RI98163D

DRAFT

TECHNICAL MEMORANDUM

FIELD INVESTIGATION AND ENVIRONMENTAL SAMPLING OF OPERABLE UNIT NO. 2

RAYMARK INDUSTRIES, INC. SITE
STRATFORD, CONNECTICUT

RESPONSE ACTION CONTRACT (RAC), REGION I

For
U.S. Environmental Protection Agency

By
Brown & Root Environmental

EPA Contract No. 68-W6-0045
EPA Work Assignment No. 013-RICO-01H3
B&RE Project No. 7607

May 1998

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APPENDICES

1.0 INTRODUCTION

This technical memorandum defines the nature and extent of groundwater contamination resulting from past disposal practices, beneath and downgradient of the Raymark Industries, Inc. Facility (Raymark Facility), located in Stratford, Fairfield County, Connecticut. This report was prepared by Brown & Root Environmental (B&RE), formerly Halliburton NUS Corporation (HNUS), for the U.S. Environmental Protection Agency (EPA) under RAC Work Assignment No. 013-RICO-01H3, Contract No. 68-W6-0045, to fulfill the requirements for Raymark Operable Unit No. 2 (OU2). This report also incorporates information previously compiled by EPA, the owners of the Raymark Facility, owners of properties surrounding the Raymark Facility, and B&RE under ARCS Work Assignment Nos. 42-1LH3 and 47-1LH3, Contract No. 68-W8-0117. This technical memorandum was developed based on the original Work Plan (June 1997), Work Plan Amendment No. 2, Revision 1.0 (December 1997), and Work Plan Amendment No. 3 (December 1997). Efforts to evaluate the extent of soil, sediment, and surface water contamination in and around the Raymark Facility are being conducted by B&RE under Raymark Operable Unit No. 3 (OU3), RAC Work Assignment No. 002-RICO-01H3.

This technical memorandum is the first step in preparing a remedial investigation (RI). This memorandum has been presented in accordance with the format of *Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (EPA, 1988). Use of this format will allow subsequent reports to be incorporated directly into the document in preparation for creating an RI/Feasibility Study (FS). This format is consistent with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

1.1 Purpose of Report/Scope of OU2 Field Investigation

This technical memorandum documents the extent of groundwater contamination associated with the Raymark Facility (Figure 1-1 identifies the study area). The overall objectives of the technical memorandum are to compile and evaluate available data needed to characterize the study area conditions, and to determine the extent of contamination in the groundwater impacted by the disposal of waste from the Raymark Facility.

This technical memorandum will also present data limitations and identify issues that may need to be addressed in order to prepare a Risk Assessment, an RI, and an FS.

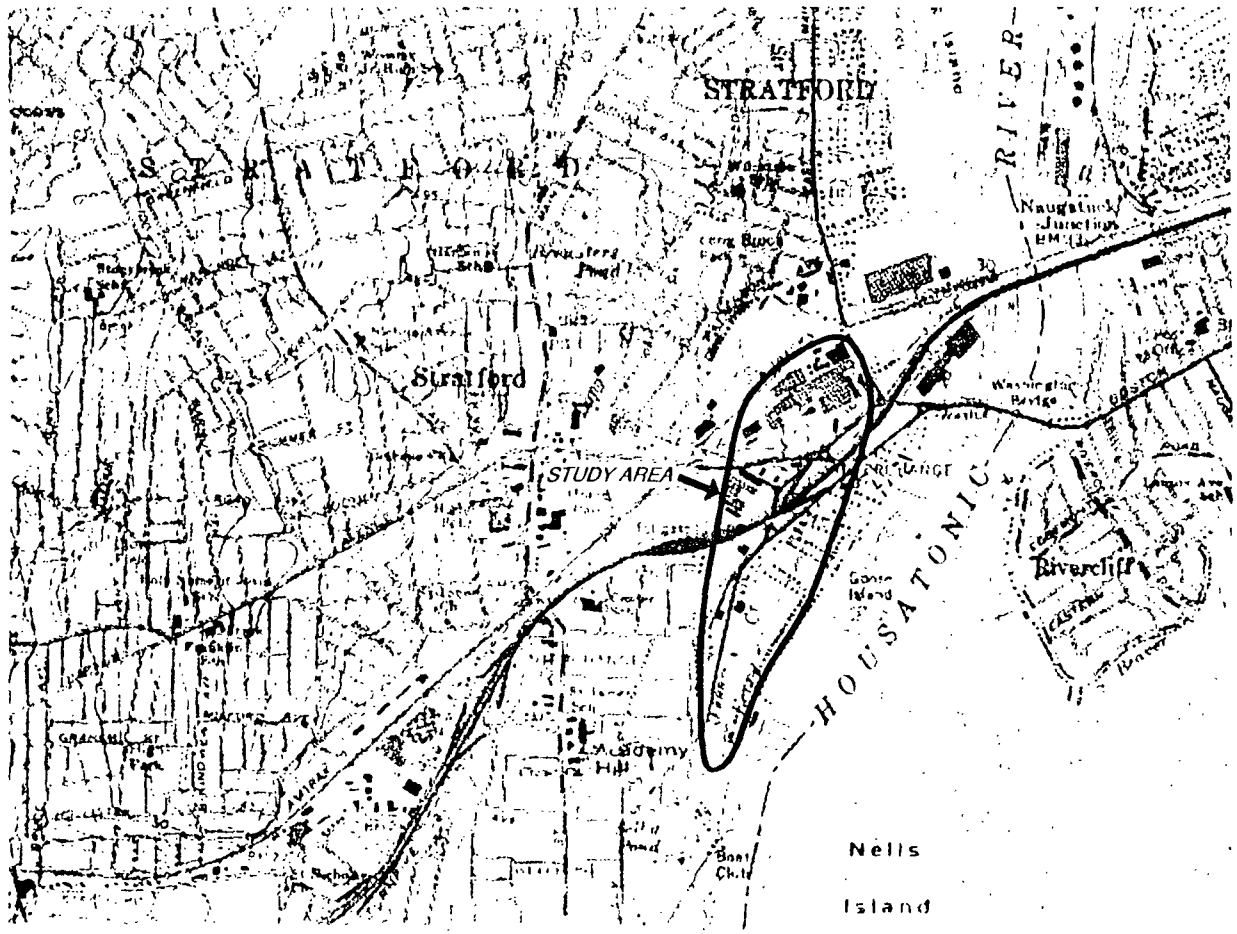
1.2 Report Organization

This technical memorandum is organized as follows (this is modified from the approved Work Plan (June 1997)):

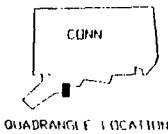
- Section 1.0, Introduction, discusses the purpose and scope of the technical memorandum, summarizes the study area background and history, presents a summary of the previous field investigation activities conducted within the study area, and describes the organization of this technical memorandum.

- Section 2.0, Study Area Investigations, presents a summary of the current field work, which provides a basis for this technical memorandum.

- Section 3.0 Physical Characteristics of the Study Area, presents descriptions of surface features and land uses, geology, hydrogeology, surface water hydrology, and meteorology.



BASEMAP: PORTIONS OF THE FOLLOWING U.S.G.S. QUADRANGLE MAPS BRIDGEPORT, CONN., 1970 (PHOTOREVISED: 1984) AND MILFORD, CONN., 1960, (PHOTOREVISITED: 1984); SCALE ALTERED.



QUADRANGLE LOCATION

STUDY AREA		FIGURE 1-1
OPERABLE UNIT NO. 2		
RAYMARK INDUSTRIES, INC. – STRATFORD, CT		
DRAWN BY: R.G. DEWSNAP	REV.: 0	
CHECKED BY: H.M. FORD	DATE: 01 JUNE 98	
SCALE: AS SHOWN	FILE NO.: DWG\RAYMARK\USGSMAP2	

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- Section 4.0, Nature and Extent of Contamination, discusses the potential sources, contaminant presence, and contaminant distribution in soils, surface water, and sediment in the study area. This is an abbreviated discussion based on the limitations of the field work.

- Section 5.0, Summary and Conclusions, restates the principal findings of the RI and recommends remedial action objectives.

1.3 Study Area Background

This section summarizes the history of the study area and vicinity, describes the study area, identifies other on-going activities associated with the Raymark Facility, and summarizes the types of investigations previously conducted at the Raymark Facility and its environs.

1.3.1 History of Raymark Facility and Environs

The Raymark Facility, formerly named Raybestos - Manhattan Company, was located at 75 East Main Street in Stratford, Fairfield County, Connecticut at latitude 41°12'02.5"N and longitude 73°07'14.0"W (see Figure 1-1). The Raymark Facility operated from 1919 until 1989, when the plant was shut down and permanently closed. The facility was demolished and a cap was placed over the contaminated areas on the property in 1996 and 1997. Based on Stratford tax map information, this former Resource Conservation and Recovery Act (RCRA) facility occupied 33.4 acres and manufactured friction materials containing asbestos and non-asbestos components, metals, phenol-formaldehyde resins, and various adhesives. Primary products were gasket material, sheet packing, and friction materials including clutch facings, transmission plates, and brake linings. As a result of these activities, soils at the Raymark Facility have been contaminated primarily with asbestos, lead, and polychlorinated biphenyl compounds (PCBs).

During the Raymark Facility's 70 years of operation, it was common practice for the company to dispose of manufacturing waste at locations both on the facility and within the Town of Stratford. A number of these off-the-facility "locations," contained levels of asbestos, lead, and PCBs that may pose a threat to public health, and were remediated under EPA CERCLA time-critical removal actions. The remediated locations are residential properties that were designated a health threat, and were excavated under EPA direction to abate the public health threat that may have existed. The excavated material from these residential locations was stored at the Raymark Facility. Waste from one municipal property, Wooster Middle School, was also excavated and stored at the Raymark Facility.

Fill was also disposed on several commercial and municipal properties within Stratford while the company was operating; these properties are currently under investigation by EPA Raymark Operable Unit 3 (OU3).

Between 1919 and 1984, low-lying portions of the Raymark Facility were filled with manufacturing waste materials from various plant manufacturing operations. The filling of those areas, principally low-lying areas, occurred over the life of the facility operations, and progressed generally from north to south, across the Raymark Facility. New buildings and parking areas were constructed over these filled areas as the manufacturing facility expanded.

The Raymark Facility was underlain by an extensive drainage system network. This network collected waters and wastes from the manufacturing operations and diverted it into the facility drainage system. The system also collected stormwater runoff. These liquids were transported through the drainage system network, mixed with lagoon wastewaters, and discharged to Ferry Creek.

During peak operations at the Raymark Facility, approximately two million gallons of water were used for plant processes each day. Wastewater from facility operations was collected and discharged to a series of four settling lagoons located in the southwestern corner and along the southern property boundary near Longbrook Avenue and the Barnum

Avenue Cutoff. The wastewater consisted of liquid from the acid treatment plant, residue from the wet dust collector and paper making line, non-contact cooling water, and water from the solvent recovery plant operations.

These lagoons also received stormwater drainage and surface water runoff. Solids were allowed to settle in Lagoon Nos. 1, 2, and 3 prior to discharge of clarified wastewater and unsettled solids to Lagoon No. 4, that in turn discharged directly into Ferry Creek. Discharge of wastewater to Lagoon Nos. 1, 2, and 3 ceased in 1984. These lagoons were closed in December 1992 and January 1993. During the fall of 1994, stormwater drainage that exited the Raymark Facility through Lagoon No. 4 was diverted around this lagoon and connected directly to the storm sewer, which ultimately discharges to Ferry Creek. Lagoon No. 4 was closed in early 1995.

During the operation of the lagoons, the settled material in the lagoons was periodically removed by dredging. During the facility's 70 years of operation, it was common practice to dispose of both this dredged lagoon waste and other manufacturing waste as "fill" material (referred to as "soil-waste" in this technical memorandum) both at the Raymark Facility and at various locations in Stratford. Several of these locations that received soil-waste are included within the area designated as "the study area".

1.3.2 Topographic and Surface Features

The study area (see Figures 1-1 and 3-1) includes the Raymark Facility and an area southeast of the facility that contains a groundwater plume that has migrated from the Raymark Facility. The study area is primarily composed of commercial users with some residential areas located on the eastern edge of the study area. A major highway (Interstate 95) crosses through the study area. As discussed above, the study area has been filled with materials classified as Raymark soil-waste. Maps have been prepared under the Raymark OU3 RI that indicate how thick this soil-waste is on the various properties.

The properties abutting the Raymark Facility are a mix of residential, commercial, industrial, and road and railroad rights-of-way. The Raymark Facility is bordered on the northwest by railroad tracks, a commercial metal plating company (a RCRA regulated facility), as well as the former Raybestos Memorial baseball field (a removal action under CERCLA was conducted in 1993 at this location). The southern end of the property is bordered by Longbrook Avenue and a small commercial lot with several small retail stores. Barnum Avenue and Interstate 95 lie to the southeast; and on the northeastern end of the property is East Main Street (Connecticut Highway 110), with residential homes, a gasoline station, and another small commercial lot with retail stores.

In addition, three RCRA-regulated facilities are located in the immediate vicinity of the Raymark Facility. The impact of these facilities is not the subject of this report. Each facility, however, does or did handle hazardous contaminants, such as toluene, benzene, and 1,1,1-trichloroethene, that are also present on the Raymark Facility. This technical memorandum addresses the presence of on-site groundwater contamination and the movement of this groundwater contamination off-site; it does not address possible sources of off-site contamination, although off-site sources may be contributing to the groundwater contamination.

1.3.3 Facility Operating History

The Raymark Facility operated from August 1919 until September 1989, when plant operations ceased and the plant was shut down. The Raymark Facility produced and manufactured products mainly for the automotive industry. The manufacturing of these products generated waste.

During operations at the Raymark Facility, the plant used large amounts of water. During peak production, approximately two million gallons were used for plant processes each day. Municipal water was used for both contact and non-contact cooling water. To supplement this source, Raymark installed an additional on-site supply well. The well, located in the northern corner of the facility, was used for non-contact cooling water.

Facility water was recirculated, with some percentage reinjected back into the on-site well; the remaining water was discharged through the facility drainage system. After this use in the plant, the process water was discharged to a series of four settling lagoons located on the property. The water flowed from the lagoons to Ferry Creek.

The settled material in these lagoons was periodically removed and disposed of either on site or off site as a "fill" material. In addition, waste was taken directly from the manufacturing process as "off-specification" material and disposed of as "fill." These waste materials were disposed of at various locations around Stratford, including within this study area. Some of these wastes were later excavated and transported from residential properties back to the facility during EPA time-critical removal actions.

In 1992, EPA issued Raymark a CERCLA 106 Removal Order and work plan designed to abate the danger or threat to public health and welfare, and the environment posed by four open lagoons containing asbestos, metals, solvents, and PCBs; a hazardous waste pile; buildings and land containing hazardous substances; large tanks of questionable integrity containing asbestos and hazardous substances; and the potential for hazardous substances to migrate off site.

1.3.4 Manufacturing Processes

The following narrative presents a summary of plant operations and waste handling practices for Raymark's manufacturing operations (see the OU1 RI for further details).

1.3.4.1 Phenolic Resin Manufacturing

Solid and liquid phenolic resin was manufactured at the Raymark Facility. The resin was produced in five or six pressure vessels; companion tanks held the raw product. After production, the liquid resins were transferred to the plant floor to be used to manufacture plant goods or to set in order to be used in solid form. Prior to use, the solid resins were

pulverized on site to meet product specifications, and then transferred to the plant floor for use.

1.3.4.2 Brake Lining Production

Brake lining production began by adding dry asbestos materials, liquid phenolic resins, and solvents (to thin the resins) to the mixers located on the plant floor. The mixers operated for approximately 1 hour until the liquid resin had penetrated and coated all the dry materials. This mixture, resembling a soft heavy mud, was formed into brake lining parts that were then baked in ovens for 6 hours. The end product was a hard material that was machined to the specifications of a finished brake lining. As necessary, materials that were trimmed and ground during the machining operations and not used in the finished product were disposed of on or off site as fill/soil-waste; after 1984, these process wastes were shipped off site in containers and disposed of legally.

During the machining operations, waste particulates were collected in a wet-type dust collection system. Particulates collected from the system were mixed with process water and pumped to the on-site lagoons as a 90/10 water/dust slurry mixture. The slurry mixture settled out in the lagoons and eventually filled them. When a lagoon was filled, the slurry mixture would be diverted to another lagoon, to allow time (several months) to dewater. The dewatered material in the lagoon was excavated and disposed of either on site or off site. After 1984, the waste particulates were collected in dry dust collectors and disposed of off site in 1 cubic yard bags.

1.3.4.3 Automatic Transmission Plates Production

An automatic transmission plate is a clutch plate used in the automotive industry. The process of producing clutch plates began by creating a mixture of asbestos, other components, and water and forming a paper-like sheet of material. This sheet was rolled onto a machine roller, saturated with phenolic resin, and then oven dried and cured. The clutch plates were machined to specifications from these sheets and the finished clutch

plate was bonded on each side of a steel core. As in the brake lining production, the final product produced machining particulates that were collected in the dust collection system, mixed into a wet slurry, and pumped to the lagoons to settle. This system was later replaced in 1984 by the dry dust collectors.

In the early 1980s, the process was modified to allow water to be reused and captured into the manufacturing process, resulting in no water discharge. In addition, the dry asbestos used in the original manufacturing of the paper-like material was replaced with a cotton-type material, so the product became asbestos-free.

The Raymark Facility molded (raw) steel into a steel core onto which the clutch plate was mounted. After molding, the steel core was degreased, etched to specification, coated with a phenolic resin, and allowed to dry. The clutch plate was then mounted to the steel core.

A specialty heavy-duty clutch was also manufactured on the Raymark Facility. The process of mixing the asbestos, resins, and water mixtures to produce heavy-duty clutches was similar to that used to produce the automatic transmission clutch plates.

1.3.4.4 Gasket Material Manufacturing

Gasket material was produced in large rubber sheets. The rubber sheets contained naphtha, toluene, asbestos, phenolic resins, and various fillers. The process began by mixing asbestos, latex, rubber cement, and rubber together until the mix was homogeneous. The mix was then loaded onto a roller machine, where it was flattened into a sheet. The sheet was removed and laid out on a large table for cutting. The gaskets were then cut to specification.

The trim from cutting was repulverized and re-used in the process. Vapors were collected and passed through the activated carbon solvent recovery plant. Prior to the mid- 1980s, no vapor collection/handling occurred.

1.3.4.5 Disc Brake Pad Manufacturing Operations

Asbestos, glass, and semi-metallic disc brakes were manufactured at the Raymark Facility. Asbestos disc brakes were composed of asbestos, phenolic resin, and fillers; glass disc brakes, of fiberglass, phenolic resin, and fillers; and semi-metallic disc brakes, of steel wool, phenolic resin, and fillers. The operations to process these disc brake pads involved mixing components in plant mixers until a homogenous mixture was coated completely with phenolic saturate, pouring the mixture into electronically heated molds to form a hard part, and machining this part into the needed specified product size.

Waste generated from the machining process was collected in the dust collector system, and transported as described above, as a water/waste slurry mixture to the on-site lagoons. After 1984, dry dust collectors collected the particulate matter and the material was disposed of off site in 1 cubic yard bags. The trim and off-specification material, if not pulverized for reuse, was disposed of as fill.

1.3.4.6 Miscellaneous Activities

The following activities also occurred on the Raymark Facility:

- Process steam generation - The Raymark Facility generated steam from August 1919 until the early 1940s. Steam was generated from coal burning steam boilers. The coal was delivered by rail directly onto the facility by the railroad spur that still exists. The coal was stored in the area surrounding the boiler house and heavy equipment moved it around the plant. No figures are available on the quantity of coal used.

- The steam boilers - The boilers were converted to oil in the early 1940s. Number 6 fuel oil was stored in the two 50,000 gallons tanks still on the facility next to the old boiler house. No figures are available on quantities of oil used.

- Material storage - Numerous tanks were located throughout the facility to store raw product, manufactured goods not yet turned into a product, and waste products remaining from the various manufacturing processes.

- Dry trim reclamation - The materials that were trimmed from the baked products (dry trim) were stored outside under a roof on the asphalt pavement. The trim re-use process consisted of using hammer mills to pulverize the waste trim. As dry trim re-use occurred more frequently during later years of facility operations, particulates from this process were collected in a separate dry dust collector system and bagged for disposal.

- Finished products - These materials were stored on site pending off-site shipment to customers.

1.3.5 Environmental Permits

The Raymark Facility was subject to the requirements of both state and federal permits.

1.3.5.1 RCRA Activities

Raymark filed a Notification of Hazardous Waste Activity form on August 15, 1980, under the name of Raybestos Friction Materials Company. The activities delineated on this form indicated that the company generated, treated, stored, and disposed of hazardous wastes such as solvents, acetone, formaldehyde, toluene, sludge from lime treatment generated from steel finishing operations, asbestos, acids, phenols, methyl ethyl ketone, and ignitable, corrosive, and toxic wastes.

On November 12, 1980, the notification was expanded to include the activities and quantities listed below for each waste activity. However, the quantities listed below were the total permitted quantities and not the actual quantities or units reportedly used at Raymark.

- More than 2.5 billion gallons of lead-contaminated waste liquid flowed through the on-site lagoons each year (6 million gallons of the 2.5 billion gallons was treated each year).

- Container storage handled approximately 23 million gallons of toxic, ignitable, corrosive, and acidic wastes each year.

- Tank storage handled approximately 10 million gallons of waste yearly.

- The incinerator processed approximately 240,000 gallons per year of toxic and ignitable wastes.

In 1986, Raymark filed a permit application for the various Raymark Facility activities under the name of Raymark Industries, Inc. At that time, the original RCRA Part A notification was re-filed, and the on-site activities and waste generated were significantly reduced. The activities described in that submittal included 7,040 gallons of liquid container waste, 150 cubic yards of solid container waste stored on the property, and an approximately 7-acre landfill on the property (the "landfill" is the lagoons shown on Figure 1-2). Each of these activities appeared to include the handling of ignitable, toxic, corrosive, and toluene-contaminated wastes.

The facility closed in September 1989. In 1990, pursuant to a RCRA 3007 information request, Raymark indicated it still had significant quantities of waste and unused products remaining on site. Some of these waste products were 400,000 gallons of an asbestos slurry in tanks and 1,700 cubic yards of unfinished asbestos product. These wastes have been removed from the Raymark Facility.

No further formal closure of any of the RCRA units/activities (incinerator, tank storage, and container storage) has been performed to date. The four lagoons most recently located on site (also called ponds and landfills throughout the life of the facility) have been temporarily

closed. (Temporarily closed means that the immediate environmental problem has been addressed, but a long-term solution has not been developed). Three of the lagoons stopped receiving waste in 1984 and were temporarily closed in December 1992 and January 1993 under an EPA order. The fourth lagoon was temporarily closed in 1994. In 1993, on-site storm water was rerouted around Lagoon No. 4 so the storm water no longer discharged into Lagoon No. 4. The facility cleanup/remediation was conducted under the CERCLA program, and the on-site sources (lagoons, tanks, incinerator) have been removed and/or remediated as part of the long-term solution.

1.3.5.2 Wastewater Activities

The Raymark Facility had a 2.5 million gallon per day water and wastewater discharge flow from the plant operations into the lagoons for discharge into Ferry Creek. This discharge was permitted under the State of Connecticut National Pollution Discharge Elimination System (NPDES) program from the early 1970s until the early 1990s, with volumes decreasing as plant activities were reduced. The activities permitted included: acid treatment plant wastewater, dust collection system wastewater, noncontact cooling water, and solvent recovery plant wastewater. A separate permit was issued for an extraction well, which was installed on site to remove groundwater contaminated with toluene from the aquifer and discharge it to the sanitary sewer. The toluene contamination was the result of a spill that occurred on site in 1984.

1.3.6 Study Area Description and Setting

The area identified as the study area for this technical memorandum includes groundwater under and around the Raymark Facility and under downgradient properties impacted by the disposition of the Raymark Facility soil-waste. The Raymark Facility and properties downgradient of the Raymark Facility have been affected by wastewater discharge, stormwater drainage, sediment runoff, surface water runoff, manufacturing waste direct deposition, and contaminant migration in groundwater.

1.3.7 Other On-Going Activities

Activities undertaken in the vicinity of the study area that are related to the investigations conducted to support this technical memorandum include:

- Raymark Facility Closure - The property has been capped by EPA under the U. S. Army Corps of Engineers Total Environmental Restoration Contract (TERC). A pump and treatment system is in place that is removing toluene from the groundwater; operation and maintenance activities will be conducted by the Connecticut Department of Environmental Protection (CT DEP). The effects of this operation on groundwater are unknown at this time.

- Remedial Investigation Activities - B&RE is developing an RI for Raymark - OU3 to evaluate the nature and extent of contamination, and associated public health and environmental risks within Ferry Creek, other ecological areas, and on adjacent properties associated with the disposal or deposition of soil-waste from the Raymark Facility. The OU3 RI is being conducted concurrently with this OU2 technical memorandum work assignment and includes the source areas above the downgradient properties within the study area.

1.3.8 Previous Investigations

A substantial number of field investigations relating to soil, sediment, surface water, and groundwater have been conducted at the Raymark Facility and its environs since 1954. This section presents a brief description of investigations performed to characterize the extent of contamination resulting from past disposal of Raymark Facility waste materials (soil-wastes). Previous investigations performed by B&RE and B&RE operating as HNUS; Environmental Laboratories, Inc. (ELI); Roy F. Weston, Inc. (Weston); Foster Wheeler Environmental Corporation (Foster Wheeler); CT DEP; Connecticut Department of Public Health and Addiction Services (CT DPHAS) under cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR); and the National Oceanic

Atmospheric Administration (NOAA) are presented in the paragraphs below and on Table 1-1. Some of this information will be used in the RI.

Additional investigations performed at the Raymark Facility to characterize the on-site materials and facility setting are summarized in the *Final RCRA Facility Investigation Report, Raymark Industries, Inc.* (ELI, 1995) and the *Final Remedial Investigation Report, Raymark Industries, Inc. Facility* (HNUS, 1995). Further evaluation of the impacts to ponds, wetlands, and other properties resulting from contamination from the Raymark Facility are currently being conducted by B&RE under Raymark - OU3, RAC I W.A. 002-RICO-01H3.

1.3.8.1 Subsurface Investigations

This subsection presents the subsurface field investigations conducted within the study area.

Vertical Sampling Program (1993)

Between July and October 1993, subsurface soil samples were collected by a number of contractors under the ARCS and TERC programs from the Morgan Francis property, the Spada property, the Patterson property on Clinton Avenue, properties along Elm Street, and properties along 3rd/4th/5th Avenue as part of the Expanded Site Inspections (ESIs)/Vertical Sampling Program (VSP). Reports were prepared by Weston for five disposal areas located within the study area.

The subsurface soil sampling (borings) was conducted to provide information regarding the presence, waste characteristics, and extent of contamination. Soil horizons were selected, and individual sample collection locations were based on EPA recommendations, visual field observations, and data from Ground Penetrating Radar (GPR) interpretations. Subsurface soil samples collected from various locations and depths at each property were screened for lead, asbestos, and PCBs using EPA-approved screening methods.

Approximately 15 percent of the samples were submitted for confirmatory analysis through the EPA Contract Laboratory Program (CLP); these samples were analyzed for Target Compound List (TCL) VOCs, TCL SVOCs, TCL pesticides/PCBs, and target analyte list (TAL) metals. Selected samples were also analyzed under the EPA Special Analytical Services (SAS) program for PCDD/PCDT, PCB (Aroclor 1262 and 1268), Toxicity Characteristic Leaching Procedure (TCLP), and Multiple Extraction Procedure (MEP).

Comprehensive Site Investigation Sampling Program (1994 - 1995)

Using data developed by others, Comprehensive Site Investigation (CSI) reports were prepared in 1994 and 1995 for properties under investigation as part of the Stratford Superfund Sites program. The purpose of the CSIs was to determine the extent and magnitude of lead, PCBs, and asbestos contamination in surface and subsurface soils associated with Raymark Facility waste disposal. The CSI reports were designed to provide site-specific data necessary to proceed with the Stratford Superfund Sites Removal Action Program. The information contained in the reports was based on the subsurface samples taken under the vertical sampling program (1993).

Final CSI Reports were completed in 1995, and were presented in the final technical memorandum, Compilation of Existing Data, RI/FS, Raymark - Ferry Creek (B&RE, 1997).

Removal Actions Post-Excavation Program (1994 - 1996)

Specific site property excavations were performed based in part on the data in the CSIs. Upon completion of the excavations, subsurface samples were collected based on a systematic grid approach for each property excavated, to ensure that the contaminated materials were removed. Grid intersections were set at 15-foot intervals; samples were collected at depths of 0 to 3 inches from each exposed wall, base, and perimeter of an excavated grid using a pre-cleaned iron shovel or hand trowel. Samples were composited from each exposed surface and screened at the on-site laboratory for asbestos, lead, and PCBs. Approximately 10 percent of the samples were submitted for confirmatory analysis

at an off-site laboratory. Once the contaminated materials were removed, the areas were backfilled with clean fill and seeded.

Post-Excavation Record Plans were prepared for these properties. The Post-Excavation Record Plans documented the soil removal action clean-up activities conducted at each property and showed that the established clean-up criteria had been achieved. These properties are considered clean and no further actions are anticipated.

Phase I Remedial Investigation (1993 - 1995)

From 1993 through 1995, HNUS conducted treatability studies, performed surface and subsurface field work, and developed an RI/FS. This investigation was conducted under ARCs Work Assignment No. 42-1LH3, Contract No. 68-W8-0117. Field work activities were divided into two tasks: a subsurface field investigation and a surface sampling investigation for identified non-residential properties. The activities conducted as part of the field investigation were a soil boring and sampling program, a salinity survey, a GPR survey, and a topographic survey. The investigation also included advancing soil borings for groundwater monitoring well installations. Two of the soil borings were advanced 20 feet into bedrock. Soil samples were taken from the soil borings. Subsequent work included four rounds of groundwater, surface water, and sediment sampling.

Offsite Monitoring Well Installation (1996)

Seven borings were advanced and then monitoring wells were constructed on the easterly side of the Raymark Facility. The wells were sampled by U.S. EPA in 1996. The wells are included in the data for the OU2 technical memorandum.

Phase II Site Investigation (1997)

Following a review of all the data from 1992 through 1996, B&RE identified data gaps. These data gaps indicated the need to collect additional field data (soils, surface water,

and sediments) to finalize the RI, and support the Risk Assessment and the FS for the OU3 study area. Field investigations and sample collection were conducted during July and August 1997. Field activities included advancing soil borings and collecting soil samples, and collecting surficial soil and sediment samples. This work is described in detail under Section 2.0 and is the primary basis of this OU2 technical memorandum.

1.3.8.2 Surface Investigations

This subsection presents the surface field investigations conducted within the study area.

Surface Water and Sediment Investigations (1992-1994)

Surface water and sediment sampling was conducted by EPA and its contractors, and the various contractors hired by Raymark Industries Inc. at the Raymark Facility and environs, from 1992 through 1994 to determine whether site contaminants were migrating off the property. The sampling was conducted to assess a series of four lagoons located at the Raymark Facility in the southwestern corner and along the southern property boundary near Longbrook Avenue and the Barnum Avenue Cutoff (see Figure 2-1). These lagoons, frequently referred to as settling basins or ponds, received stormwater drainage, surface water runoff, and wastewater from various on-site operations. Solids were allowed to settle in Lagoon Nos. 1, 2, and 3 prior to discharge of clarified wastewater and unsettled solids into Lagoon No. 4, which discharged into a culverted tributary that directly discharged into Ferry Creek.

Fifteen sediment samples were collected along Ferry Creek, including the lagoon No. 4 discharge point, and in the Housatonic River. Samples were submitted to EPA-approved laboratories for analysis of VOCs, SVOCs, PCBs, metals, cyanide, dioxin/furan, and asbestos. Numerous site-related organic and inorganic contaminants were detected at elevated levels.

Surface water samples were collected to characterize both the quantity and quality of drainage discharges into and out of Lagoon No. 4. After installation of the surface stormwater drainage diversion system around Lagoon No. 4, the outlet to this lagoon (Station No. 5) was resampled in October 1993. Samples were submitted for laboratory analysis of VOCs, SVOCs, PCBs, metals, cyanide, sulfide, chlorinated herbicides, organophosporous pesticides, dioxin/furan, and asbestos (ELI, 1994). These sampling rounds confirmed that the site had discharged contaminated materials/water into Ferry Creek.

Fish, Shellfish, and Eel Sampling (1993)

In October 1993, the EPA and CT DEP sampled fish and shellfish from various water bodies around Stratford. The CT DEP collected shellfish samples from the Housatonic River and Ferry Creek. The EPA collected freshwater fish samples from five ponds within Stratford, including Selby Pond. Another 1993 study, prepared by CT DPHAS under cooperative agreement with the ATSDR, found elevated levels of PCBs, particularly Aroclor 1262, which is a Raymark-waste indicator, in eels from Selby Pond. As a result of the study, an eel consumption health advisory was issued, recommending that consumption of eels from Selby Pond be limited to not more than one meal per month.

Soil Sampling (1993)

Numerous surface soils were sampled around Stratford to identify the extent of contamination on properties where Raymark waste was disposed. Residential properties were sampled, evaluated, and waste was excavated as appropriate. Commercial and wetland properties were sampled, and have been evaluated; no cleanup has yet occurred.

Ecological Risk Assessment (1996-1998)

An Ecological Risk Assessment report was prepared for EPA Region I by NOAA and their contractor (NOAA, 1998). This assessment addressed the risks to ecological receptors

posed by Raymark Facility hazardous wastes present in Ferry Creek, portions of the Housatonic River, and associated wetlands.

Selby Pond Investigation and Sampling (1996)

Based on the results of two rounds of surface water and sediment sampling conducted at Selby Pond as a part of the Phase I RI, additional investigations were carried out at Selby Pond in three phases.

The Phase I investigation was performed from September 3, 1996 through September 6, 1996. The objective of Phase I activities was to obtain information related to the depth and physical composition of the sediment material within Selby Pond and the surrounding wetlands. The results of the Phase I investigation were used to direct the subsequent field sampling under Phase II.

The Phase II investigation was performed from November 5, 1996 through November 16, 1996. The objective of the Phase II activities was to define the nature and extent of contamination within the Selby Pond site. Activities included collecting surface water samples, surficial sediment samples, and deep sediment core samples. The samples were analyzed using EPA-approved laboratories for TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, and TAL metals. Sediment samples were also analyzed for dioxins/furans and asbestos.

Based on an evaluation of the data from Phases I and II, and qualitative evaluations of human health and ecological considerations, an evaluation was conducted to determine whether a non-time-critical removal action (NTCRA) at Selby Pond was warranted. No additional field work sampling was conducted to support this assessment. However, previous data collected by the EPA, the CT DEP, and the CT DPHAS under cooperative agreement with the ATSDR, was reviewed to support the human health risk evaluation. The Phase III assessment concluded that a separate non-time-critical removal action was

not warranted. This area is now being reevaluated as part of the on-going activities described under Section 1.2.3.

2.0 1997 SUBSURFACE INVESTIGATIONS

This section presents a description of the field investigations performed in 1997 to characterize the Raymark Facility off-site contamination. This information will be used along with subsurface data collected in previous investigations cited in Section 1.2.8 to meet the objectives of the RI. The field activities performed during 1997 include:

- Installing well points
- Monitoring well installation
- Sampling soil
- Sampling groundwater
- Installing piezometers
- Surveying

Each of these activities is described by a brief presentation of the work performed in the subsections below. Discussion of the results of sample analysis is presented in Section 4. and on Figures 4-1, 4-2, and 4-3.

2.1 Installation of Well Points

In order to profile the groundwater leaving the Raymark Facility property, small diameter well points were advanced using a vibrating direct push technology at 77 locations. During advancement of the well points, groundwater sampling was performed at discrete vertical locations. These investigations were performed in July and August 1997. Historical conditions of the area, and limited historical analytical data, were used as assumptions in selecting the well point locations. After advancement, each well point location was surveyed; each appears on Figure 1-1.

2.1.1 Groundwater Profiling

The 77 well points were advanced to profile the groundwater around the Raymark Facility and to follow contaminant movement off site of the Raymark Facility. The depth of the well points ranged from approximately 10 feet to 140 feet. (The interpretation of these well points is presented in Section 4.0. A more comprehensive discussion of these data will be presented in the RI report to be completed later.) Well points were generally physically located on properties based on a grid of the assumed contaminant area downgradient of the Raymark Facility. The specific location of the well point was based on the current information regarding the nature and extent of contaminants on and around the Raymark Facility. Each well point was advanced to refusal, using a six-wheel all-terrain vehicle. If refusal was encountered at less then 30 feet, a second attempt was made within a pre-selected 10-foot radius of the refusal point. Refusal was defined as zero movement of the vibratory bit within a 10-minute period. These shallow refusal points provided valuable subsurface information using optical survey techniques (see Figure 1-1).

A 5-foot section of the leading end of the pipe was slotted with 0.010-inch-size openings (+/-0.005-inch). The bottom of each drive point was equipped with a steel conical-shaped tip with an O-ring. The length of solid pipe sections varied from 10 to 20 feet. The well points were installed without using drilling water, or producing any soil cuttings. Soil samples were not collected during the installation of the well points.

After the well points were advanced and groundwater samples were collected, the well point was abandoned by filling with a bentonite slurry mixture.

2.1.2 Groundwater Profiling Sampling

During the installation of the well points, groundwater samples were collected every 10 feet and at the point of refusal, using a peristaltic pump. At each sample location, the initial water level was recorded, groundwater was purged, and a VOC headspace reading

was taken; the field parameters of temperature, pH, and specific conductance were measured every 2 to 3 minutes during sampling. Once these parameters were stabilized over a 10-minute period, a sample was collected and sent off site for rapid turnaround analysis of 1,1,1-trichoroethane; 1,1-dichoroethane; 1,1-dichoroethene; vinyl chloride; toluene; benzene; ethylbenzene; and xylene. Approximately 10 percent of all the samples collected were sent off for confirmation analysis under the CLP program. Samples under the CLP were analyzed for VOCs and metals.

For samples with PID readings above 10 ppm, a sample was automatically collected and sent for chemical analysis, regardless of the stabilization criteria. The sample interval then dropped to 5 feet for measuring the stabilization criteria, although no sample was taken unless the PID reading was above 10 ppm.

2.2 Installation of Groundwater Monitoring Wells

In order to characterize and identify the presence of contaminants in the soil, determine the extent of soil and groundwater contamination, and delineate the Raymark Facility off-site groundwater plume, 32 soil borings were advanced and completed as monitoring wells based on the results of the profiling and other historic references. The monitoring wells were generally installed in 10 clusters, in a shallow, intermediate, and deep arrangement. One single well was also installed at an upgradient location. Because the actual depths were less than the estimated depths, additional wells were added to existing single wells to form a cluster. Soil and groundwater samples were collected in each monitoring well. Soil samples were collected from areas that indicated high PID readings, or showed visible contamination.

Monitoring wells were also installed at the Raymark Facility itself. These wells, and the off-site wells, are shown on Figure 1-1. The information presented in Section 4.0 was based on the information provided from borings and monitoring wells both on and off the Raymark Facility. Details on well construction and water level elevations are shown on Tables 2-1 and 2-2 and in the boring logs in Appendix C.

TABLE 2-1
WELL CONSTRUCTION DETAILS
OPERABLE UNIT 2
RAYMARK SUPERFUND SITE
STRATFORD, CONNECTICUT

WELL IDENTIFIER	PROPERTY	NORTHING (CT Grid System NAD 27)	EASTING (CT Grid System NAD 27)	GROUND ELEVATION (ft-NGVD 29)	TOP OF INNER CASING ELEVATION (ft-NGVD 29)	TOP OF PROTECTIVE CASING ELEVATION (ft-NGVD 29)	INNER CASING STICK UP (ft.)	PROTECTIVE CASING STICK UP (ft.)	BOREHOLE DIAMETER (in.)	WELL CASING AND SCREEN MATERIAL	WELL INSIDE DIAMETER	WELL SCREEN SLOT No.	DEPTH TOP OF SCREEN (ft. BGS)	DEPTH BOTTOM OF SCREEN (ft. BGS)	MIDPOINT OF SCREEN (ft. BGS)	ELEVATION TOP OF SCREEN (ft-NGVD 29)	ELEVATION BOTTOM OF SCREEN (ft-NGVD 29)	ELEVATION MIDPOINT OF SCREEN (ft-NGVD 29)	LENGTH OF SCREEN (ft.)	FILTER PACK	DRILLING METHOD	CONSULTANT
MW-217B	242 HOUSATONIC	1311192.63	497902.82	16.23	16.01	16.26	-0.22	0.03	5	PVC	2	10	45.0	70.0	57.5	-28.8	-53.8	-41.3	25.0	00 Sand	Sonic	B&RE
MW-217D	242 HOUSATONIC	1311192.63	497902.82	16.23	15.97	16.26	-0.26	0.03	9	PVC	2	10	25.0	35.0	30.0	-8.8	-18.8	-13.8	10.0	00 Sand	Sonic	B&RE
MW-214D	448 HOUSATONIC	1312049.13	498466.43	20.05	19.73	20.02	-0.32	-0.03	6.5	PVC	2	10	42.8	47.8	45.3	-22.8	-27.8	-25.3	5.0	00 Sand	Sonic	B&RE
MW-214M	448 HOUSATONIC	1312052.93	498468.92	19.87	19.37	19.85	-0.50	-0.02	8.9	PVC	2	20	30.5	40.5	35.5	-10.6	-20.6	-15.6	10.0	0 Sand	Sonic	B&RE
MW-214S	448 HOUSATONIC	1312049.13	498468.43	20.05	19.73	20.02	-0.32	-0.03	6.75	PVC	2	10	12.3	27.3	19.8	7.8	-7.3	0.3	15.0	00 Sand	Sonic	B&RE
MW-215B	73 WILLOW	1313902.84	497806.02	20.66	20.39	20.65	-0.27	-0.01	4.5	Sch 40 PVC	2	6	28.0	38.0	33.0	-7.3	-17.3	-12.3	10.0	00N Sand	Sonic	B&RE
MW-215S	73 WILLOW	1313902.84	497806.02	20.66	20.41	20.65	-0.25	-0.01	6.75	PVC	2	10	9.0	19.0	14.0	11.7	1.7	6.7	10.0	00 Sand	Sonic	B&RE
MW-216B	73 WILLOW	1315386.26	497845.29	31.21	30.89	31.23	-0.32	0.02	5	Sch 40 PVC	2	10	40.7	65.7	53.2	-9.5	-34.5	-22.0	25.0	00 Sand	Sonic	B&RE
MW-110D	COMM. PROP.	1311745.11	497515.36	9.62	9.44	9.64	-0.18	0.02	6	Sch 40 PVC	2	10	42.8	52.5	47.5	-32.9	-42.9	-37.9	10.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-110M	COMM. PROP.	1311755.23	497522.32	9.66	9.27	9.66	-0.39	0.00	6	Sch 40 PVC	2	10	18.0	28.0	23.0	-8.3	-18.3	-13.3	10.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-110S	COMM. PROP.	1311764.22	497531.19	9.6	9.62	9.8	-0.18	0.00	6	Sch 40 PVC	2	10	8.0	14.0	11.0	1.8	-4.2	-1.2	6.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-111D	COMM. PROP.	1311686.46	497275.83	10.5	12.33	12.49	1.83	1.99	6	Sch 40 PVC	2	10	79.3	89.3	84.3	-69.8	-79.8	-73.8	10.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-111M	COMM. PROP.	1311673.91	497270.64	10.9	12.70	12.98	1.90	2.18	6	Sch 40 PVC	2	10	24.0	34.0	29.0	-13.2	-23.2	-18.2	10.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-111S	COMM. PROP.	1311677.96	497290.67	10.3	12.03	12.3	1.73	2.00	6	Sch 40 PVC	2	10	6.0	10.0	8.0	4.3	0.3	2.3	4.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-112B	COMM. PROP.	1311497.63	497572.09	6.93	6.42	6.92	-0.51	-0.01	6	Sch 40 PVC	2	10	47.0	57.0	52.0	-40.1	-50.1	-45.1	10.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-112D	COMM. PROP.	1311490.02	497562.87	7.04	6.74	7.02	-0.30	-0.02	6	Sch 40 PVC	2	10	38.0	42.0	40.0	-31.0	-35.0	-33.0	4.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-112M	COMM. PROP.	1311501.80	497560.83	7.13	6.76	7.1	-0.37	-0.03	6	Sch 40 PVC	2	10	24.0	34.0	29.0	-16.9	-26.9	-21.9	10.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-113B	COMM. PROP.	1310739.62	497208.17	7.1	8.96	9.2	1.86	2.10	6	Sch 40 PVC	2	10	96.5	106.5	101.5	-89.4	-99.4	-94.4	10.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-113M	COMM. PROP.	1310743.91	497191.63	7.1	8.75	9.14	1.65	2.04	6	Sch 40 PVC	2	10	28.0	38.0	33.0	-20.9	-30.9	-25.9	10.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-1	CONTRACT PLATING	1341144.75	497222.45	18.1	18.53	19.21	0.43	1.11	NA	NA	NA	NA	9.8	19.8	14.8	8.3	-1.7	3.3	10.0	NA	NA	NA
MW-10	CONTRACT PLATING	1341307.27	497633.86	20.53	22.36	22.36	1.83	1.83	NA	NA	NA	NA	13.0	23.0	18.0	7.5	-2.5	2.5	10.0	NA	NA	NA
MW-3A	CONTRACT PLATING	1338872.36	497176.26	18.11	18.93	20.32	0.18	1.21	NA	NA	NA	NA	10.0	20.0	15.0	8.1	-0.9	4.1	10.0	NA	NA	NA
MW-3A	CONTRACT PLATING	1340428.82	497297.15	18.45	17.97	19.68	-0.48	1.23	NA	NA	NA	NA	12.0	22.0	17.0	6.5	-3.5	1.5	10.0	NA	NA	NA
MW-4	CONTRACT PLATING	1339545.62	496810.61	22.07	22.06	23.07	-0.01	1.00	NA	NA	NA	NA	15.0	30.0	22.5	7.1	-7.9	-0.4	15.0	NA	NA	NA
MW-5	CONTRACT PLATING	1338822.44	496993.56	17.4	17.25	17.44	-0.15	0.04	NA	NA	NA	NA	8.3	18.3	13.3	9.1	-0.9	4.1	10.0	NA	NA	NA
MW-6	CONTRACT PLATING	1338532.20	497063.64	17.39	17.19	20.09	-0.20	2.70	NA	NA	NA	NA	8.0	18.0	13.0	9.4	-0.6	4.4	10.0	NA	NA	NA
MW-7	CONTRACT PLATING	1340300.08	497282.81	18.47	19.86	19.99	1.39	1.52	NA	NA	NA	NA	29.0	39.0	34.0	-10.5	-20.5	-15.5	10.0	NA	NA	NA
MW-8	CONTRACT PLATING	1340070.72	497279.35	18.08	18.13	19.6	0.05	1.52	NA	NA	NA	NA	10.0	20.0	15.0	8.1	-1.9	3.1	10.0	NA	NA	NA
MW-9	CONTRACT PLATING	1342251.93	497416.55	20.36	21.85	21.81	1.49	1.45	NA	NA	NA	NA	13.0	23.0	18.0	7.4	-2.6	2.4	10.0	NA	NA	NA
MW-BR-1	CONTRACT PLATING	1340087.29	497265.10	18.02	19.49	19.7	1.47	1.68	NA	NA	NA	NA	32.5	42.5	37.5	-14.5	-24.5	-19.5	10.0	NA	NA	NA
MW-BR-2	CONTRACT PLATING	1339978.37	497276.48	19.13	19.79	21.17	0.66	2.04	NA	NA	NA	NA	45.0	55.0	50.0	-25.9	-35.9	-30.9	10.0	NA	NA	NA
MW-X	CONTRACT PLATING	1344494.29	497478.40	20.83	21.90	22.79	1.07	1.96	NA	NA	NA	NA	16.5	26.5	21.5	4.3	-5.7	-0.7	10.0	NA	NA	NA
MW-Y	CONTRACT PLATING	1337732.19	497040.27	23.1	23.78	24.07	0.68	0.97	NA	NA	NA	NA	15.0	25.0	20.0	8.1	-1.9	3.1	10.0	NA	NA	NA
MW-Z	CONTRACT PLATING	1341176.81	497402.63	21.01	22.42	22.93	1.41	1.92	NA	NA	NA	NA	16.5	26.5	21.5	4.5	-5.5	-0.5	10.0	NA	NA	NA
PZ-12	CONTRACT PLATING	1339900.90	497021.00	19.75	19.71	19.8	-0.04	0.05	NA	NA	NA	NA	6.0	16.0	11.0	12.8	2.8	7.8	10.0	NA	NA	NA
PZ-13	CONTRACT PLATING	1339921.55	497083.26	18.82	20.28	20.36	1.76	1.84	NA	NA	NA	NA	7.5	17.5	12.5	11.0	1.0	6.0	10.0	NA	NA	NA
PZ-14	CONTRACT PLATING	1339983.72	497124.43	18.49	20.27	20.31	1.78	1.82	NA	NA	NA	NA	8.0	18.0	13.0	10.5	0.5	5.5	10.0	NA	NA	NA
MW-201D	DOT	1339331.92	499265.17	14.92	14.71	14.91	-0.21	-0.01	6	Sch 40 PVC	2	10	32.7	37.7	35.2	-17.8	-22.8	-20.3	5.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-202D	DOT	1339536.47	498966.24	11.66	11.35	11.68	-0.31	0.02	6	Sch 40 PVC	2	10	29.0	34.0	31.5	-17.3	-22.3	-19.8	5.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-203D	DOT	1339383.68	499211.07	13.24	12.98	13.26	-0.26	0.02	6	Sch 40 PVC	2	10	24.0	29.0	26.5	-10.8	-15.8	-13.3	5.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-204D	DOT	1339420.60	498512.98	11.5	11.27	11.52	-0.23	0.02	6	Sch 40 PVC	2	10	45.0	50.0	47.5	-33.5	-38.5	-36.0	5.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-206D	DOT	1339347.10	498434.00	18.24	17.99	18.24	-0.25	0.00	6	Sch 40 PVC	2	10	57.6	62.6	60.1	-39.4	-44.4	-41.9	5.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-206D	DOT	1339329.77	498974.03	11.58	11.04	11.61	-0.55	0.02	6	Sch 40 PVC	2	10	60.6	65.6	63.1	-49.0	-54.0	-51.5	5.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-206M	DOT	1339809.04	498890.69	12.21	11.91	12.23	-0.30	0.02	6	PVC	2	10	27.0	34.0	30.5	-14.8	-21.8	-18.3	7.0	00 Sand	Sonic	B&RE
MW-206S	DOT	1339809.04	498890.69	12.21	11.90	12.23	-0.31	0.02	8	PVC	2	10	6.0	21.0	13.5	6.2	-8.8	-1.3	15.0	00 Sand	Sonic	B&RE
MW-207D	DOT	1339386.68	498178.82	20.27	20.09	20.32	-0.18	0.05	6	PVC	2	10	95.5	100.5	98.0	-75.2	-80.2	-77.7	5.0	Silica Sand	Drive and Wash	Halliburton NUS
MW-207M	DOT	1339386.35	498184.88	20.37	20.11	20.39	-0.26	0.02	6	PVC	2	10	42.0	52.0	47.0	-21.6	-31.6	-26.6	10.0	00 Sand	Sonic	B&RE
MW-207S	DOT	1339386.35	498184.66	20.37	20.12	20.39	-0.25	0.02	8	PVC	2	6	15.0	30.0	22.5	5.4	-9.6	-2.1	15.0	00 Sand	Sonic	B&RE
MW-211B	DOT	1339226.42	498185.45	19.58	19.25	19.56	-0.33	-0.02	8	PVC	2	10	155.0	170.0	162.5	-135.4	-150.4	-142.9	15.0	00 Sand	Sonic	B&RE
MW-211D	DOT	1339232.39	498191.52	19.86	19.29	19.57	-0.27	0.01	8	PVC	2	10	128.0	143.0	135.5	-108.4	-123.4	-115.9	15.0	00 Sand	Sonic	B&RE
MW-211M	DOT	1339232.39	498191.52	19.56	19.26	19.57	-0.29	0.01	8	PVC	2	10	97.0	104.5	100.8	-77.4	-84.9	-81.2	7.5	00 Sand	Sonic	B&RE
MW-211S	DOT	1339226.42	498185.45	19.58	19.24	19.56	-0.34	-0.02	8	PVC	2	10	12.0	27.0	19.5	7.6	-7.4	0.1	15.0	00 Sand	Sonic	B&RE
MW-212B	DOT	1332473.80	497644.24	12.03	11.82	12.03	-0.21	0.00	4.5	Sch 40 PVC	2	6	69.0	84.0	76.5	-57.0	-72.0	-64.5	15.0	00 Sand	Sonic	B&RE
MW-212D	DOT	1332474.18	497649.67	12.04	11.82	12.06	-0.22	0.02	8	PVC	2	6	50.0	65.0	52.5	-38.0	-43.0	-40.5	5.0	00N Sand	Sonic	B&RE
MW-212M	DOT	1332474.18	497649.67	12.04	11.77	12.06	-0.27	0.02	8	PVC	2	20	38.0	43.0	40.5	-26.0	-31.0	-28.5	5.0	0 Sand	Sonic	B&RE
MW-212S	DOT	1332473.80	497644.24	12.03	11.83	12.03	-0.20	0.00	8.75	Sch 40 PVC	2	20	7.0	22.0	14.5	5.0	-10.0	-2.5	15.0	0 Sand	Sonic	B&RE
FCP-1	FERRY CREEK	1321123.22	497132.62	-0.01	-	4.39	-	4.40	0.62	Steel	0.62	10	11.5	13.5	12.5	-11.5	-13.5	-12.5	2.0	NA	Drive Point	B&RE
FCP-1 Surf. Water	FERRY CREEK	1321123.22	497132.62	-0.01	-	4.39	-	4.40	NA	Steel	0.62	10	11.5	13.5	12.5	-11.5	-13.5	-12.5	2.0	NA	Drive Point	B&RE
FCP-2	FERRY CREEK	1311605.53	497435.26	-0.69	-	6.43	-	7.12	0.62	Steel	0.62	10	11.0	13.0	12.0	-11.7	-13.7	-12.7	2.0	NA	Drive Point	B&RE
FCP-2 Surf. Water	FERRY CREEK	1311605.53	497435.28	-0.69	-	6.43	-	7.12	NA	Steel	0.62	10	11.0	13.0	12.0	-11.7	-13.7	-12.7	2.0	NA	Drive Point	B&RE
FCP-3	FERRY CREEK	1319524.84	497597.97	-1.47	-	6.51	-	6.98	0.62	Steel	0.62	10	12.0	14.0	13.0	-13.5	-15.5	-14.5	2.0	NA	Drive Point	B&RE
FCP-3 Surf. Water	FERRY CREEK	1321123.22	497132.62	-1.47	-	6.51	-	6.98	NA	Steel	0.62	10	12.0	14.0	13.0	-13.6	-15.5	-14.5	2.0	NA	Drive Point	B&RE
MW-213B	MINOR AND BURR	1325526.06	498369.78	23.1	22.81	23.13	-0.29	0.03	6	PVC	2	10	37.5	52.5	45.0	-14.4	-29.4	-21.9	15.0	00 Sand	Sonic	B&RE

Notes:
ft = Feet
in. = Inches
BGS = Below Ground Surface
SS = Stainless Steel
NA = Not Available
- = Not Applicable
* = Wells That Could Not Be Located During This Investigation

TABLE 2-1
WELL CONSTRUCTION DETAILS
OPERABLE UNIT 2
RAYMARK SUPERFUND SITE
STRATFORD, CONNECTICUT
PAGE 2 OF 3

WELL IDENTIFIER	PROPERTY	NORTHING (CT Grid System NAD 27)	EASTING (CT Grid System NAD 27)	GROUND ELEVATION (ft-NGVD 29)	TOP OF INNER CASING ELEVATION (ft-NGVD 29)	TOP OF PROTECTIVE CASING ELEVATION (ft-NGVD 29)	INNER CASING STICK UP (ft.)	PROTECTIVE CASING STICK UP (ft.)	BOREHOLE DIAMETER (in.)	WELL CASING AND SCREEN MATERIAL	WELL INSIDE DIAMETER	WELL SCREEN SLOT No.	DEPTH TOP OF SCREEN (ft. BGS)	DEPTH BOTTOM OF SCREEN (ft. BGS)	MIDPOINT OF SCREEN (ft. BGS)	ELEVATION TOP OF SCREEN (ft-NGVD 29)	ELEVATION BOTTOM OF SCREEN (ft-NGVD 29)	ELEVATION MIDPOINT OF SCREEN (ft-NGVD 29)	LENGTH OF SCREEN (ft.)	FILTER PACK	DRILLING METHOD	CONSULTANT
MW-213B	MINOR AND BURR	1325260 6	498368 78	23 1	22 81	23 13	-0 29	0 03	5	PVC	2	10	37 9	52.5	45 0	-14 4	-29.4	-21 9	15 0	00 Sand	Sonic	BARE
MW-213S	MINOR AND BURR	1325260 6	498368 78	23.1	22 78	23.13	-0 32	0 03	9	PVC	2	10	13 0	28 0	20 5	10.1	-4.9	2 6	15 0	00 Sand	Sonic	BARE
MW-101D	MORGAN FRANCIS	1315441 2	497010 55	9 5	10 56	10 71	2 06	2 21	6	Sch 40 PVC	2	10	58 9	68.9	63 9	-50 4	-60 4	-55 4	10 0	Silica sand	Drive and Wash	Halliburton NUS
MW-101M	MORGAN FRANCIS	1315447 06	497000 62	9.1	11 21	11 36	2.11	2 26	6	Sch 40 PVC	2	10	21 0	26 0	23 5	-11.9	-16 9	-14 4	5 0	Silica sand	Drive and Wash	Halliburton NUS
MW-101S	MORGAN FRANCIS	1315552 50	497007.15	9 5	10 51	10 65	1.91	2 05	6	Sch 40 PVC	2	10	9 4	14 4	11 9	-0 9	-5 9	-3 3	5 0	Silica sand	Drive and Wash	Halliburton NUS
MW-102D	MORGAN FRANCIS	1315217 1	496637 61	9 6	11 80	12 05	2 20	2 45	6	Sch 40 PVC	2	10	101 8	111 8	106.8	-91.8	-101.8	-96 9	10 0	Sand	Drive and Wash	Halliburton NUS
MW-102M	MORGAN FRANCIS	1315112 69	496663.79	9 6	11 50	11 73	1 70	2 13	6	Sch 40 PVC	2	10	20 0	30 0	25 0	-10 4	-20 4	-15 4	10 0	Sand	Drive and Wash	Halliburton NUS
MW-102S	MORGAN FRANCIS	1315397 8	496642.78	9 6	11 40	11 74	1 80	2.14	6	Sch 40 PVC	2	10	6 0	10.0	8 0	3 6	-0 4	1.6	4.0	Sand	Drive and Wash	Halliburton NUS
MW-103D	MORGAN FRANCIS	1317757 04	496927 49	13 0	15 42	15 59	2 42	2 59	6	Sch 40 PVC	2	10	73 0	83 0	78 0	-60 0	-70 0	-65 0	10 0	Sand	Drive and Wash	Halliburton NUS
MW-103M	MORGAN FRANCIS	1317737 51	496929 31	12 5	15 02	15.19	2 42	2 53	5	Sch 40 PVC	2	10	29 0	39.0	33 0	-15 4	-25.4	-20 4	10 0	Sand	Drive and Wash	Halliburton NUS
MW-104D	MORGAN FRANCIS	1320441 42	497011.78	8 8	11 03	11 2	2 23	2 40	6	Sch 40 PVC	2	10	49 0	69 0	59 0	-40 2	-60 2	-50 2	20 0	Coarse Sand	Drive and Wash	Halliburton NUS
MW-104M	MORGAN FRANCIS	1320278	496994 67	9 4	11 44	11 58	2 04	2 18	6	Sch 40 PVC	2	10	23 5	27 5	25 5	-14 1	-18.1	-16 1	4 0	Coarse Sand	Drive and Wash	Halliburton NUS
MW-104S	MORGAN FRANCIS	1320214 5	497037 38	9 7	10 99	10 99	2 29	2 29	6	Sch 40 PVC	2	10	6 5	10 5	8 5	2.2	-1 8	0 2	4 0	Sand	Drive and Wash	Halliburton NUS
PC-01B	RAYMARK FACILITY	1340674 5	498945.77	NA	18 79	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-73 0	-88 0	-80.5	15 0	NA	NA	Foster Wheeler
PC-01D	RAYMARK FACILITY	1340651.10	499948 53	NA	19 76	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-97 5	-93 0	-80 2	5 5	NA	NA	Foster Wheeler
PC-01M	RAYMARK FACILITY	1340674 1	498950 58	NA	18 69	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-28 6	-38 6	-33 6	10 0	NA	NA	Foster Wheeler
PC-01S	RAYMARK FACILITY	1340691 67	498947 54	NA	19 81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 5	-10 5	-3 0	15 0	NA	NA	Foster Wheeler
PC-02B	RAYMARK FACILITY	1337262 3	498587 27	NA	15 20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-100 1	-115.1	-107.6	15 0	NA	NA	Foster Wheeler
PC-02D	RAYMARK FACILITY	1337328 0	498589 55	NA	16 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-77.1	-92.1	-84 6	15 0	NA	NA	Foster Wheeler
PC-02M	RAYMARK FACILITY	1337301 37	498585 06	NA	15 15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-53 1	-63 1	-58.1	10 0	NA	NA	Foster Wheeler
PC-02S	RAYMARK FACILITY	1337291 69	498591 06	NA	15 07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 7	-5 3	-0 3	10 0	NA	NA	Foster Wheeler
PC-03B	RAYMARK FACILITY	1343561 69	498742 78	NA	22 22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-18 6	-33 6	-26 1	15 0	NA	NA	Foster Wheeler
PC-03D	RAYMARK FACILITY	1343531 01	498742 66	NA	22 22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-4 2	-10 2	-7.2	6 0	NA	NA	Foster Wheeler
PC-03S	RAYMARK FACILITY	1343551 27	498739 63	NA	22 21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6 2	-3 8	1 2	10 0	NA	NA	Foster Wheeler
PC-04B	RAYMARK FACILITY	1345861 64	498703 39	NA	13 88	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-30 9	-45.9	-38 4	15 0	NA	NA	Foster Wheeler
PC-04D	RAYMARK FACILITY	1346001 18	498701 92	NA	14 09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-12 6	-22.5	-17.5	10 0	NA	NA	Foster Wheeler
PC-04S	RAYMARK FACILITY	1345991 20	498706 97	NA	14 08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.1	-9.0	-1 5	15 0	NA	NA	Foster Wheeler
PC-05B	RAYMARK FACILITY	1345231 30	498422 80	NA	20 64	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-68 0	-83.0	-75 5	15 0	NA	NA	Foster Wheeler
PC-05D	RAYMARK FACILITY	1345251 62	498415 08	NA	20 60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-46 0	-56 0	-51 0	10 0	NA	NA	Foster Wheeler
PC-05M	RAYMARK FACILITY	1345201 98	498418 93	NA	20 63	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-34 0	-44 0	-39 0	10 0	NA	NA	Foster Wheeler
PC-05S	RAYMARK FACILITY	1345981 20	498420 70	NA	20 49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6 5	-3 5	1 5	10 0	NA	NA	Foster Wheeler
PC-06B	RAYMARK FACILITY	1346651 32	498348 63	NA	17 41	NA	NA	NA	NA	NA	NA	NA	30	NA	NA	-91.3	-106.3	-98.8	15 0	#1 Sand	Sonic	Foster Wheeler
PC-06D	RAYMARK FACILITY	1346691 42	498346 02	NA	17 52	NA	NA	NA	NA	6	NA	NA	50	NA	NA	-52 7	-62 7	-57.7	10 0	#2 Sand	Sonic	Foster Wheeler
PC-06M	RAYMARK FACILITY	1346721 18	498349 74	NA	17 48	NA	NA	NA	NA	6	NA	NA	20	NA	NA	-32 5	-42 5	-37 5	10 0	#0 Sand	Sonic	Foster Wheeler
PC-06S	RAYMARK FACILITY	1346671 43	498352 54	NA	17 43	NA	NA	NA	NA	6	NA	NA	20	NA	NA	6.1	-3 9	1.1	10 0	#0 Sand	Sonic	Foster Wheeler
PC-07S	RAYMARK FACILITY	1348091 46	498537 33	NA	22 60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6 6	-8 5	-1 0	15 1	NA	NA	Foster Wheeler
PC-08B	RAYMARK FACILITY	1338261.56	498244.96	NA	19 22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-28.3	-43.3	-35.8	15 0	NA	NA	Foster Wheeler
PC-08D	RAYMARK FACILITY	1338271 31	498240 05	NA	19 31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-10.1	-20 1	-15 1	10 0	NA	NA	Foster Wheeler
PC-08S	RAYMARK FACILITY	1338231 29	498241 86	NA	19 22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.6	-8.5	-1.0	15 0	NA	NA	Foster Wheeler
PC-09D	RAYMARK FACILITY	1335161 05	498186 83	NA	19 41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-13 2	-28 2	-20 7	15 0	NA	NA	Foster Wheeler
PC-09S	RAYMARK FACILITY	1335141 12	498183 55	NA	19 49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 5	-10 5	-3 0	15 0	NA	NA	Foster Wheeler
PC-10B	RAYMARK FACILITY	1341931 13	497766 48	NA	20 73	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-53 3	-68 3	-60 8	15 0	NA	NA	Foster Wheeler
PC-10D	RAYMARK FACILITY	1341899 3	497764.48	NA	20.73	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-39 8	-44 8	-42.3	5 0	NA	NA	Foster Wheeler
PC-10M	RAYMARK FACILITY	1341927 07	497760.19	NA	20 71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-17 8	-27 8	-22 8	10 0	NA	NA	Foster Wheeler
PC-10S	RAYMARK FACILITY	1341952 0	497763 21	NA	20 72	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.8	-7.2	0.3	15 0	NA	NA	Foster Wheeler
PC-11B	RAYMARK FACILITY	1337604 3	497889 06	NA	22 81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-46.9	-61.9	-54.4	15 0	NA	NA	Foster Wheeler
PC-11D	RAYMARK FACILITY	1337614 1	497892 31	NA	22 41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-28.3	-38.3	-33 3	10 0	NA	NA	Foster Wheeler
PC-11M	RAYMARK FACILITY	1337558 4	497889 97	NA	22 46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-13 3	-23 3	-18 3	10 0	NA	NA	Foster Wheeler
PC-11S	RAYMARK FACILITY	1337569 9	497893 76	NA	22 43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5 9	-9.1	-1.6	15 0	NA	NA	Foster Wheeler
PC-12B	RAYMARK FACILITY	1334231.77	497751 29	NA	21.72	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	39 5	-54.5	-7 5	94 0	NA	NA	Foster Wheeler
PC-12D	RAYMARK FACILITY	1334204 3	497751.74	NA	21 76	NA	NA	NA	6	SS	2	5	NA	NA	NA	-20.1	-30 1	-25.1	10 0	00 Sand	Sonic	Foster Wheeler
PC-12S	RAYMARK FACILITY	1334229 7	497756.22	NA	21.72	NA	NA	NA	6	SS	2	5	NA	NA	NA	4.3	-9.2	-2 5	13 5	000 Sand	Sonic	Foster Wheeler
PC-13B	RAYMARK FACILITY	1338991 31	497440 15	NA	19 21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-67.4	-82 4	-74.9	15 0	NA	NA	Foster Wheeler
PC-13D	RAYMARK FACILITY	1339011.91	497443 26	NA	19 13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-51 0	-61 0	-56 0	10 0	NA	NA	Foster Wheeler
PC-13M	RAYMARK FACILITY	1338991 13	497446 06	NA	19 20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-30 1	-40 1	-35.1	10 0	NA	NA	Foster Wheeler
PC-13S	RAYMARK FACILITY	1338981 22	497442 89	NA	19 30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9 0	-8 0	1.5	15 0	NA	NA	Foster Wheeler
PC-14B	RAYMARK FACILITY	1335531 39	497640 37	NA	24 84	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-40 3	-55.3	-47 8	15 0	NA	NA	Foster Wheeler
PC-14D	RAYMARK FACILITY	1335531 74	497639.32	NA	24 68	NA	NA	NA	6	SS	2	5	NA	NA	NA	-19 3	-31.8	-25 0	13 5	000 Sand	Sonic	Foster Wheeler
PC-14S	RAYMARK FACILITY	1335564 8	497538 04	NA	24 64	NA	NA	NA	6	SS	2	5	NA	NA	NA	7.4	-7.6	-0 1	15 0	000 Sand	Sonic	Foster Wheeler
PC-15B	RAYMARK FACILITY	1333434 9	497301 11	NA	23 74	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-21.1	-36 1	-28 6	15 0	NA	NA	Foster Wheeler
PC-15D	RAYMARK FACILITY	1333471 76	497300 07	NA	23 71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-6 0	-12 0	-9.0	6.0	NA	NA	Foster Wheeler
PC-15S	RAYMARK FACILITY	1333461 37	497304 03	NA	23 54	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7 9	-7.1	0 4	15 0	NA	NA	Foster Wheeler
PC-16B	RAYMARK FACILITY	1335291 97	497048 97	NA	27 20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-77 8	-92 8	-85.3	15 0	NA	NA	Foster Wheeler

