REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

Prepared for

MCFARLAND CASCADE HOLDINGS, INC.

A STELLA-JONES COMPANY

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Prepared by

Maul Foster & Alongi, Inc.

1329 N State Street, Suite 301, Bellingham WA 98225

AECOM Environment

710 Second Avenue, Suite 1000, Seattle, WA 98104

MAUL FOSTER ALONGI

AECOM

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The material and data in this report were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.

State of Washington
Hydrogeologist
2819
Licensed Geologist
HEATHER R. HIRSCH

Exp. 6/1/15

Heather R. Hirsch, LHG
Project Hydrogeologist

James J. Maul, LHG
President and Principal Hydrogeologist

AECOM ENVIRONMENT

Renee Knecht, LG
Project Manager

PREFACE

This report is the product of a cooperative partnership between Maul Foster & Alongi, Inc. (MFA) and AECOM Environment (AECOM). AECOM (formerly doing business as ThermoRetec Consulting Corporation and The RETEC Group, Inc.). Field activities conducted in support of this remedial investigation and feasibility study (RI/FS), including monitoring well installation and development, soil and groundwater sampling, and oversight and implementation of interim remedial actions, were completed by AECOM. The only exception to that is the most recent groundwater monitoring event, conducted in July 2013, which was completed by MFA. AECOM also drafted reports documenting the details and findings of the field activities. AECOM prepared a draft of this RI/FS report in coordination with the Washington State Department of Ecology (Ecology). MFA has updated sections of the RI/FS, in continuing coordination with Ecology, primarily by inclusion of recent groundwater monitoring data, updating cleanup levels, and conducting additional groundwater fate and transport modeling. MFA was responsible for preparing the final RI/FS document in coordination with AECOM. However, large sections of this report, and the field work and analysis on which they are based, are an AECOM work product. In particular, the site background, investigation and interim action summaries, background information used in the development of cleanup standards, and FS components of this report are largely attributable to AECOM.

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ACRONYMS AND ABBREVIATIONS

ACZA	Chemonite® ammoniacal copper zinc arsenate
AQTESOLV™	Aquifer Test Solver
AO	Agreed Order
ARAR	applicable or relevant and appropriate requirement
BAC	bituminous asphalt concrete
BaP	benzo(a)pyrene
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CA-C	copper azole type C
CAP	Cleanup Action Plan
CCA	copper-chromated arsenic
CFR	Code of Federal Regulations
City	City of Tacoma
cm/s	centimeters per second
CMMP	Contaminated-Media Management Plan
CMP	Compliance Monitoring Plan
COI	chemical of interest
COPC	chemical of potential concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
cPAH TEQ	cPAH toxicity equivalency quotient
CPLC	Cascade Pole and Lumber Company
CPOC	conditional point of compliance
CrIII	trivalent chromium
CrVI	hexavalent chromium
CUL	cleanup level
DNAPL	dense nonaqueous-phase liquid
Ecology	Washington State Department of Ecology
FRTR	Federal Remediation Technologies Screening Matrix and Reference
FS	feasibility study
ft/day	feet per day
ft/ft	feet per feet
GRA	General Response Action
GRI	Gas Research Institute
GRO	total petroleum hydrocarbons-gasoline range organics
HDPE	high-density polyethylene
HPAH	heavy polycyclic aromatic hydrocarbon
IHS	indicator hazardous substance
LNAPL	light nonaqueous-phase liquid
LPAH	light polycyclic aromatic hydrocarbon
MCHI	McFarland Cascade Holdings, Inc.
MCPLC	McFarland Cascade Pole and Lumber Company

mg/kg	milligrams per kilogram
MRC	Metals Remediation Compound
MTCA	Model Toxics Control Act
µg/L	micrograms per liter
NAPL	nonaqueous-phase liquid
NPDES	National Pollutant Discharge Elimination System
ORC	Oxygen Release Compound™
PAH	polycyclic aromatic hydrocarbon
PCP	pentachlorophenol
PID	photoionization detector
Port	Port of Tacoma
POTW	Public-Owned Treatment Works
PQL	practical quantitation limit
PTI	PTI Environmental Services
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RETEC	The RETEC Group, Inc.
RI	remedial investigation
RI/FS	remedial investigation and feasibility study
SARA	Superfund Amendments and Reauthorization Act
SLV	screening level value
SVE	soil vapor extraction
SVOC	semivolatile organic compound
TCLP	Toxicity Characteristic Leaching Procedure
TEF	toxicity equivalency factor
ThermoRetec	ThermoRetec Consulting Corporation
UPRR	Union Pacific Railroad
USEPA	U.S. Environmental Protection Agency
WAC	Washington Administrative Code
WADOT	Washington State Department of Transportation

1 INTRODUCTION

This report presents the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Cascade Pole and Lumber Company (CPLC) facility, an active wood treating facility located in Tacoma, Washington. For purposes of this report, property (unless otherwise specified) refers to the property on which CPLC conducts its operations. "Site" refers to anywhere that contamination from CPLC's historical operations has come to lie, irrespective of property ownership. Based upon site characterization data, the site is contained within the boundaries of the property. This document has been prepared pursuant to Agreed Order (AO) No. 92HS-S146 and in accordance with the Model Toxics Control Act (MTCA) (Washington Administrative Code [WAC] 173-340-350). McFarland Cascade Holdings, Inc. (MCHI) has contracted with AECOM Environment (formerly doing business as The RETEC Group, Inc. [RETEC]) and Maul Foster & Alongi, Inc. to prepare this RI/FS. RI/FS activities are being conducted in coordination with representatives from the Washington State Department of Ecology's (Ecology) Hazardous Waste and Toxics Reduction program. The scope of work for completing the RI/FS was developed in cooperation with Ecology and was described in the final RI/FS work plan (RETEC, 1994).

1.1 RI/FS Objectives

This RI/FS characterizes the nature and extent of contamination, the potential for contaminant migration, the risks associated with exposure to on-site contaminants, and the alternatives available for managing contaminated media. The document specifically addresses the following areas of potential concern:

- Releases to the soil, including the actual or potential migration of hazardous constituents within the soil.
- Releases or threats of releases to the uppermost aquifer, including the actual or potential migration of hazardous constituents, dense nonaqueous-phase liquids (DNAPLs) and/or light nonaqueous-phase liquids (LNAPLs) to and within the uppermost aquifer.
- Releases or threats of releases to the deeper aquifer, including the actual or potential migration of hazardous constituents, DNAPLs and/or LNAPLs to and within the deeper aquifer.
- Releases or threats of releases to and from surface water and surface water sediments including the actual or potential migration of hazardous constituents within surface water and sediment, recharge of contaminated surface waters to groundwater, and discharge of contaminated groundwater to surface waters. This pathway is addressed by the National Pollutant Discharge Elimination System (NPDES) permit and previous site investigations.

1.2 Report Organization

Sections 1 to 5 comprise the RI components of this report including background information (Section 2), a summary of site investigation activities and results (Section 3), a description of interim actions completed at the site (Section 4), and the selection of indicator hazardous substances (IHSs) and development of cleanup levels (CULs) (Section 5).

Sections 6 to 8 comprise the FS components of this report including remedy evaluation procedures (Section 6), technology screening (Section 7), and an evaluation of alternatives and selection of a preferred remedy (Section 8).

Section 9 provides a summary and conclusions relevant to the findings detailed in the RI and FS sections of this report.

2 BACKGROUND

This section provides a summary of the background information including the site setting and operational history. Existing site characterization data appears in Section 3. Additionally, the conceptual site model is presented in Section 5.6.

2.1 Site Description

The CPLC wood treating facility is located on the Tacoma Tideflats at East 18th Street and Marc Street in Tacoma, Washington. Figure 2-1 provides the general location of the site. The 43-acre property is located approximately 200 feet east of the Puyallup River and 1,000 feet south of the Milwaukee Waterway. The property is surrounded by industrial facilities including: Maersk Pacific storage and shipping yard, to the northwest; the former Union Pacific Railroad (UPRR) Milwaukee Railyard to the northeast; Pallet Services, a pallet manufacturing and storage facility, to the east; Fred Tebb and Sons, a lumber mill; and Recovery One, a demolition waste transfer and processing facility, to the south. The Milwaukee Railyard is no longer active and the Port of Tacoma (the Port) completed remedial actions to address free-phase diesel fuel and other areas of contamination from previous activities at the site. A restrictive covenant is in place at the Milwaukee Railyard site and groundwater monitoring and soil cap maintenance activities are ongoing. The Port has also redeveloped the Milwaukee Railyard site to allow for the expansion of the Maersk Pacific Terminal.

2.2 Site History and Operations

Wood treating operations have been conducted at the property since 1974. Historical site features are shown in Figure 2-2. Prior to 1974, the northwest portion of the property was the only usable area and it housed a lumber mill and a landscape bark operation. The remainder of the current property is built on land created by dredge spoils and, perhaps, other fill by the Port. CPLC began developing this fill property in 1972. Initially, three retorts and the creosote thermal butt vat were utilized for wood treatment. An additional retort was added to the facility in 1978.

Historically, the facility and property were owned and operated by CPLC. Under a corporate restructuring that occurred on January 3, 2004, CPLC retained ownership of the property and began leasing the facility, property, and equipment to a newly formed operating company, McFarland Cascade Pole and Lumber Company (MCPLC). Note that both CPLC and MCPLC are owned by the same parent company, MCHI. In 2012, Stella Jones Corporation acquired MCHI, the parent company of CPLC and MCPLC. As part of that transaction, CPLC transferred ownership of the real property to Tyee Management Company, LLC, which continues to lease the property to MCHI.

The CPLC facility is used for the manufacture and processing of treated wood products. Figure 2-3 shows the current layout of the facility. Activities at the facility have included debarking, sizing and framing, incising, staining, pressure and non-pressure treating, and distributing finished products to customers. Treated wood products that are manufactured at the CPLC facility include utility poles, and dimensional lumber used for decking, fencing, and other similar products.

Both pressure and non-pressure (i.e., thermal) processes are used at the facility. The wood treating chemicals primarily used in these processes have been pentachlorophenol (PCP), copper-chromated arsenic (CCA), copper azole type C (CA-C), and creosote. CA-C replaced CCA for residential use products as of December 31, 2003 as a result of a voluntary agreement between the wood treating chemical manufacturers and the U.S. Environmental Protection Agency (USEPA). From 1978 to 1987, Chemonite® ammoniacal copper zinc arsenate (ACZA) was used at the facility. As of December 2004, creosote use was discontinued at the CPLC facility. PCP is now used in the thermal process. All of the treated wood products currently produced at the CPLC facility are treated with CA-C or PCP.

Wood treating activities, including storage and application of wood preservatives, are conducted on the eastern portion of the property in an area referred to as the "treating area." The treating area includes the drip pads, transfer table, retorts, and PCP thermal butt vat (see Figure 2-3). Historical and current areas used for storage of treated wood products are shown in Figures 2-2 and 2-3.

Chemicals used in the wood treating process and their associated compounds and breakdown products were identified as chemicals of interest (COIs) for the site, including the following:

- Total and dissolved arsenic, copper, and chromium (including both trivalent chromium [CrIII] and hexavalent chromium [CrVI])
- Polycyclic aromatic hydrocarbons (PAHs)
- PCP
- Semivolatile organic compounds (SVOCs)

In addition, the following COIs were identified in association with the PCP carrier oil in use at the site:

- Benzene, toluene, ethylbenzene, and xylenes (BTEX)
- Total petroleum hydrocarbon-gasoline range organics (GRO)

At the end of December 2003, in preparation for the changeover to the new treating solution, all tanks used to store CCA solutions were de-scaled and then cleaned with a high-pressure wash (hydro blaster), and the piping was flushed to remove potential chemical residuals. On October 9 and 10, 2004, CPLC re-profiled and decontaminated the drip pad using a combination of sand blasting and hydro-blasting techniques. CPLC outlined an approach for formal phased closure of the CCA/CA-C drip pad in a sampling plan submitted to Ecology on September 23, 2004 (CPLC, 2004). This phased approach allows for continued operation of the drip pad, after sufficient cleaning such that any liquids generated on the drip pad would not be viewed as having been "mixed" with F035 listed waste. The drip pad will still be regulated under Subpart W, however the wastes managed on the drip pad will no longer be managed as F035 hazardous under the mixture rule. The final phased closure report has been reviewed and approved by Ecology. Wastes from the CA-C drip pad are no longer required to be managed as F035 listed wastes.

The CPLC facility is a hazardous waste generator (ID No. WAD 008 958 357). The facility discharges treated stormwater under an NPDES permit (No. WA003795-3) for the discharge of treated stormwater runoff. CPLC's current NPDES permit has been in effect since March 15, 2002. A renewed permit was issued on October 6, 2008 and expired on October 31, 2013. A renewal application for the NPDES permit was submitted on April 26, 2012. CPLC is also registered with the Puget Sound Clean Air Agency (Registration No. 10398).

CPLC records indicate that three known spills have occurred at the facility. Each of these spills was reported to Ecology.

- In August of 1985, an overflow of process water from the cooling tower resulted in a release of approximately 100 gallons of water. The spill was adequately cleaned up and efforts were made to eliminate the possibility of future spills.
- In March of 1986, a cooling tower overflow resulted in the spill of approximately 100 gallons of process water. The spill was adequately cleaned up and the system redesigned to prevent any chance of reoccurrence.
- In May of 1986, a storage tank overflow resulted in the spill of approximately 260 gallons of CCA. This spill was adequately cleaned up and procedures were implemented to prevent any chance of reoccurrence.

No records were found of any other spills or reportable releases at the CPLC facility.

2.3 Characteristics of Wood Preservatives Used

The primary wood preservatives used at the CPLC facility are reviewed below in terms of their physical and chemical properties, their fate in the environment, and the existing standards and/or criteria that define protective environmental concentrations.

2.3.1 Pentachlorophenol

PCP is a crystalline chemical compound formed by chlorinating phenol. It is soluble in heavy petroleum oils and somewhat soluble in lighter oils such as kerosene and mineral spirits. PCP is a widely used pesticide. The PCP solution used at the CPLC facility consists of a petroleum solution containing about 5 percent PCP by weight. This is a typical formulation for wood preserving applications. PCP has been used in the retorts at the CPLC facility since wood preserving operations commenced. PCP was also utilized in the thermal butt vat until approximately 1989. The southernmost retort is presently being used for PCP treatment.

PCP is moderately soluble in water and readily degrades in the environment by chemical, microbiological, and photochemical processes (Choudhury et al., 1986; Kaufman, 1978). PCP solutions exposed to sunlight or ultraviolet light are photodegraded (Wong and Crosby, 1978). PCP can be degraded both aerobically and anaerobically; degradation is more rapid under aerobic conditions and slows significantly at temperatures below 19 degrees centigrade (°C) (Pignatello et al., 1985, 1986). Several strains of aerobic bacteria can metabolize and degrade PCP (Pignatello et al., 1983; Steiert and Crawford, 1986, 1987). The ability of different microorganisms to degrade PCP is not uniform and it appears that adaptation of microbial populations is essential in promoting biodegradation. DeLaune, Grambrell, and Reddy (1983) observed aerobic microbial degradation in estuarine sediments while tidal transport and photodegradation were reported to play a minor role. Pignatello et al. (1983) reported several significant observations on the degradation and transformation of PCP in freshwater streams: photolysis accounted for a 5 to 28 percent decline in initial PCP concentrations and was most rapid at the water surface under conditions of bright sunlight; adsorption to sediments and uptake by biota accounted for less than 5 percent loss in acclimated waters and less than 15 percent in unacclimatized waters; and microbial degradation of PCP became significant about 3 weeks after dosing and eventually became the primary mechanism of PCP removal, accounting for up to 46 percent decline in initial PCP. The reported half-life of PCP in water ranges from 0.15 to 15 days; degradation is most rapid under conditions of high incident radiation, high dissolved oxygen, and elevated pH (Bevenue and Beckman, 1967; Boyle et al., 1980; Smith, Brockway, and Stancil, 1987; Wong and Crosby, 1978).

The toxicity of PCP is centered largely on its potential as a metabolic poison. Available data indicate that it is a probable human carcinogen. PCP is readily absorbed following oral and inhalation exposure; evidence from occupational studies indicates it is also absorbed following dermal exposure (USEPA, 1984b). Occupational exposures have indicated the following effects of PCP: neurotoxicity, immune system effects, liver and kidney damage, and hematological disorders.

Studies have shown that the acute and chronic toxicity of PCP to freshwater aquatic organisms increases as the pH and dissolved oxygen concentration of the water decreases and, generally, the toxicity also increases as the water temperature increases (USEPA, 1986). Salinity, temperature, and pH have a slight effect on the toxicity of PCP to some marine aquatic organisms (USEPA, 1986). Generally, fish rapidly deplete PCP and it has been suggested that the efficient elimination of PCP from vertebrate species should allow them to tolerate periodic low doses of PCP without toxic effects (McKim, Schmieder, and Erikson, 1986).

2.3.2 Chromium, Copper, and Arsenic

CCA was a widely-used, inorganic, waterborne wood preservative for residential and industrial products until 2004. It is a mixture of chromium, copper, and arsenic compounds used in a 1-2 percent mixture with water. CCA was the major preservative used by CPLC through 2003 in the retorts, primarily for the treatment of lumber.

ACZA, whose official trade name is Chemonite®, is also an inorganic waterborne preservative. It is a mixture of ammonia, copper, zinc, and arsenic compounds. ACZA was used periodically in the retorts from 1976 to 1986 primarily for the treatment of lumber.

CA-C, a copper-based, non-arsenical water-based preservative, replaced CCA as the primary wood preservative for dimensional lumber as of December 31, 2003. CA-C is a mixture of copper compounds and tebuconazole and is an unrestricted use, water-based preservative. The solution strength is typically 1 percent. CA-C products are managed on the inorganic side of the treating facility and are handled on the former CCA drip pad. The CA-C solution is used primarily to treat lumber.

2.3.2.1 Arsenic

In the natural environment, arsenic has four different oxidation states, and chemical speciation is important in determining arsenic's distribution and mobility. Interconversions of the +3 and +5 states and organic complexation are the most important fate mechanisms. Arsenic is generally quite mobile in the environment. In the aquatic environment, volatilization is important when biological activity or highly reducing conditions produce arsine or methylarsenics. Sorption by sediments is an important fate. Arsenic is metabolized to organic arsenicals by a number of organisms; this increases arsenic's mobility in the environment. Because of its general mobility, arsenic tends to cycle through the environment.

There is sufficient evidence that arsenic is a skin and lung carcinogen in humans. There is inadequate evidence for the carcinogenicity of arsenic compounds in animals. Oral doses to experimental animals produced phytotoxic symptoms indicating arsenic to be teratogenic. Weak or negative results were obtained in most bacterial tests for mutagenicity. Toxicity depends on the chemical form of arsenic: arsenites (As^{+3}) are more toxic than arsenates (As^{+5}).

Toxic and other effects of arsenicals to aquatic life are significantly modified by numerous biological and abiotic factors (Michnowicz and Weaks, 1984; NAS, 1980; USEPA, 1980). The LC50 values, for example, are markedly affected by water temperature, pH, Eh, organic content, phosphate concentration, suspended solids, and presence of other substances and toxicants, arsenic speciation, and duration of exposure. In general, inorganic arsenicals are more toxic to aquatic biota than organo-arsenicals.

2.3.2.2 Chromium

CrVI is quite soluble, existing in solution as a component of a complex anion. It is not sorbed to any significant degree by clays or hydrous metal oxides. The anionic form varies according to pH and may be a chromate, hydrochromate, or dichromate. Because all anionic forms are so soluble, they are quite mobile in the aquatic environment. CrVI is efficiently removed by activated carbon and thus may have some affinity for organic materials in natural water. CrVI is a moderately strong oxidizing agent and reacts with reducing materials to form CrIII. Most CrIII in the aquatic environment is hydrolyzed and precipitates as chromium hydroxide. Sorption to sediments and bioaccumulation will remove much of the remaining CrIII from solution. CrIII is adsorbed only weakly to inorganic materials. CrIII and CrVI are readily interconvertible in nature depending on environmental conditions such as pH, hardness, and the types of other compounds present. Soluble forms of chromium accumulate if ambient conditions favor CrVI. Conditions favorable for conversion to CrIII lead to precipitation and adsorption of chromium in sediments.

USEPA has not classified CrIII with respect to carcinogenicity, but has classified CrVI a Class A carcinogen for inhalation. Chronic inhalation exposure of chromium can cause respiratory system damage (USEPA, 1984a). Chromium is a sensitizing agent producing allergic skin reactions or asthma (GRI, 1988). Chromium is absorbed through the gastrointestinal tract, the lungs, and through the skin by diffusion. Once absorbed, chromium is transported by binding to proteins in the blood (GRI, 1988). Chromium is cleared rapidly from the blood and slowly from the tissues.

2.3.2.3 Copper

Copper has two oxidation states, +1 (cuprous) and +2 (cupric). Cuprous copper is unstable in aerated water over the pH range of most natural waters (6 to 8) and oxidizes to the cupric state. Several processes determine the fate of copper in the aquatic environment: formation of complexes, especially with humic substances; sorption to hydrous metal oxides, clays, and organic materials; and bioaccumulation. In waters containing soluble organic material, complexation with organic ligands can occur, thus favoring the prolonged dispersion of copper in solution. The presence of organic acids also can lead to the mobilization of copper from the sediments to solution. Copper has a strong affinity for hydrous iron and manganese oxides, clays, carbonate minerals, and organic matter. Sorption to these materials, both suspended in the water column and in the sediment, results in relative enrichment of the solid phase and reduction in dissolved levels. Sorption processes are quite efficient in scavenging dissolved copper and in controlling its mobility in natural unpolluted streams. The amounts of the various copper compounds and complexes that actually exist in solution depend on the pH, temperature, alkalinity, and concentrations of other chemical species. The levels of copper able to remain in solution are directly dependent on water chemistry. Generally, ionic copper is more soluble in low-pH waters and less soluble in high-pH waters.

There is no evidence of carcinogenicity associated with copper. Copper salts act as irritants to the skin causing itching, erythema, and dermatitis (Sittig, 1985). Human health toxicity data has been derived for copper.

2.3.3 Creosote

Creosote is not a single chemical substance, but a mixture of hundreds of compounds. In use as a wood preservative, creosote is commonly mixed with heavy fuel petroleum oils. Creosote was used in the retorts at the CPLC facility from 1974 to 1979. Retort use of creosote was discontinued in

1979 except for occasional uses thereafter. From the 1990s through 2004, creosote has only been used in the thermal butt vat; all creosote use at the facility was discontinued effective December 31, 2004. Creosote is not soluble in water and is denser than water. Therefore, if released in sufficient volume, creosote can migrate vertically over substantial distances. The vertical migration of creosote would continue until either the volume of the release was absorbed by soils or until a relatively impermeable barrier was encountered.

The major constituents of creosote belong to a class of compounds called PAHs. PAHs are a group of unsaturated hydrocarbons having two to six molecular rings and are present in the environment from both natural and manmade sources. PAHs are common combustion byproducts and they are released whenever organic materials are burned. PAHs are generally classed into two groups, the lower molecular weight, two- and three-ring PAHs (LPAHs) and the high molecular weight PAHs (HPAHs) with four or more aromatic rings. The physical and chemical properties of PAHs vary with molecular weight. The LPAHs are more soluble and biodegradable, while the HPAHs are less soluble and more resistant to biodegradation (Stroo, 1992). Organisms that can use the HPAHs as sole carbon sources have been found, but are rare (Heitkamp and Cerniglia, 1988). PAH compounds tend to sorb or partition to soil solids or soil organic matter, and this tendency to sorb varies directly with molecular weight. Most LPAHs are slightly hydrophobic and have relatively low water solubilities. If these compounds go into solution, they will eventually biodegrade. The HPAHs tend to remain sorbed or partitioned to solids and organic matter. They are only slightly soluble in water and do not readily biodegrade. If these HPAHs are in an aqueous phase, they will be removed from that phase within a short distance. They readily accumulate in available organic matter, and they tend to remain immobile and inaccessible to both dissolution and biodegradation.

PAHs include both known and probable carcinogens as well as known non-carcinogenic compounds. Acute effects from direct contact with PAHs and related materials are limited primarily to phototoxicity; the primary effect is dermatitis (NIOSH, 1977). Some PAHs have been shown to cause systemic toxicity but these effects are generally seen at high doses (Santodonato, Howard, and Basu, 1981). Carcinogenic PAHs are believed to induce tumors both at the site of application and systemically. Quantitative indices of toxicity exist for the following non-carcinogenic PAHs: 2-methylnaphthalene, dibenzofuran, naphthalene, acenaphthene, fluorene, anthracene, fluoranthene, and pyrene. USEPA has derived carcinogenic slope factors for benzo(a)pyrene (BaP), benzo(a)anthracene, benzo(b) fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

PAHs vary substantially in their toxicity to aquatic organisms. In general, toxicity increases as molecular weight increases (although HPAHs have low acute toxicity, perhaps due to the low solubilities in water). PAH concentrations that are acutely toxic to aquatic organisms are several orders of magnitude higher than concentrations found in even the most polluted waters. Sediments from polluted regions, however, may contain PAH concentrations similar to those which are acutely toxic, but their limited bioavailability would probably render them substantially less toxic than PAHs in solution (Neff, 1979). Authorities generally agree that most species of aquatic organisms studied to date rapidly accumulate PAHs from low concentrations in the ambient medium; uptake of PAHs is highly species specific; and bioconcentration factors tend to increase as PAH molecular weight increases. Ambient water quality criteria have been established for three specific PAHs (acenaphthene, fluoranthene, and naphthalene) and for total PAHs.

3 SUMMARY OF SITE INVESTIGATIONS

In December 1989, Ecology issued AO number DE89-S214 to CPLC to correct certain operational and reporting practices found by Ecology to be inconsistent with their dangerous waste regulations (WAC 173-303). Section 4 of the AO required a site investigation. In 1991, CPLC conducted a site investigation to assess the magnitude and extent of possible soil and groundwater contamination from past releases. In accordance with the AO, the site investigation focused on three areas: (1) the treated lumber storage area, (2) the retort and transfer table area, and (3) the thermal butt vat. The 1991 site investigation determined that past operational practices had resulted in contamination of soils and/or groundwater in portions of the property. The results of the site investigations, summarized in Table 3-1, were reported to Ecology.

The results of the 1991 site investigation combined with the facility improvements planned by CPLC prompted Ecology to include an interim action program and the requirement to conduct an RI/FS under a new AO (No. 92HS-S146). The new AO was finalized on June 7, 1993. CPLC initiated interim action activities prior to final signing of the AO. The interim action areas identified by CPLC and Ecology were: (1) the location of the proposed Resource Conservation and Recovery Act (RCRA) Subpart W drip pads; (2) the transfer table area; and (3) wood storage areas which CPLC planned to pave. Although not explicitly listed, the AO allowed for groundwater interim actions as necessary. Interim action activities are summarized in Table 3-1 and discussed in Section 4 of this report. Further investigation activities completed in support of the interim actions are included in this section.

3.1 Hydrogeologic Setting

Stratigraphy beneath the CPLC facility was evaluated by drilling and sampling of 18 soil borings. Each borehole was used for installation of monitoring wells or piezometers. Monitoring well locations (MW-1 to MW-18) are shown on Figure 2-3; boring and well completion logs are included in Appendix A.

3.1.1 Hydrostratigraphy

A shallow, unconfined aquifer (the "shallow aquifer") consisting of 6 to 10 feet of fine to medium sand with some sandy silt intervals exists at the site. Thin silty clay beds are present at some locations. An aquitard is present at the base of the shallow aquifer (the "shallow aquitard"). The shallow aquitard is a silty clay to clayey silt layer, often containing wood and other organic matter, approximately 6 to 7 feet thick. Based on deeper boreholes that were completed at the site (MW-7, MW-14, and MW-18), a semi-confined aquifer exists below the shallow aquitard (the "deep aquifer"). The deep aquifer is approximately 6 to 10 feet thick and consists of very fine to medium sand with a trace of silt. A second aquitard underlies the deep aquifer (the "deep aquitard") and consists of three feet of sandy to clayey silt.

3.1.2 Horizontal Groundwater Flow

3.1.2.1 Shallow Aquifer

Groundwater levels were measured in the shallow aquifer from January 1991 to 2012 (see Figure 2-3 for monitoring well locations). Water levels measured from 1999 to 2005 are included in Appendix B-1. The depth to groundwater is generally quite shallow, ranging from 3 to 10 feet below ground surface (bgs). Historical estimated groundwater elevation contour maps for the shallow aquifer, including seasonal groundwater elevation contour maps from 2004, are included as Appendix B-2. Figure 3-1 shows groundwater elevation contours in the shallow aquifer in 2012, the most recent measurements. The figure shows a general gradient to the southwest across the site. No significant seasonal variation in the groundwater flow direction was noted; although, the static water levels measured in individual wells fluctuated seasonally by approximately 2 feet. Groundwater elevations are highest during winter months (January through March) and lowest in the fall (October and November). During some gauging events, a slight groundwater "mound" is observed near MW-2, although the overall groundwater flow across the site remains in a southwesterly direction.

Groundwater flow from the treating area is toward the Puyallup River, approximately one-quarter mile downgradient of the site. While the shallow aquifer is thought to discharge to the river, the monitored portions of the shallow aquifer, including wells in the treating area of the CPLC facility, are sufficiently distant from the river, and are not tidally influenced (see Section 3.2.2).

The horizontal recovery well (HW-01) recovers groundwater from the shallow aquifer and affects groundwater flow at the site. Note that in some of the documents included as appendices to this report, that were prepared prior to completion of this report, HW-01 may also be referred to as the "horizontal recovery trench" or "horizontal drain." The horizontal recovery well is oriented roughly perpendicular to groundwater flow, so it does not appreciably alter the flow paths across the site, but a slightly increased gradient is present in the vicinity of HW-01.

Groundwater flow on the former Milwaukee Railyard, immediately north of the CPLC, naturally flows in a north/northwesterly direction, toward the Puyallup River (AGRA, 1996). Groundwater gauging data from 2005 at the former rail yard, as shown in Figure 3-2, suggests that the ongoing remediation activities at the former rail yard may be impacting groundwater flow by directing groundwater in a more northerly direction. Nevertheless, ongoing groundwater level gauging consistently shows higher groundwater elevations in UPRR-29 than in wells on the site, indicating that UPRR-29 is upgradient of the site. Figure 3-3 shows the monthly variation in groundwater elevations in selected wells over a calendar year (2004), and illustrates that UPRR-29 is consistently upgradient of the wells on the site.

3.1.2.2 Deep Aquifer

Seasonal potentiometric surface maps for the deep aquifer from 2004, 2007 to 2010, and 2012 are included in Appendix B-3. Figure 3-4 shows the potentiometric surface within the deep aquifer in February 2013, during the most recent measurements. Deep groundwater typically moves in a southwesterly to westerly direction across the site, toward the Puyallup River, as seen in the potentiometric surface maps in Appendix B-3 and Figure 3-4. The February 2012 event shows deep groundwater moving in a northerly direction, which is considered anomalous (see Appendix B-3). The deep aquifer hydraulic gradient is somewhat shallower than in the shallow aquifer.

3.1.3 Vertical Gradients

Periodic gauging in well pairs MW-7/8, MW-13/14, and MW-10/18 provide information on vertical gradients at the site. Wells MW-7, MW-14, and MW-18 are completed in the deep aquifer; the difference in potentiometric surface from the shallow aquifer wells to the deep aquifer wells is presented in Table 3-2. Vertical gradients were calculated using gauging data from 2003 and 2004 and show an average downward vertical gradient of 0.14 foot per feet (ft/ft), 0.18 ft/ft and 0.14 ft/ft in well pairs MW-7/8, MW-13/14, and MW-10/18, respectively. Groundwater gradients are consistently downward, except for September 2004 between wells MW-10 and MW-18 when an upward gradient of 0.03 ft/ft was measured. The water level measured in MW-10 during that event was approximately 2 feet lower than in any other event in 2004, so this was likely an erroneous measurement. With that data point removed, the average vertical gradient in well pair MW-10/18 is 0.17 ft/ft. The vertical gradients indicate that the shallow aquifer recharges the deep aquifer with some vertical flow and therefore, the deep aquifer is semi-confined. The shallow aquifer also includes a lateral flow component towards the Puyallup River.

Water level data from monitoring wells screened in both the shallow and deep aquifers were used to calculate horizontal gradients during 2004. The seasonal variation in site-wide gradients for the shallow aquifer was approximately 0.001 ft/ft; therefore an average gradient was calculated. These average gradients were 0.005 ft/ft to the southwest for the shallow aquifer and 0.001 ft/ft to the southwest for the deep aquifer from the 2004 periodic gauging data. The November 2004 hydraulic gradient for the deep aquifer was anomalously high, and was omitted from this average.

3.2 Aquifer Characterization

3.2.1 Slug Tests

CPLC completed six rising head slug tests to define hydrogeologic properties beneath the treating area in the shallow aquifer. Hydraulic conductivity data were used to design the groundwater interim action. Slug tests were conducted in wells MW-2, MW-3, MW-6, MW-8, MW-9, and MW-10 on June 28, 1995. Rising head slug tests were performed using a known volume (either a bailer or slug). The bailer or slug was instantaneously removed from the monitoring well and the recovery of the well to near static conditions was measured over time. The response of the monitoring wells was recorded manually using a water level indicator. Selected water level measurement intervals consisted of 5 seconds, 10 seconds, 15 seconds, 30 seconds to 1 minute and 10 minutes. Monitoring wells MW-10 and MW-11 were used as control wells to monitor any longer term water level changes in the vicinity of the subject wells; MW-10 was also used as a test well. The static water levels were measured in these control wells the afternoon before the tests were completed and approximately every 30 minutes during the slug tests. Slug test gauging data are included in Appendix C.

CPLC completed slug tests in three deep monitoring wells to assess the hydraulic conductivity of the deep aquifer, in accordance with the work plan submitted to Ecology on March 16, 2006 (RETEC, 2006). Slug tests were conducted on October 5, 2006 in monitoring wells MW-7, MW-14, and MW-18. The tests consisted of multiple rising head and falling head tests with data collected and recorded by pressure transducer sensors. A rising head slug test was accomplished by removing a slug of known volume from the well, while a falling head slug test was accomplished by adding a slug of known volume to the well. During both the rising and falling head slug tests the slug was inserted and removed from the water column as smoothly as possible to minimize splashing and oscillations. An electric transducer at the bottom of the wells recorded the subsequent recovery of the groundwater within each well. Slug test data are included in Appendix C.

The method of Bouwer and Rice (1976) was used for the slug test interpretation. This method is used for partially or fully penetrating wells of various geometries in unconfined aquifers. The method consists of plotting the water level, or head, difference in the well during recovery period and the static water table head on the log scale versus elapsed time on the semi-log paper. The solution requires fitting a straight line to the data. Double and triple straight-line effects can occur in the plots. Typically, initial data is affected by the filter pack in the well resulting in a steeper initial straight line. As the test nears completion, recovery can be affected by well storage resulting in another change in slope. Therefore, the second straight line is typically chosen as a representative slope for the aquifer.

Solutions for the Bouwer and Rice methods were completed using the computer program, Aquifer Test Solver (AQTESOLV™), version 1.1. Plots are presented in Appendix C. The hydraulic conductivities observed in the shallow aquifer range from 2.10×10^{-5} centimeters per second (cm/s) (0.059 foot per day [ft/day]) to 1.31×10^{-3} cm/s (3.71 ft/day). The geometric mean of the hydraulic conductivities determined for the subject monitoring wells is 1.91×10^{-4} cm/s (0.541 ft/day). Results are included in Appendix C. Recharge time was longer for monitoring wells MW-3 and MW-8 and rapid for monitoring wells MW-2 and MW-10. The static water fluctuations were less than 0.05 foot in the control wells indicating that slug test results were not affected by long-term water level changes.

The data collected from slug tests completed in 2006 from the pressure transducer was evaluated using the Bouwer and Rice method for confined aquifers which was computed using the computer program, AQTESOLV, version 3.5 (Appendix C). Curve fitting was conducted both automatically by the program and manually by visual means. The method used was dependent upon whether the automatic fit correlated with observed site geology. The hydraulic conductivities observed in the deep aquifer range from 3.48×10^{-3} to 9.07×10^{-3} cm/s (9.87 to 25.7 ft/day). The geometric mean of the hydraulic conductivity measurements for the subject monitoring wells was 6.70×10^{-3} cm/s (19.0 ft/day). Results are included in Appendix C.

3.2.2 Tidal Study

A tidal influence study was conducted on February 27 and 28, 1991. A tidal gauge was installed on a piling immediately north of the 11th Street Bridge on the Puyallup Waterway. The tidal gauge readings ranged from 0.5 to 2 feet below the tidal levels reported in the Tacoma area tidal chart during the tidal study. Measurements of tide and groundwater levels began at approximately 8 a.m. on February 27, 1991 and continued hourly through 8 a.m. on February 28, 1991. The results of the tidal study are included in Appendix D. Water level variations in most wells (except MW-5) were very minor and did not reflect any tidal influence. In MW-5, groundwater elevations increased 1.3 feet during the first seven hours of the study and then leveled off. Well MW-5 was under significant pressure when the well cap was released prior to the first measurements of the tidal study, and was not tightly sealed afterward. Based on the slow recovery of this well during development, this increase is thought to be due to slow adjustment of the water level in the well to atmospheric pressure. The limited variation in water levels during the 24-hour period indicates that tidal influence is not significant in the shallow aquifer. Groundwater flow directions and gradients are not impacted by tidal changes in the Puyallup River.

3.2.3 Seepage Velocities

The seepage velocities of the shallow and deep aquifers were calculated using the following equation:

$$V=ki/ne$$

where: V = seepage velocity
k = hydraulic conductivity
i = hydraulic gradient
ne = effective porosity

The hydraulic conductivities based on slug tests conducted during the RI ranged from 0.059 ft/day to 3.71 ft/day for the shallow aquifer and 9.87 ft/day to 25.7 ft/day for the deep aquifer. Hydraulic gradients, as measured during this investigation, were 0.005 ft/ft and 0.001 ft/ft for the shallow and deep aquifer, respectively. Effective porosity was estimated based on the lithologies observed in soil samples. The shallow aquifer is a silty fine-grained sand, and an effective porosity of 26 percent was used to estimate seepage velocity. The deep aquifer is a fine-grained sand, and an effective porosity of 33 percent was used to estimate seepage velocity (Weight and Sonderegger, 2001). Based on these measurements, seepage velocity for the shallow aquifer is 0.071 ft/day to 0.001 ft/day and seepage velocity for the deep aquifer is 0.030 ft/day to 0.078 ft/day.

3.3 Soil Quality Information

Several soil investigations have been conducted at the site since 1991. The results of these investigations are summarized in the following subsections. Laboratory reports are provided in Appendix E. Data from these investigations are provided in Appendix F. To support the FS, the data in Appendix F are subdivided into samples from soil that remains onsite, and samples from soil that was excavated and disposed of offsite. A memorandum providing information on the interim action soil removals and the management of soils which remained onsite is also included in Appendix F. COIs detected at concentrations above their respective preliminary CULs were retained as chemicals of potential concern (COPCs). Following the selection of final CULs, as discussed in Section 5 of this report, data were screened to the final CULs for selection of IHSs. Therefore, the COPCs discussed in the following sections are based on preliminary CULs and may not have been retained as IHSs following the selection of final CULs.

3.3.1 1991 Investigation

Soil samples were collected during the site investigation at the locations shown on Figure 3-5 to characterize specific areas of potential concern and to assess the nature and extent of contaminant migration.

3.3.1.1 Treated Lumber Storage Area

Hand augers were used to sample soils in the treated lumber storage area and the transfer table pit. Analytical data (Appendix F) indicate that soils within both these areas have been impacted by the wood treating operations. The treated lumber storage area soils contained elevated levels of arsenic, chromium, and copper. The concentrations were not, however, above regional data and/or preliminary CULs established by USEPA and/or Ecology for other sites in the area at that time.[1] No PCP was detected in the treated lumber storage area soils and PAHs were detected only occasionally at very low levels (less than 1 milligram per kilogram [mg/kg]).

3.3.1.2 Transfer Table Area

The transfer table soils contained significantly higher concentrations of arsenic, chromium, and copper with levels exceeding regional data and/or preliminary CULs. PCP was detected in only a few samples at low concentrations (less than 20 mg/kg). PAHs were detected more frequently and at higher concentrations in the transfer table soil than in the treated lumber storage soils. Individual PAHs were generally present at 1 to 10 mg/kg and total PAH concentrations ranged from non-detected to less than 20 mg/kg.

3.3.1.3 General Treating Area

Soil samples collected from borings in the general treating area show varying degrees of contamination. These data are also provided in Appendix F. The highest concentrations of PCP were found at the 5-foot depth in boreholes MW-2 and MW-8 (92 mg/kg and 19 mg/kg, respectively). The highest naphthalene concentration detected was at the 5-foot depth in borehole MW-9 (5 mg/kg). The highest arsenic and chromium concentrations were detected from the 1.5- to 2.5-foot depth range in boreholes MW-8 and MW-6.

3.3.2 Interim Action Investigations

Sampling of proposed paving areas was a required interim action under the AO; the paving itself was not a requirement of the AO, but rather was completed in order to promote better facility

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[1] Metals concentrations common to native soils were obtained from Bowen (1966), *Trace Elements in Biochemistry*. Arsenic concentrations were compared to the Ruston/North Tacoma portion of the Commencement Bay Superfund site cleanup goal of 250 mg/kg, based on elevated regional arsenic concentrations in the tideflats area.

function and as an enhancement to the facility's stormwater best management practices. Soil samples were collected from the three areas prior to paving (paving areas 1 to 3) and the Subpart W drip pad area as shown on Figures 3-6 to 3-9. Sampling was conducted for paving areas 1 through 3 to evaluate the need for and/or extent of soil removal required in these areas prior to implementing the interim action. Soil samples were collected between February 22 and March 9, 1993. Paving areas 4 and 5, as depicted on Figure 3-10, were outside the area of concern and therefore sampling of these areas was not required as part of this facility improvement project.

Paving area samples consisted of the upper 2 feet of soils and drip pad samples were collected from the 3- to 4-foot depth interval. Additional composite samples were collected from the 0- to 2-foot depth interval at drip pads to characterize the upper 3 feet of soils for disposal. Analytical results are provided in Appendix F.

3.3.2.1 Paving Areas

Soils within the upper two feet of paving areas 1 through 3 consisted predominantly of gravelly sand and sandy gravel. PCP was not detected or confirmed in any samples at the 80 mg/kg detection limit of the field test kit. Selected paving area samples were tested for PAHs. During previous samplings in January and June 1991, PAH compounds were detected at low concentrations. However, during the 1993 interim action sampling, PAHs were not detected at concentrations above the detection limits in any paving areas. Arsenic concentrations in the paving areas ranged from non-detect to 190 mg/kg, with the exception of one sample from paving area 2, which had a concentration of 340 mg/kg. Chromium concentrations ranged from 7.8 to 120 mg/kg and CrVI was not detected. With the exception of one sample from paving area 3, copper and zinc were detected at concentrations ranging from 9.6 mg/kg to 84 mg/kg and 20 mg/kg to 120 mg/kg, respectively. In paving area 3, one sample had a copper concentration of 190 mg/kg and a zinc concentration of 590 mg/kg.

3.3.2.2 Drip Pad Areas

Soils at the drip pads consisted of up to 2.5 feet of asphalt and gravel underlain by gravelly sand. At some locations the gravelly sand was underlain by sand or clayey sand. At the CCA drip pad, total carcinogenic PAH (cPAH) concentrations from the 3- to 4-foot depth interval were less than 5.5 mg/kg, and PCP concentrations ranged from 0.21 to 3.9 mg/kg. Arsenic concentrations ranged from 3.5 to 4,800 mg/kg; total chromium concentrations ranged from 64 to 2,400 mg/kg, and CrVI concentrations ranged from less than 1 to 160 mg/kg. Copper and zinc concentrations ranged from 17 to 3,300 mg/kg and 14 to 26 mg/kg, respectively. Higher metals concentrations were present in the center of the drip pad area.

At the PCP drip pad, maximum metals concentrations in the 3- to 4-foot depth samples were 110 mg/kg for arsenic, 180 mg/kg for total chromium, 150 mg/kg for copper, and 38 mg/kg for zinc. CrVI was not detected. Carcinogenic PAHs were detected in only 2 of the 16 soil samples; the maximum total cPAH was 1.87 mg/kg. PCP concentrations ranged from 0.19 to 34 mg/kg.

3.3.3 1996 to 1999 Soil Investigations

Additional soil samples were collected during the installation of three additional monitoring wells in 1996 and during the transfer table pit upgrade in October 1999.

3.3.3.1 1996 Well Installation

Soil samples were collected during installation of MW-12, MW-13, and MW-14 in December 1996 (see Figure 2-3 for monitoring well locations). These data are included in Appendix F. PAHs were detected above the detection limit in only two samples—MW-12 at 2 feet bgs and MW-13 at 0.5 feet bgs. The highest metals concentrations were all observed in MW-12 at 2 feet bgs, which had an arsenic concentration of 160 mg/kg, a copper concentration of 67 mg/kg and a chromium concentration of 29 mg/kg. Metals were detected at lower concentrations in all other soil samples from this well installation activity.

3.3.3.2 Transfer Table Pit Upgrade

During soil excavation for the transfer table pit upgrade in October 1999, soil staining was encountered at a depth of approximately 4 feet within the drainage system alignment just north of the existing storm drain. The staining was a dark brown/black coloration of the sand and gravel fill. The staining did not appear to be a continuous layer, but was present in patches in the fill. At Ecology's request, a sample of the stained soil was collected and sent to Sound Analytical for analysis of PCP and PAHs. The sample results are included in Appendix F. Soil concentrations were relatively similar to previous soil data collected in the area; however, the soil sample appeared to include some asphalt. The analytical results may be skewed by the presence of asphalt in the sample.

3.3.4 2003 to 2004 Additional Investigation

Additional investigation work was performed in 2003 and 2004, in accordance with the RI/FS work plan (RETEC, 1994). Soil samples were collected during the installation of three shallow and one deep well on December 15 and 16, 2003. The deep boring (MW-18) was completed to further quantify soil quality and stratigraphy in the deep aquifer, while the shallow boreholes (MW-15, MW-16, and MW-17) were installed in the shallow aquifer to provide additional information on subsurface stratigraphy and contaminant distribution.

The boreholes were advanced using continuous-flight, hollow stem augers. The deep borehole was drilled with a large-diameter auger to 10 feet bgs, followed by a smaller-diameter auger as telescoping casing. The telescoping drilling technique was used to seal the aquitard and minimize any drag-down of soils during drilling.

Soil samples were obtained using a split-barrel type sampler. Split-spoon sampling was conducted at an interval of 2.5 feet. The soil samples were visually inspected and screened using a photoionization detector (PID). Black light was used on selected samples to qualitatively identify areas of contamination. The geology of the soil was described in accordance with the Unified Soil Classification System, and any evidence of contamination was noted on the boring log.

Two to three soil samples from each borehole were collected and submitted to North Creek Analytical. The samples were analyzed for SVOCs, PCP, and PAHs by USEPA Method 8270, with selective ion monitoring, and metals (arsenic, copper, and chromium by USEPA Method 6010). Samples from the shallow boreholes were collected from shallow soil (0 to 6 inches) and at the water table (approximately 8 to 10 feet bgs). An additional sample in borehole MW-16 was collected at 5 to 6.5 feet bgs because there was a slight to moderate odor and PID reading of 3.2 parts per million. Samples from the deep borehole were collected from the top of the aquitard and at the screened interval of the well. The results of the laboratory analysis are shown in Table 3-3 and Appendix F.

3.3.4.1 PCP

PCP was detected in all three of the surface soil samples (0 to 6 inches) from the shallow aquifer wells, with concentrations ranging from 0.326 mg/kg (MW-16) to 10.5 mg/kg (MW-15). However, the impacts were limited to near-surface soils. The only other PCP detection in the shallow boreholes was the sample from MW-15 at the water table (0.57mg/kg).

A low concentration of PCP (0.245 mg/kg) was detected at the top of the shallow aquitard at MW-18 in the sample collected from the 10.5 to 11.5 feet bgs interval. PCP was not detected in soils collected from the deep aquifer at MW-18 (based on the analysis of a sample collected between 22.5 and 24 feet bgs).

3.3.4.2 Metals

In general, for each shallow borehole, the metal concentrations measured at or near the ground surface (0 to 6 inches) were higher than those measured at the water table. Arsenic, chromium, and copper concentrations at the ground surface ranged from 4.69 mg/kg to 36.8 mg/kg, 26.6 mg/kg to 55.9 mg/kg, and 26.5 mg/kg to 65.7 mg/kg, respectively. At the water table, the arsenic, chromium, and copper concentrations ranged from 3.99 to 11.8 mg/kg, 17.2 to 34.8 mg/kg, and 22.8 to 35.5 mg/kg, respectively.

At the top of the shallow aquitard at MW-18, arsenic, chromium, and copper were measured at concentrations of 11.8 mg/kg, 26.4 mg/kg, and 58 mg/kg, respectively. In the deep aquifer at MW-18, arsenic, chromium, and copper were measured at concentrations of 1.43 mg/kg, 11.8 mg/kg, and 19.2 mg/kg, respectively.

3.3.4.3 cPAHs

cPAH toxicity equivalency concentrations (cPAH TEQs) were calculated using toxicity equivalency factors (TEFs) as shown in Table 3-4 (USEPA, 1993). All concentrations referred to in this section are in units of mg/kg, expressed as BaP equivalents.

Table 3-4 Toxicity Equivalency Factors

cPAH	TEF
BaP	1.0
Benzo(a)anthracene	0.1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.1
Chrysene	0.01
Dibenz(a,h)anthracene	0.1
Indeno (1,2,3-cd)pyrene	0.1

The highest cPAH TEQ concentrations were found at the water table at borehole MW-15 (3.248 mg/kg). Elevated levels of cPAHs were also found in the surface at MW-15; however, the cPAH TEQ concentration of 1.311 mg/kg was less than that at the water table. This varies from the trend noted in boreholes MW-16 and MW-17 where the highest cPAH TEQ concentrations were greater at the surface (0 to 6 inches bgs) and decreased with depth, with maximum cPAH TEQ concentrations in these borings of 0.283 and 0.096 mg/kg, respectively.

At the top of the aquitard in borehole MW-18, the cPAH TEQ concentration was 0.048 mg/kg. Carcinogenic PAHs were not detected in soils collected from the deep aquifer at MW-18 (based on the analysis of a sample collected between 22.5 and 24 feet bgs).

3.3.5 White Wood Area

During the preparation of the final RI/FS work plan (RETEC, 1994), CPLC and Ecology met to review the history of the white wood yard located in the southwest corner of the facility (see Figure 2-2). This review included a thorough examination of extensive historical documents, facility maps, and aerial photographs. Based on this review, CPLC and Ecology concluded that the white yard had been exclusively used for the peeling and storage of white wood, or untreated poles since the facility was developed in 1972. Prior to 1972 this area was undeveloped. Therefore, it was determined that the white wood pole yard was not an environmental concern; therefore, the final RI/FS work plan did not require additional characterization of this area (RETEC, 1994).

3.4 Groundwater Quality

3.4.1 1991 to 2003 Investigations

Between 1991 and 2003, fourteen monitoring wells had been installed at the site using hollow stem auger drilling techniques. Groundwater samples were collected from these wells according to the schedule in Table 3-5. Well construction details are shown in Table 3-6. All samples were analyzed for PAHs, PCP, and metals (arsenic, chromium, and copper). Selected samples were analyzed for BTEX and CrVI.

Groundwater samples collected through January 2002 were collected using bailing techniques. During subsequent sampling events, groundwater samples were collected using low-flow techniques, which decreases the turbidity associated with other sampling methods and provides a more precise assessment of dissolved constituent concentrations.

Groundwater sampling information and data are provided in Appendix G-1, including figures showing the distribution of chemicals detected at the site at concentrations above preliminary CULs, or COPCs, in the shallow aquifer from first quarter sampling events from 1991 to 2003. Laboratory reports are included in Appendix E.

3.4.1.1 Shallow Groundwater Quality

Groundwater impacts were noted in the treating area of the facility, including PCP, naphthalene, arsenic, and chromium, as well as additional SVOCs and BTEX. Dissolved constituents were present, but no nonaqueous-phase liquids (NAPLs) were detected. Groundwater contamination does not extend significantly beyond the treating area to MW-4 or MW-1. Analysis of groundwater quality data collected through 2003 indicates the following:

- PCP concentrations have decreased by up to four orders of magnitude in treating area monitoring wells MW-5, MW-6, and MW-8. Groundwater quality improvements related to facility improvements are most evident in PCP concentrations because PCP is the most soluble and has the lowest soil-water partitioning coefficient of all of the COPCs.
- Dissolved chromium and some copper concentrations have decreased by over an order of magnitude in treating area monitoring wells (MW-3 and MW-6). This is also attributed to facility improvements.
- PAH concentrations have remained relatively stable in all monitoring wells. PAHs are more strongly sorbed to soil and, therefore, groundwater concentrations will respond more slowly to facility changes. The highest concentrations have consistently been detected in MW-9; however, the concentrations have remained stable.

The January 2002 sampling event showed a somewhat anomalous increase in PAHs in several wells; however, the groundwater PAH concentrations measured in the January 2003 sampling event were significantly lower, particularly for the cPAHs. The anomaly likely can be attributed to accumulated sediment that may have collected in wells that were not sampled from 1992 to 1999, and/or by slightly higher water levels observed in 2002. This is supported by the fact that sample collection using low-flow techniques began in 2003, and the 2003 data showed decreases in PAH concentrations. Future sampling will be performed using low-flow techniques, in an effort to minimize potential overestimation of PAH concentrations due to increased turbidity in the water column.

Impacts above the preliminary MTCA Method B surface water CULs for PCP, chromium, and copper have not been observed in wells along the northern property boundary (MW-12, MW-13, and UPRR-29). The exception is PCP observed above the Method B Surface Water level in MW-13. CPLC will continue to monitor this well to evaluate PCP concentrations in groundwater in this area.

PCP, chromium, copper, and cPAHs have not been detected in wells downgradient of the treating area (MW-1 and MW-4), with the exception of the anomalous detections in MW-1 in the January 2002 sampling event, discussed above. These COPCs have been detected infrequently at low concentrations (below surface water standards) in background and cross-gradient wells outside the treating area (MW-10 and MW-11).

COPC concentrations exceeding the preliminary MTCA Method B surface water CULs are limited to the treating area of the facility.

3.4.1.2 Deep Groundwater Quality

Groundwater quality in the deep aquifer, in the area adjacent to the transfer table, was evaluated using data from wells MW-7, MW-14, and MW-18. PCP, chromium, and copper have been below the preliminary MTCA Method B surface water CULs since the interim actions have been completed; however, arsenic has been above the CUL. Concentrations have been relatively stable since 1991. Deep groundwater quality is assessed relative to the final site-specific CULs in Section 5.7.4.

3.4.2 2004 to 2013 Investigations

Three additional shallow wells (MW-15, MW-16, MW-17) and one deep well (MW-18) were installed in December 2003 to further delineate the extent of groundwater contamination and to improve understanding of groundwater flow direction.

The wells were installed with a hollow stem auger drill rig on December 15 and 16, 2003. Construction details are summarized in Table 3-6. Wells were constructed with two-inch-diameter, Schedule 40 PVC casing and 5 feet of 0.010-slot screen. The shallow aquifer wells are screened to intercept both the groundwater table and base of the aquifer. To screen the deep aquifer well, telescoping casing was used to seal the aquitard and prevent hydraulic communication and contaminant drag-down between the two aquifers. All of the wells were developed on December 18, 2003.

On-site monitoring wells and the horizontal recovery well were sampled from 2004 to 2013. Table 3-5 shows a summary of the sample schedule from 1991 to 2004. Table 3-7 summarizes the number of groundwater samples analyzed for each group of COIs for each monitoring well from 2004 to 2013. Ecology agreed to discontinue sampling MW-1 because PAHs were detected only once (in January, 2002) over the well's sampling history, and PAHs were not detected in February 2004, confirming that the area of PAH impacts does not extend to MW-1. Sampling of MW-10 was to be discontinued; however, PCP was detected in February 2004. Monitoring well MW-10 was redeveloped on August 9, 2004, to remove any accumulated solids in the well that may have been impacting the groundwater quality. The well was resampled in September 2004; PCP was detected at a concentration below the preliminary MTCA Method B surface water CUL.

Groundwater samples were generally analyzed for PCP, PAHs, SVOCs, and total and dissolved metals (arsenic, chromium [total], and copper). Well MW-9 was also sampled and analyzed for BTEX by USEPA Method 8021 and gasoline-range hydrocarbons by the Northwest Total Petroleum Hydrocarbons method. In 2013, well MW-4 was sampled and analyzed for BTEX, PAHs, PCP, and total and dissolved metals (arsenic, copper, chromium [total], and CrVI). Analytical tables and figures summarizing the 2004 sampling results are included in Appendix G-1. Monitoring results from the 2005 to 2010 events are summarized in a memorandum included as Appendix G-2. Monitoring results from 2012 are discussed in the 2012 annual site-wide groundwater monitoring report, included as Appendix G-3. The 2012 report also includes a summary of groundwater results from 2004 to 2012. The 2013 monitoring results for well MW-4 are summarized in a memorandum included as Appendix G-4.

Groundwater samples were collected using low-flow sampling methods, as discussed in the Sampling and Analysis Plan (included with the RI/FS work plan, RETEC, 1994), and samples collected for metals analyses were filtered in the field with a 0.45-micron filter.

Groundwater monitoring results from sampling events conducted between 2004 and 2013 are discussed in detail in the following documents, included in Appendix G:

- 2005 to 2010 groundwater results memorandum (Appendix G-2)
- 2012 annual site-wide groundwater monitoring report (Appendix G-3)
- 2013 monitoring results for MW-4 (Appendix G-4)

The following sections summarize COPC detections in the shallow and deep aquifers.

3.4.2.1 Shallow Groundwater Quality

The following is a summary of groundwater conditions observed during the 2004 to 2013 sampling events as discussed in the reports included in Appendix G.

COPCs in shallow groundwater include arsenic, copper, chromium, PCP, naphthalene, BTEX, and cPAHs. In general, COPCs have been consistently detected in the treating area monitoring wells. Chemical concentrations generally decrease with increasing distance downgradient of the treating area. Arsenic was consistently detected at concentrations above its preliminary CUL in most wells. Concentrations of other COPCs have been detected below their respective preliminary CULs in most wells.

BTEX has been analyzed only at monitoring well MW-9. BTEX is associated with PCP carrier oil, and is expected to be co-located with naphthalene impacts. Based on this assumption, Ecology has not required BTEX analysis for samples from on-site groundwater monitoring wells, except where high PID readings were observed during initial well installation during initial site investigation activities.

3.4.2.2 Deep Groundwater Quality

Existing deep groundwater monitoring wells include one well upgradient of the treating area (MW-14) and two wells directly downgradient of the treating area (MW-7 and MW-18, Figure 2-3).

COPCs in deep groundwater include arsenic, copper, PCP, and cPAHs. In general, COPCs in the two downgradient, deep monitoring wells (MW-7 and MW-18) have been consistently measured at concentrations below laboratory detection limits or detected at concentrations below their respective preliminary CULs. Copper and arsenic have been consistently detected above their preliminary CULs in the upgradient, deep groundwater monitoring well (MW-14).

3.5 NAPL

NAPLs have not been encountered at the site. LNAPLs would generally be associated with PCP carrier oil, typically in the diesel range, and would be detectable in shallow wells that screen the water table. However, no such LNAPLs have been encountered in any drilling activities at the site. Creosote is a DNAPL, and would likely be observed on top of the aquitard separating the shallow and deep aquifers, if it were present. DNAPLs were not encountered during any drilling activities at the site.

4 INTERIM ACTIONS

Since the early 1990s, CPLC implemented numerous upgrades to their facility with the objective of improving groundwater quality. These actions consisted of:

- Paving Area Soil Characterization - Conduct soil sampling and analysis in former treated wood storage areas proposed for regrading and paving.
- Drip Pad Construction - Constructing two drip pads west of the transfer table area in 1993, including soil excavation.
- Horizontal Recovery Well - Installing a horizontal recovery well (HW-01) beneath the transfer table pit and adjacent areas in 1997 for hydraulic containment in the treating area.
- Transfer Table Pit Upgrade - Excavating impacted soil above the water table and lining the transfer table pit in 1999.
- CCA Drip Pad Phased Closure

4.1 Paving Area Soil Characterization

Interim remedial measures were completed at the site in 1993 in accordance with AO No. 92HS-S146. Soil sampling and analysis was conducted for three areas proposed for paving (paving areas 1, 2, and 3) as shown on Figure 4-1 (these areas are currently paved, as shown in Figure 4-2). Soil results from samples collected from paving areas 1, 2, and 3 were screened to MTCA Method C, industrial land use, CULs. Arsenic was identified as the only chemical exceeding its Method C CUL (see Appendix F). Arsenic concentrations in soil were less than an order of magnitude above the Method C CUL; therefore, soil in these areas was capped in order to prevent direct contact and limit infiltration and leaching to groundwater (see Appendix F).

Soil results from paving areas 1, 2, and 3 were also included in the IHS selection process and screened to final CULs, as discussed in Sections 5.4.2 and 5.7.1. Arsenic was the only constituent detected above its final CUL in the paving areas, as discussed in Section 5.7.1.

Excess soil from area 1 was graded into area 4 and paved (paving area 4 is shown in Figure 3-10). Spreading and paving these soils were approved by USEPA in their January 20, 1993 letter to Les Lonning (provided as an attachment to the historical soil data memorandum in Appendix F) and discussed with Ecology at project meetings. Catch basins and storm drains were installed to collect all of the stormwater from the newly paved treated wood storage areas. The collected stormwater is treated and discharged under the facility's NPDES permit.

4.2 Drip Pad Construction

Two drip pads were constructed in 1993 to the west of the transfer table area in accordance with Code of Federal Regulations (CFR) Title 40, Parts 264/265 (40 CFR 264/265), Subpart W. The pads are constructed of steel-reinforced concrete, and include an underlying leak detection system above a high-density polyethylene (HDPE) sub-liner. For an added level of protection, the drip pad concrete surface has been maintained with penetrating and topcoat epoxies.

Soil was excavated to allow drip pad construction to proceed as per specifications. Soil was excavated to 3 feet bgs in the PCP and CCA drip pad areas and disposed of offsite. Soil samples were collected from the bottom of the 3-feet deep excavations and results were compared to MTCA Method C, industrial land use, CULs. Arsenic was identified as the only chemical exceeding its Method C CUL in the drip pad areas (see Appendix F). Arsenic concentrations were less than an order of magnitude above the Method C CUL in the PCP drip pad area and the outer portions of the CCA drip pad area. Arsenic concentrations in the center bottom of the CCA drip pad area were two orders of magnitude above the CUL; therefore, soil in this central portion of the excavation was excavated further, to the approximate high water table at 4 feet bgs, prior to construction of the CCA drip pad. Soil confirmation samples were not collected from the bottom of the 4-feet excavation in the CCA drip pad area, in soil below the water table; however arsenic below the water table is likely present predominantly in the dissolved phase, given arsenic's mobility, and groundwater impacts in the treating area are addressed by the horizontal recovery well.

In the drip pad areas, soil with arsenic concentrations less than an order of magnitude above its CUL was left in place and capped in order to prevent direct contact and limit infiltration and leaching to groundwater (see Appendix F). Arsenic that that may leach to groundwater in the treating area is addressed by the horizontal recovery well.

Asphalt from the drip pad areas was washed and incorporated into the paving sub-base material for the treated wood storage areas. The excavated soils from the CCA drip pad excavation were screened and washed. Approximately 30 percent of the material was larger than 0.75-inch diameter and was reused onsite as sub-base for asphalt pavement. Toxicity Characteristic Leaching Procedure (TCLP) analysis of fine-grained soils from the CCA drip pad area indicated that soils were not hazardous, however this material was disposed of offsite in a RCRA hazardous waste management facility. Excavated soils from the PCP drip pad were disposed of offsite as RCRA hazardous waste

(waste code F032). Soil quantities sent to off-site disposal from the PCP and CCA drip pad excavation areas were 220 and 320 tons, respectively.

4.3 Horizontal Recovery Well

A groundwater interim action was implemented at the site consisting of groundwater extraction using a horizontal recovery well and associated recovery sump and pump. Extracted groundwater is reused in facility operations. This groundwater containment and recovery system was installed to achieve the following objectives:

- Reduce or eliminate the migration of impacted groundwater within the shallow aquifer to off-site locations or to the deep aquifer
- Reduce the mass of COPCs in groundwater.

Ecology requested that CPLC consider implementing a groundwater corrective action to balance remedial activities that were being implemented by the Port on the neighboring property to the northeast. After reviewing the Port's design for the former rail yard, CPLC evaluated the effect of the Port's remedial actions on the CPLC property and the influence of potential CPLC interim measures. CPLC proposed a groundwater interim action to reduce or eliminate the off-site and potential downward migration of impacted groundwater caused by pumping activities on the adjacent property. The interim action would also extract impacted groundwater, generating a long-term improvement in groundwater quality.

A horizontal recovery well was installed beneath the transfer table pit and adjacent areas in December 1997. The horizontal recovery well was developed and tested, and the recovered water was characterized in 1998. Following Ecology approval, use of HW-01 was started in January 1999, and the recovered groundwater is returned to the treatment area for re-use in water-based preservatives (see Appendix H for detailed operation information for the groundwater and stormwater treatment systems). This recovery system addresses groundwater impacts beneath the transfer table pit and the adjacent treatment area. The migration of impacted groundwater within the shallow aquifer or to the deep aquifer has been reduced. Information on groundwater flow and groundwater quality pre- and post-HW-01 operation is provided in Appendices B and G. In addition, the mass of COPCs in groundwater will continue to be reduced by HW-01's operation. The system was installed and started as described in the Groundwater Interim Action Implementation Report (ThermoRetec Consulting Corporation [ThermoRetec], 1999).

4.4 Transfer Table Pit Upgrade

Upgrade of the transfer table pit consisted of:

- Removal of 860 tons of impacted soil and off-site disposal
- Installation of a concrete containment slab in the base of the transfer table pit
- Construction of a drainage system emergency shut-off valve to convey water from the pit system and prevent a potential release in the event of a spill.

The transfer table pit collects stormwater, reduces infiltration, and ensures containment in the unlikely event of a release. The transfer table pit location is shown in Figure 4-1 and the upgrade is described in the Transfer Table Plan: Interim Action Activities and Drip Pad Conversion (RETEC, 1998) and the Transfer Table Upgrade Completion Report (ThermoRetec, 2000).

Soil was excavated to approximately 20 to 26 inches below grade and sloped upwards towards the cross rails and sidewalls as necessary to maintain the integrity of current structures. Excavated soils from the central and eastern areas were determined by Ecology to be dangerous waste[2] (F034 and F035 listed waste), and were managed according to applicable state and federal regulations. These soils were transported offsite to a permitted Subtitle C landfill. Ecology determined that excavated soils from the western area and westernmost strip did not contain dangerous waste. These soils were transported offsite to a permitted lined Subtitle D landfill. Samples were collected prior to the excavation to characterize the horizontal extent of impacts and soil was excavated to the seasonal high water table, as described in the Transfer Table Plan: Interim Action Activities and Drip Pad Conversion report (RETEC, 1998). As discussed in Appendix F, arsenic concentrations in soil below the excavation bottom (greater than 2 feet bgs), but above the seasonal high water table (at approximately 4 feet bgs) were above MTCA Method C CULs, but were left in place and capped by a concrete containment pad. Excavation below 2 feet bgs would have compromised the transfer table structure. The cap prevents direct contact with soil exceedances remaining in place and limits infiltration and leaching to groundwater. Arsenic that that may leach to groundwater in the treating area is addressed by the horizontal recovery well.

After excavation, approximately 12 inches of base course material was placed and compacted on the floor of the transfer table pit, and the floor was lined with 7 inches of reinforced concrete. Three catch basins and associated conveyance piping were installed in the transfer table pit to manage stormwater. This conveyance system included an emergency shut off valve to contain possible future spills. As shown in the approved design submittal, the stormwater conveyance system was originally connected to the existing stormwater system that entered at Outfall 001. Based on an Ecology RCRA inspection in February 2002, stormwater from the transfer pit has been re-piped to the treatment area for re-use in water based preservatives.

4.5 CCA Drip Pad Phased Closure

As of December 31, 2003, CPLC converted from CCA to CA-C as the primary wood preservative for dimensional lumber. At that time the CCA drip pad and all ancillary equipment were cleaned and all residuals were transported and disposed as F035 listed wastes. The CCA drip pad was not resurfaced at this time due to adverse weather conditions.

At the end of December 2003, in preparation for the changeover to the new treating solution, all tanks used to store CCA solutions were de-scaled and then cleaned with a high-pressure wash (hydro blaster), and the piping was flushed to remove potential chemical residuals.

[2] Hazardous waste is waste that is listed or defined under RCRA. Dangerous waste is hazardous waste plus Washington-state-only waste. Dangerous waste and hazardous waste are used almost interchangeably, but dangerous waste is the preferred term in Washington State.

CPLC outlined an approach for formal phased closure of the CCA/CA-C drip pad in a sampling plan submitted to Ecology on September 23, 2004 (CPLC, 2004). This phased approach allows for continued operation of the drip pad, after sufficient cleaning such that any liquids generated on the drip pad would not be viewed as having been "mixed" with F035 listed waste. According to USEPA guidance (USEPA, 2003), "under this option, an owner or operator of a wood treatment operation would convert to an alternative preservative that does not result in the generation of hazardous waste, perform certain closure activities, and postpone complete closure until some future date." Under this phased closure approach, the drip pad will still be regulated under Subpart W, however the wastes managed on the drip pad will no longer be managed as hazardous under the mixture rule.

On October 9 and 10, 2004, CPLC re-profiled and decontaminated the drip pad using a combination of sand blasting and hydro-blasting techniques. Following the preparation of the concrete surface, on October 11 and 12, 2004, the drip pad was resealed with an epoxy sealant in accordance with the manufacturer's recommendations.

Confirmation sampling was performed on October 14, 2004 to verify the effectiveness of the cleaning and resealing procedures. Rinse water samples were collected from the resealed drip pad surface and were tested for arsenic, total chromium, and CrVI. Sample results confirmed that the cleaning and resealing effectively removed F035 listed waste residuals from the drip pad, as all concentrations of arsenic and chromium were well below the Universal Treatment Standards for wastewaters (40 CFR 268.48). CrVI was not detected.

A sample was collected on October 14, 2004 from the satellite drum that contained wastes from cleaning the pad during normal operations under the new CA-C process. This sample was analyzed for TCLP arsenic and chromium, and was submitted for bioassay analysis. These analyses indicated that the residuals are not classified as hazardous waste or dangerous waste.

Confirmation samples from the satellite drum were collected in 2005 consistent with the phased closure report (CPLC, 2004). The TCLP results confirmed that the waste was not an USEPA hazardous waste. One of the four samples tested "failed" the Washington State toxicity test (Bioassay-WDOE 8012). Based on this negative result this waste stream has been designated as a Washington State toxic waste (WT02).

CPLC managed all wastes from the CA-C drip pad as F035 listed wastes until formal approval to drop this listed code was received from Ecology and confirmation sampling was completed. The final phased closure report was submitted on December 14, 2004 and was approved by Ecology's Hazardous Waste and Toxics Reduction Division in correspondence dated March 25, 2005. CPLC will continue to operate the drip pad under Subpart W requirements. When the life of the drip pad is complete, the pad will be closed completely under Subpart W of 40 CFR 265 and the Dangerous Waste Regulations (WAC 173-303).

5 CLEANUP STANDARDS

Based on the information developed during the RI, this section defines remedial action objectives (RAOs) and CULs applicable to the site, in order to evaluate potential remedies and their ability to comply with risk-based CULs at the point(s) of compliance. The remedial objectives will include development of site-specific criteria target concentrations for groundwater and soil quality. CULs in this section are developed in accordance with MTCA (WAC 173-340-700).

5.1 Remedial Action Objectives

Table 5-1 summarizes the RAOs required to ensure compliance with the cleanup requirements of MTCA and other applicable regulations. These objectives are based on the findings of the RI as described in the preceding sections of this report.

Table 5-1 Remedial Action Objectives

Media	Exposure Risk	RAOs
Soil	Exposures to site workers via direct contact and/or inhalation	Protect human receptors by preventing direct contact with impacted soil
	Leaching of contaminants in soil to underlying groundwater	Protect groundwater quality by limiting leaching to groundwater
Groundwater	Human exposure by ingestion	Ensure that potable groundwater uses are prevented
	Non-attenuated discharge of groundwater to surface waters	Ensure that direct discharge of contaminated groundwater does not occur

Current conditions at the site already meet some of these objectives. The operating and storage areas of the facility have been entirely paved, which prevents direct contact and limits leaching to groundwater (see Figure 4-2). To achieve the RAOs, measures will be taken to ensure that paved surfaces in appropriate areas are maintained and inspected to ensure protection of human health and the environment.

Additionally, potable use of groundwater within the incorporated Tacoma area is currently prohibited by existing state water supply regulations. This precludes human health exposure to impacted groundwater. Additional actions may be warranted to ensure communication of groundwater use restrictions to current and future property owners. Modeling based on current groundwater conditions indicated that contaminated groundwater will not migrate to surface water. Therefore, these RAOs are achieved over the long term through monitoring and institutional controls. Nevertheless, other alternatives are evaluated below.

5.2 Applicable or Relevant and Appropriate Requirements

MTCA requires that all cleanup actions comply with applicable state and federal laws (WAC 173-340-360(2)). In development of remedial alternatives, applicable or relevant and appropriate requirements (ARARs) promulgated under state and federal laws must be considered. ARARs include cleanup standards, standards of control, and other environmental protection requirements, criteria and limitations that address:

- **Specific Hazardous Substances or Chemicals.** These are referred to as chemical-specific ARARs and include items such as air quality or water quality standards and numeric discharge or emission standards. These ARARs are included in Table 5-2.
- **A Specific Technology or Remedial Activity.** Examples of action-specific ARARs include the requirement to use of all known, available, and reasonable methods of water treatment prior to the discharge of waters to the state as well as solid waste landfill closure requirements. These ARARs are included in Table 5-3.
- **The Location of the Site.** Location-specific ARARs are related to protection of sensitive areas such as wetlands or siting of treatment facilities away from seismic faults or floodplains. No ARARs of this type apply to the site.

5.3 Groundwater Potability

Ecology has determined that the highest beneficial use of groundwater at the site is for discharge to surface water.

Determinations for highest and beneficial use of groundwater are dictating through WAC 173-340-720(2)(d), which states that "the department recognizes that there may be sites where there is an extremely low probability that the groundwater will be used for [drinking water]." The criteria for demonstrating this situation include:

1) The groundwater does not serve as a current source of drinking water

2) It is not likely that hazardous substances will be transported from contaminated ground water to ground water that is a current or future source of drinking water as defined in WAC 173-340-720(2).

3) There are known or projected points of entry of the groundwater into the surface water

4) The surface water is not classified as a suitable domestic water supply source

5) The groundwater is sufficiently hydraulically connected to the surface water that the groundwater is not practicable to use as a drinking water source.

These five criteria are met at the site. The nearby surface water bodies are the Puget Sound and the Puyallup River. Groundwater at the site, and the Puyallup River, to which it discharges, are not considered suitable for use as a domestic water supply. WAC 173-201A specifies that surface water from the mouth of the Puyallup River to river mile 1 is not designated as a drinking water source. Similarly, the Puget Sound is a salt water body that is not a current or future source of drinking water. Moreover, the site is situated in an industrial portion of Tacoma, and contamination is located in a shallow unconfined aquifer, making it extremely unlikely that any future source of drinking water would be considered in the impacted area of the site.

It is unnecessary to develop screening levels based on protection of drinking water for the following reasons:

- There is no current or reasonably likely future use of groundwater for drinking water on or downgradient of the property.
- Surface water exposure, not drinking water, is the driving risk concern for the site (i.e., surface water is the highest beneficial use of groundwater).
- A conditional point of compliance (CPOC) will be established for groundwater based on protection of surface water.
- An environmental covenant will be required as part of the Cleanup Action Plan (CAP) to restrict domestic uses of groundwater.

As a result of these findings, it is unnecessary to develop screening levels based on the protection of drinking water and drinking standards were not considered in the CUL development.

5.4 Indicator Hazardous Substances

The recent groundwater monitoring data were screened for selection of IHSs. CULs will be developed only for IHSs, and the selected remedy and long-term groundwater monitoring for the site will include only IHSs.

5.4.1 Groundwater

The recent (2004 to 2013) groundwater monitoring data were reviewed for completeness and usability. Table 3-7 summarizes the number of samples collected from each monitoring well per sampling year by analyte group category. With the exception of CrVI; benzene, BTEX; and GRO, site COPCs (i.e., chemicals that have been detected at the site, but that have not yet been compared to final CULs) were analyzed in samples collected from most monitoring wells for a minimum of four consecutive years. Monitoring wells MW-1 and MW-4 are the only locations where samples were not consistently collected since 2004. Therefore, the recent groundwater data set was considered usable for IHS selection for most COPCs. In addition, recent data are more representative of current site conditions and are appropriate for site characterization. Given the infrequent analysis of CrVI, BTEX, and GRO, all available data for these constituents (i.e., samples collected since 1991) were evaluated in the IHS selection process.

Screening level values (SLVs) were developed for all constituents detected in groundwater since 2004, as well as CrVI, BTEX, and GRO. SLVs are preliminary CULs, based on state and federal standards, which have been developed for the site COPCs. Concentrations of COPCs detected at the site were compared to the SLVs to identify IHSs. Final CULs were then developed for the IHSs, based on the preliminary SLVs and downward adjusting, as necessary, for cumulative site risk. In the case of this site, SLVs are the same as MTCA Method C CULs in soil for industrial sites. SLVs for groundwater are based on state and federal surface water quality standards for marine waters and MTCA Method B CULs for surface water; MTCA Method A CULs for groundwater were used where no surface water criteria were available. The SLV and CUL selection process is discussed in detail in the next section of this report. The maximum concentration detected for each constituent was compared to its SLV (see Table 5-4). A constituent with a maximum detected concentration below its SLV was not selected as an IHS, with the following exceptions: naphthalene, fluoranthene, and GRO were detected above their respective SLV, but were not selected as IHSs for the following reasons:

- GRO has only been analyzed in samples from one monitoring well (MW-9). GRO was not selected as an IHS and is not considered a risk driver for the site. Risk associated with GRO is assessed by inclusion of its toxic constituents (benzene, ethylbenzene, and xylenes) as IHSs.
- Fluoranthene was not selected as an IHS because it has been detected only once above its SLV (at HW-01 [the horizontal recovery well] in 2004) and has been detected below the SLV during the last 12 sampling events.
- Naphthalene was not selected as an IHS because it has been consistently detected below its SLV at all locations, except MW-9 near the horizontal recovery well. The most recent exceedance at MW-9 was observed in 2009; concentrations have been below the SLV during the last five sampling events.

The following constituents were selected as IHSs in groundwater: arsenic, benzene, BaP, CrVI, copper, ethylbenzene, PCP, and xylenes (see Table 5-4).

5.4.2 Soil

Soil data were also screened for selection of IHSs. The maximum concentration for each constituent detected in soil was compared to its respective SLV to determine whether to include it as an IHS. Maximum detected constituent concentrations in soil were obtained from the historical soil results memorandum included as Appendix F. Arsenic was the only constituent selected as in IHS in soil (see Table 5-5).

Although arsenic is the only IHS identified in soil, there is the potential that elevated concentrations of other COPCs may exist in soil in areas where wood treating activities have occurred (e.g., beneath the operating facility or soil cap). Therefore, in addition to the arsenic CUL, soil generated during future excavation or construction activities from beneath the capped area will be screened for any contaminant detected in soil above MTCA Method C levels and managed appropriately. The management steps will be described in a Contaminated-Media Management Plan (CMMP), which will be included in the CAP.

Existing soil and groundwater data were screened to determine which chromium species are present at the site and whether they should be selected as IHSs. Soil and groundwater samples have been analyzed for total chromium and CrVI, but not CrIII. CrIII concentrations can be estimated by subtracting the CrVI concentration from the total chromium value. Total chromium concentrations were compared to the CrIII SLV as a conservative assessment of whether CrIII was likely to exceed its SLV.

The maximum total chromium concentrations detected in soil and groundwater at the site were below their respective CrIII SLVs (see Tables 5-4 and 5-5); therefore, CrIII was not selected as an IHS. Total chromium and CrVI concentrations have been observed in groundwater above the CrVI SLV. CrVI has not been analyzed in groundwater at the site since 1992, with the exception of the sample collected from MW-4 in July 2013, which was non-detect. However, monitoring wells with known historical CrVI exceedances have shown consistent total chromium concentrations above the CrVI SLV since 1992 (see Table 5-6). Therefore, CrVI was retained as an IHS in groundwater. Both CrVI and total chromium concentrations in soil were below the SLVs for both species of chromium. Therefore, chromium was not selected as an IHS for soil.

5.5 Cleanup Levels

5.5.1 Groundwater

Ecology has determined that the highest beneficial use of groundwater at the site is for discharge to surface water (discussed further in the CPOC section [Section 5.8] of this report). Groundwater at the site, and the Puyallup River, to which groundwater discharges, is not considered suitable for use as a domestic water supply. Therefore, drinking water standards were not considered in the CUL development.

CULs for groundwater were developed using MTCA Method B, surface water standard values and guidance (WAC 173-340-730). According to the guidance, state and federal surface water standards (i.e., ARARs), if sufficiently protective, shall be selected as the CULs. If not sufficiently protective, the ARARs shall be adjusted downward to meet a cancer risk of 1 in 100,000 for multiple carcinogens or a hazard index of 1 for multiple non-carcinogens. If no ARARs are available for a constituent, then the most stringent of the Method B values may be selected. When no ARARs or Method B values were available, the Method A value was selected as the CUL. Finally, the CULs were evaluated for adjustment based on natural background, practical quantitation limits (PQLs), and cumulative site risk, as applicable.

Surface water SLVs were developed in accordance with this process, as summarized in Table 5-7. The selected SLVs were used to select IHSs, as discussed in the previous section of this report. CULs were selected for the IHSs following a cumulative risk assessment.

The Method A groundwater CUL for arsenic was selected as the appropriate CUL. The Method A value is based on the groundwater concentration that would result from leaching of arsenic present in soil at the natural background concentration3.

According to MTCA risk assessment guidance (WAC 173-340-708) CULs for multiple hazardous substances must be adjusted downward if the total excess cancer risk would exceed 1 in 100,000 or the hazard quotient would exceed 1. The following approach was used, which is consistent with MTCA risk assessment guidance (see Table 5-8):

- Only IHSs were included in the cumulative risk calculation.
- The risk basis for each IHS was evaluated (e.g., carcinogenic risk, non-carcinogenic risk, or both).
- Only risk-based SLVs were included in the risk calculation; therefore, SLVs based on natural background, MTCA A, or the PQL were excluded.
- The carcinogenic risk and/or hazard index associated with each SLV was calculated relative to the MTCA Method B risk-based value for that constituent, as follows:

$$Carcinogenic\ Risk = SLV\ \times \frac{1 \times 10^{-6}}{Method\ B, Carcinogen\ CUL}$$

$$Hazard\ Index = SLV\ \times \frac{1}{Method\ B, Non - Carcinogen\ CUL}$$

- Cumulative site risk was calculated by summing the carcinogenic risk or hazard index for each IHS.

The cumulative site risk meets acceptable risk levels; therefore, the SLVs were selected as the CULs without adjustment.

Cumulative risk from soil and groundwater combined was not evaluated. As discussed in the CPOC section of this report (Section 5.8), groundwater CULs will be met at the property boundary. Soil exceedances are present within the property boundaries. Therefore, concurrent soil and groundwater exposure at the CPOC is unlikely. Potential exposures to contaminated soil and groundwater within

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[3] Note that the arsenic and copper concentrations that would result in groundwater due to leaching of these metals if present in soil at concentrations equal to their Puget Sound natural background concentrations (Ecology, 1994), as determined using the default 3-phase partitioning equation and inputs from MTCA (Equation 747-1), are higher than their respective CULs. In addition, in a 2010 Method A draft revision discussion memorandum, Ecology indicated that a CUL of 10 μg/L is consistent with their analysis of statewide groundwater monitoring data in Washington (Ecology, 2010). The Ecology 2010 memorandum indicates that the Method A value for arsenic (5 μg/L) is based on a 1989 PTI Environmental Services study (PTI, 1989). The PTI study indicates that the 75th percentile of natural background concentrations of copper (Ecology used the 75th percentile determination for arsenic) in Washington State is 10 μg/L (PTI, 1989). This natural background copper concentration is higher than the selected CUL.

the property boundaries will be mitigated with a CMMP and institutional controls, including a restrictive covenant.

5.5.2 Soil

The primary exposure mechanism for soil at the site is direct contact. The soil to groundwater pathway has been mitigated by the implementation of interim actions at the site, including soil removal and asphalt pavement. Pavement in the treating areas and former treated-wood storage areas of the site limits infiltration of stormwater and leaching of contamination remaining in soil. CULs were developed for soil based on a direct contact exposure pathway. Terrestrial ecological CULs were not considered based on the terrestrial ecological evaluation exclusion discussed in Section 5.6.3.

GRO and BTEX were determined not to be risk drivers for soil and were excluded from the CUL development and risk assessment process. Based on this finding, soil CULs were not evaluated for GRO and toluene. However, soil CULs were developed for benzene, ethylbenzene, and xylenes since these constituents were identified as groundwater IHSs (see soil IHS discussion above).

CULs for soil were developed using MTCA Method C standard values for industrial properties (WAC 173-340-745); no other applicable state or federal standards were identified. When no Method C values were available, Method A values were evaluated for selection. Finally, the CULs were evaluated for adjustment based on natural background. PQLs were not assessed for soil as it is unlikely that a Method C CUL would be less than a PQL. One IHS (arsenic) was selected for soil, as discussed in the IHS selection section of this report (Section 5.4 and see Table 5-5). Therefore, cumulative site risk was not evaluated for soil. Total site risk from both soil and groundwater IHSs was also not evaluated, as discussed in the previous section.

The soil SLV development is summarized in Table 5-9. The selected SLVs were used in the IHS selection process discussed in the previous section (see Table 5-4). The selected SLV value for arsenic was selected as the final CUL. The final CULs selected for soil and groundwater are summarized in Table 5-10.

5.6 Conceptual Site Model

A conceptual model of the site has been developed based on facility operations, the characteristics of the wood preservatives used, and the results of previous investigations.

5.6.1 Contaminant Sources

Two primary mechanisms for the historical or potential future release of IHSs exist at the site—historical operations, including storage of treated lumber (see Figure 2-2), and any spills. Spills of process water have been reported near the northern property boundary (near the cooling towers). While all prudent and necessary measures were taken to clean up those spills, it is possible that some of the spilled material was released to the environment. Facility improvements have been proactively implemented by CPLC including the installation of drip pads and the paving of treated wood storage areas to prevent any such future releases. The areas of improvement were investigated under the Interim Action Work Plan (RETEC, 1993) and interim action measures implemented as expeditiously as practical. Where appropriate (i.e., in the drip pad areas and at the transfer table pit), soils were excavated prior to construction of these engineering controls.

