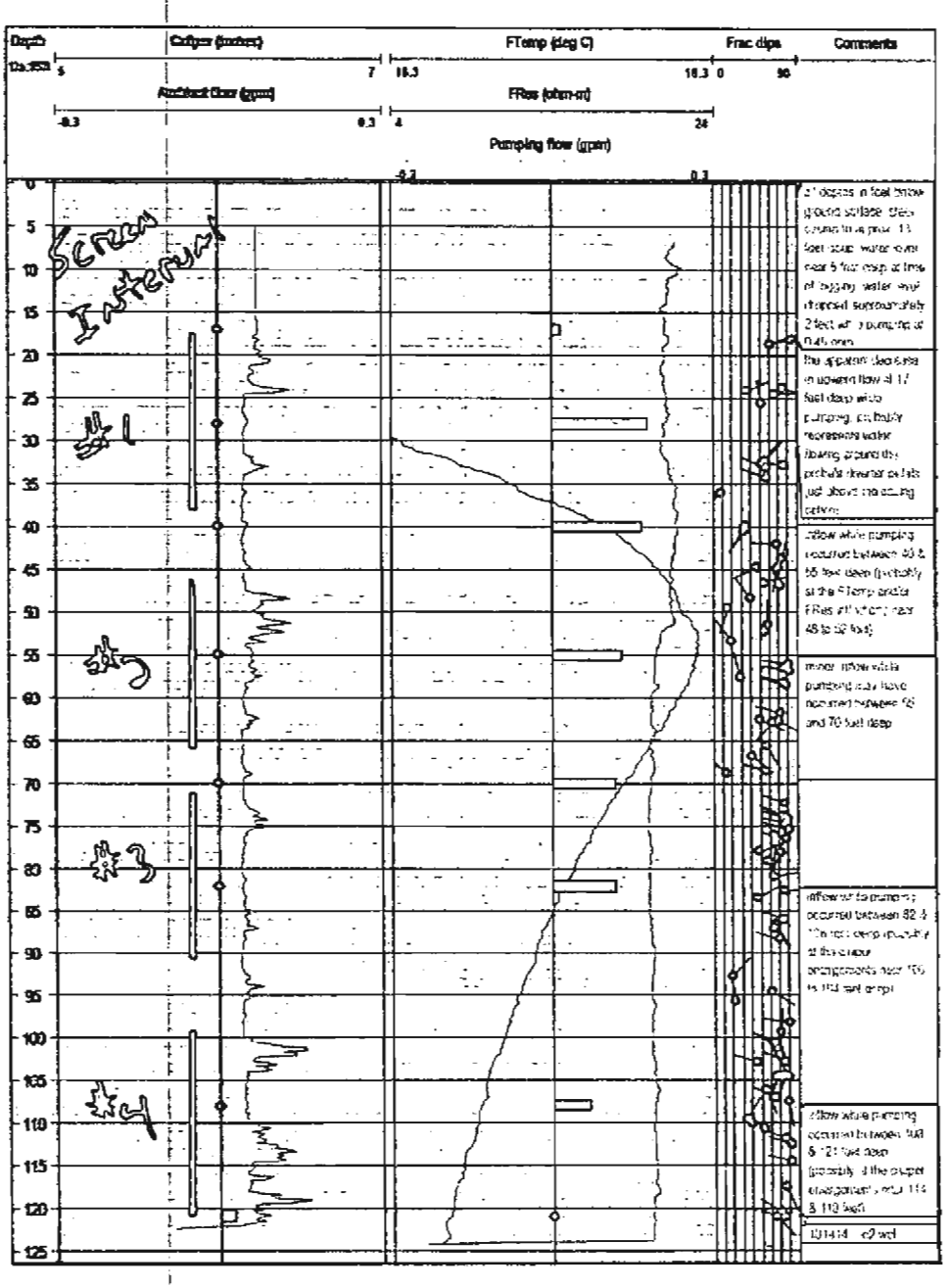
depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
144.55	51.1	54.2	100
144.95	231.5	48.6	100
145.51	218.8	26.3	100
145.78	128.3	71.1	100
146.29	102.4	75.8	100
147.45	105.1	67.7	100
148.10	222.0	44.7	100
151.48	10.2	28.4	100
153.62	24.5	42.1	100
155.78	194.2	38.1	100
156.74	238.9	42.8	100
157.13	229.3	29.1	100
159.12	39.8	44.3	100
160.50	21.5	12.3	100
161.52	55.7	45.8	100
162.62	161.4	28.0	100
163.82	17.4	39.1	100
164.31	340.2	47.4	100
164.38	189.5	66.4	100
164.60	351.6	50.3	100
165.06	349.2	52.8	100
168.85	203.3	46.8	100
172.03	260.0	27.4	100
172.36	10.1	33.4	100

Injection Points (IP)

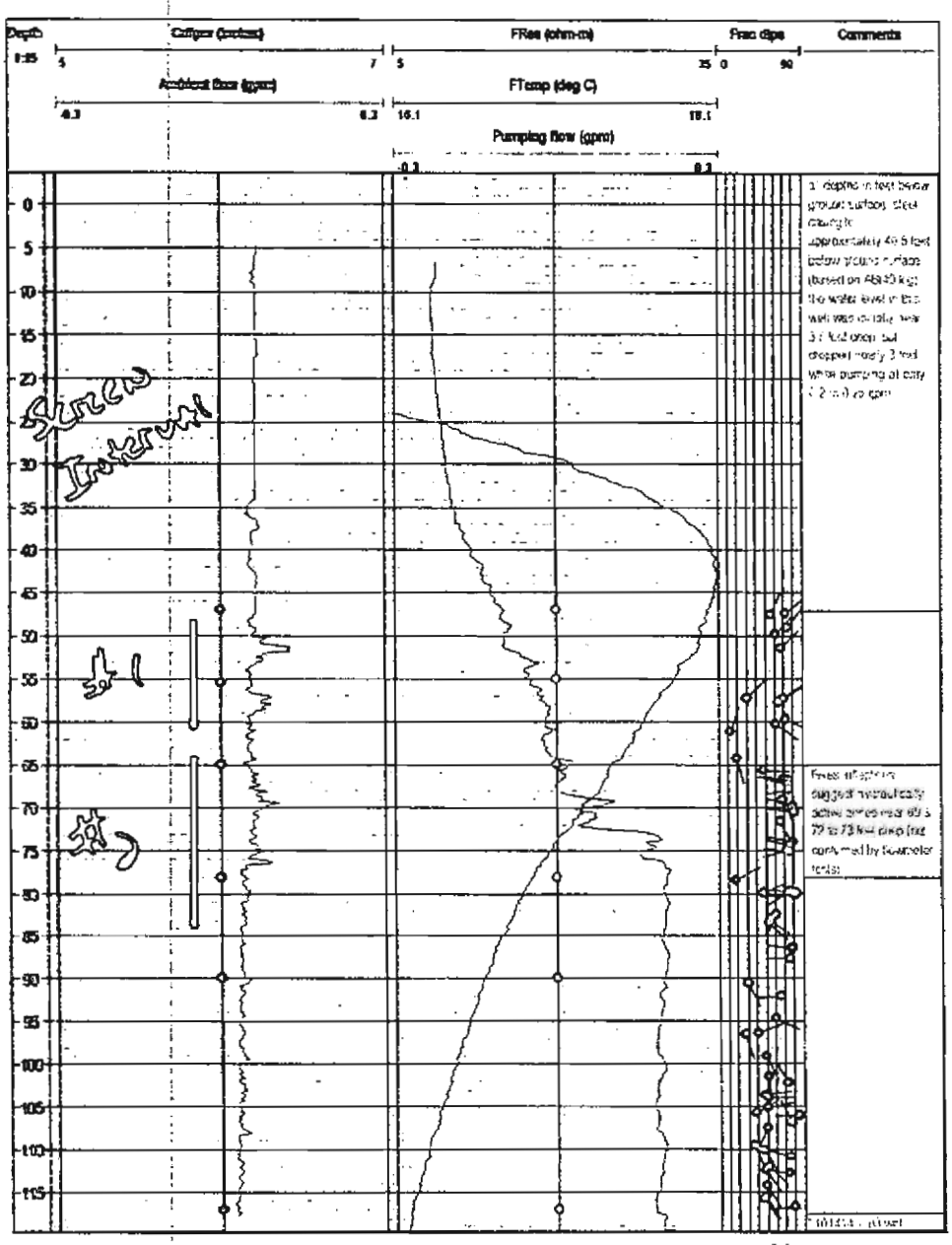
Project - Well: TRC/Wilmington, MA - IP-1 conventional logs



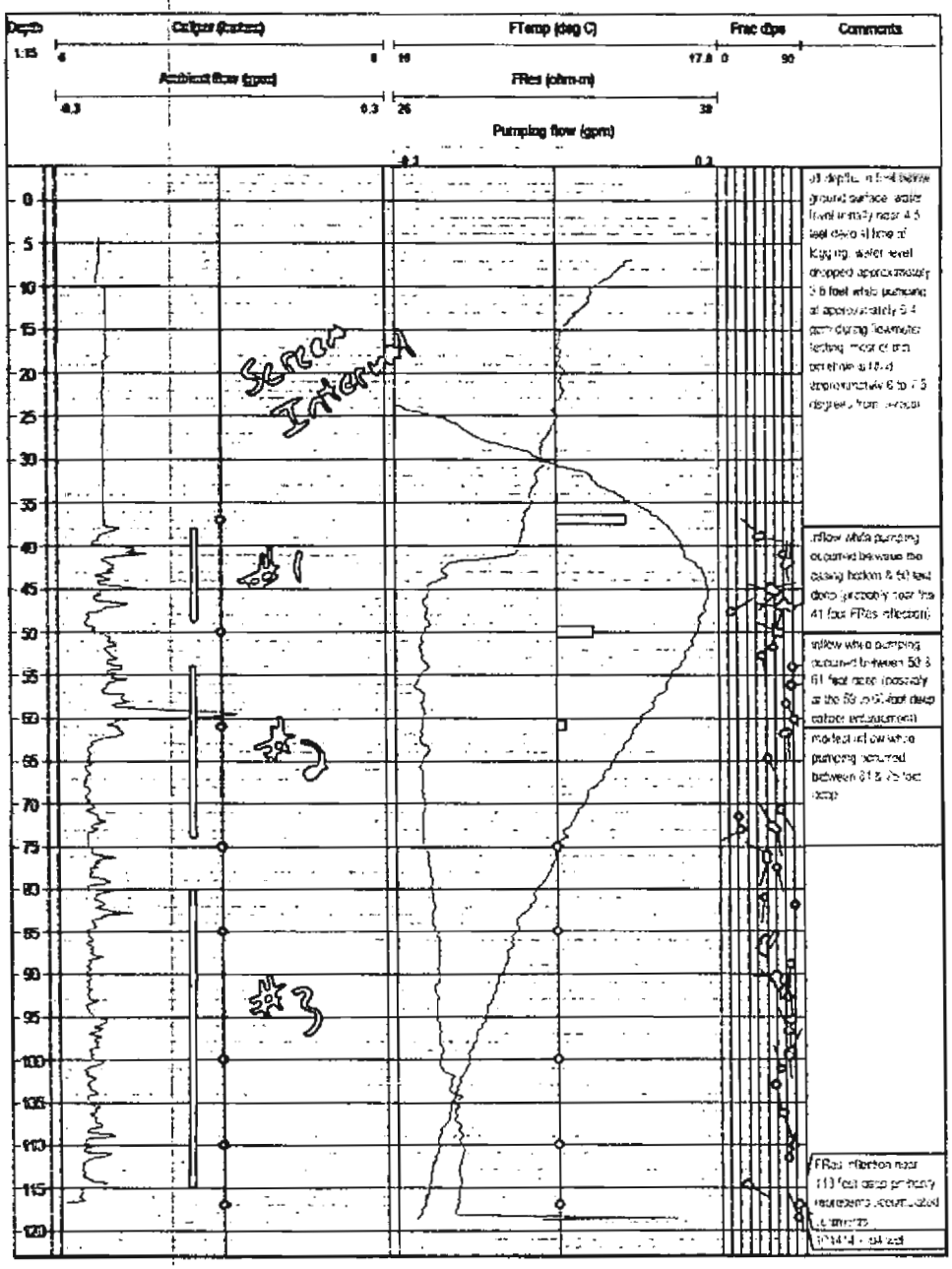
Project - Well: TRC/Wilmington, MA - IP-2 conventional logs

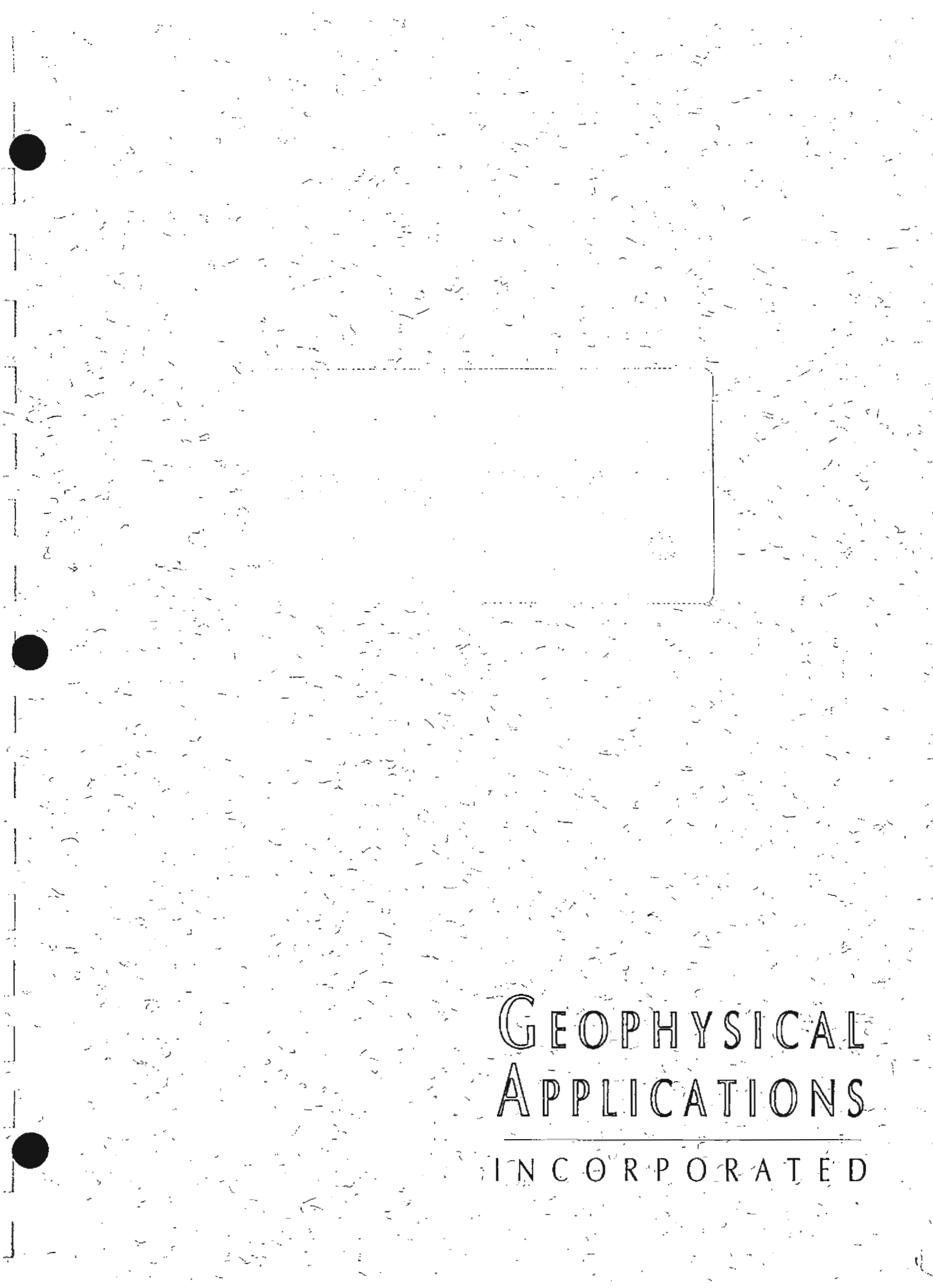


Project - Well: TRC/Wilmington, MA - IP-3 conventional logs



Project - Well: TRC/Wilmington, MA - IP-4 conventional logs




GEOPHYSICAL
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Borehole Geophysics Logging Report
Former GE Site: Wells IP-1 through IP-4
Wilmington, Massachusetts

Prepared for
TRC ENVIRONMENTAL CORPORATION
May 2003

GEOPHYSICAL APPLICATIONS

GEOPHYSICAL
APPLICATIONS
INCORPORATED

May 14, 2003

Mr. Ken Cormier
TRC ENVIRONMENTAL CORPORATION
Foot of John Street - Boott Mills South
Lowell, MA 01852

Subject: Borehole Geophysics Logging Report, Wells IP1 through IP4
Former General Electric Site
Wilmington, Massachusetts

Dear Mr. Cormier:

This report describes borehole geophysical logging performed by Geophysical Applications at the above-noted four wells, to help TRC identify and characterize hydraulically-active bedrock fractures encountered by those wells.

The logging suite included conventional measurements (caliper, fluid temperature, and fluid resistivity), augmented by heat-pulse flowmeter tests and acoustic televiewer (ATV) imaging. Draft conventional-log plots were previously submitted to TRC via email.

METHODS OF INVESTIGATION

Survey Control

All borehole logs were referenced to depths below ground surface. The geophysical logging winch contains an optical depth encoder, to maintain depth measurements accurate within approximately ± 0.2 feet.

Borehole Geophysical Logging

A Mount Sopris model 4MXA or 4MXB digital logging winch was used with Mount Sopris heat-pulse flowmeter and caliper sondes to obtain the conventional geophysical-log data. The caliper and fluid resistivity/temperature logs were recorded at 0.1-foot depth increments, as determined by the logging winch's digital depth encoder.

Fluid temperature and fluid resistivity data were recorded during the first logging run, using a relatively slow downward logging speed (approximately five feet per minute) to help identify subtle variations. A sub-assembly on the caliper probe's bottom obtained these fluid measurements. Caliper logging was subsequently performed while pulling that probe upwards through the borehole at approximately 10 feet per minute.

Acoustic televiewer (ATV) data were obtained using an Advanced Logic Technologies (ALT) model ABI40 acoustic televiewer probe and the Mount Sopris logging winch. ATV data were recorded at 0.01-foot intervals, with 1.25-degree arc-segments for each scan around the borehole wall, at approximately 2.5 feet per minute.

125 Washington Street • Suite Two • Foxboro • MA • 02035
508-543-1388 • FAX 508-543-1019

Flowmeter data were recorded at specific depths above and below possible bedrock fractures indicated by the caliper and fluid temperature/resistivity logs.

Flow data were recorded in ambient conditions on the downward run, to measure natural groundwater flow between fracture zones encountered by the borehole. Flowmeter data were subsequently repeated under low-flow (approximately 0.2 to 0.45 gallons per minute, or gpm) pumping conditions, to help determine depths where groundwater was entering the borehole. Pumping was accomplished using either a Whale pump, with a discharge valve to regulate the flow rate, or a Grundfos Redi-Flow 2 pump.

All geophysical logs were recorded on a laptop computer's hard drive, and transferred to floppy diskette or CD-ROM as a backup precaution.

Post-survey plot scales were adjusted to display as much detail as possible. All conventional and flowmeter logs from the same borehole were merged onto one plot, to aid data correlation. Televiewer logs are presented on separate pages, at an enlarged scale, for clarity.

Equipment Decontamination Procedures

Decontamination consisted of an Alconox scrub and tap water rinse of logging cables and probes between logging runs.

SURVEY LIMITATIONS

Measured geophysical-log depths are estimated to be accurate within ± 0.2 feet, allowing for some slippage of the winches' depth-measurement wheels.

The caliper-probe's arms can measure borehole diameters up to approximately 16 inches. Caliper logs can most-confidently detect fractures that cross a borehole at moderate angles, e.g. less than approximately 70 degrees from horizontal. Caliper logs may not accurately detect near-vertical fractures.

The heat-pulse flowmeter is designed for low flow-rate environments, typically less than 1.0 gpm. Higher flow rates may produce erroneous flowmeter data values.

Hydraulically active fracture zones were inferred by correlating numerous geophysical logs. These interpretations are a subjective judgment based upon available data.

Acoustic and optical televiewer probes rely on three-component magnetometers to orient the recorded images with respect to magnetic north. These images become distorted when the magnetometers approach the steel casing bottom, beginning approximately 1 to 4 feet below the steel.

RESULTS

Logging data and generalized log interpretations are described below. All geophysical logs described in this report are presented in Appendix A. Summary fracture interpretations are provided in Appendix B. These interpretation tables are screen prints of Excel spreadsheets, containing measured fracture depths ("depth" column), down-dip compass directions for each inferred fracture ("azimuth" column; note that this is perpendicular to the fracture strike direction), and dip angle. The "category" column indicates whether the inferred feature was judged to be relatively open (category 105), or less-open (category 100).

Caliper logs are presented in the left-hand conventional log-plot column. Inflections to the right indicate borehole enlargements, for example where the drill bit passed through a fracture zone.

Fluid temperature (FTemp) and fluid resistivity (FRes) logs are presented in the panel to the right of the caliper log. Localized inflections or changes in slope of FTemp or FRes logs typically represent water entering or exiting the borehole. Large inflections at the very bottom of a borehole may represent only accumulated soft sediments with temperature or electrical properties that contrast with the water column.

Heat-pulse flowmeter data are presented on the caliper panel (ambient flow measurements) and on the FTemp/FRes panel (flow measurements while pumping). Shaded boxes to the left of centerline on either panel represent downwards water flow, with the box length indicating the flow magnitude in gpm. Shaded boxes to the right of a panel's centerline represent upwards water flow. Filled circles represent depths where "zero" flow was observed (i.e., flow less than the probe's minimum detectable rate, approximately 0.02 gpm). Flowmeter test depths were selected using field plots of the caliper, fluid temperature, and fluid resistivity logs

Acoustic televiewer (ATV) logs were evaluated using WellCad's image-processing module, to measure fracture dip angles and down-dip azimuths. All fracture down-dip azimuths are referenced to magnetic north. Measured fracture orientations are indicated by tadpole plots, where each filled-circle indicates a fracture's dip angle from horizontal (plotted on a graph that ranges between 0 and 90 degrees from left to right). Each tadpole tail points in the down-dip azimuth, assuming north is straight up on the printed page. Note that the down-dip azimuth indicated by each tadpole tail is perpendicular to the interpreted feature's strike direction.

Fractures represented on both ATV travel-time and amplitude plots are likely to be "open" features. Fractures represented only on the ATV amplitude plots are likely to have smaller apertures, and are therefore judged relatively "less-open". Red tadpoles, and red sine-curve lines superimposed on the ATV plots, represent inferred "open" fractures. Black tadpoles, and black sine curves on the ATV plots, represent interpreted "less-open" features.

Televiewer interpretations were also summarized using rose diagrams, to indicate the predominant down-dip planar-feature azimuth(s) observed in a borehole. Each rose diagram is presented with magnetic north oriented straight up on the printed page. The red rose diagram represents inferred open fractures, and the black rose diagram represents inferred less-open fractures (or possibly other planar features).

A stereo plot also summarizes the open and less-open fracture orientations inferred from the televiewer logs. Each stereo plot was prepared using an equal-angle projection on the southern hemisphere.

Acoustic televiewer raw data are presented via two columns, where each column represents a cylindrical image sliced down the north edge and laid flat on the printed page. Magnetic north is at the left edge of each column, and the plot progresses through east, south, west, and back to north at the right-hand edge.

Annotations on the conventional log plots describe interpreted hydraulically-active fracture depths. Selected observations that may be of particular interest to TRC are described below.

IP-1

This borehole's caliper log shows diameter variations throughout the logged depth range, with the biggest enlargement near 60 feet deep. Stepwise FRes inflections suggest hydraulically-active fractures near 33.5, 52, 86 to 88, and 89 feet deep.

Ambient flow tests did not disclose measurable flow at this borehole. Pumping flow tests identified measurable flow between: a) 61 to 75 feet, b) 38 to 49 feet deep, and c) the steel casing bottom and 38 feet deep. Only the latter depth range correlates with an observed FRes inflection. If the other FRes inflections represent hydraulically active fractures, their contributions to groundwater flow into the well while pumping were not detectable while pumping at 0.3 gpm.

Most less-open planar features dip down towards the west, southeast, and northwest. Most open features dip down towards the west-southwest, north-northwest, and southeast. The stereoplot shows clusters of feature poles representing each of these down-dip azimuths, mostly between dip angles of 40 to 80 degrees from horizontal.

IP-2

The IP-2 caliper log shows several enlargements, especially near 24, 48, 101, 113, and 119 feet deep. Inflections in the FTemp and FRes data near 48 to 52 feet deep suggest a transmissive zone near that depth range.

Ambient flowmeter testing did not confidently disclose measurable water flow. The minor upward ambient flow at 121 feet deep is near the probe's lower measurement limit and was not repeated during the pumping tests; it is therefore judged spurious. Pumping flowmeter tests indicated water inflow within four depth ranges: a) between 108 and 121 feet (possibly at the 113 & 119-foot caliper enlargements), b) 82 to 108 feet deep (possibly at the 100 to 104-foot caliper enlargements), c) possibly between 55 and 70 feet, and d) between 40 and 55 feet deep (probably at the 48 to 52-foot caliper and FTemp/FRes inflections).

Most less-open features dip down towards the west-northwest and south-southwest, at 55 to 85 degrees from horizontal. Observed open features dip primarily towards the west-northwest, at 65 to 85 degrees from horizontal. Note the tight cluster of red feature poles, towards the right side of the stereoplot, that represents these interpreted open features.

IP-3

This borehole's biggest diameter variations occurred between the casing bottom and 77 feet deep. FRes inflections suggest possible hydraulically active zones at numerous depth ranges, including: a) 69 and 72 to 73 feet deep, b) possibly near 70 to 72 feet deep, c) possibly between 64 and 68 feet deep, and d) possibly between 51 to 53 feet deep.

Neither ambient nor pumping flowmeter tests disclosed measurable flow at this borehole. Although the well was pumped at only 0.2 to 0.25 gpm, the water level dropped approximately 3.7 feet during the pumping flowmeter tests (further indicating a relatively low-yield well).

Interpreted less-open features dip down towards the southeast and west; open features dip down primarily towards west-northwest. Note the cluster of open and less-open features near the right side of the stereoplot, indicating open and less-open features dipping down towards the west or west-northwest at approximately 65 to 85 degrees from horizontal.

IP-4

This borehole's caliper log is irregular throughout its depth range, with a distinct enlargement near 59 to 60 feet deep. Distinct FRes and FTemp inflections near 41 or 42 feet deep suggest a hydraulically active zone near those depths.

Ambient flow tests did not disclose measurable flow at this borehole. Pumping flow tests identified water entering the borehole in the following depth ranges: a) 61 to 75 feet, b) 50 to 61 feet (possibly at the 59 to 60-foot caliper enlargement), and c) between the casing bottom and 50 feet deep (probably at the 41 to 42-foot FRes and FTemp inflections).

Interpreted planar-feature down-dip azimuths are distinctly different at this borehole. Most less-open features dip down towards the south, south-southeast, and north. Most open features dip down towards due south. Note the distinct cluster of red poles near the top of the stereoplot diagram, indicating open features dipping south at 65 to 85 degrees from horizontal.

*****

We appreciate this opportunity to provide geophysical services, and we welcome questions concerning this report. Please call the undersigned at 508/543-1388 if we may provide additional information that would benefit TRC's project.

Sincerely,

GEOPHYSICAL APPLICATIONS, INC.

M. Blackey

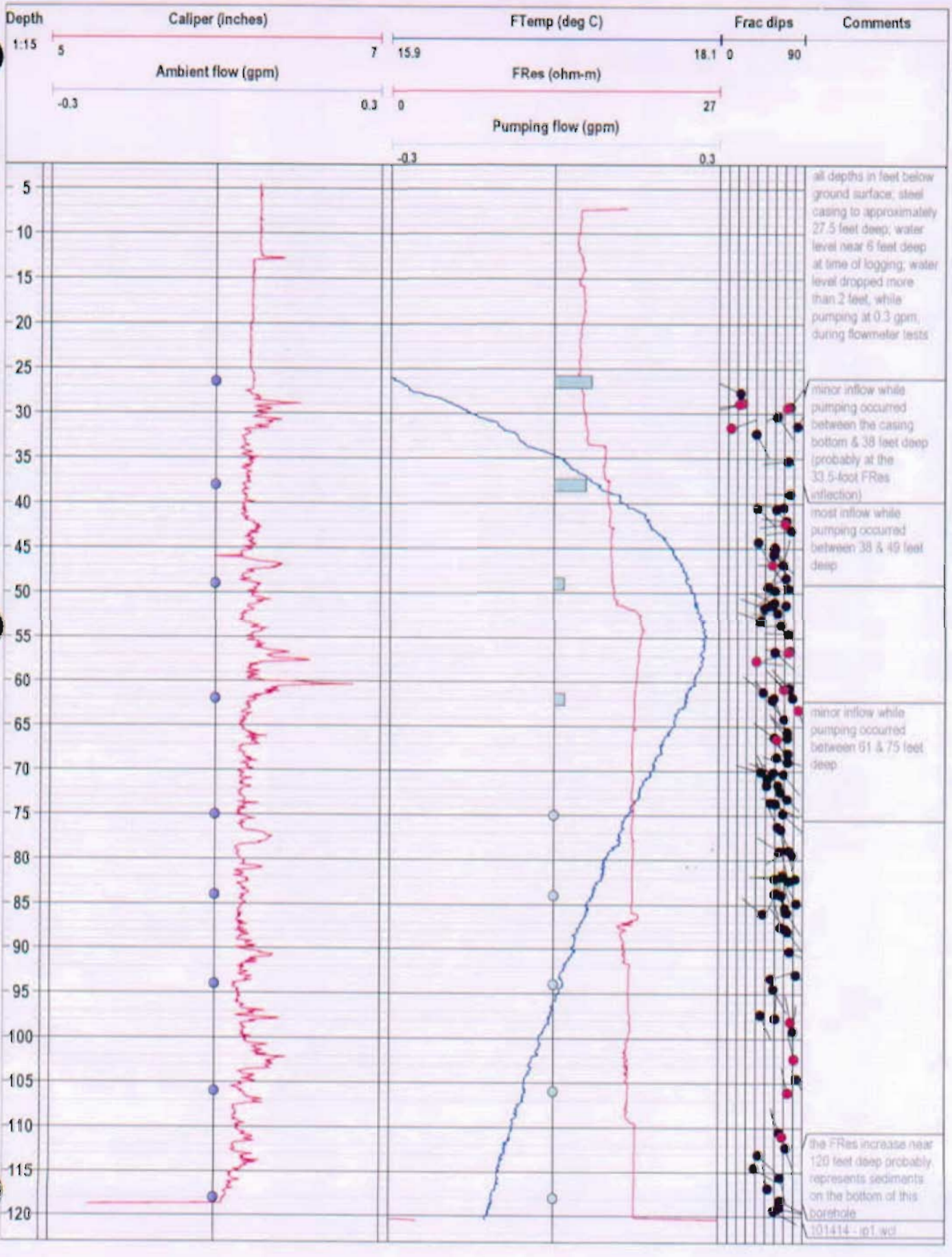
Mark E. Blackey
Principal and Geophysicist

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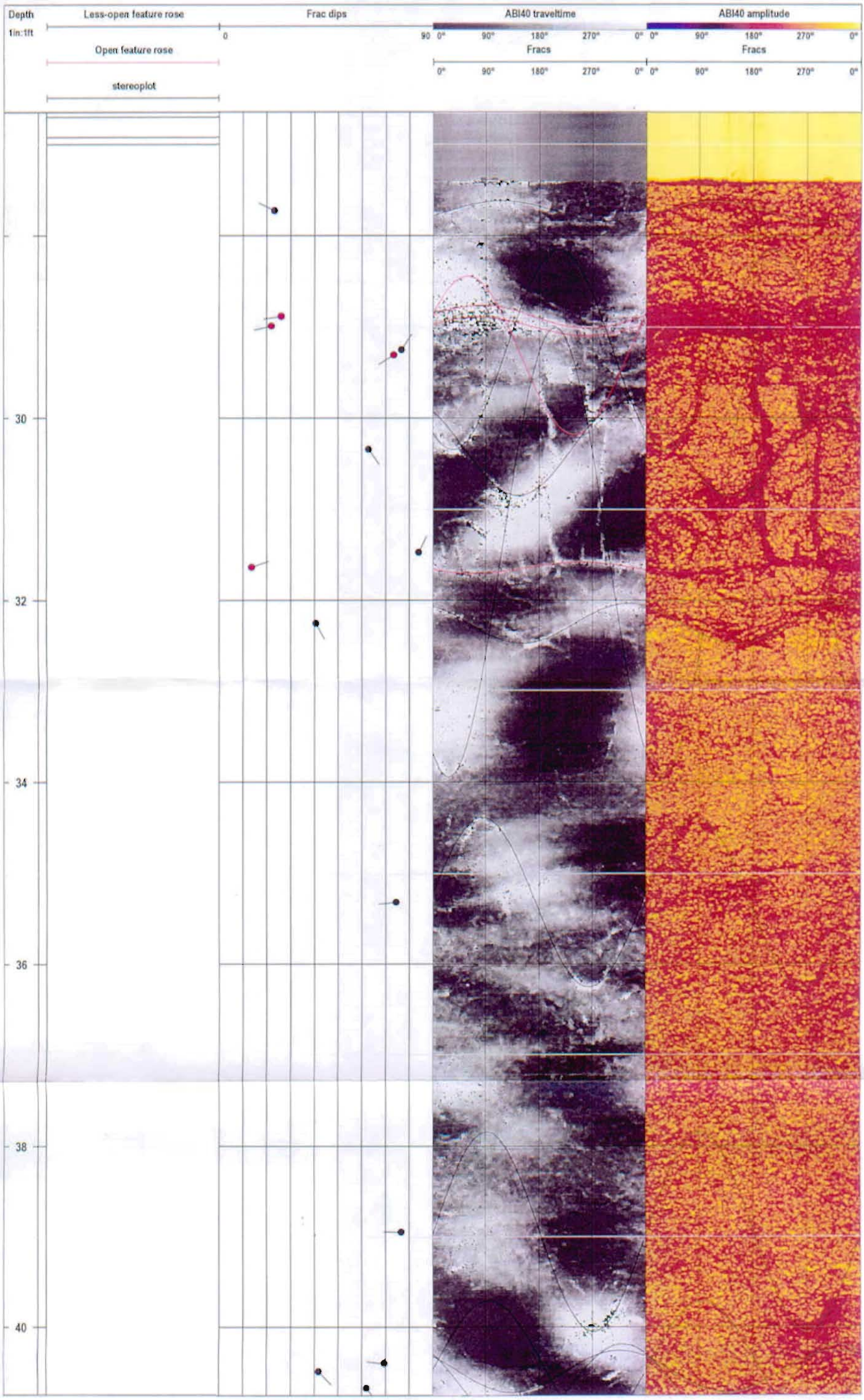
Appendix A

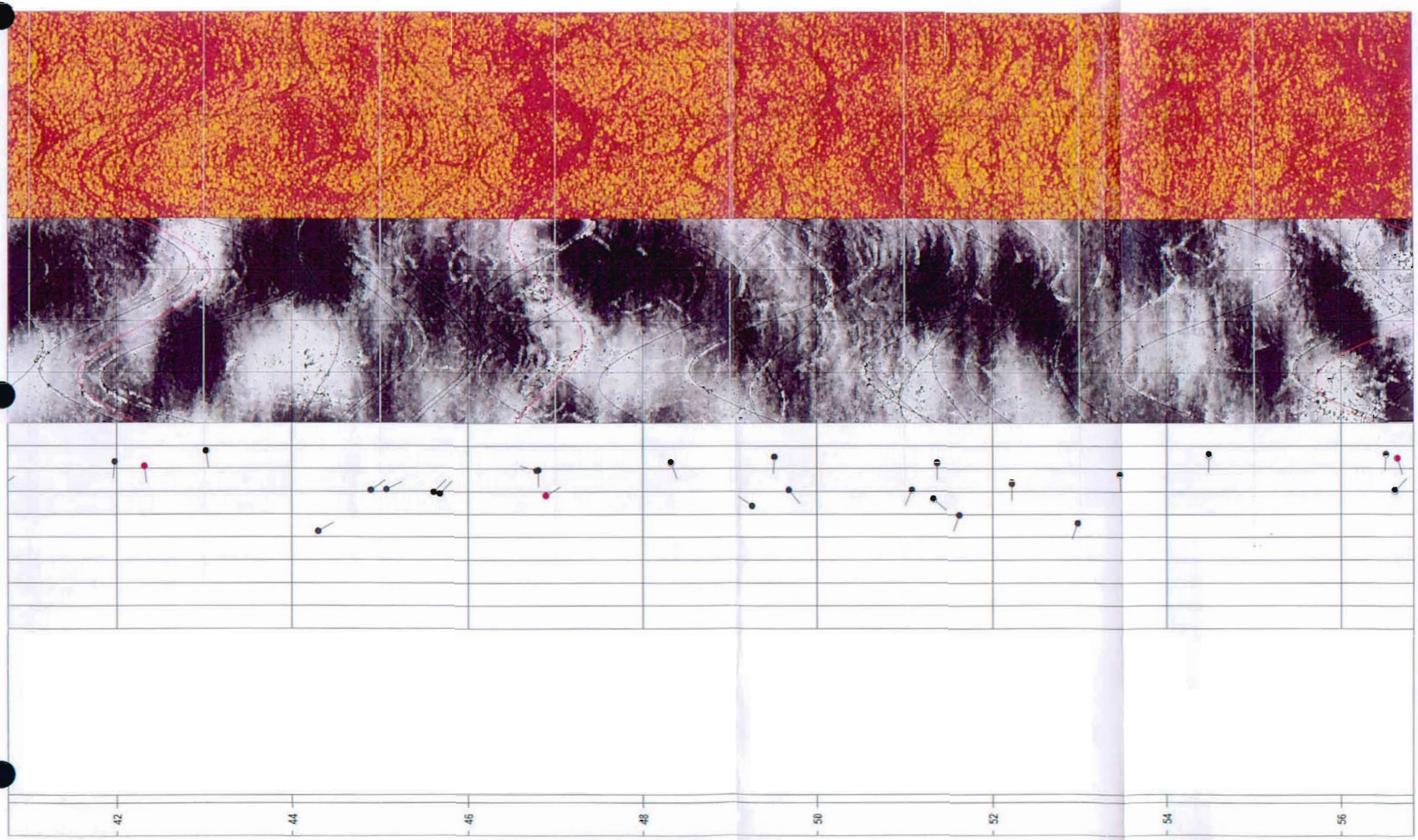
Borehole Geophysics Log Plots

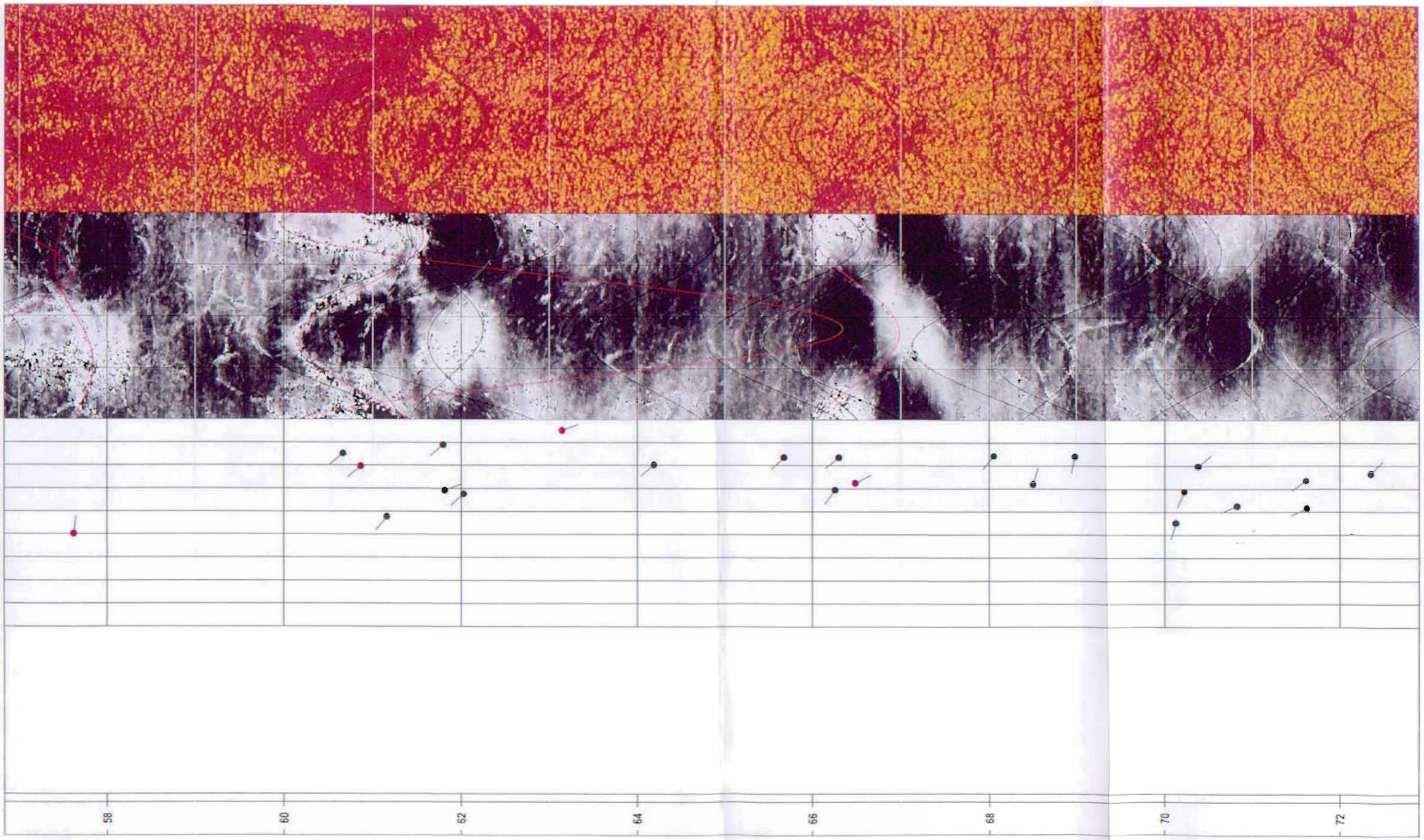
Project - Well: TRC/Wilmington, MA - IP-1 conventional logs

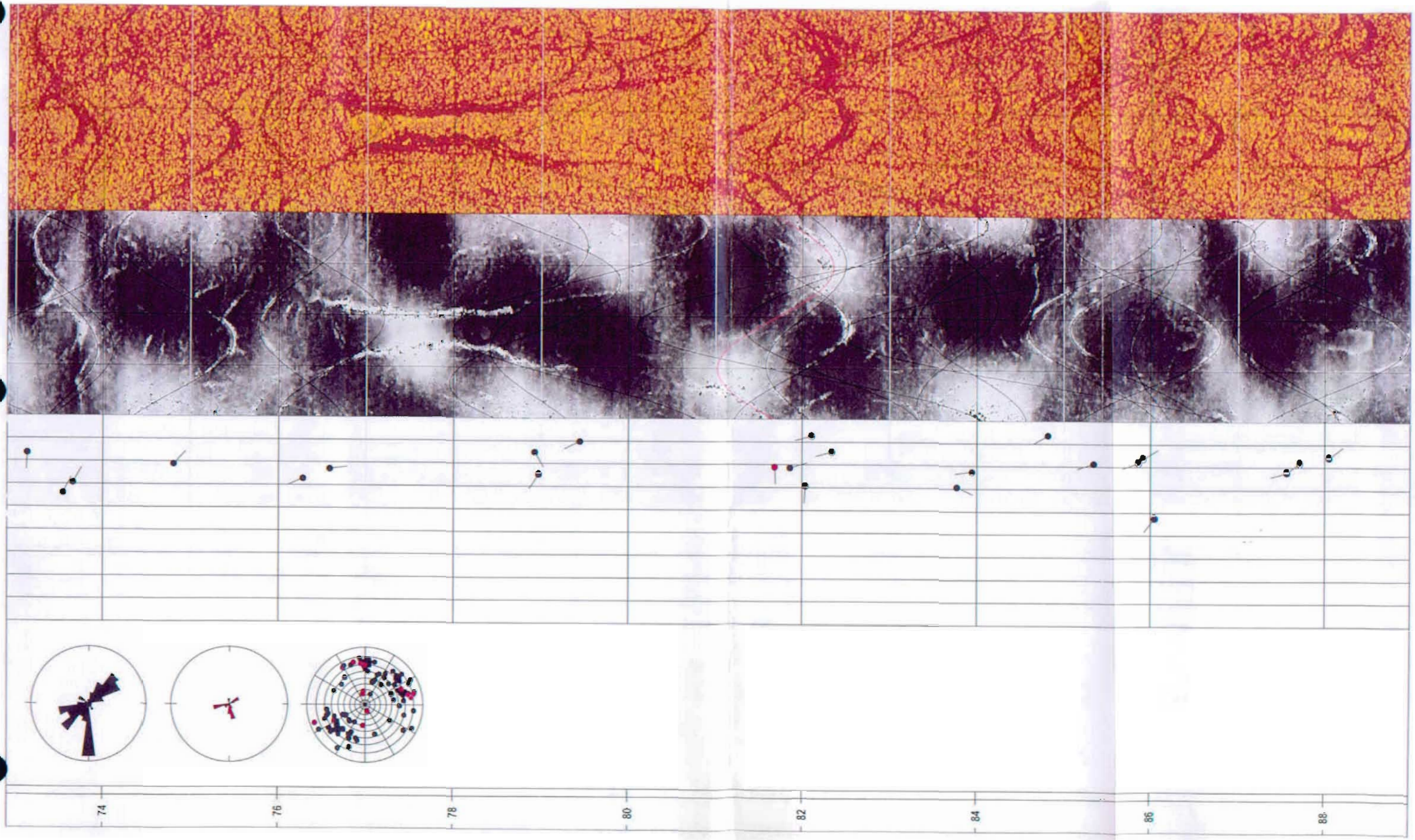


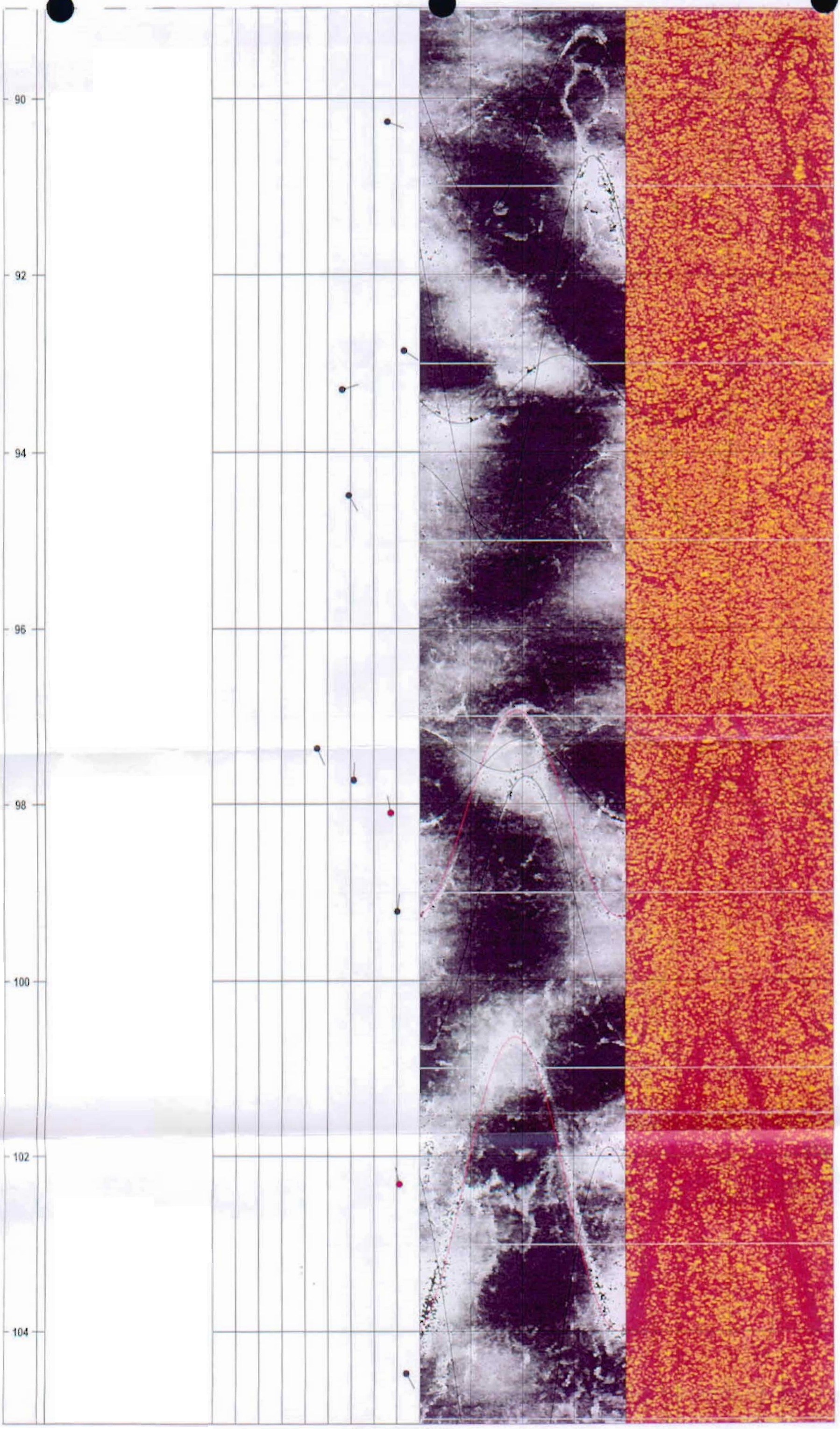
Project - Well: TRC/Wilmington, MA - IP-1 acoustic televiewer log

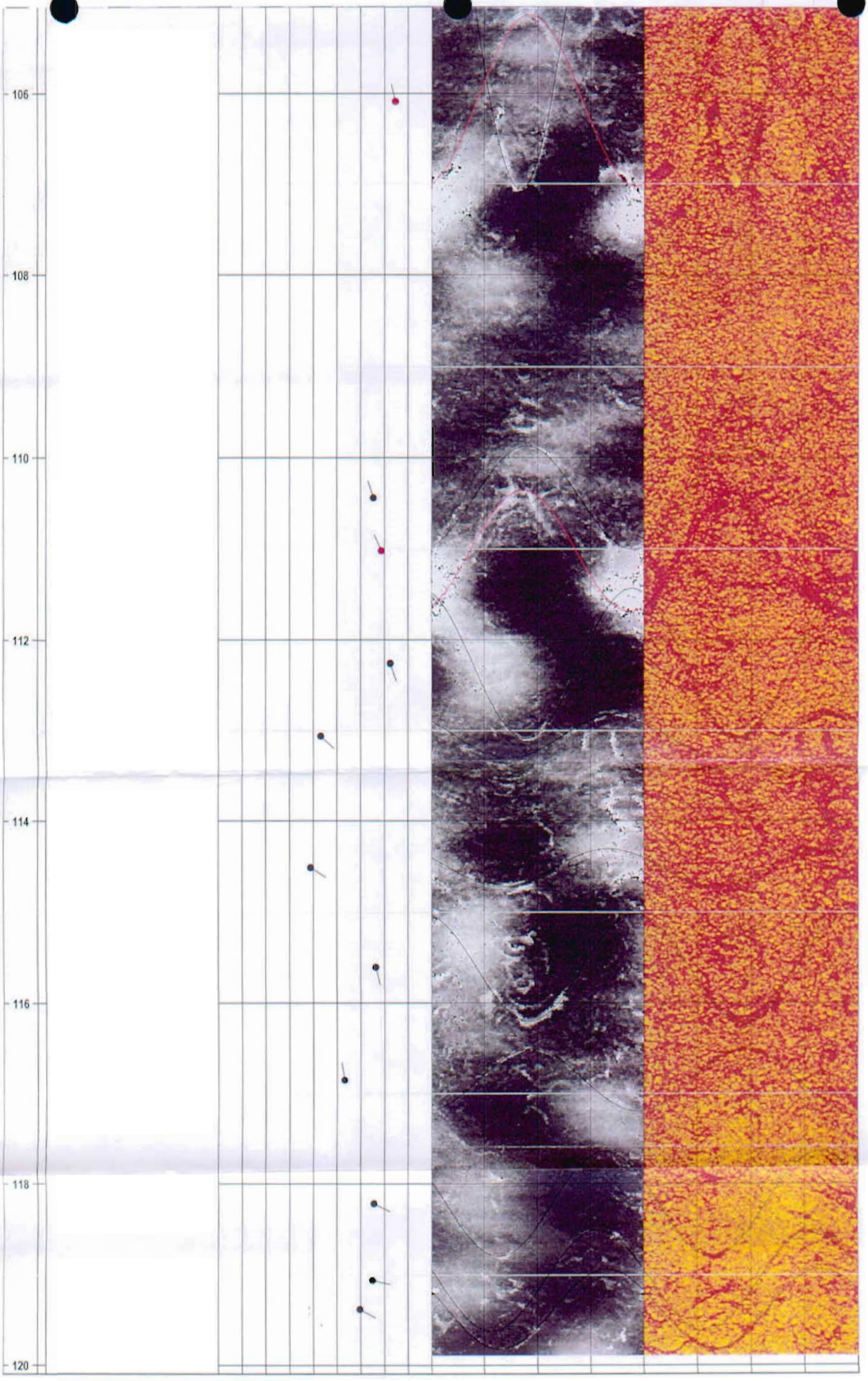



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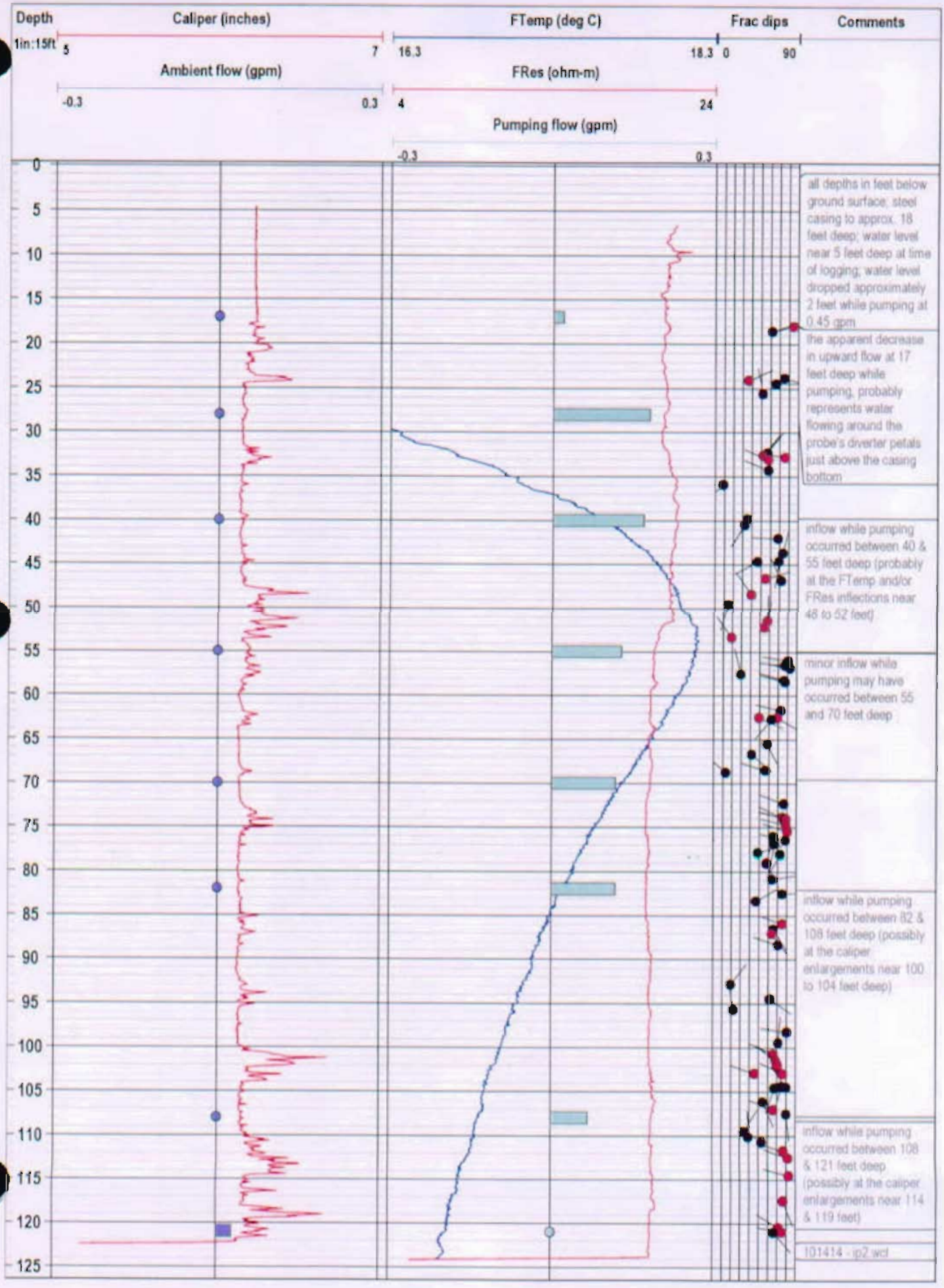

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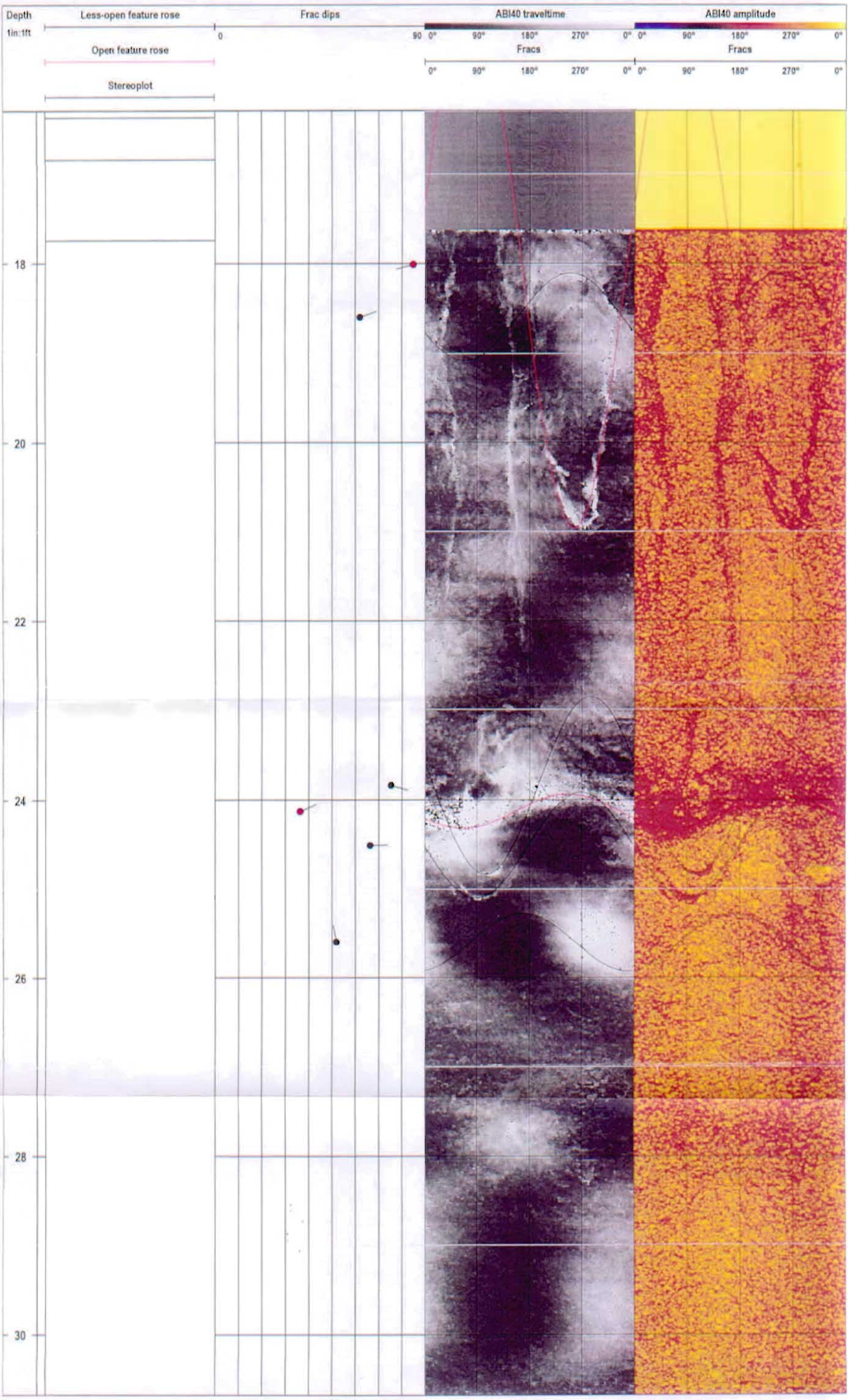

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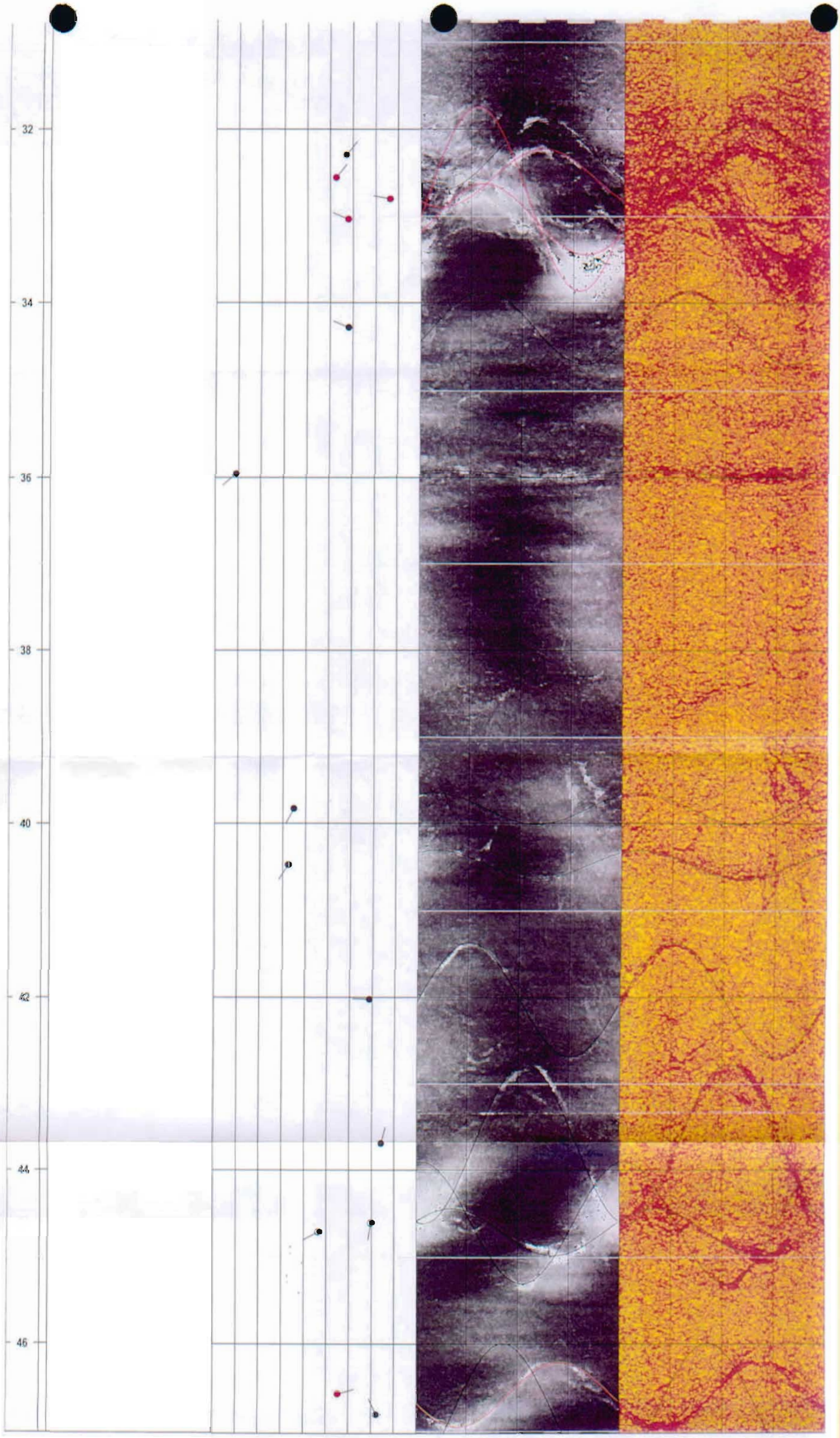

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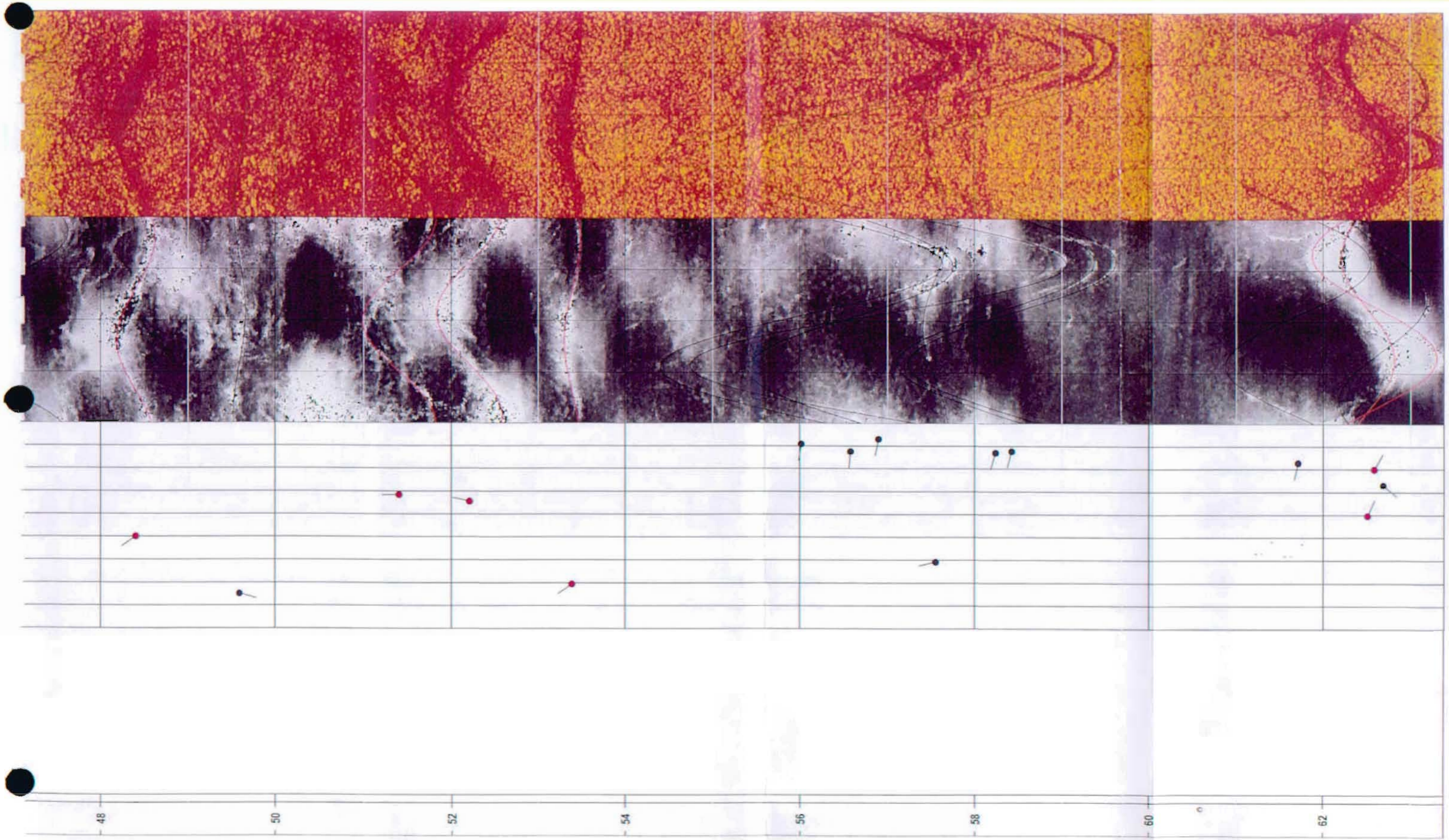
Project - Well: TRC/Wilmington, MA - IP-2 conventional logs