Notes:
ft =Feet
In =Inches
BGS=Below Ground Surface
SS=Stainless Steel
NA=Not Available
-=Not Applicable
*=Wells That Could Not Be Located During This Investigation

TABLE 2-1
WELL CONSTRUCTION DETAILS
OPERABLE UNIT 2
RAYMARK SUPERFUND SITE
STRATFORD, CONNECTICUT
PAGE 3 OF 3

WELL IDENTIFIER	PROPERTY	NORTHING (CT Grid System NAD 27)	EASTING (CT Grid System NAD 27)	GROUND ELEVATION (ft-NGVD 29)	TOP OF INNER CASING ELEVATION (ft-NGVD 29)	TOP OF PROTECTIVE CASING ELEVATION (ft-NGVD 29)	INNER CASING STICK UP (ft.)	PROTECTIVE CASING STICK UP (ft.)	BOREHOLE DIAMETER (in.)	WELL CASING AND SCREEN MATERIAL	WELL INSIDE DIAMETER	WELL SCREEN SLOT No.	DEPTH TOP OF SCREEN (ft. BGS)	DEPTH BOTTOM OF SCREEN (ft. BGS)	MIDPOINT OF SCREEN (ft. BGS)	ELEVATION TOP OF SCREEN (ft-NGVD 29)	ELEVATION BOTTOM OF SCREEN (ft-NGVD 29)	ELEVATION MIDPOINT OF SCREEN (ft-NGVD 29)	LENGTH OF SCREEN (ft.)	FILTER PACK	DRILLING METHOD	CONSULTANT
PC-16D	RAYMARK FACILITY	133525 49	497049 94	NA	27.20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-48.3	-83 3	-55 8	15 0	NA	NA	Foster Wheeler
PC-16M	RAYMARK FACILITY	133526 27	497051.66	NA	27 24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-18 3	-28 3	-23 3	10 0	NA	NA	Foster Wheeler
PC-16S	RAYMARK FACILITY	133526.73	497047 61	NA	27 17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9 8	-5 2	2 3	15 0	NA	NA	Foster Wheeler
MW-208D	STRAT. SHOP. CENTER	133364 44	496911 62	23 99	23 71	23 95	-0 28	-0 04	6	PVC	2	20	65 0	73 0	69 0	-41.0	-49 0	-45 0	8 0	0 Sand	Sonic	BARE
MW-208M	STRAT. SHOP. CENTER	133365 29	496906 89	23.7	23 53	23 73	-0.17	0 03	6	PVC	2	20	46 29	55 25	50 8	-22 6	-31 6	-27.1	9 0	0 Sand	Sonic	BARE
MW-208S	STRAT. SHOP. CENTER	133364 44	496911 62	23 99	23 75	23 95	-0 24	-0 04	6	PVC	2	6	13 0	29 0	20 8	11 0	-4 0	3.5	15.0	00 Sand	Sonic	BARE
MW-209B	STRAT. SHOP. CENTER	132927 03	496916 27	12 26	12 07	12 25	-0 19	-0 01	6	PVC	2	10	85 0	100.0	92 5	-72.7	-87.7	-80.2	15 0	00 Sand	Sonic	BARE
MW-209D	STRAT. SHOP. CENTER	132931.11	496921 02	12 29	12 01	12 28	-0 28	-0 01	6	PVC	2	10	98 3	68 3	83 3	-48 0	-56 0	-51 0	10 0	00 Sand	Sonic	BARE
MW-209S	STRAT. SHOP. CENTER	132926 53	496929 85	12 67	12 25	12 62	-0 32	0 05	6	PVC	2	6	5 0	13 0	9 0	7 6	-0 4	3 6	8 0	00N Sand	Sonic	BARE
MW-210D	STRAT. SHOP. CENTER	132587 42	497239 56	10 38	10 06	10 34	-0 32	-0 04	6	PVC	2	20	27 0	32 0	29 5	-16 6	-21 6	-19.1	5 0	0 Sand	Sonic	BARE
MW-210S	STRAT. SHOP. CENTER	132587 42	497239 56	10 38	10 05	10 34	-0 33	-0 04	6	PVC	2	10	7 0	22 0	14 5	3 4	-11 6	-4.1	15 0	00 Sand	Sonic	BARE
CRA-1D*	SYNTHETIC PROD.	NA	NA	11 26	10 88	NA	-0 38	NA	6	SS	2	10	22 0	27 0	24 5	-10 7	-15 7	-13 2	5 0	No 1 Sand	Hollow Stem Auger	Conestoga-Rov
CRA-1S*	SYNTHETIC PROD	NA	NA	11 22	10 84	NA	-0 38	NA	6	SS	2	10	5 5	10 5	8 0	5 7	0.7	3 2	5 0	No. 1 Sand	Hollow Stem Auger	Conestoga-Rov
CRA 2D	SYNTHETIC PROD	133289 63	498037 13	11 32	10 98	11.32	-0 34	0 00	6	SS	2	10	20 0	25 0	22 5	-9 7	-13 7	-11 2	5 0	No 1 Sand	Hollow Stem Auger	Conestoga-Rov
CRA-2S	SYNTHETIC PROD.	133289 23	498042 01	11 31	10 98	11 33	-0 33	0 02	6	SS	2	10	6 5	10 5	8 0	5 8	0 8	3 3	5 0	No 1 Sand	Hollow Stem Auger	Conestoga-Rov
CRA-3*	SYNTHETIC PROD	NA	NA	7 9	7 43	NA	-0 47	NA	8	SS	2	10	3 0	8 0	5 5	4 9	-0.1	2 4	5 0	No 1 Sand	Hollow Stem Auger	Conestoga-Rov
CRA-4D	SYNTHETIC PROD	133170.18	498022 97	8 85	8 58	8 88	-0 27	0 03	NA	SS	2	10	18 0	23 0	20.5	-9 2	-14 2	-11 7	5 0	NA	NA	Conestoga-Rov
CRA-4S	SYNTHETIC PROD.	133167 62	498021 05	8 96	8 59	8 96	-0 37	0 00	8	SS	2	10	4 0	9 0	6 5	5 0	0 0	2 5	5 0	No. 1 Sand	Hollow Stem Auger	Conestoga-Rov
CRA-5D	SYNTHETIC PROD	133181 06	497980 90	9 77	9 44	9 79	-0 33	0 02	NA	SS	2	10	18 0	23 0	20 5	-8 2	-13 2	-10.7	5 0	NA	NA	Conestoga-Rov
CRA-5S	SYNTHETIC PROD.	133183 60	497985 15	9 77	9 50	9 78	-0 27	0 01	NA	SS	2	10	4 0	9 0	6 5	5 8	0 8	3.3	5 0	NA	NA	Conestoga-Rov
CRA-6D	SYNTHETIC PROD.	133114 65	497958 00	10 12	9 77	10 16	-0 35	0 04	8	SS	2	10	18.0	23 0	20.5	-7.9	-12 9	-10 4	5 0	No 1 Sand	Hollow Stem Auger	Conestoga-Rov
CRA-6S	SYNTHETIC PROD	133124.38	497957 07	10 18	9 97	10 24	-0 21	0 06	8	SS	2	10	5 0	10 0	7 5	5 2	0.2	2 7	5 0	No 1 Sand	Hollow Stem Auger	Conestoga-Rov
CRA-8	SYNTHETIC PROD.	133278 35	497841 53	12 95	12 50	12 90	-0 45	0 05	8	SS	2	10	5 0	10 0	7 6	8 0	3 0	5.5	5 0	No 1 Sand	Hollow Stem Auger	Conestoga-Rov
MW-1B	THE DOCK	134485 81	498881 22	16 63	16 17	16 62	-0 46	-0 01	8	Sch 40 PVC	2	10	59 5	74 5	67 0	-42 9	-57.9	-50 4	15 0	Morie Sand	Hollow Stem Auger	AKRF, Inc.
MW-1M	THE DOCK	134489 32	498885 29	16.34	16 01	16 36	-0 33	0 02	8	PVC	2	10	31 0	36 0	33 5	-14.7	-19 7	-17.2	5 0	Morie #1 Sand	Hollow Stem Auger	AKRF, Inc.
MW-1S	THE DOCK	134490 81	498894 09	16.55	16 33	16 57	-0 22	0 02	8	Sch 40 PVC	2	10	8 0	18 0	13 0	8 5	-1.5	3.5	10 0	Morie #1 Sand	Hollow Stem Auger	AKRF, Inc.
MW-2S	THE DOCK	134385 22	499027.74	17 37	17.11	17 39	-0 26	0 01	8	Sch 40 PVC	2	10	8 0	18 0	13 0	9 4	-0 6	4 4	10 0	Morie Sand	Hollow Stem Auger	AKRF, Inc.
MW-3S	THE DOCK	134168 95	499078 43	16 37	16 02	16 36	-0 35	-0 01	8	Sch 40 PVC	2	10	8 0	18 0	13 0	8 4	-1 6	3 4	10 0	Morie Sand	Hollow Stem Auger	AKRF, Inc.
MW-4B	THE DOCK	134947 05	499531 03	14 62	14 31	14 63	-0 31	0 01	4	Sch 40 PVC	2	10	36.2	51 2	43 7	-21 6	-36 6	-29.1	15 0	Morie Sand	Hollow Stem Auger	AKRF, Inc.
MW-4M	THE DOCK	134945 54	499538 07	14 62	14 38	14 62	-0 24	0 00	4.25 to 8	Sch 40 PVC	2	10	19 3	24 3	21 8	-4.7	-9.7	-7 2	5 0	Morie Sand	Hollow Stem Auger	AKRF, Inc.
MW-4S	THE DOCK	134940 66	499532 77	14 72	14 34	14 71	-0 38	-0 01	4 25 to 8	Sch 40 PVC	2	10	7 0	17 0	12 0	7 7	-2 3	2 7	10 0	Morie Sand	Hollow Stem Auger	AKRF, Inc.

Notes:
ft.=Feet
In.=Inches
BGS=Below Ground Surface
SS=Stainless Steel
NA=Not Available
-=Not Applicable
*=Wells That Could Not Be Located During This Investigation

TABLE 2-2
GROUNDWATER ELEVATION SUMMARY
OPERABLE UNIT 2
RAYMARK SUPERFUND SITE
STRATFORD, CONNECTICUT

WELL IDENTIFIER	PROPERTY	AQUIFER	TOP OF INNER CASING ELEVATION (ft-NGVD 29)	TOP OF PROTECTIVE CASING ELEVATION (ft-NGVD 29)	DEPTH TO GROUNDWATER BELOW MONITORING POINT (ft.)	MONITORING POINT	WATER LEVEL MEASUREMENT DATE	GROUND WATER ELEVATION (ft-NGVD 29)
MW-217B	242 HOUSATONIC	BEDROCK	16.01	16.26	13.89	TIC	12/1/97	2.12
MW-217D	242 HOUSATONIC	DEEP	15.97	16.26	13.78	TIC	12/1/97	2.19
MW-214D	448 HOUSATONIC	DEEP	19.73	20.02	17 26	TIC	12/1/97	2.47
MW-214M	448 HOUSATONIC	INTERMEDIATE	19.37	19.85	16.89	TIC	12/1/97	2.48
MW-214S	448 HOUSATONIC	SHALLOW	19.73	20.02	17.26	TIC	12/1/97	2.47
MW-215B	73 WILLOW	BEDROCK	20.39	20.65	17 98	TIC	12/1/97	2.41
MW-215S	73 WILLOW	SHALLOW	20.41	20.65	17.96	TIC	12/1/97	2.45
MW-216B	73 WILLOW	BEDROCK	30.89	31.23	26.51	TIC	12/1/97	4.38
MW-110D	COMM. PROP.	DEEP	9.44	9.64	7.17	TIC	12/1/97	2.27
MW-110M	COMM. PROP.	INTERMEDIATE	9.27	9.66	7.07	TIC	12/1/97	2.20
MW-110S	COMM. PROP.	SHALLOW	9.62	9.8	0.61	TIC	12/1/97	9.01
MW-111D	COMM. PROP.	DEEP	12.33	12.49	10 28	TIC	12/1/97	2.21
MW-111M	COMM. PROP.	INTERMEDIATE	12.70	12.98	10.64	TIC	12/1/97	2.34
MW-111S	COMM. PROP.	SHALLOW	12.03	12.3	10.00	TIC	12/1/97	2.30
MW-112B	COMM. PROP.	BEDROCK	6 42	6.92	4.19	TIC	12/1/97	2.23
MW-112D	COMM. PROP.	DEEP	6.74	7.02	4.52	TIC	12/1/97	2.22
MW-112M	COMM. PROP.	INTERMEDIATE	6.76	7.1	4.54	TIC	12/1/97	2.22
MW-113B	COMM. PROP.	BEDROCK	8 96	9.2	7.36	TIC	12/1/97	1.60
MW-113M	COMM. PROP.	INTERMEDIATE	8.76	9.14	6.88	TIC	12/1/97	1 88
MW-1	CONTRACT PLATING	SHALLOW	18.53	19.21	14.66	TPC	12/1/97	4 55
MW-10	CONTRACT PLATING	SHALLOW	22.38	22.36	NA	NA	NA	NA
MW-2A	CONTRACT PLATING	SHALLOW	18.93	20.32	15.77	TPC	12/1/97	4 55
MW-3A	CONTRACT PLATING	SHALLOW	17.97	19.68	15.23	TPC	12/1/97	4 45
MW-4	CONTRACT PLATING	SHALLOW	22.06	23.07	18.33	TPC	12/1/97	4.74
MW-5	CONTRACT PLATING	SHALLOW	17.25	17.44	12.57	TPC	12/1/97	4 87
MW-6	CONTRACT PLATING	SHALLOW	17.19	20.09	15.23	TPC	12/1/97	4.86
MW-7	CONTRACT PLATING	INTERMEDIATE	19 86	19.99	15.39	TIC	12/1/97	4.47
MW-8	CONTRACT PLATING	SHALLOW	18.13	19.6	15.10	TPC	12/1/97	4.50
MW-9	CONTRACT PLATING	SHALLOW	21.85	21.81	17.40	TIC	12/1/97	4.45
MW-BR-1	CONTRACT PLATING	INTERMEDIATE	19.49	19.7	15.02	TIC	12/1/97	4.47
MW-BR-2	CONTRACT PLATING	INTERMEDIATE	19.79	21.17	16.74	TPC	12/1/97	4 43
MW-X	CONTRACT PLATING	SHALLOW	21.90	22.79	18.38	TPC	12/1/97	4.41
MW-Y	CONTRACT PLATING	SHALLOW	23.78	24.07	19.37	TPC	12/1/97	4.70
MW-Z	CONTRACT PLATING	SHALLOW	22.42	22.93	18 58	TPC	12/1/97	4.35
PZ-12	CONTRACT PLATING	SHALLOW	18.71	18.8	13 68	TIC	12/1/97	5 03
PZ-13	CONTRACT PLATING	SHALLOW	20.28	20.36	15 71	TIC	12/1/97	4 57
PZ-14	CONTRACT PLATING	SHALLOW	20.27	20.31	15.73	TIC	12/1/97	4 54
MW-201D	DOT	DEEP	14 71	14.91	11.22	TIC	12/1/97	3.49
MW-202D	DOT	DEEP	11 35	11.68	8.07	TIC	12/1/97	3.28
MW-203D	DOT	DEEP	12.98	13.26	9.59	TIC	12/1/97	3.39
MW-204D	DOT	DEEP	11.27	11.52	8.00	TIC	12/1/97	3.27
MW-205D	DOT	DEEP	17 99	18.24	14.76	TIC	12/1/97	3.23
MW-206D	DOT	DEEP	11 04	11.61	7 67	TIC	12/1/97	3.37
MW-206M	DOT	INTERMEDIATE	11.91	12.23	8 46	TIC	12/1/97	3.45
MW-206S	DOT	SHALLOW	11.90	12.23	8.46	TIC	12/1/97	3.44
MW-207D	DOT	DEEP	20.09	20.32	16.81	TIC	12/1/97	3.28
MW-207M	DOT	INTERMEDIATE	20.11	20.39	16.86	TIC	12/1/97	3.25
MW-207S	DOT	SHALLOW	20.12	20.39	16.89	TIC	12/1/97	3.23
MW-211B	DOT	BEDROCK	19 25	19.56	16.08	TIC	12/1/97	3.17
MW-211D	DOT	DEEP	19.29	19.57	16.28	TIC	12/1/97	3.01
MW-211M	DOT	INTERMEDIATE	19.28	19.57	16.20	TIC	12/1/97	3.08
MW-211S	DOT	SHALLOW	19.24	19.56	16.02	TIC	12/1/97	3.22
MW-212B	DOT	BEDROCK	11.82	12.03	10.59	TIC	12/1/97	1.23
MW-212D	DOT	DEEP	11.82	12.06	9.36	TIC	12/1/97	2.46

Notes:
ft = Feet
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TPC=Top of Protective Casing
NA=Not Available

TABLE 2-2
GROUNDWATER ELEVATION SUMMARY
OPERABLE UNIT 2
RAYMARK SUPERFUND SITE
STRATFORD, CONNECTICUT
PAGE 2 OF 3

WELL IDENTIFIER	PROPERTY	AQUIFER	TOP OF INNER CASING ELEVATION (ft-NGVD 29)	TOP OF PROTECTIVE CASING ELEVATION (ft-NGVD 29)	DEPTH TO GROUNDWATER BELOW MONITORING POINT (ft.)	MONITORING POINT	WATER LEVEL MEASUREMENT DATE	GROUND WATER ELEVATION (ft-NGVD 29)
MW-212S	DOT	SHALLOW	11.83	12.03	9.41	TIC	12/1/97	2.42
FCP-1	FERRY CREEK	INTERMEDIATE	NA	4 39	2.27	TIC	12/1/97	2.12
FCP-1 Surf. Water	FERRY CREEK	SURFACE WATER	NA	4.39	3.05	TIC	12/1/97	1.34
FCP-2	FERRY CREEK	INTERMEDIATE	NA	6 43	4.04	TIC	12/1/97	2.39
FCP-2 Surf. Water	FERRY CREEK	SURFACE WATER	NA	6 43	4.11	TIC	12/1/97	2.32
FCP-3	FERRY CREEK	INTERMEDIATE	NA	5.51	3.20	TIC	12/1/97	2.31
FCP-3 Surf. Water	FERRY CREEK	SURFACE WATER	NA	5.51	3.32	TIC	12/1/97	2.19
MW-213B	MINOR AND BURR	BEDROCK	22.81	23.13	20.28	TIC	12/1/97	2.53
MW-213S	MINOR AND BURR	SHALLOW	22.78	23.13	20.20	TIC	12/1/97	2.58
MW-101D	MORGAN FRANCIS	DEEP	10.56	10 71	8.27	TIC	12/1/97	2.29
MW-101M	MORGAN FRANCIS	INTERMEDIATE	11.21	11.36	9.04	TIC	12/1/97	2.17
MW-101S	MORGAN FRANCIS	SHALLOW	10.51	10 61	6 68	TIC	12/1/97	3.83
MW-102D	MORGAN FRANCIS	DEEP	11.80	12.05	9.24	TIC	12/1/97	2.56
MW-102M	MORGAN FRANCIS	INTERMEDIATE	11 30	11 73	7 99	TIC	12/1/97	3.31
MW-102S	MORGAN FRANCIS	SHALLOW	11 40	11.74	6.92	TIC	12/1/97	4.48
MW-103D	MORGAN FRANCIS	DEEP	15 42	15.59	15.13	TIC	12/1/97	0.29
MW-103M	MORGAN FRANCIS	INTERMEDIATE	15.02	15.13	12.73	TIC	12/1/97	2.29
MW-104D	MORGAN FRANCIS	DEEP	11 03	11.2	9.07	TIC	12/1/97	1.96
MW-104M	MORGAN FRANCIS	INTERMEDIATE	11.44	11.56	9.36	TIC	12/1/97	2.08
MW-104S	MORGAN FRANCIS	SHALLOW	10.99	10.99	7.02	TIC	12/1/97	3.97
PC-01B	RAYMARK FACILITY	BEDROCK	18.79	NA	15.25	TIC	12/1/97	3.54
PC-01D	RAYMARK FACILITY	DEEP	18.76	NA	15.17	TIC	12/1/97	3.59
PC-01M	RAYMARK FACILITY	INTERMEDIATE	18.69	NA	15.15	TIC	12/1/97	3 54
PC-01S	RAYMARK FACILITY	SHALLOW	18.81	NA	15 20	TIC	12/1/97	3.61
PC-02B	RAYMARK FACILITY	BEDROCK	15.20	NA	12.33	TIC	12/1/97	2.87
PC-02D	RAYMARK FACILITY	DEEP	15.10	NA	11 88	TIC	12/1/97	3.22
PC-02M	RAYMARK FACILITY	INTERMEDIATE	15 15	NA	11 87	TIC	12/1/97	3.28
PC-02S	RAYMARK FACILITY	SHALLOW	15.07	NA	11.82	TIC	12/1/97	3.25
PC-03B	RAYMARK FACILITY	BEDROCK	22.22	NA	18.70	TIC	12/1/97	3.52
PC-03D	RAYMARK FACILITY	DEEP	22.22	NA	18.63	TIC	12/1/97	3.59
PC-03S	RAYMARK FACILITY	SHALLOW	22.21	NA	18.62	TIC	12/1/97	3.59
PC-04B	RAYMARK FACILITY	BEDROCK	13.88	NA	10.43	TIC	12/1/97	3 45
PC-04D	RAYMARK FACILITY	DEEP	14 09	NA	10 49	TIC	12/1/97	3.60
PC-04S	RAYMARK FACILITY	SHALLOW	14.08	NA	10.49	TIC	12/1/97	3.59
PC-05B	RAYMARK FACILITY	BEDROCK	20.64	NA	17 17	TIC	12/1/97	3 47
PC-05D	RAYMARK FACILITY	DEEP	20.60	NA	17.00	TIC	12/1/97	3 60
PC-05M	RAYMARK FACILITY	INTERMEDIATE	20.63	NA	16.98	TIC	12/1/97	3.65
PC-05S	RAYMARK FACILITY	SHALLOW	20.49	NA	16.70	TIC	12/1/97	3.79
PC-06B	RAYMARK FACILITY	BEDROCK	17.41	NA	13.91	TIC	12/1/97	3 50
PC-06D	RAYMARK FACILITY	DEEP	17.52	NA	13.91	TIC	12/1/97	3.61
PC-06M	RAYMARK FACILITY	INTERMEDIATE	17.48	NA	13.80	TIC	12/1/97	3 68
PC-06S	RAYMARK FACILITY	SHALLOW	17.43	NA	13.63	TIC	12/1/97	3 80
PC-07S	RAYMARK FACILITY	SHALLOW	22.60	NA	18.97	TIC	12/1/97	3.63
PC-08B	RAYMARK FACILITY	BEDROCK	19.22	NA	13.09	TIC	12/1/97	6.13
PC-08D	RAYMARK FACILITY	DEEP	19.31	NA	15.98	TIC	12/1/97	3.33
PC-08S	RAYMARK FACILITY	SHALLOW	19.22	NA	15.88	TIC	12/1/97	3 34
PC-09D	RAYMARK FACILITY	DEEP	19 41	NA	16.18	TIC	12/1/97	3.23
PC-09S	RAYMARK FACILITY	SHALLOW	19.49	NA	16 22	TIC	12/1/97	3.27
PC-10B	RAYMARK FACILITY	BEDROCK	20.73	NA	16 90	TIC	12/1/97	3.83
PC-10D	RAYMARK FACILITY	DEEP	20.73	NA	16 68	TIC	12/1/97	4 05
PC-10M	RAYMARK FACILITY	INTERMEDIATE	20.71	NA	16.70	TIC	12/1/97	4 01
PC-10S	RAYMARK FACILITY	SHALLOW	20.72	NA	16.61	TIC	12/1/97	4 11
PC-11B	RAYMARK FACILITY	BEDROCK	22.51	NA	18.82	TIC	12/1/97	3.69
PC-11D	RAYMARK FACILITY	DEEP	22.41	NA	18.91	TIC	12/1/97	3.50
PC-11M	RAYMARK FACILITY	INTERMEDIATE	22.46	NA	18 89	TIC	12/1/97	3.57

Notes:
ft = Feet
NGVD=National Geodetic Vertical Datum
NAD=North American Datum
TIC=Top of Inner Casing
TPC=Top of Protective Casing
NA=Not Available

TABLE 2-2
GROUNDWATER ELEVATION SUMMARY
OPERABLE UNIT 2
RAYMARK SUPERFUND SITE
STRATFORD, CONNECTICUT
PAGE 3 OF 3

WELL IDENTIFIER	PROPERTY	AQUIFER	TOP OF INNER CASING ELEVATION (ft-NGVD 29)	TOP OF PROTECTIVE CASING ELEVATION (ft-NGVD 29)	DEPTH TO GROUNDWATER BELOW MONITORING POINT (ft.)	MONITORING POINT	WATER LEVEL MEASUREMENT DATE	GROUND WATER ELEVATION (ft-NGVD 29)
PC-11S	RAYMARK FACILITY	SHALLOW	22.43	NA	18.99	TIC	12/1/97	3.44
PC-12B	RAYMARK FACILITY	BEDROCK	21 72	NA	18 47	TIC	12/1/97	3.25
PC-12D	RAYMARK FACILITY	DEEP	21 78	NA	18 62	TIC	12/1/97	3.16
PC-12S	RAYMARK FACILITY	SHALLOW	21.72	NA	18 54	TIC	12/1/97	3 18
PC-13B	RAYMARK FACILITY	BEDROCK	19.21	NA	14 87	TIC	12/1/97	4 34
PC-13D	RAYMARK FACILITY	DEEP	19 13	NA	14 82	TIC	12/1/97	4 31
PC-13M	RAYMARK FACILITY	INTERMEDIATE	19 28	NA	14 90	TIC	12/1/97	4 38
PC-13S	RAYMARK FACILITY	SHALLOW	19.30	NA	14.95	TIC	12/1/97	4.35
PC-14B	RAYMARK FACILITY	BEDROCK	24.84	NA	20.48	TIC	12/1/97	4.36
PC-14D	RAYMARK FACILITY	DEEP	24.55	NA	21 16	TIC	12/1/97	3.39
PC-14S	RAYMARK FACILITY	SHALLOW	24.64	NA	20.74	TIC	12/1/97	3 90
PC-15B	RAYMARK FACILITY	BEDROCK	23.74	NA	20.01	TIC	12/1/97	3 73
PC-15D	RAYMARK FACILITY	DEEP	23.71	NA	19 94	TIC	12/1/97	3.77
PC-15S	RAYMARK FACILITY	SHALLOW	23.64	NA	19 39	TIC	12/1/97	4 25
PC-16B	RAYMARK FACILITY	BEDROCK	27 20	NA	22.68	TIC	12/1/97	4.52
PC-16D	RAYMARK FACILITY	DEEP	27.20	NA	22.78	TIC	12/1/97	4.42
PC-16M	RAYMARK FACILITY	INTERMEDIATE	27 24	NA	22.80	TIC	12/1/97	4.44
PC-16S	RAYMARK FACILITY	SHALLOW	27.17	NA	22.58	TIC	12/1/97	4.59
MW-208D	STRAT. SHOP CENTER	DEEP	23.71	23.95	19.16	TIC	12/1/97	4 55
MW-208M	STRAT. SHOP. CENTER	INTERMEDIATE	23.53	23.73	18 99	TIC	12/1/97	4 54
MW-208S	STRAT. SHOP. CENTER	SHALLOW	23 75	23 95	19 12	TIC	12/1/97	4.63
MW-209B	STRAT. SHOP. CENTER	BEDROCK	12 07	12 25	7 80	TIC	12/1/97	4.27
MW-209D	STRAT. SHOP CENTER	DEEP	12.01	12 28	7 75	TIC	12/1/97	4.26
MW-209S	STRAT. SHOP CENTER	SHALLOW	12.25	12.62	6 34	TIC	12/1/97	5.91
MW-210D	STRAT. SHOP CENTER	DEEP	10.06	10.34	7 66	TIC	12/1/97	2.40
MW-210S	STRAT. SHOP CENTER	SHALLOW	10 05	10 34	7 69	TIC	12/1/97	2.36
CRA-1D	SYNTHETIC PROD.	INTERMEDIATE	10 88	NA	NA	NA	NA	NA
CRA-1S	SYNTHETIC PROD.	SHALLOW	10.84	NA	NA	NA	NA	NA
CRA-2D	SYNTHETIC PROD	INTERMEDIATE	10 98	11 32	7 83	TIC	12/1/97	3.15
CRA-2S	SYNTHETIC PROD	SHALLOW	10.98	11 33	7 85	TIC	12/1/97	3.13
CRA-3	SYNTHETIC PROD	SHALLOW	7 43	NA	NA	NA	NA	NA
CRA-4D	SYNTHETIC PROD	INTERMEDIATE	8 58	8 88	5 53	TIC	12/1/97	3 05
CRA-4S	SYNTHETIC PROD	SHALLOW	8 59	8 96	5 54	TIC	12/1/97	3 05
CRA-5D	SYNTHETIC PROD.	INTERMEDIATE	9 44	9.79	6 46	TIC	12/1/97	2.98
CRA-5S	SYNTHETIC PROD	SHALLOW	9 50	9 78	6 43	TIC	12/1/97	3 07
CRA-6D	SYNTHETIC PROD	INTERMEDIATE	9 77	10 16	6 91	TIC	12/1/97	2.86
CRA-6S	SYNTHETIC PROD.	SHALLOW	9 97	10.24	7 02	TIC	12/1/97	2.95
CRA-8	SYNTHETIC PROD.	SHALLOW	12.50	12 98	9.39	TIC	12/1/97	3 11
MW-1B	THE DOCK	BEDROCK	16 17	16 62	12.99	TIC	12/1/97	3.18
MW-1M	THE DOCK	INTERMEDIATE	16.01	16 36	12 51	TIC	12/1/97	3.50
MW-1S	THE DOCK	SHALLOW	16 33	16 57	12.83	TIC	12/1/97	3.50
MW-2S	THE DOCK	SHALLOW	17 11	17.38	13 60	TIC	12/1/97	3.51
MW-3S	THE DOCK	SHALLOW	16.02	16.36	12.55	TIC	12/1/97	3.47
MW-4B	THE DOCK	BEDROCK	14.31	14 63	10.95	TIC	12/1/97	3.36
MW-4M	THE DOCK	INTERMEDIATE	14.38	14.62	10 83	TIC	12/1/97	3.55
MW-4S	THE DOCK	SHALLOW	14 34	14 71	10 80	TIC	12/1/97	3.54

Notes:
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NA=Not Available

2.2.1 Soil Sampling

Soil samples were collected during the advancement of the deepest soil boring at each single or cluster location. At each sample location, soil was extruded from the vibrasonic rig sampler unit into 5-foot long polyethylene bags/sleeves. The sleeve was transferred to a flat work area and VOCs were measured at 0.5 foot intervals by a PID probe inserted into the plastic sleeves. Thirty-one soil samples were collected and sent off for rapid turnaround VOC screening. The target VOCs were: vinyl chloride; 1,1-dichloroethene; 1,1-dichloroethane; 1,2-dichloroethene (total); 1,2-dichloroethane; 1,1,1-trichloroethane; trichloroethene; benzene; tetrachloroethene; toluene; chlorobenzene; ethylbenzene; and xylenes (total).

If the field PID readings were greater than 10 ppm in the vicinity of the bedrock, then approximately 20 feet of the bedrock was drilled and a monitoring well was installed. If PID readings were less than 10 ppm, then a deep overburden well was installed just above the bedrock. All soil samples were obtained from the deepest boring; no samples were obtained from the shallow or intermediate well locations. These soil descriptions and PID readings were used as a tool for determining the location and length of the well screen. Samples were generally taken in areas where high PID readings were found.

In addition, samples were collected for grain size analysis, both sieve analysis, and hydration. Samples for total organic carbon analysis were collected from the upgradient boring.

2.2.2 Vibrasonic Drilling

The 8-inch monitoring wells were installed using the vibrasonic drill rig. After drilling, a two-inch schedule 40 PVC well was installed with the appropriate slotted well screen. The well screen slot sizes were 0.006, 0.010, and 0.020 inches. The screen location was based on an analysis of the soil samples collected in the field during advancement of the boring and VOC headspace results. Well screen length was 5- to 25-feet long. All waste

derived from the field work was transported to a central field location and drummed or tanked for disposal off site by another contractor.

2.2.3 Groundwater Sampling

Groundwater samples were collected from the newly installed monitoring wells, and other wells in the surrounding area that were identified as useful and pertinent to this investigation. Samples were collected using a low-stress methodology. Samples were analyzed for: VOCs, SVOCs, pesticides/PCBs, metals (lead and copper), sulfate, chloride, total alkalinity, and nitrate/nitrite. In addition, the water level, pH, temperature, specific conductance, dissolved oxygen, salinity, turbidity, and pumping rate in each monitoring well was recorded.

2.3 Piezometer Installation

A field modification was made to include the installation of three piezometers in Ferry Creek. This change was made because, as a result of groundwater sampling, it appears that the Raymark Facility contamination may be discharging into Ferry Creek. In addition, piezometers were installed to measure the creek water level to evaluate tidal impacts. Samples of stream water were initially obtained and screened for VOCs. Subsequent samples were obtained during the groundwater sampling of the monitoring wells. Samples were analyzed for VOCs, SVOCs, pesticides/PCBs, metals, sulfate, chloride, alkalinity, and nitrate/nitrite.

2.4 Topographic Survey

A well location and elevation topographic survey was conducted to locate the monitoring wells and drive points sampled during the field effort and to produce this technical memorandum. The horizontal control was tied into the USGS - National Geodetic Survey 1927 datum. The vertical control was established using the USGS - National Geodetic Survey 1929 vertical datum.

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

This section summarizes the physical characteristics of the study area and region in which the study area is situated. The surface features and land uses are described in Section 3.1. Discussions of related geology, hydrogeology, surface water hydrology, and meteorology are presented in Sections 3.2 through 3.5, respectively.

3.1 Surface Features and Land Use

The study area is part of the Housatonic River basin, a tidally influenced system. The study area encompasses the groundwater under the Raymark Facility, and the surrounding commercial and residential properties. The study area is typically bordered by residential or commercial properties, highways or streets, or by water bodies such as Ferry Creek or the Housatonic River.

The lower reaches of Ferry Creek and the Housatonic River are used for recreational fishing and boating. The mouth of the Housatonic River is considered to be a recreational fishery and a potential source of human food-chain organisms. Coastal waterways are assumed to support various recreational activities, as well as recreational and commercial fishing. The lower Housatonic River, near the mouth of Ferry Creek, contains important commercial seed beds for oyster cultivation. EPA representatives have observed people crabbing from the Ferry Creek flood control barrier located on Broad Street.

The topography of the study area is relatively flat. Based on a review of USGS topographic maps, the majority of the study area lies at topographic elevations at, or below approximately 10 feet National Geodetic Vertical Datum (NGVD).

The entire study area is located within the 100-year floodplain, as indicated on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for Stratford, Connecticut (FEMA, 1992) and as presented in the U.S. Army Corps of Engineers Hydrologic Evaluation of the study area. The 100-year frequency base flood elevation is

10.1 feet NGVD; the 10-year frequency flood elevation is 8.5 feet NGVD (USACE, 1998, Hydrologic Evaluation of Areas of Concern Report)

State- or federally-listed threatened species reported to exist in the vicinity of the study area include the Least Tern, the Atlantic Sturgeon, and occasional transient Bald Eagles and Peregrine Falcons (NOAA, 1998; CTDEP, 1997; USDOI, 1997).

The principal industries within the Stratford community include manufacturing of aircraft, air conditioning, chemicals, plastic, paper, rubber goods, electrical and machine parts, and toys. The Stratford Town Clerk reported the latest (1997) estimate for the population of the Town of Stratford as 47,230 people within the 19.9 square miles (12,736 acres) of the town. This is a decrease from the last census in 1990, when the population was listed as 49,389.

3.2 Regional Geology

This section provides a brief description of the geology of the region, as well as that of the study area. Additional detailed geologic data is being developed by the USGS for inclusion in the future OU2 RI (Groundwater).

3.2.1 Regional Surficial Geology

The Raymark Facility is located within the lower Housatonic River Basin. Surficial geology within the lower Housatonic River Basin has been shaped by glaciation. The two most recent periods of glaciation, which moved to the south and then to the southwest, are responsible for shaping the bedrock morphology (Flint, 1968). During the last deglaciation, the glaciers deposited a thin mantle of till overlying bedrock. The till consists of a non-stratified, non-sorted deposit of rock particles that varies in size from clay to boulder. The thickness of the till varies from 0 to 200 feet.

In the lower Housatonic River Basin, the median till thickness is 30 feet (Wilson et al., 1974). Till is commonly exposed in areas of relatively high elevation, and is generally covered by sediments of post-till age within the valleys. The most volumetrically important of the post-till sediments is stratified drift. Stratified drift consists of layers of sand and gravel with lesser amounts of silt and clay deposited by glacial meltwaters. Stratified drift covers 16 percent of the area of the lower Housatonic River Basin, and generally occurs as narrow belts in stream valleys and lowlands (Wilson et al., 1974).

Swamp and marsh deposits are present in lowlands and in proximity to the Housatonic River. Swamp and marsh deposits consist of silt, sand, and clay-sized particles interbedded with organic fragments and peat deposits up to 10 feet thick. Swamp and marsh deposits, where present, commonly overlie stratified drift. Due to the practice of filling in lowland areas (see discussion below), fine grained swamp and marsh deposits, including peat, are commonly found underlying fill deposits.

3.2.2 Regional Bedrock Geology

The summary of the bedrock geology presented in this technical memorandum is based on referenced geologic maps and the review of boring logs for 11 borings that were cored into bedrock or were advanced to the top of bedrock in or near portions of the study area. Six of these borings were cored into bedrock to confirm the depth to bedrock, and to provide rock core for evaluation and description; five borings were advanced to the top of bedrock, however coring was not conducted to confirm bedrock depths at these locations. Eight of the eleven borings were advanced during the HNUS Phase I Remedial Investigation (HNUS, 1995). Three additional bedrock borings were advanced by B&RE in September and October 1997. The borings with bedrock information are located only in the southern and northeastern portion of the study area on properties surrounding Ferry Creek.

The study area is located in the Connecticut Valley Synclinorium of Connecticut's Western Uplands, according to the "Bedrock Geological Map of Connecticut" (CT GNHS, 1985). The regional bedrock setting consists of a series of meta-sedimentary and meta-volcanic

rocks of the Early and Middle Paleozoic Age, generally foliated, with foliation trending northeast-southwest, in a large syncline. These rocks are mainly schists, gneisses, and granites. The sequence was tightly folded and subjected to progressive regional metamorphism, ranging from chlorite to kyanite grade. A high angle fault is mapped approximately 1 mile to the southeast of the study area, across the Housatonic River, generally trending southwest to northeast (CT GNHS, 1985). The implication of this fault and any related splay faulting to local geology and contaminant transport is not within the scope of work for this technical memorandum.

Bedrock underlying the study area is mapped as the Derby Hill Schist, a mainly medium- to fine-grained, thinly laminated, greenish-gray to medium dark-gray chloritic muscovite schist, which is Lower to Middle Ordovician in age. This rock type is composed mainly of quartz, muscovite, chlorite, and sodium plagioclase, with accessory minerals (Fritts, 1965). The boring logs from investigations by HNUS/B&RE within the study area typically describe the observed rock core as a foliated, quartz-rich, chlorite-mica-schist, which is medium- to coarse-grained, and usually green or gray. In some coring runs, high angle schistosity was observed to be common; weathered vertical fractures were also noted.

3.3 Hydrogeology

The following sections present an overview of the regional and site hydrogeology; a more detailed discussion of the study area-specific hydrogeology will be presented in the OU2 RI. See Figure 3-1 (in Appendix B) to identify the Raymark Facility and the surrounding study area.

One hundred fifty-three monitoring wells located on the Raymark Facility and the surrounding study area were involved in this investigation. Monitoring well locations are shown on Figure 3-1. Sixty-one of these monitoring wells were pre-existing. Thirty-two monitoring wells and three piezometers were installed by B&RE in conjunction with this investigation. Four monitoring wells were installed on the "Dock Property" by AKRF Inc. in 1997. Fifty-three monitoring wells were installed on the Raymark Facility by Foster

Wheeler Corporation in 1997. The location of each of these monitoring wells was surveyed by B&RE and entered into the B&RE database. This survey information and all available well construction details (including the associated consultant) for each monitoring well are presented in Table 2-1.

On December 1, 1997, B&RE personnel measured water levels within the 153 monitoring wells selected for use in this investigation to obtain a synoptic measurement of the groundwater elevations. These monitoring wells included 25 wells screened within bedrock (bedrock wells), 57 wells screened across the water table (shallow overburden wells), 36 wells screened within the deep overburden (deep overburden wells), and 35 wells screened across intermediate levels of the overburden (intermediate overburden wells). Water level elevations were subsequently calculated and are presented in Table 2-2.

3.3.1 Groundwater Classification and Water Supply

Groundwater within and surrounding the study area has been classified as GB (unsuitable for drinking without treatment) by CT DEP. The Town of Stratford public drinking water is supplied primarily by the Bridgeport Hydraulic Company. The source of the public drinking water is Trapp Falls Reservoir in Chilton, Connecticut, located approximately 5 miles north of the study area. There are no known public water supply sources within a 4-mile radius of the Raymark Facility (Roy F. Weston, Inc., 1993). The remainder of the drinking water is supplied by private drinking water wells within Stratford. An estimated 1 to 2 percent of the population within 3 miles of the site may use private groundwater supply wells (Roy F. Weston, Inc., 1993). These locations, however, have been determined to be up-gradient of the Raymark Facility and are not likely to be affected by contamination derived from the Raymark Facility (Hill, 1993).

3.3.2 Regional Hydrogeology

Regional hydrogeologic units consist of unconsolidated overburden deposits, including till, stratified outwash, swamp and marsh deposits, and an upper fractured bedrock unit. The nature of these units is presented in Section 3.2. Regional groundwater flow is generally toward the Housatonic River (HNUS 1995). The USGS has been tasked by EPA to prepare a detailed geologic and hydrogeologic evaluation, and the results of their work will be presented in a separate document at a future date.

Groundwater in the vicinity of the Raymark Facility has been divided into two hydrostratigraphic units: the overburden and bedrock aquifers. The overburden aquifer can be further subdivided according to lithological variations within the unconsolidated deposits.

3.3.2.1 Regional Overburden Aquifer

The overburden aquifer consists of the following unconsolidated deposits in the region:

Glacial till, deposited by glacier ice, is variable in thickness, forming a discontinuous mantle over bedrock. The till consists of a non-stratified, poorly sorted mixture of coarse (pebbles/cobbles/boulders) and fine (sand/silt/clay) fractions, with the coarse fraction generally not exceeding 20 percent. The glacial till is usually very dense, and commonly has low to very low hydraulic conductivity. Till often lies directly on the bedrock surface, but is discontinuous and absent in many areas.

Ice-contact stratified drift includes sand, gravel, silt, and clay, frequently poorly sorted with abrupt changes in grain size. These deposits were made in streams and local ephemeral lakes in close relation to melting glacier ice, and often grade into outwash sediments. Ice-contact stratified drift deposits are dense to medium dense, and usually less dense than the till. The stratified drift usually has hydraulic conductivities that range

in the moderate to high range, although discontinuous layers of finer grained silts and sandy silts with lower hydraulic conductivities frequently occur throughout the drift.

Glacial outwash deposits are predominant in the stream valleys, and consist of highly stratified sand, silty sand, and gravelly sand. Beds are not persistent, and individual lenses attain thicknesses of tens of feet, and thin out or are truncated over short distances. Outwash units in the vicinity of the study area generally consist primarily of sands with up to 50 percent gravel, grading up-valley (northward). Glacial outwash deposits usually are medium dense, and less dense than the till. Glacial outwash usually has high to moderate hydraulic conductivities, with occasional layers of finer grained silts and sandy silts with lower hydraulic conductivities.

Swamp and marsh deposits are present in lowlands and in proximity to the Housatonic River. Tidal marshes are also present in this area. Swamp and marsh deposits consist of silt, sand, and clay-sized particles interbedded with organic fragments and peat deposits. Due to the practice of filling in lowland areas, fine-grained swamp and marsh deposits, including peat, are commonly found underlying fill deposits. The oldest marshes in the western coastal area of Connecticut (2,000 to 4,000 years old) have peat deposits of approximately 10 feet. The marsh and swamp deposits have a highly variable range of hydraulic conductivities, with peat, sands and predominately organic layers having the high to moderate hydraulic conductivities, and the silts and organic silts having low to very low conductivities.

Fill and Raymark soil-wastes that occur in large areas of lowlands in Stratford were filled (deposits made by human activity) as part of property development, and road and railroad construction activities. Fill frequently included various manufacturing and/or construction debris. In general, fill consists of silty sand, gravel, and top soil, with or without artificial debris intermixed. In densely populated areas, fill frequently underlies lawns, driveways, and streets. Some of the fill previously deposited in Stratford consisted of by-products from the process operations at the Raymark Facility. The by-product fill, otherwise known as Raymark soil-waste, is considered to be a source of hazardous materials in the study

area. The fill and Raymark soil-wastes are estimated to have high to moderate hydraulic conductivities.

Based on the subsurface geology, the overburden aquifer was divided into the stratified drift aquifer and the till aquifer in the water resources investigation conducted by Wilson et al., 1974. On a regional basis, the stratified drift aquifer consists of the "ice-contact stratified drift" and "glacial outwash deposits" described above, and is volumetrically the most important aquifer in terms of water supply. As stated in Section 3.3.1, the overburden aquifer is not reported to be used for drinking water within a 4-mile radius of the Raymark Facility.

Within the lower Housatonic River Basin, the thickness of the stratified drift aquifer varies from about 10 feet in many small valleys to 200 feet within larger valleys. The boundaries of the stratified drift aquifer generally consist of underlying till and/or bedrock and, occasionally, overlying peat deposits, which can locally serve as confining layers. Estimated values for the transmissivity of the stratified drift aquifer within the lower Housatonic River Basin range from 2,700 ft^2/day in headwater areas, small valleys, and along the margins of larger valleys to 20,000 ft^2/day in parts of the Naugatuck and Housatonic River valleys (Wilson et al. 1974).

The till aquifer reaches a thickness of 200 feet within the lower Housatonic River Basin. The median till thickness in 240 bedrock wells within the lower Housatonic River compiled in a previous study (Wilson et al. 1974), however, was only 30 feet. The absence of stratification and sorting gives the till aquifer its characteristic low hydraulic conductivity and limits the use of this aquifer as a water source.

The primary source of recharge to the overburden aquifer is through the infiltration of precipitation. Between 1931 and 1960, annual precipitation on the lower Housatonic River Basin ranged from 33 inches to 64 inches and averaged 47 inches (U.S. Weather Bureau, 1958 and 1964). Approximately half of this precipitation returns to the atmosphere by evapotranspiration (Wilson et al. 1974). The remainder is divided between

surface water runoff and infiltration. Surface infiltration is impeded throughout much of the study area because much of the area is paved, or under roof, with surface flow diverted through storm drains. Infiltration to the overburden aquifer on the former Raymark Facility has been reduced and/or eliminated by an impermeable cap installed on site during 1997.

3.3.2.2 Regional Bedrock Aquifer

The bedrock characteristics of the regional bedrock aquifer are discussed in Section 3.2. Two hundred ninety-four bedrock wells located within the lower Housatonic River Basin were studied by Wilson et al. (1974) to determine the range in yield of bedrock wells within the basin. Yields varied from less than 1 gallon per minute (gpm) to more than 20 gpm. The median yield in bedrock wells directly overlain by stratified drift was 7 gpm. Bedrock wells overlain by till, which has a lower hydraulic conductivity than stratified drift, had a median yield of only 5.5 gpm. This suggests a hydraulic connection exists between the overburden and bedrock within the basin, and that the hydraulic conductivity of the material overlying the bedrock has an effect on the amount of water available to a given bedrock well.

Primary porosity was largely removed from the sedimentary protolith of the bedrock of the lower Housatonic River Basin during lithification and metamorphosis. Groundwater flow in the bedrock, therefore, generally occurs within fractures (secondary porosity). The magnitude and direction of groundwater flow within bedrock depends on the size, spacing, connection, and orientation of fractures and/or faults within the bedrock. Specific information concerning the bedrock aquifer, such as the configuration of the potentiometric surface, aquifer thickness, flow directions, hydraulic gradients, hydraulic conductivity, and flow rates was not available at the time this technical memorandum was written. See Section 3.4.2 for specific hydrogeological information concerning the Raymark Facility itself.

3.3.3 Study Area Hydrogeology

This section presents the study area hydrogeology based on site-specific information collected by B&RE, Foster Wheeler Corporation, and other consultants. As in the regional discussion, groundwater underneath the Raymark Facility has been divided into two hydrostratigraphic units: the overburden and bedrock aquifers. The hydrogeology of the study area is complex because of the wide variety of unconsolidated units, the presence of fractured bedrock, and the local influence of surface water bodies, including the Housatonic River and Ferry Creek. Adding to the complexity is the fact that the Housatonic River and lower Ferry Creek are influenced by tidal fluctuations, in addition to the normal fluctuations that occur in streams and rivers. The presence of peat and silt deposits throughout the overburden adds further complexity to the interpretation of the hydrogeology. The EPA has tasked the USGS to evaluate, interpret, and provide a report on the geology and hydrogeology of the study area. Therefore, this discussion of the study area-specific hydrogeology provides only a summary of the information, and preliminary interpretations for the purpose of identifying the needs, if any, for further subsurface investigation, sampling, and analysis.

3.3.3.1 Study Area Overburden Aquifer

The study area is located in the Stratford outwash plain, on the western Housatonic River valley floor. The surficial deposits immediately underlying the study area are mapped as Stratford outwash sediments, artificial fill, i.e., fill and Raymark soil-wastes as defined in this memorandum, and swamp/marsh deposits (Flint, 1968).

Boring logs and well construction logs for these locations have been included in this report in Appendix A.

Borings logs from this, and previous investigations, indicate that the geology and unconsolidated deposits are consistent with that described for the region, and that the overburden immediately beneath the Raymark Facility consists of Raymark soil-waste fill

(composed primarily of asbestos fill and construction debris), ice-contact stratified drift, glacial till, and peat and swamp deposits (BCA, 1988; Raymark, 1991).

Stratified drift deposits consist of fine to coarse-grained sand with fine to medium-grained gravel with traces of clay. The thickness of the overburden materials ranges from 20 to 30 feet in the central portion of the Raymark Facility to greater than 90 feet in the northwest corner of the property. Till reaches an estimated thickness of 26 feet in the northwest corner of the property (BCA, 1988; Raymark, 1991). Additionally, a layer of peat up to 10 feet thick has been reported along the eastern portion of the Raymark Facility (Roy F. Weston 1993). No continuous gravel or clay layers have been reported beneath the Raymark Facility, but silt, clay, and silty peat layers have been observed within the study area. These may locally create confined conditions within the overburden aquifer.

Among the borings completed in conjunction with this study, significant silt/clay layers were intersected from 38 to 42 feet below ground surface (bgs) in soil boring 208 (associated with monitoring well MW-208D), and from 29 to 44 feet bgs in soil boring 211 (associated with MW-211B). Large peat deposits were observed from 10 to 15 feet bgs in soil boring 209 (associated with MW-209B).

The saturated thickness of the overburden aquifer varies from about 0 feet in the two areas shown on Figure 3-2 (Appendix B), to about 133 feet at MW-206B.

On December 1, 1997, water levels were measured in 57 shallow overburden wells to obtain a synoptic measurement of the water level conditions. These measurements were used to create Figure 3-2 (Appendix B), which contours the elevation of the water table throughout the study area. Two areas are shown on Figure 3-2 (Appendix B) where the base of the overburden, i.e., bedrock interface with the overburden, lies above the water table, and the overburden is unsaturated. One such area bounds the contours to the northwest. The other area of unsaturated overburden is the result of an apparent bedrock knob that occurs in the eastern portion of the site.

Figure 3-2 (Appendix B) indicates that groundwater in the shallow overburden generally flows to the east-southeast, with a trough in the water table centered around monitoring wells MW-212S, MW-215S, and MW-217S in the southern portion of the site. The trough is roughly coincidental with the location of the Ferry Creek drainage area, and the creek may be a local groundwater discharge area, thereby causing the trough. Figure 3-2 (Appendix B) suggests that a groundwater divide may exist to the west of MW-209S.

In general, flow in the shallow overburden is toward the Housatonic River. The extent of the river's influence on water levels cannot be specified, however, due to a lack of water level data directly adjacent to the Housatonic River. As a part of this investigation, B&RE installed three piezometers in Ferry Creek (FCP-1, FCP-2, and FCP-3). During the December 1, 1997 water level round, water levels were taken within these piezometers and in the surface water at the base of the piezometers (Table 2-2); the water level measurements show groundwater was discharging as base flow to Ferry Creek on that day.

Equipotential lines in Figure 3-2 (Appendix B) are more widely spaced in the northeast portions of the site than in the southwest portions of the site. Correspondingly, values for the hydraulic gradient in the northeast portions of the site range from 0.003 to 0.001, while the hydraulic gradient in the southwest portions of the site ranges from 0.004 to 0.013. A simple analysis utilizing Darcy's Law indicates that, for a given specific discharge, hydraulic gradient increases as a result of decreasing hydraulic conductivity and/or decreasing aquifer thickness (Domenico and Schwartz, 1990). This suggests that a zone of lower hydraulic conductivity and/or decreased saturated thickness may occur in the southwest portion of the study area. This is also the area where groundwater may be discharging to Ferry Creek, which would also influence the hydraulic gradient.

A more detailed analysis of the geometry of the overburden aquifer was not within the scope of this technical memorandum. This issue will be examined further in the RI, once the geological summary being completed by the USGS can be juxtaposed with these

hydrogeological observations. B&RE's brief examination of geological data noted that the zone of highest hydraulic gradient (0.013) occurs in the southern portion of the study area, in the vicinity of monitoring wells MW-101, MW-102, MW-111, MW-104, MW-208, MW-209S, and MW-210S. The high gradients may be due to the presence of overburden deposits with low hydraulic conductivities, such as the silty peat layer that occurred from 10 to 15 feet bgs in soil boring 209. MW-209S is screened from 5 to 13 feet bgs, within the silty peat layer.

Water levels were measured in 36 deep overburden wells on December 1, 1997. Deep overburden wells include those wells screened in the lower third of the overburden at a given location. These measurements were used to create Figure 3-3 (Appendix B), which contours the elevation of the potentiometric surface for the deep overburden throughout the study area. As in the previous figure, two areas of unsaturated overburden occur on site. One such area bounds the contours to the northwest. The other area of unsaturated overburden is the result of a bedrock knob that occurs in the eastern portion of the site. Groundwater flow in the deep overburden is generally similar to that of the shallow overburden. Groundwater generally flows toward the east-southeast or toward the Housatonic River. The horizontal hydraulic gradient ranges from 0.003 to 0.001 in the northeast portion of the study area and from 0.007 to 0.003 in the southwest portion of the study area. Again, this variation in hydraulic gradient is likely due to variations in hydraulic conductivity and/or aquifer thickness laterally across the study area.

Groundwater elevations within shallow overburden and deep overburden monitoring wells at the same well cluster location were compared to estimate groundwater flow conditions and roughly estimate the vertical hydraulic gradients across the study area. The Housatonic River and Ferry Creek are apparent groundwater discharge areas for the region and local area, and as such, water level differences between wells at different depths within the same cluster are difficult to interpret with respect to vertical hydraulic gradients; exact measurements over a period of time are required to accurately assess the vertical gradients.

Table 2-2 presents the groundwater elevation data taken on the December 1, 1997 synoptic round of measurement. In general, the vertical gradients were slightly downward, with total head differences between the shallow and deep overburden wells in a cluster being less than 0.10 feet, and with many less than 0.05 feet. This small difference in water level measured may fall within the margin of error for the measurement methods used. The only significant gradients measured were in the southwest portions of the study area, west of Ferry Creek at well clusters MW-101, MW-102, MW-104, and MW-109 where the differences in water levels between the shallow and deep overburden wells were on the order of 1.5 to 2.0 feet. Measurements recorded in the cluster at MW-110 produced the highest downward gradient, which was over 4 feet, however, this may have been an erroneous measurement, and it was not included as a data point for this evaluation. Further readings are required to determine the water level status in this cluster.