5.6.2 Migration Pathways

Wood treating chemicals may have entered the environment as a result of sudden spills and from the past operational practices. The materials released were in the form of liquids and included process water and preservative solutions. These liquids were released to the near-surface soils and migrated downward through the vadose zone and to the shallow groundwater. Shallow and deeper groundwater flows toward the Puyallup River. Ecology has concluded that the horizontal groundwater recovery well captures contaminated groundwater in the shallow aquifer and limits vertical and lateral migration to the Puyallup River (Ecology, 2011).

Previous groundwater monitoring indicates IHS concentrations in groundwater attenuate to non-detectable levels before reaching the downgradient property boundary. MW-4 currently serves as a sentry well. IHS concentrations at MW-4 are below CULs, with the exception of arsenic, providing evidence that groundwater impacts attenuate before reaching the property boundary. Attenuation modeling completed for arsenic indicates that arsenic concentrations will attenuate to below its CUL prior to reaching the downgradient property boundary (see Section 5.7.3).

5.6.3 Receptors

The primary human receptors are the workers at the site and at adjacent industrial properties. Inhalation of vapors or fugitive emissions is expected to be a relatively minor exposure route. The primary exposure pathway would be through direct contact with contaminated soils by on-site workers. Paving has minimized this pathway. The shallow groundwater is not consumed by humans in the vicinity of the site. Residential use of the site is not envisioned for the foreseeable future given the industrial nature of the surrounding properties. Aquatic life in the Puyallup River could be a receptor; however, groundwater impacts do not reach the river (see modeling discussion in section 5.7.3), and the installation of a stormwater treatment system at the 002 outfall in September 2002 significantly reduces the potential adverse impacts to surface water from the site.

MTCA (WAC 173-340-7493) presents procedures for evaluating the potential for exposure to terrestrial ecological receptors, and guidance is available on Ecology's website. A site may be excluded from additional terrestrial ecological evaluation if it meets one of the primary exclusion criteria. The site meets Exclusion #2—that no further evaluation is required "if all soil contaminated with hazardous substances is, or will be, covered by buildings, paved roads, pavement, or other physical barriers that will prevent plants or wildlife from being exposed" (WAC 173-340-7491(1)(b)). On this basis, no additional terrestrial evaluation will be performed.

5.7 Areas of Concern

5.7.1 Soil

During the well installation in 2004, no soil samples exceeded MTCA Method C CULs for direct contact exposure. Additionally, as stated in Section 3.3.5, Ecology and CPLC agreed that the white wood yard located in the southwest corner of the site was not an environmental concern.

During previous investigations, the arsenic CUL of 88 mg/kg was exceeded in several samples across the site (see Figure 5-1), all of which are in areas that were paved during interim action implementation or that are covered by existing infrastructure (e.g., buildings, drip pads, transfer table). These include the following areas: the general treating area, the treated pole storage area (Paving Area 2), the CCA drip pad area, the PCP drip pad area, the transfer table area, and the untreated pole storage area (Paving Area 1). Soil from Paving Area 1 was consolidated in a sub-area of Paving Area 4 under an agreement with USEPA (see Section 4.1). Given the soil arsenic exceedance detected in Paving Area 1, arsenic concentrations in soil in this sub-area of Paving Area 4 may potentially exceed the CUL. Figure 4-2 shows the current paved areas of the site. Pavement reduces the infiltration of precipitation or standing water and therefore, the potential for downward migration of contaminants.

Paving consists of a 4- to 6-inch thick layer of bituminous asphalt concrete (BAC). The BAC layer was constructed on an approximately 4-inch-thick layer of compacted structural fill. The pavement was placed in a minimum of two lifts. The lower lift consists of Washington State Department of Transportation (WADOT) Type E – BAC or equivalent, and the upper lift consists of WADOT Type B – BAC or equivalent. In general, this type of BAC should have a permeability of 1 × 10-5 to 1 × 10-7 cm/s. The few unpaved areas drain to paved areas that are managed by the 001 and 002 stormwater treatment systems, with the exception of the landscaped areas around the office buildings.

5.7.2 Shallow Groundwater

IHS concentrations observed in shallow groundwater from 2004 to 2013 are compared to CULs and summarized in Table 5-11. The four most recent data points, from groundwater monitoring events conducted between 2004 and 2013, were evaluated for each IHS to determine the most recent trend of groundwater exceedances at the site. Figure 5-2 shows IHSs that were observed to exceed their respective CULs, based on the most recent data. CUL exceedances were observed in all shallow wells sampled, with the exception of monitoring well MW-1, which is located at the southern property boundary. However, MW-1 was sampled only once during the 2004 to 2013 timeframe and has not been sampled since 2004. Arsenic exceeds its CUL in all but one shallow groundwater monitoring well. Other chemical exceedances, including copper, chromium, PCP, and cPAHs were observed in fewer locations (i.e., only in one to four monitoring wells located in the treating area). Arsenic was the only IHS observed to exceed its CUL at MW-4, one of the most downgradient monitoring wells at the site. Arsenic and PCP were detected above their CULs in samples collected from the horizontal recovery well (HW-01).

BTEX was analyzed in samples from only MW-9. All detected concentrations were below their respective CULs. CrVI was not analyzed, with the exception of the sample collected from monitoring well MW-4 in July 2013 (see Appendix G-4).

Concentration trends were evaluated for IHSs in shallow groundwater (see Figures 5-3 to 5-10). An analysis of the groundwater results collected from 2004 to 2013 indicated the following trends:

- **Arsenic:** arsenic has been consistently detected above its CUL and concentrations appear to be stable.
- **Copper:** copper exhibits a slight decreasing concentration trend. Copper analysis was discontinued at many wells after 2009 following a series of concentrations below its CUL. Copper analysis has continued for a subset of the treating area monitoring wells that continue to exhibit CUL exceedances.
- **Chromium:** CrVI was not analyzed during the 2004 to 2013 timeframe, with the exception of the sample collected at monitoring well MW-4 in July 2013. Total chromium analysis was conducted for most wells. Total chromium concentrations were consistently either non-detect or detected below its CUL in all well locations, except MW-3, which is located at the northern edge of the transfer table area. Chromium concentration trends appear stable in some wells and slightly decreasing in others.
- **PCP:** PCP exhibits a strong decreasing trend in most wells. PCP concentrations have been consistently below its CUL during the last four monitoring events, with the exception of MW-2 and HW-01, which had PCP exceedances in February 2013.
- **cPAHs:** cPAH concentrations appear to be decreasing and have been consistently below its CUL since 2008, with the exception of cPAH exceedances at MW-2 and MW-5 in February 2013.
- **BTEX:** BTEX was analyzed only at monitoring well location MW-9. Benzene, ethylbenzene, and xylenes concentrations at MW-9 exhibit a strong decreasing trend and have been consistently below their respective CULs during the last four monitoring events. Toluene is not a groundwater IHS; therefore, a concentration trend for toluene was not evaluated.

In general, IHS concentrations in shallow groundwater at the site:

- Show stable or decreasing trends,
- Decrease with distance downgradient of the treating area (see Section 3.4), and
- Appear limited to the treating area, which the exception of arsenic which is the only IHS observed above its CUL in the most downgradient monitoring well (MW-4).

These findings suggest that

- Natural attenuation may be contributing to a reduction in chemical concentrations,

- The horizontal recovery well is effectively removing contaminant mass and limiting plume migration, and
- Other interim actions at the site (including soil removal and paving) have reduced leaching of chemicals from soil to groundwater.

Given that the highest beneficial use for groundwater is surface water discharge and no drinking water wells are present or reasonably expected to be installed in the vicinity, the selected remedy for groundwater will be aimed at preventing migration of groundwater impacts to the downgradient Puyallup River (see Section 5.1). The existing interim actions appear to be effectively managing and/or reducing chemical concentrations in groundwater. If the existing interim actions (e.g., drip pads and the horizontal recovery well) are maintained, monitored natural attenuation would be a suitable remedy for protecting surface water quality in the downgradient Puyallup River.

Sentry wells, including existing well MW-4 and additional downgradient monitoring wells, would provide an early warning of changes in groundwater conditions (e.g., increasing IHS concentrations). Continued operation of the horizontal recovery well and ongoing groundwater monitoring, including contingency measures to be implemented should concentrations in sentry wells increase or continue to exceed applicable CULs, would be a suitable remedy. Monitoring will be aimed at ensuring that CULs are not exceeded at the downgradient property boundary, and water-level monitoring will be performed to verify that impacts on the upgradient property boundary are contained by the natural hydraulic gradient and the horizontal recovery well.

5.7.3 Arsenic Attenuation Modeling

Shallow groundwater in monitoring well MW-4, one of the most downgradient wells on the property, was sampled in July 2013. The analytical results from the sample collected in July 2013 indicated that IHS concentrations, with the exception of arsenic, are below CULs (see Appendix G-4). Since arsenic concentrations at MW-4 were above the CUL, attenuation modeling for arsenic in shallow groundwater was used to demonstrate compliance at a downgradient CPOC. Conservative attenuation modeling demonstrated that the arsenic concentration detected at MW-4 will naturally attenuate to below the CUL before reaching the proposed CPOC at the downgradient property boundary. Therefore, given that all other IHSs are below their respective CULs at MW-4 and that arsenic concentrations are unlikely to exceed the CUL at the property boundary, MW-4 is recommended for use as a sentry well.

Attenuation modeling was conducted to determine the time and distance required to attenuate the arsenic concentration observed at MW-4 (20 micrograms per liter [μg/L]) to the CUL of 5 μg/L. Modeling was performed using BIOSCREEN, a screening model based on the Domenico analytical solute transport model (USEPA, 1996). BIOSCREEN is intended to simulate remediation through natural attenuation, and can model the processes of advection, dispersion, adsorption, and biodegradation.

Input values for the model are listed in Table 5-12 and are shown in the BIOSCREEN input screenshots included in Appendix I. Inputs were selected based on a) field measurements and site specific parameters, and b) conservative values selected in order to produce the maximum plausible arsenic concentrations. It is important to note that these model parameters simulate arsenic transport based only on advection and dispersion. Biodegradation was excluded as a mechanism of arsenic attenuation during this simulation, as it is unlikely to play a role in the migration of metals in groundwater. Although sorption and other retardation factors are likely to attenuate arsenic, retardation was excluded as a factor during this simulation to ensure that the model results would reflect maximum values.

BIOSCREEN was used to:

- Simulate the time and distance required to attenuate arsenic at a concentration of 20 μg/L (concentration measured at MW-4 in July 2013) to the CUL for arsenic of 5 μg/L.
- Estimate the time required for arsenic at a concentration of 20 μg/L in MW-4 to reach the property boundary and the resultant estimated concentration at the property boundary.

Using the input parameters listed in Table 5-12, an arsenic concentration of 20 μg/L in MW-4 was shown to attenuate to the CUL of 5 μg/L after 66 years and at a distance of 220 feet downgradient of MW-4. This is substantially less than the distance from MW-4 to the property boundary of approximately 600 feet (see Figure 2-3).

The highest arsenic concentration that would reach the property boundary after 189 years will have attenuated to a concentration of 3 μg/L, which is below the CUL.

5.7.4 Deep Groundwater

Existing deep groundwater monitoring wells include one well upgradient of the treating area (MW-14) and two wells directly downgradient of the treating area (MW-7 and MW-18, see Figure 2-3). Deep groundwater monitoring data from 2004 to 2013 were evaluated for CUL exceedances. BTEX and GRO were not analyzed in deep groundwater samples. CrVI was analyzed in only deep well MW-7 and has not been tested since 1992 (see Table 5-6).

GRO was determined not to be a risk driver for the site. BTEX and CrVI were selected as groundwater IHSs. A demonstration of deep groundwater compliance with CULs for these IHSs will be required as part of compliance monitoring and will be included in the groundwater monitoring plan which will be part of the CAP. Otherwise, for purposes of recommending compliance monitoring points, the existing recent (2004 to 2013) groundwater data for the other site IHSs are considered sufficient.

IHS concentrations observed in deep groundwater from 2004 to 2013 are compared to CULs and summarized in Table 5-13. A comparison of IHS concentrations to CULs indicates that the only IHSs exceeding CULs in a deep groundwater are arsenic, copper, cPAHs (assessed as the toxic equivalency quotient for comparison to the BaP indicator chemical CUL), and PCP. Trend plots were created for these IHS exceedances to evaluate temporal concentration trends in the upgradient (MW-14) versus the downgradient (MW-7 and MW-18) deep monitoring wells. Concentrations of all IHSs show declining concentration trends in deep groundwater and a CUL exceedance has not been observed in a downgradient deep groundwater well since 2007 (see Figures 5-11 through 5-14). Monitoring of MW-18 was discontinued in 2007; however, IHS concentrations have been below CULs since 2005. This observation indicates that CULs are currently being met in the existing deep groundwater wells and suggests that CULs will continue to be met in the future. In addition, the empirical data from the deep wells can be used to demonstrate compliance with CULs and attenuation modeling is not required for deep groundwater.

5.8 Conditional Point of Compliance

Under MTCA, a CPOC may be approved where it can be demonstrated that it is not practicable to meet CULs throughout the site within a reasonable restoration timeframe (WAC 173-340-720[8][c]). Additional groundwater treatment would be required at this site in order to meet CULs in groundwater throughout the site within a reasonable restoration timeframe. However, the disproportionate cost analysis completed as part of this RI/FS (see Section 8.3) indicates that the cost of additional groundwater treatment exceeds the incremental benefits that would be achieved by implementing additional groundwater treatment. Based on this finding and the arsenic attenuation modeling results, which indicated that arsenic will not exceed its CUL at the downgradient property boundary, a CPOC at the property boundary is recommended for the site.

6 REMEDY EVALUATION PROCEDURES

Several interim actions have already been completed at the site, as described in Section 4 of this report. Therefore, a focused FS for the site is presented in Sections 6 through 8 to identify and evaluate additional remedial actions that may be necessary to protect human health and the environment by eliminating, reducing or otherwise controlling risks posed by the environmental conditions at the site, all consistent with the RAOs (see Table 5-1). A phased approach is used whereby technologies are screened, alternatives developed and then the selected alternatives are evaluated. The FS follows the procedures and requirements of MTCA (WAC 173-340) as described below.

6.1 Selection of Technologies for Screening

Potentially appropriate technologies can be grouped into General Response Actions (GRAs), for the purposes of developing remedial alternatives for the site. The following GRAs will be considered in this FS:

- No Action
- Institutional Controls/Monitoring
- Containment
- Removal (with subsequent treatment, reuse, and/or disposal)
- *In Situ* Treatment

Section 7 of the FS narrows the broad universe of GRAs to remedial technologies that are implementable and likely to be effective for remediation of the site. For retained remedial technologies, representative process options are selected based on effectiveness, implementability, and cost, using the MTCA framework described below.

6.2 Method for Evaluation of Alternatives

WAC 173-340-360(2) (Minimum Requirements for Cleanup Actions) states that, "because cleanup actions will often involve the use of several cleanup technologies or methods at a single site, the overall cleanup action shall meet the requirements of this section." These requirements are described in the following sections of this report.

6.2.1 Threshold Requirements

The proposed cleanup actions must comply with the four threshold requirements described in WAC 173-340-360(2)(a), which are:

1) The remedial actions shall protect human health and the environment.
2) The remedial actions shall comply with the cleanup standards set forth in WAC 173-340-700 through 173-340-760.
3) The remedial actions shall comply with applicable state and federal laws.
4) The remedial actions shall provide for compliance monitoring.

6.2.2 Other Requirements

When selecting from cleanup action alternatives that fulfill the threshold requirements, the selected action must meet the three other requirements in WAC 173-340-360(2)(b):

1) To use permanent solutions to the maximum extent practicable;
2) To provide for a reasonable restoration time frame; and
3) To consider public concerns.

Procedures for evaluation of these three other requirements are described below. In evaluating compliance with these requirements, it is important to note that interim remedial measures have already been taken at this site that involve partial removal of contaminated soil and containment of residual contamination.

6.2.2.1 Permanent Solutions

WAC 173-340-360(3) of the MTCA regulations includes a "preference" or "bias" for "permanent solutions." The state cleanup regulations (WAC 173-340-360[3][f]) list seven criteria to be used to determine whether a cleanup action is "permanent to the maximum extent practicable." These criteria include:

1) Overall protection of human health and the environment including the degree to which risks are reduced.

2) The degree to which the remedy achieves a permanent reduction in the mobility, toxicity and/or volume of hazardous constituents.

3) Cost to implement the alternative including the cost of construction, the net present value of any long-term costs and agency oversight costs that are cost recoverable.

4) Long-term effectiveness including the degree of certainty associated with the success of the remedy, the reliability of the remedy over the long term, and the magnitude and management of residual risk.

5) Management of short-term risks including risk to human health and the environment during construction and implementation.

6) The ability of the remedy to be implemented including technical feasibility, availability of facilities and resources, administrative and regulatory requirements, and integration with existing facility operations or corrective actions.

7) The degree to which community concerns are addressed.

WAC 173-340-360(3)(f)(iv) includes a preference list of technology categories to be used in comparing feasible remediation alternatives. The preference list is used as a guide when assessing the relative degree of long-term effectiveness. The preference list is as follows, in descending order of preference:

1) Reuse or recycling

2) Destruction or detoxification

3) Immobilization or solidification

4) On-site or off-site disposal in an engineered, lined, and monitored facility

5) On-site isolation or containment with attendant engineering controls

6) Institutional controls and monitoring.

In the detailed screening of alternatives of the FS, each alternative (which may incorporate several technologies) that meets the threshold criteria is judged regarding the degree to which a permanent solution is attained.

6.2.2.2 Reasonableness of the Restoration Timeframe

According to WAC 173-340-200, restoration time frame is defined as "the period of time needed to achieve the required CULs at the points of compliance established for the site." Because the point of compliance depends on whether a reasonable restoration time frame can be achieved, this evaluation considers the restoration time frame for both site-wide and conditional points of compliance. A discussion of the appropriate point of compliance for the selected remedy is included in Section 5.8.

The evaluation of the reasonableness of the restoration time frame, as described in WAC 173-340-360(4)(b), includes the consideration of seven factors. These include:

1) The potential risks posed by the site and the toxicity of the hazardous substances present.
2) The practicability of achieving a shorter restoration time frame.
3) The current and potential future use of the site, surrounding areas, and associated resources that are, or may be, affected by releases from the site.
4) The availability of alternative water supplies.
5) The likely effectiveness and reliability of institutional controls.
6) The ability to control and monitor the migration of hazardous constituents from the site.
7) The presence and ability of natural processes to reduce the concentrations of hazardous substances at the site.

These criteria are similar to those of the National Contingency Plan and the Superfund Amendments and Reauthorization Act (SARA). For example, SARA requires that the remedial action be cost-effective, taking into account the total short-term and long-term costs, including the cost of operations and maintenance for the entire period of action or remediation.

6.2.2.3 Community Concerns

The draft CAP will be provided to the surrounding community through a public notice and public participation process that will be conducted in accordance with WAC 173-340-600. Community concerns regarding the draft CAP brought to Ecology's attention during the public participation process will be addressed, and the draft CAP will be modified if necessary.

6.2.3 Additional Requirements

WAC 173-340-360(2) also lists the following additional requirements for cleanup actions:

1) A cleanup action relying primarily on institutional controls and monitoring shall not be used where it is technically possible to implement a more permanent cleanup action for all or a portion of the site.

2) The cleanup action shall prevent or minimize present and future releases and migration of hazardous substances in the environment.

3) The cleanup action shall not rely primarily on dilution and dispersion of the hazardous substance if active measures are technically possible.

6.3 Remedial Alternative Evaluation

This focused FS includes the development of remedial alternatives for the site and evaluation of the alternatives using the criteria described in Section 6.1. The evaluation will consider the ability of a technology to manage the contaminated media onsite and achieve the numeric remediation goals. This evaluation includes consideration of the nature of the IHSs at the site and local site conditions including geology, hydrogeology, and existing infrastructure. The technology will also be evaluated in the context of the potential impacts to human health and the local environment that could result from remedial construction and implementation. The evaluation of each remedial technology will also include consideration of action-specific regulations and criteria applicable to or relevant and appropriate to the implementation of each technology at CPLC. The ability to effectively monitor the technology to evaluate compliance will be assessed.

7 TECHNOLOGY SCREENING

This section presents and screens potentially applicable technologies for remediation of soil and groundwater at the site. Within the discussion of each technology, the ability to meet the minimum requirements for cleanup actions listed in WAC 173-340-360(2) are considered, as described in Section 6 of this document. Technologies that are likely to be effective and implementable are retained for further consideration. Technologies that are deemed to be ineffective or difficult to implement are eliminated from further consideration in the development of alternatives.

7.1 Presumptive Remedies

Presumptive remedies are USEPA's preferred technologies for certain types of sites and have been identified by USEPA to speed the selection of cleanup actions. Presumptive remedies are to be used at all sites, except where site-specific criteria make other options preferable (USEPA, 1995). The presumptive remedies identified for soil found at organic wood treating sites with compounds such as those found at the site are bioremediation, thermal desorption, and incineration. Immobilization is the presumptive remedy for inorganic chemicals at wood treating sites (USEPA, 1995).

In addition to presumptive remedies, USEPA evaluated other technologies often considered for wood treating sites (USEPA, 1997) based on frequency of evaluation and retention, and reasons for selection or screening out of technologies in FSs. Some of the technologies considered by USEPA were:

- Restrictions/Monitoring
- Capping
- On-Site Containment
- Thermal Treatment Technologies
- Soil Flushing
- Soil Washing
- Off-Site Disposal
- Off-Site Soil Recycling.

Of these remedial technologies, some were not often part of the selected remedial alternative, but USEPA did consider the other technologies as applicable for further evaluation of remedial technologies at wood treating sites. These potentially applicable treatment technologies were included in the evaluation of remedial technologies for the site.

7.2 Technology Screening for Soil

The following paragraphs discuss remedial technologies and process options for soil, organized by GRA. Remedial technologies that may be applicable at the site are identified. Those technologies that are not likely to be implementable at the site are screened out and not carried forward to the final evaluation of alternatives for the site in Section 8 of this document.

Any technology applicable to the site must address areas of the site where arsenic remains in soil at concentrations above its CUL (the extent of these arsenic impacted areas is discussed in Section 5.7).

7.2.1 No Action

The "no action" response action does not address any potential pathway through which arsenic in site soils could adversely affect receptors. Current conditions in soils at the site are protective of human health and the environment, because of the interim actions which have been performed at the site.

This "No Action" alternative would rely on the existing containment onsite. This consists of paving in areas with soil exceedances and drip pads that were installed as an interim action in 1993, as well as upgrades to the transfer table system (Figure 4-1). This alternative would not include additional provisions for ongoing maintenance and inspection, or any additional operational activities.

This option does not meet the threshold requirements (WAC 173-340-360[2][a]), as it does not include provisions for compliance monitoring, and may not be protective of human health and the environment over the long term. The No Action alternative is used primarily for comparison purposes. Also, because interim remedial measures have already been taken at this site, the no action alternative has already been precluded.

7.2.2 Institutional Controls/Monitoring

Institutional controls are typical components of many remedies and ensure that future activities at the site account for residual impacts. Institutional controls often take the form of deed restrictions to preclude certain types of land use or to require proper controls should impacted soil be disturbed. Closely related to institutional controls are engineering controls, such as fencing or other means of limiting access to the site. Institutional controls and monitoring are retained as viable remedies for impacted soil at the site.

Current zoning and City of Tacoma (City) codes restrict site use. The property is currently zoned for industrial use. City code requires all houses, buildings, or properties used for human occupancy to utilize public water. In addition, the Puyallup River from the mouth to river mile 1 is not designated as a drinking water source, as documented in WAC 173-201A. The site is fenced, and access is strictly controlled. Deed restrictions will be required in order to maintain institutional controls in areas where IHS concentrations in soil and/or groundwater exceed CULs.

Institutional controls, as a stand-alone remedy, do not meet the threshold requirements specified in WAC 173-340-360(2)(a), and rank at the bottom of Ecology's preference for remedial options. However, when combined with other alternatives, institutional controls may be beneficial in satisfying MTCA requirements for a final remedy. Therefore, institutional controls will be considered further, in conjunction with other remedies.

7.2.3 Containment

Containment isolates contamination to prevent movement beyond a certain point, to prevent contamination from being transferred to another media, or to prevent receptor contact with impacted soils. Several containment technologies are applicable to soil and are discussed with appropriate process options below.

Containment remedies meet the threshold requirements specified by MTCA, as well as the "other requirements" specified in WAC 173-340-360(2)(b). Containment, in conjunction with an ongoing maintenance program and institutional controls, can provide a permanent solution that meets MTCA's requirements.

7.2.3.1 Capping

Capping involves isolating soils from receptors, the influence of forces that promote the transport of impacted soil or conditions that cause the transfer of IHSs to another media. Caps typically involve covering soils with a durable surface, such as gravel, asphalt, vegetated soils, or a multilayer system, and are designed to be compatible with future land use. Cap construction requires normal earthmoving equipment and commonly available materials.

Capping is a viable remedy at the site, and has already been implemented as an interim action. This alternative relies on the existing paving in areas with soil exceedances and drip pads that were installed as an interim action in 1993. As a part of these actions, sumps and piping were installed to collect stormwater from the newly paved treated wood storage areas. The collected stormwater is treated and discharged under the facility's NPDES permit (see Appendix H for description of the treatment system and its operation). The drip pads are constructed of epoxy sealed, steel-reinforced concrete, and include an underlying leak detection system. The leak detection system consists of drainage sand, piping, and a sump above a HDPE sub-liner.

The paving and installation of the drip pads include provisions for regular maintenance and monitoring. These activities would continue for the life of the facility and specified closure procedures and precautions would be followed upon site closure. Any remedy that includes maintenance of the paving in areas to be maintained as a soil cap will include a formal Inspection and Monitoring Plan to address issues related to utility or other subsurface work performed in areas where contaminated soil is still present, as well as maintenance and repair requirements.

Maintaining the existing containment systems is easily implementable at the site, and will adequately address direct contact with impacted soils. It may be used in conjunction with institutional controls as a final remedy.

The capping implemented at CPLC covers all identified areas of impacted soil thereby preventing direct contact and the potential for mobilization of IHSs by wind or rain.

7.2.3.2 Solidification/Stabilization

Solidification and stabilization are a means of reducing the mobility of contaminants, thereby limiting the chances of receptors encountering the impacted soils. These technologies involve physically limiting the contact of receptors through solidification, or the chemical availability of the IHS through stabilization. Solidification and stabilization processes can be performed either *in situ* or *ex situ*. Solidification and stabilization are presumptive remedies for wood treatment sites with inorganic contamination, and can be achieved using such technologies as pressure grouting or soil mixing.

Pressure Grouting

Pressure grouting is a type of solidification. This is a process by which a cement or chemical grout is injected into soils under pressure. It was originally developed for geotechnical soil improvements, but can also be used for solidifying soils and binding them into a solid matrix. Pressure grouting methods that would be applicable at the site are permeation grouting, which involves injecting a thin grout mix at lower pressures through injection drill rods or injection pipes driven into the ground. The grout then travels out through the soils, filling the void spaces, and then solidifies. The amount of grout penetration around the injection pipe is affected by the permeability of the soil into which the grout is injected, the viscosity of the grout injection, and the injection pressure. Jet grouting is another pressure grouting technique. Jet grouting involves injecting grout at high pressures through a specialized injection drill stem. The grout is directed so as to partially break up the soil surrounding it, allowing for better penetration of grout. This involves some replacement of soils, with the excess soil/grout mixture typically forced to the surface by the grout injection pressure.

Pressure grouting is a specialized process that is used more for geotechnical improvements to soil than for remediation purposes. It is effective at solidifying soils, but has a fairly low production rate and so it typically is not economical for large solidification projects when other methods are available. However, for small projects or projects with special requirements, such as grouting at a specific depth or at an angle, it can be more cost-effective for the work to be performed.

This technology could, in theory, be implemented at CPLC but with limited additional benefit over the existing isolation afforded by the cap. The impacted vadose zone soil is currently not a direct contact risk.

Soil Mixing

Soil mixing is an *in-situ* method of injecting cement or other solidification agents and mixing these agents with the soil. It is accomplished using specialized large diameter augers to inject the solidification agent and achieve distribution of the agent in the soils. The mixed soil and solidification agent solidifies, encapsulating the contaminants in soils, preventing contact with and leaching of this material. This technique was originally developed to add geotechnical stability to soft soils and is effective at depths up to 100 feet. This technology has been proven effective at addressing PAH impacts at other coal tar and creosote sites (e.g., Macon, Georgia; Cambridge, Massachusetts; Renton, Washington; Exeter, New Hampshire; Columbus, Ohio). Equipment is specialized, but commonly available. However, site-specific factors that could limit implementability, such as utilities, nearby structures, or public proximity to the work area during construction make it difficult to implement at an active facility. CPLC is an active wood treating facility, and this technology would be difficult to implement in the treating area due to the presence of existing structures. This would significantly limit remedy effectiveness. Therefore, this process option will not be retained for further evaluation.

7.2.4 Removal and Ex Situ Treatment or Disposal

Soils can be removed and then treated, reused, or disposed after the removal, as an effective source removal remedy. Removal technologies typically involve excavation of impacted soils by traditional means with commonly available excavation equipment. Removal actions would be generally effective at achieving CULs, as they remove the soils that could cause risk to receptors. The relative implementability and cost of removal actions is highly dependent on the location of the impacted soils, as well as on the subsequent treatment or disposal method.

Removal has already been implemented at the site as an interim action. The removal action is described in the Transfer Table Plan: Interim Action Activities and Drip Pad Conversion (RETEC, 1998) and the Transfer Table Upgrade Completion Report (ThermoRetec, 2000). Approximately 860 tons of soil were excavated to approximately 20 to 26 inches below grade were transported offsite to a permitted Subtitle C or D landfill, as appropriate.

Implementation of any additional removal action would be technically difficult, due to the location of the majority of the impacted soils under and adjacent to current and future active operational areas. Removal would likely require complete operational shutdown and facility closure. In addition, all impacted soils are currently under pavement, so any excavation of soils would also generate additional paving material which would require disposal.

Removal technologies clearly meet the MTCA requirements for final remedies. Removal and subsequent treatment ranks highly on Ecology's preference list for remedial alternatives, and satisfies the requirements for permanence. Removal and subsequent disposal also satisfies the permanence requirements but does not rank as highly as treatment on Ecology's preference list. Any removal option does increase short-term risks to site workers and workers at neighboring sites, who may come into contact with impacted soils during the removal and transportation processes. These risks can be minimized through proper engineering controls during implementation; however, additional short-term risks as well as costs for implementation are to be considered during the final evaluation.

The following sections discuss potential *ex situ* treatment and disposal remedial technologies that could be employed after removal of the soils, if this remedy were selected.

7.2.4.1 Ex Situ Bioremediation

Bioremediation is based on the natural biochemical reactions mediated by microorganisms that result in degradation of organic IHSs. Bioremediation is the preferred presumptive remedy for soils, sediments, and sludges at wood treatment sites. In practice, bioremediation can be implemented as an *in situ* or *ex situ* process. For the purposes of a removal action, it is considered an *ex situ* process. Bioremediation is not used for remediation of metals in soils and will not be further considered (FRTR, 2002).

7.2.4.2 Ex Situ Thermal Treatment Technologies

A variety of *ex situ* treatment technologies exist that raise the temperature of the soil through the addition of energy. This volatilizes the contaminants, which are usually treated in the vapor phase after they have been volatilized. The means of adding energy, and the degree of heating, varies from one process option to another. Options for this technology include thermal desorption, pyrolysis, *ex situ* vitrification, wet air oxidation and infrared treatment. Again, these technologies are applicable for organics, and will not be retained for further evaluation.

7.2.4.3 Ex Situ Solidification/Stabilization

Ex situ solidification involves mixing solidifying agents with soils to create a matrix, similar to concrete, which encapsulates the soils and associated contaminants. After the matrix has solidified, the contaminants in soils cannot be contacted by receptors, nor can the contaminants leach to water.

Ex situ stabilization can be achieved by a number of methods, which typically involve mixing the soils into a cement or concrete matrix, asphalt, or polyethylene. Soils must first be excavated and then stabilized with the selected method. If excavation is selected, additional research would be completed to identify an appropriate large-scale industrial process near the site that could use the soils as feedstock.

7.2.4.4 Soil Washing

Soil washing is a physical separation process that reduces the volume of contaminated soils by consolidating the fine-grained soils, which frequently contain the majority of the contaminants. The process separates soils by size and removes contaminants to the extent possible from the coarser fraction of the soil by using equipment common to the mineral and ore processing industries, such as screening, gravity separation, hydrocyclones, pug mills, and attrition scrubbing machines. Contamination is then consolidated into process water containing wet fine-grained soil, which needs further treatment by changing pH, and/or adding surfactants, leaching agents, or chelating agents.

Soil washing is a physical separation process and produces process residuals in the form of contaminated sludges, wastewaters, and, sometimes, vapors. These residuals require appropriate treatment or disposal. Soil washing has limited effectiveness with soils of fine grain size, such as fine silts and clays, as these soils are difficult to separate from the wash water. It can also be difficult to implement due to the process equipment required and significant volumes of wash water generated. Because of the difficulty in implementing soil washing, and the availability of other more readily implementable remedies, this technology is not retained for further evaluation.

7.2.4.5 Subtitle C or D Landfill Disposal

Soils that are determined by Ecology to be Dangerous Waste may be disposed in a RCRA Subtitle C landfill. Soils which are not or do not contain hazardous wastes may be disposed in a RCRA Subtitle D landfill. Subtitle C or D disposal is not effective at *treatment* of contaminants, but is effective at limiting receptor access to impacted soils and ensuring that soil will not be disturbed in the future. This option is retained for further evaluation.

7.2.5 In Situ Treatment

This GRA involves treating soils and contaminants *in situ*. Several technology types are often considered for *in situ* treatment. Soil vapor extraction (SVE), *in situ* thermal treatment, and *in situ* bioremediation are all commonly used technologies at wood treating sites, however, these technologies are applicable to organic contaminants, and will not be evaluated further.

Soil flushing physically separates compounds from the soils using water, surfactant, solvents, or a mixture to recover contaminants from the soil, and may be applicable to inorganic contamination. The process water or solvents are extracted and treated to remove contaminants. The process water and solvents are typically recycled and re-injected into the ground to assist in the flushing process, though almost all pilot tests to date have disposed of recovered groundwater, surfactants, and solvents. This technology is still being developed and has seen limited use in pilot projects, mostly with chlorinated solvents. As the emerging nature of this technology makes implementation extremely difficult and the technology is likely to be of limited effectiveness, it is not retained for further evaluation.

7.3 Technology Screening for Groundwater

The following paragraphs discuss remedial technologies and process options for groundwater, organized by GRA. Remedial technologies that may be applicable at the site are identified. Those technologies that are not likely to be implementable at the site are screened out and not carried forward to the final evaluation of alternatives for the site in Section 8 of this document.

Any groundwater remedy implemented at the site must address IHS impacts in shallow groundwater, as delineated in Section 5.7.2. As noted in Sections 3.4 and 5.7.2, the majority of groundwater impacts are found upgradient of the horizontal recovery well, and all impacts are found well upgradient of the CPOC located at the downgradient property boundary.

7.3.1 Previous Remedy Considerations and Evaluation

Groundwater remedial alternatives were developed previously in the Groundwater Interim Action Design Report (RETEC, 1995). The groundwater interim action was implemented partially in response to remedial actions that were being implemented on the property to the north (former Milwaukee Railyard) by the Port. The Milwaukee Railyard site remedy called for extraction of impacted groundwater and free product, followed by reinfiltration of all treated groundwater. Reinfiltration was proposed in the extraction area, and in a trench on the southern portion of that site, near the northern property boundary of the CPLC site. Modeling was performed in the Groundwater Interim Action Design Report to simulate the effect of the Port's remedy, in conjunction with physical and hydraulic containment actions at the CPLC site, on the quality of groundwater in the shallow aquifer.

The modeling completed in the Groundwater Interim Action Design Report (RETEC, 1995) showed that a physical barrier wall across the shallow aquifer on the railyard property would have virtually no observable effect on groundwater flow, because the Port's infiltration trench would create a groundwater mound north of the CPLC property boundary and effectively limit off-site migration in the shallow aquifer. The infiltration trench for the former Milwaukee Railyard property was installed, but had no observable effect on groundwater flow on the CPLC property. In 2007, the infiltration trench (treatment system) was shut down (Ecology, 2011). Ecology's report concluded that groundwater recovery on CPLC property from a horizontal recovery well would contain much of the groundwater in the shallow aquifer and would limit downward and subsequent off-site migration with a predicted steady state extraction rate for 200 feet of drain of 1 to 2 gallons per minute. In addition, this remedy provides active mass removal of contaminants in groundwater.

7.3.2 No Action

The "No Action" alternative at the site would include discontinuation of operation of the horizontal recovery well, and abandonment of all monitoring wells onsite. Because interim remedial measures have already been taken at this site and have influenced groundwater flow, the no action alternative has already been precluded. In addition, because CULs are exceeded at the site under current conditions, this remedy does not meet the threshold requirements under MTCA (WAC 173-340-360(2)(a)); however, No Action is retained for comparison.

7.3.3 Institutional Controls/Monitoring

Monitoring is a universal component of groundwater remedies, providing data on the effectiveness of the remedy and ensuring protection of human health and ecological receptors, and is required under MTCA (WAC 173-340-360[2][a]). Monitoring of groundwater typically uses groundwater monitoring wells that already exist at the site, or includes provisions for installation of a limited number of new monitoring wells, as necessary.

Currently, there is no domestic or drinking water use of groundwater at the site nor is there expected to be future use due to the availability of City water for drinking water, and the current zoning of the property. The existing City codes on water use are one form of institutional controls. Additional institutional controls, such as deed restrictions, could be put in place to ensure that there is no future use of impacted groundwater or that groundwater was appropriately managed should it be encountered in excavations.

Monitoring and institutional controls will be retained for further evaluation, and may be combined with other technologies as part of a final remedy for the site.

7.3.4 Containment

Groundwater containment can be completed through different technologies including groundwater extraction, barrier wall installation, or immobilization. This section outlines these technologies and process options associated with them. On-site containment meets the threshold requirements under MTCA. As discussed below, containment has already been implemented as an interim remedial measure.

7.3.4.1 Hydraulic Containment

Hydraulic containment isolates contaminants in groundwater by creating a localized water table low, causing groundwater to flow towards this low, and preventing further downgradient migration of impacted groundwater. This is typically accomplished through groundwater pumps in wells or trenches. Wells are installed using conventional or horizontal drilling techniques. Trenches may be installed using traditional excavation, shoring, or a slurry-supported excavation.

In typical hydraulic containment systems, the extracted groundwater is treated and discharged to a Public-Owned Treatment Works (POTW), if available, or to a surface water body under an NPDES permit. Underground injection can also be used for disposal of treated groundwater.

Groundwater pumping systems are designed based on empirical data collected during investigation such as soil type, groundwater flow direction, hydraulic conductivity, and modeling of site hydrology to identify appropriate extraction point placement and pumping rates. Pilot pumping tests may be useful in determining sustainable pumping rates, radius of influence, hydraulic conductivity, and extracted water quality.

Containment has already been implemented at the site, as an interim action. The groundwater interim action consists of groundwater extraction using a horizontal recovery well and associated recovery sump and pump. Extracted groundwater is reused in facility operations. This recovery system addresses groundwater impacts beneath the transfer table pit and the adjacent treatment area. In addition, the mass of IHSs in groundwater will continue to be reduced. The system was installed and started as described in the Groundwater Interim Action Implementation Report (ThermoRetec, 1999). A summary of the groundwater analytical and elevation data in the form of tables and figures is included in Appendices B and G.

Hydraulic containment is effective in preventing further migration of contaminants in groundwater and removing contaminant mass from the aquifer. It also provides the opportunity for reuse of recovered groundwater in facility operations. This technology meets the threshold requirements under MTCA. Hydraulic containment systems are not difficult to implement as systems and components are readily available. Cost is influenced by the size and type of system required (trenches are more costly than wells), by the site limitations (pipe routing, etc.), and by the degree of water treatment and discharge permitting required. The cost of hydraulic containment is generally high as compared to other remedial alternatives for groundwater, and is typically higher than physical containment of groundwater due to the long operation times and water treatment requirements of hydraulic containment. However, at the CPLC facility, extracted groundwater can be reused onsite as makeup water in ongoing operations, making the use of this technology very cost-effective. This remedy will be retained for further evaluation.

7.3.4.2 Physical Containment

Groundwater may be physically contained through construction of barriers to groundwater flow. Impermeable barrier walls, such as slurry walls or sheet piling, are installed along a vertical plane in the subsurface to provide a barrier to groundwater flow. The exact size and depth of the wall are determined through detailed groundwater flow modeling during the design of the wall. Hydraulic containment can be combined with barrier walls. These methods were evaluated as part of the interim action selection process, but were not selected as appropriate measures for the site.

Slurry walls are subsurface walls formed of native soil and bentonite, or an introduced cement-bentonite mixture. The walls are installed by excavating a trench and backfilling the trench with a soil-bentonite or soil-cement-bentonite mixture, producing a barrier with a hydraulic conductivity of 10-6 to 10-9 cm/s, although a more permeable barrier may be sufficient. During excavation and placement of the low permeability slurry, the trench is typically supported with a slurry mixture, which is displaced as the low-permeability backfill is placed.

Sheet pile cutoff walls are constructed by driving interlocking steel or HDPE into the ground. The joints between individual sheets are typically plugged with a clay slurry (steel sheets) or an expanding gasket (HDPE sheets). The steel piles can be driven directly into the ground, while the HDPE piles need to be driven with a steel backing that is removed once the HDPE sheet is in place.

Slurry walls can be constructed using several different methods. For example, with the trench method, a trench is dug and back filled with a slurry mixture of bentonite and native materials. With a vibrating beam method, a steel plate is forced into the ground. As the plate is removed, bentonite is injected to fill the space of the beam. A typical slurry wall installed by trenching ranges in width from about 0.5 to 2 meters and can be installed to depths of up to approximately 50 meters, depending on the site geology. Slurry walls created with the vibrating beam method are much narrower and are typically installed at shallower depths.

The major concern with the installation of steel sheet piles is the corrosivity of groundwater. In order to satisfy the design life requirement of 30 years, an extremely thick pile or corrosion protection would be necessary.

HDPE sheet piles provide chemical compatibility, low seepage rates, and minimal disruption to operational activities in the area. HDPE piles are easy to install in the loose tideflat soil, and provide no concerns with respect to vehicle loading, utilities, and wall alignment. HDPE sheet piles are likely to have the most difficulty with buried debris (wood) contained in the upper few feet of the aquitard. The HDPE sheet pile alternative is more costly than the steel sheet pile.

All three methods of construction are effective ways to limit off-site migration of impacted groundwater, and meet the requirements for remedies under MTCA. At this site, however, groundwater along the northern property boundary tends to flow towards the site, rather than away from the site. Therefore, limiting migration in the northern direction is not expected to improve groundwater quality in the area. Moreover, the groundwater modeling conducted during the design of the interim action indicated that a physical barrier wall would have minimal effect on groundwater quality at the site.

Farther downgradient, migration is already limited to locations well upgradient of the CPOC at the property boundary. Physical containment would not provide additional protection at this site, so it will not be retained for further consideration.

7.3.4.3 Immobilization

In situ immobilization of metals in groundwater can be achieved using a slow-release metals treatment product called Metals Remediation Compound (MRC), or potentially by using a new technology that combines ferric chloride and peroxide to immobilize arsenic.

MRC is a non-toxic formulation that, upon injection into the contaminated subsurface removes dissolved metals from groundwater under reducing conditions. The active compound in MRC is a benign organosulfur compound that is environmentally safe. Once MRC becomes hydrated and subject to microbial biodegradation, it slowly releases the organosulfur compound. Upon contact with metal ions, the organosulfur compound irreversibly reacts to produce a metal-organosulfur complex (complexation). This metal-organosulfur complex sorbs strongly to soil and is immobile in the subsurface. Over time, the immobilized metals may be incorporated into the soil matrix as sulfide solids. The immobilized metals are stable under low redox potential and may be stable under oxidizing conditions. MRC's organosulfur compound also acts as a direct reductant for metals like chromium that precipitate as hydroxides and oxides upon reduction of oxidized forms. MRC offers a safe, simple and effective means of *in situ* metals treatment for contaminated groundwater sites.

A bench test using site soils would be performed to ensure that MRC will not mobilize soil bound arsenic. Assuming the bench test is successful, MRC would be injected at 12 locations in a 20 feet by 20 feet area around MW-13. MRC is delivered at a rate of 5 pounds per vertical foot in each location, using direct-push technology. A one-time application would be administered as a pilot scale study. After the initial application, monitoring would be performed to assess the effectiveness of the technology for full scale application.

The ferric iron process immobilizes arsenic by changing the valence state of arsenic into an immobile state. Injection of the chemicals at the site may also be problematic for continued operation of the horizontal recovery well, as it has been shown to create solid mass in the aquifer, which may necessitate replacement of monitoring wells. If considered, arsenic oxidation by ferric iron would only be implemented after chromium reduction activities, and again a bench test would be performed using site soils to confirm that CrIII is not also oxidized and remobilized by this injection process.

Immobilization meets the threshold requirements under MTCA, and, in the case of MRC injection, is both implementable and cost-effective. This alternative will be retained for further evaluation for metals-impacted groundwater. The ferric iron process requires additional study before it will be considered for use at the site.

7.3.5 Removal and Ex Situ Treatment or Disposal

Impacted groundwater can be removed through pumping. The recovered groundwater requires reuse and/or treatment and appropriate discharge. Groundwater recovery systems typically consist of downwell pumps, piping to a common collection point, concurrent treatment of the groundwater from all extraction points, and discharge of the treated groundwater. The treated groundwater is typically discharged to surface water under an NPDES permit, discharged to a POTW, or re-injected into the groundwater, sometimes to promote groundwater flow towards extraction points.

The existing removal and partial containment remedy that was installed as an interim action in 1997, and began full operations in January 1999, acts as both a containment and a removal remedy. This recovery system addresses groundwater impacts beneath the transfer table pit and the adjacent treatment area. Operation of this system reduces the mass of IHSs in groundwater. The system was installed and started as described in the Groundwater Interim Action Implementation Report (ThermoRetec, 1999).

7.3.6 In Situ Treatment

The only presumptive remedy for *in situ* groundwater treatment at wood treating sites is bioremediation. This section discusses the potential for bioremediation at the site and other *in situ* treatment options for groundwater that are not included as presumptive remedies.

7.3.6.1 Natural Attenuation

Natural attenuation includes naturally occurring processes in the environment that act to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in groundwater. These *in situ* processes include biodegradation, dispersion, dilution, sorption, volatilization, and/or chemical and biochemical stabilization of contaminants. Natural attenuation has been extensively documented and is increasingly relied on for the cleanup of soil and groundwater contaminated with fuel hydrocarbons, PAHs, and chlorinated solvents.

Site characterization is typically demonstrated, in decreasing order of importance, through:

- Historical data showing a stable or decreasing contaminant plume in groundwater.
- Geological and/or geochemical data demonstrating natural attenuation processes or rates.

- Field or soil microcosm studies.

Over 10 years of historical data exist for the site, showing a stable plume that is not increasing. Natural attenuation processes are likely limiting contaminant migration downgradient of the horizontal recovery well. Natural attenuation remedies always require ongoing monitoring and periodic re-evaluation of site conditions. This technology meets the threshold requirements, is easily implementable, and provides a permanent solution. It will be retained for further evaluation.

7.3.6.2 Enhanced In Situ Biodegradation

Biodegradation is based on the natural biochemical reactions mediated by microorganisms that result in degradation of organic compounds in groundwater. Aerobic biodegradation converts organic matter and compounds to intermediate organic compounds and final decomposition products that include daughter compounds, carbon dioxide, water, humic materials, and microbial cell matter. Anaerobic biodegradation converts compounds to carbon dioxide, methane, and microbial cell matter. For PAHs and PCP, aerobic biodegradation tends to occur more quickly than anaerobic degradation. HPAHs tend to degrade more readily under aerobic conditions, with limited degradation under anaerobic conditions. For this reason, oxygen enhancement in the groundwater is a commonly applied technique to promote increased biodegradation.

In order to promote faster biodegradation, active systems can be put into place to increase dissolved oxygen, leading to aerobic biodegradation, which typically occurs at faster rates than anaerobic biodegradation. Several process options exist to deliver the increased oxygen.

Biodegradation meets the threshold requirements under MTCA, and ranks highly in Ecology's preference for remedies. Because contaminants are destroyed, biodegradation provides a permanent solution, which is also preferable under MTCA.

7.3.6.3 Air Sparging

Air sparging injects pressurized air below the water table. The air spreads outwards and rises towards the water surface, thus increasing the groundwater exposed to air and allowing dissolution of oxygen into the groundwater. Air sparging typically uses aboveground blowers and piping systems to pressurize and distribute the air. The air is injected into the groundwater either in wells or trenches. Creating an oxidizing environment in the subsurface will contribute to immobilization of arsenic and copper through oxidation and precipitation. Air sparging also provides a degree of physical stripping, especially for volatile compounds. In these cases, the soil vapor and air quality may need to be monitored carefully or controlled with SVE to prevent release of potentially harmful concentrations of volatilized compounds. After recovery, the vapors are typically treated by thermal or catalytic oxidation.

Air sparging is effective at delivering oxygen in coarse-grained lithologies. Significant pressures are required to deliver oxygen in fine-grained lithologies and the penetration into fine-grained lithologies may result in short-circuiting and poor oxygen delivery. Use of trenches with coarse backfill will allow more uniform injection of oxygen into groundwater in fine-grained lithologies, but are dependent upon groundwater flow to circulate the oxygenated groundwater. The fine-grained lithologies at the site may make air sparging less effective than other technologies for delivering oxygen to the groundwater. Air sparging is generally more effective on volatile compounds than semivolatile compounds. Air sparging is implementable at the site. Design would be required to determine if collection and treatment of vapors would be required. Costs for air sparging are relatively low as compared to other means of delivering oxygen, though costs are increased considerably if vapor collection and treatment are required. This process option will be retained for further consideration.

7.3.6.4 Hydrogen Peroxide

In this process option, dilute hydrogen peroxide solutions are injected into the groundwater. These solutions release oxygen, which is then absorbed by the groundwater. Care must be taken to set up the peroxide injection and any groundwater circulation to prevent mobilizing IHSs.

Hydrogen peroxide is an effective means of increasing oxygen content in groundwater, though the effectiveness can be limited by high iron content (such as is found at the site). The process is technically implementable at the site, though there are likely to be permitting requirements for extraction and injection of groundwater. There are also health and safety considerations with hydrogen peroxide injection, as heat can be generated in the subsurface. Given that less costly and safer methods for oxygen enhancement exist, this process option is not retained for further consideration.

7.3.6.5 Oxygen Release Compound™

Oxygen Release Compound (ORC) is a solid compound that releases oxygen into groundwater over time. ORC can be directly injected into the groundwater as a slurry using a direct-push coring rig or drill rig. It can also be placed repeatedly in wells using contained "socks." The compound releases oxygen slowly and provides a moderate duration (up to several months) for an oxygen source.

This process is effective at delivering oxygen to the groundwater and would aid in bioattenuation of PAHs in addition to aiding oxidation and resulting precipitation of arsenic. However, ORC is reliant on diffusion and groundwater advection and dispersion to distribute the oxygen over larger areas. In areas where the oxygen demand is high or groundwater migration is relatively slow, the oxygen distribution is slow limiting the effectiveness and rate of aerobic biodegradation. The process is highly implementable at the site. Costs are dependent upon the frequency of injections, both spatially and temporally. In general, costs are fairly low as compared to other oxygen enhancement processes. ORC will be retained for further consideration.

7.3.6.6 Chemical Oxidation

Chemical oxidation is a technology that involves adding oxidizing compounds, such as oxygen, hydrogen peroxide, ozone, or permanganate, to the groundwater. These oxidants have been able to cause the rapid and complete chemical destruction of many toxic organic chemicals and have fast reaction times. Similar to oxygen delivery in enhanced biodegradation, the delivery and distribution of the oxidizing compounds is of critical importance to the success of the technology.

The technology is highly implementable though controls and proper personnel training will be required prior to handling oxidizers. Provided the site hydrogeology allows for good distribution of oxidizing material, costs associated with chemical oxidation are fairly low. The effectiveness of chemical oxidation with SVOCs, including PAHs, has been limited in the past. Difficulties with even delivery of oxidizers and risks associated with proximity to surface water may further limit effectiveness of the technology. Difficulties in distribution can increase costs considerably due to the relative high costs of the oxidizing compounds. This technology is not retained for further consideration, because this technology has not been widely used in full-scale applications.

8 ALTERNATIVE EVALUATION AND SELECTION

Based on the technology screening presented above, potentially applicable alternatives for remediation of impacted soil and groundwater at the site are evaluated in terms of their ability to meet MTCA requirements, as described in Section 6. The No Action alternatives were included for comparison purposes.

In a typical RI/FS document, for a site where no remedial action has been completed, the alternative selection process would include detailed development of full-scale remedies that may be appropriate for the site, followed by a ranking or scoring of each alternative, and a comparison of their relative implementability, cost effectiveness, and efficiency at achieving cleanup goals. However, for the site, site-wide interim actions have already been implemented, and they have been effective at providing protection of human health and the environment. These interim action measures are in place and will remain in operation, so they will be a part of any final remedy at the site. As such, Ecology has agreed that a focused FS is appropriate for evaluating final remedies at the site.

This section is composed of an evaluation of the ability of the existing interim actions to satisfy MTCA's requirements for final remedies, followed by an analysis of three potential remedies that consider applicable technologies where additional remedial actions are needed in order to satisfy MTCA.

8.1 Interim Action Evaluation

Interim actions have been completed at the site and are considered here in the context of final remedy development and selection. The interim actions were implemented under the existing AO, with consent and approval by Ecology and have effectively reduced risks. Therefore, all potential final remedies will include the following actions, described in detail in Section 4 of this document:

- **Paving—**All areas of the site where soil is known to exceed CULs (Figure 4-2), and all treated wood and non-treated wood storage areas are paved. The paved areas are equipped with catch basins and piping to collect stormwater and direct it to on-site filtration/treatment systems. The stormwater is discharged under a site-specific NPDES permit.

- **Drip Pad Construction—**Included excavation and disposal of impacted soils, as well as installation of a steel-reinforced concrete drip pad and underlying leak detection system. These activities removed previous soil contamination and prevents future contamination of soil.
- **Installation and Operation of the Horizontal Recovery Well—**Serves as both containment and removal of groundwater impacts beneath the transfer table pit and the adjacent treatment area. Extracted water is reused in site operations. This remedial system prevents impacted groundwater that exceeds CULs from migrating downgradient of the treating area.
- **Transfer Table Pit Upgrade—**Included removal of 860 tons of impacted soil and off-site disposal, construction of a concrete containment slab, and construction of a drainage system emergency shut off valve to prevent potential releases. As with drip pad construction, these activities removed previous soil contamination and prevents future contamination of soil.
- **Phased Closure of the CCA Drip Pad—**Includes cleaning and resealing of the drip pad, as well as removal and proper disposal of residuals.

The paving and installation of the drip pads include provisions for regular maintenance and monitoring. These activities would continue for the life of the facility. Any remedy that includes maintenance of the paving to be maintained as a soil cap will include a formal Inspection and Monitoring Plan to address issues related to utility or other subsurface work performed in areas where contaminated soil is still present, as well as maintenance and repair requirements. Furthermore, the property is zoned industrial, and site access is controlled through fencing and gates, thus preventing residential exposure to contaminants. These constitute institutional controls which will be maintained at the site.

Section 7 presented a technology screening for potentially applicable groundwater remedies. Hydraulic containment, removal and on-site reuse, natural attenuation, institutional controls and groundwater monitoring are all components of the interim actions and continued operation of the horizontal recovery well, as discussed.

The interim actions all satisfy the threshold requirements under WAC 173-340-360(2)(a), in that they are protective of human health and the environment, comply with CULs and applicable state and federal laws, and provide for compliance monitoring.

8.1.1 Soil

Containment and removal are both components of the interim actions. Removal and off-site disposal ranks fourth on Ecology's preference list, under 173-340-360(3)(f)(iv), and containment ranks fifth.

Excavation was performed as an interim action measure, providing a permanent reduction in contaminants onsite. Although excavation results in a short-term increase in risks to workers, these risks were effectively managed through best management processes.

Maintaining portions of the existing pavement as a soil cap where detected concentrations exceed CULs provides an ongoing containment remedy, ranks highly in terms of permanence, as it is effective over the long term, and manages short term risks. Figure 8-1 shows the extent of the proposed remedial cap. It is easily implementable, and allows for continued facility operations. Moreover, this alternative will effectively continue to manage exposure of workers to contaminated soils, and it was a cost-effective remedy when it was initially implemented in 1993 as an interim action. Ongoing inspection and maintenance will continue to provide a cost-effective solution at the site.

Maintenance of the soil cap provides for an immediate restoration time frame, because human health and the environment are already protected.

8.1.2 Groundwater

The bulk of the groundwater impacts are located upgradient of the horizontal recovery well, and will be contained by continued operation of this system. Although limited groundwater impacts exist downgradient of the horizontal recovery well, the impacts do not extend to the CPOC, which is located at the downgradient property boundary. Groundwater at the site has been monitored for over 20 years, the area of groundwater impacts is not expanding and IHS concentrations are decreasing or remaining stable (see Sections 3.4 and 5.7). Continued operation of the horizontal extraction well ranks highly in terms of permanence, using the criteria described in WAC 173-340-360(3)(f), as it includes active removal and reuse of impacted groundwater. It is effective over the long term, and manages short term risks. It is easily implementable, and it is consistent with continuing operations at the facility.

8.1.3 Additional Actions Needed to Meet MTCA Requirements

In order to meet all MTCA requirements for a final remedy, the existing interim actions must be augmented to include provisions for:

1) Institutional controls to ensure the ongoing operation and maintenance of the interim actions;

2) Compliance monitoring, and

3) Contingency plans for additional remedial action, should concentrations increase in sentry wells.

The following subsections evaluate the alternative of continuing operation of the existing interim actions with necessary augmentation (e.g., compliance monitoring) and other alternatives which include components that are not necessary at this time to be protective, but may be incorporated into the final remedy as part of a contingency plan.

8.2 Remedial Action Alternatives

8.2.1 Alternative 1—Completed Interim Actions and Compliance Monitoring

Alternative 1 includes the completed interim actions (detailed in Section 8.1), long-term operation and maintenance, and compliance monitoring and sampling. The interim actions completed include:

- **Soil Cap**—Currently, all soil exceeding CULs (see Figure 5-1), and all treated wood and non-treated wood storage areas are paved. The pavement varies in thickness from 4 inches to 6 inches as depicted on Figure 4-2. The integrity of the pavement in areas where CUL exceedances were observed will be maintained as a soil cap (see Figure 8-1). Pavement will also be maintained as a soil cap in the sub-area of Paving Area 4, which contains soil removed from Paving Area 1 that contains one arsenic CUL exceedance (see Figure 8-1).
- **Drip Pad Construction**—During the construction of the drip pad, impacted soil was excavated and disposed of at a Subtitle C landfill. Construction included the installation of a steel-reinforced concrete drip pad and underlying leak detection system.
- **Installation and Operation of the Horizontal Recovery Well**—Includes the continued operation and maintenance of the horizontal recovery well which limits the migration of impacted groundwater.
- **Transfer Table Pit Upgrade**—During the upgrade of the transfer table, 860 tons of impacted soil was removed and disposed of at an off-site disposal facility. A concrete containment slab and a drainage system emergency shut off valve were installed to prevent potential releases.
- **Phased Closure of the CCA Drip Pad**—Includes the cleaning and resealing of the drip pad, as well as removal and proper disposal of residuals.

The property is zoned industrial, and a municipal drinking water supply is readily available. These institutional controls will remain in place, and serve to limit exposure to contaminants in groundwater.

A comparison of Alternative 1 against applicable MTCA criteria is provided in Table 8-1. The detailed cost estimates are provided in Appendix J.

8.2.2 Alternative 2—Completed Interim Actions, Groundwater Treatment (MRC and ORC) and Compliance Monitoring

Alternative 2 includes all the components of the Alternative 1. In addition, Alternative 2 includes *in situ* groundwater treatment.

Immobilization of metals in groundwater using MRC is implementable and protective. Its long-term permanence has not yet been proven in the field, but it will be maintained as a contingent remedy option for arsenic impacts along the northern property boundary, should concentrations in this area increase.

ORC use results in destruction of organic contaminants *in situ*, and therefore ranks highly in Ecology's preference list (173-340-360(3)(f)(iv)). It is also a permanent solution, as the mechanism is irreversible. Short term risks associated with implementation of this remedy would be similar to those for MRC implementation, and would include operation of a drill rig to deliver the compound to the subsurface.

A comparison of Alternative 2 against applicable MTCA criteria is provided in Table 8-1. The detailed cost estimates are provided in Appendix J.

Neither of these options would be required at this time to meet the MTCA requirements for a final remedy. However, they may be included as contingent remedies that are triggered when specific conditions in the Compliance Monitoring Plan (CMP) are met. Both MRC and ORC are relatively easy to implement, and could be started in response to changes in groundwater quality, if observed, at the site during continued operation of the groundwater recovery system.

8.2.3 Alternative 3—Completed Interim Actions, Expansion of Groundwater Recovery System and Compliance Monitoring

Alternative 3 includes all the components of the Alternative 1. In addition, Alternative 3 includes expansion of the groundwater recovery system.

Expansion of the groundwater recovery system would increase the area of containment at the site and further reduce contaminant migration. A comparison of Alternative 3 against applicable MTCA criteria is provided in Table 8-1. The detailed cost estimates are provided in Appendix J.

Current risks at the site do not warrant additional groundwater extraction, because the impacted areas are in the vicinity of the upgradient property boundary (MW-2, MW-13) and a small area (MW-15 and MW-4) that is downgradient of the horizontal recovery well; and attenuation modeling indicates that impacts do not extend beyond the downgradient property boundary. Since migration of the contaminant plumes is negligible as a result of a relatively flat hydraulic gradient and ground water extraction by the horizontal recovery well, contamination near MW-15 is not expected to migrate to the CPOC at the property boundary. Therefore, expansion of the groundwater recovery system would not be required at this time to meet the MTCA requirements for a final remedy. However, expansion of the groundwater recovery system may be included as a contingent remedy that is triggered when specific conditions in the CMP are met. For costing purposes, this expansion is assumed to include an additional horizontal recovery well or two to five pumping wells. The final expansion configuration, if necessary, will be determined based on conditions at the site.

8.2.4 Alternative 4—Completed Interim Actions, Additional Soil Excavation, and Compliance Monitoring

Alternative 4 includes all the components of the Alternative 1. In addition, Alternative 4 includes additional soil excavation.

Additional excavation of the impacted soils above the water table, followed by off-site disposal of the excavated material at a Subtitle C landfill could be implemented at the site, but would not eliminate the need for maintenance of the existing cap, as the cap is required not only for remediation purposes, but also for ongoing operations at the CPLC facility. Furthermore, excavation would not remove all impacted soil as existing facility structures (e.g., retorts) prohibit complete removal.

Any plan for additional excavation would include confirmation sampling of the excavation sidewalls and bottom to ensure compliance with CULs. Excavated soil would be stockpiled onsite prior to disposal and the excavation would be backfilled with clean fill.

A comparison of Alternative 4 against applicable MTCA criteria is provided in Table 8-1. The detailed cost estimates are provided in Appendix J.

The excavation alternative would achieve CULs in accessible soil at the site, but it is not easily implementable. Facility operations would be greatly disrupted, and would likely require closure for a period of time. Short-term risks would be significantly higher. The costs associated with this alternative are not warranted, given that this alternative would not provide a significant decrease in risk associated with on-site soils. Implementation of additional soil removal would result in a permanent decrease in contaminant mass at the site, but would not necessarily result in an overall decrease in risk at the site, because the existing caps prevent direct contact with impacted soils. Therefore, additional excavation is not warranted at this time. This remedy would be implemented only if the current containment remedy were determined to be insufficiently protective of human health and the environment. As discussed in Section 8.1.1, the soil cap meets MTCA's requirements for a final remedy, given the current site use and operations at the facility.

8.3 Disproportionate Cost Analysis

Consistent with MTCA requirements for remedy selection, the costs and benefits associated with the evaluated remedial alternatives are compared using a disproportionate cost analysis. The overall costs of a more expensive alternative are disproportionate to the benefits if the incremental costs of the alternative, over that of a lower cost but overall effective alternative, exceed the incremental decree of benefits achieved by the more costly alternative relative to that of the lower cost alternative (WAC 173-340-360(e)(i)). Where the quantitative and qualitative benefits of two alternatives are equivalent, MTCA specifies that Ecology shall select the less costly alternative (WAC 173-340-360(3)(e) (ii)(C)).

Table 8-1 summarizes the remedy cost for each alternative, as well as the remedy benefits discussed above in Sections 8.1 and 8.2. Costs for completed interim actions are included in the remedy estimates. Appendix J contains a detailed cost breakdown for each alternative. Costs are expressed in 2011 dollars without adjustments for future cost inflation and without present value discounting of future costs. These costs are expected to vary within a range of +/- 30% around estimates required for costing at a preliminary level.

As noted above, the Alternative 1 includes the completed interim actions which satisfy the threshold requirements of WAC 173-340-360(2)(a), in that they are protective to human health and the environment, comply with CULs and applicable state and federal laws, and provide for compliance monitoring. In addition, Alternative 1 has the shortest restoration time frame. The other alternatives also satisfy the threshold requirement, but have longer restoration time frames and higher costs.

As all the potential remedies achieve the threshold requirements, Alternative 1, which has the lowest cost and shortest restoration timeframe, is the preferred remedy for the site. Based on the analysis in Section 8.2, Alternatives 2 and 3 include components which may be incorporated into the CAP as contingent measures as needed.

8.4 Additional Evaluation of the Preferred Remedy

As shown in Section 8.2, the current interim actions and existing site operations meet the MTCA requirements for a final remedy; thus, Alternative 1 is the preferred remedy for the site.

A detailed CMP, including contingent remedies will be developed, in coordination with Ecology, as part of the preferred remedial action. Section 8.4.1 provides a framework for the CMP and contingent measures.

The preferred remedy includes a CPOC for groundwater and leaving contaminated soil in-place under pavement and buildings. Since contamination will remain on-site as part of the selected cleanup action, an environmental covenant and institutional controls will be required for soil and groundwater on the property as part of the protective remedy.

8.4.1 Compliance Monitoring Plan

MTCA requires that a final remedy allow for compliance monitoring (WAC 173-340-360(2)(a)). As part of the implementation of the final remedy, a formal CMP will be prepared in accordance with WAC 173-340-410 for inclusion as an appendix to the CAP. This section provides a brief discussion of the proposed framework for the CMP, and associated contingent remedies that may be implemented under that plan. The final details and selected components of the compliance monitoring will be finalized in the CMP to be included with the final CAP. The CMP will include selection of shallow and deep monitoring wells to be used to evaluate the ongoing protectiveness of the final remedy, to evaluate when and if the operation of the horizontal recovery well may be discontinued, and to monitor conditions after shut down of the horizontal recovery well. The horizontal recovery well will continue to operate until conditions have been met for shut-down. The CMP will establish the criteria for shut-down and monitoring frequencies for performance and confirmation monitoring following shut-down.

The monitoring network will include wells located both in the treating area, to monitor source concentrations, and downgradient of the treating area to monitor compliance at the CPOC (the property boundary). In order to determine which areas of the site are downgradient of the treating area, typical groundwater flow directions were evaluated using groundwater elevation contour maps from 1991 to 2012. Groundwater from the treating area flows toward the southwest along the primary flow lines shown on Figure 8-2. Natural groundwater flow at the site has been altered in the vicinity of the horizontal recovery well, HW-01; however, groundwater flow remains consistently toward the southwest. Operation of the groundwater recovery system will continue as part of the final site remedy, until such time as a demonstration has been made that groundwater meets the requirements for discontinuing treatment and/or monitoring (to be discussed in the CAP). Based on the observed flow directions, shallow aquifer well MW-1 is located along the southernmost extent of groundwater flow from the treating area and shallow aquifer well MW-4 is directly downgradient of the treating area (see Figure 8-2).

Compliance monitoring wells are typically placed at or upgradient of the CPOC, which, for the site, is at the downgradient property boundary. Currently, only one monitoring well is located at the downgradient CPOC (shallow aquifer well MW-1, see Figure 8-2). Well MW-1 will be included in the monitoring network as a compliance monitoring well. Other selected, existing monitoring wells and new shallow aquifer wells, located within the interior of the property, will be used as sentry wells or to monitor source area concentrations. Groundwater monitoring data and attenuation modeling indicate that groundwater CULs are currently being met in the shallow and deep aquifer wells within the property boundaries. As a result, shallow and deep aquifer wells located within the interior of the property (i.e., sentry wells) will be used to monitor CUL compliance at the CPOC, in lieu of installing additional wells at the property boundary. This approach will allow for monitoring of groundwater concentrations closer to the source, which has been identified as the treating area, and allow monitoring of groundwater data trends in sentry monitoring wells to provide indications of plume migration well before CULs could be exceeded at the CPOC.

The existing, deep aquifer wells MW-7 and MW-18, which are located downgradient of the treating area; existing shallow aquifer well MW-4; and two new shallow aquifer wells (MW-19 and MW-20) will be used as sentry wells (see Figure 8-2). The two new shallow aquifer wells (MW-19 and MW-20) will be installed to provide monitoring points in areas downgradient of the treating area that previously have not been monitored. MW-19 will provide a monitoring point along the northernmost groundwater flow path, and MW-20 will provide an additional data point between well locations MW-1 and MW-4. The need to minimize disruption to facility operations and minimize the potential for future damage to the wells was also taken into account in the selection of locations for these new sentry wells.

IHS concentrations are likely to attenuate as groundwater migrates from a sentry well to the downgradient property boundary, or CPOC. As a result, it is overly conservative to apply CULs at sentry wells located within the interior of the property. Therefore, attenuation modeling will be used to develop "action levels" to apply at sentry wells. For each sentry well, the IHS concentrations that are determined, through modeling, to attenuate to the CUL concentrations before reaching the property boundary will be selected as action levels. For example, arsenic exceeds the CUL at MW-4; however, attenuation modeling indicated that arsenic concentrations decrease to below the CUL approximately 220 feet downgradient of MW-4, before reaching the CPOC at the downgradient property boundary. In fact, based on the horizontal hydraulic gradient, it would require approximately 189 years for groundwater to migrate from MW-4 to the property boundary, located approximately 625 feet downgradient. MW-4 will be used as a sentry well, and attenuation modeling will be used to determine action levels for each IHS to be applied at MW-4. Likewise, attenuation modeling will be used to determine action levels for each sentry well to be included in the compliance monitoring network.

IHS concentrations have been consistently below CULs in the deep aquifer sentry wells MW-7 and MW-18 (see Section 5.7.4). Despite the demonstrated compliance with CULs, it is more appropriate to apply action levels at these wells because they are located distant from the CPOC. Therefore, action levels will be developed for the deep aquifer, sentry wells MW-7 and MW-18. Shallow aquifer compliance monitoring well MW-1, on the other hand, is located at the CPOC (the property boundary). Therefore, CULs will apply at MW-1. Well MW-1 has not been sampled since 2004, but during 2004, IHS concentrations were below CULs or just above the CUL and showing a strong decreasing trend (see Section 5.7.2).

The two new shallow aquifer sentry wells (MW-19 and MW-20) will be located downgradient of the treating area. Arsenic has been detected above the CUL at shallow aquifer well MW-4, which is also located downgradient of the treating area. Therefore, arsenic concentrations may exceed the CUL in the new shallow aquifer sentry wells. However, given that they are located distant from the CPOC, action levels will be developed for these sentry wells using the modeling described above. Based on the attenuation modeling results for well MW-4, arsenic concentrations are not likely to exceed action levels in the new sentry wells. In addition, concentrations of other IHSs are below CULs at MW-4 and therefore, are expected to be below CULs and/or action levels in the new sentry wells.

In addition to the sentry monitoring wells (MW-4, MW-7, MW-18, MW-19, and MW-20) and the compliance monitoring well (MW-1) proposed above, two existing monitoring wells (one shallow aquifer well [MW-8] and one deep aquifer well [MW-14]), located in the treating area, will be included in the monitoring network (see Figure 8-2). The selection of monitoring wells will be finalized within the CMP, to be included as an appendix to the CAP. Inclusion of treating area groundwater monitoring wells will allow for monitoring source concentrations and for establishing concentration trends between the source area and the downgradient monitoring points. Wells MW-8 and MW-14, located in the source area, continue to exhibit IHS exceedances (as discussed in Sections 5.7.2 and 5.7.4). MW-14 is the only deep aquifer well located in the source area. Multiple shallow aquifer wells are located in the source area, but well MW-8 was selected for inclusion in the compliance monitoring network for the following reasons:

- Well MW-8 is co-located with deep aquifer well MW-7, which would allow for direct comparison of shallow and deep groundwater impacts.
- Well MW-8 is in a more favorable location, from an operational perspective, than the other source area wells.

In addition to MW-8, shallow aquifer samples will be collected from the horizontal recovery well (HW-01) as part of the proposed long-term monitoring to assess source removal over time. However, MW-8 and MW-14, and the horizontal recovery well, will not be monitored for compliance purposes for the CPOC (i.e., achievement of action levels or CULs or in the short-term), but to assess contaminant trends in the source area.

Contingencies will be included in the CMP to address potential action level exceedances in sentry wells or CUL exceedances in wells located at the CPOC. Specific conditions or situations that would trigger a contingency will be defined in the CMP. Contingency measures may include a progression of performing more frequent groundwater monitoring, refined attenuation modeling to confirm that CULs are met at the property boundary, installation of additional reconnaissance borings or monitoring wells, or additional source-area characterization. The CMP may also include provisions for modifying the CMP in the event that contingent measures are triggered. The CMP will be incorporated into the final remedy along with the CAP.

9 SUMMARY AND CONCLUSIONS

The CPLC wood treating facility in Tacoma, Washington has been in operation since 1974. In 1985 and 1986, three known spills were reported in the northern portion of the property. These spills and historical operations resulted in impacts to soil and groundwater at the site, which was the subject of investigations performed between 1991 and 2004. The results of these investigations indicated metals, PAH, PCP and BTEX impacts in on-site groundwater and/or soil.

On the basis of these initial findings, several interim actions were implemented. These included soil removal, soil characterization of proposed paving areas, upgrades of the transfer table and drip pads, and installation of a horizontal recovery well for groundwater containment and removal. Soil excavation and disposal in Subtitle C and D landfills was also performed during the interim action work, resulting in removal of over 1,000 tons of impacted soil from the process areas during multiple excavation events.

In Section 5 of this RI/FS report, applicable CULs for the site were developed. CULs for soil are based on an industrial worker scenario, and CULs for groundwater are based on the discharge of groundwater into nearby surface water. These CULs were compared to on-site soil and groundwater concentrations to determine areas of concern at the site. These areas are shown on Figures 5-1 and 5-2.

Soil exceeds the applicable CULs only for arsenic, at depths of less than 5 feet bgs. Groundwater exceeds CULs for arsenic, copper, chromium, cPAHs, and PCP. Low-level arsenic impacts in groundwater may be attributable to background concentrations of arsenic in the area. Some more significant arsenic CUL exceedances are evident in areas of historical releases, near the northern property boundary. Most of the remaining groundwater CUL exceedances are located upgradient of or adjacent to the horizontal extraction well. Limited impacts are also noted downgradient of the horizontal recovery well, well upgradient of the CPOC.

The technology screening and subsequent alternative evaluation presented in Sections 7 and 8 of this document resulted in the following recommendations for a final remedy for the site.

9.1 Final Remedy for Soil

The final remedy for soil incorporates the interim actions performed to date, as well as ongoing maintenance of portions of existing paved areas that will serve as a cap and drip pads that were implemented as interim actions in 1993.

The containment remedy includes catch basins and piping that were installed to collect all of the stormwater from newly paved treated wood storage areas, limiting stormwater from contacting impacted soils prior to treatment and discharge from the facility under a site-specific NPDES permit. A detailed discussion of the stormwater management system at the CPLC facility is included in Appendix H.

The drip pads are constructed of epoxy sealed, steel-reinforced concrete, and include an underlying leak detection system. The leak detection system consists of drainage sand, piping, and a sump above a HDPE sub-liner.

This remedy will include development of a formal Inspection and Monitoring Plan to address issues related to utility or other subsurface work performed in areas where contaminated soil is still present, as well as maintenance and repair requirements.

9.2 Final Remedy for Groundwater

This final remedy for groundwater relies on the existing removal and containment system that was installed as an interim action in 1997, and began full operations in January 1999. This groundwater interim action consists of groundwater extraction using a horizontal recovery well and associated recovery sump and pump. Extracted groundwater is reused in facility operations.

This recovery system addresses groundwater impacts beneath the transfer table pit and the adjacent treatment area. The migration of impacted groundwater within the shallow aquifer or to the deep aquifer has been reduced. In addition, the mass of IHSs in groundwater will continue to be reduced.

This remedy will also include a compliance monitoring program, as well as contingency measures to be implemented should concentrations in selected on-site monitoring wells increase or continue to exceed applicable action levels in sentry wells and CULs at the CPOC. Monitoring will be aimed at ensuring that CULs are not exceeded at the downgradient property boundary, and water-level monitoring will be performed to verify that impacts on the upgradient property boundary are contained by the natural hydraulic gradient and the horizontal recovery well. Monitoring of sentry wells and attenuation modeling will provide early warning of contaminant migration towards the downgradient property boundary, which will serve as the CPOC.

The final contingency plan will be developed in a CMP to be incorporated into the final remedy in conjunction with the CAP. The contingency plan would include provisions for evaluating the results of groundwater sampling, and a method for identifying if and when contingent measures must be implemented.

LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

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TABLES

Table 3-1 Summary of Previous Investigations and Interim Actions

Date	Report Title	Data Collected
Dec-90	*Sampling Plan for a Site Investigation*	Summary of soil quality data collected by Ecology and EPA
Jun-91	*Interim Report*	• Shallow soil samples in the treated lumber storage area (paving area 2; a to d) • Shallow soil samples in the transfer table area (e to i) • Well installation and soil sampling in the three areas of concern (MW-1 to MW-11) • First of four groundwater sampling rounds (March 1991) • Water level monitoring and assessing tidal effects on the upper aquifer (February 1991)
Apr-92	*Final Investigation Report*	• Groundwater sampling (July and October 1991, January 1992) • Monthly gauging
Oct-92	*Draft Interim Action Work Plan for the Proposed Paving, Drip Pad and Transfer Table Areas*	Results of soil sampling in treated pole storage area (June 1991; paving area 1)
Feb-93	*Interim Action Sampling Plan*	
May-93	*Interim Action Report*	Results of soil sampling in paving areas 1, 2, and 3 (February 1993), and CCA and PCP drip pad areas (March 1993)
Aug-94	*Draft Interim Action Plan for the Transfer Table Soils*	
Nov-94	*Final Work Plan for a RI/FS*	
Nov-95	*Groundwater Interim Action Design Report*	Slug test results (June 1995) – six rising head tests
Jan-97	*Progress Report*	Installed and sampled three monitoring wells (MW-12 to MW-14; December 1996)
Oct-98	*Transfer Table Area Plan Interim Action Activities and Drip Pad Conversion*	
May-99	*Groundwater Interim Action Implementation Report*	Results of groundwater sampling (January 1999)
Jul-00	*Transfer Table Pit Upgrade Completion Report*	Results of soil sample collected near butt vat (October 1999)

Table 3-2 Vertical Gradient Calculations

Well Number Depth (ft) of Screen Center Units	MW-7 (deep) 22.5 ft	MW-8 (shallow) 7.5 ft	Gradient from MW-8 to MW-7 ft/ft	MW-13 (shallow) 7.75 ft	MW-14 (deep) 22.25 ft	Gradient from MW-13 to MW-14 ft/ft	MW-10 (shallow) 7.75 ft	MW-18 (deep) 24.5 ft	Gradient from MW-10 to MW-18 ft/ft
1/30/03	4.22	5.51	0.09	7.53	5.49	0.14	—	—	—
2/27/03	3.77	5.58	0.12	7.35	4.9	0.17	—	—	—
3/14/03	4.24	5.73	0.10	7.7	5.34	0.16	—	—	—
4/28/03	3.82	5.95	0.14	7.7	4.97	0.19	—	—	—
5/29/03 [1]	11.48	13.55	0.14	13.94	11.14	0.19	—	—	—
6/30/03	10.6	13.16	0.17	13.55	10.75	0.19	—	—	—
7/31/03	10.47	12.97	0.17	13.27	10.61	0.18	—	—	—
8/28/03	10.29	12.79	0.17	13.01	10.41	0.18	—	—	—
9/29/03	10.1	12.57	0.16	12.77	10.2	0.18	—	—	—
10/31/03	10.77	12.96	0.15	13.69	10.98	0.19	—	—	—
11/26/03	11.16	13.09	0.13	13.89	11.36	0.17	—	—	—
12/24/03	12.02	13.57	0.10	14.39	12.22	0.15	—	—	—
1/30/04	12.1	13.87	0.12	15.15	12.4	0.19	—	—	—
2/4/04	12.04	13.84	0.12	15.16	12.36	0.19	13.93	11.93	0.14
2/27/04	11.78	13.91	0.14	15.03	12.08	0.20	NM	11.69	—
3/31/04	11.16	13.81	0.18	14.49	11.38	0.21	13.93	11.09	0.20
4/28/04	11.58	12.95	0.09	14.11	11.06	0.21	NM	10.75	—
5/26/04	10.89	13.48	0.17	13.81	11.02	0.19	13.48	10.77	0.19
6/29/04	10.76	13.39	0.18	13.55	10.86	0.19	NM	10.79	—
7/31/04	10.66	13.15	0.17	13.19	10.74	0.17	NM	10.59	—
8/28/04	10.66	12.99	0.16	13.13	10.7	0.17	12.83	10.53	0.16
9/30/04	10.44	12.89	0.16	13.19	10.54	0.18	9.79	10.29	-0.03
10/29/04	10.52	12.97	0.16	13.31	10.62	0.19	12.77	10.37	0.17
Max			**0.18**			**0.21**			**0.20**
Min			**0.09**			**0.14**			**-0.03**
Average			**0.14**			**0.18**			**0.14**

Notes:
1) A new elevations datum was used for groundwater elevations beginning on May 29, 2003.

Table 3-3 Soil Analytical Results – 2003 Well Installation

	Location ID	MW-15	MW-15	MW-16	MW-16	MW-16	MW-17	MW-17	MW-18	MW-18
	Sample Date	12/15/2003	12/15/2003	12/15/2003	12/15/2003	12/15/2003	12/15/2003	12/15/2003	12/16/2003	12/16/2003
	Sample ID	MW15-0-0.5	MW15-7.5-9	MW16-0-0.5	MW16-5-6.5	MW16-7.5-9	MW17-0-0.5	MW17-7.5-9	MW18-10.5-11.5	MW18-22.5-24
	Sample Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO
	Start Depth	0	7.5	0	5	7.5	0	7.5	10.5	22.5
	End Depth	0.5	9	0.5	6.5	9	0.5	9	11.5	24
Chemical Name	**Method C Direct Contact**									
Dry Weight (%)										
Dry Weight	—	**94.4**	**80**	**94.7**	**77.4**	**68.6**	**87.5**	**84.6**	**60.7**	**81.4**
SVOC/8270 (mg/kg)										
Carcinogenic PAH										
Benzo(a)anthracene	—	**2.33**	**6.68**	**0.097**	< 0.05	**0.0186**	**0.0792**	**0.0142**	**0.0295**	< 0.01
Benzo(a)pyrene	—	**0.833**	**2.03**	**0.229**	< 0.05	**0.0167**	< 0.05	< 0.01	**0.0317**	< 0.01
Benzo(b)fluoranthene	—	**1.07**	**2.38**	**0.0935**	< 0.05	**0.0226**	**0.109**	< 0.01	**0.0524**	< 0.01
Benzo(k)fluoranthene	—	**0.728**	**1.61**	**0.204**	**0.0685**	**0.0255**	**0.143**	**0.0142**	**0.0469**	< 0.01
Chrysene	—	**1.76**	**4.09**	**0.173**	**0.0514**	**0.0216**	**0.177**	**0.0126**	**0.0699**	< 0.01
Dibenzo(a,h)anthracene	—	**0.136**	**0.331**	< 0.05	< 0.05	< 0.01	< 0.05	< 0.01	**0.0109**	< 0.01
Indeno(1,2,3-cd)pyrene	—	**0.343**	**0.771**	**0.0727**	< 0.05	< 0.01	**0.0566**	< 0.01	**0.0197**	< 0.01
cPAH TEQ*	18	**1.311**	**3.248**	**0.283**	**0.077**	**0.026**	**0.096**	**0.016**	**0.048**	**0.000**
Non-carcinogenic PAH										
2-Chloronaphthalene	—	< 0.1	< 0.05	< 0.1	< 0.05	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01
2-Methylnaphthalene	14,000	**0.182**	**0.323**	**0.0762**	**0.163**	**0.0285**	**0.0905**	< **0.01**	**0.0229**	**0.0191**
Acenaphthene	210,000	**1.18**	**4.68**	< 0.05	**0.0514**	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01
Acenaphthylene	—	**0.0525**	**0.122**	< 0.05	< 0.05	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01
Anthracene	1,100,000	**1.22**	**3.48**	**0.0623**	< 0.05	**0.0167**	**0.0641**	< **0.01**	**0.0273**	< 0.01
Benzo(g,h,i)perylene	—	**0.315**	**0.809**	**0.128**	< 0.05	< 0.01	**0.0754**	< **0.01**	**0.0207**	< 0.01
Fluoranthene	140,000	**10.4**	**23.5**	**0.222**	**0.253**	**0.0324**	**0.321**	**0.0205**	**0.0721**	< 0.01
Fluorene	140,000	**1.61**	**5.21**	**0.052**	< 0.05	**0.0108**	< 0.05	< 0.01	**0.0164**	< 0.01
Naphthalene	70,000	**0.231**	**0.151**	< 0.05	**3.29**	**0.0343**	< 0.05	< 0.01	**0.0218**	< 0.01
Pentachlorophenol	330	**10.5**	**0.57**	**0.326**	< 0.05	< 0.05	**2.52**	< 0.05	**0.245**	< 0.05
Phenanthrene	—	**5.3**	**14.6**	**0.211**	**0.141**	**0.0265**	**0.158**	**0.0182**	**0.0579**	**0.0141**
Pyrene	110,000	**7.6**	**14.7**	**0.197**	**0.18**	**0.0579**	**0.196**	**0.0221**	**0.0939**	< 0.01
SW6020 (mg/kg)										
Arsenic	88	**36.8**	**11.8**	**4.69**	**4.68**	**6.73**	**27.3**	**3.99**	**11.8**	**1.43**
Total Chromium	5,250,000**	**55.7**	**31.8**	**26.6**	**10.4**	**17.2**	**55.9**	**34.8**	**26.4**	**11.8**
Copper	140,000	**65.7**	**35.5**	**26.5**	**20.8**	**36.7**	**62.6**	**22.8**	**58**	**19.2**

Notes:

* cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient; calculated using toxicity equivalency factors as shown in Table 708-2 (MTCA, 2007).