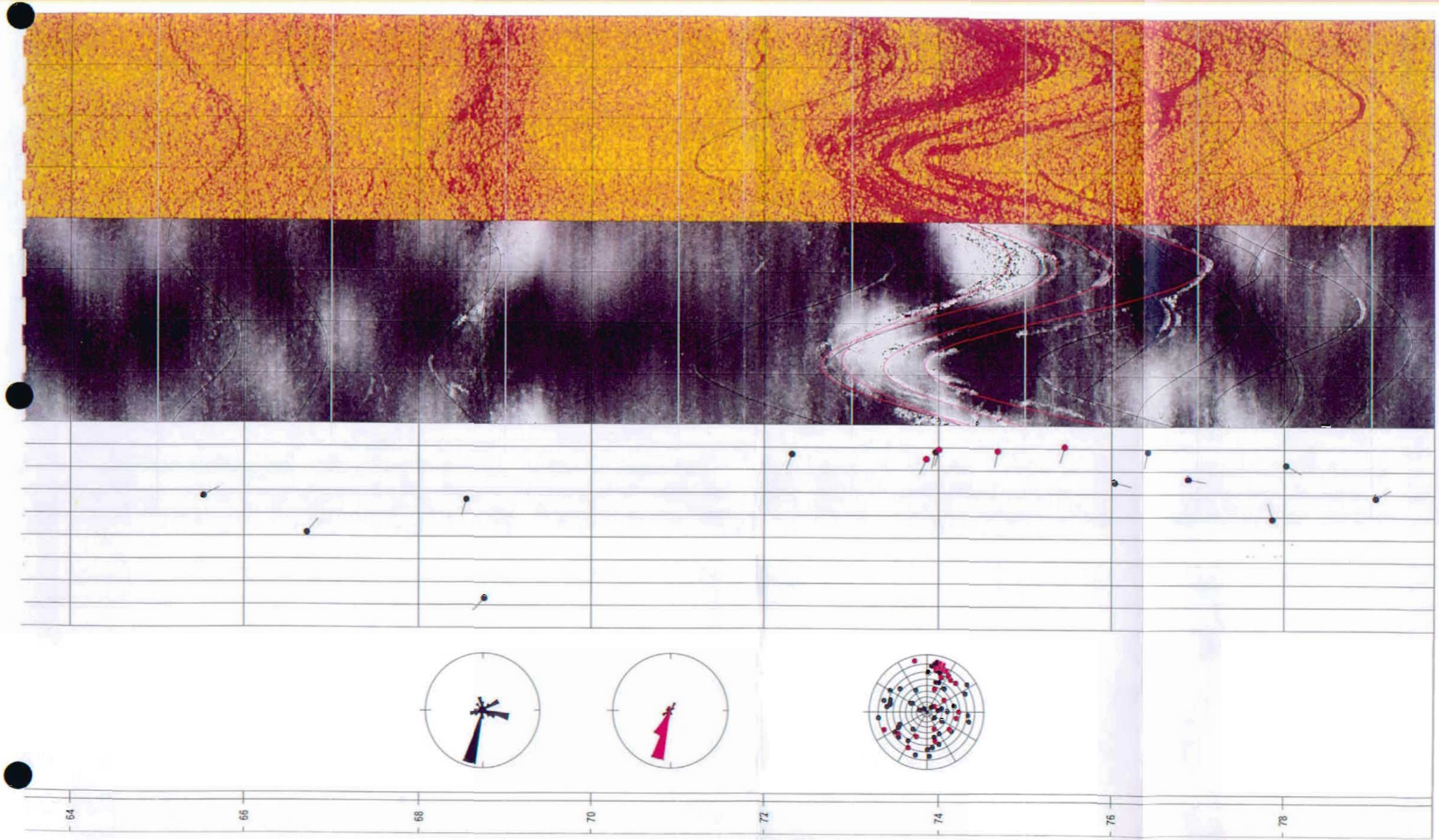


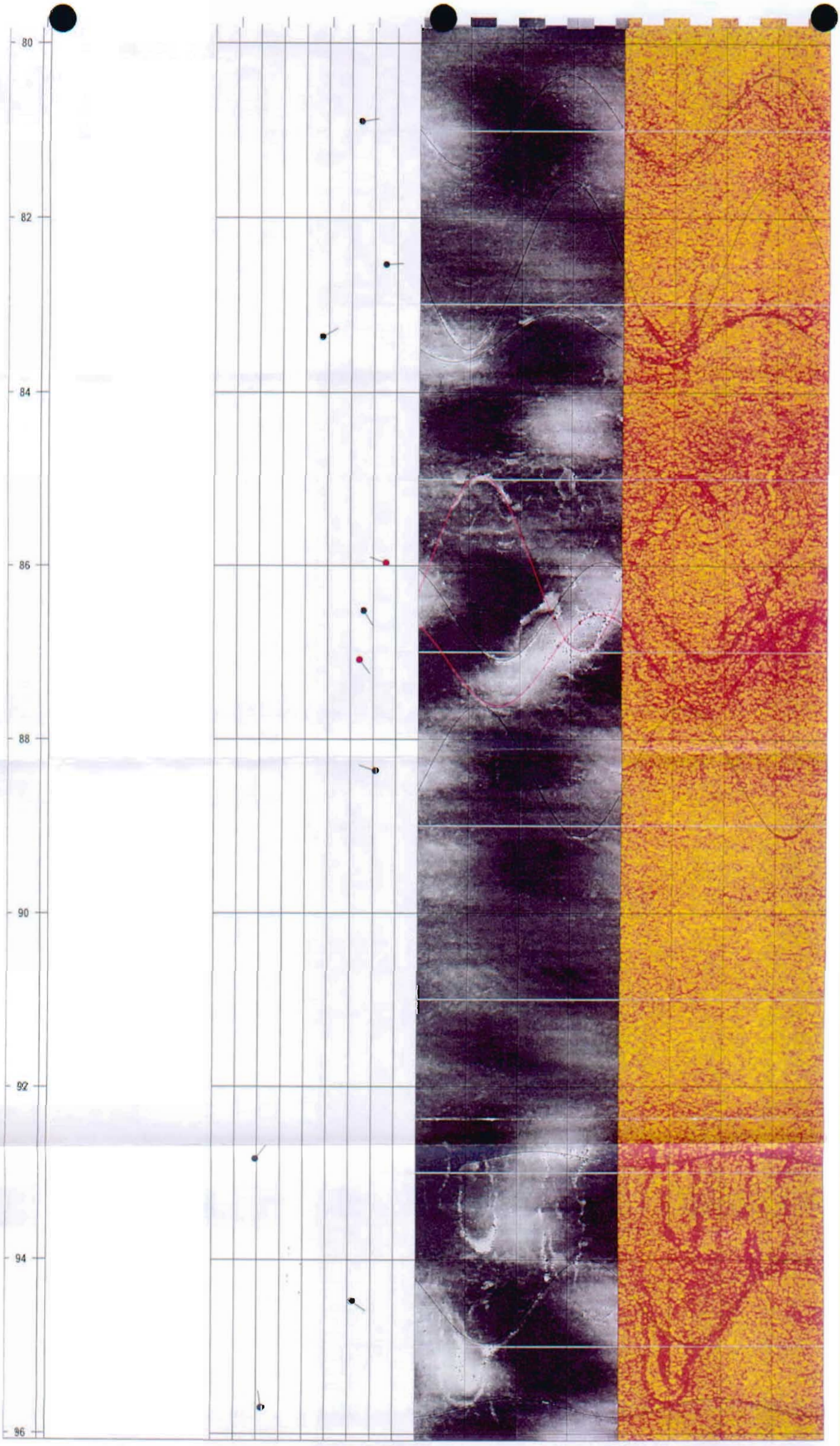
Project - Well: TRC/Wilmington, MA - IP-2 acoustic televiewer log

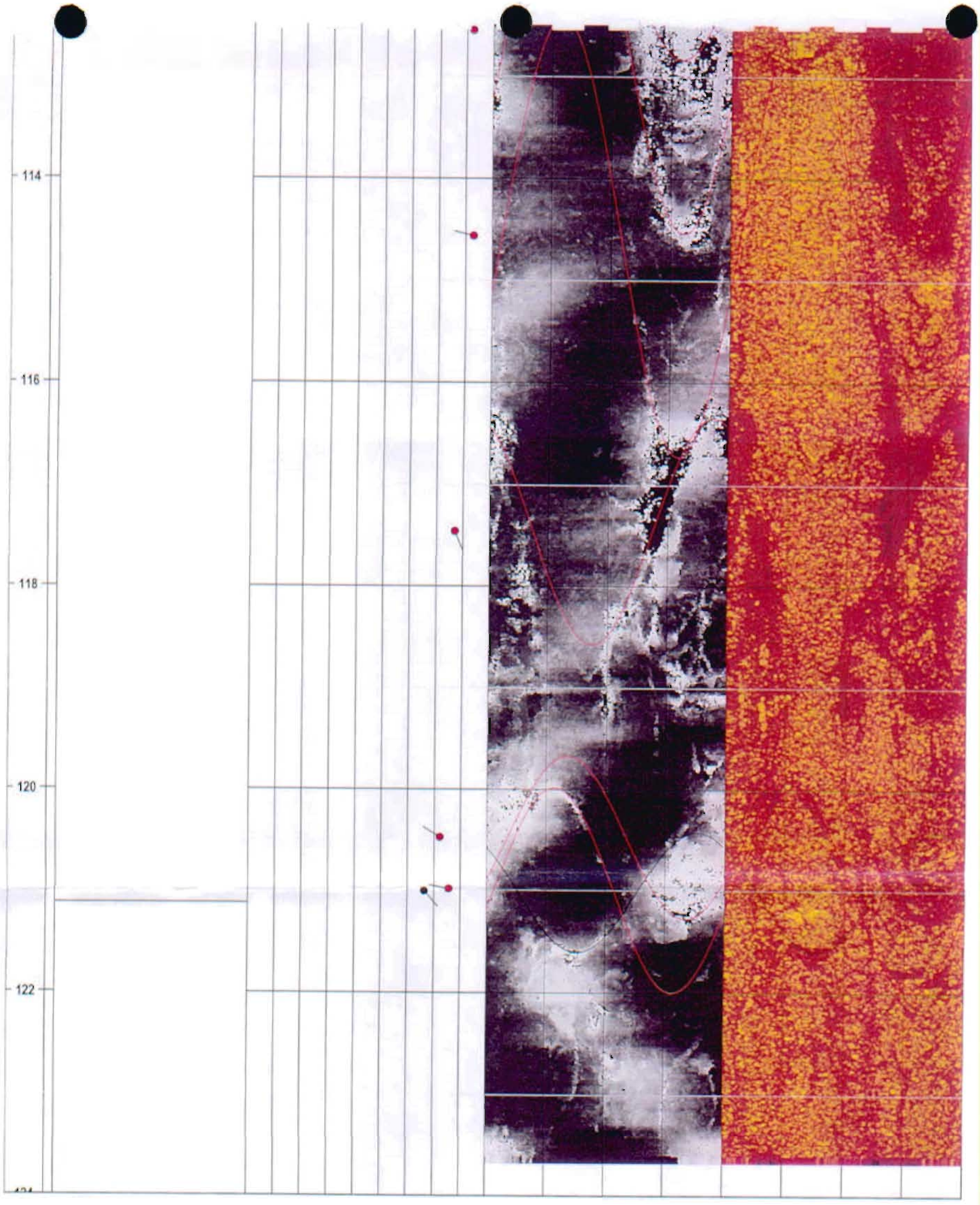



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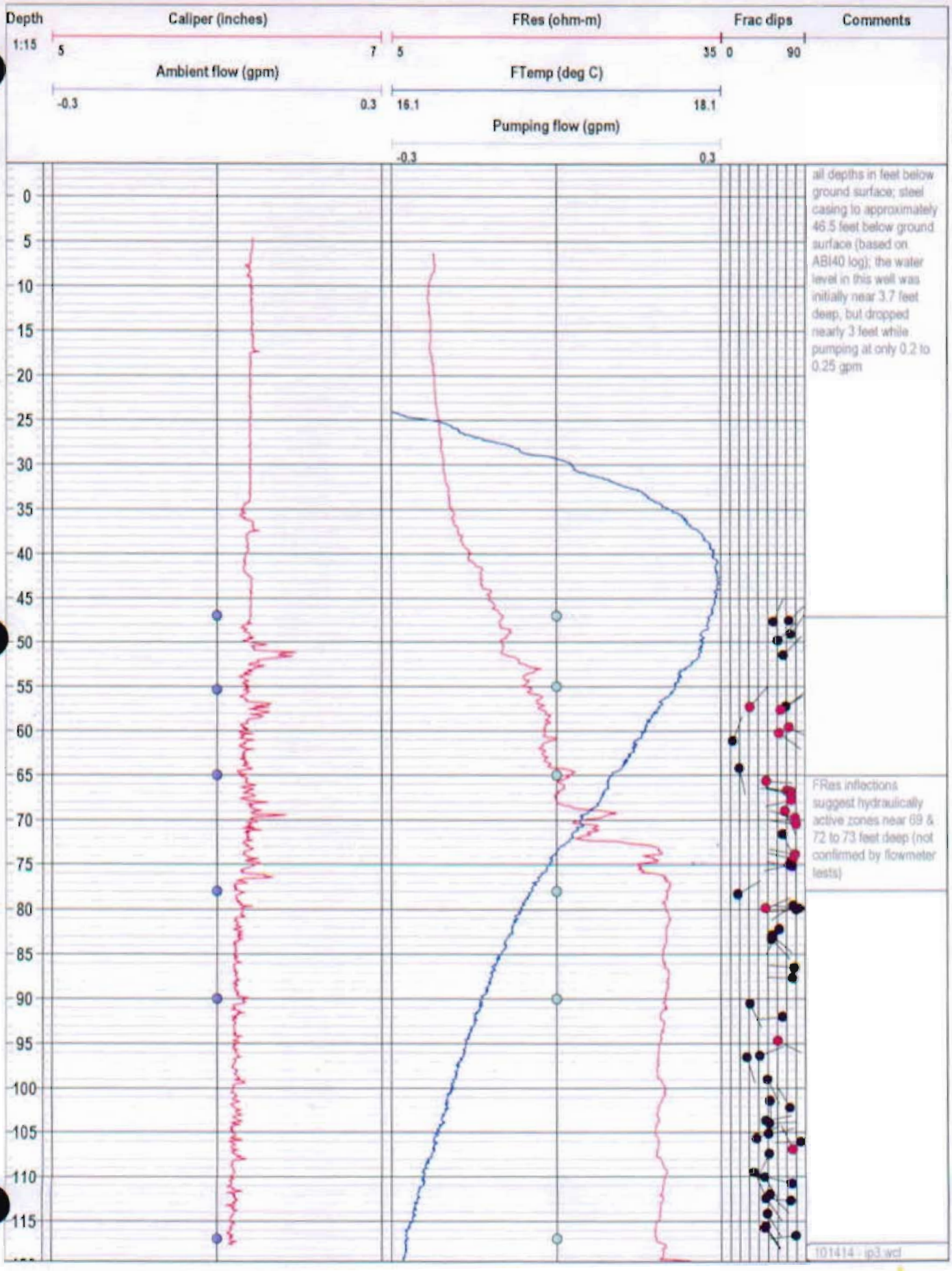

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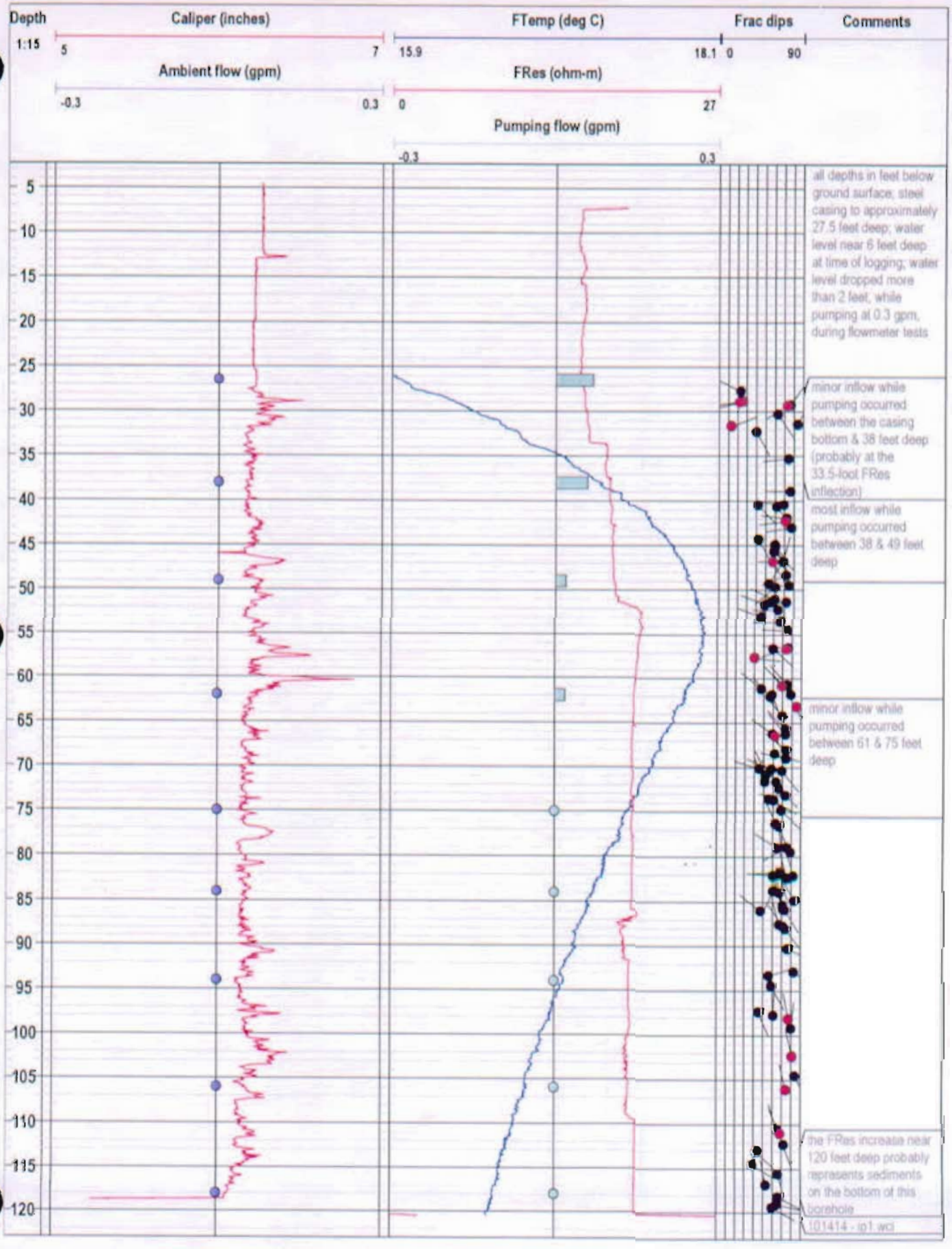

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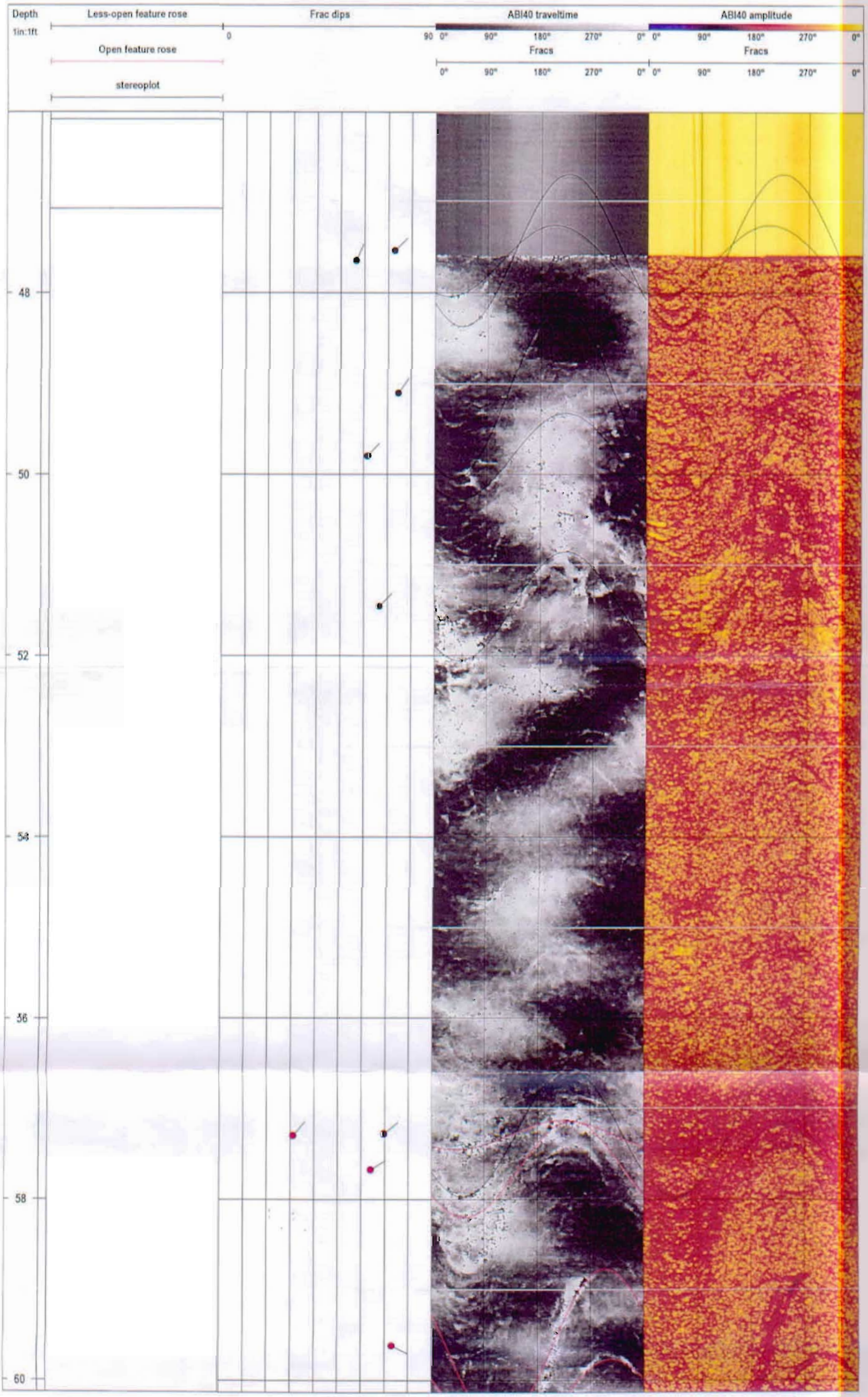
Project - Well: TRC/Wilmington, MA - IP-3 conventional logs

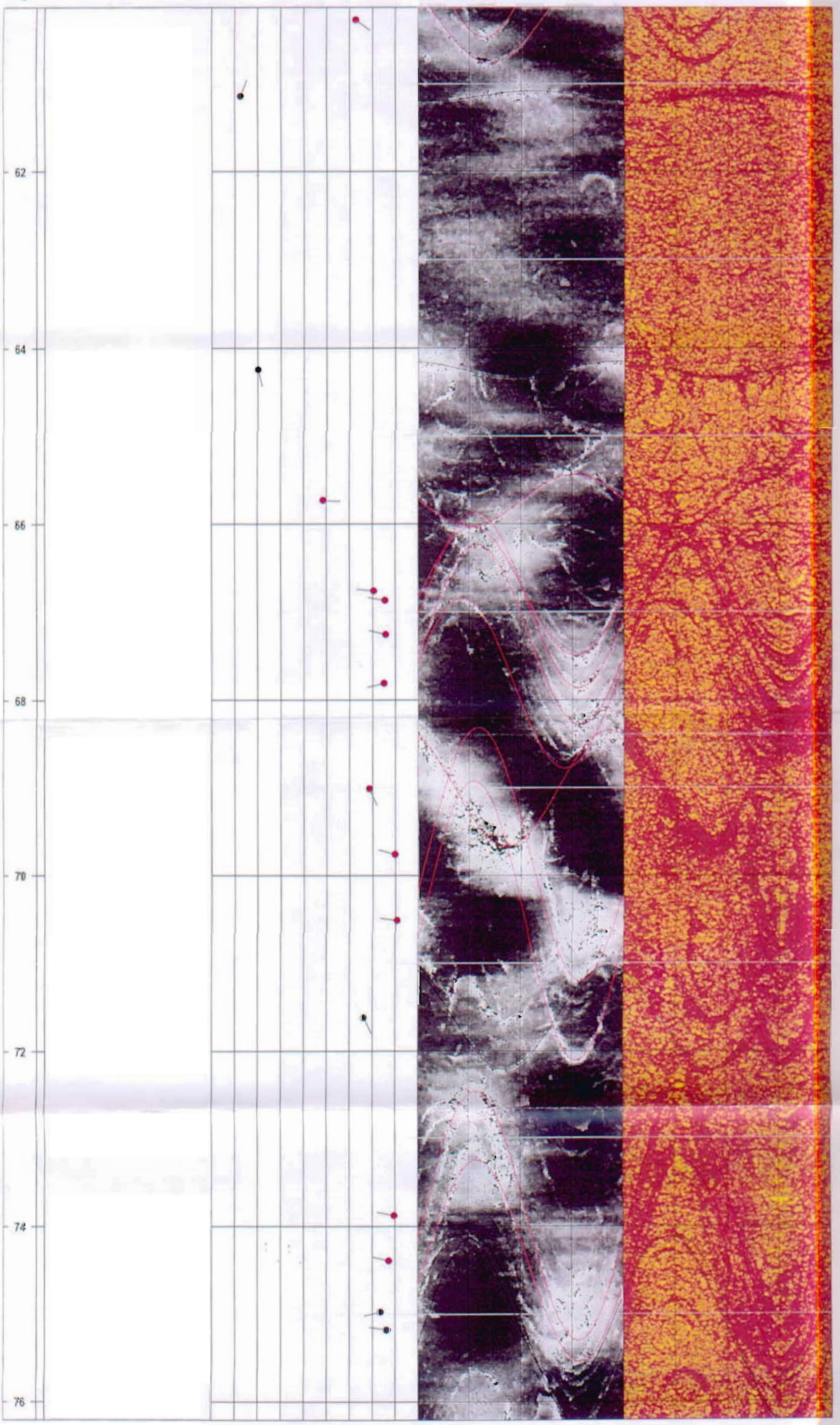


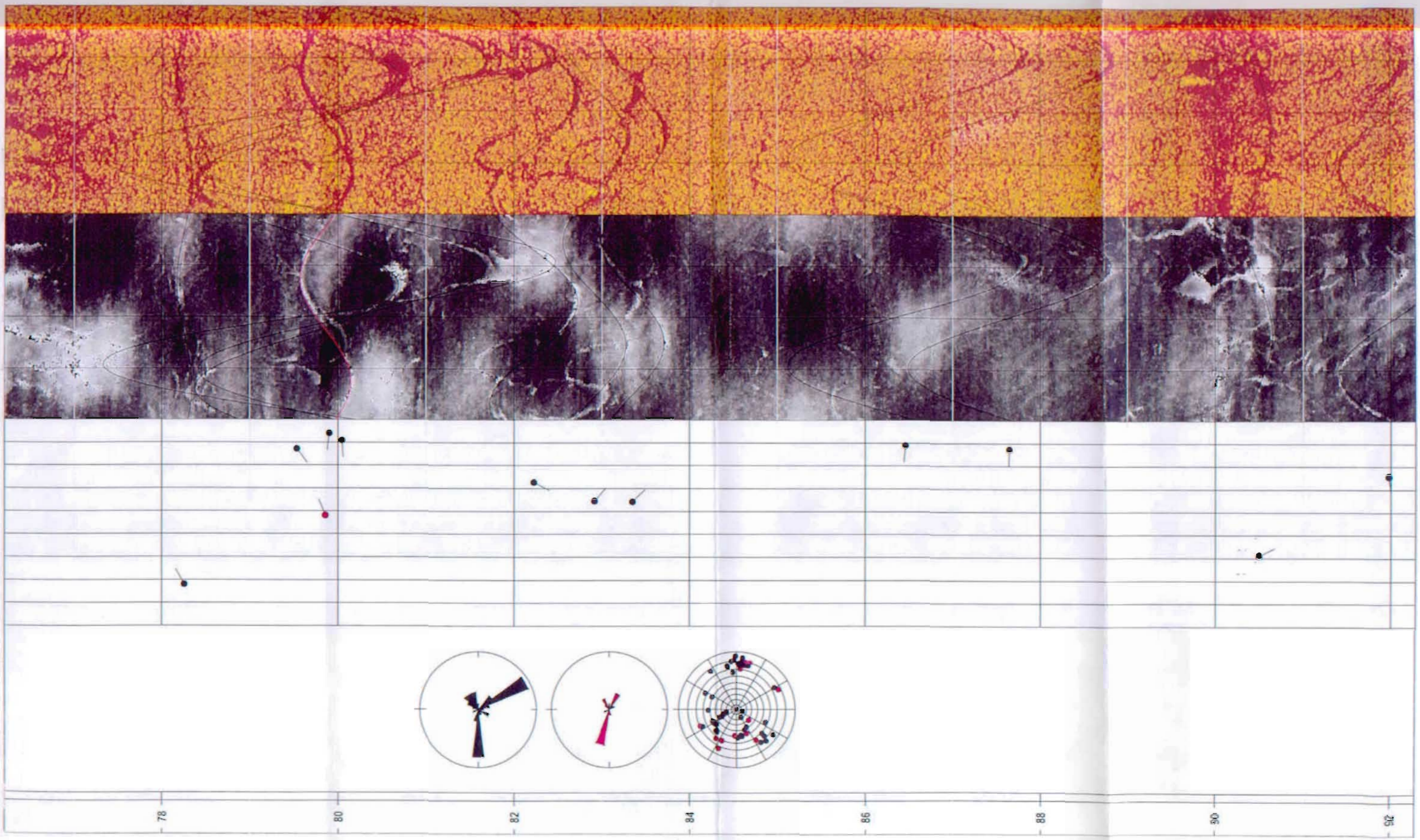
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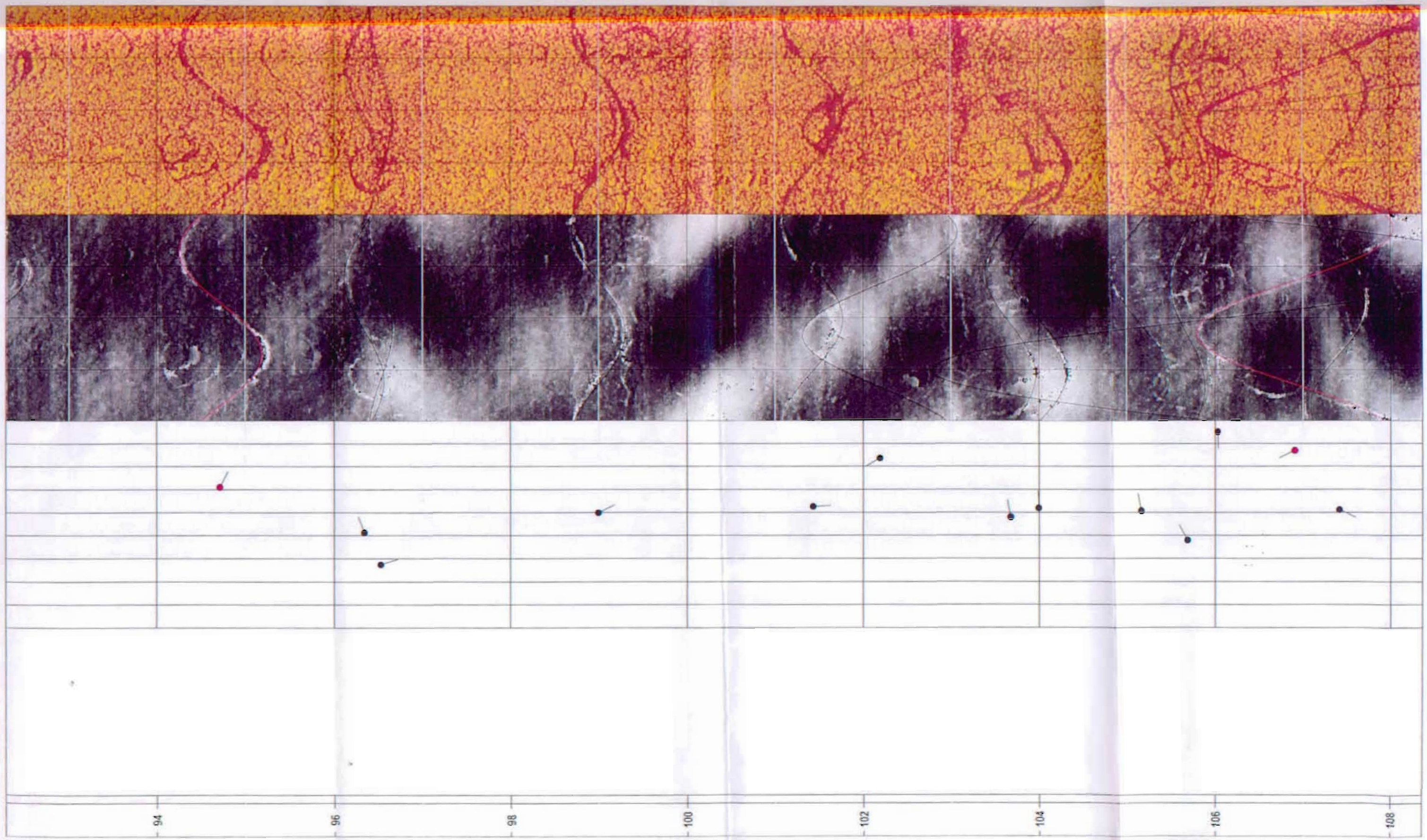


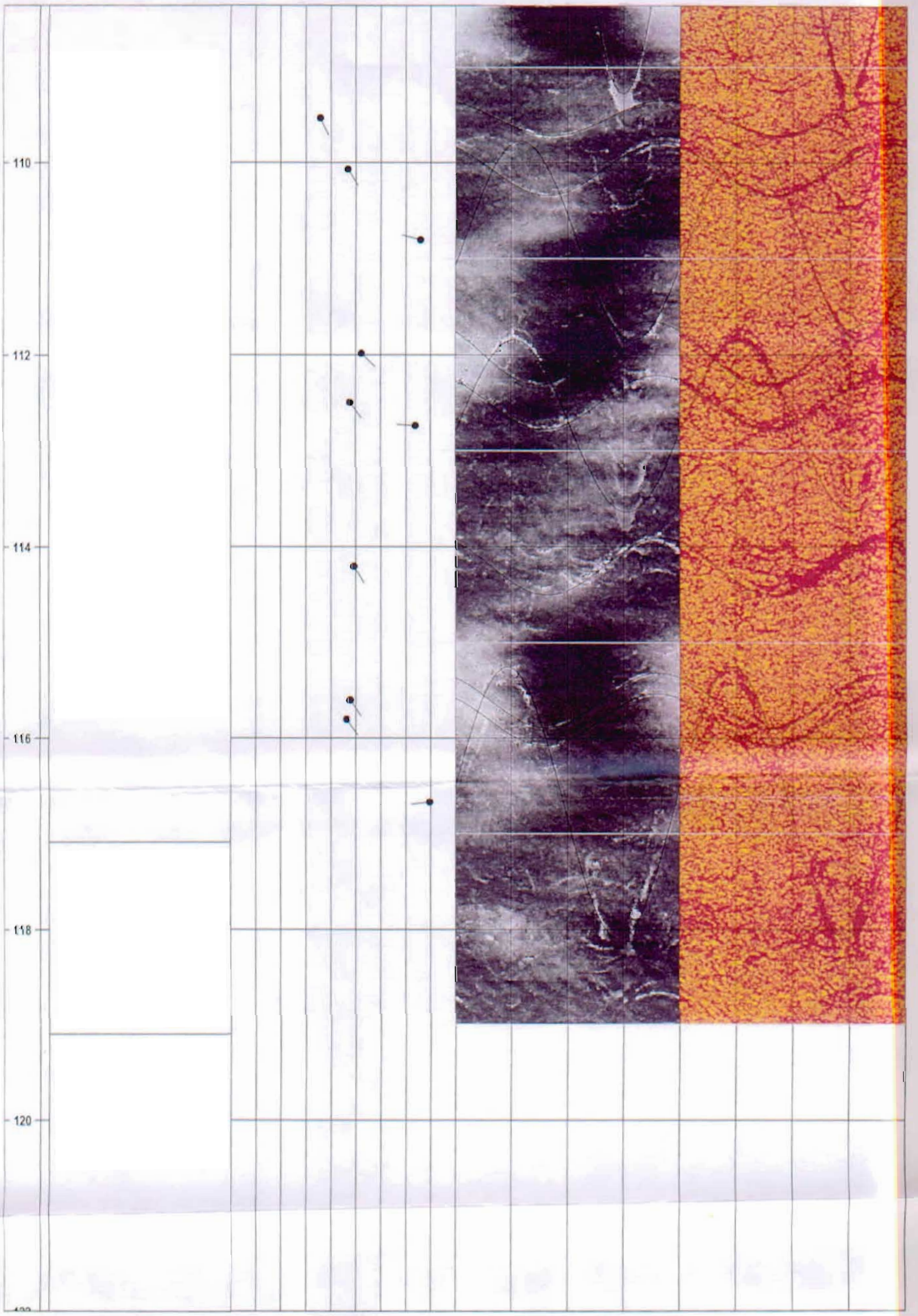
Project - Well: TRC/Wilmington, MA - IP-3 acoustic televiewer log



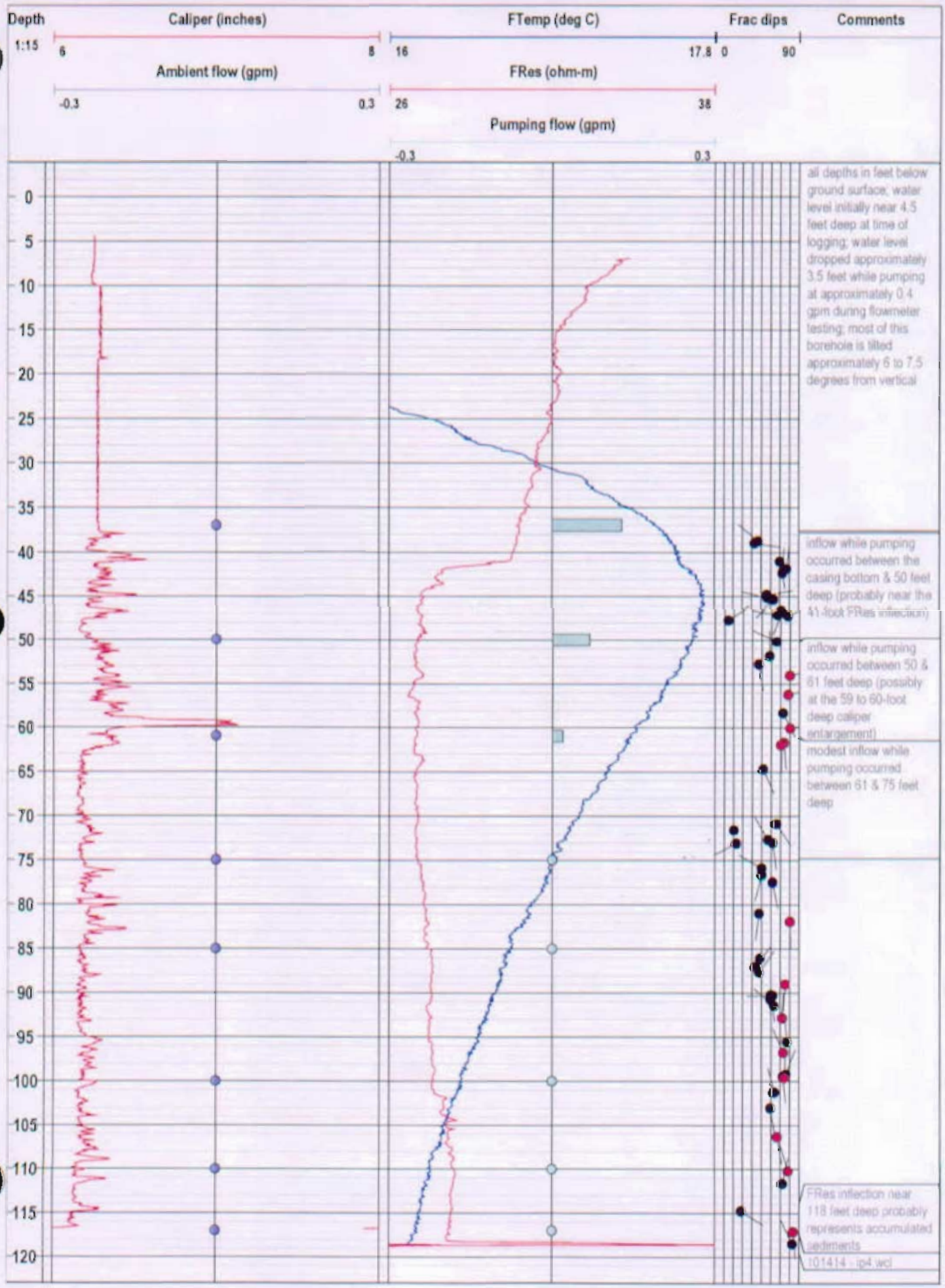

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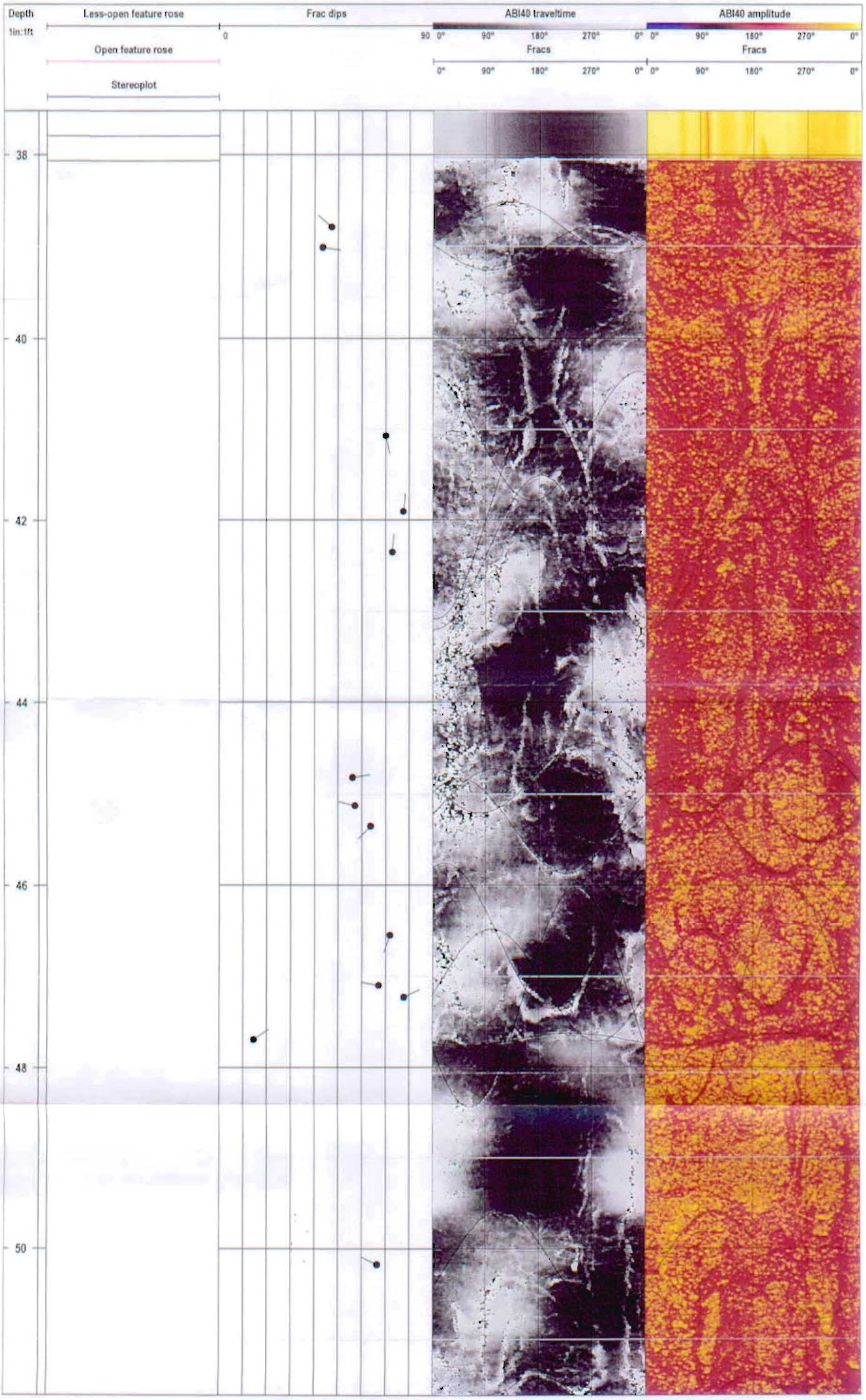

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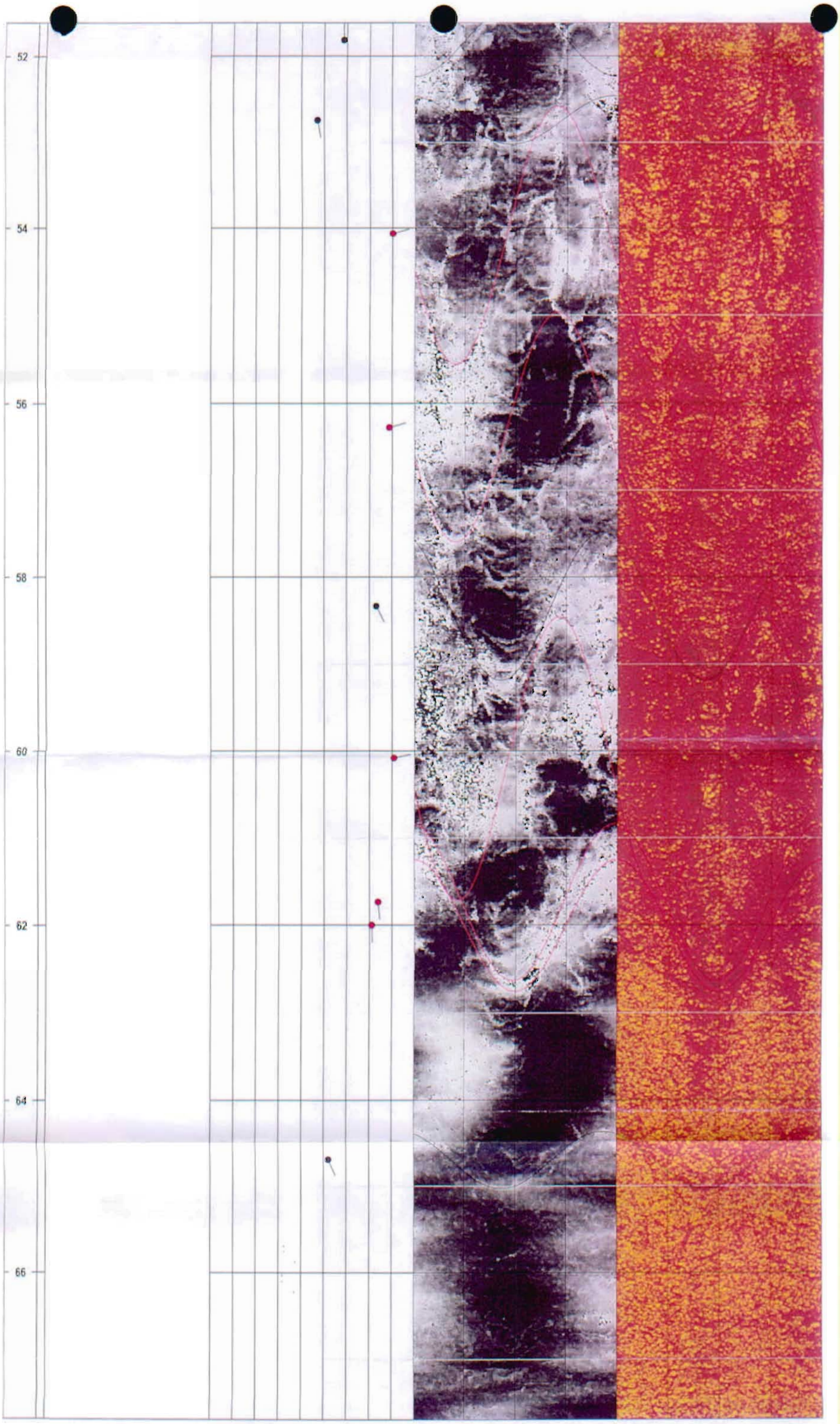

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Project - Well: TRC/Wilmington, MA - IP-4 conventional logs



Project - Well: TRC/Wilmington, MA - IP-4 acoustic televiewer log




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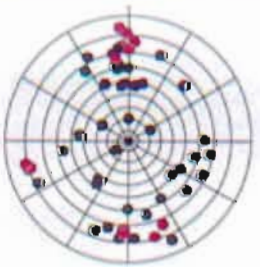
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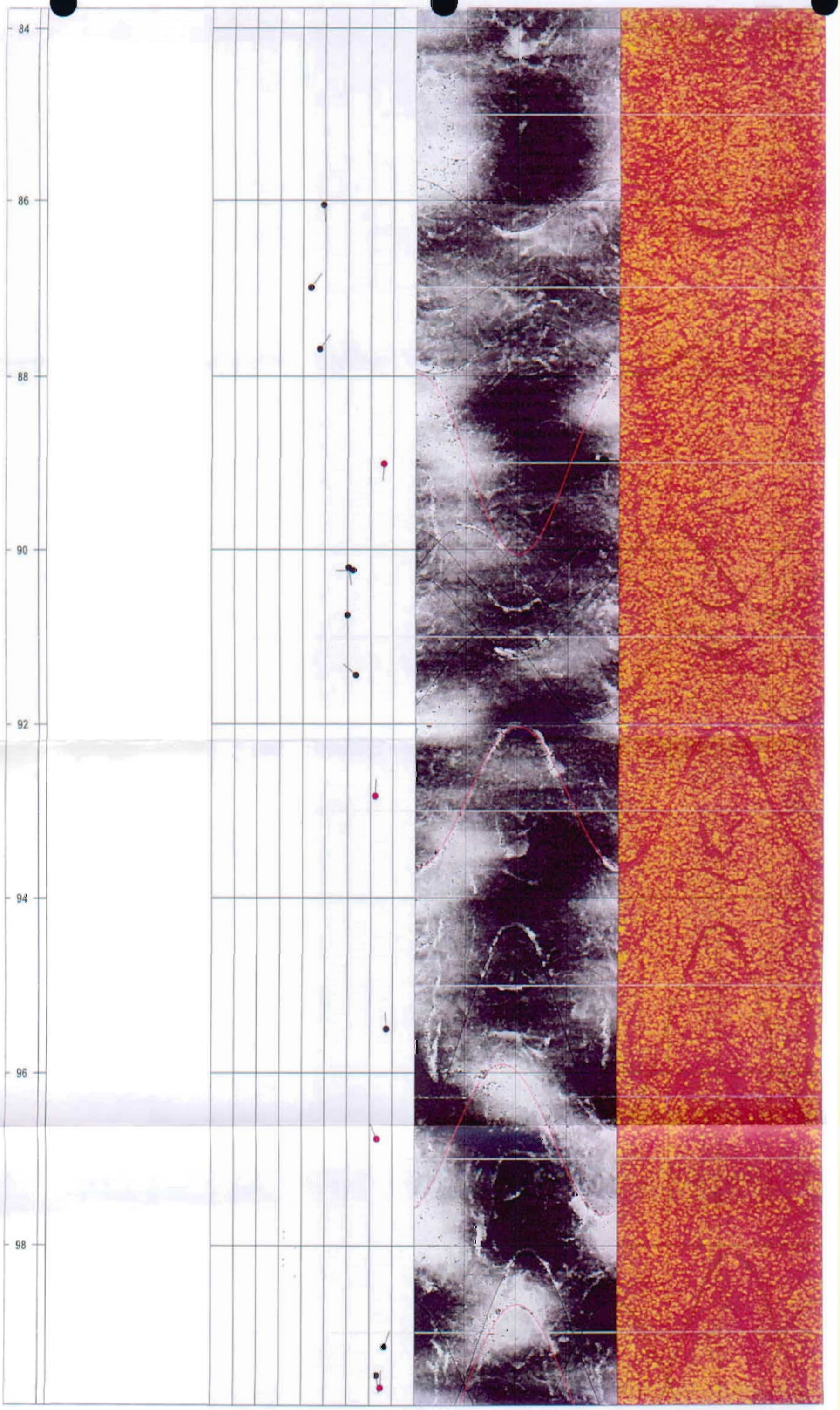
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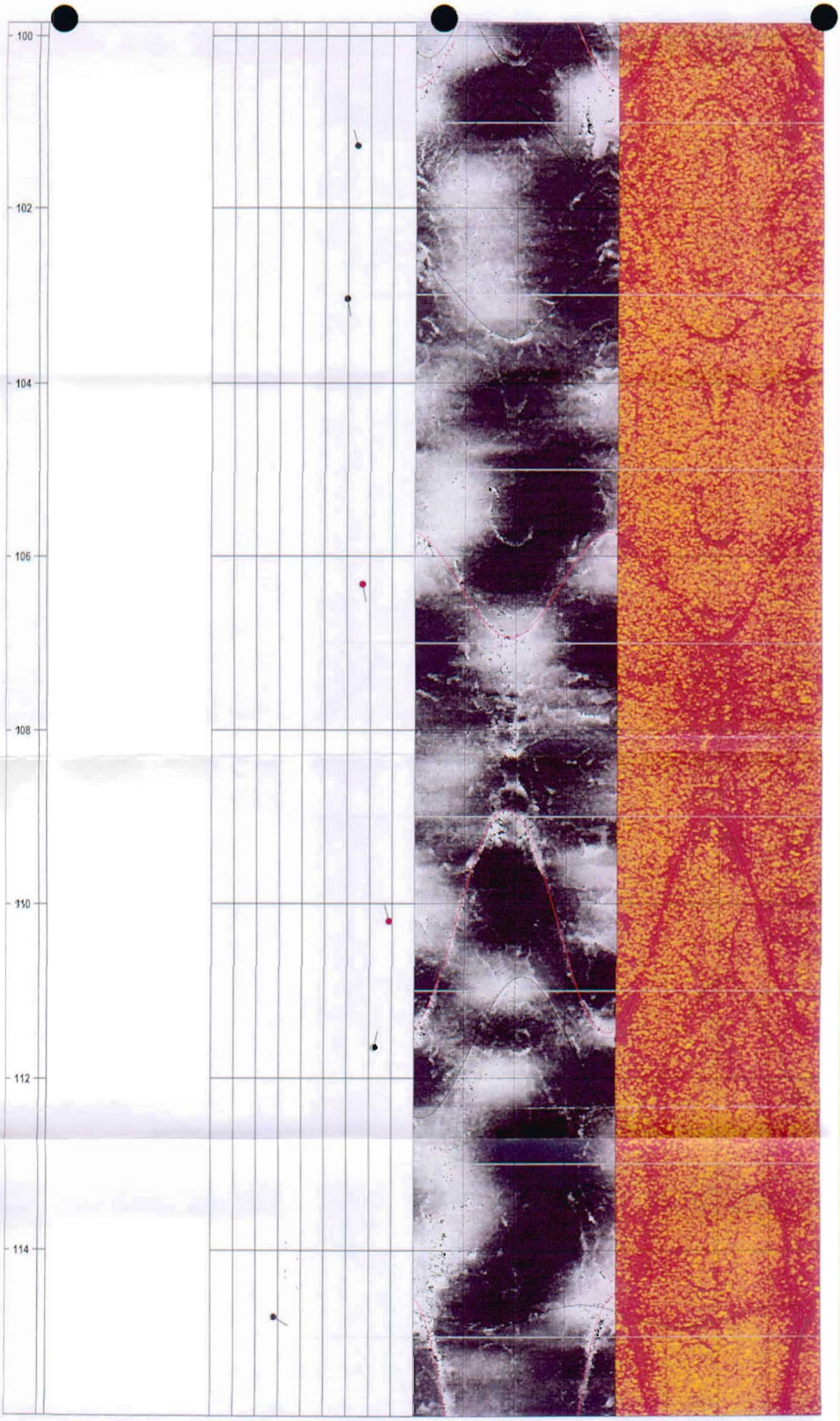
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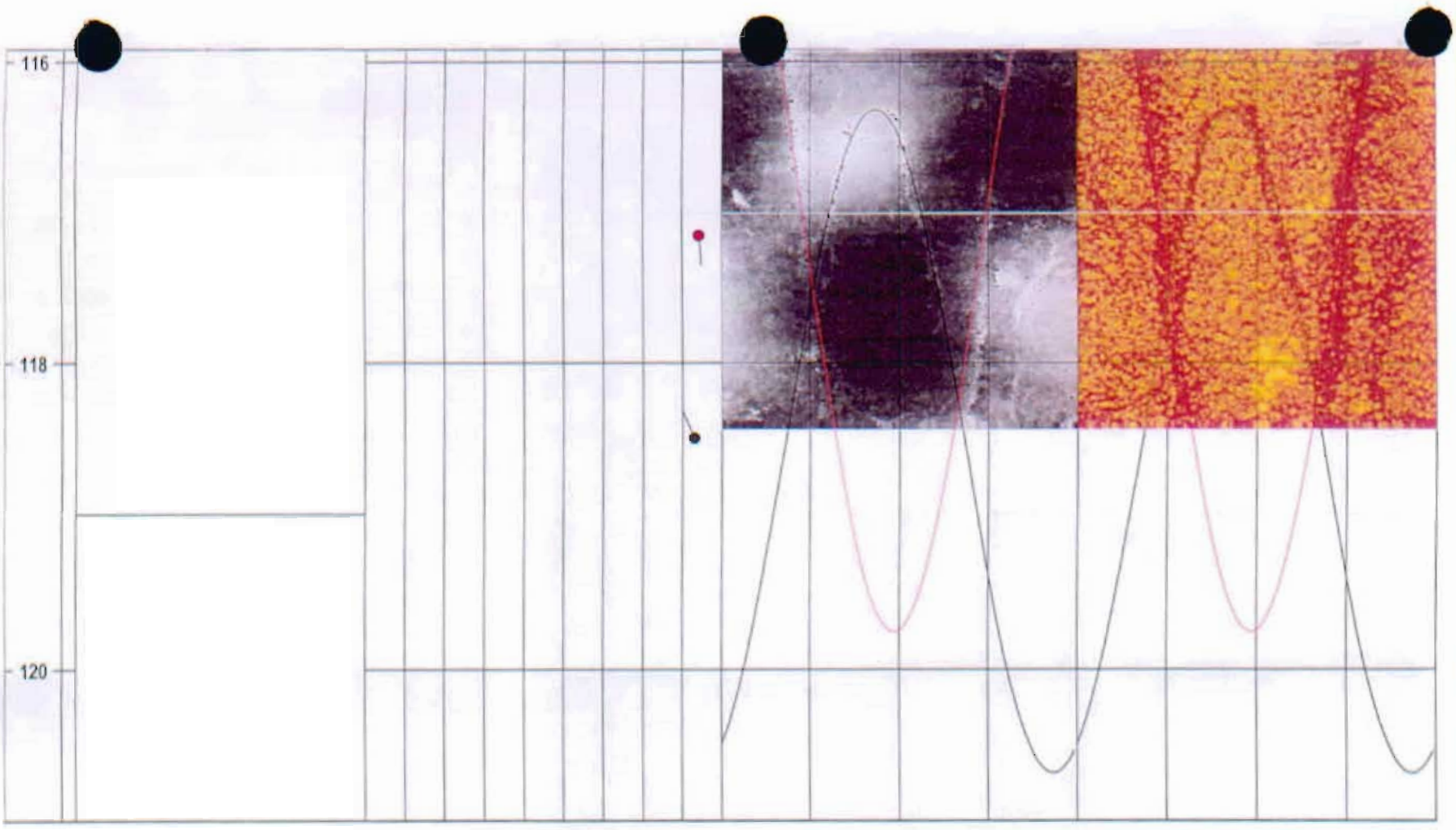







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Appendix B

Fracture Orientations Measured from Acoustic Televiewer Logs

Fracture Orientations from IP-1 Acoustic Televiewer Log
Former General Electric Site
Wilmington, Massachusetts
Prepared for TRC
101414-ip1i.wcl

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
27.73	296.1	23.3	100
28.88	262.0	26.2	105
28.99	257.1	22.1	105
29.25	33.9	76.8	100
29.31	238.8	73.5	105
30.34	144.5	63.1	100
31.48	26.7	84.1	100
31.64	70.4	13.8	105
32.26	151.0	40.8	100
35.32	264.5	74.7	100
38.95	271.7	76.9	100
40.41	275.9	69.6	100
40.49	135.3	42.0	100
40.68	141.1	62.1	100
41.98	275.4	73.3	100
42.32	263.3	71.3	105
43.03	263.1	78.0	100
44.30	150.4	42.7	100
44.89	144.8	60.7	100
45.07	154.4	61.1	100
45.61	133.2	59.8	100
45.68	132.4	59.2	100
46.79	15.0	69.4	100
46.81	270.4	69.6	100
46.90	149.2	58.5	105
48.32	249.9	72.6	100
49.27	32.8	53.9	100
49.52	274.3	75.4	100
49.69	233.0	60.8	100
51.08	294.1	60.7	100
51.33	220.8	56.6	100
51.37	270.5	72.5	100
51.62	291.5	49.9	100
52.22	270.2	63.7	100
52.98	290.1	46.4	100
53.47	267.9	67.7	100
54.48	272.9	75.9	100
56.52	274.8	76.5	100
56.62	130.5	60.2	100
56.65	254.7	74.7	105
57.62	96.1	40.4	105
60.67	319.4	75.3	100
60.87	319.3	69.9	105
61.16	309.6	47.8	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from IP-1 Acoustic Televiewer Log
Former General Electric Site
Wilmington, Massachusetts
Prepared for TRC
101414-ip1i.wcl

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
61.80	319.6	79.2	100
61.82	158.9	59.2	100
62.03	317.7	57.8	100
63.15	159.9	85.4	105
64.19	318.9	70.4	100
65.68	316.4	73.8	100
66.26	305.4	59.6	100
66.30	321.5	73.7	100
66.48	152.1	62.6	105
68.06	309.2	74.5	100
68.50	105.5	62.1	100
68.99	282.3	74.3	100
70.13	286.7	45.5	100
70.22	292.1	58.9	100
70.38	140.2	70.0	100
70.83	337.1	52.8	100
71.61	325.2	63.7	100
71.62	337.6	51.5	100
72.36	134.3	66.6	100
73.14	273.9	73.9	100
73.55	116.6	56.3	100
73.66	119.0	60.8	100
74.81	132.2	69.1	100
76.28	336.1	63.0	100
76.58	172.6	67.3	100
78.93	241.3	75.3	100
78.97	302.9	65.4	100
79.45	334.3	80.0	100
81.69	268.8	69.0	105
81.86	164.3	68.9	100
82.04	274.8	60.7	100
82.11	345.2	82.7	100
82.34	344.9	75.8	100
83.77	204.3	60.8	100
83.95	353.5	67.5	100
84.82	331.0	83.8	100
85.35	341.9	71.5	100
85.86	341.3	72.0	100
85.92	147.4	73.8	100
86.05	308.3	47.6	100
87.56	345.6	67.7	100
87.71	324.9	71.9	100
88.05	141.5	74.4	100
90.27	110.6	76.3	100

Fracture Orientations from IP-1 Acoustic Televiewer Log
Former General Electric Site
Wilmington, Massachusetts
Prepared for TRC
101414-ip1i.wcl

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
92.86	122.3	83.3	100
93.29	72.0	56.4	100
94.49	150.0	59.5	100
97.37	155.5	45.6	100
97.73	1.8	61.5	100
98.11	350.4	77.6	105
99.21	7.1	80.4	100
102.32	347.2	81.3	105
104.48	151.2	84.3	100
106.09	346.6	74.7	105
110.44	341.7	65.5	100
111.03	335.8	68.9	105
112.27	160.3	72.7	100
113.06	132.2	43.4	100
114.52	120.3	39.1	100
115.61	166.2	66.5	100
116.85	349.7	53.4	100
118.22	115.2	65.9	100
119.06	102.5	65.3	100
119.38	117.5	60.0	100

Fracture Orientations from IP-2 Acoustic Televiewer Log
Former General Electric Site
Wilmington, Massachusetts
Prepared for TRC
101414-ip2i.wcl

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
18.01	256.8	85.0	105
18.59	69.6	62.2	100
23.84	104.8	75.5	100
24.13	65.8	36.5	105
24.51	88.6	66.5	100
25.60	348.5	51.9	100
32.30	38.7	57.3	100
32.56	37.9	52.8	105
32.80	281.4	76.5	105
33.04	292.1	58.1	105
34.28	291.8	58.3	100
35.95	229.3	9.2	100
39.83	209.5	35.1	100
40.47	213.1	32.6	100
42.02	272.5	68.9	100
43.69	13.4	74.5	100
44.60	188.2	69.9	100
44.71	243.1	46.6	100
46.57	74.0	55.3	105
46.81	334.5	72.6	100
48.40	325.7	40.2	105
49.59	196.2	15.2	100
51.40	359.8	58.5	105
52.21	12.7	55.6	105
53.39	325.7	19.5	105
56.02	279.7	81.0	100
56.58	275.9	77.7	100
56.90	281.7	83.2	100
57.55	346.7	29.4	100
58.24	285.9	77.3	100
58.43	285.4	77.9	100
61.71	282.8	73.0	100
62.51	112.9	49.8	105
62.58	117.4	70.1	105
62.68	221.0	63.2	100
65.53	151.2	58.0	100
66.72	129.0	41.9	100
68.55	287.2	56.7	100
68.76	312.2	13.3	100
72.32	290.1	77.2	100
73.86	294.8	75.3	105
73.96	284.2	78.3	100
74.01	286.0	79.4	105
74.69	282.9	79.1	105

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from IP-2 Acoustic Televiewer Log
Former General Electric Site
Wilmington, Massachusetts
Prepared for TRC
101414-ip2i.wcl

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
75.46	286.9	81.1	105
76.04	193.6	65.2	100
76.43	284.2	78.9	100
76.89	191.1	66.9	100
77.87	74.0	49.1	100
78.02	210.7	73.2	100
79.05	151.3	58.5	100
80.89	81.3	64.5	100
82.55	86.8	75.2	100
83.37	60.7	47.4	100
85.97	290.2	75.9	105
86.52	147.7	65.9	100
87.09	141.5	64.2	105
88.37	288.6	71.2	100
92.84	38.1	19.4	100
94.48	123.3	62.0	100
95.70	351.4	22.3	100
98.27	279.2	81.0	100
99.41	4.7	71.5	100
100.73	293.7	66.3	105
101.49	307.0	69.4	105
101.97	315.5	70.9	105
102.92	289.3	46.1	105
102.97	295.9	76.9	105
104.41	195.5	75.2	100
104.52	325.8	80.5	100
104.56	198.8	67.4	100
106.14	155.3	54.9	100
107.06	292.5	66.7	105
107.51	173.1	80.4	100
109.50	32.0	34.4	100
110.12	358.8	39.5	100
110.73	307.1	53.7	100
111.69	286.1	77.4	105
112.55	290.0	82.7	105
114.56	285.5	83.2	105
117.46	157.1	77.1	105
120.47	301.6	72.3	105
120.99	281.9	75.8	105
121.01	137.9	66.6	100

Fracture Orientations from IP-3 Acoustic Televiewer Log
Former General Electric Site
Wilmington, Massachusetts
Prepared for TRC
101414-ip3i.wcl

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
47.54	46.8	72.9	100
47.65	24.0	56.6	100
49.10	35.1	74.9	100
49.80	43.2	61.8	100
51.46	44.1	66.9	100
57.27	53.6	69.9	100
57.29	41.9	31.4	105
57.67	57.5	64.2	105
59.62	115.4	73.3	105
60.27	125.6	62.9	105
61.14	21.2	12.7	100
64.25	167.7	20.3	100
65.73	93.2	48.7	105
66.76	275.9	70.7	105
66.87	280.9	75.6	105
67.26	283.6	76.0	105
67.81	257.9	75.2	105
69.01	155.2	68.8	105
69.76	286.1	80.0	105
70.52	277.9	80.8	105
71.62	153.6	66.5	100
73.88	281.2	79.8	105
74.39	283.9	77.4	105
74.98	257.9	73.9	100
75.18	278.8	76.3	100
78.26	59.7	18.3	100
79.54	235.5	77.5	100
79.86	66.7	48.3	105
79.90	276.9	84.3	100
80.05	267.2	81.1	100
82.23	207.6	62.9	100
82.92	131.2	54.7	100
83.35	134.9	54.4	100
86.46	276.0	79.2	100
87.65	272.3	77.5	100
90.50	153.5	31.1	100
91.98	264.3	65.8	100
94.72	115.8	61.2	105
96.34	68.4	41.4	100
96.53	162.6	27.6	100
99.00	154.4	50.0	100
101.43	178.2	52.8	100
102.19	329.2	73.8	100
103.68	79.7	48.3	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from IP-3 Acoustic Televiewer Log
Former General Electric Site
Wilmington, Massachusetts
Prepared for TRC
101414-ip3i.wcl

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
104.00	87.2	52.1	100
105.17	78.1	51.0	100
105.68	60.6	38.1	100
106.03	269.2	85.5	100
106.91	334.4	77.1	105
107.41	206.6	51.4	100
109.53	155.3	35.9	100
110.07	148.0	46.9	100
110.81	285.0	76.2	100
111.99	133.4	52.4	100
112.50	143.6	47.9	100
112.74	274.6	74.1	100
114.21	148.3	49.5	100
115.61	145.7	47.9	100
115.81	143.9	46.5	100
116.68	263.8	79.8	100

Fracture Orientations from IP-4 Acoustic Televiewer Log
Former General Electric Site
Wilmington, Massachusetts
Prepared for TRC
101414-ip4i.wcl

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
38.79	309.5	47.4	100
39.01	97.1	43.6	100
41.07	168.8	70.2	100
41.90	5.2	77.7	100
42.36	3.5	73.1	100
44.82	80.9	56.4	100
45.13	284.2	57.4	100
45.35	226.0	63.9	100
46.55	200.9	72.1	100
47.10	280.1	67.3	100
47.23	64.1	78.0	100
47.69	56.2	14.6	100
50.18	295.5	66.7	100
51.82	360.0	58.7	100
52.75	171.3	47.3	100
54.07	73.6	80.2	105
56.28	74.1	79.0	105
58.33	153.0	73.2	100
60.09	76.7	81.0	105
61.74	175.1	74.1	105
62.00	179.1	71.2	105
64.69	156.2	52.3	100
70.89	147.0	66.6	100
71.63	180.7	20.7	100
72.67	330.4	57.2	100
73.02	171.6	62.3	100
73.11	243.0	23.2	100
75.87	299.9	50.8	100
76.62	194.5	50.4	100
77.47	168.1	61.9	100
81.00	187.4	47.5	100
81.91	178.5	81.0	105
86.05	175.2	49.1	100
87.00	37.6	43.7	100
87.69	35.6	47.7	100
89.01	183.5	76.1	105
90.21	171.9	60.7	100
90.24	269.1	62.6	100
90.75	178.9	60.0	100
91.44	311.8	63.7	100
92.84	2.7	72.4	105
95.50	356.2	77.6	100
96.77	337.2	73.5	105
99.17	20.9	76.7	100

Note that down-dip compass azimuth is perpendicular to the strike direction.

Note that interpreted down-dip compass azimuths are with respect to magnetic north.

Fracture Orientations from IP-4 Acoustic Televiewer Log
Former General Electric Site
Wilmington, Massachusetts
Prepared for TRC
101414-ip4i.wcl

depth (feet)	down-dip compass azimuth (degrees)	dip angle (degrees)	fracture category (open = 105 closed = 100)
99.49	173.1	73.4	100
99.64	2.4	75.0	105
101.27	345.4	64.5	100
103.05	170.1	59.9	100
106.33	170.1	67.0	105
110.20	344.5	78.7	105
111.65	12.7	72.4	100
114.77	120.7	28.2	100
117.15	175.1	84.4	105
118.50	335.9	83.3	100

APPENDIX F

LABORATORY REPORTS FOR WELL SAMPLES

Woods Hole Group
Environmental Laboratories

ANALYTICAL REPORT

Prepared for:
TRC Environmental
Boott Mills South
Foot of John Street
Lowell, MA 01852

Project:	Former GE - Wetlands
ETR:	0305040
Report Date:	May 27, 2003

Certifications and Accreditations
Massachusetts MA030
Connecticut PH-0141
New Hampshire 220602
Rhode Island 64
New Jersey MA015
Maine MA030
New York 11627
Louisiana 03090
Army Corps of Engineers
Department of the Navy
Florida E87814

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375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

CASE NARRATIVE

Woods Hole Group Environmental Laboratories

ETR: 0305040
Project: Former GE-Wetlands

All analyses were performed according to Woods Hole Group's documented Standard Operating Procedures (SOPs), within holding time and with appropriate quality control measures except where noted. Blank correction of results is not performed in the laboratory for any parameter. Soil/sediment samples are reported on a dry weight basis unless otherwise noted.

Volatile Organics by 8260B-MCP

1. The initial calibration analyzed on 5/12/03 had compounds above the 15% RSD QC acceptance limit. Refer to the Form VI initial calibration summary report for specific outliers.

2. The continuing calibration analyzed on 5/14/03 had a value for Bromomethane above the 30% D QC acceptance limit at 37% D.