Slightly upward hydraulic gradients were detected in well clusters MW-207, MW-210, MW-212, PC-04, and PC-11; however, the differences in water levels between the shallow and deep wells in the clusters was less than 0.10 feet, and as stated above, may be within the margin of error of the measurement technique.

Upward vertical gradients were also measured between the shallow groundwater in the sediments beneath Ferry Creek, and the surface water levels, as indicated in the data for piezometers FCP-1, FCP-2, and FCP-3 in Table 2-2. The vertical upward gradient between the shallow aquifer and Ferry Creek is consistent with the interpretation that Ferry Creek is a local discharge area for groundwater, as indicated by the water table contours and the trough in those contours in the Ferry Creek drainage area, as shown on Figure 3-2 (Appendix B).

A review of previous studies in the study area shows that little data exist concerning the characteristics of the overburden (or bedrock) aquifer. Parameters such as transmissivity, storativity, and specific yield are not well understood across the study area. Hydraulic conductivity can be roughly approximated using boring log descriptions or applying Hazen's

method to appropriate grain-size analyses (Freeze and Cherry, 1979). Assuming the overburden is homogeneous with an effective porosity of 0.2 and a horizontal hydraulic conductivity of 10^{-4} m/s (typical for mixed sands and gravels such as stratified drift deposits), groundwater flow velocity varies from 0.14 to 1.85 feet per day within the shallow overburden and varies from 0.14 to 1.00 feet per day in the deep overburden.

3.3.3.2 Bedrock Aquifer

Bedrock underlying the study area is mapped as the Derby Hill Schist, a mainly medium- to fine-grained, thinly laminated, greenish-gray to medium dark-gray chloritic muscovite schist, which is Lower to Middle Ordovician in age. This rock type is composed mainly of quartz, muscovite, chlorite, and sodium plagioclase, with accessory minerals (Fritts, 1965). The boring logs from investigations by HNUS/B&RE within the study area typically describe the observed rock core as a foliated, quartz-rich, chlorite-mica-schist, which is medium- to coarse-grained, and usually green or gray. In some coring runs, high angle schistosity was observed to be common; weathered vertical fractures were also noted.

The elevation of the top of bedrock varies from a high of approximately 17.7 feet NGVD (13.5 feet bgs) at MW-216B, located in the northwest portion of the study area, to a low of approximately -129.4 feet NGVD (149.0 feet bgs) at MW-102D, located in the central portion of the study area. A "Bedrock Elevations" plan prepared by the Army Corps of Engineers TERC contractor, Foster Wheeler (no date) for the Raymark Facility shows that the bedrock surface varies significantly over short distances, and contains deep depressions and troughs. For example, several of the bedrock depressions and troughs beneath the Raymark facility are 30- to 40-feet deep when compared to the surrounding bedrock surfaces. The widely varying elevations in the bedrock surface make interpretation of the groundwater flow in the bedrock very difficult. Although there are numerous bedrock borings beneath the Raymark Facility that allow a detailed bedrock surface to be mapped, there is not enough data beyond the facility to accurately delineate the details of the bedrock surface.

The top of bedrock is overlain by overburden consisting of till in some areas, and by stratified drift in others. The overlying material is significant because the decreased hydraulic conductivity of the till deposits limit the hydraulic connection between the overburden and bedrock where till is present. EPA has tasked the USGS to prepare a representation of bedrock surface topography, and the lateral extent of till; these items are critical for interpreting the water level and groundwater flow characteristics beneath the study area. Geological constraints, such as depth to bedrock, presence/absence of till, etc., may shed light on the pattern of groundwater discharge into/from the bedrock into/from the overburden.

On December 1, 1997 a synoptic measurement of water levels was made in monitoring wells in the study area, including 25 bedrock wells. As stated above, detailed bedrock surface topography and additional bedrock monitoring wells are needed to accurately interpret the groundwater flow conditions within the bedrock; however, Figure 3-4 presents a preliminary interpretation of the potentiometric surface within the bedrock aquifer throughout the study area. Figure 3-4 (Appendix B) indicates that groundwater in the bedrock generally flows to the east-southeast, although there is a trough in the potentiometric surface centered around monitoring well MW-212B in the southern portion of the site. The trough likely indicates the presence of a transmissive zone within the bedrock aquifer, such as along a fault and/or fracture zone, which may serve as a conduit for the flow of contaminants within the bedrock. There are no significant groundwater divides indicated by Figure 3-4 (Appendix B), although there are ridges in the potentiometric surface of limited extent centered around monitoring well PC-15B, and around PC-03B and PC-01B.

Although less pronounced than in the overburden aquifer, the horizontal hydraulic gradient within the bedrock aquifer appears to be higher in the southwest portion of the site than in the northeast portion of the site. The hydraulic gradient varies from 0.003 to 0.008 across the southwest portion of the site and from 0.002 to 0.008 across the northeast portion of the site. Assuming groundwater flux is constant throughout the site, this indicates the

bedrock aquifer may have a slightly higher transmissivity in the northeast portion of the site than in the southwest portion.

Groundwater elevations within deep or intermediate overburden and bedrock monitoring wells at the same well cluster location were compared to determine the status of vertical hydraulic gradients between the overburden and the bedrock across the study area. The differences in water level measurements between the deep or intermediate overburden aquifers ranged from 0.01 feet to 2.8 feet, with most differences under 0.20 feet; 8 of the 23 clusters were under 0.10, which may be within the margin of error for the measurement methods that were used.

Vertical gradients were both upward and downward between the bedrock and the overburden aquifers, with 9 of the 23 clusters showing upward gradients, 8 of these had slightly higher water levels in the bedrock wells, and 1 (PC-08) showed a 2.8 foot higher water level in the bedrock well of the cluster. The clusters showing the upward hydraulic gradients are mainly beneath the boundaries of the former Raymark Facility.

Downward hydraulic gradients were measured throughout the area, with water level differences being less than 0.20 feet between the overburden and bedrock wells in a cluster, except for the MW-212 cluster, which had a 1.23 foot difference between the overburden and bedrock wells.

Hydraulic conductivity estimations for bedrock are difficult and open to numerous interpretations because bedrock conductivities occur through the fractures and joints in the rock, and not through a porous medium, such as sand. A discussion of the bedrock hydraulic conductivity will be presented in the RI.

3.3.4 Surface Water Hydrology

The study area is located in the Housatonic Main Stem Regional Drainage Basin. Long Island Sound receives the area's entire drainage, via the Housatonic River. Major surface

water features that lie wholly or partially within the study area include Ferry Creek, portions of the Housatonic River, and Selby Pond.

Ferry Creek, the Housatonic River, and Selby Pond are all tidally influenced. The Housatonic River is tidally influenced 11 miles upstream of the mouth of Ferry Creek, at the Derby Dam in Derby, Connecticut (Weston, 1993). Although tide gates are present at the Broad Street crossing of Ferry Creek, these gates are ineffective at preventing backwater from high tides from passing upstream into Ferry Creek, therefore, Ferry Creek is tidally influenced in the study area (USACE, 1998). Selby Pond is located approximately 550 feet south of Ferry Creek, and is assumed to exchange tidal flow with Ferry Creek through an open drainage channel that connects to a 12-inch internal diameter reinforced concrete pipe and tidal creek channel, which then connects with Ferry Creek, a tributary of the Housatonic River (HNUS, 1997a).

The Housatonic River is listed as Class SC/SB water, Coastal Marine Surface Waters, with an average discharge of 3,400 cubic feet per second at its mouth (Weston, 1993).

The study area is urban, and more than 60 percent covered with pavement or under roof, and local surface runoff is diverted to storm drains. The Raymark Facility was remediated with an impermeable cap, and surface runoff is diverted into storm drains.

3.4 METEOROLOGY

The local NOAA Climatological Station is located at the Bridgeport - Sikorsky Airport, approximately 2 miles from the study area. For more than 30 years, data from this station have been used to describe the climate in the area. A summary of these data is provided below.

The Town of Stratford, Fairfield County, Connecticut is located in a temperate-humid climate, characterized by highly changeable weather and large daily and annual temperature variations that are influenced by Long Island Sound and the Atlantic Ocean.

There are monthly, seasonal, and annual variations in temperature and wind, as well as precipitation, which is in the form of both rain and snow.

July is the warmest month, with an average temperature of 73.7 degrees F. Average wind speed and direction for the warmest months is 10.2 miles per hour (mph) to the southwest. The coldest month is January, with an average temperature of 28.9 degrees F. Average wind direction and speed for the colder portion of the year is 13.3 mph to the northwest. Normal annual precipitation for the area is 41.66 inches of rain, with a regular distribution throughout the year. Snow fall typically occurs between November and April, with a mean of 25 inches per year (NOAA, 1993).

4.0 NATURE AND EXTENT OF CONTAMINATION

This section details the type and existence of groundwater contamination under and downgradient of the Raymark Facility. Discussion focuses on the nature and extent of contamination of volatile organic compounds in the groundwater.

4.1 Nature and Extent of Groundwater Contamination

The nature and extent of groundwater contamination at the former Raymark Facility and in groundwater surrounding the facility are based on both field screening data and CLP data gathered from one round of groundwater sampling conducted in 1997. The field screening was conducted during August-September and groundwater sampling for CLP analysis was conducted in November-December. The field screening data were collected during the advancement of the direct push well points. These direct push well points were advanced at the site to assist in locating permanent groundwater monitoring wells. Therefore, the direct pushwell data are limited to VOCs and dissolved metals.

A correlation of the field screening and CLP VOC data was conducted. The results of this comparison indicated that the correlation coefficients were above 0.98. The comparison memo is presented in Appendix C. Based on the good correlation between the results of the screening and the CLP VOC analyses of groundwater samples, the field screening results were used to determine the extent of the contamination plume.

During the CLP analysis, many of the samples were diluted due to high concentrations of one or more contaminants. This dilution resulted in elevated quantification limits. For the purpose of this technical memorandum, an elevated quantification limit is assumed to be a VOC non-detected result above 10 ug/l; many quantification limits were as high as 15,000 ug/l (PC-02B for tetrachloroethene). In order to not skew the concentrations of contaminants upward, all non-detected results at quantitation limits above 10 ug/l were removed from the database.

Non-detected sample results that have reported limits of 10 and 5 ug/l were included in the database. A value equal to one half the quantitation limit, 5.0 and 2.5 ug/l, respectively, was used for non-detected compounds.

The high quantitation limits for non-detected VOCs arise the following problems: First, the range of contaminant concentrations indicated by the plume maps (to be presented in the following sections) probably represents minimum values. Elevated quantitation limit samples are typically at or adjacent to source areas. Excluding sample data non-detected results with elevated quantitation limits underestimates the range of contaminant concentrations because the plume map does not include all the VOCs present. Second, the maximum concentrations of contaminants of interest may not be represented on the plume maps.

The lateral and downgradient extent of the plume may be smaller than these data indicate, because the contaminant non-detected concentrations of 10 and 5 ug/l were set at 5 and 2.5 ug/l, respectively, resulting in a larger plume.

The results of these data analysis are presented below by contaminant.

4.1.1 Volatile Organic Compounds

The nature and extent of VOCs detected in groundwater during the 1997 sampling event are presented in the following subsections. The extent of contamination is based on the distribution of the following site-related contaminants:

- Tetrachloroethene (PCE)
- Trichloroethene (TCE)
- 1-1-1 Trichloroethane (TCA)
- Vinyl chloride
- Toluene

This list of contaminants was selected based on a review of the Raymark Facility analytical results. This technical memorandum only evaluates VOCs as the indicator of the groundwater plume. Other contaminants will be discussed in the RI report.

4.1.1.1 Tetrachloroethene (PCE)

Tetrachloroethene was reported as positive results in 40 out of the 331 groundwater samples analyzed. Almost half of the non-detected results for PCE (140 samples) are greater than 10 ug/l due to analytical limitations (high dilutions) caused by high concentrations of other VOCs. Data usability of the non-detected results is limited to quantitation limits below or equal to 10 ug/l (151 samples). Therefore, only 57.7 percent of the samples analyzed provided usable results.

The limited number of usable data points impacts the ability of this sampling event to fully characterize the nature and extent of PCE. Elevated PCE quantitation limits occurred at locations containing high concentrations of other VOCs, within the center of a contaminant plume, and/or at suspected source areas.

PCE concentrations in groundwater samples collected from the surficial aquifer ranged from 57J ug/l (DP8-1A-2934) to 0.8J ug/l (MW-112B) and concentrations in the upper bedrock ranged from 88J (PC-16B) to 1J ug/l (MW-203D). Tetrachloroethene concentrations are presented in Appendix C. The Connecticut Ground Water Protection Criteria of 5.0 ug/l, (Reference) was exceeded in 14 of the samples and 5 samples have PCE concentrations equal to the Groundwater Protection Criterion of 5.0 ug/l.

4.1.1.2 Trichloroethene (TCE)

Trichlorethene was reported as positive results in 159 out of the 331 groundwater samples analyzed. Most of the non-detected results for TCE (100 samples) are greater than 10 ug/l due to analytical limitations (high dilutions) caused by high concentrations of other VOCs. Data usability of the non-detected results is limited to quantitation limits

below or equal to 10 ug/l (72 samples). Therefore, 78.2 percent of the samples analyzed provided usable results for TCE.

The limited number of usable data points impacts the ability of this sampling event to fully characterize the nature and extent of TCE. Elevated TCE quantitation limits typically occurred at locations containing high concentrations of other VOCs within the center of a contaminant plume and/or at suspected source areas.

TCE concentrations in groundwater samples collected from the surficial aquifer ranged from 7,700J ug/l (PC-14D) to 3.0J ug/l (MW-217D) and concentrations in the upper bedrock ranged from 3,200 ug/l, (PC-12B) to 7.0J ug/l, (MW-1B). Trichloroethene concentrations are presented in Appendix C. The Connecticut Groundwater Protection Criterion of 5.0 ug/l, (Reference) was exceeded in 136 of the samples and 2 samples have TCE concentrations equal to the Groundwater Protection Criterion of 5.0 ug/l.

4.1.1.3 1-1-1 Trichloroethane (TCA)

1,1,1-Trichloroethane was reported as positive results in 168 out of the 331 groundwater samples analyzed. Forty-five of the non-detected results for TCA are greater than 10 ug/l due to analytical limitations (high dilutions) caused by high concentrations of other VOCs. Data usability of the non-detected results is limited to quantitation limits below or equal to 10 ug/l (118 samples). Therefore, 86.4 percent of the samples tested provided usable results.

The limited number of usable data points impacts the ability of this sampling event to fully characterize the nature and extent of TCA. Elevated TCA quantitation limits typically occurred at locations containing high concentrations of other VOCs, within the center of a contaminant plume, and/or at suspected source areas.

TCA concentrations in groundwater samples collected from the surficial aquifer ranged from 80,000 ug/l (PC-02D) to 0.7J ug/l, (MW-102M) and concentrations in the upper

bedrock ranged from 185,000 ug/l (PC-02B) to 1J ug/l, (PC-14B). Concentrations of 1-1-1 Trichloroethane are presented in Appendix C. The Connecticut Ground Water Protection Criterion of 200 ug/l, (Reference) was exceeded in 98 of the samples and 2 samples have concentrations equal to the Groundwater Protection Criterion of 200 ug/l.

4.1.1.4 Vinyl Chloride

Vinyl chloride was reported as positive results in 84 out of the 331 groundwater samples analyzed. Almost half of the non-detected results for vinyl chloride (120 samples) are greater than 10 ug/l due to analytical limitations (high dilutions) caused by high concentrations of other VOCs. Data usability of the non-detected results is limited to quantitation limits below or equal to 10 ug/l (127 samples). Therefore, 63.7 percent of the samples analyzed provided usable results.

The limited number of usable data points impacts the ability of this sampling event to fully characterize the nature and extent of the contaminants. Elevated vinyl chloride quantitation limits typically occurred at locations containing high concentrations of other VOCs, within the center of a contaminant plume, and/or at suspected source areas.

Vinyl chloride concentrations in groundwater samples collected from the surficial aquifer ranged from 680 ug/l (PC-14S) to 0.8J ug/l (MW-104M) and concentrations in the upper bedrock ranged from 97 ug/l ((PC-12B) to 1J ug/l (PC-03B). Vinyl chloride concentrations are presented in Appendix C. The Connecticut Groundwater Protection Criterion of 1.0 ug/l, (Reference) was exceeded in 79 of the samples and 4 samples have concentrations equal to the Groundwater Protection Criterion of 1.0 ug/l.

4.1.1.5 Toluene

Toluene results from three samples were rejected during data validation. Toluene was reported as positive results in 50 out of the 328 remainder groundwater samples analyzed. Almost half of the non-detected results for toluene (133 samples) are greater than 10 ug/l

due to analytical limitations (high dilutions) caused by high concentrations of other VOCs. Data usability of the non-detected results is limited to quantitation limits below or equal to 10 ug/l (145 samples). Therefore, 59.4 percent of the samples tested provided usable results.

The limited number of usable data points impacts the ability of this sampling event to fully characterize the nature and extent of the contaminants. Elevated toluene quantitation limits typically occurred at locations that contained high concentrations of other VOCs, within the center of a contaminant plume, and/or at suspected source areas.

Toluene concentrations in groundwater samples collected from the surficial aquifer ranged from 170,000 ug/l (PC-04S) to 1.1 ug/l, (AA-DPA3-2-2025) and concentrations in the upper bedrock ranged from 6J ug/l (MW-4B) to 3J ug/l, (PC-14B). Toluene concentrations are presented in Appendix C. The Connecticut Ground Water Protection Criterion of 1,000 ug/l, (Reference) was exceeded in seven of the samples.

4.1.1.6 Total VOCs

The extent of the groundwater contamination was estimated by using the total concentration of VOCs detected at each sampling location. These data include both the CLP and field screening data. This approach was used to help provide a more complete picture of the plume size and orientation given the limitations in the data caused by the detection limits. Analyzing the available data, it was determined that no single VOC was dominant throughout the study area. Most of the VOCs within the study area were also identified on the Raymark Facility.

The groundwater total VOC plume evaluation consists of preparing three horizontal slices. Slice No. 1 was constructed at elevation -20 NGVD, (1929), Slice No. 2 was constructed at elevation -60 NGVD, (1929), and Slice No. 3 was constructed at elevation -100 NGVD, (1929). The slices have been constructed in this manner until the surficial and bedrock geology sections are completed by the USGS. A limitation in selecting the location of the

slices based on elevation is that each slice contains data from both the overburden and bedrock aquifers. This is due to the high amount of bedrock relief, i.e. deep valley and shallow bedrock. This mixing of overburden and bedrock data points has to be kept in mind during the evaluation of the plume maps presented in this section. When the geology section for the RI report is completed, the plume maps will be updated using selected hydrostragraphic units.

Slice No. 1 (Elev. -20 ft)

The total VOC concentration plume for Slice No. 1 is presented on Figure 4-1 (Appendix B). Slice No. 1 consists mostly of overburden data points. The areas containing bedrock data points include the northeast boundary of the Raymark Facility and an area of elevated bedrock along Willow Avenue.

A review of Figure 4-1 (Appendix B) indicates that there are three total VOCs hot spots within the plume. The northern-most hot spot is located in the vicinity of the toluene spill (toluene concentration of 170,000 ug/l in monitoring well PC-04S) located in the northeast portion of the Raymark Facility. It should be mentioned here that the highest concentration represented graphically in Figure 4-1 (Appendix B) is much less that the reported concentration at PC-04S. This is because the elevation of the horizontal plume slice is below the elevation of the monitoring well PC-04S.

A second hot spot is located within the Raymark Facility property at its southwest corner. This hot spot is believed to be associated with lagoons 1, 2, and 3 or other activities at this portion of the site. Concentrations of total VOCs are lower compared to the northern plume. This may be related to the type of site activities and or the time when these activities occurred.

The third hot spot is located south of the Raymark Facility centered south of Interstate 95 in the vicinity of the intersection of Ferry Boulevard and Homestead Avenue. This hot spot is also believed to be associated, in part, with the Raymark Facility because the north

trailing edge extends onto the Raymark Facility. However, it is also possible that some of the contaminants detected in this hot spot may be associated with other sources.

Slice No. 1 was also compared to the water table map presented on Figure 3-2 (Appendix B). A comparison of these figures indicates that in general the shape of the plume and the hot spots is consistent with the suspected source areas and the general groundwater flow directions toward Ferry Creek. There are some areas that are anomalous, such as the western edge of the total VOC plume at the Stratford Shopping Center. This portion of the plume is cross gradient from the Raymark source area. The northern edge of the plume extends beyond the plume area expected based on the interpreted groundwater flow directions. The northwest edge of the plume extends upgradient and off the Raymark Facility.

Slice No. 2 (Elev. - 60 ft.)

The total VOC concentration plume for Slice No. 2 is presented on Figure 4-2 (Appendix B). Slice No. 2 consists mostly of bedrock data points. The areas containing overburden data points include the southern end of the plume near the intersection of Ferry Boulevard and Ferry Creek and the northern boundary of the Raymark Facility.

A review of Figure 4-2 (Appendix B) indicates that the plume area is somewhat smaller than the Slice No. 1 plume and that an elongated hot spot is located in the vicinity of the intersection of Ferry Boulevard and Interstate 95. This elongated hot spot is orientated roughly along a northeast to southwest line.

Slice No. 2 indicates a more diffuse plume compared to Slice No. 1 and extends further into the Ferry Creek area south of Ferry Boulevard. This plume appears to be somewhat larger at the 5,000 ug/l isoconcentration and a lower maximum concentration compared to Slice No. 1. This larger apparent area of 5,000 ug/l may be due to this slice being deeper in the aquifer system and therefore farther from the source areas. The farther from the source area, the greater the dilution of the dissolved contaminants. This interpretation of

the plume will have to be refined when the bedrock and overburden geology section for the RI has been completed.

Slice No. 2 was also compared to the deep overburden aquifer groundwater map presented on Figure 3-3 (Appendix B). A comparison of these figures indicates that in general the shape of the plume and the hot spot is consistent with the suspected source areas and the groundwater flow directions toward Ferry Creek. There are some areas that are anomalous, such as the western edge of the plume at the Stratford Shopping Center. This portion of the plume is cross gradient from the Raymark source area. The northern edge of the plume extends beyond the expected plume area based on the interpreted groundwater flow directions. The northwest edge of the plume extends upgradient and off the Raymark Facility.

Slice No. 3 (Elev. -100 ft)

The total VOC concentration plume for Slice No. 3 is presented on Figure 4-3 (Appendix B). Slice No. 3 consists mostly of bedrock data points. The areas containing overburden data points are limited to the southern end of the plume near the intersection of Ferry Boulevard and Ferry Creek.

A review of this figure indicates a large hot spot located in the vicinity of Lagoon No. 4. This hot spot extends west to the edge of the Raymark Facility and south where it approaches Interstate 95. The plume extends south of Interstate 95 and toward the intersection of Ferry Creek Boulevard and Ferry Creek.

A review of bedrock groundwater map, Figure 3-4 (Appendix B), indicates that the plume does in general follow the groundwater flow direction. One exception is the contaminants detected at the Stratford Shopping Center located west and cross gradient.

A comparison of the three slices indicates that, in general, the plumes' size decrease the deeper the plume. This interpretation should be used with caution because there are fewer

deep data points. This decrease in deep data points could play a role in the apparent decrease in the plume size with depth. This is especially true when it is realized that most of the bedrock data is limited to the upper portion of the bedrock.

4.1.2 Other Groundwater Contaminants

The extent of other groundwater contaminants, semi-volatile organic compounds, pesticides/PCBs, and metals will be discussed in the RI. This technical memorandum only evaluates total VOCs because these contaminants represent the largest database; VOCs are easily screened in the field and were used to determine the location of permanent groundwater monitoring wells. The groundwater analytical results for other contaminants are presented in Appendix C.

5.0 CONCLUSIONS AND RECOMMENDATIONS

This section presents the conclusions and recommendations for additional work. These conclusions and recommendations may be revised when the geology section has been completed by the USGS.

5.1 Conclusions

An evaluation of the overburden and bedrock geology is being prepared by the USGS for the RI. When this evaluation and presentation of the site-specific geologic conditions are completed, a more complete understanding of the nature and extent of the contaminants can be prepared. Using the geologic information, hydrostratigraphic units can be assigned and the groundwater flow system can be better evaluated and compared to the contaminant distribution.

Because the complete evaluation of the geologic conditions of the site is not yet available, the VOC data have been analyzed using a general approach, i.e. by evaluating horizontal slices through the site. This approach resulted in including chemical data from both the bedrock and overburden, which provides a general understanding of the nature and extent of the contaminants. The nature and extent of the contaminants will be revised based on the geologic data when those data are finally presented.

The groundwater conclusions that can be reached from currently available data are as follows:

- Groundwater, in general, flows south from the Raymark Facility toward the Spada Property and Ferry Creek, a potential groundwater discharge area.

- The VOC contaminants of concern have been released at the Raymark Facility under the OU1 RI.

- The contaminants of concern have also been released at other sites in the vicinity of the Raymark Facility.

- The exact concentration of the VOC contaminants has been masked, to some degree, by elevated quantitation limits caused by high concentrations of other VOCs.

- The extent and/or source of the contaminants upgradient of the Raymark Facility is not known. The cross-gradient extent and/or source of the contaminants at the northeast corner of the Raymark Facility (the Dock Property), and southwest of the Raymark Facility under the Stratford Shopping Center is not fully understood. These interpretations are applicable to both the overburden and bedrock aquifers in these areas.

- The hydraulic connection between groundwater and surface water has not been evaluated.

- The distribution of contaminants within both the overburden and bedrock aquifers needs to be refined when the geology section of the RI is completed. This refinement is expected to include dividing the overburden into units such as aquitards and aquifers.

5.2 Recommendations

It is recommended that additional work be conducted at the site. This proposed work will provide data to determine the maximum extent of the contaminants in both the overburden and bedrock aquifers.

The proposed additional work is presented below:

- A complete groundwater sampling round should be conducted. Analytical methods or multiple analysis should be selected that will produce lower quantitation limits for contaminants of interest. These alternate methods could be used at monitoring well locations where the current data indicate high concentrations of one or more VOCs.

- At least three monitoring well clusters should be installed between the Housatonic River and Ferry Boulevard south of the Dock property. These wells will provide groundwater elevations that can be used to supplement the existing groundwater monitoring network. The objective of these wells is to determine if the Housatonic River is a discharge or recharge point for groundwater within the study area.

- Additional groundwater monitoring well clusters, (at three locations) should be installed in the vicinity of the Stratford Shopping Center. These clusters should include both overburden and bedrock wells. At present, the source of the contaminants detected at the shopping center is not known. A review of the current groundwater maps and the VOC data does not provide an explanation for the source of these contaminants. These proposed well clusters would provide data to evaluate the nature and potential source or sources of these contaminants.

- The upgradient groundwater flow directions and contaminant distribution should be evaluated with a series of monitoring wells. Groundwater contaminants have been detected upgradient of the Raymark Facility at Contract Plating and along Frog Pond Road, located north of the toluene plume.

- A bedrock monitoring well should be installed on the Morgan Francis property. The current data indicate bedrock contaminants upgradient of the property and across Ferry Boulevard. These bedrock monitoring wells have total VOCs concentrations in the thousands of ppb range. The southern extent of these contaminants and the ultimate discharge point of the contaminants has to be determined. It is estimated that three monitoring well clusters need to be installed downgradient of the Morgan

Francis property and one bedrock well installed on the Morgan Francis property. After an evaluation of the data gathered from the proposed monitoring wells, the ultimate discharge point of the bedrock contaminants can be estimated and that location evaluated by installing groundwater monitoring wells.

- Hydraulic conductivity testing should be conducted at overburden and bedrock monitoring wells. These tests will provide data to be used in the hydrogeology section to aid in selecting hydrostratigraphic units.

- Short term, 12 hour, aquifer tests may be needed at selected locations. The objective of these tests is to determine the nature of the hydraulic connection between the bedrock and overburden aquifers. These tests should be conducted in areas that do and do not have till overlying the bedrock. The number and location of these tests should be determined when the geology section of the RI has been completed.

- A tidal influence study should be conducted using the proposed monitoring well clusters adjacent to the Housatonic River, select monitoring wells on the Spada property, and overburden and bedrock monitoring wells located on or in the vicinity of the Morgan Francis property. The objective of this study is to evaluate what influence changes in surface water elevation, caused by tidal fluctuation, have on groundwater flow directions and rate. A tidal study will also provide data to evaluate the hydraulic connection between the groundwater and surface water bodies. The tidal influence study should include monitoring the surface water elevation in Ferry Creek, the Housatonic River, and Long Island Sound.

- The actual number and location of the proposed monitoring wells presented here should be refined when the USGS has completed evaluating site-specific geologic conditions. When the site-specific geologic conditions have been evaluated, a more complete and precise evaluation of the groundwater flow directions and

contaminant transport can be performed. This evaluation should be performed before monitoring well locations are selected.

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APPENDIX A
BORING AND WELL CONSTRUCTION LOGS

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 206M
START DATE: 6-22-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
0							Grass Surface			
	0.0	5.5/10	0830 S-1			DK Brown	(f) SAND <20% some silt, <20% some organics, <3% trace clay	SP	topsoil	
2	0.0					LT Grey	(f) SAND, <20% some angular (f) gravel, <5% trace silt	SP		
	0.0									
	0.0					Lt Gray	Silt			
4	0.0									
	0.0									
	1.4									
	6.0									
6						PK Brown	- some <30% silt			
						Yellowish Orange	(f) SAND <20% some (f-c) gravel (angular to			
8							rounded, <3" diam), trace <3% silt			
10										
	0.0	9/10	0900 S-2			DK Gray	(f) SAND, some <20% gravel (rounded <2" dim)			
12	0.0						little (m-c) Sand, trace silt			
	0.0	5/5					(F-C) SAND little <15% gravel (rounded <2" dim)	SW		
	0.0									
14	0.0									
	0.0									
	0.0						(F-C) SAND and some gravel (f-c, rounded, <1" dia)	SW/SP		
	0.0/0.0									
16	0.0/0.0	5/10	0920 S-3			Yellowish Orange	(F-C) SAND little <15% gravel (rounded < 0.5" dim	SW	2' fell out of sampler	

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 6" vibrate, spin, , and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

GROUNDWATER LEVELS: DTW is 8.5Fbgs @ MW206D.
OTHER OBSERVATIONS: VOC Headspace sampling only from 20-38 every 2.5 Feet,

Brown & Root Environmental

BORING NO.: 206M
PAGE: 1 of 3

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: J Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / R Gill
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 206M
START DATE: 10-22-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
16	0.0/0.7					Yellowish		SW		
	0.0/1.4					Orange	(f-c) SAND and gravel (f, rounded, <0.5" diam)	SW/SP		
18	0.0/2.9									
	0.0/2.7									
	0.8									
	1.9									
20	4.1									20-22.5 / 1.1 ppm
22										
									Lost 2nd of	
24									sample	
26	2.7	10/13	1020 S-4			Gray	(m-c) SAND trace gravel (fine, rounded, <0.25" diam)	SP		25-27.5 / 6.0
	2.4									
	2.1									
	0.7									
28	0.5						(f-c) SAND, some (<20%) gravel (rounded, <0.5")	SW		27.5-30.0 / 2.8
	0.9						trace (<3%) fines silt			
	1.6									
	0.1									
30	0.0									
	3.0									
	5.0					Yellowish orange	- gravel (<2" diam)			30-32.5 / 7.1
	0.0									
32	1.7									
	1.1									

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

GROUNDWATER LEVELS:
OTHER OBSERVATIONS: PID cal check prior to Headspace 106 ppm w/100 ppm Isobutylene
" " " after the " 111 ppm " " "

Brown & Root Environmental

BORING NO.: 206M
PAGE: 2 of 3

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: J Pelli TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / R Gall
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 206M
START DATE: 10-22-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET) 32	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
	0.7		(cont.) S-4			yellow	see page 2	SW		32.5-35.0
	1.7									3.1
34	1.2		13ft			orange				
	2.3									35.0-38.0
	0.5						(f) SAND, trace silt, no gravel	SP		2.4
	1.6									
36	1.7									
							(f-m) SAND, little silt, trace gravel (rounded <1" diam) brown silt.	SP		
38										
			EOB 38							

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 206M
PAGE: 3 of 3

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Joe Mello
TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION:
ELEVATION FROM:

BORING NO.: 207M
START DATE: 10-10-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
0							Grass Surface			
	1.5	4'/5'	1310 S-1	0.25		DK Brown	Organic (f) SAND and SILT		Topsoil, damp	
2	8.4 / 5.5					Brown	(f-m) SAND, trace silt, no gravel	SP	damp	
	0.3 / 7.5					lt gray			@1.5 fbgs dry	
	9.7									
4	3.6								@4.0 fbgs a piece of rounded 2" diam gravel	
	3.1								Fining downwards bottom 50% (f) sand	
6	2.2 / 1.7	8'/10'	1325 S-2			Brown	(f-m) SAND, trace (c) sand, no silt, trace (f) gravel (rounded)		Seashells from 5-8 fbgs	
	6.5 / 4.1									
8	10.5 / 16.9									
	23.9						(f) SAND, trace silt, trace (f) gravel (rounded)			
10	6.7 / 208.									
	72.5 / 45.7						(f) SAND and Gravel (greater 10% subrounded,			
12	28.2 / 38.5						<1" diam), trace silt		@ 12 fbgs a 1" layer	
	22.6								of asphalt gravel	
14										
16	3.9 / 2.6	7.5/10	1340 S-3				(f-c) SAND some (f) gravel, no fines	SW		

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: All recovered soils are included in recovery measurements, and PID Screening every 6".

Brown & Root Environmental

BORING NO.: 207
PAGE: 1 of 6

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: _____ TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): Alliance / _____
GRD. SURFACE ELEVATION: _____ ELEVATION FROM: _____

BORING NO.: 207m
START DATE: 10-10-97
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY: _____

DEPTH (FEET) 16	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
	3.0		S-3 (cont.)						Bedding planes visible	
	2.4									
18	2.0						(f-m) SAND, no silt, no gravel	SP		
	0.5									
	14.0									
20	7.0					yellowish				
	7.3									
	5.9					orange				
	7.1									
22	1.9									
	2.7									
	5.2									
	11.7									
24							(f-c) SAND some gravel (rounded) trace silt	SW		
						Brown	(f) SAND and Silt	SM		
26	7.8	10.5/10	1410 S-4			yellowish brown	(f) SAND, trace silt, no gravel	SP		
	6.6									
	3.3									
	1.4									
28	50.6									
	26.3									
	108									
	137									
30	118					w/gray	(f) SAND and SILT	SM		
	60									
	107									
	96									
32	131						(f) SAND, trace silt, no gravel	SP		
	99									

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 6" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 207
PAGE: 2 of 6

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: _____ TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): Alliance /
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO. : 207
START DATE: 10-10-97
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY :

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
32	156					w/gray	(f) SAND and SILT, no gravel	SM		
	86									
34	58						(f) SAND, trace silt, no gravel	SP		
	21									
	69						(f-m) SAND, trace silt, no gravel	SP		
	33									
36	24	10.5/10	1425 S-5			w/gray	(f) SAND and SILT, trace clay, no gravel	SM		
	21									
	21						(f) SAND little silt (<15%), no clay or gravel	SM/SP		
	19									
38	16									
	29									
	116									
	10.1									
40	21									
	12									
	60									
	38									
42	21						(f) SAND, trace silt, no gravel	SP		
	86									
	62									
	82									
44	196									
	22									
	0.0	PID error								45-47.5 5.8 ppm
	1.8/0.0									
46	0.0						(f) SAND, trace silt, no gravel	SP		
	10.1/0.0	10/10	1500 S-6							
	14									47.5-50
	13									15.2
48	22									
	23									

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 207
PAGE: 3 of 6

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ben Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 207
START DATE: 10-10-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET) 48	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
	17					yellowish brown				
	16						trace (m) sand	SP	1	
50	10									
	15						no (m) sand		a piece of subrounded gravel	
	17									50-52.5
	16									14.3
52	10									
	15									
	17									
	9.2									
54	7.9									52.5-55
	3.7									
	13									1.4
							trace (m) Sand		trace	
56		9'/10'	15'15 S-7				(F-C) SAND little (<15%) gravel (rounded	SW		
	6.8									
	5.9						<0.75 in. diam.) no silt.			55-57.5
	8.5									1.6 ppm
58	10.0									
	6.0									57.5-60
	5.1									
	8.7									6.2 ppm
60	8.2						Silt, trace (f) sand	ML	@ 62 Apply @ 5 min layer of (F) SAND/silt	
	4.1									
	5.3						(F-C) SAND little (<15%) gravel (rounded	SW		
	7.3									
62	3.7						<0.75 in diam.) no silt			60-62.5
	4.8									2.1 ppm
	2.4									
	1.6									
64	15.2									62.5-65 1.7
	8.2									

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 207
PAGE: 4 of 6

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Jen Mills TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ben Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO. : 207
START DATE: 10-10-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY :

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
64			S-7 (cont.)				~~(F-C) SAND, trace silt, trace gravel (rounded)~~	SW		65-70
	5.7	9/10	1540 S-8			Olive gray	(F-C) SAND, trace silt, trace gravel (rounded	SW		9.1
66	42									
	8.0									
	16									
68	40									
	17									
	15									
	25									70-75
70	19									2.4
	2.6									
	5.6									
	15									
72	5.3									
	6.7									
	10									
	4.4									
74	8.6									75-80
	7.3									1.7
76	1.4	10/10	1550 S-9							
	1.6									
	7.7									
	5.2									
78	9.8									
	6.3									
	5.1									
	20									
80	21									
	24									

TYPE OF DRILLING RIG: Sonic

METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 207
PAGE: 5 of 6

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Jeff Mills TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO. : 207
START DATE: 10-10-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY :

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
80	35 / 5.9		S-9 (cont.)				(f-m) SAND, <5% silt, little <10% gravel (rounded)	SP		80-85 / 3.2
82	8.7 / 7.0						<1" diam)			
	3.6 / 8.2									
84	20 / 6.6									85-90 / 1.7
	1.6 / 1.6									
86	9.7 / 0.2	7/10	16" S-10							
	9.2 / 9.3									
88	6.3 / 8.8									
	1.3 / 1.5									
90	0.0 / 0.6									
	1.6 / 3.1									
92										
94										
96			EOB 95 ft bgs							

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

GROUNDWATER LEVELS:
OTHER OBSERVATIONS: ending H_2O meter 141274 approx. 500gal used - 300 contained

Brown & Root Environmental

BORING NO.: 207
PAGE: 6 of 6

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7609.0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 208
START DATE: 9-29-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET) 0	BLOWS PER 6"	SAMP REC. / SAMP LENG. (FT)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L (FT)	SOIL - ~~DENSITY~~ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
	0.0	4.5/6	0825 S-1		Moist-Wet	DK. Brown	Organics + Silts, trace (f-c) Sand + Gravel	OL Topsoil	Topsoil	
2	0.0			1.5'	Damp Moist	Brown	Silty (f) Sand, trace gravel (sub-rounded,	SM	- No Bedding Planes	
	0.0			3.0			< 1.5" diam) trace clay		2-6" of moderately cohesive soil	
4	0.0				Dry	Lt. Brown	Inorganic Silt sandy (v.f) Sand, trace	ML		
	0.0						gravel (sub-rounded to sub-angular, <1.5"			
6	0.0						diam.)		Boulder in sampler bit - muscovite + gtnz rich	
	0.0	6.5/10	0849 S-2							
8	0.0			8.0						
	0.0				Dry Moist	Brown	(f) Sand and Silt, trace (m-c) Sand, trace	SM	Change starts w/a 5" layer of DK brown	
10	0.0						gravel (subrounded, < 1.5" diam.)			
	0.0									
12	0.0									
	0.0					Reddish Brown				
14	0.0									
	0.0									
16	0.0									

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING: Vibrate + Wash & Spin
METHOD OF SOIL SAMPLING: Vibrate + Spin
METHOD OF ROCK CORING: Vibrate + Spin
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: Moisture: Dry, Damp, Moist, Wet

Brown & Root Environmental

BORING NO.: 208

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7609#0320
LOGGED BY: Joe Mills TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 208
START DATE: 9-29-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	PID ~~BLOWS~~ PER 6"	SAMP REC. / SAMP LENG. (FT)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID (ppm)]
16										
	0.0	4.5/10	0950 S-3		Dry-Damp	Reddish Brown	(f) Sand and Silt, trace (c-f) sand, trace gravel	SM		
18	0.0						(Subrounded-subangular, <1.5" diam.)			
	0.0									
20	0.3									
	0.0									
22	0.0			▽ 21.4	Damp Moist	Lt. olive gray	(f) Sand and Silt	SM		0.0
	2.9									
	0.0									
24	0.0									
	0.0									0.0
	3.1									
26	0.0		10'0 S-4							
	0.0									
28	0.0									
	0.0									
30	0.0					Brown	Silt and (f) Sand	ML-SM	Slightly more Silt	
	0.0									4.6
32	0.0									

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 208

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymond OU2
PROJECT NO: 7609 #0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 208
START DATE: 9-29-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY :

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID (ppm)]
32										
34										
36							~~(f) Sand some silt, trace~~	SM	More (f) Sand than Silt	
		6/10	1050 S-5							
38										
						Yellowish Brown	Silt and Clay, inorganic, med-~~high~~ plasticity-	CL-CH		
40										
										0.0
42										
						reddish Brown	(f-c) Sand ~~and some~~ gravel (subrounded-subangular, <3" diam) trace fines	GW		
44										
										0.0/2.8
46						Lt. Gray				~~6.3~~ (NA)
		8/10	11[10] S-6	steel		reddish Brown				6.3
48										

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 208

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7609 #0320
LOGGED BY: Joe Mullo TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 208
START DATE: 9-29-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET) 48	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
			S-6 (Cont.)					GW		
50										5.0
52										5.2
54										
56							(f-c) Sand, trace silt	SW	~~No Grout, (f-c) Sand~~ POP	5.4
	1.9 / 3.7	10/10	S-7 1145		Wet		(f-c) Sand and Gravel (rounded + subangular,	GW		3.9
58	2.6 / 1.7						≤2" diam) trace silt			
	4.5 / 3.7									
60	4.9 / 2.6									6.4
	3.6 / 2.6									
62	6.5 / 5.0					DK Gray	- little silt and clay (traces)	GM		4.5
	9.7 / 4.1									
64	8.4 / 10.6									

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 208

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7609 #0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 208
START DATE: 9-29-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID (ppm)]
64	5.4 / 8.0					orange brown	(M) Sand, trace (f-c) sand, trace (f) gravel, trace silt	SP		4.2
66	12.9 / 26.7					reddish Brown	(f-c) Sand and Gravel (rounded to sub-angular,	GW		
	8.9 / 6.6	7/7	1230 S-8				<2" diam.)			4.6
68	8.0 / 8.8									
	9.7 / 20.2					reddish Brown	(f-c) Sand and Gravel (rounded to subangular,	GM		7.1
70	21.7 / 7.6						<1.5" diam.) little <10% Silt, trace <3% Clay			
	10.8 / 11.1					reddish Brown	(M) Sand, little (f-c) sand, trace gravel (rounded			
72	21.9 / 21.2						to sub-angular, ≤1" Diam.) trace <3% Silt		2" piece of schist gravel	6.8
	19.4 / 10.9						(f-c) Sand & Gravel, trace <3% Silt	GW		
74	7.8	/	B50 S-9		25% RQD	DK Gray	Schist Bedrock; mica rich w/ Vertical Foliation	BR		
76										
78										
			EOB							

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 208

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: J Holden / Jeff MacMurray TRANSCRIBED BY: J B Holden
DRILLED BY (Company/Driller): Alliance / RON BALL
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO. : SB209
START DATE: 10/8/97
COMPLETION DATE:
MON. WELL NO.: MW209B+S
CHECKED BY :

DEPTH (FEET) 0	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; atc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
1	8.5 17.0	5.7/5	S-1, 1430			OL/BR	silty Gravelly SAND	SM-GM	Dry, Fill	
2	19.0 24.1						Mostly F-crs SAND, some F-crs		cement, brick,	
3	19.6 28.2					↓	ang gravel (up to 4")		& loss	
4	30.4 46.0		10/8/97			Black	→ Petroleum ODOR trace silt.			
5	35.9 117.0					Red OL-GR	→ Brick, crushed			
6	14.4 14.6	9/10	10/9/97			GR	MUD, DARK GREY, silty Gravel.	GM	Broken Concrete,	
7	16.5 0		S-2, 0800				Old tiles		Rebar	
8	3.8 17.3									
9	18.8 25.2						Tar, old parking lot material			
10	34 36.2					↓	roofing material, asphalt shingles, and scrap wood, silty MUD			
11	42.7 45.6				~~BF goo~~	BR	PEAT Organic silt	PT	Roots + Fibrous,	
12	48.7 32.4						↓		Organic	
13	40.1 52.4									
14	28.4 32.6									
15	36.7 0									
16	0 0	10/10	S-3, 1020			TAN	SAND, med	SP		

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOI L SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

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GROUNDWATER LEVELS:
OTHER OBSERVATIONS:
Ry broken from coring concrete w/rebar @ 0820 on 10/9 until 1000

BORING NO.: SB209
PAGE: 1 of 5

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Holder / D MacManus
TRANSCRIBED BY: LB Holder
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: SB209
START DATE: 10/8/97
COMPLETION DATE: 10/9/97
MON. WELL NO.: MW209B+S
CHECKED BY:

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
16										
17	ND ND		S-3 cont.			tan	SAND, med	SP		
18	ND 19.4					GR	silty med SAND	SM		
19	60 60.7					tan	SAND, med	SP		
20	45.2 52.0						↓			
21	4.7 11.5									
22	1.3 6.0									
23	7.1 4.6						↓			
24	11.7 10.1					GR	SAND, fine	SP		
25	4.1 ND						↓			
26	↓		S-4 1025			tan	SAND, med	SP		
27							↓			
28		6/10								28-30.5 (0)
29										
30										
31										30.5-33 0ppm
32	↓ ND						↓			

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

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BORING NO.: SB209
PAGE: 2 of 5

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Altholder / D MacManus TRANSCRIBED BY: AB Holder
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: SB209
START DATE: 10/8/97
COMPLETION DATE: 10/9/97
MON. WELL NO.: MW209B+S
CHECKED BY:

DEPTH (FEET) 32	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L (ft)	SOIL DENSITY / CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
33	ND		S-4 cont.			GR	Silty med SAND	SM		
34	↓						↓			33-35 0ppm
35	ND									
36	115	7/10	S-5 1030			GR	fine SAND	SP		35-37.5 0ppm
	ND									
37	ND									
	ND									
38	6.5									37.5-40 0ppm
	ND									
39	↓									
40										40-42.5 0ppm
41										
42										42.5-45 0ppm
43										
44										
45										45-47.5 0ppm
46			S-6 1050							
47	↓ ND						↓			47.5-50 0ppm
48										

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 6" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: AHolder/D MacManus TRANSCRIBED BY: AB Holder
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: SB209
START DATE: 10/8/97
COMPLETION DATE: 10/9/97
MON. WELL NO.: mw209B+S
CHECKED BY:

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
48										
49	0		S-6 cont				↓			
50	0						↓			50-52.5 0ppm
	1.0									
51	5.5					tan	med SAND	SP		
	0									
52	20						↓			
	25									52.5-55 0ppm
53	8						↓			
	0									
54	33						↓			
	14									
55	35						↓			
	19									
56	3.6	10/10	S-7 1110			tan	F-m SAND, tr silt	SM		55-57.5 0ppm
	0									
57	0									
	0									
58	16.8									
	14.1									
59	0					GR	F-CrS SAND, Few Gravel			57.5-60 0ppm
	11.5									
60	28.8					tan	F-m SAND, tr silt	SM		
	14.2									
61	62.3					tan	med SAND	SP		
	46.8									60-62.5 0ppm
62	57.0					tan	Fine SAND	SP		
	70.1									
63	12.5					tan	med SAND	SP		
	20.1									62.5-65 0ppm
64	44.9						↓			
	54.9									

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 6" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

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BORING NO.: SB209
PAGE: 4 of 5

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Pitcher / D MacManus TRANSCRIBED BY: AB Holder
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: SB209
START DATE: 10/8/97
COMPLETION DATE: 10/9/97
MON. WELL NO.: MW209B+S
CHECKED BY:

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
64										
65	106 103						↓ tr silt	SP		
66	80 12.7		S-8 1130			tan	Coarse SAND	SP		65-68 0ppm
67	24.7 33.2									
68	30.2 34.6									68-69 ppm
69	20.7 38.4					tan	River SAND w/cobbles			
70	52.4 61.1					Green	Fractured Rock (Schist)	very BRKN		
			C-9 1145				broken during coring Some weathered surfaces			
75							Not able to determine Fracture orientation			
			C-10 1216			Green	Angular SAND, mostly med Sand.		Pulverized bedrock,	
									does not look like	
80									SAND in overburden	
85										
			C-11 1230				Schist			
90										

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS: Core from 75-85' was lost down hole and to be retrieved.

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BORING NO.: SB209
PAGE: 5 of 5

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 210 (NEW)
START DATE: 10-26-97
COMPLETION DATE:
MON. WELL NO.: 210 D, S
CHECKED BY :

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
0							Asphalt Surface 4"			
	1.7	3.5/5	1130 S-1			PK Gray	(G) GRAVEL (rounded-angular, 1-3" diam)	GM	Fill Dry-moist	
2	1.7						and <5% silt, little (<15%) sand		pieces of tile throughout	
	1.9								(Probably ACM)	
	2.6									
4	2.4					White	Pieces + crushed White fibers Tile	Fill	Dry	
	2.1									
	3.4					PK Brown	(m) SAND, little (<15%) gravel	SP		
6	4.9	10/10	1203 S-2			Yellowish Orange	(f-m) SAND, trace (<3%) silt, no gravel	SP	Tile slough from above 2' thick	
30 BPM	4.7						- little (<15%) silt trace (<3%) gravel (rounded, <2" diam)	SP		
	3.5									
8	3.4	← Zero Instrument								
	0.1									
	1.0									
	2.6						(F-C) SAND, trace (<3%) silt, little (<15%) rounded	SW		
10	4.3						gravel <2" diam)			
	7.6									
	9.9									
	8.4									
12	9.4					Brown	(f-m) SAND, trace (<3%) silt, no gravel	SP		
	7.5									
	2.3									
	6.1									
14	7.9									
	5.0									
	8.2									
	3.9									
16	0.0	8/10	1215 S-3					SP		

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

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GROUNDWATER LEVELS:
OTHER OBSERVATIONS:
ACM- Asbestos Containing Material.

BORING NO.: 210
PAGE: 1 of 3

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Jen Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO. : 210 (New
START DATE: 10-26-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY :

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
16										
	lost 7.4		(cont) S-3			Brown	(VF-M) SAND, trace (<3%) silt, trace (<1%) gravel (rounded <1" diam)	SP		
18	3.0									
	4.1									
	5.1									
	2.6									
20	6.7									
	3.8									
	3.7									
	3.3									
22	2.9									
	3.1									
	3.8									
	1.7									
24										
							(F-m) SAND and (<50%) (C) Gravel (angular, <4" diam)	↓	Gravel may include some boulder pieces	too / 25-28 / 0.4 ppm
26		6/8	1230 S-4				(F-C) SAND with (<15%) gravel (rounded, <1.5" diam)	SW	<20% (F) Sand	
	1.2									
	3.2									
	2.0									
28	4.9		grain-size taken							
	2.9									
	2.7									
	2.8									28-32 / 0.1 ppm
30	3.1									
	1.8									
	3.0									
	0.4									
32								↓		

To 33 Fbgs then Bedrock

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

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BORING NO.: 210
PAGE: 2 of 3

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: ~~Ron Ball~~ Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 210
START DATE: 10-26-97
COMPLETION DATE:
MON. WELL NO.: 210D,S
CHECKED BY:

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moistura condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
32			(Cont.) S-4				(C-L) SAND < 15% gravel (rounded	SW	Boulder in very bottom	
34		5.5/7	1300 C-1		45% RQD	gray-green	- Schist	BR	Broken-up	
							- 70° Foliation		Competent	
36										
							- 1" thick Qtz vein (white)			
38										
40							- orange deposits		Broken-up	
			EOB 40.0							
42										
44										
46										
48										

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOI L SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 210
PAGE: 3 of 3

UFW - abandoned

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Jon Melle TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 210 (old)
START DATE: 10-20-97
COMPLETION DATE: 10-20-97
MON. WELL NO.: _____
CHECKED BY :

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / - SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
0							Asphalt Surface (4")			
2	0.0	4/5	0850 S-1	SW		lt. Brown	(F-C) SAND little (<15%) (F) gravel (submangular, <2" diam) trace (<2%) silt	SW		
	0.0									
2	0.0									
	0.0									
	0.0			4" ML			Silt, trace piece of root	ML		
4	0.0			SP			(F-M) SAND trace (<3%) silt, piece of submangular 3" diam	SP		
	0.0									
6	0.0/0	4.5/8	0910 S-2	SW			(F-C) SAND trace (<2%) (F) gravel subrounded trace (<5%) silt.	SW	4" diam cobble	
	0.0/.5									
	0.0/0									
8	0.0/.5									
	0.0/.4									
	0.0/0									
	0.0/.4									
10	0.0/.8									
	1.6.7									
12						Red			lineaments visible	
						Gray	(V.F) SAND and silt some (<30%)	SP	Piece of angular schist	
				SP						
14	0	9.5/12	1139 C-1	BR	~~30% RQD~~	Gray	Schist Bedrock (mica + qtz rich)	BR	Broken-up	
		12			25% RQD		- Vertical foliation		↓	
16						↓	↓ ↓		Competent	

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS: Believed to be @ 13 ft bgs where red color change lineaments exist.
OTHER OBSERVATIONS:

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BORING NO.: 210
PAGE: 1 of 2

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 210 (old)
START DATE: 10-20-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET) 16	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
18			(cont.) C-1			gray-green	Schist Bedrock - (mica + qtz rich)	BR	Broken up	
20							- Vertical foliation		↓	
22									Competent	
24	3.4								↓	
26	1.4 0	6.5/10	1220 C-2						Broken Up	
28	0 0				30% RQD	Gray-green			Competent	
30	0 0								↓	
32	0 0								Broken-up	
34	0 1.4								↓	
36	3.0 0.0	5/10	C-3		20% RQD	gray-green			↓	
38									Competent	
40									Broken-up	
42									↓	
44									↓	
46			EOB 45 flags							
48										

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, end wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

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GROUNDWATER LEVELS:
OTHER OBSERVATIONS: Depth interval change from page 1. No recharge from top 20 feet of bedrock.

BORING NO.: 210
PAGE: 2 of 2

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 211
START DATE: 10-10-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY :

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
0							Grass Surface			
	0.3	3.5/5	1550 S-1			Brown	(f) SAND, little (<15%) gravel (rounded to	SP	Damp,	
	0.3									
2	0.3					Lt Brown	Sub angular, < 1" diam), trace asphalt		Dry	
	0.7									
	0.0						trace organics (grass), 3" piece of		Shell @ 3 ftbgs	
	0.9									
4							concrete @ 2.5 ftbgs, no fines			
6		6/10	1605 S-2				(f) SAND, trace (<3%) shells, little (<15%) gravel (rounded			
	0.0									
	1.1						<1" diam)			
	0.7									
8	0.9									
	3.9									
	0.9									
	1.0									
10	2.1									
	0.0									
	1.0									
	1.7									
12	0.6								bedding visible	
14										
16	2.1	7/10	1615 S-3							

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, end wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS: ~~= 25, 744~~ 17 ftbgs - DTW
OTHER OBSERVATIONS:

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BORING NO.: 211
PAGE: 1 of 11

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ben Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 211
START DATE: 10-10-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
16	3.5		S-3(cont.)					SP		
	3.0									
18	0.8									
	6.2									
	3.6									
	5.1									
20	1.0									
	1.9									
	4.2									
	1.7									
22	2.8									
	4.0									
	6.6									
24										
						Gray				
26	4.4	10/10	16:15 S-4							
	1.9									
	2.8									
28	1.9						↓ trace (m) Sand			
	0.6									
	4.4									
	3.0									
30	3.7					DK gray	Organic SILT <35% some brown peat	OL	Organic Odor	
	3.1									
	0.0									
	0.0									
32	0.0					DK Brown	Organic SILT <3% trace peat		↓	
	0.0									

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: _____ TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): Alliance / _____
GRD. SURFACE ELEVATION: _____ ELEVATION FROM: _____

BORING NO. : 211
START DATE: 10-10-97
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY : _____

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
32	2.1		5-4 (cont)		Med. plast.	Dk Brown	Organic Clay (fat)	OH	Organic Odor	
	2.5									
	3.3									
34	3.1									
	3.4						(f) SAND	SP		
	1.1									
36	2.0	10/10	1450 S-5		low plast.	Brown	Silt little (<15%) clay, little (<15%) peat, trace	OL		
	0.9									
	2.3						(f-c) sand, trace rounded gravel			
	2.6									
38	3.6									
	5.1						little (<15%) (f-c) sand, trace (<5%) peat			
	4.9									
	4.7									
40	6.0									
	4.6									
	7.2				high plast.	Olive gray	CLAY and SILT, little (f-c) sand, trace	OH		
	7.0									
	3.7						gravel (rounded, < ½" diam)			
42	4.7									
	3.8									
	4.3									
44	3.8									
	3.2									
	5.2									45-47.5 / 2.8
	4.9					Gray	SILT and (f) SAND, trace gravel (rounded	ML/SP		
46	19.3	7/10	1455 S-6				< ¼" diam), trace clay			
	2.9									
	2.8									
	3.1									47.5-50.0 / 4.9
48	6.4									
	6.3									

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 211
PAGE: 3 of 11

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Bell
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 211
START DATE: 10-10-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET) 48	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
	6.4					gray	(F) SAND and SILT, trace (f) gravel	SP/ML		
	4.0									50-52.5
50	4.3									8.5
	5.8									
	4.2									
	4.9									
52	9.5									52.5-55
	7.3									6.0
	11.4									
	5.8									
54	8.0						(F-C) SAND and little (<15%) silt, trace gravel	SW		
	5.9						(F) SAND and silt, trace gravel	SP		
	7.5						(F-C) SAND little silt to gravel	SW		55-57.5
	7.3									1.7
56	5.5	6.5/10	17:00 S-7				(F-C) SAND, trace silt, trace rounded gravel	SW		
	6.0		bottom 3ft lost while retrieving sample							
	5.7									
58	7.6									57.5-60
	5.6									3.8
	9.2									
	5.9									
60	4.8					Brown				60-62.5
	7.6									4.3
	6.9									
	8.3		grain size taken SW w/gravel				- little gravel (rounded, <3" diam)			
62										
64										

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 211
PAGE: 4 of 11

BORING LOCATION OR: Phase 1 Groundwater Investigation, Raymor. XH2 — BORING NO.: 211
PROJECT NO: 7609 #0320 — START DATE: 10-10-97
LOGGED BY: Joe Mello — TRANSCRIBED BY: — COMPLETION DATE:
DRILLED BY (Company/Driller): ALLIANCE / Ron Ball — MON. WELL NO.:
GRD. SURFACE ELEVATION: — ELEVATION FROM: — CHECKED BY:

DEPTH (FEET) 64	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
			S-7 (cont.)							
66	4.9	10/10	0748 10-11-97			Brown	(f-c) SAND <30% some gravel (rounded, <2" diam)	SW		65-67.5
	3.7		S-8				no fines			0.0
	4.6									
68	4.7									67.5-70
	3.8					Yellowish Orange				0.0
	5.7									
	4.6									
70	10						(f) SAND, no fines, no gravel	SP		70.-72.5
	17									1.2
	16									
	8.6									
72	8.0						(f-c) SAND, some <30% gravel (rounded, <1" diam.)	SW	no fines	
	5.6									
	5.2						(f) SAND, no fines, no gravel	SP		72.5-75
	5.5									5.4
74	12									
	2.8									
	6.6									
76	1.0	9.5/10	S-9							75-77.5
	3.3									7.7
	3.7									
	3.2									
78	5.6									77.5-80.
	5.8									3.2
	16									
	14						(f-c) SAND <30% some gravel (rounded, <1.5" diam)	SW		
80	16						no fines			
	7.2									

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING: } See page 1
METHOD OF SOIL SAMPLING: }
METHOD OF ROCK CORING: }
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 211

BORING LOCATION: Phase 1 Groundwater Investigation, Raymoring 12
PROJECT NO: 7609#0320
LOGGED BY: Jourdello
TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE / Ron Ball
GRD. SURFACE ELEVATION:
ELEVATION FROM:

BORING NO.: 211
START DATE: 10-10-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID TanHS]
80										
	13		S-9 (cont.)			Yellowish orange	(f-c) SAND, 50 <30% gravel (rounded, <2"	SW		80-82.5
	22									6.0
82	21						diam), no fines			
	17									82.5-85
	17									6.4
	14									
84	6.8									
86	0.2	10/10	0835 S-10				(f-c) SAND little <15% gravel (rounded <1" diam)	SW		85-87.5
	0.3									4.8
	5.1						trace <3% silt			
	0.9									
88	1.1									87.5-90
	2.8									5.6
	5.2									
	2.2									
90	0.0									
	2.3									
	16									90-92.5
	1.5									6.9
92	6.4						(f) SAND 1:4k <15% silt, no gravel	SP		
	3.8									
	4.2						(f-m) SAND, trace <3% silt, no gravel	SP		92.5-95
	12									23
94	16									
	4.4									
	18									
96	9	9.5/10	0855 S-11							
	0.0									

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
} See page 1.