**MTCA Method C direct contact cleanup level for trivalent chromium.

Table 3-5   Groundwater Sampling Schedule

Well	Mar 1991	July 1991	Oct 1991	Jan 1992	Jan 1997	Jan 1999	Aug 1999	Jan 2000	Feb 2001	Jan 2002	Jan 2003	Feb/Mar 2004	May 2004	Sep/Oct 2004
MW-1	X	X	X	X				X	X	X		X		
MW-2	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-3	X	X	X	X		X	X	X	X	X	X	X	X	X
MW-4	X	X	X	X				X	X	X				
MW-5	X	X	X	X		X	X	X	X	X	X			
MW-6	X	X	X	X		X	X	X	X	X	X	X	X	X
MW-7	X	X	X	X		X	X	X	X	X	X	X	X	X
MW-8	X	X	X	X		X	X	X	X	X	X	X	X	X
MW-9	X	X	X	X		X	X	X	X	X	X	X	X	X
MW-10	X	X	X	X				X	X	X				
MW-11	X	X	X	X		X		X	X	X		X		X
MW-12					X	X	X	X	X	X	X	X	X	X
MW-13					X	X	X	X	X	X	X	X	X	X
MW-14					X	X	X	X	X	X	X	X	X	X
MW-15												X	X	X
MW-16												X	X	X
MW-17												X	X	X
MW-18												X	X	X
UPRR-29						X	X	X	X	X	X	X	X	X
HW-01								X	X	X	X	X	X	X

Note:
HW-01 = horizontal recovery well.

Table 3-6 Monitoring Well Installation Details

Well Number	Date Completed	Boring Depth Depth (ft bgs)	Well Depth (ft bgs)	Screen Type	Screen Length (feet)	Screen Interval (ft bgs)	Filter Pack Interval (ft bgs)	Bentonite Interval (ft bgs)
MW-1	1/22/1991	14	12.3	2" PVC	7	5.3-12.3	3.8-14	1.3-3.8
MW-2	1/24/1991	11.5	10.5	2" SS	5	5.5-10.5	3.8-11.5	1.5-3.8
MW-2 (abandoned)	3/18/1991	13	—	—	—	—	—	1.3-12
MW-2(b)	3/19/1991	12	10	2" SS	5	5-10	3.5-10	1.5-3.5
MW-3	1/24/1991	12.5	10.5	2" SS	5	5.5-10.5	4-11.5	1.5-4
MW-4	1/23/1991	12.5	12	2" PVC	6	6-12	4-12.5	1.5-4
MW-5	1/24/1991	13.5	12.5	2" SS	5	7.5-12.5	4.3-13.5	1.5-4.3
MW-6	1/25/1991	13.5	12	2" SS	5	7-12	4-13.5	1.5-4
MW-7	3/22/1991	32.5	25	2" SS	5	20-25	17.5-25.5	1-17.5; 25.5-32.5
MW-8	3/19/1991	11	10	2" SS	5	5-10	3-10	1-3
MW-9	3/20/1991	10.5	10	2" SS	5	5-10	3-10	1-3
MW-10	3/19/1991	11.5	10	2" SS	5	5-10	3-10	1-3
MW-11	3/18/1991	11	9.3	2" PVC	4	5.3-9.3	3.5-10	1.3-3.5
MW-12	12/18/1996	11.5	10	2" SS	5	5-10	4-10	2-4
MW-13	12/18/1996	11.5	11.5	2" SS	7.5	4-11.5	3-11.5	1-3
MW-14	12/18/1996	24.75	24.75	2" SS	5	19.75-24.75	18-24.75	3-18
MW-15	12/15/2003	19.5	11	2" PVC	5	6-11	5-12	1.5-5
MW-16	12/15/2003	10.5	10	2" PVC	5	5-10	3-10.5	1.5-3
MW-17	12/15/2003	14	11	2" PVC	5	6-11	4-14	1.5-4
MW-18	12/16/2003	29	27	2" PVC	5	22-27	21-29	3-21

Notes:
ft bgs = feet below ground surface.
SS = stainless steel
PVC = polyvinyl chloride

Table 3-7
Groundwater Sampling Summary (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		Number of Samples Analyzed by Monitoring Well Location																	
		Shallow Aquifer															Deep Aquifer		
Analyte Group	**Sample Year**	**HW-01 (Horizontal Recovery Well)**	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**MW-8**	**MW-9**	**MW-10**	**MW-12**	**MW-13**	**MW-15**	**MW-16**	**MW-17**	**MW-7**	**MW-14**	**MW-18**
BTEX	2004									3									
	2005									1									
	2006									1									
	2007									1									
	2008									1									
	2009									1									
	2010									2									
	2011									2									
	2012									2									
	2013					1				2									
Carcinogenic PAHs	2004	4	1	3	3			3	3	3	3	3	3	3	3	3	4	3	3
	2005	1		1	1			1	1	1	2	1	1	1	1	1	1	1	1
	2006	1		1	1		1	1	1	1	1	1	1	1	2	1	1	1	1
	2007	1		1	1		1	1	1	1	1	1	1	1	2	1	1	1	1
	2008	1		2	1		1	1	1	1		1	1				1	1	
	2009	1		1	1		1	1	1	1		1	1				1	1	
	2010	1		1	1		1	1	1	2		1	1				1	1	
	2011	1		1	1		1	1	1	2		1	1				1	1	
	2012	1		1	1		1	1	1	2		1	1				1	1	
	2013	1		1	1	1	1	1	1	2		1	1				1	1	
CrVI	2013					2													
Gasoline Range Hydrocarbons	2004									2									
	2005									1									
Metals (excluding CrVI)	2004	4	1	3	3			3	3	3	3	3	3	3	3	3	4	3	3
	2005	1		1	1			1	1	1	2	1	1	1	1	1	1	1	1
	2006	1		1	1		1	1	1	1	1	1	1	1	2	1	1	1	1
	2007	1		1	1		1	1	1	1	1	1	1	1	2	1	1	1	1
	2008	1		2	1		1	1	1	1		1	1				1	1	
	2009	1		1	1		1	1	1	1		1	1				1	1	
	2010	1		1	1		1	1	1	2		1	1				1	1	
	2011	1		1	1		1	1	1	2		1	1				1	1	
	2012	1		1	1		1	1	1	2		1	1				1	1	
	2013	1		1	1	2	1	1	1	2		1	1				1	1	

Notes:
- Blank cells indicate no samples were collected that year.
- CrVI = hexavalent chromium.
- BTEX = benzene, ethylbenzene, toluene, and xylenes.
- PAHs = polycyclic aromatic hydrocarbons.
- SVOCs = semi-volatile organic compounds.

Table 3-7
Groundwater Sampling Summary (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		Number of Samples Analyzed by Monitoring Well Location																	
		Shallow Aquifer															Deep Aquifer		
Analyte Group	**Sample Year**	**HW-01 (Horizontal Recovery Well)**	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**MW-8**	**MW-9**	**MW-10**	**MW-12**	**MW-13**	**MW-15**	**MW-16**	**MW-17**	**MW-7**	**MW-14**	**MW-18**
Non-carcinogenic PAHs	2004	4	1	3	3			3	3	3	3	3	3	3	3	3	4	3	3
	2005	1		1	1			1	1	1	2	1	1	1	1	1	1	1	1
	2006	1		1	1		1	1	1	1	1	1	1	1	2	1	1	1	1
	2007	1		1	1		1	1	1	1	1	1	1	1	2	1	1	1	1
	2008	1		2	1		1	1	1	1		1	1				1	1	
	2009	1		1	1		1	1	1	1		1	1				1	1	
	2010	1		1	1		1	1	1	2		1	1				1	1	
	2011	1		1	1		1	1	1	2		1	1				1	1	
	2012	1		1	1		1	1	1	2		1	1				1	1	
	2013	1		1	1	1	1	1	1	2		1	1				1	1	
Pentachlorophenol	2004	4	1	3	3			3	3	3	3	3	3	3	3	3	4	3	3
	2005	1		1	1			1	1	1	3	1	1	1	1	1	2	1	1
	2006	1		1	1		1	1	1	1	1	1	1	1	2	1	1	1	1
	2007	1		1	1		1	1	1	1	1	1	1	1	2	1	1	1	1
	2008	1		2	1		1	1	1	1		1	1				1	1	
	2009	1		1	1		1	1	1	1		1	1				1	1	
	2010	1		1	1		1	1	1	2		1	1				1	1	
	2011	1		1	1		1	1	1	2		1	1				1	1	
	2012	1		1	1		1	1	1	2		1	1				1	1	
	2013	1		1	1	1	1	1	1	2		1	1				1	1	
SVOCs	2004	4	1	3	3			3	3	3	3	3	3	3	3	3	4	3	3
	2005	1		1	1			1	1	1	2	1	1	1	1	1	1	1	1
	2006	1		1	1		1	1	1	1	1	1	1	1	2	1	1	1	1
	2007	1		1	1		1	1	1	1	1	1	1	1	2	1	1	1	1
	2008	1		2	1		1	1	1	1		1	1				1	1	
	2009	1		1	1		1	1	1	1		1	1				1	1	
	2010	1		1	1		1	1	1	2		1	1				1	1	
	2012	1		1	1		1	1	1	2		1	1				1	1	
	2013	1		1	1		1	1	1	2		1	1				1	1	

Notes:

Blank cells indicate no samples were collected that year.

CrVI = hexavalent chromium.

BTEX = benzene, ethylbenzene, toluene, and xylenes.

PAHs = polycyclic aromatic hydrocarbons.

SVOCs = semi-volatile organic compounds.

Table 5-2 Potential ARARs – Cleanup Levels

Media	Standard	Citation	Comments
Soil	State cleanup levels for soils	Model Toxics Control Act (WAC 173-340, Section 740 and 745)	Applicable to the entire site.
Groundwater/Surface water	State cleanup levels for groundwater	Model Toxics Control Act (WAC 173-340, Section 720)	MTCA Method B Surface Water values are applicable to the site.
	Federal criteria for drinking water	Safe Drinking Water Act (40 CFR 141, 143)	Institutional controls prevent use of site groundwater as a drinking water source.
	Ambient water quality criteria for the protection of aquatic organisms and human health.	Federal Water Pollution Control Act/ Clean Water Act (CWA) (33 USC 1251–1376; 40 CFR 100–149) 40 CFR 131	Federal standards incorporated as ARAR under MTCA. Groundwater criteria applied to site must prevent exceedance of federal criteria at point of exposure.

Table 5-3 Potential ARARs – Remedial Actions

Activity	Requirement	Citation	Comments
General remediation	RCRA hazardous waste management requirements for treatment, storage, or disposal of RCRA hazardous waste.	Resource Conservation and Recovery Act (as amended by the Hazardous and Solid Waste Amendments) (42 USC 7401-7642; 40 CFR 264)	Potentially applicable for the site
General remediation	Requirement for use of all known available and reasonable technologies for treating wastewater from industrial sources prior to discharge to waters of the state.	State Water Pollution Control Act (RCW 90.48), Water Resources Act (RCW 90.54), Water Quality Standards for Surface Water (WAC 173-201A)	Potentially applicable for the site
Designation of waste for disposal	State criteria for dangerous waste, which are broader than federal criteria and include toxicity and persistence.	Washington Dangerous Waste Regulations (WAC 173-303)	Applicable for excavation/disposal alternatives.
Treatment, storage, or disposal of hazardous wastes	Disposal of contaminated soil or debris is subject to land disposal prohibitions or treatment standards.	40 CFR 268 Federal Land Disposal Restrictions; WAC 173-303-140, -141 Land Disposal Restrictions	Not anticipated to be relevant.
Discharge to POTWs (Publicly Owned Treatment Works)	Contaminated water must be pretreated to certain limits prior to discharge.	National Pretreatment Standards (40 CFR 403); Metro District Wastewater Discharge Ordinance	Not applicable.
Chemical, physical, and biological treatment	Operating, monitoring, and closure requirements for treating RCRA hazardous waste.	40 CFR 265.400 et seq.	Potentially applicable for the treatment of non-hazardous waste.
Excavation/disposal of solid wastes	Requirements for solid waste management.	Solid Waste Disposal Act (42 USC Sec. 325103259, 6901-6991), as administered under 40 CFR 257, 258; WAC 173-304, Minimum Functional Standards for Solid Waste Handling	Potentially relevant to non-hazardous waste generated during remedial activities and disposed of off site.

Table 5-4
Indicator Hazardous Substance Selection - Groundwater
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

Detected Constituents	Maximum Detected Concentration (MDC)* (µg/L)	MDC Location	MDC Date	SLV (µg/L)	SLV Basis	MDC>SLV?	Selected IHS?	Basis for IHS Selection
acenaphthene	312	MW-9	9/8/2004	640	SW, Adj ARAR	NO	NO	MDC < SLV
acenaphthylene	189	MW-9	1/8/2009	NV	NV	NA	NO	no SLV available
anthracene	857	HW-01	2/6/2004	26000	SW, Adj ARAR	NO	NO	MDC < SLV
arsenic, inorganic	12500	MW-13	2/5/2004	5	MTCA A	YES	YES	MDC > SLV
benzene	680	MW-9	1/8/1992	51	SW, ARAR	YES	YES	MDC > SLV
benzo[a]anthracene	NA	NA	NA	0.018	SW, ARAR	NA	NO	assessed as cPAH TEQ
benzo[a]pyrene	223	HW-01	2/6/2004	0.1	PQL	YES	YES	MDC > SLV
benzo[b]fluoranthene	NA	NA	NA	0.018	SW, ARAR	NA	NO	assessed as cPAH TEQ
benzo[k]fluoranthene	NA	NA	NA	0.018	SW, ARAR	NA	NO	assessed as cPAH TEQ
beta-chloronaphthalene	95.2	MW-16	2/2/2007	1000	SW, Adj ARAR	NO	NO	MDC < SLV
chromium(III)**	1680	MW-3	1/24/2006	240000	SW, MTCA B NCAR	NO	NO	MDC < SLV
chromium(VI)	180000	MW-3	7/11/1991	50	SW, ARAR	YES	YES	MDC > SLV
chrysene	NA	NA	NA	0.018	SW, ARAR	NA	NO	assessed as cPAH TEQ
copper	287	MW-3	2/5/2004	2.4	SW, ARAR	YES	YES	MDC > SLV
dibenzo[a,h]anthracene	NA	NA	NA	0.018	SW, ARAR	NA	NO	assessed as cPAH TEQ
ethylbenzene	8600	MW-9	10/3/1991	2100	SW, ARAR	YES	YES	MDC > SLV
fluoranthene	1460	HW-01	2/6/2004	90	SW, Adj ARAR	YES	NO	MDC > SLV; however, consistently detected below the SLV at all locations except HW-01 (horizontal recovery well). HW-01 only had one exceedance in 2004; concentrations observed during the last 12 sampling events have been below the SLV.
fluorene	365	HW-01	2/6/2004	3500	SW, Adj ARAR	NO	NO	MDC < SLV
indeno[1,2,3-cd]pyrene	NA	NA	NA	0.018	SW, ARAR	NA	NO	assessed as cPAH TEQ
methyl naphthalene;1-	189	MW-9	1/28/2009	NV	NV	NA	NO	no SLV available
methyl naphthalene;2-	189	MW-9	1/28/2009	NV	NV	NA	NO	no SLV available
naphthalene	6480	MW-9	1/27/2005	4900	SW, MTCA B NCAR	YES	NO	MDC > SLV; however, consistently detected below the SLV at all locations except MW-09. The most recent exceedance at MW-09 was observed in 2009. Since 2009, concentrations observed during the last 5 sampling events have been below the SLV.
pentachlorophenol	1160	HW-01	2/6/2004	3	SW, ARAR	YES	YES	MDC > SLV
phenanthrene	1120	HW-01	2/6/2004	NV	NV	NA	NO	no SLV available
pyrene	970	HW-01	2/6/2004	2600	SW, Adj ARAR	NO	NO	MDC < SLV
toluene	3100	MW-9	1/8/1992	15000	SW, ARAR	NO	NO	MDC < SLV
tph: gasoline range organics	41000	MW-9	9/8/2004	800	MTCA A	YES	NO	MDC > SLV; however, only limited testing (3 samples collected from MW-9) because not considered an environmental driver for the site per the draft RI/FS. Benzene, ethylbenzene, and xylenes have been retained as IHSs.
xylenes	5900	MW-9	1/8/1992	1000	MTCA A	YES	YES	MDC > SLV

Notes:

Highlighted rows indicate constituents selected as IHSs.

*Data from 2004 to 2013 were included for most constituents. All data were included for gasoline range hydrocarbons, hexavalent chromium, and BTEX.

**Maximum detected concentration provided is for total chromium. Trivalent chromium (Cr [III]) has not been analyzed at the site.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

Adj ARAR = ARAR adjusted downward to be sufficiently protective.

ARAR = applicable and relevant or appropriate requirements.

BTEX = benzene, ethylbenzene, toluene, and xylenes.

Chromium(III) = trivalent chromium.

Chromium(VI) = hexavalent chromium.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient.

HW-01 = horizontal recovery well.

IHS = indicator hazardous substance.

MDC = maximum detected concentration.

MTCA A = Model Toxics Control Act, Method A, table value.

MTCA B NCAR = Model Toxics Control Act, Method B, Non-carcinogen, standard formula value.

NA = not assessed individually; constituent assessed according to the total of the isomer fractions or toxic equivalency.

NV = no value

tph = total petroleum hydrocarbons.

RI/FS = remedial investigation and feasibility study.

SLV = screening level value.

SW = surface water.

Table 5-5
Indicator Hazardous Substance Selection - Soil
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

Detected Constituents	Maximum Detected Concentration (MDC) (mg/kg)*	MDC Location*	MDC Depth (ft bgs)*	MDC Date*	SLV (mg/kg)	SLV Basis	MDC > SLV	Select as an IHS?**	Rationale for IHS Selection
4-chloro-3-methylphenol	3.4	S-6-2 (MW-6)	1.5-2.0	1/25/1991	NV	NV	NA	NO	no SLV available
acenaphthene	7.4	S-6-2 (MW-6)	1.5-2.0	1/25/1991	210000	MTCA C, NCAR	NO	NO	MDC < SLV
acenaphthylene	2.9	S-6-4.5 (MW-6)	4.0-4.5	1/25/1991	NV	NV	NA	NO	no SLV available
anthracene	3.9	S-6-2 (MW-6)	1.5-2.0	1/25/1991	1100000	MTCA C, NCAR	NO	NO	MDC < SLV
arsenic, inorganic	340	PV-2-2	0-2	2/22/1993	88	MTCA C, CAR	YES	YES	MDC > SLV
benzo(g,h,i)perylene	2	S-6-4.5 (MW-6)	4.0-4.5	1/25/1991	NV	NV	NA	NO	no SLV available
benzo[a]anthracene	NA	S-6-4.5 (MW-6)	4.0-4.5	1/25/1991	180	MTCA C, CAR	NA	NO	assessed as cPAH TEQ
benzo[b]fluoranthene	NA	067	0-0.5	6/24/1991	180	MTCA C, CAR	NA	NO	assessed as cPAH TEQ
benzo[k]fluoranthene	NA	S-6-4.5 (MW-6)	4.0-4.5	1/25/1991	1800	MTCA C, CAR	NA	NO	assessed as cPAH TEQ
benzoic acid	0.33	PV3-1	0-2.0	2/23/1991	14000000	MTCA C, NCAR	NO	NO	MDC < SLV
chromium(III)	750	C3-3	3.0-3.5	3/9/1993	5300000	MTCA C, NCAR	NO	NO	MDC < SLV
chromium(VI)	60	C1-3	3.0-3.5	3/10/1993	11000	MTCA C, NCAR	NO	NO	MDC < SLV
chrysene	NA	S-6-4.5 (MW-6)	4.0-4.5	1/25/1991	18000	MTCA C, CAR	NA	NO	assessed as cPAH TEQ
copper	5400	S-4-3	2.5-3.0	1/23/1991	140000	MTCA C, NCAR	NO	NO	MDC < SLV
cPAH TEQ (benzo[a]pyrene)	6.3	(multiple locations)	NA	NA	18	MTCA C, CAR	NO	NO	MDC < SLV
cresol;o-	0.061	S-7-5 (MW-7)	5	3/20/1991	180000	MTCA C, NCAR	NO	NO	MDC < SLV
cresol;p-	0.097	P15-3	3.0-3.5	3/3/1993	18000	MTCA C, NCAR	NO	NO	MDC < SLV
dibenzo[a,h]anthracene	NA	S-11-2.5 (MW-11)	2.5	3/18/1991	18	MTCA C, CAR	NA	NO	assessed as cPAH TEQ
dibenzofuran	4.2	S-6-2 (MW-6)	1.5-2.0	1/25/1991	3500	MTCA C, NCAR	NO	NO	MDC < SLV
fluoranthene	9.4	S-6-2 (MW-6)	1.5-2.0	1/25/1991	140000	MTCA C, NCAR	NO	NO	MDC < SLV
fluorene	5.1	S-6-2 (MW-6)	1.5-2.0	1/25/1991	140000	MTCA C, NCAR	NO	NO	MDC < SLV
indeno[1,2,3-cd]pyrene	NA	S-6-2 (MW-6)	1.5-2.0	1/25/1991	180	MTCA C, CAR	NA	NO	assessed as cPAH TEQ
methyl naphthalene;2-	5.4	P20-3	3	3/4/1993	14000	MTCA C, NCAR	NO	NO	MDC < SLV
naphthalene	5	S-9-5 (MW-9)	5	3/20/1991	70000	MTCA C, NCAR	NO	NO	MDC < SLV
pentachlorophenol	110	067	0-0.5	6/24/1991	330	MTCA C, CAR	NO	NO	MDC < SLV
phenanthrene	12	S-6-2 (MW-6)	1.5-2.0	1/25/1991	NV	NV	NA	NO	no SLV available
pyrene	10	S-6-4.5 (MW-6)	4.0-4.5	1/25/1991	110000	MTCA C, NCAR	NO	NO	MDC < SLV
zinc	590	PV3-1	0-2.0	2/23/1991	1100000	MTCA C, NCAR	NO	NO	MDC < SLV

Notes:

Highlighted row indicates constituent was selected as an IHS.

*Obtained from Table 1 from the cumulative risk assessment memorandum included as Appendix B of the draft RI/FS. The MDC for is based on the cPAH TEQ; therefore, concentrations for individual cPAHs are not applicable.

Phenol and 2,4-dimethylphenol were listed in Table 1 but are not included in the CUL assessment because they were non-detect at the site.

**Constitutents with no screening levels were not selected as IHSs.

CAR = carcinogen.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient.

Chromium(III) = trivalent chromium.

Chromium(VI) = hexavalent chromium.

IHS = indicator hazardous substance.

MDC = maximum detected concentration.

mg/kg = milligrams per kilogram.

MTCA C = Model Toxics Control Act, Method C standard values.

NA = not applicable.

NCAR = non-carcinogen.

NV = no value.

SLV = screening level value.

Table 5-6
Groundwater Chromium Results, µg/L
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

	Total Chromium Concentration (µg/L) by Sample Location																		
Sample Date	HW-01 (Horizontal Recovery Well)	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18
3/28/1991	--	--	ND	**1900**	--	--	**24000**	--	--	ND	ND	ND	--	--	--	--	--	--	--
3/29/1991	--	ND	--	--	ND	**86**	--	ND	**280**	--	--	--	--	--	--	--	--	--	--
7/10/1991	--	ND	--	--	ND	14	--	--	--	--	ND	ND	--	--	--	--	--	--	--
7/11/1991	--	--	30	**150000**	--	--	**28000**	31	27	ND	--	--	--	--	--	--	--	--	--
10/2/1991	--	ND	--	**18000**	ND	10	--	ND	--	--	ND	ND	--	--	--	--	--	--	--
10/3/1991	--	--	20	--	--	--	**5700**	--	20	ND	--	--	--	--	--	--	--	--	--
1/7/1992	--	--	ND	--	ND	ND	--	ND	--	--	ND	ND	--	--	--	--	--	--	--
1/8/1992	--	ND	--	**1300**	--	--	**2400**	--	49	ND	--	--	--	--	--	--	--	--	--
1/2/1997	--	--	34	--	--	--	--	--	--	--	--	--	ND	ND	ND	--	--	--	--
1/13/1999	--	--	42	--	--	--	--	--	--	15	--	**90**	21	--	--	--	--	--	--
1/14/1999	--	--	--	20	--	23	17	**55**	26	--	--	--	--	17	40	--	--	--	--
8/6/1999	--	--	**170**	**1700**	--	14	**3200**	ND	**440**	20	--	--	36	**1200**	**540**	--	--	--	--
1/24/2000	ND	ND	**150**	**2400**	ND	ND	**300**	ND	**670**	ND	ND	ND	ND	**180**	ND	--	--	--	--
2/27/2001	ND	ND	ND	**1600**	ND	ND	**630**	ND	ND	ND	ND	ND	ND	**7000**	**2000**	--	--	--	--
1/24/2002	17.4	ND	**431**	**5380**	ND	8.02	**256**	6.58	**148**	3.75	11.3	3.1	8.08	**349**	**644**	--	--	--	--
1/30/2003	7.01	--	7.77	--	--	2.16	20.5	6.46	49.6	1.64	--	--	ND	--	--	--	--	--	--
1/31/2003	--	--	--	**94.3**	--	--	--	--	--	--	--	--	--	**66**	**529**	--	--	--	--
2/4/2004	--	--	--	--	--	--	--	5.25	**61.6**	--	--	--	--	--	--	33.3	2.44	ND	--
2/5/2004	--	--	10.3	**66.1**	--	--	18.4	--	--	--	3.78	--	3.52	26.9	**75.2**	--	--	--	5.58
2/6/2004	5.63	ND	--	--	--	--	--	--	--	3.27	--	--	--	--	--	--	--	--	--
3/12/2004	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/25/2004	6.14	--	--	**116**	--	--	--	7.84	44.2	--	--	--	--	28.9	**101**	--	--	--	6.71
5/26/2004	--	--	19.1	--	--	--	15.4	--	--	2.61	--	--	1.25	--	--	9.53	1.64	ND	--
9/8/2004	--	--	19.3	**82.2**	--	--	31.6	4.98	**50.9**	2.66	**72.9**	--	2.25	**105**	**67.6**	12.3	ND	2.93	5.06
10/14/2004	**89.3**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/27/2005	10	--	13.7	**191**	--	--	22.4	--	--	3.38	16.4	--	1.64	36.4	**201**	10.1	3.31	8.6	7.66
1/28/2005	--	--	--	--	--	--	--	6.11	33.9	--	--	--	--	--	--	--	--	--	--
1/24/2006	--	--	28.2	**1680**	--	--	--	--	--	--	--	--	3.07	19.6	34.8	**50**	2.08	--	--
1/25/2006	6.75	--	--	--	--	1.86	25.9	4.68	45.8	41.5	33.7	--	--	--	--	--	--	32.6	6.9
2/1/2007	8.47	--	13	**128**	--	--	26.7	--	--	--	--	--	3.18	15.2	--	9.98	--	--	--
2/2/2007	--	--	--	--	--	3.37	--	6.85	31.7	4.1	10.1	--	--	--	**60.5**	--	2.92	10.3	8.87
1/30/2008	--	--	--	**68**	--	3.65	--	5.03	11.5	--	--	--	--	--	--	--	--	--	--
1/31/2008	5.74	--	4.66	--	--	--	26.5	--	--	3.35	--	--	1.21	14.9	**59.9**	--	--	--	--
1/27/2009	--	--	4.32	--	--	--	--	5.37	--	--	--	--	ND	--	--	--	--	--	--
1/28/2009	4.15	--	--	**113**	--	ND	27.8	--	47.9	ND	--	--	--	12.2	7.41	--	--	--	--
1/21/2010	8.2	--	8.4	**130**	--	--	31	18	36	ND	--	--	6.5	14	30	--	--	--	--
1/22/2010	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
2/9/2011	6.8	--	5.7	39	--	--	--	5.1	30	ND	--	--	3.8	14	18	--	--	--	--
2/10/2011	--	--	--	--	--	3	23	--	--	ND	--	--	--	--	--	--	--	--	--
2/7/2012	--	--	5.4	**83**	--	ND	21	--	25	--	--	--	ND	12	**110**	--	--	--	--
2/8/2012	4.5	--	--	--	--	--	--	ND	--	ND	--	--	--	--	--	--	--	--	--
2/5/2013	5.9	--	35	**57**	--	4.8	20	3.9	31	4.8	--	--	ND	11	14	--	--	--	--
7/8/2013	--	--	--	--	1.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 5-6
Groundwater Chromium Results, µg/L
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

	Hexavalent Chromium Concentration (µg/L) by Sample Location										
Sample Date	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**MW-7**	**MW-8**	**MW-9**	**MW-10**	**MW-11**
3/28/1991	--	ND	**360**	--	--	**5900**	--	--	ND	ND	30
3/29/1991	ND	--	--	ND	ND	--	ND	ND	--	--	--
7/10/1991	ND	--	--	ND	ND	--	--	--	--	ND	ND
7/11/1991	--	48	**180000**	--	--	**31000**	**53**	**140**	48	--	--
10/2/1991	ND	--	**18400**	ND	ND	--	ND	--	--	ND	ND
10/3/1991	--	ND	--	--	--	**6070**	--	ND	ND	--	--
1/7/1992	--	ND	--	ND	ND	--	6	--	--	ND	ND
1/8/1992	ND	--	**945**	--	--	**1320**	--	9	ND	--	--
1/2/1997	--	--	--	--	--	--	--	--	--	--	--
1/13/1999	--	--	--	--	--	--	--	--	--	--	--
1/14/1999	--	--	--	--	--	--	--	--	--	--	--
8/6/1999	--	--	--	--	--	--	--	--	--	--	--
1/24/2000	--	--	--	--	--	--	--	--	--	--	--
2/27/2001	--	--	--	--	--	--	--	--	--	--	--
1/24/2002	--	--	--	--	--	--	--	--	--	--	--
1/30/2003	--	--	--	--	--	--	--	--	--	--	--
1/31/2003	--	--	--	--	--	--	--	--	--	--	--
2/4/2004	--	--	--	--	--	--	--	--	--	--	--
2/5/2004	--	--	--	--	--	--	--	--	--	--	--
2/6/2004	--	--	--	--	--	--	--	--	--	--	--
3/12/2004	--	--	--	--	--	--	--	--	--	--	--
5/25/2004	--	--	--	--	--	--	--	--	--	--	--
5/26/2004	--	--	--	--	--	--	--	--	--	--	--
9/8/2004	--	--	--	--	--	--	--	--	--	--	--
10/14/2004	--	--	--	--	--	--	--	--	--	--	--
1/27/2005	--	--	--	--	--	--	--	--	--	--	--
1/28/2005	--	--	--	--	--	--	--	--	--	--	--
1/24/2006	--	--	--	--	--	--	--	--	--	--	--
1/25/2006	--	--	--	--	--	--	--	--	--	--	--
2/1/2007	--	--	--	--	--	--	--	--	--	--	--
2/2/2007	--	--	--	--	--	--	--	--	--	--	--
1/30/2008	--	--	--	--	--	--	--	--	--	--	--
1/31/2008	--	--	--	--	--	--	--	--	--	--	--
1/27/2009	--	--	--	--	--	--	--	--	--	--	--
1/28/2009	--	--	--	--	--	--	--	--	--	--	--
1/21/2010	--	--	--	--	--	--	--	--	--	--	--
1/22/2010	--	--	--	--	--	--	--	--	--	--	--
2/9/2011	--	--	--	--	--	--	--	--	--	--	--
2/10/2011	--	--	--	--	--	--	--	--	--	--	--
2/7/2012	--	--	--	--	--	--	--	--	--	--	--
2/8/2012	--	--	--	--	--	--	--	--	--	--	--
2/5/2013	--	--	--	--	--	--	--	--	--	--	--
7/8/2013	--	--	--	ND	--	--	--	--	--	--	--

Notes:

Bold and highlighted concentrations exceed the hexavalent chromium screening level of 50 µg/L (based on surface water protection).

No exceedances of the total chromium screening level of 240,000 µg/L were observed in groundwater.

Concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

ND = not detected.

µg/L = micrograms per liter.

Table 5-7
Screening Level Values - Groundwater
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

Detected Constituents	Surface Water ARARs: Marine - Clean Water Act §304 (µg/L)	Surface Water ARARs: Marine - National Toxics Rule §131 (µg/L)	Surface Water ARARs: Minimum ARAR Cancer Risk	Surface Water ARARs: Minimum ARAR Hazard Quotient	Surface Water ARARs: Is the ARAR sufficiently protective?	Surface Water ARARs: Adjusted ARAR (µg/L)	Method B, Surface Water (µg/L)	Method A, Groundwater (µg/L)	PQL (µg/L)	SLV (µg/L)	SLV Basis
arsenic, inorganic	0.14	0.14	1.4E-06	0.0078	YES	--	0.098	**5**	1	5	MTCA A as natural background
benzene	**51**	71	2.2E-06	0.026	YES	--	23	5	1	51	SW, ARAR
benzo[a]pyrene	0.018	0.031	6.0E-07	--	YES	--	0.03	0.1	**0.1**	0.1	PQL
ethylbenzene	**2100**	29000	--	0.30	YES	--	6900	700	NV	2100	SW, ARAR
methyl naphthalene;1-	NV	NV	--	--	--	--	NV	NV	NV	NV	NV
methyl naphthalene;2-	NV	NV	--	--	--	--	NV	NV	0.012	NV	NV
naphthalene	NV	NV	--	--	--	--	**4900**	160	0.0094	4900	SW, MTCA B NCAR
toluene	**15000**	200000	--	0.79	YES	--	19000	1000	1	15000	SW, ARAR
xylene;m-	NV	NV	--	--	--	--	NV	NV	1	NV	NV
xylene;o-	NV	NV	--	--	--	--	NV	NV	1	NV	NV
xylene;p-	NV	NV	--	--	--	--	NV	NV	1	NV	NV
xylenes	NV	NV	--	--	--	--	NV	**1000**	1	1000	MTCA A
acenaphthene	990	NV	--	1.5	NO	**640**	640	NV	0.0094	640	SW, Adj ARAR (same as MTCA B NCAR)
acenaphthylene	NV	NV	--	--	--	--	NV	NV	0.0094	NV	NV
anthracene	40000	110000	--	1.5	NO	**26000**	26000	NV	0.0094	26000	SW, Adj ARAR (same as MTCA B NCAR)
chromium(III)	NV	NV	--	--	--	--	**240000**	NV	1	240000	SW, MTCA B NCAR
chromium(VI)	**50**	**50**	--	0.10	YES	--	490	NV	NV	50	SW, ARAR
copper	3.1	**2.4**	--	0.00083	YES	--	2900	NV	0.001	2.4	SW, ARAR
fluoranthene	140	370	--	1.6	NO	**90**	90	NV	0.0094	90	SW, Adj ARAR (same as MTCA B NCAR)
fluorene	5300	14000	--	1.5	NO	**3500**	3500	NV	0.0094	3500	SW, Adj ARAR (same as MTCA B NCAR)
pyrene	4000	11000	--	1.5	NO	**2600**	2600	NV	0.0094	2600	SW, Adj ARAR (same as MTCA B NCAR)
pentachlorophenol	**3**	7.9	2.0E-06	0.0025	YES	--	1.5	NV	0.0094	3	SW, ARAR
beta-chloronaphthalene	1600	NV	--	1.6	NO	**1000**	1000	NV	0.028	1000	SW, Adj ARAR (same as MTCA B NCAR)
phenanthrene	NV	NV	--	--	--	--	NV	NV	0.0094	NV	NV
tph: gasoline range organics*	NV	NV	--	--	--	--	NV	**800**	500	800	MTCA A
benzo[a]anthracene	**0.018**	0.031	6.0E-08	--	YES	--	0.3	NV	0.0094	0.018	SW, ARAR
benzo[b]fluoranthene	**0.018**	0.031	6.0E-08	--	YES	--	0.3	NV	0.0094	0.018	SW, ARAR
benzo[k]fluoranthene	**0.018**	0.031	6.0E-09	--	YES	--	3	NV	0.0094	0.018	SW, ARAR
chrysene	**0.018**	0.031	6.0E-10	--	YES	--	30	NV	0.0094	0.018	SW, ARAR
dibenzo[a,h]anthracene	**0.018**	0.031	6.0E-07	--	YES	--	0.03	NV	0.0094	0.018	SW, ARAR
indeno[1,2,3-cd]pyrene	**0.018**	0.031	6.0E-08	--	YES	--	0.3	NV	0.0094	0.018	SW, ARAR

Notes:
Bold and highlighted cells represent the criteria selected as the SLV.
-- = not applicable.
*The gasoline range organics screening value assume benzene is present.
ARAR = Applicable or Relevant and Appropriate Requirements.
Chromium(III) = trivalent chromium.
Chromium(VI) = hexavalent chromium.
µg/L = micrograms per liter.
MTCA A = Model Toxics Control Act, Method A table value for groundwater.
SW, Adj ARAR = surface water ARAR adjusted downward for risk.
SW, ARAR = surface water ARAR.
SW, MTCA B NCAR = Model Toxics Control Act, Method B, Non-carcinogen for surface water.
NV = no value.
PQL = practical quantitation limit.
SLV = screening level value.
tph = total petroleum hydrocarbons.

Table 5-8
Cumulative Risk Assessment - Groundwater
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

Indicator Hazardous Substance	SLV (µg/L)	SLV Basis	Risk Basis	Carcinogenic Risk	Hazard Index	Notes
arsenic, inorganic	5	MTCA A as natural background	NA	NA	NA	exclude from cumulative risk calculation; based on natural background
benzene	51	SW, ARAR	CAR / NCAR	2.2E-06	2.6E-02	
benzo[a]pyrene	0.1	PQL	NA	NA	NA	exclude from cumulative risk calculation; based on PQL
chromium(VI)	50	SW, ARAR	NCAR	NA	1.0E-01	
copper	2.4	SW, ARAR	NCAR	NA	8.3E-04	
ethylbenzene	2100	SW, ARAR	NCAR	NA	3.0E-01	
pentachlorophenol	3	SW, ARAR	CAR / NCAR	2.0E-06	2.5E-03	
xylenes	1000	MTCA A	NA	NA	NA	exclude from cumulative risk calculation; no risk-based values available
			Cumulative Site Risk:	4.2E-06	4.4E-01	no adjustment necessary

Notes:
ARAR = Applicable or Relevant and Appropriate Requirements.
CAR = carcinogen.
Chromium(VI) = hexavalent chromium.
µg/L = micrograms per liter.
MTCA A = Model Toxics Control Act, Method A table value for groundwater.
NA = not applicable.
NCAR = non-carcinogen.
SW, ARAR = surface water ARAR.
SW, MTCA B NCAR = Model Toxics Control Act, Method B, Non-carcinogen for surface water.
PQL = practical quantitation limit.
SLV = screening level value.

Table 5-9
Screening Level Values - Soil
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

Detected Constituents	Soil Criteria (mg/kg)			Natural Background[1] (mg/kg)	SLV (mg/kg)	SLV Basis
	MTCA A, Industrial	MTCA C				
		CAR	NCAR			
4-chloro-3-methylphenol	NA	NA	NA	NV	NV	NV
acenaphthene	NV	NV	**210000**	NV	210000	MTCA C, NCAR
acenaphthylene	NV	NV	NV	NV	NV	NV
anthracene	NV	NV	**1100000**	NV	1100000	MTCA C, NCAR
arsenic, inorganic	20	**88**	1100	7	88	MTCA C, CAR
benzo(g,h,i)perylene	NV	NV	NV	NV	NV	NV
benzo[a]anthracene	NV	**180**	NV	NV	180	MTCA C, CAR
benzo[a]pyrene	2	**18**	NV	NV	18	MTCA C, CAR
benzo[b]fluoranthene	NV	**180**	NV	NV	180	MTCA C, CAR
benzo[k]fluoranthene	NV	**180**	NV	NV	1800	MTCA C, CAR
benzoic acid	NV	NV	**14000000**	NV	14000000	MTCA C, NCAR
chromium (total)	NV	NV	NV	**48**	48	Natural Background
chromium(III)	2000	NV	**5300000**	NV	5300000	MTCA C, NCAR
chromium(VI)	19	NV	**11000**	NV	11000	MTCA C, NCAR
chrysene	NV	**1800**	NV	NV	18000	MTCA C, CAR
copper	NV	NV	**140000**	36	140000	MTCA C, NCAR
cresol;o-	NV	NV	**180000**	NV	180000	MTCA C, NCAR
cresol;p-	NV	NV	**18000**	NV	18000	MTCA C, NCAR
dibenzo[a,h]anthracene	NV	**180**	NV	NV	18	MTCA C, CAR
dibenzofuran	NV	NV	**3500**	NV	3500	MTCA C, NCAR
fluoranthene	NV	NV	**140000**	NV	140000	MTCA C, NCAR
fluorene	NV	NV	**140000**	NV	140000	MTCA C, NCAR
indeno[1,2,3-cd]pyrene	NV	**180**	NV	NV	180	MTCA C, CAR
methyl naphthalene;2-	NV	NV	**14000**	NV	14000	MTCA C, NCAR
naphthalene	5	NV	**70000**	NV	70000	MTCA C, NCAR
pentachlorophenol	NV	**330**	18000	NV	330	MTCA C, CAR
phenanthrene	NV	NV	NV	NV	NV	NV
pyrene	NV	NV	**110000**	NV	110000	MTCA C, NCAR
zinc	NV	NV	**1100000**	85	1100000	MTCA C, NCAR

Notes:

[1]Based on the Puget Sound natural background concentration obtained from Ecology, 1994.

Bold and highlighted cells represent the criteria selected as the SLV.

CAR = carcinogen.

Chromium(III) = trivalent chromium.

Chromium(VI) = hexavalent chromium.

mg/kg = milligrams per kilogram.

MTCA A = Model Toxics Control Act, Method A table values.

MTCA C = Model Toxics Control Act, Method C standard values.

NA = not available.

NCAR = non-carcinogen.

NV = no value

SLV = screening level value.

Table 5-10
Cleanup Levels
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

Indicator Hazardous Substance	Groundwater CUL (µg/L)	Groundwater CUL Basis	Soil CUL (mg/kg)	Soil CUL Basis
arsenic	5	MTCA A	88	MTCA C, CAR
benzene	51	SW, ARAR	--	--
chromium(VI)	50	SW, ARAR	--	--
copper	2.4	SW, ARAR	--	--
cPAH TEQ (benzo[a]pyrene)	0.1	PQL	--	--
ethylbenzene	2100	SW, ARAR	--	--
pentachlorophenol	3	SW, ARAR	--	--
xylenes	1000	MTCA A	--	--

Notes:

-- = not selected as an indicator hazardous substance for soil.
ARAR = Applicable or Relevant and Appropriate Requirements.
Chromium(VI) = hexavalent chromium.
CUL = cleanup level.
cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient.
µg/L = micrograms per liter.
mg/kg = milligrams per kilogram.
MTCA A = Model Toxics Control Act, Method A table value for groundwater.
MTCA C, CAR = Model Toxics Control Act, Method C, carcinogen standard values.
PQL = practical quantitation limit.
SW, ARAR = surface water ARAR.

Table 5-11
Shallow Groundwater Results, µg/L (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		HW-01 (Horizontal Recovery Well)												
Indicator Hazardous Substance*	**Cleanup Level (µg/L)**	2/6/2004	3/12/2004	5/25/2004	10/14/2004	1/27/2005	1/25/2006	2/1/2007	1/31/2008	1/28/2009	1/21/2010	2/9/2011	2/8/2012	2/5/2013
arsenic, inorganic	5	**12.6**	**699**	**407**	**8960**	**1740**	**318**	**1140**	**1090**	**646**	**1800**	**570**	**320**	**310**
chromium (total)	50	5.63	ND	6.14	**89.3**	10	6.75	8.47	5.74	4.15	8.2	6.8	4.5	5.9
chromium(VI)	50	--	--	--	--	--	--	--	--	--	--	--	--	--
copper	2.4	**38.3**	ND	ND	**101**	ND	**202**	ND	2.07	**9.01**	ND	ND	ND	ND
benzene	51	--	--	--	--	--	--	--	--	--	--	--	--	--
ethylbenzene	2100	--	--	--	--	--	--	--	--	--	--	--	--	--
xylenes	1000	--	--	--	--	--	--	--	--	--	--	--	--	--
pentachlorophenol	3	**1160**	**276**	**149**	**5.3**	**67.1**	**15.6**	**17.4**	**3.15**	**3.83**	ND	**21**	1.9	**4.7**
benzo[a]anthracene	NA	291	ND	ND	1.73	ND	ND	0.174	ND	0.0507	0.013	ND	ND	ND
benzo[a]pyrene	0.1	223	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzo[b]fluoranthene	NA	319	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzo[k]fluoranthene	NA	259	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
chrysene	NA	370	ND	ND	ND	ND	ND	0.174	ND	0.0517	0.011	ND	ND	ND
dibenzo[a,h]anthracene	NA	45.9	ND	ND	ND	ND	ND	0.113	ND	ND	ND	ND	ND	ND
indeno[1,2,3-cd]pyrene	NA	144	ND	ND	ND	ND	ND	0.111	ND	ND	ND	ND	ND	ND
cPAH TEQ (Calculated)	0.1	**333**	ND	ND	**0.173**	ND	ND	0.0415	ND	0.00559	0.0014	ND	ND	ND

Notes:

*Since hexavalent chromium data are unavailable for all but MW-4, total chromium concentrations are compared to the hexavalent chromium cleanup level.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

Bold and highlighted values indicate a cleanup level exceedance.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Non-detects were set equal to zero in the cPAH TEQ calculation.

Chromium(VI) = hexavalent chromium.

µg/L = micrograms per liter.

ND = non-detect.

Table 5-11
Shallow Groundwater Results, µg/L (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		MW-1	MW-10						MW-12						
Indicator Hazardous Substance*	**Cleanup Level (µg/L)**	2/6/2004	2/5/2004	9/8/2004	1/27/2005	2/23/2005	1/25/2006	2/2/2007	2/5/2004	5/26/2004	9/8/2004	1/27/2005	1/24/2006	2/1/2007	1/31/2008
arsenic, inorganic	5	2.73	ND	3.59	ND	--	ND	ND	**13.1**	**5.6**	**17.3**	**5.09**	**6.72**	ND	4.86
chromium (total)	50	ND	3.78	**72.9**	16.4	--	33.7	10.1	3.52	1.25	2.25	1.64	3.07	3.18	1.21
chromium(VI)	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--
copper	2.4	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	**2.49**	ND	ND
benzene	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ethylbenzene	2100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
xylenes	1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pentachlorophenol	3	ND	**12.9**	2.6	**155**	**461**	**59.1**	ND	ND	ND	1.62	ND	ND	ND	0.563
benzo[a]anthracene	NA	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzo[a]pyrene	0.1	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzo[b]fluoranthene	NA	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzo[k]fluoranthene	NA	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
chrysene	NA	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
dibenzo[a,h]anthracene	NA	ND	ND	0.868	ND	--	ND	ND	ND	ND	0.151	ND	ND	ND	ND
indeno[1,2,3-cd]pyrene	NA	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (Calculated)	0.1	ND	ND	0.0868	ND	ND	ND	ND	ND	ND	0.0151	ND	ND	ND	ND

Notes:

*Since hexavalent chromium data are unavailable for all but MW-4, total chromium concentrations are compared to the hexavalent chromium cleanup level.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

Bold and highlighted values indicate a cleanup level exceedance.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Non-detects were set equal to zero in the cPAH TEQ calculation.

Chromium(VI) = hexavalent chromium.

µg/L = micrograms per liter.

ND = non-detect.

Table 5-11
Shallow Groundwater Results, µg/L (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		MW-12					MW-13								
Indicator Hazardous Substance*	**Cleanup Level (µg/L)**	1/27/2009	1/21/2010	2/9/2011	2/7/2012	2/5/2013	2/5/2004	5/25/2004	9/8/2004	1/27/2005	1/24/2006	2/1/2007	1/31/2008	1/28/2009	1/21/2010
arsenic, inorganic	5	1.75	ND	4.4	**7.7**	ND	**12500**	**3010**	**289**	**2940**	**4470**	**7790**	**1300**	**1160**	**7200**
chromium (total)	50	ND	6.5	3.8	ND	ND	26.9	28.9	**105**	36.4	19.6	15.2	14.9	12.2	14
chromium(VI)	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--
copper	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzene	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ethylbenzene	2100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
xylenes	1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pentachlorophenol	3	ND	0.037	ND	ND	0.027	**75.8**	**9.88**	2.89	ND	**16.6**	**33**	1.06	1.71	0.38
benzo[a]anthracene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0323	ND
benzo[a]pyrene	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzo[b]fluoranthene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzo[k]fluoranthene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
chrysene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
dibenzo[a,h]anthracene	NA	ND	ND	ND	ND	ND	ND	ND	0.151	ND	ND	ND	ND	ND	ND
indeno[1,2,3-cd]pyrene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (Calculated)	0.1	ND	ND	ND	ND	ND	ND	ND	0.0151	ND	ND	ND	ND	0.00323	ND

Notes:

*Since hexavalent chromium data are unavailable for all but MW-4, total chromium concentrations are compared to the hexavalent chromium cleanup level.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

Bold and highlighted values indicate a cleanup level exceedance.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Non-detects were set equal to zero in the cPAH TEQ calculation.

Chromium(VI) = hexavalent chromium.

µg/L = micrograms per liter.

ND = non-detect.

Table 5-11
Shallow Groundwater Results, µg/L (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		MW-13			MW-15						MW-16				
Indicator Hazardous Substance*	**Cleanup Level (µg/L)**	2/9/2011	2/7/2012	2/5/2013	2/4/2004	5/26/2004	9/8/2004	1/27/2005	1/24/2006	2/1/2007	2/4/2004	5/26/2004	9/8/2004	1/27/2005	1/24/2006
arsenic, inorganic	5	**5600**	**3900**	**2200**	**27.8**	**33.1**	**9.09**	**8.6**	2.81	1.9	3.44	1.87	**5.3**	1.63	ND
chromium (total)	50	14	12	11	33.3	9.53	12.3	10.1	**50**	9.98	2.44	1.64	ND	3.31	2.08
chromium(VI)	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--
copper	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzene	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ethylbenzene	2100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
xylenes	1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pentachlorophenol	3	ND	0.85	0.055	**3.98**	1.96	**6.1**	2.92	ND	2.42	ND	ND	1.7	ND	ND
benzo[a]anthracene	NA	ND	ND	ND	0.849	0.629	1.17	0.628	0.337	0.367	ND	ND	ND	ND	ND
benzo[a]pyrene	0.1	ND	ND	ND	0.226	0.171	0.333	0.192	0.122	0.102	ND	ND	ND	ND	ND
benzo[b]fluoranthene	NA	ND	ND	ND	0.509	0.286	1.03	0.302	0.263	0.166	ND	ND	ND	ND	ND
benzo[k]fluoranthene	NA	ND	ND	ND	ND	0.21	1.27	0.224	0.13	0.145	ND	ND	ND	ND	ND
chrysene	NA	ND	0.033	ND	1.09	0.876	1.57	1.19	0.55	0.515	ND	ND	ND	ND	ND
dibenzo[a,h]anthracene	NA	ND	ND	ND	ND	ND	0.3	ND	ND	0.0237	ND	ND	ND	ND	ND
indeno[1,2,3-cd]pyrene	NA	ND	ND	ND	ND	0.171	0.167	ND	ND	0.0436	ND	ND	ND	ND	ND
cPAH TEQ (Calculated)	0.1	ND	0.00033	ND	**0.373**	**0.309**	**0.742**	**0.319**	**0.201**	**0.182**	ND	ND	ND	ND	ND

Notes:

*Since hexavalent chromium data are unavailable for all but MW-4, total chromium concentrations are compared to the hexavalent chromium cleanup level.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

Bold and highlighted values indicate a cleanup level exceedance.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Non-detects were set equal to zero in the cPAH TEQ calculation.

Chromium(VI) = hexavalent chromium.

µg/L = micrograms per liter.

ND = non-detect.

Table 5-11
Shallow Groundwater Results, µg/L (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		MW-16	MW-17						MW-2						
Indicator Hazardous Substance*	**Cleanup Level (µg/L)**	2/2/2007	2/4/2004	5/26/2004	9/8/2004	1/27/2005	1/25/2006	2/2/2007	2/5/2004	5/26/2004	9/8/2004	1/27/2005	1/24/2006	2/1/2007	1/31/2008
arsenic, inorganic	5	ND	**60**	**7.05**	**52**	**44.8**	**35.9**	**35.7**	**202**	**317**	**261**	**282**	**515**	**227**	**272**
chromium (total)	50	2.92	ND	ND	2.93	8.6	32.6	10.3	10.3	19.1	19.3	13.7	28.2	13	4.66
chromium(VI)	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--
copper	2.4	ND	**2.52**	ND	**2.42**	2.35	1.84	1.7	**2.52**	ND	ND	ND	ND	ND	ND
benzene	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ethylbenzene	2100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
xylenes	1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pentachlorophenol	3	ND	**3.83**	ND	1.62	ND	ND	ND	ND	2.7	**124**	2.11	**7.18**	ND	**15.4**
benzo[a]anthracene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzo[a]pyrene	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0172	ND
benzo[b]fluoranthene	NA	ND	ND	ND	ND	ND	ND	ND	ND	0.189	ND	ND	ND	0.0231	ND
benzo[k]fluoranthene	NA	ND	ND	ND	ND	ND	ND	ND	ND	0.132	ND	ND	ND	0.0177	ND
chrysene	NA	ND	ND	ND	ND	ND	ND	ND	ND	0.302	ND	ND	ND	ND	ND
dibenzo[a,h]anthracene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
indeno[1,2,3-cd]pyrene	NA	ND	ND	ND	ND	ND	ND	ND	ND	0.189	ND	ND	ND	ND	ND
cPAH TEQ (Calculated)	0.1	ND	ND	ND	ND	ND	ND	ND	ND	0.0540	ND	ND	ND	0.0213	ND

Notes:

*Since hexavalent chromium data are unavailable for all but MW-4, total chromium concentrations are compared to the hexavalent chromium cleanup level.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

Bold and highlighted values indicate a cleanup level exceedance.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Non-detects were set equal to zero in the cPAH TEQ calculation.

Chromium(VI) = hexavalent chromium.

µg/L = micrograms per liter.

ND = non-detect.

Table 5-11
Shallow Groundwater Results, µg/L (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		MW-2					**MW-3**				**MW-3**				
Indicator Hazardous Substance*	**Cleanup Level (µg/L)**	1/27/2009	1/21/2010	2/9/2011	2/7/2012	2/5/2013	2/5/2004	5/25/2004	9/8/2004	1/27/2005	1/24/2006	2/1/2007	1/30/2008	1/28/2009	1/21/2010
arsenic, inorganic	5	**300**	**230**	**290**	**480**	**270**	**4570**	**3490**	**3950**	**3260**	**626**	**1730**	**586**	**1430**	**4600**
chromium (total)	50	4.32	8.4	5.7	5.4	35	**66.1**	**116**	**82.2**	**191**	**1680**	**128**	**68**	**113**	**130**
chromium(VI)	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--
copper	2.4	ND	ND	ND	ND	ND	**287**	ND	ND	ND	**120**	**74.3**	**18.8**	ND	ND
benzene	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ethylbenzene	2100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
xylenes	1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pentachlorophenol	3	1.84	0.98	ND	0.11	**140**	ND	ND	2.57	2.16	ND	2.4	0.8	1.44	0.075
benzo[a]anthracene	NA	ND	ND	ND	0.03	0.26	ND	ND	0.151	ND	ND	ND	ND	ND	0.03
benzo[a]pyrene	0.1	ND	ND	ND	ND	0.092	ND	ND	0.17	ND	ND	ND	ND	ND	0.035
benzo[b]fluoranthene	NA	ND	0.02	ND	0.02	0.16	ND	ND	0.189	ND	ND	ND	ND	ND	0.095
benzo[k]fluoranthene	NA	ND	ND	ND	ND	0.068	ND	ND	0.17	ND	ND	ND	ND	ND	0.02
chrysene	NA	ND	0.013	ND	0.03	0.28	ND	ND	0.189	ND	ND	ND	ND	ND	0.043
dibenzo[a,h]anthracene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.123	ND	ND	0.01
indeno[1,2,3-cd]pyrene	NA	ND	ND	ND	ND	0.081	ND	ND	0.113	ND	ND	0.121	ND	ND	0.041
cPAH TEQ (Calculated)	0.1	ND	0.0021	ND	0.005	**0.15**	ND	ND	**0.23**	ND	ND	0.024	ND	ND	0.06

Notes:

*Since hexavalent chromium data are unavailable for all but MW-4, total chromium concentrations are compared to the hexavalent chromium cleanup level.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

Bold and highlighted values indicate a cleanup level exceedance.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Non-detects were set equal to zero in the cPAH TEQ calculation.

Chromium(VI) = hexavalent chromium.

µg/L = micrograms per liter.

ND = non-detect.

Table 5-11
Shallow Groundwater Results, µg/L (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		MW-3			MW-4	MW-5								MW-6	
Indicator Hazardous Substance*	Cleanup Level (µg/L)	2/9/2011	2/7/2012	2/5/2013	7/8/2013	1/25/2006	2/2/2007	1/30/2008	1/28/2009	1/22/2010	2/10/2011	2/7/2012	2/5/2013	2/5/2004	5/26/2004
arsenic, inorganic	5	**3700**	**3200**	**460**	**20.1**	**154**	**212**	**177**	**145**	**130**	**100**	**610**	**700**	**33.8**	**33.8**
chromium (total)	50	39	**83**	**57**	1.15	1.86	3.37	3.65	ND	ND	3	ND	4.8	18.4	15.4
chromium(VI)	50	--	--	--	ND	--	--	--	--	--	--	--	--	--	--
copper	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzene	51	--	--	--	ND	--	--	--	--	--	--	--	--	--	--
ethylbenzene	2100	--	--	--	ND	--	--	--	--	--	--	--	--	--	--
xylenes	1000	--	--	--	ND	--	--	--	--	--	--	--	--	--	--
pentachlorophenol	3	ND	0.14	0.024	ND	ND	ND	ND	1.47	0.31	ND	0.18	0.51	**3.79**	1.98
benzo[a]anthracene	NA	ND	0.02	ND	ND	ND	0.143	ND	ND	0.019	ND	0.14	0.082	ND	ND
benzo[a]pyrene	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.084	ND	ND
benzo[b]fluoranthene	NA	ND	0.043	ND	ND	ND	ND	ND	ND	0.03	ND	0.21	0.23	ND	ND
benzo[k]fluoranthene	NA	ND	ND	ND	ND	ND	ND	ND	ND	0.011	ND	ND	0.068	ND	ND
chrysene	NA	ND	0.027	0.01	ND	ND	ND	ND	ND	0.03	ND	0.2	0.17	ND	ND
dibenzo[a,h]anthracene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.022	ND	ND
indeno[1,2,3-cd]pyrene	NA	ND	0.028	ND	ND	ND	ND	ND	ND	ND	ND	0.12	0.13	ND	ND
cPAH TEQ (Calculated)	0.1	ND	0.0094	0.0001	ND	ND	0.0143	ND	ND	0.006	ND	0.049	**0.14**	ND	ND

Notes:

*Since hexavalent chromium data are unavailable for all but MW-4, total chromium concentrations are compared to the hexavalent chromium cleanup level.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

Bold and highlighted values indicate a cleanup level exceedance.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Non-detects were set equal to zero in the cPAH TEQ calculation.

Chromium(VI) = hexavalent chromium.

µg/L = micrograms per liter.

ND = non-detect.

Table 5-11
Shallow Groundwater Results, µg/L (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		MW-6										MW-8			
Indicator Hazardous Substance*	**Cleanup Level (µg/L)**	9/8/2004	1/27/2005	1/25/2006	2/1/2007	1/31/2008	1/28/2009	1/21/2010	2/10/2011	2/7/2012	2/5/2013	2/4/2004	5/25/2004	9/8/2004	1/28/2005
arsenic, inorganic	5	**11.5**	**12.3**	**43.1**	**32.1**	**5.13**	**6.03**	ND	ND	**13**	**16**	**316**	**177**	**379**	**203**
chromium (total)	50	31.6	22.4	25.9	26.7	26.5	27.8	31	23	21	20	**61.6**	44.2	**50.9**	33.9
chromium(VI)	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--
copper	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**21.3**	ND	ND	ND
benzene	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ethylbenzene	2100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
xylenes	1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
pentachlorophenol	3	ND	ND	ND	2.45	0.731	**5.43**	0.14	0.37	0.43	0.42	**3.79**	ND	1.16	2.32
benzo[a]anthracene	NA	ND	ND	ND	ND	ND	ND	0.013	ND	ND	ND	ND	ND	ND	ND
benzo[a]pyrene	0.1	0.132	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.152	ND
benzo[b]fluoranthene	NA	0.151	ND	ND	ND	ND	0.0157	0.011	ND	ND	ND	ND	ND	ND	ND
benzo[k]fluoranthene	NA	0.113	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
chrysene	NA	ND	ND	ND	ND	ND	0.0254	0.017	ND	0.025	0.016	ND	ND	ND	ND
dibenzo[a,h]anthracene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
indeno[1,2,3-cd]pyrene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.133	ND
cPAH TEQ (Calculated)	0.1	**0.1584**	ND	ND	ND	ND	0.00182	0.0026	ND	0.00025	0.00016	ND	ND	**0.165**	ND

Notes:

*Since hexavalent chromium data are unavailable for all but MW-4, total chromium concentrations are compared to the hexavalent chromium cleanup level.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

Bold and highlighted values indicate a cleanup level exceedance.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Non-detects were set equal to zero in the cPAH TEQ calculation.

Chromium(VI) = hexavalent chromium.

µg/L = micrograms per liter.

ND = non-detect.

Table 5-11
Shallow Groundwater Results, µg/L (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		MW-8								MW-9					
Indicator Hazardous Substance*	**Cleanup Level (µg/L)**	1/25/2006	2/2/2007	1/30/2008	1/28/2009	1/21/2010	2/9/2011	2/7/2012	2/5/2013	2/6/2004	5/26/2004	9/8/2004	1/27/2005	2/23/2005	1/25/2006
arsenic, inorganic	5	**286**	**213**	**209**	**374**	**370**	ND	**440**	**380**	**260**	**272**	**329**	**160**	--	**116**
chromium (total)	50	45.8	31.7	11.5	47.9	36	30	25	31	3.27	2.61	2.66	3.38	--	41.5
chromium(VI)	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--
copper	2.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND
benzene	51	--	--	--	--	--	--	--	--	**95.4**	**99.1**	**79.1**	--	**106**	**83.4**
ethylbenzene	2100	--	--	--	--	--	--	--	--	**3260**	**3150**	**2260**	--	**4200**	**2580**
xylenes	1000	--	--	--	--	--	--	--	--	**1890**	**1990**	**1260**	--	**2500**	**1540**
pentachlorophenol	3	0.493	1.94	0.627	2	0.057	0.3	0.28	0.23	ND	ND	ND	2.16	--	**3.36**
benzo[a]anthracene	NA	ND	ND	ND	ND	0.015	ND	ND	0.027	ND	ND	ND	ND	--	ND
benzo[a]pyrene	0.1	ND	ND	ND	ND	ND	ND	ND	0.069	ND	ND	ND	ND	--	ND
benzo[b]fluoranthene	NA	ND	ND	ND	ND	0.017	ND	ND	0.1	ND	ND	ND	ND	--	ND
benzo[k]fluoranthene	NA	ND	ND	ND	ND	ND	ND	ND	0.055	ND	ND	ND	ND	--	ND
chrysene	NA	ND	ND	ND	ND	0.032	ND	ND	0.035	ND	ND	ND	ND	--	ND
dibenzo[a,h]anthracene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND
indeno[1,2,3-cd]pyrene	NA	ND	ND	ND	ND	0.011	ND	ND	0.065	ND	ND	ND	ND	--	ND
cPAH TEQ (Calculated)	0.1	ND	ND	ND	ND	0.0046	ND	ND	0.094	ND	ND	ND	ND	ND	ND

Notes:

*Since hexavalent chromium data are unavailable for all but MW-4, total chromium concentrations are compared to the hexavalent chromium cleanup level.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

Bold and highlighted values indicate a cleanup level exceedance.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Non-detects were set equal to zero in the cPAH TEQ calculation.

Chromium(VI) = hexavalent chromium.

µg/L = micrograms per liter.

ND = non-detect.

Table 5-11
Shallow Groundwater Results, µg/L (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		MW-9							
Indicator Hazardous Substance*	**Cleanup Level (µg/L)**	2/2/2007	1/31/2008	1/28/2009	1/21/2010	2/9/2011	2/10/2011	2/8/2012	2/5/2013
arsenic, inorganic	5	**129**	**92.4**	**125**	**71**	**83**	**84**	**81**	**70**
chromium (total)	50	4.1	3.35	ND	ND	ND	ND	ND	4.8
chromium(VI)	50	--	--	--	--	--	--	--	--
copper	2.4	ND	ND	ND	ND	ND	ND	ND	ND
benzene	51	**89.3**	**95.5**	**91.5**	23	32	29	15	28
ethylbenzene	2100	**3220**	**2950**	**2320**	150	180	190	88	83
xylenes	1000	**1640**	**1470**	849	32.8	72	70	32.8	32.8
pentachlorophenol	3	ND	ND	2.54	0.082	ND	ND	ND	0.056
benzo[a]anthracene	NA	ND	ND	ND	ND	ND	ND	ND	ND
benzo[a]pyrene	0.1	ND	ND	ND	ND	ND	ND	ND	ND
benzo[b]fluoranthene	NA	ND	ND	ND	ND	ND	ND	ND	ND
benzo[k]fluoranthene	NA	ND	ND	ND	ND	ND	ND	ND	ND
chrysene	NA	ND	ND	ND	ND	ND	ND	ND	ND
dibenzo[a,h]anthracene	NA	ND	ND	ND	ND	ND	ND	ND	ND
indeno[1,2,3-cd]pyrene	NA	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (Calculated)	0.1	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

*Since hexavalent chromium data are unavailable for all but MW-4, total chromium concentrations are compared to the hexavalent chromium cleanup level.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

Bold and highlighted values indicate a cleanup level exceedance.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Non-detects were set equal to zero in the cPAH TEQ calculation.

Chromium(VI) = hexavalent chromium.

µg/L = micrograms per liter.

ND = non-detect.

Input	Definition	Value	Units	Source
Hydrogeology				
n_e	effective porosity	0.3	unitless	based on the effective porosity for a silty fine-grained sand from Wight and Sonderegger, 2001.
K	hydraulic conductivity	1.91E-04	cm/s	the geometric mean of the shallow aquifer hydraulic conductivities estimated from slug tests.
i	hydraulic gradient	0.005	ft/ft	based on average gradient observed in 2004, excluding the anomalously high November gradient.
V_s	seepage velocity	7.6	ft/y	calculated from above inputs.
Dispersion				
a_x	Longitudinal Dispersivity	10	ft	Conservative estimate calculated based on a plume length of 625 feet, as per Xu and Eckstein, 1995.
a_y	Transverse Dispersivity	1	ft	Conservative estimate calculated based on plume length of 625 feet, as per Xu and Eckstein, 1995 and Gelhar et al., 1992.
a_z	Vertical Dispersivity	0.5	ft	Conservative estimate calculated based on a plume length of 625 feet, as per ASTM, 1995 and USEPA, 1986.
Adsorption				
R	retardation factor	1	unitless	Conservative zero retardation scenario.
Biodegradation				
Lambda	attenuation rate	0	1/day	No biodegredation.
Source Data				
Source Thickness in Saturated Zone		10	ft	based on the maximum observed thickness, including both saturated and unsaturated sections, of the shallow aquifer.
Source Concentration		0.02	mg/L	Concentration observed at MW-4 in July 2013.
Source Width		1509	ft	Conservative maximum source width near MW-4; equal to the entire property width.
Soluble Mass		0.0001	kg	Minimal soluble mass in the soil based on the assumption that arsenic is primarily present in the dissolved phase.
For Evaluating Model Runs				
Target Concentration		0.005	mg/L	MTCA A cleanup level for arsenic.
Target Attenuation Length	distance to nearest receptor	625	ft	Minimum distance from MW-4 to the downgradient property boundary (directly west).

Notes:
ASTM = American Society for Testing and Materials.
cm/s = centimeters per second.
USEPA = US Environmental Protection Agency
ft = feet
ft/y = feet per year.
mg/L = milligrams per liter.
MTCA A = Model Toxics Control Act, Method A table values for groundwater.
kg = kilograms.

Table 5-13
Deep Groundwater Results, µg/L (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		MW-7													MW-14				
Indicator Hazardous Substance*	**Cleanup Level (µg/L)**	2/4/2004	5/25/2004	9/8/2004	1/28/2005	2/23/2005	1/25/2006	2/2/2007	1/30/2008	1/27/2009	1/21/2010	2/9/2011	2/8/2012	2/5/2013	2/5/2004	5/25/2004	9/8/2004	1/27/2005	1/24/2006
arsenic, inorganic	5	3.79	**5.62**	**5.69**	4.92	--	4.86	ND	3.67	2.41	ND	ND	ND	ND	**154**	**152**	**112**	**215**	**51.4**
chromium(total)	50	5.25	7.84	4.98	6.11	--	4.68	6.85	5.03	5.37	18	5.1	ND	3.9	**75.2**	**101**	**67.6**	**201**	**34.8**
copper	2.4	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	**82.6**	**62.7**	**54.2**	**136**	**37.4**
pentachlorophenol	3	ND	ND	0.708	**139**	ND	ND	1.6	0.509	1.79	0.049	ND	0.028	0.044	ND	ND	ND	ND	ND
benzo[a]anthracene	NA	ND	ND	ND	ND	--	ND	0.0748	ND	0.043	0.023	ND	ND	ND	ND	ND	ND	ND	ND
benzo[a]pyrene	0.1	ND	ND	**0.146**	ND	--	ND	0.0913	ND	0.0578	0.025	ND	ND	ND	ND	ND	ND	ND	ND
benzo[b]fluoranthene	NA	ND	ND	0.188	ND	--	ND	0.0808	ND	0.0567	0.038	ND	0.021	ND	ND	ND	ND	ND	ND
benzo[k]fluoranthene	NA	ND	ND	0.104	ND	--	ND	0.102	ND	0.0588	0.013	ND	ND	ND	ND	ND	ND	ND	ND
chrysene	NA	ND	ND	0.125	ND	--	ND	0.086	ND	0.0657	0.022	ND	ND	ND	ND	ND	ND	ND	ND
dibenzo[a,h]anthracene	NA	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.151	ND	ND
indeno[1,2,3-cd]pyrene	NA	ND	ND	0.125	ND	--	ND	0.108	ND	0.046	0.016	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (Calculated)	0.1	ND	ND	**0.19**	ND	--	ND	**0.13**	ND	0.079	0.034	ND	0.0021	ND	ND	ND	0.015	ND	ND

Notes:

*Benzene, ethylbenzene, xylenes, and hexavalent chromium were not analyzed in deep groundwater samples from 2004 to 2013.

Since hexavalent chromium data are unavailable, total chromium concentrations are compared to the hexavalent chromium cleanup level.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

Bold and highlighted values indicate a cleanup level exceedance.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Non-detects were set equal to zero in the cPAH TEQ calculation.

Chromium(VI) = hexavalent chromium.

µg/L = micrograms per liter.

ND = non-detect.

Table 5-13
Deep Groundwater Results, µg/L (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

		MW-14							MW-18					
Indicator Hazardous Substance*	**Cleanup Level (µg/L)**	2/2/2007	1/31/2008	1/28/2009	1/21/2010	2/9/2011	2/7/2012	2/5/2013	2/5/2004	5/25/2004	9/8/2004	1/27/2005	1/25/2006	2/2/2007
arsenic, inorganic	5	**64**	**40.9**	**8.84**	ND	ND	**60**	**6.6**	1.22	1.36	ND	1.79	ND	ND
chromium(total)	50	**60.5**	**59.9**	7.41	30	18	**110**	14	5.58	6.71	5.06	7.66	6.9	8.87
copper	2.4	**39.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.97	ND	ND
pentachlorophenol	3	ND	0.495	ND	0.036	ND	ND	0.042	ND	ND	ND	ND	ND	ND
benzo[a]anthracene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzo[a]pyrene	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzo[b]fluoranthene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzo[k]fluoranthene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
chrysene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.113	ND	ND	ND
dibenzo[a,h]anthracene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.132	ND	ND	ND
indeno[1,2,3-cd]pyrene	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (Calculated)	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.014	ND	ND	ND

Notes:

*Benzene, ethylbenzene, xylenes, and hexavalent chromium were not analyzed in deep groundwater samples from 2004 to 2013.

Since hexavalent chromium data are unavailable, total chromium concentrations are compared to the hexavalent chromium cleanup level.

Metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.

-- = not sampled.

Bold and highlighted values indicate a cleanup level exceedance.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Non-detects were set equal to zero in the cPAH TEQ calculation.

Chromium(VI) = hexavalent chromium.

µg/L = micrograms per liter.

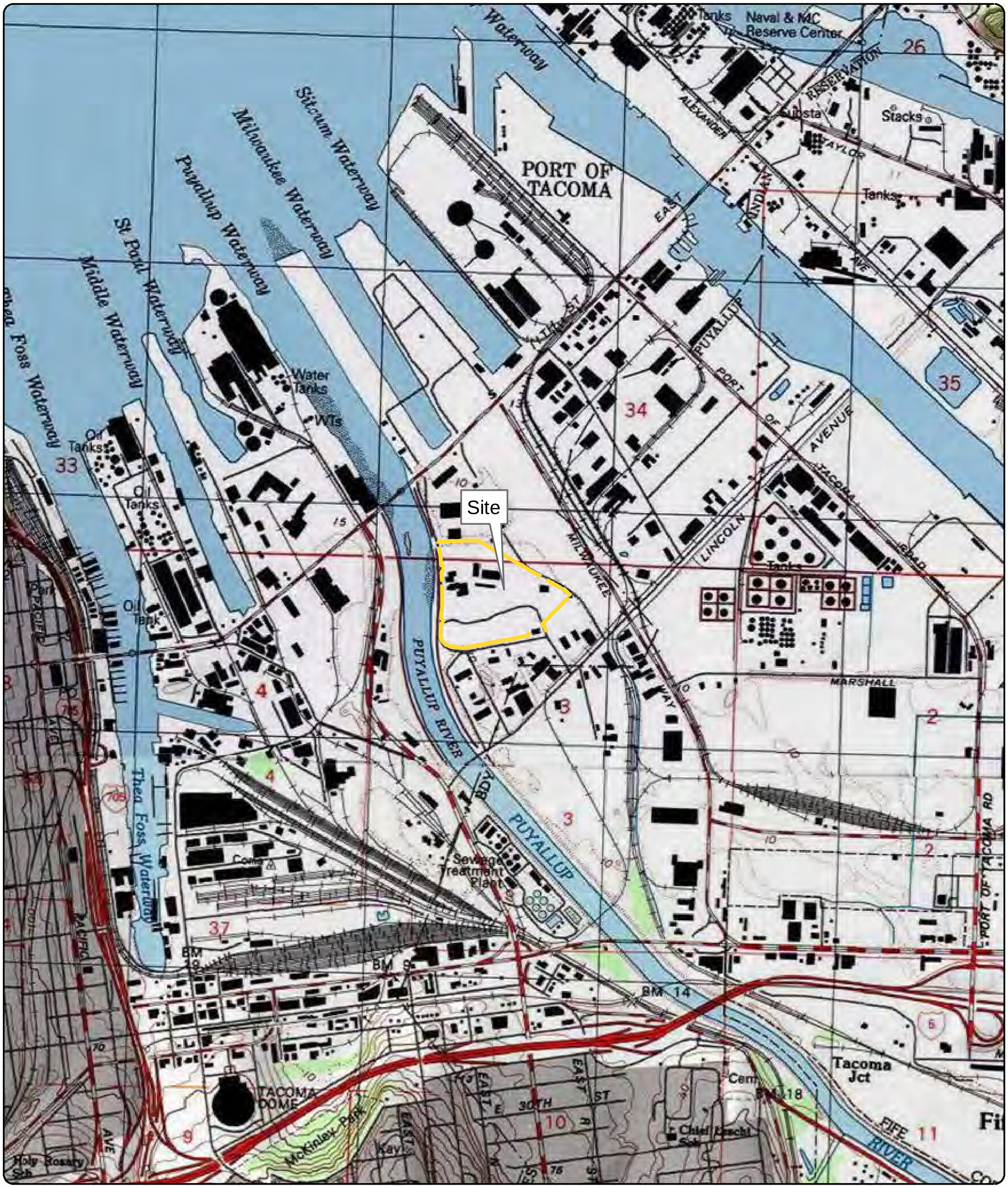
ND = non-detect.

Table 8-1
Detailed MTCA Evaluation of Alternatives

Alternative Number **Probable Cost** **Alternative Description**	**Alternative 1** **$8,773,000** **Completed Interim Actions and Compliance Monitoring**	**Alternative 2** **$9,814,000** **Completed Interim Actions, Groundwater Treatment (MRC and ORC), and Compliance Monitoring**	**Alternative 3** **$10,333,000** **Completed Interim Actions, Expansion of Groundwater Recovery System, and Compliance Monitoring**	**Alternative 4** **$14,968,000** **Completed Interim Actions, Additional Soil Excavation to Remove Arsenic, and Compliance Monitoring**
Basis for Alternative Ranking under MTCA				
1 Compliance with MTCA Threshold Criteria *(WAC 173-340-360(2)(a))*				
Protection of Human Health & Environment	This alternative protects human health and the environment through capping, soil removal, containment, and institutional controls. For groundwater, applicable state and federal cleanup standards are achieved within the property boundaries.	This alternative protects human health and the environment for soil and groundwater by complying with applicable federal and state cleanup standards	This alternative protects human health and the environment for soil and groundwater by complying with applicable federal and state cleanup standards.	This alternative protects human health and the environment for soil and groundwater by complying with applicable federal and state cleanup standards.
Compliance with Cleanup Standards	Ongoing operation of the horizontal recovery well contains and captures contaminated groundwater on site allowing groundwater flowing off site to comply with cleanup standards at the point of compliance. Soil exceedances on site have been capped and portions excavated, however, soil in portions of the site does not achieve cleanup standards.	This alternative includes additional groundwater treatment to achieve groundwater cleanup standards through the use of enhanced biodegradation and immobilization.	Expansion of the horizontal recovery well contains and captures contaminated groundwater on site allowing groundwater flowing off site to comply with cleanup standards at the point of compliance.	This alternative complies with the soil cleanup standards through excavation and off-site disposal.
Compliance with Applicable State & Federal Laws	This alternative complies with all applicable state and federal laws.	This alternative complies with all applicable state and federal laws.	This alternative complies with all applicable state and federal laws.	This alternative complies with all applicable state and federal laws.
Provision for Compliance Monitoring	This alternative provides for compliance monitoring to demonstrate that concentrations are stable with use of institutional controls; this allows for all types of compliance monitoring.	This alternative provides for compliance monitoring to demonstrate that concentrations are stable; this allows for all types of compliance monitoring.	This alternative provides for compliance monitoring to demonstrate that concentrations are stable; this allows for all types of compliance monitoring.	This alternative provides for compliance monitoring to demonstrate that concentrations are stable; this allows for all types of compliance monitoring.
2 Restoration Time-Frame *(WAC 173-340-360(2)(b)(ii))*				
	The interim actions have been completed; the only remaining work is compliance monitoring. Monitoring during the operational period of the horizontal recovery well (i.e., protection monitoring) is expected to continue for the next 4 years, the shortest of the expected restoration time- frames.	This alternative includes all the elements of Alternative 1 plus additional groundwater treatment. Due to attenuation rates of mobile organic contaminants it does not significantly reduce the restoration time frame achieved by Alternative 1.	This alternative includes all the elements of Alternative 1 plus additional groundwater recovery. Additional extraction wells may only reduce the restoration time frame by a year.	This alternative includes an additional 6 months to design and implement the soil excavation component. The primary objective of this alternative is removal of metals, specifically arsenic. After that work has been completed, 4 years of monitoring during the operational period of the horizontal recovery well (i.e., protection monitoring) is expected. The total restoration time frame is 4.5 years.
3 Evaluation of Permanence Using MTCA Disproportionate Cost Analysis *(WAC 173-340-360(2)(b)(i) & WAC 173-340-360(3)(f))*				
Overall Protectiveness	Alternative 1 protects human health and the environment by complying with applicable federal and state cleanup standards through the use of containment, capping, permanent removal, and institutional controls. This alternative leaves contaminated soil in place and receives a moderate ranking.	Alternative 2 protects human health and the environment by complying with applicable federal and state cleanup standards through the use of containment, capping, permanent removal, and institutional controls. Additionally, this alternative permanently removes impacts from groundwater and receives a high ranking.	Alternative 3 protects human health and the environment by complying with applicable federal and state cleanup standards through the use of containment, capping, permanent removal, and institutional controls. Additional, this alternative permanently removes impacts from groundwater and receives a high ranking.	This alternative permanently removes impacts from the soil. This alternative may not treat all On- Site Area residual soil contamination (because of the site limitations), and receives a moderate ranking.

Alternative Number Probable Cost Alternative Description	Alternative 1 $8,773,000 Completed Interim Actions and Compliance Monitoring	Alternative 2 $9,814,000 Completed Interim Actions, Groundwater Treatment (MRC and ORC), and Compliance Monitoring	Alternative 3 $10,333,000 Completed Interim Actions, Expansion of Groundwater Recovery System, and Compliance Monitoring	Alternative 4 $14,968,000 Completed Interim Actions, Additional Soil Excavation to Remove Arsenic, and Compliance Monitoring
Permanence	This alternative includes the permanent removal of soil (focused areas) and the permanent removal of groundwater impacts through natural degradation processes. However, this alternative leaves impacted soils in place and, compared to the other alternatives, receives a moderate ranking.	This alternative includes the permanent removal of soil (focused areas) and the permanent removal of groundwater impacts through natural degradation processes. This alternative also includes the permanent removal of groundwater impacts through degradation and immobilization processes. This alternative receives a high ranking.	This alternative includes the permanent removal of soil (focused areas) and the permanent removal of groundwater impacts through natural degradation processes. This alternative also includes the containment of and removal of groundwater through the recovery system. This alternative receives a high ranking.	This alternative includes the permanent removal of soil and the permanent removal of groundwater impacts through natural degradation processes. This alternative includes a larger volume of soil removal compared to Alterative 1, but does not include groundwater options such as Alternatives 2 and 3. Thus this alternative receives a moderate ranking.
3 Evaluation of Permanence Using MTCA Disproportionate Cost Analysis *(continued)* *(WAC 173-340-360(2)(b)(i) & WAC 173-340-360(3)(f))*				
Long-Term Effectiveness	This alternative has considered the use of higher-preference remediation technologies, such as removal, as defined under MTCA. However, this alternative also includes containment and capping, which are not considered higher-preference remediation technologies. Compared to the other alternatives this receives a moderate ranking for long term effectiveness.	This alternative has considered the use of higher-preference remediation technologies, such as removal and ORC, as defined under MTCA. Compared to the other alternatives, this receives a high ranking for long term effectiveness.	This alternative has considered the use of higher-preference remediation technologies, as defined under MTCA. However, this alternative also includes containment, which is not considered a higher-preference remediation technology. Compared to the other alternatives this receives a moderate ranking for long term effectiveness.	This alternative has considered the use of higher- preference remediation technologies, such as removal, as defined under MTCA. Compared to the other alternatives this receives a high ranking for long term effectiveness.
Short-Term Risk Management	This alternative includes the least amount of construction and implementation work. This alternative has the lowest potential risk to human health or the environment during short term activities. This receives the highest ranking for short-term risk management.	This alternative includes significant drilling/injection, which has the highest short-term potential exposure to site works and the environment. These risks can be reduced through proper construction management and staging, however, compared to the Alternative 1, this receives a low ranking for short-term risk management.	This alternative includes significant excavation work and construction work which has the highest short-term potential exposure to site works and the environment. These risks can be reduced through proper construction management and staging, however, compared to the Alternative 1, this receives a low ranking for short-term risk management.	This alternative includes significant excavation work, which has the highest short-term potential exposure to site works and the environment. These risks can be reduced through proper construction management and staging, however, compared to Alternative 1 this receives a moderate ranking for short-term risk management.
Implementability	The interim actions included in this alternative have been completed. This alternative has shown that it is highly practicable and implementable.	This alternative is practicable and implementable; however, compared to Alternative 1, it includes challenges related to the injection and delivery of ORC and MRC. However, these difficulties can be minimized with proper planning and management.	This alternative is practicable and implementable; however, compared to the Alternative 1, it includes significant excavation and construction related to the expansion of the groundwater recovery system. However, these difficulties can be minimized with proper planning and management.	This alternative is practicable and implementable; however, compared to the Alternative 1, it include significant challenges related to the excavation of soils near processing units, availability of contractors, and additional capping. However, these difficulties can be minimized with proper planning and management.
Consideration of Public Concerns	This alternative has the shortest restoration time frame compared to the other alternatives. Additional public comments will be addressed as part of the draft CAP review process.	This alternative has a moderate restoration time frame compared to the preferred alternative (Alternative 1) and includes implementability challenges and short term risks to human health and the environment associated with groundwater treatment activities. Additional public comments will be addressed as part of the draft CAP review process.	This alternative has the longest restoration time frame and includes significant implementability challenges and short term risks to human health and the environment. Additional public comments will be addressed as part of the draft CAP review process.	This alternative has a similar restoration time frame compared to the preferred alternative and includes significant implementability challenges and short term risks to human health and the environment. Additional public comments will be addressed as part of the draft CAP review process.