The enclosed results of analyses are representative of the samples as received by the laboratory. Woods Hole Group makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Woods Hole Group. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved by: Edith Hatchway Date: 5/27/03
Woods Hole Group Environmental Laboratories

VOLATILE ORGANICS

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**
Client ID: **TRC-301R-A**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **0305040-01**
Associated Blank: **VW051403B17**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
05/06/03	05/06/03	05/14/03	5	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	7.7	
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl ether	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl tertiary butyl ether	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	4.3		Bromobenzene	2.0	U
cis-1,2-Dichloroethene	25		1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary amyl methyl ether	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	41		n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	50	U	1,2,4-Trichlorobenzene	2.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	2.0	U
			1,2,3-Trichlorobenzene	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	97	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

05/22/03 13:05

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**
Client ID: **TRC-301R-B**
Case: N/A SDG: N/A
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **0305040-02**
Associated Blank: **VW051403B17**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
05/06/03	05/06/03	05/14/03	5	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	**6.5**	
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl ether	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl tertiary butyl ether	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	**4.5**		Bromobenzene	2.0	U
cis-1,2-Dichloroethene	**23**		1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary amyl methyl ether	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	**39**		n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	50	U	1,2,4-Trichlorobenzene	2.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	2.0	U
			1,2,3-Trichlorobenzene	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	98	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**
Client ID: **TRC-301R-C**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **0305040-03**
Associated Blank: **VW051403B17**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
05/06/03	05/06/03	05/14/03	5	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	6.9	
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl ether	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl tertiary butyl ether	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	4.4		Bromobenzene	2.0	U
cis-1,2-Dichloroethene	22		1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary amyl methyl ether	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	38		n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	50	U	1,2,4-Trichlorobenzene	2.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	2.0	U
			1,2,3-Trichlorobenzene	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	98	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**
Client ID: **TRC-301R-D**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **0305040-04**
Associated Blank: **VW051403B17**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
05/06/03	05/06/03	05/14/03	5	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	7.5	
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl ether	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl tertiary butyl ether	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	4.5		Bromobenzene	2.0	U
cis-1,2-Dichloroethene	22		1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary amyl methyl ether	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	38		n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	50	U	1,2,4-Trichlorobenzene	2.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	2.0	U
			1,2,3-Trichlorobenzene	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	96	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

05/22/03 13:05

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**
Client ID: **TRC-301R-E**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **0305040-05**
Associated Blank: **VW051403B17**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
05/06/03	05/06/03	05/14/03	5	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	**7.8**	
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl ether	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl tertiary butyl ether	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	**4.6**		Bromobenzene	2.0	U
cis-1,2-Dichloroethene	**21**		1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary amyl methyl ether	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	**39**		n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	50	U	1,2,4-Trichlorobenzene	2.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	2.0	U
			1,2,3-Trichlorobenzene	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	100	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	97	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

05/22/03 13:05

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**
Client ID: **TRC-301R-F**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **0305040-06**
Associated Blank: **VW051403B17**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
05/06/03	05/06/03	05/14/03	5	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	**7.6**	
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl ether	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl tertiary butyl ether	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	**4.5**		Bromobenzene	2.0	U
cis-1,2-Dichloroethene	**20**		1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary amyl methyl ether	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	**37**		n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	50	U	1,2,4-Trichlorobenzene	2.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	2.0	U
			1,2,3-Trichlorobenzene	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	100	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	98	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

05/22/03 13:05

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**
Client ID: **TB-01**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **0305040-07**
Associated Blank: **VW051403B17**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
05/01/03	05/06/03	05/14/03	5	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	2.0	U
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl ether	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl tertiary butyl ether	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	2.0	U	Bromobenzene	2.0	U
cis-1,2-Dichloroethene	2.0	U	1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary amyl methyl ether	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	2.0	U	n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	50	U	1,2,4-Trichlorobenzene	2.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	2.0	U
			1,2,3-Trichlorobenzene	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	99	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	95	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **VW051403B17**
Associated Blank: **N/A**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/14/03	5	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	2.0	U
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl ether	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl tertiary butyl ether	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	2.0	U	Bromobenzene	2.0	U
cis-1,2-Dichloroethene	2.0	U	1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary amyl methyl ether	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	2.0	U	n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	50	U	1,2,4-Trichlorobenzene	2.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	2.0	U
			1,2,3-Trichlorobenzene	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	99	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	98	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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QUALITY CONTROL RESULTS

Form II
Surrogate Recovery
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**

Lab Code: **MA00030**
ETR: **0305040**
Matrix: **Water**

Case: N/A SDG: N/A

Client ID	Lab ID	Dibromofluoromethane	Toluene-d8	4-Bromofluorobenzene
Laboratory Control Sample	VW051403L13	101	100	100
Blank	VW051403B17	99	99	98
TB-01	0305040-07	99	99	95
TRC-301R-A	0305040-01	100	98	97
TRC-301R-B	0305040-02	100	98	98
TRC-301R-C	0305040-03	100	98	98
TRC-301R-D	0305040-04	100	98	96
TRC-301R-E	0305040-05	100	99	97
TRC-301R-F	0305040-06	100	100	98

N/A - Not Applicable

Surrogate	QC Limit
Dibromofluoromethane	70-130
Toluene-d8	70-130
4-Bromofluorobenzene	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **VW051403L13**
Associated Blank: **VW051403B17**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/14/03	5	5	1	MLR

Parameter	Conc.	% Recovery	% Recovery Limits
Dichlorodifluoromethane	21	105	70-130
Chloromethane	21	106	70-130
Vinyl chloride	22	109	70-130
Bromomethane	15	75	70-130
Chloroethane	21	105	70-130
Trichlorofluoromethane	25	127	70-130
Diethyl ether	23	113	70-130
Acetone	20	98	70-130
1,1-Dichloroethene	21	106	70-130
Carbon disulfide	19	97	70-130
Methylene chloride	21	103	70-130
Methyl tert-butyl ether (MTBE)	19	97	70-130
trans-1,2-Dichloroethene	20	102	70-130
Diisopropyl ether	20	98	70-130
1,1-Dichloroethane	21	103	70-130
Ethyl tertiary butyl ether	20	100	70-130
2-Butanone (MEK)	20	101	70-130
cis-1,2-Dichloroethene	20	101	70-130
2,2-Dichloropropane	20	100	70-130
Bromochloromethane	20	102	70-130
Chloroform	20	100	70-130
1,1,1-Trichloroethane	20	101	70-130
1,1-Dichloropropene	21	103	70-130
Carbon tetrachloride	20	102	70-130
Benzene	20	100	70-130
Tertiary amyl methyl ether	20	101	70-130
Tetrahydrofuran	21	106	70-130
1,2-Dichloroethane	20	99	70-130
Trichloroethene	20	100	70-130
1,2-Dichloropropane	20	101	70-130
Dibromomethane	20	98	70-130
1,4-Dioxane	100	104	70-130
Bromodichloromethane	20	98	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**
Client ID: **Laboratory Control Sample**
Case: N/A SDG: N/A
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **VW051403L13**
Associated Blank: **VW051403B17**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/14/03	5	5	1	MLR

Parameter	Conc.	% Recovery	% Recovery Limits
Methyl isobutyl ketone (MIBK)	20	100	70-130
1,3-Dichloropropene, Total	40	100	70-130
Toluene	20	98	70-130
1,1,2-Trichloroethane	20	102	70-130
2-Hexanone	21	103	70-130
Tetrachloroethene	21	104	70-130
1,3-Dichloropropane	20	101	70-130
Dibromochloromethane	21	103	70-130
1,2-Dibromoethane	20	102	70-130
Chlorobenzene	20	98	70-130
1,1,1,2-Tetrachloroethane	21	104	70-130
Ethylbenzene	20	98	70-130
Xylenes, Total	59	99	70-130
Styrene	20	99	70-130
Bromoform	21	103	70-130
Isopropylbenzene	20	101	70-130
1,1,2,2-Tetrachloroethane	20	101	70-130
Bromobenzene	19	96	70-130
1,2,3-Trichloropropane	20	101	70-130
n-Propylbenzene	20	100	70-130
2-Chlorotoluene	19	97	70-130
1,3,5-Trimethylbenzene	20	101	70-130
4-Chlorotoluene	20	98	70-130
tert-Butylbenzene	20	100	70-130
1,2,4-Trimethylbenzene	20	99	70-130
sec-Butylbenzene	20	100	70-130
1,3-Dichlorobenzene	20	100	70-130
p-Isopropyltoluene	20	102	70-130
1,4-Dichlorobenzene	20	98	70-130
n-Butylbenzene	20	102	70-130
1,2-Dibromo-3-chloropropane	19	94	70-130
1,2-Dichlorobenzene	20	99	70-130
1,2,4-Trichlorobenzene	20	101	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **VW051403L13**
Associated Blank: **VW051403B17**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/14/03	5	5	1	MLR

Parameter	Conc.	% Recovery	% Recovery Limits
Hexachlorobutadiene	22	109	70-130
Naphthalene	20	100	70-130
1,2,3-Trichlorobenzene	20	100	70-130

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	101	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/22/03 12:07

Form IV
Method Blank Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **VW051403B17**
Date Analyzed: **05/14/03 13:24**

Client ID	Lab ID	Date/Time Analyzed
Laboratory Control Sample	VW051403L13	05/14/03 12:55
TB-01	0305040-07	05/14/03 13:53
TRC-301R-A	0305040-01	05/14/03 14:22
TRC-301R-B	0305040-02	05/14/03 14:50
TRC-301R-C	0305040-03	05/14/03 15:19
TRC-301R-D	0305040-04	05/14/03 15:48
TRC-301R-E	0305040-05	05/14/03 16:17
TRC-301R-F	0305040-06	05/14/03 16:46

N/A - Not Applicable

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Form V
Tune Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **T1051201**
Date Analyzed: **05/12/03 12:58**

Target Mass	Relative To Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result
50	95	15	40	18.4	45976	Pass
75	95	30	60	41.5	103648	Pass
95	95	100	100	100	249579	Pass
96	95	5	9	6.8	16859	Pass
173	174	0	2	0	0	Pass
174	95	50	100	83	207040	Pass
175	174	5	9	7.4	15327	Pass
176	174	95	101	95.8	198336	Pass
177	176	5	9	6.5	12880	Pass

Client ID	Lab ID	Date/Time Analyzed
Initial Calibration	I1051201	05/12/03 13:27
Initial Calibration	I1051202	05/12/03 13:56
Initial Calibration	I1051203	05/12/03 14:25
Initial Calibration	I1051204	05/12/03 14:53
Initial Calibration	I1051205	05/12/03 15:22
Initial Calibration	I1051206	05/12/03 15:51

N/A - Not Applicable

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Form V
Tune Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **T1051401**
Date Analyzed: **05/14/03 11:57**

Target Mass	Relative To Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result
50	95	15	40	18.1	45419	Pass
75	95	30	60	42.8	107771	Pass
95	95	100	100	100	251520	Pass
96	95	5	9	6.4	16083	Pass
173	174	0	2	0	0	Pass
174	95	50	100	82.1	206421	Pass
175	174	5	9	7.7	15954	Pass
176	174	95	101	97.5	201216	Pass
177	176	5	9	6.5	13174	Pass

Client ID	Lab ID	Date/Time Analyzed
CCV	C1051401	05/14/03 12:26
Laboratory Control Sample	VW051403L13	05/14/03 12:55
Blank	VW051403B17	05/14/03 13:24
TB-01	0305040-07	05/14/03 13:53
TRC-301R-A	0305040-01	05/14/03 14:22
TRC-301R-B	0305040-02	05/14/03 14:50
TRC-301R-C	0305040-03	05/14/03 15:19
TRC-301R-D	0305040-04	05/14/03 15:48
TRC-301R-E	0305040-05	05/14/03 16:17
TRC-301R-F	0305040-06	05/14/03 16:46

N/A - Not Applicable

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**

Project: **Former GE - Wetlands** ETR: **0305040**

Case: **N/A** SDG: **N/A**

Lab ID	Date/Time Analyzed
I1051201	05/12/03 13:27
I1051202	05/12/03 13:56
I1051203	05/12/03 14:25
I1051204	05/12/03 14:53
I1051205	05/12/03 15:22
I1051206	05/12/03 15:51

	Response Factors							
Parameter	**1**	**5**	**20**	**50**	**100**	**200**	**Mean**	**% RSD**
Dichlorodifluoromethane	0.474	0.562	0.666	0.694	0.638	0.613	0.608	13.1
Chloromethane	0.486	0.416	0.440	0.479	0.458	0.432	0.452	6.0
Vinyl chloride	0.258	0.248	0.268	0.278	0.262	0.280	0.266	4.7
Bromomethane	0.174	0.306	0.264	0.094	0.087		0.185	53.1[a]
Chloroethane	0.118	0.123	0.121	0.119	0.104		0.117	6.4
Trichlorofluoromethane	0.524	0.536	0.594	0.616	0.586	0.552	0.568	6.4
Diethyl ether	0.141	0.149	0.166	0.168	0.164	0.164	0.159	7.0
Acetone		0.166	0.143	0.137	0.134	0.128	0.142	10.5
1,1-Dichloroethene	0.345	0.345	0.389	0.390	0.379	0.376	0.371	5.5
Carbon disulfide	0.583	0.589	0.655	0.664	0.655	0.647	0.632	5.8
Methylene chloride		0.188	0.212	0.205	0.197	0.191	0.199	5.0
Methyl tert-butyl ether (MTBE)	0.741	0.655	0.731	0.693	0.677	0.657	0.692	5.3
trans-1,2-Dichloroethene	0.319	0.295	0.338	0.331	0.318	0.320	0.320	4.6
Diisopropyl ether	1.686	1.561	1.638	1.594	1.513	1.359	1.558	7.4
1,1-Dichloroethane	0.756	0.714	0.770	0.747	0.702	0.655	0.724	5.9
Ethyl tertiary butyl ether	1.334	1.264	1.352	1.330	1.289	1.250	1.303	3.2
2-Butanone (MEK)	0.367	0.330	0.340	0.330	0.310	0.295	0.329	7.6
cis-1,2-Dichloroethene	0.705	0.646	0.711	0.695	0.668	0.667	0.682	3.8
2,2-Dichloropropane	0.592	0.553	0.604	0.587	0.555	0.554	0.574	4.0
Bromochloromethane	0.274	0.278	0.304	0.303	0.290	0.279	0.288	4.5
Chloroform	0.851	0.811	0.898	0.876	0.841	0.835	0.852	3.6
1,1,1-Trichloroethane	0.640	0.601	0.666	0.667	0.642	0.651	0.645	3.8
1,1-Dichloropropene	0.689	0.580	0.640	0.599	0.561	0.537	0.601	9.2
Carbon tetrachloride	0.500	0.456	0.530	0.538	0.523	0.542	0.515	6.3
Benzene	1.793	1.663	1.813	1.739	1.659	1.569	1.706	5.4
Tertiary amyl methyl ether	1.247	1.207	1.332	1.282	1.247	1.170	1.248	4.5
Tetrahydrofuran	0.274	0.189	0.181	0.171	0.168	0.158	0.190	22.3[a]
1,2-Dichloroethane	0.652	0.591	0.652	0.633	0.633	0.619	0.630	3.6
Trichloroethene	0.235	0.218	0.242	0.232	0.223	0.224	0.229	3.8
1,2-Dichloropropane	0.267	0.250	0.268	0.257	0.247	0.237	0.255	4.7
Dibromomethane	0.216	0.196	0.218	0.213	0.210	0.210	0.210	3.6
1,4-Dioxane	0.003	0.003	0.003	0.003	0.003	0.003	0.003	7.9

N/A - Not Applicable

[a] - Value outside of QC advisory limits.

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**
Project: **Former GE - Wetlands** ETR: **0305040**

Case: **N/A** SDG: **N/A**

Lab ID	Date/Time Analyzed
I1051201	05/12/03 13:27
I1051202	05/12/03 13:56
I1051203	05/12/03 14:25
I1051204	05/12/03 14:53
I1051205	05/12/03 15:22
I1051206	05/12/03 15:51

	Response Factors							
Parameter	**1**	**5**	**20**	**50**	**100**	**200**	**Mean**	**% RSD**
Bromodichloromethane	0.302	0.287	0.322	0.325	0.329	0.334	0.316	5.7
Methyl isobutyl ketone (MIBK)	0.389	0.356	0.388	0.392	0.370	0.354	0.375	4.6
cis-1,3-Dichloropropene	0.370	0.356	0.415	0.412	0.400	0.394	0.391	6.1
Toluene	0.508	0.481	0.529	0.528	0.522	0.526	0.516	3.6
trans-1,3-Dichloropropene	0.338	0.324	0.384	0.383	0.373	0.368	0.362	6.9
1,1,2-Trichloroethane	0.244	0.234	0.249	0.243	0.229	0.221	0.237	4.5
2-Hexanone	0.240	0.247	0.271	0.278	0.267	0.258	0.260	5.6
Tetrachloroethene	0.185	0.228	0.261	0.261	0.252	0.258	0.241	12.4
1,3-Dichloropropane	0.437	0.427	0.464	0.453	0.429	0.418	0.438	3.9
Dibromochloromethane	0.220	0.225	0.267	0.281	0.285	0.287	0.261	11.7
1,2-Dibromoethane	0.287	0.279	0.317	0.315	0.305	0.298	0.300	5.0
Chlorobenzene	0.785	0.730	0.797	0.793	0.785	0.782	0.779	3.1
1,1,1,2-Tetrachloroethane	0.249	0.263	0.304	0.312	0.308	0.300	0.289	9.1
Ethylbenzene	1.219	1.171	1.325	1.335	1.324	1.306	1.280	5.3
p/m-Xylene	0.404	0.411	0.463	0.467	0.464	0.456	0.444	6.5
o-Xylene	0.396	0.400	0.451	0.463	0.466	0.463	0.440	7.5
Styrene	0.641	0.676	0.800	0.836	0.854	0.857	0.777	12.2
Bromoform	0.170	0.187	0.246	0.269	0.281	0.289	0.240	20.9[a]
Isopropylbenzene	0.942	0.963	1.140	1.156	1.167	1.180	1.091	9.9
1,1,2,2-Tetrachloroethane	0.523	0.505	0.558	0.531	0.506	0.477	0.517	5.4
Bromobenzene	0.346	0.343	0.379	0.380	0.382	0.385	0.369	5.2
1,2,3-Trichloropropane	0.415	0.386	0.412	0.390	0.373	0.347	0.387	6.6
n-Propylbenzene	1.174	1.189	1.405	1.442	1.436	1.451	1.349	9.7
2-Chlorotoluene	0.823	0.765	0.882	0.890	0.898	0.919	0.863	6.7
1,3,5-Trimethylbenzene	0.751	0.753	0.905	0.920	0.928	0.942	0.866	10.4
4-Chlorotoluene	0.823	0.793	0.912	0.935	0.939	0.969	0.895	7.9
tert-Butylbenzene	0.590	0.598	0.713	0.733	0.731	0.747	0.685	10.5
1,2,4-Trimethylbenzene	0.709	0.775	0.935	0.949	0.966	0.977	0.885	12.9
sec-Butylbenzene	0.825	0.871	1.040	1.060	1.067	1.088	0.992	11.4
1,3-Dichlorobenzene	0.486	0.542	0.619	0.621	0.625	0.619	0.585	9.9
p-Isopropyltoluene	0.631	0.697	0.864	0.886	0.899	0.899	0.813	14.5
1,4-Dichlorobenzene	0.550	0.583	0.651	0.652	0.668	0.675	0.630	8.1

N/A - Not Applicable
[a] - Value outside of QC advisory limits.

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**
Project: **Former GE - Wetlands** ETR: **0305040**

Case: N/A SDG: N/A

Lab ID	Date/Time Analyzed
I1051201	05/12/03 13:27
I1051202	05/12/03 13:56
I1051203	05/12/03 14:25
I1051204	05/12/03 14:53
I1051205	05/12/03 15:22
I1051206	05/12/03 15:51

	Response Factors							
Parameter	**1**	**5**	**20**	**50**	**100**	**200**	**Mean**	**% RSD**
n-Butylbenzene	0.507	0.609	0.754	0.807	0.827	0.849	0.726	19.0[a]
1,2-Dibromo-3-chloropropane		0.058	0.073	0.077	0.080	0.080	0.074	12.1
1,2-Dichlorobenzene	0.494	0.530	0.619	0.617	0.630	0.635	0.588	10.2
1,2,4-Trichlorobenzene	0.224	0.267	0.338	0.356	0.370	0.387	0.324	19.9[a]
Hexachlorobutadiene	0.074	0.087	0.104	0.108	0.111	0.119	0.100	16.9[a]
Naphthalene	0.743	0.851	1.030	1.108	1.149	1.168	1.008	17.2[a]
1,2,3-Trichlorobenzene	0.235	0.268	0.323	0.348	0.362	0.379	0.319	17.6[a]
Dibromofluoromethane	0.642	0.643	0.654	0.639	0.640	0.637	0.643	1.0
Toluene-d8	0.929	0.927	0.937	0.934	0.938	0.960	0.938	1.3
4-Bromofluorobenzene	0.513	0.516	0.521	0.522	0.537	0.534	0.524	1.8
Average RSD								8.5

N/A - Not Applicable
[a] - Value outside of QC advisory limits.

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Form VII
Calibration Verification
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **C1051401**

Case: **N/A** SDG: **N/A**

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
Dichlorodifluoromethane	0.608	0.643	5.9	30
Chloromethane	0.452	0.471	4.4	30
Vinyl chloride	0.266	0.274	3.2	20
Bromomethane	0.185	0.117	37.0[a]	30
Chloroethane	0.117	0.120	2.1	30
Trichlorofluoromethane	0.568	0.608	7.1	30
Diethyl ether	0.159	0.166	4.8	30
Acetone	0.142	0.139	2.2	30
1,1-Dichloroethene	0.371	0.392	5.7	20
Carbon disulfide	0.632	0.688	8.9	30
Methylene chloride	0.199	0.215	8.2	30
Methyl tert-butyl ether (MTBE)	0.692	0.718	3.8	30
trans-1,2-Dichloroethene	0.320	0.338	5.4	30
Diisopropyl ether	1.558	1.598	2.5	30
1,1-Dichloroethane	0.724	0.753	4.0	30
Ethyl tertiary butyl ether	1.303	1.343	3.1	30
2-Butanone (MEK)	0.329	0.337	2.5	30
cis-1,2-Dichloroethene	0.682	0.708	3.8	30
2,2-Dichloropropane	0.574	0.605	5.4	30
Bromochloromethane	0.288	0.306	6.4	30
Chloroform	0.852	0.886	4.0	20
1,1,1-Trichloroethane	0.645	0.671	4.1	30
1,1-Dichloropropene	0.601	0.601	0.0	30
Carbon tetrachloride	0.515	0.548	6.4	30
Benzene	1.706	1.758	3.0	30
Tertiary amyl methyl ether	1.248	1.299	4.1	30
Tetrahydrofuran	0.190	0.172	9.7	30
1,2-Dichloroethane	0.630	0.650	3.2	30
Trichloroethene	0.229	0.235	2.6	30
1,2-Dichloropropane	0.255	0.260	2.2	20
Dibromomethane	0.210	0.216	2.7	30
1,4-Dioxane	0.003	0.003	7.6	30
Bromodichloromethane	0.316	0.338	6.7	30
Methyl isobutyl ketone (MIBK)	0.375	0.400	6.8	30
cis-1,3-Dichloropropene	0.391	0.414	5.8	30
Toluene	0.516	0.532	3.2	20
trans-1,3-Dichloropropene	0.362	0.390	7.8	30
1,1,2-Trichloroethane	0.237	0.246	4.0	30

N/A - Not Applicable
[a] - Value outside of QC advisory limits.

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form VII
Calibration Verification
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **C1051401**

Case: **N/A** SDG: **N/A**

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
2-Hexanone	0.260	0.277	6.7	30
Tetrachloroethene	0.241	0.263	9.4	30
1,3-Dichloropropane	0.438	0.456	4.2	30
Dibromochloromethane	0.261	0.290	11.2	30
1,2-Dibromoethane	0.300	0.317	5.7	30
Chlorobenzene	0.779	0.799	2.6	30
1,1,1,2-Tetrachloroethane	0.289	0.318	10.0	30
Ethylbenzene	1.280	1.349	5.3	20
p/m-Xylene	0.444	0.471	6.1	30
o-Xylene	0.440	0.467	6.1	30
Styrene	0.777	0.854	9.9	30
Bromoform	0.240	0.283	17.8	30
Isopropylbenzene	1.091	1.169	7.1	30
1,1,2,2-Tetrachloroethane	0.517	0.556	7.6	30
Bromobenzene	0.369	0.386	4.4	30
1,2,3-Trichloropropane	0.387	0.395	1.9	30
n-Propylbenzene	1.349	1.455	7.8	30
2-Chlorotoluene	0.863	0.908	5.2	30
[illegible]-Trimethylbenzene	0.866	0.939	8.4	30
4-Chlorotoluene	0.895	0.951	6.2	30
tert-Butylbenzene	0.685	0.741	8.2	30
1,2,4-Trimethylbenzene	0.885	0.967	9.3	30
sec-Butylbenzene	0.992	1.072	8.1	30
1,3-Dichlorobenzene	0.585	0.635	8.5	30
p-Isopropyltoluene	0.813	0.901	10.9	30
1,4-Dichlorobenzene	0.630	0.671	6.4	30
n-Butylbenzene	0.726	0.829	14.2	30
1,2-Dibromo-3-chloropropane	0.074	0.080	8.3	30
1,2-Dichlorobenzene	0.588	0.630	7.2	30
1,2,4-Trichlorobenzene	0.324	0.359	10.9	30
Hexachlorobutadiene	0.100	0.112	11.0	30
Naphthalene	1.008	1.115	10.6	30
1,2,3-Trichlorobenzene	0.319	0.352	10.2	30
Dibromofluoromethane	0.643	0.657	2.1	30
Toluene-d8	0.938	0.942	0.5	30
4-Bromofluorobenzene	0.524	0.533	1.7	30
Average % D			6.5	

N/A - Not Applicable

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Form VIII
Internal Standard Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE - Wetlands**

Lab Code: **MA00030**
ETR: **0305040**
Lab ID: **C1051401**

Case: N/A SDG: N/A

		Pentafluorobenzene		Fluorobenzene		Chlorobenzene-D5	
		Area	RT	Area	RT	Area	RT
Standard:		968137	6.29	1965890	7.07	1470600	11.42
Upper Limit:		1936274	6.79	3931780	7.57	2941200	11.92
Lower Limit:		484068	5.79	982945	6.57	735300	10.92
Client ID	**Lab ID**						
Laboratory Control Sample	VW051403L13	998862	6.29	2015150	7.07	1502920	11.42
Blank	VW051403B17	998791	6.29	2007860	7.07	1501320	11.42
TB-01	0305040-07	977650	6.29	1971040	7.07	1488460	11.42
TRC-301R-A	0305040-01	968475	6.29	1955320	7.07	1474780	11.42
TRC-301R-B	0305040-02	944898	6.29	1924350	7.07	1446820	11.42
TRC-301R-C	0305040-03	952438	6.29	1945640	7.08	1459280	11.42
TRC-301R-D	0305040-04	942489	6.29	1929900	7.07	1443960	11.42
TRC-301R-E	0305040-05	954371	6.29	1930820	7.07	1457880	11.42
TRC-301R-F	0305040-06	951574	6.29	1916740	7.07	1439000	11.42

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

CHAIN OF CUSTODY RECORDS

CHAIN OF CUSTODY RECORD

Woods Hole Group

375 Paramount Drive
Raynham, MA 02767

TEL: (508) 822-9300
FAX: (508) 822-3288

0305040

PAGE 1 OF 1

COMPANY INFORMATION

Name: TRC Environmental
Address: 100 Foot of John St.
Booth Mills South
Lowell, MA 01852
Telephone: 978-970-5600
Facsimile: 978-453-1995
Contact Name: Sandy Weymouth

COMPANY'S PROJECT INFORMATION

Regulatory Protocol: _____
For the State of: MA
Project Name: Former GE-Wetlands
Project Number: E9202-6502-02500
P.O. #: _____
Sampler Name(s): Kristin Marshall, Sandy Weymouth

SHIPPING INFORMATION

Carrier: Courier
Airbill Number: _____
Date Shipped: 5/6/03
Quote #: _____

(TAT IS IN BUSINESS DAYS)
CIRCLE TAT: (10 Day) 5 Day 3 Day 48 Hr 24 Hr Other
(IF OTHER NOTE BELOW)

SAMPLE CONTAINERS (NOTE 4)

PRESERVATIVE	HCl, Cool 4°C					
CONTAINER TYPE	VOA					
VOLUME	3 x 40ml					

WHG LAB #	SAMPLE ID (NOTE 1)	COLLECTION DATE	COLLECTION TIME	COMPOSITE OR GRAB	MATRIX	ANALYSIS/REMARKS (NOTES 2, 3)	SAMPLER(S) INITIALS	NUMBER OF CONTAINERS
-1	TRC-301R-A	5/6/03	0800	G	GW	MCP Method 8260B	KEM, TSW	3
-2	TRC-301R-B	5/6/03	0802	G	GW	MCP Method 8260B	KEM, TSW	3
-3	TRC-301R-C	5/6/03	0804	G	GW	MCP Method 8260B	KEM, TSW	3
-4	TRC-301R-D	5/6/03	0806	G	GW	MCP Method 8260B	KEM, TSW	3
-5	TRC-301R-E	5/6/03	0808	G	GW	MCP Method 8260B	KEM, TSW	3
-6	TRC-301R-F	5/6/03	0810	G	GW	MCP Method 8260B	KEM, TSW	3
-7	TB-01	5/1/03	—	G	W	MCP Method 8260B		2

Relinquished by: (signature)	DATE	TIME	Received by: (signature)
Kristin Marshall	5/6/03	1:30	Ed Butler
Ed Butler	5/6/03	4:45	
Relinquished by: (signature)	DATE	TIME	Received for Laboratory by: (signature)

NOTES TO SAMPLER(S): (1) Limit Sample Identification to 6 characters, if possible; (2) Indicate designated Lab Q.C. sample and type (e.g.; MS/MSD/REP) and provide sufficient sample; (3) Field duplicates are separate sample; (4) e.g.; 40ml/glass/H2SO4

Notes to Lab: MCP Method 8260B, No TICs, No estimated J values.
Shipped on ice. Temp Blank Included.

27/28

Sample Receipt Checklist

Client: TRC	Receipt Date: 5-6-03
Project: GE Wetlands	Log-in Date: 5/8/03
ETR #: 030540	Inspection by: SB / Login by: MW

ALL SECTIONS BELOW MUST BE COMPLETED

Comments / Notes

Were samples shipped? Yes, FedEx / UPS / Other:_____
No, (WHG Courier pick-up) / Hand delivered

Is bill of lading retained? Yes, Tracking #:_____
No, Unavailable (NA)

Number of coolers received for this project delivery: 1

Indicate cooler temperature upon opening (if multiple coolers, record all temps):

Note: If all coolers are 2-6°C, use one checklist, if NOT, use separate checklists and note all samples received *above* 6°C.

Cooler 1:
Temperature(s) taken from: 06° IR Gun, 08° Temp. Blank, / NA

Were samples received on ice? (Yes) / No

Chain-of-Custody present? (Yes) / No
Complete? (Yes) / No

Custody seals present on Cooler? Yes / (No)
on Bottles? Yes / (No)
Intact? Yes / No / NA
Note: Affix custody seals to back of this page.

Were sample containers intact? (Yes) / No If No, list samples: →

Did VOA/VPH waters contain headspace (>5mm)? Yes / (No) / NA If Yes, list samples: →

Were 5035 VOA soils, or VPH soils, *covered* with MeOH? Yes / No / (NA)
If No, list samples: →

Was a sufficient amount of sample received for each test indicated on the COC?
(Yes) / No If No, list samples: →

If chemical preservation is appropriate -
Were samples field preserved? (Yes) / No / NA

☒C=HCl ☐ M=MeOH ☐ S=H_2SO4
☐H=NaOH ☐ N=HNO_3 ☐ Other:_____ ☐ U= Unknown

Preservation (pH) verified at lab for *EVERY* bottle? (Not: VOA / VPH / Sulfide)
YES: <2 or >12 (CN) or NO NA
If No, why?:

Were samples received within hold time? (Yes) / No If No, list samples: →

Discrepancy between samples rec'd & COC ? Yes / No If Yes, list samples: →

Was the Project Manager notified of any other problems? Yes / No / NA

Project Manager Acknowledgement: Date:

Sample storage refrigerator #: VOA

Sample storage freezer #:_____

Cooler 2:_____ Cooler 3:_____

Cooler 4:_____ Cooler 5:_____

Cooler 6:_____ Cooler 7:_____

More:_____

Chemical preservation OK for ALL samples?
Yes / No / (N/A)

If No, list samples below:

Please use back for any additional notes!

APPENDIX G

WASTE DISPOSAL DOCUMENTATION

2305

HEFFRON MATERIALS
Div. of Heffron Asphalt Corp.
WILMINGTON, MA 01887

Main Office	(508) 664-3101
Wilmington Plant	(508) 658-3602
Woburn Plant	(617) 933-4131

P.O./JOB NO. [illegible] DATE 5.21.03

SOLD TO [illegible]

DELIVERED TO 68100

TRUCK NO. 61000

MATERIAL TYPE: 60500

6 WHEELER LOADS: 62600

10 WHEELER LOADS: 61900

TRIAXLE LOADS: 60900

TRAILER LOADS: 52800

GROSS	PRICE
TARE	TAX
NET	TOTAL

DRIVER

SWORN WEIGHER

REC'D BY No 39909

THIS COMPANY IS NOT RESPONSIBLE FOR ANY DAMAGE ON DELIVERIES BEYOND THE CURB LINE.

DOCUMENT NO. 61033

WORK ORDER NO. ~~SB639456~~

STRAIGHT BILL OF LADING

1157/6137

TRANSPORTER 1 CLEAN HARBORS ENV. SERVICES, INC. VEHICLE ID #

EPA ID # ~~MAD039322250~~ TRANS. 1 PHONE ~~781-849-1800~~

TRANSPORTER 2 VEHICLE ID #

EPA ID # TRANS. 2 PHONE

DESIGNATED FACILITY	SHIPPER
ESMI	LOCKHEED MARTIN CORPORATION
FACILITY EPA ID #	SHIPPER EPA ID #
ADDRESS 67 INTERNATIONAL DRIVE	ADDRESS 7921 SOUTH PARK PLAZA SUITE 210
CITY LOUDON STATE NH ZIP 03307	CITY LITTLETON CO STATE ZIP 80120

CONTAINERS NO. & SIZE	TYPE	HM	DESCRIPTION OF MATERIALS	TOTAL QUANTITY	UNIT WT/VOL
74	DM		A. URBAN FILL CONTAMINATED SOILS	29,600	LBS
			B. FOR RECYCLING		
			C.		
			D. 74/55		
			E.		
			F.		
			G.		
			H.		

SPECIAL HANDLING INSTRUCTIONS

IN CASE OF EMERGENCY CALL 1-800-645-8265

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

	PRINT	SIGN	DATE
SHIPPER	Daniel G. Baillargeon AGENT FOR Lockheed Martin		8-15-03
TRANSPORTER 1	Timothy P. Riordan		8-15-03
TRANSPORTER 2	PRINT	SIGN	DATE
RECEIVED BY	PRINT	SIGN	DATE

TABLE G-1.
ANALYTICAL RESULTS OF DRUM SAMPLES
FORMER GE FACILITY, WILMINGTON, MA

Parameter	DRUM SAMPLES					MCP Reportable Concentrations*	NH S-1 Standards	ESMI Acceptance Limits
	DS-03-10	DS-03-50	DS-03-74	DS-03-27	DS-03-composite			
Sample Date	5/8/2003	5/8/2003	5/8/2003	5/8/2003	6/25/2003			
VOCs (detections only)								
Method 8260B MCP (ug/L))								
Acetone	14	9.9	16	25	NA	3,000	9,000	PS
Methylene Chloride	26	29	30	11	NA	100	NA	PS
Carbon Disulfide	ND	ND	ND	2.5	NA	100,000	400	PS
Isopropylbenzene	ND	ND	ND	2.7	NA	1,000,000	123,000	PS
n-propylbenzene	ND	ND	ND	8.4	NA	100,000**	59,000(z)	PS
tert-Butylbenzene	ND	ND	ND	7.3	NA	100,000	59,000(z)	PS
1,2,4-trimethylbenzene	ND	ND	ND	16	NA	1,000,000	59,000(z)	PS
sec-Butylbenzene	ND	ND	ND	5.3	NA	100,000***	59,000(z)	PS
n-Butylbenzene	ND	ND	ND	8.8	NA	100,000***	59,000(z)	PS
naphthalene	3.5	ND	ND	ND	NA	4,000	5,000	PS
Total VOCs	<100	<100	<100	<100	NA	NA	NA	PS
SVOCs								
EPA Method 8270 **(mg/kg)**								
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	0.530 B mg/kg	100 mg/kg	NA	
Total SVOCs	NA	NA	NA	NA	< 3 mg/kg	NA	NA	100 mg/kg
Total PCBs								
EPA Method 8082 **(mg/kg)**	NA	NA	NA	NA	ND (0.04 mg/kg)	< 2 mg/kg		<50 mg/kg
RCRA 8 Metals (mg/kg)								
Arsenic	NA	NA	NA	NA	ND (7.6 mg/kg)	30 mg/kg	NA	32 mg/kg
Barium	NA	NA	NA	NA	33 mg/kg	1,000 mg/kg	NA	750 mg/kg
Cadmium	NA	NA	NA	NA	ND (3.8 mg/kg)	30 mg/kg	NA	14 mg/kg
Chromium	NA	NA	NA	NA	31 mg/kg	1,000 mg/kg	NA	1,000 mg/kg
Lead	NA	NA	NA	NA	ND (7.6 mg/kg)	300 mg/kg	NA	300 mg/kg
Mercury	NA	NA	NA	NA	ND (.0078 mg/kg)	20 mg/kg	NA	10 mg/kg
Selenium	NA	NA	NA	NA	ND (7.6 mg/kg)	400 mg/kg	NA	28 mg/kg
Silver	NA	NA	NA	NA	ND (7.6 mg/kg)	100 mg/kg	NA	45 mg/kg
TPH								
EPA Method 8100 (mg/kg)	ND	56	77	110	NA	200 mg/kg	10,000	30,000 mg/kg
Ignitability	NA	NA	NA	NA	> 220 F	NA	NA	>140 F
Total Organic Carbon	0.03%	ND	NA	0.10%	NA	NA	NA	NA

* RC-S1
** as propylbenzene
*** as tert-butylbenzene
ND = Not Detected
NA = Not applicable
TPH = Total Petroleum Hydrocarbon
B = detected compound found in the blank also

z= as a total of all (z) qualified compounds in the VOC detection list.
PS= Profile specific determination by the Facility.

Woods Hole Group
Environmental Laboratories

ANALYTICAL REPORT

Prepared for:
TRC Environmental
Boott Mills South
Foot of John Street
Lowell, MA 01852

Project:	Lockheed Drums
ETR:	0306149
Report Date:	June 30, 2003

Certifications and Accreditations
Massachusetts MA030
Connecticut PH-0141
New Hampshire 220602
Rhode Island 64
New Jersey MA015
Maine MA030
New York 11627
Louisiana 03090
Army Corps of Engineers
Department of the Navy
Florida E87814

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375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

CASE NARRATIVE

Woods Hole Group Environmental Laboratories

ETR: 0306149
Project: Lockheed Drums

All analyses were performed according to Woods Hole Group's documented Standard Operating Procedures (SOPs), within holding time and with appropriate quality control measures except where noted. Blank correction of results is not performed in the laboratory for any parameter. Soil/sediment samples are reported on a dry weight basis unless otherwise noted.

Semi-Volatile Organics by GC/MS

1. Due to a large unidentified peak that saturated, a retention time shift was observed in the first six minutes of the chromatographic analysis.

The enclosed results of analyses are representative of the samples as received by the laboratory. Woods Hole Group makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Woods Hole Group. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved by: Edith Hutchings Title: Senior Project Manager Date: 6/30/03

Woods Hole Group Environmental Laboratories 375 Paramount Drive, Suite 2, Raynham, MA 02767-5150 Ph: 508-822-9300

Semi-Volatile Organics by GC/MS

Client: **TRC Environmental**
Project: **Lockheed Drums**
Client ID: **DS-03-composite**
Case: **N/A** SDG: **N/A**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **0306149-01**
Associated Blank: **SS062603B08**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
06/25/03	06/25/03	06/26/03	06/28/03	70.8	5.33	1	1	AJA

Parameter	Result		Parameter	Result	
Phenol	66	U	3-Nitroaniline	66	U
bis(2-Chloroethyl)ether	66	U	Acenaphthene	66	U
2-Chlorophenol	66	U	2,4-Dinitrophenol	130	U
1,3-Dichlorobenzene	66	U	4-Nitrophenol	66	U
1,4-Dichlorobenzene	66	U	Dibenzofuran	66	U
Benzyl alcohol	1300	U	2,4-Dinitrotoluene	66	U
1,2-Dichlorobenzene	66	U	Diethylphthalate	66	U
2-Methylphenol	66	U	4-Chlorophenyl-phenylether	66	U
bis(2-Chloroisopropyl)ether	66	U	Fluorene	66	U
4-Methylphenol	66	U	4-Nitroaniline	66	U
n-Nitroso-di-n-propylamine	66	U	4,6-Dinitro-2-methylphenol	66	U
Hexachloroethane	66	U	n-Nitrosodiphenylamine	66	U
Nitrobenzene	66	U	4-Bromophenyl-phenylether	66	U
Isophorone	66	U	Hexachlorobenzene	66	U
2-Nitrophenol	66	U	Pentachlorophenol	66	U
2,4-Dimethylphenol	66	U	Phenanthrene	66	U
s(2-Chloroethoxy)methane	66	U	Anthracene	66	U
2,4-Dichlorophenol	66	U	Di-n-butylphthalate	66	U
1,2,4-Trichlorobenzene	66	U	Fluoranthene	66	U
Naphthalene	66	U	Pyrene	66	U
4-Chloroaniline	66	U	Butylbenzylphthalate	66	U
Hexachlorobutadiene	66	U	Benz[a]anthracene	66	U
4-Chloro-3-methylphenol	66	U	Chrysene	66	U
2-Methylnaphthalene	66	U	bis(2-Ethylhexyl)phthalate	530	B
Hexachlorocyclopentadiene	66	U	Di-n-octylphthalate	66	U
2,4,6-Trichlorophenol	66	U	Benzo[b]fluoranthene	66	U
2,4,5-Trichlorophenol	66	U	Benzo[k]fluoranthene	66	U
2-Chloronaphthalene	66	U	Benzo[a]pyrene	66	U
2-Nitroaniline	66	U	Indeno[1,2,3-cd]pyrene	66	U
Dimethylphthalate	66	U	Dibenz[a,h]anthracene	66	U
Acenaphthylene	66	U	Benzo[g,h,i]perylene	66	U
2,6-Dinitrotoluene	66	U			

Surrogate	% Recovery	Acceptance Range (%)
2-Fluorobiphenyl	72	30-115
Phenol-d5	95	24-113
Nitrobenzene-d5	49	23-120
Fluorophenol	76	25-121
2,4,6-Tribromophenol	88	19-122
Terphenyl-d14	96	18-137

B - Found in associated blank as well as sample.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

06/30/03 11:24

Blank
Semi-Volatile Organics by GC/MS

Client: **TRC Environmental**
Project: **Lockheed Drums**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **SS062603B08**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/26/03	06/28/03	100	5.00	1	1	AJA

Parameter	Result		Parameter	Result	
Phenol	50	U	3-Nitroaniline	50	U
bis(2-Chloroethyl)ether	50	U	Acenaphthene	50	U
2-Chlorophenol	50	U	2,4-Dinitrophenol	100	U
1,3-Dichlorobenzene	50	U	4-Nitrophenol	50	U
1,4-Dichlorobenzene	50	U	Dibenzofuran	50	U
Benzyl alcohol	1000	U	2,4-Dinitrotoluene	50	U
1,2-Dichlorobenzene	50	U	Diethylphthalate	50	U
2-Methylphenol	50	U	4-Chlorophenyl-phenylether	50	U
bis(2-Chloroisopropyl)ether	50	U	Fluorene	50	U
4-Methylphenol	50	U	4-Nitroaniline	50	U
n-Nitroso-di-n-propylamine	50	U	4,6-Dinitro-2-methylphenol	50	U
Hexachloroethane	50	U	n-Nitrosodiphenylamine	50	U
Nitrobenzene	50	U	4-Bromophenyl-phenylether	50	U
Isophorone	50	U	Hexachlorobenzene	50	U
2-Nitrophenol	50	U	Pentachlorophenol	50	U
2,4-Dimethylphenol	50	U	Phenanthrene	50	U
s(2-Chloroethoxy)methane	50	U	Anthracene	50	U
2,4-Dichlorophenol	50	U	Di-n-butylphthalate	50	U
1,2,4-Trichlorobenzene	50	U	Fluoranthene	50	U
Naphthalene	50	U	Pyrene	50	U
4-Chloroaniline	50	U	Butylbenzylphthalate	50	U
Hexachlorobutadiene	50	U	Benz[a]anthracene	50	U
4-Chloro-3-methylphenol	50	U	Chrysene	50	U
2-Methylnaphthalene	50	U	bis(2-Ethylhexyl)phthalate	68	
Hexachlorocyclopentadiene	50	U	Di-n-octylphthalate	50	U
2,4,6-Trichlorophenol	50	U	Benzo[b]fluoranthene	50	U
2,4,5-Trichlorophenol	50	U	Benzo[k]fluoranthene	50	U
2-Chloronaphthalene	50	U	Benzo[a]pyrene	50	U
2-Nitroaniline	50	U	Indeno[1,2,3-cd]pyrene	50	U
Dimethylphthalate	50	U	Dibenz[a,h]anthracene	50	U
Acenaphthylene	50	U	Benzo[g,h,i]perylene	50	U
2,6-Dinitrotoluene	50	U			

Surrogate	% Recovery	Acceptance Range (%)
2-Fluorobiphenyl	75	30-115
Phenol-d5	81	24-113
Nitrobenzene-d5	75	23-120
Fluorophenol	82	25-121
,4,6-Tribromophenol	95	19-122
Terphenyl-d14	95	18-137

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

06/30/03 11:24

Laboratory Control Sample
Semi-Volatile Organics by GC/MS

Client: **TRC Environmental**
Project: **Lockheed Drums**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **SS062603L07**
Associated Blank: **SS062603B08**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	06/26/03	100	AJA

Parameter	Conc.	% Recovery	% Recovery Limits
Phenol	2900	72	26-90
2-Chlorophenol	3100	78	25-102
1,4-Dichlorobenzene	2700	67	28-104
n-Nitroso-di-n-propylamine	2700	68	41-126
1,2,4-Trichlorobenzene	3000	74	38-107
4-Chloro-3-methylphenol	3200	80	26-103
Acenaphthene	2800	70	19-137
4-Nitrophenol	2900	73	11-114
2,4-Dinitrotoluene	2900	72	28-89
Pentachlorophenol	3000	76	17-109
Pyrene	3400	86	35-142

Surrogate	% Recovery	Acceptance Range (%)
2-Fluorobiphenyl	72	30-115
Phenol-d5	78	24-113
Nitrobenzene-d5	75	23-120
2-Fluorophenol	83	25-121
2,4,6-Tribromophenol	100	19-122
Terphenyl-d14	98	18-137

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

06/30/03 11:24

Polychlorinated Biphenyls by GC/ECD

Client: **TRC Environmental**
Project: **Lockheed Drums**
Case: **N/A** SDG: **N/A**
Client ID: **DS-03-composite**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **0306149-01**
Associated Blank: **PS062603B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
06/25/03	06/25/03	06/26/03	06/27/03	70.8	5.70	10	1	NLJr

Parameter	Result
Aroclor 1016	50 U
Aroclor 1221	50 U
Aroclor 1232	50 U
Aroclor 1242	50 U
Aroclor 1248	50 U
Aroclor 1254	50 U
Aroclor 1260	50 U

Surrogate	% Recovery	Acceptance Range (%)
Tetrachloro-meta-xylene	67	30-150
Decachlorobiphenyl	85	30-150

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Quality Control Results
Polychlorinated Biphenyls by GC/ECD

Client: **TRC Environmental**
Project: **Lockheed Drums**
Case: N/A SDG: N/A
Client ID: **Method Blank**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **PS062603B07**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	06/26/03	06/27/03	100	5.00	10	1	NLJr

Parameter	Result
Aroclor 1016	40 U
Aroclor 1221	40 U
Aroclor 1232	40 U
Aroclor 1242	40 U
Aroclor 1248	40 U
Aroclor 1254	40 U
Aroclor 1260	40 U

Surrogate	% Recovery	Acceptance Range (%)
Tetrachloro-meta-xylene	62	30-150
Decachlorobiphenyl	90	30-150

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Laboratory Control Sample
Polychlorinated Biphenyls by GC/ECD

Client: **TRC Environmental**
Project: **Lockheed Drums**
Case: **N/A** SDG: **N/A**
Client ID: **Laboratory Control Sample**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **PS062603L05**
Associated Blank: **PS062603B07**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	06/26/03	100	NLJr

Parameter	Conc.	% Recovery	% Recovery Limits
Aroclor 1016	1800	92	70-130
Aroclor 1260	1800	91	70-130

Surrogate	% Recovery	Acceptance Range (%)
Tetrachloro-meta-xylene	68	30-150
Decachlorobiphenyl	91	30-150

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

06/30/03 10:46

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Total Metals

Client: **TRC Environmental**
Project: **Lockheed Drums**
Case: **N/A** SDG: **N/A**
Client ID: **DS-03-composite**
Matrix: **Soil**
Percent Solid: **70.8**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **0306149-01**
Concentration Units: **mg/Kg**
Date Collected: **06/25/03**
Date Received: **06/25/03**

Parameter	Result	Qualifier	Reporting Limit	Dilution	Date Analyzed	Date Prepared	Analytical Method	Analyst
Arsenic	7.6	U	7.6	1	06/30/03	06/26/03	6010B	LMR
Barium	33		0.76	1	06/30/03	06/26/03	6010B	LMR
Cadmium	3.8	U	3.8	10	06/30/03	06/26/03	6010B	LMR
Chromium	31		7.6	10	06/30/03	06/26/03	6010B	LMR
Lead	7.6	U	7.6	1	06/30/03	06/26/03	6010B	LMR
Mercury	0.0078	U	0.0078	1	06/30/03	06/26/03	7471A	LMR
Selenium	7.6	U	7.6	1	06/30/03	06/26/03	6010B	LMR
Silver	7.6	U	7.6	10	06/30/03	06/26/03	6010B	LMR

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Preparation Blank
Quality Control Results
Total Metals

Client: **TRC Environmental**
Project: **Lockheed Drums**
Case: **N/A** SDG: **N/A**
Client ID: **Preparation Blank**
Matrix: **Soil**
Percent Solid: **100.0**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **MS062603B02**
Concentration Units: **mg/Kg**
Date Collected: **N/A**
Date Received: **N/A**

Parameter	Result	Qualifier	Reporting Limit	Dilution	Date Analyzed	Date Prepared	Analytical Method	Analyst
Arsenic	10	U	10	1	06/30/03	06/26/03	6010B	LMR
Barium	1.0	U	1.0	1	06/30/03	06/26/03	6010B	LMR
Cadmium	0.50	U	0.50	1	06/30/03	06/26/03	6010B	LMR
Chromium	1.0	U	1.0	1	06/30/03	06/26/03	6010B	LMR
Lead	10	U	10	1	06/30/03	06/26/03	6010B	LMR
Selenium	10	U	10	1	06/30/03	06/26/03	6010B	LMR
Silver	1.0	U	1.0	1	06/30/03	06/26/03	6010B	LMR

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Preparation Blank
Quality Control Results
Total Metals

Client: **TRC Environmental**
Project: **Lockheed Drums**
Case: N/A SDG: N/A
Client ID: **Preparation Blank**
Matrix: **Soil**
Percent Solid: **100.0**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **MS062603B03**
Concentration Units: **mg/Kg**
Date Collected: **N/A**
Date Received: **N/A**

Parameter	Result	Qualifier	Reporting Limit	Dilution	Date Analyzed	Date Prepared	Analytical Method	Analyst
Mercury	0.010	U	0.010	1	06/30/03	06/26/03	7471A	LMR

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Laboratory Control Sample
Quality Control Results
Total Metals

Client: **TRC Environmental**
Project: **Lockheed Drums**
Case: **N/A** SDG: **N/A**
Client ID: **Laboratory Control Sample**
Matrix: **Soil**
Percent Solid: **100.0**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **MS062603LCS01**
Concentration Units: **mg/Kg**
Date Collected: **N/A**
Date Received: **N/A**

Parameter	Conc.	% Recovery	% Recovery Limits
Arsenic	300	105	77-123
Barium	520	99	79-121
Cadmium	54	107	79-121
Chromium	64	98	78-122
Lead	80	95	79-120
Selenium	130	103	75-124
Silver	100	110	61-139

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded results.

06/30/03 13:17

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Preparation Blank
Quality Control Results
Total Metals

Client: **TRC Environmental**
Project: **Lockheed Drums**
Case: **N/A** SDG: **N/A**
Client ID: **Preparation Blank**
Matrix: **Soil**
Percent Solid: **100.0**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **MS062603B03**
Concentration Units: **mg/Kg**
Date Collected: **N/A**
Date Received: **N/A**

Parameter	Result	Qualifier	Reporting Limit	Dilution	Date Analyzed	Date Prepared	Analytical Method	Analyst
Mercury	0.010	U	0.010	1	06/30/03	06/26/03	7471A	LMR

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Laboratory Control Sample
Quality Control Results
Total Metals

Client: **TRC Environmental**
Project: **Lockheed Drums**
Case: **N/A** SDG: **N/A**
Client ID: **Laboratory Control Sample**
Matrix: **Soil**
Percent Solid: **100.0**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **MS062603LCS01**
Concentration Units: **mg/Kg**
Date Collected: **N/A**
Date Received: **N/A**

Parameter	Conc.	% Recovery	% Recovery Limits
Arsenic	300	105	77-123
Barium	520	99	79-121
Cadmium	54	107	79-121
Chromium	64	98	78-122
Lead	80	95	79-120
Selenium	130	103	75-124
Silver	100	110	61-139

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded results.

06/30/03 13:17

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Laboratory Control Sample
Quality Control Results
Total Metals

Client: **TRC Environmental**
Project: **Lockheed Drums**
Case: **N/A** SDG: **N/A**
Client ID: **Laboratory Control Sample**
Matrix: **Soil**
Percent Solid: **100.0**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **MS062603LCS02**
Concentration Units: **mg/Kg**
Date Collected: **N/A**
Date Received: **N/A**

Parameter	Conc.	% Recovery	% Recovery Limits
Mercury	19	112	42-142

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded results.

06/30/03 13:25

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Inorganics

Client: **TRC Environmental**
Project: **Lockheed Drums**
Case: N/A SDG: N/A
Client ID: **DS-03-composite**
Matrix: **Soil**
Percent Solid: **N/A**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **0306149-01**
Date Collected: **06/25/03**
Date Received: **06/25/03**

Parameter	Result	Qualifier	Reporting Limit	Dilution	Date Analyzed	Unit	Analytical Method	Analyst
Ignitability	220	>	220	1	06/27/03	F	1010	DEB

N/A - Not Applicable
> - Result is reported at maximum temperature.

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Laboratory Control Sample
Inorganics

Client: **TRC Environmental**
Project: **Lockheed Drums**
Case: N/A SDG: N/A
Client ID: **Laboratory Control Sample**
Matrix: **Soil**
Percent Solid: **100**

Lab Code: **MA00030**
ETR: **0306149**
Lab ID: **WS062703L15**
Date Collected: **N/A**
Date Received: **N/A**

Parameter	Conc.	% Recovery	% Recovery Limits
Ignitability	83	100	90-110

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded results.

06/29/03 09:05

Chain-of-Custody Record

0306149

Woods Hole Group

375 Paramount Drive
Raynham, MA 02767

TEL: (508) 822-9300
FAX: (508) 822-3288

PAGE 1 OF 1

COMPANY INFORMATION

Name: TRC Environmental
Address: 100 Foot of John St.
Boott Mills South
Lowell, MA 01852
Telephone: 978-970-5600
Facsimile: 978-453-1995
Contact Name: Ken Cormier

COMPANY'S PROJECT INFORMATION

Regulatory Protocol:
For the State of: MA
Project Name: Lockheed Drums
Project Number: E9202-6502-025
P.O. #
Sampler Name(s): Kirstin Marshall

SHIPPING INFORMATION

Carrier: Woods Hole
Airbill Number:
Date Shipped: 6/25/03
Quote #:

(TAT IS IN BUSINESS DAYS)
CIRCLE TAT: 10 Day 5 Day 3 Day 48 Hr 24 Hr (Other) (IF OTHER NOTE BELOW)

SAMPLE CONTAINERS (NOTE 4)

PRESERVATIVE						
CONTAINER TYPE	clear glass jar					
VOLUME	8oz					
NUMBER OF CONTAINERS	1					

WHG LAB #	SAMPLE ID (NOTE 1)	COLLECTION DATE	COLLECTION TIME	COMPOSITE OR GRAB	MATRIX	ANALYSIS/REMARKS (NOTES 2, 3)	SAMPLER(S) INTIALS
-01	DS-03-composite	6/25/03	0845	C	Soil	Total SVOC 8270 ("full list" BNAs);	KEM
						PCBs 8082; Total Metals, RCRA 8, ~~TAL, 1010, 9150, 7470, 9320, 7470, 7740~~; Ignitability	KEM
	Temperature	Blank	Included				

Relinquished by: (signature)	DATE	TIME	Received by: (signature)
Kirstin MacCall	6/25/03	1215	Ed Butler
Ed Butler	6/25/03	20:40	
Relinquished by: (signature)	DATE	TIME	Received for Laboratory by: (signature)

NOTES TO SAMPLER(S): (1) Limit Sample identification to 6 characters, if possible; (2) indicate designated Lab Q.C. sample and type (e.g.; MS/MSD/REP) and provide sufficient sample; (3) Field duplicates are separate sample; (4) e.g.; 40ml/glass/H_2SO_4

Notes to Lab:

One cooler, sample on ice.

TAT: First Available Monday AM 6/30/03

We cannot accept verbal changes. Please Fax written [illegible] (508) 822-3288

16/17

Client: TRC	Receipt Date: 6-25-03
Project: Lockheed Drums	Log-in Date: N
FTR #: 030649	Inspection by: EB / Login by: EAH

ALL SECTIONS BELOW MUST BE COMPLETED

Comments / Notes

Were samples shipped? Yes, FedEx / UPS / Other:_____
No, WHG Courier pick-up / Hand delivered

Is bill of lading retained? Yes, Tracking #:_____
No, Unavailable / NA

Number of coolers received for this project delivery: 1

Indicate cooler temperature upon opening (if multiple coolers, record all temps):

Note: If all coolers are 2-6°C, use one checklist, if NOT, use separate checklists and note all samples received *above* 6°C.

Cooler 1:
Temperature(s) taken from: 05 IR Gun, 04° Temp. Blank, / NA

Were samples received on ice? Yes / No

Chain-of-Custody present? Yes / No
Complete? Yes / No

Custody seals present on Cooler? Yes / No
on Bottles? Yes / No
Intact? Yes / No / NA

Note: Affix custody seals to back of this page.

Were sample containers intact? Yes / No If No, list samples: →

Did VOA/VPH waters contain headspace (>5mm)? Yes / No / NA If Yes, list samples: →

Were 5035 VOA soils, or VPH soils, *covered* with MeOH? Yes / No / NA
If No, list samples: →

Was a sufficient amount of sample received for each test indicated on the COC?
Yes / No If No, list samples: →

If chemical preservation is appropriate -
Were samples field preserved? Yes / No / NA

☐C=HCl ☐ M=MeOH ☐ S=H_2SO4
☐H=NaOH ☐ N=HNO_3 ☐ Other:_____ ☐ U= Unknown

Preservation (pH) verified at lab for *EVERY* bottle? (Not: VOA / VPH / Sulfide)
YES: <2 or >12 (CN) or NO NA
If No, why?:

Were samples received within hold time? Yes / No If No, list samples: →

Discrepancy between samples rec'd & COC ? Yes / No If Yes, list samples: →

Was the Project Manager notified of any other problems? Yes / No / NA

Project Manager Acknowledgement: Date:

Sample storage refrigerator #: F2

Sample storage freezer #:_____

Cooler 2:_____ Cooler 3:_____

Cooler 4:_____ Cooler 5:_____

Cooler 6:_____ Cooler 7:_____

More:_____

Chemical preservation OK for ALL samples?
Yes / No / N/A

If No, list samples below:

Please use back for any additional notes!

Woods Hole Group
Environmental Laboratories

ANALYTICAL REPORT

Prepared for:
TRC Environmental
Boott Mills South
Foot of John Street
Lowell, MA 01852

Project:	Former GE Site
ETR:	0305041
Report Date:	May 27, 2003

Certifications and Accreditations
Massachusetts MA030
Connecticut PH-0141
New Hampshire 220602
Rhode Island 64
New Jersey MA015
Maine MA030
New York 11627
Louisiana 03090
Army Corps of Engineers
Department of the Navy
Florida E87814

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VOLATILE ORGANICS

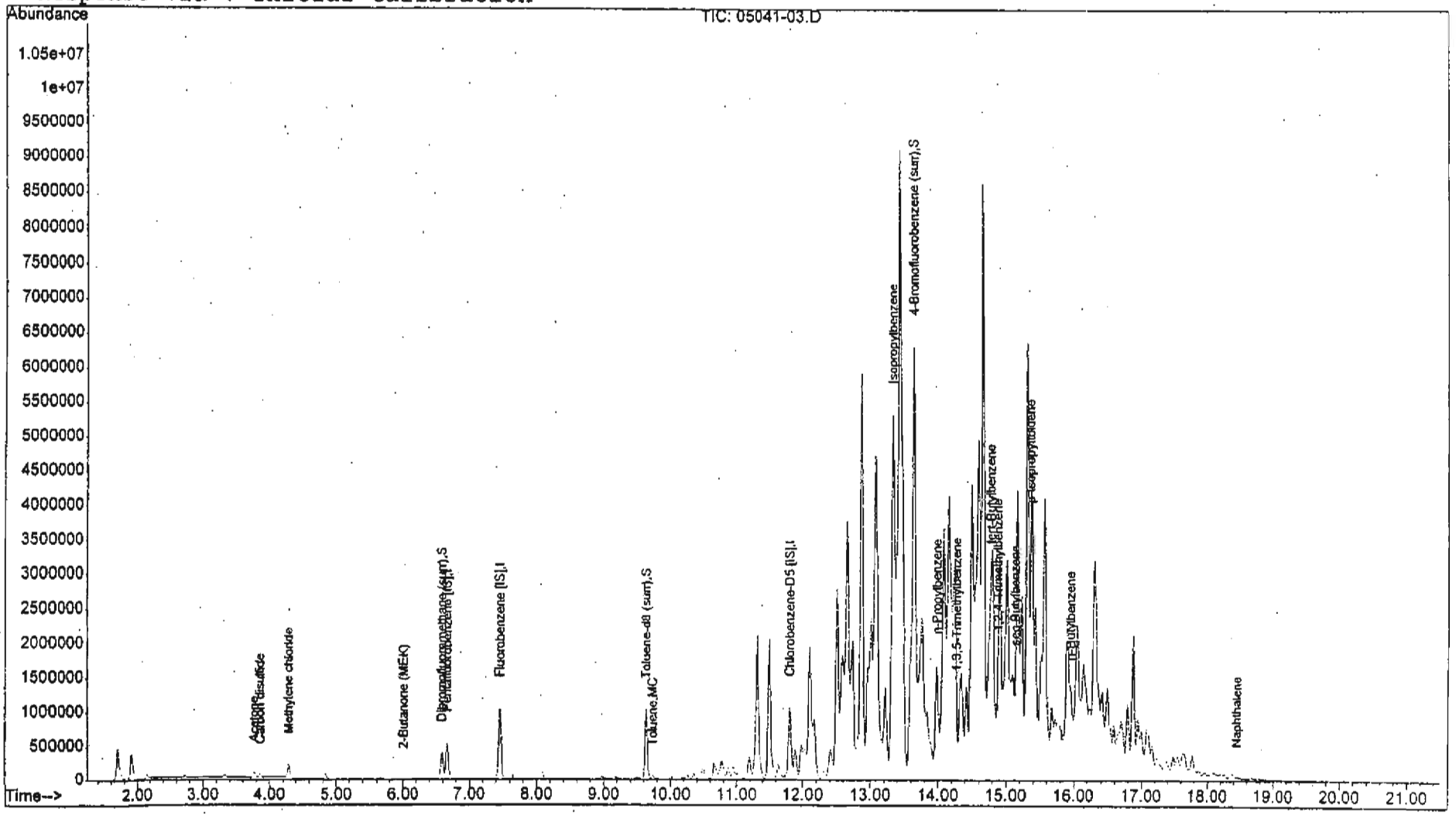
Quantitation Report

Data File : C:\HPCHEM\1\DATA\05041-03.D
Acq On : 15 May 2003 2:15
Sample : 0305041-03
Misc : 1X, B2051401
MS Integration Params: rteint.p
Quant Time: May 15 9:55 2003

Vial: 21
Operator: MLR
Inst : VOA#2
Multiplr: 1.00

Quant Results File: VS051203.RES

Method : C:\HPCHEM\1\METHODS\VS051203.M (RTE Integrator)
Title : 8260 Volatile Organic Compounds
Last Update : Thu May 15 09:29:25 2003
Response via : Initial Calibration



CASE NARRATIVE

Woods Hole Group Environmental Laboratories

ETR: 0305041
Project: Former GE Site

All analyses were performed according to Woods Hole Group's documented Standard Operating Procedures (SOPs), within holding time and with appropriate quality control measures except where noted. Blank correction of results is not performed in the laboratory for any parameter. Soil/sediment samples are reported on a dry weight basis unless otherwise noted.

Volatile Organics by 8260B-MCP

1. The initial calibration analyzed on 5/12/03 had compounds above the 15% RSD QC acceptance limit. Refer to the Form VI initial calibration summary report for specific outliers.

2. Toluene was detected in the method blank VS051403B20 over the reporting limit at 3.8µg/Kg. All associated sample detections for this compound were reported with a "B" qualifier.

3. Samples DS-03-50 (0305041-01) and DS-03-74 (0305041-02) had recoveries below the 70% QC acceptance limit for the surrogate Dibromofluoromethane at 18% and 39%, respectively. These samples were reanalyzed resulting in similar recoveries confirming sample matrix interference. Both analyses were reported with the reanalysis for confirmation denoted with an "-R" suffix to the laboratory ID.

4. Sample DS-03-27 (0305041-03) had a recovery above the 130% QC acceptance limit for the surrogate 4-Bromofluorobenzene at 183% due to obvious matrix interference. Refer to the attached sample chromatogram.