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 211

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymore, MO — BORING NO.: 211
PROJECT NO: 7607#0320 — START DATE: 10-10-97
LOGGED BY: Joe Mello — TRANSCRIBED BY: — COMPLETION DATE:
DRILLED BY (Company/Driller): ALLIANCE Ron Ball — MON. WELL NO.:
GRD. SURFACE ELEVATION: — ELEVATION FROM: — CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
96										
	0.0		S-11 (cont.)			yellowish orange	(f-g) SAND, trace (<3%) gravel (rounded, <¼" diam)	SW		95-97.5
98	4.2						trace silt			7.1
	16									
	17									
	14									
100	17						(f) SAND, ~~trace~~ silt (<15%), no gravel	SP		97.5-100
	6.7									43
	13.4									
	38									
	37									
102	27									100-102.5
	31		grainsize 100-102.5							65
	15									
	33									
104	40									102.5-105
	36									31
	27									
106	0.1	7.5/10	0920 S-12				(f-m) SAND, no silt, trace (<3%) gravel (rounded, <¼" diam)	SP		105-107.5
	5.4									NS
	5.7									
	4.8									
108	0.0									107.5-110
	0.0									1.3
	3.0									
	0.0									
110	7.3									110-112.5
	156									2.5
	3.3									
	11									
112	27									

TYPE OF DRILLING RIG: SONIC

METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 211

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark U2 — BORING NO.: 211
PROJECT NO: 7609#0320 — START DATE: 10-10-97
LOGGED BY: Joe McIlv — TRANSCRIBED BY: — COMPLETION DATE:
DRILLED BY (Company/Driller): ALLIANCE / Ron Ball — MON. WELL NO.:
GRD. SURFACE ELEVATION: — ELEVATION FROM: — CHECKED BY:

DEPTH (FEET)	BLOWS PER 6" PID	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
112						yellowish orange	(f-m) SAND little (<15%) gravel (rounded, <1" diam)	SP		112.5-115
							trace (<5%) silt			6.7
114										
116	5.5	6/10	10:00 S-13				(f-m) SAND, trace (<3%) silt, no gravel	SP		115-117.5
	3.3									14
	0.0									
	1.4									
118	16						(F-C) SAND and GRAVEL (rounded, <1" diam)	SW/GW		117.5-120
	18						trace (<3%) silt			13
	17									
	31									
120	33									120-122.5
	57						(f-m) SAND little (<15%) gravel (rounded, <3/4" diam), trace (<3%) silt	SP		0.0
	56									
	58									
122										122.5-125
										8.2
124										
										125-127.5
126		4.5/10	10:15 S-14				(F-C) SAND some (<30%) gravel (rounded, <3" diam) little (<15%) silt	SW		13
	6.2									
	14									
	32									
128	87									
	49									

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING: } See page 1
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 211

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Jim Mella TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 211
START DATE: 10-10-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET) 128	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
	95		S-14 (cont.)	1		yellowish brown				127.5-130
	159									77
130	235									130-132.5
	207									350
132										132.5-135
										82
134										
	276									
136	521	10/10	1035 S-15				(f-m) SAND, trace (<3%) silt, no gravel	SP		135-137.5
	672									304
	436									
138	395		grain size 135-139							
	227									137.5-140
	254						(f-c) SAND, trace (<3%) (f) gravel, trace (<3%) silt	SW		60
	328									
140	333									
	286									140-142.5
	254						(f-c) SAND some (<30%) (f) gravel, trace (<3%) silt	SW		40
	119									
142	186									
	138									142.5-145
	276						- trace (<3%) (f) gravel	SW		
	315									50
144	87					↓	(f) SAND some (<30%) silt 1:Hb (<15%) silt, 1: tr (<5%)	SP		
	95						gravel (rounded <3/4" diam)			
	64									

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Jay Mills TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 211
START DATE: 10-10-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
144			S-15 (cont.)			Gray	SILT <30% sand (f-c), <30% gravel (rounded <4" dia.), trace <3% clay	ML	Boulder @ 144 ft bgs (not bedrock)	145-147.5 109
146	60 too wet	4/5	1150 S-16							147.5-150 231
148										
150	150					DK gray	Weathered bedrock (schist)			
152		5/10	1400 C-1		0% RQD		Schist (mica + qtz rich - horizontal foliation	BR		
154										
156										
158										
160										

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 211
PAGE: 10 of 11

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO. : 211
START DATE: 10-10-97
COMPLETION DATE: 10-13-97
MON. WELL NO.: 211 B, S
CHECKED BY :

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA *METHOD* = [PID, Jar HS]
160		5/10	14^{50} C-2		0% RQD	Gray	Schist (mica + qtz rich)	BR		
162							- horizontal foliation			
									Very broken up	
164									↓	
166										
168										
170							↓			
			EOB 171							
172										
174										
175										
176										

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 211
PAGE: 11 of 11

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7601 #0320
LOGGED BY: Jeff MacManus TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 212
START DATE: 09/25/97
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY: _____

	DEPTH (FEET)	PID ~~BLOWS~~ PER 6" (PPM) SCREENING	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [ ]
S1	1	6.1 / 5.8	3.6' / 3.5'	1148 T S-1	6"		DK BRN.	ORGANICS, SAND, DRY	SW	DRY	
	2	5.5 / 6.8			3.0'		BROWN	GRAVEL, POORLY GRADED, DRY	GP	DRY	
	3	3.4 / 9.2						↓			
	4	14.6 / 7.2									
S2	5		1'8" / 30"	1159 S-2			BROWN	GRAVELLY SAND	SW	Moist	
	6	18.1									
S3	7	8.6 / 9.3					BROWN	MED SAND, with stones	SW	BROWN, MOIST/WET	
	8	22.7						↓			
	9	47.6									
	10	68.2	46" / 10'	1320 S-3			RED/ BROWN	COARSE SAND with GRAVEL	SW	MOIST/WET REDDISH BROWN	
	11	70.7						↓			
	12	48									
	13	87						↓			
	14	48					RED/ BROWN	MEDIUM SAND	SP	MOIST/WET REDDISH BROWN	
	15	33						↓			
	16	132									

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: SB-212

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7609 #0320
LOGGED BY: JeffMarManus TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 212
START DATE: 9/25/97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	PID ~~SCREEN~~ PER 6" (ppm) screening	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [JHS/PID]
16										
17	12 11.4		1345	17'		RED/BROWN	MED SAND	SP	wet	
18	11.8					BROWN	COARSE SANDY ~~GRAVEL~~ GRAVEL	GW	wet	
19	5.6 22.9									
20	20.9	8'/10'								
21	23.9 25.6									
22	8.9 17.0									
23	17.0 28.0									
24	25.9									
25	40.2 65 8.5									
26	26.5									
27	1.9 2.2		1420			BROWN	COARSE SAND	SW	wet	
28	5.0 9.0									
29	9.1 10.8									
30	6.8 11.0						COARSE SANDY GRAVEL	GW	wet	
31	12.6 12.9									0.8 (30 to 31.5')
32	10.1 13.5					TAN/LT BROWN	SILT, MEDIUM PLASTIC	ML	wet	

S4
S5

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: SB-212

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2 PG 4 OF 6
PROJECT NO: 7601 #0320
LOGGED BY: J. McManus TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: SB-212
START DATE: 9/25/92
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	PID ~~BLOWS~~ PER 6" (PPM)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR*	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PPM/JHS]
46										
47	7.8 / 22.2					BROWN	FINE SAND	SP	~~30.4 (46'-48.5')~~	38.4 (46-48.5')
48	34.3 / 118									
49	111 / 74.8								~~27.8 (48.5'-51')~~	27.8 (48.5'-51')
50	151 / 80.8	9.5' / 10'								
51	111 / 66.6			50.5'						
52	38.8			51.5'		TRN	FINE SAND, TRACE GRAVEL	SP		
53	55.7 / 41.2					BRN	FINE SAND	SP	~~[illegible]~~	17.1 (51-53.5')
54	84.8 / 29.0			53.5		BRN	FINE SAND	SP		28.3 (53.5-56')
55	111.2 / 123								BROWN with IRON STAIN STREAKS (RED)	
56	146 / 99									
57	219 / 36					RED/ BRN	FINE SAND			11.1 (56-59)
58	28.4 / 51.3	1' / 5' / 1'								
59	62.7 / 24.0									8.8 (59-60')
60	19.7 / 24.6					RED/ GREY	FINE SAND and calcite (MOTTLED)		Possibly G[illegible] calcite.	
61	4.1 / 2.10						FRIABLE COMPRESSED calcite with CRYSTALS OF G[illegible] CONSOLIDATED ROCK FRAGMENTS			3.5 (60'-61')

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: SB-212

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2 — Pg 5 of 6

PROJECT NO: 7607#0320

LOGGED BY: JimDeManus — TRANSCRIBED BY: _____

DRILLED BY (Company/Driller): ALLIANCE

GRD. SURFACE ELEVATION: — ELEVATION FROM:

BORING NO.: SB-212

START DATE: 9/25/97

COMPLETION DATE: _____

MON. WELL NO.: _____

CHECKED BY: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [ ]
61										
62						GREY	schist, GREY,	BROKEN ROCK		
63		1.5'/5'								
64										
65										
66										
67							Lost 1' of recovery weathered			
68		1'/								
69		3'/10'					schist w/ quartite			
70							intrusions - conglomerate			
71							with quartz, pyrite,			
72										
73										
74										
75										
76										

59

TYPE OF DRILLING RIG: SONIC

METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: SB-212

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7609 #0320
LOGGED BY: J McManus TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 212
START DATE: 9/25/97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY :

DEPTH (FEET) 32	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID/HNU]
33	11.6 14.0					Lt BRWN	SILT, MEDIUM plasticity	ML	wet	10.7 (31.5 to 34')
34	12.7 21.0									
35	31.3 38.7			34.6"		BRWN	FINE-MEDIUM SAND	SW	wet	
36	25.0 38.5									4.8 (34.5 to 36')
										9.7 (36-38.5)
37	20.2 12.8					BRWN	MEDIUM SAND	SP		
38	31.9 91.0									
39	48.0 63.8									12.7 (38.5-41)
40	81.6 70.8									
41	82.3 70.7			40.5		BRWN	COARSE SAND	SP		
42	83.5 56.8									10.4 (41-43.5)
43	49.0 54.7			42.5						
44	132 109					BRWN	FINE SAND	SP		
45	94.6 28.0									43.7 (43.5-46)
46	28.0 90.9			46						

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: SB-212

BORING LUG FOR: Phase 1 Groundwater Investigation, Raymark OU2

PROJECT NO: 7609 #0320

LOGGED BY: J. MacManus TRANSCRIBED BY:

DRILLED BY (Company/Driller): ALLIANCE

GRD. SURFACE ELEVATION: ELEVATION FROM:

6 of 6

BORING NO.: 212

START DATE: 9/25/92

COMPLETION DATE:

MON. WELL NO.:

CHECKED BY :

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
76										
77							Greenish broken schist, w/ quartzite intrusions	Broken Rock		
78										
79										
80										
81										
82										
83										
84										
85										
86										
									Water @ 33.1' @ 1820hrs	
									depth to bottom of hole 85.5'	
									525 Gallons of water used	

TYPE OF DRILLING RIG: SONIC

METHOD OF ADVANCING BORING:

METHOD OF SOIL SAMPLING:

METHOD OF ROCK CORING:

GROUNDWATER LEVELS:

OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 212

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Jack Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 213
START DATE: 10-21-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET) 0	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
							Asphalt Surface 2" 4"			
	0.7	4/5	0835 S-1			DK Brown	(f-c) SAND some (<30%) gravel (subrounded <3" diam)	SM		
2	0.0						little (<15%) fines			
	0.8									
	0.8					Yellowish brown	(f) SAND little (<15%) silt trace (<3%) clay	SP	dry	
4	0.8						↓	↓		
	6.6									
6	0.3	6/10	0850 S-2				(f-m) SAND little (<15%) silt		Asphalt in top of Sample, obviously	
	0.0								Slough from surface	
	2.4								~2.5 feet of Slough	
8	13.9									
	40.0									
	7.1									
	5.8									
10	4.4									
	11.2									
	6.6									
12										
14										
								↓	a piece of 1" gravel rounded	
16	0.3	6/10	0900 S-3				(f-m) SAND little (<15%) silt	SP	a piece of 1" gravel subrounded	

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

Brown & Root Environmental

GROUNDWATER LEVELS: GW @ 20 ftbgs during direct push profile program in August.
OTHER OBSERVATIONS: 2-Wells installed w/in SB-213: MW-213B + MW-213S

BORING NO.: 213
PAGE: 1 of 3

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: _____ TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): Alliance /
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 213
START DATE: 10-21-97
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY:

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
16										
	0.0		(cont.) S-3				(f-m) SAND, trace <3% silt	SP		
	2.2									
18	5.3						(f-c) SAND, little <15% gravel (rounded <3/4" diam)	SW		
	3.7									
	1.2						trace <3% silt			
	11.9									
20	14.3						(f) SAND, trace <3% silt, trace <30% (m) Sand	SP	Wet Moist	
	31.9									
	20.6						↓			
	4.4									
22	4.9						(f) SAND some <30% silt	SM		
							(f-c) SAND, little <15% (f) gravel, trace silt	SW		
24			Grain Size				(f-c) GRAVEL and (f-c) SAND little <15% silt	GW		
							↓			
26	0.8	4/4	S-4				(f-c) SAND trace (f) gravel, trace silt	SW		26-27 808 ppm
	8.9						(f) SAND trace silt	SP		
	22.9									
28	27.9		Grain size				(f-c) GRAVEL and (f-c) SAND little <15% silt	GW		28-29 1.1 ppm
	6.5									
	4.2						(m) SAND, trace (f) gravel, trace silt	SP		
30		5.5/6	C-1		50% RQD	Gray	Schist (mica + qtz rich)	BR	Broken-up	
							- Vertical foliation		Competent	
32										

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 6" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 213
START DATE: 10-21-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
32										
34			(cont.) C-1			gray-green	Schist - (Mica + Qtz Rich)			
36					0% RQD		- Vertical foliation			
38		~~7.5~~/5	11:35 C-2						2/5 Samp Rec/Length	
40		9/10	12:10 C-3							
42		8/10	12:10 C-3		20% RQD				Broken-up	
44									↓	
46										
48									Competent	
50					16% RQD				Competent	
52		2/3	13:10 C-4						Broken-up	
54									↓	
56			63 EOB							
58										
60										
62										
64										

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 213
PAGE: 3 of 3

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymore 12
PROJECT NO: 7607#0320
LOGGED BY: Joe Mullo
TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE / Ben Ball
GRD. SURFACE ELEVATION:
ELEVATION FROM:

BORING NO.: 214
START DATE: 10-7-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	PID ~~BLOWS~~ PER 6" (ppm)	SAMP REC. / SAMP LENG. (FT)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (Ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
0				0.25		Black	Asphalt Surface	—		
	5	8/6	0840 S-1							
2				1.5		Black to Olive	Organic (f-c) SAND some fines (<30%), some little gravel (≤15%) (subrounded <1" diam)	SM	Wet to moist	
						olive gray	(f-c) SAND and GRAVEL (rounded to	SW	Damp	
4							subrounded, <4" diam) trace fines <3%		Dam	
6										
	10	10/9	0900 S-2							
8	5									
10										
	10									
12	5									
14										
				≤15						
16	15/2	10/10	0930 S-3			Yellowish Orange	(f-c) SAND little ≤15% gravel (rounded, <1" diam) trace fines <3%	SW	Damp to moist	

TYPE OF DRILLING RIG: SONIC

METHOD OF ADVANCING BORING: Vibrate, spin, + wash 8" to 30 fbgs, 6" to 55 fbgs
METHOD OF SOIL SAMPLING: } 4" core - Vibrate, spin + wash (rock only) to 56 fbgs
METHOD OF ROCK CORING: }

GROUNDWATER LEVELS: DTW 18.1 fbgs @ 1000, 10-7-97, open hole
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 214
Page 1 of 2

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark 12
PROJECT NO: 7607#0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 214
START DATE: 10-7-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	~~BLOWS~~ PID PER 6" (ppm)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
16	2/5		S-3 (cont.)							
18	3/8								More fines	
	9/9								Wet	
20	9/20			±20						
	13					yellowish orange	(M) SAND, trace (f) sand <2%, trace fines <3%, No gravel	SP	Wet	
22	40									
24	30									
	21									
26	18/10.1	8'/10	10:10 S-4				<15%			
	6.7/20						(f-c) SAND, fine gravel (rounded to sub-rounded, <0.75" diam)	SW		
28	22									
	38						(M) SAND, no fines	SP	w/gravel	
30	46.4									
	62/75							SP	No gravel	
32	52									

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 214

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7609#0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 214
START DATE: 10-7-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
32										
	62					reddish orange	(m) SAND, no fines	SP	w/gravel	
	78									
34	75							SP	No gravel	
	74									
	64							SP	w/gravel	
	70									
36	0	10/10	1030 S-5					SP	no gravel	
	8									
	24						(f-c) SAND and GRAVEL (rounded to subrounded	SW	Fine gravel	24.1
	63		37.5-39							
38	63						<1" diam), no fines			
	65.1									
	68.9						(m) SAND, no fines, no gravel	SP	no gravel	5.7
	80.6		SB214-3941 - grain size							
40	23.2							~~SP~~	~~no gravel~~	
	23									
	37									
42	43									2.7
	51									
44	64									
	56					↓		↓	↓	33.7
46	6.2	8/7	1045 S-6			reddish orange		SP	no gravel	
	33.3					lt. gray	(f) Sand and some silt (<30%), some	SM	w/o clay	
48	38.7					↓	gravel (subangular) <4" diam)			56.1/47
	64.1									

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
} See page 1

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 214

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark 12
PROJECT NO: 7609 #0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 214
START DATE: 10-2-97
COMPLETION DATE: 10-2-97
MON. WELL NO.: 214D,S
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
48										
	22.6		S-6 (Cont.)			lt gray	(f-m) SAND and SILT, some gravel ≤30%	SM-SC	w/clay	
	23									
50	47						(angular to rounded [some], <3" diam.) little			
	91.0									8.2/4.8
	69.8					↓	clay <15%.			
	36.7									
52	20.1					Gray	SCHIST - mica & qtz rich	BRK		
	22.4									
	28.6	3.5/4	C-1				- Vertical foliation			
	15.0									
54	27									
	33									
	13									
56									Fracture zone at thick @ 55.0 ft	

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
} See Page 1

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 214

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7607#0320
LOGGED BY: Jac McIlo TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 215
START DATE: 10-6-97
COMPLETION DATE:
MON. WELL NO.: 215
CHECKED BY:

DEPTH (FEET)	PID ~~BLOWS~~ PER 6" (ppm)	SAMP REC. / SAMP LENG. (Ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L (Ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
0										
	2	4/5	1000 S-1	0.5		Black	Asphalt Cover	—	Dry, FILL	
	3.1				Med. Density	yellowish orange	(f-c) SAND little ~~some~~ and <15% Gravel (rounded to	SW	Dr	
2	4						sub-~~angular~~ rounded, <3" diam), no fines			
	4									
	5									
	6									
4	5									
	4									
6	3	5/10	1040 S-2							
	4									
	4									
	7									
8	3									
	3									
	3			±9			<15% <3%			
	3						(f) SAND ~~little some~~ (m) ~~Sand~~ <15% <3% for ~~some~~ trace silt (~~in clump~~)	SP	Some bedding	
10	3						(in clump), one piece of gravel		lineaments	
							rounded 1" diam. @ 11 fbgs			
12										
									Fining downwards	
									↓	
14									↓ Dry	
				± 15			<15%			
16	3	3/4	1050 S-3			~~Grayish Brown~~	(f-c) SAND little gravel (subrounded to	SW	Wet	

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, & wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate, spin, & wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 215

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7609 #0320
LOGGED BY: Joe Mulle TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 215
START DATE: 10-6-97
COMPLETION DATE: 10-6-97
MON. WELL NO.: 215
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG. (Ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
16										
	3 3 4		S-3 (cont.)	≈17.			Subrounded, <1" diam), no fines	SW	Wet	
18						Gray + brown	(f) SAND, little fines <15%	SP	Some bedding lineaments	
				≈19						
20		3/3	11¹⁵ C-1		0% RQD	Gray	Schist (Mica + Qtz rich)	BR		
							Vertical foliation			
22									0.5 ft fracture zone @ 18.5 Fbgs	
		1/3	11⁵⁰ C-2		20% RQD					
24										
26		8/25	12²⁰ C-3		25% RQD					
28										
30										
									2 ft fracture zone @ 30.5 Fbgs	
32										

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
} See Page 1

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 215

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymore OU2
PROJECT NO: 7609 #0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 215
START DATE: 10-6-97
COMPLETION DATE: 10-6-97
MON. WELL NO.: ~~10-649~~ 215
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
32	?		C-3 (cont.)		↓	↓	↓	↓		
		~~xxx~~	C-4							
34		~~xxx~~			25% RQD	Gray	Schist - mica + qtz rich	BR		
							- vertical foliation			
36										
38										
40			EOB							
42										
44										
46										
48										

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
} See page 1

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 215

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7609#0320
LOGGED BY: Joe Mello (PE+C) TRANSCRIBED BY: JM
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 216
START DATE: 9/23/97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	PID ~~BLOWS~~ PER 6" (PPM) Screening	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID (ppm)]
0										
1	5.1	3'/3'	1100	9"		DK Brown	Organics, (f) Sand, + Silt	TOPSOIL OL-SM	Moist, topsoil	0.0
2	NA 4.5					Red-brown	Silt, (f) Sand, trace gravel (subrounded)	SM	Dry Fill?	
3	6.1 5.6	S1		2'6"		Lt. Gray	(f-c) Sand, (f-c) gravel (<3" O.D.) (sub-rounded/subangular)	SP-GM	Dry	
4	4.0 0.0	3'/3'	1130 -0305 TOC			Yellow-orange		SP	Dry	
5										0.0
6		S2								
7	5.3	8.5'/8.5'	1260 -0709 TOC (w/Dup.)							
8	0.0 3.6									0.0
9	0.0 1.8									
10	0.0									
11			-1012 TOC							0.0
12										0.0
13	NA			12'6"		Lt. Gray	Silt, trace gravel (<3" O.D., subrounded), trace (f) Sand	ML	Dry, Weathered rock/Rock flour	0.0
14		S3		13'6"	RQD=0%	DK. Gray	Schist (Vert. foliations, mica rich)	Rock		
15										
16		C1								

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING: 4.75" O.D. - 10' Long outer casing. Advance and wash 6" O.D. - 10' Long sample casing w/ rotating bit
METHOD OF SOIL SAMPLING: Same as soil sampling except water is added
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 216

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7607#0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 216
START DATE: 9/23/97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
16										
17	NA	C1 (cont.) 5'/5'			0% RQD	Dk Gray	Schist (vert. foliations, mica rich)	Rock		
18		↓								
19										
20										
21										
22		C2 5'/5'							Iron-oxide staining trace white crystalline Quartz	
23		↓							↓	
24										
25										
26										
27		C3 7.5'/10'								
28		↓								
29										
30									Rapid rock coring	
31									↓	
32	↓				↓	↓	↓	↓		

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 216

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7607#0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 216
START DATE: 9/22/97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY :

DEPTH (FEET) 32	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [ ]
33		C3 (cont.) ↓			0% RQD	DK Gray	Schist (Vert. foliations, mica rich)	Bed Rock		
34										
35										
36										
37		C4 ↓								
38										
39		7"/10'								
40										
41										
42										
43										
44										
45										
46										
47		C5 ↓								
48										

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 216

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7609#0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 216
START DATE: 9/23/97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY :

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
48										
49		C5 (cont.) ↓ 6'/10'				PK Gray	Schist (Vert. foliations, mica rich)	BR		
50										
51										
52									Quartz Vein 1" thick	
53										
54										
55										
56										
57		C6 ↓ 8'/10'								
58										
59										
60										
61									trace pyrite crystals	
62										
3' {										
66										

EOB=66 fbgs

TYPE OF DRILLING RIG: SONIC

METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 216

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 217
START DATE: 10-23-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY :

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
0							Asphalt Surface 3" thick			
	1.8	5/5	1145 S-1			DK Brown	(f) SAND, little <15% silt, trace <3% gravel	SP		
2	4.0					Lt Brown	(f) SAND, little <15% gravel (f-c, rounded, <2" diam) trace <3% silt.		Dry	
	5.7									
	2.2									
	0.0									
4	0.0					Yellowish orange	(f-c) SAND some <30% gravel (f-c, rounded <2" diam, trace <3% silt	SW		
	0.0									
	0.0									
	0.0									
6	0.0	8/10	1200 S-2				(f-c) SAND and <50% GRAVEL (f-c, rounded, < 2.5" diam)	SW/GW		
8										
10							(f-m)			
							(f) SAND little <15% silt, little <15% gravel	SP		
	7.7									
12	5.9						(angular - rounded, <0.5" diam)			
	6.1									
	9.8									
	1.9									
14										
16	0.0	7/10	1210 S-3				(f-c) SAND little <15% gravel (rounded to angular,	SW		

See page 2 for continuation of description

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: _____ TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): Alliance / _____
GRD. SURFACE ELEVATION: _____ ELEVATION FROM: _____

BORING NO.: 217
START DATE: 10-23-97
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY: _____

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
16	0.0		(cont.) S-3				(f) <2.5" diam) little <3% trace <3% silt	SW		
18					1 ft	black			1-foot thick Black residue - probably sewage (see Notebook) No odor	
			15-19 grain size			yellowish brown				
20	2.1						(f) SAND <3% trace <3% silt, trace clay	SP	Wet	17-18 / 0.0
	0.0									
	0.0									
22	0.0									
24										
							To 26 fbgs			
26	0.0	10/10	1300 S-4			gray-green	(f-m) SAND trace <3% silt no gravel	SP		25-27.5 / 0.0
	0.0						Starts @ 26 fbgs			
	2.9									
	0.6									
28	13.4		26-35 grain size							27.5-30.0 / 0.0
	6.4									
	1.6									
	0.0									
30	0.0									30.0-32.5 / 0.0
	0.0									
	0.0									
	0.0									
32	0.0									
	0.0									

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 217
PAGE: 2 of 4

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 217
START DATE: 10-23-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
32										
	0.0		(cont.) S-4			gray-green	(f-m) SAND, trace silt, No gravel	SP	Wet	32.5-35
	0.0									0.0
34	0.0									
	0.0									35-36
	0.0					↓				0.0
36	0.0	1/1	1340 S-5			lt gray	↓	↓	↓	
	0.0			36						
		3.2/5	1400 C-1		40% RQD	gray-green	Schist (mica + qtz rich)	BR	Competent	
38							- near vertical foliation		↓	
									Broken-up	
40									↓	
							Qtz vein @ 41 fbgs 2" long		Competent	
42		3.2/5	1435 C-2		60% RQD				Broken-up	
44									Competent	
46 ~~48~~									↓	
48 ~~46~~		1/1	C-3		0% RQD		Qtz vein @ 47 fbgs 1.5" long		Broken-up	
50 ~~48~~		8/10	C-4		25% RQD		Qtz Vein @ 48 fbgs 1.5" long		↓	
52 ~~48~~									Competent	
56 ~~48~~			~~EOB 56 fbgs~~			↓			Broken-up	

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

Brown & Root Environmental

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:
Change in depth scale @ 41 fbgs to 2 feet per horiz. line

BORING NO.: 217
PAGE: 3 of 4

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymar - OU2
PROJECT NO: 7607#0320
LOGGED BY: Joe Mello TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE / Ron Ball
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 217
START DATE: 10-23-97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET) 56	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
58		5/5	10^10 C-5 10-24-97		60%RQD	Gray-green	Schist (mica + qtz rich)	BR	0.0 ft³/min discharge rate (41-61 Flgs)	
60							-55° foliation			
62					20%RQD				0.1 ft³/6min recharge rate	
64		6/10	11^30 C-6							
66										
68									—	
70			EOB 71 Flgs							
72										
74										
76										
78										
80										
82										
84										
86										
88										

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: 217

pg 1 of 2

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7609 #0320
LOGGED BY: Jeff MacManus TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 212
START DATE: 09/25/97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

	DEPTH (FEET)	PID ~~BLOWS~~ PER 6" (PPM) SCREENING	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
S1	1	6.1 / 5.8	3.6' / 3.5'	1148	6"		DK BRN.	ORGANICS, SAND, DRY	SW	DRY	
	2	5.5 / 6.8			3.0'		BROWN	GRAVEL, POORLY GRADED, DRY	GP	DRY	
	3	3.4 / 9.2						↓			
	4	14.6 / 7.2									
S2	5		1'8" / 30"	1159			BROWN	GRAVELLY SAND	SW	Moist	
	6	18.1									
S3	7	8.6 / 4.3					BROWN	MED SAND, with stones	SW	BROWN. MOIST/wet	
	8	22.7						↓			
	9	47.6									
	10	68.2	4'6" / 10"	1320			RED/ BROWN	COARSE SAND with GRAVEL	SW	moist/wet REDDISH BROWN	
	11	70.7						↓		:	
	12	48									
	13	87						↓			
	14	48					RED/ BROWN	MEDIUM SAND	SP	moist/wet REDDISH BROWN	
	15	33						↓			
	16	132									

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: SB-212

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7601 #0320
LOGGED BY: JeffMacManus TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: _____
START DATE: _____
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY:

DEPTH (FEET)	PID ~~BLOWS~~ PER 6" (ppm) screening	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [JHS/PID]
16										
17	12 11.4		1345	17'		RED/BROWN	MED SAND	SP	wet	
18	11.A					BROWN	COARSE SANDY GRAVEL	GW	wet	
19	5.6 22.9									
20	20.4 —	8'/10'								
21	23.2 29.6									
22	8.8 17.0									
23	17.0 28.0									
24	— 28.9									
25	40.2 6.5									
26	8.5 26.5									
27	1.9 2.2		1420			BROWN	COARSE SAND	SW	wet	
28	5.0 9.6									
29	9.1 10.8									
30	6.8 11.0						COARSE SANDY GRAVEL	GW	wet	
31	12.6 12.9									0.8 (30 to 31.5')
32	10.1 13.5					TAN/LT BROWN	SILT, MEDIUM PLASTIC	ML	wet	

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: SB-212

pg 3 of 6

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7601#0320
LOGGED BY: J MacManus TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.:
START DATE:
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG/ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [JHS/PID]
32										
33	11.6 14.0					Lt. BRWN	SILT, MEDIUM plasticity	ML	wet	10.7 (31.5 to 34')
34	12.7 21.0									
35	31.3 38.7			34'6"		BROWN	FINE-MEDIUM SAND	SW	wet	
36	25.0 38.5									4.8 (34.5 to 36')
[illegible]										9.7 (36-38.5)
37	20.2 12.5					BROWN	MEDIUM SAND	SP		
38	31.9 91.0									
39	45.0 63.5									12.7 (38.5-41)
40	91.6 10.8									
41	82.3 70.1			40.5		BRWN	COARSE SAND	SP		
42	82.5 56.8									10.4 (41-43.5)
43	41.0 54.1			42.5						
44	132 109					BROWN	FINE SAND	SP		
45	94.6 78.0									43.7 (43.5-46)
46	26.0 90.9			46						
[illegible]										

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: SB-212

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2 PG 4 OF 6
PROJECT NO: 7609#0320
LOGGED BY: J. MacManus TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: SB-212
START DATE:
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	~~BLOWS~~ PID PER 6" (PPM)	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PPM/JHS]
46										
47	7.8 / 22.2					BROWN	FINE SAND	SP	~~30.4 (46'-48.5')~~	38.4 (46-48.5')
48	36.3 / 118									
49	111 / 74.8								~~27.8 (48.5'-51')~~	27.8 (48.5-51')
50	151 / 30.8	9.5'/10'								
51	111 / 66.6			50.5'		TRN	FINE SAND, TRACE GRAVEL	SP		
52	32.5 / 56.7			51.5'		BRN	FINE SAND	SP	~~34.1~~	34.1 (51-53.5)
53	46.2 / 84.8									
54	29.0 / 111.2			53.5		BRN	FINE SAND	SP		28.3 (53.5-56)
55	177 / 146								BROWN with RUST STAIN STREAKS (MOD)	
56	90 / 219									
57	36 / 28.4					RED/ BRN	FINE SAND			11.1 (56-58)
58	51.3 / 62.7	5'/5'								
59	74.0 / 19.7									8.6 (59-60)
60	24.6 / 4.1					RED/ GRAY	FINE SAND and calcite (MOTTLED) with FRAGS COMPROSSED calcite CRYSTALS OF calcite CONSOLIDATED ROCK FRAGMENTS		Possibly calcite.	
61	2.0									3.5 (60-61')

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Deep. 59.5'?

Brown & Root Environmental

BORING NO.: SB-212

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2 — Pg 5 of 6
PROJECT NO: 7609 #0320
LOGGED BY: JimDeManus — TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: — ELEVATION FROM:

BORING NO.: SB-212
START DATE: _____
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [ ]
61										
62						GREY	schist, GREY,	Broken Rock		
63		1.5'/5'								
64										
65										
66										
67									Lost 1' of recovery	
68									weathered	
69		3'/10'					schist w/ quartite			
70							intrusions - conglomerate			
71							with quartz, pyrite,			
72										
73										
74										
75										
76										

59

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: SB-212

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: [illegible] TRANSCRIBED BY:
DRILLED BY (Company/Driller): Alliance /
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO. : 209D
START DATE: 10-14
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY :

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
0							Asphalt Surface			
2		4.5/5	0850 S-1			Brown	Brick, concrete, silt, black organic	Fill		
4							fine layer (6")			
6									- concrete bottom of S-1	
8		6/10	0910 - S-2				Qtz Boulder			
10								PT		
12							Brown fibrous Peat	PT	Organic Odor	
14										
16	0	8/10	0950 S-3			Brown	f-m SAND <15% silty, <3% trace rounded	SP	Peat in Top of S-3	
18							gravel <1" diam,			
20						Gray	f-m SAND <15% silty, little <15% rounded			
22							gravel <1" diam			
24										
26		5/10	1000 S-4				- trace (C) gravel			
28							(f-m) Sand trace silt, trace	SP		
30							rounded gravel <1"			
32										

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.:
PAGE: ____ of ____

BORING LOG FOR: Phase 1 Groundwater Investigation
PROJECT NO: 7607*0320
LOGGED BY: _____ TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): Alliance /
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO. : 709D
START DATE: _____
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY :

DEPTH (FEET)	PID PER 6" (ppm)	SAMP REC. / SAMP LENG. (ft)	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L (ft)	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [PID, Jar HS]
32										
34			S-4 (cont.)			Gray	(f-c) SAND trace silt, trace rounded	SW		
36		9/10	10¹⁰ S-5				gravel	SW		
38							(f-m) SAND trace Silt	SP		
40										
42										
44							(f) SAND trace Silt no gravel	SP		
46	0	7/10	10²⁵ S-6				(f-m) SAND trace Silt, no gravel	SP		
48										
50										
52										
54										
56							Run Time 1 hr	BR		~75 flags
58		0/10					- Qtz gravel (white, milky, clear, gray)			Bedrock
60							- Pink gravel too (feldspar? and Qtz)			
62							~~Iron Oxi~~			
64							- Iron Oxide staining on Schist gravel <		3" diameter	

TYPE OF DRILLING RIG: Sonic
METHOD OF ADVANCING BORING: 6" + 8" vibrate, spin, and wash
METHOD OF SOIL SAMPLING: 4" vibrate + spin
METHOD OF ROCK CORING: 4" vibrate + spin + wash

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: _____
PAGE: ____ of ____

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymar. OU2
PROJECT NO: 7609 #0320
LOGGED BY: _____ TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): ALLIANCE / RON
GRD. SURFACE ELEVATION: _____ ELEVATION FROM: _____

BORING NO. : SB-209
START DATE: 10/8/97
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY : _____

DEPTH (FEET) 0	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
	8.5 / 17.0		S-1			dk-gy	Silty Gravelly SAND.	SM-GM	Dry, Fill.	
2	19.0 / 24.1	5.0 / 5	1430				mostly F-crs sand, some F-crs		Cement, brick,	
	19.6 / 28.2						org gravel. Gravel up to 4"		glass	
4	30.4 / 46.0					Black - 1' Red - Fill Brick	+ silt below 3'			
5	33.9 / 113.0		10/8/97			dk-gy	Black hvy pet odor			
6	181.0 / 24.4		10/9/97				MUD, DARK GREY - SILTY GRAVEL broken concrete, Rubber, Gravelly	GM		
7	11.6 / 16.5						OLD tiles			
8	D / 3.8									
9	17.3 / 18.8	1' / 1'					TAR - OLD PARKING lot mtl			
10	25.2 / 30		9/10				ROOFING MTL - Asphalt shingles and SCRAP WOOD, silty MUD			
11	36.2 / 42.7									
12	45.6 / 48.7						PEAT, BROWN	PT	Roots ORGANIC	
13	37.4 / 40.1								+ FIBROUS	
14	52.4 / 28.4									
15	32.6 / 36.7									
16										

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: _____

WATER meter read 8929 @ End of DAY

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7607#0320
LOGGED BY: _____ TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: _____ ELEVATION FROM: _____

BORING NO.: SB-209
START DATE: 10/8
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY: _____

DEPTH (FEET) 15	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
16	ND ND						MED SAND	SP		
17	ND ND									
18	ND 19.4						silty MED SAND, GREY	SM		
19	60 60.7									
20	43.2 52.0	10/10	S-3 1020							
21	4.7 11.5						MED SAND, tan	SP		
22	1.3 6.0									
23	7.1 4.6									
24	11.7 10.1									
25	4.1 ND						fine SAND, GREY	SP		
26	ND									
27		6/10	S-4 1025				MED SAND, tan	SP		
28										
29										
30										
31										

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: _____

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7607#0320
LOGGED BY: _____ TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: _____ ELEVATION FROM: _____

BORING NO.: SB 209
START DATE: _____
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY: _____

DEPTH (FEET) 31	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
32							↓			
33							silty, med sand, Grey	SM		
34										
35										
36	11.5 ND	7/10	S-5 1030				Fine sand, Grey	SP		
37	ND 6.7									
38	0									
39	0									
40	0									
41	0									
42	0									
43	0									
44	0									
45	0									
46	0	10/10	S-6 1050.							
47	0						↓			

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: _____

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2
PROJECT NO: 7609#0320
LOGGED BY: _____ TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: _____ ELEVATION FROM: _____

BORING NO.: SB-209
START DATE: _____
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY: _____

DEPTH (FEET)	~~BLOWS~~ PID PER 6" ppm	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
47										
48	0									
49										
50	0 1.0									
51	5.5 0						MED SAND, TAN	SP		
52	20 24									
53	8 0									
54	33 114									
55	35 19									
56	3.6 0		S-7 1110				F-M SAND, tr silt	SM		
57	0 0									
58	16.8 14.1									
59	0 11.5	15/15					F-CR SAND, Rw (3/4") F gravel some			
60	28.8 14.2									
61	62.3 46.8									
62	57.0 70.1						Fine sand, tan			
63	12.5 20.1						MED, SAND, tan			

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.: _____

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2 — BORING NO.: SB209
PROJECT NO: 7609#0320 — START DATE:
LOGGED BY: — TRANSCRIBED BY: — COMPLETION DATE:
DRILLED BY (Company/Driller): ALLIANCE — MON. WELL NO.:
GRD. SURFACE ELEVATION: — ELEVATION FROM: — CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
64	44.9 54.9									
65	100 103						trace silt			
66	80 12.7	1'	5-8				COARSE SAND tan	SP		
67	24.7 33.2	05/05	1130							
68	30.2 34.6									
69	20.7 38.4						FINE SAND with cobbles, tan	SP		
70	57.4 61.1						FRACTURED ROCK (schist)			
71			C-9				(BROKEN DURING CORING?)			
72										
73										
74										
75										
75 ↓ 95							CRUSHED STONE (CRUSHED DURING RECOVERY)			
90							schist			

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.:

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymark OU2 — BORING NO.: B-216
PROJECT NO: 7609#0320 — START DATE: 9-23-97
LOGGED BY: Joe Mello — TRANSCRIBED BY: — COMPLETION DATE:
DRILLED BY (Company/Driller): ALLIANCE — MON. WELL NO.:
GRD. SURFACE ELEVATION: — ELEVATION FROM: — CHECKED BY:

Sample Interval	DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA* METHOD = [ ]
	0										
1	1	4.0 5.1 5.0		1100	9"		DK Brn	Topsoil Organic, DK Brown, roots fine sand + silt	OL-SM		
100%	2	4 4.5 4 5.6.1						Sandy gravel - cobbles rounded Fine Sand + Silt, trace gravel; red-brown	SM	dry	
	3	5.6 4.1 4.0		S-1	2'			Sand + Gravel, Lt.-gray F-C (F-C)	SP-GM	dry	
2	4	0.0 0.0					Yellow-orange	Sand (fine) + Gravel (F-C) subround-angular, yellowish orange	SP	dry	
1130	5	0.0 0.0		3-5 TOC				- gravel up to 3.5" diam	SP	dry	
100%	6	0.0 0.0								dry	
3	7	0.0 5.3		7-9 TOC w/Dup							
1200	8	0.0 3.6									
100%	9	0.0 1.8									
	10	0.0 0.0		10.5-12.5 TOC							
	11	0.0 0.0									
	12	0.0 0.0					Lt. Gray	Fines silt trace gravel 3" @ 0 down abruptly to fine Sand	ML		
	13	0.0			12.5						
	14				17.5			Rock - Schist vertical foliations	BR		
	15							- mica rich	BR		
	16										

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS: ~~5'2 Hrs~~
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.:

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymond OU2
PROJECT NO: 7601#0320
LOGGED BY: _____ TRANSCRIBED BY: _____
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: _____ ELEVATION FROM: _____

BORING NO.: 216
START DATE: 9-23-97
COMPLETION DATE: _____
MON. WELL NO.: _____
CHECKED BY: _____

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
16										
17					0%≥4°	DK gray	Schist Vertical foliations	Rock		
18							- mica rich			
19									Iron-oxide staining trace White quartz crystalline	
20										
21		5'/5'					Move			
22										
23										
24										
25										
26		7.5'/10'								
27										
28										
29										
30										
31									- Quick penetration	
32										

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:

GROUNDWATER LEVELS: 18.7 fbgs 9/24/97 @ 1432hrs
OTHER OBSERVATIONS: 300 gal used for drilling, 80 gallons have been drummed = 220 gal lost to formation

Brown & Root Environmental

BORING NO.: 216

BORING LOG FOR: Phase 1 Groundwater Investigation, Raymor. OU2
PROJECT NO: 7609#0320
LOGGED BY: Jeb Miller TRANSCRIBED BY:
DRILLED BY (Company/Driller): ALLIANCE
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: 216
START DATE: 9/23/97
COMPLETION DATE:
MON. WELL NO.:
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD =
32										
33					0% ≥4"	DK gray	Schist Bedrock	Rock		
34							-mica rich		Quick Penetration	
35										
36									Very broken Quick Penetration	
			EOB							

TYPE OF DRILLING RIG: SONIC
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO.:

BORING LUG FOR: Phase 1 Groundwater Investigation, Raymark OU2

PROJECT NO: 7601#0320

LOGGED BY: J. MacManus TRANSCRIBED BY: _____

DRILLED BY (Company/Driller): ALLIANCE

GRD. SURFACE ELEVATION: ELEVATION FROM:

6 of 6

BORING NO. : _____

START DATE: _____

COMPLETION DATE: _____

MON. WELL NO.: _____

CHECKED BY :

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [ ]
76										
77							Greenish broken schist, w/ quartzite intrusions	Broken		
78								ROCK		
79										
80										
81										
82										
83										
84										
85										
86										
									Water @ 33.1' @ 1828 hrs	
									depth to bottom of hole 85.5'	
									525 Gallons of water used	

TYPE OF DRILLING RIG: SONIC

METHOD OF ADVANCING BORING:

METHOD OF SOIL SAMPLING:

METHOD OF ROCK CORING:

GROUNDWATER LEVELS:

OTHER OBSERVATIONS:

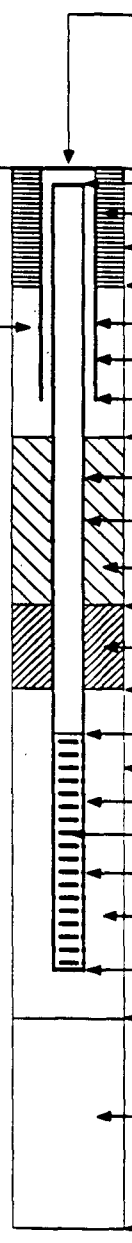
Brown & Root Environmental

BORING NO.: _____

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7609 #0320
PROJECT LOCATION: Stratford, CT — WELL NO: 206S
CLIENT: USEPA, RAC 1 — BORING NO: 206M, S
CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: DOT Land: N of Rte 95 - former Weigh Station
LOGGED BY: Joe Melo — DATE:
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	Quikrete Cement
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	None
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	4
DEPTH TOP OF PERVIOUS SECTION (Ft.)	6
DIAMETER OF BOREHOLE (In.)	8
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#00 sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	21
DEPTH BOTTOM OF FILTER PACK (Ft.)	22
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite Chips/MW-206M
END OF BORING	38

NOTE:

- ~~2 Centralizers~~
- Boring Advanced w/ ~~Diamond~~ Sonic

No Secondary Filter Pack
No Centralizers

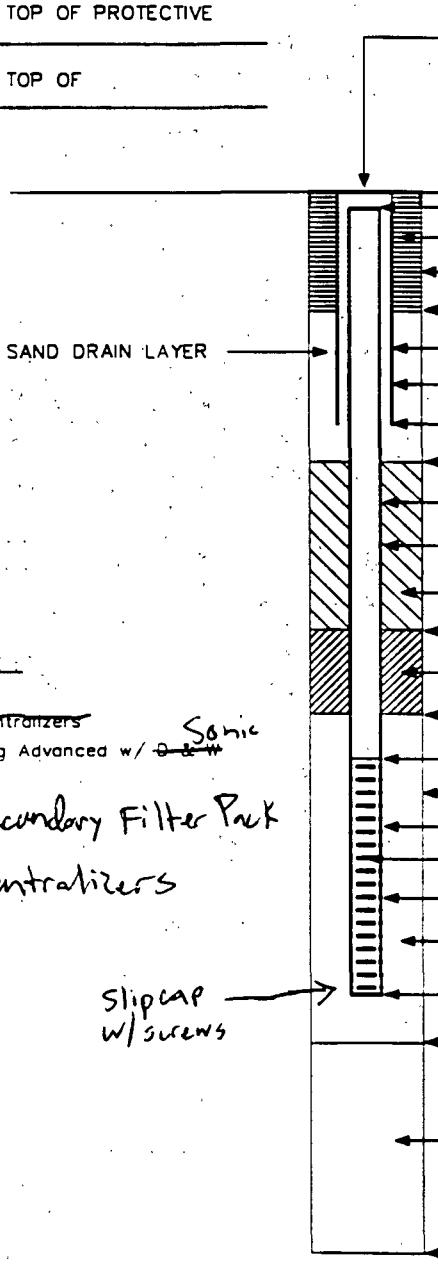
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase I Groundwater
PROJECT NO: 7609 +0320
PROJECT LOCATION: Stratford, CT
WELL NO: 206M
CLIENT: USEPA, RAC 1
BORING NO: 206M, S
CONTRACTOR: ALLIANCE
DRILLER: Ron Ball
BORING LOCATION: DOT land n. of Rte 95 - former weigh station
LOGGED BY: Joe Mello
DATE: 10-22-97
CHECKED BY:
DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	Quikcrete cement
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	MW-206S
DEPTH TOP OF SEAL (Ft.)	22
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	25
DEPTH TOP OF PERVIOUS SECTION (Ft.)	27
DIAMETER OF BOREHOLE (In.)	6
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#00 SAND
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	34
DEPTH BOTTOM OF FILTER PACK (Ft.)	35
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite Chips
END OF BORING	38

NOTE:
- ~~2 Centralizers~~
- Boring Advanced w/ ~~D & W~~ Sonic

No Secondary Filter Pack
No Centralizers

GENERAL NOTE:
1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase I Groundwater — PROJECT NO: 7601 +0320

PROJECT LOCATION: Stratford, CT — WELL NO: 207S

CLIENT: USEPA, RAC I — BORING NO: 207 (M+S)

CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: On traffic island south + adjacent to Raymark Site

LOGGED BY: Joe Mello — DATE: 10-11-97

CHECKED BY: — DATE:

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING

ELEVATION TOP OF RISER PIPE

GROUND ELEVATION

FLUSH MOUNT PROTECTIVE CASING

SAND DRAIN LAYER

LENGTH RISER PIPE BELOW ~~GRD.~~ SURF.(Ft.)	0.29 Ft-RB (Top)
TYPE OF SURFACE SEAL	Quikrete Cement
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8"
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.05 O.D.: 2.3	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	None
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	12
DEPTH TOP OF PERVIOUS SECTION (Ft.)	15
DIAMETER OF BOREHOLE (In.)	8
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	6 Slot
PERVIOUS SECTION (In.) I.D.: 2.05 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	ØØN ~~6 Slot~~ Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	30
DEPTH BOTTOM OF FILTER PACK (Ft.)	31
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	MW-207M + Bentonite Chips
END OF BORING	95

NOTE:
- Ø Centralizers
- Boring Advanced w/ ~~D & W~~ Sonic

Secondary Filter Pack
- 12-13 fbgs
- ØØØ Sand

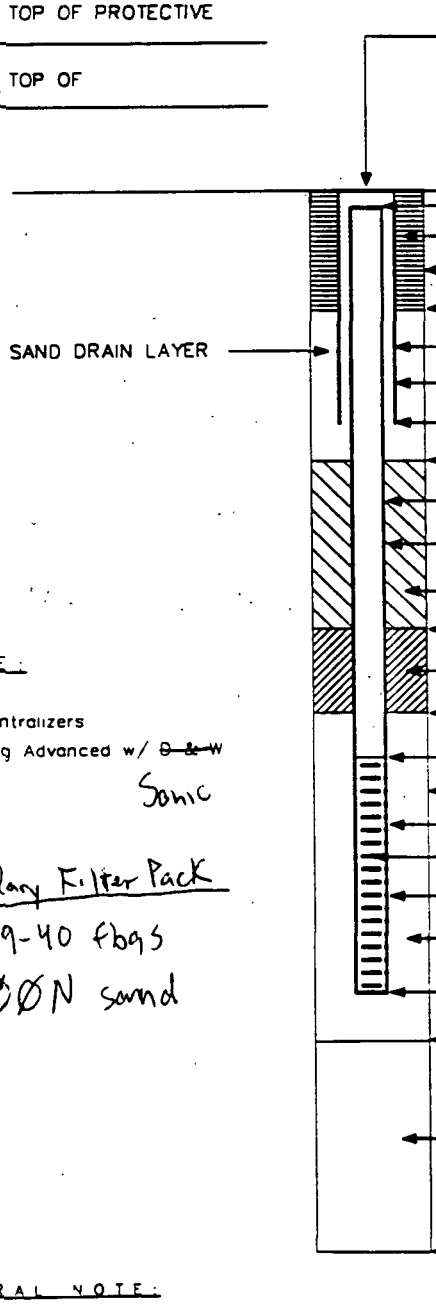
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Cosing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7609 40320
PROJECT LOCATION: Stratford, CT — WELL NO: 207M
CLIENT: USEPA, RAC 1 — BORING NO: 207(M,S)
CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: On traffic island South and adjacent to Raymark Site
LOGGED BY: Joe Mello — DATE: 10-11-97
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION



LENGTH RISER PIPE BELOW ~~GRD~~. SURF.(Ft.)	0.26 ft-RB(Top)
TYPE OF SURFACE SEAL	Bulk cement
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
OEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.05 O.D.: 2.3	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	See MW-207S
DEPTH TOP OF SEAL (Ft.)	31
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	39
DEPTH TOP OF PERVIOUS SECTION (Ft.)	42
DIAMETER OF BOREHOLE (In.)	6"
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.05 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	ØØ Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	52
DEPTH BOTTOM OF FILTER PACK (Ft.)	53
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite Chips
END OF BORING (Ft.)	95

NOTE:
1
- ~~2~~ Centralizers
- Boring Advanced w/ ~~D & W~~ Sonic

Secondary Filter Pack
- 39-40 fbgs
- ØØN sand

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7607 40320
PROJECT LOCATION: Stratford, CT — WELL NO: 208S
CLIENT: USEPA, RAC 1 — BORING NO: 208(D, S)
CONTRACTOR: ALLIANCE — DRILLER: Ben Grim — BORING LOCATION: S of RR Tracks
LOGGED BY: Joe Mello — DATE: 9-30-97 — W. of Raymark Site
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION

FLUSH MOUNT PROTECTIVE CASING
8" Diam Traffic Rated

SAND DRAIN LAYER

LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	0.24
TYPE OF SURFACE SEAL	Quikcrete
DIA. SURFACE SEAL BGS (In.)	18"
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1 3
I.D. OF PROTECTIVE CASING (In.)	8"
TYPE OF PROTECTIVE CASING	½" Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2.0
RISER PIPE (In.) I.D.: 2 O.D.:	2.25
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bentonite Chips
DEPTH TOP OF SEAL (Ft.)	4
TYPE OF SEAL	(3/8") Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	10
Depth Bottom of Secondary Filter #000	11
DEPTH TOP OF PERVIOUS SECTION (Ft.)	13
DIAMETER OF BOREHOLE (In.)	8.75 (8" casing)
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.006 Slot
PERVIOUS SECTION (In.) I.D.: 2 O.D.:	2.25
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	# 000 N
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	28
DEPTH BOTTOM OF FILTER PACK (Ft.)	29
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite Chips MW-208D
END OF BORING	78

NOTE:
- ~~2 Contractors~~
- Boring Advanced w/ D & W

No centralizers used

MW-208D well constructed below MW-208S in same borehole

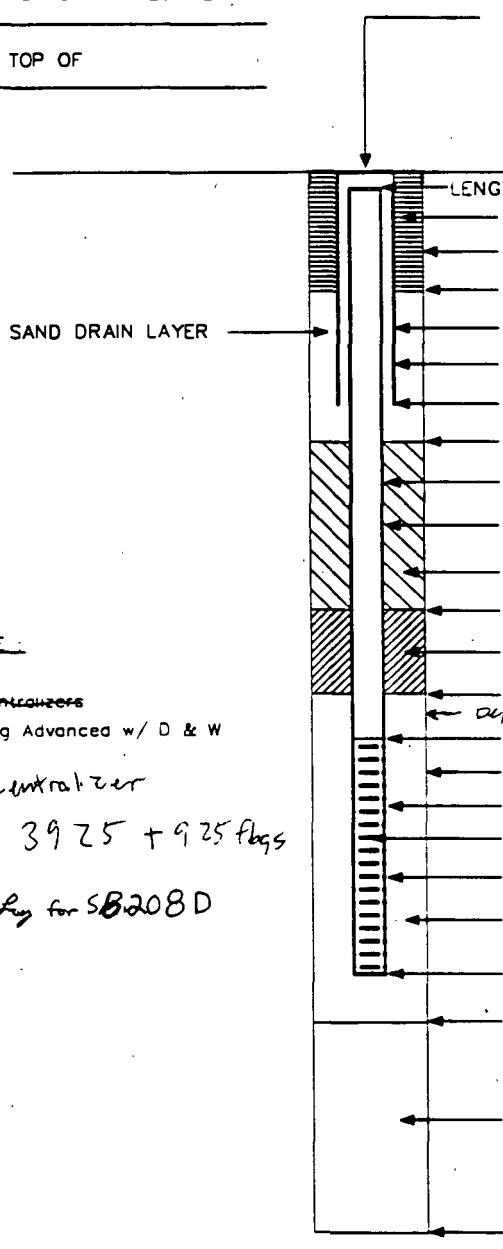
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase I Groundwater — PROJECT NO: 7609 +0320
PROJECT LOCATION: Stratford, CT — WELL NO: MW 208M
CLIENT: USEPA, RAC I — BORING NO: 208M
CONTRACTOR: ALLIANCE — DRILLER: Ben Grim — BORING LOCATION: S. of RR tracks
LOGGED BY: Joe Mello — DATE: 9-30-97 — W. of Raymark Site
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	0.25
TYPE OF SURFACE SEAL	Qu. Crete
DIA. SURFACE SEAL BGS (In.)	18"
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.3
I.D. OF PROTECTIVE CASING (In.)	8"
TYPE OF PROTECTIVE CASING	½" Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2.0
RISER PIPE (In.) I.D.: 2	O.D.: 2.25
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bentonite/Cem
DEPTH TOP OF SEAL (Ft.)	38
TYPE OF SEAL	(3/8") Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	43
← Depth bottom of Secondary filter Pack 44	
DEPTH TOP OF PERVIOUS SECTION (Ft.)	46.25
DIAMETER OF BOREHOLE (In.)	6.5" / 6.0" Casing
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.020 Slot
PERVIOUS SECTION (In.) I.D.: 2	O.D.: 2.25
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	# 0 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	55.25
DEPTH BOTTOM OF FILTER PACK (Ft.)	56
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	None
END OF BORING (Ft.)	56

NOTE:
- ~~2 Centralizers~~
- Boring Advanced w/ D & W

2 centralizer
@ 3925 + 925 flgs

see log for SB208D

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7607 40320
PROJECT LOCATION: Stratford CT — WELL NO: M 208D
CLIENT: USEPA, RAC 1 — BORING NO: 208(D,S)
CONTRACTOR: ALLIANCE — DRILLER: Ben Grim — BORING LOCATION: S of Railroad tracks
LOGGED BY: Jay Mills — DATE: 4-29-97 — W. of Raymark Site.
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION

FLUSH MOUNT PROTECTIVE CASING
8" Diam Traffic Rated

SAND DRAIN LAYER

MW-208S well constructed above MW-208D in same borehole

NOTE:
- ~~2 Centralizers~~
- Boring Advanced w/ ~~D & W~~ Sonic

1 - Centralizer used at 60 fbgs

LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	0.26
TYPE OF SURFACE SEAL	Quikrete
DIA. SURFACE SEAL BGS (In.)	18"
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	~~@ 16"~~ 1.3
I.D. OF PROTECTIVE CASING (In.)	8"
TYPE OF PROTECTIVE CASING	¼" Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	~~@ 18"~~ 1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2.0
RISER PIPE (In.) I.D.: 2	O.D.: 2.25
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	~~Cement/Bentonite Grout~~ MW-208S/Bentonite Chips
DEPTH TOP OF SEAL (Ft.)	~~@ 61.2~~ 29
TYPE OF SEAL	Bentonite Chips ~~3/8 in~~
DEPTH BOTTOM OF SEAL (Ft.)	61.2
Depth bottom of Secondary Sand (#00)	62.5
DEPTH TOP OF PERVIOUS SECTION (Ft.)	65
DIAMETER OF BOREHOLE (In.)	6.5" (6" casing)
TYPE OF PERVIOUS SECTION	~~@~~ ~~0.020 Slot~~ PVC
TYPE OF OPENINGS	0.020 Slot
PERVIOUS SECTION (In.) I.D.: 2"	O.D.: 2.25"
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#0 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	73
DEPTH BOTTOM OF FILTER PACK (Ft.)	74
TYPE OF BACKFILL (~~GROUT~~) BELOW FILTER PACK	~~Cement/Bentonite Chips~~ Bentonite Chips @ 74
END OF BORING	78

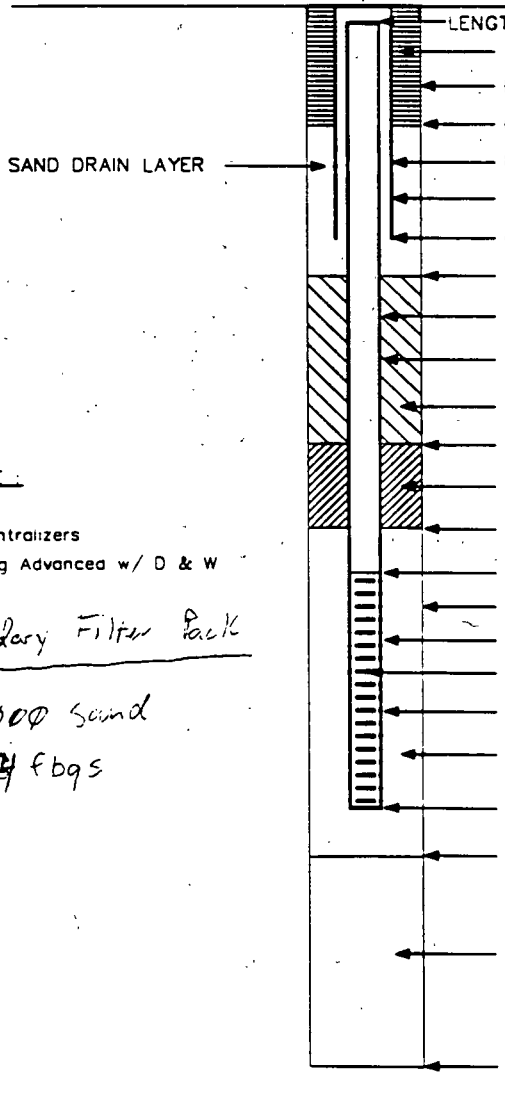
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase I Groundwater — PROJECT NO: 7609 +0320
PROJECT LOCATION: Stratford, CT — WELL NO: 209S
CLIENT: USEPA, RAC 1 — BORING NO: 209
CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: Stratford Shopping Center parking lot
LOGGED BY: Joel Mello — DATE: 10-10-97
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	Qu. Krete
DIA. SURFACE SEAL BGS (In.)	14
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.5
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.66
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2 O.D.: 2.375	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	None
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	Med. Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	3
DEPTH TOP OF PERVIOUS SECTION (Ft.)	5
DIAMETER OF BOREHOLE (In.)	8
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	6 Slot
PERVIOUS SECTION (In.) I.D.: 2 O.D.: 2.375	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#00 sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	13
DEPTH BOTTOM OF FILTER PACK (Ft.)	14
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite Chips / MW-209B
END OF BORING	91

NOTE:
- 2 Centralizers
- Boring Advanced w/ D & W

Secondary Filter Pack
- #000 Sand
- 3-14 fbgs

GENERAL NOTE:
1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7609 +0320

PROJECT LOCATION: Stratford, CT — WELL NO: 209D

CLIENT: USEPA, RAC 1 — BORING NO: 209D

CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: Stratford Shopping Center parking lot - Front

LOGGED BY: Joe Mello — DATE: 10-22-97

CHECKED BY: — DATE:

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING: —

ELEVATION TOP OF RISER PIPE: —

GROUND ELEVATION: —

FLUSH MOUNT PROTECTIVE CASING

SAND DRAIN LAYER

LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	—
TYPE OF SURFACE SEAL	QuiKrete Concrete
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Cement/Bentonite Grout
DEPTH TOP OF SEAL (Ft.)	34
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	54
DEPTH TOP OF PERVIOUS SECTION (Ft.)	58.3
DIAMETER OF BOREHOLE (In.)	6
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	ØØ Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	68.3
DEPTH BOTTOM OF FILTER PACK (Ft.)	69
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	None
END OF BORING	69

NOTE:

- 2 Centralizers
- Boring Advanced w/ ~~D & W~~ Sonic

Secondary Filter Pack

- ØØØ Sand
- 54-55 fbgs

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7607 A0320

PROJECT LOCATION: Stratford, CT — WELL NO: MW-209B

CLIENT: USEPA, RAC 1 — BORING NO: 209B (New)

CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: Stratford Shopping Center - Parking Lot

LOGGED BY: Joe Mello — DATE: 10 - 15 - 97

CHECKED BY: — DATE:

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING

ELEVATION TOP OF RISER PIPE

GROUND ELEVATION

FLUSH MOUNT PROTECTIVE CASING

SAND DRAIN LAYER

LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	Rebar cut Quikrete Cement
DIA. SURFACE SEAL BGS (In.)	18-24 (surface)
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.05 O.D.:	2.3
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Cement/Bentonite grout
DEPTH TOP OF SEAL (Ft.)	72
TYPE OF SEAL	72 Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	82
DEPTH TOP OF PERVIOUS SECTION (Ft.)	85
DIAMETER OF BOREHOLE (In.)	5
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.05 O.D.:	2.3
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#00 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	100
DEPTH BOTTOM OF FILTER PACK (Ft.)	~~100~~ 101
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	None
END OF BORING	101

NOTE:
- 5 / 7 Centralizers
- Boring Advanced w/ ~~D & W~~ Sonic

Secondary Filter Pack
- 000 SAND
- 82-83 Flgs

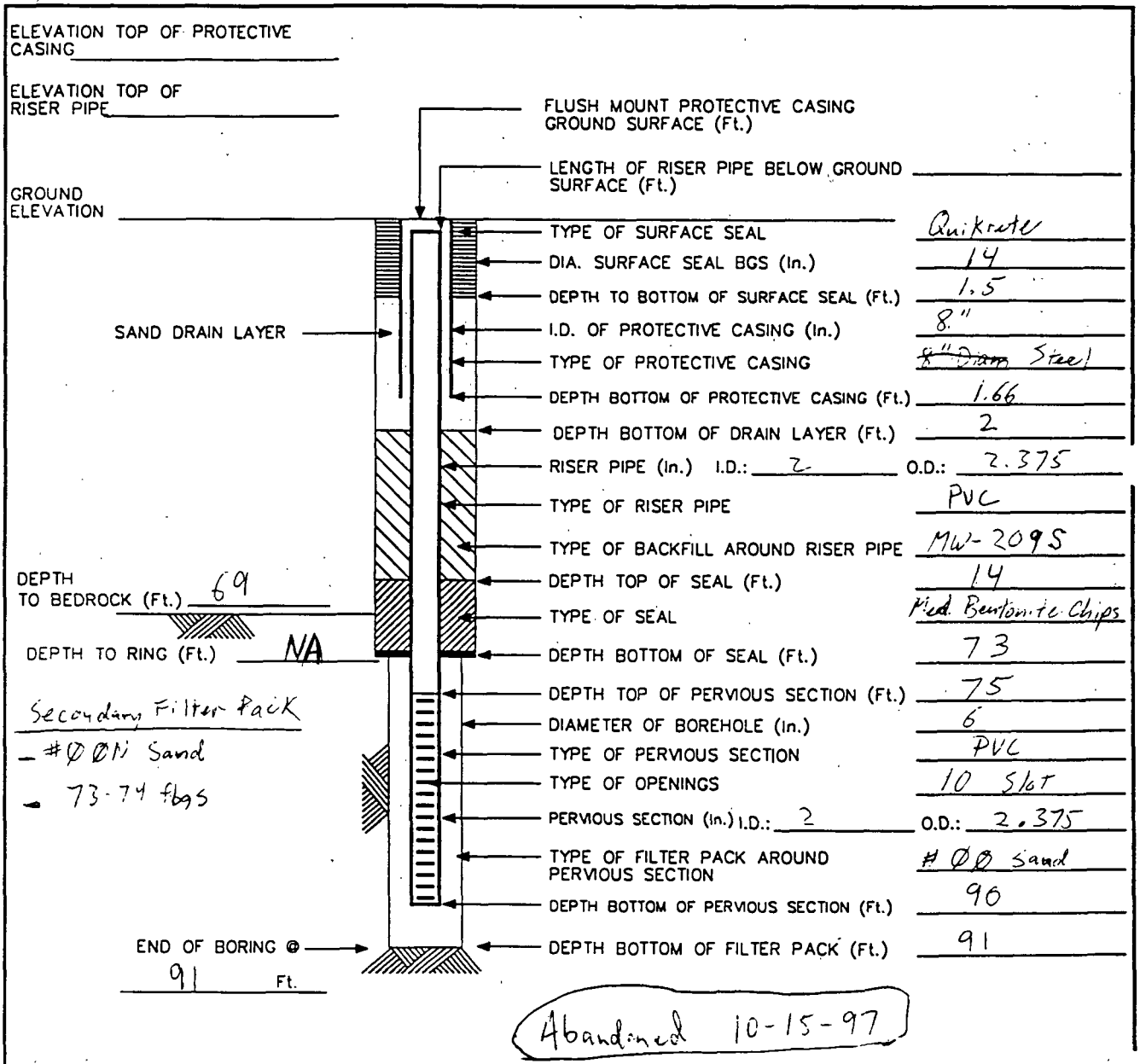
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

BEDROCK MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2
PROJECT LOCATION: Stratford CT
CLIENT: EPA - New England
CONTRACTOR: Alliance Env. DRILLER: Ron Ball
LOGGED BY: Jeff MacManus DATE: 10-9-97
CHECKED BY: DATE:

PROJECT NO: 7607-0320
WELL NO: 209B
BORING NO: 209
BORING LOCATION: Stratford Shopping Center parking lot



Abandoned 10-15-97

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7609 40320

PROJECT LOCATION: Stratford, CT — WELL NO: 210S

CLIENT: USEPA, RAC 1 — BORING NO: 210 (New)

CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: Stratford Shopping Center - behind the buildings

LOGGED BY: Joe Mello — DATE: 10-26-97

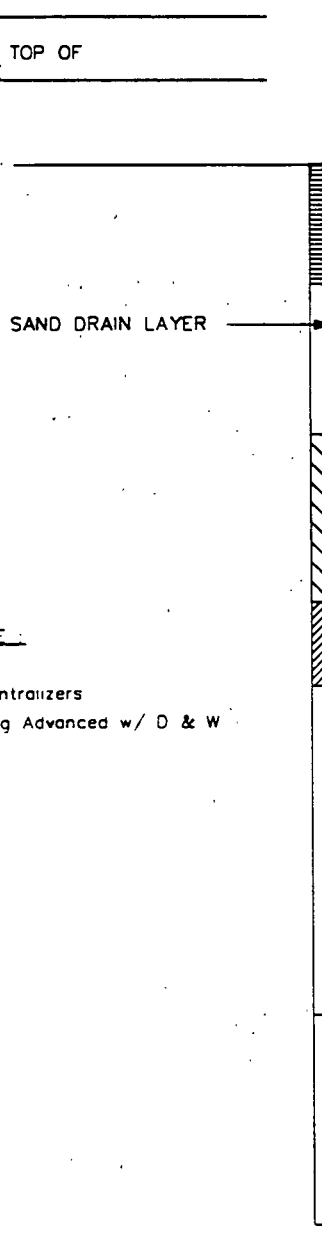
CHECKED BY: — DATE:

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING: ____

ELEVATION TOP OF RISER PIPE: ____

GROUND ELEVATION: ____



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	Quikrete Cement
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	None
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	5
DEPTH TOP OF PERVIOUS SECTION (Ft.)	7
DIAMETER OF BOREHOLE (In.)	8
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	ØØ Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	22
DEPTH BOTTOM OF FILTER PACK (Ft.)	23
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite Chips/MW-210D
END OF BORING	40

NOTE:

- 2 Centralizers
- Boring Advanced w/ D & W

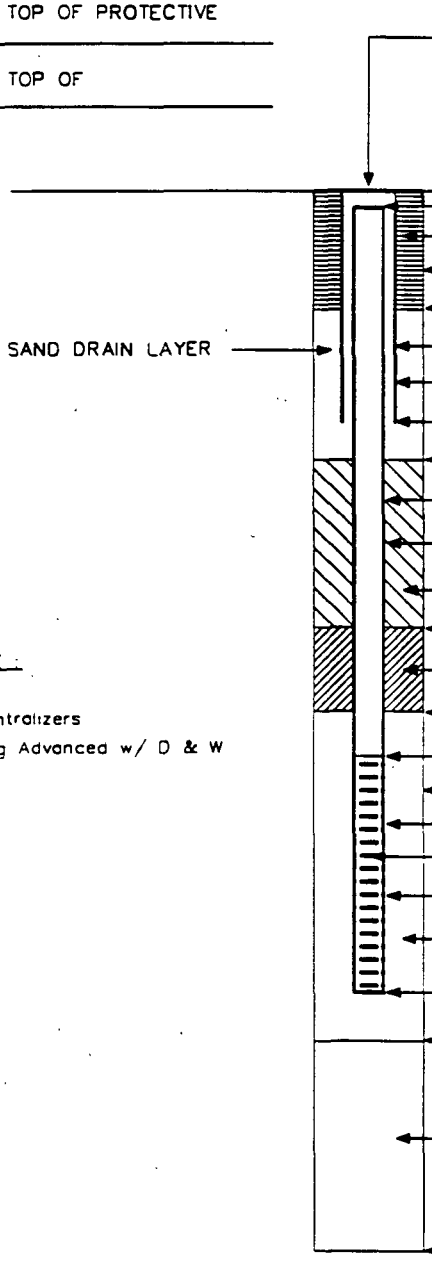
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7609 +0320
PROJECT LOCATION: Stratford, CT — WELL NO: 210D
CLIENT: USEPA, RAC 1 — BORING NO: 210 (New)
CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: Stratford Shopping Center - behind the buildings
LOGGED BY: Joe Mello — DATE: 10-26-97
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	QuiKrete Cement
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	MW-210S
DEPTH TOP OF SEAL (Ft.)	23
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	25
DEPTH TOP OF PERVIOUS SECTION (Ft.)	27
DIAMETER OF BOREHOLE (In.)	6
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	20 Slot
PERVIOUS SECTION (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#0 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	32
DEPTH BOTTOM OF FILTER PACK (Ft.)	33
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite Chips
END OF BORING	40

NOTE:
- 2 Centralizers
- Boring Advanced w/ D & W

GENERAL NOTE:
1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase I Groundwater — PROJECT NO: 7607.40320
PROJECT LOCATION: Stratford, CT — WELL NO: MW-211S
CLIENT: USEPA, RAC I — BORING NO: 211 (B,S)
CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: On D.O.T. property north of Rte 95
LOGGED BY: Joe Mello — DATE: 10-13-97
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION

FLUSH MOUNT PROTECTIVE CASING

SAND DRAIN LAYER

LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	Quikcrete Cement
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.05 O.D.: 2.3	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	None
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	9
DEPTH TOP OF PERVIOUS SECTION (Ft.)	12
DIAMETER OF BOREHOLE (In.)	8
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.05 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#0 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	27
DEPTH BOTTOM OF FILTER PACK (Ft.)	28
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite Chips, cement/ bentonite grout, and MW-211B
END OF BORING	171

NOTE:
- Ø Centralizers
- Boring Advanced w/ D & W

Secondary Filter Pack
- 9-10 fbgs
- #0 sand

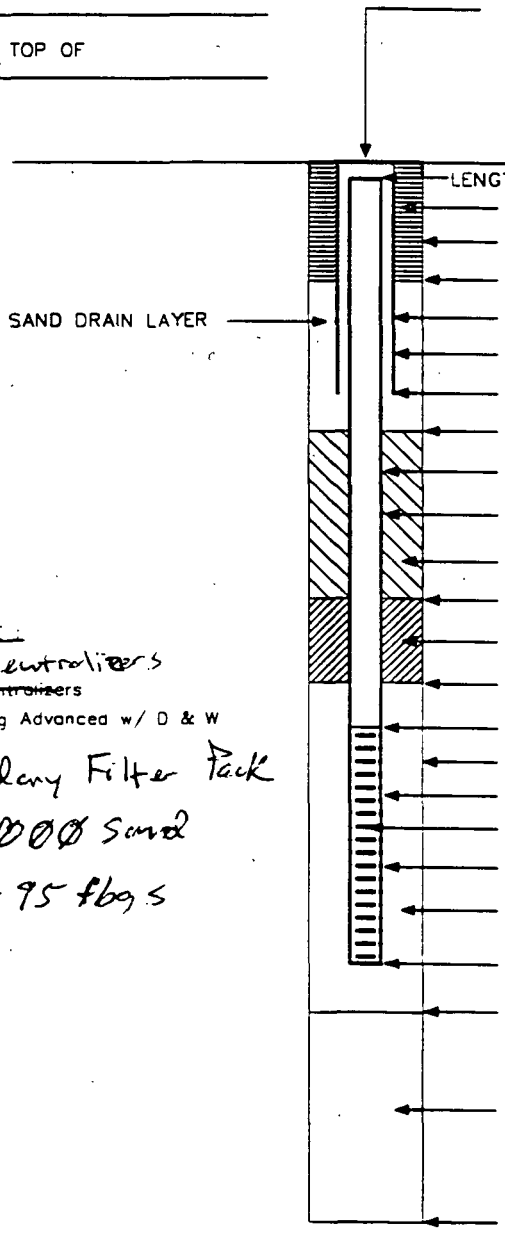
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater
PROJECT NO: 7609 40320
PROJECT LOCATION: Stratford, CT
WELL NO: ~~206~~ 211M
CLIENT: USEPA, RAC 1
BORING NO: ~~206~~ 211 D, M
CONTRACTOR: ALLIANCE
DRILLER: Ron Brill
BORING LOCATION: DOT Property, N of Rte 95 on grass-covered section
LOGGED BY: Joe Mello
DATE: 10-25-97
CHECKED BY:
DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	Quikrete cement
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.03 O.D.: 2.30	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Cement/Bentonite Grout
DEPTH TOP OF SEAL (Ft.)	82
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	94
DEPTH TOP OF PERVIOUS SECTION (Ft.)	97
DIAMETER OF BOREHOLE (In.)	8
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#00 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	104.5
DEPTH BOTTOM OF FILTER PACK (Ft.)	105
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	MW-211D / Bentonite Chips
END OF BORING	144

NOTE:
- 3 centralizers
- ~~2 Centralizers~~
- Boring Advanced w/ D & W

Secondary Filter Pack
- #00 Sand
- 94-95 fbgs

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7609 40320
PROJECT LOCATION: Stratford, CT — WELL NO: 211D
CLIENT: USEPA, RAC1 — BORING NO: 211D, M
CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: DOT Property, N of Rte 25 on grass covered section
LOGGED BY: Joe Mello — DATE: 10-25-97
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION

FLUSH MOUNT PROTECTIVE CASING

SAND DRAIN LAYER

LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	Quikrete Cement
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	MW-211M / grout + chips
DEPTH TOP OF SEAL (Ft.)	105
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	~~125~~ 123.5
DEPTH TOP OF PERVIOUS SECTION (Ft.)	128
DIAMETER OF BOREHOLE (In.)	~~8~~ 6
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#000 SAND
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	143
DEPTH BOTTOM OF FILTER PACK (Ft.)	144
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	None
END OF BORING	144

NOTE:
- 4 ½ Centralizers
- Boring Advanced w/ ~~D & W~~ Sonic

Secondary Filter Pack
- #000
- 123.5 - 125 fbgs

GENERAL NOTE:
1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

BEDROCK MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

OJECT NAME: Raymark 042 — PROJECT NO: 7607

PROJECT LOCATION: Stratford, CT — WELL NO: MW-211B

CLIENT: EPA - New England — BORING NO: MW-211(B,S)

CONTRACTOR: Alliance — DRILLER: Ron Ball — BORING LOCATION: On DOT property north of Rte 95

LOGGED BY: Joe Mullig — DATE: 10-13-97

CHECKED BY: — DATE:

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING

ELEVATION TOP OF RISER PIPE

GROUND ELEVATION

FLUSH MOUNT PROTECTIVE CASING GROUND SURFACE (Ft.)

LENGTH OF RISER PIPE BELOW GROUND SURFACE (Ft.)

SAND DRAIN LAYER

4 centralizers used - 5 foot above the screen and every 30 after until 28 fbgs.

DEPTH TO BEDROCK (Ft.) 150

DEPTH TO RING (Ft.)

Secondary Filter Pack

- 152 - 153 fbgs
- #0 #N sand

END OF BORING @ 171 Ft.

TYPE OF SURFACE SEAL	Quikcrete cement
DIA. SURFACE SEAL BGS (In.)	18-24"
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.05 O.D.:	2.3
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bentonite Chips, cement bentonite grout, MW-211S
DEPTH TOP OF SEAL (Ft.)	136.5
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	152
DEPTH TOP OF PERVIOUS SECTION (Ft.)	155
DIAMETER OF BOREHOLE (In.)	5
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.05 O.D.:	2.3
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#0 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	170
DEPTH BOTTOM OF FILTER PACK (Ft.)	170.5

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7607 40320

PROJECT LOCATION: Stratford CT — WELL NO: MW 212S

CLIENT: USEPA, RAC 1 — BORING NO: SB 212

CONTRACTOR: ALLIANCE — DRILLER: Ben Grim — BORING LOCATION: ~~DRW Fry pool~~ Ferry Blvd

LOGGED BY: Jeff MacManus — DATE: 9/26/87

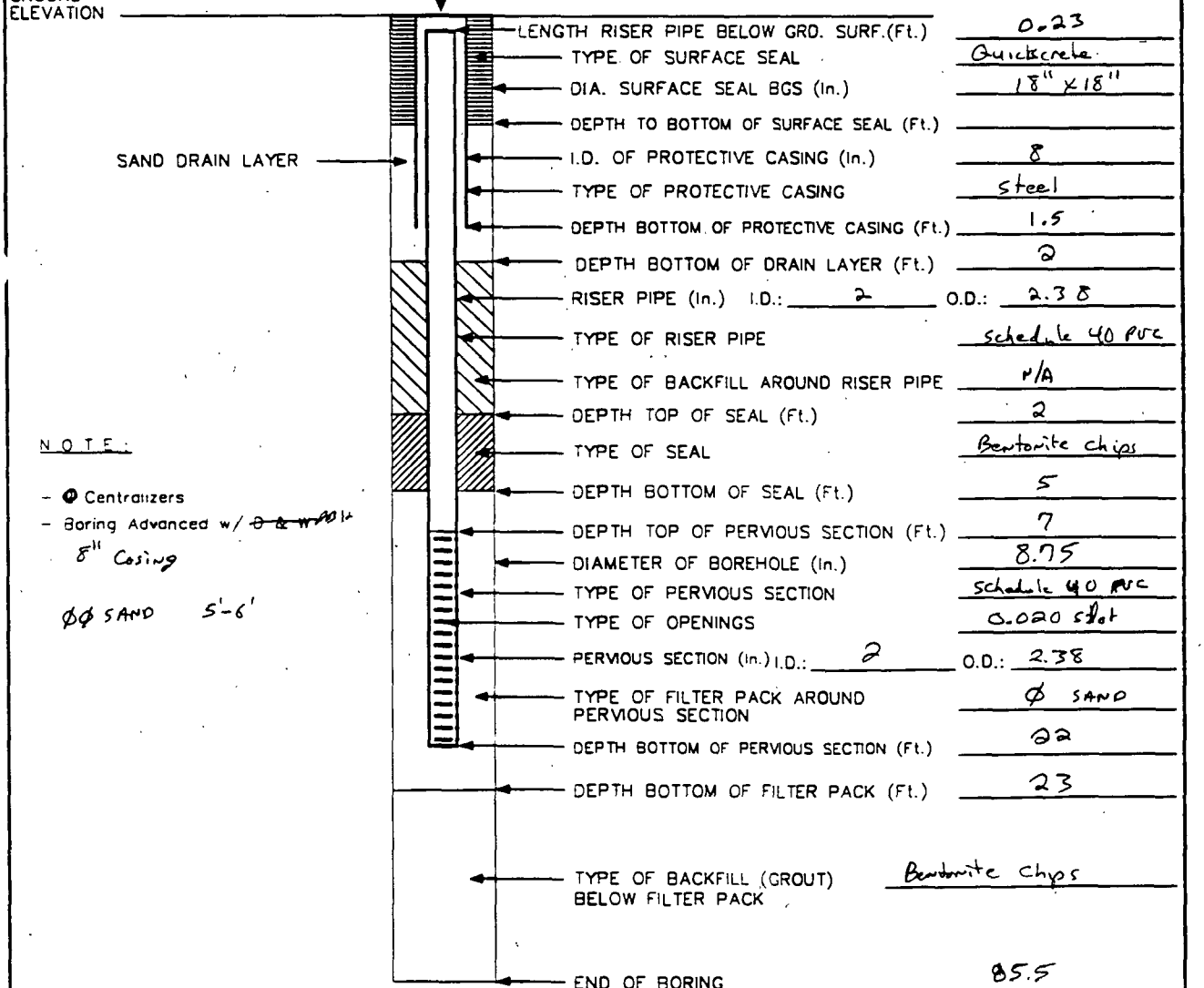
CHECKED BY: — DATE:

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING

ELEVATION TOP OF RISER PIPE

GROUND ELEVATION



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	0.23
TYPE OF SURFACE SEAL	Quickcrete
DIA. SURFACE SEAL BGS (In.)	18" X 18"
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2 O.D.:	2.38
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	N/A
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	5
DEPTH TOP OF PERVIOUS SECTION (Ft.)	7
DIAMETER OF BOREHOLE (In.)	8.75
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.020 slot
PERVIOUS SECTION (In.) I.D.: 2 O.D.:	2.38
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Ø SAND
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	22
DEPTH BOTTOM OF FILTER PACK (Ft.)	23
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite Chips
END OF BORING	85.5

NOTE:

- Ⓒ Centralizers
- Boring Advanced w/ ~~8 & 4 1/4~~ 8" Casing

ØØ SAND 5'-6'

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7609 +0320

PROJECT LOCATION: Stratford, CT — WELL NO: 212M

CLIENT: USEPA, RAC 1 — BORING NO: 212 (M.D)

CONTRACTOR: ALLIANCE — DRILLER: Bill Grim — BORING LOCATION: S of 95 E of Schuck's Auto

LOGGED BY: Joe Mullo — DATE: 9-28-97

CHECKED BY: — DATE:

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING

ELEVATION TOP OF RISER PIPE

GROUND ELEVATION

FLUSH MOUNT PROTECTIVE CASING

SAND DRAIN LAYER

LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	0.30
TYPE OF SURFACE SEAL	Quickcrete
DIA. SURFACE SEAL BGS (In.)	18"
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2.0
RISER PIPE (In.) I.D.: 2"	O.D.: 2.25
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	1:12 Bentonite/Cement Grout
DEPTH TOP OF SEAL (Ft.)	29.5
TYPE OF SEAL	Bentonite (Med Chips)
DEPTH BOTTOM OF SEAL (Ft.)	35.0
DEPTH TOP OF PERVIOUS SECTION (Ft.)	38.0
DIAMETER OF BOREHOLE (In.)	9.
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.020 Slot
PERVIOUS SECTION (In.) I.D.: 2	O.D.: 2.25
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#0
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	43.0
DEPTH BOTTOM OF FILTER PACK (Ft.)	44.0
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	MW-212D (44-55.8 Ft bgs)
END OF BORING	55.8 ~~61~~

NOTE:

- 2 Centralizers
- Boring Advanced w/ ~~D & W~~ Sonic

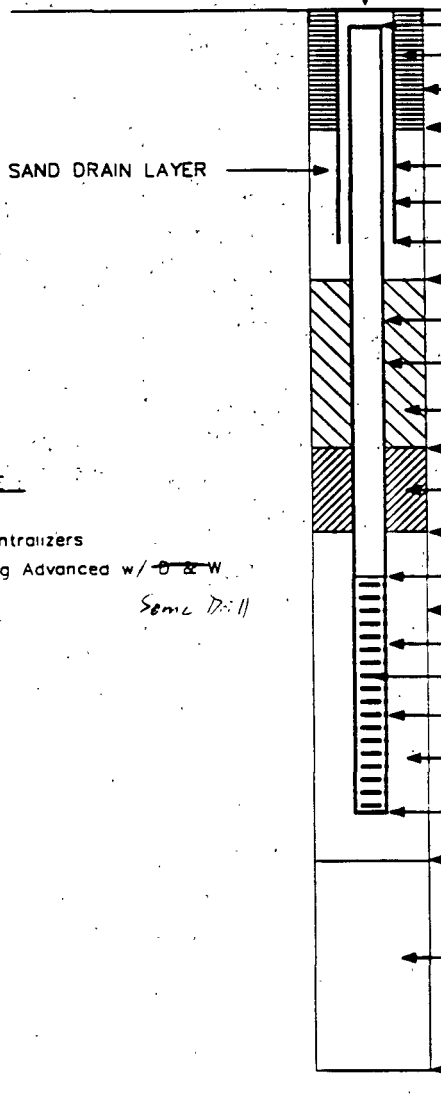
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7607 40320
PROJECT LOCATION: Stratford CT — WELL NO: 212D
CLIENT: USEPA, RAC 1 — BORING NO: SB-212 (M, D)
CONTRACTOR: ALLIANCE — DRILLER: Ben — BORING LOCATION: S of 95 E. of Schunk's Auto
LOGGED BY: Jon Mielli — DATE: 9-27-97
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	0.24
TYPE OF SURFACE SEAL	Quikcrete
DIA. SURFACE SEAL BGS (In.)	18
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2.0
RISER PIPE (In.) I.D.: 2 O.D.: 2.25	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	1:12 Bentonite/Cement Grout [MW-212M (30-47 bgs)]
DEPTH TOP OF SEAL (Ft.)	44.0
TYPE OF SEAL	Bentonite - 1/2" Chips
DEPTH BOTTOM OF SEAL (Ft.)	47.0
DEPTH TOP OF PERVIOUS SECTION (Ft.)	50.0
DIAMETER OF BOREHOLE (In.)	6
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.006 slot
PERVIOUS SECTION (In.) I.D.: 2" O.D.: 2.25"	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#00N
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	55.0
DEPTH BOTTOM OF FILTER PACK (Ft.)	55.8
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	None Used
END OF BORING	55.8

NOTE:
- 2 Centralizers
- Boring Advanced w/ ~~O & W~~ Sonic Drill

GENERAL NOTE:
1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

BEDROCK MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

OJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7607 & 0320

PROJECT LOCATION: Stratford CT. — WELL NO: MW 212B

CLIENT: USEPA, Region I RAC — BORING NO: SB 212

CONTRACTOR: Alliance — DRILLER: Ben Grim — BORING LOCATION: ~~DPW - Frog Pond Park~~ Ferry Blvd

LOGGED BY: Jeff MacManus — DATE: 9/26/97

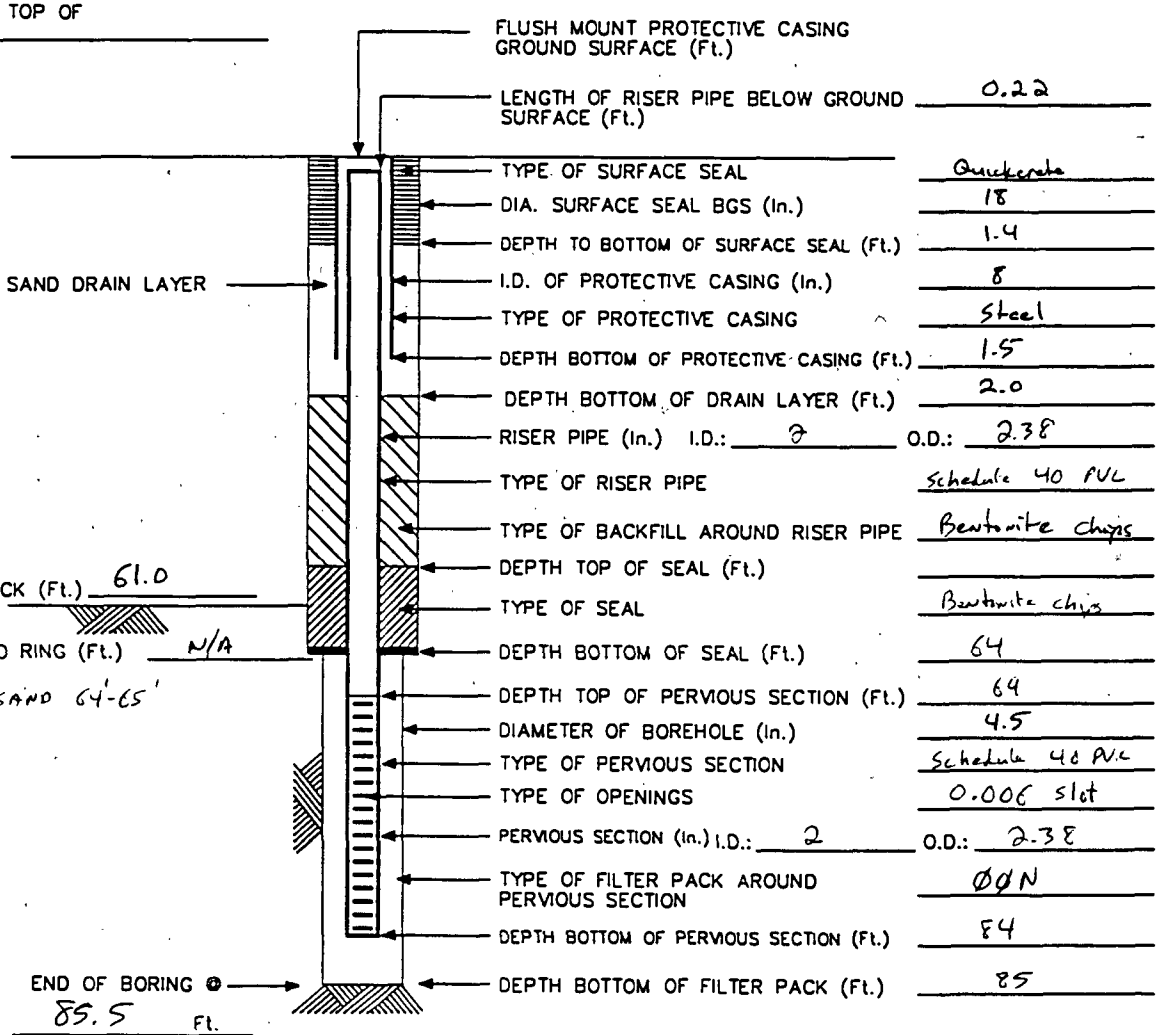
CHECKED BY: — DATE:

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING

ELEVATION TOP OF RISER PIPE

GROUND ELEVATION



LENGTH OF RISER PIPE BELOW GROUND SURFACE (Ft.)	0.22
TYPE OF SURFACE SEAL	Quickcrete
DIA. SURFACE SEAL BGS (In.)	18
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2.0
RISER PIPE (In.) I.D.: 2 O.D.: 2.38	
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bentonite chips
DEPTH TOP OF SEAL (Ft.)	
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	64
DEPTH TOP OF PERVIOUS SECTION (Ft.)	64
DIAMETER OF BOREHOLE (In.)	4.5
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.006 slot
PERVIOUS SECTION (In.) I.D.: 2 O.D.: 2.38	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	00N
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	84
DEPTH BOTTOM OF FILTER PACK (Ft.)	85

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7607 40320
PROJECT LOCATION: Stratford, CT — WELL NO: 213S
CLIENT: USEPA, RAC 1 — BORING NO: 213
CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: Minor Ave in front of 53.
LOGGED BY: Joe Mello — DATE:
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION

FLUSH MOUNT PROTECTIVE CASING

SAND DRAIN LAYER

LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	Quikrete Cement
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	LF Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.03 O.D.:	2.3
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	None
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	Med. Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	10
DEPTH TOP OF PERVIOUS SECTION (Ft.)	13
DIAMETER OF BOREHOLE (In.)	~~8~~ 8 9
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.03 O.D.:	2.3
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#0 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	28
DEPTH BOTTOM OF FILTER PACK (Ft.)	28.5
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	MW-213B/Bentonite chips
END OF BORING	53.0

NOTE:
0
- % Centralizers
- Boring Advanced w/ ~~D & W~~ Sonic

Secondary Filter Pack
- 10-11 Bags
- #000 Sand

GENERAL NOTE:
1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

BEDROCK MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 – Phase I Groundwater — PROJECT NO: 760.7 #0320

PROJECT LOCATION: Stratford, CT — WELL NO: 213B

CLIENT: USEPA, RAC I — BORING NO:

CONTRACTOR: Alliance — DRILLER: Ron Ball — BORING LOCATION: Minor Ave in front of # 53,

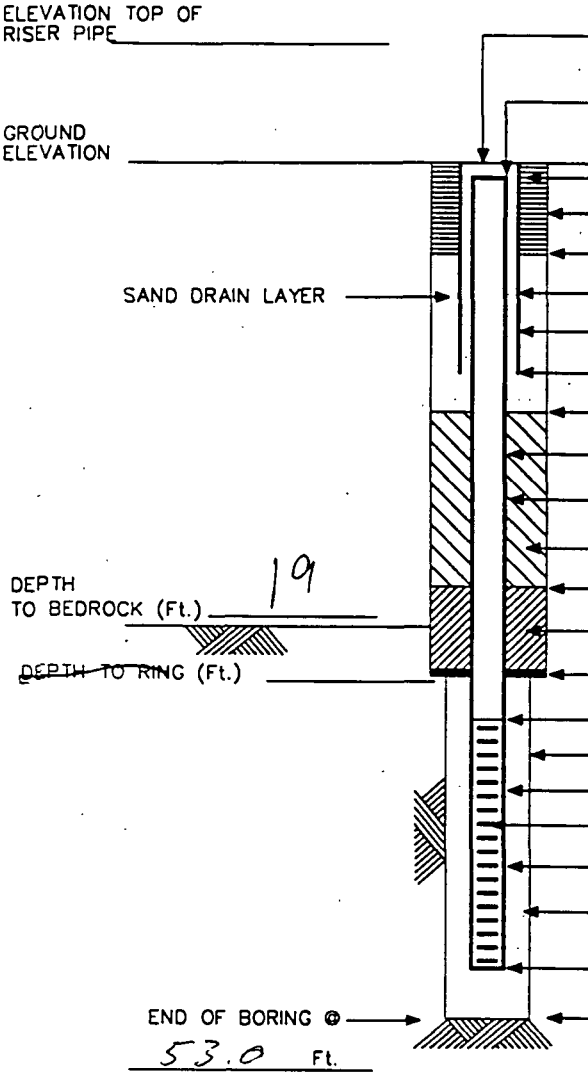
LOGGED BY: Joe Mella — DATE:

CHECKED BY: — DATE:

ELEVATION TOP OF PROTECTIVE CASING

ELEVATION TOP OF RISER PIPE

GROUND ELEVATION



TYPE OF SURFACE SEAL	QuikCrete Cement
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	~~Non MW-213S~~
DEPTH TOP OF SEAL (Ft.)	28.5
TYPE OF SEAL	Med. Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	34
DEPTH TOP OF PERVIOUS SECTION (Ft.)	37.5
DIAMETER OF BOREHOLE (In.)	5
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#00 Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	52.5
DEPTH BOTTOM OF FILTER PACK (Ft.)	53.0

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase I Groundwater — PROJECT NO: 7607 F0320

PROJECT LOCATION: Stratford, CT — WELL NO: MW214S

CLIENT: USEPA, RAC1 — BORING NO: SB214

CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: Housatonic Ave

LOGGED BY: Joe Mello — DATE: 10/7/97

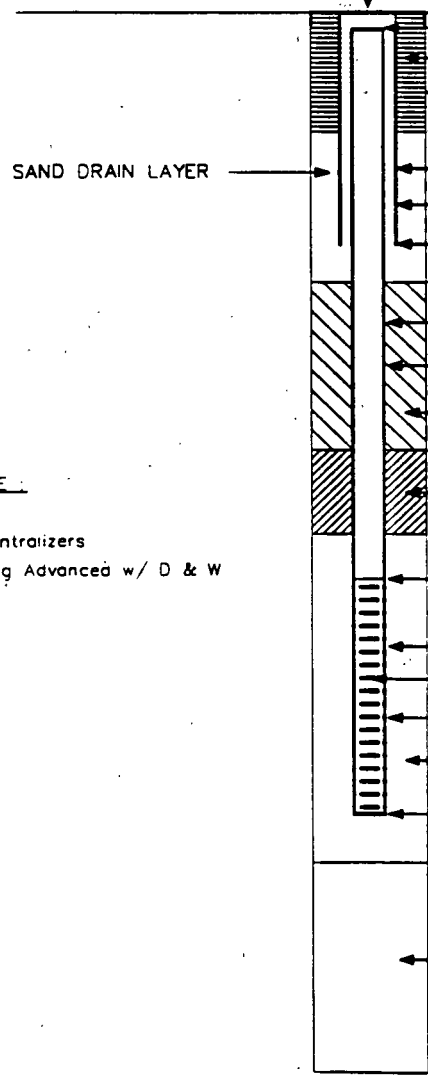
CHECKED BY: — DATE:

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING

ELEVATION TOP OF RISER PIPE

GROUND ELEVATION



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	0.30
TYPE OF SURFACE SEAL	Quick crete
DIA. SURFACE SEAL BGS (In.)	24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.3
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2 O.D.:	2.25
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bent Chips
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	Bent Chips
DEPTH BOTTOM OF SEAL (Ft.)	8
DEPTH TOP OF PERVIOUS SECTION (Ft.)	12.3
DIAMETER OF BOREHOLE (In.)	8.75
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.010 slot
PERVIOUS SECTION (In.) I.D.: 2 O.D.:	2.25
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#00 SAND
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	27.3
DEPTH BOTTOM OF FILTER PACK (Ft.)	28
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite Chips MW 214D
END OF BORING	56

NOTE:

- 2 Centralizers
- Boring Advanced w/ D & W

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7607 +0320

PROJECT LOCATION: Stratford, CT — WELL NO: MW 214M

CLIENT: USEPA, RAC 1 — BORING NO: SB 214M

CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: Housatonic Ave

LOGGED BY: Joe Mello — DATE: 10/8/97

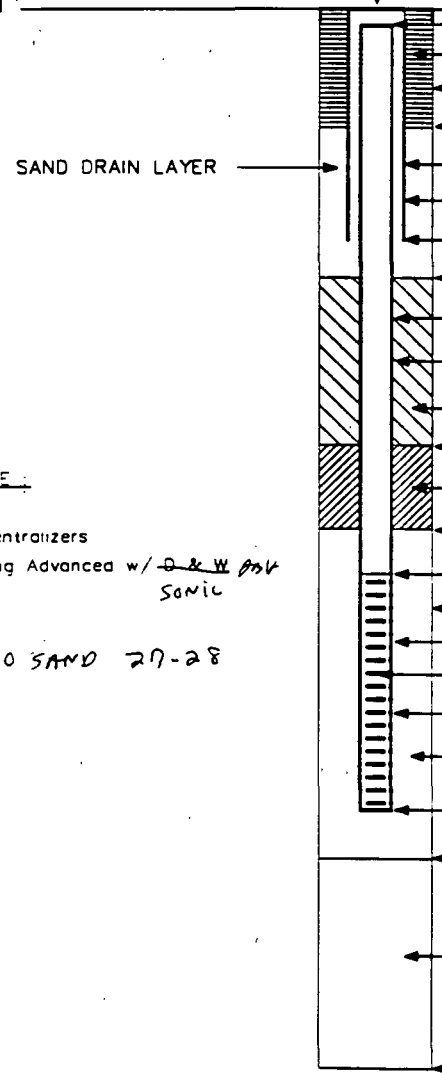
CHECKED BY: — DATE:

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING: —

ELEVATION TOP OF RISER PIPE: —

GROUND ELEVATION: —



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	0.49
TYPE OF SURFACE SEAL	Quickcrete
DIA. SURFACE SEAL BGS (In.)	~~Conc~~ 24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2 O.D.:	2.25
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	
DEPTH TOP OF SEAL (Ft.)	22
TYPE OF SEAL	Bent chips
DEPTH BOTTOM OF SEAL (Ft.)	27
DEPTH TOP OF PERVIOUS SECTION (Ft.)	30.5
DIAMETER OF BOREHOLE (In.)	6.5
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.020 slot
PERVIOUS SECTION (In.) I.D.: 2 O.D.:	2.25
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#0 SAND
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	40.5
DEPTH BOTTOM OF FILTER PACK (Ft.)	41
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	N/A
END OF BORING	41

NOTE:

- 6 Centralizers
- Boring Advanced w/ ~~D & W~~ PSV Sonic

#00 SAND 27-28

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7601 40320
PROJECT LOCATION: Stratford, CT — WELL NO: MW214D
CLIENT: USEPA, RAC 1 — BORING NO: SB214
CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: Housatonic Ave
LOGGED BY: Joe Mello — DATE: 10/7/97
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION

FLUSH MOUNT PROTECTIVE CASING

SAND DRAIN LAYER

MW 2145 Constructed in Same borehole

NOTE:
- 1 Centralizers
- Boring Advanced w/ ~~D & W~~ Sonic

40-41 #00N SAND

LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	0.31
TYPE OF SURFACE SEAL	Quickcrete
DIA. SURFACE SEAL BGS (In.)	24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.3
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
OEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2.0
RISER PIPE (In.) I.D.: 2 O.D.:	2.25
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	MW 2145 / Bent Chips
DEPTH TOP OF SEAL (Ft.)	28
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	40
DEPTH TOP OF PERVIOUS SECTION (Ft.)	42.8
DIAMETER OF BOREHOLE (In.)	6.5
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.010 Slot
PERVIOUS SECTION (In.) I.D.: 2 O.D.:	2.25
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#00 SAND
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	47.8
DEPTH BOTTOM OF FILTER PACK (Ft.)	48
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite Chips
END OF BORING	56

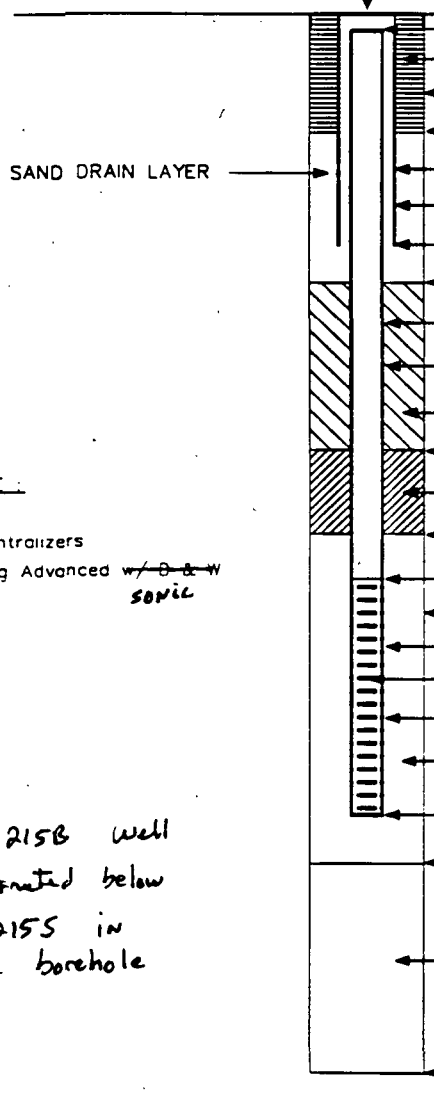
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7601 40320
PROJECT LOCATION: Stratford CT — WELL NO: MW215S
CLIENT: USEPA, RAC 1 — BORING NO: SB 215
CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: Willow Ave
LOGGED BY: Joe Mello — DATE: 10-6-97
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING: —
ELEVATION TOP OF RISER PIPE: —
GROUND ELEVATION: —



LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	Concrete
DIA. SURFACE SEAL BGS (In.)	24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.3
I.D. OF PROTECTIVE CASING (In.)	18
TYPE OF PROTECTIVE CASING	steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2.0
RISER PIPE (In.) I.D.: 2 O.D.:	2.25
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bentonite Chips
DEPTH TOP OF SEAL (Ft.)	2.0
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	6
DEPTH TOP OF PERVIOUS SECTION (Ft.)	9
DIAMETER OF BOREHOLE (In.)	8.75
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.010 slot
PERVIOUS SECTION (In.) I.D.: 2 O.D.:	2.25
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#00 SAND
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	19
DEPTH BOTTOM OF FILTER PACK (Ft.)	19.3
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite Chips MW 215B
END OF BORING	40.6

NOTE:
- 0 Centralizers
- Boring Advanced ~~w/ D & W~~ sonic

MW 215B Well Constructed below MW215S in same borehole

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

BEDROCK MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 phase I Groundwater — PROJECT NO: 7607#0320

PROJECT LOCATION: Stratford, CT — WELL NO: MW215B

CLIENT: USEPA RAC I — BORING NO: SB 215

CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: Willow Ave

LOGGED BY: Joe Mello — DATE: 10-6-97

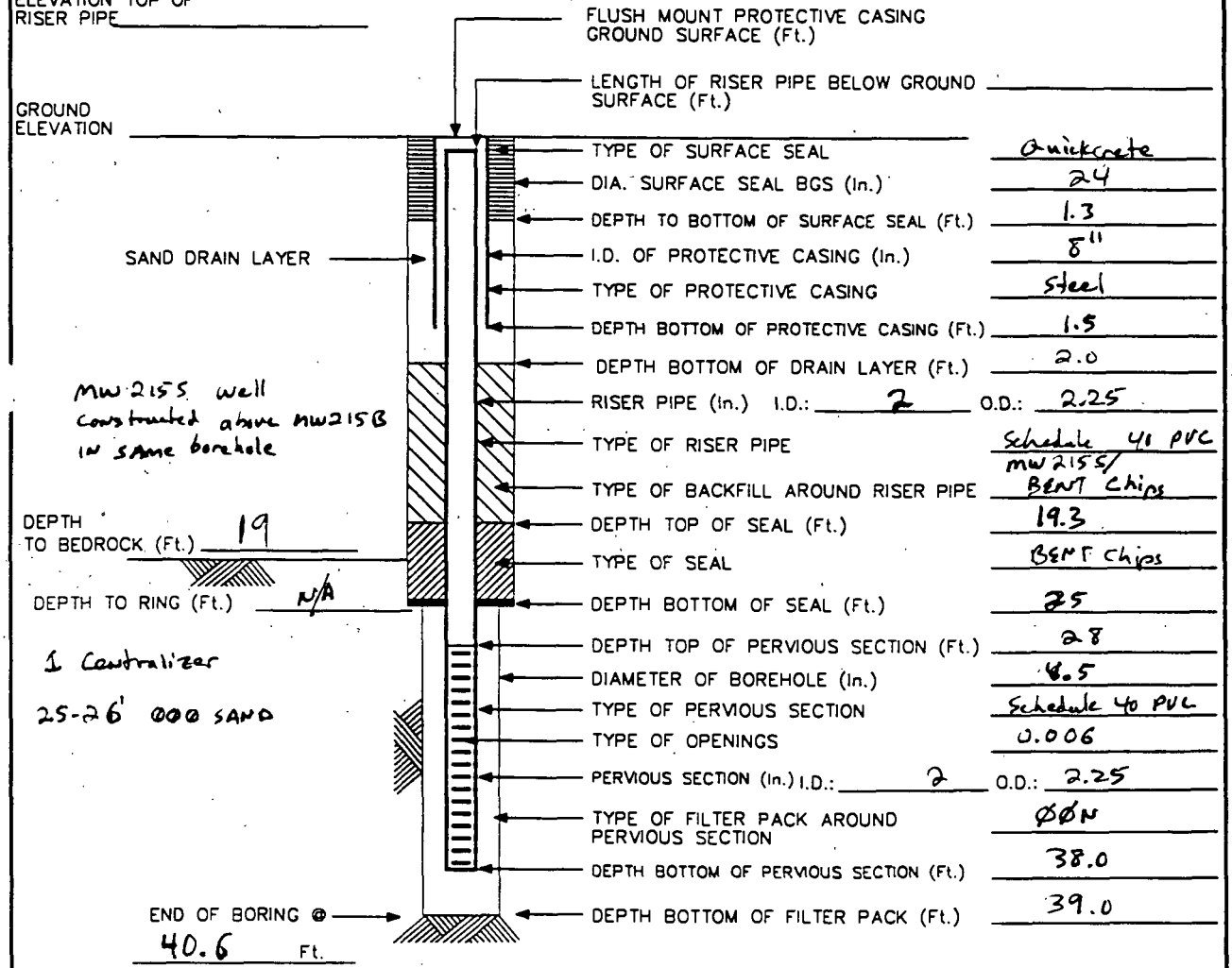
CHECKED BY: — DATE:

PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING

ELEVATION TOP OF RISER PIPE

GROUND ELEVATION



FLUSH MOUNT PROTECTIVE CASING GROUND SURFACE (Ft.)	
LENGTH OF RISER PIPE BELOW GROUND SURFACE (Ft.)	
TYPE OF SURFACE SEAL	Quickcrete
DIA. SURFACE SEAL BGS (In.)	24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.3
I.D. OF PROTECTIVE CASING (In.)	8"
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.5
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2.0
RISER PIPE (In.) I.D.: 2 O.D.: 2.25	
TYPE OF RISER PIPE	Schedule 40 PVC MW215S/
TYPE OF BACKFILL AROUND RISER PIPE	BENT Chips
DEPTH TOP OF SEAL (Ft.)	19.3
TYPE OF SEAL	BENT Chips
DEPTH BOTTOM OF SEAL (Ft.)	25
DEPTH TOP OF PERVIOUS SECTION (Ft.)	28
DIAMETER OF BOREHOLE (In.)	8.5
TYPE OF PERVIOUS SECTION	Schedule 40 PVC
TYPE OF OPENINGS	0.006
PERVIOUS SECTION (In.) I.D.: 2 O.D.: 2.25	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	ØØN
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	38.0
DEPTH BOTTOM OF FILTER PACK (Ft.)	39.0

GENERAL NOTE:

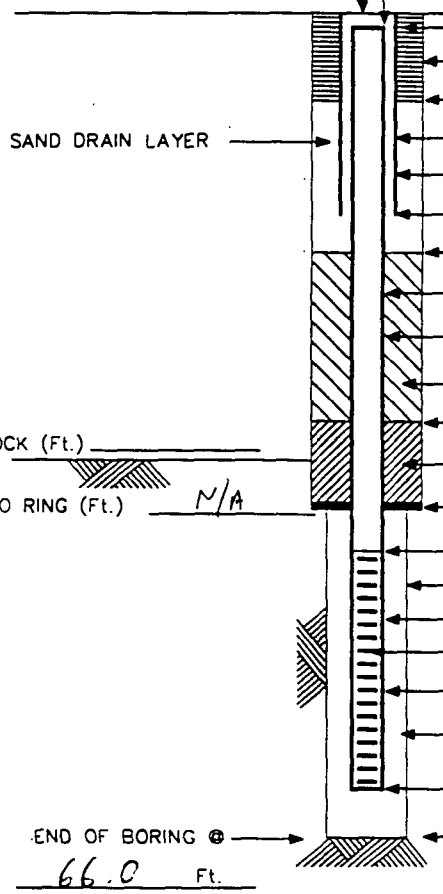
1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

BEDROCK MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2
PROJECT LOCATION: Stratford, CT
CLIENT: EPA
CONTRACTOR: Alliance — DRILLER: Ben
LOGGED BY: Joe Melb — DATE:
CHECKED BY: — DATE:

PROJECT NO: 7607 & 0320
WELL NO: 216B
BORING NO: 216
BORING LOCATION: Upgradient - on DPW Land.
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION
DEPTH TO BEDROCK (Ft.)
DEPTH TO RING (Ft.) N/A
SAND DRAIN LAYER
END OF BORING @ 66.0 Ft.



FLUSH MOUNT PROTECTIVE CASING GROUND SURFACE (Ft.)	
LENGTH OF RISER PIPE BELOW GROUND SURFACE (Ft.)	0.36
TYPE OF SURFACE SEAL	Quickcrete
DIA. SURFACE SEAL BGS (In.)	18" x 18"
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.5'
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2.0
RISER PIPE (In.) I.D.: 2 O.D.: 2.38	
TYPE OF RISER PIPE	Schedule 40 PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bent-cement Grout
DEPTH TOP OF SEAL (Ft.)	
TYPE OF SEAL	Bentonite chips
DEPTH BOTTOM OF SEAL (Ft.)	
DEPTH TOP OF PERVIOUS SECTION (Ft.)	40.7
DIAMETER OF BOREHOLE (In.)	5
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.010 Slot
PERVIOUS SECTION (In.) I.D.: 2" O.D.: 2.38	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#00
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	65.7
DEPTH BOTTOM OF FILTER PACK (Ft.)	66.0

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase 1 Groundwater — PROJECT NO: 7609 +0320
PROJECT LOCATION: Stratford, CT — WELL NO: 217D
CLIENT: USEPA, RAC 1 — BORING NO: 217 (A-2)
CONTRACTOR: ALLIANCE — DRILLER: Ron Ball — BORING LOCATION: In front of 242 Housatonic Ave
LOGGED BY: Joe Mello — DATE: 10-24-97
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING
ELEVATION TOP OF RISER PIPE
GROUND ELEVATION

FLUSH MOUNT PROTECTIVE CASING

LENGTH RISER PIPE BELOW GRD. SURF.(Ft.)	
TYPE OF SURFACE SEAL	QuiKrete Concrete
DIA. SURFACE SEAL BGS (In.)	18 - 24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	None
DEPTH TOP OF SEAL (Ft.)	2
TYPE OF SEAL	Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	22
DEPTH TOP OF PERVIOUS SECTION (Ft.)	25
DIAMETER OF BOREHOLE (In.)	9
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	#0 SAND
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	35
DEPTH BOTTOM OF FILTER PACK (Ft.)	36.0
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	MW-217B + Bentonite Chips
END OF BORING	71

SAND DRAIN LAYER

NOTE:
- 8 Centralizers
- Boring Advanced w/ ~~D & W~~ Sonic

Secondary Filter Pack
- 22-23 Ebgs
- #0 SAND

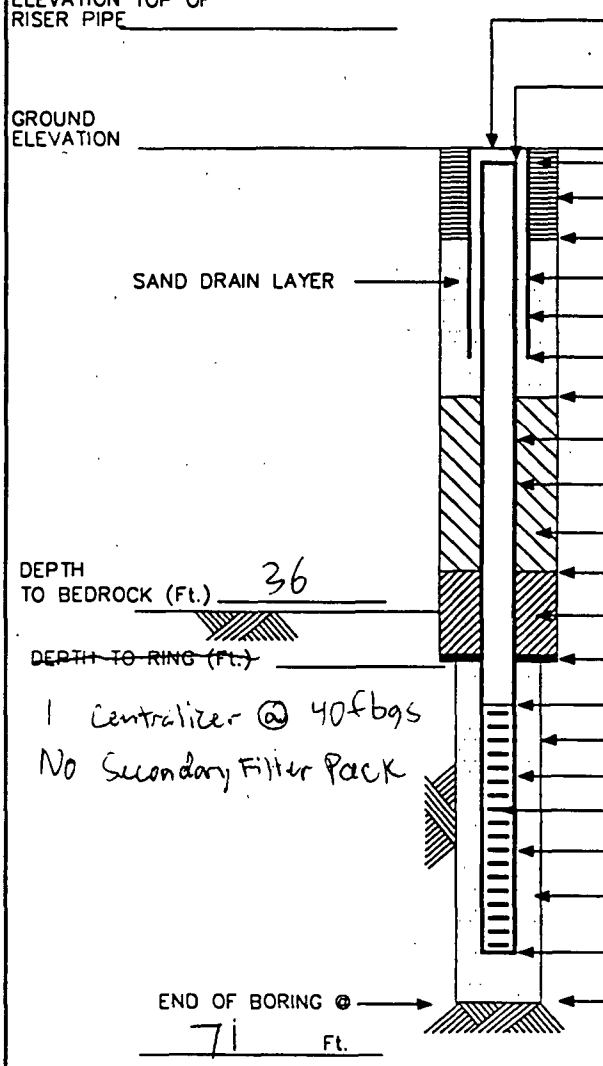
GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing indicates that Surveyed Ground Elevation Not Available.

BEDROCK MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME: Raymark OU2 Phase I Groundwater — PROJECT NO: 7607 * 0320
PROJECT LOCATION: Stratford, CT — WELL NO: 217B
CLIENT: USEPA, RAC1 — BORING NO: 217 (A-2)
CONTRACTOR: Alliance — DRILLER: Ron Ball — BORING LOCATION: Housatonic Ave in Front of 242 Housatonic Ave
LOGGED BY: Joe Mello — DATE: 10-24-97
CHECKED BY: — DATE:
PAGE: 1 OF 1

ELEVATION TOP OF PROTECTIVE CASING: ____
ELEVATION TOP OF RISER PIPE: ____
GROUND ELEVATION: ____

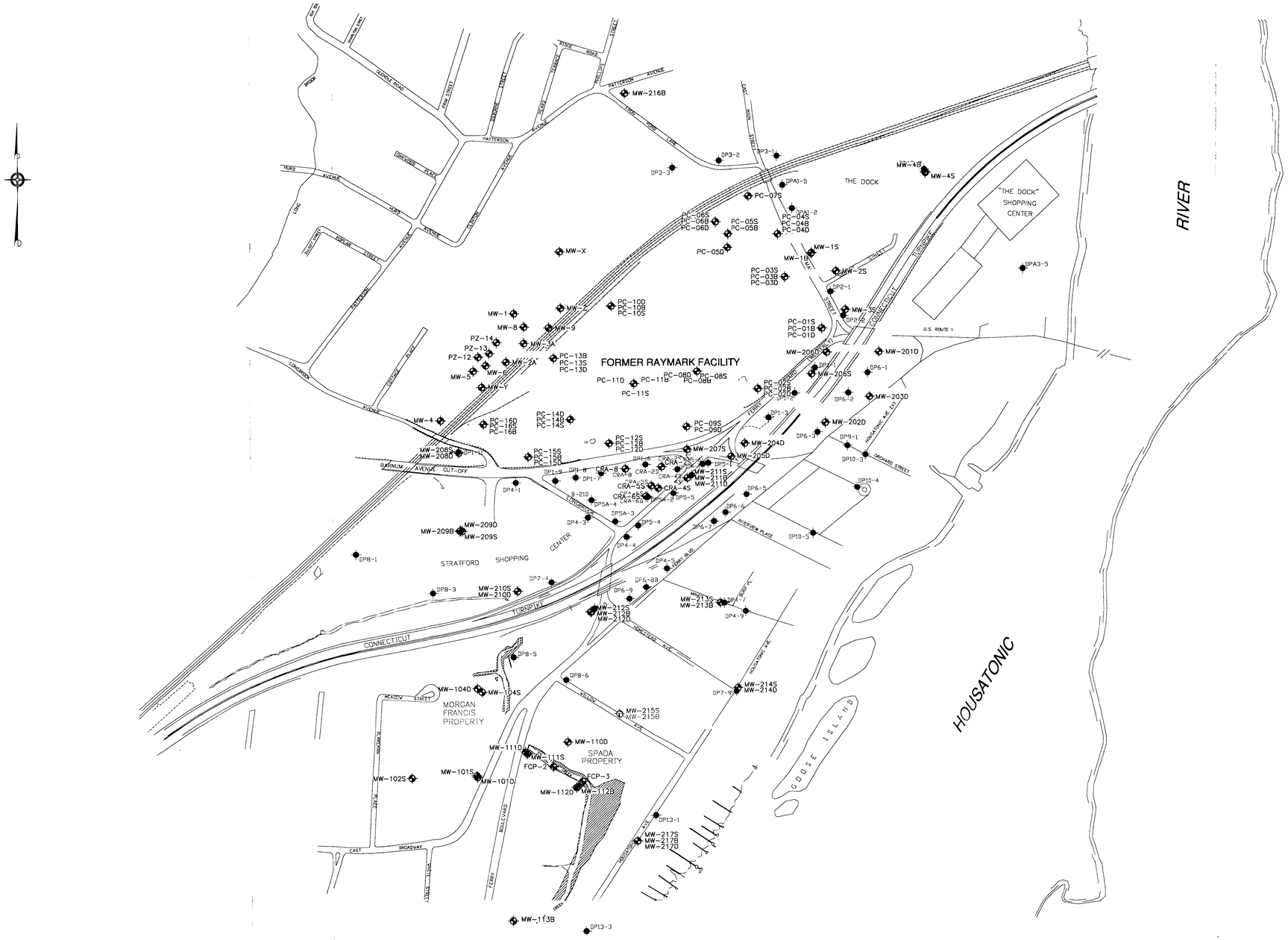


TYPE OF SURFACE SEAL	Quikrete Cement
DIA. SURFACE SEAL BGS (In.)	18-24
DEPTH TO BOTTOM OF SURFACE SEAL (Ft.)	1.4
I.D. OF PROTECTIVE CASING (In.)	8
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft.)	1.6
DEPTH BOTTOM OF DRAIN LAYER (Ft.)	2
RISER PIPE (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	MW-217D
DEPTH TOP OF SEAL (Ft.)	~~43~~ 36
TYPE OF SEAL	Med. Bentonite Chips
DEPTH BOTTOM OF SEAL (Ft.)	43
DEPTH TOP OF PERVIOUS SECTION (Ft.)	45
DIAMETER OF BOREHOLE (In.)	5
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	10 Slot
PERVIOUS SECTION (In.) I.D.: 2.03 O.D.: 2.3	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	ØØ Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft.)	70
DEPTH BOTTOM OF FILTER PACK (Ft.)	71

GENERAL NOTE:

1. Entry of 0.00 for Ground Elevation, Elev. Top of Riser Pipe & Elev. Top of Protective Casing Indicates that Surveyed Ground Elevation Not Available.

APPENDIX B
MAPS



STRATFORD, CT

NOTES:

1. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.
2. PLAN NOT TO BE USED FOR DESIGN.