FIGURES



Site Address: East 18th and Marc Street, Tacoma, Washington
Source: US Geological Survey (1990) 7.5-minute topographic quadrangle: Tacoma North
Section 3, Township 20 North, Range 3 East and
Section 34, Township 21 North, Range 3 East

Figure 2-1
Site Location

Cascade Pole and Lumber Company
Tacoma, Washington

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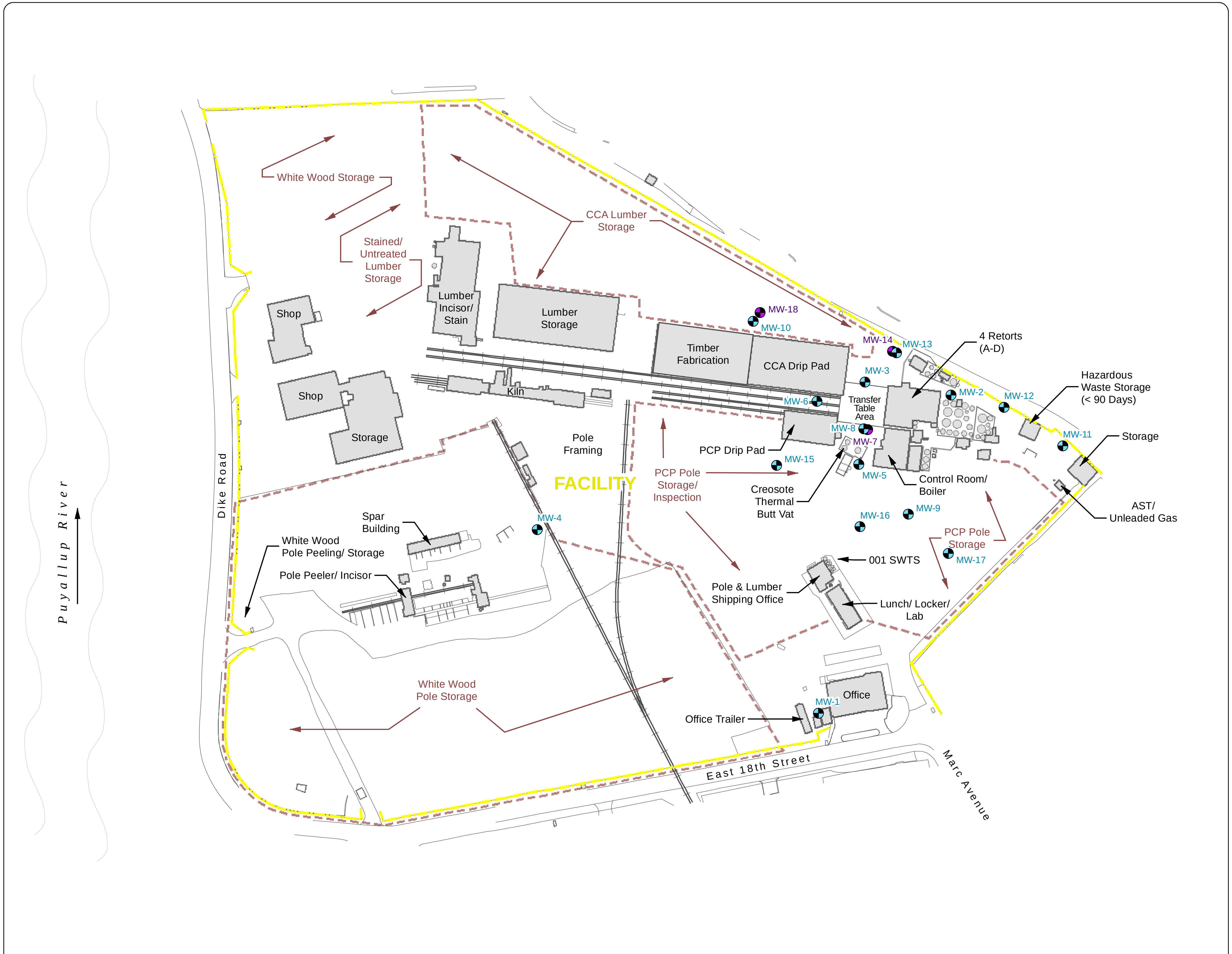
0 1,000 2,000
Feet

Project: 9081.01.04-04 Produced By: apadilla Approved By: hhirsch Print Date: 4/23/2014 Path: X:\9081.01 Cascade Pole\04 MTCA Closure Tacoma Facility\Projects\Fig2-1_Site Location.mxd

Figure 2-2
Historical Site Features

Cascade Pole and Lumber Company
Tacoma, Washington



Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Railroad
- Approximate Facility Boundary
- Operational Area Boundary

Notes:
1. Site features corresponds to those present until approximately the late 1990s.
2. AST = aboveground storage tank.
3. CCA = chromated copper arsenate.
4. PCP = pentachlorophenol.
5. SWTS = stormwater treatment system.

0 100 200
Feet

Source: Site layout and features obtained from AECOM.

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Path: X:\9081.01 Cascade Pole\04 MTCA Closure Tacoma Facility\Projects\Fig2-2_Historical Site Features.mxd
Print Date: 4/23/2014
Approved By: hhirsch
Produced By: apadilla
Project: 9081.01.04-00

Figure 2-3
Current Site Features

Cascade Pole and Lumber Company
Tacoma, Washington

Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Railroad
- Horizontal Drain
- Approximate Facility Boundary
- Operational Area Boundary

Notes:
1. AST = aboveground storage tank.
2. CA-C = copper azole - type C.
3. PCP = pentachlorophenol.
4. SWTS = stormwater treatment system.

0 100 200
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; site layout and features obtained from AECOM.

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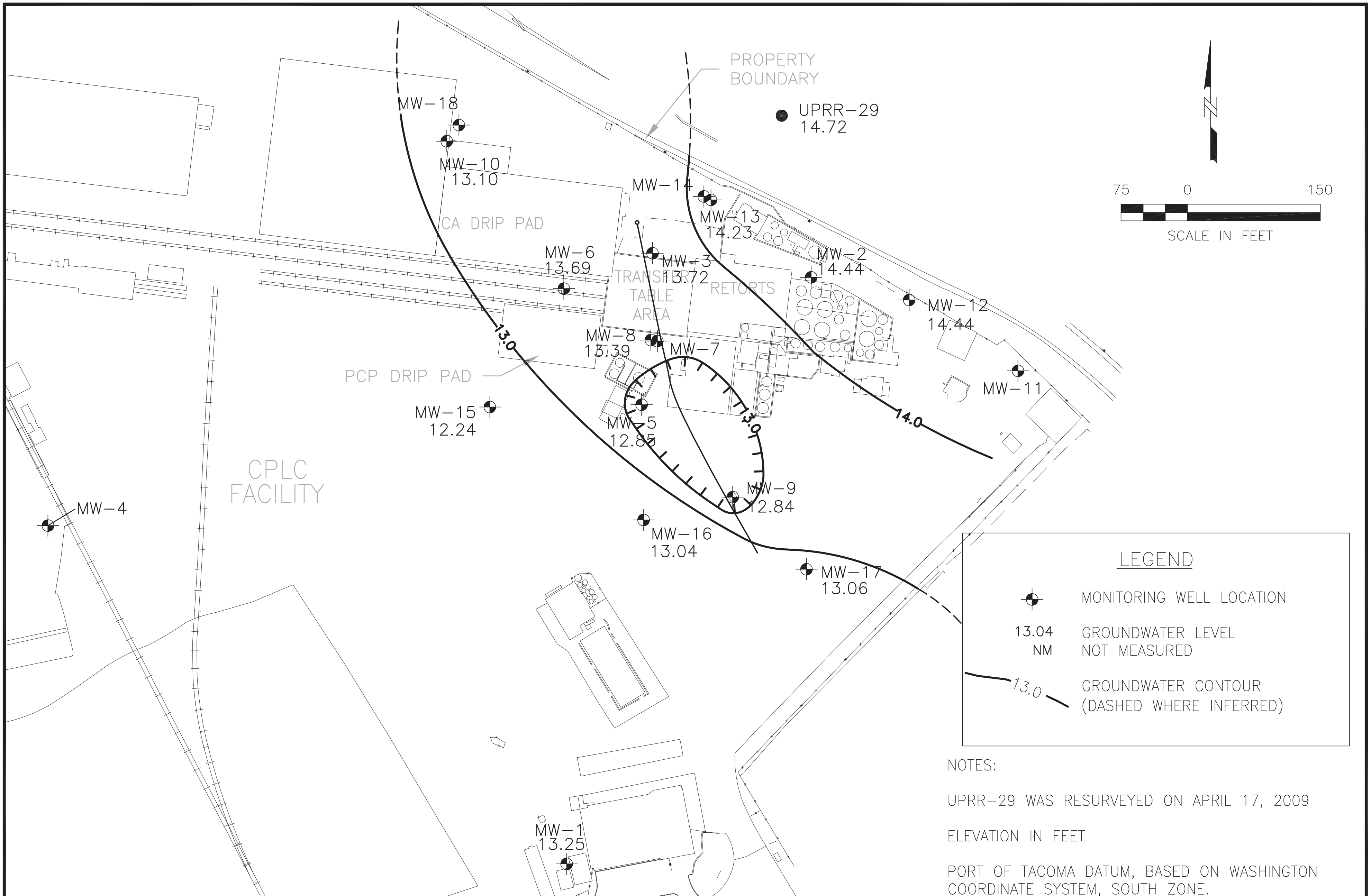
Project: 9081.01.04-00 Produced By: apadilla Approved By: hhirsch Print Date: 4/23/2014 Path: X:\9081.01 Cascade Pole\04 MTCA Closure Tacoma Facility\Projects\Fig2-3_Current Site Features.mxd

File: G:\PROJECTS\CADD\Cascade Lumber\Annual GW Report\2012\shallow_gw_level.dwg Layout: FIGURE 11 User: oliveriam Plotted: Mar 21, 2012 - 4:38pm Xref's:



AECOM

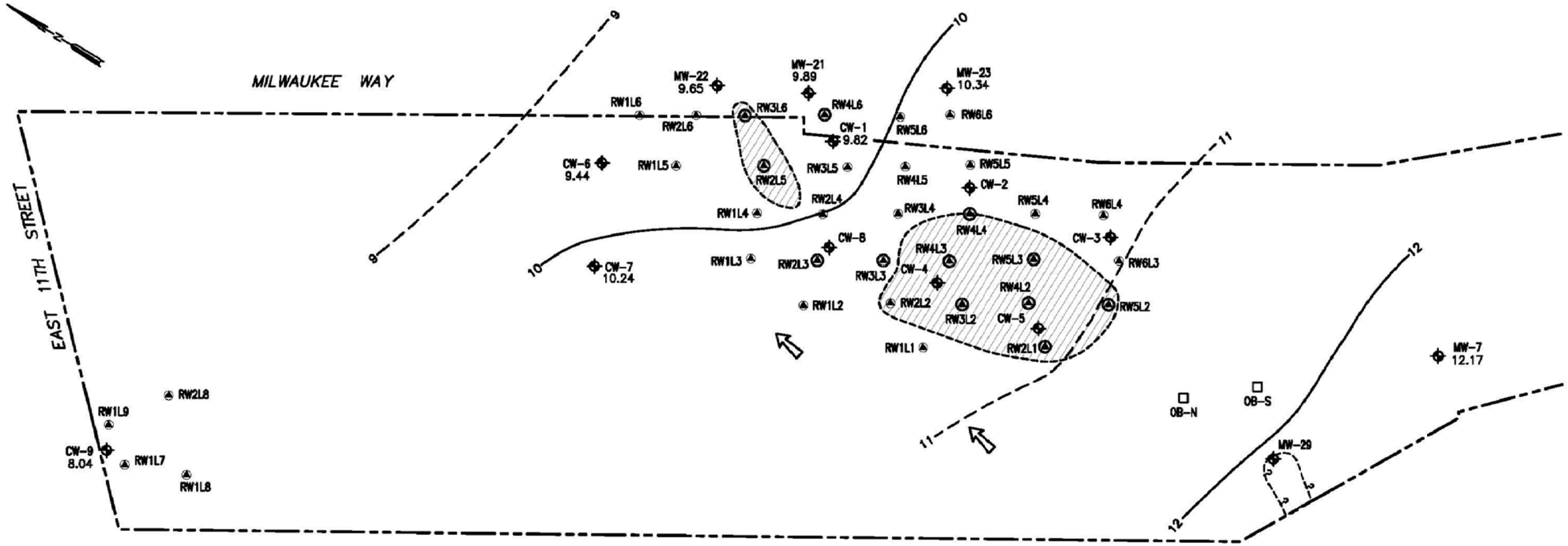
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137021-0300

DATE: 03/21/12 DRWN: M.O./SEA

GROUNDWATER ELEVATION CONTOUR MAP
SHALLOW AQUIFER
FEBRUARY 2012

FIGURE 3-1



LEGEND:

9.65 Groundwater Elevation (Feet Above MSL)

——12—— Inferred Groundwater Elevation Contour (feet)

General Groundwater Flow Direction

Current Free Product Plume (Dashed Where Inferred) As of October, 2004

MW-21 Compliance Monitoring Well Location

RW2L8 Groundwater Recovery Well with No Above Ground Stickup

RW2L8 Groundwater Recovery Well with Above Ground Stickup

OB-1 Reinfiltration Trench Piezometer Location

— — — Approximate Property Boundary

NOTES:

1. Product was present in CW–4 and CW–5 but could not be measured due to high viscosity.
2. Water elevations measured with the groundwater extraction system operating.

SCALE

0 200 400 FEET

SOURCE: DOWL ENGINEERS, A DIVISION OF DOWL, INC.

Shaw®
Shaw Environmental, Inc.
19909 120th Avenue N.E., Suite 101
Bothell, Washington 98011
Phone (425) 485–5000
Fax. (425) 486–9766

GROUNDWATER ELEVATION CONTOUR MAP - FEBRUARY 2005
PORT OF TACOMA
FORMER MILWAUKEE RAILYARD SITE
TACOMA, WASHINGTON

DRAWN BY	CHECKED BY	APPROVED BY	OFFICE	DRAWING NUMBER
MPortacio 3/05			BOTHELL	111487.01

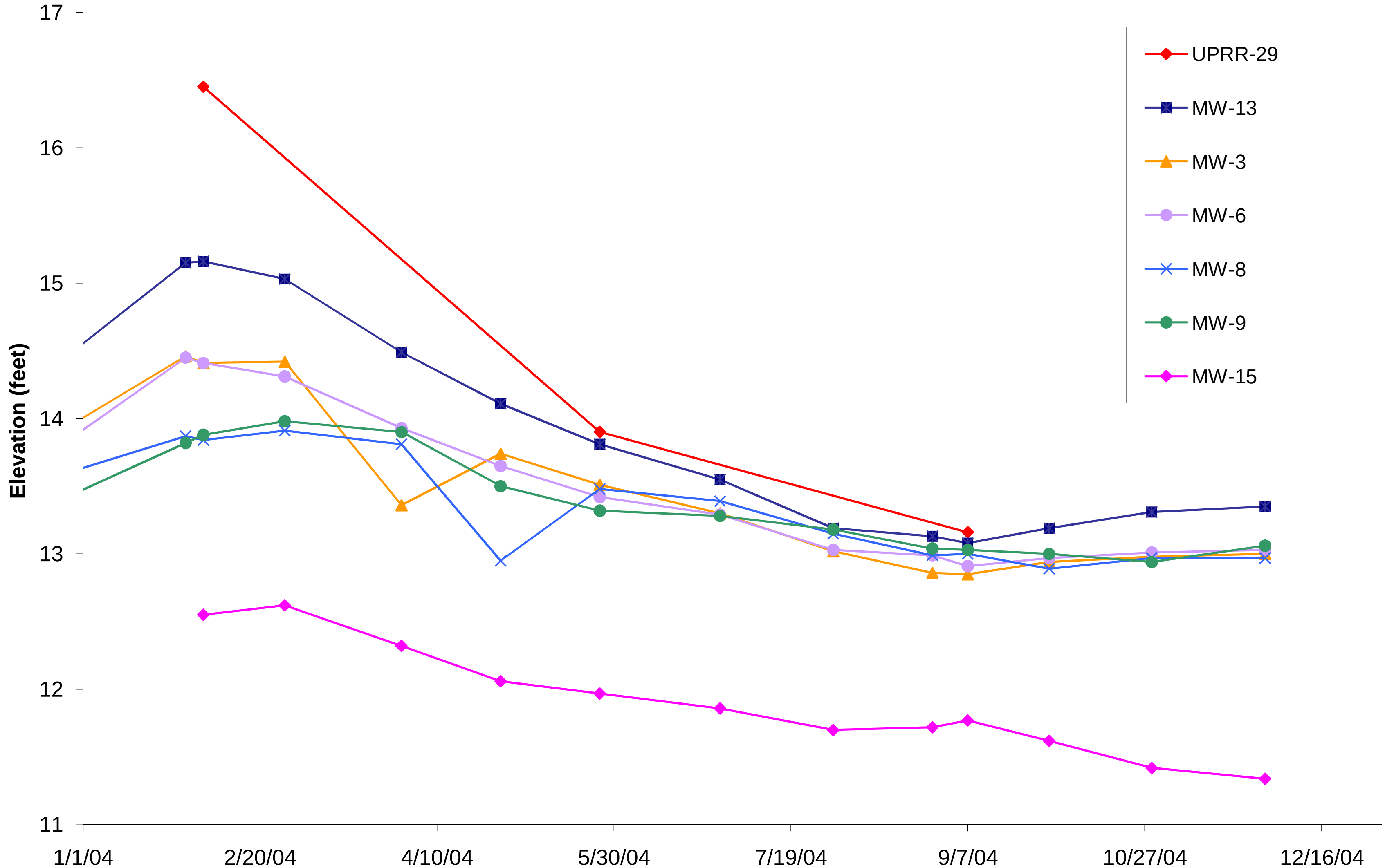
XREF Files: IMAGE Files:
File: N:\Project\final\PortofTacoma\111487\Drawings\BT-GWCMAP-2-05-F1.dwg user: maria.portacio March 8, 2005

File: P:\CADD\Cascade Lumber\16832S051.dwg Layout: FIGURE 3-6 User: oliveriam Plotted: Mar 09, 2011 - 12:36pm Xref's:

RETEC

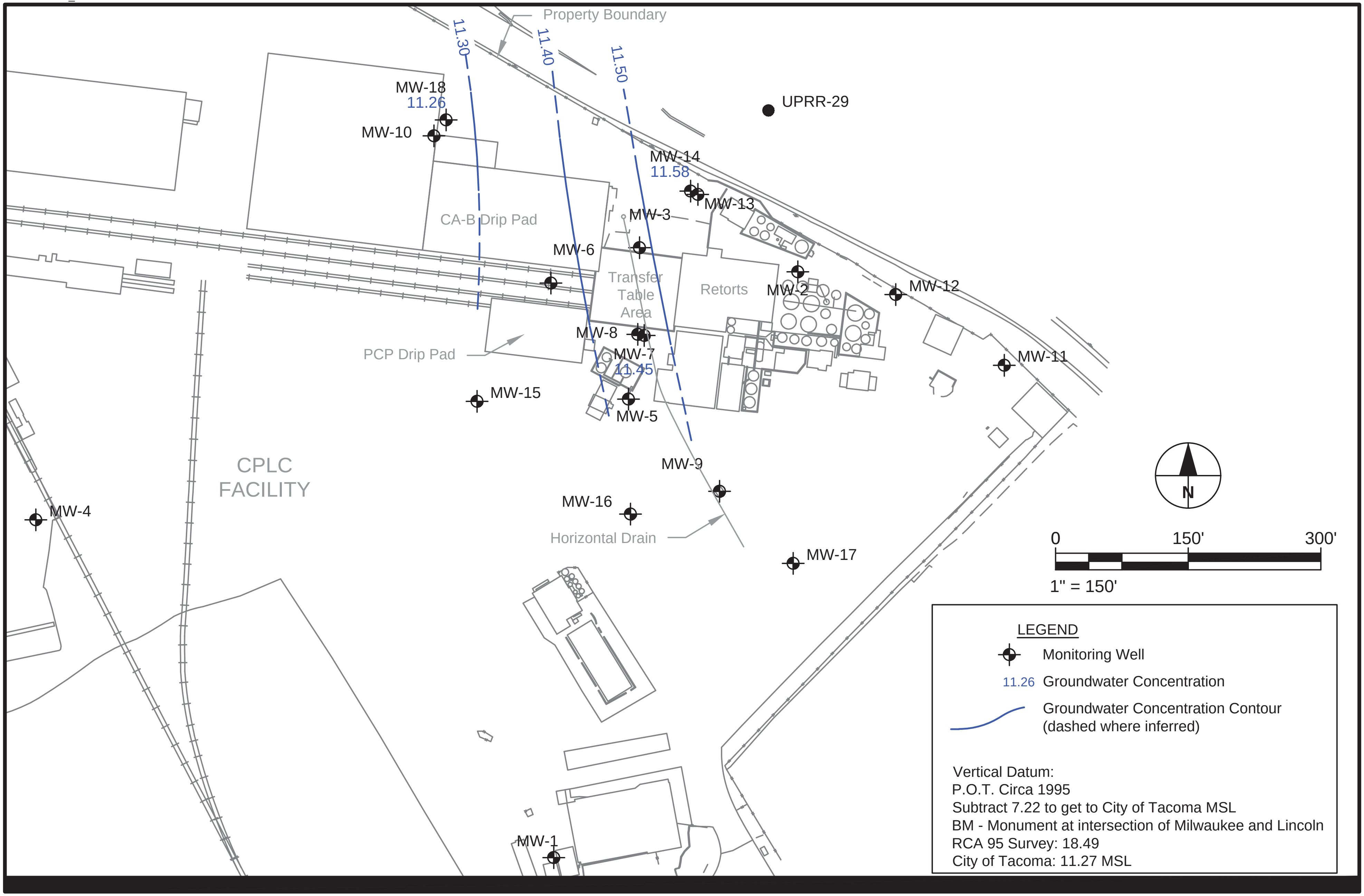
CASCADE POLE AND LUMBER COMPANY TACOMA, WASHINGTON CPLU1-16832-500	GROUNDWATER ELEVATION CONTOUR MAP UPRR SITE FEBRUARY 2005
DATE: 04/18/05 DRWN: A.S./SEA	FIGURE 3-2

Figure 3-3 Groundwater Elevation Hydrograph



Last saved by: MARSHALLE(2013-04-26) Last Plotted: 2013-04-26
Filename: Z:_SEATTLE WORK\CPLC\2013 ANNUAL GW REPORT\60220510-FIG-B-SHALGW.DWG

Project Management Initials: Designer: EM/ftc Checked:RK/sea Approved:_____ ANSI A 8.5" x 11"



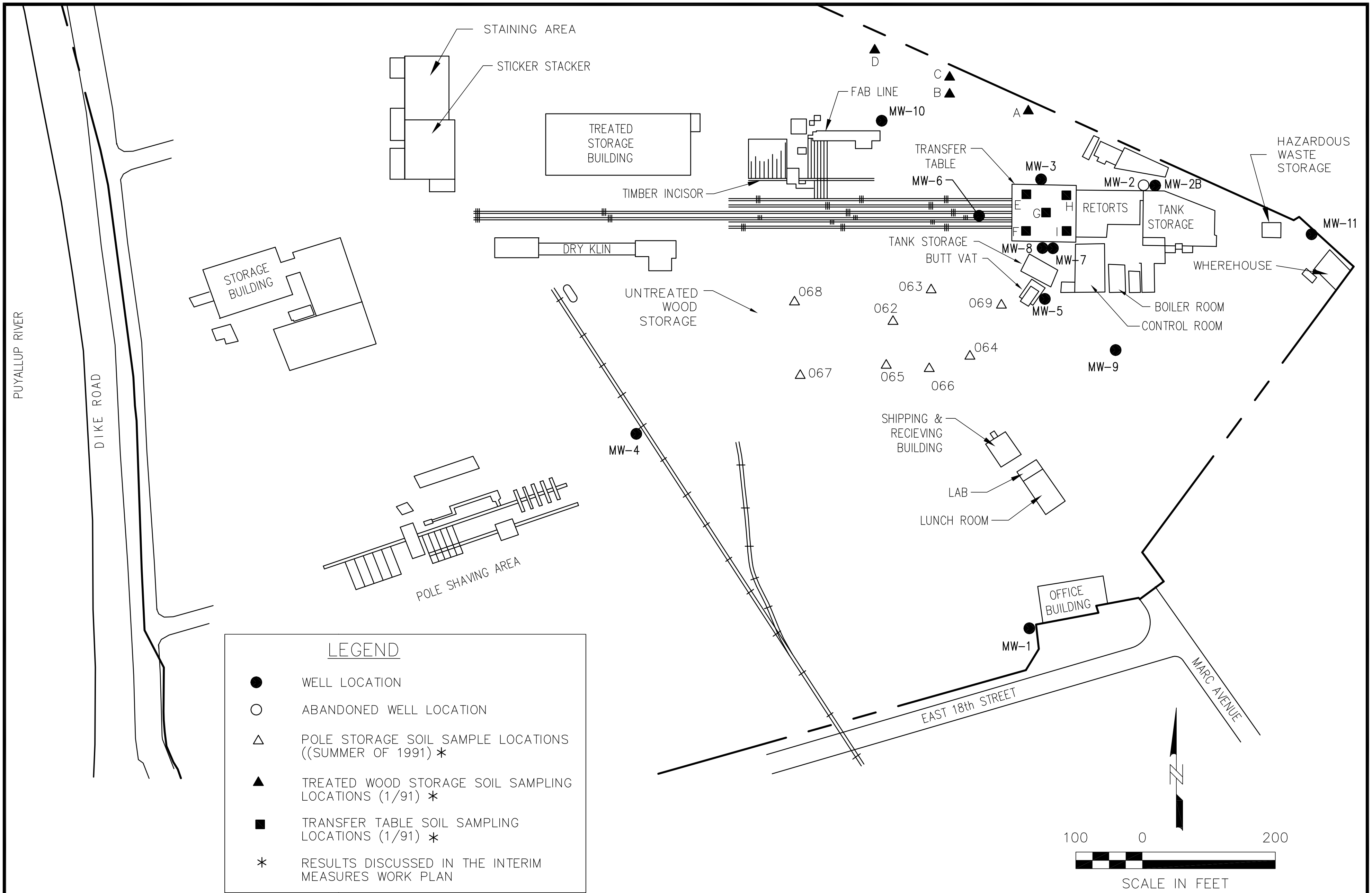
Cascade Pole and Lumber Company
2013 Annual Groundwater Report
Tacoma, Washington
Project No.: 60220510 Date: 2013-04-26

Potentiometric Surface Map
in Deep Aquifer
February 2013

AECOM

Figure 3-4

File: P:\CADD\Cascade Lumber\16832S045.dwg Layout: ANSI_BI-LJ User: oliveriam Plotted: Mar 09, 2011 - 12:42pm Xref's:



LEGEND

- ● WELL LOCATION
- ○ ABANDONED WELL LOCATION
- △ POLE STORAGE SOIL SAMPLE LOCATIONS ((SUMMER OF 1991) *
- ▲ TREATED WOOD STORAGE SOIL SAMPLING LOCATIONS (1/91) *
- ■ TRANSFER TABLE SOIL SAMPLING LOCATIONS (1/91) *
- * RESULTS DISCUSSED IN THE INTERIM MEASURES WORK PLAN

RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

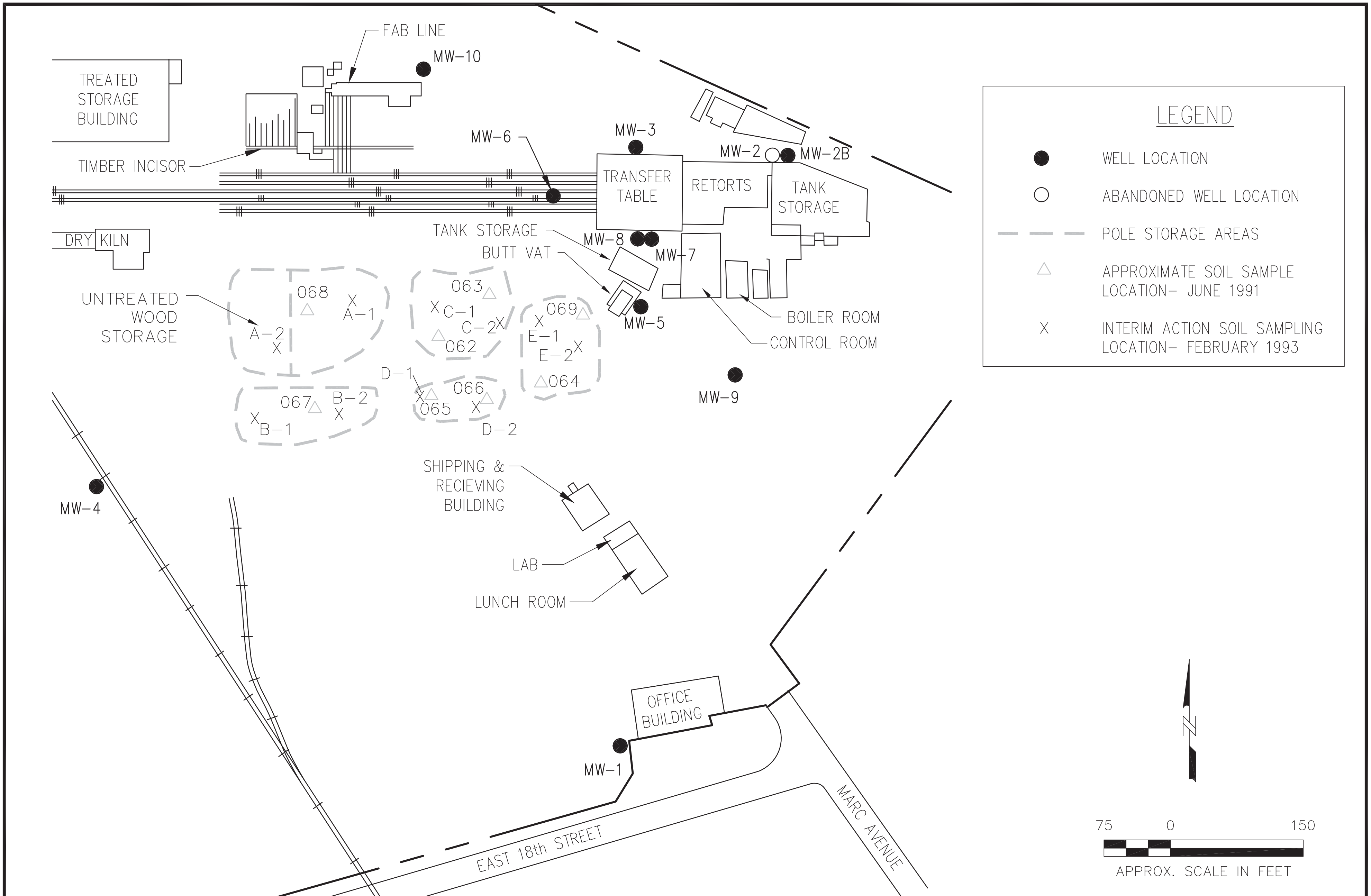
CPLU1-16832-500

1991 SOIL SAMPLING

DATE: 04/11/05 DRWN: A.S./SEA

FIGURE 3-5

File: P:\CADD\Cascade Lumber\16832S046.dwg Layout: ANSI_AVI-LJ User: oliveriam Plotted: Mar 09, 2011 - 12:43pm Xref's:



RETEC

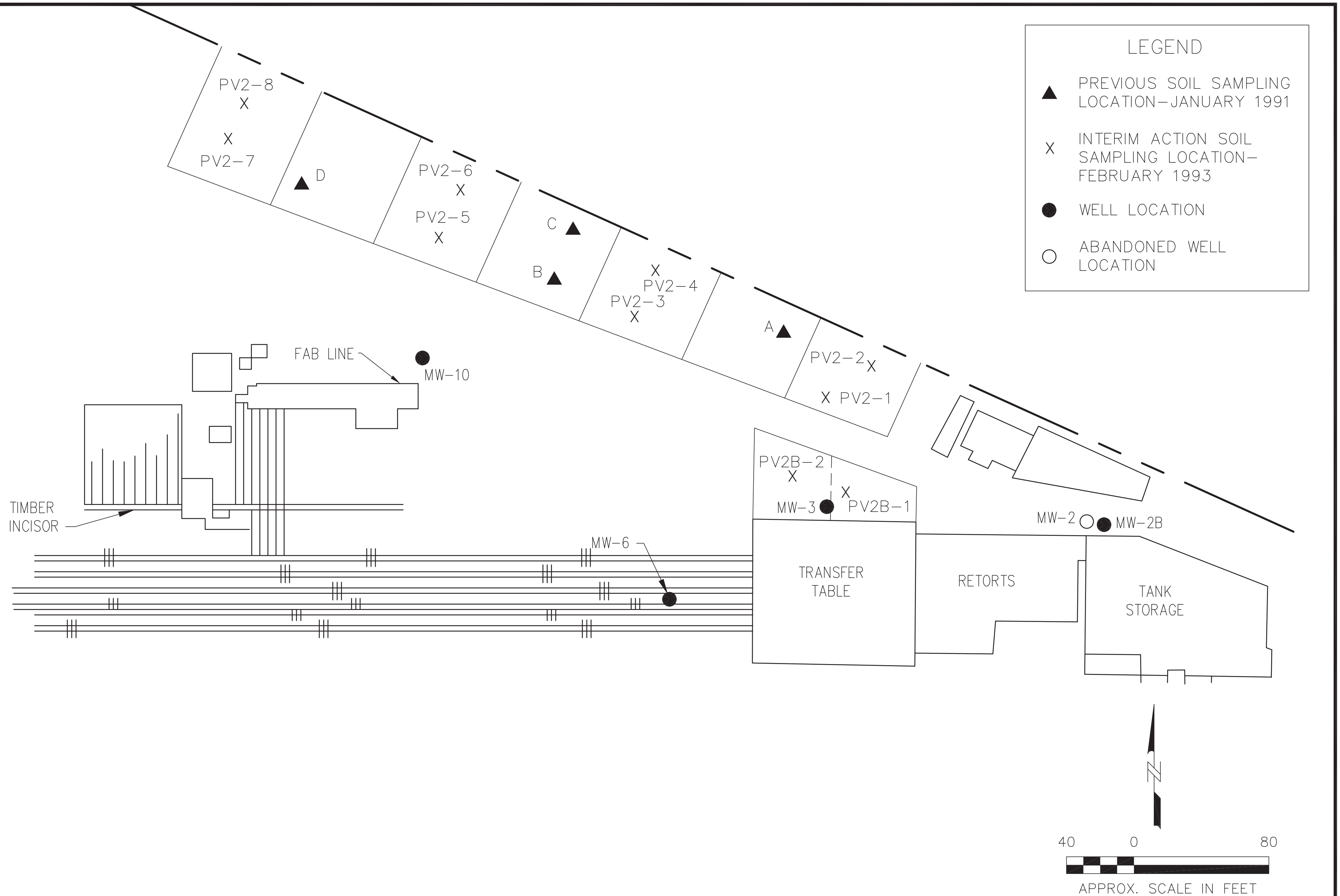
CASCADE POLE AND LUMBER CO.
TACOMA, WASHINGTON

CPLU1-16832-500

1993 POLE STORAGE AREA
SOIL SAMPLING LOCATIONS
PAVING AREA 1

DATE: 04/11/05 | DRWN: A.S./SEA

FIGURE 3-6



RETEC

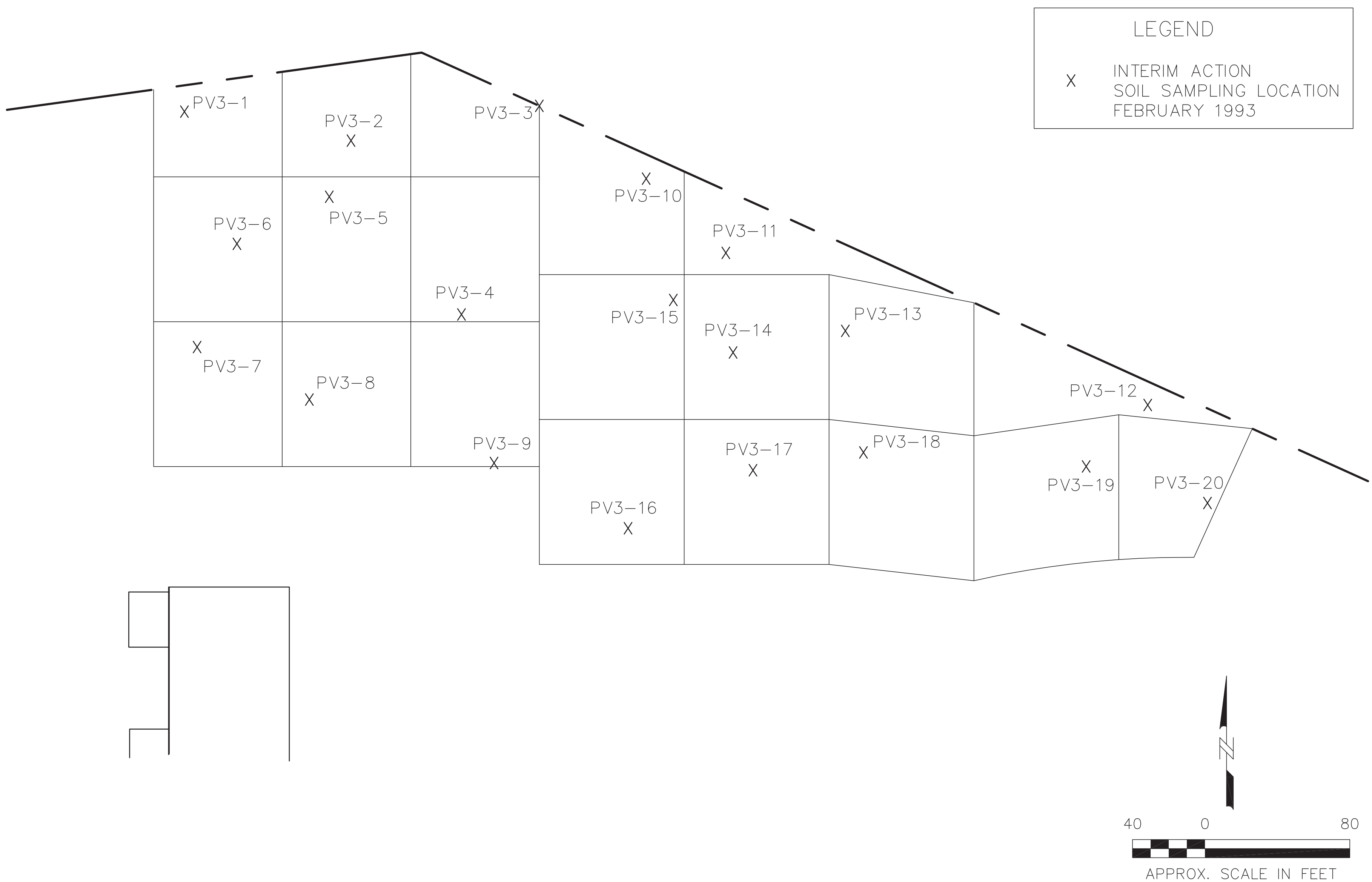
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

CPLU1-16832-500

DATE: 04/11/05 | DRWN: A.S./SEA

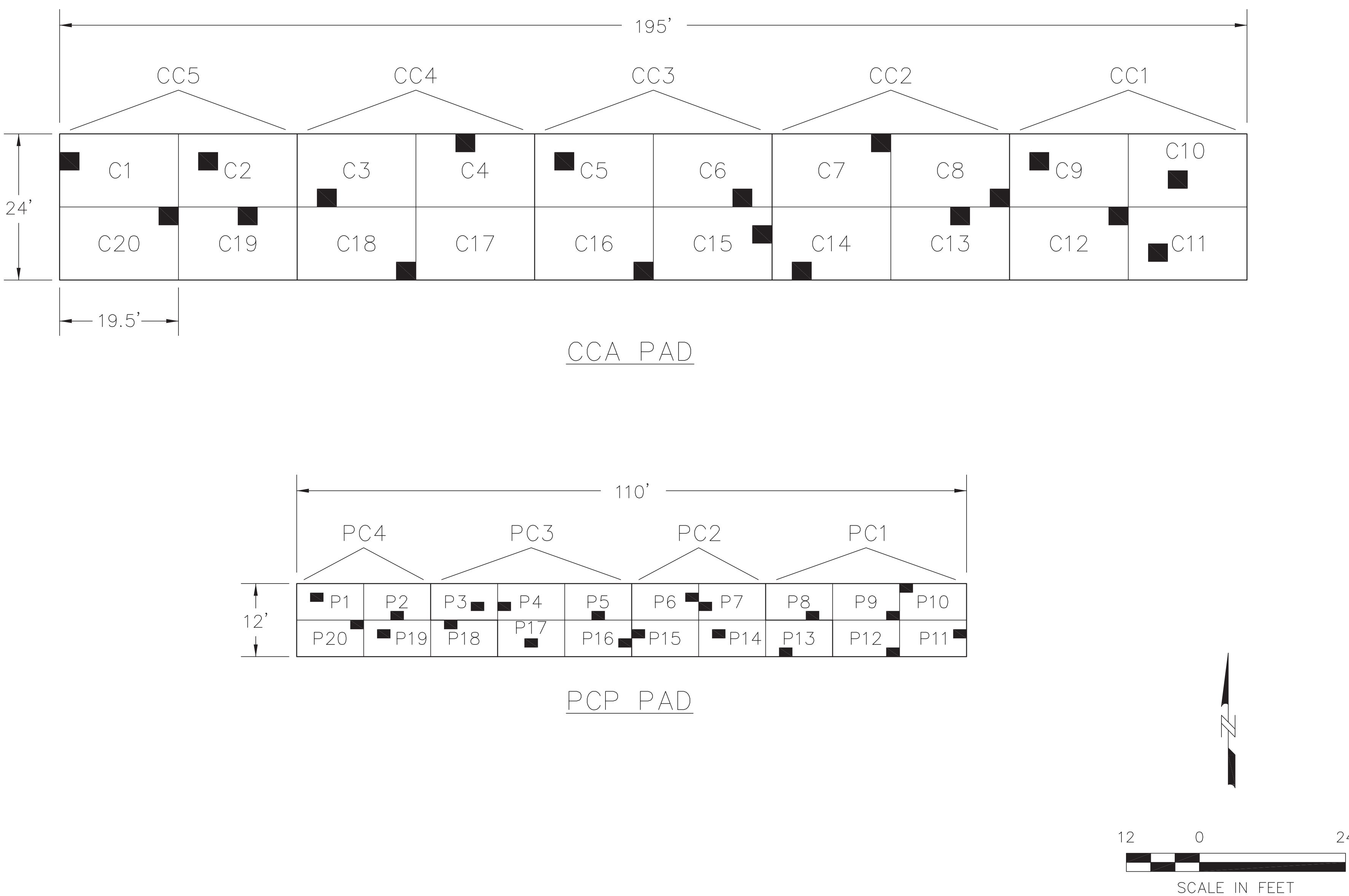
1993 TREATED LUMBER STORAGE AREA
SOIL SAMPLING LOCATIONS
PAVING AREA 2

FIGURE 3-7



RETEC

CASCADE POLE AND LUMBER COMPANY TACOMA, WASHINGTON CPLU1-16832-500	**1993 SOIL SAMPLING LOCATIONS PAVING AREA 3**
DATE: 04/11/05 DRWN: A.S./SEA	**FIGURE 3-8**



RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

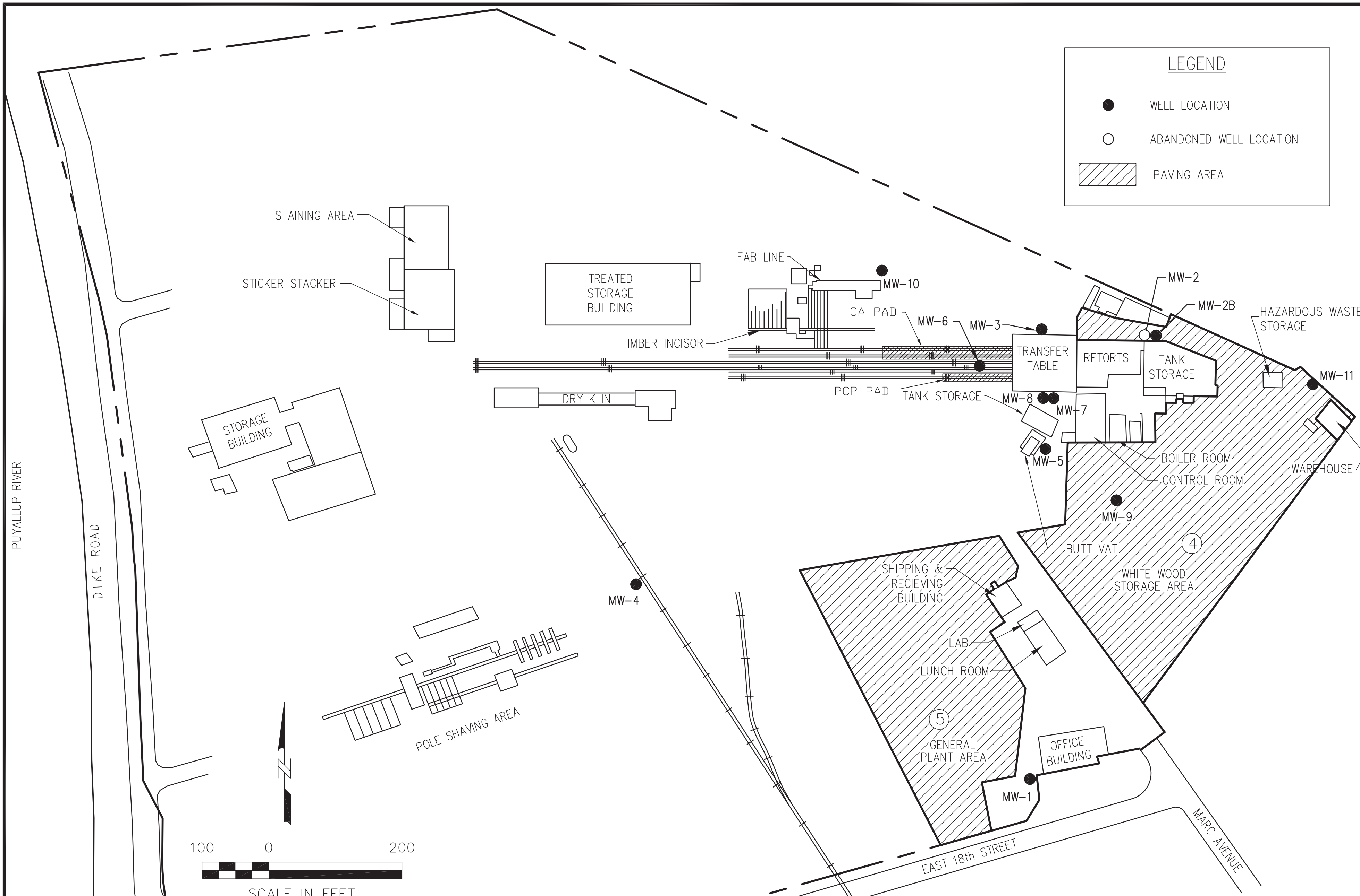
CPLU1-16832-500

1993 SOIL SAMPLE LOCATIONS
DRIP PAD AREAS

DATE: 04/11/05	DRWN: A.S./SEA		

FIGURE 3-9

File: G:\PROJECTS\CADD\Cascade Lumber\Figures_021711\FIGURE 3-17_16832S050.dwg Layout: ANSI_A1-LJ User: oliveriam Plotted: Apr 21, 2011 - 4:21pm Xref's:



RETEC

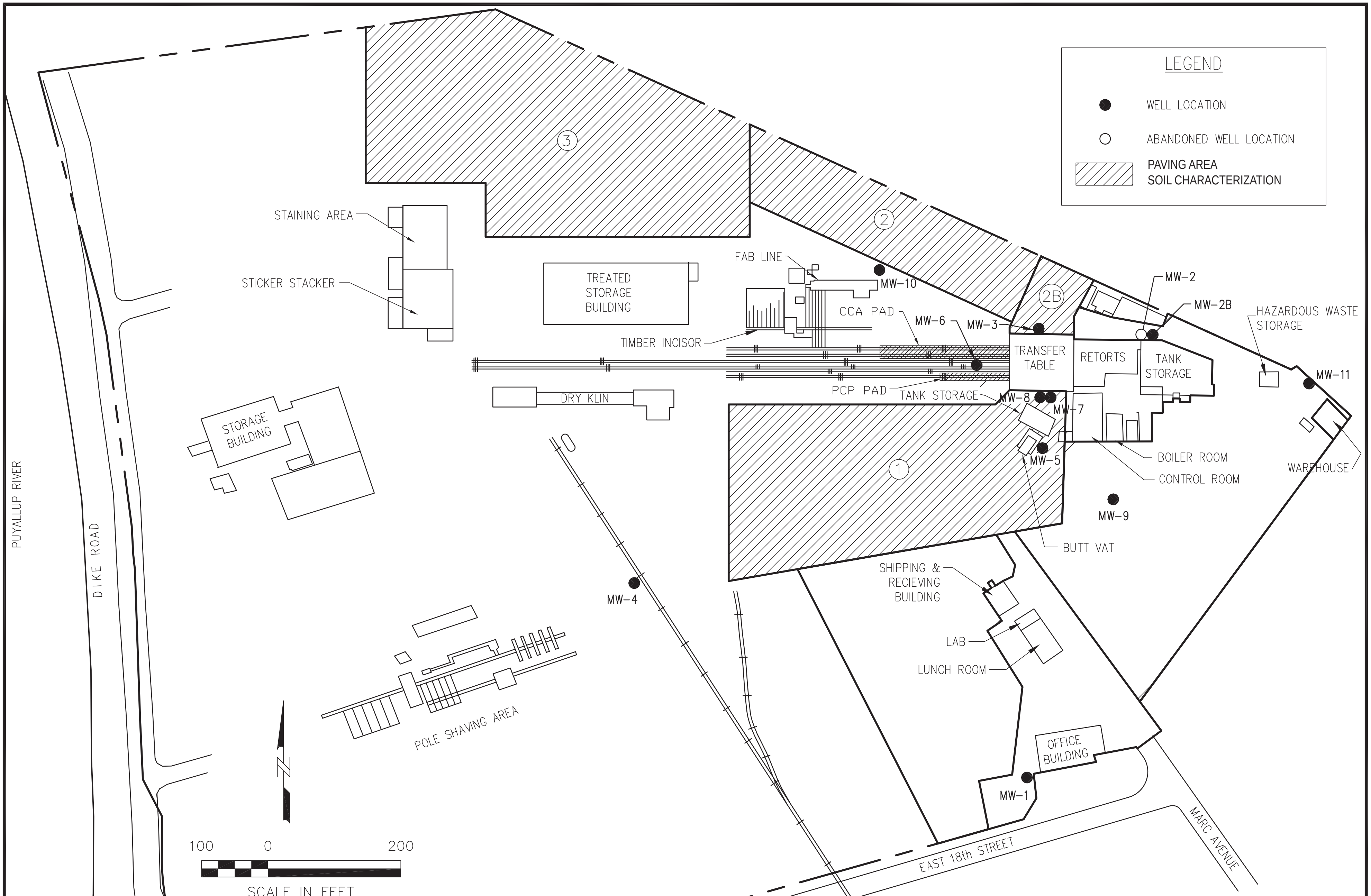
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

CPLU1-16832-500

ADDITIONAL PAVING AREAS 4 AND 5

DATE: 04/11/05 | DRWN: A.S./SEA

FIGURE 3-10



RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

CPLU1-16832-500

DATE: 04/11/05 | DRWN: A.S./SEA

LOCATION OF INTERIM ACTION AREAS

FIGURE 4-1

NOTE:
PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

CPLC1-16832-500

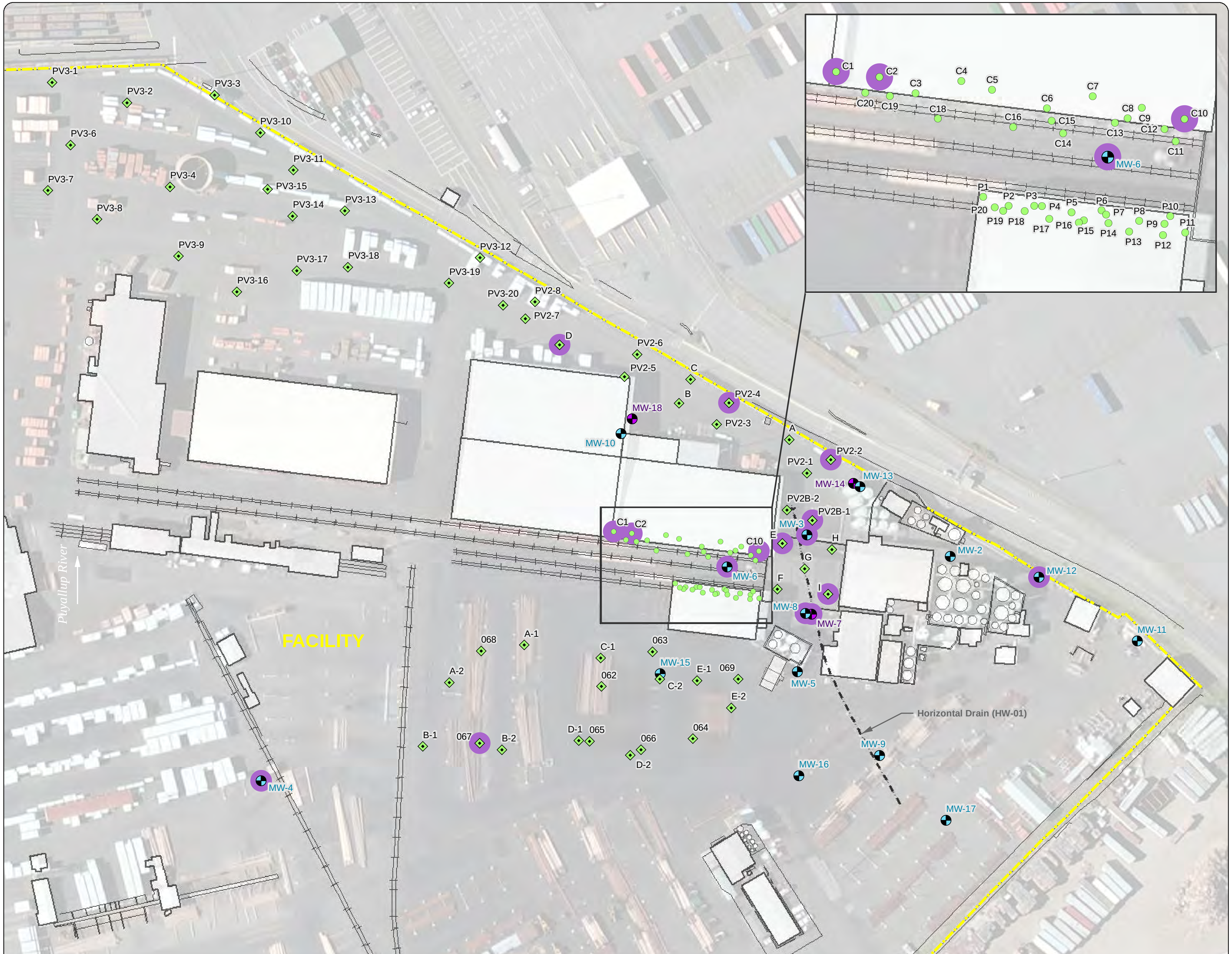
CURRENT PAVED AREAS AND THICKNESSES AT CPLC FACILITY

DATE: 2/8/07 | DRWN: E.M./SEA

FIGURE 4-2

Figure 5-1
Arsenic Exceedances in Soil 0 to 5 Feet bgs

Cascade Pole and Lumber Company
Tacoma, Washington



Legend

- Drip Pad Soil Sample Locations
- Paving Area & Transfer Table Soil Sample Locations
- Shallow Monitoring Well
- Deep Monitoring Well
- Arsenic Exceedance
- Railroad
- Horizontal Drain
- Approximate Facility Boundary

Notes:
1. Arsenic cleanup level = 88 mg/kg.
2. Arsenic concentrations were obtained from Table 2 of the historical soil data memorandum inlcuded as Appendix F.
3. No arsenic exceedances were observed in samples collected from depths greater than 5 feet bgs. The maximum depth sampled was 24 feet bgs.
4. bgs = below ground surface.
5. mg/kg = milligrams per kilogram (parts per million).

0 60 120
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; site layout and features obtained from AECOM.

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Project: 9081.01.04-04 Produced By: apadilla Approved By: hhirsch Print Date: 4/23/2014 Path: X:\9081.01 Cascade Pole\04 MTCA Closure Tacoma Facility\Projects\Fig5-1_Arsenic Exceedances in Soil.mxd

Figure 5-2
Groundwater Exceedances 2004 to 2013

Cascade Pole and Lumber Company
Tacoma, Washington

Legend

Exceedances

- Arsenic—5 µg/L CUL
- Copper—2.4 µg/L CUL
- Chromium—50 µg/L CUL
- PCP—3 µg/L CUL
- cPAH TEQ—0.1 µg/L CUL
- Shallow Monitoring Well
- Deep Monitoring Well
- Railroad
- Horizontal Drain
- Approximate Facility Boundary

Notes:
1. This figure shows indicator hazardous substances for which the maximum detected concentration obverved in groundwater was above its cleanup level. Data from the four most recent monitoring events conducted between 2004 and 2013 for each well location were evaluated. Data from only one monitoring event each were considered for MW-1 and MW-4 since these wells were only sampled once during the 2004 to 2013 timeframe.
2. Samples have not been collected from monitoring well location MW-11 since 2002.
3. Hexavalent chromium was not analyzed during this sampling period, except for at MW-4 in 2013, which was non-detect.
4. Benzene, ethylbenzene, and xylenes were only analyzed at well location MW-9. The four most recent concentrations observed at MW-9 were below their respective cleanup levels.
5. The metals concentrations are the maximum of the total and dissolved fractions, when both were analyzed.
6. cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient.
7. CUL = cleanup level.
8. PCP = pentachlorophenol.

0 100 200
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; site layout and features obtained from AECOM.

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Path: X:\9081.01 Cascade Pole\04 MTCA Closure Tacoma Facility\Projects\Fig5-2_Groundwater Exceedances.mxd
Print Date: 11/26/2013
Approved By: hhirsch
Produced By: apadilla
Project: 9081.01.04-04

Figure 5-3
Shallow Groundwater Arsenic Trend Plot (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

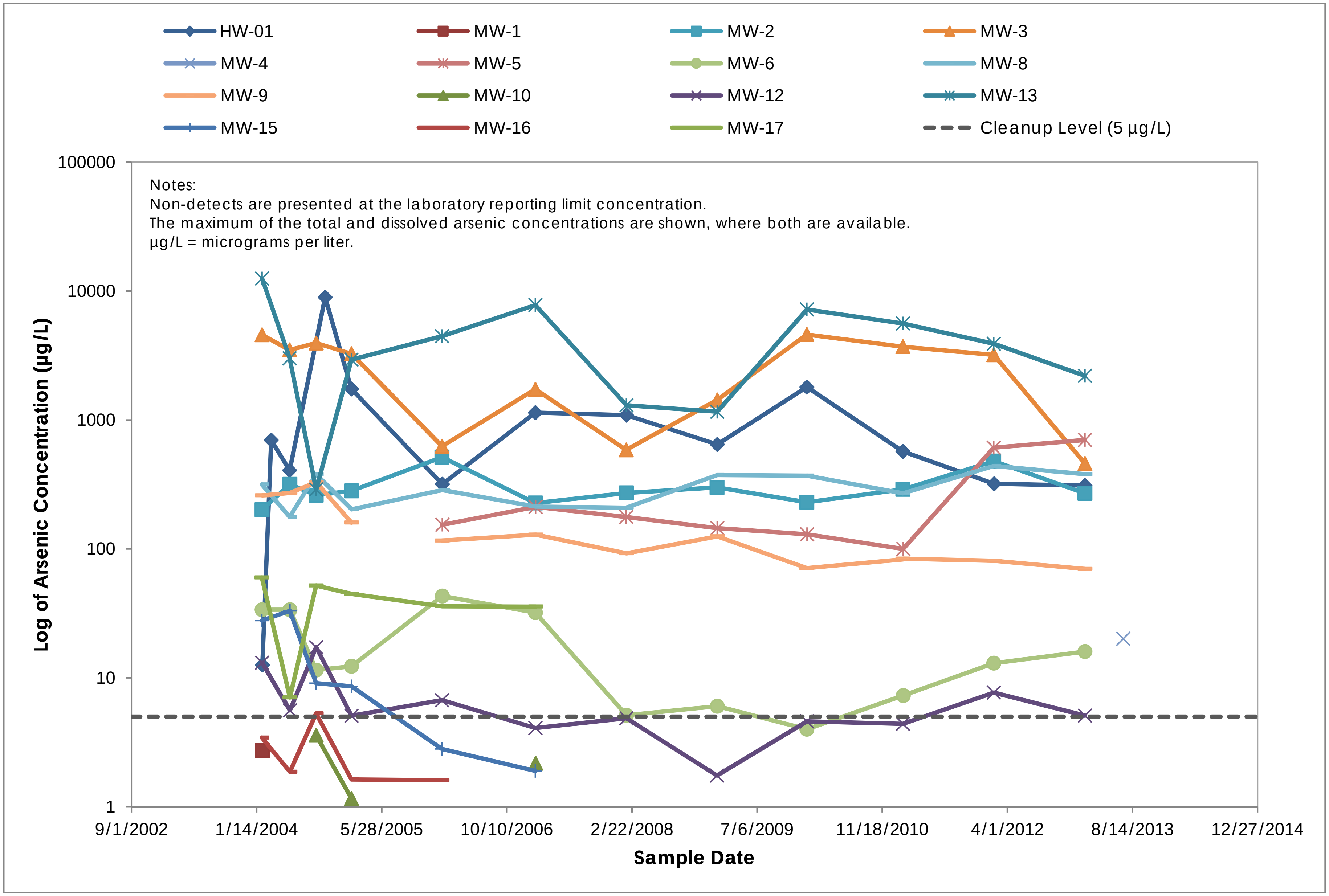

Figure 5-4
Shallow Groundwater Copper Trend Plot (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

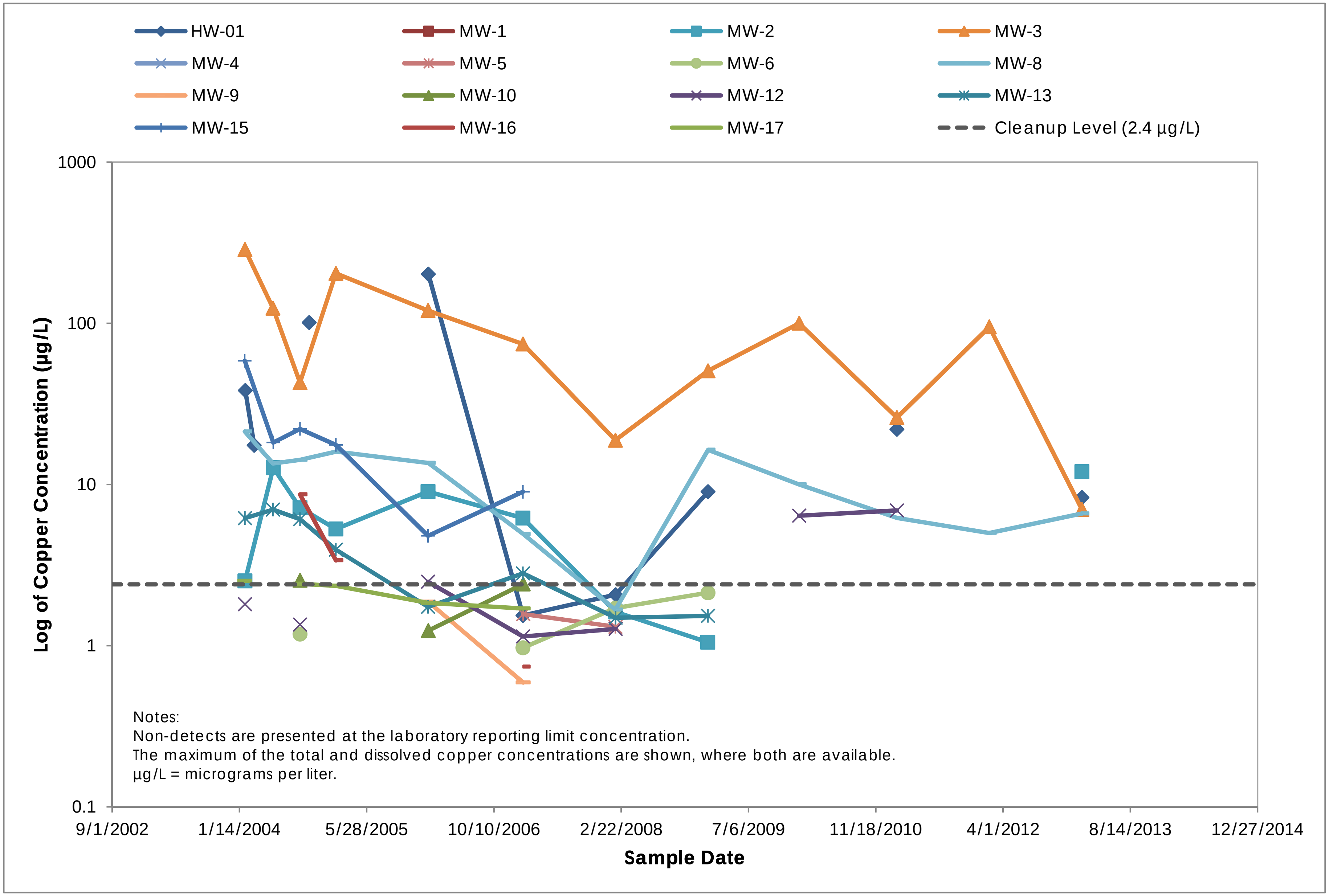

Figure 5-5
Shallow Groundwater Chromium Trend Plot (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

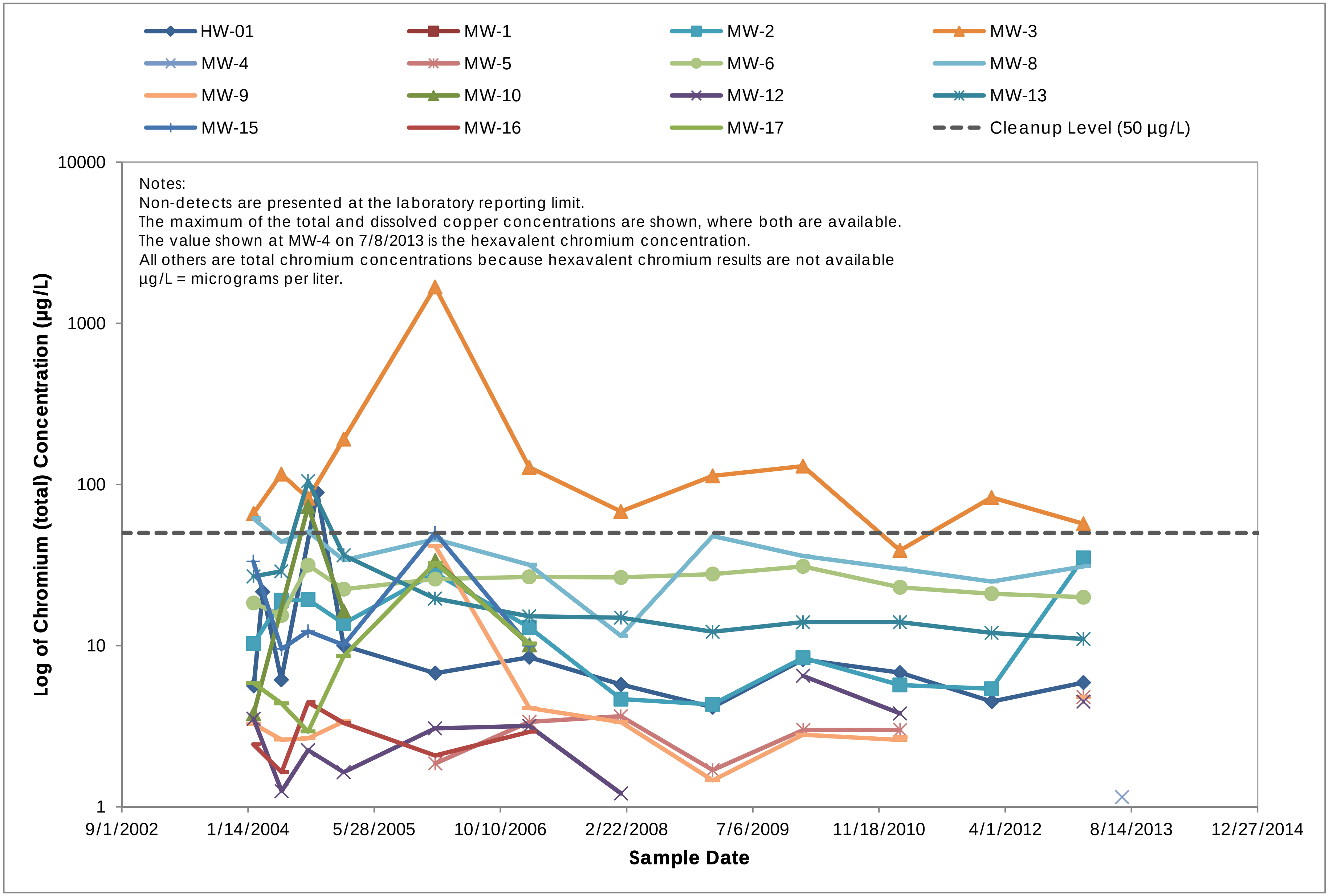

Figure 5-6
Shallow Groundwater PCP Trend Plot (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

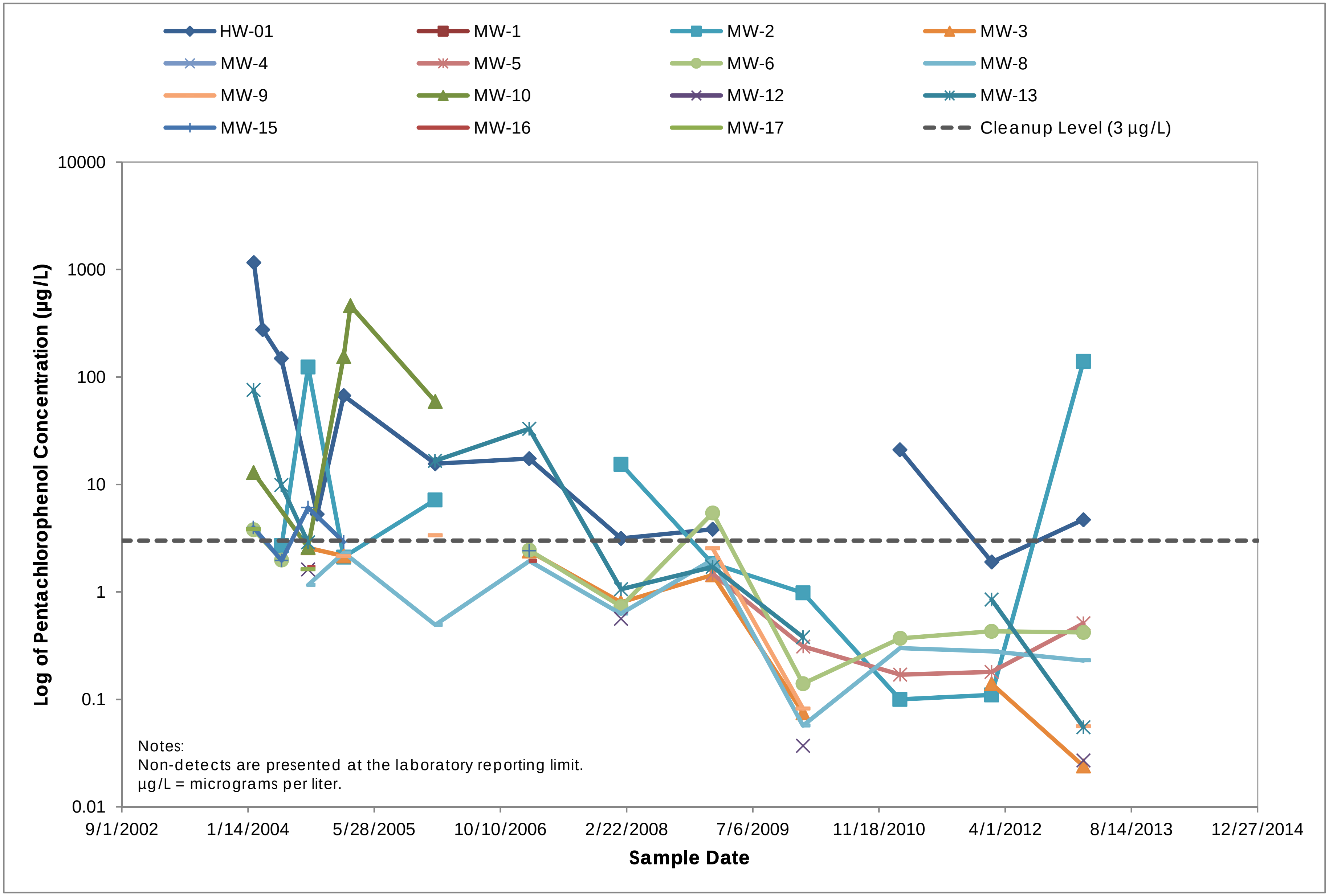

Figure 5-7
Shallow Groundwater cPAH Trend Plot (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

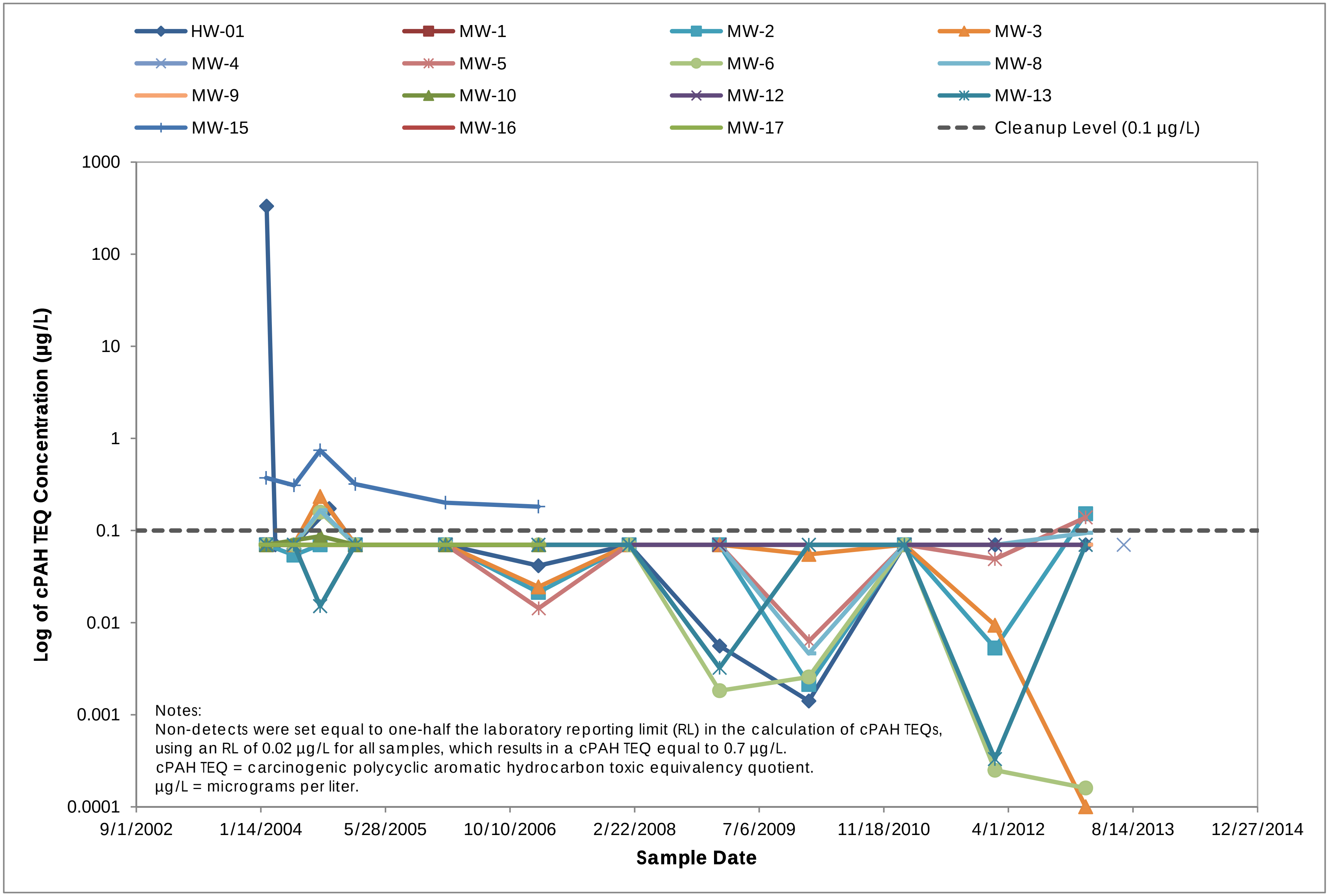

Figure 5-8
Shallow Groundwater Benzene Trend Plot (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

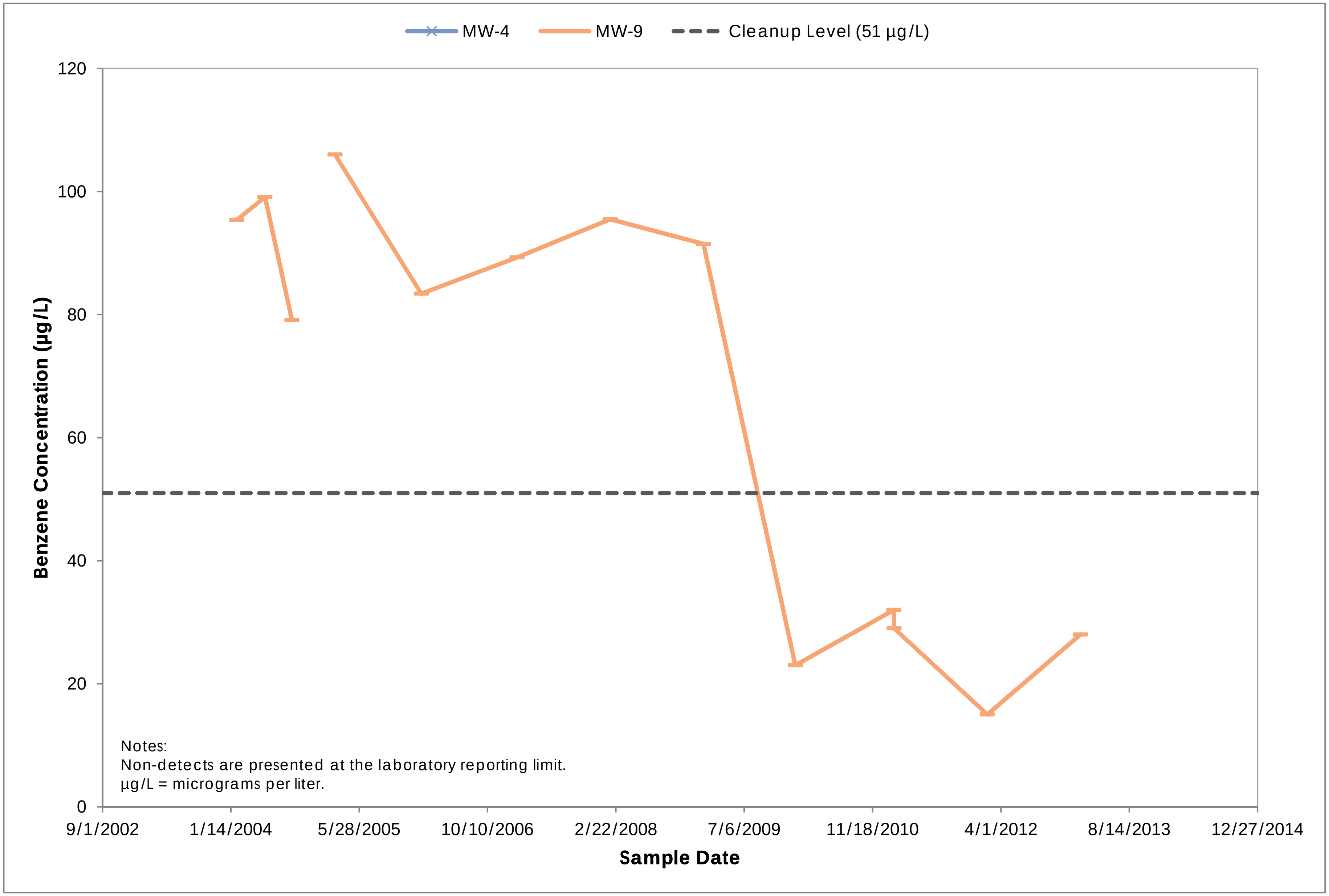

Figure 5-9
Shallow Groundwater Ethylbenzene Trend Plot (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

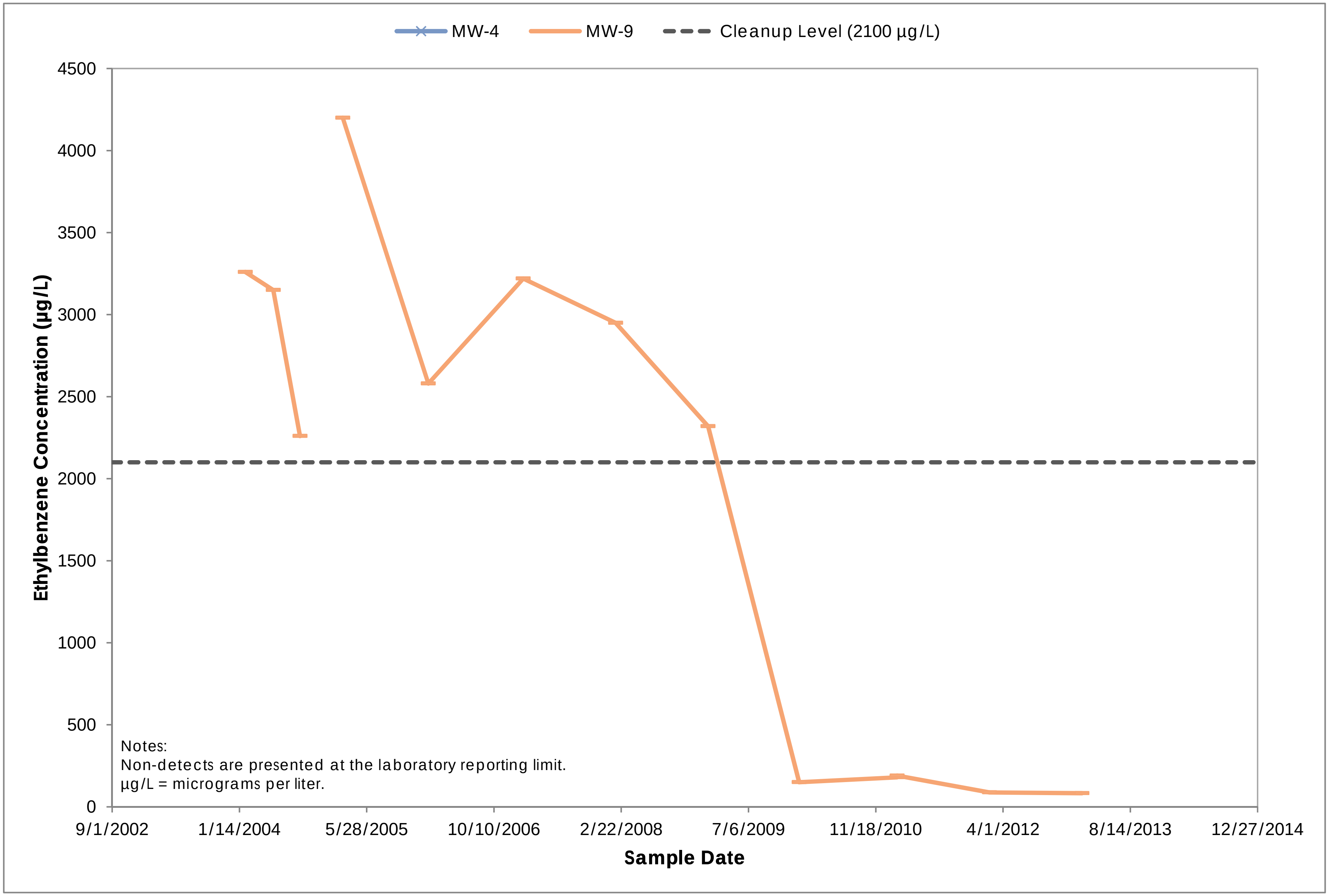

Figure 5-10
Shallow Groundwater Xylenes Trend Plot (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

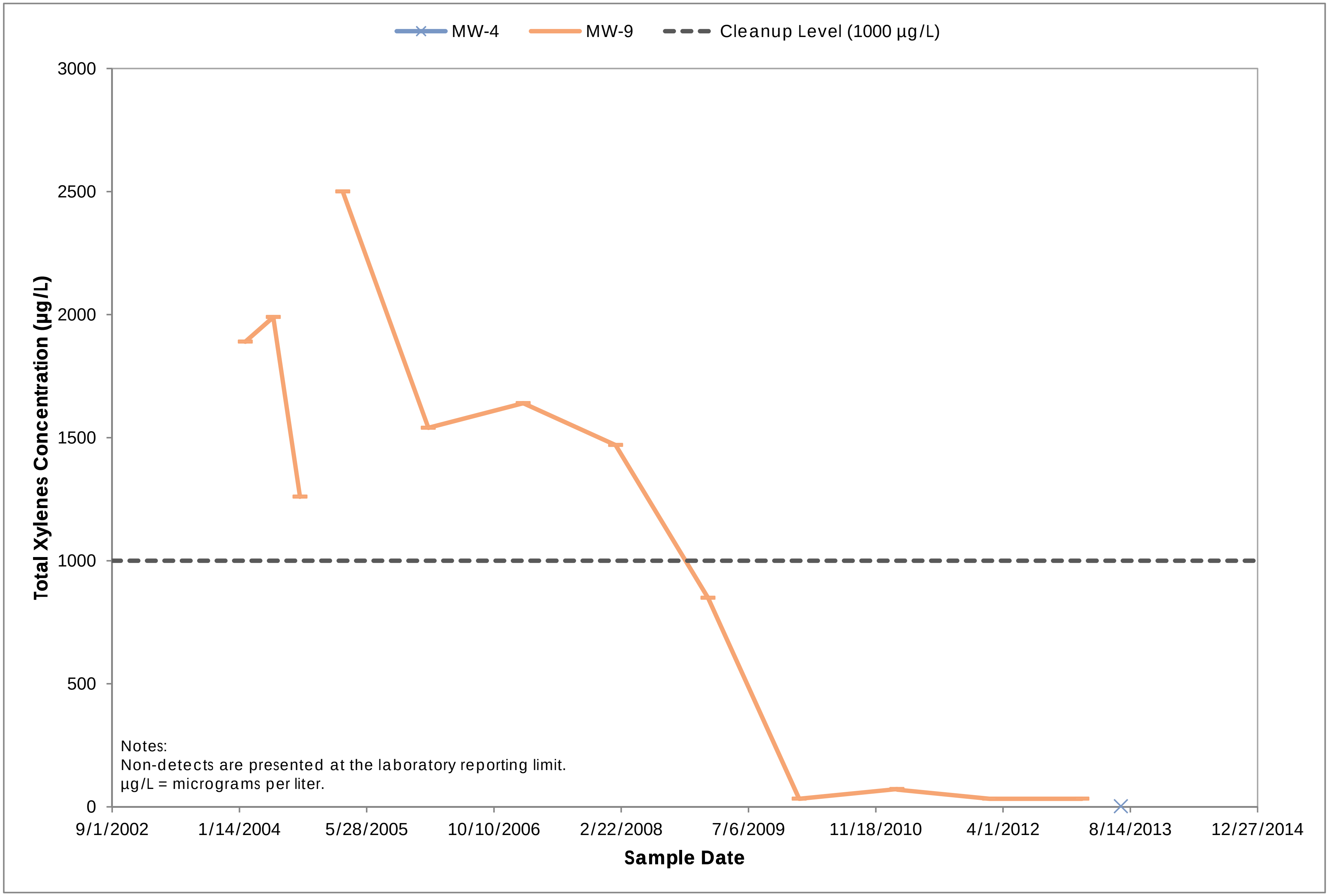

Figure 5-11
Deep Groundwater Arsenic Trend Plot (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