The enclosed results of analyses are representative of the samples as received by the laboratory. Woods Hole Group makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Woods Hole Group. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved by: Edith Hutchinson Date: 5/27/03
Woods Hole Group Environmental Laboratories

Woods Hole Group Environmental Laboratories 375 Paramount Drive, Suite 2, Raynham, MA 02767-5150 Ph: 508-822-9300

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**
Client ID: **DS-03-50**
Case: **N/A** SDG: **N/A**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **0305041-01**
Associated Blank: **VS051403B20**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/08/03	05/08/03	05/15/03	69.0	5.32	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.7	U	1,3-Dichloropropene, Total	5.4	U
Chloromethane	2.7	U	Toluene	2.9	B
Vinyl chloride	2.7	U	1,1,2-Trichloroethane	2.7	U
Bromomethane	6.8	U	2-Hexanone	2.7	U
Chloroethane	2.7	U	Tetrachloroethene	2.7	U
Trichlorofluoromethane	2.7	U	1,3-Dichloropropane	2.7	U
Diethyl ether	2.7	U	Dibromochloromethane	2.7	U
Acetone	9.9		1,2-Dibromoethane	2.7	U
1,1-Dichloroethene	2.7	U	Chlorobenzene	2.7	U
Carbon disulfide	2.7	U	1,1,1,2-Tetrachloroethane	2.7	U
Methylene chloride	29		Ethylbenzene	2.7	U
Methyl tert-butyl ether (MTBE)	2.7	U	Xylenes, Total	8.2	U
trans-1,2-Dichloroethene	2.7	U	Styrene	2.7	U
Diisopropyl ether	2.7	U	Bromoform	2.7	U
1,1-Dichloroethane	2.7	U	Isopropylbenzene	2.7	U
Ethyl tertiary butyl ether	2.7	U	1,1,2,2-Tetrachloroethane	2.7	U
2-Butanone (MEK)	6.8	U	Bromobenzene	2.7	U
cis-1,2-Dichloroethene	2.7	U	1,2,3-Trichloropropane	2.7	U
2,2-Dichloropropane	2.7	U	n-Propylbenzene	2.7	U
Bromochloromethane	2.7	U	2-Chlorotoluene	2.7	U
Chloroform	2.7	U	1,3,5-Trimethylbenzene	2.7	U
1,1,1-Trichloroethane	2.7	U	4-Chlorotoluene	2.7	U
1,1-Dichloropropene	2.7	U	tert-Butylbenzene	2.7	U
Carbon tetrachloride	2.7	U	1,2,4-Trimethylbenzene	2.7	U
Benzene	2.7	U	sec-Butylbenzene	2.7	U
Tertiary amyl methyl ether	2.7	U	1,3-Dichlorobenzene	2.7	U
Tetrahydrofuran	6.8	U	p-Isopropyltoluene	2.7	U
1,2-Dichloroethane	2.7	U	1,4-Dichlorobenzene	2.7	U
Trichloroethene	2.7	U	n-Butylbenzene	2.7	U
1,2-Dichloropropane	2.7	U	1,2-Dibromo-3-chloropropane	6.8	U
Dibromomethane	2.7	U	1,2-Dichlorobenzene	2.7	U
1,4-Dioxane	140	U	1,2,4-Trichlorobenzene	2.7	U
Bromodichloromethane	2.7	U	Hexachlorobutadiene	2.7	U
Methyl isobutyl ketone (MIBK)	2.7	U	Naphthalene	2.7	U
			1,2,3-Trichlorobenzene	2.7	U

Surrogate	% Recovery		Acceptance Range (%)
Dibromofluoromethane	18	§	70-130
Toluene-d8	100		70-130
Bromofluorobenzene	91		70-130

§ - Surrogate value outside of acceptable range.
B - Found in associated blank as well as sample.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**
Client ID: **DS-03-50**
Case: **N/A** SDG: **N/A**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **0305041-01R**
Associated Blank: **VS051603B08**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/08/03	05/08/03	05/16/03	69.0	5.02	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	3.3		1,3-Dichloropropene, Total	5.8	U
Chloromethane	2.9	U	Toluene	3.3	B
Vinyl chloride	2.9	U	1,1,2-Trichloroethane	2.9	U
Bromomethane	7.2	U	2-Hexanone	2.9	U
Chloroethane	2.9	U	Tetrachloroethene	2.9	U
Trichlorofluoromethane	2.9	U	1,3-Dichloropropane	2.9	U
Diethyl ether	2.9	U	Dibromochloromethane	2.9	U
Acetone	13		1,2-Dibromoethane	2.9	U
1,1-Dichloroethene	2.9	U	Chlorobenzene	2.9	U
Carbon disulfide	2.9	U	1,1,1,2-Tetrachloroethane	2.9	U
Methylene chloride	51		Ethylbenzene	2.9	U
Methyl tert-butyl ether (MTBE)	2.9	U	Xylenes, Total	8.7	U
trans-1,2-Dichloroethene	2.9	U	Styrene	2.9	U
Diisopropyl ether	2.9	U	Bromoform	2.9	U
1,1-Dichloroethane	2.9	U	Isopropylbenzene	2.9	U
thyl tertiary butyl ether	2.9	U	1,1,2,2-Tetrachloroethane	2.9	U
2-Butanone (MEK)	7.2	U	Bromobenzene	2.9	U
cis-1,2-Dichloroethene	2.9	U	1,2,3-Trichloropropane	2.9	U
2,2-Dichloropropane	2.9	U	n-Propylbenzene	2.9	U
Bromochloromethane	2.9	U	2-Chlorotoluene	2.9	U
Chloroform	2.9	U	1,3,5-Trimethylbenzene	2.9	U
1,1,1-Trichloroethane	2.9	U	4-Chlorotoluene	2.9	U
1,1-Dichloropropene	2.9	U	tert-Butylbenzene	2.9	U
Carbon tetrachloride	2.9	U	1,2,4-Trimethylbenzene	2.9	U
Benzene	2.9	U	sec-Butylbenzene	2.9	U
Tertiary amyl methyl ether	2.9	U	1,3-Dichlorobenzene	2.9	U
Tetrahydrofuran	7.2	U	p-Isopropyltoluene	2.9	U
1,2-Dichloroethane	2.9	U	1,4-Dichlorobenzene	2.9	U
Trichloroethene	2.9	U	n-Butylbenzene	2.9	U
1,2-Dichloropropane	2.9	U	1,2-Dibromo-3-chloropropane	7.2	U
Dibromomethane	2.9	U	1,2-Dichlorobenzene	2.9	U
1,4-Dioxane	140	U	1,2,4-Trichlorobenzene	2.9	U
Bromodichloromethane	2.9	U	Hexachlorobutadiene	2.9	U
Methyl isobutyl ketone (MIBK)	2.9	U	Naphthalene	2.9	U
			1,2,3-Trichlorobenzene	2.9	U

Surrogate	% Recovery		Acceptance Range (%)
Dibromofluoromethane	21	§	70-130
Toluene-d8	104		70-130
Bromofluorobenzene	92		70-130

§ - Surrogate value outside of acceptable range.
B - Found in associated blank as well as sample.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**
Client ID: **DS-03-74**
Case: **N/A** SDG: **N/A**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **0305041-02**
Associated Blank: **VS051403B20**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/08/03	05/08/03	05/15/03	72.4	5.13	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.7	U	1,3-Dichloropropene, Total	5.4	U
Chloromethane	2.7	U	Toluene	3.7	B
Vinyl chloride	2.7	U	1,1,2-Trichloroethane	2.7	U
Bromomethane	6.7	U	2-Hexanone	2.7	U
Chloroethane	2.7	U	Tetrachloroethene	2.7	U
Trichlorofluoromethane	2.7	U	1,3-Dichloropropane	2.7	U
Diethyl ether	2.7	U	Dibromochloromethane	2.7	U
Acetone	16		1,2-Dibromoethane	2.7	U
1,1-Dichloroethene	2.7	U	Chlorobenzene	2.7	U
Carbon disulfide	2.7	U	1,1,1,2-Tetrachloroethane	2.7	U
Methylene chloride	30		Ethylbenzene	2.7	U
Methyl tert-butyl ether (MTBE)	2.7	U	Xylenes, Total	8.1	U
trans-1,2-Dichloroethene	2.7	U	Styrene	2.7	U
Diisopropyl ether	2.7	U	Bromoform	2.7	U
1,1-Dichloroethane	2.7	U	Isopropylbenzene	2.7	U
Ethyl tertiary butyl ether	2.7	U	1,1,2,2-Tetrachloroethane	2.7	U
2-Butanone (MEK)	6.7	U	Bromobenzene	2.7	U
cis-1,2-Dichloroethene	2.7	U	1,2,3-Trichloropropane	2.7	U
2,2-Dichloropropane	2.7	U	n-Propylbenzene	2.7	U
Bromochloromethane	2.7	U	2-Chlorotoluene	2.7	U
Chloroform	2.7	U	1,3,5-Trimethylbenzene	2.7	U
1,1,1-Trichloroethane	2.7	U	4-Chlorotoluene	2.7	U
1,1-Dichloropropene	2.7	U	tert-Butylbenzene	2.7	U
Carbon tetrachloride	2.7	U	1,2,4-Trimethylbenzene	2.7	U
Benzene	2.7	U	sec-Butylbenzene	2.7	U
Tertiary amyl methyl ether	2.7	U	1,3-Dichlorobenzene	2.7	U
Tetrahydrofuran	6.7	U	p-Isopropyltoluene	2.7	U
1,2-Dichloroethane	2.7	U	1,4-Dichlorobenzene	2.7	U
Trichloroethene	2.7	U	n-Butylbenzene	2.7	U
1,2-Dichloropropane	2.7	U	1,2-Dibromo-3-chloropropane	6.7	U
Dibromomethane	2.7	U	1,2-Dichlorobenzene	2.7	U
1,4-Dioxane	130	U	1,2,4-Trichlorobenzene	2.7	U
Bromodichloromethane	2.7	U	Hexachlorobutadiene	2.7	U
Methyl isobutyl ketone (MIBK)	2.7	U	Naphthalene	2.7	U
			1,2,3-Trichlorobenzene	2.7	U

Surrogate	% Recovery		Acceptance Range (%)
Dibromofluoromethane	39	§	70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	92		70-130

§ - Surrogate value outside of acceptable range.
B - Found in associated blank as well as sample.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**
Client ID: **DS-03-74**
Case: **N/A** SDG: **N/A**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **0305041-02R**
Associated Blank: **VS051603B08**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/08/03	05/08/03	05/16/03	72.4	5.21	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.7	U	1,3-Dichloropropene, Total	5.3	U
Chloromethane	2.7	U	Toluene	2.7	U
Vinyl chloride	2.7	U	1,1,2-Trichloroethane	2.7	U
Bromomethane	6.6	U	2-Hexanone	2.7	U
Chloroethane	2.7	U	Tetrachloroethene	2.7	U
Trichlorofluoromethane	2.7	U	1,3-Dichloropropane	2.7	U
Diethyl ether	2.7	U	Dibromochloromethane	2.7	U
Acetone	17		1,2-Dibromoethane	2.7	U
1,1-Dichloroethene	2.7	U	Chlorobenzene	2.7	U
Carbon disulfide	2.7	U	1,1,1,2-Tetrachloroethane	2.7	U
Methylene chloride	10		Ethylbenzene	2.7	U
Methyl tert-butyl ether (MTBE)	2.7	U	Xylenes, Total	8.0	U
trans-1,2-Dichloroethene	2.7	U	Styrene	2.7	U
Diisopropyl ether	2.7	U	Bromoform	2.7	U
1,1-Dichloroethane	2.7	U	Isopropylbenzene	2.7	U
Ethyl tertiary butyl ether	2.7	U	1,1,2,2-Tetrachloroethane	2.7	U
2-Butanone (MEK)	6.6	U	Bromobenzene	2.7	U
cis-1,2-Dichloroethene	2.7	U	1,2,3-Trichloropropane	2.7	U
2,2-Dichloropropane	2.7	U	n-Propylbenzene	2.7	U
Bromochloromethane	2.7	U	2-Chlorotoluene	2.7	U
Chloroform	2.7	U	1,3,5-Trimethylbenzene	2.7	U
1,1,1-Trichloroethane	2.7	U	4-Chlorotoluene	2.7	U
1,1-Dichloropropene	2.7	U	tert-Butylbenzene	2.7	U
Carbon tetrachloride	2.7	U	1,2,4-Trimethylbenzene	2.7	U
Benzene	2.7	U	sec-Butylbenzene	2.7	U
Tertiary amyl methyl ether	2.7	U	1,3-Dichlorobenzene	2.7	U
Tetrahydrofuran	6.6	U	p-Isopropyltoluene	2.7	U
1,2-Dichloroethane	2.7	U	1,4-Dichlorobenzene	2.7	U
Trichloroethene	2.7	U	n-Butylbenzene	2.7	U
1,2-Dichloropropane	2.7	U	1,2-Dibromo-3-chloropropane	6.6	U
Dibromomethane	2.7	U	1,2-Dichlorobenzene	2.7	U
1,4-Dioxane	130	U	1,2,4-Trichlorobenzene	2.7	U
Bromodichloromethane	2.7	U	Hexachlorobutadiene	2.7	U
Methyl isobutyl ketone (MIBK)	2.7	U	Naphthalene	2.7	U
			1,2,3-Trichlorobenzene	2.7	U

Surrogate	% Recovery		Acceptance Range (%)
Dibromofluoromethane	40	§	70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	92		70-130

§ - Surrogate value outside of acceptable range.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**
Client ID: **DS-03-27**
Case: **N/A** SDG: **N/A**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **0305041-03**
Associated Blank: **VS051403B20**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/08/03	05/08/03	05/15/03	85.8	5.57	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.1	U	1,3-Dichloropropene, Total	4.2	U
Chloromethane	2.1	U	Toluene	2.1	U
Vinyl chloride	2.1	U	1,1,2-Trichloroethane	2.1	U
Bromomethane	5.2	U	2-Hexanone	2.1	U
Chloroethane	2.1	U	Tetrachloroethene	2.1	U
Trichlorofluoromethane	2.1	U	1,3-Dichloropropane	2.1	U
Diethyl ether	2.1	U	Dibromochloromethane	2.1	U
Acetone	**25**		1,2-Dibromoethane	2.1	U
1,1-Dichloroethene	2.1	U	Chlorobenzene	2.1	U
Carbon disulfide	**2.5**		1,1,1,2-Tetrachloroethane	2.1	U
Methylene chloride	**11**		Ethylbenzene	2.1	U
Methyl tert-butyl ether (MTBE)	2.1	U	Xylenes, Total	6.3	U
trans-1,2-Dichloroethene	2.1	U	Styrene	2.1	U
Diisopropyl ether	2.1	U	Bromoform	2.1	U
1,1-Dichloroethane	2.1	U	Isopropylbenzene	**2.7**	
Ethyl tertiary butyl ether	2.1	U	1,1,2,2-Tetrachloroethane	2.1	U
2-Butanone (MEK)	5.2	U	Bromobenzene	2.1	U
cis-1,2-Dichloroethene	2.1	U	1,2,3-Trichloropropane	2.1	U
2,2-Dichloropropane	2.1	U	n-Propylbenzene	**8.4**	
Bromochloromethane	2.1	U	2-Chlorotoluene	2.1	U
Chloroform	2.1	U	1,3,5-Trimethylbenzene	2.1	U
1,1,1-Trichloroethane	2.1	U	4-Chlorotoluene	2.1	U
1,1-Dichloropropene	2.1	U	tert-Butylbenzene	**7.3**	
Carbon tetrachloride	2.1	U	1,2,4-Trimethylbenzene	**16**	
Benzene	2.1	U	sec-Butylbenzene	**5.3**	
Tertiary amyl methyl ether	2.1	U	1,3-Dichlorobenzene	2.1	U
Tetrahydrofuran	5.2	U	p-Isopropyltoluene	2.1	U
1,2-Dichloroethane	2.1	U	1,4-Dichlorobenzene	2.1	U
Trichloroethene	2.1	U	n-Butylbenzene	**8.8**	
1,2-Dichloropropane	2.1	U	1,2-Dibromo-3-chloropropane	5.2	U
Dibromomethane	2.1	U	1,2-Dichlorobenzene	2.1	U
1,4-Dioxane	100	U	1,2,4-Trichlorobenzene	2.1	U
Bromodichloromethane	2.1	U	Hexachlorobutadiene	2.1	U
Methyl isobutyl ketone (MIBK)	2.1	U	Naphthalene	2.1	U
			1,2,3-Trichlorobenzene	2.1	U

Surrogate	% Recovery		Acceptance Range (%)
Dibromofluoromethane	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	183	§	70-130

§ - Surrogate value outside of acceptable range.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**
Client ID: **DS-03-10**
Case: N/A SDG: N/A
Matrix: Soil

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **0305041-04**
Associated Blank: **VS051403B20**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/08/03	05/08/03	05/15/03	69.7	5.19	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.8	U	1,3-Dichloropropene, Total	5.5	U
Chloromethane	2.8	U	Toluene	2.8	U
Vinyl chloride	2.8	U	1,1,2-Trichloroethane	2.8	U
Bromomethane	6.9	U	2-Hexanone	2.8	U
Chloroethane	2.8	U	Tetrachloroethene	2.8	U
Trichlorofluoromethane	2.8	U	1,3-Dichloropropane	2.8	U
Diethyl ether	2.8	U	Dibromochloromethane	2.8	U
Acetone	14		1,2-Dibromoethane	2.8	U
1,1-Dichloroethene	2.8	U	Chlorobenzene	2.8	U
Carbon disulfide	2.8	U	1,1,1,2-Tetrachloroethane	2.8	U
Methylene chloride	26		Ethylbenzene	2.8	U
Methyl tert-butyl ether (MTBE)	2.8	U	Xylenes, Total	8.3	U
trans-1,2-Dichloroethene	2.8	U	Styrene	2.8	U
Diisopropyl ether	2.8	U	Bromoform	2.8	U
1,1-Dichloroethane	2.8	U	Isopropylbenzene	2.8	U
Ethyl tertiary butyl ether	2.8	U	1,1,2,2-Tetrachloroethane	2.8	U
2-Butanone (MEK)	6.9	U	Bromobenzene	2.8	U
cis-1,2-Dichloroethene	2.8	U	1,2,3-Trichloropropane	2.8	U
2,2-Dichloropropane	2.8	U	n-Propylbenzene	2.8	U
Bromochloromethane	2.8	U	2-Chlorotoluene	2.8	U
Chloroform	2.8	U	1,3,5-Trimethylbenzene	2.8	U
1,1,1-Trichloroethane	2.8	U	4-Chlorotoluene	2.8	U
1,1-Dichloropropene	2.8	U	tert-Butylbenzene	2.8	U
Carbon tetrachloride	2.8	U	1,2,4-Trimethylbenzene	2.8	U
Benzene	2.8	U	sec-Butylbenzene	2.8	U
Tertiary amyl methyl ether	2.8	U	1,3-Dichlorobenzene	2.8	U
Tetrahydrofuran	6.9	U	p-Isopropyltoluene	2.8	U
1,2-Dichloroethane	2.8	U	1,4-Dichlorobenzene	2.8	U
Trichloroethene	2.8	U	n-Butylbenzene	2.8	U
1,2-Dichloropropane	2.8	U	1,2-Dibromo-3-chloropropane	6.9	U
Dibromomethane	2.8	U	1,2-Dichlorobenzene	2.8	U
1,4-Dioxane	140	U	1,2,4-Trichlorobenzene	2.8	U
Bromodichloromethane	2.8	U	Hexachlorobutadiene	2.8	U
Methyl isobutyl ketone (MIBK)	2.8	U	Naphthalene	3.5	
			1,2,3-Trichlorobenzene	2.8	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	90	70-130
Toluene-d8	98	70-130
Bromofluorobenzene	87	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**
Client ID: **Trip Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **0305041-05**
Associated Blank: **VS051403B20**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/08/03	05/08/03	05/15/03	100	5.00	5	1	MLR

Parameter	Result	Parameter	Result
Dichlorodifluoromethane	2.0 U	1,3-Dichloropropene, Total	4.0 U
Chloromethane	2.0 U	Toluene	2.0 U
Vinyl chloride	2.0 U	1,1,2-Trichloroethane	2.0 U
Bromomethane	5.0 U	2-Hexanone	2.0 U
Chloroethane	2.0 U	Tetrachloroethene	2.0 U
Trichlorofluoromethane	2.0 U	1,3-Dichloropropane	2.0 U
Diethyl ether	2.0 U	Dibromochloromethane	2.0 U
Acetone	5.6	1,2-Dibromoethane	2.0 U
1,1-Dichloroethene	2.0 U	Chlorobenzene	2.0 U
Carbon disulfide	2.0 U	1,1,1,2-Tetrachloroethane	2.0 U
Methylene chloride	5.0 U	Ethylbenzene	2.0 U
Methyl tert-butyl ether (MTBE)	2.0 U	Xylenes, Total	6.0 U
trans-1,2-Dichloroethene	2.0 U	Styrene	2.0 U
Diisopropyl ether	2.0 U	Bromoform	2.0 U
1,1-Dichloroethane	2.0 U	Isopropylbenzene	2.0 U
Ethyl tertiary butyl ether	2.0 U	1,1,2,2-Tetrachloroethane	2.0 U
2-Butanone (MEK)	5.0 U	Bromobenzene	2.0 U
cis-1,2-Dichloroethene	2.0 U	1,2,3-Trichloropropane	2.0 U
2,2-Dichloropropane	2.0 U	n-Propylbenzene	2.0 U
Bromochloromethane	2.0 U	2-Chlorotoluene	2.0 U
Chloroform	2.0 U	1,3,5-Trimethylbenzene	2.0 U
1,1,1-Trichloroethane	2.0 U	4-Chlorotoluene	2.0 U
1,1-Dichloropropene	2.0 U	tert-Butylbenzene	2.0 U
Carbon tetrachloride	2.0 U	1,2,4-Trimethylbenzene	2.0 U
Benzene	2.0 U	sec-Butylbenzene	2.0 U
Tertiary amyl methyl ether	2.0 U	1,3-Dichlorobenzene	2.0 U
Tetrahydrofuran	5.0 U	p-Isopropyltoluene	2.0 U
1,2-Dichloroethane	2.0 U	1,4-Dichlorobenzene	2.0 U
Trichloroethene	2.0 U	n-Butylbenzene	2.0 U
1,2-Dichloropropane	2.0 U	1,2-Dibromo-3-chloropropane	5.0 U
Dibromomethane	2.0 U	1,2-Dichlorobenzene	2.0 U
1,4-Dioxane	100 U	1,2,4-Trichlorobenzene	2.0 U
Bromodichloromethane	2.0 U	Hexachlorobutadiene	2.0 U
Methyl isobutyl ketone (MIBK)	2.0 U	Naphthalene	2.0 U
		1,2,3-Trichlorobenzene	2.0 U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	101	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	94	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **VS051403B20**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/14/03	100	5.00	5	1	MLR

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	3.8	
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	5.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	2.0	U
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl ether	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl tertiary butyl ether	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	5.0	U	Bromobenzene	2.0	U
cis-1,2-Dichloroethene	2.0	U	1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary amyl methyl ether	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	5.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	2.0	U	n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	100	U	1,2,4-Trichlorobenzene	2.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	2.0	U
			1,2,3-Trichlorobenzene	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	98	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	94	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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QUALITY CONTROL RESULTS

Form II
Surrogate Recovery
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**
Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0305041**
Matrix: **Soil**

Client ID	Lab ID	Dibromofluoromethane	Toluene-d8	4-Bromofluorobenzene
Laboratory Control Sample	VS051403L14	100	102	98
Blank	VS051403B20	98	103	94
Trip Blank	0305041-05	101	101	94
DS-03-50	0305041-01	18 §	100	91
DS-03-74	0305041-02	39 §	99	92
DS-03-10	0305041-04	90	98	87
DS-03-27	0305041-03	98	101	183 §

Surrogate	QC Limit
Dibromofluoromethane	70-130
Toluene-d8	70-130
4-Bromofluorobenzene	70-130

§ - Surrogate value outside of acceptable range.
N/A - Not Applicable

05/22/03 12:52

Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **VS051403L14**
Associated Blank: **VS051403B20**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/14/03	100	5.00	5	1	MLR

Parameter	Conc.	% Recovery	% Recovery Limits
Dichlorodifluoromethane	20	100	70-130
Chloromethane	19	96	70-130
Vinyl chloride	21	103	70-130
Bromomethane	17	87	70-130
Chloroethane	23	117	70-130
Trichlorofluoromethane	25	123	70-130
Diethyl ether	24	120	70-130
Acetone	25	126	70-130
1,1-Dichloroethene	22	112	70-130
Carbon disulfide	21	103	70-130
Methylene chloride	22	109	70-130
Methyl tert-butyl ether (MTBE)	20	98	70-130
trans-1,2-Dichloroethene	20	101	70-130
Diisopropyl ether	19	94	70-130
1,1-Dichloroethane	20	100	70-130
Ethyl tertiary butyl ether	20	98	70-130
2-Butanone (MEK)	22	112	70-130
cis-1,2-Dichloroethene	20	101	70-130
2,2-Dichloropropane	21	104	70-130
Bromochloromethane	21	107	70-130
Chloroform	21	103	70-130
1,1,1-Trichloroethane	20	101	70-130
1,1-Dichloropropene	22	108	70-130
Carbon tetrachloride	22	108	70-130
Benzene	20	100	70-130
Tertiary amyl methyl ether	19	95	70-130
Tetrahydrofuran	26	129	70-130
1,2-Dichloroethane	20	99	70-130
Trichloroethene	21	103	70-130
1,2-Dichloropropane	20	101	70-130
Dibromomethane	21	104	70-130
1,4-Dioxane	410	103	70-130
Bromodichloromethane	21	103	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**
Client ID: **Laboratory Control Sample**
Case: N/A SDG: N/A
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **VS051403L14**
Associated Blank: **VS051403B20**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/14/03	100	5.00	5	1	MLR

Parameter	Conc.	% Recovery	% Recovery Limits
Methyl isobutyl ketone (MIBK)	21	105	70-130
1,3-Dichloropropene, Total	41	103	70-130
Toluene	21	103	70-130
1,1,2-Trichloroethane	21	103	70-130
2-Hexanone	22	109	70-130
Tetrachloroethene	21	106	70-130
1,3-Dichloropropane	20	102	70-130
Dibromochloromethane	21	105	70-130
1,2-Dibromoethane	21	106	70-130
Chlorobenzene	20	101	70-130
1,1,1,2-Tetrachloroethane	20	101	70-130
Ethylbenzene	19	96	70-130
Xylenes, Total	58	97	70-130
Styrene	20	100	70-130
Bromoform	20	102	70-130
Isopropylbenzene	20	100	70-130
1,1,2,2-Tetrachloroethane	21	103	70-130
Bromobenzene	20	100	70-130
1,2,3-Trichloropropane	20	99	70-130
n-Propylbenzene	20	99	70-130
2-Chlorotoluene	22	109	70-130
1,3,5-Trimethylbenzene	20	100	70-130
4-Chlorotoluene	20	102	70-130
tert-Butylbenzene	20	99	70-130
1,2,4-Trimethylbenzene	20	101	70-130
sec-Butylbenzene	20	99	70-130
1,3-Dichlorobenzene	20	98	70-130
p-Isopropyltoluene	18	92	70-130
1,4-Dichlorobenzene	21	105	70-130
n-Butylbenzene	21	104	70-130
1,2-Dibromo-3-chloropropane	21	107	70-130
1,2-Dichlorobenzene	20	102	70-130
1,2,4-Trichlorobenzene	22	112	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **VS051403L14**
Associated Blank: **VS051403B20**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/14/03	100	5.00	5	1	MLR

Parameter	Conc.	% Recovery	% Recovery Limits
Hexachlorobutadiene	21	103	70-130
Naphthalene	22	108	70-130
1,2,3-Trichlorobenzene	22	108	70-130

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	100	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	98	70-130

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/22/03 12:53

Form IV
Method Blank Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **VS051403B20**
Date Analyzed: **05/14/03 17:48**

Client ID	Lab ID	Date/Time Analyzed
Laboratory Control Sample	VS051403L14	05/14/03 16:44
Trip Blank	0305041-05	05/15/03 00:10
DS-03-50	0305041-01	05/15/03 00:41
DS-03-74	0305041-02	05/15/03 01:13
DS-03-10	0305041-04	05/15/03 01:44
DS-03-27	0305041-03	05/15/03 02:15

N/A - Not Applicable

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Form V
Tune Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **T2051201**
Date Analyzed: **05/12/03 15:17**

Target Mass	Relative To Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result
50	95	15	40	28.7	26709	Pass
75	95	30	60	48.8	45403	Pass
95	95	100	100	100	93080	Pass
96	95	5	9	7.4	6910	Pass
173	174	0	2	0	0	Pass
174	95	50	100	74.4	69235	Pass
175	174	5	9	8	5568	Pass
176	174	95	101	96.1	66536	Pass
177	176	5	9	6.8	4533	Pass

Client ID	Lab ID	Date/Time Analyzed
Initial Calibration	I2051201	05/12/03 15:49
Initial Calibration	I2051202	05/12/03 16:21
Initial Calibration	I2051203	05/12/03 16:53
Initial Calibration	I2051204	05/12/03 17:25
Initial Calibration	I2051205	05/12/03 17:57
Initial Calibration	I2051206	05/12/03 18:29

N/A - Not Applicable

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Form V
Tune Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **T2051402**
Date Analyzed: **05/14/03 15:39**

Target Mass	Relative To Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result
50	95	15	40	27.6	29096	Pass
75	95	30	60	48	50645	Pass
95	95	100	100	100	105603	Pass
96	95	5	9	7.2	7577	Pass
173	174	0	2	0	0	Pass
174	95	50	100	71.7	75691	Pass
175	174	5	9	8.1	6144	Pass
176	174	95	101	97.4	73760	Pass
177	176	5	9	6.8	5031	Pass

Client ID	Lab ID	Date/Time Analyzed
CCV	C2051402	05/14/03 16:12
Laboratory Control Sample	VS051403L14	05/14/03 16:44
Blank	VS051403B20	05/14/03 17:48
Trip Blank	0305041-05	05/15/03 00:10
DS-03-50	0305041-01	05/15/03 00:41
DS-03-74	0305041-02	05/15/03 01:13
DS-03-10	0305041-04	05/15/03 01:44
DS-03-27	0305041-03	05/15/03 02:15

N/A - Not Applicable

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**
Project: **Former GE Site** ETR: **0305041**

Case: N/A SDG: N/A

Lab ID	Date/Time Analyzed
I2051201	05/12/03 15:49
I2051202	05/12/03 16:21
I2051203	05/12/03 16:53
I2051204	05/12/03 17:25
I2051205	05/12/03 17:57
I2051206	05/12/03 18:29

	Response Factors							
Parameter	**1**	**5**	**20**	**50**	**100**	**200**	**Mean**	**% RSD**
Dichlorodifluoromethane	1.767	1.508	1.488	1.581	1.605	1.656	1.601	6.4
Chloromethane	3.746	3.381	3.253	3.159	2.952	2.934	3.238	9.4
Vinyl chloride	2.090	1.697	1.813	1.774	1.885	2.072	1.888	8.5
Bromomethane		0.312	0.301	0.228	0.186	0.159	0.237	28.7[a]
Chloroethane	0.955	0.777	0.796	0.731	0.298		0.711	34.6[a]
Trichlorofluoromethane	1.931	1.654	1.706	1.656	1.531	1.332	1.635	12.1
Diethyl ether	1.086	0.932	0.929	0.930	0.881	0.701	0.910	13.6
Acetone		0.813	0.565	0.493	0.408	0.315	0.519	36.5[a]
1,1-Dichloroethene	2.052	1.723	1.781	1.700	1.612	1.346	1.702	13.5
Carbon disulfide	3.825	3.311	3.448	3.355	3.207	2.647	3.299	11.6
Methylene chloride		1.199	1.115	1.091	0.955	1.026	1.077	8.5
Methyl tert-butyl ether (MTBE)	2.535	2.204	2.319	2.451	2.518	2.564	2.432	5.8
trans-1,2-Dichloroethene	1.704	1.505	1.557	1.597	1.629	1.660	1.609	4.5
Diisopropyl ether	5.194	4.634	4.940	5.257	5.594	5.950	5.261	8.9
1,1-Dichloroethane	2.032	1.794	1.918	1.972	1.991	2.012	1.953	4.5
Ethyl tertiary butyl ether	3.273	2.939	3.098	3.271	3.349	3.555	3.247	6.5
2-Butanone (MEK)		0.998	0.808	0.717	0.666	0.615	0.761	19.8[a]
cis-1,2-Dichloroethene	1.743	1.546	1.603	1.636	1.623	1.609	1.627	4.0
2,2-Dichloropropane	1.217	1.073	1.086	1.084	1.076	1.033	1.095	5.8
Bromochloromethane	0.394	0.376	0.385	0.381	0.376	0.369	0.380	2.3
Chloroform	1.546	1.395	1.438	1.436	1.428	1.439	1.447	3.5
1,1,1-Trichloroethane	1.078	1.002	1.039	1.023	1.019	0.988	1.025	3.1
1,1-Dichloropropene	1.194	1.071	1.100	1.070	1.050	1.015	1.083	5.6
Carbon tetrachloride	0.826	0.748	0.813	0.781	0.770	0.748	0.781	4.2
Benzene	3.674	3.163	3.266	3.305	3.310	3.362	3.347	5.2
Tertiary amyl methyl ether	2.684	2.174	2.239	2.347	2.423	2.661	2.421	8.8
Tetrahydrofuran		0.535	0.441	0.397	0.365	0.335	0.415	18.8[a]
1,2-Dichloroethane	1.111	0.987	1.042	1.077	1.094	1.181	1.082	6.1
Trichloroethene	0.272	0.240	0.257	0.264	0.272	0.270	0.263	4.7
1,2-Dichloropropane	0.356	0.328	0.343	0.353	0.377	0.384	0.357	5.9
Dibromomethane	0.201	0.192	0.205	0.208	0.220	0.225	0.208	5.9
1,4-Dioxane		0.007	0.004	0.004	0.004	0.004	0.004	27.4[a]

N/A - Not Applicable
[a] - Value outside of QC advisory limits.

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**
Project: **Former GE Site** ETR: **0305041**

Case: N/A SDG: N/A

Lab ID	Date/Time Analyzed
I2051201	05/12/03 15:49
I2051202	05/12/03 16:21
I2051203	05/12/03 16:53
I2051204	05/12/03 17:25
I2051205	05/12/03 17:57
I2051206	05/12/03 18:29

	Response Factors							
Parameter	1	5	20	50	100	200	Mean	% RSD
Bromodichloromethane	0.294	0.297	0.315	0.325	0.338	0.379	0.325	9.7
Methyl isobutyl ketone (MIBK)	0.502	0.449	0.453	0.444	0.444	0.469	0.460	4.9
cis-1,3-Dichloropropene	0.400	0.372	0.403	0.420	0.441	0.495	0.422	10.0
Toluene	0.747	0.538	0.588	0.591	0.614	0.705	0.631	12.5
trans-1,3-Dichloropropene	0.330	0.305	0.335	0.350	0.369	0.432	0.354	12.4
1,1,2-Trichloroethane	0.197	0.186	0.196	0.199	0.214	0.244	0.206	10.1
2-Hexanone	0.318	0.296	0.297	0.293	0.288	0.295	0.298	3.5
Tetrachloroethene	0.182	0.167	0.184	0.182	0.187	0.211	0.186	7.8
1,3-Dichloropropane	0.356	0.342	0.359	0.370	0.386	0.439	0.375	9.2
Dibromochloromethane	0.159	0.169	0.190	0.201	0.220	0.254	0.199	17.5*
1,2-Dibromoethane	0.198	0.191	0.205	0.212	0.224	0.244	0.212	9.0
Chlorobenzene	1.137	1.070	1.091	1.099	1.102	1.184	1.114	3.6
1,1,1,2-Tetrachloroethane	0.282	0.305	0.334	0.353	0.373	0.443	0.348	16.3*
Ethylbenzene	2.007	1.837	1.985	2.047	2.158	2.485	2.086	10.6
p/m-Xylene	0.657	0.637	0.701	0.735	0.773	0.887	0.732	12.4
o-Xylene	0.568	0.593	0.653	0.671	0.698	0.770	0.659	11.0
Styrene	0.896	0.952	1.121	1.206	1.266	1.444	1.147	17.8*
Bromoform	0.205	0.204	0.238	0.263	0.268	0.266	0.241	12.5
Isopropylbenzene	1.443	1.453	1.638	1.715	1.795	1.964	1.668	12.1
1,1,2,2-Tetrachloroethane	0.629	0.543	0.592	0.604	0.606	0.576	0.592	5.0
Bromobenzene	0.337	0.338	0.364	0.375	0.384	0.396	0.366	6.7
1,2,3-Trichloropropane	0.432	0.407	0.420	0.431	0.449	0.485	0.437	6.2
n-Propylbenzene	1.910	1.934	2.196	2.273	2.414	2.681	2.235	13.1
2-Chlorotoluene	1.028	1.024	1.135	1.191	1.246	1.332	1.160	10.5
1,3,5-Trimethylbenzene	1.027	1.080	1.230	1.293	1.365	1.503	1.250	14.2
4-Chlorotoluene	1.085	1.000	1.138	1.198	1.248	1.344	1.169	10.4
tert-Butylbenzene	0.843	0.863	0.976	1.020	1.089	1.150	0.990	12.3
1,2,4-Trimethylbenzene	1.001	1.050	1.219	1.287	1.368	1.485	1.235	15.0
sec-Butylbenzene	1.510	1.526	1.794	1.891	2.012	2.148	1.814	14.2
1,3-Dichlorobenzene	0.585	0.591	0.650	0.700	0.764	0.899	0.698	17.1*
p-Isopropyltoluene	1.085	1.084	1.280	1.397	1.582	1.914	1.390	23.0*
1,4-Dichlorobenzene	0.604	0.566	0.630	0.661	0.692	0.712	0.644	8.5

N/A - Not Applicable
* - Value outside of QC advisory limits.

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**
Project: **Former GE Site** ETR: **0305041**

Case: **N/A** SDG: **N/A**

Lab ID	Date/Time Analyzed
I2051201	05/12/03 15:49
I2051202	05/12/03 16:21
I2051203	05/12/03 16:53
I2051204	05/12/03 17:25
I2051205	05/12/03 17:57
I2051206	05/12/03 18:29

Response Factors

Parameter	1	5	20	50	100	200	Mean	% RSD
n-Butylbenzene	1.227	1.220	1.413	1.493	1.601	1.628	1.430	12.4
1,2-Dibromo-3-chloropropane		0.065	0.064	0.068	0.065	0.056	0.063	6.8
1,2-Dichlorobenzene	0.560	0.520	0.578	0.621	0.648	0.652	0.596	8.8
1,2,4-Trichlorobenzene	0.292	0.264	0.294	0.314	0.322	0.316	0.300	7.2
Hexachlorobutadiene	0.106	0.140	0.156	0.169	0.176	0.171	0.153	17.2*
Naphthalene	0.983	0.756	0.836	0.900	0.909	0.842	0.871	8.9
1,2,3-Trichlorobenzene	0.254	0.254	0.282	0.311	0.317	0.303	0.287	9.8
Dibromofluoromethane	0.728	0.713	0.724	0.739	0.740	0.727	0.729	1.4
Toluene-d8	0.736	0.748	0.755	0.755	0.782	0.848	0.771	5.3
4-Bromofluorobenzene	0.412	0.425	0.442	0.458	0.483	0.508	0.455	7.9
Average RSD								10.7

N/A - Not Applicable
* - Value outside of QC advisory limits.

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Form VII
Calibration Verification
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **C2051402**

Case: **N/A** SDG: **N/A**

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
Dichlorodifluoromethane	1.601	1.253	21.7	30
Chloromethane	3.238	2.899	10.5	30
Vinyl chloride	1.888	1.610	14.7	20
Bromomethane	0.237	0.245	3.1	30
Chloroethane	0.711	0.708	0.4	30
Trichlorofluoromethane	1.635	1.511	7.6	30
Diethyl ether	0.910	0.944	3.8	30
Acetone	0.519	0.526	1.4	30
1,1-Dichloroethene	1.702	1.734	1.8	20
Carbon disulfide	3.299	3.362	1.9	30
Methylene chloride	1.077	0.985	8.5	30
Methyl tert-butyl ether (MTBE)	2.432	2.415	0.7	30
trans-1,2-Dichloroethene	1.609	1.603	0.3	30
Diisopropyl ether	5.261	5.141	2.3	30
1,1-Dichloroethane	1.953	1.936	0.9	30
Ethyl tertiary butyl ether	3.247	3.216	1.0	30
2-Butanone (MEK)	0.761	0.741	2.7	30
[illegible]-1,2-Dichloroethene	1.627	1.626	0.0	30
2,2-Dichloropropane	1.095	1.094	0.1	30
Bromochloromethane	0.380	0.385	1.3	30
Chloroform	1.447	1.444	0.2	20
1,1,1-Trichloroethane	1.025	1.041	1.6	30
1,1-Dichloropropene	1.083	1.094	1.0	30
Carbon tetrachloride	0.781	0.796	2.0	30
Benzene	3.347	3.316	0.9	30
Tertiary amyl methyl ether	2.421	2.368	2.2	30
Tetrahydrofuran	0.415	0.409	1.4	30
1,2-Dichloroethane	1.082	1.090	0.7	30
Trichloroethene	0.263	0.277	5.5	30
1,2-Dichloropropane	0.357	0.322	9.8	20
Dibromomethane	0.208	0.216	3.7	30
1,4-Dioxane	0.004	0.004	12.6	30
Bromodichloromethane	0.325	0.339	4.5	30
Methyl isobutyl ketone (MIBK)	0.460	0.474	3.0	30
cis-1,3-Dichloropropene	0.422	0.445	5.4	30
Toluene	0.631	0.657	4.2	20
trans-1,3-Dichloropropene	0.354	0.375	5.9	30
1,1,2-Trichloroethane	0.206	0.211	2.5	30

N/A - Not Applicable

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Form VII
Calibration Verification
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **C2051402**

Case: **N/A** SDG: **N/A**

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
2-Hexanone	0.298	0.314	5.5	30
Tetrachloroethene	0.186	0.198	6.5	30
1,3-Dichloropropane	0.375	0.393	4.7	30
Dibromochloromethane	0.199	0.215	7.9	30
1,2-Dibromoethane	0.212	0.228	7.6	30
Chlorobenzene	1.114	1.124	0.9	30
1,1,1,2-Tetrachloroethane	0.348	0.353	1.4	30
Ethylbenzene	2.086	2.098	0.5	20
p/m-Xylene	0.732	0.757	3.4	30
o-Xylene	0.659	0.689	4.6	30
Styrene	1.147	1.247	8.6	30
Bromoform	0.241	0.267	11.1	30
Isopropylbenzene	1.668	1.738	4.2	30
1,1,2,2-Tetrachloroethane	0.592	0.618	4.4	30
Bromobenzene	0.366	0.391	7.0	30
1,2,3-Trichloropropane	0.437	0.443	1.3	30
n-Propylbenzene	2.235	2.362	5.7	30
2-Chlorotoluene	1.160	1.228	5.9	30
1,3,5-Trimethylbenzene	1.250	1.337	7.0	30
4-Chlorotoluene	1.169	1.270	8.6	30
tert-Butylbenzene	0.990	1.038	4.8	30
1,2,4-Trimethylbenzene	1.235	1.357	9.9	30
sec-Butylbenzene	1.814	1.924	6.1	30
1,3-Dichlorobenzene	0.698	0.756	8.3	30
p-Isopropyltoluene	1.390	1.452	4.5	30
1,4-Dichlorobenzene	0.644	0.728	12.9	30
n-Butylbenzene	1.430	1.593	11.4	30
1,2-Dibromo-3-chloropropane	0.063	0.069	8.3	30
1,2-Dichlorobenzene	0.596	0.654	9.6	30
1,2,4-Trichlorobenzene	0.300	0.375	24.9	30
Hexachlorobutadiene	0.153	0.170	11.0	30
Naphthalene	0.871	0.974	11.8	30
1,2,3-Trichlorobenzene	0.287	0.345	20.4	30
Dibromofluoromethane	0.729	0.739	1.4	30
Toluene-d8	0.771	0.792	2.8	30
4-Bromofluorobenzene	0.455	0.464	2.0	30
Average % D			5.5	

N/A - Not Applicable

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Form VIII
Internal Standard Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Former GE Site**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **C2051402**

Case: **N/A** SDG: **N/A**

		Pentafluorobenzene		Fluorobenzene		Chlorobenzene-D5	
		Area	RT	Area	RT	Area	RT
Standard:		509961	6.67	1337110	7.46	697396	11.81
Upper Limit:		1019922	7.17	2674220	7.96	1394792	12.31
Lower Limit:		254980	6.17	668555	6.96	348698	11.31
Client ID	**Lab ID**						
Laboratory Control Sample	VS051403L14	518613	6.67	1361430	7.46	694761	11.81
Blank	VS051403B20	495973	6.67	1277160	7.46	652905	11.81
Trip Blank	0305041-05	498108	6.67	1306380	7.45	672112	11.80
DS-03-50	0305041-01	459949	6.67	1199730	7.45	599459	11.81
DS-03-74	0305041-02	448463	6.67	1166920	7.46	575993	11.80
DS-03-10	0305041-04	447913	6.67	1201230	7.45	586996	11.81
DS-03-27	0305041-03	445374	6.66	1162110	7.45	622757	11.81

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

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TOTAL PETROLEUM HYDROCARBONS

Total Petroleum Hydrocarbons by GC/FID

Client: **TRC Environmental**
Project: **Former GE Site**
Case: **N/A** SDG: **N/A**
Client ID: **DS-03-50**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **0305041-01**
Associated Blank: **TS051403B15**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/08/03	05/08/03	05/14/03	05/22/03	69.0	5.44	1	1	TLB

Parameter	Result
Total Petroleum Hydrocarbons	56

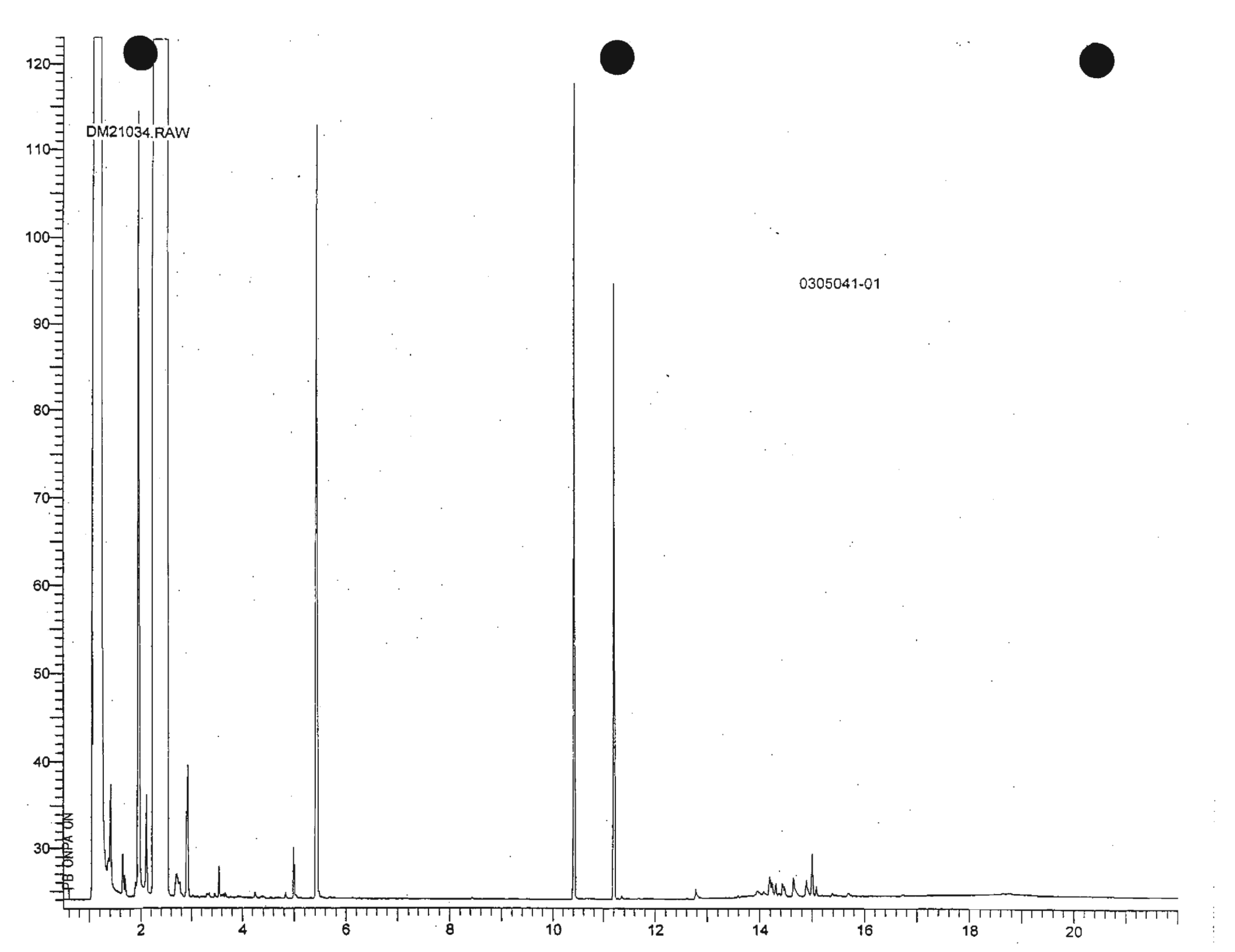
Qualitative Identification Results:

This sample contains GC/FID chromatographic material in the C9-C36 range. This material was not a chromatographic match to any known petroleum standard in the reference library.

Surrogate	% Recovery	Acceptance Range (%)
5-alpha Androstane	62	25-120

N/A - Not Applicable

375 Paramount Drive, Suite 2 Raynham Massachusetts 02767 (508) 822-9300 Fax (508) 822-3288 whale@whgrp.com


DM21034.RAW
0305041-01
PB ONPA ON
120
110
100
90
80
70
60
50
40
30
2
4
6
8
10
12
14
16
18
20

Total Petroleum Hydrocarbons by GC/FID

Client: **TRC Environmental**
Project: **Former GE Site**
Case: **N/A** SDG: **N/A**
Client ID: **DS-03-74**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **0305041-02**
Associated Blank: **TS051403B15**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/08/03	05/08/03	05/14/03	05/22/03	72.4	5.32	1	1	TLB

Parameter	Result
Total Petroleum Hydrocarbons	77

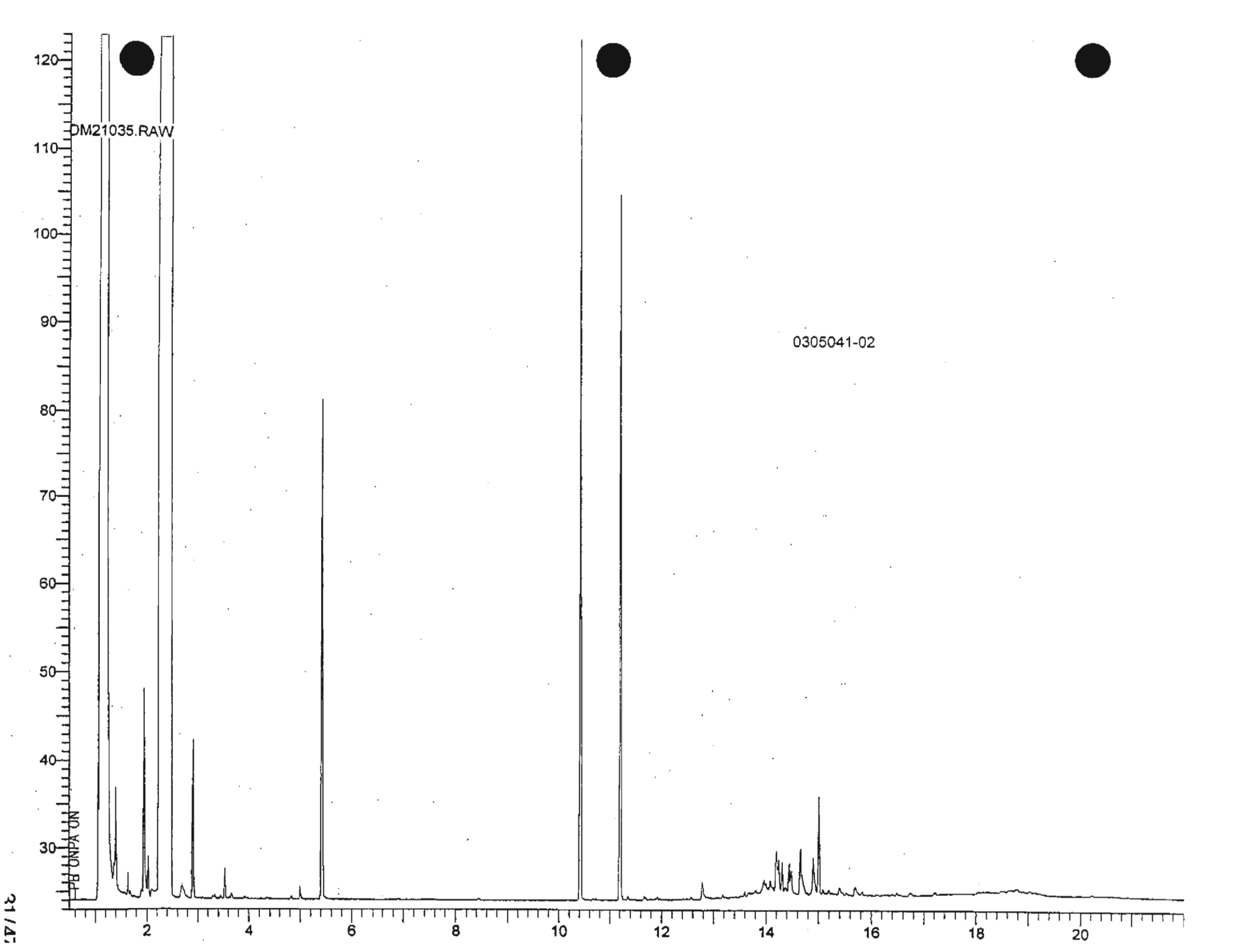
Qualitative Identification Results:

This sample contains GC/FID chromatographic material in the C9-C36 range. This material was not a chromatographic match to any known petroleum standard in the reference library.

Surrogate	% Recovery	Acceptance Range (%)
5-alpha Androstane	79	25-120

N/A - Not Applicable

05/22/03 15:23


DM21035.RAW
0305041-02
PB UNPA ON
120
110
100
90
80
70
60
50
40
30
2
4
6
8
10
12
14
16
18
20

Total Petroleum Hydrocarbons by GC/FID

Client: **TRC Environmental**
Project: **Former GE Site**
Case: N/A SDG: N/A
Client ID: **DS-03-27**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **0305041-03**
Associated Blank: **TS051403B15**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
05/08/03	05/08/03	05/14/03	05/22/03	85.8	5.21	1	1	TLB

Parameter	Result
Total Petroleum Hydrocarbons	110

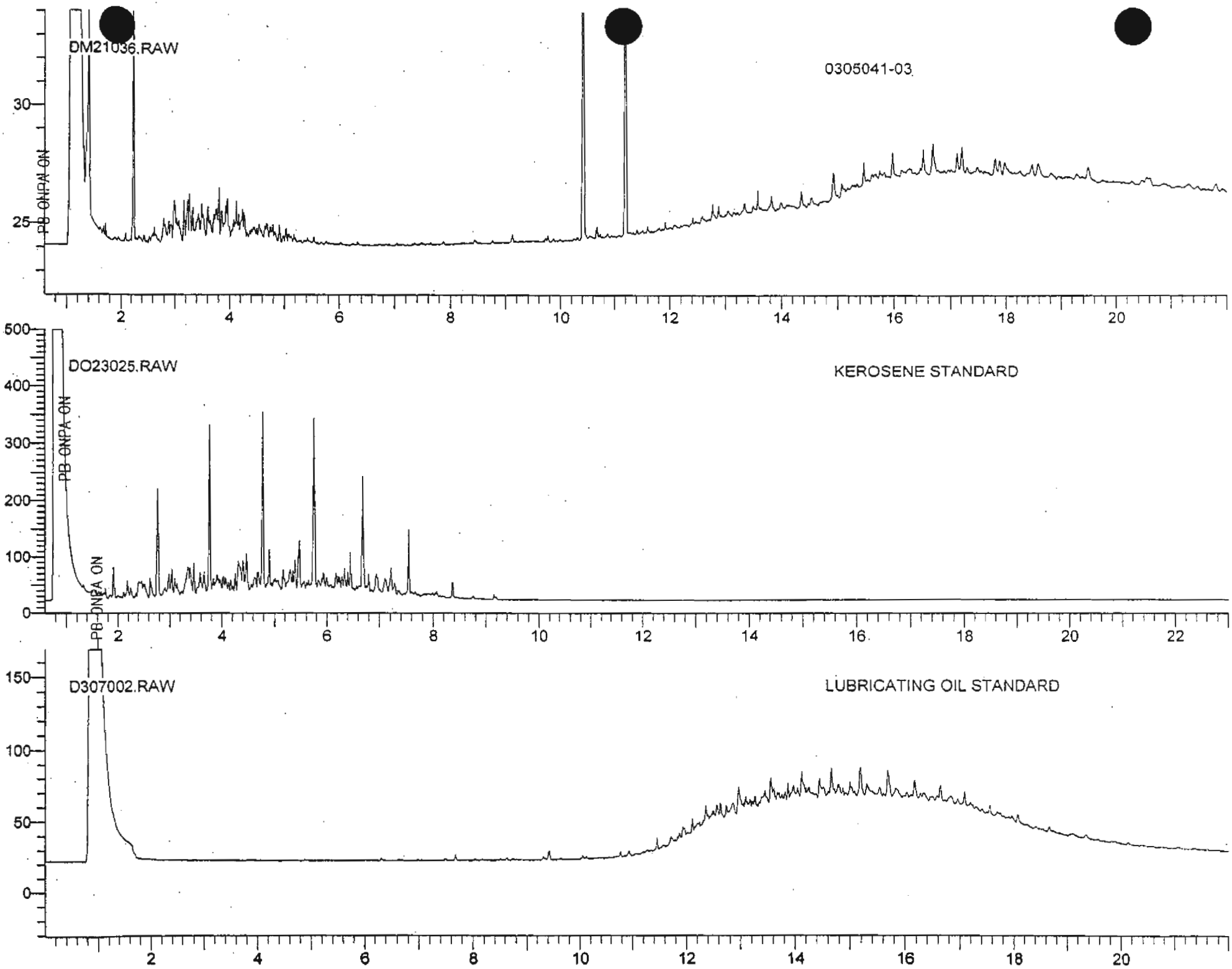
Qualitative Identification Results:

This sample has GC/FID characteristics which are similar to a combination of Kerosene/Jet fuel and high molecular weight components in the lubricating oil range. The absence of straight chain aliphatics indicates that the sample is weathered.

Surrogate	% Recovery	Acceptance Range (%)
5-alpha Androstane	99	25-120

N/A - Not Applicable

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DM21036.RAW
0305041-03
PB ONPA ON
DO23025.RAW
KEROSENE STANDARD
PB ONPA ON
D307002.RAW
LUBRICATING OIL STANDARD

Quality Control Results
Total Petroleum Hydrocarbons by GC/FID

Client: **TRC Environmental**
Project: **Former GE Site**
Case: **N/A** SDG: **N/A**
Client ID: **Method Blank**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **TS051403B15**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	05/14/03	05/22/03	100	5.00	1	1	TLB

Parameter	Result
Total Petroleum Hydrocarbons	20 U

Surrogate	% Recovery	Acceptance Range (%)
5-alpha Androstane	78	25-120

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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QUALITY CONTROL RESULTS

Laboratory Control Sample
Total Petroleum Hydrocarbons by GC/FID

Client: **TRC Environmental**
Project: **Former GE Site**
Case: N/A SDG: N/A
Client ID: **Laboratory Control Sample**
Matrix: **Soil**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **TS051403L10**
Associated Blank: **TS051403B15**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	05/14/03	100	TLB

Parameter	Conc.	% Recovery	% Recovery Limits
Total Petroleum Hydrocarbons	1500	74	40-120

Surrogate	% Recovery	Acceptance Range (%)
5-alpha Androstane	81	25-120

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

05/22/03 15:23

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

TOTAL ORGANIC CARBON

Form I
Inorganics

Client: **TRC Environmental**
Project: **Former GE Site**
Case: **N/A** SDG: **N/A**
Client ID: **DS-03-50**
Matrix: **Soil**
Percent Solid: **69.0**

Lab Code: **MA00030**
ETR: **0305041**

Lab ID: **0305041-01**
Date Collected: **05/08/03**
Date Received: **05/08/03**

Parameter	Result	Qualifier	Reporting Limit	Dilution	Date Analyzed	Unit	Analytical Method	Analyst
Total Organic Carbon	0.01	U	0.01	1	05/21/03	%	9060	DEB

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

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Form I
Inorganics

Client: **TRC Environmental**
Project: **Former GE Site**
Case: **N/A** SDG: **N/A**
Client ID: **DS-03-74**
Matrix: **Soil**
Percent Solid: **72.4**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **0305041-02**
Date Collected: **05/08/03**
Date Received: **05/08/03**

Parameter	Result	Qualifier	Reporting Limit	Dilution	Date Analyzed	Unit	Analytical Method	Analyst
Total Organic Carbon	0.01	U	0.01	1	05/21/03	%	9060	DEB

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

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Form I
Inorganics

Client: **TRC Environmental**
Project: **Former GE Site**
Case: **N/A** SDG: **N/A**
Client ID: **DS-03-27**
Matrix: **Soil**
Percent Solid: **85.8**

Lab Code: **MA00030**
ETR: **0305041**

Lab ID: **0305041-03**
Date Collected: **05/08/03**
Date Received: **05/08/03**

Parameter	Result	Qualifier	Reporting Limit	Dilution	Date Analyzed	Unit	Analytical Method	Analyst
Total Organic Carbon	**0.10**		0.01	1	05/21/03	%	9060	DEB

N/A - Not Applicable

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Form I
Inorganics

Client: **TRC Environmental**
Project: **Former GE Site**
Case: N/A SDG: N/A
Client ID: **DS-03-10**
Matrix: **Soil**
Percent Solid: **69.7**

Lab Code: **MA00030**
ETR: **0305041**

Lab ID: **0305041-04**
Date Collected: **05/08/03**
Date Received: **05/08/03**

Parameter	Result	Qualifier	Reporting Limit	Dilution	Date Analyzed	Unit	Analytical Method	Analyst
Total Organic Carbon	**0.03**		0.01	1	05/21/03	%	9060	DEB

N/A - Not Applicable

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Form III
Inorganics

Client: **TRC Environmental**
Project: **Former GE Site**
Case: **N/A** SDG: **N/A**
Client ID: **Blank**
Matrix: **Soil**
Percent Solid: **100**

Lab Code: **MA00030**
ETR: **0305041**
Lab ID: **WS052103B18**
Date Collected: **N/A**
Date Received: **N/A**

Parameter	Result	Qualifier	Reporting Limit	Dilution	Date Analyzed	Unit	Analytical Method	Analyst
Total Organic Carbon	0.01	U	0.01	1	05/21/03	%	9060	DEB

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

QUALITY CONTROL RESULTS

Form VII
Inorganics

Client: **TRC Environmental**
Project: **Former GE Site**
Case: **N/A** SDG: **N/A**
Client ID: **SRM 1944**
Matrix: **Soil**
Percent Solid: **100**

Lab Code: **MA00030**
ETR: **0305041**

Lab ID: **WS052103L194401**
Date Collected: **N/A**
Date Received: **N/A**

Parameter	Conc.	% Recovery	% Recovery Limits
Total Organic Carbon	5.0	113	75-125

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded results.

05/22/03 11:33

CHAIN OF CUSTODY RECORDS

Chain-of-Custody Record

Woods Hole Group

375 Paramount Drive
Raynham, MA 02767

TEL: (508) 822-9300
FAX: (508) 822-3288

0305041

PAGE 1 OF 1

COMPANY INFORMATION

Name: TRC Environmental
Address: Built Mills South
Foot of John Street
Lowell, MA 01852
Telephone: 978 970-5600
Facsimile: 978 453 1995
Contact Name: Liz Daly

COMPANY'S PROJECT INFORMATION

Regulatory Protocol:
For the State of:
Project Name: Former GE Site
Project Number: E9202
P.O. #
Sampler Name(s): TSW

SHIPPING INFORMATION

Carrier: Lab Courier
Airbill Number:
Date Shipped: 5/8/03
Quote #:

(TAT IS IN BUSINESS DAYS)
CIRCLE TAT: 10 Day 5 Day 3 Day 48 Hr 24 Hr Other
(IF OTHER NOTE BELOW)

SAMPLE CONTAINERS (NOTE 4)

PRESERVATIVE	MeOH	H_2O				
CONTAINER TYPE	glass VOA	glass VOA	glass			
VOLUME	40 ml	40 ml	4 oz			

WHG LAB #	SAMPLE ID (NOTE 1)	COLLECTION DATE	COLLECTION TIME	COMPOSITE OR GRAB	MATRIX	ANALYSIS/REMARKS (NOTES 2, 3)	SAMPLER(S) INTIALS	NUMBER OF CONTAINERS					
-1	DS-03-50	5/8/03	0845	G	Soil	VOC MCP Method 8260B/TPH EPA Method 8100	TSW	1	2	1			
-2	DS-03-74	5/8/03	0900	G	Soil	VOC MCP Method 8260B/TPH EPA Method 8100	TSW	1	2	1			
-3	DS-03-27	5/8/03	1045	G	Soil	VOC MCP Method 8260B/TPH EPA Method 8100	TSW	1	2	1			
-4	DS-03-10	5/8/03	1115	G	Soil	VOC Method 8260B/% solids	TSW	1	2	1			
-5	Trip Blank					VOC Method 8260B (~~% solids~~)		1	2				

	DATE	TIME		
Relinquished by: (signature)	5/8/03	1400	Received by: (signature)	
Relinquished by: (signature)	5/8/03	3:20	Received by: (signature)	
Relinquished by: (signature)	DATE	TIME	Received for Laboratory by: (signature)	

NOTES TO SAMPLER(S): (1) Limit Sample Identification to 6 characters, if possible; (2) Indicate designated Lab Q.C. sample and type (e.g.; MS/MSD/REP) and provide sufficient sample; (3) Field duplicates are separate sample; (4) e.g.; 40ml/glass/H SO,

Notes to Lab: No PCS, No Estimated J values
Temp Blank inside.
Cooler at 4°C
For samples DS-03-50, DS-03-74, DS-03-27 use TPH jar for % solids

4/97

Sample Receipt Checklist

Client: TRC ENVIRONMENTAL	Receipt Date: 5-8-03		
Project: GE Site	Log-in Date: 4		
ETR #: 0305041	Inspection by: EB	Login by: MS	

ALL SECTIONS BELOW MUST BE COMPLETED

Comments / Notes

Were samples shipped? Yes, FedEx / UPS / Other:_____
No, WHG Courier pick-up / Hand delivered

Is bill of lading retained? Yes, Tracking #:_____
No, Unavailable / NA

Number of coolers received for this project delivery: 1

Indicate cooler temperature upon opening (if multiple coolers, record all temps):

Note: If all coolers are 2-6°C, use one checklist, if NOT, use separate checklists and note all samples received *above* 6°C.

Cooler 1:
Temperature(s) taken from: 05° IR Gun, 07° Temp. Blank, / NA

Were samples received on ice? Yes / No

Chain-of-Custody present? Yes / No

Complete? Yes / No

Custody seals present on Cooler? Yes / No

on Bottles? Yes / No

Intact? Yes / No / NA

Note: Affix custody seals to back of this page.

Were sample containers intact? Yes / No If No, list samples: →

Did VOA/VPH waters contain headspace (>5mm)? Yes / No / NA If Yes, list samples: →

Were 5035 VOA soils, or VPH soils, *covered* with MeOH? Yes / No / NA
If No, list samples: →

Was a sufficient amount of sample received for each test indicated on the COC?
Yes / No If No, list samples: →

If chemical preservation is appropriate -
Were samples field preserved? Yes / No / NA

☐ C=HCl ☒ M=MeOH ☐ S=H_2SO_4
☐ H=NaOH ☐ N=HNO_3 ☒ Other: H_2O ☐ U= Unknown

Preservation (pH) verified at lab for *EVERY* bottle? (Not: VOA / VPH / Sulfide)
YES: <2 or >12 (CN) or NO NA
If No, why?:

Were samples received within hold time? Yes / No If No, list samples: →

Discrepancy between samples rec'd & COC ? Yes / No If Yes, list samples: →

Was the Project Manager notified of any other problems? Yes / No / NA

Project Manager Acknowledgement: Date:

Sample storage refrigerator #: D3 | VOA

Sample storage freezer #:_____

Cooler 2:_____ Cooler 3:_____

Cooler 4:_____ Cooler 5:_____

Cooler 6:_____ Cooler 7:_____

More:_____

Chemical preservation OK for ALL samples?
Yes / No / N/A

If No, list samples below:

Trip Blank is NaHSO4 + H

Go ahead and analyze per Liz Denly 5/8/03 ZH

Please use back for any additional notes!

APPENDIX H

BIOREMEDIATION FEASIBILITY STUDY DOCUMENTATION

BIOREMEDIATION FEASIBILITY STUDY WORK PLAN

FORMER GENERAL ELECTRIC FACILITY
50 FORDHAM ROAD
WILMINGTON, MASSACHUSETTS
DEP TRACKING NUMBER 3-518

November 2002

Prepared For:
TRC Environmental Corporation
Boot Mills South
Lowell, Massachusetts 01852

Prepared By:

Innovative Engineering Solutions, Inc.
89 Access Road, Suite 28
Norwood, Massachusetts 02062
(781) 255-0796

BIOREMEDIATION FEASIBILITY STUDY WORK PLAN

FORMER GENERAL ELECTRIC FACILITY
50 FORDHAM ROAD
WILMINGTON, MASSACHUSETTS

DEP Tracking Number 3-518

Prepared for: TRC Environmental Corporation
Boot Hills South
Lowell, Massachusetts 01852

Prepared by: Innovative Engineering Solutions, Inc.
89 Access Road, Suite 28
Norwood, Massachusetts 02062

Principal Engineer _____
Boris Dynkin, P.E.

Project Reviewer: _____
Dr. Sami Fam, Ph.D, P.E., LSP

(seal)

Sami A. Fam, Ph.D., P.E

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LIST OF APPENDICES

Appendix A: Description of Sampling Parameters and Procedures

1. INTRODUCTION

Innovative Engineering Solutions, Inc. (IESI), has been contracted by TRC Environmental Corporation (TRC) to prepare this Bioremediation Feasibility Study Work Plan (work plan) for the former General Electric Facility in Wilmington, Massachusetts.

IESI has prepared this work plan in response to the Massachusetts Department of Environmental Protection (DEP) letter dated July 12, 2002. In that letter, the Phase III Remedial Action Plan (TRC February 2002) was conditionally approved. In that same letter, the DEP requested that a proposal for a biodegradation pilot test be provided. This work plan is designed to satisfy the DEP request.

1.1 Background Information

The information presented below was taken from the Phase III Remedial Action Plan prepared by TRC. The former GE property is approximately 13 acres, located east of Fordham Road and north of Concord Street, within an industrial park in Wilmington and North Reading, Massachusetts. The location of the site study area includes the former GE property and the off-property wetlands just to the east. Figure 1-1 illustrates the location of the facility.

Prior to 1968, the property was used for gravel mining. From 1968 to 1970, the property was developed establishing three large buildings, one small building, a paved parking area, and a wastewater treatment facility. GE Aerospace Instruments began to occupy the property buildings in 1970 and operated manufacturing and supported research and development departments until 1989. Portions of the site were subsequently subleased to Converse, Inc. from 1973 to 1986 and to Hamilton Standard from 1983 to 1985. In August 1989, GE's operations were sold to Ametek, Inc, which maintains active manufacturing and testing operations at the site. The responsibility for the investigation and remediation of the site stayed with GE until 1993, when Martin Marietta (now Lockheed Martin Corporation, or LMC) acquired the GE Aerospace division, thereby transferring responsibility for site remediation to LMC.

Four underground storage tanks (Tanks D, G, H, and I), located within the Tank Farm area between Buildings 1 and 3, were in use from 1969 to 1987. Given the shallow nature of the bedrock in the area, it was necessary to install these tanks directly into an excavated area of bedrock. The tanks contained waste fuel and waste oil, solvents, Stoddard fuel, jet fuel, and methanol. The four tanks in the Tank Farm area were removed in 1987. The chlorinated VOC contamination that is the subject of this report is attributed to historical releases from these tanks. Figure 1-2 provides a site map illustrating the prominent features of this site.

Overview of Nature and Extent of Contamination & Site Conceptual Model

The release of the chlorinated solvents (primarily tetrachloroethene [PCE] and trichloroethene [TCE]) most likely occurred from the Tank Farm area and has impacted the overburden and fractured bedrock aquifers to the east. The release occurred sometime before 1975 when the facility stopped using chlorinated solvents in the operations. Although other contaminants were released into the groundwater from the Tank Farm area, the RAP Addendum addressed only the chlorinated VOC (solvent-related) contamination. Other types of contaminants with different migration properties, such as Stoddard fuel, have been addressed as separate areas of concern (AOC).

Overall, the Regional Groundwater AOC is defined by the area impacted by chlorinated solvents released into bedrock, and the associated plume that extends downgradient from the original source area. The plume extends through the overburden and fractured rock portions of the aquifer. The vast majority of chlorinated VOCs detected are either PCE or TCE with occasional detections of dichloroethenes and/or vinyl chloride, typical byproducts of PCE and TCE degradation.

In December 1978, Camp, Dresser, & McKee, Inc. (CDM), working under contract for the Town of North Reading, tested groundwater in the area of the Stickney Well, a municipal water supply well located due east of the site. Tests on the Stickney Well indicated the presence of TCE at 62 ug/L and 6 ug/L. The MADEP (formerly the DEQE) advised the Town of North Reading that the Stickney Well should not be used for public water supply purposes. The well was shut down on December 28, 1978. GE subsequently compensated the Town of North Reading in 1991 for the loss of the Stickney Well water supply.

A complete summary of site history is presented in the Public Involvement Plan (PIP) dated November 2000. In addition, a summary of the historical contaminant distribution data (including the most recent data collected by TRC in summer of 2001), a discussion on how the extent of the plume has changed over time, and the implications of the most recent findings are presented in the TRC report *Comprehensive Review of Groundwater Data* dated September 14, 2001.

The most recent investigation (2001) was designed to delineate the vertical extent of bedrock contamination, and the location of major water-bearing fractures that could serve as preferential flow pathways for the chlorinated VOCs to support the RAP phase of the project. As part of the June 2001 deep bedrock investigation, TRC selected two locations for deep bedrock borings. One (TRC-202R) was located in the area of well cluster EMW-11 to constrain the vertical extent of contamination previously identified in the deep bedrock, and the other (TRC-201R) was located along the southern property boundary to investigate a possible fracture that would establish a preferential flow pathway from the source area or southern portion of the site to the south side of Concord Street.

Based on the observed low-flow and no-flow conditions across the entire length of boring TRC-201R, there appears to be no fracture zone extending from the south side of Concord Street onto the southern portion of the site.

Based on the results from boring TRC-202R located near the eastern edge of the parking lot, the bulk of chlorinated VOC mass flux observed to date is located within a specific fracture system located 95-115 feet below ground surface (bgs). Given that the maximum concentrations of chlorinated VOCs in bedrock to date are observed in wells GZA-105, TRC-202R, and EMW-11R3, TRC concluded that a preferential flow pathway exists between the Tank Farm area, well GZA-105, TRC-202R, and the EMW-11 well cluster (Figure 1-3), which all fall along a direct line that is oriented approximately N85E, similar to the orientation of the fractures/joints observed in the surface outcrop located southeast of the site.

Furthermore, the increasing trend of contaminant concentrations with depth is consistent with the nature of the contaminants of concern, given that they are denser than water. That is, a conceptual model of contaminant migration would have dense non-aqueous phase liquids (DNAPL) entering the bedrock at the Tank Farm area and moving downward. Water in direct contact with the DNAPL, which could exhibit exceptionally high levels of VOCs, would preferentially flow eastward along the fractures toward well cluster EMW-11.