GRAPHIC SCALE

300' 0' 300' 600'

1 INCH = 300 FEET

DRAWN BY: J. RUDDERS	TITLE: MONITORING WELLS AND DIRECT PUSH LOCATIONS DRAFT TECHNICAL MEMORANDUM RAYMARK – OPERABLE UNIT NO. 2 – STRATFORD, CT
CHECKED BY: M. HEALEY	SOURCE: BASE PLAN BY EPA, AVAILABLE GIS INFORMATION, AND INFORMATION FROM AERIAL PHOTOGRAPHY
	SCALE: 1" = 300' DATE: MAY 20, 1998 CONTRACT NO.: 68-W6-0045
PROJECT MANAGER: H.M. FORD	DRAWING NO: FIGURE 3-1 ACFILE NAME: \DWG\RAYMARK\OU2*OT-BASE.DWG REV: 0
PROGRAM MANAGER: G. GARDNER	

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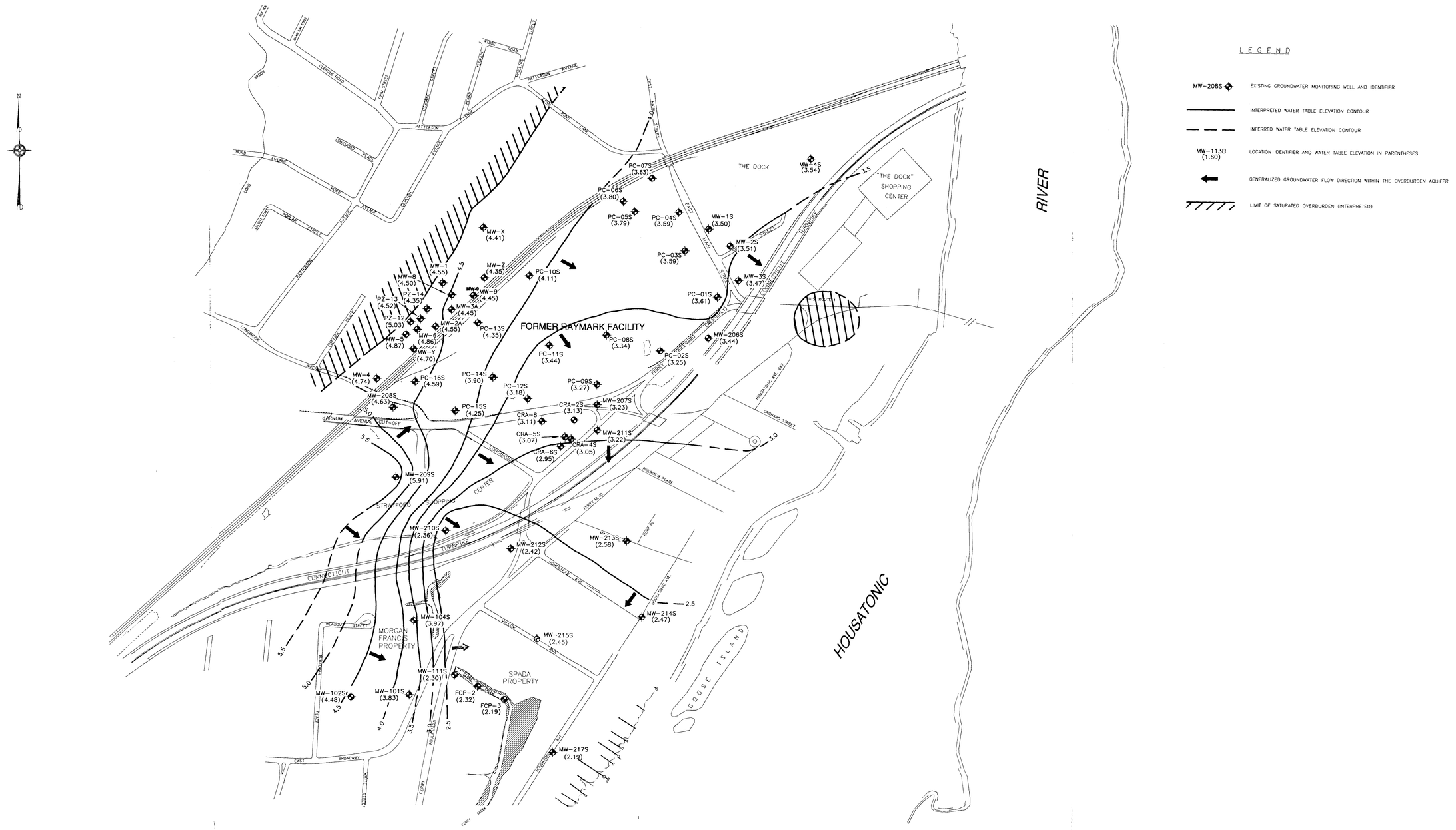
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899



STRATFORD, CT

NOTES:

1. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.
2. PLAN NOT TO BE USED FOR DESIGN.
3. ELEVATION DATA REFERENCED TO USGS NGVD 1929.
4. WATER TABLE SURFACE ELEVATION CONTOUR INTERVAL IS EQUAL TO 0.5 FEET.
5. ALL WATER TABLE ELEVATION MEASUREMENTS WERE TAKEN ON 12/01/97 FROM SHALLOW OVERBURDEN MONITORING WELLS SCREENED across THE WATER TABLE.
6. WATER TABLE ELEVATION MEASURED IN MW-110S WAS NOT USED DUE TO INFLUENCE OF LOCAL SEPTIC SYSTEM.

GRAPHIC SCALE

300' 0' 300' 600'

1 INCH = 300 FEET

DRAWN BY: J. RUDDERS	TITLE: WATER TABLE ELEVATION IN THE OVERBURDEN AQUIFER – 12/01/97 DRAFT TECHNICAL MEMORANDUM RAYMARK – OPERABLE UNIT NO. 2 – STRATFORD, CT		
CHECKED BY: M. HEALEY	SOURCE: BASE PLAN BY EPA, AVAILABLE GIS INFORMATION, AND INFORMATION FROM AERIAL PHOTOGRAPHY		
	SCALE: 1" = 300'	DATE: MAY 20, 1998	CONTRACT NO.: 68-W6-0045
PROJECT MANAGER: H.M. FORD	DRAWING NO: FIGURE 3-2	ACFILE NAME: \DWG\RAYMARK\OU2\POT-WT.DWG	REV: 0
PROGRAM MANAGER: G. GARDNER			

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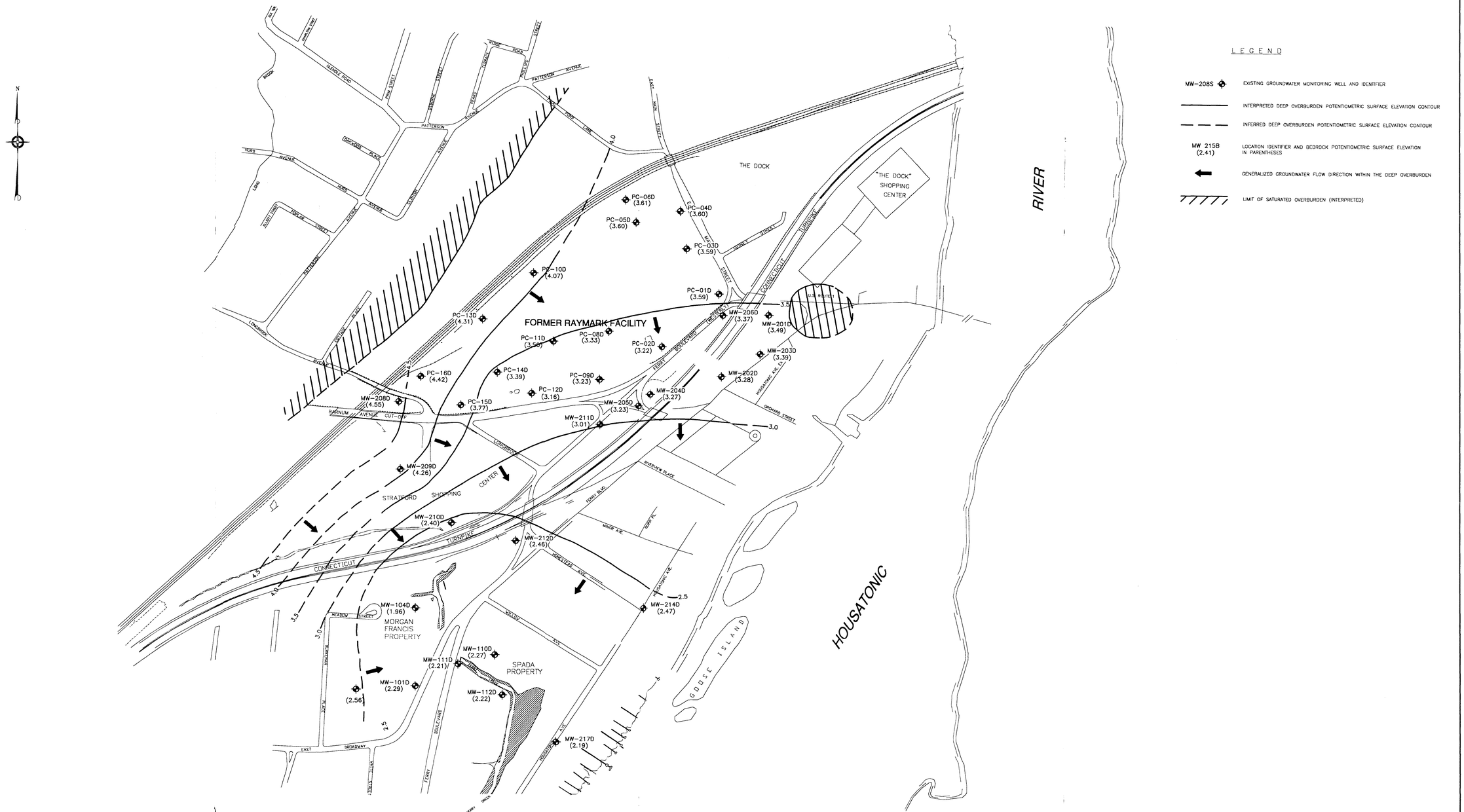

STRATFORD, CT

NOTES:

1. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.
2. PLAN NOT TO BE USED FOR DESIGN.
3. ELEVATION DATA REFERENCED TO USGS NGVD 1929.
4. POTENTIOMETRIC SURFACE ELEVATION CONTOUR INTERVAL IS EQUAL TO 0.5 FEET.
5. ALL POTENTIOMETRIC SURFACE ELEVATION MEASUREMENTS WERE TAKEN ON 12/01/97 WITHIN WELLS SCREENED WITHIN THE DEEP OVERBURDEN.
6. POTENTIOMETRIC SURFACE ELEVATION MEASURED IN MW-103D (0.29 FEET) WAS WAS NOT USED DUE TO SUSPECTED MEASUREMENT ERROR.

GRAPHIC SCALE

300' 0' 300' 600'

1 INCH = 300 FEET

DRAWN BY: J. RUDDERS	TITLE: POTENTIOMETRIC SURFACE ELEVATION FOR MONITORING WELLS SCREENED IN THE DEEP OVERBURDEN – 12/01/97 DRAFT TECHNICAL MEMORANDUM RAYMARK – OPERABLE UNIT NO. 2 – STRATFORD, CT
CHECKED BY: M. HEALEY	SOURCE: BASE PLAN BY EPA, AVAILABLE GIS INFORMATION, AND INFORMATION FROM AERIAL PHOTOGRAPHY
	SCALE: 1" = 300' / DATE: MAY 20, 1998 / CONTRACT NO.: 68-W6-0045
PROJECT MANAGER: H.M. FORD	DRAWING NO: FIGURE 3-3 / ACFILE NAME: \DWG\RAYMARK\OU2\POT-MW.DWG / REV: 0
PROGRAM MANAGER: G. GARDNER	

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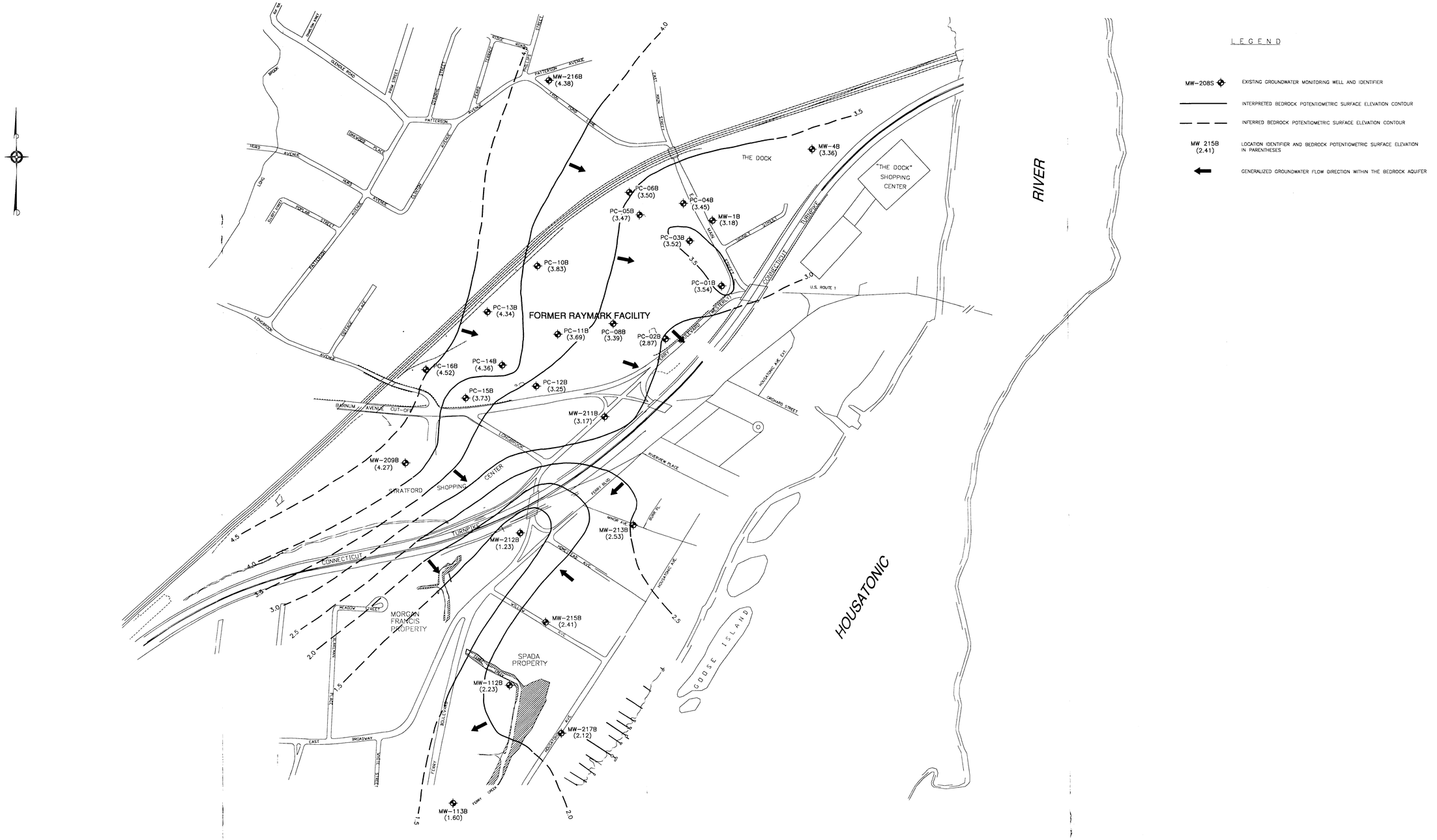

STRATFORD, CT

NOTES:

1. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.
2. PLAN NOT TO BE USED FOR DESIGN.
3. ELEVATION DATA REFERENCED TO USGS NGVD 1929.
4. BEDROCK POTENTIOMETRIC SURFACE ELEVATION CONTOUR EQUAL TO 0.5 FEET.
5. ALL POTENTIOMETRIC SURFACE ELEVATION MEASUREMENTS WERE TAKEN ON 12/01/97 WITHIN MONITORING WELLS SCREENED WITHIN THE BEDROCK AQUIFER.
6. POTENTIOMETRIC SURFACE ELEVATION IN PC-08B WAS MEASURED ON 12/05/97 AND CORRECTED TO 12/01/97 LEVELS USING WATER LEVEL MONITORING DATA FROM PC-05B.

GRAPHIC SCALE

300' 0' 300' 600'

1 INCH = 300 FEET

DRAWN BY: J. RUDDERS	TITLE: POTENTIOMETRIC SURFACE ELEVATION FOR THE BEDROCK AQUIFER – 12/01/97 DRAFT TECHNICAL MEMORANDUM RAYMARK – OPERABLE UNIT NO. 2 – STRATFORD, CT		
CHECKED BY: M. HEALEY	SOURCE: BASE PLAN BY EPA, AVAILABLE GIS INFORMATION, AND INFORMATION FROM AERIAL PHOTOGRAPHY		
	SCALE: 1" = 300'	DATE: MAY 20, 1998	CONTRACT NO.: 68-W6-0045
PROJECT MANAGER: H.M. FORD	DRAWING NO: FIGURE 3-4	ACFILE NAME: \DWG\RAYMARK\OU2\POT-BED.DWG	REV: 0
PROGRAM MANAGER: G. GARDNER			

Brown & Root Environmental
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899

APPENDIX C
CHEMICAL DATA

Brown & Root Environmental INTERNAL CORRESPONDENCE

To: Heather Ford

From: Lucy Guzman

Subject: Correlation between VOC Screening and CLP Data. Raymark OU2 W.A. 013-RICO-01H3

Date: May 14, 1998

The 204 groundwater profiling samples collected at Raymark OU2 were screened for selected volatile organic compounds (VOCs) by gas chromatography using Method 8021A according to the Brown & Root Environmental (B&RE) technical specification No. S97-RAC1-007. Twenty-three of these VOC samples were confirmed by the Contract Laboratory Program (CLP) mass spectrometry Method OLM03.2.

The enclosed Summary Table 1 depicts the screening and the CLP results for the samples and the target compounds analyzed by both methods. The VOC screening results for trans-1,2-dichloroethene and cis-1,2-dichloroethene were combined as one value labeled 1,2-dichloroethene (total); the m&p-xylene results were combined with the o-xylene results into one value presented in Summary Table 1 as xylene (total) in order to compare the VOC screening with the CLP results. Several samples required a large dilution to bring one or more target compounds within the calibration range of the instrument. The large dilution factors resulted in elevated quantitation limits for the non-detected compounds. The dilution factor of the screened samples was almost twice that of the CLP samples due to the lower instrument calibration range of the screening method.

The VOC screening results are comparable to the CLP results. All the positive screening results were confirmed by the CLP analysis. Non-detected results from the screening were reported either as non-detected values by the CLP or as positive values but below the sample quantitation of the screening analysis. The relative percent differences (RPDs) between the screening and CLP results calculated for the compounds with result values above the quantitation limits of both methods are presented in Table 2. The RPDs are all below 50 percent. Most of the RPDs are below the 30 percent value considered acceptable by the EPA Region I data validation guidelines for field duplicate samples. RPD values above 30 percent may be due to the different analytical instrumentation used by the screening and CLP methods.

Correlation coefficients were also calculated to further evaluate the degree of linear relationship between the screening and CLP results. The correlation coefficients for the following compounds with the larger number of positive results were calculated: 1,2-dichloroethene (total); 1,1,1-trichloroethane; trichloroethene; and 1,1-dichloroethane. Only the positive results above the quantitation limits for both screening and CLP methods were used to calculate the correlation coefficients.

The correlation of the screening and CLP data for the four compounds shown below fit closely to a straight line and the correlation coefficients were all above 0.98. The correlation coefficients were calculated using only the positive results above the quantitation limit of both methods, however, most of the non-detected results also correlate very well. The enclosed Figures 1 through 4 represent the linear correlation between the screening and CLP results for 1,2-dichlorethene (total); 1,1,1-trichloroethane; trichloroethene; and 1,1-dichlroethane, respectively.

Compound	Linear Equation	Number of Samples	Correlation Coefficient
1,2-dichloroethene (total)	y=1.1458X - 37.098	14	r= 0.9811
1,1,1-trichloroethane	y=1.2915X - 25.374	10	r=0.9944
trichlorethene	y=1.1225X + 0.1552	9	r=0.9896
1,1-dichloroethane	y=0.8955X + 6.774	9	r=0.9860

Recommendation

Based on the good correlation between the results from the screening and the CLP VOC analyses of the groundwater samples collected during the Raymark OU2 1997 field work, the screening results may be used to determine the geometry of the contamination plume. However, due to the large dilutions required, elevated sample quantitation limits for specific contaminants were reported for some locations indicating artificially high non-detected results. Therefore, specific contaminants will not be represented on plume maps, but the data will be shown as total VOCs.

Enclosures: Table 1 Summary VOC Screening and CLP Data
Table 2 Relative Percent Differences
Figures 1-4 Linear Correlation

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SUMMARY TABLE 1
AQUEOUS VOLATILE ORGANIC SCREENING
BY METHOD 8021A AND CLP DATA
RAYMARK OU2
STRATFORD, CONNECTICUT

Sample Number	OU2-DP1-2-0810		OU2-DP1-8-2328		OU2-DP1-9A-5358	
EPA Sample Number	ANA74	DAH421	ANA75	DAH435	ANA79	DAH456
Date Sampled	7/28/97	7/28/97	7/29/97	7/29/97	7/30/97	7/30/97
Date Analyzed	8/7/97	7/29/97	8/7/97	7/30/97	8/8/97	7/31/97
Dilution Factor	1	10	5	50	1	10
Analysis Type	**CLP**	**SCREENING**	**CLP**	**SCREENING**	**CLP**	**SCREENING**
Vinyl Chloride	14	15	130	120	69	77
1,1-Dichloroethene	140	150	14 J	50 U	2 J	10 U
1,1-Dichloroethane	65	75	93	94	81	89
1,2-Dichloroethene (Totals)	91	110	480	480	170	160
1,1,1-Trichloroethane	180	200	5 J	50 U	10 U	10 U
1,2-Dichloroethane	10 U	10 U	50 U	50 U	10 U	10 U
Trichloroethene	8 J	10	52 J	57	5 J	10 U
Tetrachloroethene	10 U	10 U	50 U	50 U	10 U	10 U
Benzene	1 J	10 U	50 U	50 U	5 J	10 U
Toluene	10 U	10 U	50 U	50 U	5 J	10 U
Chlorobenzene	11	16	32 J	50 U	120	120
Ethylbenzene	10 U	10 U	50 U	50 U	10 U	10 U
Xylene (Total)	10 U	10 U	50 U	50 U	2 J	11.8

U - Not detected; J - Quantitation approximate;

SUMMARY TABLE 1
AQUEOUS VOLATILE ORGANIC SCREENING
BY METHOD 8021A AND CLP DATA
RAYMARK OU2
STRATFORD, CONNECTICUT

Sample Number	OU2-DP2-1-5459				OU2-DP2-2-5762				OU2-DP4-3A-1217			
EPA Sample Number	ANA77		DAH452		ANA80		DAH473		ANA81		DAH485	
Date Sampled	7/30/97		7/30/97		7/31/97		7/31/97		8/1/97		8/1/97	
Date Analyzed	8/7/97		7/31/97		8/8/97		8/2/97		8/9/97		8/4/97	
Dilution Factor	1		1		1		1		2		100	
Analysis Type	**CLP**		**SCREENING**		**CLP**		**SCREENING**		**CLP**		**SCREENING**	
Vinyl Chloride	10	U	1.2		10	U	1	U	19	J	100	U
1,1-Dichloroethene	10	U	1	U	10	U	1	U	7	J	100	U
1,1-Dichloroethane	10	U	1	U	10	U	1	U	85		110	
1,2-Dichloroethene (Totals)	3	J	3.2		10	U	1	U	300		350	
1,1,1-Trichloroethane	10	U	1	U	10	U	1	U	20	U	100	U
1,2-Dichloroethane	2	J	1.8		10	U	1	U	20	U	100	U
Trichloroethene	7	J	8.8		10	U	1	U	13	J	100	U
Tetrachloroethene	3	J	4.9		10	U	1	U	20	U	100	U
Benzene	2	J	2.2		10	U	1	U	20	U	100	U
Toluene	2	J	2.2		10	U	1	U	20	U	100	U
Chlorobenzene	8	J	9.4		1	J	1.1		20	U	100	U
Ethylbenzene	10	U	1.3		10	U	1	U	20	U	100	U
Xylene (Total)	2	J	4.1		10	U	1	U	20	U	100	U

U - Not detected; J - Quantitation approximate;

SUMMARY TABLE 1
AQUEOUS VOLATILE ORGANIC SCREENING
BY METHOD 8021A AND CLP DATA
RAYMARK OU2
STRATFORD, CONNECTICUT

Sample Number	OU2-DP7-4-0712				OU2-DP1-12-1419				OU2-DP13-1-2530			
EPA Sample Number	ANA85		DAH505		ANB05		DAH635		ANB07		DAH638	
Date Sampled	8/4/97		8/4/97		8/14/97		8/14/97		8/15/97		8/15/97	
Date Analyzed	8/15/97		8/6/97		8/19/97		8/16/97		8/20/97		8/18/97	
Dilution Factor	1		5		1		1		10		500	
Analysis Type	**CLP**		**SCREENING**		**CLP**		**SCREENING**		**CLP**		**SCREENING**	
Vinyl Chloride	28		32		10	U	1	U	100	U	500	U
1,1-Dichloroethene	10	U	5	U	10	U	1	U	230		500	U
1,1-Dichloroethane	29		29		10	U	1	U	380		300	J
1,2-Dichloroethene (Totals)	38		35		2	J	1.6		610		490	J
1,1,1-Trichloroethane	10	U	5	U	10	U	1	U	350		270	J
1,2-Dichloroethane	10	U	5	U	10	U	1	U	100	U	500	U
Trichloroethene	10	U	5	U	10	U	1	U	1200		1200	
Tetrachloroethene	10	U	5	U	10	U	1	U	100	U	500	U
Benzene	10	U	5	U	10	U	1	U	100	U	500	U
Toluene	10	U	5	U	10	U	1	U	100	U	500	U
Chlorobenzene	25		31		8	J	8.3		100	U	500	U
Ethylbenzene	10	U	5	U	10	U	1	U	100	U	500	U
Xylene (Total)	10	U	5	U	10	U	1	U	100	U	500	U

U - Not detected; J - Quantitation approximate;

SUMMARY TABLE 1
AQUEOUS VOLATILE ORGANIC SCREENING
BY METHOD 8021A AND CLP DATA
RAYMARK OU2
STRATFORD, CONNECTICUT

Sample Number	OU2-DP8-5-5055				OU2-DP5-2-9499				OU2-DP10-5-1419			
EPA Sample Number	ANB00		DAH599		ANA97		DAH582		ANB04		DAH623	
Date Sampled	8/11/97		8/11/97		8/11/97		8/11/97		8/13/97		8/13/97	
Date Analyzed	8/18/97		8/14/97		8/19/97		8/12/97		8/20/97		8/16/97	
Dilution Factor	16		1000		16		500		1		1	
Analysis Type	**CLP**		**SCREENING**		**CLP**		**SCREENING**		**CLP**		**SCREENING**	
Vinyl Chloride	49	J	1000	U	160	U	500	U	10	U	1	U
1,1-Dichloroethene	600		1000	U	170		500	U	10	U	1	U
1,1-Dichloroethane	280		1000	U	210		500	U	10	U	1	U
1,2-Dichloroethene (Totals)	610		1000	U	540		520		10	U	1	U
1,1,1-Trichloroethane	1700		2200		2000		3100		10	U	1	U
1,2-Dichloroethane	160	U	1000	U	160	U	500	U	10	U	1	U
Trichloroethene	1100		1400		130		500	U	10	U	1	U
Tetrachloroethene	160	U	1000	U	160	U	500	U	10	U	1	U
Benzene	160	U	1000	U	160	U	500	U	10	U	1	U
Toluene	160	U	1000	U	160	U	500	U	10	U	1	U
Chlorobenzene	33	J	1000	U	160	U	500	U	10	U	1	U
Ethylbenzene	160	U	1000	U	160	U	500	U	10	U	1	U
Xylene (Total)	160	U	1000	U	160	U	500	U	10	U	1	U

U - Not detected; J - Quantitation approximate;

SUMMARY TABLE 1
AQUEOUS VOLATILE ORGANIC SCREENING
BY METHOD 8021A AND CLP DATA
RAYMARK OU2
STRATFORD, CONNECTICUT

Sample Number	OU2-DP7-9A-2227				OU2-DP5A-2-1520				OU2-DP6-5A-3944			
EPA Sample Number	ANB02		DAH620		ANA83		DAH495		ANA87		DAH520	
Date Sampled	8/13/97		8/13/97		8/4/97		8/4/97		8/5/97		8/5/97	
Date Analyzed	8/22/97		8/15/97		8/15/97		8/5/97		8/15/97		8/7/97	
Dilution Factor	1		5		20		1000		2		20	
Analysis Type	**CLP**		**SCREENING**		**CLP**		**SCREENING**		**CLP**		**SCREENING**	
Vinyl Chloride	10	U	5	U	200	U	1000	U	5	J	20	U
1,1-Dichloroethene	14		13		200	U	1000	U	180		190	
1,1-Dichloroethane	4	J	5	U	200	U	1000	U	170		180	
1,2-Dichloroethene (Totals)	7	J	5		200	U	1000	U	140		140	
1,1,1-Trichloroethane	42		40		200	U	1000	U	230		230	
1,2-Dichloroethane	10	U	5	U	200	U	1000	U	20	U	20	U
Trichloroethene	8	J	10		200	U	1000	U	53		64	
Tetrachloroethene	10	U	5	U	200	U	1000	U	20	U	20	U
Benzene	10	U	5	U	2500	J	3400		20	U	20	U
Toluene	10	U	5	U	110	J	1000	U	20	U	20	U
Chlorobenzene	10	U	5	U	200	U	1000	U	20	U	20	U
Ethylbenzene	10	U	5	U	200	U	1000	U	20	U	20	U
Xylene (Total)	10	U	5	U	200	U	1000	U	20	U	20	U

U - Not detected; J - Quantitation approximate;

SUMMARY TABLE 1
AQUEOUS VOLATILE ORGANIC SCREENING
BY METHOD 8021A AND CLP DATA
RAYMARK OU2
STRATFORD, CONNECTICUT

Sample Number	OU2-DP4-5C-1419				OU2-DP7-5A-3843				OU2-DP4-7-1823			
EPA Sample Number	ANH89		DAH531		ANA91		DAH548		ANA94		DAH537	
Date Sampled	8/6/97		8/6/97		8/7/97		8/7/97		8/6/97		8/6/97	
Date Analyzed	8/16/97		8/7/97		8/16/97		8/8/97		8/16/97		8/8/97	
Dilution Factor	4		100		50		1000		10		50	
Analysis Type	**CLP**		**SCREENING**		**CLP**		**SCREENING**		**CLP**		**SCREENING**	
Vinyl Chloride	40	U	100	U	500	U	1000	U	100	U	50	U
1,1-Dichloroethene	140		130		4000		4600		480		390	
1,1-Dichloroethane	58		100	U	320	J	1000	U	160		100	
1,2-Dichloroethene (Totals)	84		100	U	1200		1500		240		170	
1,1,1-Trichloroethane	620		670		7700		9800		1400		1200	
1,2-Dichloroethane	40	U	100	U	500	U	1000	U	100	U	50	U
Trichloroethene	110		120		480	J	1000	U	240		250	
Tetrachloroethene	40	U	100	U	500	U	1000	U	100	U	50	U
Benzene	40	U	100	U	500	U	1000	U	100	U	50	U
Toluene	40	U	100	U	500	U	1000	U	100	U	50	U
Chlorobenzene	40	U	100	U	500	U	1000	U	100	U	50	U
Ethylbenzene	40	U	100	U	500	U	1000	U	100	U	50	U
Xylene (Total)	40	U	100	U	500	U	1000	U	100	U	50	U

U - Not detected; J - Quantitation approximate;

SUMMARY TABLE 1
AQUEOUS VOLATILE ORGANIC SCREENING
BY METHOD 8021A AND CLP DATA
RAYMARK OU2
STRATFORD, CONNECTICUT

Sample Number	OU2-DP4-4-0510				AA-DPA3-2-1015				AA-DPA1-2-1015			
EPA Sample Number	ANA95		DAH564		ANB10		DAH709		ANB14		DAH714	
Date Sampled	8/8/97		8/8/97		9/8/97		9/8/97		9/9/97		9/9/97	
Date Analyzed	8/19/97		8/11/97		9/11/97		9/10/97		9/12/97		9/10/97	
Dilution Factor	16		500		1		1		500		5000	
Analysis Type	CLP		SCREENING		CLP		SCREENING		CLP		SCREENING	
Vinyl Chloride	92		500	U	10	U	1	U	5000	U	5000	U
1,1-Dichloroethene	390		500	U	10	U	1	U	5000	U	5000	U
1,1-Dichloroethane	630		600		10	U	1	U	5000	U	5000	U
1,2-Dichloroethene (Totals)	660		650		10	U	1	U	5000	U	5000	U
1,1,1-Trichloroethane	1700		2600		10	U	1	U	5000	U	5000	U
1,2-Dichloroethane	160	U	500	U	10	U	1	U	5000	U	5000	U
Trichloroethene	67	J	500	U	10	U	1	U	5000	U	5000	U
Tetrachloroethene	160	U	500	U	10	U	1	U	5000	U	5000	U
Benzene	82	J	500	U	10	U	1	U	5000	U	5000	U
Toluene	160	U	500	U	1	J	1	U	62000	J	94000	
Chlorobenzene	160	U	500	U	10	U	1	U	5000	U	5000	U
Ethylbenzene	160	U	500	U	10	U	1	U	1200	J	5000	U
Xylene (Total)	160	U	500	U	2	J	1.1		8000		12000	

U - Not detected; J - Quantitation approximate;

SUMMARY TABLE 1
AQUEOUS VOLATILE ORGANIC SCREENING
BY METHOD 8021A AND CLP DATA
RAYMARK OU2
STRATFORD, CONNECTICUT

Sample Number	AA-DPA1-5-0914			
EPA Sample Number	ANB15		DAH716	
Date Sampled	9/9/97		9/9/97	
Date Analyzed	9/12/97		9/10/97	
Dilution Factor	250		5000	
Analysis Type	**CLP**		**SCREENING**	
Vinyl Chloride	2500	U	5000	U
1,1-Dichloroethene	2500	U	5000	U
1,1-Dichloroethane	2500	U	5000	U
1,2-Dichloroethene (Totals)	2500	U	5000	U
1,1,1-Trichloroethane	2500	U	5000	U
1,2-Dichloroethane	2500	U	5000	U
Trichloroethene	2500	U	5000	U
Tetrachloroethene	2500	U	5000	U
Benzene	2500	U	5000	U
Toluene	48000		54000	
Chlorobenzene	2500	U	5000	U
Ethylbenzene	1200	J	5000	U
Xylene (Total)	8000		5000	U

U - Not detected; J - Quantitation approximate;

TABLE 2
RELATIVE PERCENT DIFFERNCE (RPDs)
BETWEEN SCREENING AND CLP POSITIVE RESULTS
RAYMARK OU2
STRATFORD, CONNECTICUT

Sample Number	OU2-DP1-2-0810	OU2-DP1-8-2328	OU2-DP1-9A-5358	OU2-DP4-3A-1217	OU2-DP7-4-0712	OU2-DP13-1-2530	OU2-DP8-5-5055	OU2-DP5-2-9499
Vinyl Chloride	7	8	11		13			
1,1-Dichloroethene	7							
1,1-Dichloroethane	14	1	9	26	0			
1,2-Dichloroethene (Totals)	19	0	6	15	8			4
1,1,1-Trichloroethane	10						26	43
1,2-Dichloroethane								
Trichloroethene		13				0	24	
Tetrachloroethene								
Benzene								
Toluene								
Chlorobenzene	37		0		21			
Ethylbenzene								
Xylene (Total)								

TABLE 2
RELATIVE PERCENT DIFFERNCE (RPDs)
BETWEEN SCREENING AND CLP POSITIVE RESULTS
RAYMARK OU2
STRATFORD, CONNECTICUT

Sample Number	OU2-DP7-9A-2227	OU2-DP5A-2-1520	OU2-DP6-5A-3944	OU2-DP4-5C-1419	OU2-DP7-5A-3843	OU2-DP4-7-1823	OU2-DP4-4-0510
Vinyl Chloride							
1,1-Dichloroethene	7		5	7	14	21	
1,1-Dichloroethane			6			46	5
1,2-Dichloroethene (Totals)			0		22	34	2
1,1,1-Trichloroethane	5		0	8	24	15	42
1,2-Dichloroethane							
Trichloroethene			19	9		4	
Tetrachloroethene							
Benzene		30					
Toluene							
Chlorobenzene							
Ethylbenzene							
Xylene (Total)							

TABLE 2
RELATIVE PERCENT DIFFERNCE (RPDs)
BETWEEN SCREENING AND CLP POSITIVE RESULTS
RAYMARK OU2
STRATFORD, CONNECTICUT

Sample Number	AA-DPA1-2-1015	AA-DPA1-5-0914
Vinyl Chloride		
1,1-Dichloroethene		
1,1-Dichloroethane		
1,2-Dichloroethene (Totals)		
1,1,1-Trichloroethane		
1,2-Dichloroethane		
Trichloroethene		
Tetrachloroethene		
Benzene		
Toluene	41	12
Chlorobenzene		
Ethylbenzene		
Xylene (Total)	40	

FIGURE 1
SCREENING AND CLP RESULTS CORRELATION
TRICHLOROETHENE (UG/L)
RAYMARK OU2
STRATFORD, CONNECTICUT

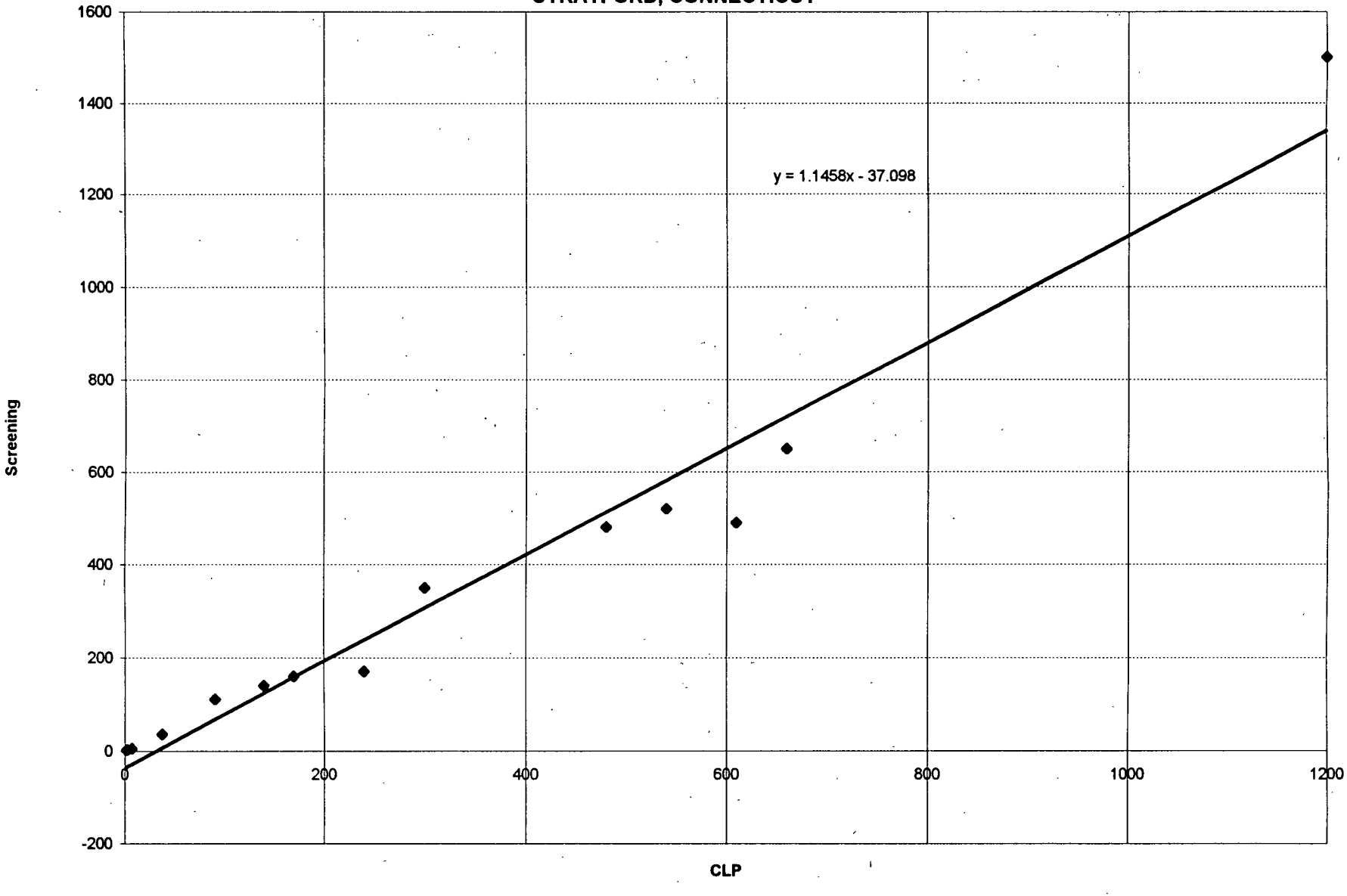


FIGURE 2
SCREENING AND CLP RESULTS CORRELATION
1,1,1-TRICHLOROETHANE (UG/L)
RAYMARK OU2
STRATFORD, CONNECTICUT

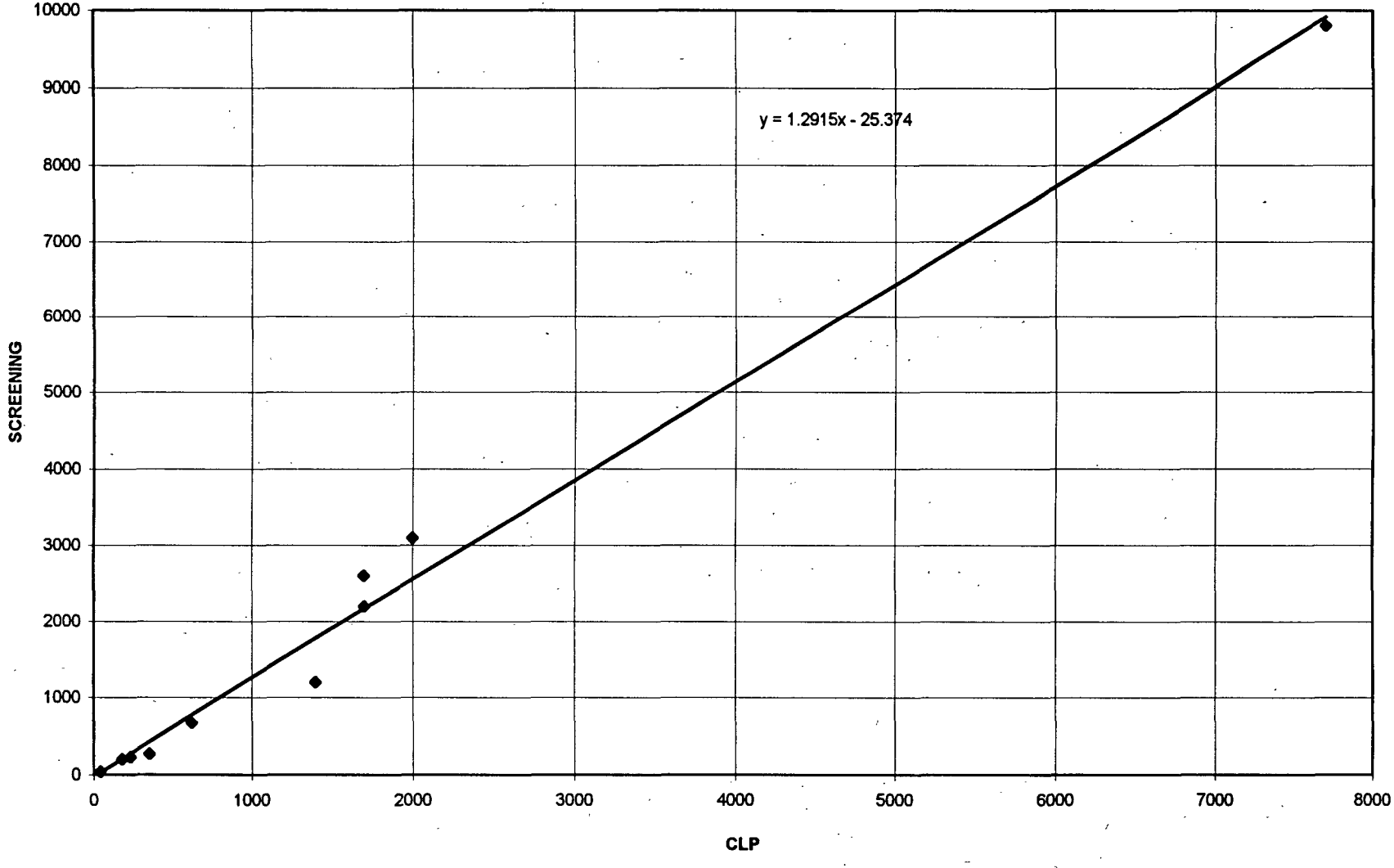


FIGURE 3
SCREENING AND CLP RESULTS CORRELATION
TRICHLOROETHENE (UG/L)
RAYMARK OU2
STRATFORD, CONNECTICUT

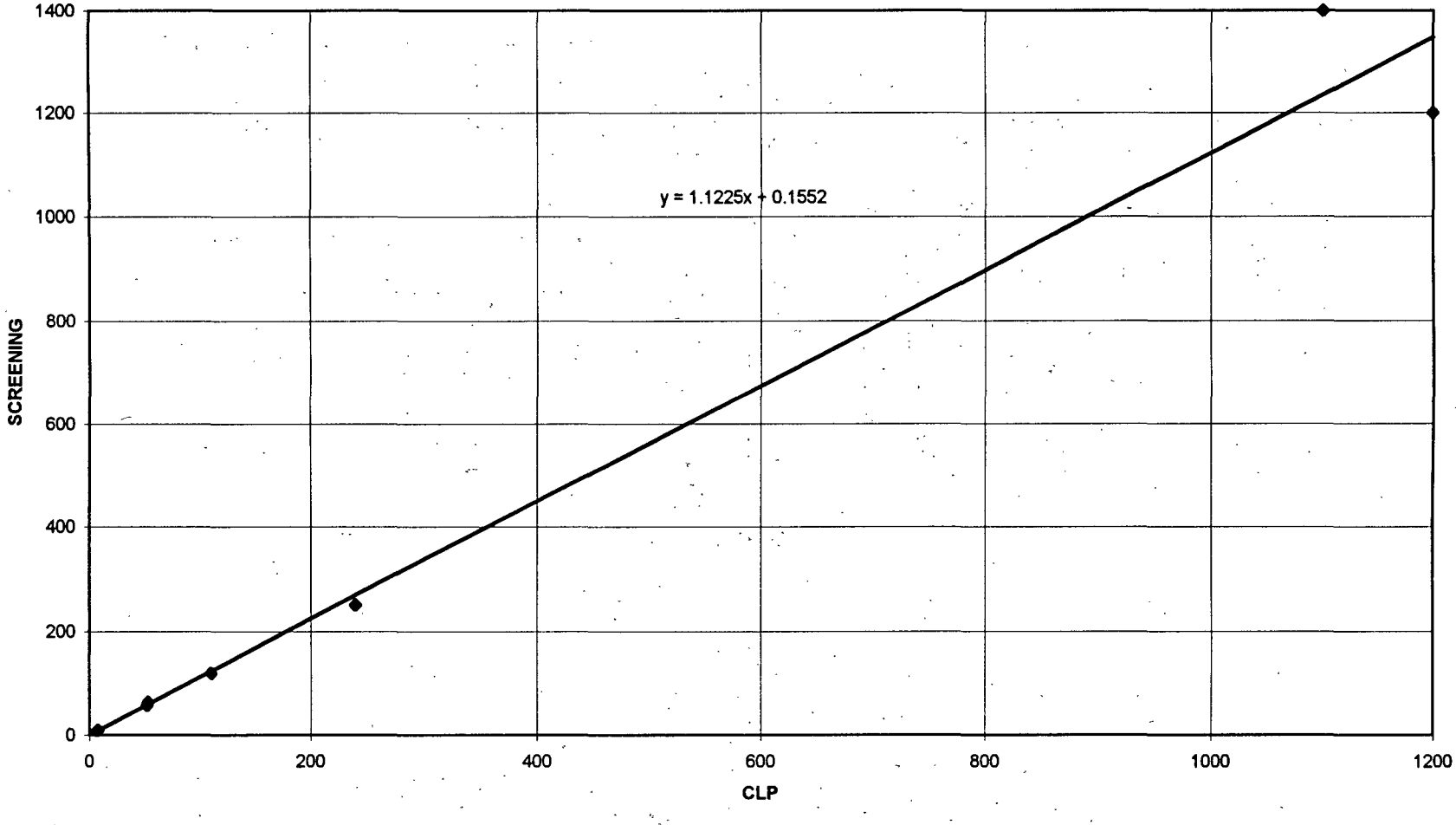
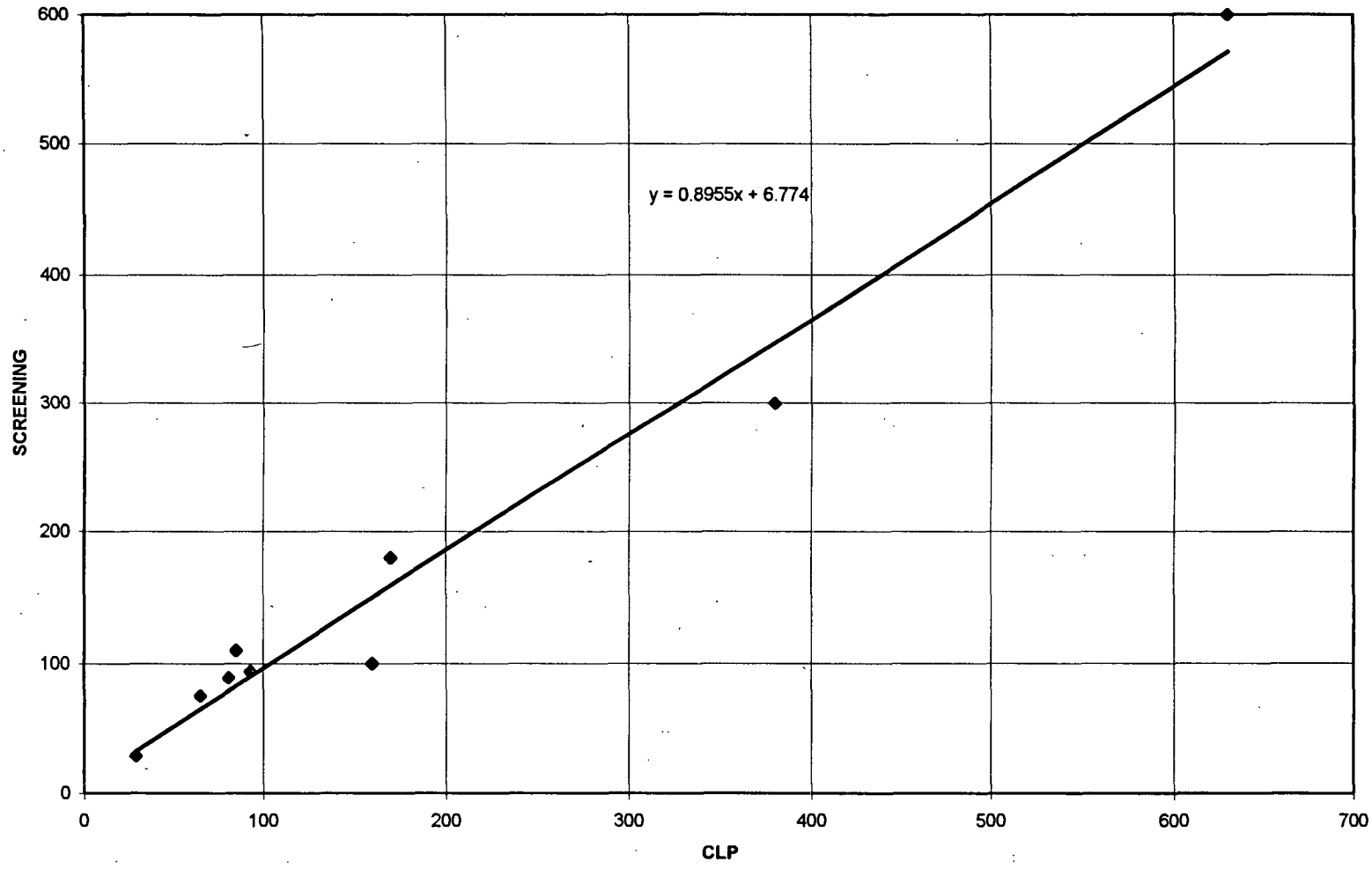


FIGURE 4
SCREENING AND CLP RESULTS CORRELATION
1,1-DICHLOROETHANE (UG/L)
RAYMARK OU2
STRATFORD, CONNECTICUT



GROUNDWATER ANALYTICAL RESULTS
TECHNICAL MEMORANDUM
RAYMARK - OU2, STRATFORD, CT

Sample Number	AA-DPA1-2-1015		AA-DPA1-5-0914		AA-DPA1-5-1924		AA-DPA3-2-1015-AVG		CP-MW-2A-01		CP-MW-4-01	
Sample Location	AA-DPA1-2		AA-DPA1-5		AA-DPA1-5		AA-DPA3-2		MW-2A		MW-4	
Date Sampled	9/9/97		9/9/97		9/9/97		9/8/97		11/18/97		11/18/97	
QC Type	None		None		None		Field Dup. (D1c)		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Volatile Organic Compounds (UG/L)												
1,1,1-Trichloroethane	5000	U	2500	U	400	U	10	U	3	J	13	
1,1,2-Trichloroethane	5000	U	2500	U	400	U	10	U	10	U	10	U
1,1-Dichloroethane	5000	U	2500	U	400	U	10	U	10	U	10	U
1,1-Dichloroethene	5000	U	2500	U	400	U	10	U	10	U	10	U
1,2-Dichloroethane	5000	U	2500	U	400	U	10	U	10	U	10	U
1,2-Dichloroethene	5000	U	2500	U	400	U	10	U	10	U	10	U
2-Butanone	5000	U	2500	U	400	U	10	U	10	U	10	U
2-Hexanone	5000	U	2500	U	400	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	5000	U	2500	U	400	U	10	U	10	U	10	U
Acetone	5800	JTB	1400	JTB	250	JTB	10	U	10	UJ	10	UJ
Benzene	5000	U	2500	U	400	U	10	U	10	U	10	U
Bromochloromethane		NA		NA		NA		NA		NA		NA
Bromodichloromethane	5000	U	2500	U	400	U	10	U	10	U	10	U
Bromomethane	5000	U	2500	U	400	U	10	U	10	U	10	U
Carbon Disulfide	5000	UJ	2500	UJ	400	UJ	10	U	10	U	10	U
Carbon Tetrachloride	5000	U	2500	U	400	U	10	U	10	U	10	U
Chlorobenzene	5000	U	2500	U	400	U	10	U	10	U	10	U
Chloroethane	5000	UJ	2500	UJ	400	UJ	10	U	10	U	10	U
Chloroform	5000	U	2500	U	400	U	10	U	10	U	10	U
Chloromethane	5000	U	2500	U	400	U	10	U	10	U	10	U
cis-1,2-Dichloroethene		NA		NA		NA		NA		NA		NA
Ethylbenzene	1200	J	1200	J	1200		10	U	10	U	10	U
Methylene Chloride	5000	U	2500	U	44	J	10	U	10	U	10	U
Tetrachloroethene	5000	U	2500	U	400	U	10	U	10	U	10	U
Toluene	62000	J	48000		2700		1		10	U	9	J
Total Xylenes	8000		8000		4600		2		10	U	10	U
Trichloroethene	5000	U	2500	U	400	U	10	U	17		3	J
Vinyl Chloride	5000	U	2500	U	400	U	10	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	AA-DPA1-2-1015		AA-DPA1-5-0914		AA-DPA1-5-1924		AA-DPA3-2-1015-AVG		CP-MW-2A-01		CP-MW-4-01
Sample Location	AA-DPA1-2		AA-DPA1-5		AA-DPA1-5		AA-DPA3-2		MW-2A		MW-4
Date Sampled	9/9/97		9/9/97		9/9/97		9/8/97		11/18/97		11/18/97
QC Type	None		None		None		Field Dup. (D1c)		None		None
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS
Filtering											
Semivolatile Organic Compounds (UG/L)											
1,2-Dichlorobenzene		NA		NA		NA		NA	10	U	10
2,4-Dimethylphenol		NA		NA		NA		NA	10	U	10
2,4-Dinitrophenol		NA		NA		NA		NA	25	UJ	25
2-Chlorophenol		NA		NA		NA		NA	10	U	10
2-Methylnaphthalene		NA		NA		NA		NA	10	U	10
2-Methylphenol		NA		NA		NA		NA	10	U	10
2-Nitrophenol		NA		NA		NA		NA	10	U	10
4,6-Dinitro-2-methylphenol		NA		NA		NA		NA	25	U	25
4-Chloro-3-methylphenol		NA		NA		NA		NA	10	U	10
4-Methylphenol		NA		NA		NA		NA	10	U	10
4-Nitrophenol		NA		NA		NA		NA	25	U	25
Acenaphthene		NA		NA		NA		NA	10	U	10
Acenaphthylene		NA		NA		NA		NA	10	U	10
Anthracene		NA		NA		NA		NA	10	U	10
bis(2-Ethylhexyl)phthalate		NA		NA		NA		NA	10	U	10
Carbazole		NA		NA		NA		NA	10	U	10
Di-n-Butylphthalate		NA		NA		NA		NA	10	U	10
Dibenzofuran		NA		NA		NA		NA	10	U	10
Diethylphthalate		NA		NA		NA		NA	10	U	10
Fluoranthene		NA		NA		NA		NA	10	U	10
Fluorene		NA		NA		NA		NA	10	U	10
Hexachloroethane		NA		NA		NA		NA	10	U	10
N-Nitroso-diphenylamine		NA		NA		NA		NA	10	U	10
Naphthalene		NA		NA		NA		NA	10	U	10
Nitrobenzene		NA		NA		NA		NA	10	U	10
Phenanthrene		NA		NA		NA		NA	10	U	10
Phenol		NA		NA		NA		NA	10	U	10
Pyrene		NA		NA		NA		NA	10	U	10

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	AA-DPA1-2-1015		AA-DPA1-5-0914		AA-DPA1-5-1924		AA-DPA3-2-1015-AVG		CP-MW-2A-01		CP-MW-4-01
Sample Location	AA-DPA1-2		AA-DPA1-5		AA-DPA1-5		AA-DPA3-2		MW-2A		MW-4
Date Sampled	9/9/97		9/9/97		9/9/97		9/8/97		11/18/97		11/18/97
QC Type	None		None		None		Field Dup. (D1c)		None		None
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS
Filtering											
Metals (UG/L)											
Aluminum	78.9	U	35.6	U	35.6	U	14650		54.3	UJ	6
Antimony	25.2	U	25.2	U	25.2	U	25.2	U	4	U	4.3
Arsenic	328		6.1		28		1.2	U	6	U	7.7
Barium	254		282		177		86.9		18.9		8.3
Beryllium	2.3	U	2.3	U	2.3	U	5.8		1	U	1
Cadmium	4.3	UJ	4.3	U	4.3	U	4.3	U	39.4		7.9
Calcium	72000		23400		12100		73800		8700		5250
Chromium	6.3	U	6.3	U	6.3	U	6.3	U	187		477
Cobalt	16.6		5.5	U	5.5	U	36.55		2	U	7.2
Copper	5.2	U	5.2	U	5.2	U	47.25		43.9	U	57.1
Iron	107000	J	50100	J	77500	J	8190		82.2	U	169
Lead	0.9	UJ	0.9	UJ	1	UJ	31.15		3	UJ	3
Magnesium	17900		7540		5490		15300		1760		1350
Manganese	18400		11300		11300		2705		46.3		50.4
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	UJ	0.2
Nickel	13.8	U	13.8	U	13.8	U	78.2		1260	J	138
Potassium	7330		5070		3350		3540		3760		2750
Selenium	1.4	U	1.4	U	1.4	U	2.55	U	3	U	3
Silver	3.7	U	3.7	U	3.7	U	3.7	U	1	U	1
Sodium	32300		91100		24500	U	102500		6730		83100
Thallium	0.8	UJ	0.8	UJ	0.8	UJ	0.8	U	6	U	6
Vanadium	3	U	3	U	3	U	3	U	30.5		1.5
Zinc	39.2	UJ	33.5	U	31.9	U	279.5		461	J	264
Water Quality Analysis (mg/L)											
Alkalinity		NA		NA		NA		NA	14.5		126
Chloride		NA		NA		NA		NA	3.1		46.2
Nitrate-Nitrite (as N)		NA		NA		NA		NA	2.51		4.57
Sulfate		NA		NA		NA		NA	12.1		38.2