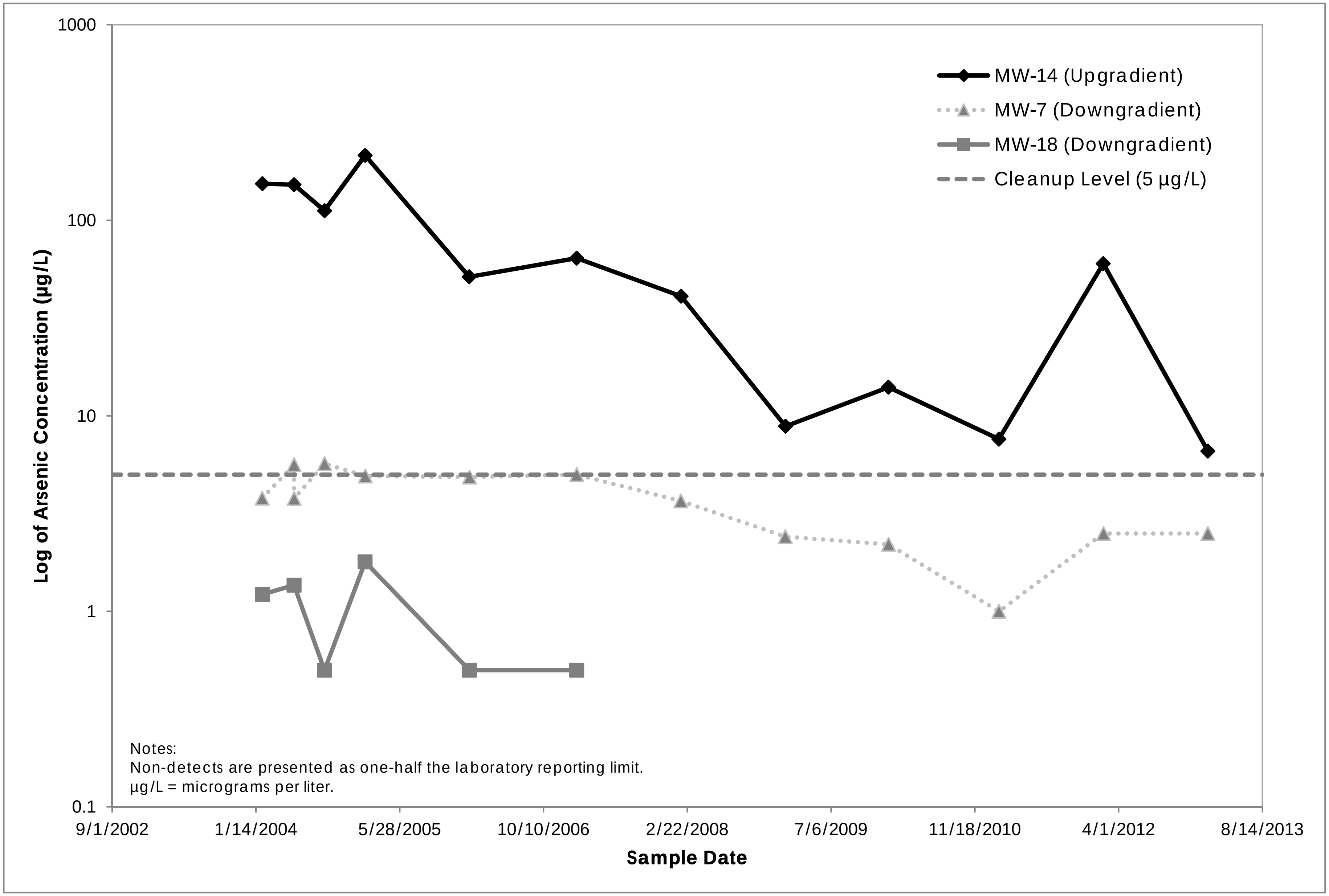

Figure 5-12
Deep Groundwater Copper Trend Plot (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

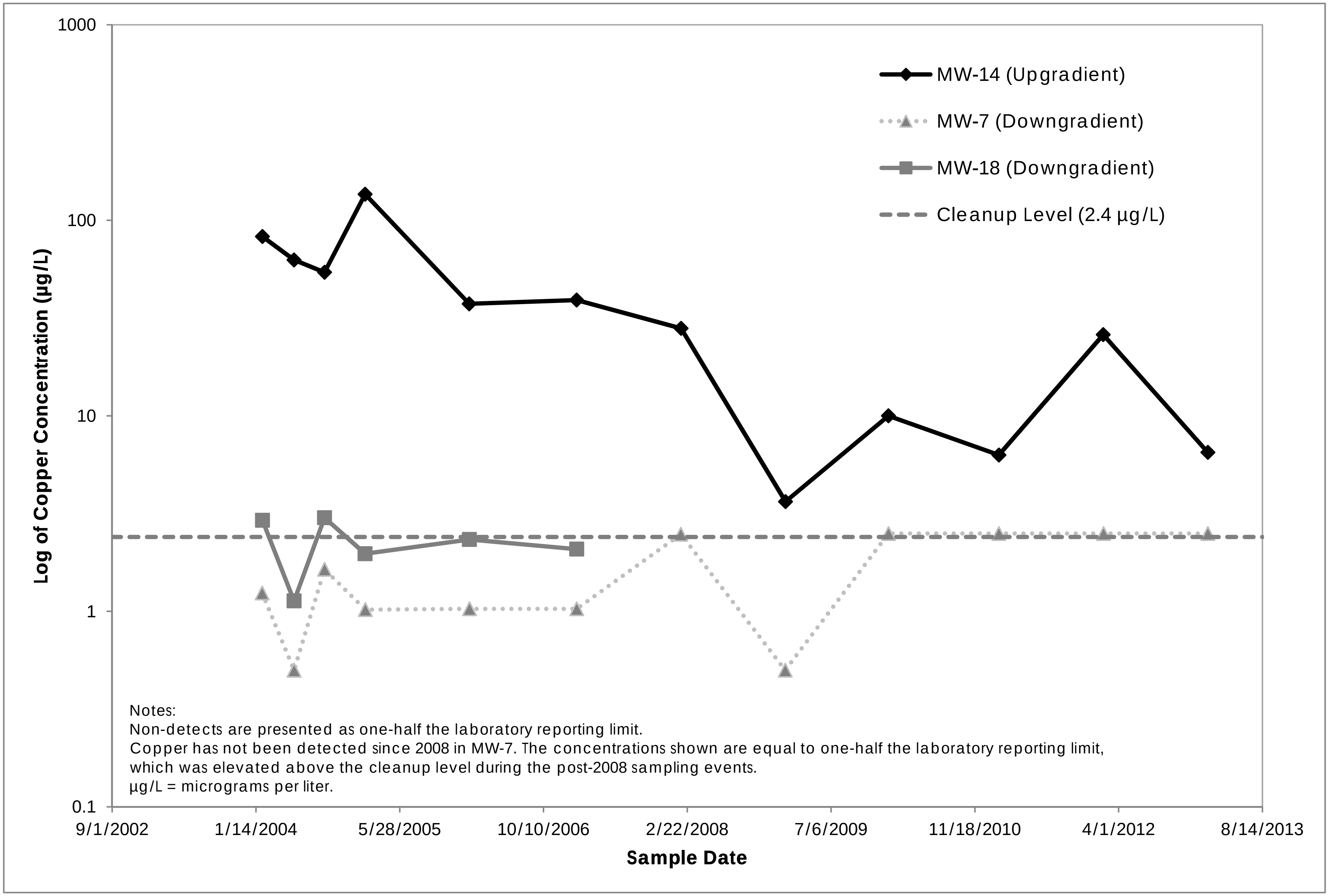

Figure 5-13
Deep Groundwater PCP Trend Plot (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

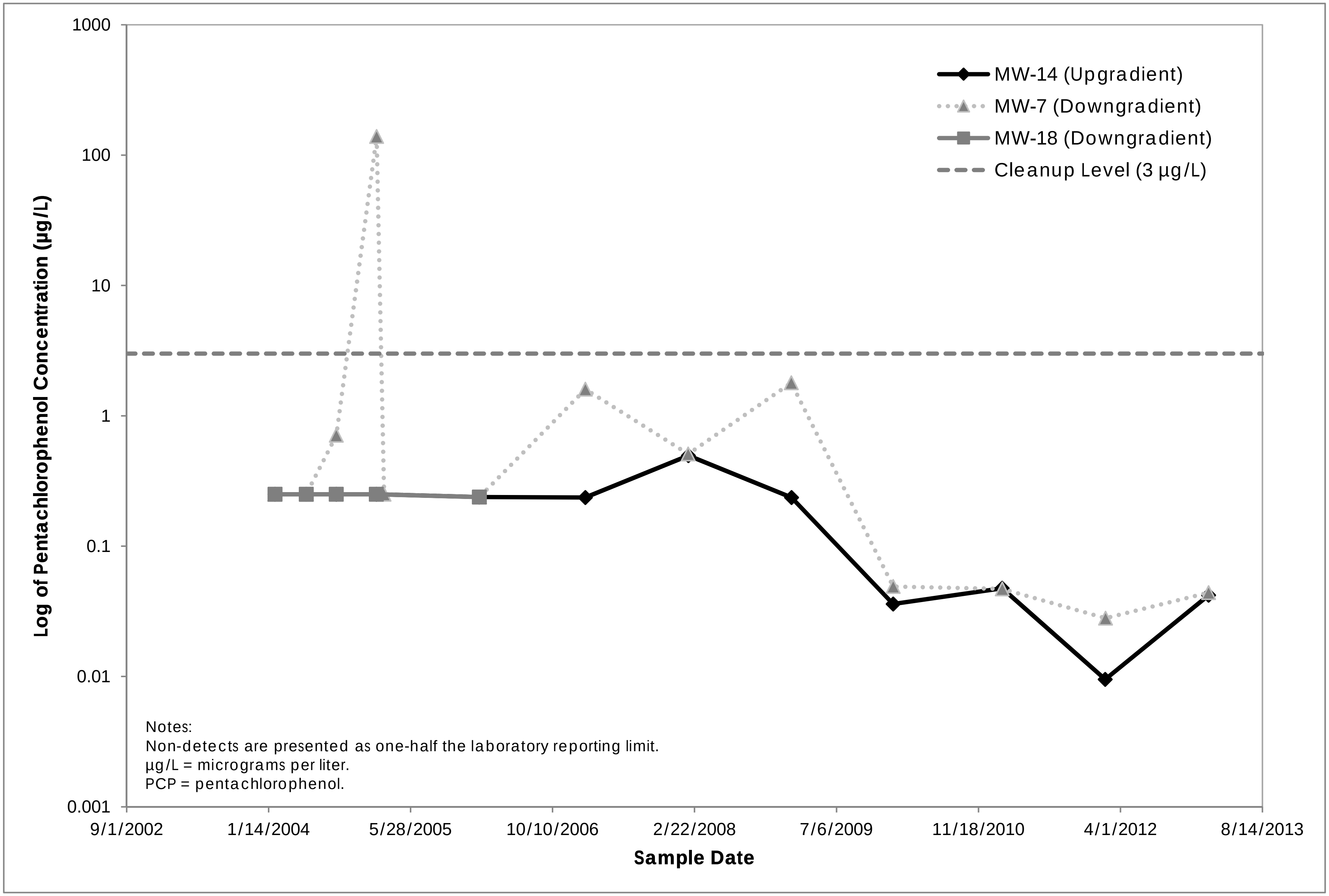

Figure 5-14
Deep Groundwater cPAH Trend Plot (2004 to 2013)
Cascade Pole and Lumber Company, Tacoma Facility
Tacoma, Washington

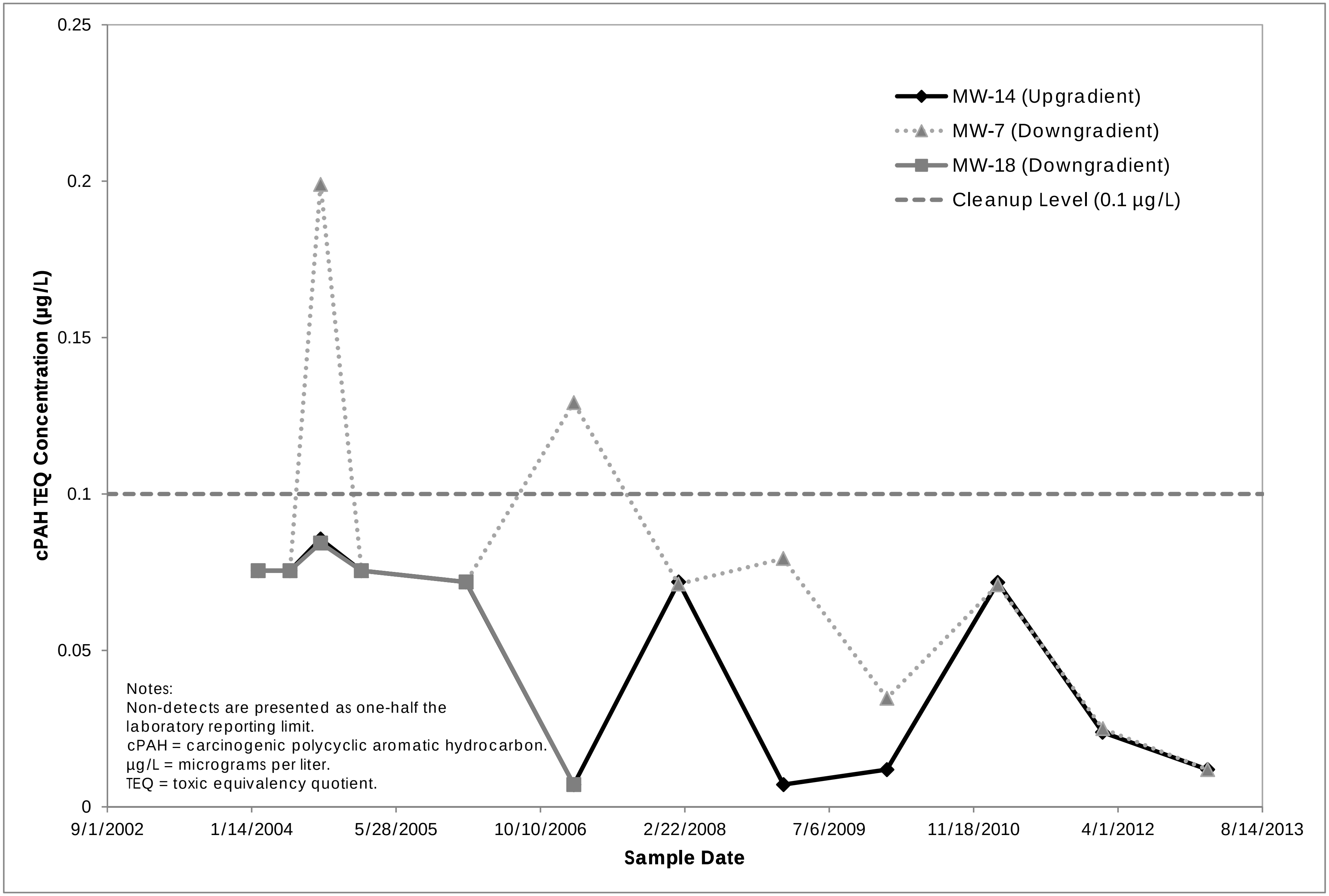

Figure 8-1
Historical Site Features and Proposed Soil Cap

Cascade Pole and Lumber Company
Tacoma, Washington

Legend

- Drip Pad Soil Sample Locations
- Paving Area & Transfer Table Soil Sample Locations
- Arsenic Exceedance (Soil)
- Shallow Monitoring Well
- Deep Monitoring Well
- Railroad
- Approximate Facility Boundary
- Operational Area
- Proposed Soil Cap (Currently Paved)
- Sub-Area of Paving Area 4 Containing Soil from Paving Area 1

Notes:
1. Site features correspond to those present until approximately the late 1990s.
2. AST = aboveground storage tank.
3. CCA = chromated copper arsenate.
4. PCP = pentachlorophenol.
5. SWTS = stormwater treatment system.

0 100 200
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; site layout and features obtained from AECOM.

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Path: X:\9081.01 Cascade Pole\04 MTCA Closure Tacoma Facility\Projects\Fig8-1_Historical Site Features and Proposed Soil Cap.mxd
Print Date: 1/24/2014
Approved By: hhirsch
Produced By: jschane
Project: 9081.01.04-00

Figure 8-2
Proposed Compliance Monitoring Network

Cascade Pole and Lumber Company
Tacoma, Washington

Legend

- Proposed Shallow Aquifer Monitoring Well
- Shallow Aquifer Monitoring Well
- Deep Aquifer Monitoring Well
- Railroad
- Horizontal Recovery Well
- Approximate Facility Boundary
- Typical Groundwater Flow Direction

Notes:
Approximate groundwater flow directions were inferred from the 1991 to 2012 groundwater elevation contour maps included in the draft Remedial Investigation and Feasibility Study (AECOM, 2011) and the 2012 Annual Site-wide Groundwater Monitoring Report (Cascade Pole and Lumber Company, 2012).

0 100 200
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; site layout and features obtained from AECOM.

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Print Date: 11/26/2013 Approved By: hhirsch Produced By: rmaronn Project: 9081.01.04-00

APPENDIX A

BORING AND WELL COMPLETION LOGS

Boring/Well Log

Well #: MW-15
Sheet 1 of 2

Project: **Cascade Pole**	Monument: **Heavy duty flush mount**	Stick Up:
Project #: **CPLU1-16832**	Northing: Easting:	Ground Elevation:
Location:	Drill Rig Type: **B-59 Foremost**	MP Elevation:
Client: **McFarland Cascade**	Method: **Hollow stem auger**	Total Depth: **19.5'**
Start Date & Time: **12/15/03 1215**	Casing ID: **8"**	Filter Pack: **5-12' 10/20 silica sand**
Finish Date & Time: **12/15/03 1430**	Boring ID: **4"**	Seal: **1.5-5' 3/8" benonite chips**
Contractor: **Holt Drilling**	Bit Type:	Grout:
Operator: **Michael Reynolds**	Logged By: **N. Bacher**	Screen: **6-11' 0.010-slot Sch. 40 PVC**

Classification Scheme: **USCS**

Type & #	Depth Range	% Rec	Blows per 6"	PID (ppm)	Depth (ft.)	Soil and Rock Description	Elevation (ft.)	Comments
GS	0-0.5	100		1.6	0	(0-0.5') ASPHALT.	0	
						(0.5-1') SLIGHTLY GRAVELLY SAND. Slightly moist, dense, dark gray, some wood fragments. Gravel up to 1/4". No OVC.		
SS	2.5-4	100	7/8/15	1.6		(1-2.5') Same as above. Logged cuttings.		
						(2.5-3.8') MEDIUM SAND. Slightly moist, medium dense, black, trace silt. No OVC.		
SS	5-6.5	75	5/5/6	0	5	(3.8-4.0') SLIGHTLY GRAVELLY SAND. Slightly moist, medium dense, black. Gravel is up to 1/4" and rounded. No OVC.	-5	
						(5-6.5') VERY SILTY FINE SAND. Moist, medium dense, brownish gray. No OVC.		
SS	7.5-9	35	4/3/3	0		(7.5-9') SILTY SAND. Wet, medium dense, dark brown, trace gravel, some wood. Slight odor, no visual contamination. Drilled through a brick at 8.5-9'.		
SS	10-11.5	5	1/1/0	NM	10	(10-11.5') WOOD. Wet, soft, black, sandy. Slight organic odor, no visual contamination. Poor recovery.	-10	
SS	11.5-13	5	0/0/0	0		(11.5-13') Same as above. Poor recovery.		
SS	13-14.5	5	3/2/1	NM		(13-14.5') Wood chunk stuck in shoe. No recovery.		
SS	15-16.5	0	3/1/1	NM	15	(15-16.5') Wood chunk stuck in shoe. No recovery. Slight organic odor on wood, no visual contamination.	-15	

Remarks and Datum Used: Slight methane odor in hole during backfill.
No blacklight response on any sample.

The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134-1162
Phone: (206) 624-9349
Fax: (206) 624-2839

Sample Type
N = SPT
DP = Direct Push
SS = Split Spoon
C = Core

Groundwater

Date	Time	Depth (ft.)

Boring/Well Log

Type & #	Depth Range	% Rec	Blows per 6"	PID (ppm)	Well Completion Log	Graphic	Depth (ft.)	Soil and Rock Description (Classification Scheme: **USCS**)	Elevation (ft.)	Comments
	18-19.5	0	0/0/0	NM				(18-19.5) CLAYEY SILT TO SILTY CLAY. Wet, soft, gray, some wood fragments. No OVC. Logged what was on the core catcher only. Poor recovery.		

Remarks and Datum Used: Slight methane odor in hole during backfill.
No blacklight response on any sample.

The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134-1162
Phone: (206) 624-9349
Fax: (206) 624-2839

Sample Type
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DP = Direct Push
SS = Split Spoon
C = Core

Groundwater		
Date	Time	Depth (ft.)

Boring/Well Log

RETEC

Well #: MW-16
Sheet 1 of 1

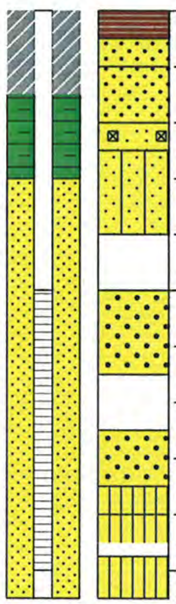
Project: **Cascade Pole**	Monument: **Heavy duty flush mount**	Stick Up:
Project #: **CPLU1-16832**	Northing: Easting:	Ground Elevation:
Location:	Drill Rig Type: **B-59 Foremost**	MP Elevation:
Client: **McFarland Cascade**	Method: **Hollow stem auger**	Total Depth: **10.5'**
Start Date & Time: **12/15/03 1500**	Casing ID: **8"**	Filter Pack: **3-10.5' 10/20 silica sand**
Finish Date & Time: **12/15/03 1700**	Boring ID: **4"**	Seal: **1.5-3' 3/8" bentonite chips**
Contractor: **Holt Drilling**	Bit Type:	Grout:
Operator: **Michael Reynolds**	Logged By: **N. Bacher**	Screen: **5-10' 0.010-slot Sch. 40 PVC**

Soil and Rock Description

Classification Scheme: **USCS**

Sample Type & #	Depth Range	% Rec	Blows per 6"	PID (ppm)
GS	0-0.5	100		1.6
SS	2.5-4	50	4/5/5	1.6
SS	5-6.5	50	3/5/4	3.2
SS	7.5-9	100	1/18"	1.6
SS	9-10.5	80	NA	1.6

Well Completion Log / Graphic / Depth (ft.)



Soil and Rock Description:

(0-0.5') ASPHALT.

(0.5-1') SLIGHTLY GRAVELLY SAND. Moist to dry, dense, brownish black. Gravel up to 1/4". No OVC.

(1-2') Same as above but moist. Logged cuttings.

(2-2.5') GRAVEL. Minor sand, gravel is 1" and rounded. Logged cuttings.

(2.5-4') SILTY SAND. Moist, medium dense, gray, w/ 1/4" subrounded gravel. No OVC.

(5-6.5') SAND. Moist to wet, medium dense, black, w/ some wood fragments. Slight to moderate odor, no visual contamination.

(7.5-8.5') Same as above but no wood or no OVC.

(8.5-9') SILTY CLAY. Moist to wet, medium soft, gray, w/ organics (reeds, grasses). No OVC.

(9-9.5') Same as above.

(9.5-9.75') WOOD wet, fibrous. No OVC.

(9.75-10.5') SILTY CLAY. Moist to wet, medium soft, gray, w/ organics (reeds, grasses). No OVC.

Elevation (ft.): 0, -5, -10

Comments:

Remarks and Datum Used:

Moderate methane odor in hole.

No blacklight response on any sample.

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1011 SW Klickitat Way, Suite 207
Seattle, WA 98134-1162
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Fax: (206) 624-2839

Sample Type
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C = Core

Groundwater

Date	Time	Depth (ft.)

Boring/Well Log

RETEC

Well #: MW-17
Sheet 1 of 2

Project: **Cascade Pole**	Monument: **Heavy duty flush mount**	Stick Up:
Project #: **CPLU1-16832**	Northing: Easting:	Ground Elevation:
Location:	Drill Rig Type: **B-59 Foremost**	MP Elevation:
Client: **McFarland Cascade**	Method: **Hollow stem auger**	Total Depth: **19.5 ft**
Start Date & Time: **12/15/03 0845**	Casing ID: **8"**	Filter Pack: **4-14' 10/20 silica sand**
Finish Date & Time: **12/15/03 1115**	Boring ID: **4"**	Seal: **1.5-4' 3/8" bentonite chips**
Contractor: **Holt Drilling**	Bit Type:	Grout:
Operator: **Michael Reynolds**	Logged By: **N. Bacher**	Screen: **6-11' 0.010-slot Sch. 40 PVC**

Sample: Type & #	Depth Range	% Rec	Blows per 6"	PID (ppm)
GS				1.6
SS	2.5-4	80	21/37/24	1.6
SS	5-6.5	60	5/7/8	1.6
SS	7.5-9	100	9/10/7	1.6
SS	10-11.5	50	1/2/1	0
SS	12.5-14	100	1/18"	1.6

Soil and Rock Description

Classification Scheme: **USCS**

Depth (ft.): 0, 5, 10, 15 — Elevation (ft.): 0, -5, -10, -15

- (0-0.5') ASPHALT.
- (0.5-1') GRAVELLY SAND. Moist, dense, blackish brown. Gravel up to 1/2" and rounded. No OVC.
- (1-2.5') Grading to SANDY GRAVEL. Logged cuttings only.
- (2.5-3') SANDY GRAVEL. Moist, dense, greyish black, trace silt. Wood chunks. No OVC.
- (3-3.5') SLIGHTLY GRAVELLY SAND. Dry to moist, medium dense, light brown. No OVC.
- (3.5-4') SILTY SAND. Moist, medium dense, gray brown. No OVC.
- (5-5.5') SLIGHTY SILTY SAND. Moist, medium dense, black. No OVC.
- (5.5-6.5') Hammered through red bricks.
- (7.5-8') CLAYEY SILT. Moist to wet, medium dense, gray, minor sand. No OVC.
- (8-9') SANDY GRAVEL. Moist, fairly loose, light brown. Gravel up to 1/2" and subrounded. No OVC.
- (10-10.75') Same as above.
- (10.75-11.5') SILTY SAND. Wet, medium soft, gray, minor gravel. No OVC.
- (12.5-14') SILTY CLAY. Moist, medium soft, gray. Abundant plant fragments (grasses, reeds). Slight organic (rotten) odor. No OVC.

Comments:

Remarks and Datum Used: PID calibrated to 98.9 ppm at 1030

The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134-1162
Phone: (206) 624-9349
Fax: (206) 624-2839

Sample Type
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DP = Direct Push
SS = Split Spoon
C = Core

Groundwater

Date	Time	Depth (ft.)

Boring/Well Log

Sample					Well Completion Log	Graphic	Depth (ft.)	Soil and Rock Description Classification Scheme: USCS	Elevation (ft.)	Comments
Type & #	Depth Range	% Rec	Blows per 6"	PID (ppm)						

Remarks and Datum Used: PID calibrated to 98.9 ppm at 1030

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Sample Type
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SS = Split Spoon
C = Core

Groundwater		
Date	Time	Depth (ft.)

Boring/Well Log

RETEC

Well #: MW-18
Sheet 1 of 2

Project: **Cascade Pole**	Monument: **Heavy duty flush mount**	Stick Up:
Project #: **CPLU1-16832**	Northing: Easting:	Ground Elevation:
Location:	Drill Rig Type: **B-59 Foremost**	MP Elevation:
Client: **McFarland Cascade**	Method: **Hollow stem auger**	Total Depth: **29 ft**
Start Date & Time: **12/16/03 0855**	Casing ID: **8 (10)**	Filter Pack: **21-29' 10/20 silica sand**
Finish Date & Time: **12/16/03 1500**	Boring ID: **4 (6)**	Seal: **3-21' 3/8" bentonite chips**
Contractor: **Holt Drilling**	Bit Type:	Grout:
Operator: **Michael Reynolds**	Logged By: **N. Bacher**	Screen: **22-27' 0.010-slot Sch.40 PVC**

Sample

Type & #	Depth Range	% Rec	Blows per 6"	PID (ppm)
SS	2.5-4	100	2/5/9	1.6
SS	5-6.5	70	2/2/8	1.6
SS	7.5-9	60	1/1/1	1.6
SS	10-11.5	100	1/18"	1.6
SS	12.5-14	10	2/4/5	3.2
SS	15-16.5	0	3/5/4	NM

Well Completion Log | Graphic | Depth (ft.) | Elevation (ft.) | Comments

Soil and Rock Description

Classification Scheme: **USCS**

Depth (ft.)	Soil and Rock Description	Elevation (ft.)
0	(0-0.67') ASPHALT.	0
	(0.67-2.5') SANDY GRAVEL (GW). moist, loose to medium dense, black gray. No OVC. Logged cuttings.	
	(2.5-3') Same as above.	
	(3-4') SILT WITH TRACE CLAY (ML). moist to dry, stiff, gray, some oxidation mottling. No OVC.	
5	(4-4.5) MEDIUM TO FINE SAND (SP). moist, medium dense, blackish brown. No OVC.	-5
	(5-5.5') SLOUGH (ML). Gray silt from above sloughed in hole.	
	(5.5-6.5') MEDIUM SAND (SP). moist, medium dense, blackish brown. No OVC.	
	(7.5-8.75') SLOUGH (ML). Gray silt from above slough in hole.	
10	(8.75-9.75') MEDIUM SAND (SP). moist, medium dense, blackish brown. No OVC	-10
	(10-10.5') Same as above.	
	(10.5-11.5') SILTY CLAY (CL). moist to wet, medium stiff, gray. Black organic fibers, slight organic odor. No OVC.	
	(12.5-14') SHREDDED WOOD (WOOD). Poor recovery. Wet, some gray silty clay, slight odor. No OVC. Wood stuck in shoe.	
15	(15-16.5') NO RECOVERY. Spoon full of gray water.	-15

Remarks and Datum Used: Telescoped from 10" to 8" augers at 11'.

The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134-1162
Phone: (206) 624-9349
Fax: (206) 624-2839

Sample Type
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C = Core

Groundwater

Date	Time	Depth (ft.)

Boring/Well Log

Type & #	Depth Range	% Rec	Blows per 6"	PID (ppm)	Depth (ft.)	Soil and Rock Description (Classification Scheme: USCS)	Elevation (ft.)	Comments
SS	17.5-19	0	1/18"	NM		(17.5-19') NO RECOVERY. Spoon full of gray water.		
SS	20-21.5	50	1/1/1	1.6	20	(20-21.5') MEDIUM SAND WITH MINOR SILT (SP). wet, loose to medium dense, gray, trace wood shreds. No OVC.	-20	
SS	22.5-24	100	2/4/7	0		(22.5-24') MEDIUM SAND WITH MINOR TO TRACE SILT (SP). wet, medium dense, blackish gray, red brick fragments (<1mm) in matrix. No OVC.		
SS	25-26.5	100	6/6/6	1.6	25	(25-26.5') Same as above.	-25	
SS	27.5-29	60	1/18"	0		(27.5-29') Same as above but very wet. Trace clayey silt on shoe. No OVC.		

Remarks and Datum Used: Telescoped from 10" to 8" augers at 11'.

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Seattle, WA 98134-1162
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C = Core

Groundwater		
Date	Time	Depth (ft.)

APPENDIX B-1

1999 TO 2005 WATER LEVEL MEASUREMENTS

Table 1 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	January 21, 1999		February 11, 1999		March 31, 1999		April 30, 1999		May 31, 1999		June 29, 1999		August 6, 1999		August 31, 1999		September 30, 1999		October 22, 1999		October 29, 1999		November 30, 1999		December 29, 1999	
		Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)
MW-1	19.13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2	19.38	3.80	7.95	3.75	8.00	3.82	7.93	4.34	7.41	4.76	6.99	5.16	6.59	5.58	6.17	5.90	13.48	6.22	13.16	6.30	13.08	6.60	12.78	5.05	14.33	4.81	14.57
MW-3	20.16	4.15	8.85	3.86	9.14	4.14	8.86	4.94	8.06	5.11	7.89	6.00	7.00	6.50	6.50	6.82	13.34	7.08	13.08	7.20	12.96	7.46	12.70	6.61	13.55	6.27	13.89
MW-4	19.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-5	20.17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-6	20.17	3.58	9.01	3.88	8.71	4.36	8.23	5.14	7.45	5.12	7.47	6.10	6.49	6.47	6.12	6.81	13.36	7.18	12.99	7.14	13.03	7.13	13.04	5.10	15.07	5.78	14.39
MW-7	19.44	6.91	4.87	6.85	4.93	7.20	4.58	8.12	3.66	8.30	3.48	8.59	3.19	8.86	2.92	9.26	10.18	9.66	9.78	9.80	9.64	9.60	9.84	8.04	11.40	7.82	11.62
MW-8	21.49	4.96	8.93	5.63	8.26	6.10	7.79	6.54	7.35	7.16	6.73	7.43	6.46	7.92	5.97	8.30	13.19	8.74	12.75	8.68	12.81	8.90	12.59	8.33	13.16	8.06	13.43
MW-9	18.44	4.02	7.27	4.13	7.16	4.10	7.19	4.31	6.98	4.65	6.64	5.17	6.12	5.16	6.13	5.39	13.05	5.68	12.76	5.90	12.54	5.98	12.46	5.56	12.88	5.33	13.11
MW-10	19.57	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-11	19.21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-12	19.79	4.82	8.13	4.69	8.26	4.76	8.19	5.06	7.89	5.30	7.65	5.58	7.37	6.02	6.93	6.34	13.45	6.66	13.13	6.66	13.13	5.94	13.85	5.17	14.62	5.26	14.53
MW-13	19.81	3.68	9.27	3.89	9.06	4.04	8.91	---	---	---	---	5.68	7.27	6.11	6.84	6.38	13.43	NM	NM	6.80	13.01	9.82	9.99	5.75	14.06	5.34	14.47
MW-14	19.76	6.76	6.21	6.62	6.35	7.18	5.79	---	---	---	---	8.68	4.29	9.07	3.90	9.46	10.30	NM	NM	9.99	9.77	9.86	9.90	NM	NM	7.81	11.95

Table 1 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	January 24, 2000		February 24, 2000		March 24, 2000		April 28, 2000		May 24, 2000		June 30, 2000		August 1, 2000		August 31, 2000		September 29, 2000		October 31, 2000		November 30, 2000		January 5, 2001	
		Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)
MW-1	19.13	5.94	13.19	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2	19.38	4.46	14.92	4.36	15.02	4.24	15.14	4.70	14.68	5.10	14.28	5.54	13.84	5.82	13.56	6.18	13.20	6.40	12.98	5.96	13.42	5.66	13.72	5.48	13.90
MW-3	20.16	6.06	14.10	6.02	14.14	5.78	14.38	6.36	13.80	6.74	13.42	6.58	13.58	6.72	13.44	7.32	12.84	7.61	12.55	7.31	12.85	7.40	12.76	7.28	12.88
MW-4	19.00	6.94	12.06	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-5	20.17	7.14	13.03	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-6	20.17	5.36	14.81	5.55	14.62	4.89	15.28	6.08	14.09	6.34	13.83	6.62	13.55	6.90	13.27	7.24	12.93	7.50	12.67	7.24	12.93	7.01	13.16	7.20	12.97
MW-7	19.44	7.67	11.77	7.76	11.68	7.72	11.72	8.30	11.14	8.44	11.00	8.54	10.90	8.90	10.54	9.08	10.36	9.38	10.06	9.36	10.08	9.27	10.17	9.12	10.32
MW-8	21.49	7.96	13.53	7.84	13.65	7.59	13.90	7.92	13.57	8.26	13.23	8.26	13.23	8.40	13.09	8.83	12.66	9.18	12.31	8.95	12.54	9.01	12.48	8.86	12.63
MW-9	18.44	5.24	13.20	5.23	13.21	4.80	13.64	4.46	13.98	5.29	13.15	5.26	13.18	5.42	13.02	5.70	12.74	5.98	12.46	5.92	12.52	5.89	12.55	5.78	12.66
MW-10	19.57	5.50	14.07	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-11	19.21	4.80	14.41	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-12	19.79	4.96	14.83	5.02	14.77	4.94	14.85	5.20	14.59	5.44	14.35	5.92	13.87	6.24	13.55	6.46	13.33	6.82	12.97	6.12	13.67	5.67	14.12	5.26	14.53
MW-13	19.81	4.94	14.87	4.78	15.03	4.58	15.23	5.38	14.43	5.82	13.99	6.08	13.73	6.30	13.51	6.71	13.10	6.99	12.82	6.70	13.11	6.50	13.31	6.44	13.37
MW-14	19.76	7.68	12.08	7.76	12.00	7.18	12.58	8.36	11.40	8.57	11.19	8.78	10.98	9.14	10.62	9.30	10.46	9.60	10.16	9.52	10.24	9.39	10.37	9.20	10.56

Table 1 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	January 31, 2001		February 27, 2001		March 27, 2001		April 30, 2001		May 30, 2001		June 30, 2001	
		Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	2.05	17.08	NM	NM	NM	NM	NM	NM	NM	NM
MW-2	19.38	5.53	13.85	5.50	13.88	5.30	14.08	5.20	14.18	5.52	13.86	5.56	13.82
MW-3	20.16	7.15	13.01	7.08	13.08	6.94	13.22	6.80	13.36	6.82	13.34	7.00	13.16
MW-4	19.00	NM	NM	8.02	10.98	NM	NM	NM	NM	NM	NM	NM	NM
MW-5	20.17	NM	NM	8.15	12.02	NM	NM	NM	NM	NM	NM	NM	NM
MW-6	20.17	6.86	13.31	6.56	13.61	6.68	13.49	6.46	13.71	6.57	13.60	6.75	13.42
MW-7	19.44	9.15	10.29	9.14	10.30	8.89	10.55	8.54	10.90	8.81	10.63	8.88	10.56
MW-8	21.49	8.76	12.73	8.68	12.81	8.54	12.95	8.44	13.05	8.50	12.99	8.51	12.98
MW-9	18.44	5.67	12.77	5.64	12.80	5.48	12.96	5.44	13.00	5.45	12.99	5.60	12.84
MW-10	19.57	NM	NM	7.05	12.52	NM	NM	NM	NM	NM	NM	NM	NM
MW-11	19.21	NM	NM	5.78	13.43	NM	NM	NM	NM	NM	NM	NM	NM
MW-12	19.79	5.68	14.11	5.78	14.01	5.46	14.33	5.24	14.55	5.81	13.98	5.64	14.15
MW-13	19.81	6.34	13.47	6.26	13.55	6.13	13.68	6.04	13.77	6.20	13.61	6.28	13.53
MW-14	19.76	9.13	10.63	9.16	10.60	9.00	10.76	8.70	11.06	8.81	10.95	9.00	10.76

Well Number	August 1, 2001		August 31, 2001		September 27, 2001		October 31, 2001		November 30, 2001		January 3, 2002	
	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)
MW-1	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2	6.10	13.28	5.96	13.42	6.16	13.22	5.84	13.54	4.88	14.50	4.46	14.92
MW-3	7.24	12.92	7.28	12.88	7.49	12.67	7.50	12.66	6.39	13.77	5.76	14.40
MW-4	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-5	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-6	7.21	12.96	7.28	12.89	7.40	12.77	6.98	13.19	5.45	14.72	5.05	15.12
MW-7	9.00	10.44	9.04	10.40	9.21	10.23	9.23	10.21	7.70	11.74	7.60	11.84
MW-8	8.84	12.65	8.80	12.69	9.02	12.47	9.14	12.35	7.80	13.69	7.76	13.73
MW-9	5.76	12.68	5.76	12.68	5.95	12.49	6.12	12.32	5.64	12.80	5.20	13.24
MW-10	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-11	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-12	6.42	13.37	6.32	13.47	6.10	13.69	5.55	14.24	5.05	14.74	5.00	14.79
MW-13	6.62	13.19	6.64	13.17	6.88	12.93	6.79	13.02	5.50	14.31	4.76	15.05
MW-14	9.14	10.62	9.67	10.09	9.35	10.41	9.38	10.38	7.68	12.08	7.54	12.22

Table 1 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	January 24, 2002		February 27, 2002		March 29, 2002		April 30, 2002		May 30, 2002		July 2, 2002		July 31, 2002		August 30, 2002		September 30, 2002		October 31, 2002		November 27, 2002		December 31, 2002	
		Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)
MW-1	19.13	6.04	13.09	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2	19.38	4.28	15.10	4.26	15.12	4.30	15.08	4.60	14.78	4.99	14.39	5.42	13.96	5.74	13.64	6.12	13.26	6.34	13.04	6.50	12.88	6.20	13.18	5.32	14.06
MW-3	20.16	5.66	14.50	5.62	14.54	5.78	14.38	5.70	14.46	6.03	14.13	6.30	13.86	6.60	13.56	6.88	13.28	7.24	12.92	7.60	12.56	7.53	12.63	6.94	13.22
MW-4	19.00	7.02	11.98	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-5	20.17	6.24	13.93	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-6	20.17	5.46	14.71	4.84	15.33	5.09	15.08	5.54	14.63	6.10	14.07	6.53	13.64	NM	NM	7.00	13.17	7.33	12.84	7.72	12.45	7.25	12.92	6.60	13.57
MW-7	19.44	7.78	11.66	7.60	11.84	7.90	11.54	7.94	11.50	8.21	11.23	8.68	10.76	9.21	10.23	9.32	10.12	9.40	10.04	9.80	9.64	9.35	10.09	8.30	11.14
MW-8	21.49	7.40	14.09	7.30	14.19	7.45	14.04	7.30	14.19	7.67	13.82	7.94	13.55	8.27	13.22	8.37	13.12	8.82	12.67	9.15	12.34	9.10	12.39	8.72	12.77
MW-9	18.44	4.88	13.56	4.76	13.68	5.08	13.36	4.60	13.84	4.77	13.67	5.20	13.24	5.25	13.19	5.53	12.91	5.88	12.56	5.75	12.69	6.00	12.44	5.82	12.62
MW-10	19.57	5.24	14.33	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-11	19.21	5.18	14.03	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-12	19.79	4.96	14.83	4.92	14.87	5.10	14.69	5.20	14.59	5.36	14.43	5.79	14.00	8.16	11.63	6.58	13.21	6.80	12.99	6.95	12.84	6.35	13.44	5.17	14.62
MW-13	19.81	4.48	15.33	4.62	15.19	4.70	15.11	5.00	14.81	5.54	14.27	5.88	13.93	6.25	13.56	6.50	13.31	6.81	13.00	7.04	12.77	6.90	12.91	6.19	13.62
MW-14	19.76	7.70	12.06	7.60	12.16	7.88	11.88	8.02	11.74	8.38	11.38	8.86	10.90	9.50	10.26	9.45	10.31	9.60	10.16	9.93	9.83	9.50	10.26	8.45	11.31

NOTES: NM - Not measured.

Table 1-Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	January 30, 2003		February 27, 2003		March 14, 2003		April 28, 2003		May 29, 2003		June 30, 2003	
		Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)
MW-1	19.13	6.25	12.88	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2	19.38	4.78	14.60	4.92	14.46	4.56	14.82	4.59	14.79	5.11	14.27	5.66	13.72
MW-3	20.16	6.52	13.64	6.51	13.65	6.39	13.77	6.22	13.94	6.61	13.55	6.94	13.22
MW-4	19.00	7.44	11.56	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-5	20.17	7.40	12.77	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-6	20.17	6.05	14.12	6.31	13.86	6.08	14.09	7.63	12.54	6.65	13.52	6.95	13.22
MW-7	19.44	7.56	11.88	8.01	11.43	7.54	11.90	7.96	11.48	8.50	10.94	8.84	10.60
MW-8	21.49	8.38	13.11	8.31	13.18	8.16	13.33	7.94	13.55	8.10	13.39	8.33	13.16
MW-9	18.44	5.43	13.01	5.21	13.23	5.17	13.27	5.75	12.69	5.10	13.34	5.27	13.17
MW-10	19.57	8.80	10.77	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-11	19.21	4.93	14.28	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-12	19.79	5.08	14.71	5.27	14.52	4.98	14.81	5.10	14.69	5.57	14.22	5.94	13.85
MW-13	19.81	5.42	14.39	5.60	14.21	5.25	14.56	5.25	14.56	5.87	13.94	6.26	13.55
MW-14	19.76	7.48	12.28	8.07	11.69	7.63	12.13	8.00	11.76	8.62	11.14	9.02	10.74

Notes: NM - Not measured.

Well Number	PVC Elevation (feet)	July 31, 2003		August 28, 2003		September 29, 2003		October 31, 2003		November 26, 2003		December 24, 2003	
		Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2	19.38	5.92	13.46	6.60	12.78	6.34	13.04	5.48	13.90	5.10	14.28	4.58	14.80
MW-3	20.16	7.18	12.98	7.40	12.76	7.62	12.54	7.08	13.08	6.88	13.28	6.28	13.88
MW-4	19.00	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-5	20.17	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-6	20.17	7.19	12.98	7.40	12.77	7.62	12.55	7.02	13.15	6.78	13.39	6.40	13.77
MW-7	19.44	8.97	10.47	9.15	10.29	9.34	10.10	8.67	10.77	8.28	11.16	7.42	12.02
MW-8	21.49	8.52	12.97	8.70	12.79	8.92	12.57	8.53	12.96	8.40	13.09	7.92	13.57
MW-9	18.44	5.43	13.01	5.60	12.84	5.74	12.70	5.52	12.92	5.40	13.04	5.06	13.38
MW-10	19.57	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-11	19.21	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-12	19.79	6.38	13.41	6.60	13.19	6.72	13.07	5.76	14.03	5.28	14.51	5.12	14.67
MW-13	19.81	6.54	13.27	6.80	13.01	7.04	12.77	6.12	13.69	5.92	13.89	5.42	14.39
MW-14	19.76	9.15	10.61	9.35	10.41	9.56	10.20	8.78	10.98	8.40	11.36	7.54	12.22

Table 1 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	January 30, 2004		February 4, 2004		February 27, 2004		March 31, 2004		April 28, 2004		May 26, 2004		June 29, 2004	
		Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)	Depth to Water (feet)	Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	5.85	13.28	NM	NM	NM	NM	NM	NM	6.35	12.78	NM	NM
MW-2	19.38	4.16	15.22	4.14	15.24	4.22	15.16	4.60	14.78	5.00	14.38	5.32	14.06	5.62	13.76
MW-3	20.16	5.70	14.46	5.75	14.41	5.74	14.42	6.80	13.36	6.42	13.74	6.65	13.51	6.86	13.30
MW-4	19.00	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	7.23	11.77	NM	NM
MW-5	20.17	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	7.58	12.59	NM	NM
MW-6	20.17	5.72	14.45	5.76	14.41	5.86	14.31	6.24	13.93	6.52	13.65	6.75	13.42	6.88	13.29
MW-7	19.44	7.34	12.10	7.40	12.04	7.66	11.78	8.28	11.16	7.86	11.58	8.55	10.89	8.68	10.76
MW-8	21.49	7.62	13.87	7.65	13.84	7.58	13.91	7.68	13.81	8.54	12.95	8.01	13.48	8.10	13.39
MW-9	18.44	4.62	13.82	4.56	13.88	4.46	13.98	4.54	13.90	4.94	13.50	5.12	13.32	5.16	13.28
MW-10	19.57	NM	NM	5.64	13.93	NM	NM	5.64	13.93	NM	NM	6.09	13.48	NM	NM
MW-11	19.21	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	5.98	13.23	NM	NM
MW-12	19.79	4.90	14.89	4.81	14.98	4.96	14.83	5.12	14.67	5.42	14.37	5.76	14.03	6.08	13.71
MW-13	19.81	4.66	15.15	4.65	15.16	4.78	15.03	5.32	14.49	5.70	14.11	6.00	13.81	6.26	13.55
MW-14	19.76	7.36	12.40	7.40	12.36	7.68	12.08	8.38	11.38	8.70	11.06	8.74	11.02	8.90	10.86
MW-15	19.42	NM	NM	6.87	12.55	6.80	12.62	7.10	12.32	7.36	12.06	7.45	11.97	7.56	11.86
MW-16	18.22	NM	NM	4.74	13.48	5.20	13.02	5.20	13.02	5.00	13.22	5.33	12.89	5.44	12.78
MW-17	21.04	NM	NM	8.11	12.93	8.08	12.96	8.20	12.84	8.16	12.88	8.23	12.81	8.32	12.72
MW-18	19.69	NM	NM	7.76	11.93	8.00	11.69	8.60	11.09	8.94	10.75	8.92	10.77	8.90	10.79
UPRR-29	16.50	NM	NM	0.05	16.45	NM	NM	NM	NM	NM	NM	2.60	13.90	NM	NM

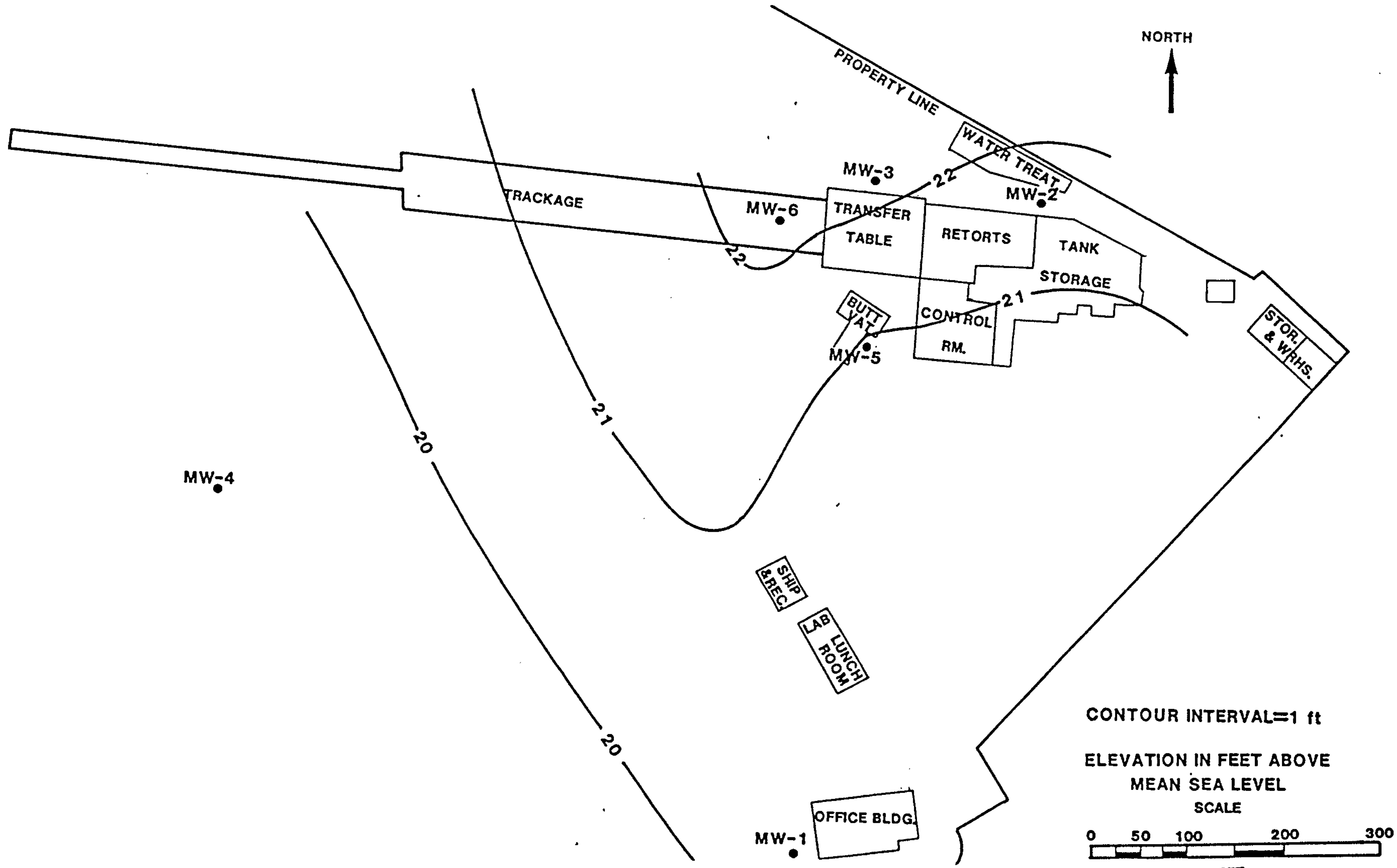
NOTES: NM - Not measured.

Well Number	PVC Elevation (feet)	July 31, 2004 Depth to Water (feet)	July 31, 2004 Groundwater Elevation (feet MSL)	August 28, 2004 Depth to Water (feet)	August 28, 2004 Groundwater Elevation (feet MSL)	September 7, 2004 Depth to Water (feet)	September 7, 2004 Groundwater Elevation (feet MSL)	September 30, 2004 Depth to Water (feet)	September 30, 2004 Groundwater Elevation (feet MSL)	October 29, 2004 Depth to Water (feet)	October 29, 2004 Groundwater Elevation (feet MSL)	November 30, 2004 Depth to Water (feet)	November 30, 2004 Groundwater Elevation (feet MSL)	January 27, 2005 Depth to Water (feet)	January 27, 2005 Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	NM	NM	6.59	12.54	NM	NM	NM	NM	NM	NM	6.44	12.69
MW-2	19.38	5.96	13.42	5.74	13.64	6.00	13.38	5.86	13.52	5.72	13.66	5.56	13.82	4.94	14.44
MW-3	20.16	7.14	13.02	7.30	12.86	7.31	12.85	7.22	12.94	7.18	12.98	7.16	13.00	6.54	13.62
MW-4	19.00	NM	NM	NM	NM	7.53	11.47	NM	NM	NM	NM	NM	NM	7.39	11.61
MW-5	20.17	NM	NM	NM	NM	7.71	12.46	NM	NM	NM	NM	NM	NM	7.00	13.17
MW-6	20.17	7.14	13.03	7.18	12.99	7.26	12.91	7.20	12.97	7.16	13.01	7.14	13.03	6.33	13.84
MW-7	19.44	8.78	10.66	8.78	10.66	9.08	10.36	9.00	10.44	8.92	10.52	8.88	10.56	7.91	11.53
MW-8	21.49	8.34	13.15	8.50	12.99	8.49	13.00	8.60	12.89	8.52	12.97	8.52	12.97	7.95	13.54
MW-9	18.44	5.26	13.18	5.40	13.04	5.41	13.03	5.44	13.00	5.50	12.94	5.38	13.06	4.99	13.45
MW-10	19.57	NM	NM	6.74	12.83	6.75	12.82	9.78	9.79	6.80	12.77	6.82	12.75	6.36	13.21
MW-11	19.21	NM	NM	NM	NM	6.45	12.76	NM	NM	NM	NM	NM	NM	5.32	13.89
MW-12	19.79	6.40	13.39	5.86	13.93	6.33	13.46	6.14	13.65	5.96	13.83	5.40	14.39	5.29	14.50
MW-13	19.81	6.62	13.19	6.68	13.13	6.73	13.08	6.62	13.19	6.50	13.31	6.46	13.35	5.65	14.16
MW-14	19.76	9.02	10.74	9.06	10.70	9.33	10.43	9.22	10.54	9.14	10.62	6.06	13.70	7.91	11.85
MW-15	19.42	7.72	11.70	7.70	11.72	7.65	11.77	7.80	11.62	8.00	11.42	8.08	11.34	7.63	11.79
MW-16	18.22	5.52	12.70	5.60	12.62	5.54	12.68	5.60	12.62	5.76	12.46	5.76	12.46	5.18	13.04
MW-17	21.04	8.52	12.52	8.80	12.24	8.59	12.45	8.72	12.32	9.02	12.02	8.94	12.10	8.39	12.65
MW-18	19.69	9.10	10.59	9.16	10.53	9.54	10.15	9.40	10.29	9.32	10.37	9.30	10.39	8.20	11.49
UPRR-29	16.50	NM	NM	NM	NM	3.34	13.16	NM	NM	NM	NM	NM	NM	8.80	7.70

APPENDIX B-2

1991 TO 2010 GROUNDWATER ELEVATION CONTOUR MAPS – SHALLOW AQUIFER

REITEC

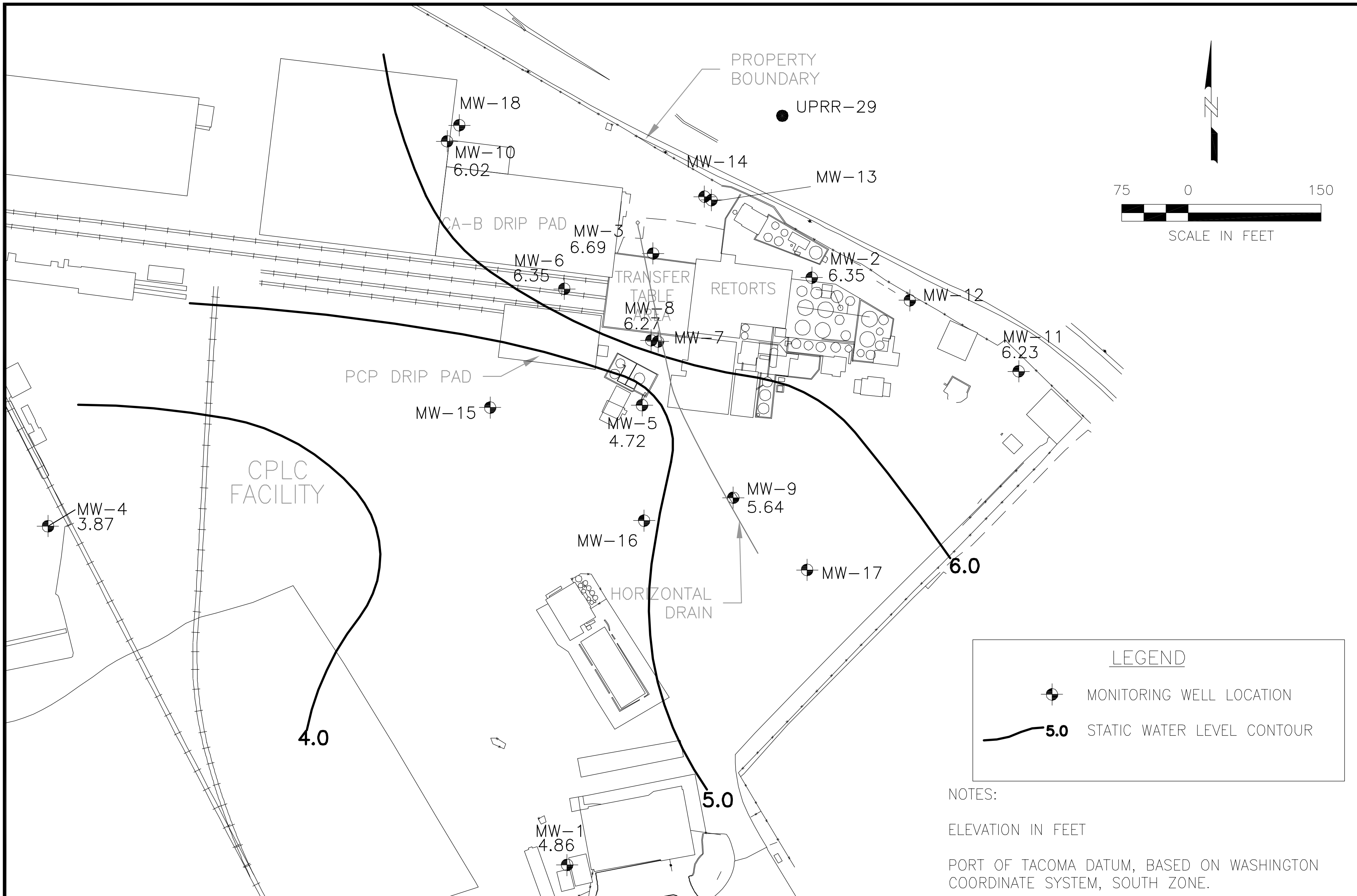


GROUNDWATER CONTOUR MAP FOR JANUARY 28, 1991

CASCADE POLE COMPANY

FIGURE 2

File: L:\Cascade Lumber\REVISED RI-FS\poten_01-94.dwg Layout: FIGURE User: MarshallE Plotted: Dec 08, 2009 - 2:22pm Xref's:



AECOM

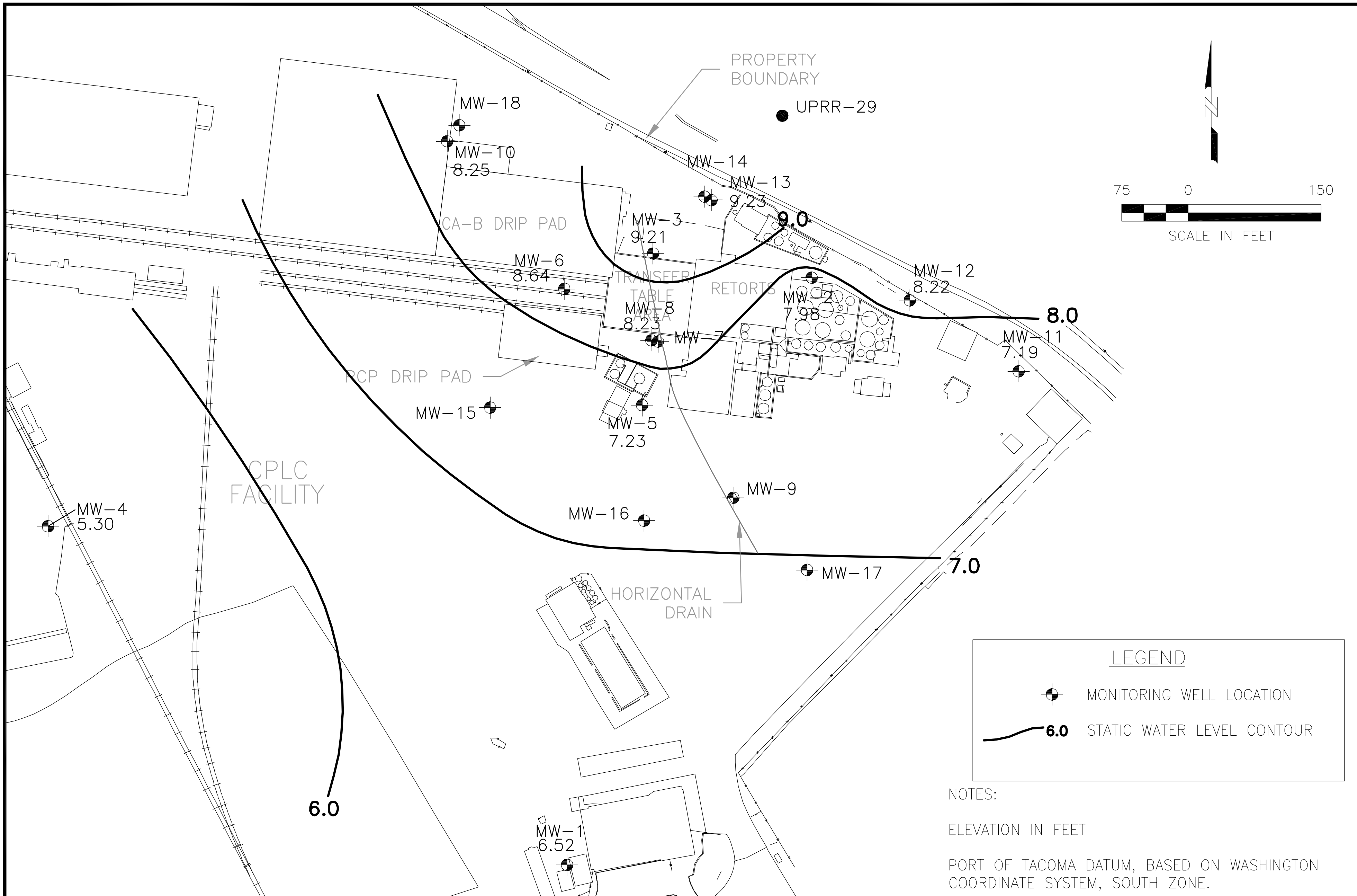
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0200

POTENTIOMETRIC SURFACE MAP
SHALLOW AQUIFER
JANUARY 10, 1994

DATE: 12/08/09	DRWN: E.M./SEA		**FIGURE**

File: L:\Cascade Lumber\REVISED RI-FS\poten_01-97.dwg Layout: FIGURE User: MarshallE Plotted: Dec 08, 2009 - 2:22pm Xref's:



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

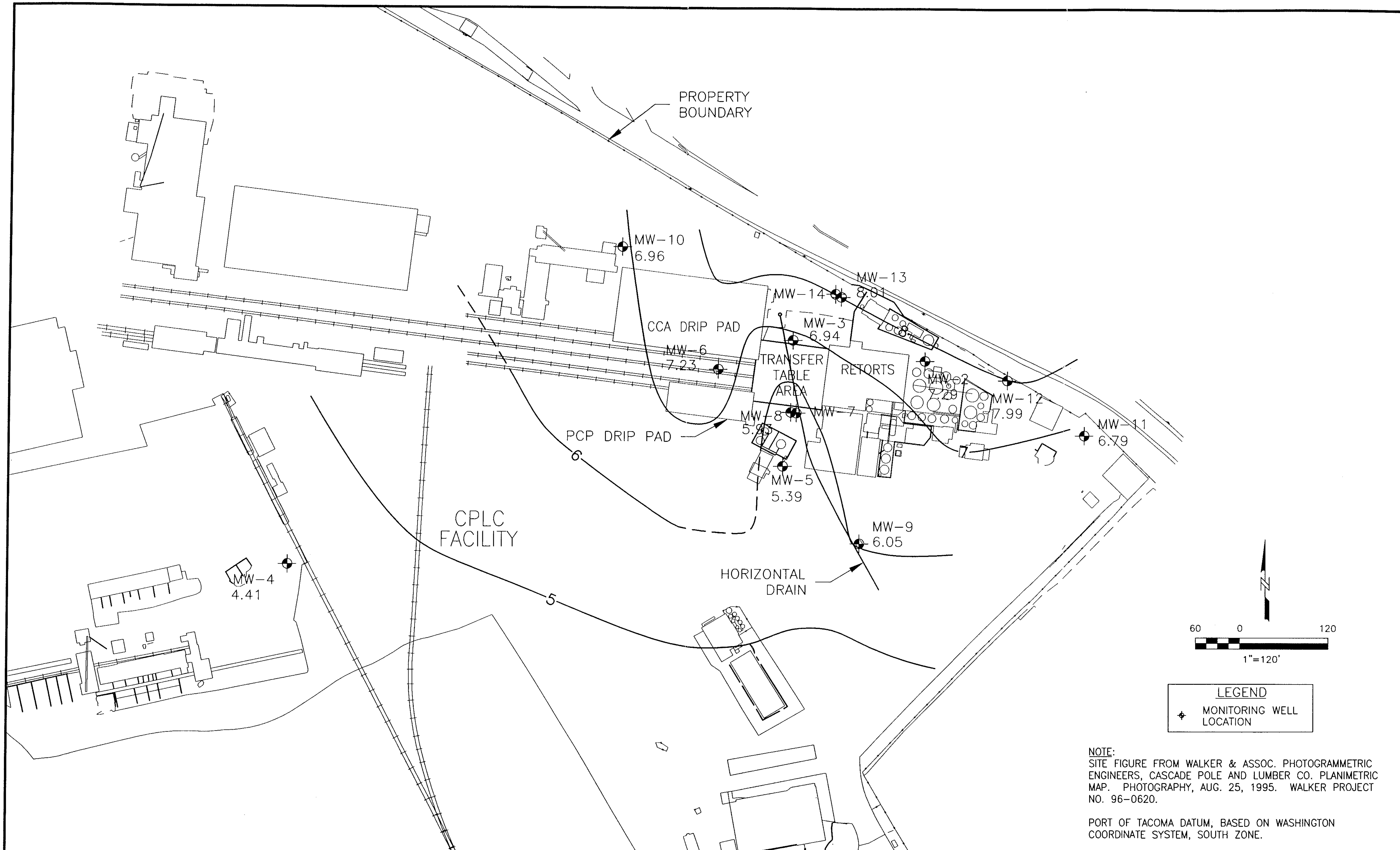
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0200

DATE: 12/08/09 | DRWN: E.M./SEA

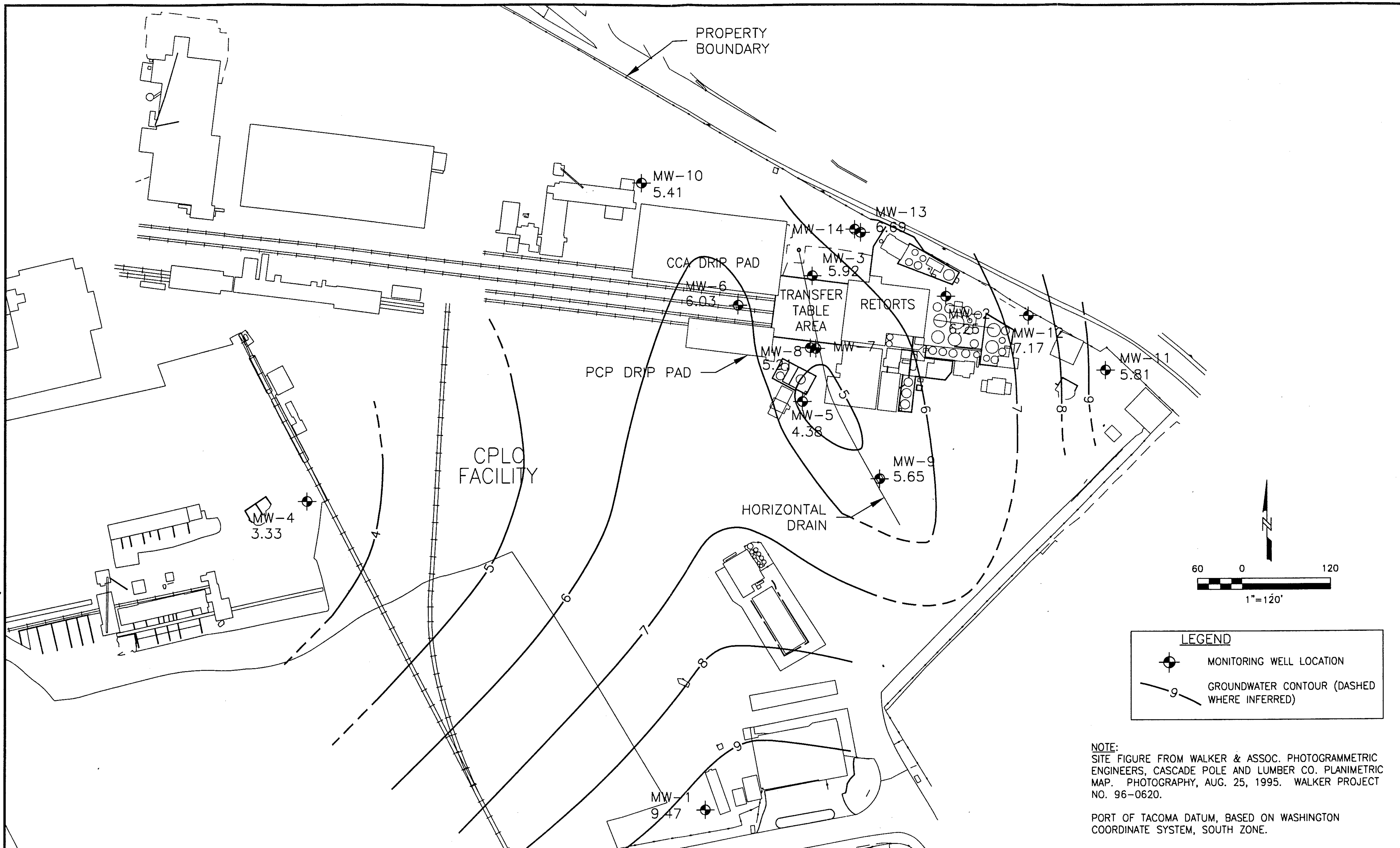
POTENTIOMETRIC SURFACE MAP
SHALLOW AQUIFER
JANUARY 27, 1997

FIGURE



ThermoRetec

CASCADE POLE AND LUMBER COMPANY CPLC1-04199-420	POTENTIOMETRIC SURFACE MAP JANUARY 2000 CASCADE POLE & LUMBER CO. TACOMA, WASHINGTON
DATE: 2/28/00 | DRWN: N.S. | FILE: 4199S054	FIGURE 1



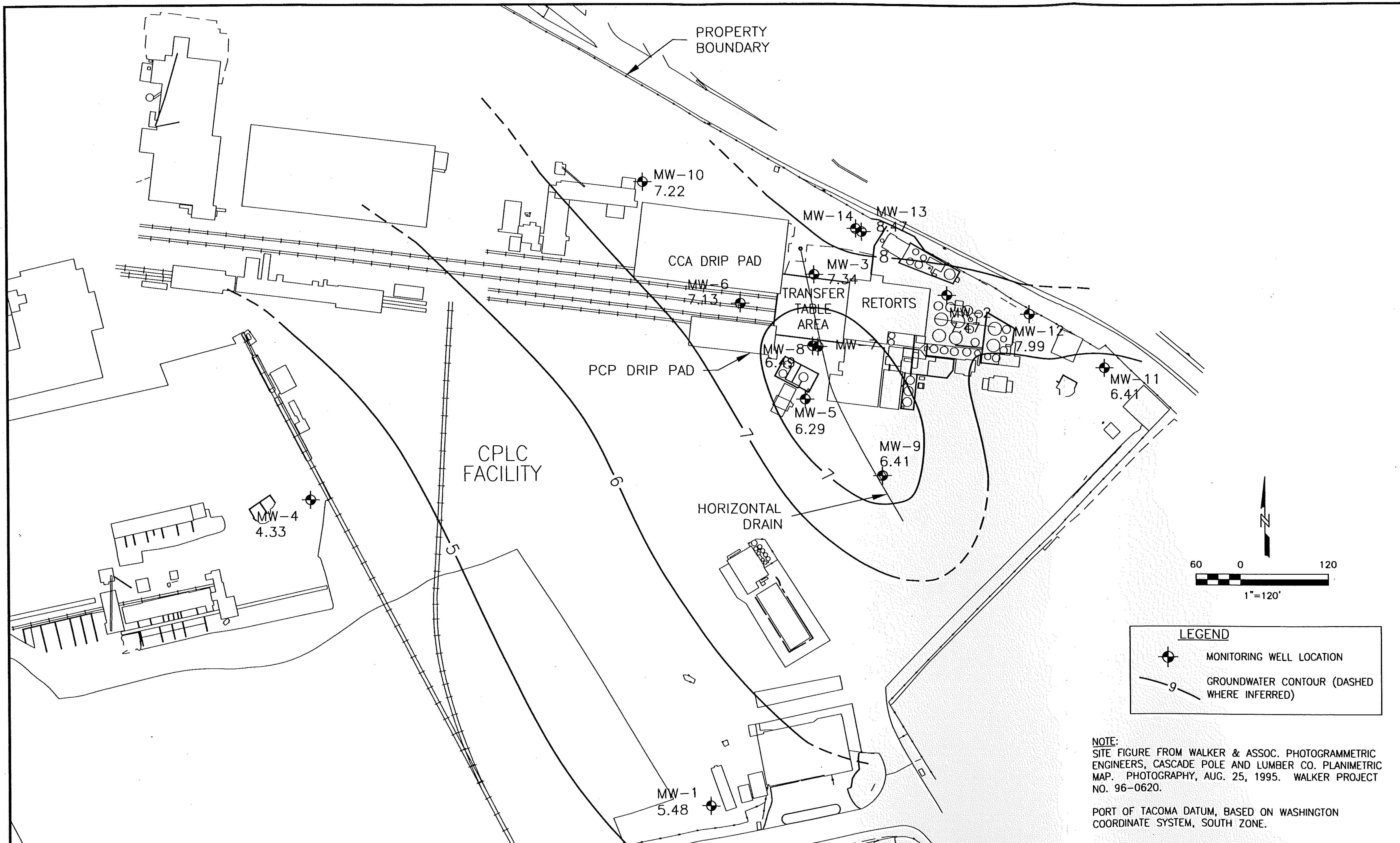
ThermoRetec

CASCADE POLE AND
LUMBER COMPANY
CPLC1-04199-420

DATE: 03/06/01 | DRWN: N.S. | FILE: 4199s068

POTENTIOMETRIC SURFACE MAP
FEBRUARY 27, 2001
CASCADE POLE & LUMBER CO.
TACOMA, WASHINGTON

FIGURE 6



RETEC

CASCADE POLE AND LUMBER COMPANY

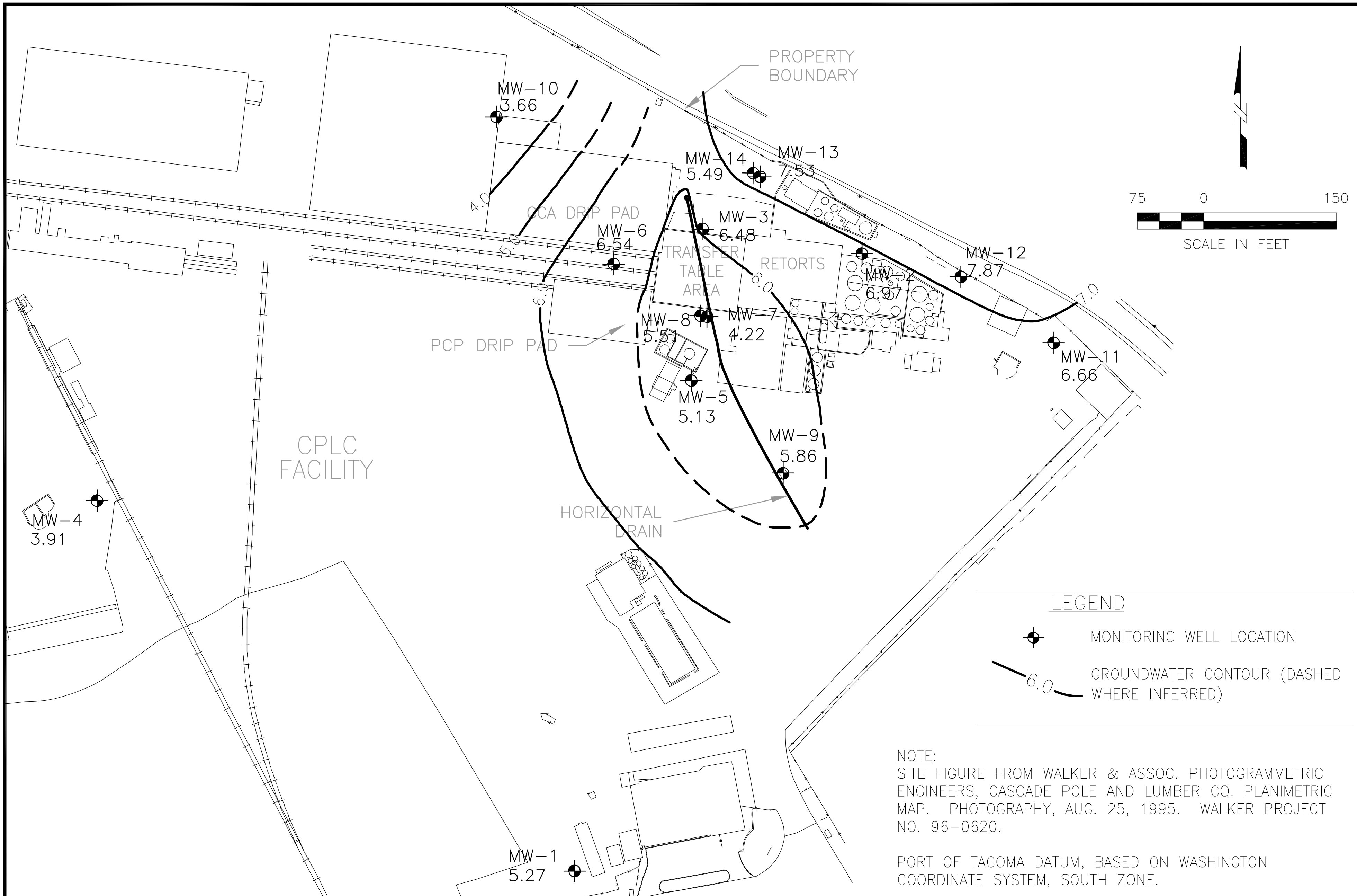
CPLC1-04199-420

DATE: 4/10/02 | DRWN: N.J.S./SEA | FILE: 4199s096

POTENTIOMETRIC SURFACE MAP
JANUARY 24, 2002
CASCADE POLE & LUMBER CO.
TACOMA, WASHINGTON

LAYOUT: Layout1

FIGURE 6



NOTE:
SITE FIGURE FROM WALKER & ASSOC. PHOTOGRAMMETRIC ENGINEERS, CASCADE POLE AND LUMBER CO. PLANIMETRIC MAP. PHOTOGRAPHY, AUG. 25, 1995. WALKER PROJECT NO. 96-0620.