The chlorinated VOCs in the overburden aquifer are associated with the bedrock source area. There is no separate source of chlorinated VOCs in the overburden. The overburden plume is a result of eastward migration of impacted groundwater from the shallow fractured rock in the source area (Tank Farm area) into the overburden of the Eastern Parking Lot (EPL- where the overburden deposits become ~30-40 feet in thickness), and the wetlands area (where the overburden deposits extend up to 70 feet in thickness). The chlorinated VOCs in the overburden are generally one order of magnitude less than those detected in bedrock, with the exception of well GZA-105D, where some upwelling of impacted groundwater from bedrock into the overburden may occur. The overall contaminant plume appears to be in a steady-state condition (i.e., no appreciable fluctuation in the contaminant levels and no migration of the plume further east), and appears to be attenuating. Numerous wells in the wetland area have exhibited a significant decrease in VOC levels in recent years. The most recent distribution of chlorinated VOCs in overburden is depicted in Figure 1-4.

Since the original solvents have not been used at the site since 1975, and the original source (tanks in the Tank Farm) was removed in 1987, there is no longer a true source of chlorinated solvents. In fact, the Tank Farm area Interim Measure (a pump and treat system) that has been in operation since 1993 has shown a significant decrease in influent contaminant concentrations. With the limited groundwater extraction rates at the Tank Farm area (less than 1 gpm) and the lower concentrations, the amount of mass removed from the former source area has significantly decreased over time. Only about one pound of total VOC has been recovered over the past three years. Hence, TRC has recommended and the MADEP has approved that this system be decommissioned.

Based on the most recent TRC data, a much higher VOC mass flux is located at boring TRC-202R than in the wells located at the Tank Farm recovery system. As addressed in TRC's 2001, *Comprehensive Review of Groundwater Data*, the mass flux occurring at boring TRC-202R is approximately 20 pounds per year, or nearly two orders of magnitude greater than the rate of extraction from the Tank Farm area. Therefore, for the purposes of discussion in the remainder of this report, the source area of contamination (source) that can be controlled and/or remediated will now be identified as the mass flux in the vicinity of boring TRC-202R. This is depicted on Figure 1-5.

1.2 Summary of Selected Remedial Action

The following sections of this document present an overview of the remedy selected, and conditionally approved for implementation by the MADEP, for bedrock source area of the Wilmington site.

1.2.1 *Description of Remedial Objectives*

In February 2002, TRC presented the Phase III Remedial Action Plan (RAP) for groundwater to the MADEP. In that document, it was recognized that no current technology exists that can achieve GW-1 standards, given geologic, hydrogeologic and contaminant distribution conditions at the site. This fact does not change the cleanup standard. Rather, it changes the focus of the remedial objectives. Specifically, the remediation goal is to approach GW-1 standards while at the same time remove

contaminant mass, minimize future migration and minimize potential risks. Given technical limitations, remedial alternatives were evaluated in the Phase III RAP that could achieve the following objectives:

- Source Containment;
- Source Removal (to the extent practical);
- Groundwater Restoration to Drinking Water Standards (to the extent practical); and
- Prevention of Human Consumption of Contaminated Groundwater

1.2.2 *Description of Selected Remedy*

The remedy selected for implementation at the Wilmington site (described as Alternative 5 in the Phase III RAP) combines groundwater extraction and above-ground treatment with acceleration of natural biodegradation of the contaminants within the source zone. As such, the remedy combined the benefits and features of two alternatives described in the RAP; Alternative 3 (Source Removal and Containment Via Groundwater Extraction and Treatment) and Alternative 4 (Source Removal Via In-Situ Treatment).

The remedy uses multiple extraction and injection wells to manipulate subsurface groundwater flow patterns to prevent migration, remove contaminants in liquid phase and facilitate distribution of amendments for biodegradation. The remedy focuses on treatment of contaminants present in the most contaminated zone (source area) with improvements in down-gradient bedrock and overburden groundwater following the source strength reduction. Figure 1-6 presents a conceptual layout for the remedy. The actual placement, construction details and operating parameters of both extraction and injection wells will be based on the results of the analytical data collection, bench-scale pilot study and numerical flow modeling described in this document.

Given the complexities of this site, primarily related to slow groundwater flow velocities and contaminant desorption, the remedy is expected to be active for 25 years or more before achieving the desired cleanup goals. During this time, a Grant of Environmental Restriction (GER) placed and maintained on the site reduces potential exposure to on-site contaminants. The GER is defined in the MCP under 310 CMR 40.1071 as a type of Activity and Use Limitation (AUL) whereby, in this case, any use of the contaminated groundwater aquifer that would cause a significant risk to human health or the environment would be prohibited. These restrictions would remain in place until contaminant concentrations in the groundwater decreased to levels of no significant risk. The GER would prohibit activities such as installation or operation of public or private drinking water supply wells in the contaminated aquifer. The GER must be approved by MADEP before it can be placed on the site. Use of the GER would be limited to the former GE property. The GER could be utilized for the entire contaminated aquifer area; however, this would require the cooperation of all property owners within the contaminated aquifer area to accept a GER for their respective properties.

The selected alternative is readily implementable as the remedial technologies are well proven and only a small number of bedrock injection wells will likely be required. An existing groundwater discharge permit will have to be modified. As discussed above, MADEP will be required to review and approve the GER prior to implementation.

As described previously, determining implementation details for the selected remedy warrants the completion of additional testing and evaluation activities. The following sections of this document describe the proposed activities.

2. BIOGEOCHEMICAL INVESTIGATION AND TREATABILITY STUDIES

As described in the Phase III Remedial Action Plan, groundwater chemistry data available for the site suggests that intrinsic (natural) degradation of chlorinated VOCs has likely occurred and continues to occur to a limited degree at the site. It appears that these processes have influenced the distribution of VOCs in the groundwater since intermediate breakdown products of PCE and TCE are detected in site groundwater that were not likely handled at the facility.

In the past ten years, there has been an increasing awareness that chlorinated VOCs can be biologically transformed and degraded in the subsurface under a variety of aerobic (degradation utilizing oxygen) and anaerobic (degradation without oxygen consumption) conditions. The results of these investigations have suggested that microorganisms in groundwater are capable of degrading chlorinated VOCs to non-toxic end products such as ethene, ethane, methane, and carbon dioxide (CO_2). Intrinsic biodegradation, a process that is referred to as natural attenuation, has been shown to be sufficient to degrade impacts of VOCs in the groundwater at a number of sites. At other sites, the extent of natural biodegradation has not been proven sufficient to degrade impacts of VOC-impacted groundwater off-site. However, laboratory and field studies have demonstrated that at sites where natural biodegradation is insufficient to degrade impacts, biodegradation of chlorinated VOCs can be enhanced by adjusting levels of electron donors and inorganic minerals. In-situ bioremediation is often proposed as a cost-effective remediation alternative.

Since intermediate breakdown products have been detected in the site groundwater, additional assessment are proposed to evaluate whether natural attenuation mechanisms can be sufficiently enhanced through manipulation of groundwater biogeochemistry. The specific objectives of the biogeochemical investigation and monitoring are to:

1. Evaluate the extent of natural VOC biodegradation occurring in groundwater at the site. The investigations will be designed to determine whether the VOCs are being biodegraded to non-toxic end-products such as ethene, ethane, methane, or CO_2;
2. Evaluate the nature of the biodegradation processes (e.g., aerobic respiration, nitrate-reduction, iron-reduction, sulfate-reduction, methanogenesis [methane production]);
3. Estimate where biodegradation processes are occurring along the groundwater flow path at the site;
4. Evaluate whether enhanced bioremediation should be considered for implementation at the site. In particular, the investigations are designed to evaluate whether further manipulation through addition of electron donors (and/or bio-augmentation) or other additives should be included in any remedial design to enhance degradation; and,
5. Assess whether bioremediation could be a cost-effective remediation alternative.

2.1 Biogeochemical Investigation Sampling Program

To assess the natural biodegradation mechanisms occurring at the site and the potential for further enhancement, groundwater samples will be collected from several monitoring wells representing locations up-gradient, cross-gradient, within, and downgradient of the VOC plume. This approach is employed to evaluate the influx of nutrients and terminal electron acceptors to determine if certain compounds are limiting the biodegradation process. The results of this program will be used to obtain

the main design parameters for the bioremediation system at the site. To address these objectives, the following data will be collected:

- Concentrations of VOCs, including suspected parent (original non-degraded VOC) compounds and potential degradation products.
- Concentrations of suspected end products, or final breakdown products, of common degradation reactions (e.g., ethene, ethane, CO_2 and methane).
- A measure of potential primary growth substrates (carbon source/food for microorganisms), electron donors, and metabolic products. Electron donors are compounds that serve as a primary food substrate such as total organic carbon [TOC]), and oxygenates [organic acids]), and dissolved hydrogen (the ultimate electron donor; hydrogen is generated from breakdown of organic acids and other organic substrates).
- Concentrations of inorganic nutrients, electron acceptors and inorganic end-products. Compounds that serve as ultimate electron acceptors act in a chain-like process that transfers energy for microbial growth and can be viewed as the "spark" to the fuel/food burning process. For example, oxygen is the electron acceptor in aerobic growth environments. Examples of inorganic end-products are sulfide, iron (Fe^{+2}), and manganese (Mn^{+2}) that are the reduced forms of anaerobic electron acceptors.
- Concentrations of inorganic nutrients such as nitrogen and phosphate.
- An assessment of redox conditions, specifically dissolved oxygen (DO) and oxidation-reduction potential (ORP).

2.1.1 *Sampling Parameters, Monitoring Wells and Procedures*

Groundwater samples will be collected from 8 monitoring wells at the site to address the investigation objectives listed above. The wells were selected to provide analytical data hydraulically up-gradient from the VOC plume, within the VOC plume, and cross/downgradient of the VOC plume. Groundwater samples will be collected from the following bedrock monitoring wells:

Source Area Wells:	TRC-202R and EMW-11 R3
Mid-level Impacted Wells:	GZA-101 and GZA-102
Low-level Impacted Wells:	WE-6R and EMW-10R
Up-gradient (Background) Wells:	GZA-13
Down-gradient Well:	STM-8R

Groundwater samples will be analyzed for the following parameters:

Field Parameters

DO; REDOX potential; pH, temperature; specific conductance;

Laboratory Parameters

Anion/Cations:	Nitrate, iron, manganese, sulfate, sulfide, chloride
Dissolved Gases:	Carbon dioxide, methane, ethane, ethene, hydrogen
Nutrients:	Ammonia (N), phosphate
Parent/Breakdown Products:	Volatile organic compounds (VOCs)
Misc. Parameters:	Total organic carbon (TOC), volatile organic acids

The significance of these parameters and sampling procedures are described in detail in Appendix A.

2.1.2 *Description of Biodegradation Processes for Organic Compounds*

Organic compounds are known to degrade through a variety of biologically-mediated (biotic) and abiotic (non-biological) processes. The preferred degradation pathway exhibited for a given organic compound depends on the local groundwater chemistry, microbiology, and the chemical properties of the compound.

In anaerobic environments, reductive dechlorination is the most common reduction mechanism for chlorinated aliphatic compounds. This process involves the sequential replacement of chlorine atoms on the alkane or alkene molecule by hydrogen atoms. An ample supply of electron donors (carbon source) is also required to sustain the growth of dechlorinating microorganisms, as well as the growth of organisms that supply the dechlorinating organisms with essential nutrients (Figure 2-1). Considerable laboratory and field research has shown that chlorinated VOCs can be biodegraded to non-toxic end-products under appropriate anaerobic conditions (leading to production of ethane, ethene and carbon dioxide).

The aerobic biodegradation pathway involves co-metabolic degradation of methane, toluene, phenol, propane, ethene or a few other select carbon sources (and ammonia, a non- carbon source) in order to degrade the chlorinated VOCs. Methane may be present in the groundwater as an anaerobic by-product of the degradation of the background natural TOC (Figure 2-2).

Certain mono and di-chlorinated VOCs can be directly biodegraded under specific aerobic or anaerobic conditions, and serve directly as growth substrates. Methylene chloride and vinyl chloride are the best examples of VOCs that can be aerobically degraded. In each case, the chlorinated aliphatic compound has served as a source of carbon for microbial growth.

TCE and 1,1,1-trichloroethane (1,1,1-TCA) cannot be aerobically degraded without the presence of a co-metabolite. PCE cannot be aerobically degraded even in the presence of a co-metabolite. Chlorinated VOCs such as TCE are very stable molecules, and are resistant to abiotic hydrolysis and elimination reactions. However, 1,1,1-TCA has been observed to undergo both hydrolysis and elimination reactions in the subsurface

Sequential breakdown of chlorinated VOCs can occur naturally if the groundwater moves within zones of differing REDOX conditions (from anaerobic to aerobic). For example, VOCs may degrade anaerobically to vinyl chloride and subsequently move into an aerobic zone, where the vinyl chloride may aerobically degrade. Alternatively, anaerobic degradation may be followed by methanotrophic co-metabolism as the groundwater moves into a slightly oxygenated zone, where dissolved methane is

present in the groundwater and can act as a co-metabolite. Both of these scenarios could conceivably occur at the subject site.

2.1.3 *Summary of Reactions*

The above discussion has highlighted the complexity and the interrelations of the various natural aerobic and anaerobic reactions that can occur at a site contaminated with chlorinated VOCs. The biogeochemical sampling program is designed to help in understanding which of these reactions are occurring at the site and to quantify to the greatest extent possible the aquifer's ability to degrade the VOCs. The sampling program was also designed to estimate the amounts of supplemental nutrients, electron donors (or electron acceptors) that should be added to enhance the natural system's performance.

2.2 Bench-Scale Microcosm Testing

During the sampling biogeochemical sampling program, one-liter samples will be collected from each of the 9 wells for possible microcosm treatability testing. Only two of the wells will be selected for the treatability tests; however, the wells selected for treatability testing will be based on the results of biogeochemical testing described in section 2.1. It is likely that TRC-202R will be one of the selected wells for treatability testing given its high dissolved contaminant concentration.. [Sami, is this so? BD]

Bioremediation Consulting Inc. (BCI) of Watertown, Massachusetts will perform the biogeochemical analysis and treatability testing. The treatability study will be conducted by Sam Fogel, Ph.D., and Margaret Findlay, Ph.D., pioneers in the evaluation of co-metabolic degradation of chlorinated ethenes. To a large extent, BCI's protocols follow the procedures outlined by the US Air Force Center for Environmental Excellence (US AFCEE) in the "Draft Technical Protocol: A Treatability Test for Evaluating the Potential Applicability of Reductive Anaerobic Biological In-Situ Treatment technology (RABITT) to Remediate Chloroethenes" (1998).

Samples of groundwater from the two selected monitoring wells at the site will be subjected to sealed bottle testing to answer the following questions relative to in situ biodegradation of chlorinated ethenes:

- Can the groundwater support biodegradation of its current content of chlorinated organics without amendment with phosphate or organic acids as electron donors?
- Can biodegradation be improved by adding phosphate alone?
- Can biodegradation be improved by adding organic acids (lactate, or other organic substrate) as electron donors?
- Could the groundwater have previously been responsible for degrading the parent compounds?

Serum bottles will be loaded with 100 ml of groundwater by peristaltic pump directly from the 1 Liter sample bottles, under continuous flushing with Argon, and immediately sealed with teflon-coated rubber septa affixed with crimped aluminum caps. Amendments will be prepared in boiled water to eliminate oxygen, and added by syringe through the septa in doses of 0.1 to 0.5 ml. Bottles will be incubated in an inverted position, at approximately 22°C and shaken once per day. Analysis will be performed for organic acids, VOCs and degradation products on regular intervals.

The treatability study is anticipated to require 1 month to 3 months for completion, since some samples may require long incubation periods. The project team's experience with the sites in Dallas, Texas, Woodbridge, New Jersey, Philadelphia, Pennsylvania, Grand Prairie, Texas, and Sacramento, California and a chemical manufacturing project site in Pittsburg, California has been that the groundwater will degrade the site contaminants if the appropriate amendments and possibly bio-augmentation cultures are

added. We therefore have a high level of confidence that the treatability test will yield positive results. If positive results are not available in three months, the testing period may be extended.

From the treatability testing, an appropriate amendment procedure will be developed for the Wilmington site, should positive results in fact be observed. Specifically, the amendment mixture and possibly bio-augmentation will be ascertained along with an estimation of the dosage required to accelerate the degradation processes. Combined with the results of the modeling exercise, described in the following section of this report, an injection program will be initiated in the field.

3. REPORTING

At the conclusion of the biogeochemical testing program and bench-scale microcosm testing, a summary report will be prepared and submitted to the MADEP. The report will include a description of the methodologies used in these investigations and the results obtained. The report will include the necessary declarations from a Massachusetts LSP.

4. REFERENCES

Appendix A

Description of Sampling Parameters and Procedures

APPENDIX A

DESCRIPTION OF SAMPLING PARAMETERS & PROCEDURES
FORMER GE FACILITY
WILMINGTON, MASSACHUSETTS

Dissolved Oxygen

Dissolved oxygen (DO) is a measure of the amount of dissolved oxygen in the groundwater. DO is an electron acceptor which is thermodynamically favored in the biodegradation of many non-halogenated compounds such as alcohols, ketones, and toluene. Some halogenated VOCs such as vinyl chloride can also be degraded aerobically.

DO will be measured directly in each of the wells both prior to and after purging to provide in-situ profiles. The DO probe (Hydrolab Model Minisond) will be inserted slowly into the well and lowered to the bottom of the well to obtain a profile of the DO, REDOX, specific conductance, pH and temperature. The well will be subsequently purged of three well volumes using a low flow peristaltic pump. Lastly, DO will be re-measured after the purging process. Well drawdown will be minimized during purging in order to limit water cascading down the well and aerating the groundwater column.

REDOX Potential

The REDOX potential of the groundwater is a measure of electron activity and is an indicator of the relative tendency of a solution to accept transfer electrons. REDOX reactions in groundwater are usually biologically mediated and therefore, the REDOX potential of a groundwater system depends upon, and influences, rates of biodegradation. Knowledge of the groundwater REDOX is important since some biological processes only operate within prescribed REDOX ranges. The same sampling protocols previously described for DO measurement will be followed for REDOX measurements. Measurements will be collected using the Hydrolab minisond as discussed in the section above.

Temperature , pH and Conductivity

Specific conductance, temperature and pH provide significant insight on bioremediation viability and hydrogeologic continuity. Microbial activity generally requires a pH range of 6 to 8 and generally doubles for every 10°C increase up to 25°C. Conductivity is useful in assessing whether the sample collected is representative of the saturated zone where the groundwater impacts are present. Conductivity readings also increase in zones of active dechlorination due to the release of chloride ions. These parameters will be measured in-situ with the Hydrolab minisond instrument as described above.

Nitrate, Iron, Manganese, Sulfate and Sulfide

After DO has been depleted in the microbiological treatment zone, nitrate may be used as an electron acceptor for anaerobic degradation. Nitrate is more often utilized in degradation of non-chlorinated or minimally chlorinated VOCs. In some cases, iron and manganese may serve as electron acceptors in the oxidation of some hydrocarbons and other minimally oxidized organics during anaerobic biodegradation. Sulfate may also be used in the microbiological treatment zone as an electron acceptor for anaerobic biodegradation (for chlorinated and non-chlorinated compounds). This process is termed sulfanogenesis and results in the production of sulfide in the form of H_2S.

Quantification of these electron acceptors (and their oxidation state) assess their potential availability for biodegradation. Quantification of their reduced state will aid in assessing the extent of their current utilization in the aquifer.

Carbon Dioxide

Metabolic processes during many biodegradation reactions lead to the formation of carbon dioxide (CO_2). For some of the chlorinated VOCs, CO_2 may be formed by initial anaerobic degradation to ethane or ethene; subsequently, these compounds may be aerobically or anaerobically transformed to CO_2. CO_2 may also serve as an electron acceptor during methanogenesis.

Accurate measurements of carbon dioxide in the groundwater are difficult to obtain due to the natural carbonate buffering systems in groundwater. Despite this difficulty, carbon dioxide measurement can often be a useful parameter in estimating microbial activity.

Methane

Methane is produced by the metabolism of a wide range of organic substrates by methanogenic bacteria, a group of microorganisms that are involved in the biodegradation of chlorinated VOCs. Groundwater samples will be analyzed for methane to assess the presence and activity of methanogenic bacteria.

The presence of methane in the groundwater is indicative of strongly reducing conditions. Methane can potentially be aerobically oxidized as it migrates to an aerobic zone in the aquifer to produce carbon dioxide by methanotrophs. This reaction (catalyzed by methane methano-oxyenase (MMO) can co-metabolically (aerobically) degrade trichloroethylene (TCE), some di-chlorinated VOCs, vinyl chloride (VC), and 1,1,1 trichloroethane (1,1,1 TCA).

Ethane and Ethene

Groundwater samples will be analyzed for the dissolved hydrocarbon gases (ethene and ethane) to assess whether the dechlorination processes are proceeding to completion, and to identify the distribution of these compounds relative to the distribution of VOCs at the site. Ethene is the final non-chlorinated end product of the anaerobic dechlorination of chlorinated ethenes (e.g., PCE, TCE, DCE, and VC). Ethane is the final non-chlorinated end product of the anaerobic dechlorination of chlorinated ethanes (e.g., 1,1,1- 1,1,1-TCA, dichloroethane{DCA}, and chloroethane {CA}). Therefore, the presence of ethene and ethane in the groundwater provides evidence that chlorinated ethenes and/or chlorinated ethanes are being dechlorinated to environmentally-acceptable end products.

Organic Acids, and Dissolved Hydrogen

Acetate is produced by the metabolism of acetogenic microorganisms while growing on simple methyl-containing compounds such as methanol, ethanol, and methylene chloride. Acetic acid (and ethanol) can also be products of the abiotic degradation of 1,1,1-TCA. Acetic acid can then be used as a growth substrate by a number of anaerobic microorganisms, including methanogenic and sulfate-reducing bacteria. Similarly, propionic acid can be used by fatty acid oxidizing bacteria to generate acetic acid, CO_2, and molecular hydrogen, all of which can serve as growth substrates for anaerobic bacteria. Propionate is a major end product of fermentation carried out by a variety of anaerobic bacteria. These

organic acids are considered the primary electron donors that fuel dechlorination reactions. Breakdown of the organic acids generates dissolved hydrogen which is considered to be the primary substrate of etheneogens (microorganisms that degrade vinyl chloride to ethene)

TOC

TOC is a "lump" test parameter that analyzes the total non-volatile organic carbon in a water sample. The TOC laboratory preparation method strips the non-organic carbon present in the sample by nitrogen purging, simultaneously stripping most of the VOCs. This purging process strips 80-100% (based upon previous experience) of the VOCs in the groundwater sample. The TOC value is therefore comprised of mostly non volatile organic carbon, but may contain some VOCs in water samples that contained high initial concentrations of VOCs.

Lactate, acetate, formate, benzoate, butyrate, and propionate and the various alcohols are the likely organic compounds that comprise the bulk of the TOC value. Groundwater samples will be analyzed for TOC to estimate the amount of carbon in the groundwater that may serve as a substrate for microbial growth, or as electron donors in dechlorination reactions.

Nitrogen and Phosphorous

The inorganic parameters ammonia, nitrogen, nitrate, and phosphate are important to quantify since they are the "macronutrient" sources for microbial growth. Microorganisms require these macronutrients to be present in sufficient concentrations to support the growth of a healthy population.

Chloride

The breakdown of chlorinated VOCs results in hydrochloric acid formation, which in-turn elevates the chloride ion concentration. Chloride formed through biodegradation processes may be minimal when compared with naturally occurring levels of chloride, unless the VOC concentrations are fairly high and the natural groundwater has low natural chloride levels. Nevertheless, chloride ion quantification is a useful parameter to evaluate the occurrence of dechlorination reactions.

VOCs

Groundwater samples will be analyzed for VOCs to assess their current distribution and concentration at the site, and to assess whether VOCs are being biodegraded in the groundwater at the site.

The VOCs detected in site groundwater can be divided into the following two classes:

- Group 1: Parent Chlorinated VOCs: PCE, (TCE)
- Group 2: Breakdown VOCs: cis- 1,2-DCE, VC

It should be clearly noted that TCE may be a breakdown product of PCE, and that TCE is not a "true" parent compound. For the purposes of this discussion, however, TCE is considered a parent compound. The classification of VOCs into groups is useful since the various groupings have different properties, breakdown pathways, and concentration trends that are significant in data interpretation.

Figures


AIRBORN EXPRESS
BOBCAT OF BOSTON
CULVERT
STM-9S
N.J. SANFORD CO.
WE 74.3
POND
WILSONART / AMETEK / AGFA / COMPUGRAPHIC CORP.
STM-7
VACANT
MSM INDUSTRIES
COMPUGRAPHIC CORP.
COMPUGRAPHIC/MSM/ AVCO/TEXTRON
AGFA COMPUGRAPHICS
C.M. WHITE IRON WORKS
PACETTI CORP. / VAL-KEN MACHINE
ERMCO
PRESTIGE INTERNATIONAL
TOWN OF READING
GROUND OBSCURED BY DENSE TREES
SALISBURY PARK
D.L. MAHER CO.
STERLING
SUPPLY WELL #62-20
APPROX. DIRT RD
REDMOND AVENUE
DEPENDABLE MASONRY / U-DO-IT DELI
DYAR SALES AND MACHINERY
ELECTRICAL DYNAMICS INC.
DWARE BAKERIES
MARRIOT FOODS
SULLIVAN TIRE
SANBORN TRANSPORT
CENTRE TRUCKING
LILY TRUCKING
BARD-MED SYSTEMS
COLES EXPRESS
ST JOHNSBURY TRUCKING
ROADWAY EXPRESS
TOWN FOREST SUPPLY WELL
IPSWICH RIVER
POND W.E. 72.7
W.E. 72.8
W.E. 72.9
LOTUS DEVELOPMENT CORP.
COMMON LAND V
COMMON LAND II
TOWN OF NORTH READING
TOWN OF WILMINGTON
FORDHAM ROAD
WASTE WATER TREATMENT PLANT
SEWAGE TREATMENT PLANT
FORMER METAL CHIP DISPOSAL AREA
BASKET BALL CT
WETLANDS AREA
OUTFALL 001
OUTFALL 002
WATER TANK
EASTERN PARKING LOT AREA
BUILDING 1
BUILDING 2
GENERAL SCANNING
AMETEK AEROSPACE PRODUCTS BUILDING 1A
TANK FARM 1 AREA
TANK 4 AREA
PARKING AREA
CONVERSE, INC.
CONSTRUCTION AREA
KEYSTON INSTRUMENT
E.I. DUPONT
CARRILL PLACE
GROUNDWATER RECOVERY WELL
PUMPING WELL
TRENCH
TRAIL
VENTURA PROPERTIES
SAND PIT
FURNISH POND
W.E. 77.0
PS-1
PS-3
PS-4
PS-5
PS-7
PS-8
PS-11
MW-1
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MW-3
MW-4
MW-4A
MW-5
MW-6
MW-7
MW-8
MW-9
MW-11
MW-11A
MW-13S
MW-13R
MW-14S
MW-14N-R1,R2,R3,R4
MW-15
MW-16S
MW-16R
MW-17S
MW-17N-R1,R2,R3,R4
MW-18-R1,R2,R3,R4
MW-20N-R2,R4
MW-21-R4
MW-25
MW-35
MW-75
MW-101
MW-102
MW-4N-R1,R2,R3,R4
MW-1R
MW-4-R3
MW-15N-R2,R4
MW-45-R1
MW-8
GZA-1
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GZA-3
GZA-4
GZA-5
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GZA-8
GZA-9
GZA-10
GZA-11
GZA-12
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GZA-14
GZA-14A
GZA-15
GZA-101
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GZA-107
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PZ-10
TRC-102
TRC-103
TRC-104
TRC-105S
TRC-105D
TRC-106
TRC 201R
TRC 202R
EMW-10
EMW-11
BRW
CBR-2
WC-1
WC-2
WC-3
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WC-4S
WC-5
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WE-41

APPENDIX I

LABORATORY REPORTS FOR SYSTEM START-UP

Appendix I - Data Validation Report for System Start-Up Analyses

Samples collected during these sampling events were submitted to Mitkem Corporation (Mitkem) in Warwick, RI for analysis. All samples were analyzed for volatile organic compounds (VOCs) using SW-846 method 8260B and/or total suspended solids (TSS) using Standard Method (20^{th} edition) 2540D. The samples included in this review are listed below. Each of these samples was collected on August 15, 17, and 20, 2003.

A/S Influent
GAC 1 Influent
GAC 2 Influent
Treated Effluent

TRC performed a limited validation of the VOC and TSS analytical data associated with these sampling events. The sample results were assessed using the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review* (10/99) and the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganic Data Review* (7/02). Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies used by the laboratory. Qualification of sample data was not performed.

The limited validation was based upon the following parameters: holding times, cooler temperatures, blanks (laboratory method blanks and trip blanks), surrogate spike recoveries, laboratory control sample (LCS) results, LCS duplicate results, laboratory duplicate results, and an evaluation of sample quantitation limits. These parameters provide an adequate assessment of the overall accuracy and precision of the data set.

In general, the data appear to be valid as reported and may be used for decision-making purposes. Potential false positives exist for the naphthalene results in GAC 1 Influent, GAC 2 Influent, and Treated Effluent from the August 20, 2003 sampling event due to laboratory blank contamination.

Accuracy

All samples were received with cooler temperatures within the method-specified range. All samples were analyzed within the method-specified holding times for VOCs and TSS.

Two trip blanks were evaluated with this data set for VOCs; target compounds were not detected in these trip blanks. A trip blank was not submitted with the August 20, 2003 sampling event; data were not adversely affected by the lack of a trip blank. TSS was not detected in any of the laboratory method blanks. Naphthalene was detected in the VOC laboratory method blank associated with the August 20, 2003 sampling event. The presence of blank contamination indicates that false positives may exist for this compound in the associated field samples. Naphthalene was detected in samples GAC 1

Influent, GAC 2 Influent, and Treated Effluent from the August 20, 2003 sampling event. The results for naphthalene in these samples should be considered potential false positives and biased high due to the blank contamination. It should be noted that although these results were biased high, they were still below the associated project action level and the overall decision-making process was therefore not affected.

All samples exhibited acceptable surrogate recoveries in the VOC analyses. The LCSs associated with this data set exhibited acceptable recoveries of all target compounds in the VOC and TSS analyses.

Precision

The relative percent differences of the target compounds were within the acceptance limits in the VOC LCS/LCS duplicate analyses.
Duplicate TSS analyses performed on samples A/S Influent (from August 15, 2003) and Treated Effluent (from August 17 and 20, 2003) yielded comparable results (i.e., both analyses yielded nondetect results for TSS in all cases).

Quantitation Limits

Based on the results of sample A/S Influent from the August 15th sampling date which detected levels of target compounds which exceeded the calibration range, this sample was analyzed on dilution for samples collected on August 17 and 20, 2003. Quantitation limits for these samples were elevated accordingly by the laboratory due to the dilutions performed.

Sample A/S Influent (from August 15, 2003) was analyzed at a 100-fold dilution due to the concentrations of 1,1-dichloroethane, cis-1,2-dichloroethene, trichloroethene, and tetrachloroethene which exceeded the calibration range in the initial undiluted analysis. The results of both the diluted and undiluted analyses were combined in order to report the lowest possible quantitation limits and all results within the calibration range. However, it should be noted that the results for 1,1-dichloroethane and cis-1,2-dichloroethene were detected below the quantitation limit in the diluted analysis. Therefore, both the diluted and undiluted analyses of this sample resulted in estimated concentrations for these compounds. In order to remain conservative, the results from the undiluted analyses were reported since these results were higher.

No dilutions were performed for the VOC analyses of the Treated Effluent. With the exception of vinyl chloride, the quantitation limits met the project action levels for the contaminants of concern in all three sampling events. The quantitation limit of vinyl chloride at 5 µg/L slightly exceeded the Maximum Contaminant Level (MCL) of 2 µg/L. For future sampling rounds, the laboratory will perform the instrument calibration down to 1 or 2 µg/L in order to support the 2 µg/L MCL.

No dilutions were performed for the TSS analyses. The quantitation limits met the project action levels in all three sampling events.

MITKEM CORPORATION

"Environmental Testing For The New Millennium"

August 18, 2003

TRC Environmental Corporation
Foot of John Street
Lowell, MA 01852
Attn: Ms. Liz Denly

RE: Client Project: Lockheed-Wilmington, Samples Collected 8/15/03
Lab Project #: B1298

Dear Ms. Denly:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Edward A. Lawler
Laboratory Operations Manager

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499 • www.mitkem.com

MITKEM CORPORATION

Client: TRC Solutions, Inc.

Client Project: Lockheed-Wilmington, 8/15/03

Lab Project: B1298

Date samples received: 8/16/03

Project Narrative

This data report includes the analysis results for five (5) samples that were received from TRC Solutions, Inc. on August 18, 2003. Analyses were performed per specification in the Chain of Custody form. A trip blank sample was received for volatile organics analysis, but was not listed on the Chain of Custody form. This sample was analyzed for volatile organic compounds.

All of the analyses were performed according to method specifications. Sample A/S INFLUENT was reanalyzed for volatile organics at a 100X dilution due to concentrations exceeding the calibration range of the instrument. The dilution analysis is identified by the letters "DL" appended to the sample ID.

No other unusual occurrences were noted during sample analysis.

The pages in this report have been numbered consecutively, starting from this narrative and ending with a page saying only "Last Page of Data Report".

This data report has been reviewed and is authorized for release as evidenced by the signature below.

Edward A. Lawler
Laboratory Operations Manager

MITKEM CORPORATION

Data Flag/Qualifiers:

U Not Detected. This compound was analyzed-for but not detected. For Organics analysis the reporting limit (lowest standard concentration) is the value listed. For Inorganics analysis reported using CLP forms, the value listed is the detection limit. For Inorganics analyzed using SW-846 methods, the detection limit is the Method Detection Limit, for Inorganics analyzed using EPA CLP and NY ASP CLP methods, the detection limit is the Instrument Detection Limit.

J This flag indicates an estimated value due to either
- the compound was detected below the reporting limit, or
- estimated concentration for Tentatively Identified Compound

B This flag indicates the compound was also detected in the associated Method Blank. The B flag has an alternative meaning for Inorganics analyses reported using CLP forms, indicating a "trace" concentration below the reporting limit and equal to or above the detection limit.

D For Organics analysis, this flag indicates the compound concentration was obtained from a diluted analysis

E This flag indicates the compound concentration exceeded the Calibration Range. The E flag has an alternative meaning for Inorganics analyses reported using CLP forms, indicating an estimated concentration due to the presence of interferences, as determined by the serial dilution analysis.

P This flag is used for Pesticides/PCB/Herbicide compound when there is a greater than 40% difference for detected concentration between the two GC columns used for Primary and Confirmation analyses. This difference typically indicates an interference, causing one value to be unusually high. The **lower** of the two values is reported in the Analysis Report.

A Used to flag Semivolatile Organic Tentatively Identified Compound library search results for compounds identified as aldol condensation byproducts.

N Used to flag results for Volatile and Semivolatile Organics analysis Tentatively Identified Compounds where an analyte has passed the identification criteria, and is considered to be positively identified. For Inorganics analysis reported using CLP forms, the N flag indicates the matrix spike recovery falls outside of the control limit.

* For Inorganics analysis reported using CLP forms, the * flag indicates Relative Percent Difference for duplicate analyses is outside of the control limit.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A/S INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: B1298-01A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6309

Level: (low/med) LOW Date Received: 08/16/03

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	51	
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	160	
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	14	
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	420	E
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	480	E
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	6600	E
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	12	
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A/S INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: B1298-01A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6309

Level: (low/med) LOW Date Received: 08/16/03

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	6200	E
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	3	J
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	1	J
95-47-6	o-Xylene	5	U
----------	m,p-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	1	J
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	2	J
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A/S INFLUENTDL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: B1298-01ADL

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6322

Level: (low/med) LOW Date Received: 08/16/03

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	500	U
74-87-3	Chloromethane	500	U
75-01-4	Vinyl Chloride	500	U
74-83-9	Bromomethane	500	U
75-00-3	Chloroethane	500	U
75-69-4	Trichlorofluoromethane	500	U
75-35-4	1,1-Dichloroethene	500	U
67-64-1	Acetone	500	U
74-88-4	Iodomethane	500	U
75-15-0	Carbon Disulfide	500	U
75-09-2	Methylene Chloride	500	U
156-60-5	trans-1,2-Dichloroethene	500	U
1634-04-4	Methyl tert-butyl ether	500	U
75-34-3	1,1-Dichloroethane	310	DJ
108-05-4	Vinyl acetate	500	U
78-93-3	2-Butanone	500	U
156-59-2	cis-1,2-Dichloroethene	400	DJ
590-20-7	2,2-Dichloropropane	500	U
74-97-5	Bromochloromethane	500	U
67-66-3	Chloroform	500	U
71-55-6	1,1,1-Trichloroethane	500	U
563-58-6	1,1-Dichloropropene	500	U
56-23-5	Carbon Tetrachloride	500	U
107-06-2	1,2-Dichloroethane	500	U
71-43-2	Benzene	500	U
79-01-6	Trichloroethene	18000	D
78-87-5	1,2-Dichloropropane	500	U
74-95-3	Dibromomethane	500	U
75-27-4	Bromodichloromethane	500	U
10061-01-5	cis-1,3-Dichloropropene	500	U
108-10-1	4-Methyl-2-pentanone	500	U
108-88-3	Toluene	500	U
10061-02-6	trans-1,3-Dichloropropene	500	U
79-00-5	1,1,2-Trichloroethane	500	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A/S INFLUENTDL

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: B1298-01ADL

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6322

Level: (low/med) LOW Date Received: 08/16/03

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	500	U
127-18-4	Tetrachloroethene	14000	D
591-78-6	2-Hexanone	500	U
124-48-1	Dibromochloromethane	500	U
106-93-4	1,2-Dibromoethane	500	U
108-90-7	Chlorobenzene	500	U
630-20-6	1,1,1,2-Tetrachloroethane	500	U
100-41-4	Ethylbenzene	500	U
95-47-6	o-Xylene	500	U
----------	m,p-Xylene	500	U
1330-20-7	Xylene (Total)	500	U
100-42-5	Styrene	500	U
75-25-2	Bromoform	500	U
98-82-8	Isopropylbenzene	500	U
79-34-5	1,1,2,2-Tetrachloroethane	500	U
108-86-1	Bromobenzene	500	U
96-18-4	1,2,3-Trichloropropane	500	U
103-65-1	n-Propylbenzene	500	U
95-49-8	2-Chlorotoluene	500	U
108-67-8	1,3,5-Trimethylbenzene	500	U
106-43-4	4-Chlorotoluene	500	U
98-06-6	tert-Butylbenzene	500	U
95-63-6	1,2,4-Trimethylbenzene	500	U
135-98-8	sec-Butylbenzene	500	U
99-87-6	4-Isopropyltoluene	500	U
541-73-1	1,3-Dichlorobenzene	500	U
106-46-7	1,4-Dichlorobenzene	500	U
104-51-8	n-Butylbenzene	500	U
95-50-1	1,2-Dichlorobenzene	500	U
96-12-8	1,2-Dibromo-3-chloropropane	500	U
120-82-1	1,2,4-Trichlorobenzene	500	U
87-68-3	Hexachlorobutadiene	500	U
91-20-3	Naphthalene	500	U
87-61-6	1,2,3-Trichlorobenzene	500	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC 1 INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: B1298-02A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6308

Level: (low/med) LOW Date Received: 08/16/03

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	31	
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	19	
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC 1 INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: B1298-02A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6308

Level: (low/med) LOW Date Received: 08/16/03

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
95-47-6	o-Xylene	5	U
----------	m,p-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC 2 INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: B1298-03A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6307

Level: (low/med) LOW Date Received: 08/16/03

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC 2 INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: B1298-03A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6307

Level: (low/med) LOW Date Received: 08/16/03

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
95-47-6	o-Xylene	5	U
----------	m,p-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TREATED EFFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: B1298-04A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6306

Level: (low/med) LOW Date Received: 08/16/03

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TREATED EFFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: B1298-04A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6306

Level: (low/med) LOW Date Received: 08/16/03

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
95-47-6	o-Xylene	5	U
----------	m,p-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: B1298-05A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6305

Level: (low/med) LOW Date Received: 08/16/03

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: B1298-05A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6305

Level: (low/med) LOW Date Received: 08/16/03

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
95-47-6	o-Xylene	5	U
----------	m,p-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1I

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: V1B0816A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6302

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1I

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix: (soil/water) WATER Lab Sample ID: V1B0816A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6302

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 08/16/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
95-47-6	o-Xylene	5	U
----------	m,p-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

	EPA SAMPLE NO.	SMC1 #	SMC2 (DCE) #	SMC3 (TOL) #	OTHER (BFB) #	TOT OUT
01	VBLK1I	106	109	90	98	0
02	V1ILCS	95	97	96	98	0
03	V1ILCSD	93	94	95	100	0
04	TRIP BLANK	104	103	90	99	0
05	TREATED EFFL	106	101	91	98	0
06	GAC 2 INFLUE	106	107	90	97	0
07	GAC 1 INFLUE	104	104	89	98	0
08	A/S INFLUENT	104	103	90	102	0
09	A/S INFLUENT	97	101	96	94	0
10						
11						
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29						
30						

		QC LIMITS
SMC1	= Dibromofluoromethane	(78-117)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(62-124)
SMC3 (TOL)	= Toluene-d8	(81-116)
OTHER (BFB)	= Bromofluorobenzene	(74-126)

Column to be used to flag recovery values

* Values outside of contract required QC limits

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix Spike - Sample No.: V1ILCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	50		52	104	48-135
Chloromethane	50		47	94	60-118
Vinyl Chloride	50		46	92	65-113
Bromomethane	50		48	96	73-122
Chloroethane	50		51	102	72-118
Trichlorofluoromethane	50		52	104	68-129
1,1-Dichloroethene	50		49	98	67-121
Acetone	50		48	96	38-161
Iodomethane	50		50	100	72-130
Carbon Disulfide	50		47	94	53-137
Methylene Chloride	50		46	92	59-132
trans-1,2-Dichloroethen	50		50	100	71-124
Methyl tert-butyl ether	50		52	104	75-123
1,1-Dichloroethane	50		49	98	83-116
Vinyl acetate	50		44	88	44-160
2-Butanone	50		50	100	64-139
cis-1,2-Dichloroethene	50		47	94	83-120
2,2-Dichloropropane	50		54	108	70-129
Bromochloromethane	50		48	96	85-124
Chloroform	50		53	106	89-118
1,1,1-Trichloroethane	50		53	106	81-122
1,1-Dichloropropene	50		49	98	76-122
Carbon Tetrachloride	50		54	108	79-125
1,2-Dichloroethane	50		56	112	83-123
Benzene	50		49	98	81-120
Trichloroethene	50		49	98	77-121
1,2-Dichloropropane	50		48	96	81-116
Dibromomethane	50		52	104	86-124

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix Spike - Sample No.: V1ILCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Bromodichloromethane	50		52	104	90-114
cis-1,3-Dichloropropene	50		48	96	78-119
4-Methyl-2-pentanone	50		48	96	57-138
Toluene	50		50	100	81-121
trans-1,3-Dichloroprope	50		50	100	85-118
1,1,2-Trichloroethane	50		52	104	44-159
1,3-Dichloropropane	50		50	100	79-125
Tetrachloroethene	50		50	100	73-121
2-Hexanone	50		50	100	53-145
Dibromochloromethane	50		50	100	80-124
1,2-Dibromoethane	50		50	100	80-124
Chlorobenzene	50		51	102	82-118
1,1,1,2-Tetrachloroetha	50		50	100	84-121
Ethylbenzene	50		49	98	80-122
Xylene (Total)	150		150	100	81-121
Styrene	50		50	100	77-128
Bromoform	50		51	102	77-130
Isopropylbenzene	50		50	100	58-148
1,1,2,2-Tetrachloroetha	50		49	98	76-125
Bromobenzene	50		48	96	76-124
1,2,3-Trichloropropane	50		48	96	57-140
n-Propylbenzene	50		47	94	72-119
2-Chlorotoluene	50		47	94	75-120
1,3,5-Trimethylbenzene	50		49	98	76-116
4-Chlorotoluene	50		49	98	78-116
tert-Butylbenzene	50		47	94	71-115
1,2,4-Trimethylbenzene	50		49	98	77-117
sec-Butylbenzene	50		47	94	67-117

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix Spike - Sample No.: V1ILCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
4-Isopropyltoluene	50		48	96	68-118
1,3-Dichlorobenzene	50		48	96	80-116
1,4-Dichlorobenzene	50		47	94	80-114
n-Butylbenzene	50		48	96	58-121
1,2-Dichlorobenzene	50		48	96	81-116
1,2-Dibromo-3-chloropro	50		49	98	71-126
1,2,4-Trichlorobenzene	50		48	96	67-114
Hexachlorobutadiene	50		49	98	50-111
Naphthalene	50		46	92	58-133
1,2,3-Trichlorobenzene	50		47	94	64-118

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix Spike - Sample No.: V1ILCS

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Dichlorodifluoromethane	50	53	106	2	40	48-135
Chloromethane	50	53	106	12	40	60-118
Vinyl Chloride	50	50	100	8	40	65-113
Bromomethane	50	50	100	4	40	73-122
Chloroethane	50	51	102	0	40	72-118
Trichlorofluoromethane	50	52	104	0	40	68-129
1,1-Dichloroethene	50	48	96	2	40	67-121
Acetone	50	53	106	10	40	38-161
Iodomethane	50	51	102	2	40	72-130
Carbon Disulfide	50	48	96	2	40	53-137
Methylene Chloride	50	48	96	4	40	59-132
trans-1,2-Dichloroethen	50	48	96	4	40	71-124
Methyl tert-butyl ether	50	53	106	2	40	75-123
1,1-Dichloroethane	50	50	100	2	40	83-116
Vinyl acetate	50	46	92	4	40	44-160
2-Butanone	50	51	102	2	40	64-139
cis-1,2-Dichloroethene	50	49	98	4	40	83-120
2,2-Dichloropropane	50	54	108	0	40	70-129
Bromochloromethane	50	50	100	4	40	85-124
Chloroform	50	51	102	4	40	89-118
1,1,1-Trichloroethane	50	52	104	2	40	81-122
1,1-Dichloropropene	50	48	96	2	40	76-122
Carbon Tetrachloride	50	50	100	8	40	79-125
1,2-Dichloroethane	50	54	108	4	40	83-123
Benzene	50	48	96	2	40	81-120
Trichloroethene	50	48	96	2	40	77-121
1,2-Dichloropropane	50	48	96	0	40	81-116
Dibromomethane	50	54	108	4	40	86-124

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

21

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix Spike - Sample No.: V1ILCS

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Bromodichloromethane	50	53	106	2	40	90-114
cis-1,3-Dichloropropene	50	49	98	2	40	78-119
4-Methyl-2-pentanone	50	50	100	4	40	57-138
Toluene	50	49	98	2	40	81-121
trans-1,3-Dichloroprope	50	51	102	2	40	85-118
1,1,2-Trichloroethane	50	51	102	2	40	44-159
1,3-Dichloropropane	50	50	100	0	40	79-125
Tetrachloroethene	50	51	102	2	40	73-121
2-Hexanone	50	49	98	2	40	53-145
Dibromochloromethane	50	50	100	0	40	80-124
1,2-Dibromoethane	50	51	102	2	40	80-124
Chlorobenzene	50	50	100	2	40	82-118
1,1,1,2-Tetrachloroetha	50	49	98	2	40	84-121
Ethylbenzene	50	50	100	2	40	80-122
Xylene (Total)	150	150	100	0	40	81-121
Styrene	50	49	98	2	40	77-128
Bromoform	50	51	102	0	40	77-130
Isopropylbenzene	50	49	98	2	40	58-148
1,1,2,2-Tetrachloroetha	50	50	100	2	40	76-125
Bromobenzene	50	47	94	2	40	76-124
1,2,3-Trichloropropane	50	48	96	0	40	57-140
n-Propylbenzene	50	47	94	0	40	72-119
2-Chlorotoluene	50	48	96	2	40	75-120
1,3,5-Trimethylbenzene	50	49	98	0	40	76-116
4-Chlorotoluene	50	48	96	2	40	78-116
tert-Butylbenzene	50	47	94	0	40	71-115
1,2,4-Trimethylbenzene	50	49	98	0	40	77-117
sec-Butylbenzene	50	47	94	0	40	67-117

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Matrix Spike - Sample No.: V1ILCS

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
4-Isopropyltoluene	50	48	96	0	40	68-118
1,3-Dichlorobenzene	50	49	98	2	40	80-116
1,4-Dichlorobenzene	50	48	96	2	40	80-114
n-Butylbenzene	50	49	98	2	40	58-121
1,2-Dichlorobenzene	50	49	98	2	40	81-116
1,2-Dibromo-3-chloropro	50	51	102	4	40	71-126
1,2,4-Trichlorobenzene	50	49	98	2	40	67-114
Hexachlorobutadiene	50	49	98	0	40	50-111
Naphthalene	50	48	96	4	40	58-133
1,2,3-Trichlorobenzene	50	49	98	4	40	64-118

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 66 outside limits
Spike Recovery: 0 out of 132 outside limits

COMMENTS: _____

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK1I

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1298

Lab File ID: V1F6302 Lab Sample ID: V1B0816A

Date Analyzed: 08/16/03 Time Analyzed: 1012

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: V1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	V1ILCS	V1L0816A	V1F6303	1041
02	V1ILCSD	V1L0816B	V1F6304	1111
03	TRIP BLANK	B1298-05A	V1F6305	1142
04	TREATED EFFL	B1298-04A	V1F6306	1213
05	GAC 2 INFLUE	B1298-03A	V1F6307	1244
06	GAC 1 INFLUE	B1298-02A	V1F6308	1315
07	A/S INFLUENT	B1298-01A	V1F6309	1347
08	A/S INFLUENT	B1298-01ADL	V1F6322	2104
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
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28				
29				
30				

COMMENTS:

Mitkem Corporation

Date: *18-Aug-03*

Client: TRC Solutions, Inc.
Client Sample ID: A/S INFLUENT
Lab ID: B1298-01

Project: Lockheed-Wilmington, E9202-
Collection Date: 08/15/03 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL SUSPENDED SOLIDS				**SM2540 TSS**			
Total Suspended Solids	ND		10	mg/L	1	08/18/2003 10:07	8687

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quanititation limits
- B - Analyte detected in the associated Method Blank
- DF - Dilution Factor
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range
- RL - Reporting Limit

Mitkem Corporation

Date: *18-Aug-03*

Client: TRC Solutions, Inc.
Client Sample ID: GAC 1 INFLUENT
Lab ID: B1298-02

Project: Lockheed-Wilmington, E9202-
Collection Date: 08/15/03 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL SUSPENDED SOLIDS				**SM2540 TSS**			
Total Suspended Solids	ND		10	mg/L	1	08/18/2003 10:07	8687

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *18-Aug-03*

Client: TRC Solutions, Inc.
Client Sample ID: GAC 2 INFLUENT
Lab ID: B1298-03

Project: Lockheed-Wilmington, E9202-
Collection Date: 08/15/03 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL SUSPENDED SOLIDS				**SM2540 TSS**			
Total Suspended Solids	ND		10	mg/L	1	08/18/2003 10:07	8687

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *18-Aug-03*

Client: TRC Solutions, Inc.
Client Sample ID: TREATED EFFLUENT
Lab ID: B1298-04

Project: Lockheed-Wilmington, E9202-
Collection Date: 08/15/03 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL SUSPENDED SOLIDS				**SM2540 TSS**			
Total Suspended Solids	ND		10	mg/L	1	08/18/2003 10:07	8687

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *18-Aug-03*

CLIENT: TRC Solutions, Inc.
Work Order: B1298
Project: Lockheed-Wilmington, E9202-

ANALYTICAL QC SUMMARY REPORT

TestCode: SM2540_TSS

Sample ID	MB-8687	SampType:	MBLK	TestCode:	SM2540_TSS			Prep Date:	8/18/03		Run ID:	MANUAL_030816A	
Client ID:	MB-8687	Batch ID:	8687	Units:	mg/L			Analysis Date:	8/18/03		SeqNo:	137405	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Total Suspended Solids	ND	10											

Sample ID	LCS-8687	SampType:	LCS	TestCode:	SM2540_TSS			Prep Date:	8/18/03		Run ID:	MANUAL_030816A	
Client ID:	LCS-8687	Batch ID:	8687	Units:	mg/L			Analysis Date:	8/18/03		SeqNo:	137406	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Total Suspended Solids	46	10	49.6	0	92.7	72.7	118	0	0				

Sample ID	B1298-01BDUP	SampType:	DUP	TestCode:	SM2540_TSS			Prep Date:	8/18/03		Run ID:	MANUAL_030816A	
Client ID:	A/S INFLUENT	Batch ID:	8687	Units:	mg/L			Analysis Date:	8/18/03		SeqNo:	137411	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Total Suspended Solids	ND	10	0	0	0	0	0	0	0	20			

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Mitkem Corporation

16/Aug/03 10:01

WorkOrder: B1298

Client ID: TRC_MA
Project: Lockheed-Wilmington
Location:
Comments: Trip Blank not on C-O-C form, but logged-in and analyzed.

Case:
SDG:
PO: E9202-

Report Level: LEVEL 2
EDD:
HC Due: 09/08/03
Fax Due: 08/18/03

Sample ID	Client Sample ID	Collection Date	Date Received	Matrix	Test Code	Test Code Comments	Iold	MS	SEL	Storage
B1298-01A	A/S INFLUENT	08/15/03 0:00	08/16/03	Aqueous	SW8260B_W		☐	☐	☐	VOA
B1298-01B	A/S INFLUENT	08/15/03 0:00	08/16/03	Aqueous	SM2540_TSS		☐	☐	☐	E3
B1298-02A	GAC 1 INFLUENT	08/15/03 0:00	08/16/03	Aqueous	SW8260B_W		☐	☐	☐	VOA
B1298-02B	GAC 1 INFLUENT	08/15/03 0:00	08/16/03	Aqueous	SM2540_TSS		☐	☐	☐	E3
B1298-03A	GAC 2 INFLUENT	08/15/03 0:00	08/16/03	Aqueous	SW8260B_W		☐	☐	☐	VOA
B1298-03B	GAC 2 INFLUENT	08/15/03 0:00	08/16/03	Aqueous	SM2540_TSS		☐	☐	☐	E3
B1298-04A	TREATED EFFLUENT	08/15/03 0:00	08/16/03	Aqueous	SW8260B_W		☐	☐	☐	VOA
B1298-04B	TREATED EFFLUENT	08/15/03 0:00	08/16/03	Aqueous	SM2540_TSS		☐	☐	☐	E3
B1298-05A	TRIP BLANK	08/15/03 0:00	08/16/03	Aqueous	SW8260B_W		☐	☐	☐	VOA

Client Rep:

CHAIN OF CUSTODY RECORD

Project Name: Lockheed-Wilmington
Project No.: E9202-
Sampling Date(s): 8/15/03
Laboratory: Mitkem Corporation
Laboratory P.O. #:
Shipping Airbill No.: 841193982246
Shipping Date(s): 8/15/03
Shipper's Name:

	Sample Code	Sampled Date	Container Size	Container G/P	MATRIX: Aqueous	Organic Solvent	Ash/Soil/Sediment	Acidic	Basic	Other	Source Description	ANALYSIS: VOCs: SW-846 8260 B	TSS: EPA 160.2	Comments
1	A/S Influent	8-15	40		V						GW system	3	(2)	
	A/S Influent	8-15	300		V								1	
2	GAC1 Influent		40		V							3		
	GAC1 Influent		300		V								1	
3	GAC2 Influent		40		V							3		
	GAC2 Influent		300		V								1	
4	Treated Effluent		40		V							3		
	Treated Effluent	↓	300		V						↓		1	
5	TRIP BLANK											2		Not on C-o-C - 8/16 - G

Relinquished by: B. Dynan	Date/Time: 14:20	Relinquished by:	Date/Time:
Received by:	Date/Time:	Received by: Tim Sheehan	Date/Time: 8.16.03 0900 (2°C)

REMARKS (*): 24-hr turnaround time required
E.D.F.

No. 4933

WHITE — LABORATORY YELLOW — LABORATORY COPY PINK — OFFICE COPY GOLD — FIELD COPY

TRC Environmental Corporation

MITKEM CORPORATION

Sample Condition Form

Received By: EB	Reviewed By: JS	Date: 6/16/03	MITKEM Project: B1298
Client Project:	Brown / Lockheed		
Client: TRC			

1) Cooler Sealed (YES) / NO*

*

2) Custody Seal(s) (clear tape) Present / Absent
(Coolers) Bottles
(Intact) / Broken

Custody Seal Numbers

MA			

3) Chain -of- Custody (Present) / Absent

4) Airbill(s) (Present) / Absent

Airbill Number(s) 8411 9398 2246

5) Cooler Temperature 2°C

Coolant Condition Ice / Had

6) Sample Bottles (Intact) / Broken/Leaking

7) Date Received 6/16/03

8) Time Received 09:00

Lab Sample ID	HNO3	H2SO4	HCl	NaOH	VOA MATRIX
B1298 -01	—	—	—	—	H
-02	—	—	—	—	↓
-03	—	—	—	—	↓
-04	—	—	—	—	↓
B1298 -05	—	—	—	—	H

VOA Matrix Key:
US = Unpreserved Soil
UA = Unpreserved Aqueous
M/N = MeOH& NaHSO4
N = NaHSO4 M = MeOH
A = Air
H = HCl
E=Encore

See Sample Condition Notification / Corrective Action Form yes / (no)

Comments / / Remarks

Rad Ok yes / no

FORM ID 30.QUAPPSAMPLECOND.FORM

MITKEM CORPORATION

"Environmental Testing For The New Millennium"

August 25, 2003

TRC Solutions, Inc.
Foot of John Street
Lowell, MA 01852
Attn: Ms. Liz Denly

RE: Client Project: Lockheed-Wilmington, 8/17 Samples
Lab Project #: B1302

Dear Ms. Denly:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Edward A. Lawler
Laboratory Operations Manager

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499 • www.mitkem.com

Report of Laboratory Analyses for TRC Solutions, Inc.

Client Project: Lockheed – Wilmington, 8/17 Samples

SDG# B1302

Mitkem Project ID: B1302

August 25, 2003

Prepared For:

TRC Solutions, Inc.
Foot of John Street
Lowell, MA 01852
Attn: Ms. Liz Denly

Prepared By:

Mitkem Corporation
175 Metro Center Boulevard
Warwick, RI 02886
(401) 732-3400

MITKEM CORPORATION

Client: TRC Solutions, Inc

Client Project: Lockheed-Wilmington

Lab Project ID: B1302

Date samples received: 8/18/03

Project Narrative

This data report includes the analysis results for four (4) samples that were received on August 21, 2003. Analyses were performed per specification in the Chain of Custody form. Per discussion with the client, Total Suspended Solids analysis was only performed on sample TREATED EFFLUENT. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the client sample ID and the laboratory sample ID.

Sample A/S INFLUENT was analyzed for volatile organics at a 100X dilution based on historical data.

No other unusual observation was noted during sample analysis.

The pages in this report have been numbered consecutively starting with the title page and ending with a page saying only "Last Page of Data Report".

This data report has been reviewed and is authorized for release as evidenced by the signature below.

Edward A. Lawler
Laboratory Operations Manager

MITKEM CORPORATION

Data Flag/Qualifiers:

U Not Detected. This compound was analyzed-for but not detected. For Organics analysis the reporting limit (lowest standard concentration) is the value listed. For Inorganics analysis reported using CLP forms, the value listed is the detection limit. For Inorganics analyzed using SW-846 methods, the detection limit is the Method Detection Limit, for Inorganics analyzed using EPA CLP and NY ASP CLP methods, the detection limit is the Instrument Detection Limit.

J This flag indicates an estimated value due to either
- the compound was detected below the reporting limit, or
- estimated concentration for Tentatively Identified Compound

B This flag indicates the compound was also detected in the associated Method Blank. The B flag has an alternative meaning for Inorganics analyses reported using CLP forms, indicating a "trace" concentration below the reporting limit and equal to or above the detection limit.

D For Organics analysis, this flag indicates the compound concentration was obtained from a diluted analysis

E This flag indicates the compound concentration exceeded the Calibration Range. The E flag has an alternative meaning for Inorganics analyses reported using CLP forms, indicating an estimated concentration due to the presence of interferences, as determined by the serial dilution analysis.

P This flag is used for Pesticides/PCB/Herbicide compound when there is a greater than 40% difference for detected concentration between the two GC columns used for Primary and Confirmation analyses. This difference typically indicates an interference, causing one value to be unusually high. The **lower** of the two values is reported in the Analysis Report.

A Used to flag Semivolatile Organic Tentatively Identified Compound library search results for compounds identified as aldol condensation byproducts.

N Used to flag results for Volatile and Semivolatile Organics analysis Tentatively Identified Compounds where an analyte has passed the identification criteria, and is considered to be positively identified. For Inorganics analysis reported using CLP forms, the N flag indicates the matrix spike recovery falls outside of the control limit.