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number		CP-MW-6-01		CP-MW-8-01		CP-MW-BR1-01		CP-MW-BR2-01		CP-MW-Z-01		DK-MW-1B-01	
Sample Location		MW-6		MW-8		MW-BR1		MW-BR2		MW-Z		MW-1B	
Date Sampled		11/18/97		11/18/97		11/18/97		11/18/97		11/18/97		12/3/97	
QC Type		None		None		None		None		None		None	
Matrix		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering													
Volatile Organic Compounds (UG/L)													
1,1,1-Trichloroethane		10	U	10	U	250	U	100	U	10	U	10	UJ
1,1,2-Trichloroethane	U	10	U	10	U	250	U	100	U	10	U	10	UJ
1,1-Dichloroethane	U	10	U	10	U	250	U	100	U	2	J	2	J
1,1-Dichloroethene	U	10	U	10	U	250	U	100	U	10	U	1	J
1,2-Dichloroethane	U	10	U	10	U	250	U	100	U	10	U	10	U
1,2-Dichloroethene	U	10	U	4	J	250	U	410		38		4	J
2-Butanone	U	10	U	10	U	250	U	100	U	10	U	10	UJ
2-Hexanone	U	10	U	10	U	250	U	100	U	10	U	10	UJ
4-Methyl-2-Pentanone	U	10	U	10	U	250	U	100	U	10	U	10	UJ
Acetone	UJ	10	UJ	10	UJ	250	UJ	100	UJ	10	UJ	10	UJ
Benzene	U	10	U	10	U	250	U	100	U	10	U	3	J
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA
Bromodichloromethane	U	10	U	10	U	250	U	100	U	10	U	2	J
Bromomethane	U	10	U	10	U	250	U	100	U	10	U	10	U
Carbon Disulfide	U	10	U	10	U	250	U	100	U	10	U	10	U
Carbon Tetrachloride	U	10	U	10	U	250	U	100	U	10	U	10	UJ
Chlorobenzene	U	10	U	10	U	250	U	100	U	10	U	6	J
Chloroethane	U	10	U	10	U	250	U	100	U	10	U	10	U
Chloroform	U	10	U	10	U	250	U	100	U	10	U	10	U
Chloromethane	U	10	U	10	U	250	U	100	U	10	U	10	U
cis-1,2-Dichloroethene	NA		NA		NA		NA		NA		NA		NA
Ethylbenzene	U	10	U	10	U	250	U	100	U	10	U	10	U
Methylene Chloride	U	10	U	10	U	250	U	100	U	10	U	10	U
Tetrachloroethene	U	10	U	10	U	250	U	100	U	10	U	10	U
Toluene	J	7	J	10	U	250	U	100	U	6	J	3	J
Total Xylenes	U	10	U	10	U	250	U	100	U	10	U	1	J
Trichloroethene	J	10	U	48		2800		1000		42		7	J
Vinyl Chloride	U	10	U	10	U	250	U	100	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number		CP-MW-6-01		CP-MW-8-01		CP-MW-BR1-01		CP-MW-BR2-01		CP-MW-Z-01		DK-MW-1B-01	
Sample Location		MW-6		MW-8		MW-BR1		MW-BR2		MW-Z		MW-1B	
Date Sampled		11/18/97		11/18/97		11/18/97		11/18/97		11/18/97		12/3/97	
QC Type		None		None		None		None		None		None	
Matrix		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering													
Semivolatile Organic Compounds (UG/L)													
1,2-Dichlorobenzene	U	10	U	10	U	8	J	6	J	10	U	10	U
2,4-Dimethylphenol	U	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrophenol	U	25	UJ	25	U	25	UJ	25	UJ	25	UJ	25	U
2-Chlorophenol	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Methylnaphthalene	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Methylphenol	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Nitrophenol	U	10	U	10	U	10	U	10	U	10	U	10	U
4,6-Dinitro-2-methylphenol	U	25	U	25	U	25	U	25	U	25	U	25	U
4-Chloro-3-methylphenol	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methylphenol	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	U	25	U	25	U	25	U	25	U	25	U	25	U
Acenaphthene	U	10	U	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	U	10	U	10	U	10	U	10	U	10	U	10	U
Anthracene	U	10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbazole	U	10	U	10	U	10	U	10	U	10	U	10	U
Di-n-Butylphthalate	U	10	U	10	U	10	U	10	U	10	U	10	U
Dibenzofuran	U	10	U	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	U	10	U	10	U	10	U	10	U	10	U	10	U
Fluoranthene	U	10	U	10	U	10	U	10	U	10	U	10	U
Fluorene	U	10	U	10	U	10	U	10	U	10	U	10	U
Hexachloroethane	U	10	U	10	U	10	U	10	U	10	U	10	U
N-Nitroso-diphenylamine	U	10	U	10	U	10	U	10	U	10	U	10	U
Naphthalene	U	10	U	10	U	10	U	10	U	10	U	10	U
Nitrobenzene	U	10	U	10	U	10	U	10	U	10	U	10	U
Phenanthrene	U	10	U	10	U	10	U	10	U	10	U	10	U
Phenol	U	10	U	10	U	10	U	10	U	10	U	10	U
Pyrene	U	10	U	10	U	10	U	10	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number		CP-MW-6-01		CP-MW-8-01		CP-MW-BR1-01		CP-MW-BR2-01		CP-MW-Z-01		DK-MW-1B-01	
Sample Location		MW-6		MW-8		MW-BR1		MW-BR2		MW-Z		MW-1B	
Date Sampled		11/18/97		11/18/97		11/18/97		11/18/97		11/18/97		12/3/97	
QC Type		None		None		None		None		None		None	
Matrix		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering													
Metals (UG/L)													
Aluminum	U	230	UJ	6860	J	30	UJ	51.7	UJ	43.2	UJ	9270	J
Antimony	J	4	U	4	U	4	U	4	U	4	U	4	U
Arsenic	J	6.5		6	U	6	U	6	U	6	U	18.6	J
Barium	U	27.8		20		22.7		59.4		16.2		41.8	J
Beryllium	U	1	U	1	U	1	U	1	U	1	U	6.6	U
Cadmium	J	66.2		45.4		1	U	5		245		5	J
Calcium	U	39400		14700		211000		204000		22100		487000	
Chromium	J	14		9.2		2.9		4.6		3.1		1	UJ
Cobalt		4.8		14.6		24.2		19.8		11.7		529	
Copper	U	128	U	248		37.3	U	50.3	U	64.3	U	60.1	UJ
Iron	U	28700		197	U	119	U	3880		88.8	U	1040	J
Lead	U	3	UJ	4.4	J	3	UJ	3	UJ	3	UJ	3	U
Magnesium	U	3970		6840		62000		33000		10900		186000	
Manganese	J	607		499		1030		2710		531		49200	
Mercury	U	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	U
Nickel		2780	J	423	J	9.3	UJ	997	J	3340	J	370	J
Potassium		19500		3370		7590		16800		2530		21900	
Selenium	U	3	U	3	U	3	U	3	U	3	U	9.1	J
Silver	U	1	U	1	U	1	U	1	U	1	U	1	U
Sodium		29900		12300		78100		126000		21200		28600	
Thallium	U	6	U	6	U	6	U	6	U	6	U	6	U
Vanadium	J	2.7		1.6		1	U	1	U	2.5		1	U
Zinc		1760	J	746	J	122	J	486	J	1430	J	573	J
Water Quality Analysis (mg/L)													
Alkalinity		161		2	U	71		102		83.1		17	
Chloride		10.4		9.3		222		226		4.4		30.8	
Nitrate-Nitrite (as N)		0.1	U	2.51		11.9		2.21		2.73		0.1	U
Sulfate		5	U	99.4		445		458		45.9		2050	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	DK-MW-1M-01-AVG		DK-MW-1S-01		DK-MW-2S-01		DK-MW-3S-01		DK-MW-4B-01		DK-MW-4M-01	
Sample Location	MW-1M		MW-1S		MW-2S		MW-3S		MW-4B		MW-4D	
Date Sampled	12/3/97		12/3/97		12/3/97		12/3/97		12/3/97		12/3/97	
QC Type	Field Duplicate 10		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Volatile Organic Compounds (UG/L)												
1,1,1-Trichloroethane	15	U	170	U	1	UJ	10	U	10	UJ	1	U
1,1,2-Trichloroethane	15	U	170	U	1	U	10	U	10	UJ	1	U
1,1-Dichloroethane	16.5		170	U	1	U	3	J	10	U	1	UJ
1,1-Dichloroethene	4		170	UJ	1	U	10	UJ	10	UJ	1	U
1,2-Dichloroethane	15	U	170	U	1	U	10	U	10	U	1	U
1,2-Dichloroethene	21		170	U		NA	10	U	10	U		NA
2-Butanone	15	U	170	U		R	10	U	10	UJ		R
2-Hexanone	15	U	170	U	5	U	10	U	10	UJ	5	U
4-Methyl-2-Pentanone	15	U	170	U	5	U	10	U	10	UJ	5	U
Acetone	15	U	63	J		R	10	UJ	10	UJ		R
Benzene	52.5		140	J	1	U	6	J	10	UJ	1	U
Bromochloromethane		NA		NA	1	U		NA		NA	1	U
Bromodichloromethane	15	U	170	U	2		10	U	10	U	1	U
Bromomethane	15	U	170	U	1	UJ	10	U	10	U	1	UJ
Carbon Disulfide	15	U	170	U	1	U	10	U	10	U	1	U
Carbon Tetrachloride	15	U	170	U	1	U	10	U	10	UJ	1	U
Chlorobenzene	165		170	U	1	U	11		10	UJ	1	U
Chloroethane	16		26	J	1	U	41		10	U	1	UJ
Chloroform	15	U	170	U	6	U	10	U	10	U	1	U
Chloromethane	15	U	170	U	1	U	10	U	10	U	1	UJ
cis-1,2-Dichloroethene		NA		NA	1	U		NA		NA	1	U
Ethylbenzene	2		880		1	U	10	U	10	U	1	U
Methylene Chloride	15	U	170	U	2	U	10	U	10	U	2	UJ
Tetrachloroethene	15	U	170	U	1	U	10	U	10	U	1	U
Toluene	3		380		1	U	10	U	6	J	2	
Total Xylenes	52.5		2900		1	U	10	U	10	U	1	U
Trichloroethene	5.5		170	U	1	U	10	U	10	U	1	U
Vinyl Chloride	8		170	U	1	U	10	U	10	U	1	UJ

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	DK-MW-1M-01-AVG		DK-MW-1S-01		DK-MW-2S-01		DK-MW-3S-01		DK-MW-4B-01		DK-MW-4M-01	
Sample Location	MW-1M		MW-1S		MW-2S		MW-3S		MW-4B		MW-4D	
Date Sampled	12/3/97		12/3/97		12/3/97		12/3/97		12/3/97		12/3/97	
QC Type	Field Duplicate 10		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Semivolatile Organic Compounds (UG/L)												
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol	10	U	14		10	U	10	U	10	U	10	U
2,4-Dinitrophenol	25	U	25	U	25	UJ	25	U	25	UJ	25	U
2-Chlorophenol	10	U	10	U	10	U	10	U	10	U	10	U
2-Methylnaphthalene	1		44		10	U	10	U	10	U	10	U
2-Methylphenol	10	U	10	U	10	U	10	U	10	U	10	U
2-Nitrophenol	10	U	10	U	10	U	10	U	10	U	10	U
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U	25	U	25	U	25	U
4-Chloro-3-methylphenol	10	U	10	U	10	U	10	U	10	U	10	U
4-Methylphenol	10	U	10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	25	U	25	U	25	U	25	U	25	U	25	U
Acenaphthene	10	U	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	10	U	10	U	10	U	10	U	10	U	10	U
Anthracene	10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	U	10	U	10	U	10	U	1	J	10	U
Carbazole	10	U	10	U	10	U	10	U	10	U	10	U
Di-n-Butylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
Dibenzofuran	10	U	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
Fluoranthene	10	U	10	U	10	U	10	U	10	U	10	U
Fluorene	10	U	10	U	10	U	10	U	10	U	10	U
Hexachloroethane	10	U	10	U	10	U	10	U	10	U	10	U
N-Nitroso-diphenylamine	10	U	10	U	10	U	10	U	10	U	10	U
Naphthalene	6		330	*	10	U	10	U	10	U	10	U
Nitrobenzene	10	U	10	U	10	U	10	U	10	U	10	U
Phenanthrene	10	U	10	U	10	U	10	U	10	U	10	U
Phenol	10	U	10	U	10	U	10	U	10	U	10	U
Pyrene	10	U	10	U	10	U	10	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	DK-MW-1M-01-AVG		DK-MW-1S-01		DK-MW-2S-01		DK-MW-3S-01		DK-MW-4B-01		DK-MW-4M-01	
Sample Location	MW-1M		MW-1S		MW-2S		MW-3S		MW-4B		MW-4D	
Date Sampled	12/3/97		12/3/97		12/3/97		12/3/97		12/3/97		12/3/97	
QC Type	Field Duplicate 10		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Metals (UG/L)												
Aluminum	203	U	123	UJ	764	J	207	UJ	33200	J	20800	J
Antimony	4	U	10.9		4	U	4	U		R	4	U
Arsenic	90.5		34.6		6	U	6	U	17.6	J	6.3	J
Barium	95.1		90.3		45.2		65.6		21.2	J	14.9	
Beryllium	1	U	1	U	1	U	1	U	15.7		3.4	U
Cadmium	1	U	1	U	3.2		1	U	3.1	J	2.3	
Calcium	33600		39200		21000		34100		445000		159000	
Chromium	4.6	U	1	UJ	2.4	UJ	31.2	J	1	UJ	1	UJ
Cobalt	3.5		12.9		2	U	4.2		517		113	
Copper	31.3	U	96	U	39.7	U	33.8	U	210	J	68.6	U
Iron	52000		45900	J	1050	J	370	UJ	344000	J	28400	J
Lead	3	U	4.7	J	3	U	3	U	7.3	J	3	U
Magnesium	8950		9800		8780		7300		339000		64000	
Manganese	9540		10300		102		2180		43700		11000	
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Nickel	6.8		4	U	9.4		21.1		594	J	222	
Potassium	9270		8900		3310		5110		7990		4660	
Selenium	3	U	3.3	J	3	U	3	U	10.5	J	12.1	J
Silver	1.4	U	2.9	U	3.5	U	4.1	U	1	U	1	U
Sodium	108000		67500		12600		49200		40700		153000	
Thallium	7.7		6	U	6	U	6	U	6	U	6.2	J
Vanadium	1	U	1	U	1	U	1	U		R	1	U
Zinc	37.3	U	20.2	UJ	310	J	30.8	UJ	1420	J	516	J
Water Quality Analysis (mg/L)												
Alkalinity	225		220		9		90		4.7		2	U
Chloride	74.4		71.3		23.8		38.7		157		191	
Nitrate-Nitrite (as N)	0.1	U	0.1	U	5.83		2.07		0.1	U	2	
Sulfate	58.3		19.4		14.7		9.4		2600		695	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	DK-MW-4S-01-AVG		OU1-PC-01B-01-AVG		OU1-PC-01D-01		OU1-PC-01M-01-AVG		OU1-PC-01S-01-AVG	
Sample Location	MW-4S		PC-01B		PC-01D		PC-01M		PC-01S	
Date Sampled	12/2/97		12/2/97		12/2/97		12/2/97		12/2/97	
QC Type	Field Duplicate 9		Field Dup. 2		None		Field Dup. 8		Field Dup. 9	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering										
Volatile Organic Compounds (UG/L)										
1,1,1-Trichloroethane	1	U	10	U	10	U	165		10	U
1,1,2-Trichloroethane	1	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	1	U	10	U	10	U	85		10	U
1,1-Dichloroethene	1	U	10	U	10	U	67.5		10	U
1,2-Dichloroethane	1	U	10	U	10	U	10	U	10	U
1,2-Dichloroethene		NA	10	U	2	J	59.5		3.5	
2-Butanone		R	10	U	10	U	10	U	10	U
2-Hexanone	5	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	5	U	10	U	10	U	10	U	10	U
Acetone		R	10	U	10	U	10	U	16	U
Benzene	1	U	10	U	4	J	13		10	U
Bromochloromethane	1	U		NA		NA		NA		NA
Bromodichloromethane	1	U	10	U	10	U	10	U	10	U
Bromomethane	1	U	10	U	10	U	10	U	10	U
Carbon Disulfide	1	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride	1	U	10	U	10	U	10	U	10	U
Chlorobenzene	1	U	10	U	10	U	30		10	U
Chloroethane	1	U	10	U	10	UJ	12.5		10	U
Chloroform	1	U	10	U	10	U	10	U	10	U
Chloromethane	1	U	10	U	10	U	10	U	10	U
cis-1,2-Dichloroethene	1	U		NA		NA		NA		NA
Ethylbenzene	1	U	10	U	10	U	10	U	10	U
Methylene Chloride	2	U	10	U	10	U	10	U	10	U
Tetrachloroethene	1	U	10	U	5	J	2.5		10	U
Toluene	1	U	10	U	10	U	10	U	10	U
Total Xylenes	1	U	10	U	10	UJ	10	U	10	U
Trichloroethene	1	U	2.5		7	J	5		10	U
Vinyl Chloride	1	U	10	U	10	U	10		10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	DK-MW-4S-01-AVG		OU1-PC-01B-01-AVG		OU1-PC-01D-01		OU1-PC-01M-01-AVG		OU1-PC-01S-01-AVG	
Sample Location	MW-4S		PC-01B		PC-01D		PC-01M		PC-01S	
Date Sampled	12/2/97		12/2/97		12/2/97		12/2/97		12/2/97	
QC Type	Field Duplicate 9		Field Dup. 2		None		Field Dup. 8		Field Dup. 9	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering										
Semivolatile Organic Compounds (UG/L)										
1,2-Dichlorobenzene	10	U	30	U	10	U	10	U	15	U
2,4-Dimethylphenol	10	U	30	U	10	U	10	U	15	U
2,4-Dinitrophenol	25	U	72.5	U	25	UJ	25	U	37.5	U
2-Chlorophenol	10	U	30	U	10	U	10	U	15	U
2-Methylnaphthalene	10	U	30	U	10	U	10	U	15	U
2-Methylphenol	10	U	30	U	10	U	10	U	15	U
2-Nitrophenol	10	U	30	U	10	U	10	U	15	U
4,6-Dinitro-2-methylphenol	25	U	72.5	U	25	U	25	U	37.5	U
4-Chloro-3-methylphenol	10	U	30	U	10	U	10	U	15	U
4-Methylphenol	10	U	30	U	10	U	10	U	15	U
4-Nitrophenol	25	U	72.5	U	25	UJ	25	U	37.5	U
Acenaphthene	10	U	30	U	10	U	10	U	15	U
Acenaphthylene	10	U	30	U	10	U	10	U	15	U
Anthracene	10	U	30	U	10	U	10	U	15	U
bis(2-Ethylhexyl)phthalate	10	U	57.5		10	U	10	U	15	U
Carbazole	10	U	30	U	10	U	10	U	15	U
Di-n-Butylphthalate	10	U	30	U	10	U	10	U	15	U
Dibenzofuran	10	U	30	U	10	U	10	U	15	U
Diethylphthalate	10	U	30	U	10	U	10	U	15	U
Fluoranthene	10	U	30	U	10	U	10	U	15	U
Fluorene	10	U	30	U	10	U	10	U	15	U
Hexachloroethane	10	U	30	U	10	U	10	U	15	U
N-Nitroso-diphenylamine	10	U	30	U	10	U	10	U	15	U
Naphthalene	10	U	30	U	10	U	10	U	15	U
Nitrobenzene	10	U	30	U	10	U	10	U	15	U
Phenanthrene	10	U	30	U	10	U	10	U	15	U
Phenol	10	U	30	U	10	U	10	U	15	U
Pyrene	10	U	30	U	10	U	10	U	15	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	DK-MW-4S-01-AVG		OU1-PC-01B-01-AVG		OU1-PC-01D-01		OU1-PC-01M-01-AVG		OU1-PC-01S-01-AVG	
Sample Location	MW-4S		PC-01B		PC-01D		PC-01M		PC-01S	
Date Sampled	12/2/97		12/2/97		12/2/97		12/2/97		12/2/97	
QC Type	Field Duplicate 9		Field Dup. 2		None		Field Dup. 8		Field Dup. 9	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering										
Metals (UG/L)										
Aluminum	13050		109000		139000		2485		79.55	U
Antimony	4	U	100	U	50	U	50	U	50	U
Arsenic	6	U	10	U	5	U	1.75	U	7.1	
Barium	16.4		19.1		10		26.35		1095	
Beryllium	3.1	U	42.55		45.2		2.35		1	U
Cadmium	1.4		16.9		26.8		3		2	U
Calcium	80500		441000		444000		83050		127500	
Chromium	1	U	27.85		6.3	J	5	U	6.75	
Cobalt	38.15		2765		2590		108		29.3	
Copper	78.25	U		R	309	J	4.65		5.2	
Iron	1454.75		847500		229000		283		28950	
Lead	5.75		3	U	5	U	1	U	12.7	
Magnesium	18500		450500		280000		17750		64300	
Manganese	3340		224000		141000		11100		2575	
Mercury	0.2	U	0.1	U	0.1	U	0.1	U	0.1	U
Nickel	83.05		2605		1870		117.5		19.55	
Potassium	4625		22600		25600		8720		14400	
Selenium	2.85		10	U	10	UJ	1	U	1	U
Silver	2.2	U	6	U	3	U	3	U	3	U
Sodium	118500		65700		86700		80700		90750	
Thallium	6	U	5	U	5	U	1	U	1	U
Vanadium	1	U	64.6		23	J	3	U	3	U
Zinc	295.5		3675		3370	J	159.5		14.3	
Water Quality Analysis (mg/L)										
Alkalinity	2	U	2	U	2	U	20.1		600	
Chloride	193.5		100		128	J	155.5		83.25	
Nitrate-Nitrite (as N)	2.8		0.1	U	0.1	U	0.37		0.1	U
Sulfate	298.5		6180		4290		188.5		487.8	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-02B-01-AVG		OU1-PC-02D-01		OU1-PC-02M-01		OU1-PC-02S-01		OU1-PC-03B-01		OU1-PC-03D-01	
Sample Location	PC-02B		PC-02D		PC-02M		PC-02S		PC-03B		PC-03D	
Date Sampled	12/2/97		12/2/97		12/2/97		12/3/97		12/3/97		12/3/97	
QC Type	Field Dup. 3		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Volatile Organic Compounds (UG/L)												
1,1,1-Trichloroethane	185000		80000		1700		17		4	J	750	
1,1,2-Trichloroethane	15000	U	10000	U	100	U	10	U	10	U	50	U
1,1-Dichloroethane	15000	U	10000	U	240		10	U	4	J	270	
1,1-Dichloroethene	42000		6500	J	720		2	J	9	J	310	
1,2-Dichloroethane	15000	U	10000	U	100	U	10	U	10	U	50	U
1,2-Dichloroethene	15000	U	10000	U	130		10	U	5	J	350	
2-Butanone	15000	U	10000	U	100	U	10	U	10	U	50	U
2-Hexanone	15000	U	10000	U	100	U	10	UJ	10	U	50	U
4-Methyl-2-Pentanone	15000	U	10000	U	100	U	10	U	10	U	50	U
Acetone	15000	U	10000	U	100	U	10	U	11		50	U
Benzene	15000	U	10000	U	100	U	10	U	10	U	85	
Bromochloromethane		NA		NA		NA		NA		NA		NA
Bromodichloromethane	15000	U	10000	U	100	U	10	U	10	U	50	U
Bromomethane	15000	U	10000	UJ	100	U	10	UJ	10	U	50	U
Carbon Disulfide	15000	U	10000	U	100	U	10	U	10	U	50	U
Carbon Tetrachloride	15000	U	10000	UJ	100	U	10	U	10	U	50	U
Chlorobenzene	15000	U	10000	U	100	U	10	U	32		50	U
Chloroethane	15000	U	10000	U	100	U	6	J	10	U	50	U
Chloroform	15000	U	10000	U	100	U	10	U	10	U	50	U
Chloromethane	15000	U	10000	U	100	U	10	U	10	U	50	U
cis-1,2-Dichloroethene		NA		NA		NA		NA		NA		NA
Ethylbenzene	15000	U	10000	U	100	U	2	J	10	U	50	U
Methylene Chloride	15000	U	10000	U	100	U	10	U	10	U	50	U
Tetrachloroethene	15000	U	10000	U	100	U	10	UJ	10	U	50	U
Toluene	15000	U	10000	U	100	U	10	U	10	U	50	U
Total Xylenes	15000	U	10000	U	100	U	3	J	10	U	50	U
Trichloroethene	15000	U	10000	U	83	J	10	U	14		21	J
Vinyl Chloride	15000	U	10000	U	100	U	2	J	1	J	33	J

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-02B-01-AVG		OU1-PC-02D-01		OU1-PC-02M-01		OU1-PC-02S-01		OU1-PC-03B-01		OU1-PC-03D-01	
Sample Location	PC-02B		PC-02D		PC-02M		PC-02S		PC-03B		PC-03D	
Date Sampled	12/2/97		12/2/97		12/2/97		12/3/97		12/3/97		12/3/97	
QC Type	Field Dup. 3		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Semivolatile Organic Compounds (UG/L)												
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol	10	U	10	U	10	U	10	U	10	U	230	*
2,4-Dinitrophenol		R		R		R		R		R		R
2-Chlorophenol	10	U	10	U	10	U	10	U	10	U	10	U
2-Methylnaphthalene	10	U	10	U	10	U	11		10	U	3	J
2-Methylphenol	10	U	10	U	10	U	10	U	10	U	1	J
2-Nitrophenol	10	U	10	U	10	U	10	U	10	U	10	U
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U	25	UJ	25	U	25	U
4-Chloro-3-methylphenol	10	U	10	U	10	U	10	U	10	U	10	U
4-Methylphenol	10	U	10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	25	U	25	U	25	U	25	UJ	25	U	25	U
Acenaphthene	10	U	10	U	10	U	16		10	U	10	U
Acenaphthylene	10	U	10	U	10	U	4	J	10	U	10	U
Anthracene	10	U	10	U	10	U	6	J	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	U	10	U	10	U	10	U	21	U	11	U
Carbazole	10	U	10	U	10	U	6	J	10	U	10	U
Di-n-Butylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
Dibenzofuran	10	U	10	U	10	U	10		10	U	1	J
Diethylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
Fluoranthene	10	U	10	U	10	U	3	J	10	U	10	U
Fluorene	10	U	10	U	10	U	18		10	U	10	U
Hexachloroethane	10	U	10	U	10	U	10	U	10	U	10	U
N-Nitroso-diphenylamine	10	U	10	U	10	U	10	U	10	U	10	U
Naphthalene	10	U	10	U	10	U	38		10	U	15	
Nitrobenzene	10	U	10	U	10	U	10	U	10	U	10	U
Phenanthrene	10	U	2	J	10	U	21		10	U	10	U
Phenol	10	U	10	U	10	U	10	U	10	U	10	U
Pyrene	10	U	10	U	10	U	2	J	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-02B-01-AVG		OU1-PC-02D-01		OU1-PC-02M-01		OU1-PC-02S-01		OU1-PC-03B-01		OU1-PC-03D-01	
Sample Location	PC-02B		PC-02D		PC-02M		PC-02S		PC-03B		PC-03D	
Date Sampled	12/2/97		12/2/97		12/2/97		12/3/97		12/3/97		12/3/97	
QC Type	Field Dup. 3		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Metals (UG/L)												
Aluminum	471000		559000		59800		209	U	233	U	20	U
Antimony	250	U	250	U	50	U	50	U	50	U	50	U
Arsenic	10	U	10	U	1	U	15		1	U	32.8	
Barium	15.3		10	U	8.5	U	280		42.5		88.8	
Beryllium	103		107		29.8		1	U	1	U	1	U
Cadmium	51.55		52		13.5		2	U	2	U	2	U
Calcium	383000		440000		387000		103000		131000		49400	
Chromium	25	U	75.1	J	5	U	8	J	5	U	5	U
Cobalt	3175		3220	J	1030		22.8		3	U	16.2	
Copper	456			R	34.4	J	11.9		5.1		2	U
Iron	2275000		2030000		171000		19500		539		20500	
Lead	5	U	61.7		1	U	10.1		1	U	1	U
Magnesium	351500		334000		87600		16800		24500		14600	
Manganese	109500		103000		46200		2570		236		19100	
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Nickel	4145		4040		832		11.4	J	13.3	J	10	U
Potassium	9330		8370		14000		9240		8120		6370	
Selenium	10	U	10	UJ	10	UJ	1	UJ	1	UJ	1	UJ
Silver	15	U	15	U	3	U	3	U	3	U	3	U
Sodium	69250		70800	J	53900		131000		30900		68700	
Thallium	5	U	5	U	5	U	1	U	1	U	1	UJ
Vanadium	199		256	J	22.4	J	3	U	3	U	3	U
Zinc	9700		9590	J	1870	J	11.2		4.3	UJ	12.1	U
Water Quality Analysis (mg/L)												
Alkalinity	2	U	2	U	2	U	392		84.3		191	
Chloride	296.5		159	J	94	J	129	J	19.9		45.5	
Nitrate-Nitrite (as N)	0.1	U	0.1	U	0.1	U	0.1	U	0.2		0.1	U
Sulfate	9625		10000		2600		25.6		417		94.3	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-03S-01	
Sample Location	PC-03S	
Date Sampled	12/3/97	
QC Type	None	
Matrix	AQUEOUS	
Filtering		
Volatile Organic Compounds (UG/L)		
1,1,1-Trichloroethane	500	U
1,1,2-Trichloroethane	500	U
1,1-Dichloroethane	500	U
1,1-Dichloroethene	500	U
1,2-Dichloroethane	500	U
1,2-Dichloroethene	500	U
2-Butanone	500	U
2-Hexanone	500	U
4-Methyl-2-Pentanone	500	U
Acetone	500	U
Benzene	500	U
Bromochloromethane		NA
Bromodichloromethane	500	U
Bromomethane	500	UJ
Carbon Disulfide	500	U
Carbon Tetrachloride	500	U
Chlorobenzene	500	U
Chloroethane	500	U
Chloroform	500	U
Chloromethane	500	U
cis-1,2-Dichloroethene		NA
Ethylbenzene	330	J
Methylene Chloride	500	U
Tetrachloroethene	500	U
Toluene	6100	
Total Xylenes	1700	
Trichloroethene	500	U
Vinyl Chloride	500	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
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Sample Number	OU1-PC-03S-01	
Sample Location	PC-03S	
Date Sampled	12/3/97	
QC Type	None	
Matrix	AQUEOUS	
Filtering		
Semivolatile Organic Compounds (UG/L)		
1,2-Dichlorobenzene	10	U
2,4-Dimethylphenol	10	
2,4-Dinitrophenol		R
2-Chlorophenol	10	U
2-Methylnaphthalene	10	U
2-Methylphenol	20	
2-Nitrophenol	10	U
4,6-Dinitro-2-methylphenol	25	U
4-Chloro-3-methylphenol	10	U
4-Methylphenol	24	
4-Nitrophenol	25	U
Acenaphthene	10	U
Acenaphthylene	10	U
Anthracene	10	U
bis(2-Ethylhexyl)phthalate	13	U
Carbazole	10	U
Di-n-Butylphthalate	10	U
Dibenzofuran	10	U
Diethylphthalate	10	U
Fluoranthene	10	U
Fluorene	10	U
Hexachloroethane	10	U
N-Nitroso-diphenylamine	10	U
Naphthalene	3	J
Nitrobenzene	10	U
Phenanthrene	10	U
Phenol	10	U
Pyrene	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-03S-01	
Sample Location	PC-03S	
Date Sampled	12/3/97	
QC Type	None	
Matrix	AQUEOUS	
Filtering		
Metals (UG/L)		
Aluminum	20	U
Antimony	50	U
Arsenic	43	
Barium	64.9	
Beryllium	1	U
Cadmium	2	U
Calcium	57400	
Chromium	5	U
Cobalt	3	U
Copper	2	U
Iron	25400	
Lead	1	U
Magnesium	10600	
Manganese	4400	
Mercury	0.1	U
Nickel	10	U
Potassium	11500	
Selenium	1	UJ
Silver	3	U
Sodium	96200	
Thallium	1	UJ
Vanadium	3	U
Zinc	4	U
Water Quality Analysis (mg/L)		
Alkalinity	275	
Chloride	87.1	
Nitrate-Nitrite (as N)	0.1	U
Sulfate	5	U

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Sample Number	OU1-PC-04B-01		OU1-PC-04D-01		OU1-PC-04S-01		OU1-PC-05B-01		OU1-PC-05D-01-AVG		OU1-PC-05M-01	
Sample Location	PC-04B		PC-04D		PC-04S		PC-05B		PC-05D		PC-05M	
Date Sampled	12/3/97		12/3/97		12/3/97		12/5/97		12/5/97		12/4/97	
QC Type	None		None		None		None		Field Dup. 5		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Volatile Organic Compounds (UG/L)												
1,1,1-Trichloroethane	50	U	500	U	3900		460		14.5		5	J
1,1,2-Trichloroethane	50	U	500	U	1000	U	50	U	10	U	10	U
1,1-Dichloroethane	50	U	500	U	1000	U	35	J	10	U	10	U
1,1-Dichloroethene	50	U	500	U	370	J	120		4.5		10	U
1,2-Dichloroethane	50	U	500	U	1000	U	50	U	10	U	10	U
1,2-Dichloroethene	50	U	500	U	180	J	46	J	32.5		10	U
2-Butanone	50	U	500	U	1000	U	50	U	10	U	10	U
2-Hexanone	50	U	500	U	1000	U	50	U	10	U	10	U
4-Methyl-2-Pentanone	50	U	500	U	1000	U	50	U	10	U	10	U
Acetone	50	U	500	U	1000	U	98	U	25.5	U	9	J
Benzene	50	U	500	U	1000	U	50	U	10	U	10	U
Bromochloromethane		NA		NA		NA		NA		NA		NA
Bromodichloromethane	50	U	500	U	1000	U	50	U	10	U	10	U
Bromomethane	50	UJ	500	UJ	1000	U	50	UJ	10	U	10	UJ
Carbon Disulfide	50	U	500	U	1000	U	50	U	10	U	10	U
Carbon Tetrachloride	50	U	500	U	1000	U	50	UJ	10	U	10	U
Chlorobenzene	640		23000	*	1000	U	50	U	10	U	10	U
Chloroethane	50	U	500	U	1000	U	50	U	10	U	10	U
Chloroform	50	U	500	U	1000	U	50	U	10	U	10	U
Chloromethane	50	U	500	U	1000	U	50	U	10	U	10	U
cis-1,2-Dichloroethene		NA		NA		NA		NA		NA		NA
Ethylbenzene	50	U	500	U	1000		50	U	10	U	10	U
Methylene Chloride	50	U	500	U	1000	UJ	50	U	10	U	10	U
Tetrachloroethene	50	U	500	U	1000	U	50	U	10	U	10	U
Toluene	50	U	500	U	170000	*	50	U	10	U	12	U
Total Xylenes	50	U	120	J	6800		50	U	10	U	10	U
Trichloroethene	50	U	500	U	1000	U	770		125		10	U
Vinyl Chloride	50	U	500	U	1000	U	50	U	6.5		11	

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Sample Number	OU1-PC-04B-01		OU1-PC-04D-01		OU1-PC-04S-01		OU1-PC-05B-01		OU1-PC-05D-01-AVG		OU1-PC-05M-01	
Sample Location	PC-04B		PC-04D		PC-04S		PC-05B		PC-05D		PC-05M	
Date Sampled	12/3/97		12/3/97		12/3/97		12/5/97		12/5/97		12/4/97	
QC Type	None		None		None		None		Field Dup. 5		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Semivolatile Organic Compounds (UG/L)												
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	50	U
2,4-Dimethylphenol	10	U	10	U	4	J	10	U	10	U	50	U
2,4-Dinitrophenol		R		R		R		R		R		R
2-Chlorophenol	4	J	60			R	10	U	10	U	50	U
2-Methylnaphthalene	10	U	10	U	10	U	10	U	10	U	50	U
2-Methylphenol	10	U	3	J	61	J	10	U	10	U	50	U
2-Nitrophenol	10	U	10	U		R	10	U	10	U	50	U
4,6-Dinitro-2-methylphenol	25	U	25	U		R	25	U	25	U	120	U
4-Chloro-3-methylphenol	10	U	10	U		R	10	U	10	U	50	U
4-Methylphenol	10	U	10	U	75	J	10	U	10	U	50	U
4-Nitrophenol	25	U	25	UJ		R	15	J	25	U	120	U
Acenaphthene	10	U	10	U	10	U	10	U	10	U	50	U
Acenaphthylene	10	U	10	U	10	U	10	U	10	U	50	U
Anthracene	10	U	10	U	10	U	10	U	10	U	50	U
bis(2-Ethylhexyl)phthalate	10	U	34	U	10	U	10	U	10	U	50	U
Carbazole	10	U	10	U	10	U	10	U	10	U	50	U
Di-n-Butylphthalate	10	U	10	U	10	U	10	U	10	U	50	U
Dibenzofuran	10	U	10	U	10	U	10	U	10	U	50	U
Diethylphthalate	10	U	10	U	10	U	10	U	10	U	50	U
Fluoranthene	10	U	10	U	10	U	10	U	10	U	50	U
Fluorene	10	U	10	U	10	U	10	U	10	U	50	U
Hexachloroethane	10	U	10	U	10	U	10	U	10	U	50	U
N-Nitroso-diphenylamine	10	U	10	U	10	U	10	U	10	U	50	U
Naphthalene	10	U	2	J	2	J	10	U	10	U	50	U
Nitrobenzene	10	U	10	U	10	U	10	U	10	U	50	U
Phenanthrene	10	U	10	U	10	U	10	U	10	U	50	U
Phenol	10	U	10	U		R	10	U	10	U	50	U
Pyrene	10	U	10	UJ	10	U	10	U	10	U	50	U

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Sample Number	OU1-PC-04B-01		OU1-PC-04D-01		OU1-PC-04S-01		OU1-PC-05B-01		OU1-PC-05D-01-AVG		OU1-PC-05M-01	
Sample Location	PC-04B		PC-04D		PC-04S		PC-05B		PC-05D		PC-05M	
Date Sampled	12/3/97		12/3/97		12/3/97		12/5/97		12/5/97		12/4/97	
QC Type	None		None		None		None		Field Dup. 5		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Metals (UG/L)												
Aluminum	29.1	UJ	29.1	UJ	91.6	U	20	U	177.5	U	26.8	UJ
Antimony	50	U	50	U	50	U	50	U	50	U	50	U
Arsenic	1.1	UJ	34.6		3.9	U	1	U	2.2		39.8	
Barium	30		45.9		109		58.1	J	36.2		48.3	
Beryllium	1	U	1	U	1	U	1	U	1	U	1	U
Cadmium	2	U	2	U	2	U	2	U	2	U	2	U
Calcium	185000		31000		82300		245000		16700		14300	
Chromium	5	U	5	U	5.4	J	7.2	J	5	U	5	U
Cobalt	4	J	3	U	6		5	J	3.25		3	U
Copper	2	U	2	U	2	U	16.9		6.1		2	U
Iron	1070		22100		24600		74.4	UJ	1775		24300	
Lead	3	U	1	U	1	U	1.3	UJ	1	U	1.1	UJ
Magnesium	33800		15500		17100		55300		7980		6550	
Manganese	829		5280		5670		3010	J	3115		1500	
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Nickel	10	U	10	U	10	U	32		18.5		10	U
Potassium	5370		4590		7180		8240	J	3295		4200	
Selenium	1	UJ	1	UJ	1	UJ	1	UJ	1	U	1	UJ
Silver	3	U	3	U	3	U	3	UJ	3	U	3	U
Sodium	49600		157000		67000		113000	J	132000		98600	
Thallium	1	U	1	U	1	UJ	1	UJ	1	U	1	UJ
Vanadium	3	U	3	U	3	U	3	U	3	U	3	U
Zinc	4	U	4	U	7.6	UJ	5.7	UJ	4	U	4	U
Water Quality Analysis (mg/L)												
Alkalinity	90		372		200		156		230		210	
Chloride	70.7	J	71.8	J	24.6	J	539		62.6		26.9	
Nitrate-Nitrite (as N)	0.1	U	0.1	U	0.1	U	2.9		0.515		0.1	U
Sulfate	462		13.9		208		194		66.55		44.2	

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Sample Number	OU1-PC-05S-01		OU1-PC-06B-01-AVG		OU1-PC-06D-01		OU1-PC-06M-01		OU1-PC-06S-01		OU1-PC-07S-01	
Sample Location	PC-05S		PC-06B		PC-06D		PC-06M		PC-06S		PC-07S	
Date Sampled	12/4/97		12/8/97		12/1/97		12/1/97		12/1/97		12/1/97	
QC Type	None		Field Dup. 6		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Volatile Organic Compounds (UG/L)												
1,1,1-Trichloroethane	10	U	14.5		10	U	10	U	500	U	400	U
1,1,2-Trichloroethane	10	U	30	U	10	U	10	U	500	U	400	U
1,1-Dichloroethane	10	U	41		10	U	12		500	U	400	U
1,1-Dichloroethene	10	U	32		10	UJ	10	U	500	U	400	U
1,2-Dichloroethane	10	U	30	U	8	J	10	U	500	U	400	U
1,2-Dichloroethene	10	U	15		2	J	4	J	500	U	400	U
2-Butanone	10	U	30	U	10	U	10	U	500	U	400	U
2-Hexanone	10	UJ	30	U	10	U	10	U	500	U	400	U
4-Methyl-2-Pentanone	10	U	30	U	10	U	10	U	500	U	400	U
Acetone	10	U	31	U	10	UJ	10	U	500	U	400	U
Benzene	10	U	30	U	10	U	10	UJ	500	U	400	UJ
Bromochloromethane		NA		NA		NA		NA		NA		NA
Bromodichloromethane	10	U	30	U	10	U	10	U	500	U	400	U
Bromomethane	10	UJ	30	U	10	U	10	U	500	U	400	U
Carbon Disulfide	10	U	30	U	10	U	10	U	500	U	400	U
Carbon Tetrachloride	10	U	30	U	10	U	10	U	500	U	400	U
Chlorobenzene	10	U	33		28		10	U	500	U	12000	*
Chloroethane	10	U	30	U	10	U	10	UJ	500	U	400	UJ
Chloroform	10	U	30	U	10	U	10	U	500	U	400	U
Chloromethane	10	U	30	U	10	U	10	U	500	U	400	U
cis-1,2-Dichloroethene		NA		NA		NA		NA		NA		NA
Ethylbenzene	10	U	30	U	10	U	10	U	120	J	400	U
Methylene Chloride	10	U	30	U	10	UJ	10	U	500	UJ	400	U
Tetrachloroethene	10	UJ	30	U	10	U	10	U	500	U	400	U
Toluene	10	U	30	U	10	U	10	U	500	U	400	U
Total Xylenes	10	U	30	U	10	U	10	UJ	3300		400	UJ
Trichloroethene	10	U	535		1	J	2	J	500	U	400	U
Vinyl Chloride	10	U	30	U	1	J	2	J	500	U	400	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-05S-01		OU1-PC-06B-01-AVG		OU1-PC-06D-01		OU1-PC-06M-01		OU1-PC-06S-01		OU1-PC-07S-01	
Sample Location	PC-05S		PC-06B		PC-06D		PC-06M		PC-06S		PC-07S	
Date Sampled	12/4/97		12/8/97		12/1/97		12/1/97		12/1/97		12/1/97	
QC Type	None		Field Dup. 6		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Semivolatile Organic Compounds (UG/L)												
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol	10	UJ	10	U	10	U	10	U	42		10	U
2,4-Dinitrophenol		R		R	25	U	25	UJ	25	UJ	25	UJ
2-Chlorophenol	10	U	10	U	10	U	10	U	10	U	18	
2-Methylnaphthalene	10	U	10	U	10	U	10	U	10	U	10	U
2-Methylphenol	10	UJ	10	U	10	U	10	U	10	U	10	U
2-Nitrophenol	10	U	10	U	10	U	10	U	10	U	10	U
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U	25	U	25	U	25	U
4-Chloro-3-methylphenol	10	U	10	U	10	U	10	U	10	U	10	U
4-Methylphenol	10	U	10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	25	U	25	U	25	U	25	UJ	25	UJ	25	UJ
Acenaphthene	10	U	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	10	U	10	U	10	U	10	U	10	U	10	U
Anthracene	10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	U	10	U	10	UJ	10	U	10	U	10	U
Carbazole	10	U	10	U	10	U	10	U	10	U	10	U
Di-n-Butylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
Dibenzofuran	10	U	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
Fluoranthene	10	U	10	U	10	U	10	U	10	U	10	U
Fluorene	10	U	10	U	10	U	10	U	10	U	10	U
Hexachloroethane	10	U	10	U	10	U	10	U	10	U	10	U
N-Nitroso-diphenylamine	10	U	10	U	10	U	10	U	10	U	10	U
Naphthalene	10	U	10	U	10	U	10	U	5	J	10	U
Nitrobenzene	10	U	10	U	10	U	10	U	10	U	10	U
Phenanthrene	10	U	10	U	10	U	10	U	10	U	10	U
Phenol	10	U	12.5		10	U	10	U	10	U	10	U
Pyrene	10	U	10	U	10	U	10	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-05S-01		OU1-PC-06B-01-AVG		OU1-PC-06D-01		OU1-PC-06M-01		OU1-PC-06S-01		OU1-PC-07S-01	
Sample Location	PC-05S		PC-06B		PC-06D		PC-06M		PC-06S		PC-07S	
Date Sampled	12/4/97		12/8/97		12/1/97		12/1/97		12/1/97		12/1/97	
QC Type	None		Field Dup. 6		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Metals (UG/L)												
Aluminum	20	U	12115		32	UJ	65.7	U	507		59.6	U
Antimony	50	U	50	U	50	U	50	U	50	U	50	U
Arsenic	1	UJ	9.45		1.2	UJ	4.9	U	4.5	U	63.5	
Barium	552		39.6		33.1		25.4		1920		28	
Beryllium	1	U	1	U	1	U	1	U	1	U	1	U
Cadmium	2	U	2	U	2	U	2	U	2	U	2	U
Calcium	58200		22450		44700		17500		116000		21900	
Chromium	5	U	47.7		5	U	5	U	197		5	U
Cobalt	3	U	11.35		18.8		3	U	186		5.6	J
Copper	2	U	20.75		2	U	2	U	15		2.4	J
Iron	26300		18750		926		2510		69300		49400	
Lead	1.1	UJ	6.05	U	1	U	1	U	19.3		1	U
Magnesium	13400		8615		71200		12400		21900		6160	
Manganese	1340		387.5		8650		3120		3530		2730	
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Nickel	10	U	37.4		18.2	J	10	U	138		10	U
Potassium	4670		24450		3250		3390		21800		3770	
Selenium	1	UJ	3	U	1	UJ	1	UJ	1	UJ	1	UJ
Silver	3	U	3	U	3	U	3	U	3	U	3	U
Sodium	18700		199500		98600		147000		35000		14200	
Thallium	1	UJ	1	U	1	U	1	U	1	U	1	U
Vanadium	3	U	71.8		3	U	3	U	7.7		3	U
Zinc	283		58.1	U	9.6		133		15.2		27.4	
Water Quality Analysis (mg/L)												
Alkalinity	215		280.5		384		256		450		120	
Chloride	39.8		114		77.6	J	67.6	J	43.5	J	14.7	J
Nitrate-Nitrite (as N)	0.1	U	0.175		0.1	U	0.1	U	0.1	U	0.1	U
Sulfate	5	U	46.2		137		60		6.4		38.1	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-08B-01		OU1-PC-08D-01		OU1-PC-08S-01		OU1-PC-09D-01		OU1-PC-09S-01		OU1-PC-10B-01	
Sample Location	PC-08B		PC-08D		PC-08S		PC-09D		PC-09S		PC-10B	
Date Sampled	12/5/97		12/5/97		12/5/97		11/21/97		12/1/97		11/19/97	
QC Type	None		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Volatile Organic Compounds (UG/L)												
1,1,1-Trichloroethane	200	*	380	*	710		3000		1600		50	U
1,1,2-Trichloroethane	10	U	10	U	50	U	200	U	100	U	50	U
1,1-Dichloroethane	13		37		87		57	J	140		50	U
1,1-Dichloroethene	95		20		18	J	300		93	J	50	U
1,2-Dichloroethane	10	U	10	U	50	U	200	U	100	U	50	U
1,2-Dichloroethene	21		170		250		360		660		55	
2-Butanone	10	U	10	U	50	U	200	U	100	U	50	U
2-Hexanone	10	U	10	U	50	U	200	U	100	U	50	U
4-Methyl-2-Pentanone	10	U	10	U	50	U		R	100	U		R
Acetone	10	U	10	U	200	U	200	U	100	U	50	U
Benzene	10	U	10	U	50	U	200	U	100	UJ	50	U
Bromochloromethane		NA		NA		NA		NA		NA		NA
Bromodichloromethane	10	U	10	U	50	U	200	U	100	U	50	U
Bromomethane	10	U	10	U	50	UJ	200	U	100	U	50	U
Carbon Disulfide	10	U	10	U	50	U	200	UJ	100	U	50	U
Carbon Tetrachloride	10	U	10	U	50	UJ	200	U	100	U	50	U
Chlorobenzene	10	U	10	U	50	U	200	U	100	U	50	U
Chloroethane	10	U	10	U	50	U	200	U	100	UJ	50	U
Chloroform	10	U	10	U	50	U	200	U	100	U	50	U
Chloromethane	10	U	10	U	50	U	200	UJ	100	U	50	UJ
cis-1,2-Dichloroethene		NA		NA		NA		NA		NA		NA
Ethylbenzene	10	U	10	U	50	U	200	U	100	U	50	U
Methylene Chloride	10	U	10	U	50	U	200	U	100	U	50	U
Tetrachloroethene	2	J	10	U	50	U	200	U	100	U	50	U
Toluene	10	U	17		50	U	200	U	100	U	50	U
Total Xylenes	10	U	10	U	50	U	200	U	100	UJ	50	U
Trichloroethene	290	*	68		50	U	1300		37	J	790	
Vinyl Chloride	10	U	4	J	15	J	200	U	49	J	50	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-08B-01		OU1-PC-08D-01		OU1-PC-08S-01		OU1-PC-09D-01		OU1-PC-09S-01		OU1-PC-10B-01	
Sample Location	PC-08B		PC-08D		PC-08S		PC-09D		PC-09S		PC-10B	
Date Sampled	12/5/97		12/5/97		12/5/97		11/21/97		12/1/97		11/19/97	
QC Type	None		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Semivolatile Organic Compounds (UG/L)												
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrophenol		R		R		R	25	U	25	U	25	U
2-Chlorophenol	10	U	10	U	10	U	10	U	10	U	10	U
2-Methylnaphthalene	10	U	10	U	10	U	10	U	10	U	10	U
2-Methylphenol	10	U	10	U	10	U	10	U	10	U	10	U
2-Nitrophenol	10	U	10	U	10	U	10	U	10	U	10	U
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U	25	U	25	U	25	U
4-Chloro-3-methylphenol	10	U	10	U	10	U	10	U	10	U	10	U
4-Methylphenol	10	U	10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	2	J	25	U	25	U	44		25	U	25	U
Acenaphthene	10	U	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	10	U	10	U	10	U	10	U	10	U	10	U
Anthracene	10	U	10	U	10	U	10	U	1	J	10	U
bis(2-Ethylhexyl)phthalate	10	U	10	U	10	U	10	U	10	UJ	10	U
Carbazole	10	U	10	U	10	U	10	U	10	U	10	UJ
Di-n-Butylphthalate	10	U	10	U	10	U	10	U	10	U	10	UJ
Dibenzofuran	10	U	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	10	U	10	U	10	U	10	U	10	U	10	U
Fluoranthene	10	U	10	U	10	U	10	U	10	U	10	U
Fluorene	10	U	10	U	10	U	10	U	10	U	10	U
Hexachloroethane	10	U	1	J	10	U	10	U	10	U	10	U
N-Nitroso-diphenylamine	10	U	10	U	10	U	10	U	10	U	10	U
Naphthalene	10	U	10	U	1	J	10	U	2	J	10	U
Nitrobenzene	10	U	10	U	10	U	10	U	10	U	10	U
Phenanthrene	10	U	10	U	10	U	10	U	10	U	10	U
Phenol	10	U	10	U	10	U	10	U	10	U	10	U
Pyrene	10	U	10	U	10	U	10	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-08B-01		OU1-PC-08D-01		OU1-PC-08S-01		OU1-PC-09D-01		OU1-PC-09S-01		OU1-PC-10B-01	
Sample Location	PC-08B		PC-08D		PC-08S		PC-09D		PC-09S		PC-10B	
Date Sampled	12/5/97		12/5/97		12/5/97		11/21/97		12/1/97		11/19/97	
QC Type	None		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Metals (UG/L)												
Aluminum	348	J	92.3	U	909	J	20	U	39.9	UJ	48.3	U
Antimony	50	U	50	U	50	U	50	U	50	U	50	U
Arsenic	1	U	31.2		16.8		4.9		33.5		1	
Barium	25.4	J	48.3		76.6	J	79.2		103		15.4	U
Beryllium	1	U	1	U	1	U	1	U	1	U	1	U
Cadmium	2	U	2	U	2	U	2	U	2	U	2	U
Calcium	24900		12100		23500		31100		17500		35900	
Chromium	26.2	J	5	U	16.1	J	5	U	5	U	5	U
Cobalt	17.2		5	J	3	J	5.1	J	3	U	3	U
Copper	14.8		2	U	31.5		2	U	2	U	2	U
Iron	419	J	8660		10100	J	2640		11900		118	U
Lead	4.6	UJ	1.1	UJ	45.4	J	2.8	UJ	1	U	1	UJ
Magnesium	3860		11700		13300		20500		16800		7920	
Manganese	61.1	J	2150		1730	J	4200		2130		75.5	
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Nickel	21.8		13.5	J	17.1	J	23.8	U	10	U	10	U
Potassium	2550	J	3700		4510	J	6430		4380		3600	
Selenium	1.1	UJ	1	UJ	1.1	UJ	1	UJ	1	UJ	1	UJ
Silver	3	UJ	3	U	3	UJ	3	U	3	U	3	U
Sodium	19500	J	110000		95000	J	125000		96500		11800	
Thallium	1	UJ	1	U	1	UJ	1	U	1	U	1	U
Vanadium	3.9	J	3	U	4.2	J	3	U	3	U	3	U
Zinc	6.2	UJ	4	U	9.5	UJ	63.8		4	U	177	
Water Quality Analysis (mg/L)												
Alkalinity	69.6		135		142		110	J	110		53.3	J
Chloride	31.8		237		63.5		103		71	J	28.1	
Nitrate-Nitrite (as N)	1.13		0.1	U	0.1	U	13.4		0.1	U	0.1	U
Sulfate	38.7		58.6		118		143	J	113		63.6	J

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-10D-01-AVG		OU1-PC-10M-01		OU1-PC-10S-01		OU1-PC-11B-01		OU1-PC-11D-01		OU1-PC-11M-01	
Sample Location	PC-10D		PC-10M		PC-10S		PC-11B		PC-11D		PC-11M	
Date Sampled	11/19/97		11/19/97		11/19/97		12/4/97		12/4/97		12/4/97	
QC Type	Field Dup. 1		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Volatile Organic Compounds (UG/L)												
1,1,1-Trichloroethane	15		26		10	U	9	J	93	J	26	
1,1,2-Trichloroethane	50	U	25	U	10	U	10	U	100	U	10	U
1,1-Dichloroethane	50	U	5	J	10	U	16		100	U	11	
1,1-Dichloroethene	6		10	J	10	U	24		35	J	9	J
1,2-Dichloroethane	50	U	25	U	10	U	10	U	100	U	10	U
1,2-Dichloroethene	7		30		10	U	42		39	J	24	
2-Butanone	50	U	25	U	10	U	10	U	100	U	10	U
2-Hexanone	50	U	25	U	10	U	10	U	100	U	10	U
4-Methyl-2-Pentanone		R		R		R	10	U	100	U	10	U
Acetone	50	U	25	U	10	U	10	U	100	U	10	U
Benzene	50	U	25	U	10	U	10	U	100	U	10	U
Bromochloromethane		NA		NA		NA		NA		NA		NA
Bromodichloromethane	50	U	25	U	10	U	10	U	100	U	10	U
Bromomethane	50	U	25	U	10	U	10	U	100	UJ	10	U
Carbon Disulfide	50	U	25	U	10	U	10	U	100	U	10	U
Carbon Tetrachloride	50	U	25	U	10	U	10	U	100	UJ	10	U
Chlorobenzene	50	U	25	U	10	U	15		100	U	10	U
Chloroethane	50	U	25	U	10	U	10	U	100	U	10	U
Chloroform	50	U	25	U	10	U	10	U	100	U	10	U
Chloromethane	50	U	25	U	10	U	10	U	100	U	10	U
cis-1,2-Dichloroethene		NA		NA		NA		NA		NA		NA
Ethylbenzene	50	U	25	U	10	U	10	U	100	U	10	U
Methylene Chloride	50	U	25	U	10	U	15	U	110	U	10	U
Tetrachloroethene	50	U	25	U	10	U	2	J	100	U	3	J
Toluene	50	U	25	U	10	U	10	U	100	U	10	U
Total Xylenes	50	U	25	U	10	U	10	U	100	U	10	U
Trichloroethene	555		340		7	J	1500	*	1400		390	*
Vinyl Chloride	50	U	25	U	10	U	3	J	100	U	9	J

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-10D-01-AVG		OU1-PC-10M-01		OU1-PC-10S-01		OU1-PC-11B-01		OU1-PC-11D-01		OU1-PC-11M-01	
Sample Location	PC-10D		PC-10M		PC-10S		PC-11B		PC-11D		PC-11M	
Date Sampled	11/19/97		11/19/97		11/19/97		12/4/97		12/4/97		12/4/97	
QC Type	Field Dup. 1		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Semivolatile Organic Compounds (UG/L)												
1,2-Dichlorobenzene	10	U	10	U	10	UJ	10	U	10	U	10	U
2,4-Dimethylphenol	10	U	10	U	10	UJ	10	U	10	U	10	U
2,4-Dinitrophenol	25	U	25	U	25	UJ		R		R		R
2-Chlorophenol	10	U	10	U	10	UJ	10	U	10	U	10	U
2-Methylnaphthalene	10	U	10	U	10	UJ	10	U	10	U	10	U
2-Methylphenol	10	U	10	U	10	UJ	10	U	10	U	10	U
2-Nitrophenol	10	U	10	U	10	UJ	10	U	10	U	6	J
4,6-Dinitro-2-methylphenol	25	U	25	U	25	UJ	25	U	25	U	25	U
4-Chloro-3-methylphenol	10	U	10	U	10	UJ	10	U	10	U	10	U
4-Methylphenol	10	U	10	U	10	UJ	10	U	10	U	10	U
4-Nitrophenol	25	U	25	U	25	UJ	1	J	25	U	55	
Acenaphthene	10	U	10	U	10	UJ	10	U	10	U	10	U
Acenaphthylene	10	U	10	U	10	UJ	10	U	10	U	10	U
Anthracene	10	U	10	U	10	UJ	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	U	10	U	10	UJ	10	U	10	U	10	U
Carbazole	10	U	10	UJ	10	UJ	10	U	10	U	10	U
Di-n-Butylphthalate	10	U	10	UJ	10	UJ	10	U	10	U	10	U
Dibenzofuran	10	U	10	U	10	UJ	10	U	10	U	10	U
Diethylphthalate	10	U	10	U	10	UJ	10	U	10	U	10	U
Fluoranthene	10	U	10	U	10	UJ	10	U	10	U	10	U
Fluorene	10	U	10	U	10	UJ	10	U	10	U	10	U
Hexachloroethane	10	U	10	U	10	UJ	10	U	10	U	10	U
N-Nitroso-diphenylamine	10	U	10	U	10	UJ	10	UJ	10	U	10	U
Naphthalene	10	U	10	U	10	UJ	10	U	10	U	10	U
Nitrobenzene	10	U	10	U	10	UJ	10	U	10	U	10	U
Phenanthrene	10	U	10	U	10	UJ	10	U	10	U	10	U
Phenol	10	U	10	U	10	UJ	10	U	10	U	10	U
Pyrene	10	U	10	U	10	UJ	10	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-10D-01-AVG		OU1-PC-10M-01		OU1-PC-10S-01		OU1-PC-11B-01		OU1-PC-11D-01		OU1-PC-11M-01	
Sample Location	PC-10D		PC-10M		PC-10S		PC-11B		PC-11D		PC-11M	
Date Sampled	11/19/97		11/19/97		11/19/97		12/4/97		12/4/97		12/4/97	
QC Type	Field Dup. 1		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Metals (UG/L)												
Aluminum	62.75	U	20	U	20	U	83.3	U	255	U	20	U
Antimony	50	U	50	U	50	U	50	U	50	U	50	U
Arsenic	2.75		1	U	3.1		1.4	UJ	1.2	UJ	1.2	UJ
Barium	56		36.2		91.9		28.2		37.9		41.1	
Beryllium	1	U	1	U	1	U	1	U	1	U	1	U
Cadmium	2	U	2	U	19.7	U	2	U	26.3		25.4	
Calcium	109500		25400		49700		15500		64100		52400	
Chromium	5	U	5.3	J	5	U	35.4		5	U	5	U
Cobalt	3	U	3.7	J	10.4		3	U	120		89.6	
Copper	2	U	6.1	U	15.7	U	578		6.3		2.8	J
Iron	68.75	U	138	U	13000		475		416		140	U
Lead	1.25	U	1	UJ	3.3	UJ	1.2	UJ	1	U	1	U
Magnesium	17150		11000		6480		7650		38700		52600	
Manganese	653		1760		657		27	U	16700		13500	
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Nickel	18.25	U	38.4	U	246		65.5		228		159	
Potassium	10850		4220		11600		34900		7980		4700	
Selenium	1	U	1	UJ	1.3	J	1.3	UJ	1	UJ	1	UJ
Silver	3	U	3	U	3	U	3	U	3	U	3	U
Sodium	246000		140000		40700		183000		198000		137000	
Thallium	1	U	1	U	1	U	1	U	1	UJ	1	U
Vanadium	4.45	U	3	U	3.3	UJ	3	U	3	U	3	U
Zinc	295.5		337		1210		4	U	680		219	
Water Quality Analysis (mg/L)												
Alkalinity	120		81.2	J	47	J	83		53		170	
Chloride	213		94.5		15.4		130		256		203	
Nitrate-Nitrite (as N)	7.53		6.66		0.92		6.7		19.5		3.28	
Sulfate	409		189	J	174	J	208		229		173	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-11S-01	
Sample Location	PC-11S	
Date Sampled	12/4/97	
QC Type	None	
Matrix	AQUEOUS	
Filtering		
Volatile Organic Compounds (UG/L)		
1,1,1-Trichloroethane	10	U
1,1,2-Trichloroethane	10	U
1,1-Dichloroethane	20	
1,1-Dichloroethene	9	J
1,2-Dichloroethane	10	U
1,2-Dichloroethene	96	
2-Butanone	10	U
2-Hexanone	10	U
4-Methyl-2-Pentanone	10	U
Acetone	19	U
Benzene	2	J
Bromochloromethane		NA
Bromodichloromethane	10	U
Bromomethane	10	U
Carbon Disulfide	10	U
Carbon Tetrachloride	10	U
Chlorobenzene	21	
Chloroethane	10	U
Chloroform	10	U
Chloromethane	10	U
cis-1,2-Dichloroethene		NA
Ethylbenzene	2	J
Methylene Chloride	10	U
Tetrachloroethene	10	U
Toluene	4	J
Total Xylenes	2	J
Trichloroethene	93	
Vinyl Chloride	57	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-11S-01	
Sample Location	PC-11S	
Date Sampled	12/4/97	
QC Type	None	
Matrix	AQUEOUS	
Filtering		
Semivolatile Organic Compounds (UG/L)		
1,2-Dichlorobenzene	10	U
2,4-Dimethylphenol	5	J
2,4-Dinitrophenol		R
2-Chlorophenol	10	U
2-Methylnaphthalene	10	U
2-Methylphenol	1	J
2-Nitrophenol	10	U
4,6-Dinitro-2-methylphenol	25	U
4-Chloro-3-methylphenol	10	U
4-Methylphenol	1	J
4-Nitrophenol	25	U
Acenaphthene	10	U
Acenaphthylene	10	U
Anthracene	10	U
bis(2-Ethylhexyl)phthalate	10	U
Carbazole	10	U
Di-n-Butylphthalate	10	U
Dibenzofuran	10	U
Diethylphthalate	10	U
Fluoranthene	10	U
Fluorene	10	U
Hexachloroethane	10	U
N-Nitroso-diphenylamine	10	U
Naphthalene	10	U
Nitrobenzene	10	U
Phenanthrene	10	U
Phenol	10	U
Pyrene	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-11S-01	
Sample Location	PC-11S	
Date Sampled	12/4/97	
QC Type	None	
Matrix	AQUEOUS	
Filtering		
Metals (UG/L)		
Aluminum	22.8	UJ
Antimony	50	U
Arsenic	32.2	
Barium	282	
Beryllium	1	U
Cadmium	2	U
Calcium	41300	
Chromium	5	U
Cobalt	3	U
Copper	23.6	
Iron	10600	
Lead	11.7	
Magnesium	94100	
Manganese	3300	
Mercury	0.1	U
Nickel	12.1	J
Potassium	11700	
Selenium	1	UJ
Silver	3	U
Sodium	85400	
Thallium	1	UJ
Vanadium	3	U
Zinc	15.8	U
Water Quality Analysis (mg/L)		
Alkalinity	370	
Chloride	64.7	
Nitrate-Nitrite (as N)	0.1	U
Sulfate	186	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-12B-01		OU1-PC-12D-01-AVG		OU1-PC-12S-01		OU1-PC-13B-01		OU1-PC-13D-01		OU1-PC-13M-01-AVG
Sample Location	PC-12B		PC-12D		PC-12S		PC-13B		PC-13D		PC-13M
Date Sampled	12/3/97		12/3/97		12/3/97		11/19/97		11/20/97		11/19/97
QC Type	None		Field Dup. 4		None		None		None		Field Dup. 7
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS
Filtering											
Volatile Organic Compounds (UG/L)											
1,1,1-Trichloroethane	71	J	100		1	J	28	J	38	J	39
1,1,2-Trichloroethane	250	U	375	U	10	U	250	UJ	83	U	10
1,1-Dichloroethane	250	U	375	U	8	J	250	UJ	83	U	15.5
1,1-Dichloroethene	250	U	375	U	10	U	250	UJ	17	J	9.5
1,2-Dichloroethane	250	U	375	U	10	U	250	UJ	83	U	10
1,2-Dichloroethene	490		645		13		250	UJ	12	J	4
2-Butanone	250	U	375	U	10	U	250	UJ	83	U	10
2-Hexanone	250	U	375	U	2	J	250	UJ	83	U	10
4-Methyl-2-Pentanone	250	U	375	U	10	U		R		R	
Acetone	250	U	375	U	6	J	250	UJ	83	U	10
Benzene	250	U	375	U	10		250	UJ	83	U	10
Bromochloromethane		NA		NA		NA		NA		NA	
Bromodichloromethane	250	U	375	U	10	U	250	UJ	83	U	10
Bromomethane	250	UJ	375	U	10	U	250	UJ	83	U	10
Carbon Disulfide	250	U	375	U	10	U	250	UJ	83	U	10
Carbon Tetrachloride	250	U	375	U	10	U	250	UJ	83	U	10
Chlorobenzene	250	U	375	U	170		250	UJ	83	U	10
Chloroethane	250	U	375	U	10	U	250	UJ	83	U	10
Chloroform	250	U	375	U	10	U	250	UJ	9	J	11.5
Chloromethane	250	U	375	U	10	U	250	UJ	83	U	10
cis-1,2-Dichloroethene		NA		NA		NA		NA		NA	
Ethylbenzene	250	U	375	U	10	U	250	UJ	83	U	10
Methylene Chloride	250	U	375	U	10	U	250	UJ	83	U	10
Tetrachloroethene	250	U	375	U	10	U	250	UJ	9	J	4.5
Toluene	250	U	375	U	3	J	250	UJ	83	U	10
Total Xylenes	250	U	375	U	10	U	250	UJ	83	U	10
Trichloroethene	3200		4150		10	U	2000	J	840		25
Vinyl Chloride	97	J	330		60		250	UJ	83	U	10