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

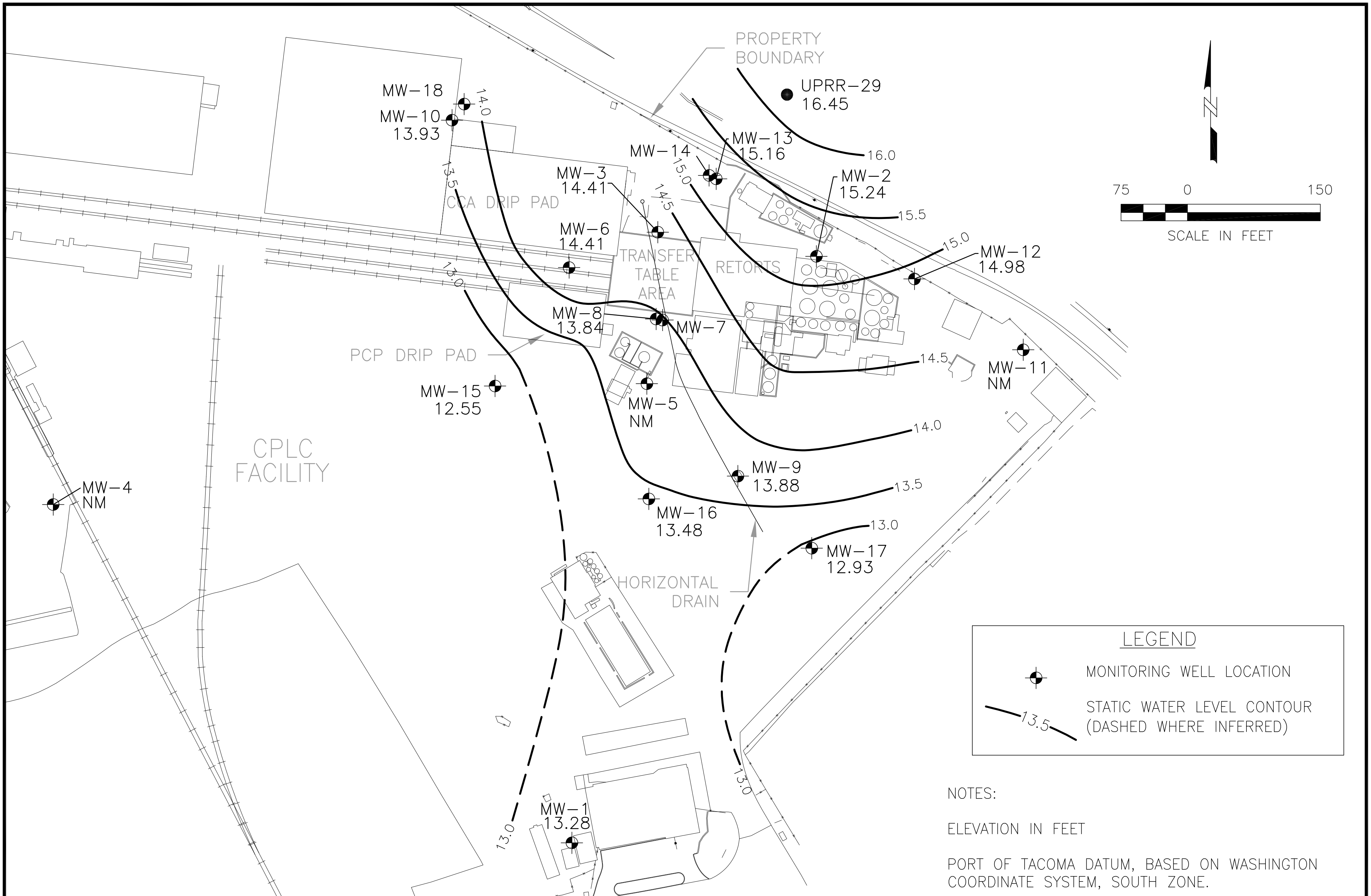
CASCADE POLE AND LUMBER COMPANY

60137201-0200

DATE: 12/08/09 | DRWN: E.M./SEA

POTENTIOMETRIC SURFACE MAP
JANUARY 31, 2003
CASCADE POLE & LUMBER CO.
TACOMA, WASHINGTON

FIGURE 3-12



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

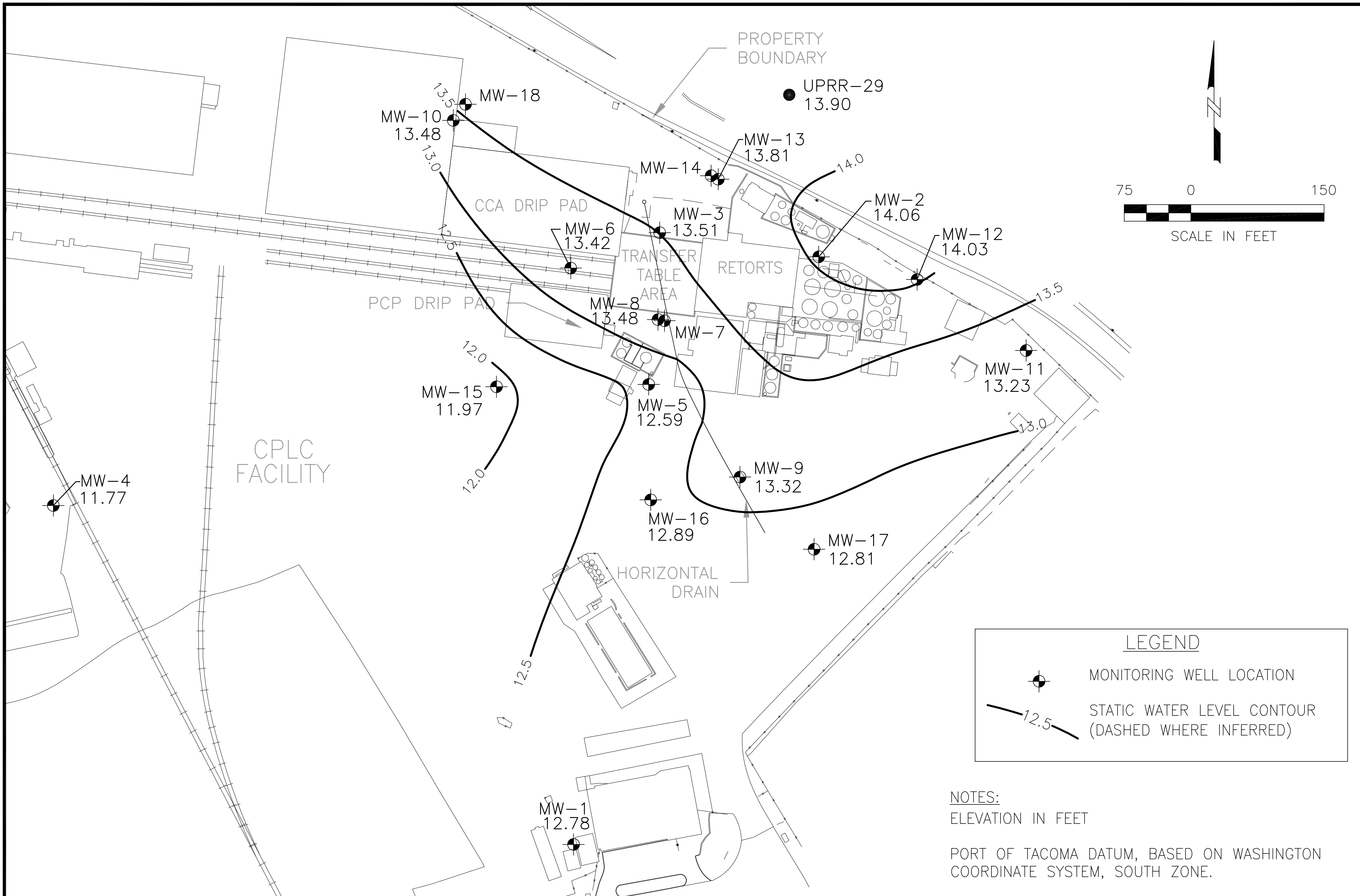
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

CPLU1-16832-500

POTENTIOMETRIC SURFACE MAP
SHALLOW AQUIFER
FEBRUARY 4, 2004

DATE: 04/11/05 | DRWN: A.S./SEA

FIGURE 3-2



RETEC

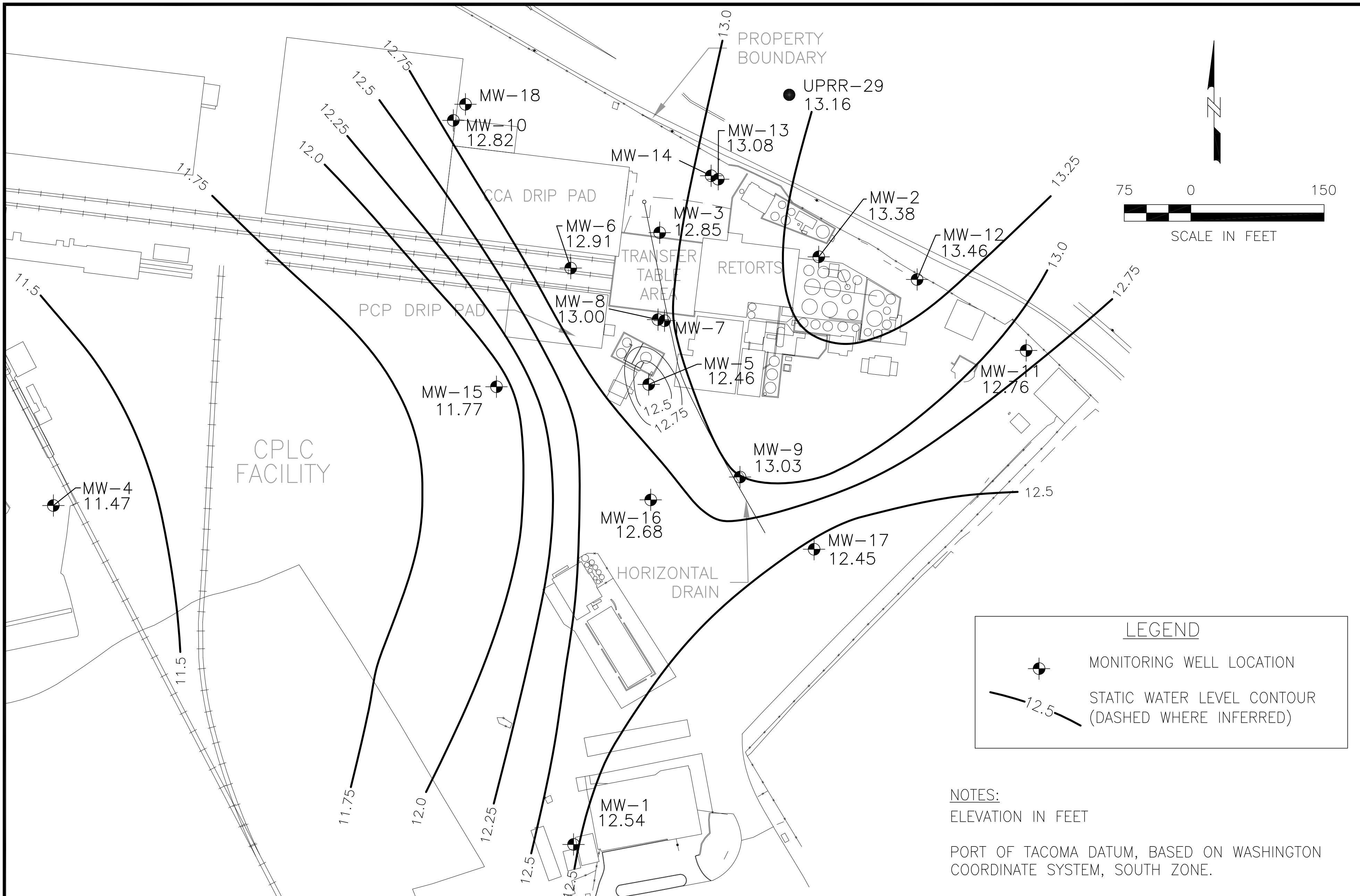
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

CPLU1-16832-500

POTENTIOMETRIC SURFACE MAP
SHALLOW AQUIFER
MAY 26, 2004

DATE: 04/11/05 | DRWN: A.S./SEA

FIGURE 3-3



NOTES:
ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

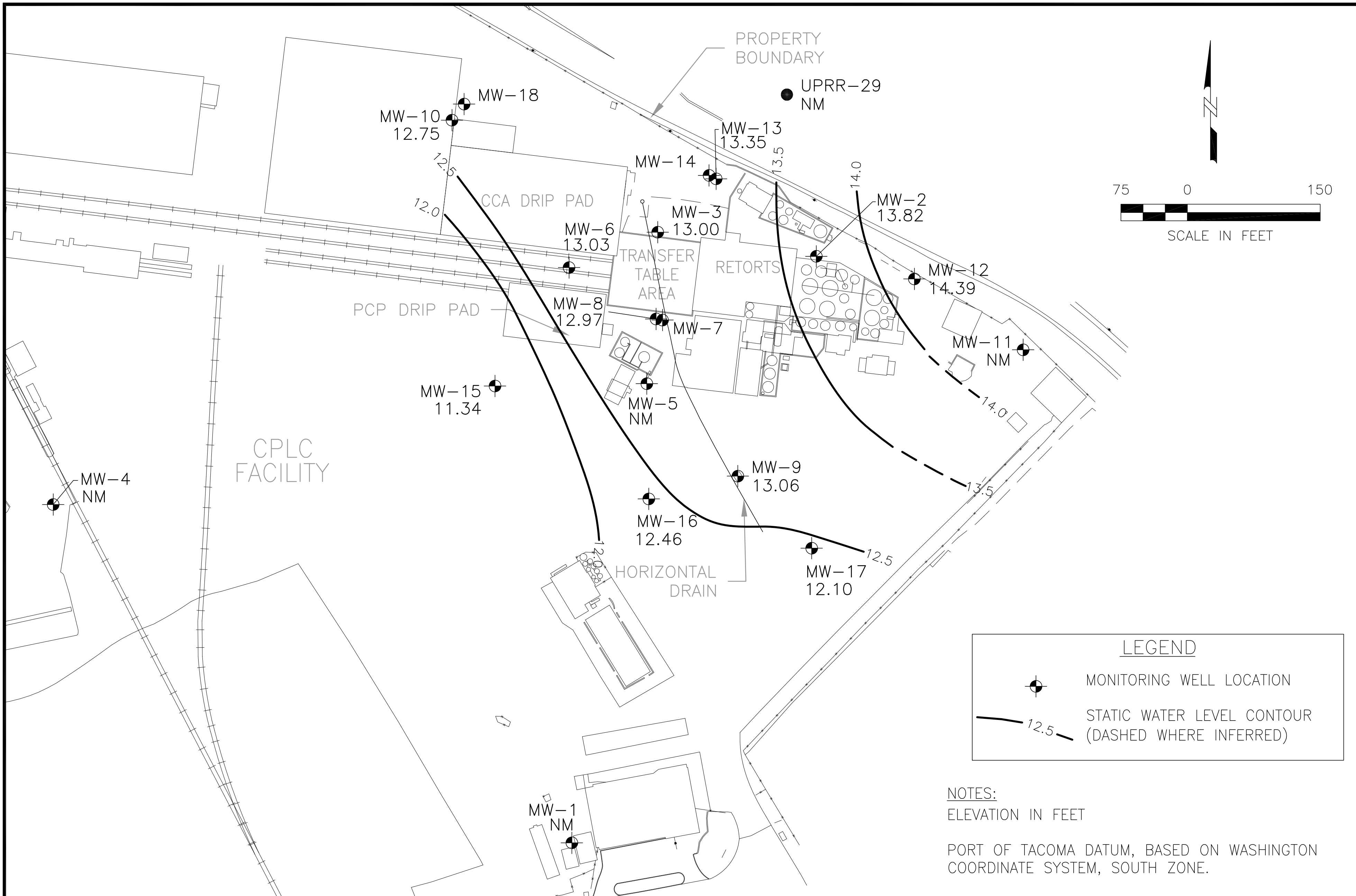
CPLU1-16832-500

DATE: 05/03/05 | DRWN: A.S./SEA

POTENTIOMETRIC SURFACE MAP
SHALLOW AQUIFER
SEPTEMBER 7, 2004

FIGURE 3-4

File: P:\CADD\Cascade Lumber\16832S023.dwg Layout: Layout1 User: oliveriam Plotted: Mar 09, 2011 - 12:33pm Xref's:



NOTES:
ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

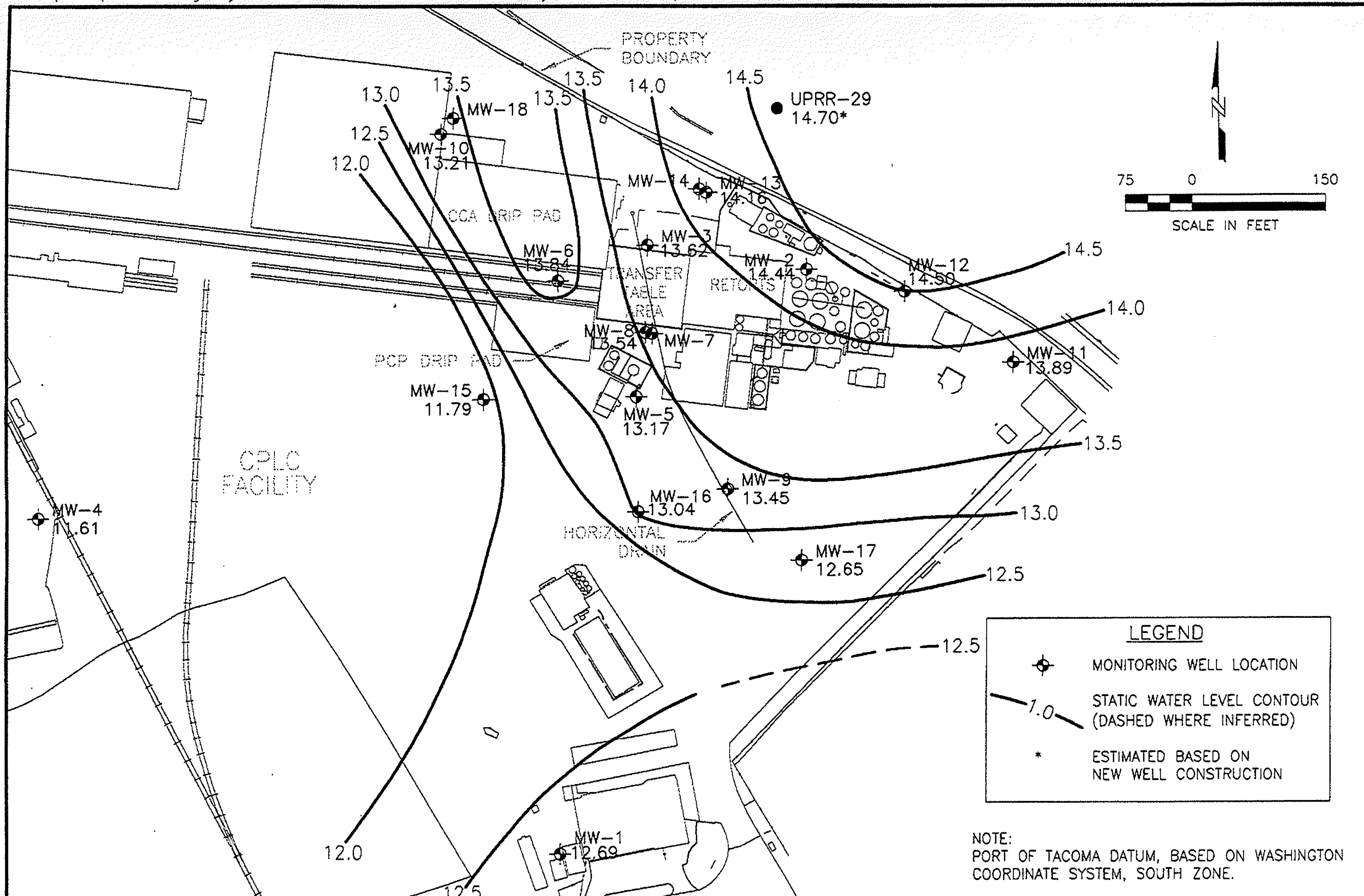
CPLU1-16832-500

POTENTIOMETRIC SURFACE MAP
SHALLOW AQUIFER
NOVEMBER 30th, 2004

DATE: 04/11/05 | DRWN: A.S./SEA

FIGURE 3-5

File: J:\16832\16832S064.dwg Layout: FIGURE 11 User: mwilliamson Plotted: May 02, 2005 - 12:12pm Xref's:



RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

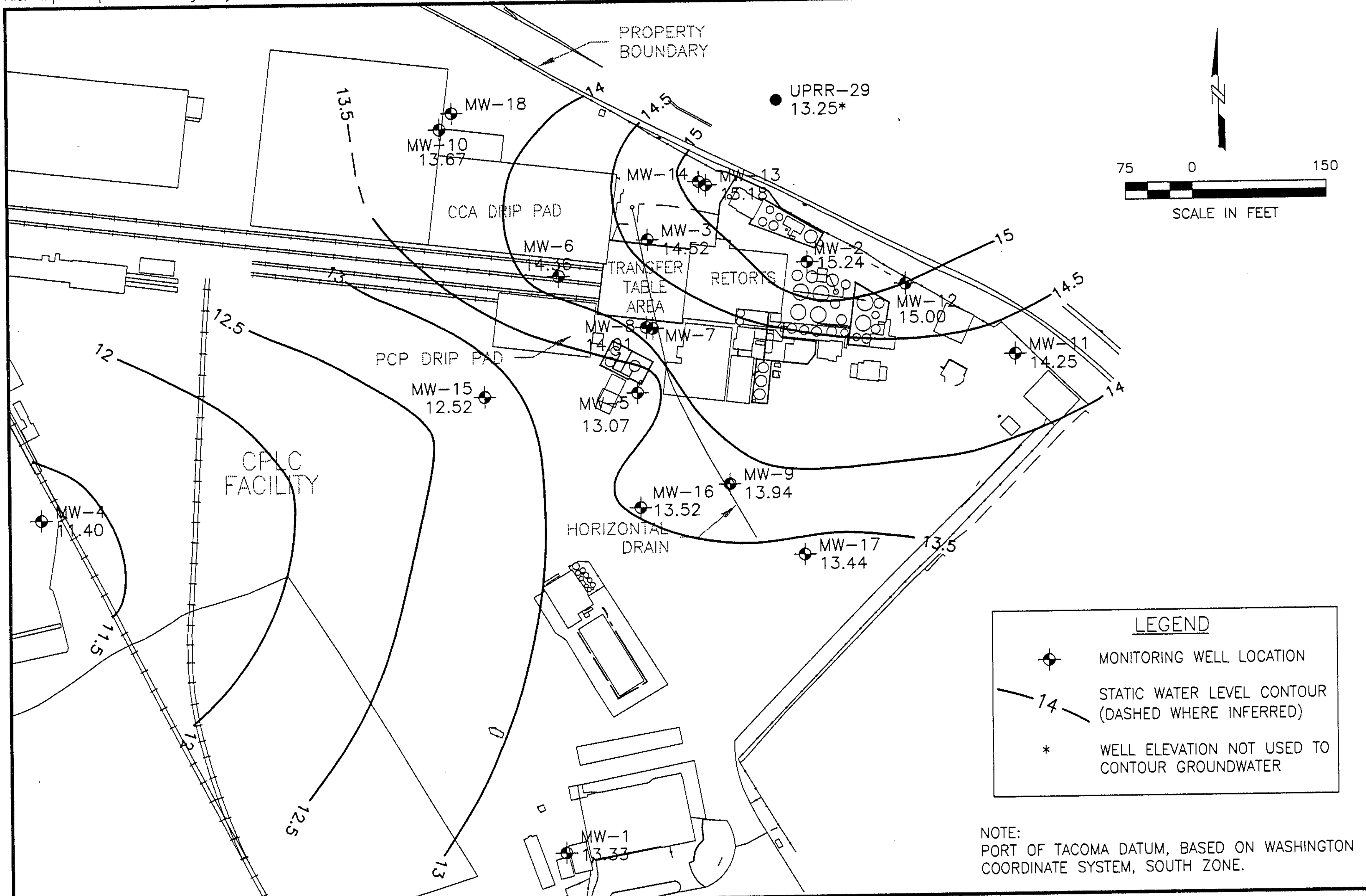
CPLU1-16832-500

DATE: 5/02/05 | DRWN: A.S./SEA

POTENTIOMETRIC SURFACE
SHALLOW AQUIFER
JANUARY 27, 2005

FIGURE 11

File: H:\16832\16832S076.dwg Layout: FIGURE 11 User: astenberg Plotted: Apr 13, 2006 - 11:23am Xref's: 0499BAS6, 0499BAS6, 0499BAS6



NOTE:
PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

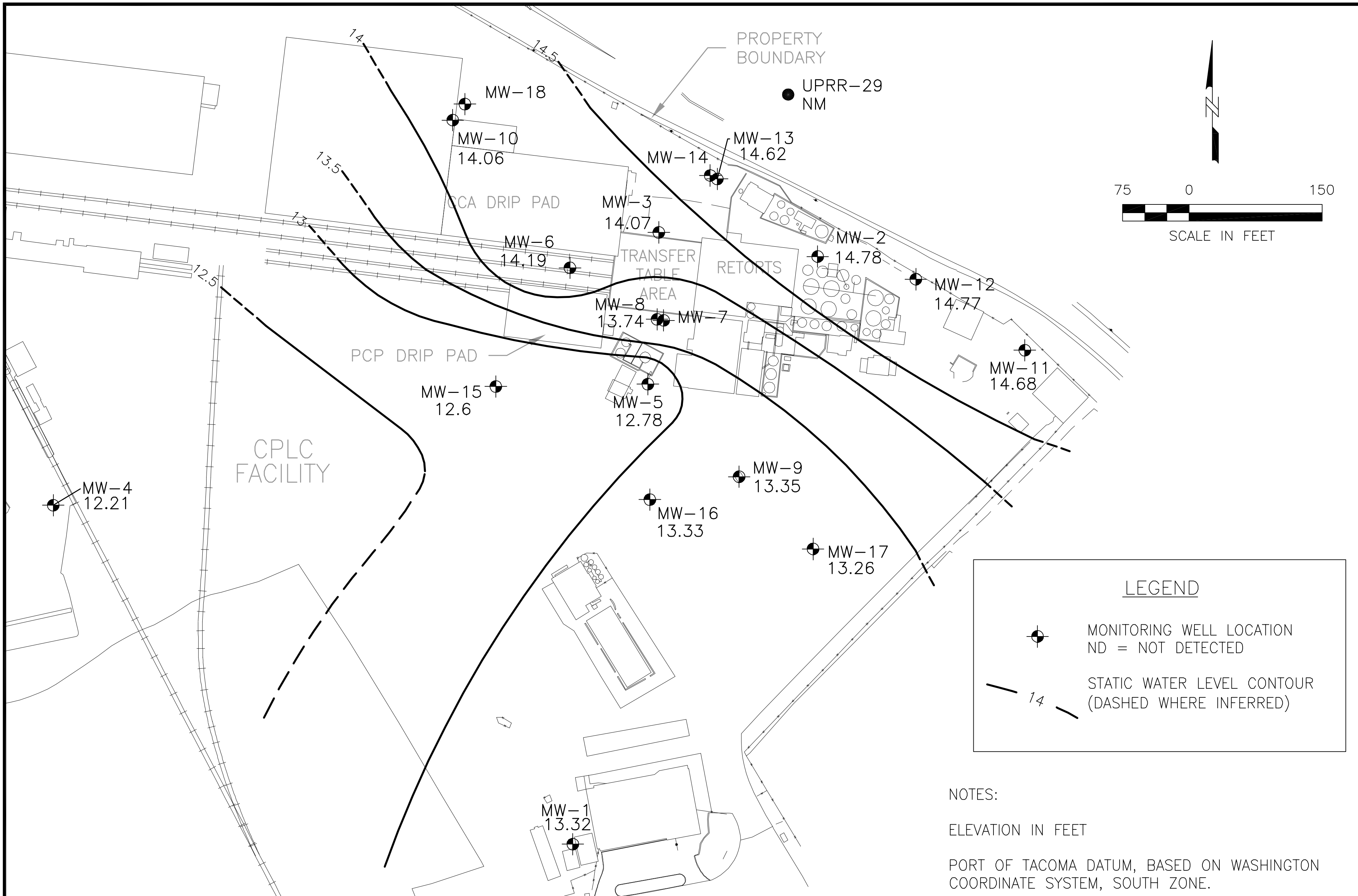
CPLU1-16832-500

DATE: 04/13/06 DRWN: A.S./SEA

POTENTIOMETRIC SURFACE SHALLOW AQUIFER JANUARY 2006

FIGURE 11

File: H:\16832\16832S110.dwg Layout: FIG 11 User: emarshall Plotted: May 03, 2007 - 8:57am Xref's:



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

ENSR | AECOM

Merged with ENSR in 2007

RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

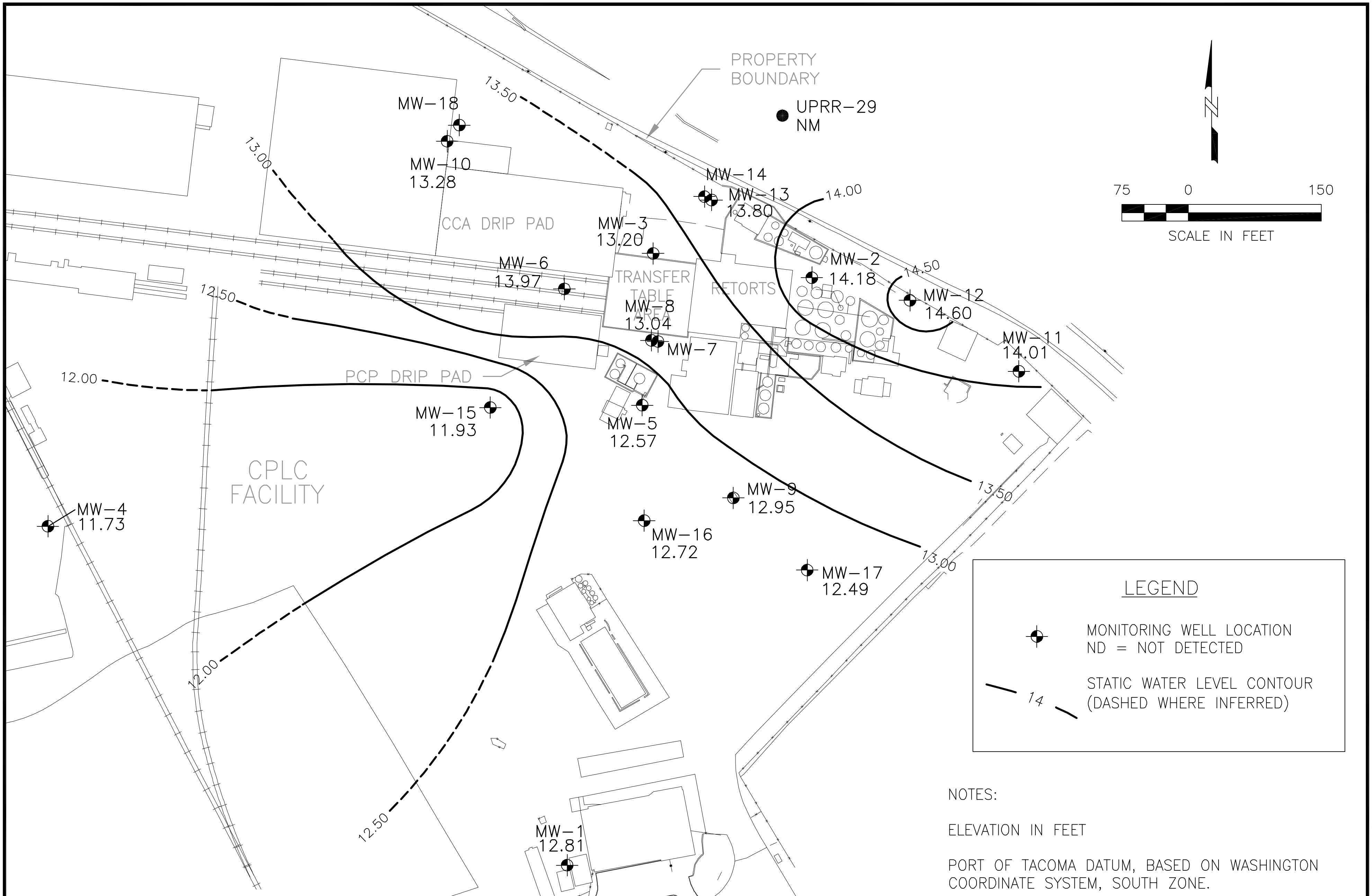
CPLC1-16832-500

POTENTIOMETRIC SURFACE
SHALLOW AQUIFER
FEBRUARY 2007

DATE: 05/03/07 | DRWN: E.M./SEA

FIGURE 11

File: L:\Cascade Lumber\04530-015-S002.dwg Layout: FIG 11 User: emarshall Plotted: Mar 10, 2008 - 2:31pm Xref's:



ENSR | AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

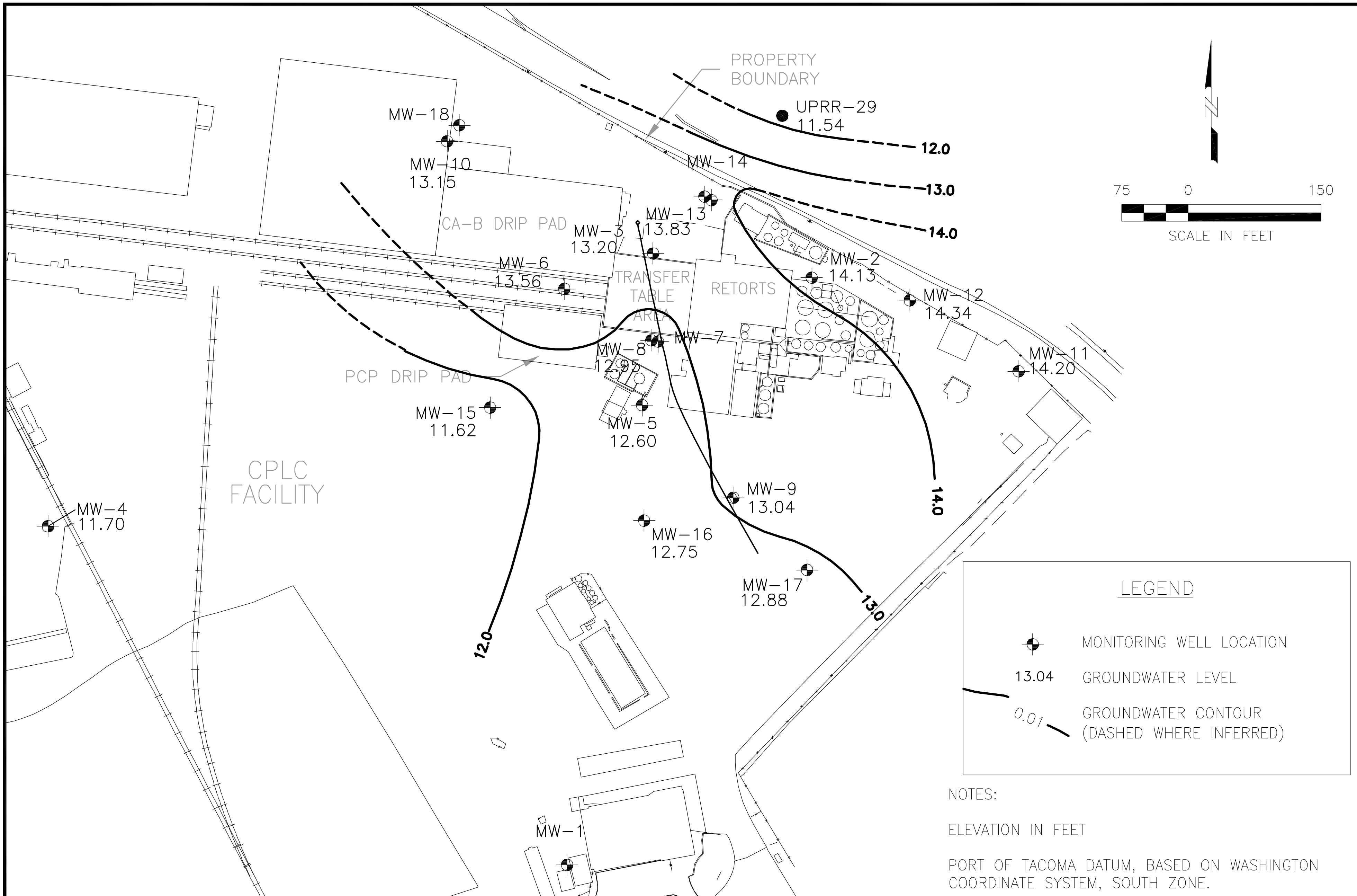
CPLC1-16832-500

POTENTIOMETRIC SURFACE
SHALLOW AQUIFER
JANUARY 2008

DATE: 03/10/08 | DRWN: E.M./SEA

FIGURE 11

File: P:\CADD\Cascade Lumber\gw_level.dwg Layout: FIGURE 11 User: MarshallE Plotted: Apr 17, 2009 - 9:30am Xref's:



AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

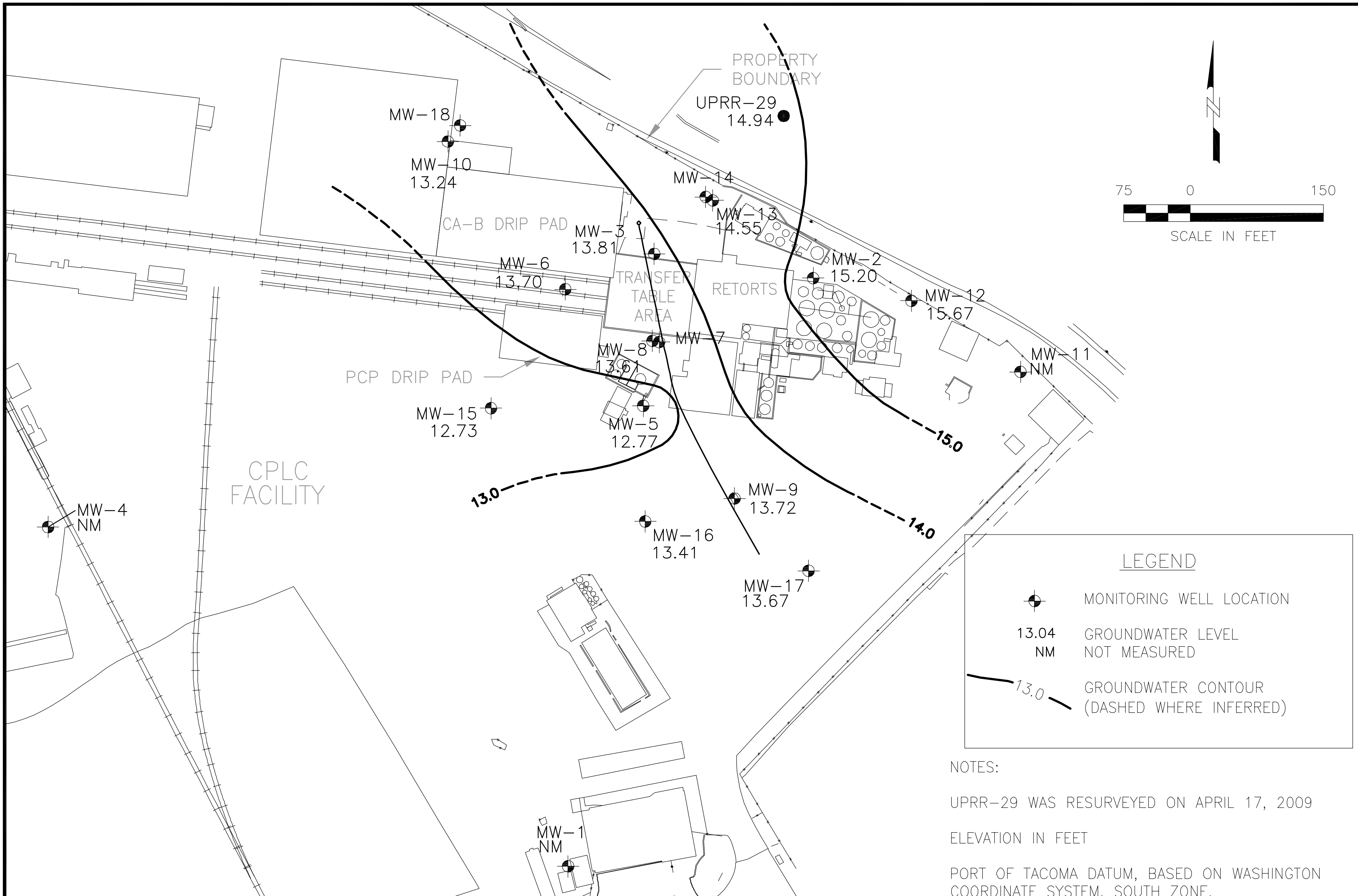
04530-015-300

GROUNDWATER LEVELS
JANUARY 2009

DATE: 04/16/09 | DRWN: E.M./SEA

FIGURE 11

File: M:\Cascade Lumber\Annual GW Report\2010\shallow_gw_level.dwg Layout: FIGURE 11 User: MarshallE Plotted: Mar 25, 2010 - 9:55am Xref's:



NOTES:

UPRR-29 WAS RESURVEYED ON APRIL 17, 2009

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137021-0300

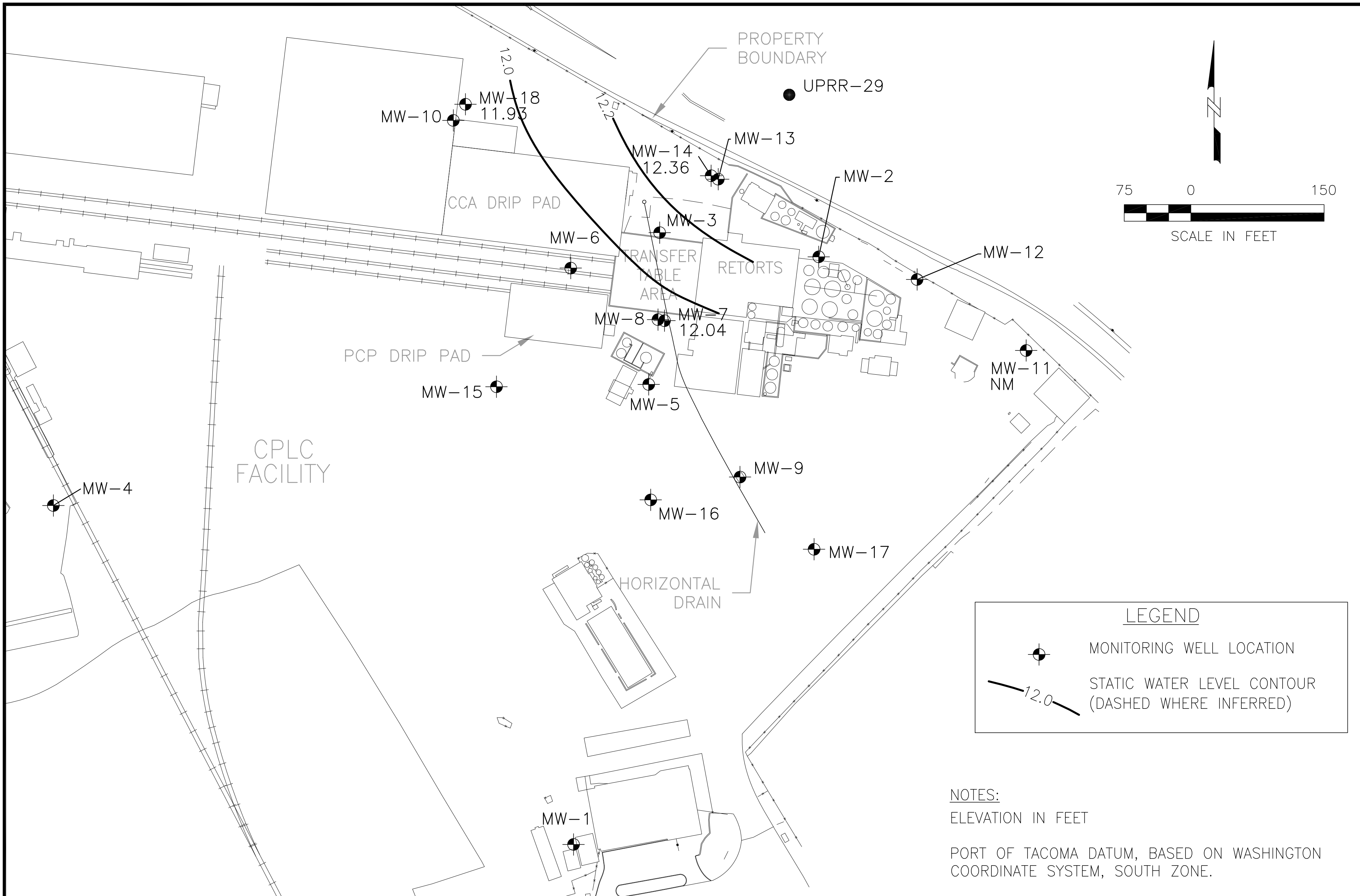
GROUNDWATER LEVELS JANUARY 2010

DATE: 03/25/10 | DRWN: E.M./SEA

FIGURE 11

APPENDIX B-3

2004 TO 2012 POTENTIOMETRIC SURFACE MAPS – DEEP AQUIFER



LEGEND

MONITORING WELL LOCATION

STATIC WATER LEVEL CONTOUR (DASHED WHERE INFERRED)

NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

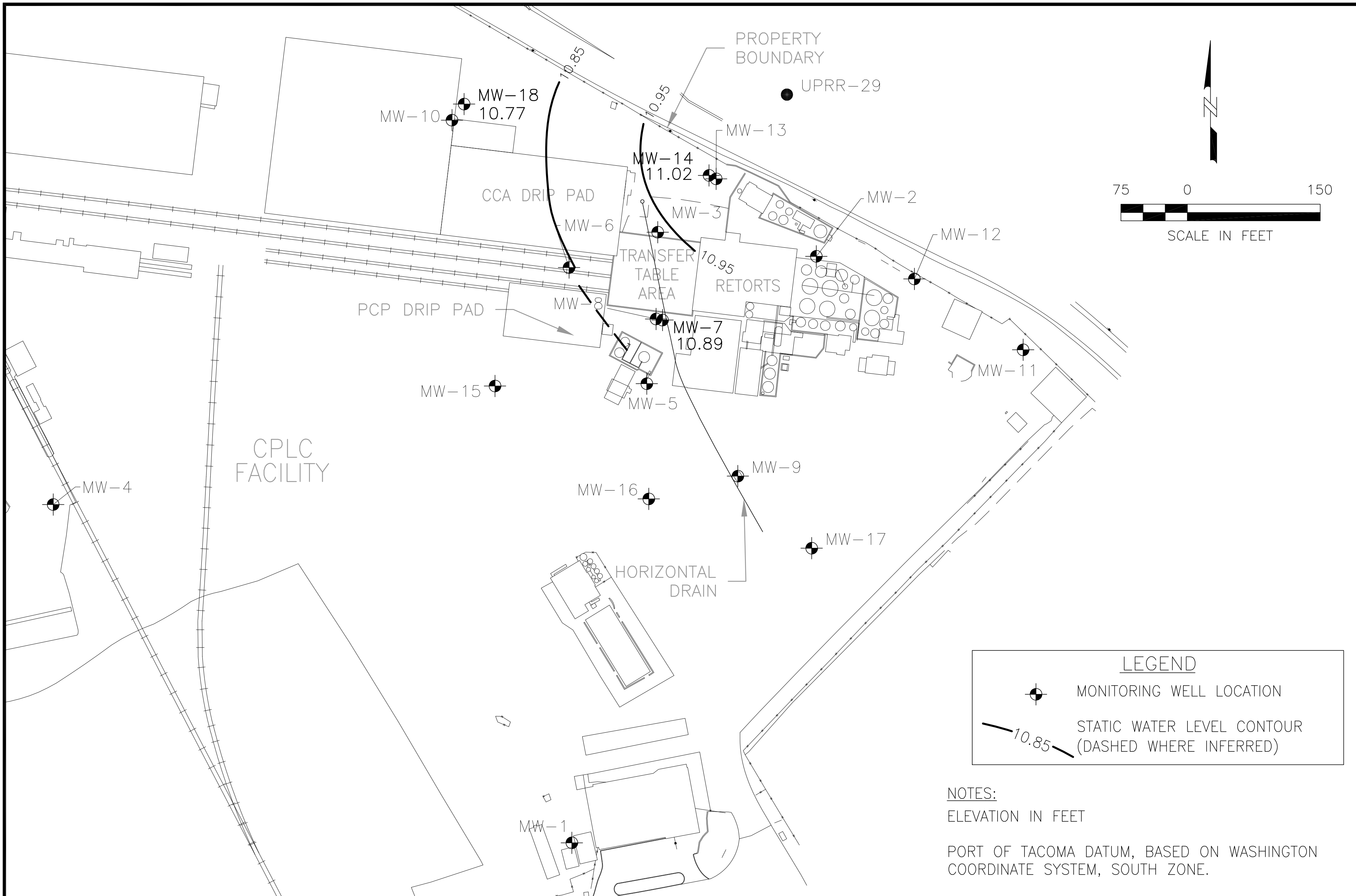
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

CPLU1-16832-500

DATE: 04/11/05 DRWN: A.S./SEA

POTENTIOMETRIC SURFACE MAP
DEEPER AQUIFER
FEBRUARY 4, 2004

FIGURE 3-8



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

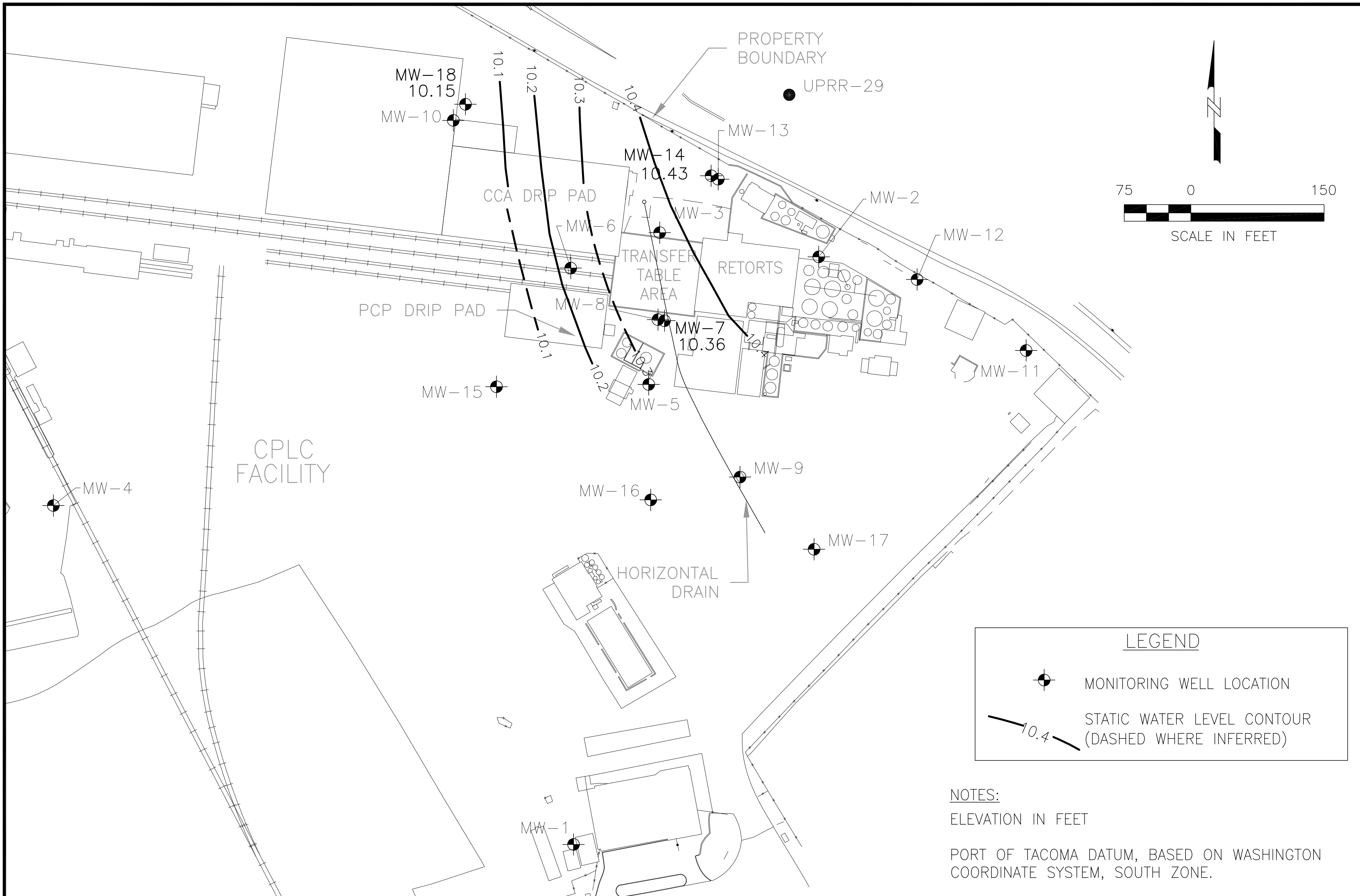
CPLU1-16832-500

DATE: 04/11/05 DRWN: A.S./SEA

POTENTIOMETRIC SURFACE MAP
DEEPER AQUIFER
MAY 26, 2004

FIGURE 3-9

File: P:\CADD\Cascade Lumber\16832S053.dwg Layout: FIGURE 3-10 User: oliveriam Plotted: Mar 09, 2011 - 12:39pm Xref's:



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

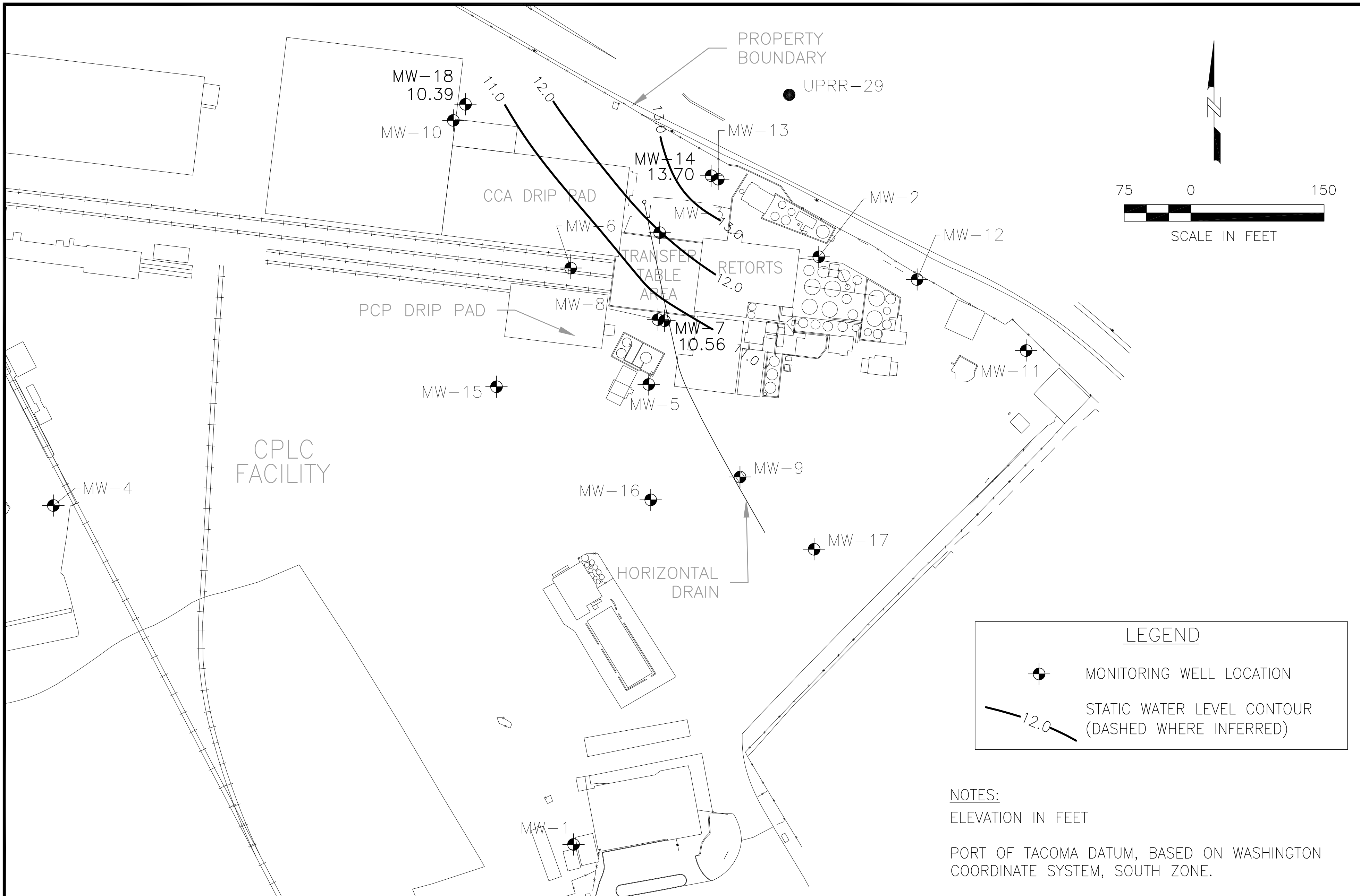
CPLU1-16832-500

POTENTIOMETRIC SURFACE MAP
DEEPER AQUIFER
SEPTEMBER 7, 2004

DATE: 05/03/05 | DRWN: A.S./SEA

FIGURE 3-10

File: P:\CADD\Cascade Lumber\16832S026.dwg Layout: Layout1 User: oliveriam Plotted: Mar 09, 2011 - 12:41pm Xref's:



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

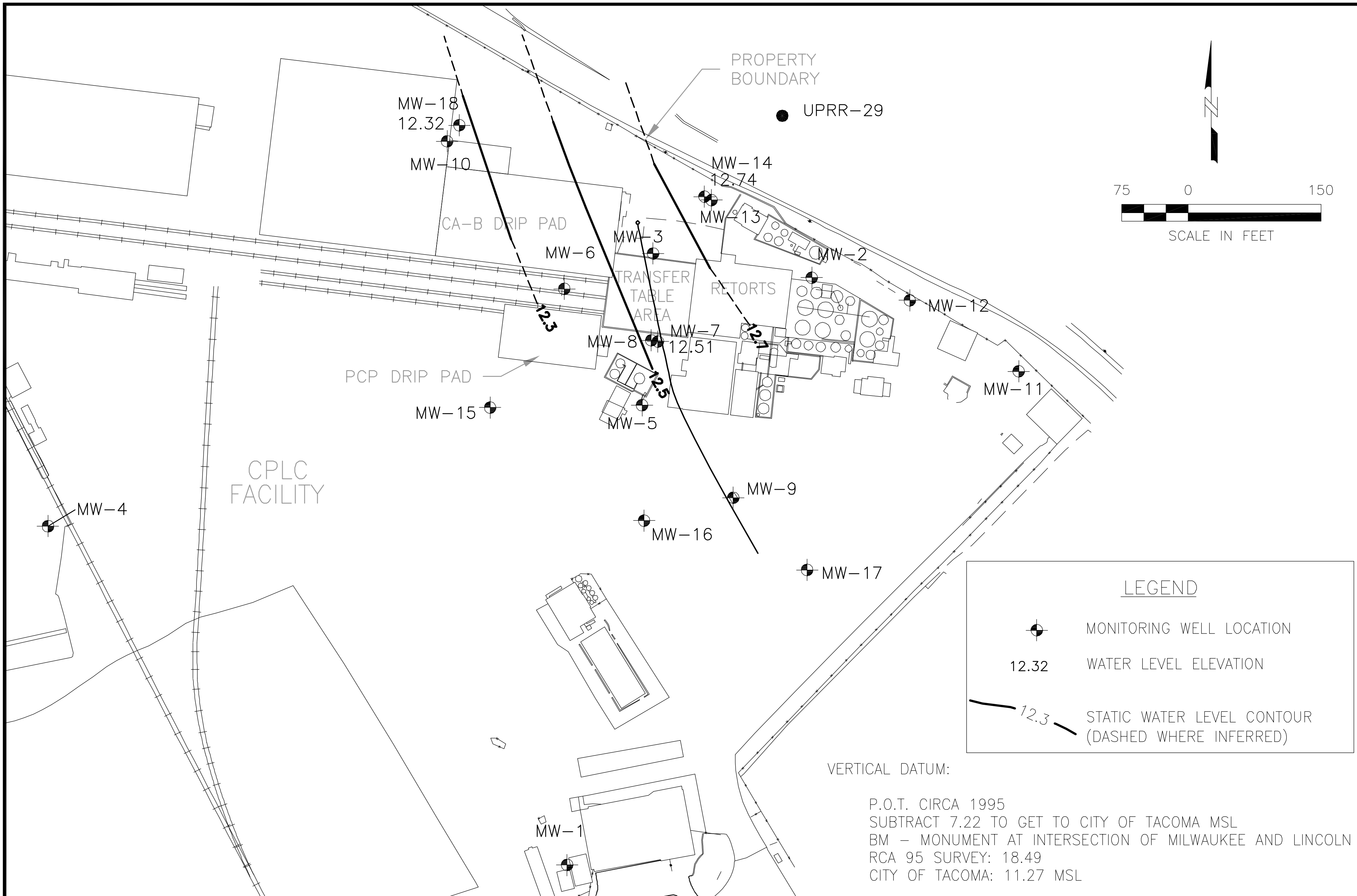
CPLU1-16832-500

POTENTIOMETRIC SURFACE MAP
DEEPER AQUIFER
NOVEMBER 30, 2004

DATE: 04/11/05 | DRWN: A.S./SEA

FIGURE 3-11

File: M:\Cascade Lumber\Annual GW Report\2010\potentio_deep_1-10.dwg Layout: FIGURE 12 User: MarshallE Plotted: Mar 25, 2010 - 10:12am Xref's:



VERTICAL DATUM:

P.O.T. CIRCA 1995
SUBTRACT 7.22 TO GET TO CITY OF TACOMA MSL
BM – MONUMENT AT INTERSECTION OF MILWAUKEE AND LINCOLN
RCA 95 SURVEY: 18.49
CITY OF TACOMA: 11.27 MSL

AECOM

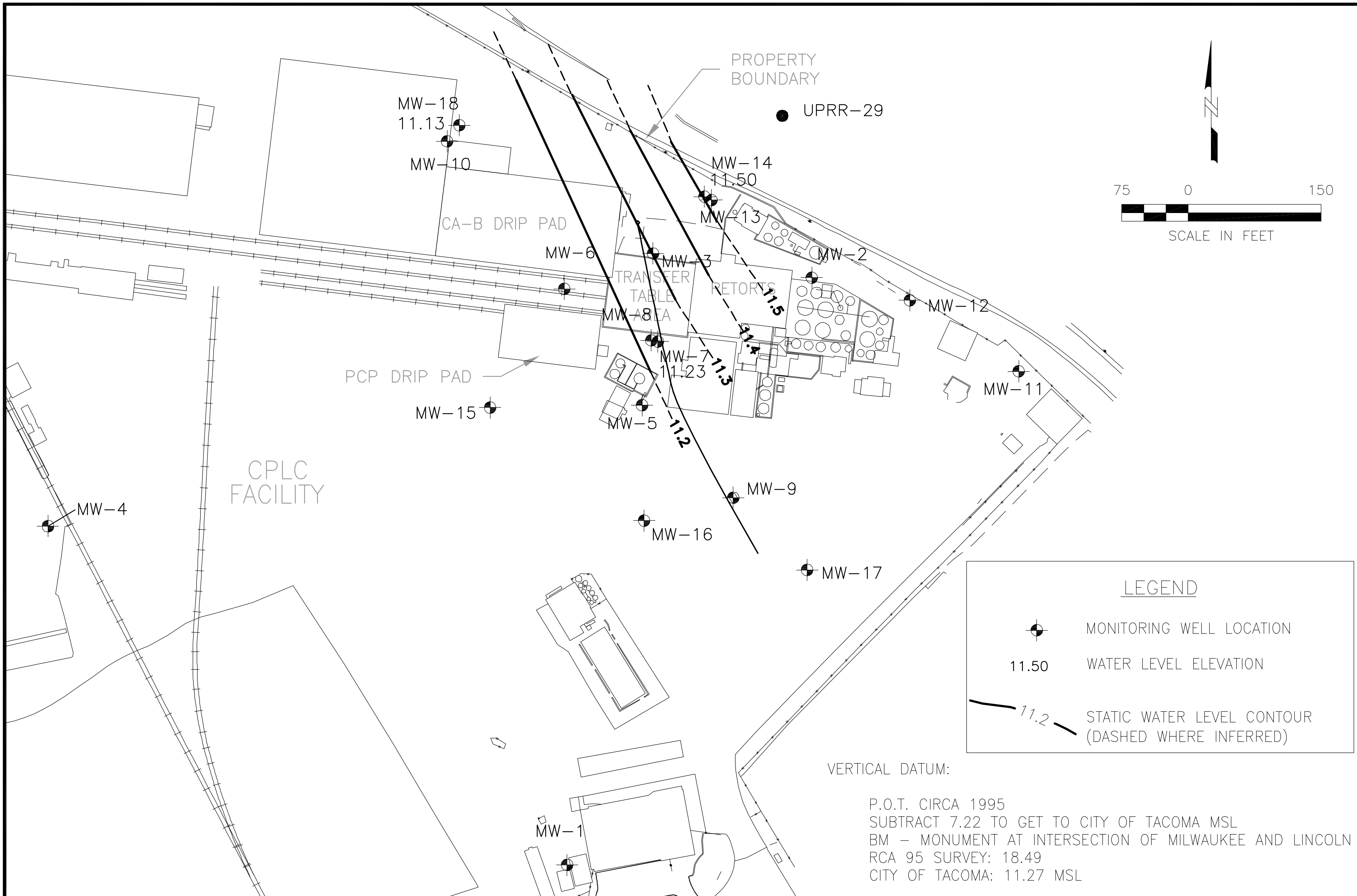
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
60137201-0300

POTENTIOMETRIC SURFACE MAP
DEEP AQUIFER
JANUARY 2010

DATE: 03/25/10 | DRWN: E.M./SEA

FIGURE 12

File: P:\CADD\Cascade Lumber\potentio_deep_1-09.dwg Layout: FIGURE 12 User: MarshallE Plotted: Mar 24, 2009 - 11:02am Xref's:



AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

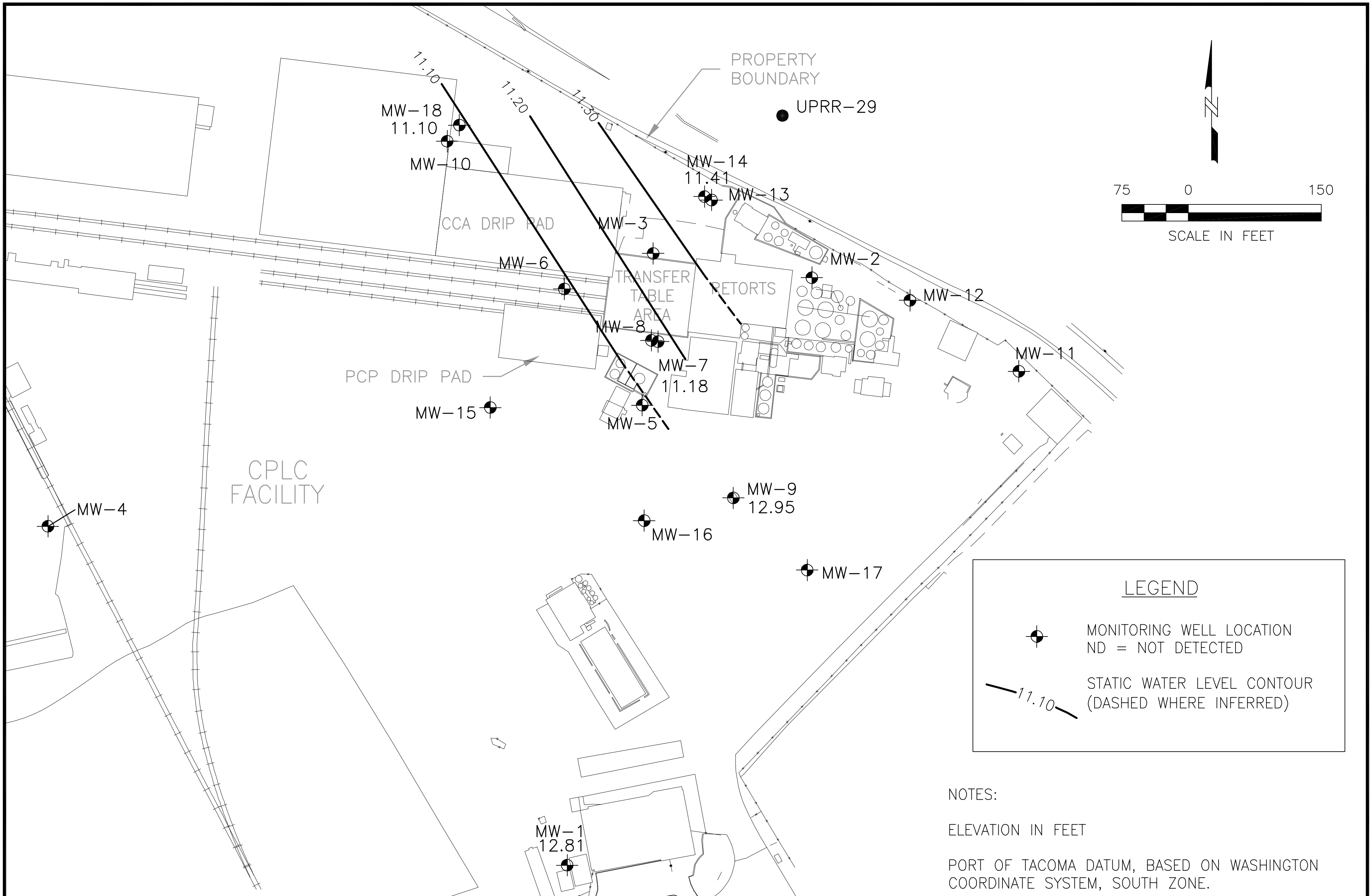
04530-015-0300

DATE: 03/19/09 DRWN: E.M./SEA

POTENTIOMETRIC SURFACE MAP
DEEP AQUIFER
JANUARY 2009

FIGURE 12

File: L:\Cascade Lumber\04530-015-S003.dwg Layout: FIG 12 User: emarshall Plotted: Mar 10, 2008 - 2:34pm Xref's:



ENSR | AECOM

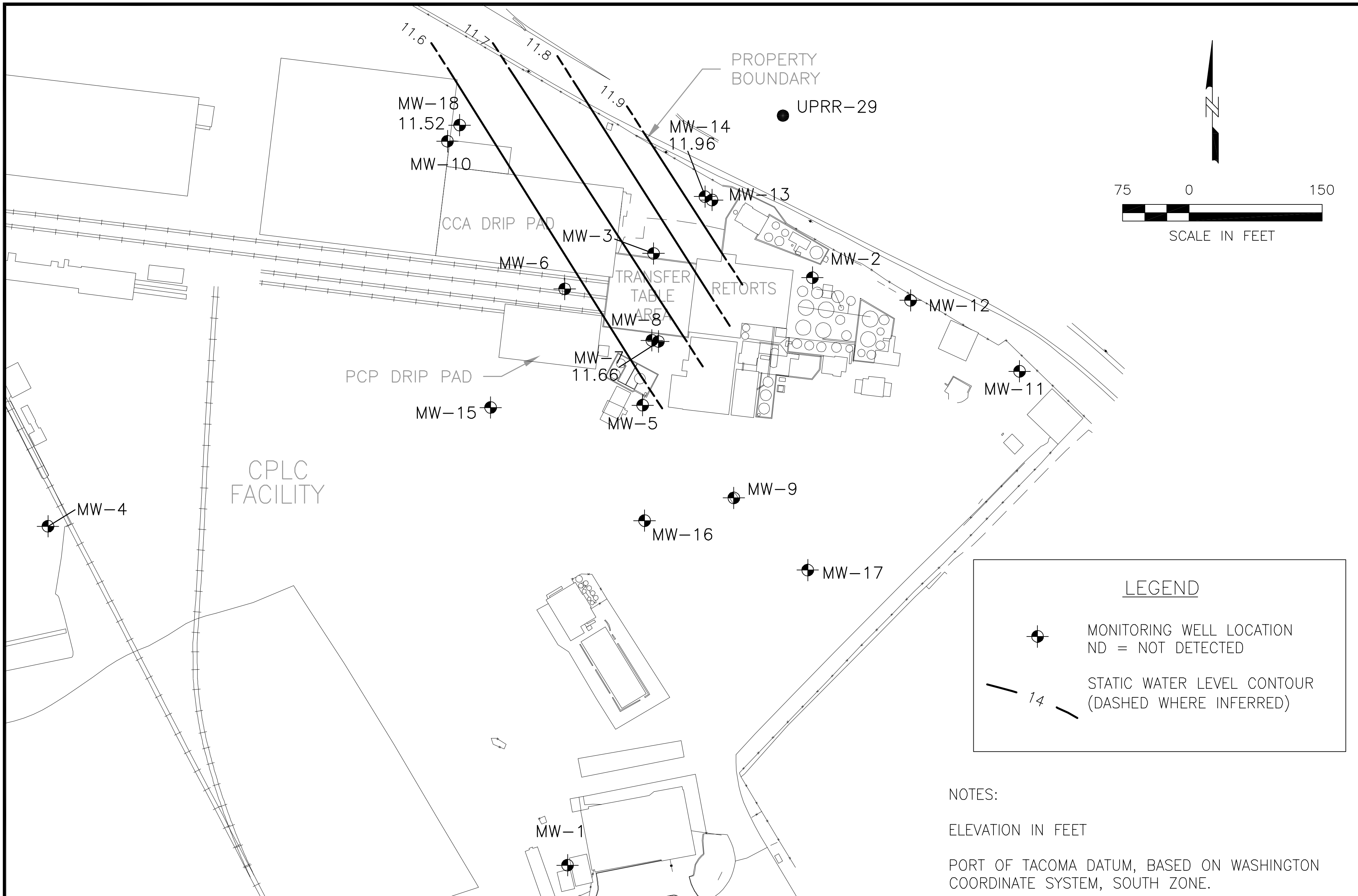
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

04530-015-300

POTENTIOMETRIC SURFACE
DEEP AQUIFER
JANUARY 2008

DATE: 03/10/08 | DRWN: E.M./SEA

FIGURE 12



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

ENSR | AECOM

Merged with ENSR in 2007

RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

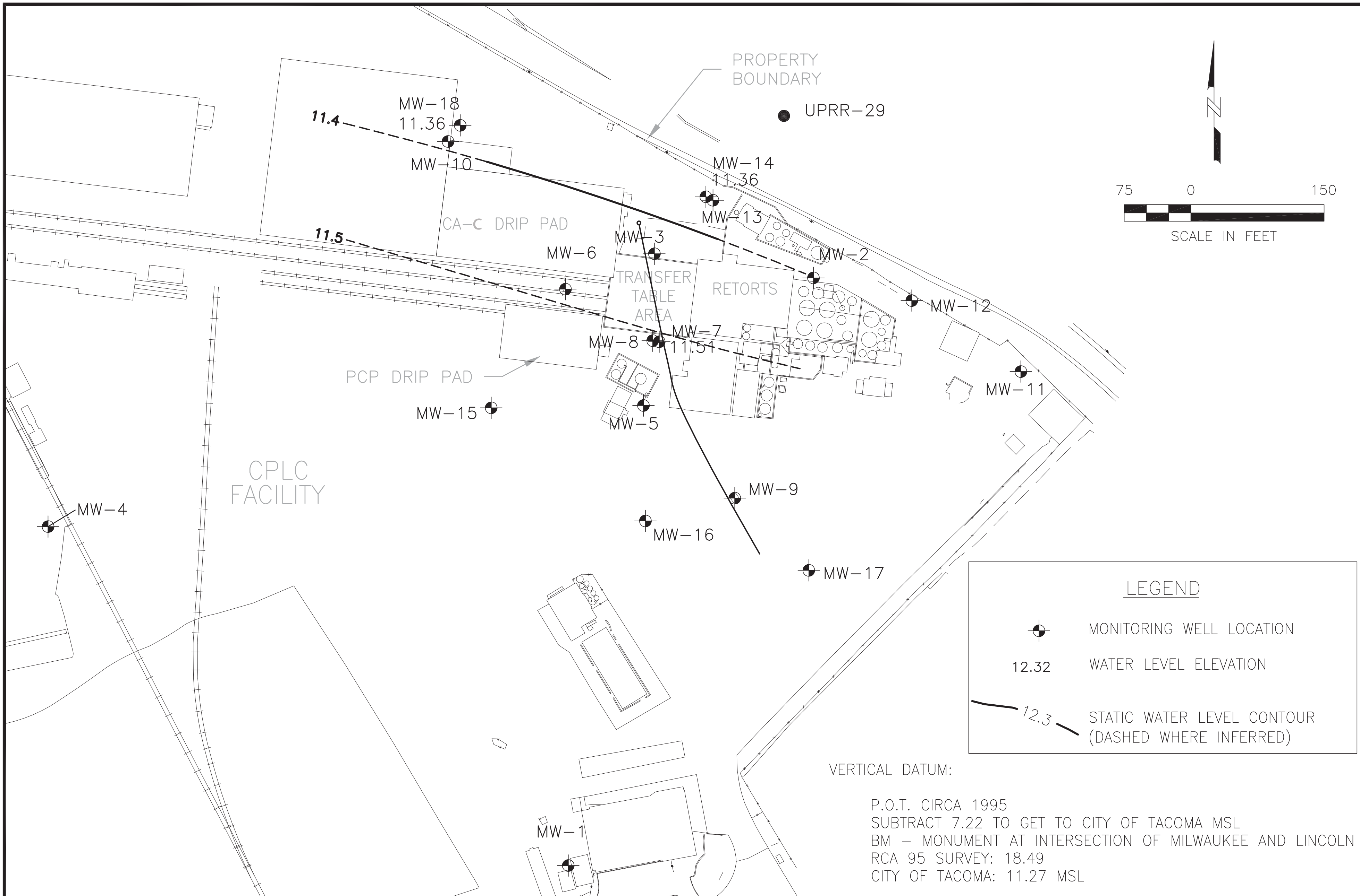
CPLC1-16832-500

POTENTIOMETRIC SURFACE
DEEP AQUIFER
FEBRUARY 2007

DATE: 05/03/07 | DRWN: E.M./SEA

FIGURE 12

File: G:\PROJECTS\CADD\Cascade Lumber\Annual GW Report\2012\potentio_deep_2-12.dwg Layout: FIGURE 12 User: oliveriam Plotted: Mar 21, 2012 - 5:07pm Xref's:



VERTICAL DATUM:

P.O.T. CIRCA 1995
SUBTRACT 7.22 TO GET TO CITY OF TACOMA MSL
BM - MONUMENT AT INTERSECTION OF MILWAUKEE AND LINCOLN
RCA 95 SURVEY: 18.49
CITY OF TACOMA: 11.27 MSL

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
60137201-0300

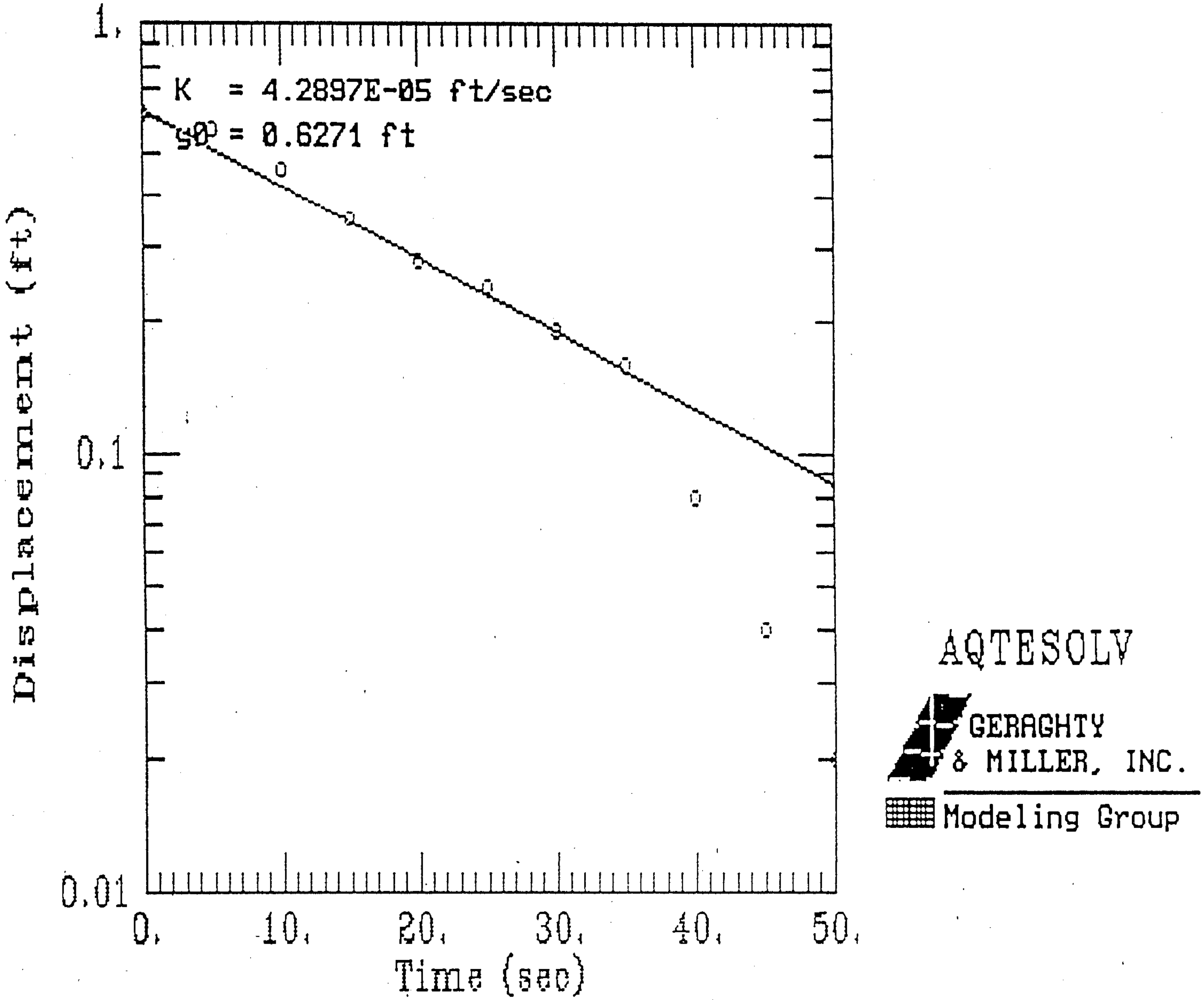
DATE: 03/21/12 | DRWN: M.O./SEA

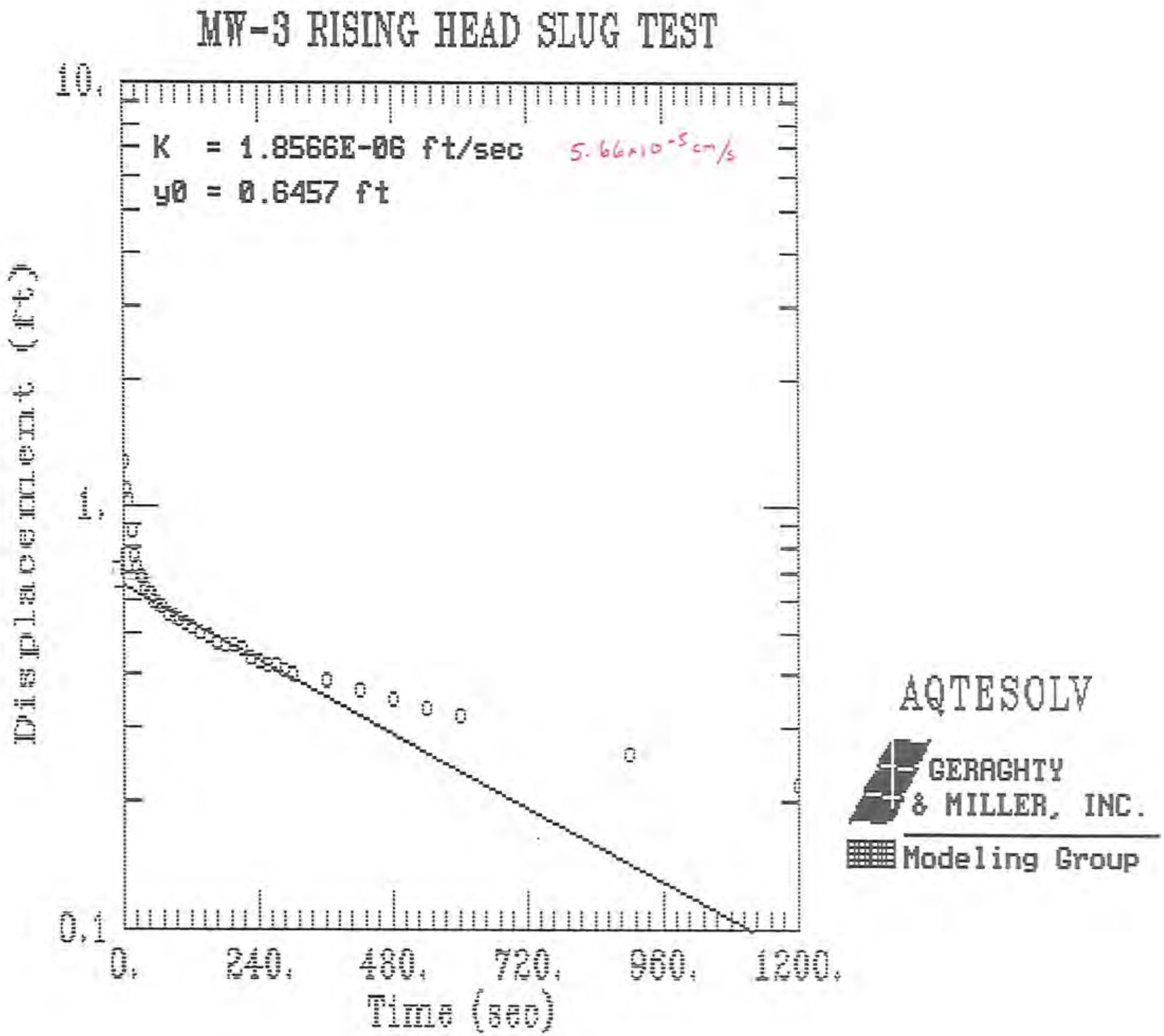
POTENTIOMETRIC SURFACE MAP
DEEP AQUIFER
FEBRUARY 2012

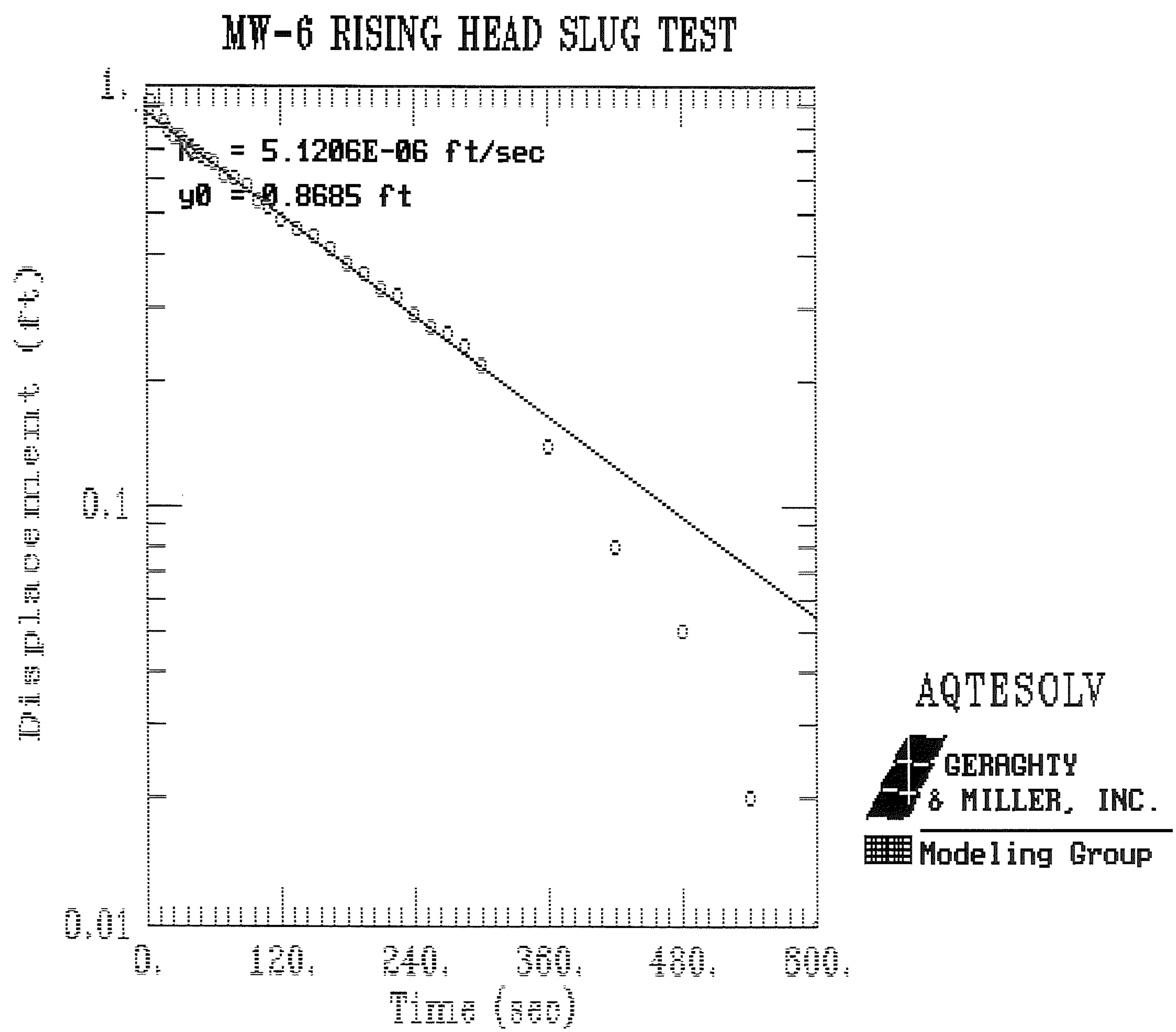
FIGURE 3-4

APPENDIX C
SLUG TEST RESULTS

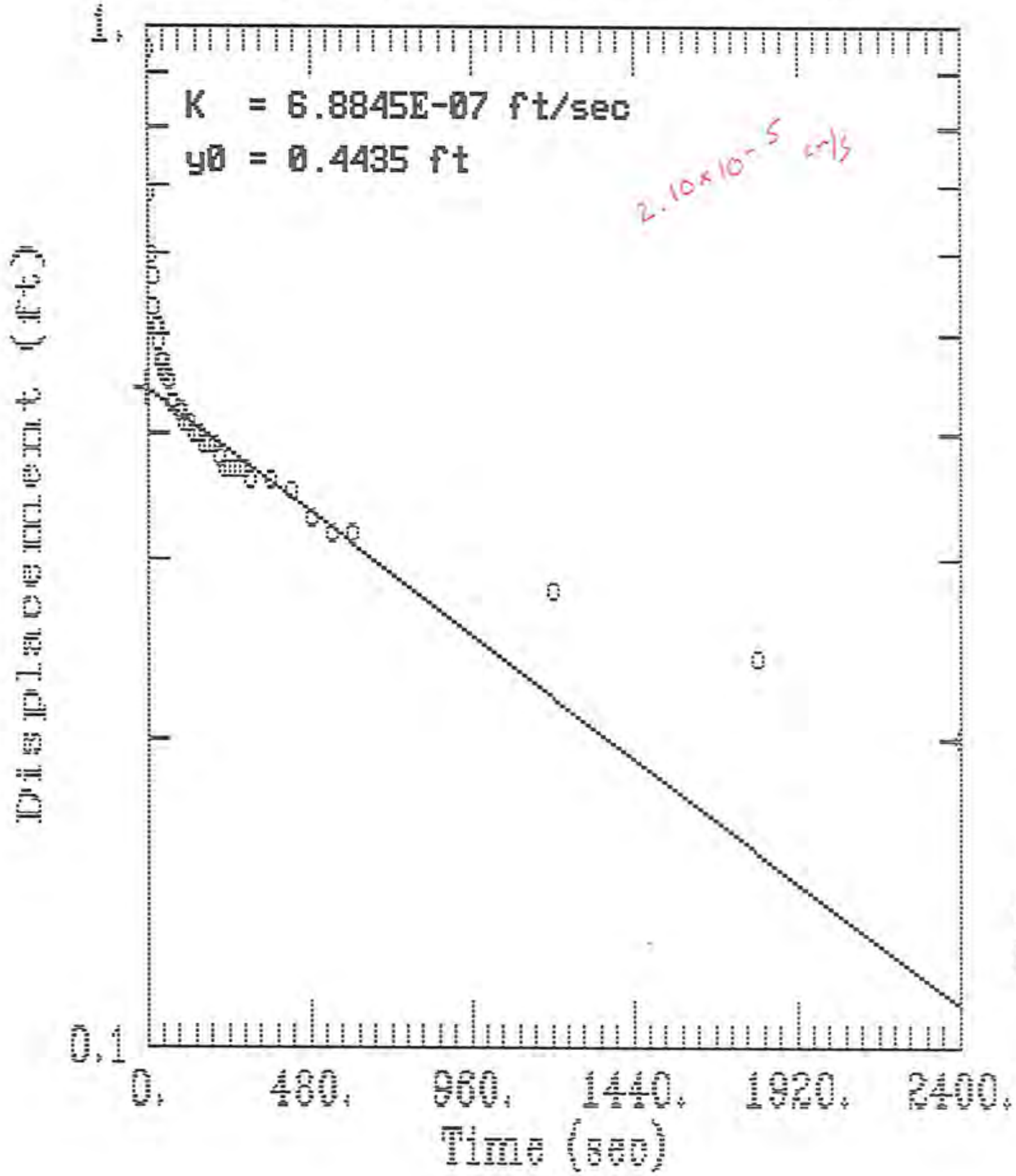
MW-2 RISING HEAD SLUG TEST




MW-3 RISING HEAD SLUG TEST
K = 1.8566E-06 ft/sec
5.66x10^-5 cm/s
y0 = 0.6457 ft
10.
1.
0.1
Displacement (ft)
0.
240.
480.
720.
960.
1200.
Time (sec)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group