* For Inorganics analysis reported using CLP forms, the * flag indicates Relative Percent Difference for duplicate analyses is outside of the control limit.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A/S INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix: (soil/water) WATER Lab Sample ID: B1302-01A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6347

Level: (low/med) LOW Date Received: 08/18/03

% Moisture: not dec. _____ Date Analyzed: 08/18/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	500	U
74-87-3	Chloromethane	500	U
75-01-4	Vinyl Chloride	500	U
74-83-9	Bromomethane	500	U
75-00-3	Chloroethane	500	U
75-69-4	Trichlorofluoromethane	500	U
75-35-4	1,1-Dichloroethene	500	U
67-64-1	Acetone	500	U
74-88-4	Iodomethane	500	U
75-15-0	Carbon Disulfide	500	U
75-09-2	Methylene Chloride	500	U
156-60-5	trans-1,2-Dichloroethene	500	U
1634-04-4	Methyl tert-butyl ether	500	U
75-34-3	1,1-Dichloroethane	110	J
108-05-4	Vinyl acetate	500	U
78-93-3	2-Butanone	500	U
156-59-2	cis-1,2-Dichloroethene	170	J
590-20-7	2,2-Dichloropropane	500	U
74-97-5	Bromochloromethane	500	U
67-66-3	Chloroform	500	U
71-55-6	1,1,1-Trichloroethane	500	U
563-58-6	1,1-Dichloropropene	500	U
56-23-5	Carbon Tetrachloride	500	U
107-06-2	1,2-Dichloroethane	500	U
71-43-2	Benzene	500	U
79-01-6	Trichloroethene	6600	
78-87-5	1,2-Dichloropropane	500	U
74-95-3	Dibromomethane	500	U
75-27-4	Bromodichloromethane	500	U
10061-01-5	cis-1,3-Dichloropropene	500	U
108-10-1	4-Methyl-2-pentanone	500	U
108-88-3	Toluene	500	U
10061-02-6	trans-1,3-Dichloropropene	500	U
79-00-5	1,1,2-Trichloroethane	500	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A/S INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix: (soil/water) WATER Lab Sample ID: B1302-01A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6347

Level: (low/med) LOW Date Received: 08/18/03

% Moisture: not dec. _____ Date Analyzed: 08/18/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 100.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	500	U
127-18-4	Tetrachloroethene	5300	
591-78-6	2-Hexanone	500	U
124-48-1	Dibromochloromethane	500	U
106-93-4	1,2-Dibromoethane	500	U
108-90-7	Chlorobenzene	500	U
630-20-6	1,1,1,2-Tetrachloroethane	500	U
100-41-4	Ethylbenzene	500	U
95-47-6	o-Xylene	500	U
----------	m,p-Xylene	500	U
1330-20-7	Xylene (Total)	500	U
100-42-5	Styrene	500	U
75-25-2	Bromoform	500	U
98-82-8	Isopropylbenzene	500	U
79-34-5	1,1,2,2-Tetrachloroethane	500	U
108-86-1	Bromobenzene	500	U
96-18-4	1,2,3-Trichloropropane	500	U
103-65-1	n-Propylbenzene	500	U
95-49-8	2-Chlorotoluene	500	U
108-67-8	1,3,5-Trimethylbenzene	500	U
106-43-4	4-Chlorotoluene	500	U
98-06-6	tert-Butylbenzene	500	U
95-63-6	1,2,4-Trimethylbenzene	500	U
135-98-8	sec-Butylbenzene	500	U
99-87-6	4-Isopropyltoluene	500	U
541-73-1	1,3-Dichlorobenzene	500	U
106-46-7	1,4-Dichlorobenzene	500	U
104-51-8	n-Butylbenzene	500	U
95-50-1	1,2-Dichlorobenzene	500	U
96-12-8	1,2-Dibromo-3-chloropropane	500	U
120-82-1	1,2,4-Trichlorobenzene	500	U
87-68-3	Hexachlorobutadiene	500	U
91-20-3	Naphthalene	500	U
87-61-6	1,2,3-Trichlorobenzene	500	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC1 INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix: (soil/water) WATER Lab Sample ID: B1302-02A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6343

Level: (low/med) LOW Date Received: 08/18/03

% Moisture: not dec. _____ Date Analyzed: 08/18/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	130	
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	83	
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	13	
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC1 INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix: (soil/water) WATER Lab Sample ID: B1302-02A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6343

Level: (low/med) LOW Date Received: 08/18/03

% Moisture: not dec. _____ Date Analyzed: 08/18/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	8	
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
95-47-6	o-Xylene	5	U
----------	m,p-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC2 INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix: (soil/water) WATER Lab Sample ID: B1302-03A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6342

Level: (low/med) LOW Date Received: 08/18/03

% Moisture: not dec. _____ Date Analyzed: 08/18/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC2 INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix: (soil/water) WATER Lab Sample ID: B1302-03A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6342

Level: (low/med) LOW Date Received: 08/18/03

% Moisture: not dec. _____ Date Analyzed: 08/18/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
95-47-6	o-Xylene	5	U
----------	m,p-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TREEFF

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix: (soil/water) WATER Lab Sample ID: B1302-04A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6341

Level: (low/med) LOW Date Received: 08/18/03

% Moisture: not dec. _____ Date Analyzed: 08/18/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TREEFF

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix: (soil/water) WATER Lab Sample ID: B1302-04A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6341

Level: (low/med) LOW Date Received: 08/18/03

% Moisture: not dec. _____ Date Analyzed: 08/18/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
95-47-6	o-Xylene	5	U
----------	m,p-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix: (soil/water) WATER Lab Sample ID: B1302-05A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6340

Level: (low/med) LOW Date Received: 08/18/03

% Moisture: not dec. _____ Date Analyzed: 08/18/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix: (soil/water) WATER Lab Sample ID: B1302-05A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6340

Level: (low/med) LOW Date Received: 08/18/03

% Moisture: not dec. _____ Date Analyzed: 08/18/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
95-47-6	o-Xylene	5	U
----------	m,p-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1J

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix: (soil/water) WATER Lab Sample ID: MB-8705

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6337

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 08/18/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK1J

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix: (soil/water) WATER Lab Sample ID: MB-8705

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V1F6337

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 08/18/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
95-47-6	o-Xylene	5	U
----------	m,p-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	5	U
87-61-6	1,2,3-Trichlorobenzene	5	U

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

	EPA SAMPLE NO.	SMC1 #	SMC2 (DCE) #	SMC3 (TOL) #	OTHER (BFB) #	TOT OUT
01	VBLK1J	105	104	102	101	0
02	V1JLCS	103	107	104	105	0
03	V1JLCSD	101	100	101	102	0
04	TRIP BLANK	104	98	102	96	0
05	TREEFF	105	105	102	99	0
06	GAC2 INFLUEN	103	102	102	100	0
07	GAC1 INFLUEN	110	101	104	101	0
08	A/S INFLUENT	113	113	100	100	0
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
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25						
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27						
28						
29						
30						

		QC LIMITS
SMC1	= Dibromofluoromethane	(78-117)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(62-124)
SMC3 (TOL)	= Toluene-d8	(81-116)
OTHER(BFB)	= Bromofluorobenzene	(74-126)

Column to be used to flag recovery values

* Values outside of contract required QC limits

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix Spike - Sample No.: V1JLCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	50		52	104	48-135
Chloromethane	50		47	94	60-118
Vinyl Chloride	50		49	98	65-113
Bromomethane	50		53	106	73-122
Chloroethane	50		49	98	72-118
Trichlorofluoromethane	50		49	98	68-129
1,1-Dichloroethene	50		52	104	67-121
Acetone	50		51	102	38-161
Iodomethane	50		52	104	72-130
Carbon Disulfide	50		51	102	53-137
Methylene Chloride	50		49	98	59-132
trans-1,2-Dichloroethen	50		52	104	71-124
Methyl tert-butyl ether	50		55	110	75-123
1,1-Dichloroethane	50		51	102	83-116
Vinyl acetate	50		53	106	44-160
2-Butanone	50		51	102	64-139
cis-1,2-Dichloroethene	50		51	102	83-120
2,2-Dichloropropane	50		55	110	70-129
Bromochloromethane	50		53	106	85-124
Chloroform	50		51	102	89-118
1,1,1-Trichloroethane	50		53	106	81-122
1,1-Dichloropropene	50		48	96	76-122
Carbon Tetrachloride	50		52	104	79-125
1,2-Dichloroethane	50		53	106	83-123
Benzene	50		51	102	81-120
Trichloroethene	50		51	102	77-121
1,2-Dichloropropane	50		51	102	81-116
Dibromomethane	50		52	104	86-124

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix Spike - Sample No.: V1JLCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Bromodichloromethane	50		53	106	90-114
cis-1,3-Dichloropropene	50		51	102	78-119
4-Methyl-2-pentanone	50		52	104	57-138
Toluene	50		52	104	81-121
trans-1,3-Dichloroprope	50		54	108	85-118
1,1,2-Trichloroethane	50		52	104	44-159
1,3-Dichloropropane	50		51	102	79-125
Tetrachloroethene	50		51	102	73-121
2-Hexanone	50		51	102	53-145
Dibromochloromethane	50		51	102	80-124
1,2-Dibromoethane	50		52	104	80-124
Chlorobenzene	50		51	102	82-118
1,1,1,2-Tetrachloroetha	50		54	108	84-121
Ethylbenzene	50		52	104	80-122
Xylene (Total)	150		160	107	81-121
Styrene	50		53	106	77-128
Bromoform	50		52	104	77-130
Isopropylbenzene	50		52	104	58-148
1,1,2,2-Tetrachloroetha	50		51	102	76-125
Bromobenzene	50		50	100	76-124
1,2,3-Trichloropropane	50		53	106	57-140
n-Propylbenzene	50		51	102	72-119
2-Chlorotoluene	50		51	102	75-120
1,3,5-Trimethylbenzene	50		51	102	76-116
4-Chlorotoluene	50		51	102	78-116
tert-Butylbenzene	50		50	100	71-115
1,2,4-Trimethylbenzene	50		52	104	77-117
sec-Butylbenzene	50		51	102	67-117

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix Spike - Sample No.: V1JLCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
4-Isopropyltoluene	50		52	104	68-118
1,3-Dichlorobenzene	50		50	100	80-116
1,4-Dichlorobenzene	50		51	102	80-114
n-Butylbenzene	50		52	104	58-121
1,2-Dichlorobenzene	50		51	102	81-116
1,2-Dibromo-3-chloropro	50		50	100	71-126
1,2,4-Trichlorobenzene	50		50	100	67-114
Hexachlorobutadiene	50		46	92	50-111
Naphthalene	50		50	100	58-133
1,2,3-Trichlorobenzene	50		50	100	64-118

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix Spike - Sample No.: V1JLCS

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Dichlorodifluoromethane	50	51	102	2	40	48-135
Chloromethane	50	50	100	6	40	60-118
Vinyl Chloride	50	49	98	0	40	65-113
Bromomethane	50	49	98	8	40	73-122
Chloroethane	50	47	94	4	40	72-118
Trichlorofluoromethane	50	46	92	6	40	68-129
1,1-Dichloroethene	50	49	98	6	40	67-121
Acetone	50	50	100	2	40	38-161
Iodomethane	50	51	102	2	40	72-130
Carbon Disulfide	50	49	98	4	40	53-137
Methylene Chloride	50	42	84	15	40	59-132
trans-1,2-Dichloroethen	50	50	100	4	40	71-124
Methyl tert-butyl ether	50	52	104	6	40	75-123
1,1-Dichloroethane	50	50	100	2	40	83-116
Vinyl acetate	50	52	104	2	40	44-160
2-Butanone	50	49	98	4	40	64-139
cis-1,2-Dichloroethene	50	50	100	2	40	83-120
2,2-Dichloropropane	50	53	106	4	40	70-129
Bromochloromethane	50	50	100	6	40	85-124
Chloroform	50	51	102	0	40	89-118
1,1,1-Trichloroethane	50	51	102	4	40	81-122
1,1-Dichloropropene	50	50	100	4	40	76-122
Carbon Tetrachloride	50	51	102	2	40	79-125
1,2-Dichloroethane	50	51	102	4	40	83-123
Benzene	50	50	100	2	40	81-120
Trichloroethene	50	50	100	2	40	77-121
1,2-Dichloropropane	50	50	100	2	40	81-116
Dibromomethane	50	51	102	2	40	86-124

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix Spike - Sample No.: V1JLCS

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Bromodichloromethane	50	51	102	4	40	90-114
cis-1,3-Dichloropropene	50	49	98	4	40	78-119
4-Methyl-2-pentanone	50	51	102	2	40	57-138
Toluene	50	51	102	2	40	81-121
trans-1,3-Dichloroprope	50	51	102	6	40	85-118
1,1,2-Trichloroethane	50	52	104	0	40	44-159
1,3-Dichloropropane	50	50	100	2	40	79-125
Tetrachloroethene	50	51	102	0	40	73-121
2-Hexanone	50	50	100	2	40	53-145
Dibromochloromethane	50	50	100	2	40	80-124
1,2-Dibromoethane	50	52	104	0	40	80-124
Chlorobenzene	50	51	102	0	40	82-118
1,1,1,2-Tetrachloroetha	50	52	104	4	40	84-121
Ethylbenzene	50	52	104	0	40	80-122
Xylene (Total)	150	160	107	0	40	81-121
Styrene	50	51	102	4	40	77-128
Bromoform	50	52	104	0	40	77-130
Isopropylbenzene	50	52	104	0	40	58-148
1,1,2,2-Tetrachloroetha	50	50	100	2	40	76-125
Bromobenzene	50	50	100	0	40	76-124
1,2,3-Trichloropropane	50	52	104	2	40	57-140
n-Propylbenzene	50	51	102	0	40	72-119
2-Chlorotoluene	50	50	100	2	40	75-120
1,3,5-Trimethylbenzene	50	51	102	0	40	76-116
4-Chlorotoluene	50	50	100	2	40	78-116
tert-Butylbenzene	50	52	104	4	40	71-115
1,2,4-Trimethylbenzene	50	51	102	2	40	77-117
sec-Butylbenzene	50	50	100	2	40	67-117

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Matrix Spike - Sample No.: V1JLCS

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
4-Isopropyltoluene	50	52	104	0	40	68-118
1,3-Dichlorobenzene	50	51	102	2	40	80-116
1,4-Dichlorobenzene	50	50	100	2	40	80-114
n-Butylbenzene	50	51	102	2	40	58-121
1,2-Dichlorobenzene	50	50	100	2	40	81-116
1,2-Dibromo-3-chloropro	50	52	104	4	40	71-126
1,2,4-Trichlorobenzene	50	50	100	0	40	67-114
Hexachlorobutadiene	50	48	96	4	40	50-111
Naphthalene	50	50	100	0	40	58-133
1,2,3-Trichlorobenzene	50	50	100	0	40	64-118

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 66 outside limits
Spike Recovery: 0 out of 132 outside limits

COMMENTS: _____

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK1J

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1302

Lab File ID: V1F6337 Lab Sample ID: MB-8705

Date Analyzed: 08/18/03 Time Analyzed: 1651

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: V1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	V1JLCS	LCS-8705	V1F6338	1720
02	V1JLCSD	LCS-8705	V1F6339	1749
03	TRIP BLANK	B1302-05A	V1F6340	1818
04	TREEFF	B1302-04A	V1F6341	1847
05	GAC2 INFLUEN	B1302-03A	V1F6342	1916
06	GAC1 INFLUEN	B1302-02A	V1F6343	1944
07	A/S INFLUENT	B1302-01A	V1F6347	2138
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

Mitkem Corporation

Date: *26-Aug-03*

Client: TRC Solutions, Inc.
Client Sample ID: TREEFF
Lab ID: B1302-04
Project: Lockheed--Wilmington, E9202
Collection Date: 08/17/03 0:00

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL SUSPENDED SOLIDS				**SM2540_TSS**			
Total Suspended Solids	ND		10	mg/L	1	08/18/2003 16:27	8702

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

CLIENT: TRC Solutions, Inc.
Work Order: B1302
Project: Lockheed--Wilmington, E9202

ANALYTICAL QC SUMMARY REPORT

TestCode: SM2540_TSS

Sample ID MB-8702	SampType: MBLK	TestCode: SM2540_TSS			Prep Date: 8/18/03			Run ID: MANUAL_030818A	
Client ID: MB-8702	Batch ID: 8702	Units: mg/L			Analysis Date: 8/18/03			SeqNo: 138075	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Suspended Solids	ND	10									

Sample ID LCS-8702	SampType: LCS	TestCode: SM2540_TSS			Prep Date: 8/18/03			Run ID: MANUAL_030818A	
Client ID: LCS-8702	Batch ID: 8702	Units: mg/L			Analysis Date: 8/18/03			SeqNo: 138076	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Suspended Solids	51	10	49.6	0	103	72.7	118	0	0		

Sample ID B1302-04BDUP	SampType: DUP	TestCode: SM2540_TSS			Prep Date: 8/18/03			Run ID: MANUAL_030818A	
Client ID: TREEFF	Batch ID: 8702	Units: mg/L			Analysis Date: 8/18/03			SeqNo: 138078	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Suspended Solids	ND	10	0	0	0	0	0	0	0	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Client ID: TRC_MA **Case:** **Report Level:** LEVEL 2
Project: Lockheed--Wilmington, E9202 **SDG:** **EDD:** XL
Location: **PO:** E9202-9403-09400 **HC Due:** 09/08/03
Comments: TSS samples -01 thru -03 cancelled by Liz Denly 8/18/03. Trip blank not on C-o-C but was received in cooler. **Fax Due:** 08/20/03

Sample ID	Client Sample ID	Collection Date	Date Received	Matrix	Test Code	Test Code Comments	Iold	MS	SEL	Storage
B1302-01A	A/S INFLUENT	08/17/03 0:00	08/18/03	Aqueous	SW8260B_W		☐	☐	☐	VOA
B1302-02A	GAC1 INFLUENT	08/17/03 0:00	08/18/03	Aqueous	SW8260B_W		☐	☐	☐	VOA
B1302-03A	GAC2 INFLUENT	08/17/03 0:00	08/18/03	Aqueous	SW8260B_W		☐	☐	☐	VOA
B1302-04A	TREEFF	08/17/03 0:00	08/18/03	Aqueous	SW8260B_W		☐	☐	☐	VOA
B1302-04B	TREEFF	08/17/03 0:00	08/18/03	Aqueous	SM2540_TSS		☐	☐	☐	I2
B1302-05A	TRIP BLANK		08/18/03	Aqueous	SW8260B_W		☐	☐	☐	VOA

Client Rep:

CHAIN OF CUSTODY RECORD

Project Name: [redacted] Lockheed-Wilmington
Project No.: E9202-9403-09400
Sampling Date(s): 8-17-03
Laboratory: Mitkem
Laboratory P.O. #:
Shipping Airbill No.: Pick-up
Shipping Date(s): 8-18-03
Shipper's Name: B. Dynella

Sample Code	Sampled Date	Container Size	Container G/P	MATRIX: Aqueous	Organic Solvent	Ash/Soil/Sediment	Acidic	Basic	Other	Source Description	ANALYSIS: VOCs: SW846 8260B	TSS: EPA 160.2	Comments
01 A/S Influent	8-17	40		V						GW Treatment	3		
A/S Influent	8-17	300		V						System		1	
02 GAC1 Influent	8-17	40		V							3		
GAC1 Influent	8-17	300		V								1	
03 GAC2 Influent	8-17	40		V							3		
GAC2 Influent	8-17	300		V								1	
04 Treated Effluent	8-17	40ml		V							3		
Treated Effluent	8-17	300		V								1	
(4) Trip Blank													
QBS													

Relinquished by: B. Dynella — Date/Time: 8-18-03 at 12:30 pm
Received by: — Date/Time:
Relinquished by: — Date/Time:
Received by: — Date/Time: 8-18-03 12:00

REMARKS (*):

27 No 4932

WHITE — LABORATORY YELLOW — LABORATORY COPY PINK — OFFICE COPY GOLD — FIELD COPY

TRC

MITKEM CORPORATION

Sample Condition Form

Page 1 of 1

Received By:	Reviewed By:	Date: 8-18-03	MITKEM Project: B302
Client Project:			
Client:			

1) Cooler Sealed YES / NO*

2) Custody Seal(s) Present / Absent
Coolers / Bottles
Intact / Broken

Custody Seal Numbers

3) Chain -of- Custody Present / Absent

4) Airbill(s) Present / Absent

Airbill Number(s) Roe OFF
MITKEM
COURIER

5) Cooler Temperature 4C

Coolant Condition ICE

6) Sample Bottles Intact/Broken/Leaking

7) Date Received 8-18-03

8) Time Received 1200

VOA Matrix Key:
US = Unpreserved Soil
UA = Unpreserved Aqueous
M/N = MeOH& NaHSO4
N = NaHSO4 M = MeOH
A = Air
H = HCl
E=Encore

Lab Sample ID	HNO3	H2SO4	HCl	NaOH	VOA MATRIX
B302C1					H
" C2					H
" C3					H
B302 C4					H

See Sample Condition Notification / Corrective Action Form yes / no

Comments / / Remarks

Rad OK yes / no

FORM ID 30.QUAPPSAMPLECOND.FORM

Edward A. Lawler

From: "Denly, Elizabeth" <edenly@TRCSOLUTIONS.com>
To: "Ed Lawler" <elawler@mitkem.com>
Sent: Monday, August 18, 2003 5:03 PM
Subject: FW: Lockheed Samples

Ed, I am referring to samples you received today (collected 8/17/03).

> -----Original Message-----
> From: Denly, Elizabeth
> Sent: Monday, August 18, 2003 5:03 PM
> To: 'Ed Lawler'
> Subject: Lockheed Samples
>
> Hi Ed,
>
> As we discussed, TSS analysis only needs to be performed on the Treated Effluent.
>
> Thanks.
>
> Liz
>
> Elizabeth Denly
> TRC Environmental Corporation
> Phone: (978) 656-3577
> Fax: (978) 453-1995
> email: edenly@trcsolutions.com
>

Last Page of Data Report

MITKEM CORPORATION

"Environmental Testing For The New Millennium"

August 25, 2003

TRC Solutions, Inc.
Foot of John Street
Lowell, MA 01852
Attn: Ms. Liz Denly

RE: Client Project: Lockheed-Wilmington
Lab Project #: B1322

Dear Ms. Denly:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely,

Alfred J. Kwolek, Jr.
Senior Scientist

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499 • www.mitkem.com

Report of Laboratory Analyses for TRC Solutions, Inc.

Client Project: Lockheed - Wilmington

SDG# B1322

Mitkem Project ID: B1322

August 25, 2003

Prepared For:

TRC Solutions, Inc.
Foot of John Street
Lowell, MA 01852
Attn: Ms. Liz Denly

Prepared By:

Mitkem Corporation
175 Metro Center Boulevard
Warwick, RI 02886
(401) 732-3400

MITKEM CORPORATION

Client: TRC Solutions, Inc

Client Project: Lockheed-Wilmington

Lab Project ID: B1322

Date samples received: 8/25/03

Project Narrative

This data report includes the analysis results for four (4) samples that were received on August 21, 2003. Analyses were performed per specification in the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the client sample ID and the laboratory sample ID.

Volatiles sample A/S INFLUENT was analyzed at a dilution (50x) based on historical data. Naphthalene was detected below the nominal reporting limit in samples GAC1 INFLUENT (1 ug/L), GAC2 INFLUENT (2 ug/L), TREATED EFFLUENT (4 ug/L), and the method blank (2 ug/L). The concentrations of naphthalene in the samples are qualified with the "B" flag to indicate potential laboratory contamination.

No other unusual observation was noted during sample analysis.

The pages in this report have been numbered consecutively starting with the title page and ending with a page saying only "Last Page of Data Report".

This data report has been reviewed and is authorized for release as evidenced by the signature below.

Alfred J. Kwolek, Jr.
Senior Scientist
8/25/03

MITKEM CORPORATION

Data Flag/Qualifiers:

U Not Detected. This compound was analyzed-for but not detected. For Organics analysis the reporting limit (lowest standard concentration) is the value listed. For Inorganics analysis reported using CLP forms, the value listed is the detection limit. For Inorganics analyzed using SW-846 methods, the detection limit is the Method Detection Limit, for Inorganics analyzed using EPA CLP and NY ASP CLP methods, the detection limit is the Instrument Detection Limit.

J This flag indicates an estimated value due to either
- the compound was detected below the reporting limit, or
- estimated concentration for Tentatively Identified Compound

B This flag indicates the compound was also detected in the associated Method Blank. The B flag has an alternative meaning for Inorganics analyses reported using CLP forms, indicating a "trace" concentration below the reporting limit and equal to or above the detection limit.

D For Organics analysis, this flag indicates the compound concentration was obtained from a diluted analysis

E This flag indicates the compound concentration exceeded the Calibration Range. The E flag has an alternative meaning for Inorganics analyses reported using CLP forms, indicating an estimated concentration due to the presence of interferences, as determined by the serial dilution analysis.

P This flag is used for Pesticides/PCB/Herbicide compound when there is a greater than 40% difference for detected concentration between the two GC columns used for Primary and Confirmation analyses. This difference typically indicates an interference, causing one value to be unusually high. The **lower** of the two values is reported in the Analysis Report.

A Used to flag Semivolatile Organic Tentatively Identified Compound library search results for compounds identified as aldol condensation byproducts.

N Used to flag results for Volatile and Semivolatile Organics analysis Tentatively Identified Compounds where an analyte has passed the identification criteria, and is considered to be positively identified. For Inorganics analysis reported using CLP forms, the N flag indicates the matrix spike recovery falls outside of the control limit.

* For Inorganics analysis reported using CLP forms, the * flag indicates Relative Percent Difference for duplicate analyses is outside of the control limit.

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

	EPA SAMPLE NO.	SMC1 #	SMC2 (DCE) #	SMC3 (TOL) #	OTHER (BFB) #	TOT OUT
01	VBLK5A	107	109	107	100	0
02	V5ALCS	106	113	111	105	0
03	TREATED EFFL	102	107	105	93	0
04	GAC2 INFLUEN	103	107	104	91	0
05	GAC1 INFLUEN	101	107	105	94	0
06	A/S INFLUENT	102	108	105	93	0
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		QC LIMITS
SMC1	= Dibromofluoromethane	(78-117)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(62-124)
SMC3 (TOL)	= Toluene-d8	(81-116)
OTHER (BFB)	= Bromofluorobenzene	(74-126)

Column to be used to flag recovery values

* Values outside of contract required QC limits

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Matrix Spike - Sample No.: V5ALCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	50		49	98	48-135
Chloromethane	50		51	102	60-118
Vinyl Chloride	50		55	110	65-113
Bromomethane	50		49	98	73-122
Chloroethane	50		52	104	72-118
Trichlorofluoromethane	50		52	104	68-129
1,1-Dichloroethene	50		51	102	67-121
Acetone	50		48	96	38-161
Iodomethane	50		53	106	72-130
Carbon Disulfide	50		54	108	53-137
Methylene Chloride	50		51	102	59-132
trans-1,2-Dichloroethen	50		54	108	71-124
Methyl tert-butyl ether	50		50	100	75-123
1,1-Dichloroethane	50		53	106	83-116
Vinyl acetate	50		45	90	44-160
2-Butanone	50		49	98	64-139
cis-1,2-Dichloroethene	50		53	106	83-120
2,2-Dichloropropane	50		45	90	70-129
Bromochloromethane	50		53	106	85-124
Chloroform	50		53	106	89-118
1,1,1-Trichloroethane	50		52	104	81-122
1,1-Dichloropropene	50		55	110	76-122
Carbon Tetrachloride	50		51	102	79-125
1,2-Dichloroethane	50		51	102	83-123
Benzene	50		54	108	81-120
Trichloroethene	50		52	104	77-121
1,2-Dichloropropane	50		54	108	81-116
Dibromomethane	50		52	104	86-124

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Matrix Spike - Sample No.: V5ALCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Bromodichloromethane	50		52	104	90-114
cis-1,3-Dichloropropene	50		51	102	78-119
4-Methyl-2-pentanone	50		49	98	57-138
Toluene	50		53	106	81-121
trans-1,3-Dichloroprope	50		50	100	85-118
1,1,2-Trichloroethane	50		52	104	44-159
1,3-Dichloropropane	50		54	108	79-125
Tetrachloroethene	50		56	112	73-121
2-Hexanone	50		48	96	53-145
Dibromochloromethane	50		52	104	80-124
1,2-Dibromoethane	50		52	104	80-124
Chlorobenzene	50		53	106	82-118
1,1,1,2-Tetrachloroetha	50		53	106	84-121
Ethylbenzene	50		54	108	80-122
Xylene (Total)	150		160	107	81-121
Styrene	50		54	108	77-128
Bromoform	50		50	100	77-130
Isopropylbenzene	50		53	106	58-148
1,1,2,2-Tetrachloroetha	50		54	108	76-125
Bromobenzene	50		54	108	76-124
1,2,3-Trichloropropane	50		52	104	57-140
n-Propylbenzene	50		54	108	72-119
2-Chlorotoluene	50		55	110	75-120
1,3,5-Trimethylbenzene	50		52	104	76-116
4-Chlorotoluene	50		54	108	78-116
tert-Butylbenzene	50		51	102	71-115
1,2,4-Trimethylbenzene	50		53	106	77-117
sec-Butylbenzene	50		53	106	67-117

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK5A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Lab File ID: V5E8217 Lab Sample ID: MB-8746

Date Analyzed: 08/21/03 Time Analyzed: 1936

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: V5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	V5ALCS	LCS-8746	V5E8219	2031
02	TREATED EFFL	B1322-04A	V5E8221	2125
03	GAC2 INFLUEN	B1322-03A	V5E8222	2152
04	GAC1 INFLUEN	B1322-02A	V5E8223	2219
05	A/S INFLUENT	B1322-01A	V5E8224	2247
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COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Lab File ID: V5E8210B BFB Injection Date: 08/21/03

Instrument ID: V5 BFB Injection Time: 1630

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.5
75	30.0 - 60.0% of mass 95	45.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 100.0% of mass 95	86.4
175	5.0 - 9.0% of mass 174	7.1 (8.2)1
176	95.0 - 101.0% of mass 174	85.1 (98.5)1
177	5.0 - 9.0% of mass 176	5.7 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0505A	V5S0821A	V5E8211	08/21/03	1648
02	VSTD0055A	V5S0821B	V5E8212	08/21/03	1716
03	VSTD2005A	V5S0821C	V5E8213	08/21/03	1745
04	VSTD0205A	V5S0821D	V5E8214	08/21/03	1813
05	VSTD1005A	V5S0821E	V5E8215	08/21/03	1841
06	VBLK5A	MB-8746	V5E8217	08/21/03	1936
07	V5ALCS	LCS-8746	V5E8219	08/21/03	2031
08	TREATED EFFL	B1322-04A	V5E8221	08/21/03	2125
09	GAC2 INFLUEN	B1322-03A	V5E8222	08/21/03	2152
10	GAC1 INFLUEN	B1322-02A	V5E8223	08/21/03	2219
11	A/S INFLUENT	B1322-01A	V5E8224	08/21/03	2247
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8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Lab File ID (Standard): V5E8215 Date Analyzed: 08/21/03

Instrument ID: V5 Time Analyzed: 1841

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 (DCB) AREA #	RT #
	12 HOUR STD	673253	6.11	472891	9.32	262971	12.06
	UPPER LIMIT	1346506	6.61	945782	9.82	525942	12.56
	LOWER LIMIT	336627	5.61	236446	8.82	131486	11.56
	EPA SAMPLE NO.						
01	VBLK5A	684447	6.11	503831	9.32	252859	12.07
02	V5ALCS	703280	6.11	490597	9.32	264934	12.06
03	TREATED EFFL	697369	6.11	520280	9.32	244730	12.07
04	GAC2 INFLUEN	695587	6.11	517796	9.32	242293	12.07
05	GAC1 INFLUEN	707758	6.11	519417	9.32	241137	12.07
06	A/S INFLUENT	714045	6.11	523487	9.32	243378	12.07
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IS1 = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A/S INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Matrix: (soil/water) WATER Lab Sample ID: B1322-01A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5E8224

Level: (low/med) LOW Date Received: 08/21/03

% Moisture: not dec. _____ Date Analyzed: 08/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 50.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	250	U
74-87-3	Chloromethane	250	U
75-01-4	Vinyl Chloride	250	U
74-83-9	Bromomethane	250	U
75-00-3	Chloroethane	250	U
75-69-4	Trichlorofluoromethane	250	U
75-35-4	1,1-Dichloroethene	250	U
67-64-1	Acetone	250	U
74-88-4	Iodomethane	250	U
75-15-0	Carbon Disulfide	250	U
75-09-2	Methylene Chloride	250	U
156-60-5	trans-1,2-Dichloroethene	250	U
1634-04-4	Methyl tert-butyl ether	250	U
75-34-3	1,1-Dichloroethane	110	J
108-05-4	Vinyl acetate	250	U
78-93-3	2-Butanone	250	U
156-59-2	cis-1,2-Dichloroethene	200	J
590-20-7	2,2-Dichloropropane	250	U
74-97-5	Bromochloromethane	250	U
67-66-3	Chloroform	250	U
71-55-6	1,1,1-Trichloroethane	250	U
563-58-6	1,1-Dichloropropene	250	U
56-23-5	Carbon Tetrachloride	250	U
107-06-2	1,2-Dichloroethane	250	U
71-43-2	Benzene	250	U
79-01-6	Trichloroethene	6700	
78-87-5	1,2-Dichloropropane	250	U
74-95-3	Dibromomethane	250	U
75-27-4	Bromodichloromethane	250	U
10061-01-5	cis-1,3-Dichloropropene	250	U
108-10-1	4-Methyl-2-pentanone	250	U
108-88-3	Toluene	250	U
10061-02-6	trans-1,3-Dichloropropene	250	U
79-00-5	1,1,2-Trichloroethane	250	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A/S INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Matrix: (soil/water) WATER Lab Sample ID: B1322-01A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5E8224

Level: (low/med) LOW Date Received: 08/21/03

% Moisture: not dec. _____ Date Analyzed: 08/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 50.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	250	U
127-18-4	Tetrachloroethene	4400	
591-78-6	2-Hexanone	250	U
124-48-1	Dibromochloromethane	250	U
106-93-4	1,2-Dibromoethane	250	U
108-90-7	Chlorobenzene	250	U
630-20-6	1,1,1,2-Tetrachloroethane	250	U
100-41-4	Ethylbenzene	250	U
----------	m,p-Xylene	250	U
95-47-6	o-Xylene	250	U
1330-20-7	Xylene (Total)	250	U
100-42-5	Styrene	250	U
75-25-2	Bromoform	250	U
98-82-8	Isopropylbenzene	250	U
79-34-5	1,1,2,2-Tetrachloroethane	250	U
108-86-1	Bromobenzene	250	U
96-18-4	1,2,3-Trichloropropane	250	U
103-65-1	n-Propylbenzene	250	U
95-49-8	2-Chlorotoluene	250	U
108-67-8	1,3,5-Trimethylbenzene	250	U
106-43-4	4-Chlorotoluene	250	U
98-06-6	tert-Butylbenzene	250	U
95-63-6	1,2,4-Trimethylbenzene	250	U
135-98-8	sec-Butylbenzene	250	U
99-87-6	4-Isopropyltoluene	250	U
541-73-1	1,3-Dichlorobenzene	250	U
106-46-7	1,4-Dichlorobenzene	250	U
104-51-8	n-Butylbenzene	250	U
95-50-1	1,2-Dichlorobenzene	250	U
96-12-8	1,2-Dibromo-3-chloropropane	250	U
120-82-1	1,2,4-Trichlorobenzene	250	U
87-68-3	Hexachlorobutadiene	250	U
91-20-3	Naphthalene	250	U
87-61-6	1,2,3-Trichlorobenzene	250	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC1 INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Matrix: (soil/water) WATER Lab Sample ID: B1322-02A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5E8223

Level: (low/med) LOW Date Received: 08/21/03

% Moisture: not dec. _____ Date Analyzed: 08/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	34	
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	24	
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC1 INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Matrix: (soil/water) WATER Lab Sample ID: B1322-02A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5E8223

Level: (low/med) LOW Date Received: 08/21/03

% Moisture: not dec. _____ Date Analyzed: 08/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
----------	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	1	JB
87-61-6	1,2,3-Trichlorobenzene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC2 INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Matrix: (soil/water) WATER Lab Sample ID: B1322-03A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5E8222

Level: (low/med) LOW Date Received: 08/21/03

% Moisture: not dec. _____ Date Analyzed: 08/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	9	
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GAC2 INFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Matrix: (soil/water) WATER Lab Sample ID: B1322-03A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5E8222

Level: (low/med) LOW Date Received: 08/21/03

% Moisture: not dec. _____ Date Analyzed: 08/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
----------	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	2	JB
87-61-6	1,2,3-Trichlorobenzene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TREATED EFFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Matrix: (soil/water) WATER Lab Sample ID: B1322-04A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5E8221

Level: (low/med) LOW Date Received: 08/21/03

% Moisture: not dec. _____ Date Analyzed: 08/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TREATED EFFLUENT

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Matrix: (soil/water) WATER Lab Sample ID: B1322-04A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5E8221

Level: (low/med) LOW Date Received: 08/21/03

% Moisture: not dec. _____ Date Analyzed: 08/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
----------	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	4	JB
87-61-6	1,2,3-Trichlorobenzene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK5A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Matrix: (soil/water) WATER Lab Sample ID: MB-8746

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5E8217

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 08/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
74-95-3	Dibromomethane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK5A

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: B1322

Matrix: (soil/water) WATER Lab Sample ID: MB-8746

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V5E8217

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 08/21/03

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
----------	m,p-Xylene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
87-68-3	Hexachlorobutadiene	5	U
91-20-3	Naphthalene	2	J
87-61-6	1,2,3-Trichlorobenzene	5	U

Mitkem Corporation **Date:** *22-Aug-03*

Client: TRC Solutions, Inc.
Client Sample ID: TREATED EFFLUENT **Project:** Lockheed--Wilmington
Lab ID: B1322-04 **Collection Date:** 08/20/03 11:30

Analyses	Result	Qual	RL	Units	DF	Date Analyzed	Batch ID
TOTAL SUSPENDED SOLIDS				**SM2540_TSS**			
Total Suspended Solids	ND		10	mg/L	1	08/22/2003 8:31	8751

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanilitation limits
B - Analyte detected in the associated Method Blank
DF - Dilution Factor
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
RL - Reporting Limit

Mitkem Corporation

Date: *22-Aug-03*

CLIENT: TRC Solutions, Inc.
Work Order: B1322
Project: Lockheed--Wilmington

ANALYTICAL QC SUMMARY REPORT

TestCode: SM2540_TSS

Sample ID	MB-8751	SampType:	MBLK	TestCode:	SM2540_TSS			Prep Date:	8/22/03		Run ID:	MANUAL_030821A	
Client ID:	MB-8751	Batch ID:	8751	Units:	mg/L			Analysis Date:	8/22/03		SeqNo:	138748	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Total Suspended Solids		ND	10										

Sample ID	LCS-8751	SampType:	LCS	TestCode:	SM2540_TSS			Prep Date:	8/22/03		Run ID:	MANUAL_030821A	
Client ID:	LCS-8751	Batch ID:	8751	Units:	mg/L			Analysis Date:	8/22/03		SeqNo:	138749	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Total Suspended Solids		48	10	49.6	0	96.8	72.7	118	0	0			

Sample ID	B1322-04BDUP	SampType:	DUP	TestCode:	SM2540_TSS			Prep Date:	8/22/03		Run ID:	MANUAL_030821A	
Client ID:	TREATED EFFLUEN	Batch ID:	8751	Units:	mg/L			Analysis Date:	8/22/03		SeqNo:	138751	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Total Suspended Solids		ND	10	0	0	0	0	0	0	0	20		

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

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Page

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Client ID:	TRC_MA	**Case:**	**Report Level:** LEVEL 4
Project:	Lockheed--Wilmington	**SDG:**	**EDD:** XL
Location:	E9202-9403-09400	**PO:** LOCKHEED-WILMINGTON, E9202	**HC Due:** 09/11/03
Comments:	N/A		**Fax Due:** 08/22/03

Sample ID	Client Sample ID	Collection Date	Date Received	Matrix	Test Code	Test Code Comments	Iold	MS	SEL	Storage
B1322-01A	A/S INFLUENT	08/20/03 11:00	08/21/03	Aqueous	SW8260B_W		☐	☐	☐	VOA
B1322-02A	GAC1 INFLUENT	08/20/03 11:10	08/21/03	Aqueous	SW8260B_W		☐	☐	☐	VOA
B1322-03A	GAC2 INFLUENT	08/20/03 11:20	08/21/03	Aqueous	SW8260B_W		☐	☐	☐	VOA
B1322-04A	TREATED EFFLUENT	08/20/03 11:30	08/21/03	Aqueous	SW8260B_W		☐	☐	☐	VOA
B1322-04B	TREATED EFFLUENT	08/20/03 11:30	08/21/03	Aqueous	SM2540_TSS		☐	☐	☐	D1

Client Rep:

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

Page ___ of ___

REPORT TO		INVOICE TO		
COMPANY TRC Environmental	PHONE 978-970-5600	COMPANY TRC Environmental	PHONE 617-512-2078	LAB PROJECT #: B1322
NAME Liz Deuly	FAX 978-970-1151	NAME Paola Macciaroli	FAX 978-970-1151	
ADDRESS Boott Mills South, Foot of John St		ADDRESS		TURNAROUND TIME:
CITY/ST/ZIP Lowell MA 01852		CITY/ST/ZIP		

CLIENT PROJECT NAME: Lockheed - Wilmington | CLIENT PROJECT #: E9202-9403-0940 | CLIENT P.O.#:

REQUESTED ANALYSES: VOCs: SW846 8260B; TSS: EPA 160.2

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VOCs	TSS	COMMENTS
A/S Influent	8-20 / 11:00			V			-1	2	V		
GAC1 Influent	/ 11:10			V			-2	2	V		
GAC2 Influent	/ 11:20			V			-3	2	V		
Treated Effluent	/ 11:30			V			-4	2	V		
Treated Effluent	V / 11:30			V			-4 (A)	1		V	
	/										
	/										
	/										
	/										
	/										
	/										
	/										

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
25	[signature]	8/20 / 15:15	[signature] Reynolds	8-21-03 / 0900	48 hours turnaround required	3°
		/		/		
		/		/		

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

MITKEM CORPORATION

Sample Condition Form

Received By:	Reviewed By:	Date: 8-21-03	MITKEM Project:	B1322
Client Project:				
Client: TRC				

1) Cooler Sealed — YES / NO*

2) Custody Seal(s) — Present / Absent; Coolers / Bottles; Intact / Broken

Custody Seal Numbers

3) Chain -of- Custody — Present / Absent

4) Airbill(s) — Present / Absent

Airbill Number(s) — FED-EX #434160400LO

5) Cooler Temperature — 3c

Coolant Condition — Ice

6) Sample Bottles — Intact/Broken/Leaking

7) Date Received — 8-21-03

8) Time Received — 0900

Lab Sample ID	HNO3	H2SO4	HCl	NaOH	VOA MATRIX
BB2201					H
02					
03					
04					H
BB2205					

VOA Matrix Key:

US = Unpreserved Soil — A = Air

UA = Unpreserved Aqueous — H = HCl

M/N = MeOH& NaHSO4 — E=Encore

N = NaHSO4 M = MeOH

See Sample Condition Notification / Corrective Action Form yes / no

Comments / / Remarks

Rad Ok yes / no

FORM ID 30.QUAPPSAMPLECOND.FORM

Last Page of Data Report

APPENDIX J

LABORATORY REPORTS FOR BASELINE GROUNDWATER SAMPLING

Appendix J - Data Validation Report for Baseline Groundwater Sampling

Source Control Monitoring Baseline Event: Data Validation

TRC performed a limited validation of the volatile organic compound (VOC) analytical data associated with this sampling event. The groundwater samples included in this review are listed below.

BRW-1R2-8/03
BRW-1R3-8/03
BRW-1R4-8/03
MW-901-8/03 (field duplicate of BRW-1R4-8/03)
EMW-11R1-8/03
EMW-11R2-8/03
IP-4R1-8/03
IP-4R2-8/03
IP-4R3-8/03
IP-3R1-8/03
IP-3R2-8/03
IP-2R1-8/03
IP-2R2-8/03
IP-2R3-8/03
IP-2R4-8/03
IP-1R1-8/03
IP-1R2-8/03
IP-1R3-8/03
TRC-301R-8/03
GZA-105R-8/03

The sample results were assessed using the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review* (10/99). Modification of the Functional Guidelines was done to accommodate the non-CLP methodology used by the laboratory. Qualification of sample data was not performed.

The limited validation was based upon the following parameters: holding times, cooler temperatures, instrument tunes, calibrations, blanks (laboratory method blanks, equipment blanks, and trip blanks), surrogate spike recoveries, laboratory control sample (LCS) results, internal standard performance, field duplicate results, and an evaluation of sample quantitation limits. These parameters provide an adequate assessment of the overall accuracy and precision of the data set.

In general, the data appear to be valid as reported and may be used for decision-making purposes. Potential high bias exists for the acetone results in select samples and 2-butanone in one sample due to blank contamination.

Accuracy

All samples were received with cooler temperatures within the method-specified range. All samples were analyzed within the method-specified holding time.

All instrument tunes met the acceptance criteria and were analyzed at the proper frequency. The percent relative standard deviation and percent difference of bromomethane in the initial and continuing calibrations, respectively, were outside of the acceptance criteria. Bromomethane was not detected in any of the groundwater samples. Potential uncertainty exists for the bromomethane results in all samples. Since

bromomethane is not a contaminant of concern at this site, the potential uncertainty did not affect the overall usability of the data.

Target compounds were not detected in any of the laboratory method blanks. Three trip blanks were evaluated with this data set. Methylene chloride was detected in the two trip blanks associated with all groundwater samples. Acetone, methylene chloride, and 2-butanone were detected in the trip blank associated with the equipment blank (a rinsate of the stainless steel tether used to deploy the passive diffusion bags). Acetone, methylene chloride, and 2-butanone were also detected in the equipment blank associated with all samples except sample GZA-105R-8/03. The presence of blank contamination indicates that false positives may exist for these compounds in the associated field samples. Methylene chloride was not detected in any of the associated field samples and therefore the data usability was not adversely affected by the presence of this blank contaminant. Acetone was detected in samples BRW-1R2-8/03, BRW-1R3-8/03, BRW-1R4-8/03, MW-901-8/03, IP-4R3-8/03, IP-3R1-8/03, IP-3R2-8/03, IP-2R1-8/03, IP-2R2-8/03, IP-2R3-8/03, IP-2R4-8/03, and TRC-301R-8/03 and 2-butanone was detected in sample TRC-301R-8/03. The results for acetone and/or 2-butanone in these samples should be considered potential false positives and biased high due to the blank contamination. It should be noted that although these results were biased high, they were still below the associated GW-1 standard and the overall decision-making process was therefore not affected. The source of the acetone contamination has been determined to be due to the deionized water used to fill the passive diffusion bag samplers; this same water was also used to prepare the equipment blank and associated trip blank.

All samples exhibited acceptable surrogate recoveries. The LCSs associated with this data set exhibited acceptable recoveries of all target compounds with the exception of bromomethane (24-34%) and trichlorofluoromethane (142-144%). Since trichlorofluoromethane was not detected in any of the groundwater samples, data were not affected by the potential high bias caused by the high LCS recoveries. Bromomethane was not detected in any of the groundwater samples and may be biased low due to the low LCS recovery. Since bromomethane is not a contaminant of concern at this site, the potential low bias did not affect the overall usability of the data.

The performance of the internal standards was within the acceptance criteria in all sample analyses.

Precision

Samples BRW-1R4-8/03 and MW-901-8/03 were submitted as a field duplicate pair with this sample set. The relative percent differences (RPDs) of the detected compounds were within the acceptance criteria.

Quantitation Limits

Due to the levels of target compounds which would have exceeded the calibration range if analyzed undiluted, all samples with the exception of sample TRC-301R-8/03 were

analyzed on dilution. Quantitation limits for all samples were elevated accordingly due to the dilutions and exceed GW-1 standards for select compounds.
Samples EMW-11R2-8/03 and IP-1R2-8/03 were analyzed at additional dilutions due to the concentrations of cis-1,2-dichloroethene and trichloroethene, respectively, which exceeded the calibration range in the initial diluted analyses. The results of both diluted analyses were combined in order to report the lowest possible quantitation limits and all results within the calibration range.

Woods Hole Group
Environmental Laboratories

ANALYTICAL REPORT

Prepared for:
TRC Environmental
Boott Mills South
Foot of John Street
Lowell, MA 01852

Project:	Lockheed Ph IV RIP
ETR:	0307096
Report Date:	August 07, 2003

Certifications and Accreditations
Massachusetts MA030
Connecticut PH-0141
New Hampshire 220602
Rhode Island 64
New Jersey MA015
Maine MA030
New York 11627
Louisiana 03090
Army Corps of Engineers
Department of the Navy
Florida E87814

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MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Woods Hole Group Environmental Laboratories

Project Number: 0307096

Project Location:

MCP RTN #[1]:

This Form provides certifications for the following data set: [Laboratory Sample ID Number(s)]:

0307096-01 through 0307096-02

Sample Matrices: [Groundwater] Soil/Sediment Drinking Water Other:

MCP SW-846 Methods Used:

8260B (√)	8151A ( )	8330 ( )	6010B ( )	7470A/1A ( )
8270C ( )	8081A ( )	VPH ( )	6020 ( )	9014M[2] ( )
8082 ( )	8021B ( )	EPH ( )	7000 S[3] ( )	Other:

[1] – List Release Tracking Number (RTN), if known.
[2]M – SW-846 Method 9014 Modified or MADEP Physiologically Available Cyanide (PAC) Method.
[3]S – SW-846 Methods 7000 Series. List individual method and analyte.

	An affirmative response to question A, B, and C is required for "Presumptive Certainty" status.		
A	Were all samples received by the laboratory in a condition consistent with that described on the Chain-of-Custody documentation for the data set?	[Yes]	No[1]
B	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	[Yes]	No[1]
C	Does the analytical data included in this report meet all the requirements for "presumptive Certainty", as described in Section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for Acquisition and Reporting of Analytical Data"?	[Yes]	No[1]
	A response to questions D and E below is required for "Presumptive Certainty" status.		
D	Were all QC performance standards and recommendations for the specified methods achieved?	Yes	[No[1]]
E	Were results for all analyte-list compounds/elements for the specified method(s) reported?	[Yes]	No[1]

[1] *All NO answers must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Edith Hutchinson **Position:** Senior Project Manager

Printed Name: Edith Hutchinson **Date:** 8/22/03

CASE NARRATIVE

Woods Hole Group Environmental Laboratories

ETR: 0307096
Project: Lockheed Ph IV RIP

All analyses were performed according to Woods Hole Group's documented Standard Operating Procedures (SOPs), within holding time and with appropriate quality control measures except where noted. Blank correction of results is not performed in the laboratory for any parameter. Soil/sediment samples are reported on a dry weight basis unless otherwise noted.

General Requirements

1. The analytical data included in this report meets all the requirements for "Presumptive Certainty", as described in Section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for Acquisition and Reporting of Analytical Data", with the exception that the laboratory can not attest to the frequency of field QC.

Volatile Organics by 8260-MCP

1. The Laboratory Control Sample VW072803L02 had Bromomethane recovered below the lower 70% recovery limit at 34%, and Trichlorofluoromethane recovered above the upper 130% recovery limit at 142%. Refer to the Form III Spike Recovery Summary report. These compounds were not detected in the associated samples.

2. The initial calibration had compounds above the 15% RSD QC acceptance limit. Refer to the Form VI Initial Calibration summary report for specific outliers. This initial calibration meets the acceptability criteria.

3. The continuing calibration verification standard had Bromomethane at 58.4%D, outside of the 30%D QC acceptance limit. Refer to the Form VII Calibration Verification summary report. This calibration verification meets the acceptability criteria. This compound was not detected in the associated samples.

The enclosed results of analyses are representative of the samples as received by the laboratory. Woods Hole Group makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Woods Hole Group. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved by: Edith Hutchinson Title: Senior Project Manager Date: 8/7/03

VOLATILE ORGANICS

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **TB-01**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0307096**
Lab ID: **0307096-01**
Associated Blank: **VW072803B05**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
07/22/03	07/23/03	07/28/03	5	5	1	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	2.0	U
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	31		1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	2.6	J	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl Ether (DIPE)	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl Tertiary Butyl Ether (ETBE)	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	2.6		Bromobenzene	2.0	U
cis-1,2-Dichloroethene	2.0	U	1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary Amyl Methyl Ether (TAME)	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	2.0	U	n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	100	U	1,2,4-Trichlorobenzene	5.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	5.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	5.0	U
			1,2,3-Trichlorobenzene	5.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	101	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	93	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/01/03 08:31

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **RB-01**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0307096**
Lab ID: **0307096-02**
Associated Blank: **VW072803B05**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
07/22/03	07/23/03	07/28/03	5	5	1	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	2.0	U
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	31		1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	2.5	J	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl Ether (DIPE)	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl Tertiary Butyl Ether (ETBE)	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	2.6		Bromobenzene	2.0	U
cis-1,2-Dichloroethene	2.0	U	1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary Amyl Methyl Ether (TAME)	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	2.0	U	n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	100	U	1,2,4-Trichlorobenzene	5.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	5.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	5.0	U
			1,2,3-Trichlorobenzene	5.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	94	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0307096**
Lab ID: **VW072803B05**
Associated Blank: **N/A**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	07/28/03	5	5	1	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	2.0	U
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl Ether (DIPE)	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl Tertiary Butyl Ether (ETBE)	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	2.0	U	Bromobenzene	2.0	U
cis-1,2-Dichloroethene	2.0	U	1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary Amyl Methyl Ether (TAME)	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	2.0	U	n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	100	U	1,2,4-Trichlorobenzene	5.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	5.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	5.0	U
			1,2,3-Trichlorobenzene	5.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	101	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	93	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0307096**
Lab ID: **VW072803L02**
Associated Blank: **VW072803B05**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	07/28/03	5	5	1	MLB

Parameter	Conc.	% Recovery	% Recovery Limits
Dichlorodifluoromethane	22	110	70-130
Chloromethane	22	112	70-130
Vinyl chloride	24	118	70-130
Bromomethane	6.8	34[a]	70-130
Chloroethane	22	110	70-130
Trichlorofluoromethane	28	142[a]	70-130
Diethyl ether	25	123	70-130
Acetone	20	98	70-130
1,1-Dichloroethene	22	111	70-130
Carbon disulfide	22	108	70-130
Methylene chloride	20	102	70-130
Methyl tert-butyl ether (MTBE)	20	101	70-130
trans-1,2-Dichloroethene	22	107	70-130
Diisopropyl Ether (DIPE)	20	102	70-130
1,1-Dichloroethane	21	106	70-130
Ethyl Tertiary Butyl Ether (ETBE)	21	104	70-130
2-Butanone (MEK)	18	93	70-130
cis-1,2-Dichloroethene	21	106	70-130
2,2-Dichloropropane	21	104	70-130
Bromochloromethane	21	107	70-130
Chloroform	21	104	70-130
1,1,1-Trichloroethane	21	107	70-130
1,1-Dichloropropene	20	101	70-130
Carbon tetrachloride	22	108	70-130
Benzene	21	105	70-130
Tertiary Amyl Methyl Ether (TAME)	20	101	70-130
Tetrahydrofuran	18	92	70-130
1,2-Dichloroethane	20	100	70-130
Trichloroethene	23	116	70-130
1,2-Dichloropropane	20	102	70-130
Dibromomethane	20	101	70-130
1,4-Dioxane	180	90	70-130
Bromodichloromethane	20	99	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0307096**
Lab ID: **VW072803L02**
Associated Blank: **VW072803B05**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	07/28/03	5	5	1	MLB

Parameter	Conc.	% Recovery	% Recovery Limits
Methyl isobutyl ketone (MIBK)	19	95	70-130
1,3-Dichloropropene, Total	41	102	70-130
Toluene	20	101	70-130
1,1,2-Trichloroethane	20	103	70-130
2-Hexanone	18	91	70-130
Tetrachloroethene	21	103	70-130
1,3-Dichloropropane	20	100	70-130
Dibromochloromethane	20	99	70-130
1,2-Dibromoethane	20	100	70-130
Chlorobenzene	20	101	70-130
1,1,1,2-Tetrachloroethane	21	105	70-130
Ethylbenzene	20	102	70-130
Xylenes, Total	61	101	70-130
Styrene	19	96	70-130
Bromoform	20	98	70-130
Isopropylbenzene	20	98	70-130
1,1,2,2-Tetrachloroethane	20	99	70-130
Bromobenzene	20	100	70-130
1,2,3-Trichloropropane	19	97	70-130
n-Propylbenzene	20	100	70-130
2-Chlorotoluene	20	99	70-130
1,3,5-Trimethylbenzene	20	98	70-130
4-Chlorotoluene	20	98	70-130
tert-Butylbenzene	20	99	70-130
1,2,4-Trimethylbenzene	20	100	70-130
sec-Butylbenzene	20	98	70-130
1,3-Dichlorobenzene	20	99	70-130
p-Isopropyltoluene	19	97	70-130
1,4-Dichlorobenzene	19	95	70-130
n-Butylbenzene	20	101	70-130
1,2-Dibromo-3-chloropropane	18	90	70-130
1,2-Dichlorobenzene	19	97	70-130
1,2,4-Trichlorobenzene	19	95	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Laboratory Control Sample**
Case: N/A SDG: N/A
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0307096**
Lab ID: **VW072803L02**
Associated Blank: **VW072803B05**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	07/28/03	5	5	1	MLB

Parameter	Conc.	% Recovery	% Recovery Limits
Hexachlorobutadiene	20	102	70-130
Naphthalene	18	89	70-130
1,2,3-Trichlorobenzene	19	95	70-130

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	101	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	96	70-130

* - Value outside of QC Limits.
N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

08/01/03 08:32

Supporting Quality Control Results

Form II
Surrogate Recovery
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0307096**
Matrix: **Water**

Case: N/A SDG: N/A

Client ID	Lab ID	Dibromofluoromethane	Toluene-d8	4-Bromofluorobenzene
Laboratory Control Sample	VW072803L02	101	99	96
Blank	VW072803B05	101	98	93
RB-01	0307096-02	100	98	94
TB-01	0307096-01	101	97	93

N/A - Not Applicable

Surrogate	QC Limit
Dibromofluoromethane	70-130
Toluene-d8	70-130
4-Bromofluorobenzene	70-130

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Form IV
Method Blank Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **0307096**
Lab ID: **VW072803B05**
Date Analyzed: **07/28/03 10:34**

Client ID	Lab ID	Date/Time Analyzed
Laboratory Control Sample	VW072803L02	07/28/03 10:06
RB-01	0307096-02	07/28/03 11:03
TB-01	0307096-01	07/28/03 13:55

N/A - Not Applicable

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Form V
Tune Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0307096**
Lab ID: **T1072501**
Date Analyzed: **07/25/03 12:12**

Target Mass	Relative To Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result
50	95	15	40	28.5	25904	Pass
75	95	30	60	54.3	49237	Pass
95	95	100	100	100	90736	Pass
96	95	5	9	7	6370	Pass
173	174	0	2	0	0	Pass
174	95	50	100	71.3	64661	Pass
175	174	5	9	7.5	4881	Pass
176	174	95	101	98.2	63475	Pass
177	176	5	9	6.8	4294	Pass

Client ID	Lab ID	Date/Time Analyzed
Initial Calibration	I1072501	07/25/03 12:41
Initial Calibration	I1072502	07/25/03 13:10
Initial Calibration	I1072503	07/25/03 13:39
Initial Calibration	I1072504	07/25/03 14:08
Initial Calibration	I1072505	07/25/03 14:36
Initial Calibration	I1072506	07/25/03 15:05

N/A - Not Applicable

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Form V
Tune Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **0307096**
Lab ID: **T1072801**
Date Analyzed: **07/28/03 09:07**

Target Mass	Relative To Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result
50	95	15	40	28.7	26091	Pass
75	95	30	60	53.9	49035	Pass
95	95	100	100	100	91021	Pass
96	95	5	9	6.9	6307	Pass
173	174	0	2	0	0	Pass
174	95	50	100	70.1	63827	Pass
175	174	5	9	7.4	4740	Pass
176	174	95	101	98.3	62757	Pass
177	176	5	9	6.5	4077	Pass

Client ID	Lab ID	Date/Time Analyzed
CCV	C1072801	07/28/03 09:37
Laboratory Control Sample	VW072803L02	07/28/03 10:06
Blank	VW072803B05	07/28/03 10:34
RB-01	0307096-02	07/28/03 11:03
TB-01	0307096-01	07/28/03 13:55

N/A - Not Applicable

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**
Project: **Lockheed Ph IV RIP** ETR: **0307096**

Case: N/A SDG: N/A

Lab ID	Date/Time Analyzed
I1072501	07/25/03 12:41
I1072502	07/25/03 13:10
I1072503	07/25/03 13:39
I1072504	07/25/03 14:08
I1072505	07/25/03 14:36
I1072506	07/25/03 15:05

	Response Factors							
Parameter	**1**	**5**	**20**	**50**	**100**	**200**	**Mean**	**% RSD**
Dichlorodifluoromethane	0.45	0.61	0.81	0.78	0.74	0.71	0.68	19.3*
Chloromethane	0.75	0.79	0.90	0.88	0.84	0.82	0.83	6.7
Vinyl chloride	0.55	0.63	0.75	0.74	0.70	0.71	0.68	11.3
Bromomethane	0.56	0.52	0.43	0.14	0.097		0.35	62.2*
Chloroethane	0.27	0.32	0.34	0.29	0.21		0.28	17.7*
Trichlorofluoromethane	0.50	0.61	0.78	0.74	0.67	0.56	0.64	16.5*
Diethyl ether	0.29	0.42	0.43	0.42	0.40	0.38	0.39	12.8
Acetone		0.24	0.23	0.23	0.22	0.20	0.22	6.8
1,1-Dichloroethene	0.49	0.67	0.75	0.74	0.69	0.68	0.67	13.8
Carbon disulfide	1.31	1.51	1.62	1.59	1.49	1.48	1.50	7.2
Methylene chloride		0.52	0.51	0.49	0.46	0.45	0.48	6.0
Methyl tert-butyl ether (MTBE)	1.27	1.38	1.42	1.35	1.28	1.26	1.33	4.9
trans-1,2-Dichloroethene	0.53	0.67	0.72	0.70	0.65	0.65	0.66	10.3
1,1-Dichloroethane	0.87	1.03	1.10	1.09	1.06	1.10	1.04	8.2
2-Butanone (MEK)	0.92	0.64	0.54	0.52	0.51	0.49	0.60	27.3*
cis-1,2-Dichloroethene	0.76	1.00	1.06	1.05	1.02	1.04	0.99	11.7
2,2-Dichloropropane	0.67	0.78	0.82	0.80	0.77	0.78	0.77	6.6
Bromochloromethane	0.21	0.29	0.31	0.31	0.30	0.30	0.29	14.1
Chloroform	0.82	0.95	1.00	1.00	0.97	1.00	0.96	7.4
1,1,1-Trichloroethane	0.58	0.74	0.81	0.80	0.77	0.79	0.75	11.6
1,1-Dichloropropene	0.64	0.70	0.77	0.75	0.71	0.72	0.71	6.1
Carbon tetrachloride	0.52	0.59	0.71	0.69	0.67	0.69	0.64	11.7
Benzene	1.57	1.80	1.93	1.89	1.82	1.84	1.81	7.0
Tetrahydrofuran	0.35	0.33	0.30	0.29	0.29	0.28	0.31	9.1
1,2-Dichloroethane	0.77	0.91	0.97	0.96	0.94	0.95	0.92	8.4
Trichloroethene	0.16	0.21	0.23	0.23	0.22	0.23	0.21	12.7
1,2-Dichloropropane	0.22	0.26	0.28	0.28	0.28	0.28	0.27	10.0
Dibromomethane	0.14	0.20	0.21	0.21	0.21	0.22	0.20	14.1
1,4-Dioxane		0.002	0.003	0.003	0.003	0.003	0.003	16.0*
Bromodichloromethane	0.26	0.32	0.34	0.35	0.34	0.36	0.33	10.6
Methyl isobutyl ketone (MIBK)	0.52	0.49	0.49	0.49	0.47	0.46	0.49	4.8
cis-1,3-Dichloropropene	0.30	0.39	0.42	0.43	0.41	0.43	0.40	12.1

N/A - Not Applicable
* - Value outside of QC advisory limits.

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**
Project: **Lockheed Ph IV RIP** ETR: **0307096**

Case: N/A SDG: N/A

Lab ID	Date/Time Analyzed
I1072501	07/25/03 12:41
I1072502	07/25/03 13:10
I1072503	07/25/03 13:39
I1072504	07/25/03 14:08
I1072505	07/25/03 14:36
I1072506	07/25/03 15:05

	Response Factors							
Parameter	**1**	**5**	**20**	**50**	**100**	**200**	**Mean**	**% RSD**
Toluene	0.37	0.44	0.48	0.49	0.48	0.50	0.46	10.1
trans-1,3-Dichloropropene	0.32	0.38	0.41	0.42	0.41	0.41	0.39	9.5
1,1,2-Trichloroethane	0.13	0.19	0.20	0.20	0.20	0.20	0.19	14.8
2-Hexanone	0.39	0.35	0.34	0.34	0.34	0.33	0.35	5.9
Tetrachloroethene	0.12	0.18	0.20	0.20	0.20	0.21	0.18	18.7[a]
1,3-Dichloropropane	0.31	0.39	0.41	0.41	0.41	0.41	0.39	10.5
Dibromochloromethane	0.19	0.24	0.26	0.27	0.27	0.28	0.25	12.5
1,2-Dibromoethane	0.19	0.24	0.26	0.26	0.26	0.27	0.25	12.5
Chlorobenzene	0.62	0.75	0.81	0.82	0.80	0.82	0.77	9.9
1,1,1,2-Tetrachloroethane	0.21	0.31	0.33	0.34	0.33	0.33	0.31	15.7[a]
Ethylbenzene	1.00	1.25	1.37	1.37	1.34	1.40	1.29	11.7
m-Xylene	0.29	0.41	0.47	0.49	0.48	0.50	0.44	17.9[a]
o-Xylene	0.28	0.40	0.44	0.46	0.46	0.49	0.42	17.9[a]
Styrene	0.43	0.69	0.80	0.86	0.88	0.92	0.76	23.6[a]
Bromoform	0.15	0.23	0.27	0.28	0.29	0.29	0.25	21.5[a]
Isopropylbenzene	0.85	1.07	1.18	1.21	1.19	1.25	1.13	12.9
1,1,2,2-Tetrachloroethane	0.38	0.49	0.54	0.52	0.51	0.49	0.49	11.1
Bromobenzene	0.19	0.28	0.32	0.33	0.33	0.35	0.30	19.1[a]
1,2,3-Trichloropropane	0.37	0.42	0.44	0.44	0.43	0.41	0.42	6.1
n-Propylbenzene	0.92	1.20	1.38	1.42	1.40	1.46	1.30	15.8[a]
2-Chlorotoluene	0.60	0.80	0.85	0.88	0.88	0.92	0.82	14.0
1,3,5-Trimethylbenzene	0.58	0.76	0.87	0.92	0.93	0.98	0.84	17.5[a]
4-Chlorotoluene	0.58	0.83	0.87	0.93	0.93	0.97	0.85	16.7[a]
tert-Butylbenzene	0.48	0.62	0.70	0.71	0.71	0.75	0.66	14.8
1,2,4-Trimethylbenzene	0.52	0.75	0.90	0.96	0.96	1.01	0.85	21.7[a]
sec-Butylbenzene	0.70	0.89	1.01	1.04	1.05	1.11	0.97	15.6[a]
1,3-Dichlorobenzene	0.27	0.45	0.52	0.56	0.57	0.60	0.49	24.8[a]
p-Isopropyltoluene	0.52	0.69	0.80	0.85	0.85	0.91	0.77	18.6[a]
1,4-Dichlorobenzene	0.27	0.49	0.55	0.58	0.60	0.62	0.52	25.1[a]
n-Butylbenzene	0.40	0.58	0.72	0.75	0.77	0.83	0.67	23.5[a]
1,2-Dibromo-3-chloropropane		0.080	0.090	0.093	0.094	0.097	0.091	7.4
1,2-Dichlorobenzene	0.27	0.44	0.50	0.53	0.54	0.58	0.48	23.2[a]

N/A - Not Applicable
[a] - Value outside of QC advisory limits.

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0307096**

Case: **N/A** SDG: **N/A**

Lab ID	Date/Time Analyzed
I1072501	07/25/03 12:41
I1072502	07/25/03 13:10
I1072503	07/25/03 13:39
I1072504	07/25/03 14:08
I1072505	07/25/03 14:36
I1072506	07/25/03 15:05

Response Factors

Parameter	1	5	20	50	100	200	Mean	% RSD
1,2,4-Trichlorobenzene		0.19	0.24	0.26	0.26	0.29	0.25	14.3
Hexachlorobutadiene		0.069	0.081	0.083	0.083	0.090	0.081	9.4
Naphthalene		0.73	0.85	0.90	0.94	1.01	0.88	12.1
1,2,3-Trichlorobenzene		0.19	0.23	0.25	0.26	0.28	0.24	13.8
Dibromofluoromethane	0.70	0.70	0.71	0.71	0.71	0.70	0.71	0.8
Toluene-d8	0.84	0.85	0.85	0.87	0.88	0.90	0.87	2.5
4-Bromofluorobenzene	0.51	0.51	0.51	0.52	0.53	0.53	0.52	1.8
Average RSD								13.5

N/A - Not Applicable

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Form VII
Calibration Verification
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0307096**
Lab ID: **C1072801**

Case: **N/A** SDG: **N/A**

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
Dichlorodifluoromethane	0.68	0.68	0.2	30
Chloromethane	0.83	0.79	4.1	30
Vinyl chloride	0.68	0.70	2.5	20
Bromomethane	0.35	0.14	58.4[a]	30
Chloroethane	0.28	0.29	0.5	30
Trichlorofluoromethane	0.64	0.72	12.8	30
Diethyl ether	0.39	0.43	9.5	30
Acetone	0.22	0.24	6.9	30
1,1-Dichloroethene	0.67	0.71	5.9	20
Carbon disulfide	1.50	1.46	2.6	30
Methylene chloride	0.48	0.49	0.6	30
Methyl tert-butyl ether (MTBE)	1.33	1.39	4.8	30
trans-1,2-Dichloroethene	0.66	0.69	5.6	30
1,1-Dichloroethane	1.04	1.06	1.8	30
2-Butanone (MEK)	0.60	0.51	15.5	30
cis-1,2-Dichloroethene	0.99	1.02	3.6	30
2,2-Dichloropropane	0.77	0.77	0.2	30
Bromochloromethane	0.29	0.31	7.1	30
Chloroform	0.96	0.97	1.6	20
1,1,1-Trichloroethane	0.75	0.76	2.4	30
1,1-Dichloropropene	0.71	0.72	0.4	30
Carbon tetrachloride	0.64	0.66	2.0	30
Benzene	1.81	1.83	1.2	30
Tetrahydrofuran	0.31	0.29	3.8	30
1,2-Dichloroethane	0.92	0.94	2.8	30
Trichloroethene	0.21	0.21	0.5	30
1,2-Dichloropropane	0.27	0.28	3.0	20
Dibromomethane	0.20	0.21	4.7	30
1,4-Dioxane	0.003	0.003	7.9	30
Bromodichloromethane	0.33	0.34	3.2	30
Methyl isobutyl ketone (MIBK)	0.49	0.46	5.4	30
cis-1,3-Dichloropropene	0.40	0.41	4.3	30
Toluene	0.46	0.45	1.4	20
trans-1,3-Dichloropropene	0.39	0.41	4.3	30
1,1,2-Trichloroethane	0.19	0.20	6.2	30
2-Hexanone	0.35	0.32	7.8	30
Tetrachloroethene	0.18	0.19	2.3	30
1,3-Dichloropropane	0.39	0.40	3.2	30

N/A - Not Applicable
[a] - Value outside of QC advisory limits.

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Form VII
Calibration Verification
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0307096**
Lab ID: **C1072801**

Case: N/A SDG: N/A

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
Dibromochloromethane	0.25	0.26	3.7	30
1,2-Dibromoethane	0.25	0.26	4.6	30
Chlorobenzene	0.77	0.77	0.2	30
1,1,1,2-Tetrachloroethane	0.31	0.32	4.4	30
Ethylbenzene	1.29	1.27	1.3	20
p/m-Xylene	0.44	0.45	2.9	30
o-Xylene	0.42	0.43	2.0	30
Styrene	0.76	0.80	4.4	30
Bromoform	0.25	0.27	7.1	30
Isopropylbenzene	1.13	1.10	2.1	30
1,1,2,2-Tetrachloroethane	0.49	0.50	2.9	30
Bromobenzene	0.30	0.31	2.4	30
1,2,3-Trichloropropane	0.42	0.42	0.9	30
n-Propylbenzene	1.30	1.30	0.3	30
2-Chlorotoluene	0.82	0.82	0.3	30
1,3,5-Trimethylbenzene	0.84	0.85	1.2	30
4-Chlorotoluene	0.85	0.86	1.0	30
tert-Butylbenzene	0.66	0.65	1.1	30
1,2,4-Trimethylbenzene	0.85	0.87	3.1	30
sec-Butylbenzene	0.97	0.95	1.4	30
1,3-Dichlorobenzene	0.49	0.51	3.6	30
p-Isopropyltoluene	0.77	0.78	0.7	30
1,4-Dichlorobenzene	0.52	0.54	3.7	30
n-Butylbenzene	0.67	0.69	2.8	30
1,2-Dibromo-3-chloropropane	0.091	0.086	5.0	30
1,2-Dichlorobenzene	0.48	0.49	3.2	30
1,2,4-Trichlorobenzene	0.25	0.24	2.0	30
Hexachlorobutadiene	0.081	0.081	0.3	30
Naphthalene	0.88	0.84	5.3	30
1,2,3-Trichlorobenzene	0.24	0.23	3.8	30
Dibromofluoromethane	0.71	0.73	3.1	30
Toluene-d8	0.87	0.87	0.0	30
4-Bromofluorobenzene	0.52	0.52	0.2	30
Average % D			4.1	

N/A - Not Applicable

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Form VIII
Internal Standard Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0307096**
Lab ID: **C1072801**

Case: N/A SDG: N/A

		Pentafluorobenzene		Fluorobenzene		Chlorobenzene-D5	
		Area	RT	Area	RT	Area	RT
Standard:		395723	6.28	847461	7.06	539645	11.41
Upper Limit:		791446	6.78	1694922	7.56	1079290	11.91
Lower Limit:		197862	5.78	423730	6.56	269822	10.91
Client ID	**Lab ID**						
Laboratory Control Sample	VW072803L02	400718	6.28	863772	7.06	541201	11.41
Blank	VW072803B05	401280	6.28	866287	7.06	538288	11.41
RB-01	0307096-02	398604	6.28	858466	7.06	531173	11.41
TB-01	0307096-01	388614	6.28	837572	7.06	517442	11.41

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

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Chain-of-Custody Record

Woods Hole Group

375 Paramount Drive
Raynham, MA 02767

TEL: (508) 822-9300
FAX: (508) 822-3288

0307096

PAGE 1 OF 1

COMPANY INFORMATION

Name: TRC Environmental
Address: 100 Foot of John St
Boott Mills South
Lowell, MA 01852
Telephone: 978-970-5600
Facsimile: 978-453-1995
Contact Name: Ken Cormier

COMPANY'S PROJECT INFORMATION

Regulatory Protocol: _____
For the State of: MA
Project Name: Lockheed Ph III RIF
Project Number: E9202
P.O. #: _____
Sampler Name(s): Kristin Marshall

SHIPPING INFORMATION

Carrier: Woods Hole
Airbill Number: _____
Date Shipped: 7/23/03
Quote #: _____

(TAT IS IN BUSINESS DAYS)
CIRCLE TAT: (10 Day) 5 Day 3 Day 48 Hr 24 Hr Other
(IF OTHER NOTE BELOW)

SAMPLE CONTAINERS (NOTE 4)

PRESERVATIVE	HCl, ice					
CONTAINER TYPE	9/glass					
VOLUME	40mL/VOA					

WHG LAB #	SAMPLE ID (NOTE 1)	COLLECTION DATE	COLLECTION TIME	COMPOSITE OR GRAB	MATRIX	ANALYSIS/REMARKS (NOTES 2, 3)	SAMPLER(S) INITIALS	NUMBER OF CONTAINERS
1	TB-01	7/22/03	1200	G	W	MCP Method 8260B	KEM	2
2	RB-01	7/22/03	1215	G	W	MCP Method 8260B	KEM	3
	Temperature Blank Included							

Relinquished by: (signature)	DATE	TIME	Received by: (signature)
Ken Cormier	7/23	1100	Ed Butler
Relinquished by: (signature)	DATE	TIME	Received by: (signature)
Ed Butler	7/23/03	1:15	
Relinquished by: (signature)	DATE	TIME	Received for Laboratory by: (signature)

NOTES TO SAMPLER(S): (1) Limit Sample Identification to 6 characters, if possible; (2) Indicate designated Lab Q.C. sample and type (e.g.: MS/MSD/REP) and provide sufficient sample; (3) Field duplicates are separate sample; (4) e.g.: 40ml/glass/H_2SO_4

Notes to Lab: 1 cooler. Samples shipped on ice.

Sample Receipt Checklist

Client: TRC		Receipt Date: 7-23-03	
Project: Lockheed		Log-in Date: 7/	
LTR #: 0307096		Inspection by: ES	Login by: hc

ALL SECTIONS BELOW MUST BE COMPLETED

Comments / Notes

Were samples shipped? Yes, FedEx / UPS / Other:_____
No, WHG Courier pick-up / Hand delivered

Is bill of lading retained? Yes, Tracking #:_____
No, Unavailable / NA

Number of coolers received for this project delivery: 1

Indicate cooler temperature upon opening (if multiple coolers, record all temps):

Note: If all coolers are 2-6°C, use one checklist, if NOT, use separate checklists and note all samples received *above* 6°C.

Cooler 1:
Temperature(s) taken from: 17° IR Gun, 06° Temp. Blank, / NA

Were samples received on ice? Yes / No

Chain-of-Custody present? Yes / No
Complete? Yes / No

Custody seals present on Cooler? Yes / No
on Bottles? Yes / No
Intact? Yes / No / NA
Note: Affix custody seals to back of this page.

Were sample containers intact? Yes / No If No, list samples: →

Did VOA/VPH waters contain headspace (>5mm)? Yes / No / NA If Yes, list samples: →

Were 5035 VOA soils, or VPH soils, *covered* with MeOH? Yes / No / NA
If No, list samples: →

Was a sufficient amount of sample received for each test indicated on the COC?
Yes / No If No, list samples: →

If chemical preservation is appropriate -
Were samples field preserved? Yes / No / NA

☑ C=HCl ☐ M=MeOH ☐ S=H_2SO_4
☐ H=NaOH ☐ N=HNO_3 ☐ Other:_____ ☐ U= Unknown

Preservation (pH) verified at lab for *EVERY* bottle? (Not: VOA /VPH / Sulfide)
YES: <2 or >12 (CN) or NO NA
If No, why?:

Were samples received within hold time? Yes / No If No, list samples: →

Discrepancy between samples rec'd & COC ? Yes / No If Yes, list samples: →

Was the Project Manager notified of any other problems? Yes / No / NA

Project Manager Acknowledgement: Date:

Sample storage refrigerator #: VOA

Sample storage freezer #:_____

Cooler 2:_____ Cooler 3:_____

Cooler 4:_____ Cooler 5:_____

Cooler 6:_____ Cooler 7:_____

More:_____

Chemical preservation OK for ALL samples?
Yes / No / N/A

If No, list samples below:

Please use back for any additional notes!

Woods Hole Group
Environmental Laboratories

ANALYTICAL REPORT

Prepared for:
TRC Environmental
Boott Mills South
Foot of John Street
Lowell, MA 01852

Project:	Lockheed Ph IV RIP
ETR:	0308017
Report Date:	August 18, 2003

Certifications and Accreditations
Massachusetts MA030
Connecticut PH-0141
New Hampshire 220602
Rhode Island 64
New Jersey MA015
Maine MA030
New York 11627
Louisiana 03090
Army Corps of Engineers
Department of the Navy
Florida E87814

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375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Woods Hole Group Environmental Laboratories

Project Number: 0308017

Project Location:

MCP RTN #[1]:

This Form provides certifications for the following data set: [Laboratory Sample ID Number(s)]:

0308017-01 through 0308017-23

Sample Matrices: [Groundwater] Soil/Sediment Drinking Water Other:

MCP SW-846 Methods Used:

8260B (√)	8151A ( )	8330 ( )	6010B ( )	7470A/1A ( )
8270C ( )	8081A ( )	VPH (√)	6020 ( )	9014M[2] ( )
8082 ( )	8021B ( )	EPH ( )	7000 S[3] ( )	Other:

[1] – List Release Tracking Number (RTN), if known.
[2]M – SW-846 Method 9014 Modified or MADEP Physiologically Available Cyanide (PAC) Method.
[3]S – SW-846 Methods 7000 Series. List individual method and analyte.