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-12B-01		OU1-PC-12D-01-AVG		OU1-PC-12S-01		OU1-PC-13B-01		OU1-PC-13D-01		OU1-PC-13M-01-AVG
Sample Location	PC-12B		PC-12D		PC-12S		PC-13B		PC-13D		PC-13M
Date Sampled	12/3/97		12/3/97		12/3/97		11/19/97		11/20/97		11/19/97
QC Type	None		Field Dup. 4		None		None		None		Field Dup. 7
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS
Filtering											
Semivolatile Organic Compounds (UG/L)											
1,2-Dichlorobenzene	10	U	30	U	10	U	3	J	10	U	10
2,4-Dimethylphenol	10	U	30	U	10	U	10	U	10	U	10
2,4-Dinitrophenol	6	J	580			R	25	U	25	U	25
2-Chlorophenol	10	U	30	U	2	J	10	U	10	U	10
2-Methylnaphthalene	10	U	30	U	10	U	10	U	10	U	10
2-Methylphenol	10	U	30	U	10	U	10	U	10	U	10
2-Nitrophenol	9	J	22		10	U	10	U	10	U	10
4,6-Dinitro-2-methylphenol	25	U	6		25	U	25	U	25	U	25
4-Chloro-3-methylphenol	1	J	30	U	10	U	10	U	10	U	10
4-Methylphenol	10	U	13.5		10	U	10	U	10	U	10
4-Nitrophenol	210	*	420		25	U	27	J	5	J	25
Acenaphthene	10	U	30	U	10	U	10	U	10	U	10
Acenaphthylene	10	U	30	U	10	U	10	U	10	U	10
Anthracene	10	U	30	U	10	U	10	U	10	U	10
bis(2-Ethylhexyl)phthalate	23	U	40.5	U	38	U	10	U	10	U	10
Carbazole	10	U	30	U	10	U	10	U	10	U	10
Di-n-Butylphthalate	10	U	30	U	2	J	10	U	10	U	10
Dibenzofuran	10	U	30	U	10	U	10	U	10	U	10
Diethylphthalate	10	U	30	U	10	U	10	U	10	U	10
Fluoranthene	10	U	30	U	10	U	10	U	10	U	10
Fluorene	10	U	30	U	10	U	10	U	10	U	10
Hexachloroethane	10	U	30	U	10	U	10	U	10	U	10
N-Nitroso-diphenylamine	10	U	30	U	10	U	10	UJ	10	UJ	10
Naphthalene	10	U	13		10	U	10	U	10	U	10
Nitrobenzene	10	U	30	U	10	U	10	U	10	U	10
Phenanthrene	10	U	30	U	10	U	10	U	10	U	10
Phenol	10	U	30	U	10	U	10	U	10	U	10
Pyrene	10	U	30	U	10	U	10	U	10	U	10

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-12B-01		OU1-PC-12D-01-AVG		OU1-PC-12S-01		OU1-PC-13B-01		OU1-PC-13D-01		OU1-PC-13M-01-AVG
Sample Location	PC-12B		PC-12D		PC-12S		PC-13B		PC-13D		PC-13M
Date Sampled	12/3/97		12/3/97		12/3/97		11/19/97		11/20/97		11/19/97
QC Type	None		Field Dup. 4		None		None		None		Field Dup. 7
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS
Filtering											
Metals (UG/L)											
Aluminum	131	U	1885		29.4	UJ	20	U	20	U	506
Antimony	50	U	50	U	50	U	50	U	50	U	50
Arsenic	1	U	1	U	5.4		1	U	1	U	1
Barium	154		143		1450		48		31.5	U	19.45
Beryllium	1	U	1	U	1	U	1	U	1	U	1
Cadmium	3.2	J	10.95		2	U	16.6	U	208		2
Calcium	189000		147000		66000		201000		110000		46350
Chromium	15.8		5	U	5	U	5	U	5	U	5
Cobalt	165		421		3	U	25.6		34.8		13.4
Copper	9.2		2	U	2	U	2	U	4	U	51.1
Iron	1450		9215		28900		124	U	219	U	667
Lead	1	U	1.15	U	1.6	UJ	1	UJ	1	UJ	1.25
Magnesium	95100		135000		143000		58200		47700		20600
Manganese	32200		37700		2460		2990		9870		3070
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
Nickel	267		463		10	U	91		595		28.35
Potassium	17900		17800		14700		10600		9720		4090
Selenium	1	UJ	1	U	1	UJ	1	J	1	UJ	5
Silver	3	U	3	U	3	U	3	U	3	U	3
Sodium	192000		207000		54800		204000		265000		342000
Thallium	1	UJ	5	U	1	UJ	1	U	1	U	1
Vanadium	3	U	3	U	3	U	3	U	3	U	3
Zinc	498		2540		4	U	366		989		329
Water Quality Analysis (mg/L)											
Alkalinity	182		129		691		37.3	J	57.1	J	63.3
Chloride	324		424.5		110	J	388		389		273
Nitrate-Nitrite (as N)	140		138.5		0.1	U	39.6		9.1		0.1
Sulfate	219		248		53.4		452	J	456	J	575.5

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number		OU1-PC-13S-01		OU1-PC-14B-01		OU1-PC-14D-01		OU1-PC-14S-01		OU1-PC-15B-01		OU1-PC-15D-01	
Sample Location		PC-13S		PC-14B		PC-14D		PC-14S		PC-15B		PC-15D	
Date Sampled		11/20/97		12/9/97		12/9/97		12/9/97		12/8/97		12/8/97	
QC Type		None		None		None		None		None		None	
Matrix		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering													
Volatile Organic Compounds (UG/L)													
1,1,1-Trichloroethane		12		1	J	150		3	J	7	J	10	U
1,1,2-Trichloroethane	U	10	U	10	U	5	J	10	U	10	UJ	10	U
1,1-Dichloroethane		6	J	10	U	36		32		56	J	120	
1,1-Dichloroethene		4	J	5	J	64		7	J	14	J	10	U
1,2-Dichloroethane	U	10	U	10	U	5	J	3	J	10	UJ	10	U
1,2-Dichloroethene		10	J	20		160		1700	*	98	J	200	
2-Butanone	U	10	U	10	UJ	10	UJ	10	UJ	10	UJ	10	U
2-Hexanone	U	10	U	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
4-Methyl-2-Pentanone	R		R	10	UJ	10	UJ	10	UJ	10	U	10	U
Acetone	U	10	U	57	UJ	12	UJ	10	UJ	10	UJ	10	U
Benzene	U	10	U	6	J	15		45		10	J	3	J
Bromochloromethane	NA		NA		NA		NA		NA		NA		NA
Bromodichloromethane	U	10	U	10	U	10	U	10	U	10	UJ	10	U
Bromomethane	U	10	U	10	U	3	J	10	U	10	UJ	10	UJ
Carbon Disulfide	U	10	U	10	U	10	U	10	U	10	UJ	10	U
Carbon Tetrachloride	U	10	U	10	U	10	U	10	U	10	UJ	10	U
Chlorobenzene	U	10	U	49		160		700	*	220	*	190	*
Chloroethane	U	10	U	10	U	3	J	3	J	10	UJ	520	*
Chloroform	U	10	U	10	U	34	U	180	U	10	UJ	10	U
Chloromethane	U	10	U	10	U	4	J	10	U	10	UJ	10	U
cis-1,2-Dichloroethene	NA		NA		NA		NA		NA		NA		NA
Ethylbenzene	U	10	U	10	U	11		47		10	U	4	J
Methylene Chloride	U	10	U	20	U	330	*	13	U	12	UJ	10	U
Tetrachloroethene		10	U	1	J	26		10	U	10	U	10	U
Toluene	U	10	U	3	J	350	*	32		10	U	9	J
Total Xylenes	U	10	U	2	J	120		47		2	J	7	J
Trichloroethene		70		940	*	7700	*	120	J	1200	*	4	J
Vinyl Chloride	U	6	J	6	J	27		680	*	19	J	95	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number		OU1-PC-13S-01		OU1-PC-14B-01		OU1-PC-14D-01		OU1-PC-14S-01		OU1-PC-15B-01		OU1-PC-15D-01	
Sample Location		PC-13S		PC-14B		PC-14D		PC-14S		PC-15B		PC-15D	
Date Sampled		11/20/97		12/9/97		12/9/97		12/9/97		12/8/97		12/8/97	
QC Type		None		None		None		None		None		None	
Matrix		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering													
Semivolatile Organic Compounds (UG/L)													
1,2-Dichlorobenzene	U	10	U	10	U	100	U	20	U	10	U	10	U
2,4-Dimethylphenol	U	10	U		R		R	20	U	10	U	10	U
2,4-Dinitrophenol	U	25	U		R	2600	J	50	U		R		R
2-Chlorophenol	U	10	U		R		R	20	U	10	U	10	U
2-Methylnaphthalene	U	10	U	10	U	100	U	20	U	10	U	10	U
2-Methylphenol	U	10	U		R		R	24	J	10	U	10	U
2-Nitrophenol	U	10	U		R	69	J	20	U	10	U	10	U
4,6-Dinitro-2-methylphenol	U	25	U		R	160	J	50	U	25	U	25	U
4-Chloro-3-methylphenol	U	10	U		R		R	20	U	10	U	10	U
4-Methylphenol	U	10	U		R		R	92		10	U	10	U
4-Nitrophenol	U	25	UJ		R	1300	J	50	U	25	UJ	25	U
Acenaphthene	U	10	U	10	U	100	U	20	U	10	U	10	U
Acenaphthylene	U	10	U	10	U	100	U	20	U	10	U	10	U
Anthracene	U	10	U	10	U	100	U	20	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	U	10	U	10	U	100	U	20	U	10	U	10	U
Carbazole	U	10	U	10	U	100	U	20	UJ	10	U	10	U
Di-n-Butylphthalate	U	10	U	10	U	100	U	20	U	10	U	10	U
Dibenzofuran	U	10	U	10	U	100	U	20	U	10	U	10	U
Diethylphthalate	U	10	U	10	U	100	U	20	U	10	U	10	U
Fluoranthene	U	10	U	10	U	100	U	20	U	10	U	10	U
Fluorene	U	10	U	10	U	100	U	20	U	10	U	10	U
Hexachloroethane	U	10	U	10	U	100	U	20	U	10	U	10	U
N-Nitroso-diphenylamine	U	10	UJ	10	U	100	U	20	U	10	U	10	U
Naphthalene	U	10	U	10	U	100	U	3	J	10	U	10	U
Nitrobenzene	U	10	U	10	U	100	U	20	U	10	U	10	U
Phenanthrene	U	10	U	10	U	100	U	20	U	10	U	10	U
Phenol	U	10	U		R		R	20	U	10	U	10	U
Pyrene	U	10	U	10	U	100	U	20	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number		OU1-PC-13S-01		OU1-PC-14B-01		OU1-PC-14D-01		OU1-PC-14S-01		OU1-PC-15B-01		OU1-PC-15D-01	
Sample Location		PC-13S		PC-14B		PC-14D		PC-14S		PC-15B		PC-15D	
Date Sampled		11/20/97		12/9/97		12/9/97		12/9/97		12/8/97		12/8/97	
QC Type		None		None		None		None		None		None	
Matrix		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering													
Metals (UG/L)													
Aluminum		259	U	71.5	UJ	116000	J	47.6	UJ	52.1	UJ	20	U
Antimony	U	50	U	50	U	50	U	50	U	50	U	50	U
Arsenic	U	1.8		1.7	J	1	UJ	39.8		1	U	25.1	
Barium	U	58.9		91.2	J	102	J	333	J	33.1	J	354	J
Beryllium	U	1	U	1	U	15.3		1	U	1	U	1	U
Cadmium	U	44.7		2	U	8.8		2	U	2	U	2	U
Calcium		40100		278000		278000		40500		141000		39500	
Chromium	U	21.7		18.6	J	50.8	J	5	UJ	5	UJ	5	UJ
Cobalt		32.1		3	U	307	J		R	14		10.9	
Copper		17.6	U	29.5	J	3410			R	3.9	J	2	U
Iron		4560		325	UJ	4290	J	127000	J	229	UJ	13500	J
Lead	U	5.6	UJ	1.8	UJ	672	J	1	UJ	1.1	UJ	1.4	UJ
Magnesium		17200		38700		150000		117000		61000		70500	
Manganese		7690		277	J	23800	J	1220	J	4010	J	1290	J
Mercury	U	0.1	U	0.1	U	0.13	J	0.1	U	0.1	U	0.1	U
Nickel	U	795		16.5	J	562		15.3	J	10	U	10	U
Potassium		6230		16100	J	14800	J	21000	J	8900	J	7120	J
Selenium	U	1	UJ	1	UJ	5	UJ	1	UJ	1	UJ	1	UJ
Silver	U	3	U	3	UJ	3	UJ	3	UJ	3	UJ	3	UJ
Sodium		108000		39100	J	256000	J	128000	J	38700	J	69500	J
Thallium	U	1	U	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
Vanadium	U	3	U	3	U		R		R	3	U	3	U
Zinc		1410			R	2290	J	482	J	4	UJ	149	UJ
Water Quality Analysis (mg/L)													
Alkalinity		19.8	J	15.5	J	2	U	400	J	275	J	345	J
Chloride		67.6		128		656		168		146		78.5	
Nitrate-Nitrite (as N)	U	0.1	U	148	J	421	J	0.36	J	11.2	J		R
Sulfate		330	J	260		219		311		24.6		96.4	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-15S-01	
Sample Location	PC-15S	
Date Sampled	12/8/97	
QC Type	None	
Matrix	AQUEOUS	
Filtering		
Volatile Organic Compounds (UG/L)		
1,1,1-Trichloroethane	10	U
1,1,2-Trichloroethane	10	U
1,1-Dichloroethane	150	
1,1-Dichloroethene	2	J
1,2-Dichloroethane	10	U
1,2-Dichloroethene	300	*
2-Butanone	10	U
2-Hexanone	10	UJ
4-Methyl-2-Pentanone	10	U
Acetone	10	U
Benzene	16	
Bromochloromethane		NA
Bromodichloromethane	10	U
Bromomethane	10	UJ
Carbon Disulfide	10	U
Carbon Tetrachloride	10	U
Chlorobenzene	280	*
Chloroethane	1500	*
Chloroform	10	U
Chloromethane	10	U
cis-1,2-Dichloroethene		NA
Ethylbenzene	10	U
Methylene Chloride	10	U
Tetrachloroethene	10	U
Toluene	10	
Total Xylenes	15	
Trichloroethene	10	U
Vinyl Chloride	190	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-15S-01	
Sample Location	PC-15S	
Date Sampled	12/8/97	
QC Type	None	
Matrix	AQUEOUS	
Filtering		
Semivolatile Organic Compounds (UG/L)		
1,2-Dichlorobenzene	10	U
2,4-Dimethylphenol	10	U
2,4-Dinitrophenol		R
2-Chlorophenol	10	U
2-Methylnaphthalene	10	U
2-Methylphenol	10	U
2-Nitrophenol	10	U
4,6-Dinitro-2-methylphenol	25	U
4-Chloro-3-methylphenol	10	U
4-Methylphenol	10	U
4-Nitrophenol	25	UJ
Acenaphthene	10	U
Acenaphthylene	10	U
Anthracene	10	U
bis(2-Ethylhexyl)phthalate	10	U
Carbazole	10	U
Di-n-Butylphthalate	10	U
Dibenzofuran	10	U
Diethylphthalate	10	U
Fluoranthene	10	U
Fluorene	10	U
Hexachloroethane	10	U
N-Nitroso-diphenylamine	10	U
Naphthalene	10	U
Nitrobenzene	10	U
Phenanthrene	10	U
Phenol	10	U
Pyrene	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-15S-01	
Sample Location	PC-15S	
Date Sampled	12/8/97	
QC Type	None	
Matrix	AQUEOUS	
Filtering		
Metals (UG/L)		
Aluminum	68	UJ
Antimony	50	U
Arsenic	14	
Barium	2760	J
Beryllium	1	U
Cadmium	2	U
Calcium	43700	
Chromium	5	UJ
Cobalt	3	U
Copper	12.5	
Iron	13500	J
Lead	18.4	UJ
Magnesium	63100	
Manganese	2140	J
Mercury	0.1	U
Nickel	10	U
Potassium	5960	J
Selenium	1	UJ
Silver	3	UJ
Sodium	82900	J
Thallium	1	UJ
Vanadium	3	U
Zinc	80.2	UJ
Water Quality Analysis (mg/L)		
Alkalinity	440	J
Chloride	92.3	
Nitrate-Nitrite (as N)		R
Sulfate	10.9	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-16B-01		OU1-PC-16D-01		OU1-PC-16M-01		OU1-PC-16S-01		OU2-DP1-12-1419		OU2-DP1-2-0810	
Sample Location	PC-16B		PC-16D		PC-16M		PC-16S		DP1-12		DP1-2	
Date Sampled	11/20/97		11/21/97		11/20/97		11/20/97		8/14/97		7/28/97	
QC Type	None		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Volatile Organic Compounds (UG/L)												
1,1,1-Trichloroethane	12000		410		200	*	4	J	10	U	180	
1,1,2-Trichloroethane	710	U	170	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	610	J	170	U	22		3	J	10	U	65	
1,1-Dichloroethene	3300		94	J	71	J	10	UJ	10	U	140	
1,2-Dichloroethane	710	U	170	U	10	U	10	U	10	U	10	U
1,2-Dichloroethene	710	U	100	J	2	J	10	U	2	J	91	
2-Butanone	710	U	170	U	10	UJ	10	UJ	10	U	10	U
2-Hexanone	710	U	170	U	10	UJ	10	UJ	10	UJ	10	U
4-Methyl-2-Pentanone		R		R		R		R	10	UJ	10	U
Acetone	710	U	170	U	10	U	10	U	10	U	10	UJ
Benzene	710	U	46	J	10	U	10	U	10	U	1	J
Bromochloromethane		NA		NA		NA		NA		NA		NA
Bromodichloromethane	710	U	170	U	3	J	10	U	10	U	10	U
Bromomethane	710	U	170	U	10	U	10	U	10	U	10	U
Carbon Disulfide	710	U	170	UJ	10	UJ	10	UJ	10	U	10	U
Carbon Tetrachloride	710	U	170	U	10	U	10	U	10	U	10	UJ
Chlorobenzene	710	U	64	J	3	J	46		8	J	11	
Chloroethane	710	U	170	U	10	U	42		10	UJ	10	U
Chloroform	710	U	170	U	18	U	10	U	10	U		R
Chloromethane	710	U	170	UJ	10	UJ	10	UJ	10	U	10	U
cis-1,2-Dichloroethene		NA		NA		NA		NA		NA		NA
Ethylbenzene	710	U	170	U	10	U	10	U	10	U	10	U
Methylene Chloride	710	U	370	U	590	*	10	U	10	U	10	U
Tetrachloroethene	88	J	170	U	2	J	10	U	10	U	10	U
Toluene	710	U	77	J	3	J	10	UJ	10	U	10	U
Total Xylenes	710	U	150	J	10	U	10	U	10	U	10	U
Trichloroethene	560	J	2400		59		6	J	10	U	8	J
Vinyl Chloride	710	U	170	U	10	U	10	U	10	U	14	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
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Sample Number	OU1-PC-16B-01		OU1-PC-16D-01		OU1-PC-16M-01		OU1-PC-16S-01		OU2-DP1-12-1419		OU2-DP1-2-0810	
Sample Location	PC-16B		PC-16D		PC-16M		PC-16S		DP1-12		DP1-2	
Date Sampled	11/20/97		11/21/97		11/20/97		11/20/97		8/14/97		7/28/97	
QC Type	None		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Semivolatile Organic Compounds (UG/L)												
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U		NA		NA
2,4-Dimethylphenol	10	U	10	U	10	U	10	U		NA		NA
2,4-Dinitrophenol	25	U	95	J	25	U	25	U		NA		NA
2-Chlorophenol	10	U	10	U	10	U	10	U		NA		NA
2-Methylnaphthalene	10	U	10	U	10	U	10	U		NA		NA
2-Methylphenol	10	U	10	U	10	U	10	U		NA		NA
2-Nitrophenol	10	U	120	*	2	J	10	U		NA		NA
4,6-Dinitro-2-methylphenol	25	U	25	U	1	J	25	U		NA		NA
4-Chloro-3-methylphenol	10	U	10	U	10	U	10	U		NA		NA
4-Methylphenol	10	U	10	U	10	U	10	U		NA		NA
4-Nitrophenol	5	J	3300	*	19	J	25	UJ		NA		NA
Acenaphthene	10	U	10	U	10	U	10	UJ		NA		NA
Acenaphthylene	10	U	10	U	10	U	10	U		NA		NA
Anthracene	10	U	10	U	10	U	10	U		NA		NA
bis(2-Ethylhexyl)phthalate	10	U	10	U	10	U	10	U		NA		NA
Carbazole	10	U	10	UJ	10	UJ	10	U		NA		NA
Di-n-Butylphthalate	10	U	10	U	10	U	10	U		NA		NA
Dibenzofuran	10	U	10	U	10	U	10	U		NA		NA
Diethylphthalate	0.7	J	10	U	10	U	10	U		NA		NA
Fluoranthene	10	U	10	U	10	U	10	U		NA		NA
Fluorene	10	U	10	U	10	U	10	U		NA		NA
Hexachloroethane	10	U	10	U	10	U	10	U		NA		NA
N-Nitroso-diphenylamine	10	UJ	10	U	10	U	10	U		NA		NA
Naphthalene	10	U	2	J	10	U	10	U		NA		NA
Nitrobenzene	10	U	1	J	10	U	10	U		NA		NA
Phenanthrene	10	U	10	U	10	U	10	U		NA		NA
Phenol	10	U	10	U	10	U	10	U		NA		NA
Pyrene	10	U	10	U	10	U	10	U		NA		NA

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU1-PC-16B-01		OU1-PC-16D-01		OU1-PC-16M-01		OU1-PC-16S-01		OU2-DP1-12-1419		OU2-DP1-2-0810	
Sample Location	PC-16B		PC-16D		PC-16M		PC-16S		DP1-12		DP1-2	
Date Sampled	11/20/97		11/21/97		11/20/97		11/20/97		8/14/97		7/28/97	
QC Type	None		None		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering												
Metals (UG/L)												
Aluminum	1570		286	U	470		1020		84.5	U	83.3	U
Antimony	50	U	50	U	50	U	50	U	4.7	U	27.3	U
Arsenic	1.2		1	U	1	U	1	U	2.4	UJ	1.8	U
Barium	56.4		127		21.2	U	80.1		198	U	276	
Beryllium	1	U	1	U	1	U	1	U	0.1	U	0.35	U
Cadmium	2	U	2.8	UJ	2140		43.7		0.41	J	2.6	U
Calcium	151000		209000		60600		4000		24800		62600	
Chromium	142		35.8		5	U	5	U	0.6	U	2.9	U
Cobalt	6.2		33.3		605		28.3		1.4	U	84	
Copper	13.6	U	5.8	U	107		43.5		11	U	2.5	U
Iron	3460		1420		968		986		19800		7480	
Lead	2.9	UJ	3.3	UJ	1	UJ	3.7	UJ	19.3	UJ		R
Magnesium	35400		98300		20900		1070		10300		17200	
Manganese	420		2710		17400		547		1420		7700	
Mercury	0.1	U	0.1	U	0.1	UJ	0.1	U	0.1	UJ	0.1	U
Nickel	106		60.3	U	71500		2580		3.6	U	46.5	
Potassium	8660		11700		25800		27500		5680		8870	
Selenium	1	UJ	1	UJ	1	UJ	1	UJ		R		R
Silver	3	U	3	U	3	U	3	U	0.8	U	3	UJ
Sodium	100000		209000		355000		26900		35700	U	133000	
Thallium	1	U	1	U	5	U	1	U	3.4	U		R
Vanadium	4.4	UJ	3	U	3	U	3	U	1.5	U	5.1	
Zinc	1020		672		44800		2880		57.8	U	134	J
Water Quality Analysis (mg/L)												
Alkalinity	152	J	186	J	19.5	J	20.7	J		NA		NA
Chloride	254		244		424		10.6			NA		NA
Nitrate-Nitrite (as N)	0.37		225		5.13		1.83			NA		NA
Sulfate	250	J	254	J	695	J	76.8	J		NA		NA

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-DP1-8-1217-AVG		OU2-DP1-9A-5358		OU2-DP13-1-2530		OU2-DP2-1-5459		OU2-DP2-2-5762	
Sample Location	DP1-8		DP1-9A		DP13-1		DP2-1		DP3-2	
Date Sampled	7/29/97		7/30/97		8/15/97		7/30/97		7/31/97	
QC Type	Field Dup. (D1)		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering										
Volatile Organic Compounds (UG/L)										
1,1,1-Trichloroethane	6		10	U	350		10	U	10	U
1,1,2-Trichloroethane	50	U	10	U	100	U	10	U	10	U
1,1-Dichloroethane	87.5		81		380		10	U	10	U
1,1-Dichloroethene	16		2	J	230		10	U	10	U
1,2-Dichloroethane	50	U	10	U	100	U	2	J	10	U
1,2-Dichloroethene	460		170		610		3	J	10	U
2-Butanone	50	U	10	U	100	UJ	10	U	10	U
2-Hexanone	50	U	10	U	100	UJ	10	U	10	U
4-Methyl-2-Pentanone	50	U	10	U	100	UJ	10	U	10	U
Acetone	50	U	10	UJ	100	U	10	UJ	10	UJ
Benzene	50	U	5	J	100	U	2	J	10	U
Bromochloromethane		NA		NA		NA		NA		NA
Bromodichloromethane	50	U	10	U	100	U	10	U	10	U
Bromomethane	50	U	10	U	100	U	10	U	10	U
Carbon Disulfide	50	U	10	U	100	U	10	U	10	U
Carbon Tetrachloride	15.5		10	UJ	100	U	10	UJ	10	UJ
Chlorobenzene	32.5		120		100	U	8	J	1	J
Chloroethane	30		10	U	100	UJ	10	U	10	U
Chloroform		R		R	100	U	1	J		R
Chloromethane	50	U	10	U	100	U	10	U	10	U
cis-1,2-Dichloroethene		NA		NA		NA		NA		NA
Ethylbenzene	50	U	10	U	100	U	10	U	10	U
Methylene Chloride	30	U	10	U	100	U	10	U	10	U
Tetrachloroethene	25.5		10	U	100	U	3	J	10	U
Toluene	50	U	5	J	100	U	2	J	10	U
Total Xylenes	50	U	2	J	100	U	2	J	10	U
Trichloroethene	72.5		5	J	1200		7	J	10	U
Vinyl Chloride	125		69		100	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-DP1-8-1217-AVG		OU2-DP1-9A-5358		OU2-DP13-1-2530		OU2-DP2-1-5459		OU2-DP2-2-5762	
Sample Location	DP1-8		DP1-9A		DP13-1		DP2-1		DP3-2	
Date Sampled	7/29/97		7/30/97		8/15/97		7/30/97		7/31/97	
QC Type	Field Dup. (D1)		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering										
Semivolatile Organic Compounds (UG/L)										
1,2-Dichlorobenzene		NA		NA		NA		NA		NA
2,4-Dimethylphenol		NA		NA		NA		NA		NA
2,4-Dinitrophenol		NA		NA		NA		NA		NA
2-Chlorophenol		NA		NA		NA		NA		NA
2-Methylnaphthalene		NA		NA		NA		NA		NA
2-Methylphenol		NA		NA		NA		NA		NA
2-Nitrophenol		NA		NA		NA		NA		NA
4,6-Dinitro-2-methylphenol		NA		NA		NA		NA		NA
4-Chloro-3-methylphenol		NA		NA		NA		NA		NA
4-Methylphenol		NA		NA		NA		NA		NA
4-Nitrophenol		NA		NA		NA		NA		NA
Acenaphthene		NA		NA		NA		NA		NA
Acenaphthylene		NA		NA		NA		NA		NA
Anthracene		NA		NA		NA		NA		NA
bis(2-Ethylhexyl)phthalate		NA		NA		NA		NA		NA
Carbazole		NA		NA		NA		NA		NA
Di-n-Butylphthalate		NA		NA		NA		NA		NA
Dibenzofuran		NA		NA		NA		NA		NA
Diethylphthalate		NA		NA		NA		NA		NA
Fluoranthene		NA		NA		NA		NA		NA
Fluorene		NA		NA		NA		NA		NA
Hexachloroethane		NA		NA		NA		NA		NA
N-Nitroso-diphenylamine		NA		NA		NA		NA		NA
Naphthalene		NA		NA		NA		NA		NA
Nitrobenzene		NA		NA		NA		NA		NA
Phenanthrene		NA		NA		NA		NA		NA
Phenol		NA		NA		NA		NA		NA
Pyrene		NA		NA		NA		NA		NA

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-DP1-8-1217-AVG		OU2-DP1-9A-5358		OU2-DP13-1-2530		OU2-DP2-1-5459		OU2-DP2-2-5762	
Sample Location	DP1-8		DP1-9A		DP13-1		DP2-1		DP3-2	
Date Sampled	7/29/97		7/30/97		8/15/97		7/30/97		7/31/97	
QC Type	Field Dup. (D1)		None		None		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering										
Metals (UG/L)										
Aluminum	53.75	U	22.7	U	24.8	U	35300		35.4	UJ
Antimony	27.3	U	27.3	U	4.7	U	27.3	U	27.3	U
Arsenic	28.3		90		2	U	6		1.8	U
Barium	191.5		274		195	U	193	J	116	
Beryllium	0.1	U	0.1	UJ	0.1	U	18.8		0.21	U
Cadmium	2.6	U	2.6	U	0.3	U	8.2	J	2.6	U
Calcium	38550		41700		22900		281000		49900	
Chromium	2.9	U	2.9	U	0.6	U	2.9	U	2.9	U
Cobalt	4.525		4.9	U	3.9		624	J	4.9	U
Copper	2.5	U	2.5	U	9.7	U	24.9	J	2.5	U
Iron	7255		32400		807		49400		86.2	
Lead	1.5			R	9	UJ		R	1.6	J
Magnesium	32250		53900		14100		37800		32700	
Manganese	1300		3320		339		18300		2180	
Mercury	0.1	U	0.1	U	0.1	UJ	0.1	U	0.1	U
Nickel	15.2	U	15.2	U	5.3	J	402		15.2	U
Potassium	5135		7250		4690		11000		6620	
Selenium		R		R		R		R		R
Silver	3	U	3	UJ	0.8	U	3	UJ	3	UJ
Sodium	64050		64200		50000		50900		305000	
Thallium		R		R	3.4	U		R		R
Vanadium	4.6	U	9.1		1.5	U		R	4.6	U
Zinc	52.55	U	76.8	UJ	92.3	U	1350	J	63.2	UJ
Water Quality Analysis (mg/L)										
Alkalinity		NA		NA		NA		NA		NA
Chloride		NA		NA		NA		NA		NA
Nitrate-Nitrite (as N)		NA		NA		NA		NA		NA
Sulfate		NA		NA		NA		NA		NA

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-DP4-3A-1217		OU2-DP4-4-0510		OU2-DP4-5C-1419		OU2-DP4-7-1823		OU2-DP5-2-9499		OU2-DP5A-2-1520
Sample Location	DP4-3A		DP4-4		DP4-5C		DP4-7		DP5-2		DP5A-2
Date Sampled	8/1/97		8/8/97		8/6/97		8/6/97		8/11/97		8/4/97
QC Type	None		None		None		None		None		None
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS
Filtering											
Volatile Organic Compounds (UG/L)											
1,1,1-Trichloroethane	20	U	1700		620		1400		2000		200
1,1,2-Trichloroethane	20	U	160	U	40	U	100	U	160	U	200
1,1-Dichloroethane	85		630		58		160		210		200
1,1-Dichloroethene	7	J	390		140		480		170		200
1,2-Dichloroethane	20	U	160	U	40	U	100	U	160	U	200
1,2-Dichloroethene	300		660		84		240		540		200
2-Butanone	20	U	160	U	40	U	100	U	160	U	200
2-Hexanone	20	U	160	UJ	40	U	100	U	160	UJ	200
4-Methyl-2-Pentanone	20	U	160	UJ	40	U	100	UJ	160	UJ	200
Acetone	20	UJ	160	U	40	U	100	U	160	U	200
Benzene	20	U	82	J	40	U	100	U	160	U	2500
Bromochloromethane		NA		NA		NA		NA		NA	
Bromodichloromethane	20	U	160	U	40	U	100	U	160	U	200
Bromomethane	20	U	160	U	40	U	100	U	160	U	200
Carbon Disulfide	20	U	160	U	40	U	100	U	160	U	200
Carbon Tetrachloride	20	U	160	U	40	U	100	U	160	U	200
Chlorobenzene	20	U	160	U	40	U	100	U	160	U	200
Chloroethane	20	U	40	J	40	UJ	100	UJ	160	UJ	200
Chloroform		R	160	U	4	JEB	100	U	160	U	200
Chloromethane	20	U	160	U	40	UJ	100	UJ	160	UJ	200
cis-1,2-Dichloroethene		NA		NA		NA		NA		NA	
Ethylbenzene	20	U	160	U	40	U	100	U	160	U	200
Methylene Chloride	20	U	160	U	40	U	100	U	160	U	200
Tetrachloroethene	20	U	160	U	40	U	100	U	160	U	200
Toluene	20	U	160	U	40	U	100	U	160	U	110
Total Xylenes	20	U	160	U	40	U	100	U	160	U	200
Trichloroethene	13	J	67	J	110		240		130	J	200
Vinyl Chloride	19	J	92	J	40	U	100	U	160	U	200

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-DP4-3A-1217		OU2-DP4-4-0510		OU2-DP4-5C-1419		OU2-DP4-7-1823		OU2-DP5-2-9499		OU2-DP5A-2-1520
Sample Location	DP4-3A		DP4-4		DP4-5C		DP4-7		DP5-2		DP5A-2
Date Sampled	8/1/97		8/8/97		8/6/97		8/6/97		8/11/97		8/4/97
QC Type	None		None		None		None		None		None
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS
Filtering											
Semivolatile Organic Compounds (UG/L)											
1,2-Dichlorobenzene		NA		NA		NA		NA		NA	
2,4-Dimethylphenol		NA		NA		NA		NA		NA	
2,4-Dinitrophenol		NA		NA		NA		NA		NA	
2-Chlorophenol		NA		NA		NA		NA		NA	
2-Methylnaphthalene		NA		NA		NA		NA		NA	
2-Methylphenol		NA		NA		NA		NA		NA	
2-Nitrophenol		NA		NA		NA		NA		NA	
4,6-Dinitro-2-methylphenol		NA		NA		NA		NA		NA	
4-Chloro-3-methylphenol		NA		NA		NA		NA		NA	
4-Methylphenol		NA		NA		NA		NA		NA	
4-Nitrophenol		NA		NA		NA		NA		NA	
Acenaphthene		NA		NA		NA		NA		NA	
Acenaphthylene		NA		NA		NA		NA		NA	
Anthracene		NA		NA		NA		NA		NA	
bis(2-Ethylhexyl)phthalate		NA		NA		NA		NA		NA	
Carbazole		NA		NA		NA		NA		NA	
Di-n-Butylphthalate		NA		NA		NA		NA		NA	
Dibenzofuran		NA		NA		NA		NA		NA	
Diethylphthalate		NA		NA		NA		NA		NA	
Fluoranthene		NA		NA		NA		NA		NA	
Fluorene		NA		NA		NA		NA		NA	
Hexachloroethane		NA		NA		NA		NA		NA	
N-Nitroso-diphenylamine		NA		NA		NA		NA		NA	
Naphthalene		NA		NA		NA		NA		NA	
Nitrobenzene		NA		NA		NA		NA		NA	
Phenanthrene		NA		NA		NA		NA		NA	
Phenol		NA		NA		NA		NA		NA	
Pyrene		NA		NA		NA		NA		NA	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-DP4-3A-1217		OU2-DP4-4-0510		OU2-DP4-5C-1419		OU2-DP4-7-1823		OU2-DP5-2-9499		OU2-DP5A-2-1520
Sample Location	DP4-3A		DP4-4		DP4-5C		DP4-7		DP5-2		DP5A-2
Date Sampled	8/1/97		8/8/97		8/6/97		8/6/97		8/11/97		8/4/97
QC Type	None		None		None		None		None		None
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS
Filtering											
Metals (UG/L)											
Aluminum	22.7	U	52.8	U	103	U	52	U	44.4	U	80.4
Antimony	27.3	U		R		R	4.7	U	4.7	U	
Arsenic	78.3			R		R	2	U	2	U	38.9
Barium	234		325	U	84.3	U	72.8	U	97	U	142
Beryllium	0.35	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1
Cadmium	2.6	U	0.42	UJ	0.41	UJ	0.3	U	0.78		0.3
Calcium	21100		96400		51600		31700		31300		16700
Chromium	2.9	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6
Cobalt	4.9	U	2.8		2	J	2.1	J	13.4		1.4
Copper	2.5	U	33.8	U	67	U	20.8	U	9.2	U	20
Iron	7600		10100		1720		868		1970		5430
Lead		R	18.9	UJ	29.7	UJ	24	UJ	13.6	UJ	20.8
Magnesium	30200		17500		7330		14800		20900		6730
Manganese	1140		1360		180		194		5660		114
Mercury	0.1	U	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.1
Nickel	15.2	U	4.1	J	3.6	U	5.4	J	13.9		3.6
Potassium	5490		9690		8710		5250		5030		13000
Selenium		R		R		R		R		R	
Silver	3	UJ	0.8	U	0.8	U	0.8	U	0.8	U	0.8
Sodium	50600		72700		161000		94000		100000		569000
Thallium		R	3.4	U	3.4	U	3.4	U	3.4	U	3.4
Vanadium	4.6	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5
Zinc	76.5	UJ	151	U	64.5	U	37.8	U	50.5	U	49.8
Water Quality Analysis (mg/L)											
Alkalinity		NA		NA		NA		NA		NA	
Chloride		NA		NA		NA		NA		NA	
Nitrate-Nitrite (as N)		NA		NA		NA		NA		NA	
Sulfate		NA		NA		NA		NA		NA	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number		OU2-DP6-5A-3944		OU2-DP7-4-0712		OU2-DP7-5A-3843-AVG		OU2-DP7-9A-2227		OU2-DP8-3A-0914	
Sample Location		DP6-5A		DP7-4		DP7-5A		DP7-9A		DP8-3A	
Date Sampled		8/5/97		8/4/97		8/7/97		8/13/97		8/13/97	
QC Type		None		None		Field Dup. (D2)		None		None	
Matrix		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering											
Volatile Organic Compounds (UG/L)											
1,1,1-Trichloroethane	U	230		10	U	8200		42		10	U
1,1,2-Trichloroethane	U	20	U	10	U	500	U	10	U	10	U
1,1-Dichloroethane	U	170		29		330		4	J	10	U
1,1-Dichloroethene	U	180		10	U	4400		14		10	U
1,2-Dichloroethane	U	20	U	10	U	500	U	10	U	10	U
1,2-Dichloroethene	U	140		38		1250		7	J	10	U
2-Butanone	U	20	U	10	U	500	U	10	UJ	10	UJ
2-Hexanone	U	20	U	10	U	500	U	10	UJ	10	UJ
4-Methyl-2-Pentanone	U	20	U	10	U	500	U	10	UJ	10	UJ
Acetone	U	20	U	10	U	500	U	10	U	10	U
Benzene	J	20	U	1	J	500	U	10	U	10	U
Bromochloromethane	NA		NA		NA		NA		NA		NA
Bromodichloromethane	U	20	U	10	U	500	U	10	U	10	U
Bromomethane	U	20	U	10	U	500	U	10	U	10	U
Carbon Disulfide	U	20	U	10	U	500	U	10	U	10	U
Carbon Tetrachloride	U	20	U	10	U	500	U	10	U	10	U
Chlorobenzene	UJ	20	U	25		500	U	10	U	10	U
Chloroethane	UJ	9	J	10	UJ	500	U	10	UJ	10	UJ
Chloroform	U	20	U	10	U	500	U	10	U	10	U
Chloromethane	U	20	UJ	10	U	500	U	10	U	10	U
cis-1,2-Dichloroethene	NA		NA		NA		NA		NA		NA
Ethylbenzene	UJ	20	U	10	U	500	U	10	U	10	U
Methylene Chloride	U	20	U	4	JEB	500	U	10	U	10	U
Tetrachloroethene	U	20	U	10	U	500	U	10	U	10	U
Toluene	J	20	U	10	U	500	U	10	U	10	U
Total Xylenes	UJ	20	U	10	U	500	U	10	U	10	U
Trichloroethene	U	53		10	U	515		8	J	10	U
Vinyl Chloride	U	5	J	28		500	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number		OU2-DP6-5A-3944		OU2-DP7-4-0712		OU2-DP7-5A-3843-AVG		OU2-DP7-9A-2227		OU2-DP8-3A-0914	
Sample Location		DP6-5A		DP7-4		DP7-5A		DP7-9A		DP8-3A	
Date Sampled		8/5/97		8/4/97		8/7/97		8/13/97		8/13/97	
QC Type		None		None		Field Dup. (D2)		None		None	
Matrix		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering											
Metals (UG/L)											
Aluminum	UJ	124	U	2720	J	119.5	U	41.7	U	145	U
Antimony	R		R		R	4.7	U	4.7	U	4.7	U
Arsenic	J		R		R	24.95		2	U	2.8	UJ
Barium	UJ	173	U	352	UJ	83.2	U	137	U	162	U
Beryllium	UJ	0.1	U	0.11	J	0.1	U	0.1	U	0.1	U
Cadmium	UJ	0.3	U	1.4	UJ	19.4		0.3	U	0.58	J
Calcium	J	94200		93100	J	284500		8090		148000	
Chromium	UJ	0.6	U	2	J	0.6	U	0.82	UJ	5.9	U
Cobalt	UJ	1.6	J	4.7	J	1975		1.9	J	1.4	J
Copper	UJ	43.6	U	103	UJ	10.3	U	24.1	U	35.4	U
Iron	J	2870		12600	J	416500		2150		5610	
Lead	UJ	24.5	UJ	71.5	UJ	29.6	U	14.5	UJ	17.6	UJ
Magnesium	J	19400		37200	J	165500		1680		18500	
Manganese	J	2400		8080	J	0.4	U	2650		231	
Mercury	UJ	0.1	UJ	0.1	UJ	0.1	U	0.1	UJ	0.1	UJ
Nickel	UJ	6.1	J	6.2	J	1015		6.4	J	4.5	J
Potassium	J	10300		11000	J	20100		2340		25500	
Selenium	R		R		R	20.05			R		R
Silver	UJ	0.8	U	1.2	J	15		0.8	U	0.8	U
Sodium	J	169000		87800	J	88500		42400		378000	
Thallium	UJ	3.4	U	3.4	UJ	129		3.4	U	3.4	U
Vanadium	UJ	1.5	U	5.8	J	1.5	U	1.5	U	9.1	
Zinc	UJ	46.7	U	120	UJ	660.5		60	U	35.4	U
Water Quality Analysis (mg/L)											
Alkalinity	NA		NA		NA		NA		NA		NA
Chloride	NA		NA		NA		NA		NA		NA
Nitrate-Nitrite (as N)	NA		NA		NA		NA		NA		NA
Sulfate	NA		NA		NA		NA		NA		NA

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-DP8-5-5055		OU2-MW-101D-05	
Sample Location	DP8-5		MW-101D	
Date Sampled	8/11/97		11/10/97	
QC Type	None		None	
Matrix	AQUEOUS		AQUEOUS	
Filtering				
Volatile Organic Compounds (UG/L)				
1,1,1-Trichloroethane	1700		1	UJ
1,1,2-Trichloroethane	160	U	1	UJ
1,1-Dichloroethane	280		1	UJ
1,1-Dichloroethene	600		1	UJ
1,2-Dichloroethane	160	U	1	UJ
1,2-Dichloroethene	610			NA
2-Butanone	160	U	5	UJ
2-Hexanone	160	UJ	5	UJ
4-Methyl-2-Pentanone	160	UJ	5	UJ
Acetone	160	U	5	UJ
Benzene	160	U	1	UJ
Bromochloromethane		NA	1	UJ
Bromodichloromethane	160	U	1	UJ
Bromomethane	160	U	1	UJ
Carbon Disulfide	160	U	1	UJ
Carbon Tetrachloride	160	U	1	UJ
Chlorobenzene	33	J	1	UJ
Chloroethane	160	UJ	1	UJ
Chloroform	160	U	0.7	J
Chloromethane	160	U	1	UJ
cis-1,2-Dichloroethene		NA	1	UJ
Ethylbenzene	160	U	1	UJ
Methylene Chloride	160	U	2	UJ
Tetrachloroethene	160	U	1	UJ
Toluene	160	U	1	UJ
Total Xylenes	160	U	1	UJ
Trichloroethene	1100		1	UJ
Vinyl Chloride	49	J	1	UJ

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-DP8-5-5055		OU2-MW-101D-05	
Sample Location	DP8-5		MW-101D	
Date Sampled	8/11/97		11/10/97	
QC Type	None		None	
Matrix	AQUEOUS		AQUEOUS	
Filtering				
Semivolatile Organic Compounds (UG/L)				
1,2-Dichlorobenzene		NA	10	U
2,4-Dimethylphenol		NA	10	U
2,4-Dinitrophenol		NA	25	UJ
2-Chlorophenol		NA	10	U
2-Methylnaphthalene		NA	10	U
2-Methylphenol		NA	10	U
2-Nitrophenol		NA	10	U
4,6-Dinitro-2-methylphenol		NA	25	UJ
4-Chloro-3-methylphenol		NA	10	U
4-Methylphenol		NA	10	U
4-Nitrophenol		NA	25	U
Acenaphthene		NA	10	U
Acenaphthylene		NA	10	U
Anthracene		NA	10	U
bis(2-Ethylhexyl)phthalate		NA	10	U
Carbazole		NA	10	U
Di-n-Butylphthalate		NA	10	U
Dibenzofuran		NA	10	U
Diethylphthalate		NA	10	U
Fluoranthene		NA	10	U
Fluorene		NA	10	U
Hexachloroethane		NA	10	U
N-Nitroso-diphenylamine		NA	10	U
Naphthalene		NA	10	U
Nitrobenzene		NA	10	U
Phenanthrene		NA	10	U
Phenol		NA	10	U
Pyrene		NA	10	UJ

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-DP8-5-5055		OU2-MW-101D-05	
Sample Location	DP8-5		MW-101D	
Date Sampled	8/11/97		11/10/97	
QC Type	None		None	
Matrix	AQUEOUS		AQUEOUS	
Filtering				
Metals (UG/L)				
Aluminum	55.7	U	75.7	
Antimony	4.7	U	3	U
Arsenic	2	U	3	U
Barium	175	U	34.4	
Beryllium	0.1	U	1	U
Cadmium	0.3	U	1	U
Calcium	98100		15800	
Chromium	0.6	U	1.7	J
Cobalt	3.5		41.3	
Copper	12.2	U	2	U
Iron	2480		21.4	UJ
Lead	14.7	UJ	1	U
Magnesium	36100		4460	
Manganese	13500		6550	
Mercury	0.1	UJ	0.1	U
Nickel	7.1	J	47.8	
Potassium	9580		7410	
Selenium		R	5.4	J
Silver	0.8	U	1	U
Sodium	136000		37600	
Thallium	3.4	U	3	U
Vanadium	1.5	U	1	U
Zinc	79.2	U	65.5	J
Water Quality Analysis (mg/L)				
Alkalinity		NA	15.1	
Chloride		NA	57.6	
Nitrate-Nitrite (as N)		NA	2.61	
Sulfate		NA	81.5	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number		OU2-DP6-5A-3944		OU2-DP7-4-0712		OU2-DP7-5A-3843-AVG		OU2-DP7-9A-2227		OU2-DP8-3A-0914	
Sample Location		DP6-5A		DP7-4		DP7-5A		DP7-9A		DP8-3A	
Date Sampled		8/5/97		8/4/97		8/7/97		8/13/97		8/13/97	
QC Type		None		None		Field Dup. (D2)		None		None	
Matrix		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering											
Semivolatile Organic Compounds (UG/L)											
1,2-Dichlorobenzene	NA		NA		NA		NA		NA		NA
2,4-Dimethylphenol	NA		NA		NA		NA		NA		NA
2,4-Dinitrophenol	NA		NA		NA		NA		NA		NA
2-Chlorophenol	NA		NA		NA		NA		NA		NA
2-Methylnaphthalene	NA		NA		NA		NA		NA		NA
2-Methylphenol	NA		NA		NA		NA		NA		NA
2-Nitrophenol	NA		NA		NA		NA		NA		NA
4,6-Dinitro-2-methylphenol	NA		NA		NA		NA		NA		NA
4-Chloro-3-methylphenol	NA		NA		NA		NA		NA		NA
4-Methylphenol	NA		NA		NA		NA		NA		NA
4-Nitrophenol	NA		NA		NA		NA		NA		NA
Acenaphthene	NA		NA		NA		NA		NA		NA
Acenaphthylene	NA		NA		NA		NA		NA		NA
Anthracene	NA		NA		NA		NA		NA		NA
bis(2-Ethylhexyl)phthalate	NA		NA		NA		NA		NA		NA
Carbazole	NA		NA		NA		NA		NA		NA
Di-n-Butylphthalate	NA		NA		NA		NA		NA		NA
Dibenzofuran	NA		NA		NA		NA		NA		NA
Diethylphthalate	NA		NA		NA		NA		NA		NA
Fluoranthene	NA		NA		NA		NA		NA		NA
Fluorene	NA		NA		NA		NA		NA		NA
Hexachloroethane	NA		NA		NA		NA		NA		NA
N-Nitroso-diphenylamine	NA		NA		NA		NA		NA		NA
Naphthalene	NA		NA		NA		NA		NA		NA
Nitrobenzene	NA		NA		NA		NA		NA		NA
Phenanthrene	NA		NA		NA		NA		NA		NA
Phenol	NA		NA		NA		NA		NA		NA
Pyrene	NA		NA		NA		NA		NA		NA

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-MW-101M-05		OU2-MW-101S-05		OU2-MW-102D-05-AVG		OU2-MW-102M-05		OU2-MW-102S-05	
Sample Location	MW-101M		MW-101S		MW-102D		MW-102M		MW-102S	
Date Sampled	11/10/97		11/7/97		11/6/97		11/6/97		11/6/97	
QC Type	None		None		Field Duplicate 1		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering										
Volatile Organic Compounds (UG/L)										
1,1,1-Trichloroethane	10	U	1	U	1	U	0.7	J	1	UJ
1,1,2-Trichloroethane	10	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	10	U	1	U	1	U	1	U	1	J
1,1-Dichloroethene	10	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	10	U	1	UJ	1	U	1	UJ	1	UJ
1,2-Dichloroethene	10	U		NA		NA		NA		NA
2-Butanone	10	U	5	U	5	U	5	U	6	
2-Hexanone	10	UJ	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	10	UJ	5	U	5	U	5	U	5	U
Acetone	10	U		R		R		R		R
Benzene	10	U		R	1	U	1	U	1	U
Bromochloromethane		NA	1	UJ	1	U	1	UJ	1	U
Bromodichloromethane	10	U	1	U	1	U	1	U	1	U
Bromomethane	10	U	1	U	1	U	1	U	1	U
Carbon Disulfide	10	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	10	U	1	U	1	U	1	U	1	U
Chlorobenzene	10	U		R	1	U	1	U	1	U
Chloroethane	10	UJ	1	U	1	U	1	U	1	U
Chloroform	10	U	1	U	1	U	1	U	1	U
Chloromethane	10	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene		NA	1	U	1	U	1	U	1	U
Ethylbenzene	10	U		R	1	U	1	U	1	U
Methylene Chloride	10	U	2	UJ	2	U	2	UJ	2	UJ
Tetrachloroethene	10	U	1	U	1	U	1	U	1	U
Toluene	10	U	1	U	1	U	1	U	1	U
Total Xylenes	10	U		R	1	U	1	U	1	U
Trichloroethene	10	U	1	U	1	U	1	U	1	U
Vinyl Chloride	10	U	1	U	1	U	1	U	1	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-MW-101M-05		OU2-MW-101S-05		OU2-MW-102D-05-AVG		OU2-MW-102M-05		OU2-MW-102S-05	
Sample Location	MW-101M		MW-101S		MW-102D		MW-102M		MW-102S	
Date Sampled	11/10/97		11/7/97		11/6/97		11/6/97		11/6/97	
QC Type	None		None		Field Duplicate 1		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering										
Semivolatile Organic Compounds (UG/L)										
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrophenol	25	U	25	U	25	U	25	U	25	U
2-Chlorophenol	10	U	10	U	10	U	10	U	10	U
2-Methylnaphthalene	10	U	10	U	10	U	10	U	10	U
2-Methylphenol	10	U	10	U	10	U	10	U	10	U
2-Nitrophenol	10	U	10	U	10	U	10	U	10	U
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U	25	U	25	U
4-Chloro-3-methylphenol	10	U	10	U	10	U	10	U	10	U
4-Methylphenol	10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	25	UJ	25	U	25	U	25	U	25	U
Acenaphthene	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	10	U	10	U	10	U	10	U	10	U
Anthracene	10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	U	10	U	10	U	10	U	10	U
Carbazole	10	U	10	U	10	U	10	U	10	U
Di-n-Butylphthalate	10	U	10	U	10	U	10	U	10	U
Dibenzofuran	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	10	U	10	U	10	U	10	U	10	U
Fluoranthene	10	U	10	U	10	U	10	U	10	U
Fluorene	10	U	10	U	10	U	10	U	10	U
Hexachloroethane	10	U	10	U	10	U	10	U	10	U
N-Nitroso-diphenylamine	10	U	10	U	10	U	10	U	10	U
Naphthalene	10	U	10	U	10	U	10	U	10	U
Nitrobenzene	10	U	10	U	10	U	10	U	10	U
Phenanthrene	10	U	10	U	10	U	10	U	10	U
Phenol	10	U	10	U	10	U	10	U	10	U
Pyrene	10	U	10	U	10	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-MW-101M-05		OU2-MW-101S-05		OU2-MW-102D-05-AVG		OU2-MW-102M-05		OU2-MW-102S-05	
Sample Location	MW-101M		MW-101S		MW-102D		MW-102M		MW-102S	
Date Sampled	11/10/97		11/7/97		11/6/97		11/6/97		11/6/97	
QC Type	None		None		Field Duplicate 1		None		None	
Matrix	AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS		AQUEOUS	
Filtering										
Metals (UG/L)										
Aluminum	17	U	17	U	17	U	17	U	815	
Antimony	3	U	3	U	3	U	3	U	3	U
Arsenic	4.4	J	14.7		3	U	3	U	131	
Barium	65.6		28.7		35.4		30.6		19.3	
Beryllium	1	U	1	U	1	U	1	U	1	U
Cadmium	1	U	13.6		1	U	1	U	7.6	
Calcium	136000		294000		24850		24200		105000	
Chromium	1.4	J	5.3		1	U	1	U	1	U
Cobalt	1	U	1	U	2.65	U	1	U	7.5	U
Copper	2	U	2	U	2	U	2	U	1360	
Iron	62	U	224000	J	642		11	UJ	135000	J
Lead	1	U	1	U	1	U	1	U		R
Magnesium	376000		736000		9435		3180		11600	
Manganese	338		2470	J	696.5		2.6	UJ	672	J
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Nickel	1	U	13.7	U	9.45	U	2.5	U	61.6	
Potassium	108000		216000		6770		3460		17800	J
Selenium	3	U	3	U	3	U	3	U	4	J
Silver	1	U	1	U	1	U	1	U	1	U
Sodium	2730000		23400		15500		16100		25100	
Thallium	3	UJ	3	UJ	3	U	3	U	3.4	J
Vanadium	2.5	J	1	U	1	U	1	U	1	U
Zinc	111	J	2	U	51.7		27.2		216	
Water Quality Analysis (mg/L)										
Alkalinity	670		144		47.5		38.9		54.5	
Chloride	5640		3850		32.65		19.4		14.1	
Nitrate-Nitrite (as N)	0.1	U	0.1	U	0.255		0.1	U	0.1	U
Sulfate	528		783		48.4		24.1		296	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-MW-103D-05		OU2-MW-103M-05	
Sample Location	MW-103D		MW-103M	
Date Sampled	11/6/97		11/6/97	
QC Type	None		None	
Matrix	AQUEOUS		AQUEOUS	
Filtering				
Volatile Organic Compounds (UG/L)				
1,1,1-Trichloroethane	1	U	1	U
1,1,2-Trichloroethane	1	U	1	U
1,1-Dichloroethane	1	U	1	U
1,1-Dichloroethene	1	U	1	U
1,2-Dichloroethane	1	UJ	1	UJ
1,2-Dichloroethene		NA		NA
2-Butanone	5	U	5	U
2-Hexanone	5	U	5	U
4-Methyl-2-Pentanone	5	U	5	U
Acetone		R	30	U
Benzene	1	U	1	U
Bromochloromethane	1	UJ	1	UJ
Bromodichloromethane	1	U	1	U
Bromomethane	1	U	1	U
Carbon Disulfide	1	U	1	U
Carbon Tetrachloride	1	U	1	U
Chlorobenzene	1	U	1	U
Chloroethane	1	U	1	U
Chloroform	1	U	1	U
Chloromethane	1	U	1	U
cis-1,2-Dichloroethene	1	U	1	U
Ethylbenzene	1	U	1	U
Methylene Chloride	2	UJ	2	UJ
Tetrachloroethene	1	U	1	U
Toluene	1	U	1	U
Total Xylenes	1	U	1	U
Trichloroethene	1	U	1	U
Vinyl Chloride	1	U	1	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-MW-103D-05		OU2-MW-103M-05	
Sample Location	MW-103D		MW-103M	
Date Sampled	11/6/97		11/6/97	
QC Type	None		None	
Matrix	AQUEOUS		AQUEOUS	
Filtering				
Semivolatile Organic Compounds (UG/L)				
1,2-Dichlorobenzene	10	U	10	U
2,4-Dimethylphenol	10	U	10	U
2,4-Dinitrophenol	25	U	25	U
2-Chlorophenol	10	U	10	U
2-Methylnaphthalene	10	U	10	U
2-Methylphenol	10	U	10	U
2-Nitrophenol	10	U	10	U
4,6-Dinitro-2-methylphenol	25	U	25	U
4-Chloro-3-methylphenol	10	U	10	U
4-Methylphenol	10	U	10	U
4-Nitrophenol	25	U	25	U
Acenaphthene	10	U	10	U
Acenaphthylene	10	U	10	U
Anthracene	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	U	10	U
Carbazole	10	U	10	U
Di-n-Butylphthalate	10	U	10	U
Dibenzofuran	10	U	10	U
Diethylphthalate	10	U	10	U
Fluoranthene	10	U	10	U
Fluorene	10	U	10	U
Hexachloroethane	10	U	10	U
N-Nitroso-diphenylamine	10	U	10	U
Naphthalene	10	U	10	U
Nitrobenzene	10	U	10	U
Phenanthrene	10	U	10	U
Phenol	10	U	10	U
Pyrene	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed

Sample Number	OU2-MW-103D-05		OU2-MW-103M-05	
Sample Location	MW-103D		MW-103M	
Date Sampled	11/6/97		11/6/97	
QC Type	None		None	
Matrix	AQUEOUS		AQUEOUS	
Filtering				
Metals (UG/L)				
Aluminum	156	U	17	U
Antimony	3	U	3	U
Arsenic	3	U	3	U
Barium	24.4		58.9	
Beryllium	1	U	1	U
Cadmium	1	U	1	U
Calcium	33200		34600	
Chromium	2.3		1.5	J
Cobalt	35.6		3.9	U
Copper	2	U	37.9	
Iron	7150	J	163	J
Lead	1	U	1.7	UJ
Magnesium	14800		16400	
Manganese	7000	J	3400	J
Mercury	0.1	U	0.1	U
Nickel	28.6	U	5.1	U
Potassium	7650		13700	
Selenium	3.9	J	3	U
Silver	1	U	1	U
Sodium	65700		104000	
Thallium	3	U	3	U
Vanadium	1	U	1	U
Zinc	42.6		33.6	
Water Quality Analysis (mg/L)				
Alkalinity	21.7		55	
Chloride	86.4		161	
Nitrate-Nitrite (as N)	1.85		0.54	
Sulfate	136		79.9	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB/TB - Equipment/Trip Blank contamination; NA - Not Analyzed