MW-6 RISING HEAD SLUG TEST
K = 5.1206E-06 ft/sec
y0 = 0.8685 ft
1.
0.1
0.01
0.
120.
240.
360.
480.
600.
Time (sec)
Displacement (ft)
AQTESOLV
GERAGHTY
& MILLER, INC.
Modeling Group

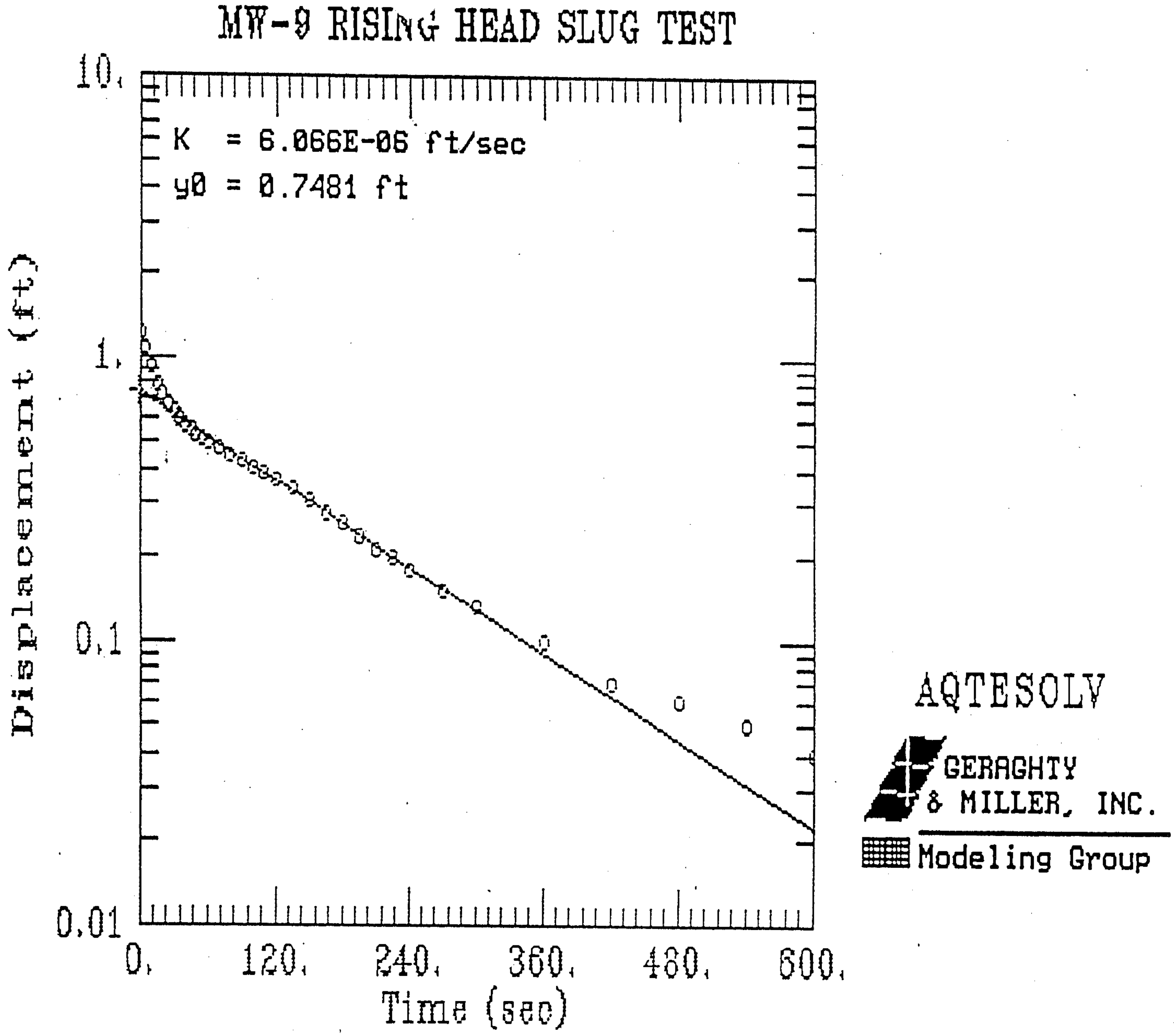
MW-8 RISING HEAD SLUG TEST

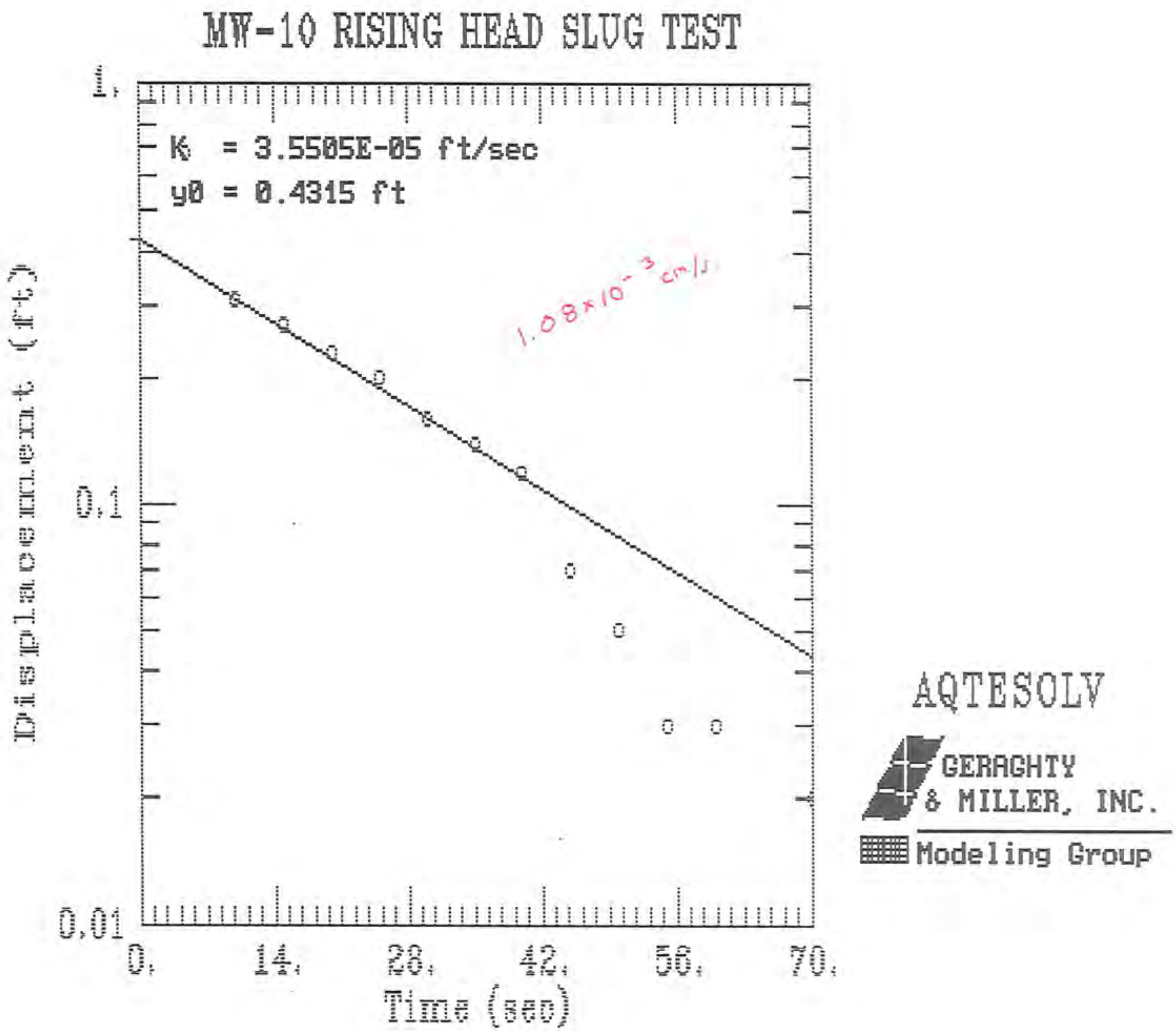


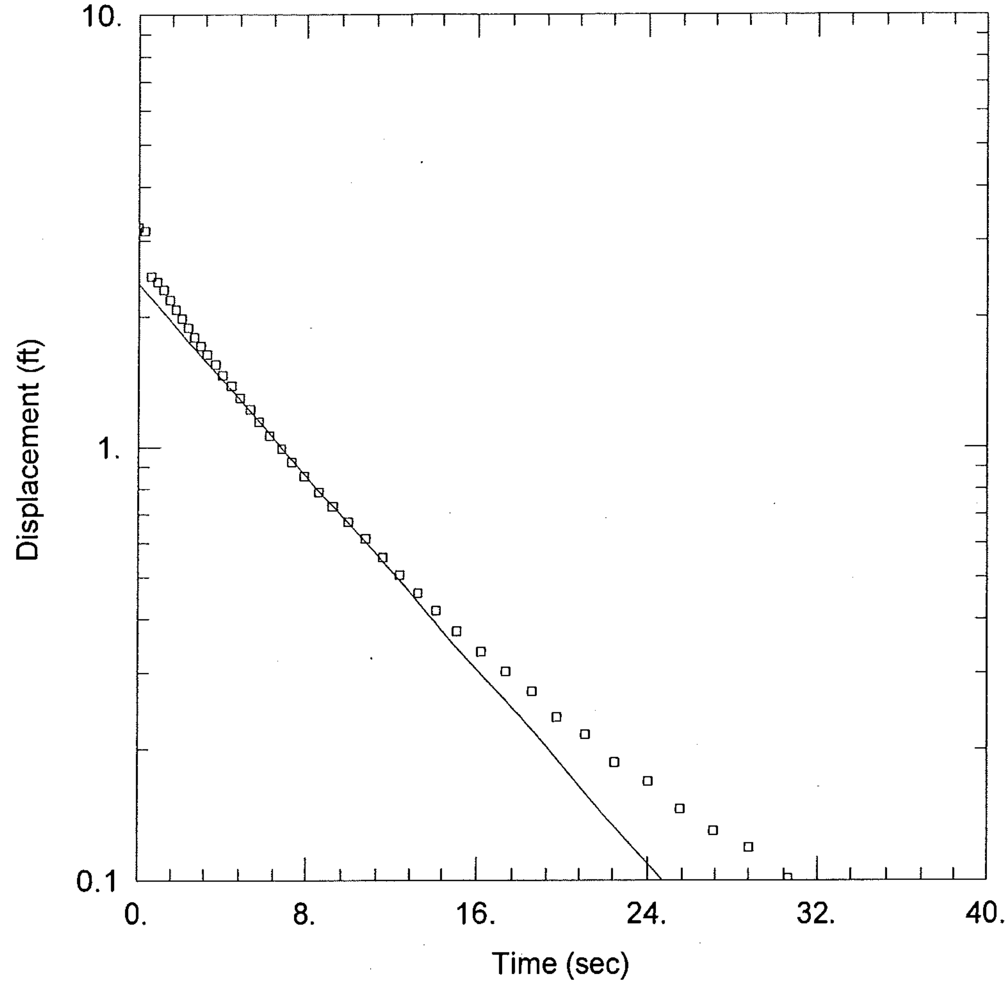
AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group


MW-9 RISING HEAD SLUG TEST
K = 6.066E-06 ft/sec
y0 = 0.7481 ft
Displacement (ft)
10.
1.
0.1
0.01
0. 120. 240. 360. 480. 600.
Time (sec)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group


MW-10 RISING HEAD SLUG TEST
K = 3.5505E-05 ft/sec
y0 = 0.4315 ft
1.08x10^-3 cm/s
1.
0.1
0.01
0.
14.
28.
42.
56.
70.
Time (sec)
Displacement (ft)
AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group



MW-7 RISING HEAD TEST (8' SLUG)	
Data Set: F:\...\MW-7_8S_RH_4.aqt	
Date: 11/22/06	Time: 10:17:56

AQUIFER DATA

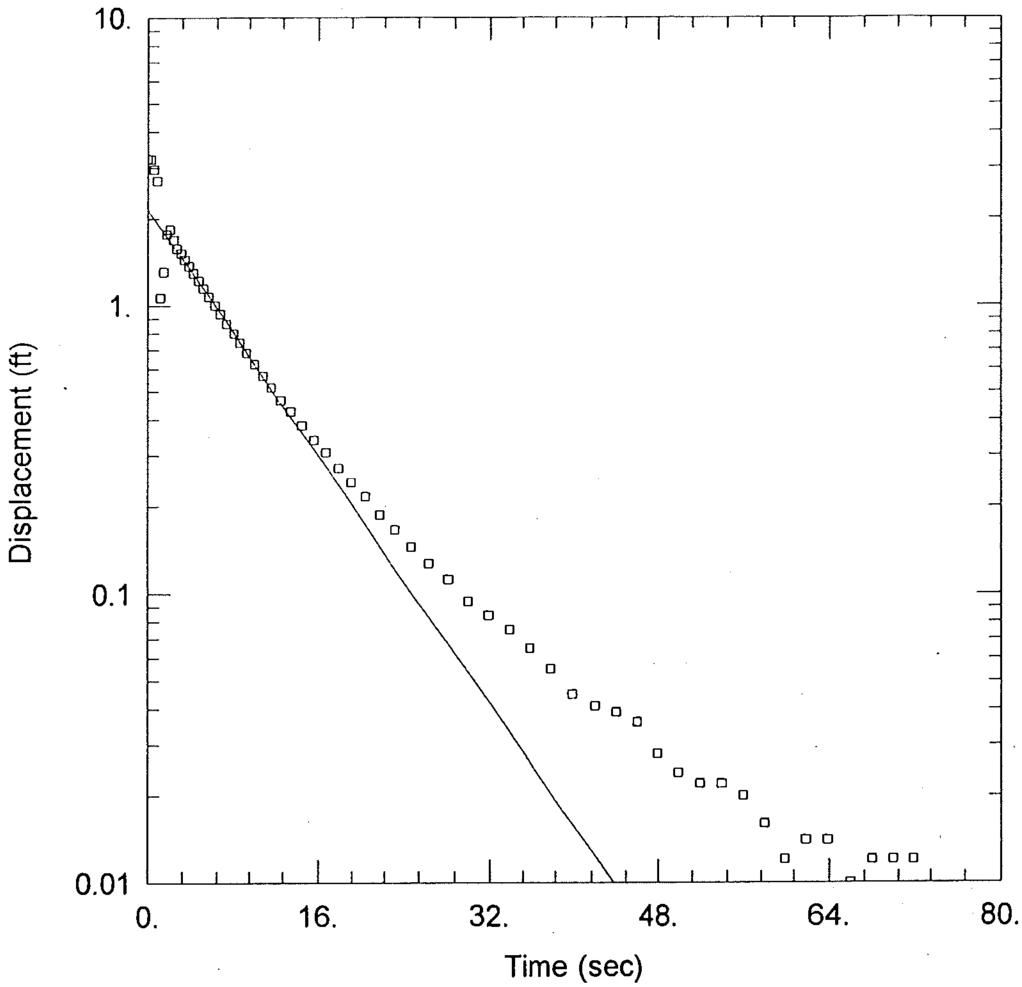
Saturated Thickness: 8. ft — Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-7)

Initial Displacement: 3.22 ft	Static Water Column Height: 15.78 ft
Total Well Penetration Depth: 7.5 ft	Screen Length: 5. ft
Casing Radius: 0.086 ft	Wellbore Radius: 0.086 ft

SOLUTION

Aquifer Model: Confined	Solution Method: Bouwer-Rice
K = 25.71 ft/day	y0 = 2.385 ft



MW-7 FALLING HEAD TEST (8' SLUG)

Data Set: U:\QMeehan\Projects\Cascade Pole\Slug Test\Aqtesolv and CSV files\MW-7_8S_FH_3.aqt
Date: 11/16/06 Time: 17:30:54

AQUIFER DATA

Saturated Thickness: 8. ft Anisotropy Ratio (Kz/Kr): 1.

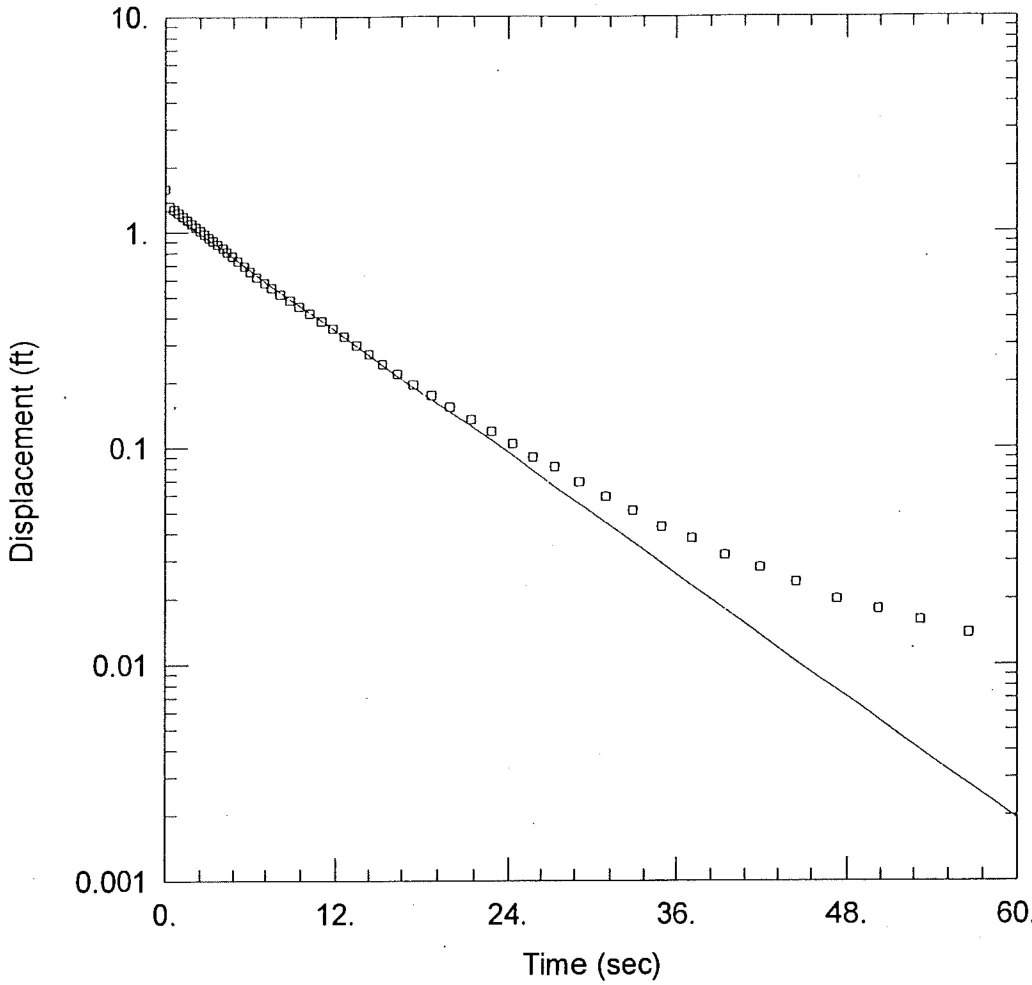
WELL DATA (MW-7)

Initial Displacement: 3.22 ft
Total Well Penetration Depth: 7.5 ft
Casing Radius: 0.08625 ft
Static Water Column Height: 15.78 ft
Screen Length: 5. ft
Wellbore Radius: 0.08625 ft
Gravel Pack Porosity: 0.2

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 24.72 ft/day y0 = 2.146 ft



MW-14 RISING HEAD (4' SLUG)

Data Set: U:\QMeehan\Projects\Cascade Pole\Slug Test\Aqtesolv and CSV files\MW-14_4S_RH_1.aqt
Date: 11/16/06 Time: 17:32:38

AQUIFER DATA

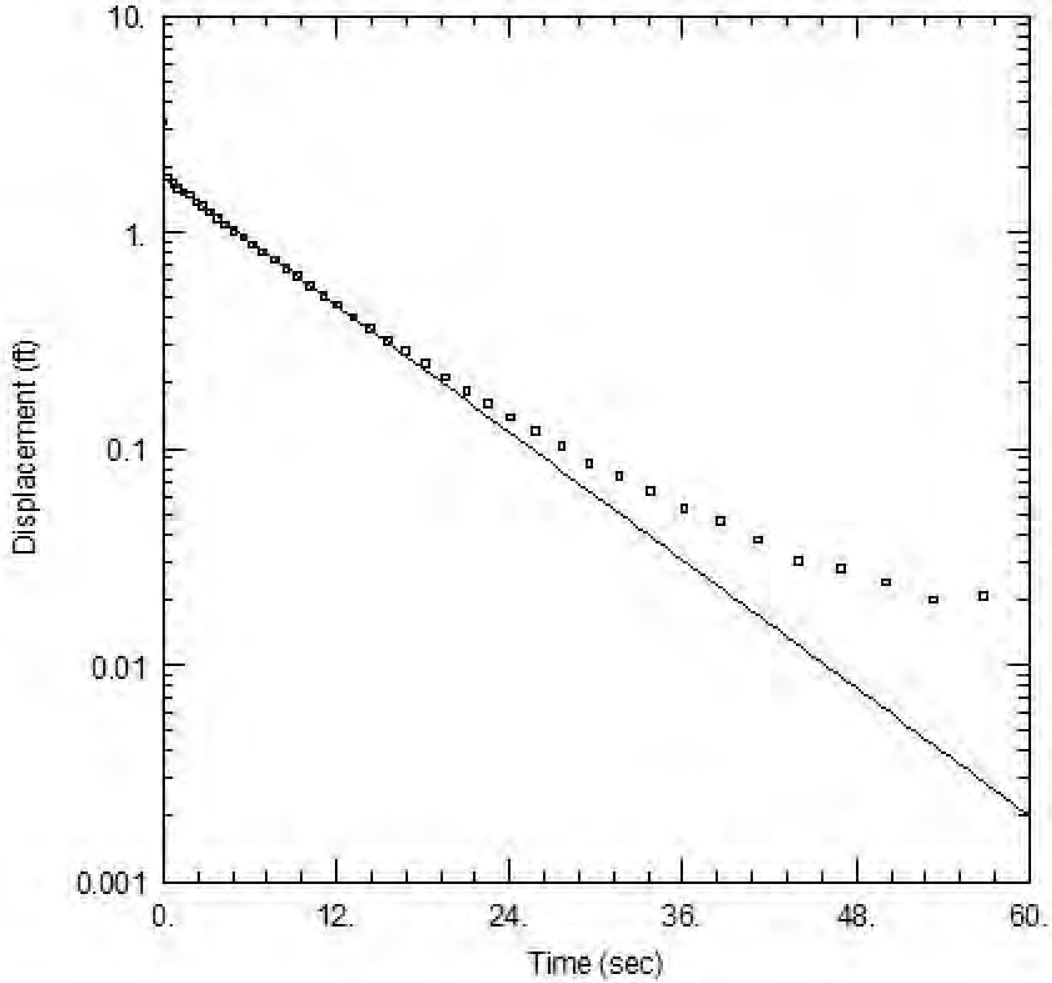
Saturated Thickness: 7. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-14)

Initial Displacement: 1.58 ft
Total Well Penetration Depth: 7. ft
Casing Radius: 0.08625 ft
Static Water Column Height: 15.23 ft
Screen Length: 5. ft
Wellbore Radius: 0.08625 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 23.12 ft/day
y0 = 1.269 ft



MW-14 FALLING HEAD (8' SLUG)

Data Set: C:\Users\hhirsch\Desktop\MW-14_8S_FH_3.aqt
Date: 03/13/14 Time: 14:16:21

AQUIFER DATA

Saturated Thickness: 7. ft Anisotropy Ratio (Kz/Kr): 1.

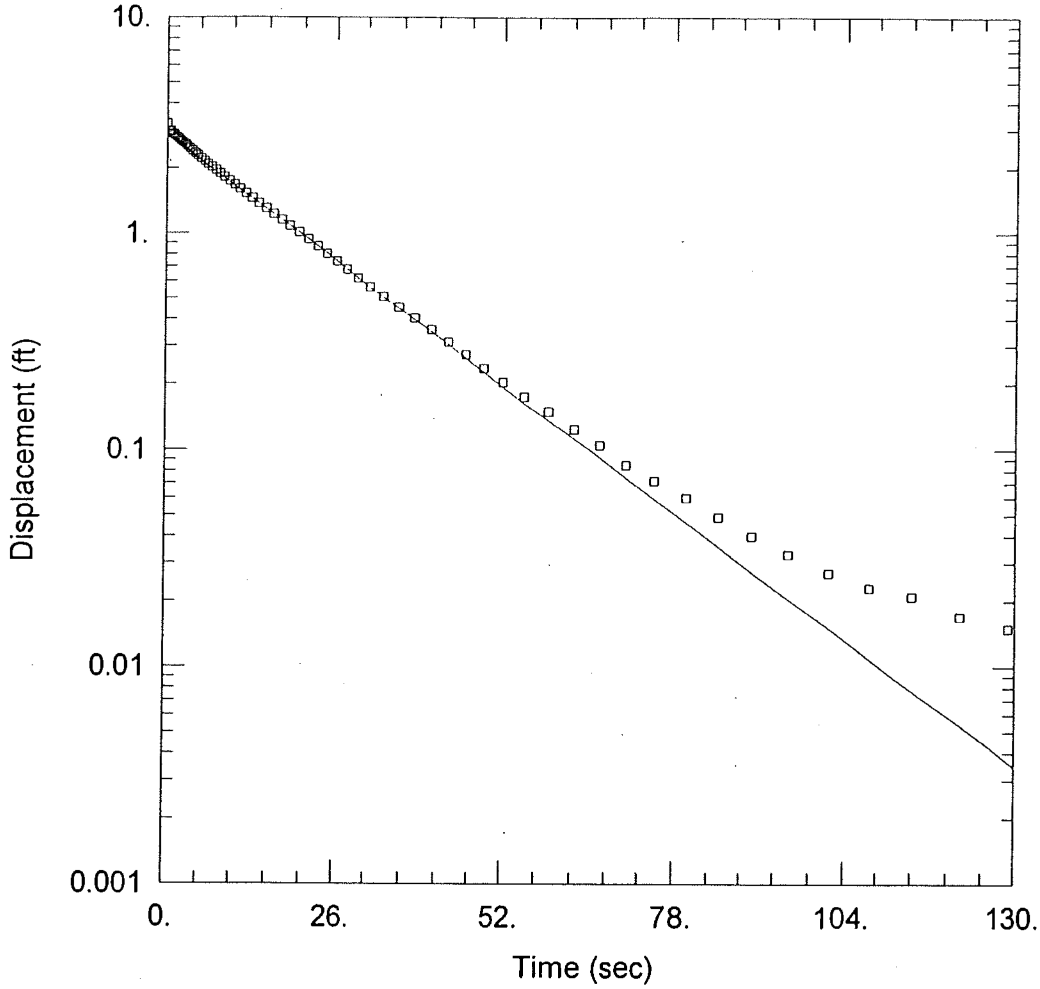
WELL DATA (MW-14)

Initial Displacement: 3.22 ft
Total Well Penetration Depth: 7. ft
Casing Radius: 0.08625 ft
Static Water Column Height: 15.23 ft
Screen Length: 5. ft
Well Radius: 0.08625 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 24.2 ft/day y0 = 1.788 ft



MW-18 RISING HEAD (8' SLUG)

Data Set: U:\QMeehan\Projects\Cascade Pole\Slug Test\Aqtesolv and CSV files\MW-18_8S_RH_1.aqt
Date: 11/16/06 Time: 17:32:30

AQUIFER DATA

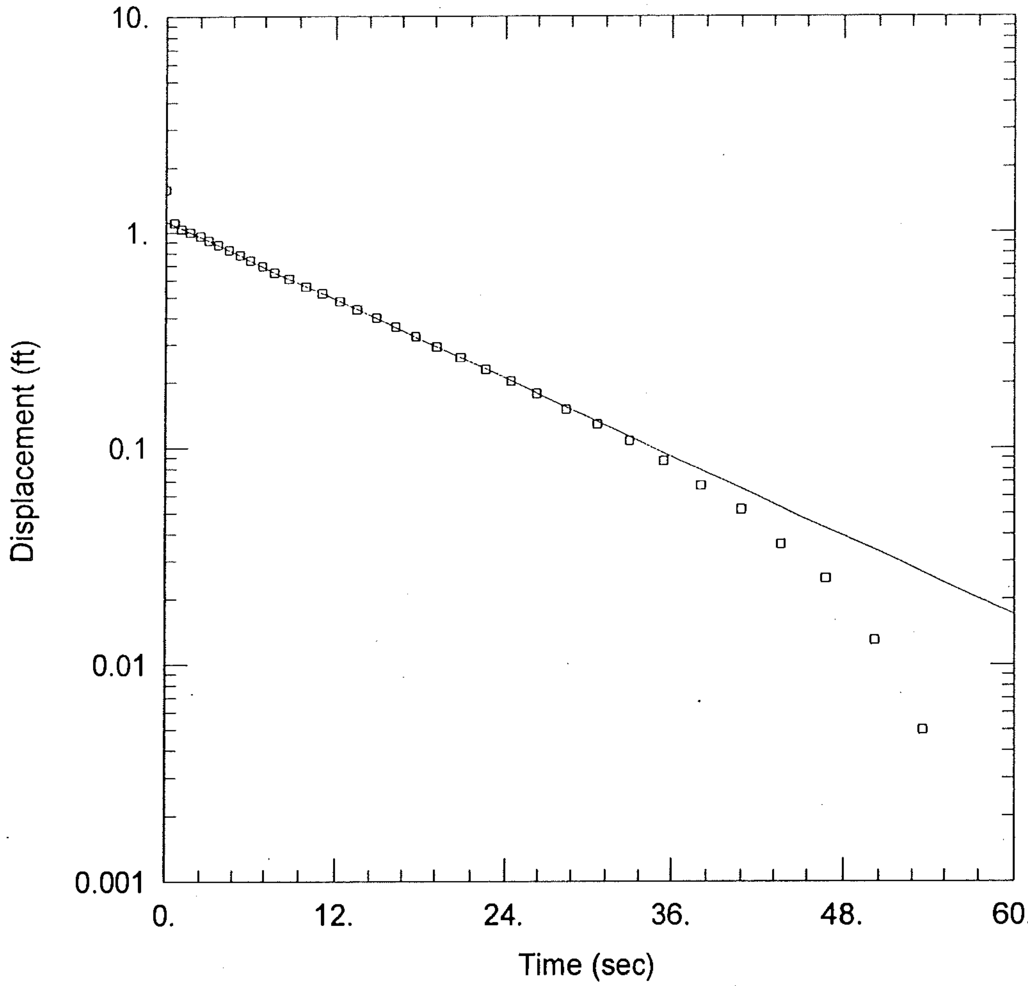
Saturated Thickness: 9. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-18)

Initial Displacement: 3.22 ft
Total Well Penetration Depth: 7. ft
Casing Radius: 0.08625 ft
Static Water Column Height: 17.27 ft
Screen Length: 5. ft
Wellbore Radius: 0.08625 ft

SOLUTION

Aquifer Model: Confined
K = 9.871 ft/day
Solution Method: Bouwer-Rice
y0 = 2.859 ft



MW-18 FALLING HEAD (4' SLUG)

Data Set: U:\QMeehan\Projects\Cascade Pole\Slug Test\Aqtesolv and CSV files\MW-18_4S_FH_1.aqt
Date: 11/16/06 Time: 17:32:02

AQUIFER DATA

Saturated Thickness: 9. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-18)

Initial Displacement: 1.58 ft
Total Well Penetration Depth: 7. ft
Casing Radius: 0.08625 ft
Static Water Column Height: 17.27 ft
Screen Length: 5. ft
Wellbore Radius: 0.08625 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 13.36 ft/day
y0 = 1.126 ft

APPENDIX D
TIDAL STUDY RESULTS

Table 3-5
Tidal Influence Study Results

Date	Time	Tidal Gauge Readings (ft)	MW-1 DTW (ft)	MW-1 WLE (ft msl)	MW-2 DTW (ft)	MW-2 WLE (ft msl)	MW-3 DTW (ft)	MW-3 WLE (ft msl)	MW-4 DTW (ft)	MW-4 WLE (ft msl)	MW-5 DTW (ft)	MW-5 WLE (ft msl)	MW-6 DTW (ft)	MW-6 WLE (ft msl)
2/27/91	0800	4.92	4.80	20.72	4.13	22.12	3.12	22.69	5.90	19.45	7.30	19.23	3.80	22.79
2/27/91	0900	4.58	4.80	20.72	4.15	22.10	3.11	22.70	5.90	19.45	7.14	19.39	3.99	22.60
2/27/91	1000	4.42	4.80	20.72	4.19	22.06	3.12	22.69	5.90	19.45	6.71	19.82	3.99	22.60
2/27/91	1100	3.92	4.80	20.72	4.16	22.09	3.10	22.71	5.90	19.45	6.48	20.05	3.97	22.62
2/27/91	1200	5.42	4.80	20.72	4.16	22.09	3.10	22.71	5.86	19.49	6.34	20.19	3.98	22.61
2/27/91	1300	7.17	4.79	20.73	4.18	22.07	3.10	22.71	5.88	19.47	6.21	20.32	3.97	22.62
2/27/91	1400	8.50	4.78	20.74	4.15	22.10	3.10	22.71	5.88	19.47	6.14	20.39	3.99	22.60
2/27/91	1500	9.33	4.79	20.73	4.15	22.10	3.10	22.71	5.88	19.47	6.06	20.47	3.98	22.61
2/27/91	1600	9.00	4.76	20.76	4.15	22.10	3.10	22.71	5.86	19.49	6.00	20.53	3.96	22.63
2/27/91	1700	7.50	4.77	20.75	4.15	22.10	3.10	22.71	5.86	19.49	5.97	20.56	3.97	22.62
2/27/91	1800	5.25	4.78	20.74	4.15	22.10	3.10	22.71	5.86	19.49	5.94	20.59	3.97	22.62
2/27/91	1900	3.50	4.76	20.76	4.17	22.08	3.10	22.71	5.86	19.49	5.90	20.63	3.96	22.63
2/27/91	2000	0.83	4.76	20.76	4.13	22.12	3.10	22.71	5.88	19.47	5.87	20.66	3.97	22.62
2/27/91	2100	-0.17	4.77	20.75	4.13	22.12	3.10	22.71	5.87	19.48	5.86	20.67	3.97	22.62
2/27/91	2200	-0.25	4.77	20.75	4.13	22.12	3.10	22.71	5.87	19.48	5.87	20.66	3.97	22.62
2/27/91	2300	-0.08	4.77	20.75	4.13	22.12	3.10	22.71	5.87	19.48	5.85	20.68	3.98	22.61
2/27/91	2400	1.08	4.77	20.75	4.12	22.13	3.10	22.71	5.84	19.51	5.87	20.66	3.97	22.62
2/28/91	0100	2.92	4.76	20.76	4.12	22.13	3.10	22.71	5.87	19.48	5.90	20.63	3.97	22.62
2/28/91	0200	7.00	4.76	20.76	4.13	22.12	3.10	22.71	5.87	19.48	5.91	20.62	3.97	22.62
2/28/91	0300	9.25	4.75	20.77	4.13	22.12	3.10	22.71	5.87	19.48	5.92	20.61	3.97	22.62
2/28/91	0400	10.42	4.76	20.76	4.13	22.12	3.10	22.71	5.87	19.48	5.91	20.62	3.97	22.62
2/28/91	0500	10.33	4.75	20.77	4.14	22.11	3.10	22.71	5.85	19.50	5.89	20.64	3.97	22.62
2/28/91	0600	9.67	4.75	20.77	4.15	22.10	3.10	22.71	5.86	19.49	5.88	20.65	3.97	22.62
2/28/91	0700	8.17	4.76	20.76	4.14	22.11	3.10	22.71	5.86	19.49	5.88	20.65	3.96	22.63
2/28/91	0800	5.92	4.76	20.76	4.13	22.12	3.10	22.71	5.85	19.50	5.86	20.67	3.97	22.62

NOTES:
Tidal gauge is set at an arbitrary elevation.
DTW=depth to water
WLE=water level elevation
ft msl=feet above mean sea level

APPENDIX E
LABORATORY REPORTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-39254-1
Client Project/Site: 9081.01.05
Revision: 1

For:
Maul Foster & Alongi Inc
1329 North State Street
Suite 301
Bellingham, Washington 98225

Attn: Heather Hirsch

Pamela R. Johnson

Authorized for release by:
8/1/2013 1:16:36 PM

Pam Johnson, Project Manager I
pamr.johnson@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Job ID: 580-39254-1

Laboratory: TestAmerica Seattle

Narrative

Receipt
The samples were received on 7/8/2013 3:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 15.2º C.

Per Heather Hirsch 7/9/13 @ 9:11am cancel the dissolved hexavalent chromium analysis. The filtering process is performed in the hexavalent chromium analyses; therefore, a dissoved sample is not required.

3-HCL vials were provided for the Trip Blank sample but all analysis were requested on the Chain-of-Custody (COC). As this is a trip blank sample only the 8021 Btex analysis will be performed on this sample.

GC/MS VOA
No analytical or quality issues were noted.

GC/MS Semi VOA - Method 8270C SIM
The method blank MB 580-139543/1-A contained PCP above the RL. The associated sample has a detection below 10x the value in the method blank. The sample has been qualified "B" and reported at client request.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry - Method SM 3500 CR D
The matrix spike (MS) recoveries for batch 139526 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria. The data has been qualified "F" and reported.

No other analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.

General Chemistry

Qualifier	Qualifier Description
F	MS or MSD exceeds the control limits
F	MS or MSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

1 2 3 4 5 6 7 8 9 10 11

Client Sample ID: MW4-070813
Date Collected: 07/08/13 12:40
Date Received: 07/08/13 15:45

Lab Sample ID: 580-39254-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			07/17/13 14:38	1
Toluene	ND		1.0		ug/L			07/17/13 14:38	1
Ethylbenzene	ND		1.0		ug/L			07/17/13 14:38	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/17/13 14:38	1
o-Xylene	ND		1.0		ug/L			07/17/13 14:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*100*		*80 - 120*		*07/17/13 14:38*	*1*
Toluene-d8 (Surr)	*107*		*85 - 120*		*07/17/13 14:38*	*1*
Ethylbenzene-d10	*116*		*80 - 120*		*07/17/13 14:38*	*1*
Trifluorotoluene (Surr)	*102*		*80 - 120*		*07/17/13 14:38*	*1*
4-Bromofluorobenzene (Surr)	*110*		*75 - 120*		*07/17/13 14:38*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.022**		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
2-Methylnaphthalene	ND		0.026		ug/L		07/09/13 13:38	07/24/13 11:31	1
1-Methylnaphthalene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Acenaphthylene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Acenaphthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Fluorene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Phenanthrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Anthracene	**0.032**		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Fluoranthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Pyrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Benzo[a]anthracene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Chrysene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Benzo[b]fluoranthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Benzo[k]fluoranthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Benzo[a]pyrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Indeno[1,2,3-cd]pyrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Dibenz(a,h)anthracene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Benzo[g,h,i]perylene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Pentachlorophenol	**0.14**	**B**	0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*134*		*20 - 150*	*07/09/13 13:38*	*07/24/13 11:31*	*1*
2,4,6-Tribromophenol	*116*		*44 - 125*	*07/09/13 13:38*	*07/24/13 11:31*	*1*

Method: 6020 - Dissolved Metals by ICP-MS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.020**		0.0020		mg/L		07/11/13 13:30	07/12/13 10:51	2
Chromium	**0.0011**		0.00080		mg/L		07/11/13 13:30	07/12/13 10:51	2
Copper	ND		0.0020		mg/L		07/11/13 13:30	07/12/13 10:51	2

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.019**		0.0020		mg/L		07/11/13 13:30	07/12/13 10:42	2
Chromium	**0.0010**		0.00080		mg/L		07/11/13 13:30	07/12/13 10:42	2
Copper	ND		0.0020		mg/L		07/11/13 13:30	07/12/13 10:42	2

Client Sample Results

Client: Maul Foster & Alongi Inc
Project/Site: 9081.01.05

TestAmerica Job ID: 580-39254-1

1 2 3 4 5 6 7 8 9 10 11

Client Sample ID: MW4-070813
Date Collected: 07/08/13 12:40
Date Received: 07/08/13 15:45

Lab Sample ID: 580-39254-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.012		mg/L			07/09/13 11:02	1

Client Sample Results

Client: Maul Foster & Alongi Inc
Project/Site: 9081.01.05

TestAmerica Job ID: 580-39254-1

Client Sample ID: Trip Blank
Date Collected: 07/08/13 00:00
Date Received: 07/08/13 15:45

Lab Sample ID: 580-39254-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			07/17/13 15:00	1
Toluene	ND		1.0		ug/L			07/17/13 15:00	1
Ethylbenzene	ND		1.0		ug/L			07/17/13 15:00	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/17/13 15:00	1
o-Xylene	ND		1.0		ug/L			07/17/13 15:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*99*		*80 - 120*		*07/17/13 15:00*	*1*
Toluene-d8 (Surr)	*103*		*85 - 120*		*07/17/13 15:00*	*1*
Ethylbenzene-d10	*112*		*80 - 120*		*07/17/13 15:00*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 120*		*07/17/13 15:00*	*1*
4-Bromofluorobenzene (Surr)	*106*		*75 - 120*		*07/17/13 15:00*	*1*

Client: Maul Foster & Alongi Inc
Project/Site: 9081.01.05

TestAmerica Job ID: 580-39254-1

Client Sample ID: MW4-070813-DUP
Date Collected: 07/08/13 12:40
Date Received: 07/08/13 15:45

Lab Sample ID: 580-39254-3
Matrix: Water

Method: 6020 - Dissolved Metals by ICP-MS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.022**		0.0050		mg/L		07/30/13 12:00	07/31/13 14:05	5
Chromium	ND		0.0020		mg/L		07/30/13 12:00	07/31/13 14:05	5
Copper	ND		0.0050		mg/L		07/30/13 12:00	07/31/13 14:05	5

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.020**		0.0050		mg/L		07/30/13 12:00	07/31/13 14:01	5
Chromium	ND		0.0020		mg/L		07/30/13 12:00	07/31/13 14:01	5
Copper	ND		0.0050		mg/L		07/30/13 12:00	07/31/13 14:01	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.012		mg/L			07/09/13 11:02	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-140201/4
Matrix: Water
Analysis Batch: 140201
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			07/17/13 13:32	1
Toluene	ND		1.0		ug/L			07/17/13 13:32	1
Ethylbenzene	ND		1.0		ug/L			07/17/13 13:32	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/17/13 13:32	1
o-Xylene	ND		1.0		ug/L			07/17/13 13:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*99*		*80 - 120*		*07/17/13 13:32*	*1*
Toluene-d8 (Surr)	*105*		*85 - 120*		*07/17/13 13:32*	*1*
Ethylbenzene-d10	*111*		*80 - 120*		*07/17/13 13:32*	*1*
Trifluorotoluene (Surr)	*94*		*80 - 120*		*07/17/13 13:32*	*1*
4-Bromofluorobenzene (Surr)	*107*		*75 - 120*		*07/17/13 13:32*	*1*

Lab Sample ID: LCS 580-140201/5
Matrix: Water
Analysis Batch: 140201
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	25.8		ug/L		103	80 - 120
Toluene	25.0	22.9		ug/L		91	75 - 120
Ethylbenzene	25.0	22.2		ug/L		89	75 - 125
m-Xylene & p-Xylene	50.0	47.1		ug/L		94	75 - 130
o-Xylene	25.0	24.3		ug/L		97	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Fluorobenzene (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*103*		*85 - 120*
Ethylbenzene-d10	*112*		*80 - 120*
Trifluorotoluene (Surr)	*88*		*80 - 120*
4-Bromofluorobenzene (Surr)	*107*		*75 - 120*

Lab Sample ID: LCSD 580-140201/6
Matrix: Water
Analysis Batch: 140201
Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	25.0	28.2		ug/L		113	80 - 120	9	30
Toluene	25.0	23.0		ug/L		92	75 - 120	1	30
Ethylbenzene	25.0	23.7		ug/L		95	75 - 125	7	30
m-Xylene & p-Xylene	50.0	49.6		ug/L		99	75 - 130	5	30
o-Xylene	25.0	24.5		ug/L		98	80 - 120	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Fluorobenzene (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*104*		*85 - 120*
Ethylbenzene-d10	*112*		*80 - 120*
Trifluorotoluene (Surr)	*95*		*80 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-140201/6
Matrix: Water
Analysis Batch: 140201

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*110*		*75 - 120*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-139543/1-A
Matrix: Water
Analysis Batch: 140734

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 139543

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
2-Methylnaphthalene	ND		0.026		ug/L		07/09/13 13:38	07/24/13 10:26	1
1-Methylnaphthalene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Acenaphthylene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Acenaphthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Fluorene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Phenanthrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Anthracene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Fluoranthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Pyrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Benzo[a]anthracene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Chrysene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Benzo[b]fluoranthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Benzo[k]fluoranthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Benzo[a]pyrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Indeno[1,2,3-cd]pyrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Dibenz(a,h)anthracene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Benzo[g,h,i]perylene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Pentachlorophenol	0.0388		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	*133*		*20 - 150*	*07/09/13 13:38*	*07/24/13 10:26*	*1*
2,4,6-Tribromophenol	*73*		*44 - 125*	*07/09/13 13:38*	*07/24/13 10:26*	*1*

Lab Sample ID: LCS 580-139543/2-A
Matrix: Water
Analysis Batch: 140734

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 139543

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	2.01	1.45		ug/L		72	60 - 125
2-Methylnaphthalene	2.00	1.45		ug/L		72	60 - 125
1-Methylnaphthalene	2.01	1.53		ug/L		76	60 - 125
Acenaphthylene	2.00	1.58		ug/L		79	65 - 125
Acenaphthene	2.00	1.62		ug/L		81	65 - 125
Fluorene	2.02	2.10		ug/L		104	70 - 125
Phenanthrene	2.01	1.97		ug/L		98	75 - 125
Anthracene	2.00	1.59		ug/L		79	50 - 125
Fluoranthene	2.00	2.31		ug/L		115	70 - 125

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-139543/2-A
Matrix: Water
Analysis Batch: 140734

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 139543

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pyrene	2.00	2.30		ug/L		115	70 - 125
Benzo[a]anthracene	2.00	2.32		ug/L		116	65 - 125
Chrysene	1.93	2.23		ug/L		116	70 - 125
Benzo[b]fluoranthene	2.00	2.41		ug/L		120	70 - 125
Benzo[k]fluoranthene	2.00	2.31		ug/L		115	70 - 125
Benzo[a]pyrene	2.00	1.72		ug/L		86	45 - 125
Indeno[1,2,3-cd]pyrene	2.01	2.26		ug/L		112	75 - 125
Dibenz(a,h)anthracene	2.00	2.28		ug/L		114	75 - 130
Benzo[g,h,i]perylene	2.00	2.16		ug/L		108	75 - 125
Pentachlorophenol	1.97	2.10		ug/L		107	20 - 145

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*124*		*20 - 150*
2,4,6-Tribromophenol	*96*		*44 - 125*

Lab Sample ID: LCSD 580-139543/3-A
Matrix: Water
Analysis Batch: 140734

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 139543

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	2.01	1.44		ug/L		72	60 - 125	0	20
2-Methylnaphthalene	2.00	1.54		ug/L		77	60 - 125	6	20
1-Methylnaphthalene	2.01	1.63		ug/L		81	60 - 125	6	20
Acenaphthylene	2.00	1.65		ug/L		83	65 - 125	5	20
Acenaphthene	2.00	1.72		ug/L		86	65 - 125	6	20
Fluorene	2.02	2.19		ug/L		109	70 - 125	4	20
Phenanthrene	2.01	2.01		ug/L		100	75 - 125	2	20
Anthracene	2.00	1.53		ug/L		77	50 - 125	3	20
Fluoranthene	2.00	2.38		ug/L		119	70 - 125	3	20
Pyrene	2.00	2.34		ug/L		117	70 - 125	2	20
Benzo[a]anthracene	2.00	2.36		ug/L		118	65 - 125	2	20
Chrysene	1.93	2.31		ug/L		120	70 - 125	3	20
Benzo[b]fluoranthene	2.00	2.49		ug/L		124	70 - 125	3	20
Benzo[k]fluoranthene	2.00	2.46		ug/L		123	70 - 125	6	20
Benzo[a]pyrene	2.00	1.65		ug/L		82	45 - 125	4	20
Indeno[1,2,3-cd]pyrene	2.01	2.32		ug/L		115	75 - 125	2	20
Dibenz(a,h)anthracene	2.00	2.42		ug/L		121	75 - 130	6	20
Benzo[g,h,i]perylene	2.00	2.29		ug/L		115	75 - 125	6	20
Pentachlorophenol	1.97	2.15		ug/L		109	20 - 145	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Terphenyl-d14	*122*		*20 - 150*
2,4,6-Tribromophenol	*91*		*44 - 125*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: 580-39254-1 DU
Matrix: Water
Analysis Batch: 139846

Client Sample ID: MW4-070813-DUP
Prep Type: Total Recoverable
Prep Batch: 139769

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.019		0.0196		mg/L		5	20
Chromium	0.0010		0.00111		mg/L		6	20
Copper	ND		ND		mg/L		NC	20

Method: 6020 - Dissolved Metals by ICP-MS

Lab Sample ID: LCS 580-139769/15-A
Matrix: Water
Analysis Batch: 139846

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 139769

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	4.03		mg/L		101	80 - 120
Chromium	0.400	0.396		mg/L		99	80 - 120
Copper	0.500	0.504		mg/L		101	80 - 120

Lab Sample ID: LCSD 580-139769/16-A
Matrix: Water
Analysis Batch: 139846

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 139769

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.00	4.02		mg/L		101	80 - 120	0	20
Chromium	0.400	0.404		mg/L		101	80 - 120	2	20
Copper	0.500	0.501		mg/L		100	80 - 120	1	20

Lab Sample ID: LCSSRM 580-139769/17-A
Matrix: Water
Analysis Batch: 139846

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 139769

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	4.03		mg/L		101	80 - 120
Chromium	0.400	0.394		mg/L		98	80 - 120
Copper	0.500	0.502		mg/L		100	80 - 120

Lab Sample ID: LCS 580-141217/20-A
Matrix: Water
Analysis Batch: 141361

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 141217

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	4.11		mg/L		103	80 - 120
Chromium	0.400	0.410		mg/L		103	80 - 120
Copper	0.500	0.523		mg/L		105	80 - 120

Lab Sample ID: LCSD 580-141217/21-A
Matrix: Water
Analysis Batch: 141361

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 141217

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.00	4.12		mg/L		103	80 - 120	0	20
Chromium	0.400	0.409		mg/L		102	80 - 120	0	20

Method: 6020 - Dissolved Metals by ICP-MS (Continued)

Lab Sample ID: LCSD 580-141217/21-A
Matrix: Water
Analysis Batch: 141361

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 141217

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper			0.500	0.521		mg/L		104	80 - 120	0	20

Lab Sample ID: MB 580-138995/4-B
Matrix: Water
Analysis Batch: 139846

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 139769

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0020		mg/L		07/11/13 13:30	07/12/13 09:31	2
Chromium	ND		0.00080		mg/L		07/11/13 13:30	07/12/13 09:31	2
Copper	ND		0.0020		mg/L		07/11/13 13:30	07/12/13 09:31	2

Lab Sample ID: 580-39254-1 DU
Matrix: Water
Analysis Batch: 139846

Client Sample ID: MW4-070813-DUP
Prep Type: Dissolved
Prep Batch: 139769

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	0.020			0.0201		mg/L				0.3	20
Chromium	0.0011			0.00115		mg/L				6	20
Copper	ND			ND		mg/L				NC	20

Lab Sample ID: MB 580-141158/5-B
Matrix: Water
Analysis Batch: 141361

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 141217

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		07/30/13 12:09	07/31/13 12:45	5
Chromium	ND		0.0020		mg/L		07/30/13 12:09	07/31/13 12:45	5
Copper	ND		0.0050		mg/L		07/30/13 12:09	07/31/13 12:45	5

Method: SM 3500 CR D - Chromium, Hexavalent

Lab Sample ID: MB 580-139526/1
Matrix: Water
Analysis Batch: 139526

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.012		mg/L			07/09/13 10:59	1

Lab Sample ID: LCS 580-139526/2
Matrix: Water
Analysis Batch: 139526

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent			0.200	0.181		mg/L		91	90 - 110

Method: SM 3500 CR D - Chromium, Hexavalent (Continued)

Lab Sample ID: 580-39254-1 MS
Matrix: Water
Analysis Batch: 139526

Client Sample ID: MW4-070813
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		0.200	0.144	F	mg/L		72	85 - 115

Lab Sample ID: 580-39254-1 DU
Matrix: Water
Analysis Batch: 139526

Client Sample ID: MW4-070813-DUP
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chromium, hexavalent	ND		ND		mg/L		NC	25

Lab Sample ID: MB 580-141422/1
Matrix: Water
Analysis Batch: 141422

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.012		mg/L			07/09/13 10:59	1

Lab Sample ID: LCS 580-141422/2
Matrix: Water
Analysis Batch: 141422

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	0.200	0.181		mg/L		91	90 - 110

Lab Sample ID: 580-39254-3 MS
Matrix: Water
Analysis Batch: 141422

Client Sample ID: MW4-070813-DUP
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		0.200	0.144	F	mg/L		72	85 - 115

Lab Sample ID: 580-39254-3 DU
Matrix: Water
Analysis Batch: 141422

Client Sample ID: MW4-070813-DUP
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chromium, hexavalent	ND		ND		mg/L		NC	25

1 2 3 4 5 6 7 8 9 10 11

Client Sample ID: MW4-070813

Lab Sample ID: 580-39254-1

Date Collected: 07/08/13 12:40
Matrix: Water
Date Received: 07/08/13 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	140201	07/17/13 14:38	EB1	TAL SEA
Total/NA	Prep	3520C			139543	07/09/13 13:38	ALC	TAL SEA
Total/NA	Analysis	8270C SIM		1	140734	07/24/13 11:31	EKK	TAL SEA
Total Recoverable	Prep	3005A			139769	07/11/13 13:30	PAB	TAL SEA
Total Recoverable	Analysis	6020		2	139846	07/12/13 10:42	FCW	TAL SEA
Dissolved	Prep	3005A			139769	07/11/13 13:30	PAB	TAL SEA
Dissolved	Analysis	6020		2	139846	07/12/13 10:51	FCW	TAL SEA
Total/NA	Analysis	SM 3500 CR D		1	139526	07/09/13 11:02	RSB	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-39254-2

Date Collected: 07/08/13 00:00
Matrix: Water
Date Received: 07/08/13 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	140201	07/17/13 15:00	EB1	TAL SEA

Client Sample ID: MW4-070813-DUP

Lab Sample ID: 580-39254-3

Date Collected: 07/08/13 12:40
Matrix: Water
Date Received: 07/08/13 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			141217	07/30/13 12:00	KJV	TAL SEA
Total Recoverable	Analysis	6020		5	141361	07/31/13 14:01	FCW	TAL SEA
Dissolved	Prep	3005A			141217	07/30/13 12:00	KJV	TAL SEA
Dissolved	Analysis	6020		5	141361	07/31/13 14:05	FCW	TAL SEA
Total/NA	Analysis	SM 3500 CR D		1	141422	07/09/13 11:02	RSB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Laboratory: TestAmerica Seattle

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-04-14
California	NELAP	9	01115CA	01-31-14
L-A-B	DoD ELAP		L2236	01-19-16
L-A-B	ISO/IEC 17025		L2236	01-19-16
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-06-13
USDA	Federal		P330-11-00222	05-20-14
Washington	State Program	10	C553	02-17-14

Sample Summary

Client: Maul Foster & Alongi Inc
Project/Site: 9081.01.05

TestAmerica Job ID: 580-39254-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-39254-1	MW4-070813	Water	07/08/13 12:40	07/08/13 15:45
580-39254-2	Trip Blank	Water	07/08/13 00:00	07/08/13 15:45
580-39254-3	MW4-070813-DUP	Water	07/08/13 12:40	07/08/13 15:45

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

39254

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	
Your Company Name here	Maul Foster & Alongi
Address	400 E Mill Plain Blvd
City/State/Zip	Vancouver WA 98660
(xxx) xxx-xxxx	Phone 360 694 2691
(xxx) xxx-xxxx	FAX
Project Name:	9081.01.05
Site:	McFarland Cascade Tacoma WA
P O #	9081.01.05

Project Manager: Heather Hirsch
Tel/Fax: 360 594 6257
Site Contact: Ted Smith
Lab Contact:
Date: 7/8/13
Carrier:
COC No:
____ of ____ COCs
Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Analysis Turnaround Time
☐ CALENDAR DAYS ☐ WORKING DAYS
TAT if different from Below _____
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PAH, PCP by 8270-SIM	BETX by 8021	Dissolved HexCr by 3500	Total HexCr by 3500Cr	Dissolved As, Cu, Cr by 6020		Total As, Cu, Cr by 6020	Sample Specific Notes:
MW4-070813	7/8/13	1240		W	9	Y		X	X	X	X	X		X	
MW4-070813-DUP	7/8/13	1240		W	4	Y				X	X	X		X	
Trip Blank	7/8/13			W	3			X	X	X	X	X	X	X	

580-39254 Chain of Custody

Client drop 1g Reel/wh wet/bubble
ATB= 15.2/15.7 w/c

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments: Please contact Heather Hirsh and Andrew Vidourek with lab results. hhirsch@maulfoster.com

Bill to: McFarland Cascade Pole and Lumber Co
Ted Smith
PO Box 1496 Tacoma WA 98401-1496

avidourek@maulfoster.com
Email lab results

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: ____ Corr'd: ____		Therm ID No.: ____
Relinquished by: Andrew Vidourek	Company: MFA	Date/Time: 7/8/13 1545	Received by: [signature]	Company: TA-Sea	Date/Time: 7/8/13 1545
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.2, dated 04/02/2013

Login Sample Receipt Checklist

Client: Maul Foster & Alongi Inc

Job Number: 580-39254-1

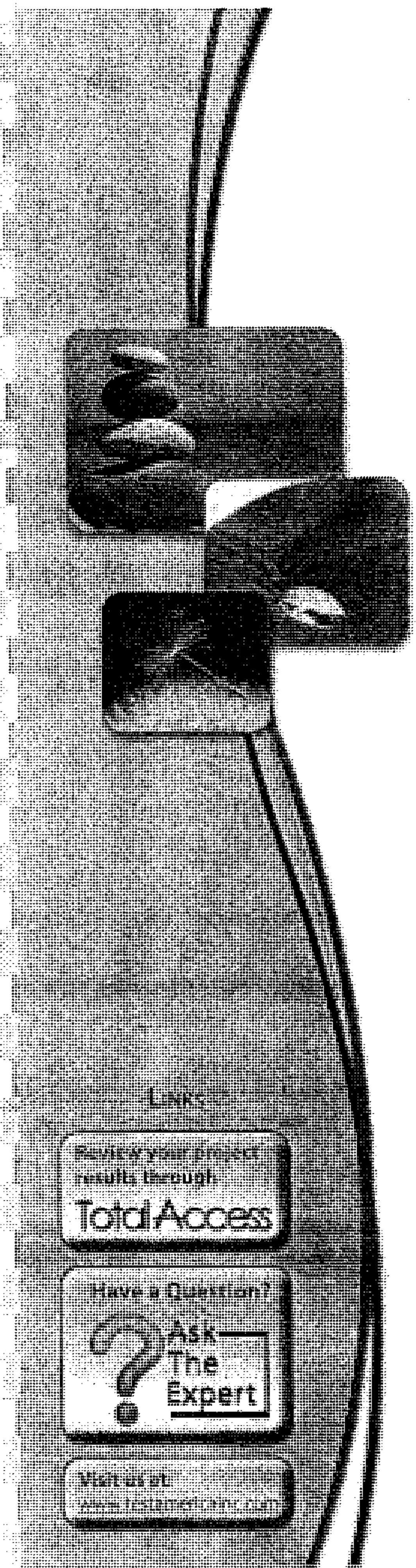
Login Number: 39254

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	no
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-31109-1
Client Project/Site: McFarland Cascade (CPLC)

For:
AECOM, Inc.
710 Second Avenue
Suite 1000
Seattle, Washington 98104

Attn: Renee Knecht

Pamela R. Johnson

Authorized for release by:
2/23/2012 10:51:26 AM
Pam Johnson
Project Manager I
pamr.johnson@testamericainc.com

Designee for

Kristine Allen
Project Manager I
kristine.allen@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Job ID: 580-31109-1

Laboratory: TestAmerica Seattle

Narrative

Receipt
Several sample containers lack the sample collection times. The samples were logged in per the information provided on the Chain-of-Custody (COC).

One amber container has two labels attached to it. One label has "UPRR-29-0212" and the other label has "HW-1-0212". The sample is presumed to be UPRR-29-0212, (580-31109-1), because both ambers for HW-1-0212 (580-31109-5) are present.

All other samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

GC/MS Semi VOA - Method 8270 SIM
The following samples UPRR-29-0212 (580-31109-1), MW-7-0212 (580-31109-2), MW-9-0212 (580-31109-3), MW-90-0212 (580-31109-4), were diluted prior to analysis due to the nature of the sample matrix. Elevated reporting limits (RLs) are provided.

In analytical batch 105401, the laboratory control sample (LCS) for prep batch 105110 recovered low for the following analyte: benzo(a)pyrene. This recovery is within the marginal exceedance limits; re-extraction and/or re-analysis was not performed. Data have been qualified and reported.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: AECOM, Inc. TestAmerica Job ID: 580-31109-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: UPRR-29-0212 Lab Sample ID: 580-31109-1

Date Collected: 02/08/12 08:30 Matrix: Water
Date Received: 02/09/12 12:45

5

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
2-Methylnaphthalene	ND		0.025		ug/L		02/10/12 11:59	02/15/12 18:54	2
1-Methylnaphthalene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Acenaphthylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Acenaphthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Fluorene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Phenanthrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Anthracene	**0.028**		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Benzo[a]anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Chrysene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Benzo[b]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 18:54	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Benzo[g,h,i]perylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Pentachlorophenol	**0.18**		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*76*		*20 - 150*	*02/10/12 11:59*	*02/15/12 18:54*	*2*
2,4,6-Tribromophenol	*66*		*44 - 125*	*02/10/12 11:59*	*02/15/12 18:54*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 14:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*94*		*20 - 134*	*02/10/12 11:59*	*02/15/12 14:15*	*1*
Phenol-d5	*85*		*55 - 125*	*02/10/12 11:59*	*02/15/12 14:15*	*1*
2,4,6-Tribromophenol	*83*		*44 - 125*	*02/10/12 11:59*	*02/15/12 14:15*	*1*
Nitrobenzene-d5	*77*		*62 - 125*	*02/10/12 11:59*	*02/15/12 14:15*	*1*
2-Fluorobiphenyl	*76*		*66 - 140*	*02/10/12 11:59*	*02/15/12 14:15*	*1*
Terphenyl-d14	*75*		*20 - 150*	*02/10/12 11:59*	*02/15/12 14:15*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.064**		0.0050		mg/L		02/16/12 10:46	02/16/12 16:46	5
Chromium	**0.0029**		0.0020		mg/L		02/16/12 10:46	02/16/12 16:46	5
Copper	**0.026**		0.0050		mg/L		02/16/12 10:46	02/16/12 16:46	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.058**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:16	5
Chromium	ND		0.0020		mg/L		02/16/12 10:46	02/16/12 17:16	5
Copper	**0.015**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:16	5

Client Sample Results

Client: AECOM, Inc. TestAmerica Job ID: 580-31109-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-7-0212 Lab Sample ID: 580-31109-2

Date Collected: 02/08/12 09:45 Matrix: Water
Date Received: 02/09/12 12:45

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.032**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
2-Methylnaphthalene	ND		0.025		ug/L		02/10/12 11:59	02/15/12 19:13	2
1-Methylnaphthalene	**0.025**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Acenaphthylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Acenaphthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Fluorene	**0.043**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Phenanthrene	**0.031**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Anthracene	**0.061**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Fluoranthene	**0.023**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Pyrene	**0.019**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Benzo[a]anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Chrysene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Benzo[b]fluoranthene	**0.021**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 19:13	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Benzo[g,h,i]perylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Pentachlorophenol	**0.028**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*73*		*20 - 150*	*02/10/12 11:59*	*02/15/12 19:13*	*2*
2,4,6-Tribromophenol	*93*		*44 - 125*	*02/10/12 11:59*	*02/15/12 19:13*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*99*		*20 - 134*	*02/10/12 11:59*	*02/15/12 14:36*	*1*
Phenol-d5	*94*		*55 - 125*	*02/10/12 11:59*	*02/15/12 14:36*	*1*
2,4,6-Tribromophenol	*94*		*44 - 125*	*02/10/12 11:59*	*02/15/12 14:36*	*1*
Nitrobenzene-d5	*88*		*62 - 125*	*02/10/12 11:59*	*02/15/12 14:36*	*1*
2-Fluorobiphenyl	*78*		*66 - 140*	*02/10/12 11:59*	*02/15/12 14:36*	*1*
Terphenyl-d14	*91*		*20 - 150*	*02/10/12 11:59*	*02/15/12 14:36*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 16:51	5
Chromium	**0.0031**		0.0020		mg/L		02/16/12 10:46	02/16/12 16:51	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 16:51	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:21	5
Chromium	ND		0.0020		mg/L		02/16/12 10:46	02/16/12 17:21	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:21	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Client Sample ID: MW-9-0212
Date Collected: 02/08/12 11:00
Date Received: 02/09/12 12:45

Lab Sample ID: 580-31109-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**15**		1.0		ug/L			02/10/12 20:53	1
Toluene	**2.0**		1.0		ug/L			02/10/12 20:53	1
Ethylbenzene	**87**		1.0		ug/L			02/10/12 20:53	1
m-Xylene & p-Xylene	**6.7**		2.0		ug/L			02/10/12 20:53	1
o-Xylene	**9.7**		1.0		ug/L			02/10/12 20:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*101*		*80 - 120*		*02/10/12 20:53*	*1*
Toluene-d8 (Surr)	*105*		*85 - 120*		*02/10/12 20:53*	*1*
Ethylbenzene-d10	*107*		*80 - 120*		*02/10/12 20:53*	*1*
Trifluorotoluene (Surr)	*111*		*80 - 120*		*02/10/12 20:53*	*1*
4-Bromofluorobenzene (Surr)	*119*		*75 - 120*		*02/10/12 20:53*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	**3.1**		0.13		ug/L		02/10/12 11:59	02/15/12 21:48	10
1-Methylnaphthalene	**9.1**		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Acenaphthylene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Acenaphthene	**1.1**		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Fluorene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Phenanthrene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Pyrene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Benzo[a]anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Chrysene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Benzo[b]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Benzo[k]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Benzo[a]pyrene	ND	*	0.19		ug/L		02/10/12 11:59	02/15/12 21:48	10
Indeno[1,2,3-cd]pyrene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Dibenz(a,h)anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Benzo[g,h,i]perylene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Pentachlorophenol	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*87*		*20 - 150*	*02/10/12 11:59*	*02/15/12 21:48*	*10*
2,4,6-Tribromophenol	*103*		*44 - 125*	*02/10/12 11:59*	*02/15/12 21:48*	*10*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**410**		4.8		ug/L		02/10/12 11:59	02/15/12 19:33	500

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 14:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*98*		*20 - 134*	*02/10/12 11:59*	*02/15/12 14:56*	*1*
Phenol-d5	*96*		*55 - 125*	*02/10/12 11:59*	*02/15/12 14:56*	*1*
2,4,6-Tribromophenol	*97*		*44 - 125*	*02/10/12 11:59*	*02/15/12 14:56*	*1*
Nitrobenzene-d5	*97*		*62 - 125*	*02/10/12 11:59*	*02/15/12 14:56*	*1*
2-Fluorobiphenyl	*81*		*66 - 140*	*02/10/12 11:59*	*02/15/12 14:56*	*1*

Client Sample Results

Client: AECOM, Inc. TestAmerica Job ID: 580-31109-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-9-0212 **Lab Sample ID: 580-31109-3**
Date Collected: 02/08/12 11:00 **Matrix: Water**
Date Received: 02/09/12 12:45

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*85*		*20 - 150*	*02/10/12 11:59*	*02/15/12 14:56*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.077**		0.0050		mg/L		02/16/12 10:46	02/16/12 16:56	5
Chromium	ND		0.0020		mg/L		02/16/12 10:46	02/16/12 16:56	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 16:56	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.079**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:26	5
Chromium	ND		0.0020		mg/L		02/16/12 10:46	02/16/12 17:26	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:26	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Client Sample ID: MW-90-0212
Date Collected: 02/08/12 10:00
Date Received: 02/09/12 12:45

Lab Sample ID: 580-31109-4
Matrix: Water

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Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**14**		1.0		ug/L			02/10/12 21:18	1
Toluene	**2.1**		1.0		ug/L			02/10/12 21:18	1
Ethylbenzene	**88**		1.0		ug/L			02/10/12 21:18	1
m-Xylene & p-Xylene	**6.7**		2.0		ug/L			02/10/12 21:18	1
o-Xylene	**9.7**		1.0		ug/L			02/10/12 21:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*99*		*80 - 120*		*02/10/12 21:18*	*1*
Toluene-d8 (Surr)	*104*		*85 - 120*		*02/10/12 21:18*	*1*
Ethylbenzene-d10	*107*		*80 - 120*		*02/10/12 21:18*	*1*
Trifluorotoluene (Surr)	*112*		*80 - 120*		*02/10/12 21:18*	*1*
4-Bromofluorobenzene (Surr)	*117*		*75 - 120*		*02/10/12 21:18*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	**2.8**		0.13		ug/L		02/10/12 11:59	02/15/12 22:07	10
1-Methylnaphthalene	**7.9**		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Acenaphthylene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Acenaphthene	**0.89**		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Fluorene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Phenanthrene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Pyrene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Benzo[a]anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Chrysene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Benzo[b]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Benzo[k]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Benzo[a]pyrene	ND	*	0.19		ug/L		02/10/12 11:59	02/15/12 22:07	10
Indeno[1,2,3-cd]pyrene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Dibenz(a,h)anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Benzo[g,h,i]perylene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Pentachlorophenol	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*78*		*20 - 150*	*02/10/12 11:59*	*02/15/12 22:07*	*10*
2,4,6-Tribromophenol	*77*		*44 - 125*	*02/10/12 11:59*	*02/15/12 22:07*	*10*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**320**		4.8		ug/L		02/10/12 11:59	02/15/12 19:52	500

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 15:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*95*		*20 - 134*	*02/10/12 11:59*	*02/15/12 15:16*	*1*
Phenol-d5	*85*		*55 - 125*	*02/10/12 11:59*	*02/15/12 15:16*	*1*
2,4,6-Tribromophenol	*91*		*44 - 125*	*02/10/12 11:59*	*02/15/12 15:16*	*1*
Nitrobenzene-d5	*82*		*62 - 125*	*02/10/12 11:59*	*02/15/12 15:16*	*1*
2-Fluorobiphenyl	*74*		*66 - 140*	*02/10/12 11:59*	*02/15/12 15:16*	*1*

Client Sample Results

Client: AECOM, Inc. TestAmerica Job ID: 580-31109-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-90-0212 **Lab Sample ID: 580-31109-4**
Date Collected: 02/08/12 10:00 **Matrix: Water**
Date Received: 02/09/12 12:45

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*81*		*20 - 150*	*02/10/12 11:59*	*02/15/12 15:16*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.081**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:01	5
Chromium	ND		0.0020		mg/L		02/16/12 10:46	02/16/12 17:01	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:01	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.075**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:40	5
Chromium	ND		0.0020		mg/L		02/16/12 10:46	02/16/12 17:40	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:40	5

Client: AECOM, Inc. TestAmerica Job ID: 580-31109-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: HW-1-0212 Lab Sample ID: 580-31109-5

Date Collected: 02/08/12 11:35 **Matrix: Water**
Date Received: 02/09/12 12:45

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Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.14**		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
2-Methylnaphthalene	ND		0.13		ug/L		02/10/12 11:59	02/20/12 16:46	10
1-Methylnaphthalene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Acenaphthylene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Acenaphthene	**0.34**		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Fluorene	**0.099**		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Phenanthrene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Anthracene	**0.21**		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Pyrene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Benzo[a]anthracene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Chrysene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Benzo[b]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Benzo[k]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Benzo[a]pyrene	ND	*	0.19		ug/L		02/10/12 11:59	02/20/12 16:46	10
Indeno[1,2,3-cd]pyrene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Dibenz(a,h)anthracene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Benzo[g,h,i]perylene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Pentachlorophenol	**1.9**		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*84*		*20 - 150*	*02/10/12 11:59*	*02/20/12 16:46*	*10*
2,4,6-Tribromophenol	*74*		*44 - 125*	*02/10/12 11:59*	*02/20/12 16:46*	*10*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 15:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*96*		*20 - 134*	*02/10/12 11:59*	*02/15/12 15:37*	*1*
Phenol-d5	*91*		*55 - 125*	*02/10/12 11:59*	*02/15/12 15:37*	*1*
2,4,6-Tribromophenol	*91*		*44 - 125*	*02/10/12 11:59*	*02/15/12 15:37*	*1*
Nitrobenzene-d5	*88*		*62 - 125*	*02/10/12 11:59*	*02/15/12 15:37*	*1*
2-Fluorobiphenyl	*66*		*66 - 140*	*02/10/12 11:59*	*02/15/12 15:37*	*1*
Terphenyl-d14	*81*		*20 - 150*	*02/10/12 11:59*	*02/15/12 15:37*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.32**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:06	5
Chromium	**0.0045**		0.0020		mg/L		02/16/12 10:46	02/16/12 17:06	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:06	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.12**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:45	5
Chromium	**0.0036**		0.0020		mg/L		02/16/12 10:46	02/16/12 17:45	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:45	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Client Sample ID: TB-1-0212
Date Collected: 02/08/12 00:00
Date Received: 02/09/12 12:45

Lab Sample ID: 580-31109-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			02/10/12 20:28	1
Toluene	ND		1.0		ug/L			02/10/12 20:28	1
Ethylbenzene	ND		1.0		ug/L			02/10/12 20:28	1
m-Xylene & p-Xylene	ND		2.0		ug/L			02/10/12 20:28	1
o-Xylene	ND		1.0		ug/L			02/10/12 20:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*100*		*80 - 120*		*02/10/12 20:28*	*1*
Toluene-d8 (Surr)	*104*		*85 - 120*		*02/10/12 20:28*	*1*
Ethylbenzene-d10	*105*		*80 - 120*		*02/10/12 20:28*	*1*
Trifluorotoluene (Surr)	*111*		*80 - 120*		*02/10/12 20:28*	*1*
4-Bromofluorobenzene (Surr)	*112*		*75 - 120*		*02/10/12 20:28*	*1*

QC Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-105087/4
Matrix: Water
Analysis Batch: 105087

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			02/10/12 11:40	1
Toluene	ND		1.0		ug/L			02/10/12 11:40	1
Ethylbenzene	ND		1.0		ug/L			02/10/12 11:40	1
m-Xylene & p-Xylene	ND		2.0		ug/L			02/10/12 11:40	1
o-Xylene	ND		1.0		ug/L			02/10/12 11:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*100*		*80 - 120*		*02/10/12 11:40*	*1*
Toluene-d8 (Surr)	*104*		*85 - 120*		*02/10/12 11:40*	*1*
Ethylbenzene-d10	*104*		*80 - 120*		*02/10/12 11:40*	*1*
Trifluorotoluene (Surr)	*104*		*80 - 120*		*02/10/12 11:40*	*1*
4-Bromofluorobenzene (Surr)	*112*		*75 - 120*		*02/10/12 11:40*	*1*

Lab Sample ID: LCS 580-105087/5
Matrix: Water
Analysis Batch: 105087

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	27.2		ug/L		109	80 - 120
Toluene	25.0	26.3		ug/L		105	75 - 120
Ethylbenzene	25.0	25.5		ug/L		102	75 - 125
m-Xylene & p-Xylene	50.0	52.7		ug/L		105	75 - 130
o-Xylene	25.0	26.9		ug/L		108	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Fluorobenzene (Surr)	*100*		*80 - 120*
Toluene-d8 (Surr)	*104*		*85 - 120*
Ethylbenzene-d10	*104*		*80 - 120*
Trifluorotoluene (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*113*		*75 - 120*

Lab Sample ID: LCSD 580-105087/6
Matrix: Water
Analysis Batch: 105087

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	25.0	27.0		ug/L		108	80 - 120	1	30
Toluene	25.0	26.1		ug/L		104	75 - 120	1	30
Ethylbenzene	25.0	25.1		ug/L		100	75 - 125	2	30
m-Xylene & p-Xylene	50.0	52.6		ug/L		105	75 - 130	0	30
o-Xylene	25.0	27.0		ug/L		108	80 - 120	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Fluorobenzene (Surr)	*101*		*80 - 120*
Toluene-d8 (Surr)	*104*		*85 - 120*
Ethylbenzene-d10	*105*		*80 - 120*
Trifluorotoluene (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*113*		*75 - 120*

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-105110/1-A
Matrix: Water
Analysis Batch: 105390

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.030		ug/L		02/10/12 11:57	02/15/12 10:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*85*		*20 - 134*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
Phenol-d5	*88*		*55 - 125*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
2,4,6-Tribromophenol	*63*		*44 - 125*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
Nitrobenzene-d5	*73*		*62 - 125*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
2-Fluorobiphenyl	*71*		*66 - 140*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
Terphenyl-d14	*80*		*20 - 150*	*02/10/12 11:57*	*02/15/12 10:11*	*1*

Lab Sample ID: LCS 580-105110/2-A
Matrix: Water
Analysis Batch: 105390

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chloronaphthalene	1.00	0.923		ug/L		92	65 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*83*		*20 - 134*
Phenol-d5	*87*		*55 - 125*
2,4,6-Tribromophenol	*74*		*44 - 125*
Nitrobenzene-d5	*77*		*62 - 125*
2-Fluorobiphenyl	*81*		*66 - 140*
Terphenyl-d14	*88*		*20 - 150*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-105110/1-A
Matrix: Water
Analysis Batch: 105401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
2-Methylnaphthalene	ND		0.013		ug/L		02/10/12 11:57	02/15/12 12:54	1
1-Methylnaphthalene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Acenaphthylene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Acenaphthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Fluorene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Phenanthrene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Anthracene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Fluoranthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Pyrene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[a]anthracene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Chrysene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[b]fluoranthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[k]fluoranthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[a]pyrene	ND		0.020		ug/L		02/10/12 11:57	02/15/12 12:54	1
Indeno[1,2,3-cd]pyrene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Dibenz(a,h)anthracene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-105110/1-A
Matrix: Water
Analysis Batch: 105401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Pentachlorophenol	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*64*		*20 - 150*	*02/10/12 11:57*	*02/15/12 12:54*	*1*
2,4,6-Tribromophenol	*70*		*44 - 125*	*02/10/12 11:57*	*02/15/12 12:54*	*1*

Lab Sample ID: LCS 580-105110/2-A
Matrix: Water
Analysis Batch: 105401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	1.00	0.774		ug/L		77	65 - 125
2-Methylnaphthalene	1.00	0.739		ug/L		74	65 - 125
1-Methylnaphthalene	1.00	0.749		ug/L		75	65 - 125
Acenaphthylene	0.999	0.788		ug/L		79	70 - 125
Acenaphthene	1.00	0.788		ug/L		79	65 - 125
Fluorene	1.00	1.11		ug/L		111	70 - 125
Phenanthrene	1.00	0.813		ug/L		81	70 - 125
Anthracene	1.00	0.615		ug/L		62	60 - 125
Fluoranthene	1.00	0.868		ug/L		87	75 - 125
Pyrene	1.00	0.838		ug/L		84	75 - 125
Benzo[a]anthracene	1.00	0.744		ug/L		74	70 - 125
Chrysene	1.00	0.859		ug/L		86	75 - 125
Benzo[b]fluoranthene	1.00	0.769		ug/L		77	70 - 125
Benzo[k]fluoranthene	1.00	0.851		ug/L		85	70 - 125
Benzo[a]pyrene	1.00	0.486	*	ug/L		49	55 - 125
Indeno[1,2,3-cd]pyrene	1.00	1.00		ug/L		100	65 - 125
Dibenz(a,h)anthracene	0.999	1.05		ug/L		105	65 - 130
Benzo[g,h,i]perylene	1.00	0.969		ug/L		97	65 - 125
Pentachlorophenol	0.999	0.336		ug/L		34	20 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*72*		*20 - 150*
2,4,6-Tribromophenol	*71*		*44 - 125*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: LCS 580-105509/20-A
Matrix: Water
Analysis Batch: 105574

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 105509

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	4.11		mg/L		103	80 - 120
Chromium	0.400	0.408		mg/L		102	80 - 120
Copper	0.500	0.514		mg/L		103	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-105509/21-A
Matrix: Water
Analysis Batch: 105574

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 105509

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.00	4.12		mg/L		103	80 - 120	0	20
Chromium	0.400	0.408		mg/L		102	80 - 120	0	20
Copper	0.500	0.521		mg/L		104	80 - 120	1	20

Lab Sample ID: MB 580-104979/6-B
Matrix: Water
Analysis Batch: 105574

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 105509

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		02/16/12 10:46	02/16/12 15:47	1
Chromium	ND		0.00040		mg/L		02/16/12 10:46	02/16/12 15:47	1
Copper	ND		0.0010		mg/L		02/16/12 10:46	02/16/12 15:47	1

Lab Chronicle

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Client Sample ID: UPRR-29-0212
Lab Sample ID: 580-31109-1
Date Collected: 02/08/12 08:30
Matrix: Water
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 14:15	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 18:54	CM	TAL SEA
Total Recoverable	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105574	02/16/12 16:46	FCW	TAL SEA
Dissolved	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Dissolved	Analysis	6020		5	105574	02/16/12 17:16	FCW	TAL SEA

Client Sample ID: MW-7-0212
Lab Sample ID: 580-31109-2
Date Collected: 02/08/12 09:45
Matrix: Water
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 14:36	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 19:13	CM	TAL SEA
Total Recoverable	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105574	02/16/12 16:51	FCW	TAL SEA
Dissolved	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Dissolved	Analysis	6020		5	105574	02/16/12 17:21	FCW	TAL SEA

Client Sample ID: MW-9-0212
Lab Sample ID: 580-31109-3
Date Collected: 02/08/12 11:00
Matrix: Water
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105087	02/10/12 20:53	JMB	TAL SEA
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 14:56	AP	TAL SEA
Total/NA	Prep	3520C	DL		105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C SIM	DL	500	105401	02/15/12 19:33	CM	TAL SEA
Total/NA	Analysis	8270C SIM		10	105401	02/15/12 21:48	CM	TAL SEA
Total Recoverable	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105574	02/16/12 16:56	FCW	TAL SEA
Dissolved	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Dissolved	Analysis	6020		5	105574	02/16/12 17:26	FCW	TAL SEA

Client Sample ID: MW-90-0212
Lab Sample ID: 580-31109-4
Date Collected: 02/08/12 10:00
Matrix: Water
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105087	02/10/12 21:18	JMB	TAL SEA
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA

Lab Chronicle

Client: AECOM, Inc. TestAmerica Job ID: 580-31109-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-90-0212 **Lab Sample ID: 580-31109-4**
Date Collected: 02/08/12 10:00 **Matrix: Water**
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270C		1	105390	02/15/12 15:16	AP	TAL SEA
Total/NA	Prep	3520C	DL		105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C SIM	DL	500	105401	02/15/12 19:52	CM	TAL SEA
Total/NA	Analysis	8270C SIM		10	105401	02/15/12 22:07	CM	TAL SEA
Total Recoverable	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105574	02/16/12 17:01	FCW	TAL SEA
Dissolved	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Dissolved	Analysis	6020		5	105574	02/16/12 17:40	FCW	TAL SEA

Client Sample ID: HW-1-0212 **Lab Sample ID: 580-31109-5**
Date Collected: 02/08/12 11:35 **Matrix: Water**
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 15:37	AP	TAL SEA
Total/NA	Analysis	8270C SIM		10	105684	02/20/12 16:46	AP	TAL SEA
Total Recoverable	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105574	02/16/12 17:06	FCW	TAL SEA
Dissolved	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Dissolved	Analysis	6020		5	105574	02/16/12 17:45	FCW	TAL SEA

Client Sample ID: TB-1-0212 **Lab Sample ID: 580-31109-6**
Date Collected: 02/08/12 00:00 **Matrix: Water**
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105087	02/10/12 20:28	JMB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Seattle	Alaska	Alaska UST	10	UST-022
TestAmerica Seattle	Alaska	TA-Port Heiden Mobile Lab	10	UST-093
TestAmerica Seattle	California	NELAC	9	1115CA
TestAmerica Seattle	Florida	NELAC	4	E871074
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Louisiana	NELAC	6	05016
TestAmerica Seattle	Montana	MT DEQ UST	8	N/A
TestAmerica Seattle	Oregon	NELAC	10	WA100007
TestAmerica Seattle	USDA	USDA		P330-11-00222
TestAmerica Seattle	Washington	State Program	10	C553

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-31109-1	UPRR-29-0212	Water	02/08/12 08:30	02/09/12 12:45
580-31109-2	MW-7-0212	Water	02/08/12 09:45	02/09/12 12:45
580-31109-3	MW-9-0212	Water	02/08/12 11:00	02/09/12 12:45
580-31109-4	MW-90-0212	Water	02/08/12 10:00	02/09/12 12:45
580-31109-5	HW-1-0212	Water	02/08/12 11:35	02/09/12 12:45
580-31109-6	TB-1-0212	Water	02/08/12 00:00	02/09/12 12:45

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☐ Rush
☒ Short Hold cu
RB, C.