	An affirmative response to question A, B, and C is required for "Presumptive Certainty" status.		
A	Were all samples received by the laboratory in a condition consistent with that described on the Chain-of-Custody documentation for the data set?	[Yes]	No[1]
B	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	[Yes]	No[1]
C	Does the analytical data included in this report meet all the requirements for "presumptive Certainty", as described in Section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for Acquisition and Reporting of Analytical Data"?	[Yes]	No[1]
	A response to questions D and E below is required for "Presumptive Certainty" status.		
D	Were all QC performance standards and recommendations for the specified methods achieved?	Yes	[No[1]]
E	Were results for all analyte-list compounds/elements for the specified method(s) reported?	[Yes]	No[1]

[1] All NO answers must be addressed in an attached Environmental Laboratory case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Edith Hutchinson **Position:** Senior Project Manager

Printed Name: Edith Hutchinson **Date:** 8/22/03

CASE NARRATIVE

Woods Hole Group Environmental Laboratories

ETR: 0308017
Project: Lockheed Ph IV RIP

All analyses were performed according to Woods Hole Group's documented Standard Operating Procedures (SOPs), within holding time and with appropriate quality control measures except where noted. Blank correction of results is not performed in the laboratory for any parameter. Soil/sediment samples are reported on a dry weight basis unless otherwise noted.

General Requirements

1. The analytical data included in this report meets all the requirements for "Presumptive Certainty", as described in Section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for Acquisition and Reporting of Analytical Data", with the exception that the laboratory can not attest to the frequency of field QC.

Volatile Organics by 8260B

1. The initial calibration had compounds outside of the 15% RSD QC acceptance limit. Refer to the Form VI Initial Calibration Summary report for specific outliers. This initial calibration meets the acceptability criteria.

2. Both continuing calibration verification standards had Bromomethane above of the 30% D QC acceptance limit. These calibration verifications meet the acceptability criteria.

3. The laboratory control sample VW080803L02 had the compounds Bromomethane and Trichlorofluoromethane outside the 70%-130% QC acceptance limits at 27% and 144%, respectively. These compounds were not detected in the associated samples.

4. The laboratory control sample VW080803L02 had the compounds Bromomethane and Trichlorofluoromethane outside the 70%-130% QC acceptance limits at 24% and 144%, respectively. These compounds were not detected in the associated samples.

5. Most samples were analyzed at dilution based on screening information. The initial analysis of samples EMW-11R2-8/03 (0308017-09) and IP-1R2-8/03 (0308017-20) had concentrations that exceeded the calibration range of the instrument. These samples were reanalyzed at a further dilution and both analyses are reported. Refer to the individual report forms for dilution requirements.

The enclosed results of analyses are representative of the samples as received by the laboratory. Woods Hole Group makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Woods Hole Group. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved by: Edith Hatchinson Title: Senior Project Manager Date: 8/18/05

VOLATILE ORGANICS

Form I
Volatile Organics by 8260B-MCP

Woods Hole Group

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **BRW-1R2-8/03**
Case: N/A SDG: N/A
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-04**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	5	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	10	U	1,3-Dichloropropene, Total	20	U
Chloromethane	10	U	Toluene	10	U
Vinyl chloride	6.7	J	1,1,2-Trichloroethane	10	U
Bromomethane	10	U	2-Hexanone	10	U
Chloroethane	10	U	Tetrachloroethene	92	
Trichlorofluoromethane	10	U	1,3-Dichloropropane	10	U
Diethyl ether	10	U	Dibromochloromethane	10	U
Acetone	43		1,2-Dibromoethane	10	U
1,1-Dichloroethene	10	U	Chlorobenzene	10	U
Carbon disulfide	10	U	1,1,1,2-Tetrachloroethane	10	U
Methylene chloride	25	U	Ethylbenzene	10	U
Methyl tert-butyl ether (MTBE)	10	U	Xylenes, Total	30	U
trans-1,2-Dichloroethene	10	U	Styrene	10	U
Diisopropyl Ether (DIPE)	10	U	Bromoform	10	U
1,1-Dichloroethane	20		Isopropylbenzene	10	U
Ethyl Tertiary Butyl Ether (ETBE)	10	U	1,1,2,2-Tetrachloroethane	10	U
2-Butanone (MEK)	10	U	Bromobenzene	10	U
cis-1,2-Dichloroethene	83		1,2,3-Trichloropropane	10	U
2,2-Dichloropropane	10	U	n-Propylbenzene	10	U
Bromochloromethane	10	U	2-Chlorotoluene	10	U
Chloroform	10	U	1,3,5-Trimethylbenzene	10	U
1,1,1-Trichloroethane	10	U	4-Chlorotoluene	10	U
1,1-Dichloropropene	10	U	tert-Butylbenzene	10	U
Carbon tetrachloride	10	U	1,2,4-Trimethylbenzene	10	U
Benzene	10	U	sec-Butylbenzene	10	U
Tertiary Amyl Methyl Ether (TAME)	10	U	1,3-Dichlorobenzene	10	U
Tetrahydrofuran	10	U	p-Isopropyltoluene	10	U
1,2-Dichloroethane	10	U	1,4-Dichlorobenzene	10	U
Trichloroethene	630		n-Butylbenzene	10	U
1,2-Dichloropropane	10	U	1,2-Dibromo-3-chloropropane	25	U
Dibromomethane	10	U	1,2-Dichlorobenzene	10	U
1,4-Dioxane	500	U	1,2,4-Trichlorobenzene	25	U
Bromodichloromethane	10	U	Hexachlorobutadiene	25	U
Methyl isobutyl ketone (MIBK)	10	U	Naphthalene	25	U
			1,2,3-Trichlorobenzene	25	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	92	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **BRW-1R3-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-05**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	2	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	4.0	U	1,3-Dichloropropene, Total	8.0	U
Chloromethane	4.0	U	Toluene	4.0	U
Vinyl chloride	4.0	U	1,1,2-Trichloroethane	4.0	U
Bromomethane	4.0	U	2-Hexanone	4.0	U
Chloroethane	4.0	U	Tetrachloroethene	29	
Trichlorofluoromethane	4.0	U	1,3-Dichloropropane	4.0	U
Diethyl ether	4.0	U	Dibromochloromethane	4.0	U
Acetone	38		1,2-Dibromoethane	4.0	U
1,1-Dichloroethene	4.0	U	Chlorobenzene	4.0	U
Carbon disulfide	4.0	U	1,1,1,2-Tetrachloroethane	4.0	U
Methylene chloride	10	U	Ethylbenzene	4.0	U
Methyl tert-butyl ether (MTBE)	4.0	U	Xylenes, Total	12	U
trans-1,2-Dichloroethene	4.0	U	Styrene	4.0	U
Diisopropyl Ether (DIPE)	4.0	U	Bromoform	4.0	U
1,1-Dichloroethane	11		Isopropylbenzene	4.0	U
Ethyl Tertiary Butyl Ether (ETBE)	4.0	U	1,1,2,2-Tetrachloroethane	4.0	U
2-Butanone (MEK)	4.0	U	Bromobenzene	4.0	U
cis-1,2-Dichloroethene	43		1,2,3-Trichloropropane	4.0	U
2,2-Dichloropropane	4.0	U	n-Propylbenzene	4.0	U
Bromochloromethane	4.0	U	2-Chlorotoluene	4.0	U
Chloroform	4.0	U	1,3,5-Trimethylbenzene	4.0	U
1,1,1-Trichloroethane	4.0	U	4-Chlorotoluene	4.0	U
1,1-Dichloropropene	4.0	U	tert-Butylbenzene	4.0	U
Carbon tetrachloride	4.0	U	1,2,4-Trimethylbenzene	4.0	U
Benzene	4.0	U	sec-Butylbenzene	4.0	U
Tertiary Amyl Methyl Ether (TAME)	4.0	U	1,3-Dichlorobenzene	4.0	U
Tetrahydrofuran	4.0	U	p-Isopropyltoluene	4.0	U
1,2-Dichloroethane	4.0	U	1,4-Dichlorobenzene	4.0	U
Trichloroethene	260		n-Butylbenzene	4.0	U
1,2-Dichloropropane	4.0	U	1,2-Dibromo-3-chloropropane	10	U
Dibromomethane	4.0	U	1,2-Dichlorobenzene	4.0	U
1,4-Dioxane	200	U	1,2,4-Trichlorobenzene	10	U
Bromodichloromethane	4.0	U	Hexachlorobutadiene	10	U
Methyl isobutyl ketone (MIBK)	4.0	U	Naphthalene	10	U
			1,2,3-Trichlorobenzene	10	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	93	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **BRW-1R4-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-06**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	10	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	20	U	1,3-Dichloropropene, Total	40	U
Chloromethane	20	U	Toluene	20	U
Vinyl chloride	20	U	1,1,2-Trichloroethane	20	U
Bromomethane	20	U	2-Hexanone	20	U
Chloroethane	20	U	Tetrachloroethene	**250**	
Trichlorofluoromethane	20	U	1,3-Dichloropropane	20	U
Diethyl ether	20	U	Dibromochloromethane	20	U
Acetone	**48**	J	1,2-Dibromoethane	20	U
1,1-Dichloroethene	20	U	Chlorobenzene	20	U
Carbon disulfide	20	U	1,1,1,2-Tetrachloroethane	20	U
Methylene chloride	50	U	Ethylbenzene	20	U
Methyl tert-butyl ether (MTBE)	20	U	Xylenes, Total	60	U
trans-1,2-Dichloroethene	20	U	Styrene	20	U
Diisopropyl Ether (DIPE)	20	U	Bromoform	20	U
1,1-Dichloroethane	**23**		Isopropylbenzene	20	U
Ethyl Tertiary Butyl Ether (ETBE)	20	U	1,1,2,2-Tetrachloroethane	20	U
2-Butanone (MEK)	20	U	Bromobenzene	20	U
cis-1,2-Dichloroethene	**42**		1,2,3-Trichloropropane	20	U
2,2-Dichloropropane	20	U	n-Propylbenzene	20	U
Bromochloromethane	20	U	2-Chlorotoluene	20	U
Chloroform	20	U	1,3,5-Trimethylbenzene	20	U
1,1,1-Trichloroethane	20	U	4-Chlorotoluene	20	U
1,1-Dichloropropene	20	U	tert-Butylbenzene	20	U
Carbon tetrachloride	20	U	1,2,4-Trimethylbenzene	20	U
Benzene	20	U	sec-Butylbenzene	20	U
Tertiary Amyl Methyl Ether (TAME)	20	U	1,3-Dichlorobenzene	20	U
Tetrahydrofuran	20	U	p-Isopropyltoluene	20	U
1,2-Dichloroethane	20	U	1,4-Dichlorobenzene	20	U
Trichloroethene	**1000**		n-Butylbenzene	20	U
1,2-Dichloropropane	20	U	1,2-Dibromo-3-chloropropane	50	U
Dibromomethane	20	U	1,2-Dichlorobenzene	20	U
1,4-Dioxane	1000	U	1,2,4-Trichlorobenzene	50	U
Bromodichloromethane	20	U	Hexachlorobutadiene	50	U
Methyl isobutyl ketone (MIBK)	20	U	Naphthalene	50	U
			1,2,3-Trichlorobenzene	50	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	93	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **MW-901-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-07**
Associated Blank: **VW081103B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/11/03	5	5	10	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	20	U	1,3-Dichloropropene, Total	40	U
Chloromethane	20	U	Toluene	20	U
Vinyl chloride	20	U	1,1,2-Trichloroethane	20	U
Bromomethane	20	U	2-Hexanone	20	U
Chloroethane	20	U	Tetrachloroethene	**240**	
Trichlorofluoromethane	20	U	1,3-Dichloropropane	20	U
Diethyl ether	20	U	Dibromochloromethane	20	U
Acetone	**40**	J	1,2-Dibromoethane	20	U
1,1-Dichloroethene	20	U	Chlorobenzene	20	U
Carbon disulfide	20	U	1,1,1,2-Tetrachloroethane	20	U
Methylene chloride	50	U	Ethylbenzene	20	U
Methyl tert-butyl ether (MTBE)	20	U	Xylenes, Total	60	U
trans-1,2-Dichloroethene	20	U	Styrene	20	U
Diisopropyl Ether (DIPE)	20	U	Bromoform	20	U
1,1-Dichloroethane	**23**		Isopropylbenzene	20	U
Ethyl Tertiary Butyl Ether (ETBE)	20	U	1,1,2,2-Tetrachloroethane	20	U
2-Butanone (MEK)	20	U	Bromobenzene	20	U
cis-1,2-Dichloroethene	**39**		1,2,3-Trichloropropane	20	U
2,2-Dichloropropane	20	U	n-Propylbenzene	20	U
Bromochloromethane	20	U	2-Chlorotoluene	20	U
Chloroform	20	U	1,3,5-Trimethylbenzene	20	U
1,1,1-Trichloroethane	20	U	4-Chlorotoluene	20	U
1,1-Dichloropropene	20	U	tert-Butylbenzene	20	U
Carbon tetrachloride	20	U	1,2,4-Trimethylbenzene	20	U
Benzene	20	U	sec-Butylbenzene	20	U
Tertiary Amyl Methyl Ether (TAME)	20	U	1,3-Dichlorobenzene	20	U
Tetrahydrofuran	20	U	p-Isopropyltoluene	20	U
1,2-Dichloroethane	20	U	1,4-Dichlorobenzene	20	U
Trichloroethene	**980**		n-Butylbenzene	20	U
1,2-Dichloropropane	20	U	1,2-Dibromo-3-chloropropane	50	U
Dibromomethane	20	U	1,2-Dichlorobenzene	20	U
1,4-Dioxane	1000	U	1,2,4-Trichlorobenzene	50	U
Bromodichloromethane	20	U	Hexachlorobutadiene	50	U
Methyl isobutyl ketone (MIBK)	20	U	Naphthalene	50	U
			1,2,3-Trichlorobenzene	50	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	104	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	93	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **EMW-11R1-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-08**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	50	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	100	U	1,3-Dichloropropene, Total	200	U
Chloromethane	100	U	Toluene	100	U
Vinyl chloride	**590**		1,1,2-Trichloroethane	100	U
Bromomethane	100	U	2-Hexanone	100	U
Chloroethane	100	U	Tetrachloroethene	**200**	
Trichlorofluoromethane	100	U	1,3-Dichloropropane	100	U
Diethyl ether	100	U	Dibromochloromethane	100	U
Acetone	250	U	1,2-Dibromoethane	100	U
1,1-Dichloroethene	**58**	J	Chlorobenzene	100	U
Carbon disulfide	100	U	1,1,1,2-Tetrachloroethane	100	U
Methylene chloride	250	U	Ethylbenzene	100	U
Methyl tert-butyl ether (MTBE)	100	U	Xylenes, Total	300	U
trans-1,2-Dichloroethene	**90**	J	Styrene	100	U
Diisopropyl Ether (DIPE)	100	U	Bromoform	100	U
1,1-Dichloroethane	**130**		Isopropylbenzene	100	U
Ethyl Tertiary Butyl Ether (ETBE)	100	U	1,1,2,2-Tetrachloroethane	100	U
2-Butanone (MEK)	100	U	Bromobenzene	100	U
cis-1,2-Dichloroethene	**1200**		1,2,3-Trichloropropane	100	U
2,2-Dichloropropane	100	U	n-Propylbenzene	100	U
Bromochloromethane	100	U	2-Chlorotoluene	100	U
Chloroform	100	U	1,3,5-Trimethylbenzene	100	U
1,1,1-Trichloroethane	100	U	4-Chlorotoluene	100	U
1,1-Dichloropropene	100	U	tert-Butylbenzene	100	U
Carbon tetrachloride	100	U	1,2,4-Trimethylbenzene	100	U
Benzene	100	U	sec-Butylbenzene	100	U
Tertiary Amyl Methyl Ether (TAME)	100	U	1,3-Dichlorobenzene	100	U
Tetrahydrofuran	100	U	p-Isopropyltoluene	100	U
1,2-Dichloroethane	100	U	1,4-Dichlorobenzene	100	U
Trichloroethene	**6500**		n-Butylbenzene	100	U
1,2-Dichloropropane	100	U	1,2-Dibromo-3-chloropropane	250	U
Dibromomethane	100	U	1,2-Dichlorobenzene	100	U
1,4-Dioxane	5000	U	1,2,4-Trichlorobenzene	250	U
Bromodichloromethane	100	U	Hexachlorobutadiene	250	U
Methyl isobutyl ketone (MIBK)	100	U	Naphthalene	250	U
			1,2,3-Trichlorobenzene	250	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	103	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	90	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **EMW-11R2-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-09**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	20	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	40	U	1,3-Dichloropropene, Total	80	U
Chloromethane	40	U	Toluene	40	U
Vinyl chloride	**1500**		1,1,2-Trichloroethane	40	U
Bromomethane	40	U	2-Hexanone	40	U
Chloroethane	40	U	Tetrachloroethene	**27**	J
Trichlorofluoromethane	40	U	1,3-Dichloropropane	40	U
Diethyl ether	40	U	Dibromochloromethane	40	U
Acetone	100	U	1,2-Dibromoethane	40	U
1,1-Dichloroethene	**43**		Chlorobenzene	40	U
Carbon disulfide	40	U	1,1,1,2-Tetrachloroethane	40	U
Methylene chloride	100	U	Ethylbenzene	40	U
Methyl tert-butyl ether (MTBE)	40	U	Xylenes, Total	120	U
trans-1,2-Dichloroethene	**100**		Styrene	40	U
Diisopropyl Ether (DIPE)	40	U	Bromoform	40	U
1,1-Dichloroethane	**180**		Isopropylbenzene	40	U
Ethyl Tertiary Butyl Ether (ETBE)	40	U	1,1,2,2-Tetrachloroethane	40	U
2-Butanone (MEK)	40	U	Bromobenzene	40	U
cis-1,2-Dichloroethene	**6700**	E	1,2,3-Trichloropropane	40	U
2,2-Dichloropropane	40	U	n-Propylbenzene	40	U
Bromochloromethane	40	U	2-Chlorotoluene	40	U
Chloroform	40	U	1,3,5-Trimethylbenzene	40	U
1,1,1-Trichloroethane	40	U	4-Chlorotoluene	40	U
1,1-Dichloropropene	40	U	tert-Butylbenzene	40	U
Carbon tetrachloride	40	U	1,2,4-Trimethylbenzene	40	U
Benzene	40	U	sec-Butylbenzene	40	U
Tertiary Amyl Methyl Ether (TAME)	40	U	1,3-Dichlorobenzene	40	U
Tetrahydrofuran	40	U	p-Isopropyltoluene	40	U
1,2-Dichloroethane	40	U	1,4-Dichlorobenzene	40	U
Trichloroethene	**2400**		n-Butylbenzene	40	U
1,2-Dichloropropane	40	U	1,2-Dibromo-3-chloropropane	100	U
Dibromomethane	40	U	1,2-Dichlorobenzene	40	U
1,4-Dioxane	2000	U	1,2,4-Trichlorobenzene	100	U
Bromodichloromethane	40	U	Hexachlorobutadiene	100	U
Methyl isobutyl ketone (MIBK)	40	U	Naphthalene	100	U
			1,2,3-Trichlorobenzene	100	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	101	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	91	70-130

E - Estimated value, exceeds the upper limit of calibration.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **EMW-11R2-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-09E**
Associated Blank: **VW081103B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/11/03	5	5	50	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	100	U	1,3-Dichloropropene, Total	200	U
Chloromethane	100	U	Toluene	100	U
Vinyl chloride	**1500**		1,1,2-Trichloroethane	100	U
Bromomethane	100	U	2-Hexanone	100	U
Chloroethane	100	U	Tetrachloroethene	100	U
Trichlorofluoromethane	100	U	1,3-Dichloropropane	100	U
Diethyl ether	100	U	Dibromochloromethane	100	U
Acetone	250	U	1,2-Dibromoethane	100	U
1,1-Dichloroethene	100	U	Chlorobenzene	100	U
Carbon disulfide	100	U	1,1,1,2-Tetrachloroethane	100	U
Methylene chloride	250	U	Ethylbenzene	100	U
Methyl tert-butyl ether (MTBE)	100	U	Xylenes, Total	300	U
trans-1,2-Dichloroethene	**94**	J	Styrene	100	U
Diisopropyl Ether (DIPE)	100	U	Bromoform	100	U
1,1-Dichloroethane	**170**		Isopropylbenzene	100	U
Ethyl Tertiary Butyl Ether (ETBE)	100	U	1,1,2,2-Tetrachloroethane	100	U
2-Butanone (MEK)	100	U	Bromobenzene	100	U
cis-1,2-Dichloroethene	**6400**		1,2,3-Trichloropropane	100	U
2,2-Dichloropropane	100	U	n-Propylbenzene	100	U
Bromochloromethane	100	U	2-Chlorotoluene	100	U
Chloroform	100	U	1,3,5-Trimethylbenzene	100	U
1,1,1-Trichloroethane	100	U	4-Chlorotoluene	100	U
1,1-Dichloropropene	100	U	tert-Butylbenzene	100	U
Carbon tetrachloride	100	U	1,2,4-Trimethylbenzene	100	U
Benzene	100	U	sec-Butylbenzene	100	U
Tertiary Amyl Methyl Ether (TAME)	100	U	1,3-Dichlorobenzene	100	U
Tetrahydrofuran	100	U	p-Isopropyltoluene	100	U
1,2-Dichloroethane	100	U	1,4-Dichlorobenzene	100	U
Trichloroethene	**1600**		n-Butylbenzene	100	U
1,2-Dichloropropane	100	U	1,2-Dibromo-3-chloropropane	250	U
Dibromomethane	100	U	1,2-Dichlorobenzene	100	U
1,4-Dioxane	5000	U	1,2,4-Trichlorobenzene	250	U
Bromodichloromethane	100	U	Hexachlorobutadiene	250	U
Methyl isobutyl ketone (MIBK)	100	U	Naphthalene	250	U
			1,2,3-Trichlorobenzene	250	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	103	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	92	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 12:53

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-4R1-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-10**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	50	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	100	U	1,3-Dichloropropene, Total	200	U
Chloromethane	100	U	Toluene	100	U
Vinyl chloride	100	U	1,1,2-Trichloroethane	100	U
Bromomethane	100	U	2-Hexanone	100	U
Chloroethane	100	U	Tetrachloroethene	1900	
Trichlorofluoromethane	100	U	1,3-Dichloropropane	100	U
Diethyl ether	100	U	Dibromochloromethane	100	U
Acetone	250	U	1,2-Dibromoethane	100	U
1,1-Dichloroethene	100	U	Chlorobenzene	100	U
Carbon disulfide	100	U	1,1,1,2-Tetrachloroethane	100	U
Methylene chloride	250	U	Ethylbenzene	100	U
Methyl tert-butyl ether (MTBE)	100	U	Xylenes, Total	300	U
trans-1,2-Dichloroethene	100	U	Styrene	100	U
Diisopropyl Ether (DIPE)	100	U	Bromoform	100	U
1,1-Dichloroethane	150		Isopropylbenzene	100	U
Ethyl Tertiary Butyl Ether (ETBE)	100	U	1,1,2,2-Tetrachloroethane	100	U
2-Butanone (MEK)	100	U	Bromobenzene	100	U
cis-1,2-Dichloroethene	77	J	1,2,3-Trichloropropane	100	U
2,2-Dichloropropane	100	U	n-Propylbenzene	100	U
Bromochloromethane	100	U	2-Chlorotoluene	100	U
Chloroform	100	U	1,3,5-Trimethylbenzene	100	U
1,1,1-Trichloroethane	100	U	4-Chlorotoluene	100	U
1,1-Dichloropropene	100	U	tert-Butylbenzene	100	U
Carbon tetrachloride	100	U	1,2,4-Trimethylbenzene	100	U
Benzene	100	U	sec-Butylbenzene	100	U
Tertiary Amyl Methyl Ether (TAME)	100	U	1,3-Dichlorobenzene	100	U
Tetrahydrofuran	100	U	p-Isopropyltoluene	100	U
1,2-Dichloroethane	100	U	1,4-Dichlorobenzene	100	U
Trichloroethene	6700		n-Butylbenzene	100	U
1,2-Dichloropropane	100	U	1,2-Dibromo-3-chloropropane	250	U
Dibromomethane	100	U	1,2-Dichlorobenzene	100	U
1,4-Dioxane	5000	U	1,2,4-Trichlorobenzene	250	U
Bromodichloromethane	100	U	Hexachlorobutadiene	250	U
Methyl isobutyl ketone (MIBK)	100	U	Naphthalene	250	U
			1,2,3-Trichlorobenzene	250	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	92	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 12:53

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-4R2-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-11**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	50	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	100	U	1,3-Dichloropropene, Total	200	U
Chloromethane	100	U	Toluene	100	U
Vinyl chloride	100	U	1,1,2-Trichloroethane	100	U
Bromomethane	100	U	2-Hexanone	100	U
Chloroethane	100	U	Tetrachloroethene	1400	
Trichlorofluoromethane	100	U	1,3-Dichloropropane	100	U
Diethyl ether	100	U	Dibromochloromethane	100	U
Acetone	250	U	1,2-Dibromoethane	100	U
1,1-Dichloroethene	100	U	Chlorobenzene	100	U
Carbon disulfide	100	U	1,1,1,2-Tetrachloroethane	100	U
Methylene chloride	250	U	Ethylbenzene	100	U
Methyl tert-butyl ether (MTBE)	100	U	Xylenes, Total	300	U
trans-1,2-Dichloroethene	100	U	Styrene	100	U
Diisopropyl Ether (DIPE)	100	U	Bromoform	100	U
1,1-Dichloroethane	160		Isopropylbenzene	100	U
Ethyl Tertiary Butyl Ether (ETBE)	100	U	1,1,2,2-Tetrachloroethane	100	U
2-Butanone (MEK)	100	U	Bromobenzene	100	U
cis-1,2-Dichloroethene	70	J	1,2,3-Trichloropropane	100	U
2,2-Dichloropropane	100	U	n-Propylbenzene	100	U
Bromochloromethane	100	U	2-Chlorotoluene	100	U
Chloroform	100	U	1,3,5-Trimethylbenzene	100	U
1,1,1-Trichloroethane	100	U	4-Chlorotoluene	100	U
1,1-Dichloropropene	100	U	tert-Butylbenzene	100	U
Carbon tetrachloride	100	U	1,2,4-Trimethylbenzene	100	U
Benzene	100	U	sec-Butylbenzene	100	U
Tertiary Amyl Methyl Ether (TAME)	100	U	1,3-Dichlorobenzene	100	U
Tetrahydrofuran	100	U	p-Isopropyltoluene	100	U
1,2-Dichloroethane	100	U	1,4-Dichlorobenzene	100	U
Trichloroethene	6600		n-Butylbenzene	100	U
1,2-Dichloropropane	100	U	1,2-Dibromo-3-chloropropane	250	U
Dibromomethane	100	U	1,2-Dichlorobenzene	100	U
1,4-Dioxane	5000	U	1,2,4-Trichlorobenzene	250	U
Bromodichloromethane	100	U	Hexachlorobutadiene	250	U
Methyl isobutyl ketone (MIBK)	100	U	Naphthalene	250	U
			1,2,3-Trichlorobenzene	250	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	103	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	91	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-4R3-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-12**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	50	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	100	U	1,3-Dichloropropene, Total	200	U
Chloromethane	100	U	Toluene	100	U
Vinyl chloride	100	U	1,1,2-Trichloroethane	100	U
Bromomethane	100	U	2-Hexanone	100	U
Chloroethane	100	U	Tetrachloroethene	**1100**	
Trichlorofluoromethane	100	U	1,3-Dichloropropane	100	U
Diethyl ether	100	U	Dibromochloromethane	100	U
Acetone	**160**	J	1,2-Dibromoethane	100	U
1,1-Dichloroethene	100	U	Chlorobenzene	100	U
Carbon disulfide	100	U	1,1,1,2-Tetrachloroethane	100	U
Methylene chloride	250	U	Ethylbenzene	100	U
Methyl tert-butyl ether (MTBE)	100	U	Xylenes, Total	300	U
trans-1,2-Dichloroethene	100	U	Styrene	100	U
Diisopropyl Ether (DIPE)	100	U	Bromoform	100	U
1,1-Dichloroethane	**120**		Isopropylbenzene	100	U
Ethyl Tertiary Butyl Ether (ETBE)	100	U	1,1,2,2-Tetrachloroethane	100	U
2-Butanone (MEK)	100	U	Bromobenzene	100	U
cis-1,2-Dichloroethene	58	J	1,2,3-Trichloropropane	100	U
2,2-Dichloropropane	100	U	n-Propylbenzene	100	U
Bromochloromethane	100	U	2-Chlorotoluene	100	U
Chloroform	100	U	1,3,5-Trimethylbenzene	100	U
1,1,1-Trichloroethane	100	U	4-Chlorotoluene	100	U
1,1-Dichloropropene	100	U	tert-Butylbenzene	100	U
Carbon tetrachloride	100	U	1,2,4-Trimethylbenzene	100	U
Benzene	100	U	sec-Butylbenzene	100	U
Tertiary Amyl Methyl Ether (TAME)	100	U	1,3-Dichlorobenzene	100	U
Tetrahydrofuran	100	U	p-Isopropyltoluene	100	U
1,2-Dichloroethane	100	U	1,4-Dichlorobenzene	100	U
Trichloroethene	**5000**		n-Butylbenzene	100	U
1,2-Dichloropropane	100	U	1,2-Dibromo-3-chloropropane	250	U
Dibromomethane	100	U	1,2-Dichlorobenzene	100	U
1,4-Dioxane	5000	U	1,2,4-Trichlorobenzene	250	U
Bromodichloromethane	100	U	Hexachlorobutadiene	250	U
Methyl isobutyl ketone (MIBK)	100	U	Naphthalene	250	U
			1,2,3-Trichlorobenzene	250	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	103	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	93	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form I
Volatile Organics by 8260B-MCP

Woods Hole Group

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-3R1-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-13**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	10	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	20	U	1,3-Dichloropropene, Total	40	U
Chloromethane	20	U	Toluene	20	U
Vinyl chloride	20	U	1,1,2-Trichloroethane	20	U
Bromomethane	20	U	2-Hexanone	20	U
Chloroethane	20	U	Tetrachloroethene	**170**	
Trichlorofluoromethane	20	U	1,3-Dichloropropane	20	U
Diethyl ether	20	U	Dibromochloromethane	20	U
Acetone	**120**		1,2-Dibromoethane	20	U
1,1-Dichloroethene	20	U	Chlorobenzene	20	U
Carbon disulfide	20	U	1,1,1,2-Tetrachloroethane	20	U
Methylene chloride	50	U	Ethylbenzene	20	U
Methyl tert-butyl ether (MTBE)	20	U	Xylenes, Total	60	U
trans-1,2-Dichloroethene	20	U	Styrene	20	U
Diisopropyl Ether (DIPE)	20	U	Bromoform	20	U
1,1-Dichloroethane	**63**		Isopropylbenzene	20	U
Ethyl Tertiary Butyl Ether (ETBE)	20	U	1,1,2,2-Tetrachloroethane	20	U
2-Butanone (MEK)	20	U	Bromobenzene	20	U
cis-1,2-Dichloroethene	**38**		1,2,3-Trichloropropane	20	U
2,2-Dichloropropane	20	U	n-Propylbenzene	20	U
Bromochloromethane	20	U	2-Chlorotoluene	20	U
Chloroform	20	U	1,3,5-Trimethylbenzene	20	U
1,1,1-Trichloroethane	20	U	4-Chlorotoluene	20	U
1,1-Dichloropropene	20	U	tert-Butylbenzene	20	U
Carbon tetrachloride	20	U	1,2,4-Trimethylbenzene	20	U
Benzene	20	U	sec-Butylbenzene	20	U
Tertiary Amyl Methyl Ether (TAME)	20	U	1,3-Dichlorobenzene	20	U
Tetrahydrofuran	20	U	p-Isopropyltoluene	20	U
1,2-Dichloroethane	20	U	1,4-Dichlorobenzene	20	U
Trichloroethene	**1400**		n-Butylbenzene	20	U
1,2-Dichloropropane	20	U	1,2-Dibromo-3-chloropropane	50	U
Dibromomethane	20	U	1,2-Dichlorobenzene	20	U
1,4-Dioxane	1000	U	1,2,4-Trichlorobenzene	50	U
Bromodichloromethane	20	U	Hexachlorobutadiene	50	U
Methyl isobutyl ketone (MIBK)	20	U	Naphthalene	50	U
			1,2,3-Trichlorobenzene	50	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	91	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 12:52

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-3R2-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-14**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	50	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	100	U	1,3-Dichloropropene, Total	200	U
Chloromethane	100	U	Toluene	100	U
Vinyl chloride	100	U	1,1,2-Trichloroethane	100	U
Bromomethane	100	U	2-Hexanone	100	U
Chloroethane	100	U	Tetrachloroethene	1300	
Trichlorofluoromethane	100	U	1,3-Dichloropropane	100	U
Diethyl ether	100	U	Dibromochloromethane	100	U
Acetone	160	J	1,2-Dibromoethane	100	U
1,1-Dichloroethene	100	U	Chlorobenzene	100	U
Carbon disulfide	100	U	1,1,1,2-Tetrachloroethane	100	U
Methylene chloride	250	U	Ethylbenzene	100	U
Methyl tert-butyl ether (MTBE)	100	U	Xylenes, Total	300	U
trans-1,2-Dichloroethene	100	U	Styrene	100	U
Diisopropyl Ether (DIPE)	100	U	Bromoform	100	U
1,1-Dichloroethane	120		Isopropylbenzene	100	U
Ethyl Tertiary Butyl Ether (ETBE)	100	U	1,1,2,2-Tetrachloroethane	100	U
2-Butanone (MEK)	100	U	Bromobenzene	100	U
cis-1,2-Dichloroethene	56	J	1,2,3-Trichloropropane	100	U
2,2-Dichloropropane	100	U	n-Propylbenzene	100	U
Bromochloromethane	100	U	2-Chlorotoluene	100	U
Chloroform	100	U	1,3,5-Trimethylbenzene	100	U
1,1,1-Trichloroethane	100	U	4-Chlorotoluene	100	U
1,1-Dichloropropene	100	U	tert-Butylbenzene	100	U
Carbon tetrachloride	100	U	1,2,4-Trimethylbenzene	100	U
Benzene	100	U	sec-Butylbenzene	100	U
Tertiary Amyl Methyl Ether (TAME)	100	U	1,3-Dichlorobenzene	100	U
Tetrahydrofuran	100	U	p-Isopropyltoluene	100	U
1,2-Dichloroethane	100	U	1,4-Dichlorobenzene	100	U
Trichloroethene	5200		n-Butylbenzene	100	U
1,2-Dichloropropane	100	U	1,2-Dibromo-3-chloropropane	250	U
Dibromomethane	100	U	1,2-Dichlorobenzene	100	U
1,4-Dioxane	5000	U	1,2,4-Trichlorobenzene	250	U
Bromodichloromethane	100	U	Hexachlorobutadiene	250	U
Methyl isobutyl ketone (MIBK)	100	U	Naphthalene	250	U
			1,2,3-Trichlorobenzene	250	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	103	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	92	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 12:53

Form I
Volatile Organics by 8260B-MCP

Woods Hole Group

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-2R1-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-15**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	20	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	40	U	1,3-Dichloropropene, Total	80	U
Chloromethane	40	U	Toluene	40	U
Vinyl chloride	40	U	1,1,2-Trichloroethane	40	U
Bromomethane	40	U	2-Hexanone	40	U
Chloroethane	40	U	Tetrachloroethene	910	
Trichlorofluoromethane	40	U	1,3-Dichloropropane	40	U
Diethyl ether	40	U	Dibromochloromethane	40	U
Acetone	120		1,2-Dibromoethane	40	U
1,1-Dichloroethene	40	U	Chlorobenzene	40	U
Carbon disulfide	40	U	1,1,1,2-Tetrachloroethane	40	U
Methylene chloride	100	U	Ethylbenzene	40	U
Methyl tert-butyl ether (MTBE)	40	U	Xylenes, Total	120	U
trans-1,2-Dichloroethene	40	U	Styrene	40	U
Diisopropyl Ether (DIPE)	40	U	Bromoform	40	U
1,1-Dichloroethane	96		Isopropylbenzene	40	U
Ethyl Tertiary Butyl Ether (ETBE)	40	U	1,1,2,2-Tetrachloroethane	40	U
2-Butanone (MEK)	40	U	Bromobenzene	40	U
cis-1,2-Dichloroethene	53		1,2,3-Trichloropropane	40	U
2,2-Dichloropropane	40	U	n-Propylbenzene	40	U
Bromochloromethane	40	U	2-Chlorotoluene	40	U
Chloroform	40	U	1,3,5-Trimethylbenzene	40	U
1,1,1-Trichloroethane	40	U	4-Chlorotoluene	40	U
1,1-Dichloropropene	40	U	tert-Butylbenzene	40	U
Carbon tetrachloride	40	U	1,2,4-Trimethylbenzene	40	U
Benzene	40	U	sec-Butylbenzene	40	U
Tertiary Amyl Methyl Ether (TAME)	40	U	1,3-Dichlorobenzene	40	U
Tetrahydrofuran	40	U	p-Isopropyltoluene	40	U
1,2-Dichloroethane	40	U	1,4-Dichlorobenzene	40	U
Trichloroethene	3200		n-Butylbenzene	40	U
1,2-Dichloropropane	40	U	1,2-Dibromo-3-chloropropane	100	U
Dibromomethane	40	U	1,2-Dichlorobenzene	40	U
1,4-Dioxane	2000	U	1,2,4-Trichlorobenzene	100	U
Bromodichloromethane	40	U	Hexachlorobutadiene	100	U
Methyl isobutyl ketone (MIBK)	40	U	Naphthalene	100	U
			1,2,3-Trichlorobenzene	100	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	92	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 12:52

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-2R2-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-16**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	20	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	40	U	1,3-Dichloropropene, Total	80	U
Chloromethane	40	U	Toluene	40	U
Vinyl chloride	32	J	1,1,2-Trichloroethane	40	U
Bromomethane	40	U	2-Hexanone	40	U
Chloroethane	40	U	Tetrachloroethene	480	
Trichlorofluoromethane	40	U	1,3-Dichloropropane	40	U
Diethyl ether	40	U	Dibromochloromethane	40	U
Acetone	120		1,2-Dibromoethane	40	U
1,1-Dichloroethene	20	J	Chlorobenzene	40	U
Carbon disulfide	40	U	1,1,1,2-Tetrachloroethane	40	U
Methylene chloride	100	U	Ethylbenzene	40	U
Methyl tert-butyl ether (MTBE)	40	U	Xylenes, Total	120	U
trans-1,2-Dichloroethene	40	U	Styrene	40	U
Diisopropyl Ether (DIPE)	40	U	Bromoform	40	U
1,1-Dichloroethane	82		Isopropylbenzene	40	U
Ethyl Tertiary Butyl Ether (ETBE)	40	U	1,1,2,2-Tetrachloroethane	40	U
2-Butanone (MEK)	40	U	Bromobenzene	40	U
cis-1,2-Dichloroethene	140		1,2,3-Trichloropropane	40	U
2,2-Dichloropropane	40	U	n-Propylbenzene	40	U
Bromochloromethane	40	U	2-Chlorotoluene	40	U
Chloroform	40	U	1,3,5-Trimethylbenzene	40	U
1,1,1-Trichloroethane	40	U	4-Chlorotoluene	40	U
1,1-Dichloropropene	40	U	tert-Butylbenzene	40	U
Carbon tetrachloride	40	U	1,2,4-Trimethylbenzene	40	U
Benzene	40	U	sec-Butylbenzene	40	U
Tertiary Amyl Methyl Ether (TAME)	40	U	1,3-Dichlorobenzene	40	U
Tetrahydrofuran	40	U	p-Isopropyltoluene	40	U
1,2-Dichloroethane	40	U	1,4-Dichlorobenzene	40	U
Trichloroethene	2800		n-Butylbenzene	40	U
1,2-Dichloropropane	40	U	1,2-Dibromo-3-chloropropane	100	U
Dibromomethane	40	U	1,2-Dichlorobenzene	40	U
1,4-Dioxane	2000	U	1,2,4-Trichlorobenzene	100	U
Bromodichloromethane	40	U	Hexachlorobutadiene	100	U
Methyl isobutyl ketone (MIBK)	40	U	Naphthalene	100	U
			1,2,3-Trichlorobenzene	100	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	90	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-2R3-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-17**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	50	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	100	U	1,3-Dichloropropene, Total	200	U
Chloromethane	100	U	Toluene	100	U
Vinyl chloride	100	U	1,1,2-Trichloroethane	100	U
Bromomethane	100	U	2-Hexanone	100	U
Chloroethane	100	U	Tetrachloroethene	**1400**	
Trichlorofluoromethane	100	U	1,3-Dichloropropane	100	U
Diethyl ether	100	U	Dibromochloromethane	100	U
Acetone	**150**	J	1,2-Dibromoethane	100	U
1,1-Dichloroethene	100	U	Chlorobenzene	100	U
Carbon disulfide	100	U	1,1,1,2-Tetrachloroethane	100	U
Methylene chloride	250	U	Ethylbenzene	100	U
Methyl tert-butyl ether (MTBE)	100	U	Xylenes, Total	300	U
trans-1,2-Dichloroethene	100	U	Styrene	100	U
Diisopropyl Ether (DIPE)	100	U	Bromoform	100	U
1,1-Dichloroethane	**180**		Isopropylbenzene	100	U
Ethyl Tertiary Butyl Ether (ETBE)	100	U	1,1,2,2-Tetrachloroethane	100	U
2-Butanone (MEK)	100	U	Bromobenzene	100	U
cis-1,2-Dichloroethene	**90**	J	1,2,3-Trichloropropane	100	U
2,2-Dichloropropane	100	U	n-Propylbenzene	100	U
Bromochloromethane	100	U	2-Chlorotoluene	100	U
Chloroform	100	U	1,3,5-Trimethylbenzene	100	U
1,1,1-Trichloroethane	100	U	4-Chlorotoluene	100	U
1,1-Dichloropropene	100	U	tert-Butylbenzene	100	U
Carbon tetrachloride	100	U	1,2,4-Trimethylbenzene	100	U
Benzene	100	U	sec-Butylbenzene	100	U
Tertiary Amyl Methyl Ether (TAME)	100	U	1,3-Dichlorobenzene	100	U
Tetrahydrofuran	100	U	p-Isopropyltoluene	100	U
1,2-Dichloroethane	100	U	1,4-Dichlorobenzene	100	U
Trichloroethene	**8400**		n-Butylbenzene	100	U
1,2-Dichloropropane	100	U	1,2-Dibromo-3-chloropropane	250	U
Dibromomethane	100	U	1,2-Dichlorobenzene	100	U
1,4-Dioxane	5000	U	1,2,4-Trichlorobenzene	250	U
Bromodichloromethane	100	U	Hexachlorobutadiene	250	U
Methyl isobutyl ketone (MIBK)	100	U	Naphthalene	250	U
			1,2,3-Trichlorobenzene	250	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	104	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	90	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 12:53

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-2R4-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-18**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	50	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	100	U	1,3-Dichloropropene, Total	200	U
Chloromethane	100	U	Toluene	100	U
Vinyl chloride	100	U	1,1,2-Trichloroethane	100	U
Bromomethane	100	U	2-Hexanone	100	U
Chloroethane	100	U	Tetrachloroethene	**1700**	
Trichlorofluoromethane	100	U	1,3-Dichloropropane	100	U
Diethyl ether	100	U	Dibromochloromethane	100	U
Acetone	**150**	J	1,2-Dibromoethane	100	U
1,1-Dichloroethene	100	U	Chlorobenzene	100	U
Carbon disulfide	100	U	1,1,1,2-Tetrachloroethane	100	U
Methylene chloride	250	U	Ethylbenzene	100	U
Methyl tert-butyl ether (MTBE)	100	U	Xylenes, Total	300	U
trans-1,2-Dichloroethene	100	U	Styrene	100	U
Diisopropyl Ether (DIPE)	100	U	Bromoform	100	U
1,1-Dichloroethane	**160**		Isopropylbenzene	100	U
Ethyl Tertiary Butyl Ether (ETBE)	100	U	1,1,2,2-Tetrachloroethane	100	U
2-Butanone (MEK)	100	U	Bromobenzene	100	U
cis-1,2-Dichloroethene	**73**	J	1,2,3-Trichloropropane	100	U
2,2-Dichloropropane	100	U	n-Propylbenzene	100	U
Bromochloromethane	100	U	2-Chlorotoluene	100	U
Chloroform	100	U	1,3,5-Trimethylbenzene	100	U
1,1,1-Trichloroethane	100	U	4-Chlorotoluene	100	U
1,1-Dichloropropene	100	U	tert-Butylbenzene	100	U
Carbon tetrachloride	100	U	1,2,4-Trimethylbenzene	100	U
Benzene	100	U	sec-Butylbenzene	100	U
Tertiary Amyl Methyl Ether (TAME)	100	U	1,3-Dichlorobenzene	100	U
Tetrahydrofuran	100	U	p-Isopropyltoluene	100	U
1,2-Dichloroethane	100	U	1,4-Dichlorobenzene	100	U
Trichloroethene	**7000**		n-Butylbenzene	100	U
1,2-Dichloropropane	100	U	1,2-Dibromo-3-chloropropane	250	U
Dibromomethane	100	U	1,2-Dichlorobenzene	100	U
1,4-Dioxane	5000	U	1,2,4-Trichlorobenzene	250	U
Bromodichloromethane	100	U	Hexachlorobutadiene	250	U
Methyl isobutyl ketone (MIBK)	100	U	Naphthalene	250	U
			1,2,3-Trichlorobenzene	250	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	104	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	91	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 12:53

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-1R1-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-19**
Associated Blank: **VW080803B0**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	100	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	200	U	1,3-Dichloropropene, Total	400	U
Chloromethane	200	U	Toluene	200	U
Vinyl chloride	200	U	1,1,2-Trichloroethane	200	U
Bromomethane	200	U	2-Hexanone	200	U
Chloroethane	200	U	Tetrachloroethene	**2100**	
Trichlorofluoromethane	200	U	1,3-Dichloropropane	200	U
Diethyl ether	200	U	Dibromochloromethane	200	U
Acetone	500	U	1,2-Dibromoethane	200	U
1,1-Dichloroethene	200	U	Chlorobenzene	200	U
Carbon disulfide	200	U	1,1,1,2-Tetrachloroethane	200	U
Methylene chloride	500	U	Ethylbenzene	200	U
Methyl tert-butyl ether (MTBE)	200	U	Xylenes, Total	600	U
trans-1,2-Dichloroethene	200	U	Styrene	200	U
Diisopropyl Ether (DIPE)	200	U	Bromoform	200	U
1,1-Dichloroethane	**230**		Isopropylbenzene	200	U
Ethyl Tertiary Butyl Ether (ETBE)	200	U	1,1,2,2-Tetrachloroethane	200	U
2-Butanone (MEK)	200	U	Bromobenzene	200	U
cis-1,2-Dichloroethene	**150**	J	1,2,3-Trichloropropane	200	U
2,2-Dichloropropane	200	U	n-Propylbenzene	200	U
Bromochloromethane	200	U	2-Chlorotoluene	200	U
Chloroform	200	U	1,3,5-Trimethylbenzene	200	U
1,1,1-Trichloroethane	200	U	4-Chlorotoluene	200	U
1,1-Dichloropropene	200	U	tert-Butylbenzene	200	U
Carbon tetrachloride	200	U	1,2,4-Trimethylbenzene	200	U
Benzene	200	U	sec-Butylbenzene	200	U
Tertiary Amyl Methyl Ether (TAME)	200	U	1,3-Dichlorobenzene	200	U
Tetrahydrofuran	200	U	p-Isopropyltoluene	200	U
1,2-Dichloroethane	200	U	1,4-Dichlorobenzene	200	U
Trichloroethene	**14000**		n-Butylbenzene	200	U
1,2-Dichloropropane	200	U	1,2-Dibromo-3-chloropropane	500	U
Dibromomethane	200	U	1,2-Dichlorobenzene	200	U
1,4-Dioxane	10000	U	1,2,4-Trichlorobenzene	500	U
Bromodichloromethane	200	U	Hexachlorobutadiene	500	U
Methyl isobutyl ketone (MIBK)	200	U	Naphthalene	500	U
			1,2,3-Trichlorobenzene	500	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	104	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	91	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-1R2-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-20**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	100	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	200	U	1,3-Dichloropropene, Total	400	U
Chloromethane	200	U	Toluene	200	U
Vinyl chloride	200	U	1,1,2-Trichloroethane	200	U
Bromomethane	200	U	2-Hexanone	200	U
Chloroethane	200	U	Tetrachloroethene	**4300**	
Trichlorofluoromethane	200	U	1,3-Dichloropropane	200	U
Diethyl ether	200	U	Dibromochloromethane	200	U
Acetone	500	U	1,2-Dibromoethane	200	U
1,1-Dichloroethene	200	U	Chlorobenzene	200	U
Carbon disulfide	200	U	1,1,1,2-Tetrachloroethane	200	U
Methylene chloride	500	U	Ethylbenzene	200	U
Methyl tert-butyl ether (MTBE)	200	U	Xylenes, Total	600	U
trans-1,2-Dichloroethene	200	U	Styrene	200	U
Diisopropyl Ether (DIPE)	200	U	Bromoform	200	U
1,1-Dichloroethane	**320**		Isopropylbenzene	200	U
Ethyl Tertiary Butyl Ether (ETBE)	200	U	1,1,2,2-Tetrachloroethane	200	U
2-Butanone (MEK)	200	U	Bromobenzene	200	U
cis-1,2-Dichloroethene	**180**	J	1,2,3-Trichloropropane	200	U
2,2-Dichloropropane	200	U	n-Propylbenzene	200	U
Bromochloromethane	200	U	2-Chlorotoluene	200	U
Chloroform	200	U	1,3,5-Trimethylbenzene	200	U
1,1,1-Trichloroethane	200	U	4-Chlorotoluene	200	U
1,1-Dichloropropene	200	U	tert-Butylbenzene	200	U
Carbon tetrachloride	200	U	1,2,4-Trimethylbenzene	200	U
Benzene	200	U	sec-Butylbenzene	200	U
Tertiary Amyl Methyl Ether (TAME)	200	U	1,3-Dichlorobenzene	200	U
Tetrahydrofuran	200	U	p-Isopropyltoluene	200	U
1,2-Dichloroethane	200	U	1,4-Dichlorobenzene	200	U
Trichloroethene	**22000**	E	n-Butylbenzene	200	U
1,2-Dichloropropane	200	U	1,2-Dibromo-3-chloropropane	500	U
Dibromomethane	200	U	1,2-Dichlorobenzene	200	U
1,4-Dioxane	10000	U	1,2,4-Trichlorobenzene	500	U
Bromodichloromethane	200	U	Hexachlorobutadiene	500	U
Methyl isobutyl ketone (MIBK)	200	U	Naphthalene	500	U
			1,2,3-Trichlorobenzene	500	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	104	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	92	70-130

E - Estimated value, exceeds the upper limit of calibration.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-1R2-8/03**
Case: N/A SDG: N/A
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-20E**
Associated Blank: **VW081103B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/11/03	5	5	200	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	400	U	1,3-Dichloropropene, Total	800	U
Chloromethane	400	U	Toluene	400	U
Vinyl chloride	400	U	1,1,2-Trichloroethane	400	U
Bromomethane	400	U	2-Hexanone	400	U
Chloroethane	400	U	Tetrachloroethene	**4400**	
Trichlorofluoromethane	400	U	1,3-Dichloropropane	400	U
Diethyl ether	400	U	Dibromochloromethane	400	U
Acetone	1000	U	1,2-Dibromoethane	400	U
1,1-Dichloroethene	400	U	Chlorobenzene	400	U
Carbon disulfide	400	U	1,1,1,2-Tetrachloroethane	400	U
Methylene chloride	1000	U	Ethylbenzene	400	U
Methyl tert-butyl ether (MTBE)	400	U	Xylenes, Total	1200	U
trans-1,2-Dichloroethene	400	U	Styrene	400	U
Diisopropyl Ether (DIPE)	400	U	Bromoform	400	U
1,1-Dichloroethane	**340**	J	Isopropylbenzene	400	U
Ethyl Tertiary Butyl Ether (ETBE)	400	U	1,1,2,2-Tetrachloroethane	400	U
2-Butanone (MEK)	400	U	Bromobenzene	400	U
cis-1,2-Dichloroethene	**220**	J	1,2,3-Trichloropropane	400	U
2,2-Dichloropropane	400	U	n-Propylbenzene	400	U
Bromochloromethane	400	U	2-Chlorotoluene	400	U
Chloroform	400	U	1,3,5-Trimethylbenzene	400	U
1,1,1-Trichloroethane	400	U	4-Chlorotoluene	400	U
1,1-Dichloropropene	400	U	tert-Butylbenzene	400	U
Carbon tetrachloride	400	U	1,2,4-Trimethylbenzene	400	U
Benzene	400	U	sec-Butylbenzene	400	U
Tertiary Amyl Methyl Ether (TAME)	400	U	1,3-Dichlorobenzene	400	U
Tetrahydrofuran	400	U	p-Isopropyltoluene	400	U
1,2-Dichloroethane	400	U	1,4-Dichlorobenzene	400	U
Trichloroethene	**22000**		n-Butylbenzene	400	U
1,2-Dichloropropane	400	U	1,2-Dibromo-3-chloropropane	1000	U
Dibromomethane	400	U	1,2-Dichlorobenzene	400	U
1,4-Dioxane	20000	U	1,2,4-Trichlorobenzene	1000	U
Bromodichloromethane	400	U	Hexachlorobutadiene	1000	U
Methyl isobutyl ketone (MIBK)	400	U	Naphthalene	1000	U
			1,2,3-Trichlorobenzene	1000	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	103	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	91	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 12:53

Form I
Volatile Organics by 8260B-MCP

Woods Hole Group

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **IP-1R3-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-21**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	100	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	200	U	1,3-Dichloropropene, Total	400	U
Chloromethane	200	U	Toluene	200	U
Vinyl chloride	200	U	1,1,2-Trichloroethane	200	U
Bromomethane	200	U	2-Hexanone	200	U
Chloroethane	200	U	Tetrachloroethene	**4500**	
Trichlorofluoromethane	200	U	1,3-Dichloropropane	200	U
Diethyl ether	200	U	Dibromochloromethane	200	U
Acetone	500	U	1,2-Dibromoethane	200	U
1,1-Dichloroethene	200	U	Chlorobenzene	200	U
Carbon disulfide	200	U	1,1,1,2-Tetrachloroethane	200	U
Methylene chloride	500	U	Ethylbenzene	200	U
Methyl tert-butyl ether (MTBE)	200	U	Xylenes, Total	600	U
trans-1,2-Dichloroethene	200	U	Styrene	200	U
Diisopropyl Ether (DIPE)	200	U	Bromoform	200	U
1,1-Dichloroethane	**260**		Isopropylbenzene	200	U
Ethyl Tertiary Butyl Ether (ETBE)	200	U	1,1,2,2-Tetrachloroethane	200	U
2-Butanone (MEK)	200	U	Bromobenzene	200	U
cis-1,2-Dichloroethene	**150**	J	1,2,3-Trichloropropane	200	U
2,2-Dichloropropane	200	U	n-Propylbenzene	200	U
Bromochloromethane	200	U	2-Chlorotoluene	200	U
Chloroform	200	U	1,3,5-Trimethylbenzene	200	U
1,1,1-Trichloroethane	200	U	4-Chlorotoluene	200	U
1,1-Dichloropropene	200	U	tert-Butylbenzene	200	U
Carbon tetrachloride	200	U	1,2,4-Trimethylbenzene	200	U
Benzene	200	U	sec-Butylbenzene	200	U
Tertiary Amyl Methyl Ether (TAME)	200	U	1,3-Dichlorobenzene	200	U
Tetrahydrofuran	200	U	p-Isopropyltoluene	200	U
1,2-Dichloroethane	200	U	1,4-Dichlorobenzene	200	U
Trichloroethene	**17000**		n-Butylbenzene	200	U
1,2-Dichloropropane	200	U	1,2-Dibromo-3-chloropropane	500	U
Dibromomethane	200	U	1,2-Dichlorobenzene	200	U
1,4-Dioxane	10000	U	1,2,4-Trichlorobenzene	500	U
Bromodichloromethane	200	U	Hexachlorobutadiene	500	U
Methyl isobutyl ketone (MIBK)	200	U	Naphthalene	500	U
			1,2,3-Trichlorobenzene	500	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	104	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	91	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 12:53

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **TRC-301R-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-22**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/06/03	08/06/03	08/08/03	5	5	1	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	4.2	
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	17		1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	1.2	J	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl Ether (DIPE)	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	1.9	J	Isopropylbenzene	2.0	U
Ethyl Tertiary Butyl Ether (ETBE)	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	3.1		Bromobenzene	2.0	U
cis-1,2-Dichloroethene	65		1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary Amyl Methyl Ether (TAME)	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	38		n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	100	U	1,2,4-Trichlorobenzene	5.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	5.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	5.0	U
			1,2,3-Trichlorobenzene	5.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	101	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	93	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 12:52

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **TB-01**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **0308017-23**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
07/30/03	08/06/03	08/08/03	5	5	1	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	2.0	U
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	1.3	J	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl Ether (DIPE)	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl Tertiary Butyl Ether (ETBE)	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	2.0	U	Bromobenzene	2.0	U
cis-1,2-Dichloroethene	2.0	U	1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary Amyl Methyl Ether (TAME)	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	2.0	U	n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	100	U	1,2,4-Trichlorobenzene	5.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	5.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	5.0	U
			1,2,3-Trichlorobenzene	5.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	93	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 12:52

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **VW080803B02**
Associated Blank: **N/A**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	08/08/03	5	5	1	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	2.0	U
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl Ether (DIPE)	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl Tertiary Butyl Ether (ETBE)	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	2.0	U	Bromobenzene	2.0	U
cis-1,2-Dichloroethene	2.0	U	1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary Amyl Methyl Ether (TAME)	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	2.0	U	n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	100	U	1,2,4-Trichlorobenzene	5.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	5.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	5.0	U
			1,2,3-Trichlorobenzene	5.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	101	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	93	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/13/03 11:06

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **VW081103B01**
Associated Blank: **N/A**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	08/11/03	5	5	1	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	2.0	U
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl Ether (DIPE)	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl Tertiary Butyl Ether (ETBE)	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	2.0	U	Bromobenzene	2.0	U
cis-1,2-Dichloroethene	2.0	U	1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary Amyl Methyl Ether (TAME)	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	2.0	U	n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	100	U	1,2,4-Trichlorobenzene	5.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	5.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	5.0	U
			1,2,3-Trichlorobenzene	5.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	93	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/13/03 11:06

Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **VW080803L02**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	08/08/03	5	5	1	MLB

Parameter	Conc.	% Recovery	% Recovery Limits
Dichlorodifluoromethane	22	111	70-130
Chloromethane	23	115	70-130
Vinyl chloride	24	118	70-130
Bromomethane	5.4	27[a]	70-130
Chloroethane	22	112	70-130
Trichlorofluoromethane	29	144[a]	70-130
Diethyl ether	25	125	70-130
Acetone	20	102	70-130
1,1-Dichloroethene	22	110	70-130
Carbon disulfide	19	96	70-130
Methylene chloride	18	91	70-130
Methyl tert-butyl ether (MTBE)	18	91	70-130
trans-1,2-Dichloroethene	19	96	70-130
Diisopropyl Ether (DIPE)	22	111	70-130
1,1-Dichloroethane	23	115	70-130
Ethyl Tertiary Butyl Ether (ETBE)	21	105	70-130
2-Butanone (MEK)	21	103	70-130
cis-1,2-Dichloroethene	22	107	70-130
2,2-Dichloropropane	20	103	70-130
Bromochloromethane	22	110	70-130
Chloroform	22	108	70-130
1,1,1-Trichloroethane	22	108	70-130
1,1-Dichloropropene	21	103	70-130
Carbon tetrachloride	22	109	70-130
Benzene	22	109	70-130
Tertiary Amyl Methyl Ether (TAME)	20	102	70-130
Tetrahydrofuran	20	97	70-130
1,2-Dichloroethane	21	105	70-130
Trichloroethene	24	119	70-130
1,2-Dichloropropane	22	108	70-130
Dibromomethane	21	106	70-130
1,4-Dioxane	190	94	70-130
Bromodichloromethane	20	101	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Laboratory Control Sample**
Case: N/A SDG: N/A
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **VW080803L02**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	08/08/03	5	5	1	MLB

Parameter	Conc.	% Recovery	% Recovery Limits
Methyl isobutyl ketone (MIBK)	22	109	70-130
1,3-Dichloropropene, Total	40	100	70-130
Toluene	21	104	70-130
1,1,2-Trichloroethane	22	109	70-130
2-Hexanone	19	96	70-130
Tetrachloroethene	21	105	70-130
1,3-Dichloropropane	21	105	70-130
Dibromochloromethane	20	100	70-130
1,2-Dibromoethane	21	104	70-130
Chlorobenzene	21	106	70-130
1,1,1,2-Tetrachloroethane	21	105	70-130
Ethylbenzene	21	104	70-130
Xylenes, Total	62	104	70-130
Styrene	20	101	70-130
Bromoform	20	99	70-130
Isopropylbenzene	20	99	70-130
1,1,2,2-Tetrachloroethane	22	108	70-130
Bromobenzene	21	103	70-130
1,2,3-Trichloropropane	20	102	70-130
n-Propylbenzene	20	101	70-130
2-Chlorotoluene	20	101	70-130
1,3,5-Trimethylbenzene	20	99	70-130
4-Chlorotoluene	20	99	70-130
tert-Butylbenzene	19	97	70-130
1,2,4-Trimethylbenzene	20	98	70-130
sec-Butylbenzene	20	98	70-130
1,3-Dichlorobenzene	20	102	70-130
p-Isopropyltoluene	19	96	70-130
1,4-Dichlorobenzene	20	102	70-130
n-Butylbenzene	20	100	70-130
1,2-Dibromo-3-chloropropane	18	92	70-130
1,2-Dichlorobenzene	20	101	70-130
1,2,4-Trichlorobenzene	19	95	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **VW080803L02**
Associated Blank: **VW080803B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	08/08/03	5	5	1	MLB

Parameter	Conc.	% Recovery	% Recovery Limits
Hexachlorobutadiene	21	105	70-130
Naphthalene	18	90	70-130
1,2,3-Trichlorobenzene	19	95	70-130

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	100	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	95	70-130

* - Value outside of QC Limits.
N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

08/13/03 11:04

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **VW081103L01**
Associated Blank: **VW081103B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	08/11/03	5	5	1	MLB

Parameter	Conc.	% Recovery	% Recovery Limits
Dichlorodifluoromethane	22	108	70-130
Chloromethane	23	115	70-130
Vinyl chloride	23	116	70-130
Bromomethane	4.8	24[a]	70-130
Chloroethane	22	108	70-130
Trichlorofluoromethane	29	144[a]	70-130
Diethyl ether	23	114	70-130
Acetone	21	107	70-130
1,1-Dichloroethene	20	100	70-130
Carbon disulfide	20	99	70-130
Methylene chloride	17	83	70-130
Methyl tert-butyl ether (MTBE)	17	85	70-130
trans-1,2-Dichloroethene	18	88	70-130
Diisopropyl Ether (DIPE)	21	103	70-130
1,1-Dichloroethane	21	106	70-130
Ethyl Tertiary Butyl Ether (ETBE)	20	98	70-130
2-Butanone (MEK)	21	105	70-130
cis-1,2-Dichloroethene	20	99	70-130
2,2-Dichloropropane	19	95	70-130
Bromochloromethane	21	103	70-130
Chloroform	20	100	70-130
1,1,1-Trichloroethane	20	101	70-130
1,1-Dichloropropene	19	94	70-130
Carbon tetrachloride	20	102	70-130
Benzene	20	100	70-130
Tertiary Amyl Methyl Ether (TAME)	19	95	70-130
Tetrahydrofuran	19	96	70-130
1,2-Dichloroethane	20	97	70-130
Trichloroethene	22	108	70-130
1,2-Dichloropropane	20	99	70-130
Dibromomethane	20	100	70-130
1,4-Dioxane	210	104	70-130
Bromodichloromethane	19	95	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **VW081103L01**
Associated Blank: **VW081103B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	08/11/03	5	5	1	MLB

Parameter	Conc.	% Recovery	% Recovery Limits
Methyl isobutyl ketone (MIBK)	21	104	70-130
1,3-Dichloropropene, Total	38	95	70-130
Toluene	19	95	70-130
1,1,2-Trichloroethane	20	101	70-130
2-Hexanone	19	96	70-130
Tetrachloroethene	20	98	70-130
1,3-Dichloropropane	20	98	70-130
Dibromochloromethane	19	94	70-130
1,2-Dibromoethane	20	98	70-130
Chlorobenzene	19	96	70-130
1,1,1,2-Tetrachloroethane	19	96	70-130
Ethylbenzene	19	94	70-130
Xylenes, Total	57	95	70-130
Styrene	18	90	70-130
Bromoform	19	96	70-130
Isopropylbenzene	18	89	70-130
1,1,2,2-Tetrachloroethane	20	100	70-130
Bromobenzene	19	93	70-130
1,2,3-Trichloropropane	19	96	70-130
n-Propylbenzene	18	92	70-130
2-Chlorotoluene	18	91	70-130
1,3,5-Trimethylbenzene	18	90	70-130
4-Chlorotoluene	18	91	70-130
tert-Butylbenzene	18	88	70-130
1,2,4-Trimethylbenzene	18	90	70-130
sec-Butylbenzene	18	89	70-130
1,3-Dichlorobenzene	18	93	70-130
p-Isopropyltoluene	18	87	70-130
1,4-Dichlorobenzene	19	93	70-130
n-Butylbenzene	18	91	70-130
1,2-Dibromo-3-chloropropane	17	86	70-130
1,2-Dichlorobenzene	18	93	70-130
1,2,4-Trichlorobenzene	18	88	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **VW081103L01**
Associated Blank: **VW081103B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	08/11/03	5	5	1	MLB

Parameter	Conc.	% Recovery	% Recovery Limits
Hexachlorobutadiene	20	98	70-130
Naphthalene	17	86	70-130
1,2,3-Trichlorobenzene	18	89	70-130

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	96	70-130

* - Value outside of QC Limits.
N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

08/13/03 11:05

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Supporting Quality Control Results

Form II
Surrogate Recovery
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0308017**
Matrix: **Water**

Case: **N/A** SDG: **N/A**

Client ID	Lab ID	Dibromofluoromethane	Toluene-d8	4-Bromofluorobenzene
Laboratory Control Sample	VW080803L02	100	99	95
Blank	VW080803B02	101	98	93
TB-01	0308017-23	102	99	93
TRC-301R-8/03	0308017-22	101	98	93
BRW-1R3-8/03	0308017-05	102	99	93
BRW-1R2-8/03	0308017-04	102	100	92
BRW-1R4-8/03	0308017-06	102	99	93
IP-3R1-8/03	0308017-13	102	98	91
IP-2R1-8/03	0308017-15	102	99	92
IP-2R2-8/03	0308017-16	102	99	90
EMW-11R2-8/03	0308017-09	101	98	91
IP-4R3-8/03	0308017-12	103	99	93
EMW-11R1-8/03	0308017-08	103	98	90
IP-4R1-8/03	0308017-10	102	99	92
IP-4R2-8/03	0308017-11	103	100	91
IP-3R2-8/03	0308017-14	103	99	92
IP-2R3-8/03	0308017-17	104	99	90
IP-2R4-8/03	0308017-18	104	99	91
IP-1R1-8/03	0308017-19	104	99	91
IP-1R3-8/03	0308017-21	104	99	91
IP-1R2-8/03	0308017-20	104	100	92
Laboratory Control Sample	VW081103L01	102	100	96
Blank	VW081103B01	102	99	93
MW-901-8/03	0308017-07	104	99	93
EMW-11R2-8/03	0308017-09E	103	100	92
IP-1R2-8/03	0308017-20E	103	99	91

N/A - Not Applicable

Surrogate	QC Limit
Dibromofluoromethane	70-130
Toluene-d8	70-130
4-Bromofluorobenzene	70-130

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Form IV
Method Blank Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **VW080803B02**
Date Analyzed: **08/08/03 09:45**

Client ID	Lab ID	Date/Time Analyzed
Laboratory Control Sample	VW080803L02	08/08/03 09:16
TB-01	0308017-23	08/08/03 10:14
TRC-301R-8/03	0308017-22	08/08/03 10:43
BRW-1R3-8/03	0308017-05	08/08/03 11:12
BRW-1R2-8/03	0308017-04	08/08/03 11:41
BRW-1R4-8/03	0308017-06	08/08/03 12:10
IP-3R1-8/03	0308017-13	08/08/03 12:39
IP-2R1-8/03	0308017-15	08/08/03 13:08
IP-2R2-8/03	0308017-16	08/08/03 13:37
EMW-11R2-8/03	0308017-09	08/08/03 14:06
IP-4R3-8/03	0308017-12	08/08/03 15:04
EMW-11R1-8/03	0308017-08	08/08/03 15:33
IP-4R1-8/03	0308017-10	08/08/03 16:02
IP-4R2-8/03	0308017-11	08/08/03 16:31
IP-3R2-8/03	0308017-14	08/08/03 17:00
IP-2R3-8/03	0308017-17	08/08/03 17:29
IP-2R4-8/03	0308017-18	08/08/03 17:58
IP-1R1-8/03	0308017-19	08/08/03 18:27
IP-1R3-8/03	0308017-21	08/08/03 18:56
IP-1R2-8/03	0308017-20	08/08/03 19:25

N/A - Not Applicable

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Form IV
Method Blank Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **VW081103B01**
Date Analyzed: **08/11/03 09:48**

Client ID	Lab ID	Date/Time Analyzed
Laboratory Control Sample	VW081103L01	08/11/03 09:19
MW-901-8/03	0308017-07	08/11/03 11:44
EMW-11R2-8/03	0308017-09E	08/11/03 12:43
IP-1R2-8/03	0308017-20E	08/11/03 13:12

N/A - Not Applicable

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Form V
Tune Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **T1072501**
Date Analyzed: **07/25/03 12:12**

Target Mass	Relative To Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result
50	95	15	40	28.5	25904	Pass
75	95	30	60	54.3	49237	Pass
95	95	100	100	100	90736	Pass
96	95	5	9	7	6370	Pass
173	174	0	2	0	0	Pass
174	95	50	100	71.3	64661	Pass
175	174	5	9	7.5	4881	Pass
176	174	95	101	98.2	63475	Pass
177	176	5	9	6.8	4294	Pass

Client ID	Lab ID	Date/Time Analyzed
Initial Calibration	I1072501	07/25/03 12:41
Initial Calibration	I1072502	07/25/03 13:10
Initial Calibration	I1072503	07/25/03 13:39
Initial Calibration	I1072504	07/25/03 14:08
Initial Calibration	I1072505	07/25/03 14:36
Initial Calibration	I1072506	07/25/03 15:05

N/A - Not Applicable

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Form V
Tune Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **T1080801**
Date Analyzed: **08/08/03 08:18**

Target Mass	Relative To Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result
50	95	15	40	28.5	26557	Pass
75	95	30	60	52.4	48733	Pass
95	95	100	100	100	93059	Pass
96	95	5	9	7.1	6567	Pass
173	174	0	2	0	0	Pass
174	95	50	100	72.8	67773	Pass
175	174	5	9	7.3	4942	Pass
176	174	95	101	96.5	65429	Pass
177	176	5	9	6.3	4146	Pass

Client ID	Lab ID	Date/Time Analyzed
CCV	C1080801	08/08/03 08:47
Laboratory Control Sample	VW080803L02	08/08/03 09:16
Blank	VW080803B02	08/08/03 09:45
TB-01	0308017-23	08/08/03 10:14
TRC-301R-8/03	0308017-22	08/08/03 10:43
BRW-1R3-8/03	0308017-05	08/08/03 11:12
BRW-1R2-8/03	0308017-04	08/08/03 11:41
BRW-1R4-8/03	0308017-06	08/08/03 12:10
IP-3R1-8/03	0308017-13	08/08/03 12:39
IP-2R1-8/03	0308017-15	08/08/03 13:08
IP-2R2-8/03	0308017-16	08/08/03 13:37
EMW-11R2-8/03	0308017-09	08/08/03 14:06
IP-4R3-8/03	0308017-12	08/08/03 15:04
EMW-11R1-8/03	0308017-08	08/08/03 15:33
IP-4R1-8/03	0308017-10	08/08/03 16:02
IP-4R2-8/03	0308017-11	08/08/03 16:31
IP-3R2-8/03	0308017-14	08/08/03 17:00
IP-2R3-8/03	0308017-17	08/08/03 17:29
IP-2R4-8/03	0308017-18	08/08/03 17:58
IP-1R1-8/03	0308017-19	08/08/03 18:27
IP-1R3-8/03	0308017-21	08/08/03 18:56
IP-1R2-8/03	0308017-20	08/08/03 19:25

N/A - Not Applicable

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Form V
Tune Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **T1081101**
Date Analyzed: **08/11/03 08:21**

Target Mass	Relative To Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result
50	95	15	40	28.9	26984	Pass
75	95	30	60	51.8	48293	Pass
95	95	100	100	100	93264	Pass
96	95	5	9	6.8	6361	Pass
173	174	0	2	0	0	Pass
174	95	50	100	71.8	66965	Pass
175	174	5	9	7.5	5028	Pass
176	174	95	101	97.6	65331	Pass
177	176	5	9	6.6	4326	Pass

Client ID	Lab ID	Date/Time Analyzed
CCV	C1081101	08/11/03 08:50
Laboratory Control Sample	VW081103L01	08/11/03 09:19
Blank	VW081103B01	08/11/03 09:48
MW-901-8/03	0308017-07	08/11/03 11:44
EMW-11R2-8/03	0308017-09E	08/11/03 12:43
IP-1R2-8/03	0308017-20E	08/11/03 13:12

N/A - Not Applicable

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**
Project: **Lockheed Ph IV RIP** ETR: **0308017**

Case: N/A SDG: N/A

Lab ID	Date/Time Analyzed
I1072501	07/25/03 12:41
I1072502	07/25/03 13:10
I1072503	07/25/03 13:39
I1072504	07/25/03 14:08
I1072505	07/25/03 14:36
I1072506	07/25/03 15:05

Response Factors

Parameter	1	5	20	50	100	200	Mean	% RSD
Dichlorodifluoromethane	0.45	0.61	0.81	0.78	0.74	0.71	0.68	19.3*
Chloromethane	0.75	0.79	0.90	0.88	0.84	0.82	0.83	6.7
Vinyl chloride	0.55	0.63	0.75	0.74	0.70	0.71	0.68	11.3
Bromomethane	0.56	0.52	0.43	0.14	0.097		0.35	62.2*
Chloroethane	0.27	0.32	0.34	0.29	0.21		0.28	17.7*
Trichlorofluoromethane	0.50	0.61	0.78	0.74	0.67	0.56	0.64	16.5*
Diethyl ether	0.29	0.42	0.43	0.42	0.40	0.38	0.39	12.8
Acetone		0.24	0.23	0.23	0.22	0.20	0.22	6.8
1,1-Dichloroethene	0.49	0.67	0.75	0.74	0.69	0.68	0.67	13.8
Carbon disulfide	1.31	1.51	1.62	1.59	1.49	1.48	1.50	7.2
Methylene chloride		0.52	0.51	0.49	0.46	0.45	0.48	6.0
Methyl tert-butyl ether (MTBE)	1.27	1.38	1.42	1.35	1.28	1.26	1.33	4.9
trans-1,2-Dichloroethene	0.53	0.67	0.72	0.70	0.65	0.65	0.66	10.3
1,1-Dichloroethane	0.87	1.03	1.10	1.09	1.06	1.10	1.04	8.2
2-Butanone (MEK)	0.92	0.64	0.54	0.52	0.51	0.49	0.60	27.3*
cis-1,2-Dichloroethene	0.76	1.00	1.06	1.05	1.02	1.04	0.99	11.7
2,2-Dichloropropane	0.67	0.78	0.82	0.80	0.77	0.78	0.77	6.6
Bromochloromethane	0.21	0.29	0.31	0.31	0.30	0.30	0.29	14.1
Chloroform	0.82	0.95	1.00	1.00	0.97	1.00	0.96	7.4
1,1,1-Trichloroethane	0.58	0.74	0.81	0.80	0.77	0.79	0.75	11.6
1,1-Dichloropropene	0.64	0.70	0.77	0.75	0.71	0.72	0.71	6.1
Carbon tetrachloride	0.52	0.59	0.71	0.69	0.67	0.69	0.64	11.7
Benzene	1.57	1.80	1.93	1.89	1.82	1.84	1.81	7.0
Tetrahydrofuran	0.35	0.33	0.30	0.29	0.29	0.28	0.31	9.1
1,2-Dichloroethane	0.77	0.91	0.97	0.96	0.94	0.95	0.92	8.4
Trichloroethene	0.16	0.21	0.23	0.23	0.22	0.23	0.21	12.7
1,2-Dichloropropane	0.22	0.26	0.28	0.28	0.28	0.28	0.27	10.0
Dibromomethane	0.14	0.20	0.21	0.21	0.21	0.22	0.20	14.1
1,4-Dioxane		0.002	0.003	0.003	0.003	0.003	0.003	16.0*
Bromodichloromethane	0.26	0.32	0.34	0.35	0.34	0.36	0.33	10.6
Methyl isobutyl ketone (MIBK)	0.52	0.49	0.49	0.49	0.47	0.46	0.49	4.8
cis-1,3-Dichloropropene	0.30	0.39	0.42	0.43	0.41	0.43	0.40	12.1

N/A - Not Applicable
* - Value outside of QC advisory limits.

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**
Project: **Lockheed Ph IV RIP** ETR: **0308017**

Case: N/A SDG: N/A

Lab ID	Date/Time Analyzed
I1072501	07/25/03 12:41
I1072502	07/25/03 13:10
I1072503	07/25/03 13:39
I1072504	07/25/03 14:08
I1072505	07/25/03 14:36
I1072506	07/25/03 15:05

	Response Factors							
Parameter	**1**	**5**	**20**	**50**	**100**	**200**	**Mean**	**% RSD**
Toluene	0.37	0.44	0.48	0.49	0.48	0.50	0.46	10.1
trans-1,3-Dichloropropene	0.32	0.38	0.41	0.42	0.41	0.41	0.39	9.5
1,1,2-Trichloroethane	0.13	0.19	0.20	0.20	0.20	0.20	0.19	14.8
2-Hexanone	0.39	0.35	0.34	0.34	0.34	0.33	0.35	5.9
Tetrachloroethene	0.12	0.18	0.20	0.20	0.20	0.21	0.18	18.7*
1,3-Dichloropropane	0.31	0.39	0.41	0.41	0.41	0.41	0.39	10.5
Dibromochloromethane	0.19	0.24	0.26	0.27	0.27	0.28	0.25	12.5
1,2-Dibromoethane	0.19	0.24	0.26	0.26	0.26	0.27	0.25	12.5
Chlorobenzene	0.62	0.75	0.81	0.82	0.80	0.82	0.77	9.9
1,1,1,2-Tetrachloroethane	0.21	0.31	0.33	0.34	0.33	0.33	0.31	15.7*
Ethylbenzene	1.00	1.25	1.37	1.37	1.34	1.40	1.29	11.7
p/m-Xylene	0.29	0.41	0.47	0.49	0.48	0.50	0.44	17.9*
o-Xylene	0.28	0.40	0.44	0.46	0.46	0.49	0.42	17.9*
Styrene	0.43	0.69	0.80	0.86	0.88	0.92	0.76	23.6*
Bromoform	0.15	0.23	0.27	0.28	0.29	0.29	0.25	21.5*
Isopropylbenzene	0.85	1.07	1.18	1.21	1.19	1.25	1.13	12.9
1,1,2,2-Tetrachloroethane	0.38	0.49	0.54	0.52	0.51	0.49	0.49	11.1
Bromobenzene	0.19	0.28	0.32	0.33	0.33	0.35	0.30	19.1*
1,2,3-Trichloropropane	0.37	0.42	0.44	0.44	0.43	0.41	0.42	6.1
n-Propylbenzene	0.92	1.20	1.38	1.42	1.40	1.46	1.30	15.8*
2-Chlorotoluene	0.60	0.80	0.85	0.88	0.88	0.92	0.82	14.0
1,3,5-Trimethylbenzene	0.58	0.76	0.87	0.92	0.93	0.98	0.84	17.5*
4-Chlorotoluene	0.58	0.83	0.87	0.93	0.93	0.97	0.85	16.7*
tert-Butylbenzene	0.48	0.62	0.70	0.71	0.71	0.75	0.66	14.8
1,2,4-Trimethylbenzene	0.52	0.75	0.90	0.96	0.96	1.01	0.85	21.7*
sec-Butylbenzene	0.70	0.89	1.01	1.04	1.05	1.11	0.97	15.6*
1,3-Dichlorobenzene	0.27	0.45	0.52	0.56	0.57	0.60	0.49	24.8*
p-Isopropyltoluene	0.52	0.69	0.80	0.85	0.85	0.91	0.77	18.6*
1,4-Dichlorobenzene	0.27	0.49	0.55	0.58	0.60	0.62	0.52	25.1*
n-Butylbenzene	0.40	0.58	0.72	0.75	0.77	0.83	0.67	23.5*
1,2-Dibromo-3-chloropropane		0.080	0.090	0.093	0.094	0.097	0.091	7.4
1,2-Dichlorobenzene	0.27	0.44	0.50	0.53	0.54	0.58	0.48	23.2*

N/A - Not Applicable
* - Value outside of QC advisory limits.

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0308017**

Case: N/A SDG: N/A

Lab ID	Date/Time Analyzed
I1072501	07/25/03 12:41
I1072502	07/25/03 13:10
I1072503	07/25/03 13:39
I1072504	07/25/03 14:08
I1072505	07/25/03 14:36
I1072506	07/25/03 15:05

Response Factors

Parameter	1	5	20	50	100	200	Mean	% RSD
1,2,4-Trichlorobenzene		0.19	0.24	0.26	0.26	0.29	0.25	14.3
Hexachlorobutadiene		0.069	0.081	0.083	0.083	0.090	0.081	9.4
Naphthalene		0.73	0.85	0.90	0.94	1.01	0.88	12.1
1,2,3-Trichlorobenzene		0.19	0.23	0.25	0.26	0.28	0.24	13.8
Dibromofluoromethane	0.70	0.70	0.71	0.71	0.71	0.70	0.71	0.8
Toluene-d8	0.84	0.85	0.85	0.87	0.88	0.90	0.87	2.5
4-Bromofluorobenzene	0.51	0.51	0.51	0.52	0.53	0.53	0.52	1.8
Average RSD								13.5

N/A - Not Applicable

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form VII
Calibration Verification
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **C1080801**

Case: N/A SDG: N/A

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
Dichlorodifluoromethane	0.68	0.74	8.8	30
Chloromethane	0.83	0.85	3.1	30
Vinyl chloride	0.68	0.70	2.7	20
Bromomethane	0.35	0.14	60.3*	30
Chloroethane	0.28	0.30	5.4	30
Trichlorofluoromethane	0.64	0.75	17.3	30
Diethyl ether	0.39	0.42	7.6	30
Acetone	0.22	0.23	0.5	30
1,1-Dichloroethene	0.67	0.69	3.1	20
Carbon disulfide	1.50	1.17	21.8	30
Methylene chloride	0.48	0.41	16.1	30
Methyl tert-butyl ether (MTBE)	1.33	1.16	12.7	30
trans-1,2-Dichloroethene	0.66	0.59	9.6	30
1,1-Dichloroethane	1.04	1.12	7.5	30
2-Butanone (MEK)	0.60	0.54	10.5	30
cis-1,2-Dichloroethene	0.99	1.00	1.4	30
2,2-Dichloropropane	0.77	0.76	1.7	30
Bromochloromethane	0.29	0.30	5.0	30
Chloroform	0.96	0.96	0.5	20
1,1,1-Trichloroethane	0.75	0.76	2.3	30
1,1-Dichloropropene	0.71	0.70	1.5	30
Carbon tetrachloride	0.64	0.64	0.5	30
Benzene	1.81	1.83	1.0	30
Tetrahydrofuran	0.31	0.29	4.5	30
1,2-Dichloroethane	0.92	0.93	2.0	30
Trichloroethene	0.21	0.21	0.3	30
1,2-Dichloropropane	0.27	0.27	2.0	20
Dibromomethane	0.20	0.20	3.4	30
1,4-Dioxane	0.003	0.003	11.5	30
Bromodichloromethane	0.33	0.32	1.5	30
Methyl isobutyl ketone (MIBK)	0.49	0.48	1.5	30
cis-1,3-Dichloropropene	0.40	0.38	3.7	30
Toluene	0.46	0.45	1.5	20
trans-1,3-Dichloropropene	0.39	0.37	5.2	30
1,1,2-Trichloroethane	0.19	0.20	4.7	30
2-Hexanone	0.35	0.33	5.7	30
Tetrachloroethene	0.18	0.19	1.0	30
1,3-Dichloropropane	0.39	0.40	1.9	30

N/A - Not Applicable
* - Value outside of QC advisory limits.

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Form VII
Calibration Verification
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **C1080801**

Case: **N/A** SDG: **N/A**

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
Dibromochloromethane	0.25	0.24	4.4	30
1,2-Dibromoethane	0.25	0.25	1.7	30
Chlorobenzene	0.77	0.78	0.6	30
1,1,1,2-Tetrachloroethane	0.31	0.31	1.1	30
Ethylbenzene	1.29	1.27	1.5	20
p/m-Xylene	0.44	0.45	2.0	30
o-Xylene	0.42	0.43	1.1	30
Styrene	0.76	0.78	2.2	30
Bromoform	0.25	0.25	2.3	30
Isopropylbenzene	1.13	1.08	4.3	30
1,1,2,2-Tetrachloroethane	0.49	0.51	5.2	30
Bromobenzene	0.30	0.30	0.5	30
1,2,3-Trichloropropane	0.42	0.42	0.0	30
n-Propylbenzene	1.30	1.28	1.5	30
2-Chlorotoluene	0.82	0.80	2.0	30
1,3,5-Trimethylbenzene	0.84	0.82	2.0	30
4-Chlorotoluene	0.85	0.86	0.9	30
tert-Butylbenzene	0.66	0.62	6.1	30
1,2,4-Trimethylbenzene	0.85	0.85	0.1	30
sec-Butylbenzene	0.97	0.91	5.8	30
1,3-Dichlorobenzene	0.49	0.50	1.2	30
p-Isopropyltoluene	0.77	0.74	4.0	30
1,4-Dichlorobenzene	0.52	0.52	0.8	30
n-Butylbenzene	0.67	0.66	1.9	30
1,2-Dibromo-3-chloropropane	0.091	0.082	10.0	30
1,2-Dichlorobenzene	0.48	0.48	0.4	30
1,2,4-Trichlorobenzene	0.25	0.24	4.2	30
Hexachlorobutadiene	0.081	0.074	9.2	30
Naphthalene	0.88	0.83	6.4	30
1,2,3-Trichlorobenzene	0.24	0.22	7.3	30
Dibromofluoromethane	0.71	0.71	0.8	30
Toluene-d8	0.87	0.87	0.4	30
4-Bromofluorobenzene	0.52	0.50	3.9	30
Average % D			4.9	

N/A - Not Applicable

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Form VII
Calibration Verification
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **C1081101**

Case: **N/A** SDG: **N/A**

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
Dichlorodifluoromethane	0.68	0.76	11.5	30
Chloromethane	0.83	0.91	10.0	30
Vinyl chloride	0.68	0.74	8.5	20
Bromomethane	0.35	0.14	59.9*	30
Chloroethane	0.28	0.30	6.9	30
Trichlorofluoromethane	0.64	0.80	24.9	30
Diethyl ether	0.39	0.42	7.3	30
Acetone	0.22	0.23	1.2	30
1,1-Dichloroethene	0.67	0.72	7.1	20
Carbon disulfide	1.50	1.37	8.6	30
Methylene chloride	0.48	0.41	14.7	30
Methyl tert-butyl ether (MTBE)	1.33	1.17	11.8	30
trans-1,2-Dichloroethene	0.66	0.62	5.8	30
1,1-Dichloroethane	1.04	1.16	11.5	30
2-Butanone (MEK)	0.60	0.55	9.0	30
cis-1,2-Dichloroethene	0.99	1.04	5.1	30
2,2-Dichloropropane	0.77	0.79	2.5	30
Bromochloromethane	0.29	0.31	6.2	30
Chloroform	0.96	1.00	4.3	20
1,1,1-Trichloroethane	0.75	0.80	7.4	30
1,1-Dichloropropene	0.71	0.74	3.0	30
Carbon tetrachloride	0.64	0.70	8.3	30
Benzene	1.81	1.90	5.0	30
Tetrahydrofuran	0.31	0.30	2.6	30
1,2-Dichloroethane	0.92	0.96	4.4	30
Trichloroethene	0.21	0.22	3.5	30
1,2-Dichloropropane	0.27	0.28	4.4	20
Dibromomethane	0.20	0.21	4.6	30
1,4-Dioxane	0.003	0.003	7.9	30
Bromodichloromethane	0.33	0.34	2.6	30
Methyl isobutyl ketone (MIBK)	0.49	0.48	0.6	30
cis-1,3-Dichloropropene	0.40	0.41	2.8	30
Toluene	0.46	0.46	1.4	20
trans-1,3-Dichloropropene	0.39	0.39	0.1	30
1,1,2-Trichloroethane	0.19	0.20	6.8	30
2-Hexanone	0.35	0.33	4.7	30
Tetrachloroethene	0.18	0.19	4.4	30
1,3-Dichloropropane	0.39	0.40	2.5	30

N/A - Not Applicable
* - Value outside of QC advisory limits.

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form VII
Calibration Verification
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **C1081101**

Case: N/A SDG: N/A

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
Dibromochloromethane	0.25	0.26	0.9	30
1,2-Dibromoethane	0.25	0.25	3.0	30
Chlorobenzene	0.77	0.79	2.8	30
1,1,1,2-Tetrachloroethane	0.31	0.32	3.4	30
Ethylbenzene	1.29	1.31	1.5	20
p/m-Xylene	0.44	0.46	5.6	30
o-Xylene	0.42	0.44	3.8	30
Styrene	0.76	0.80	4.1	30
Bromoform	0.25	0.27	5.8	30
Isopropylbenzene	1.13	1.11	1.5	30
1,1,2,2-Tetrachloroethane	0.49	0.51	4.3	30
Bromobenzene	0.30	0.30	1.7	30
1,2,3-Trichloropropane	0.42	0.42	1.1	30
n-Propylbenzene	1.30	1.32	2.1	30
2-Chlorotoluene	0.82	0.83	1.0	30
1,3,5-Trimethylbenzene	0.84	0.85	1.2	30
4-Chlorotoluene	0.85	0.88	3.9	30
tert-Butylbenzene	0.66	0.64	2.5	30
1,2,4-Trimethylbenzene	0.85	0.87	2.7	30
sec-Butylbenzene	0.97	0.96	0.5	30
1,3-Dichlorobenzene	0.49	0.51	3.9	30
p-Isopropyltoluene	0.77	0.77	0.8	30
1,4-Dichlorobenzene	0.52	0.54	3.2	30
n-Butylbenzene	0.67	0.68	1.1	30
1,2-Dibromo-3-chloropropane	0.091	0.085	6.8	30
1,2-Dichlorobenzene	0.48	0.49	2.3	30
1,2,4-Trichlorobenzene	0.25	0.24	2.2	30
Hexachlorobutadiene	0.081	0.077	4.8	30
Naphthalene	0.88	0.84	4.4	30
1,2,3-Trichlorobenzene	0.24	0.23	4.3	30
Dibromofluoromethane	0.71	0.72	1.7	30
Toluene-d8	0.87	0.88	1.6	30
4-Bromofluorobenzene	0.52	0.51	2.7	30
Average % D			5.5	

N/A - Not Applicable

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form VIII
Internal Standard Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **C1080801**

Case: N/A SDG: N/A

		Pentafluorobenzene		Fluorobenzene		Chlorobenzene-D5	
		Area	RT	Area	RT	Area	RT
Standard:		406860	6.27	870979	7.05	549493	11.40
Upper Limit:		813720	6.77	1741958	7.55	1098986	11.90
Lower Limit:		203430	5.77	435490	6.55	274746	10.90
Client ID	**Lab ID**						
Laboratory Control Sample	VW080803L02	411325	6.27	880277	7.06	552126	11.40
Blank	VW080803B02	412684	6.27	889323	7.05	553407	11.41
TB-01	0308017-23	404599	6.27	877826	7.06	549575	11.41
TRC-301R-8/03	0308017-22	403757	6.27	882100	7.05	549868	11.40
BRW-1R3-8/03	0308017-05	396739	6.27	864932	7.05	539938	11.40
BRW-1R2-8/03	0308017-04	395682	6.27	864962	7.06	543757	11.40
BRW-1R4-8/03	0308017-06	392737	6.27	857438	7.06	538232	11.41
IP-3R1-8/03	0308017-13	389359	6.27	860767	7.05	535124	11.40
IP-2R1-8/03	0308017-15	387189	6.27	848834	7.06	531686	11.40
IP-2R2-8/03	0308017-16	383612	6.27	844349	7.06	528956	11.40
EMW-11R2-8/03	0308017-09	382445	6.27	844008	7.06	527439	11.40
IP-4R3-8/03	0308017-12	379982	6.27	840133	7.05	525945	11.40
EMW-11R1-8/03	0308017-08	381079	6.27	843395	7.05	533121	11.40
IP-4R1-8/03	0308017-10	381074	6.27	836101	7.06	522300	11.40
IP-4R2-8/03	0308017-11	376213	6.27	842220	7.05	532253	11.40
IP-3R2-8/03	0308017-14	375656	6.27	835750	7.05	525658	11.40
IP-2R3-8/03	0308017-17	372523	6.27	830410	7.06	526509	11.40
IP-2R4-8/03	0308017-18	374090	6.27	836011	7.05	522506	11.40
IP-1R1-8/03	0308017-19	371241	6.27	830626	7.05	519980	11.40
IP-1R3-8/03	0308017-21	369308	6.27	826563	7.05	520745	11.40
IP-1R2-8/03	0308017-20	369643	6.27	823058	7.06	518025	11.40

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

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Form VIII
Internal Standard Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0308017**
Lab ID: **C1081101**

Case: N/A SDG: N/A

		Pentafluorobenzene		Fluorobenzene		Chlorobenzene-D5	
		Area	RT	Area	RT	Area	RT
Standard:		398875	6.26	859419	7.04	545683	11.39
Upper Limit:		797750	6.76	1718838	7.54	1091366	11.89
Lower Limit:		199438	5.76	429710	6.54	272842	10.89
Client ID	**Lab ID**						
Laboratory Control Sample	VW081103L01	402093	6.26	868762	7.05	551365	11.39
Blank	VW081103B01	404685	6.26	877449	7.05	552892	11.39
MW-901-8/03	0308017-07	381093	6.27	846872	7.05	534861	11.40
EMW-11R2-8/03	0308017-09E	375792	6.26	835034	7.05	531810	11.39
IP-1R2-8/03	0308017-20E	373333	6.26	832386	7.04	526114	11.39

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

08/12/03 13:17

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Chain-of-Custody Record

Woods Hole Group

375 Paramount Drive
Raynham, MA 02767

TEL: (508) 822-9300
FAX: (508) 822-3288

0308017

PAGE 1 OF 3

COMPANY INFORMATION

Name: TRC Environmental
Address: 100 Foot of John Boott Mills South Lowell, MA 01852
Telephone: 978-970-5600
Facsimile: 978-453-1995
Contact Name: Ken Cormier

COMPANY'S PROJECT INFORMATION

Regulatory Protocol: _____
For the State of: MA
Project Name: Lockheed Ph III
Project Number: E9207-6507-0850
P.O. #: _____
Sampler Name(s): Kirstin Marshall, Todd Majer

SHIPPING INFORMATION

Carrier: WHG
Airbill Number: _____
Date Shipped: 8/6/03
Quote #: _____

(TAT IS IN BUSINESS DAYS) (IF OTHER NOTE BELOW)
CIRCLE TAT: (10 Day) 5 Day 3 Day 48 Hr 24 Hr Other

SAMPLE CONTAINERS (NOTE 4)

PRESERVATIVE	HCl, 4C						
CONTAINER TYPE	glass VOA						
VOLUME	40 mL						

WHG LAB #	SAMPLE ID (NOTE 1)	COLLECTION DATE	COLLECTION TIME	COMPOSITE OR GRAB	MATRIX	ANALYSIS/REMARKS (NOTES 2, 3)	SAMPLER(S) INITIALS	NUMBER OF CONTAINERS
1	WE-9-8/03	8/6/03	0845	G	GW	MADEP VPH	KEM, TDM	3
2	WE-8-8/03	8/6/03	0905	G	GW	MADEP VPH		3
3	WE-7-8/03	8/6/03	0925	G	GW	MADEP VPH		2
4	BRW-1R2-8/03	8/6/03	1000	G	GW	MCP Method 8260B		3
5	BRW-1R3-8/03	8/6/03	1015	G	GW	"		3
6	BRW-1R4-8/03	8/6/03	1025	G	GW	"		3
7	MW-901-8/03	8/6/03	1035	G	GW	"		2
8	EMW-11R1-8/03	8/6/03	1040	G	GW	"		3
9	EMW-11R2-8/03	8/6/03	1100	G	GW	"		3
10	IP-4R1-8/03	8/6/03	1110	G	GW	"	↓	3

Relinquished by: (signature)	DATE	TIME	Received by: (signature)
Kirstin Marshall	8/6/03	1500	Ed Butler
Ed Butler	8/6/03	5:25	
Relinquished by: (signature)	DATE	TIME	Received for Laboratory by: (signature)

NOTES TO SAMPLER(S): (1) Limit Sample Identification to 6 characters, if possible; (2) Indicate designated Lab Q.C. sample and type (e.g.; MS/MSD/REP) and provide sufficient sample; (3) Field duplicates are separate sample; (4) e.g.; 40ml/glass/H_2SO_4

Notes to Lab: Samples Shipped on ice. One cooler in shipment

09/03

Chain-of-Custody Record

Woods Hole Group
375 Paramount Drive
Raynham, MA 02767
TEL: (508) 822-9300
FAX: (508) 822-3288

DJ05017

COMPANY INFORMATION

Name: See page 1 of 3
Address:
Telephone:
Facsimile:
Contact Name: Ken Cormier

COMPANY'S PROJECT INFORMATION

Regulatory Protocol:
For the State of:
Project Name: Lockheed Ph IIC
Project Number: E9202-8502-02500
P.O. #
Sampler Name(s):

SHIPPING INFORMATION

Carrier: UPS
Airbill Number:
Date Shipped: 8/6/03
Quote #:

(TAT IS IN BUSINESS DAYS) (IF OTHER NOTE BELOW)
CIRCLE TAT: 10 Day 5 Day 3 Day 48 Hr 24 Hr Other

SAMPLE CONTAINERS (NOTE 4)

	PRESERVATIVE					
	CONTAINER TYPE	40 mL Glass VOA	HCl/4°C			
	VOLUME	40 mL				

WHG LAB #	SAMPLE ID (NOTE 1)	COLLECTION DATE	COLLECTION TIME	COMPOSITE OR GRAB	MATRIX	ANALYSIS/REMARKS (NOTES 2, 3)	SAMPLER(S) INTIALS	NUMBER OF CONTAINERS
11	IP-4R2-8/03	8/6/03	1125	G	GW	MCP Method 8260B	KCM, TDM	3
12	IP-4R3-8/03	8/6/03	1135	G	GW	"		3
13	IP-3R1-8/03	8/6/03	1145	G	GW	"		3
14	IP-3R2-8/03	8/6/03	1150	G	GW	"		3
15	IP-2R1-8/03	8/6/03	1220	G	GW	"		3
16	IP-2R2-8/03	8/6/03	1230	G	GW	"		3
17	IP-2R3-8/03	8/6/03	1240	G	GW	"		3
18	IP-2R4-8/03	8/6/03	1245	G	GW	"		3
19	IP-1R1-8/03	8/6/03	1255	G	GW	"		3
20	IP-1R2-8/03	8/6/03	1305	G	GW	"	↓	3

Relinquished by: (signature)	DATE	TIME	Received by: (signature)
[signature]	8/6/03	1500	[signature]
[signature]	8/6/03	5:20	[signature]
			Received for Laboratory by: (signature)

NOTES TO SAMPLER(S): (1) Limit Sample Identification to 6 characters, if possible; (2) Indicate designated Lab Q.C. sample and type (e.g.; MS/MSD/REP) and provide sufficient sample; (3) Field duplicates are separate sample; (4) e.g.; 40ml/glass/H_2SO_4

Notes to Lab: Samples shipped on ice. One cooler in Shipment

61/63

Chain-of-Custody Record

Woods Hole Group

375 Paramount Drive
Raynham, MA 02767

TEL: (508) 822-9300
FAX: (508) 822-3288

0308017

COMPANY INFORMATION

Name: See Page 1 of 3
Address:
Telephone:
Facsimile:
Contact Name: Ken Cormier

COMPANY'S PROJECT INFORMATION

Regulatory Protocol:
For the State of:
Project Name: Lockheed Ph IV
Project Number: 9202-6502-02500
P.O. #
Sampler Name(s):

SHIPPING INFORMATION

Carrier: WHG
Airbill Number:
Date Shipped: 8/6/03
Quote #:

(TAT IS IN BUSINESS DAYS) (IF OTHER NOTE BELOW)
CIRCLE TAT: **10 Day** 5 Day 3 Day 48 Hr 24 Hr Other

SAMPLE CONTAINERS (NOTE 4)

PRESERVATIVE	HCl/4°C						
CONTAINER TYPE	glass VOA						
VOLUME	40mL						

WHG LAB #	SAMPLE ID (NOTE 1)	COLLECTION DATE	COLLECTION TIME	COMPOSITE OR GRAB	MATRIX	ANALYSIS/REMARKS (NOTES 2, 3)	SAMPLER(S) INTIALS	NUMBER OF CONTAINERS
21	IP-1R3-8/03	8/6/03	1315	G	GW	MCP Method 8260B	KEM, TDM	3
22	TRC-301R-8/03	8/6/03	1345	G	GW	"		3
23	TB-01	7/30/03	1400	G	GW	"		2
	TEMPERATURE BLANK INCLUDED							

Relinquished by: (signature)	DATE	TIME	Received by: (signature)
Kristine E Mitchell	8/6/03	1500	Ed Butler
Ed Butler	8/6/03	5:20	
Relinquished by: (signature)	DATE	TIME	Received for Laboratory by: (signature)

NOTES TO SAMPLER(S): (1) Limit Sample Identification to 6 characters, if possible; (2) Indicate designated Lab Q.C. sample and type (e.g.; MS/MSD/REP) and provide sufficient sample; (3) Field duplicates are separate sample; (4) e.g.; 40ml/glass/H_2SO_4

Notes to Lab: Shipped on ice. One cooler in shipment.

62163

Sample Receipt Checklist

Client: TRC	**Receipt Date:** 8-6-03		
Project: Lockheed	**Log-In Date:** 9/7/03		
ETR #: 0308017	**Inspection by:** EB	**Login by:** LS	

ALL SECTIONS BELOW MUST BE COMPLETED

Comments / Notes

Were samples shipped? Yes, FedEx / UPS / Other:_____
No, WHG Courier pick-up / Hand delivered

Is bill of lading retained? Yes, Tracking #:_____
No, Unavailable / NA

Number of coolers received for this project delivery: 1

Indicate cooler temperature upon opening (if multiple coolers, record all temps):

Note: If all coolers are 2-6°C, use one checklist, if NOT, use separate checklists and note all samples received *above* 6°C.

Cooler 1:
Temperature(s) taken from: 03° IR Gun, 04° Temp. Blank, / NA

Were samples received on ice? Yes / No

Chain-of-Custody present? Yes / No
Complete? Yes / No

Custody seals present on Cooler? Yes / No
on Bottles? Yes / No
Intact? Yes / No / NA
Note: Affix custody seals to back of this page.

Were sample containers intact? Yes / No If No, list samples: →

Did VOA/VPH waters contain headspace (>5mm)? Yes / No / NA If Yes, list samples: →

Were 5035 VOA soils, or VPH soils, *covered* with MeOH? Yes / No / NA
If No, list samples: →

Was a sufficient amount of sample received for each test indicated on the COC?
Yes / No If No, list samples: →

If chemical preservation is appropriate -
Were samples field preserved? Yes / No / NA

☒ C=HCl ☐ M=MeOH ☐ S=H_2SO_4
☐ H=NaOH ☐ N=HNO_3 ☐ Other:_____ ☐ U= Unknown

Preservation (pH) verified at lab for *EVERY* bottle? (Not: VOA / VPH / Sulfide)
YES: <2 or >12 (CN) or NO NA
If No, why?:

Were samples received within hold time? Yes / No If No, list samples: →

Discrepancy between samples rec'd & COC ? Yes / No If Yes, list samples: →

Was the Project Manager notified of any other problems? Yes / No / NA

Project Manager Acknowledgement: Date:

Sample storage refrigerator #: VOA

Sample storage freezer #:_____

Cooler 2:_____ Cooler 3:_____

Cooler 4:_____ Cooler 5:_____

Cooler 6:_____ Cooler 7:_____

More:_____

Chemical preservation OK for ALL samples?
Yes / No / N/A

If No, list samples below:

Please use back for any additional notes!

Woods Hole Group Environmental Laboratories
Raynham, Massachusetts

Woods Hole Group

Environmental Laboratories

ANALYTICAL REPORT

Prepared for:
TRC Environmental
Boott Mills South
Foot of John Street
Lowell, MA 01852

Project:	Lockheed Ph IV RIP
ETR:	0308019
Report Date:	August 18, 2003

Certifications and Accreditations
Massachusetts MA030
Connecticut PH-0141
New Hampshire 220602
Rhode Island 64
New Jersey MA015
Maine MA030
New York 11627
Louisiana 03090
Army Corps of Engineers
Department of the Navy
Florida E87814

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MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Woods Hole Group Environmental Laboratories

Project Number: 0308019

Project Location:

MCP RTN #[1]:

This Form provides certifications for the following data set: [Laboratory Sample ID Number(s)]:

0308019-01 through 0308019-09

Sample Matrices: [Groundwater] Soil/Sediment Drinking Water Other:

MCP SW-846 Methods Used:

8260B (√)	8151A ( )	8330 ( )	6010B ( )	7470A/1A ( )
8270C ( )	8081A ( )	VPH (√)	6020 ( )	9014M[2] ( )
8082 ( )	8021B ( )	EPH ( )	7000 S[3] ( )	Other:

[1] – List Release Tracking Number (RTN), if known.
[2]M – SW-846 Method 9014 Modified or MADEP Physiologically Available Cyanide (PAC) Method.
[3]S – SW-846 Methods 7000 Series. List individual method and analyte.

	An affirmative response to question A, B, and C is required for "Presumptive Certainty" status.		
A	Were all samples received by the laboratory in a condition consistent with that described on the Chain-of-Custody documentation for the data set?	[Yes]	No[1]
B	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	[Yes]	No[1]
C	Does the analytical data included in this report meet all the requirements for "presumptive Certainty", as described in Section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for Acquisition and Reporting of Analytical Data"?	[Yes]	No[1]
	A response to questions D and E below is required for "Presumptive Certainty" status.		
D	Were all QC performance standards and recommendations for the specified methods achieved?	Yes	[No[1]]
E	Were results for all analyte-list compounds/elements for the specified method(s) reported?	[Yes]	No[1]

[1] *All NO answers must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Edith Hutchinson **Position:** Senior Project Manager

Printed Name: Edith Hutchinson **Date:** 8/22/03

CASE NARRATIVE

Woods Hole Group Environmental Laboratories

ETR: 0308019
Project: Lockheed Ph IV RIP

All analyses were performed according to Woods Hole Group's documented Standard Operating Procedures (SOPs), within holding time and with appropriate quality control measures except where noted. Blank correction of results is not performed in the laboratory for any parameter. Soil/sediment samples are reported on a dry weight basis unless otherwise noted.

General Requirements

1. The analytical data included in this report meets all the requirements for "Presumptive Certainty", as described in Section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for Acquisition and Reporting of Analytical Data", with the exception that the laboratory can not attest to the frequency of field QC.

Volatile Organics by 8260B

1. The initial calibration had compounds outside of the 15% RSD QC acceptance limit. Refer to the Form VI Initial Calibration Summary report for specific outliers. This initial calibration meets the acceptability criteria.

2. The continuing calibration verification standard had Bromomethane above of the 30% D QC acceptance limit. This calibration verification meets the acceptability criteria.

3. The laboratory control sample VW080803L02 had the compounds Bromomethane and Trichlorofluoromethane outside the 70%-130% QC acceptance limits at 24% and 144%, respectively. These compounds were not detected in the associated samples.

4. Sample GZA-105R-8/03 (0308019-07) was analyzed at a 1:20 dilution based on screening information.

Volatile Petroleum Hydrocarbons by GC-PID/FID

1. The initial analysis of samples WE-8PP-8/03 (0308019-05) and WE-9PP-8/03 (0308019-06) had concentrations that exceeded the calibration range of the instrument. These samples were reanalyzed at a 1:5 and 1:2 dilution, respectively, and both analyses are reported.

2. The initial analysis of sample WE-8PP-8/03 (0308019-05) had a recovery for the surrogate 1,4-Difluorobenzene on the PID above the 130% QC acceptance limit at 136%, possibly due to matrix interference. This sample required reanalysis at a 1:5 dilution (0308019-05E), which had acceptable surrogate recoveries.

The enclosed results of analyses are representative of the samples as received by the laboratory. Woods Hole Group makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Woods Hole Group. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved by: Judith Hubbard Title: Senior Project Manager Date: 8/18/03

VOLATILE ORGANICS

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **GZA-105R-8/03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308019**
Lab ID: **0308019-07**
Associated Blank: **VW081103B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/07/03	08/07/03	08/11/03	5	5	20	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	40	U	1,3-Dichloropropene, Total	80	U
Chloromethane	40	U	Toluene	40	U
Vinyl chloride	40	U	1,1,2-Trichloroethane	40	U
Bromomethane	40	U	2-Hexanone	40	U
Chloroethane	40	U	Tetrachloroethene	**680**	
Trichlorofluoromethane	40	U	1,3-Dichloropropane	40	U
Diethyl ether	40	U	Dibromochloromethane	40	U
Acetone	100	U	1,2-Dibromoethane	40	U
1,1-Dichloroethene	27	J	Chlorobenzene	40	U
Carbon disulfide	40	U	1,1,1,2-Tetrachloroethane	40	U
Methylene chloride	100	U	Ethylbenzene	40	U
Methyl tert-butyl ether (MTBE)	40	U	Xylenes, Total	120	U
trans-1,2-Dichloroethene	40	U	Styrene	40	U
Diisopropyl Ether (DIPE)	40	U	Bromoform	40	U
1,1-Dichloroethane	**160**		Isopropylbenzene	40	U
Ethyl Tertiary Butyl Ether (ETBE)	40	U	1,1,2,2-Tetrachloroethane	40	U
2-Butanone (MEK)	40	U	Bromobenzene	40	U
cis-1,2-Dichloroethene	**280**		1,2,3-Trichloropropane	40	U
2,2-Dichloropropane	40	U	n-Propylbenzene	40	U
Bromochloromethane	40	U	2-Chlorotoluene	40	U
Chloroform	40	U	1,3,5-Trimethylbenzene	40	U
1,1,1-Trichloroethane	40	U	4-Chlorotoluene	40	U
1,1-Dichloropropene	40	U	tert-Butylbenzene	40	U
Carbon tetrachloride	40	U	1,2,4-Trimethylbenzene	40	U
Benzene	40	U	sec-Butylbenzene	40	U
Tertiary Amyl Methyl Ether (TAME)	40	U	1,3-Dichlorobenzene	40	U
Tetrahydrofuran	40	U	p-Isopropyltoluene	40	U
1,2-Dichloroethane	40	U	1,4-Dichlorobenzene	40	U
Trichloroethene	**3900**		n-Butylbenzene	40	U
1,2-Dichloropropane	40	U	1,2-Dibromo-3-chloropropane	100	U
Dibromomethane	40	U	1,2-Dichlorobenzene	40	U
1,4-Dioxane	2000	U	1,2,4-Trichlorobenzene	100	U
Bromodichloromethane	40	U	Hexachlorobutadiene	100	U
Methyl isobutyl ketone (MIBK)	40	U	Naphthalene	100	U
			1,2,3-Trichlorobenzene	100	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	103	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	90	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 13:20

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **TB-02**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308019**
Lab ID: **0308019-08**
Associated Blank: **VW081103B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
08/07/03	08/07/03	08/11/03	5	5	1	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	2.0	U
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	1.2	J	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl Ether (DIPE)	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl Tertiary Butyl Ether (ETBE)	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	2.0	U	Bromobenzene	2.0	U
cis-1,2-Dichloroethene	2.0	U	1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary Amyl Methyl Ether (TAME)	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	2.0	U	n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	100	U	1,2,4-Trichlorobenzene	5.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	5.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	5.0	U
			1,2,3-Trichlorobenzene	5.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	104	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	92	70-130

J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

08/12/03 13:20

Form I
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308019**
Lab ID: **VW081103B01**
Associated Blank: **N/A**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	08/11/03	5	5	1	MLB

Parameter	Result		Parameter	Result	
Dichlorodifluoromethane	2.0	U	1,3-Dichloropropene, Total	4.0	U
Chloromethane	2.0	U	Toluene	2.0	U
Vinyl chloride	2.0	U	1,1,2-Trichloroethane	2.0	U
Bromomethane	2.0	U	2-Hexanone	2.0	U
Chloroethane	2.0	U	Tetrachloroethene	2.0	U
Trichlorofluoromethane	2.0	U	1,3-Dichloropropane	2.0	U
Diethyl ether	2.0	U	Dibromochloromethane	2.0	U
Acetone	5.0	U	1,2-Dibromoethane	2.0	U
1,1-Dichloroethene	2.0	U	Chlorobenzene	2.0	U
Carbon disulfide	2.0	U	1,1,1,2-Tetrachloroethane	2.0	U
Methylene chloride	5.0	U	Ethylbenzene	2.0	U
Methyl tert-butyl ether (MTBE)	2.0	U	Xylenes, Total	6.0	U
trans-1,2-Dichloroethene	2.0	U	Styrene	2.0	U
Diisopropyl Ether (DIPE)	2.0	U	Bromoform	2.0	U
1,1-Dichloroethane	2.0	U	Isopropylbenzene	2.0	U
Ethyl Tertiary Butyl Ether (ETBE)	2.0	U	1,1,2,2-Tetrachloroethane	2.0	U
2-Butanone (MEK)	2.0	U	Bromobenzene	2.0	U
cis-1,2-Dichloroethene	2.0	U	1,2,3-Trichloropropane	2.0	U
2,2-Dichloropropane	2.0	U	n-Propylbenzene	2.0	U
Bromochloromethane	2.0	U	2-Chlorotoluene	2.0	U
Chloroform	2.0	U	1,3,5-Trimethylbenzene	2.0	U
1,1,1-Trichloroethane	2.0	U	4-Chlorotoluene	2.0	U
1,1-Dichloropropene	2.0	U	tert-Butylbenzene	2.0	U
Carbon tetrachloride	2.0	U	1,2,4-Trimethylbenzene	2.0	U
Benzene	2.0	U	sec-Butylbenzene	2.0	U
Tertiary Amyl Methyl Ether (TAME)	2.0	U	1,3-Dichlorobenzene	2.0	U
Tetrahydrofuran	2.0	U	p-Isopropyltoluene	2.0	U
1,2-Dichloroethane	2.0	U	1,4-Dichlorobenzene	2.0	U
Trichloroethene	2.0	U	n-Butylbenzene	2.0	U
1,2-Dichloropropane	2.0	U	1,2-Dibromo-3-chloropropane	5.0	U
Dibromomethane	2.0	U	1,2-Dichlorobenzene	2.0	U
1,4-Dioxane	100	U	1,2,4-Trichlorobenzene	5.0	U
Bromodichloromethane	2.0	U	Hexachlorobutadiene	5.0	U
Methyl isobutyl ketone (MIBK)	2.0	U	Naphthalene	5.0	U
			1,2,3-Trichlorobenzene	5.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	93	70-130

U - The analyte was analyzed for but not detected at the sample specific level reported.
N/A - Not Applicable

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308019**
Lab ID: **VW081103L01**
Associated Blank: **VW081103B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	08/11/03	5	5	1	MLB

Parameter	Conc.	% Recovery	% Recovery Limits
Dichlorodifluoromethane	22	108	70-130
Chloromethane	23	115	70-130
Vinyl chloride	23	116	70-130
Bromomethane	4.8	24[a]	70-130
Chloroethane	22	108	70-130
Trichlorofluoromethane	29	144[a]	70-130
Diethyl ether	23	114	70-130
Acetone	21	107	70-130
1,1-Dichloroethene	20	100	70-130
Carbon disulfide	20	99	70-130
Methylene chloride	17	83	70-130
Methyl tert-butyl ether (MTBE)	17	85	70-130
trans-1,2-Dichloroethene	18	88	70-130
Diisopropyl Ether (DIPE)	21	103	70-130
1,1-Dichloroethane	21	106	70-130
Ethyl Tertiary Butyl Ether (ETBE)	20	98	70-130
2-Butanone (MEK)	21	105	70-130
cis-1,2-Dichloroethene	20	99	70-130
2,2-Dichloropropane	19	95	70-130
Bromochloromethane	21	103	70-130
Chloroform	20	100	70-130
1,1,1-Trichloroethane	20	101	70-130
1,1-Dichloropropene	19	94	70-130
Carbon tetrachloride	20	102	70-130
Benzene	20	100	70-130
Tertiary Amyl Methyl Ether (TAME)	19	95	70-130
Tetrahydrofuran	19	96	70-130
1,2-Dichloroethane	20	97	70-130
Trichloroethene	22	108	70-130
1,2-Dichloropropane	20	99	70-130
Dibromomethane	20	100	70-130
1,4-Dioxane	210	104	70-130
Bromodichloromethane	19	95	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308019**
Lab ID: **VW081103L01**
Associated Blank: **VW081103B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	08/11/03	5	5	1	MLB

Parameter	Conc.	% Recovery	% Recovery Limits
Methyl isobutyl ketone (MIBK)	21	104	70-130
1,3-Dichloropropene, Total	38	95	70-130
Toluene	19	95	70-130
1,1,2-Trichloroethane	20	101	70-130
2-Hexanone	19	96	70-130
Tetrachloroethene	20	98	70-130
1,3-Dichloropropane	20	98	70-130
Dibromochloromethane	19	94	70-130
1,2-Dibromoethane	20	98	70-130
Chlorobenzene	19	96	70-130
1,1,1,2-Tetrachloroethane	19	96	70-130
Ethylbenzene	19	94	70-130
Xylenes, Total	57	95	70-130
Styrene	18	90	70-130
Bromoform	19	96	70-130
Isopropylbenzene	18	89	70-130
1,1,2,2-Tetrachloroethane	20	100	70-130
Bromobenzene	19	93	70-130
1,2,3-Trichloropropane	19	96	70-130
n-Propylbenzene	18	92	70-130
2-Chlorotoluene	18	91	70-130
1,3,5-Trimethylbenzene	18	90	70-130
4-Chlorotoluene	18	91	70-130
tert-Butylbenzene	18	88	70-130
1,2,4-Trimethylbenzene	18	90	70-130
sec-Butylbenzene	18	89	70-130
1,3-Dichlorobenzene	18	93	70-130
p-Isopropyltoluene	18	87	70-130
1,4-Dichlorobenzene	19	93	70-130
n-Butylbenzene	18	91	70-130
1,2-Dibromo-3-chloropropane	17	86	70-130
1,2-Dichlorobenzene	18	93	70-130
1,2,4-Trichlorobenzene	18	88	70-130

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Form III
Spike Recovery Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0308019**
Lab ID: **VW081103L01**
Associated Blank: **VW081103B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	08/11/03	5	5	1	MLB

Parameter	Conc.	% Recovery	% Recovery Limits
Hexachlorobutadiene	20	98	70-130
Naphthalene	17	86	70-130
1,2,3-Trichlorobenzene	18	89	70-130

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	96	70-130

* - Value outside of QC Limits.
N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

08/12/03 13:21

Supporting Quality Control Results

Form II
Surrogate Recovery
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0308019**
Matrix: **Water**

Case: N/A SDG: N/A

Client ID	Lab ID	Dibromofluoromethane	Toluene-d8	4-Bromofluorobenzene
Laboratory Control Sample	VW081103L01	102	100	96
Blank	VW081103B01	102	99	93
TB-02	0308019-08	104	99	92
GZA-105R-8/03	0308019-07	103	100	90

N/A - Not Applicable

Surrogate	QC Limit
Dibromofluoromethane	70-130
Toluene-d8	70-130
4-Bromofluorobenzene	70-130

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Form IV
Method Blank Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **0308019**
Lab ID: **VW081103B01**
Date Analyzed: **08/11/03 09:48**

Client ID	Lab ID	Date/Time Analyzed
Laboratory Control Sample	VW081103L01	08/11/03 09:19
TB-02	0308019-08	08/11/03 11:15
GZA-105R-8/03	0308019-07	08/11/03 12:13

N/A - Not Applicable

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Form V
Tune Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0308019**
Lab ID: **T1072501**
Date Analyzed: **07/25/03 12:12**

Target Mass	Relative To Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result
50	95	15	40	28.5	25904	Pass
75	95	30	60	54.3	49237	Pass
95	95	100	100	100	90736	Pass
96	95	5	9	7	6370	Pass
173	174	0	2	0	0	Pass
174	95	50	100	71.3	64661	Pass
175	174	5	9	7.5	4881	Pass
176	174	95	101	98.2	63475	Pass
177	176	5	9	6.8	4294	Pass

Client ID	Lab ID	Date/Time Analyzed
Initial Calibration	I1072501	07/25/03 12:41
Initial Calibration	I1072502	07/25/03 13:10
Initial Calibration	I1072503	07/25/03 13:39
Initial Calibration	I1072504	07/25/03 14:08
Initial Calibration	I1072505	07/25/03 14:36
Initial Calibration	I1072506	07/25/03 15:05

N/A - Not Applicable

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Form V
Tune Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Case: N/A SDG: N/A

Lab Code: **MA00030**
ETR: **0308019**
Lab ID: **T1081101**
Date Analyzed: **08/11/03 08:21**

Target Mass	Relative To Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result
50	95	15	40	28.9	26984	Pass
75	95	30	60	51.8	48293	Pass
95	95	100	100	100	93264	Pass
96	95	5	9	6.8	6361	Pass
173	174	0	2	0	0	Pass
174	95	50	100	71.8	66965	Pass
175	174	5	9	7.5	5028	Pass
176	174	95	101	97.6	65331	Pass
177	176	5	9	6.6	4326	Pass

Client ID	Lab ID	Date/Time Analyzed
CCV	C1081101	08/11/03 08:50
Laboratory Control Sample	VW081103L01	08/11/03 09:19
Blank	VW081103B01	08/11/03 09:48
TB-02	0308019-08	08/11/03 11:15
GZA-105R-8/03	0308019-07	08/11/03 12:13

N/A - Not Applicable

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**
Project: **Lockheed Ph IV RIP** ETR: **0308019**

Case: N/A SDG: N/A

Lab ID	Date/Time Analyzed
11072501	07/25/03 12:41
11072502	07/25/03 13:10
11072503	07/25/03 13:39
11072504	07/25/03 14:08
11072505	07/25/03 14:36
11072506	07/25/03 15:05

	Response Factors							
Parameter	**1**	**5**	**20**	**50**	**100**	**200**	**Mean**	**% RSD**
Dichlorodifluoromethane	0.45	0.61	0.81	0.78	0.74	0.71	0.68	19.3[a]
Chloromethane	0.75	0.79	0.90	0.88	0.84	0.82	0.83	6.7
Vinyl chloride	0.55	0.63	0.75	0.74	0.70	0.71	0.68	11.3
Bromomethane	0.56	0.52	0.43	0.14	0.097		0.35	62.2[a]
Chloroethane	0.27	0.32	0.34	0.29	0.21		0.28	17.7[a]
Trichlorofluoromethane	0.50	0.61	0.78	0.74	0.67	0.56	0.64	16.5[a]
Diethyl ether	0.29	0.42	0.43	0.42	0.40	0.38	0.39	12.8
Acetone		0.24	0.23	0.23	0.22	0.20	0.22	6.8
1,1-Dichloroethene	0.49	0.67	0.75	0.74	0.69	0.68	0.67	13.8
Carbon disulfide	1.31	1.51	1.62	1.59	1.49	1.48	1.50	7.2
Methylene chloride		0.52	0.51	0.49	0.46	0.45	0.48	6.0
Methyl tert-butyl ether (MTBE)	1.27	1.38	1.42	1.35	1.28	1.26	1.33	4.9
trans-1,2-Dichloroethene	0.53	0.67	0.72	0.70	0.65	0.65	0.66	10.3
1,1-Dichloroethane	0.87	1.03	1.10	1.09	1.06	1.10	1.04	8.2
2-Butanone (MEK)	0.92	0.64	0.54	0.52	0.51	0.49	0.60	27.3[a]
cis-1,2-Dichloroethene	0.76	1.00	1.06	1.05	1.02	1.04	0.99	11.7
2,2-Dichloropropane	0.67	0.78	0.82	0.80	0.77	0.78	0.77	6.6
Bromochloromethane	0.21	0.29	0.31	0.31	0.30	0.30	0.29	14.1
Chloroform	0.82	0.95	1.00	1.00	0.97	1.00	0.96	7.4
1,1,1-Trichloroethane	0.58	0.74	0.81	0.80	0.77	0.79	0.75	11.6
1,1-Dichloropropene	0.64	0.70	0.77	0.75	0.71	0.72	0.71	6.1
Carbon tetrachloride	0.52	0.59	0.71	0.69	0.67	0.69	0.64	11.7
Benzene	1.57	1.80	1.93	1.89	1.82	1.84	1.81	7.0
Tetrahydrofuran	0.35	0.33	0.30	0.29	0.29	0.28	0.31	9.1
1,2-Dichloroethane	0.77	0.91	0.97	0.96	0.94	0.95	0.92	8.4
Trichloroethene	0.16	0.21	0.23	0.23	0.22	0.23	0.21	12.7
1,2-Dichloropropane	0.22	0.26	0.28	0.28	0.28	0.28	0.27	10.0
Dibromomethane	0.14	0.20	0.21	0.21	0.21	0.22	0.20	14.1
1,4-Dioxane		0.002	0.003	0.003	0.003	0.003	0.003	16.0[a]
Bromodichloromethane	0.26	0.32	0.34	0.35	0.34	0.36	0.33	10.6
Methyl isobutyl ketone (MIBK)	0.52	0.49	0.49	0.49	0.47	0.46	0.49	4.8
cis-1,3-Dichloropropene	0.30	0.39	0.42	0.43	0.41	0.43	0.40	12.1

N/A - Not Applicable
[a] - Value outside of QC advisory limits.

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**
Project: **Lockheed Ph IV RIP** ETR: **0308019**

Case: N/A SDG: N/A

Lab ID	Date/Time Analyzed
I1072501	07/25/03 12:41
I1072502	07/25/03 13:10
I1072503	07/25/03 13:39
I1072504	07/25/03 14:08
I1072505	07/25/03 14:36
I1072506	07/25/03 15:05

	Response Factors							
Parameter	**1**	**5**	**20**	**50**	**100**	**200**	**Mean**	**% RSD**
Toluene	0.37	0.44	0.48	0.49	0.48	0.50	0.46	10.1
trans-1,3-Dichloropropene	0.32	0.38	0.41	0.42	0.41	0.41	0.39	9.5
1,1,2-Trichloroethane	0.13	0.19	0.20	0.20	0.20	0.20	0.19	14.8
2-Hexanone	0.39	0.35	0.34	0.34	0.34	0.33	0.35	5.9
Tetrachloroethene	0.12	0.18	0.20	0.20	0.20	0.21	0.18	18.7*
1,3-Dichloropropane	0.31	0.39	0.41	0.41	0.41	0.41	0.39	10.5
Dibromochloromethane	0.19	0.24	0.26	0.27	0.27	0.28	0.25	12.5
1,2-Dibromoethane	0.19	0.24	0.26	0.26	0.26	0.27	0.25	12.5
Chlorobenzene	0.62	0.75	0.81	0.82	0.80	0.82	0.77	9.9
1,1,1,2-Tetrachloroethane	0.21	0.31	0.33	0.34	0.33	0.33	0.31	15.7*
Ethylbenzene	1.00	1.25	1.37	1.37	1.34	1.40	1.29	11.7
p/m-Xylene	0.29	0.41	0.47	0.49	0.48	0.50	0.44	17.9*
o-Xylene	0.28	0.40	0.44	0.46	0.46	0.49	0.42	17.9*
Styrene	0.43	0.69	0.80	0.86	0.88	0.92	0.76	23.6*
Bromoform	0.15	0.23	0.27	0.28	0.29	0.29	0.25	21.5*
Isopropylbenzene	0.85	1.07	1.18	1.21	1.19	1.25	1.13	12.9
1,1,2,2-Tetrachloroethane	0.38	0.49	0.54	0.52	0.51	0.49	0.49	11.1
Bromobenzene	0.19	0.28	0.32	0.33	0.33	0.35	0.30	19.1*
1,2,3-Trichloropropane	0.37	0.42	0.44	0.44	0.43	0.41	0.42	6.1
n-Propylbenzene	0.92	1.20	1.38	1.42	1.40	1.46	1.30	15.8*
2-Chlorotoluene	0.60	0.80	0.85	0.88	0.88	0.92	0.82	14.0
1,3,5-Trimethylbenzene	0.58	0.76	0.87	0.92	0.93	0.98	0.84	17.5*
4-Chlorotoluene	0.58	0.83	0.87	0.93	0.93	0.97	0.85	16.7*
tert-Butylbenzene	0.48	0.62	0.70	0.71	0.71	0.75	0.66	14.8
1,2,4-Trimethylbenzene	0.52	0.75	0.90	0.96	0.96	1.01	0.85	21.7*
sec-Butylbenzene	0.70	0.89	1.01	1.04	1.05	1.11	0.97	15.6*
1,3-Dichlorobenzene	0.27	0.45	0.52	0.56	0.57	0.60	0.49	24.8*
p-Isopropyltoluene	0.52	0.69	0.80	0.85	0.85	0.91	0.77	18.6*
1,4-Dichlorobenzene	0.27	0.49	0.55	0.58	0.60	0.62	0.52	25.1*
n-Butylbenzene	0.40	0.58	0.72	0.75	0.77	0.83	0.67	23.5*
1,2-Dibromo-3-chloropropane		0.080	0.090	0.093	0.094	0.097	0.091	7.4
1,2-Dichlorobenzene	0.27	0.44	0.50	0.53	0.54	0.58	0.48	23.2*

N/A - Not Applicable
* - Value outside of QC advisory limits.

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Form VI
Initial Calibration Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental** Lab Code: **MA00030**
Project: **Lockheed Ph IV RIP** ETR: **0308019**

Case: N/A SDG: N/A

Lab ID	Date/Time Analyzed
I1072501	07/25/03 12:41
I1072502	07/25/03 13:10
I1072503	07/25/03 13:39
I1072504	07/25/03 14:08
I1072505	07/25/03 14:36
I1072506	07/25/03 15:05

	Response Factors							
Parameter	**1**	**5**	**20**	**50**	**100**	**200**	**Mean**	**% RSD**
1,2,4-Trichlorobenzene		0.19	0.24	0.26	0.26	0.29	0.25	14.3
Hexachlorobutadiene		0.069	0.081	0.083	0.083	0.090	0.081	9.4
Naphthalene		0.73	0.85	0.90	0.94	1.01	0.88	12.1
1,2,3-Trichlorobenzene		0.19	0.23	0.25	0.26	0.28	0.24	13.8
Dibromofluoromethane	0.70	0.70	0.71	0.71	0.71	0.70	0.71	0.8
Toluene-d8	0.84	0.85	0.85	0.87	0.88	0.90	0.87	2.5
4-Bromofluorobenzene	0.51	0.51	0.51	0.52	0.53	0.53	0.52	1.8
Average RSD								13.5

N/A - Not Applicable

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Form VII
Calibration Verification
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0308019**
Lab ID: **C1081101**

Case: N/A SDG: N/A

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
Dichlorodifluoromethane	0.68	0.76	11.5	30
Chloromethane	0.83	0.91	10.0	30
Vinyl chloride	0.68	0.74	8.5	20
Bromomethane	0.35	0.14	59.9[a]	30
Chloroethane	0.28	0.30	6.9	30
Trichlorofluoromethane	0.64	0.80	24.9	30
Diethyl ether	0.39	0.42	7.3	30
Acetone	0.22	0.23	1.2	30
1,1-Dichloroethene	0.67	0.72	7.1	20
Carbon disulfide	1.50	1.37	8.6	30
Methylene chloride	0.48	0.41	14.7	30
Methyl tert-butyl ether (MTBE)	1.33	1.17	11.8	30
trans-1,2-Dichloroethene	0.66	0.62	5.8	30
1,1-Dichloroethane	1.04	1.16	11.5	30
2-Butanone (MEK)	0.60	0.55	9.0	30
cis-1,2-Dichloroethene	0.99	1.04	5.1	30
2,2-Dichloropropane	0.77	0.79	2.5	30
Bromochloromethane	0.29	0.31	6.2	30
Chloroform	0.96	1.00	4.3	20
1,1,1-Trichloroethane	0.75	0.80	7.4	30
1,1-Dichloropropene	0.71	0.74	3.0	30
Carbon tetrachloride	0.64	0.70	8.3	30
Benzene	1.81	1.90	5.0	30
Tetrahydrofuran	0.31	0.30	2.6	30
1,2-Dichloroethane	0.92	0.96	4.4	30
Trichloroethene	0.21	0.22	3.5	30
1,2-Dichloropropane	0.27	0.28	4.4	20
Dibromomethane	0.20	0.21	4.6	30
1,4-Dioxane	0.003	0.003	7.9	30
Bromodichloromethane	0.33	0.34	2.6	30
Methyl isobutyl ketone (MIBK)	0.49	0.48	0.6	30
cis-1,3-Dichloropropene	0.40	0.41	2.8	30
Toluene	0.46	0.46	1.4	20
trans-1,3-Dichloropropene	0.39	0.39	0.1	30
1,1,2-Trichloroethane	0.19	0.20	6.8	30
2-Hexanone	0.35	0.33	4.7	30
Tetrachloroethene	0.18	0.19	4.4	30
1,3-Dichloropropane	0.39	0.40	2.5	30

N/A - Not Applicable
[a] - Value outside of QC advisory limits.

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Form VII
Calibration Verification
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0308019**
Lab ID: **C1081101**

Case: **N/A** SDG: **N/A**

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
Dibromochloromethane	0.25	0.26	0.9	30
1,2-Dibromoethane	0.25	0.25	3.0	30
Chlorobenzene	0.77	0.79	2.8	30
1,1,1,2-Tetrachloroethane	0.31	0.32	3.4	30
Ethylbenzene	1.29	1.31	1.5	20
p/m-Xylene	0.44	0.46	5.6	30
o-Xylene	0.42	0.44	3.8	30
Styrene	0.76	0.80	4.1	30
Bromoform	0.25	0.27	5.8	30
Isopropylbenzene	1.13	1.11	1.5	30
1,1,2,2-Tetrachloroethane	0.49	0.51	4.3	30
Bromobenzene	0.30	0.30	1.7	30
1,2,3-Trichloropropane	0.42	0.42	1.1	30
n-Propylbenzene	1.30	1.32	2.1	30
2-Chlorotoluene	0.82	0.83	1.0	30
1,3,5-Trimethylbenzene	0.84	0.85	1.2	30
4-Chlorotoluene	0.85	0.88	3.9	30
tert-Butylbenzene	0.66	0.64	2.5	30
1,2,4-Trimethylbenzene	0.85	0.87	2.7	30
sec-Butylbenzene	0.97	0.96	0.5	30
1,3-Dichlorobenzene	0.49	0.51	3.9	30
p-Isopropyltoluene	0.77	0.77	0.8	30
1,4-Dichlorobenzene	0.52	0.54	3.2	30
n-Butylbenzene	0.67	0.68	1.1	30
1,2-Dibromo-3-chloropropane	0.091	0.085	6.8	30
1,2-Dichlorobenzene	0.48	0.49	2.3	30
1,2,4-Trichlorobenzene	0.25	0.24	2.2	30
Hexachlorobutadiene	0.081	0.077	4.8	30
Naphthalene	0.88	0.84	4.4	30
1,2,3-Trichlorobenzene	0.24	0.23	4.3	30
Dibromofluoromethane	0.71	0.72	1.7	30
Toluene-d8	0.87	0.88	1.6	30
4-Bromofluorobenzene	0.52	0.51	2.7	30
Average %D			5.5	

N/A - Not Applicable

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Form VIII
Internal Standard Summary
Volatile Organics by 8260B-MCP

Client: **TRC Environmental**
Project: **Lockheed Ph IV RIP**

Lab Code: **MA00030**
ETR: **0308019**
Lab ID: **C1081101**

Case: **N/A** SDG: **N/A**

		Pentafluorobenzene		Fluorobenzene		Chlorobenzene-D5	
		Area	RT	Area	RT	Area	RT
Standard:		398875	6.26	859419	7.04	545683	11.39
Upper Limit:		797750	6.76	1718838	7.54	1091366	11.89
Lower Limit:		199438	5.76	429710	6.54	272842	10.89
Client ID	**Lab ID**						
Laboratory Control Sample	VW081103L01	402093	6.26	868762	7.05	551365	11.39
Blank	VW081103B01	404685	6.26	877449	7.05	552892	11.39
TB-02	0308019-08	385654	6.26	853483	7.05	537034	11.39
GZA-105R-8/03	0308019-07	380464	6.26	840030	7.04	536909	11.39

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

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Chain-of-Custody Record

Woods Hole Group

375 Paramount Drive
Raynham, MA 02767

TEL: (508) 822-9300
FAX: (508) 822-3288

0308019 PAGE 1 OF ___

COMPANY INFORMATION	COMPANY'S PROJECT INFORMATION	SHIPPING INFORMATION
Name: TRC Environmental	Regulatory Protocol:	Carrier: WHG
Address: 100 Foot of John St Boott Mills South Lowell, MA 01852	For the State of: MA	Airbill Number:
Telephone: 978-970-5600	Project Name: Lockheed Phase II	Date Shipped: 8/7/03
Facsimile: 978-453-1995	Project Number: E9202-6502-02500	Quote #:
Contact Name: Ken Cormier	P.O. #:	
	Sampler Name(s): Todd Major, Kirstin Marshall	

(TAT IS IN BUSINESS DAYS) (IF OTHER NOTE BELOW)
CIRCLE TAT: (10 Day) 5 Day 3 Day 48 Hr 24 Hr Other

SAMPLE CONTAINERS (NOTE 4)

WHG LAB #	SAMPLE ID (NOTE 1)	COLLECTION DATE	COLLECTION TIME	COMPOSITE OR GRAB	MATRIX	ANALYSIS/REMARKS (NOTES 2, 3)	SAMPLER(S) INITIALS	NUMBER OF CONTAINERS	PRESERVATIVE	CONTAINER TYPE	VOLUME
1	WE-9HS-8/03	8/7/03	0740	G	GW	MADEP VPH	KEM TDM	3	HCl, 4°C	glass VOA	40mL
2	WE-8HS-8/03	8/7/03	0750	G	GW	"		3			
3	WE-7HS-8/03	8/7/03	0800	G	GW	"		2			
4	WE-7PP-8/03	8/7/03	0900	G	GW	"		3			
5	WE-8PP-8/03	8/7/03	0940	G	GW	"		3			
6	WE-9PP-8/03	8/7/03	1015	G	GW	"		3			
7	GZA-105R-8/03	8/7/03	1150	G	GW	MCP Method 8260B		3			
8	TB-02	8/7/03	1200	G	GW	MCP Method 8260B		2			
9	TB-03	8/7/03	1210	G	W	MADEP VPH		2			
	Temperature Blank Included										

Relinquished by: (signature)	DATE	TIME	Received by: (signature)
Kirstin E. Marshall	8/7/03	1410	Ed Butler
Ed Butler	8/7/03	5:15	
Relinquished by: (signature)	DATE	TIME	Received for Laboratory by: (signature)

NOTES TO SAMPLER(S): (1) Limit Sample Identification to 6 characters, if possible; (2) Indicate designated Lab Q.C. sample and type (e.g.; MS/MSD/REP) and provide sufficient sample; (3) Field duplicates are separate sample; (4) e.g.; 40ml/glass/H_2SO_4

Notes to Lab: Samples Shipped on ice. One cooler in shipment.

45/46

Sample Receipt Checklist

Client: TRC	Receipt Date: 8-7-03
Project: Lockheed Ph IV	Log-in Date: 8/8/03
ETR #: 0308019	Inspection by: EB / Login by: MS

ALL SECTIONS BELOW MUST BE COMPLETED

Comments / Notes

Were samples shipped? Yes, FedEx / UPS / Other:_____
No, WHG Courier pick-up / Hand delivered

Is bill of lading retained? Yes, Tracking #:_____
No, Unavailable / NA

Number of coolers received for this project delivery: 1

Indicate cooler temperature upon opening (if multiple coolers, record all temps):

Note: If all coolers are 2-6°C, use one checklist, if NOT, use separate checklists and note all samples received *above* 6°C.

Cooler 1:
Temperature(s) taken from: 04° IR Gun, 03° Temp. Blank, / NA

Were samples received on ice? (Yes) / No

Sample storage refrigerator #: UofA

Sample storage freezer #:_____

Cooler 2:_____ Cooler 3:_____

Cooler 4:_____ Cooler 5:_____

Cooler 6:_____ Cooler 7:_____

More:_____

Chain-of-Custody present? (Yes) / No

Complete? (Yes) / No

Custody seals present on Cooler? Yes / (No)

on Bottles? Yes / (No)

Intact? Yes / No / (NA)

Note: Affix custody seals to back of this page.

Were sample containers intact? (Yes) / No If No, list samples: →

Did VOA/VPH waters contain headspace (>5mm)? Yes / (No) / NA If Yes, list samples: →

Were 5035 VOA soils, or VPH soils, *covered* with MeOH? Yes / No / (NA)
If No, list samples: →

Was a sufficient amount of sample received for each test indicated on the COC?
(Yes) / No If No, list samples: →

If chemical preservation is appropriate -
Were samples field preserved? (Yes) / No / NA

☒ C=HCl ☐ M=MeOH ☐ S=H_2SO_4
☐ H=NaOH ☐ N=HNO_3 ☐ Other:_____ ☐ U= Unknown

Chemical preservation OK for ALL samples?

Yes / No / (N/A)

If No, list samples below:

Preservation (pH) verified at lab for *EVERY* bottle? (Not: VOA / VPH / Sulfide)
YES: <2 or >12 (CN) or NO (NA)
If No, why?:

Were samples received within hold time? (Yes) / No If No, list samples: →

Discrepancy between samples rec'd & COC ? Yes / (No) If Yes, list samples: →

Was the Project Manager notified of any other problems? Yes / No / NA

Project Manager Acknowledgement: Date:

Please use back for any additional notes!