Chain of Custody Record

2/23/2012

Client: AEcom Environment — DIRECT BILL TO McFARLAND CASCADE CPLC
Client Contact: Renee Knecht / Fred Merrill
Date: 2/8/12
Chain of Custody Number: 12984
Address: 710 2ND Ave STE 1000
Telephone Number (Area Code)/Fax Number: 206-403-4259 / 206-403-4241
Lab Number: 31109
Page 1 of 1
City: Seattle State: WA Zip Code: 98104
Sampler: F. Merrill
Lab Contact: Kris
Analysis (Attach list if more space is needed)
Project Name and Location (State): McFarland Cascade (CPLC)
Billing Contact: Ted Smith McFarland Cascade
Contract/Purchase Order/Quote No.

Special Instructions/Conditions of Receipt

	Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Pentachlorophenol	PAH	2-Chloronaphthalene	Diss Metals	Total Metals	BTEX
-1	UPRR-29-0212	2/8/12	0830		X					X	~~X~~			X	X	X	X	X	
-2	MW-7-0212	2/8/12	0945		X					X	~~X~~			X	X	X	X	X	
-3	MW-9-0212	2/8/12	1100		X					X	X			X	X	X	X	X	X
-4	MW-90-0212	2/8/12	1000		X					X	X			X	X	X	X	X	X
-5	HW-1-0212	2/8/12	1135		X					X				X	X	X	X	X	
-6	TB-1-0212										X								X

Cooler/TB/Dig/IR cor 1.3 unc 1.3 Cooler Dsc [illegible] @ Lab Wet Packs Packing bubble w/o
Cooler/TB/Dig/IR cor 5.3 unc 5.2 Cooler Dsc Lg blue [illegible] @ Lab — Wet Packs Packing bubble — w/o client drop off

Cooler ☐ Yes ☐ No Cooler Temp: ____
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown
Sample Disposal ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days) ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other STANDARD
QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By Sign/Print: [signature] Fred D Merrill	2/8/12	1245	1. Received By Sign/Print: Cathy Gamble Cathy Gamble	2/8/12	12:45
2. Relinquished By Sign/Print			2. Received By Sign/Print		
3. Relinquished By Sign/Print			3. Received By Sign/Print		

Comments: Note Short Hold Time for Lab Filtered Diss Metals

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

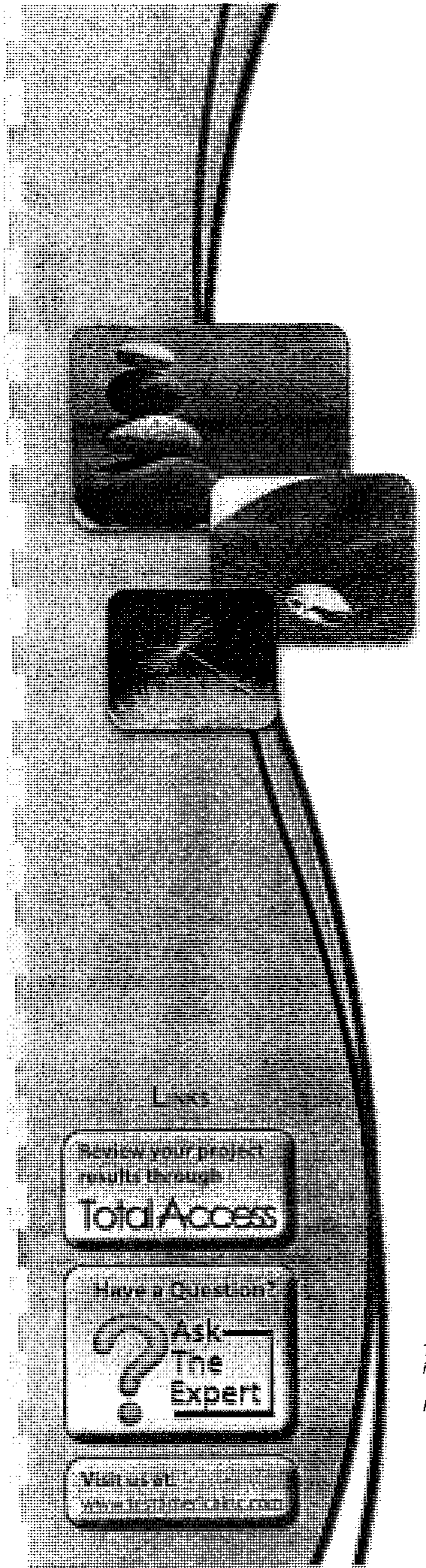
Client: AECOM, Inc.

Job Number: 580-31109-1

Login Number: 31109
List Number: 1
Creator: Gamble, Cathy

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	False	One amber has two labels-UPRR-29 and HW-1
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-31087-1
Client Project/Site: McFarland Cascade (CPLC)

For:
AECOM, Inc.
710 Second Avenue
Suite 1000
Seattle, Washington 98104

Attn: Renee Knecht

Kristine D. Allen

Authorized for release by:
2/21/2012 4:54:18 PM

Kristine Allen
Project Manager I
kristine.allen@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Job ID: 580-31087-1

Laboratory: TestAmerica Seattle

Narrative

Receipt
All samples were received in good condition within temperature requirements.

GC/MS Semi VOA - Method 8270C
2-Fluorobiphenyl recovery for the following samples was outside control limits: MW-14-0212 (580-31087-1), MW-14-0212 (580-31087-1 MSD), MW-5-0212 (580-31087-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. Results have been X flagged and reported.

GC/MS Semi VOA - Method 8270C SIM
The following samples were diluted prior to analysis due to the nature of the sample matrix: MW-14-0212 (580-31087-1), MW-13-0212 (580-31087-2), MW-6-0212 (580-31087-3), MW-2-0212 (580-31087-4), MW-5-0212 (580-31087-6), MW-8-0212 (580-31087-7), MW-3-0212 (580-31087-8), MW-14-0212 (580-31087-1 MS), MW-14-0212 (580-31087-1 MSD). Elevated reporting limits (RLs) are provided.

2,4,6-Tribromophenol surrogate recovery for the following sample was outside control limits: MW-5-0212 (580-31087-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. Results have been X flagged and reported.

The laboratory control sample (LCS) for analysis batch 105401 recovered low for the following analyte: benzo(a)pyrene. This recovery is within the marginal exceedance limits; re-extraction and/or re-analysis was not performed. Data have been qualified and reported.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analysis batch 105401 were outside control limits. Data have been qualified and reported.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
*	LCS or LCSD exceeds the control limits
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-14-0212
Date Collected: 02/07/12 09:40
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-1
Matrix: Water

5

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.037**		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
2-Methylnaphthalene	ND		0.025		ug/L		02/10/12 11:59	02/15/12 20:30	2
1-Methylnaphthalene	**0.023**		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Acenaphthylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Acenaphthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Fluorene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Phenanthrene	**0.020**		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Anthracene	**0.046**		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Pyrene	**0.020**		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Benzo[a]anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Chrysene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Benzo[b]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 20:30	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Benzo[g,h,i]perylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Pentachlorophenol	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*95*		*20 - 150*	*02/10/12 11:59*	*02/15/12 20:30*	*2*
2,4,6-Tribromophenol	*63*		*44 - 125*	*02/10/12 11:59*	*02/15/12 20:30*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 10:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*65*		*20 - 134*	*02/10/12 11:59*	*02/15/12 10:52*	*1*
Phenol-d5	*73*		*55 - 125*	*02/10/12 11:59*	*02/15/12 10:52*	*1*
2,4,6-Tribromophenol	*93*		*44 - 125*	*02/10/12 11:59*	*02/15/12 10:52*	*1*
Nitrobenzene-d5	*69*		*62 - 125*	*02/10/12 11:59*	*02/15/12 10:52*	*1*
2-Fluorobiphenyl	*63*	*X*	*66 - 140*	*02/10/12 11:59*	*02/15/12 10:52*	*1*
Terphenyl-d14	*76*		*20 - 150*	*02/10/12 11:59*	*02/15/12 10:52*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.060**		0.0050		mg/L		02/14/12 12:04	02/15/12 11:30	5
Chromium	**0.11**		0.0020		mg/L		02/14/12 12:04	02/15/12 11:30	5
Copper	**0.026**		0.0050		mg/L		02/14/12 12:04	02/15/12 11:30	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0054**		0.0050		mg/L		02/14/12 12:04	02/15/12 12:48	5
Chromium	**0.0025**		0.0020		mg/L		02/14/12 12:04	02/15/12 12:48	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 12:48	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-13-0212

Lab Sample ID: 580-31087-2

Date Collected: 02/07/12 10:10
Date Received: 02/07/12 15:50

Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.12		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
2-Methylnaphthalene	ND		0.025		ug/L		02/10/12 11:59	02/15/12 17:56	2
1-Methylnaphthalene	0.092		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Acenaphthylene	0.039		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Acenaphthene	0.62		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Fluorene	0.18		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Phenanthrene	0.030		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Anthracene	0.16		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Fluoranthene	0.046		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Pyrene	0.056		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Benzo[a]anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Chrysene	0.033		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Benzo[b]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 17:56	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Benzo[g,h,i]perylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Pentachlorophenol	0.85		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*85*		*20 - 150*	*02/10/12 11:59*	*02/15/12 17:56*	*2*
2,4,6-Tribromophenol	*79*		*44 - 125*	*02/10/12 11:59*	*02/15/12 17:56*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 11:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*72*		*20 - 134*	*02/10/12 11:59*	*02/15/12 11:53*	*1*
Phenol-d5	*80*		*55 - 125*	*02/10/12 11:59*	*02/15/12 11:53*	*1*
2,4,6-Tribromophenol	*83*		*44 - 125*	*02/10/12 11:59*	*02/15/12 11:53*	*1*
Nitrobenzene-d5	*72*		*62 - 125*	*02/10/12 11:59*	*02/15/12 11:53*	*1*
2-Fluorobiphenyl	*73*		*66 - 140*	*02/10/12 11:59*	*02/15/12 11:53*	*1*
Terphenyl-d14	*80*		*20 - 150*	*02/10/12 11:59*	*02/15/12 11:53*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.9		0.0050		mg/L		02/14/12 12:04	02/15/12 12:14	5
Chromium	0.012		0.0020		mg/L		02/14/12 12:04	02/15/12 12:14	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 12:14	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.8		0.0050		mg/L		02/14/12 12:04	02/15/12 13:13	5
Chromium	0.0094		0.0020		mg/L		02/14/12 12:04	02/15/12 13:13	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:13	5

Client Sample Results

Client: AECOM, Inc. TestAmerica Job ID: 580-31087-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-6-0212 **Lab Sample ID: 580-31087-3**
Date Collected: 02/07/12 12:00 **Matrix: Water**
Date Received: 02/07/12 15:50

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Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.52**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
2-Methylnaphthalene	ND		0.025		ug/L		02/10/12 11:59	02/15/12 16:58	2
1-Methylnaphthalene	**0.025**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Acenaphthylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Acenaphthene	**0.043**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Fluorene	**0.051**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Phenanthrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Anthracene	**0.092**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Fluoranthene	**0.081**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Pyrene	**0.081**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Benzo[a]anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Chrysene	**0.025**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Benzo[b]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 16:58	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Benzo[g,h,i]perylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Pentachlorophenol	**0.43**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*93*		*20 - 150*	*02/10/12 11:59*	*02/15/12 16:58*	*2*
2,4,6-Tribromophenol	*88*		*44 - 125*	*02/10/12 11:59*	*02/15/12 16:58*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 12:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*78*		*20 - 134*	*02/10/12 11:59*	*02/15/12 12:13*	*1*
Phenol-d5	*83*		*55 - 125*	*02/10/12 11:59*	*02/15/12 12:13*	*1*
2,4,6-Tribromophenol	*91*		*44 - 125*	*02/10/12 11:59*	*02/15/12 12:13*	*1*
Nitrobenzene-d5	*78*		*62 - 125*	*02/10/12 11:59*	*02/15/12 12:13*	*1*
2-Fluorobiphenyl	*76*		*66 - 140*	*02/10/12 11:59*	*02/15/12 12:13*	*1*
Terphenyl-d14	*79*		*20 - 150*	*02/10/12 11:59*	*02/15/12 12:13*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.013**		0.0050		mg/L		02/14/12 12:04	02/15/12 12:19	5
Chromium	**0.021**		0.0020		mg/L		02/14/12 12:04	02/15/12 12:19	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 12:19	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.013**		0.0050		mg/L		02/14/12 12:04	02/15/12 13:18	5
Chromium	**0.015**		0.0020		mg/L		02/14/12 12:04	02/15/12 13:18	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:18	5

Client Sample Results

Client: AECOM, Inc. TestAmerica Job ID: 580-31087-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-2-0212

Lab Sample ID: 580-31087-4

Date Collected: 02/07/12 12:45
Date Received: 02/07/12 15:50

Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.24		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
2-Methylnaphthalene	0.031		0.025		ug/L		02/10/12 11:59	02/15/12 17:17	2
1-Methylnaphthalene	1.9		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Acenaphthylene	2.2		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Phenanthrene	5.1		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Anthracene	3.8		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Fluoranthene	7.1		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Pyrene	4.6		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Benzo[a]anthracene	0.030		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Chrysene	0.030		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Benzo[b]fluoranthene	0.020		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 17:17	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Benzo[g,h,i]perylene	0.019		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Pentachlorophenol	0.11		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*77*		*20 - 150*	*02/10/12 11:59*	*02/15/12 17:17*	*2*
2,4,6-Tribromophenol	*72*		*44 - 125*	*02/10/12 11:59*	*02/15/12 17:17*	*2*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	100		0.48		ug/L		02/10/12 11:59	02/20/12 16:27	50
Fluorene	64		0.48		ug/L		02/10/12 11:59	02/20/12 16:27	50

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 12:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*82*		*20 - 134*	*02/10/12 11:59*	*02/15/12 12:33*	*1*
Phenol-d5	*82*		*55 - 125*	*02/10/12 11:59*	*02/15/12 12:33*	*1*
2,4,6-Tribromophenol	*84*		*44 - 125*	*02/10/12 11:59*	*02/15/12 12:33*	*1*
Nitrobenzene-d5	*70*		*62 - 125*	*02/10/12 11:59*	*02/15/12 12:33*	*1*
2-Fluorobiphenyl	*69*		*66 - 140*	*02/10/12 11:59*	*02/15/12 12:33*	*1*
Terphenyl-d14	*74*		*20 - 150*	*02/10/12 11:59*	*02/15/12 12:33*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.48		0.0050		mg/L		02/14/12 12:04	02/15/12 12:24	5
Chromium	0.0054		0.0020		mg/L		02/14/12 12:04	02/15/12 12:24	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 12:24	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.47		0.0050		mg/L		02/14/12 12:04	02/15/12 13:23	5
Chromium	0.0020		0.0020		mg/L		02/14/12 12:04	02/15/12 13:23	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:23	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-12-0212
Date Collected: 02/07/12 13:30
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-5
Matrix: Water

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Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.010**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
2-Methylnaphthalene	ND		0.013		ug/L		02/10/12 11:59	02/15/12 17:37	1
1-Methylnaphthalene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Acenaphthylene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Acenaphthene	**0.17**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Fluorene	**0.068**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Phenanthrene	**0.033**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Anthracene	**0.037**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Fluoranthene	**0.043**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Pyrene	**0.042**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Benzo[a]anthracene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Chrysene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Benzo[b]fluoranthene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Benzo[k]fluoranthene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Benzo[a]pyrene	ND	*	0.019		ug/L		02/10/12 11:59	02/15/12 17:37	1
Indeno[1,2,3-cd]pyrene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Dibenz(a,h)anthracene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Benzo[g,h,i]perylene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Pentachlorophenol	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*79*		*20 - 150*	*02/10/12 11:59*	*02/15/12 17:37*	*1*
2,4,6-Tribromophenol	*66*		*44 - 125*	*02/10/12 11:59*	*02/15/12 17:37*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 12:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*73*		*20 - 134*	*02/10/12 11:59*	*02/15/12 12:54*	*1*
Phenol-d5	*79*		*55 - 125*	*02/10/12 11:59*	*02/15/12 12:54*	*1*
2,4,6-Tribromophenol	*86*		*44 - 125*	*02/10/12 11:59*	*02/15/12 12:54*	*1*
Nitrobenzene-d5	*72*		*62 - 125*	*02/10/12 11:59*	*02/15/12 12:54*	*1*
2-Fluorobiphenyl	*73*		*66 - 140*	*02/10/12 11:59*	*02/15/12 12:54*	*1*
Terphenyl-d14	*83*		*20 - 150*	*02/10/12 11:59*	*02/15/12 12:54*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0077**		0.0050		mg/L		02/14/12 12:04	02/15/12 12:29	5
Chromium	ND		0.0020		mg/L		02/14/12 12:04	02/15/12 12:29	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 12:29	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0070**		0.0050		mg/L		02/14/12 12:04	02/15/12 13:28	5
Chromium	ND		0.0020		mg/L		02/14/12 12:04	02/15/12 13:28	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:28	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-5-0212

Lab Sample ID: 580-31087-6

Date Collected: 02/07/12 13:55
Date Received: 02/07/12 15:50

Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	**19**		0.13		ug/L		02/10/12 11:59	02/15/12 22:26	10
1-Methylnaphthalene	**13**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Acenaphthylene	**0.19**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Acenaphthene	**5.0**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Fluorene	**5.3**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Phenanthrene	**1.0**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Anthracene	**0.23**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Fluoranthene	**0.25**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Pyrene	**0.30**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Benzo[a]anthracene	**0.14**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Chrysene	**0.20**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Benzo[b]fluoranthene	**0.21**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Benzo[k]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Benzo[a]pyrene	ND	*	0.19		ug/L		02/10/12 11:59	02/15/12 22:26	10
Indeno[1,2,3-cd]pyrene	**0.12**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Dibenz(a,h)anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Benzo[g,h,i]perylene	**0.14**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Pentachlorophenol	**0.18**		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*67*		*20 - 150*	*02/10/12 11:59*	*02/15/12 22:26*	*10*
2,4,6-Tribromophenol	*133*	*X*	*44 - 125*	*02/10/12 11:59*	*02/15/12 22:26*	*10*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**550**		9.6		ug/L		02/10/12 11:59	02/15/12 21:28	1000

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 13:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*71*		*20 - 134*	*02/10/12 11:59*	*02/15/12 13:14*	*1*
Phenol-d5	*92*		*55 - 125*	*02/10/12 11:59*	*02/15/12 13:14*	*1*
2,4,6-Tribromophenol	*84*		*44 - 125*	*02/10/12 11:59*	*02/15/12 13:14*	*1*
Nitrobenzene-d5	*64*		*62 - 125*	*02/10/12 11:59*	*02/15/12 13:14*	*1*
2-Fluorobiphenyl	*59*	*X*	*66 - 140*	*02/10/12 11:59*	*02/15/12 13:14*	*1*
Terphenyl-d14	*98*		*20 - 150*	*02/10/12 11:59*	*02/15/12 13:14*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.61**		0.0050		mg/L		02/14/12 12:04	02/15/12 12:34	5
Chromium	ND		0.0020		mg/L		02/14/12 12:04	02/15/12 12:34	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 12:34	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.57**		0.0050		mg/L		02/14/12 12:04	02/15/12 13:33	5
Chromium	ND		0.0020		mg/L		02/14/12 12:04	02/15/12 13:33	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:33	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

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Client Sample ID: MW-8-0212

Date Collected: 02/07/12 14:10
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-7

Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	2.5		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
2-Methylnaphthalene	0.039		0.025		ug/L		02/10/12 11:59	02/15/12 18:15	2
1-Methylnaphthalene	0.91		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Acenaphthylene	0.26		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Acenaphthene	5.9		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Fluorene	1.1		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Phenanthrene	0.045		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Anthracene	0.56		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Pyrene	0.10		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Benzo[a]anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Chrysene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Benzo[b]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 18:15	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Benzo[g,h,i]perylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Pentachlorophenol	0.28		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*92*		*20 - 150*	*02/10/12 11:59*	*02/15/12 18:15*	*2*
2,4,6-Tribromophenol	*112*		*44 - 125*	*02/10/12 11:59*	*02/15/12 18:15*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*99*		*20 - 134*	*02/10/12 11:59*	*02/15/12 13:35*	*1*
Phenol-d5	*89*		*55 - 125*	*02/10/12 11:59*	*02/15/12 13:35*	*1*
2,4,6-Tribromophenol	*98*		*44 - 125*	*02/10/12 11:59*	*02/15/12 13:35*	*1*
Nitrobenzene-d5	*80*		*62 - 125*	*02/10/12 11:59*	*02/15/12 13:35*	*1*
2-Fluorobiphenyl	*94*		*66 - 140*	*02/10/12 11:59*	*02/15/12 13:35*	*1*
Terphenyl-d14	*140*		*20 - 150*	*02/10/12 11:59*	*02/15/12 13:35*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.44		0.0050		mg/L		02/14/12 12:04	02/15/12 12:38	5
Chromium	0.025		0.0020		mg/L		02/14/12 12:04	02/15/12 12:38	5
Copper	0.0050		0.0050		mg/L		02/14/12 12:04	02/15/12 12:38	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.21		0.0050		mg/L		02/14/12 12:04	02/15/12 13:37	5
Chromium	0.010		0.0020		mg/L		02/14/12 12:04	02/15/12 13:37	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:37	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-3-0212

Date Collected: 02/07/12 14:40
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-8
Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.069**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
2-Methylnaphthalene	ND		0.025		ug/L		02/10/12 11:59	02/15/12 18:35	2
1-Methylnaphthalene	**0.052**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Acenaphthylene	**0.083**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Acenaphthene	**1.2**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Fluorene	**0.17**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Phenanthrene	**0.028**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Anthracene	**0.29**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Fluoranthene	**0.054**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Pyrene	**0.058**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Benzo[a]anthracene	**0.020**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Chrysene	**0.027**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Benzo[b]fluoranthene	**0.043**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 18:35	2
Indeno[1,2,3-cd]pyrene	**0.028**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Benzo[g,h,i]perylene	**0.028**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Pentachlorophenol	**0.14**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*75*		*20 - 150*	*02/10/12 11:59*	*02/15/12 18:35*	*2*
2,4,6-Tribromophenol	*103*		*44 - 125*	*02/10/12 11:59*	*02/15/12 18:35*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 13:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*78*		*20 - 134*	*02/10/12 11:59*	*02/15/12 13:55*	*1*
Phenol-d5	*83*		*55 - 125*	*02/10/12 11:59*	*02/15/12 13:55*	*1*
2,4,6-Tribromophenol	*77*		*44 - 125*	*02/10/12 11:59*	*02/15/12 13:55*	*1*
Nitrobenzene-d5	*75*		*62 - 125*	*02/10/12 11:59*	*02/15/12 13:55*	*1*
2-Fluorobiphenyl	*72*		*66 - 140*	*02/10/12 11:59*	*02/15/12 13:55*	*1*
Terphenyl-d14	*90*		*20 - 150*	*02/10/12 11:59*	*02/15/12 13:55*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**3.2**		0.0050		mg/L		02/14/12 12:04	02/15/12 12:43	5
Chromium	**0.083**		0.0020		mg/L		02/14/12 12:04	02/15/12 12:43	5
Copper	**0.095**		0.0050		mg/L		02/14/12 12:04	02/15/12 12:43	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**2.6**		0.0050		mg/L		02/14/12 12:04	02/15/12 13:42	5
Chromium	**0.019**		0.0020		mg/L		02/14/12 12:04	02/15/12 13:42	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:42	5

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-105110/1-A
Matrix: Water
Analysis Batch: 105390

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.030		ug/L		02/10/12 11:57	02/15/12 10:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*85*		*20 - 134*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
Phenol-d5	*88*		*55 - 125*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
2,4,6-Tribromophenol	*63*		*44 - 125*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
Nitrobenzene-d5	*73*		*62 - 125*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
2-Fluorobiphenyl	*71*		*66 - 140*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
Terphenyl-d14	*80*		*20 - 150*	*02/10/12 11:57*	*02/15/12 10:11*	*1*

Lab Sample ID: LCS 580-105110/2-A
Matrix: Water
Analysis Batch: 105390

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chloronaphthalene	1.00	0.923		ug/L		92	65 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*83*		*20 - 134*
Phenol-d5	*87*		*55 - 125*
2,4,6-Tribromophenol	*74*		*44 - 125*
Nitrobenzene-d5	*77*		*62 - 125*
2-Fluorobiphenyl	*81*		*66 - 140*
Terphenyl-d14	*88*		*20 - 150*

Lab Sample ID: 580-31087-1 MS
Matrix: Water
Analysis Batch: 105390

Client Sample ID: MW-14-0212
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chloronaphthalene	ND		0.963	0.748		ug/L		78	65 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorophenol	*90*		*20 - 134*
Phenol-d5	*90*		*55 - 125*
2,4,6-Tribromophenol	*91*		*44 - 125*
Nitrobenzene-d5	*75*		*62 - 125*
2-Fluorobiphenyl	*69*		*66 - 140*
Terphenyl-d14	*79*		*20 - 150*

Lab Sample ID: 580-31087-1 MSD
Matrix: Water
Analysis Batch: 105390

Client Sample ID: MW-14-0212
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Chloronaphthalene	ND		0.963	0.655		ug/L		68	65 - 125	13	20

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-31087-1 MSD **Client Sample ID: MW-14-0212**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 105390 **Prep Batch: 105110**

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorophenol	81		20 - 134
Phenol-d5	81		55 - 125
2,4,6-Tribromophenol	88		44 - 125
Nitrobenzene-d5	70		62 - 125
2-Fluorobiphenyl	62	X	66 - 140
Terphenyl-d14	73		20 - 150

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-105110/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 105401 **Prep Batch: 105110**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
2-Methylnaphthalene	ND		0.013		ug/L		02/10/12 11:57	02/15/12 12:54	1
1-Methylnaphthalene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Acenaphthylene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Acenaphthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Fluorene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Phenanthrene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Anthracene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Fluoranthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Pyrene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[a]anthracene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Chrysene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[b]fluoranthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[k]fluoranthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[a]pyrene	ND		0.020		ug/L		02/10/12 11:57	02/15/12 12:54	1
Indeno[1,2,3-cd]pyrene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Dibenz(a,h)anthracene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[g,h,i]perylene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Pentachlorophenol	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	64		20 - 150	02/10/12 11:57	02/15/12 12:54	1
2,4,6-Tribromophenol	70		44 - 125	02/10/12 11:57	02/15/12 12:54	1

Lab Sample ID: LCS 580-105110/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 105401 **Prep Batch: 105110**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	1.00	0.774		ug/L		77	65 - 125
2-Methylnaphthalene	1.00	0.739		ug/L		74	65 - 125
1-Methylnaphthalene	1.00	0.749		ug/L		75	65 - 125
Acenaphthylene	0.999	0.788		ug/L		79	70 - 125
Acenaphthene	1.00	0.788		ug/L		79	65 - 125
Fluorene	1.00	1.11		ug/L		111	70 - 125

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-105110/2-A
Matrix: Water
Analysis Batch: 105401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenanthrene	1.00	0.813		ug/L		81	70 - 125
Anthracene	1.00	0.615		ug/L		62	60 - 125
Fluoranthene	1.00	0.868		ug/L		87	75 - 125
Pyrene	1.00	0.838		ug/L		84	75 - 125
Benzo[a]anthracene	1.00	0.744		ug/L		74	70 - 125
Chrysene	1.00	0.859		ug/L		86	75 - 125
Benzo[b]fluoranthene	1.00	0.769		ug/L		77	70 - 125
Benzo[k]fluoranthene	1.00	0.851		ug/L		85	70 - 125
Benzo[a]pyrene	1.00	0.486	*	ug/L		49	55 - 125
Indeno[1,2,3-cd]pyrene	1.00	1.00		ug/L		100	65 - 125
Dibenz(a,h)anthracene	0.999	1.05		ug/L		105	65 - 130
Benzo[g,h,i]perylene	1.00	0.969		ug/L		97	65 - 125
Pentachlorophenol	0.999	0.336		ug/L		34	20 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*72*		*20 - 150*
2,4,6-Tribromophenol	*71*		*44 - 125*

Lab Sample ID: 580-31087-1 MS
Matrix: Water
Analysis Batch: 105401

Client Sample ID: MW-14-0212
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	0.037		0.961	0.768		ug/L		76	65 - 125
2-Methylnaphthalene	ND		0.963	0.746		ug/L		77	65 - 125
1-Methylnaphthalene	0.023		0.963	0.828		ug/L		84	65 - 125
Acenaphthylene	ND		0.961	0.455	F	ug/L		47	70 - 125
Acenaphthene	ND		0.963	0.613	F	ug/L		64	65 - 125
Fluorene	ND		0.964	0.596	F	ug/L		62	70 - 125
Phenanthrene	0.020		0.961	0.860		ug/L		87	70 - 125
Anthracene	0.046		0.961	0.678		ug/L		66	60 - 125
Fluoranthene	ND		0.963	0.834		ug/L		85	75 - 125
Pyrene	0.020		0.963	0.862		ug/L		88	75 - 125
Benzo[a]anthracene	ND		0.962	0.847		ug/L		87	70 - 125
Chrysene	ND		0.961	0.957		ug/L		98	75 - 125
Benzo[b]fluoranthene	ND		0.962	0.696		ug/L		71	70 - 125
Benzo[k]fluoranthene	ND		0.963	0.630	F	ug/L		65	70 - 125
Benzo[a]pyrene	ND	*	0.961	0.552		ug/L		56	55 - 125
Indeno[1,2,3-cd]pyrene	ND		0.962	0.790		ug/L		81	65 - 125
Dibenz(a,h)anthracene	ND		0.960	0.816		ug/L		84	65 - 130
Benzo[g,h,i]perylene	ND		0.961	0.735		ug/L		75	65 - 125
Pentachlorophenol	ND		0.960	0.652		ug/L		68	20 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Terphenyl-d14	*71*		*20 - 150*
2,4,6-Tribromophenol	*68*		*44 - 125*

Client: AECOM, Inc. TestAmerica Job ID: 580-31087-1
Project/Site: McFarland Cascade (CPLC)

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 580-31087-1 MSD **Client Sample ID: MW-14-0212**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 105401 **Prep Batch: 105110**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	0.037		0.961	0.632	F	ug/L		62	65 - 125	19	20
2-Methylnaphthalene	ND		0.963	0.640		ug/L		66	65 - 125	15	20
1-Methylnaphthalene	0.023		0.963	0.643	F	ug/L		64	65 - 125	25	20
Acenaphthylene	ND		0.961	0.468	F	ug/L		49	70 - 125	3	20
Acenaphthene	ND		0.963	0.586	F	ug/L		61	65 - 125	5	20
Fluorene	ND		0.964	0.655	F	ug/L		68	70 - 125	10	20
Phenanthrene	0.020		0.961	0.877		ug/L		89	70 - 125	2	20
Anthracene	0.046		0.961	0.669		ug/L		65	60 - 125	1	20
Fluoranthene	ND		0.963	0.745		ug/L		76	75 - 125	11	20
Pyrene	0.020		0.963	0.765		ug/L		77	75 - 125	12	20
Benzo[a]anthracene	ND		0.962	0.851		ug/L		87	70 - 125	0	20
Chrysene	ND		0.961	0.932		ug/L		96	75 - 125	3	20
Benzo[b]fluoranthene	ND		0.962	0.639	F	ug/L		65	70 - 125	8	20
Benzo[k]fluoranthene	ND		0.963	0.597	F	ug/L		61	70 - 125	5	20
Benzo[a]pyrene	ND	*	0.961	0.554		ug/L		56	55 - 125	0	20
Indeno[1,2,3-cd]pyrene	ND		0.962	0.728		ug/L		75	65 - 125	8	20
Dibenz(a,h)anthracene	ND		0.960	0.735		ug/L		76	65 - 130	10	20
Benzo[g,h,i]perylene	ND		0.961	0.676		ug/L		69	65 - 125	8	20
Pentachlorophenol	ND		0.960	0.634		ug/L		66	20 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Terphenyl-d14	*99*		*20 - 150*
2,4,6-Tribromophenol	*74*		*44 - 125*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: LCS 580-105297/23-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total Recoverable**
Analysis Batch: 105476 **Prep Batch: 105297**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	4.04		mg/L		101	80 - 120
Chromium	0.400	0.406		mg/L		101	80 - 120
Copper	0.500	0.510		mg/L		102	80 - 120

Lab Sample ID: LCSD 580-105297/24-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total Recoverable**
Analysis Batch: 105476 **Prep Batch: 105297**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.00	4.06		mg/L		102	80 - 120	0	20
Chromium	0.400	0.406		mg/L		101	80 - 120	0	20
Copper	0.500	0.508		mg/L		102	80 - 120	1	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 580-31087-1 MS
Matrix: Water
Analysis Batch: 105476

Client Sample ID: MW-14-0212
Prep Type: Total Recoverable
Prep Batch: 105297

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.060		4.00	4.27		mg/L		105	80 - 120
Chromium	0.11		0.400	0.512		mg/L		101	80 - 120
Copper	0.026		0.500	0.543		mg/L		103	80 - 120

Lab Sample ID: 580-31087-1 MSD
Matrix: Water
Analysis Batch: 105476

Client Sample ID: MW-14-0212
Prep Type: Total Recoverable
Prep Batch: 105297

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.060		4.00	4.30		mg/L		106	80 - 120	1	20
Chromium	0.11		0.400	0.506		mg/L		99	80 - 120	1	20
Copper	0.026		0.500	0.546		mg/L		104	80 - 120	1	20

Lab Sample ID: 580-31087-1 DU
Matrix: Water
Analysis Batch: 105476

Client Sample ID: MW-14-0212
Prep Type: Total Recoverable
Prep Batch: 105297

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.060		0.0586		mg/L		2	20
Chromium	0.11		0.107		mg/L		1	20
Copper	0.026		0.0252		mg/L		2	20

Lab Sample ID: MB 580-104893/11-B
Matrix: Water
Analysis Batch: 105476

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 105297

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 11:20	5
Chromium	ND		0.0020		mg/L		02/14/12 12:04	02/15/12 11:20	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 11:20	5

Lab Sample ID: 580-31087-1 MS
Matrix: Water
Analysis Batch: 105476

Client Sample ID: MW-14-0212
Prep Type: Dissolved
Prep Batch: 105297

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0054		4.00	4.29		mg/L		107	80 - 120
Chromium	0.0025		0.400	0.428		mg/L		106	80 - 120
Copper	ND		0.500	0.530		mg/L		105	80 - 120

Lab Sample ID: 580-31087-1 MSD
Matrix: Water
Analysis Batch: 105476

Client Sample ID: MW-14-0212
Prep Type: Dissolved
Prep Batch: 105297

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.0054		4.00	4.17		mg/L		104	80 - 120	3	20
Chromium	0.0025		0.400	0.417		mg/L		104	80 - 120	3	20
Copper	ND		0.500	0.512		mg/L		102	80 - 120	3	20

Lab Chronicle

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-14-0212 — **Lab Sample ID: 580-31087-1**
Date Collected: 02/07/12 09:40 — **Matrix: Water**
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 10:52	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 20:30	CM	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 12:48	FCW	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 11:30	FCW	TAL SEA

Client Sample ID: MW-13-0212 — **Lab Sample ID: 580-31087-2**
Date Collected: 02/07/12 10:10 — **Matrix: Water**
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 11:53	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 17:56	CM	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:14	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 13:13	FCW	TAL SEA

Client Sample ID: MW-6-0212 — **Lab Sample ID: 580-31087-3**
Date Collected: 02/07/12 12:00 — **Matrix: Water**
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 12:13	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 16:58	CM	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:19	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 13:18	FCW	TAL SEA

Client Sample ID: MW-2-0212 — **Lab Sample ID: 580-31087-4**
Date Collected: 02/07/12 12:45 — **Matrix: Water**
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 12:33	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 17:17	CM	TAL SEA
Total/NA	Prep	3520C	DL		105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C SIM	DL	50	105684	02/20/12 16:27	AP	TAL SEA

Lab Chronicle

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-2-0212
Lab Sample ID: 580-31087-4
Date Collected: 02/07/12 12:45
Matrix: Water
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:24	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 13:23	FCW	TAL SEA

Client Sample ID: MW-12-0212
Lab Sample ID: 580-31087-5
Date Collected: 02/07/12 13:30
Matrix: Water
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 12:54	AP	TAL SEA
Total/NA	Analysis	8270C SIM		1	105401	02/15/12 17:37	CM	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:29	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 13:28	FCW	TAL SEA

Client Sample ID: MW-5-0212
Lab Sample ID: 580-31087-6
Date Collected: 02/07/12 13:55
Matrix: Water
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 13:14	AP	TAL SEA
Total/NA	Prep	3520C	DL		105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C SIM	DL	1000	105401	02/15/12 21:28	CM	TAL SEA
Total/NA	Analysis	8270C SIM		10	105401	02/15/12 22:26	CM	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:34	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 13:33	FCW	TAL SEA

Client Sample ID: MW-8-0212
Lab Sample ID: 580-31087-7
Date Collected: 02/07/12 14:10
Matrix: Water
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 13:35	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 18:15	CM	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:38	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA

Lab Chronicle

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-8-0212
Lab Sample ID: 580-31087-7
Date Collected: 02/07/12 14:10
Matrix: Water
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6020		5	105476	02/15/12 13:37	FCW	TAL SEA

Client Sample ID: MW-3-0212
Lab Sample ID: 580-31087-8
Date Collected: 02/07/12 14:40
Matrix: Water
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 13:55	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 18:35	CM	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:43	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 13:42	FCW	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Seattle	Alaska	Alaska UST	10	UST-022
TestAmerica Seattle	Alaska	TA-Port Heiden Mobile Lab	10	UST-093
TestAmerica Seattle	California	NELAC	9	1115CA
TestAmerica Seattle	Florida	NELAC	4	E871074
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Louisiana	NELAC	6	05016
TestAmerica Seattle	Montana	MT DEQ UST	8	N/A
TestAmerica Seattle	Oregon	NELAC	10	WA100007
TestAmerica Seattle	USDA	USDA		P330-11-00222
TestAmerica Seattle	Washington	State Program	10	C553

Accreditation may not be offered or required for all mathods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-31087-1	MW-14-0212	Water	02/07/12 09:40	02/07/12 15:50
580-31087-2	MW-13-0212	Water	02/07/12 10:10	02/07/12 15:50
580-31087-3	MW-6-0212	Water	02/07/12 12:00	02/07/12 15:50
580-31087-4	MW-2-0212	Water	02/07/12 12:45	02/07/12 15:50
580-31087-5	MW-12-0212	Water	02/07/12 13:30	02/07/12 15:50
580-31087-6	MW-5-0212	Water	02/07/12 13:55	02/07/12 15:50
580-31087-7	MW-8-0212	Water	02/07/12 14:10	02/07/12 15:50
580-31087-8	MW-3-0212	Water	02/07/12 14:40	02/07/12 15:50

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☐ Rush
☒ Short Hold

Chain of Custody Record

Client: AECOM ENVIRONMENT — DIRECT BILL TO MCFARLAND CASCADE (CPLC)
Client Contact: RENEE KNECHT / FRED MERRILL
Date: 2/7/12
Chain of Custody Number: 12983
Address: 710 2ND AVE STE 1000
Telephone Number (Area Code)/Fax Number: 206-403-4259 / 206-403-4241
Lab Number: 31087
Page 1 of 1
City: SEATTLE State: WA Zip Code: 98104
Sampler: F. MERRILL
Lab Contact: KRIS
Project Name and Location (State): MCFARLAND CASCADE (CPLC)
Billing Contact: TED SMITH MCFARLAND CASCADE
Contract/Purchase Order/Quote No.:

Analysis (Attach list if more space is needed)

	Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PENTACHLOROPHENOL	PAH	2-CHLORONAPTHALENE	DISS METALS * LAB FILTERED	TOTAL METALS	Special Instructions/Conditions of Receipt
-1	MW-14-0212	2/7/12	0940		X			X		X				X	X	X	X	X	MS/MSD
-2	MW-13-0212	2/7/12	1010		X			X		X				X	X	X	X	X	
-3	MW-6-0212	2/7/12	1200		X			X		X				X	X	X	X	X	
-4	MW-2-0212	2/7/12	1245		X			X		X				X	X	X	X	X	
-5	MW-12-0212	2/7/12	1330		X			X		X				X	X	X	X	X	
-6	MW-5-0212	2/7/12	1355		X			X		X				X	X	X	X	X	
-7	MW-8-0212	2/7/12	1410		X			X		X				X	X	X	X	X	
-8	MW-3-0212	2/7/12	1440		X			X		X				X	X	X	X	X	

*As, Cu, Cr

Cooler/TB Dig/IR cor 0.5 unc 0.3
Cooler Dsc Lg Green/blu @ Lab
Wet/Packs Packing bubble

Cooler/TB Dig/IR cor 3.2 unc 3.0
Cooler Dsc lg blue/wh @ Lab
Wet/Packs Packing bubble

Cooler/TB Dig/IR cor 4.3 unc 4.1
Cooler Dsc Lg Red/wh @ Lab
Wet/Packs Packing bubble

A2

Cooler: ☐ Yes ☐ No Cooler Temp:

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other STANDARD

QC Requirements (Specify)

	Sign/Print	Date	Time		Sign/Print	Date	Time
1. Relinquished By	FRED D MERRILL	2/7/12	1550	1. Received By	Tom Blankinship	2/7/12	1550
2. Relinquished By				2. Received By			
3. Relinquished By				3. Received By			

Comments: NOTE SHORT HOLD FOR LAB FILTERED DISS-METALS

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 580-31087-1

Login Number: 31087
List Number: 1
Creator: Blankinship, Tom

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

06 October 2004

Jill Nordstrom
The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

RE: Cascade Pole

Enclosed are **amended** results of analyses for samples received by the laboratory on 09/09/04 16:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Amar Gill
Project Manager

nca B410229

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-9508 425-420-9200 FAX 420-9210
11115 E Montgomery Suite B, Spokane, WA 99206-4776 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7132 503-906-9200 FAX 906-9210
20332 Empire Ave Suite F-1, Bend, OR 99701-5711 541-383-9310 FAX 382-7588
3209 Denali St, Anchorage, AK 99503-4030 907-334-9200 FAX 334-9210

CHAIN OF CUSTODY REPORT

Work Order #:

CLIENT: McFarland Cascade
REPORT TO: Quinn Meehan / The Retec Group, Inc.
ADDRESS: 1011 SW Klickitat way, ste # 207 Seattle WA 98134
PHONE: (206) 624-9349 FAX: (206)-624-2839

INVOICE TO: Jill Nordstrom / RETEC project # CPLU1-16832-400

P.O. NUMBER:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: ~~10~~ STD. 7 5 4 3 2 1 <1
Petroleum Hydrocarbon Analyses: 5 STD. 4 3 2 1 <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

PROJECT NAME: Cascade Pole
PROJECT NUMBER: CPLU1-16832-400
SAMPLED BY: Quinn M. / Darrel A.

PRESERVATIVE: none, none, HCl, HCl, HNO3, HNO3

REQUESTED ANALYSES — Field Filtered (dissolved metals)

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PAH	PCP	NWTPH-G	BTEX	Total metals	dissolved metals	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1 MW-2-0904	9-8-04 / 1510	X	X			X	X	W	3		01
2 MW-3-0904	9-8-04 / 1130	X	X			X	X		3		02
3 MW-6-0904	9-8-04 / 1425	X	X			X	X		3		03
4 MW-7-0904	9-8-04 / 1240	X	X			X	X		5	MS/MSD 3 1L Amber 2 500 mL poly	04
5 MW-8-0904	9-8-04 / 1437	X	X			X	X		3		05
6 MW-9-0904	9-8-04 / 0940	X	X	X	X	X	X		6		06
7 MW-10-0904	9-8-04 / 1255	X	X			X	X		3		07
8 MW-12-0904	9-8-04 / 1555	X	X			X	X		3		08
9 MW-13-0904	9-8-04 / 1015	X	X			X	X		3		09
10 MW-14-0904	9-8-04 / 1050	X	X			X	X		3		10

RELEASED BY: Quinn Meehan
PRINT NAME: Quinn Meehan FIRM: RETEC DATE: 9-9-04 TIME: 0900
RECEIVED BY:
PRINT NAME: Sherman Roland FIRM: NCA DATE: 9-9-04 TIME: 3:10

RELEASED BY:
PRINT NAME: Sherman Roland FIRM: NCA DATE: 9-9-04 TIME: 16:10
RECEIVED BY: Tom Blankinship
PRINT NAME: Blankinship FIRM: NCA DATE: 9/9/04 TIME: 1610

ADDITIONAL REMARKS:

TEMP: 6.0°C w/cs

PAGE 1 OF 2

COC REV 1/03

nca

B410229

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-9508 — 425-420-9200 — FAX 420-9210
11115 E Montgomery Suite B, Spokane, WA 99206-4776 — 509-924-9200 — FAX 924-9290
9405 SW Nimbus Ave, Beaverton, OR 97008-7132 — 503-906-9200 — FAX 906-9210
20332 Empire Ave Suite F-1, Bend, OR 99701-5711 — 541-383-9310 — FAX 382-7588
3209 Denali St, Anchorage, AK 99503-4030 — 907-334-9200 — FAX 334-9210

CHAIN OF CUSTODY REPORT

Work Order #:

CLIENT: Mc Farland Cascade

REPORT TO: Quinn Meehan / The RETEC Group, Inc
ADDRESS: 1011 SW Klickitat way, Ste # 207
Seattle WA 98134

PHONE: (206) 624-9349 FAX: (206)-624-2839

INVOICE TO: Jill Nordstrom / RETEC
project # CPLU1-16832-400

P.O. NUMBER:

PROJECT NAME: Cascade Pole

PROJECT NUMBER: CPLU1-16832-400

SAMPLED BY: Quinn M. / Darrel A.

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: ~~10~~ STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE: None | none | HNO3 | HNO3

REQUESTED ANALYSES: PAH | PCP | Total Metals | Dissolved Metals — Field Filtered

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PAH	PCP	Total Metals	Dissolved Metals	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1 mw-15-0904	9-8-04 / 1810	X	X	X	X	W	3		11
2 mw-16-0904	9-8-04 / 1039	X	X	X	X		3		12
3 mw-17-0904	9-8-04 / 1133	X	X	X	X		3		13
4 mw-18-0904	9-8-04 / 1210	X	X	X	X		3		14
5 UPRR-29-0904	9-8-04 / 1626	X	X	X	X		3		15
6 MW-110-0904	9-8-04 / 1315	X	X	X	X		3		16
7 Trip blank							2		17
8									
9									
10									

RELEASED BY: Quinn Meehan — DATE: 9-9-04
PRINT NAME: Quinn Meehan — FIRM: RETEC — TIME: 0900

RECEIVED BY:
PRINT NAME: SHERMAN Roland — FIRM: NCA — DATE: 9-9-04 — TIME: 3:10

RELEASED BY: — DATE: 9-9-04
PRINT NAME: SHERMAN Roland — FIRM: NCA — TIME: 1610

RECEIVED BY: Tom Blank
PRINT NAME: BlanKinship — FIRM: NCA — DATE: 9/9/04 — TIME: 1610

ADDITIONAL REMARKS:

TEMP: 6.0°C w/cs

PAGE 2 OF 2

COC REV 1/03

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 10/06/04 17:18

ANALYTICAL REPORT FOR SAMPLES - Amended

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
mw-2-0904	B4I0229-01	Water	09/08/04 15:10	09/09/04 16:10
mw-3-0904	B4I0229-02	Water	09/08/04 11:30	09/09/04 16:10
mw-6-0904	B4I0229-03	Water	09/08/04 14:25	09/09/04 16:10
mw-7-0904	B4I0229-04	Water	09/08/04 12:40	09/09/04 16:10
mw-8-0904	B4I0229-05	Water	09/08/04 14:37	09/09/04 16:10
mw-9-0904	B4I0229-06	Water	09/08/04 09:40	09/09/04 16:10
mw-10-0904	B4I0229-07	Water	09/08/04 12:55	09/09/04 16:10
mw-12-0904	B4I0229-08	Water	09/08/04 15:55	09/09/04 16:10
mw-13-0904	B4I0229-09	Water	09/08/04 10:15	09/09/04 16:10
mw-14-0904	B4I0229-10	Water	09/08/04 10:50	09/09/04 16:10
mw-15-0904	B4I0229-11	Water	09/08/04 18:10	09/09/04 16:10
mw-16-0904	B4I0229-12	Water	09/08/04 10:39	09/09/04 16:10
mw-17-0904	B4I0229-13	Water	09/08/04 11:33	09/09/04 16:10
mw-18-0904	B4I0229-14	Water	09/08/04 12:10	09/09/04 16:10
uprr-29-0904	B4I0229-15	Water	09/08/04 16:26	09/09/04 16:10
mw-110-0904	B4I0229-16	Water	09/08/04 13:15	09/09/04 16:10

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 10/06/04 17:18

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

mw-9-0904 (B4I0229-06) Water Sampled: 09/08/04 09:40 Received: 09/09/04 16:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Gasoline Range Hydrocarbons	**41000**	250	ug/l	5	4I13020	09/13/04	09/13/04	NWTPH-Gx/8021B	
Benzene	**79.1**	2.50	"	"	"	"	"	"	
Toluene	**132**	2.50	"	"	"	"	"	"	
Ethylbenzene	**2260**	25.0	"	50	"	"	09/13/04	"	
Xylenes (total)	**1260**	5.00	"	5	"	"	09/13/04	"	
Surrogate: 4-BFB (FID)	*194 %*	*58-144*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*134 %*	*68-140*			"	"	"	"	

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The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 10/06/04 17:18

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-2-0904 (B4I0229-01) Water Sampled: 09/08/04 15:10 Received: 09/09/04 16:10									
Arsenic	**0.261**	0.00100	mg/l	1	4I15021	09/15/04	09/16/04	EPA 6020	
Chromium	**0.0193**	0.00100	"	"	"	"	"	"	
Copper	**0.00717**	0.00100	"	"	"	"	"	"	
mw-3-0904 (B4I0229-02) Water Sampled: 09/08/04 11:30 Received: 09/09/04 16:10									
Arsenic	**3.95**	0.0200	mg/l	20	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.0822**	0.00100	"	1	"	"	09/16/04	"	
Copper	**0.0428**	0.00100	"	"	"	"	"	"	
mw-6-0904 (B4I0229-03) Water Sampled: 09/08/04 14:25 Received: 09/09/04 16:10									
Arsenic	**0.00978**	0.00100	mg/l	1	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.0316**	0.00100	"	"	"	"	09/16/04	"	
Copper	**0.00118**	0.00100	"	"	"	"	"	"	
mw-7-0904 (B4I0229-04) Water Sampled: 09/08/04 12:40 Received: 09/09/04 16:10									
Arsenic	**0.00569**	0.00100	mg/l	1	4I15021	09/15/04	09/20/04	EPA 6020	
Chromium	**0.00498**	0.00100	"	"	"	"	09/16/04	"	
Copper	**0.00164**	0.00100	"	"	"	"	"	"	
mw-8-0904 (B4I0229-05) Water Sampled: 09/08/04 14:37 Received: 09/09/04 16:10									
Arsenic	**0.379**	0.00200	mg/l	2	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.0509**	0.00100	"	1	"	"	09/16/04	"	
Copper	**0.0142**	0.00100	"	"	"	"	"	"	
mw-9-0904 (B4I0229-06) Water Sampled: 09/08/04 09:40 Received: 09/09/04 16:10									
Arsenic	**0.321**	0.00100	mg/l	1	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.00266**	0.00100	"	"	"	"	09/16/04	"	
Copper	ND	0.00100	"	"	"	"	"	"	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amar Gill, Project Manager

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 10/06/04 17:18

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-10-0904 (B4I0229-07) Water	**Sampled: 09/08/04 12:55**	**Received: 09/09/04 16:10**							
Arsenic	**0.00359**	0.00100	mg/l	1	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.0721**	0.00100	"	"	"	"	09/16/04	"	
Copper	**0.00133**	0.00100	"	"	"	"	"	"	
mw-12-0904 (B4I0229-08) Water	**Sampled: 09/08/04 15:55**	**Received: 09/09/04 16:10**							
Arsenic	**0.0164**	0.00100	mg/l	1	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.00225**	0.00100	"	"	"	"	09/16/04	"	
Copper	**0.00135**	0.00100	"	"	"	"	"	"	
mw-13-0904 (B4I0229-09) Water	**Sampled: 09/08/04 10:15**	**Received: 09/09/04 16:10**							
Arsenic	**0.289**	0.00100	mg/l	1	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.105**	0.00100	"	"	"	"	09/16/04	"	
Copper	**0.00609**	0.00100	"	"	"	"	"	"	
mw-14-0904 (B4I0229-10) Water	**Sampled: 09/08/04 10:50**	**Received: 09/09/04 16:10**							
Arsenic	**0.112**	0.00100	mg/l	1	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.0676**	0.00100	"	"	"	"	09/16/04	"	
Copper	**0.0542**	0.00100	"	"	"	"	"	"	
mw-15-0904 (B4I0229-11) Water	**Sampled: 09/08/04 18:10**	**Received: 09/09/04 16:10**							
Arsenic	**0.00909**	0.00100	mg/l	1	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.0123**	0.00100	"	"	"	"	09/16/04	"	
Copper	**0.0221**	0.00100	"	"	"	"	"	"	
mw-16-0904 (B4I0229-12) Water	**Sampled: 09/08/04 10:39**	**Received: 09/09/04 16:10**							
Arsenic	**0.00530**	0.00100	mg/l	1	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.00445**	0.00100	"	"	"	"	09/16/04	"	
Copper	**0.00867**	0.00100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 10/06/04 17:18

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-17-0904 (B4I0229-13) Water	**Sampled: 09/08/04 11:33**	**Received: 09/09/04 16:10**							
Arsenic	**0.0485**	0.00100	mg/l	1	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.00159**	0.00100	"	"	"	"	09/16/04	"	
Copper	**0.00242**	0.00100	"	"	"	"	"	"	
mw-18-0904 (B4I0229-14) Water	**Sampled: 09/08/04 12:10**	**Received: 09/09/04 16:10**							
Arsenic	ND	0.00100	mg/l	1	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.00506**	0.00100	"	"	"	"	09/16/04	"	
Copper	**0.00301**	0.00100	"	"	"	"	"	"	
uprr-29-0904 (B4I0229-15) Water	**Sampled: 09/08/04 16:26**	**Received: 09/09/04 16:10**							
Arsenic	**0.339**	0.00100	mg/l	1	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.00898**	0.00100	"	"	"	"	09/16/04	"	
Copper	**0.00774**	0.00100	"	"	"	"	"	"	
mw-110-0904 (B4I0229-16) Water	**Sampled: 09/08/04 13:15**	**Received: 09/09/04 16:10**							
Arsenic	**0.00356**	0.00100	mg/l	1	4I15021	09/15/04	09/21/04	EPA 6020	
Chromium	**0.0729**	0.00100	"	"	"	"	09/16/04	"	
Copper	**0.00254**	0.00100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 10/06/04 17:18

Dissolved Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-2-0904 (B4I0229-01) Water	**Sampled: 09/08/04 15:10**	**Received: 09/09/04 16:10**							
Arsenic	**0.244**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.0132**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
mw-3-0904 (B4I0229-02) Water	**Sampled: 09/08/04 11:30**	**Received: 09/09/04 16:10**							
Arsenic	**3.53**	0.0200	mg/l	20	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.0285**	0.00100	"	1	"	"	09/17/04	"	
Copper	ND	0.00100	"	"	"	"	"	"	
mw-6-0904 (B4I0229-03) Water	**Sampled: 09/08/04 14:25**	**Received: 09/09/04 16:10**							
Arsenic	**0.0115**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.0227**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
mw-7-0904 (B4I0229-04) Water	**Sampled: 09/08/04 12:40**	**Received: 09/09/04 16:10**							
Arsenic	**0.00229**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.00373**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
mw-8-0904 (B4I0229-05) Water	**Sampled: 09/08/04 14:37**	**Received: 09/09/04 16:10**							
Arsenic	**0.330**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.0122**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
mw-9-0904 (B4I0229-06) Water	**Sampled: 09/08/04 09:40**	**Received: 09/09/04 16:10**							
Arsenic	**0.329**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.00243**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	

The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 10/06/04 17:18

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-10-0904 (B4I0229-07) Water	**Sampled: 09/08/04 12:55**	**Received: 09/09/04 16:10**							
Arsenic	**0.00345**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.0589**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
mw-12-0904 (B4I0229-08) Water	**Sampled: 09/08/04 15:55**	**Received: 09/09/04 16:10**							
Arsenic	**0.0173**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.00168**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
mw-13-0904 (B4I0229-09) Water	**Sampled: 09/08/04 10:15**	**Received: 09/09/04 16:10**							
Arsenic	**0.261**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.0675**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
mw-14-0904 (B4I0229-10) Water	**Sampled: 09/08/04 10:50**	**Received: 09/09/04 16:10**							
Arsenic	**0.0704**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.00911**	0.00100	"	"	"	"	"	"	
Copper	**0.0126**	0.00100	"	"	"	"	"	"	
mw-15-0904 (B4I0229-11) Water	**Sampled: 09/08/04 18:10**	**Received: 09/09/04 16:10**							
Arsenic	**0.00720**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.00119**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
mw-16-0904 (B4I0229-12) Water	**Sampled: 09/08/04 10:39**	**Received: 09/09/04 16:10**							
Arsenic	**0.00512**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	

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Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 10/06/04 17:18

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-17-0904 (B4I0229-13) Water	**Sampled: 09/08/04 11:33**	**Received: 09/09/04 16:10**							
Arsenic	**0.0520**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.00293**	0.00100	"	"	"	"	"	"	
Copper	**0.00155**	0.00100	"	"	"	"	"	"	
mw-18-0904 (B4I0229-14) Water	**Sampled: 09/08/04 12:10**	**Received: 09/09/04 16:10**							
Arsenic	ND	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.00375**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
uprr-29-0904 (B4I0229-15) Water	**Sampled: 09/08/04 16:26**	**Received: 09/09/04 16:10**							
Arsenic	**0.209**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.00348**	0.00100	"	"	"	"	09/15/04	"	
Copper	ND	0.00100	"	"	"	"	"	"	
mw-110-0904 (B4I0229-16) Water	**Sampled: 09/08/04 13:15**	**Received: 09/09/04 16:10**							
Arsenic	**0.00335**	0.00100	mg/l	1	4I13058	09/13/04	09/17/04	EPA 6020	
Chromium	**0.0570**	0.00100	"	"	"	"	09/15/04	"	
Copper	ND	0.00100	"	"	"	"	"	"	

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509.924.9200 fax 509.924.9290
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503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 10/06/04 17:18

Pentachlorophenol by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-2-0904 (B4I0229-01) Water Sampled: 09/08/04 15:10 Received: 09/09/04 16:10									
Pentachlorophenol	**124**	0.500	ug/l	1	4I14008	09/14/04	09/21/04	EPA 8270 Mod	E
Surrogate: 2,4,6-TBP	*146 %*	*22-162*			"	"	"	"	
mw-2-0904 (B4I0229-01RE1) Water Sampled: 09/08/04 15:10 Received: 09/09/04 16:10									
Pentachlorophenol	**117**	5.00	ug/l	10	4I14008	09/14/04	09/22/04	EPA 8270 Mod	
Surrogate: 2-FP	*91.1 %*	*60-120*			"	"	"	"	
Surrogate: Phenol-d6	*83.5 %*	*25-122*			"	"	"	"	
Surrogate: 2,4,6-TBP	*83.5 %*	*22-162*			"	"	"	"	
Surrogate: 2-FBP	*73.9 %*	*30-150*			"	"	"	"	
mw-3-0904 (B4I0229-02) Water Sampled: 09/08/04 11:30 Received: 09/09/04 16:10									
Pentachlorophenol	**2.57**	0.500	ug/l	1	4I14008	09/14/04	09/21/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*142 %*	*22-162*			"	"	"	"	
mw-6-0904 (B4I0229-03) Water Sampled: 09/08/04 14:25 Received: 09/09/04 16:10									
Pentachlorophenol	ND	0.500	ug/l	1	4I14008	09/14/04	09/21/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*143 %*	*22-162*			"	"	"	"	
mw-7-0904 (B4I0229-04) Water Sampled: 09/08/04 12:40 Received: 09/09/04 16:10									
Pentachlorophenol	**0.708**	0.500	ug/l	1	4I14008	09/14/04	09/21/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*142 %*	*22-162*			"	"	"	"	
mw-8-0904 (B4I0229-05) Water Sampled: 09/08/04 14:37 Received: 09/09/04 16:10									
Pentachlorophenol	**1.16**	0.500	ug/l	1	4I14008	09/14/04	09/21/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*133 %*	*22-162*			"	"	"	"	

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Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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907.563.9200 fax 907.563.9210

The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 10/06/04 17:18

Pentachlorophenol by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-9-0904 (B4I0229-06) Water Sampled: 09/08/04 09:40 Received: 09/09/04 16:10									
Pentachlorophenol	ND	0.500	ug/l	1	4I14008	09/14/04	09/21/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*119 %*	*22-162*			"	"	"	"	
mw-10-0904 (B4I0229-07) Water Sampled: 09/08/04 12:55 Received: 09/09/04 16:10									
Pentachlorophenol	**1.79**	0.500	ug/l	1	4I14008	09/14/04	09/22/04	EPA 8270 Mod	
Surrogate: 2-FP	*113 %*	*60-120*			"	"	"	"	
Surrogate: Phenol-d6	*71.0 %*	*25-122*			"	"	"	"	
Surrogate: 2,4,6-TBP	*83.4 %*	*22-162*			"	"	"	"	
Surrogate: 2-FBP	*98.9 %*	*30-150*			"	"	"	"	
mw-12-0904 (B4I0229-08) Water Sampled: 09/08/04 15:55 Received: 09/09/04 16:10									
Pentachlorophenol	**1.62**	0.500	ug/l	1	4I14008	09/14/04	09/22/04	EPA 8270 Mod	
Surrogate: 2-FP	*76.5 %*	*60-120*			"	"	"	"	
Surrogate: Phenol-d6	*76.5 %*	*25-122*			"	"	"	"	
Surrogate: 2,4,6-TBP	*100 %*	*22-162*			"	"	"	"	
Surrogate: 2-FBP	*94.1 %*	*30-150*			"	"	"	"	
mw-13-0904 (B4I0229-09) Water Sampled: 09/08/04 10:15 Received: 09/09/04 16:10									
Pentachlorophenol	**2.89**	0.500	ug/l	1	4I14008	09/14/04	09/22/04	EPA 8270 Mod	
Surrogate: 2-FP	*91.3 %*	*60-120*			"	"	"	"	
Surrogate: Phenol-d6	*84.7 %*	*25-122*			"	"	"	"	
Surrogate: 2,4,6-TBP	*107 %*	*22-162*			"	"	"	"	
Surrogate: 2-FBP	*100 %*	*30-150*			"	"	"	"	
mw-14-0904 (B4I0229-10) Water Sampled: 09/08/04 10:50 Received: 09/09/04 16:10									
Pentachlorophenol	ND	0.500	ug/l	1	4I14008	09/14/04	09/22/04	EPA 8270 Mod	
Surrogate: 2-FP	*88.8 %*	*60-120*			"	"	"	"	
Surrogate: Phenol-d6	*88.8 %*	*25-122*			"	"	"	"	
Surrogate: 2,4,6-TBP	*110 %*	*22-162*			"	"	"	"	
Surrogate: 2-FBP	*95.8 %*	*30-150*			"	"	"	"	

Pentachlorophenol by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-15-0904 (B4I0229-11) Water Sampled: 09/08/04 18:10 Received: 09/09/04 16:10									
Pentachlorophenol	**6.10**	0.833	ug/l	1	4I14008	09/14/04	09/22/04	EPA 8270 Mod	
Surrogate: 2-FP	*90.3 %*	*60-120*			"	"	"	"	
Surrogate: Phenol-d6	*93.2 %*	*25-122*			"	"	"	"	
Surrogate: 2,4,6-TBP	*115 %*	*22-162*			"	"	"	"	
Surrogate: 2-FBP	*98.7 %*	*30-150*			"	"	"	"	
mw-16-0904 (B4I0229-12) Water Sampled: 09/08/04 10:39 Received: 09/09/04 16:10									
Pentachlorophenol	**1.70**	0.500	ug/l	1	4I14008	09/14/04	09/22/04	EPA 8270 Mod	
Surrogate: 2-FP	*99.6 %*	*60-120*			"	"	"	"	
Surrogate: Phenol-d6	*92.9 %*	*25-122*			"	"	"	"	
Surrogate: 2,4,6-TBP	*117 %*	*22-162*			"	"	"	"	
Surrogate: 2-FBP	*94.7 %*	*30-150*			"	"	"	"	
mw-17-0904 (B4I0229-13) Water Sampled: 09/08/04 11:33 Received: 09/09/04 16:10									
Pentachlorophenol	**1.62**	0.500	ug/l	1	4I14008	09/14/04	09/22/04	EPA 8270 Mod	
Surrogate: 2-FP	*61.8 %*	*60-120*			"	"	"	"	
Surrogate: Phenol-d6	*58.4 %*	*25-122*			"	"	"	"	
Surrogate: 2,4,6-TBP	*86.1 %*	*22-162*			"	"	"	"	
Surrogate: 2-FBP	*86.3 %*	*30-150*			"	"	"	"	
mw-18-0904 (B4I0229-14) Water Sampled: 09/08/04 12:10 Received: 09/09/04 16:10									
Pentachlorophenol	ND	0.500	ug/l	1	4I14008	09/14/04	09/22/04	EPA 8270 Mod	
Surrogate: 2-FP	*69.3 %*	*60-120*			"	"	"	"	
Surrogate: Phenol-d6	*70.6 %*	*25-122*			"	"	"	"	
Surrogate: 2,4,6-TBP	*102 %*	*22-162*			"	"	"	"	
Surrogate: 2-FBP	*91.3 %*	*30-150*			"	"	"	"	

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 10/06/04 17:18

Pentachlorophenol by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
uprr-29-0904 (B4I0229-15) Water Sampled: 09/08/04 16:26 Received: 09/09/04 16:10									
Pentachlorophenol	**1.85**	0.500	ug/l	1	4I14008	09/14/04	09/22/04	EPA 8270 Mod	
Surrogate: 2-FP	*67.9 %*	*60-120*			"	"	"	"	
Surrogate: Phenol-d6	*65.3 %*	*25-122*			"	"	"	"	
Surrogate: 2,4,6-TBP	*101 %*	*22-162*			"	"	"	"	
Surrogate: 2-FBP	*83.2 %*	*30-150*			"	"	"	"	
mw-110-0904 (B4I0229-16) Water Sampled: 09/08/04 13:15 Received: 09/09/04 16:10									
Pentachlorophenol	**2.60**	0.500	ug/l	1	4I14008	09/14/04	09/23/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*112 %*	*22-162*			"	"	"	"	

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 10/06/04 17:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-2-0904 (B4I0229-01) Water Sampled: 09/08/04 15:10 Received: 09/09/04 16:10									
2-Methylnaphthalene	ND	0.100	ug/l	1	4I14008	09/14/04	09/21/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	**189**	0.100	"	"	"	"	09/21/04	"	E
Acenaphthylene	**8.47**	0.100	"	"	"	"	"	"	
Anthracene	**2.45**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	**0.245**	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	**0.132**	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.189**	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.132**	0.100	"	"	"	"	"	"	
Chrysene	**0.283**	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**2.38**	0.100	"	"	"	"	"	"	
Fluorene	**64.8**	0.100	"	"	"	"	"	"	E
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**190**	0.100	"	"	"	"	"	"	E
Phenanthrene	**5.53**	0.100	"	"	"	"	"	"	
Pyrene	**1.51**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*73.7 %*	*20-127*			"	"	"	"	
mw-2-0904 (B4I0229-01RE1) Water Sampled: 09/08/04 15:10 Received: 09/09/04 16:10									
2-Methylnaphthalene	ND	1.00	ug/l	10	4I14008	09/14/04	09/22/04	8270C-SIM	
Acenaphthene	**191**	1.00	"	"	"	"	"	"	
Acenaphthylene	**8.68**	1.00	"	"	"	"	"	"	
Anthracene	**2.83**	1.00	"	"	"	"	"	"	
Benzo (a) anthracene	ND	1.00	"	"	"	"	"	"	
Benzo (a) pyrene	ND	1.00	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	1.00	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	1.00	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	1.00	"	"	"	"	"	"	
Chrysene	ND	1.00	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**1.32**	1.00	"	"	"	"	"	"	
Fluoranthene	**3.02**	1.00	"	"	"	"	"	"	
Fluorene	**68.5**	1.00	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.00	"	"	"	"	"	"	
Naphthalene	**270**	1.00	"	"	"	"	"	"	
Phenanthrene	**6.60**	1.00	"	"	"	"	"	"	
Pyrene	**1.13**	1.00	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Amar Gill, Project Manager

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 10/06/04 17:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-2-0904 (B4I0229-01RE1) Water	**Sampled: 09/08/04 15:10**		**Received: 09/09/04 16:10**						
Surrogate: p-Terphenyl-d14	*55.5 %*	*20-127*			*4I14008*	*09/14/04*	*09/22/04*	*8270C-SIM*	
mw-3-0904 (B4I0229-02) Water	**Sampled: 09/08/04 11:30**		**Received: 09/09/04 16:10**						
2-Methylnaphthalene	ND	0.100	ug/l	1	4I14008	09/14/04	09/21/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	**0.321**	0.100	"	"	"	"	09/21/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	**0.264**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	**0.151**	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	**0.170**	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.189**	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	**0.132**	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.170**	0.100	"	"	"	"	"	"	
Chrysene	**0.189**	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**0.113**	0.100	"	"	"	"	"	"	
Fluorene	**0.208**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	**0.113**	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	**0.132**	0.100	"	"	"	"	"	"	
Pyrene	**0.113**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*83.5 %*	*20-127*			*"*	*"*	*"*	*"*	
mw-6-0904 (B4I0229-03) Water	**Sampled: 09/08/04 14:25**		**Received: 09/09/04 16:10**						
2-Methylnaphthalene	ND	0.100	ug/l	1	4I14008	09/14/04	09/21/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	ND	0.100	"	"	"	"	09/21/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	**0.151**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	**0.132**	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.151**	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.113**	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**0.208**	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 10/06/04 17:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-6-0904 (B4I0229-03) Water	**Sampled: 09/08/04 14:25**	**Received: 09/09/04 16:10**							
Naphthalene	ND	0.100	ug/l	1	4I14008	09/14/04	09/21/04	8270C-SIM	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	**0.208**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*82.4 %*	*20-127*			"	"	"	"	
mw-7-0904 (B4I0229-04) Water	**Sampled: 09/08/04 12:40**	**Received: 09/09/04 16:10**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4I14008	09/14/04	09/21/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	ND	0.100	"	"	"	"	09/21/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	**0.146**	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.188**	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	**0.125**	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.104**	0.100	"	"	"	"	"	"	
Chrysene	**0.125**	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**0.125**	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	**0.125**	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	**0.104**	0.100	"	"	"	"	"	"	
Pyrene	**0.125**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*86.4 %*	*20-127*			"	"	"	"	

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 10/06/04 17:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-8-0904 (B4I0229-05) Water	**Sampled: 09/08/04 14:37**	**Received: 09/09/04 16:10**							
2-Methylnaphthalene	**0.248**	0.100	ug/l	1	4I14008	09/14/04	09/21/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	**3.33**	0.100	"	"	"	"	09/21/04	"	
Acenaphthylene	**0.400**	0.100	"	"	"	"	"	"	
Anthracene	**0.286**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	**0.152**	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	**0.133**	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	**0.743**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	**0.133**	0.100	"	"	"	"	"	"	
Naphthalene	**2.36**	0.100	"	"	"	"	"	"	
Phenanthrene	**0.210**	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*90.1 %*	*20-127*			"	"	"	"	
mw-9-0904 (B4I0229-06) Water	**Sampled: 09/08/04 09:40**	**Received: 09/09/04 16:10**							
2-Methylnaphthalene	**45.6**	0.100	ug/l	1	4I14008	09/14/04	09/21/04	8270C-SIM	E
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	**2.77**	0.100	"	"	"	"	09/21/04	"	
Acenaphthylene	**0.245**	0.100	"	"	"	"	"	"	
Anthracene	**0.170**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**0.113**	0.100	"	"	"	"	"	"	
Fluorene	**0.377**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**849**	0.100	"	"	"	"	"	"	E-01
Phenanthrene	**0.321**	0.100	"	"	"	"	"	"	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amar Gill, Project Manager

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

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The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 10/06/04 17:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-9-0904 (B4I0229-06) Water	**Sampled: 09/08/04 09:40**		**Received: 09/09/04 16:10**						
Pyrene	ND	0.100	ug/l	1	4I14008	09/14/04	09/21/04	8270C-SIM	
Surrogate: p-Terphenyl-d14	*75.8 %*	*20-127*			"	"	"	"	
mw-9-0904 (B4I0229-06RE1) Water	**Sampled: 09/08/04 09:40**		**Received: 09/09/04 16:10**						
2-Methylnaphthalene	**38.7**	5.00	ug/l	50	4I14008	09/14/04	09/22/04	8270C-SIM	
Acenaphthene	**312**	5.00	"	"	"	"	"	"	
Acenaphthylene	**14.2**	5.00	"	"	"	"	"	"	
Anthracene	**5.66**	5.00	"	"	"	"	"	"	
Benzo (a) anthracene	ND	5.00	"	"	"	"	"	"	
Benzo (a) pyrene	ND	5.00	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	5.00	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	5.00	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	5.00	"	"	"	"	"	"	
Chrysene	ND	5.00	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**6.60**	5.00	"	"	"	"	"	"	
Fluoranthene	**5.66**	5.00	"	"	"	"	"	"	
Fluorene	**112**	5.00	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	5.00	"	"	"	"	"	"	
Naphthalene	**3460**	5.00	"	"	"	"	"	"	E
Phenanthrene	**12.3**	5.00	"	"	"	"	"	"	
Pyrene	ND	5.00	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*162 %*	*20-127*			"	"	"	"	*S-01*
mw-9-0904 (B4I0229-06RE2) Water	**Sampled: 09/08/04 09:40**		**Received: 09/09/04 16:10**						
2-Methylnaphthalene	**30.2**	20.0	ug/l	200	4I14008	09/14/04	09/23/04	8270C-SIM	
Acenaphthene	ND	20.0	"	"	"	"	"	"	
Acenaphthylene	ND	20.0	"	"	"	"	"	"	
Anthracene	ND	20.0	"	"	"	"	"	"	
Benzo (a) anthracene	ND	20.0	"	"	"	"	"	"	
Benzo (a) pyrene	ND	20.0	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	20.0	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	20.0	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	20.0	"	"	"	"	"	"	
Chrysene	ND	20.0	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	20.0	"	"	"	"	"	"	
Fluoranthene	ND	20.0	"	"	"	"	"	"	
Fluorene	ND	20.0	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	20.0	"	"	"	"	"	"	

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Amar Gill, Project Manager

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-9-0904 (B4I0229-06RE2) Water Sampled: 09/08/04 09:40 Received: 09/09/04 16:10									
Naphthalene	**2640**	20.0	ug/l	200	4I14008	09/14/04	09/23/04	8270C-SIM	
Phenanthrene	ND	20.0	"	"	"	"	"	"	
Pyrene	ND	20.0	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*112 %*	*20-127*			"	"	"	"	*S-01*
mw-10-0904 (B4I0229-07) Water Sampled: 09/08/04 12:55 Received: 09/09/04 16:10									
2-Methylnaphthalene	**0.171**	0.100	ug/l	1	4I14008	09/14/04	09/22/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	ND	0.100	"	"	"	"	09/22/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	**0.190**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.171**	0.100	"	"	"	"	"	"	
Fluoranthene	**0.152**	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**6.15**	0.100	"	"	"	"	"	"	
Phenanthrene	**0.152**	0.100	"	"	"	"	"	"	
Pyrene	**0.171**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*106 %*	*20-127*			"	"	"	"	

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 10/06/04 17:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-12-0904 (B4I0229-08) Water	**Sampled: 09/08/04 15:55**	**Received: 09/09/04 16:10**							
2-Methylnaphthalene	**0.226**	0.100	ug/l	1	4I14008	09/14/04	09/22/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	**1.43**	0.100	"	"	"	"	09/22/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	**0.189**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.151**	0.100	"	"	"	"	"	"	
Fluoranthene	**0.245**	0.100	"	"	"	"	"	"	
Fluorene	**0.566**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**0.434**	0.100	"	"	"	"	"	"	
Phenanthrene	**0.509**	0.100	"	"	"	"	"	"	
Pyrene	**0.226**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*94.3 %*	*20-127*			"	"	"	"	
mw-13-0904 (B4I0229-09) Water	**Sampled: 09/08/04 10:15**	**Received: 09/09/04 16:10**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4I14008	09/14/04	09/22/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	**1.81**	0.100	"	"	"	"	09/22/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	**0.264**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.151**	0.100	"	"	"	"	"	"	
Fluoranthene	**0.132**	0.100	"	"	"	"	"	"	
Fluorene	**0.302**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**1.26**	0.100	"	"	"	"	"	"	
Phenanthrene	**0.113**	0.100	"	"	"	"	"	"	

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
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Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-13-0904 (B4I0229-09) Water Sampled: 09/08/04 10:15 Received: 09/09/04 16:10									
Pyrene	**0.132**	0.100	ug/l	1	4I14008	09/14/04	09/22/04	8270C-SIM	
Surrogate: p-Terphenyl-d14	*97.9 %*	*20-127*			"	"	"	"	
mw-14-0904 (B4I0229-10) Water Sampled: 09/08/04 10:50 Received: 09/09/04 16:10									
2-Methylnaphthalene	ND	0.100	ug/l	1	4I14008	09/14/04	09/22/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	ND	0.100	"	"	"	"	09/22/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.151**	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*91.3 %*	*20-127*			"	"	"	"	
mw-15-0904 (B4I0229-11) Water Sampled: 09/08/04 18:10 Received: 09/09/04 16:10									
2-Methylnaphthalene	**1.60**	0.167	ug/l	1	4I14008	09/14/04	09/22/04	8270C-SIM	
2-Chloronaphthalene	ND	0.167	"	"	"	"	09/29/04	"	
Acenaphthene	**27.2**	0.167	"	"	"	"	09/22/04	"	
Acenaphthylene	**8.63**	0.167	"	"	"	"	"	"	
Anthracene	**2.90**	0.167	"	"	"	"	"	"	
Benzo (a) anthracene	**1.17**	0.167	"	"	"	"	"	"	
Benzo (a) pyrene	**0.333**	0.167	"	"	"	"	"	"	
Benzo (b) fluoranthene	**1.03**	0.167	"	"	"	"	"	"	
Benzo (ghi) perylene	**0.167**	0.167	"	"	"	"	"	"	
Benzo (k) fluoranthene	**1.27**	0.167	"	"	"	"	"	"	
Chrysene	**1.57**	0.167	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.300**	0.167	"	"	"	"	"	"	
Fluoranthene	**11.4**	0.167	"	"	"	"	"	"	

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-15-0904 (B4I0229-11) Water Sampled: 09/08/04 18:10 Received: 09/09/04 16:10									
Fluorene	**20.4**	0.167	ug/l	1	4I14008	09/14/04	09/22/04	8270C-SIM	
Indeno (1,2,3-cd) pyrene	**0.167**	0.167	"	"	"	"	"	"	
Naphthalene	**1.27**	0.167	"	"	"	"	"	"	
Phenanthrene	**28.4**	0.167	"	"	"	"	"	"	
Pyrene	**7.10**	0.167	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*90.5 %*	*20-127*			"	"	"	"	
mw-16-0904 (B4I0229-12) Water Sampled: 09/08/04 10:39 Received: 09/09/04 16:10									
2-Methylnaphthalene	**13.7**	0.100	ug/l	1	4I14008	09/14/04	09/22/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	**2.99**	0.100	"	"	"	"	09/22/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	**0.210**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	**0.114**	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	**0.114**	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.152**	0.100	"	"	"	"	"	"	
Fluoranthene	**0.343**	0.100	"	"	"	"	"	"	
Fluorene	**0.705**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**534**	0.100	"	"	"	"	"	"	E-01
Phenanthrene	**0.552**	0.100	"	"	"	"	"	"	
Pyrene	**0.362**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*77.3 %*	*20-127*			"	"	"	"	

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
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The RETEC Group, Inc.	Project:	Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number:	CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager:	Jill Nordstrom	Issued: 10/06/04 17:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-16-0904 (B4I0229-12RE1) Water Sampled: 09/08/04 10:39 Received: 09/09/04 16:10									
2-Methylnaphthalene	**11.4**	5.00	ug/l	50	4I14008	09/14/04	09/24/04	8270C-SIM	
Acenaphthene	ND	5.00	"	"	"	"	"	"	
Acenaphthylene	ND	5.00	"	"	"	"	"	"	
Anthracene	ND	5.00	"	"	"	"	"	"	
Benzo (a) anthracene	ND	5.00	"	"	"	"	"	"	
Benzo (a) pyrene	ND	5.00	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	5.00	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	5.00	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	5.00	"	"	"	"	"	"	
Chrysene	ND	5.00	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	5.00	"	"	"	"	"	"	
Fluoranthene	ND	5.00	"	"	"	"	"	"	
Fluorene	ND	5.00	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	5.00	"	"	"	"	"	"	
Naphthalene	**1280**	5.00	"	"	"	"	"	"	
Phenanthrene	ND	5.00	"	"	"	"	"	"	
Pyrene	ND	5.00	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*102 %*	*20-127*			"	"	"	"	
mw-17-0904 (B4I0229-13) Water Sampled: 09/08/04 11:33 Received: 09/09/04 16:10									
2-Methylnaphthalene	ND	0.100	ug/l	1	4I14008	09/14/04	09/22/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	ND	0.100	"	"	"	"	09/22/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	**0.152**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	**0.114**	0.100	"	"	"	"	"	"	
Pyrene	**0.171**	0.100	"	"	"	"	"	"	

Amar Gill, Project Manager

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Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 10/06/04 17:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
mw-17-0904 (B4I0229-13) Water	**Sampled: 09/08/04 11:33**	**Received: 09/09/04 16:10**							
Surrogate: p-Terphenyl-d14	*81.9 %*	*20-127*			*4I14008*	*09/14/04*	*09/22/04*	*8270C-SIM*	
mw-18-0904 (B4I0229-14) Water	**Sampled: 09/08/04 12:10**	**Received: 09/09/04 16:10**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4I14008	09/14/04	09/22/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	ND	0.100	"	"	"	"	09/22/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	**0.113**	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.132**	0.100	"	"	"	"	"	"	
Fluoranthene	**0.226**	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	**0.189**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*94.1 %*	*20-127*			*"*	*"*	*"*	*"*	
uprr-29-0904 (B4I0229-15) Water	**Sampled: 09/08/04 16:26**	**Received: 09/09/04 16:10**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4I14008	09/14/04	09/22/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	**0.495**	0.100	"	"	"	"	09/22/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	**0.419**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.152**	0.100	"	"	"	"	"	"	
Fluoranthene	**0.267**	0.100	"	"	"	"	"	"	
Fluorene	**1.50**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	

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509.924.9200 fax 509.924.9290
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503.906.9200 fax 503.906.9210
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541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 10/06/04 17:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
uprr-29-0904 (B4I0229-15) Water	**Sampled: 09/08/04 16:26**	**Received: 09/09/04 16:10**							
Naphthalene	ND	0.100	ug/l	1	4I14008	09/14/04	09/22/04	8270C-SIM	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	**0.305**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*84.0 %*	*20-127*			"	"	"	"	
mw-110-0904 (B4I0229-16) Water	**Sampled: 09/08/04 13:15**	**Received: 09/09/04 16:10**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4I14008	09/14/04	09/23/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	09/29/04	"	
Acenaphthene	ND	0.100	"	"	"	"	09/23/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	**0.170**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.113**	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.113**	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.868**	0.100	"	"	"	"	"	"	
Fluoranthene	**0.132**	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	**0.113**	0.100	"	"	"	"	"	"	
Naphthalene	**6.17**	0.100	"	"	"	"	"	"	
Phenanthrene	**0.132**	0.100	"	"	"	"	"	"	
Pyrene	**0.151**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*109 %*	*20-127*			"	"	"	"	

North Creek Analytical - Bothell

Amar Gill, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
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541.383.9310 fax 541.382.7588
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907.563.9200 fax 907.563.9210

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4I13020: Prepared 09/13/04 Using EPA 5030B (P/T)										
Blank (4I13020-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*46.1*		*"*	*48.0*		*96.0*	*58-144*			
Surrogate: 4-BFB (PID)	*45.4*		*"*	*48.0*		*94.6*	*68-140*			
LCS (4I13020-BS1)										
Gasoline Range Hydrocarbons	499	50.0	ug/l	502		99.4	80-120			
Benzene	6.36	0.500	"	6.21		102	80-120			
Toluene	33.6	0.500	"	34.9		96.3	80-120			
Ethylbenzene	8.59	0.500	"	8.38		103	80-120			
Xylenes (total)	41.6	1.00	"	40.6		102	80-120			
Surrogate: 4-BFB (FID)	*54.1*		*"*	*48.0*		*113*	*58-144*			
Surrogate: 4-BFB (PID)	*45.4*		*"*	*48.0*		*94.6*	*68-140*			
LCS Dup (4I13020-BSD1)										
Gasoline Range Hydrocarbons	509	50.0	ug/l	502		101	80-120	1.98	25	
Benzene	6.50	0.500	"	6.21		105	80-120	2.18	25	
Toluene	34.3	0.500	"	34.9		98.3	80-120	2.06	25	
Ethylbenzene	8.71	0.500	"	8.38		104	80-120	1.39	25	
Xylenes (total)	42.2	1.00	"	40.6		104	80-120	1.43	25	
Surrogate: 4-BFB (FID)	*54.2*		*"*	*48.0*		*113*	*58-144*			
Surrogate: 4-BFB (PID)	*45.2*		*"*	*48.0*		*94.2*	*68-140*			
Matrix Spike (4I13020-MS1)					**Source: B4I0180-05**					
Gasoline Range Hydrocarbons	527	50.0	ug/l	502	39.1	97.2	58-129			
Benzene	9.84	0.500	"	6.21	4.94	78.9	46-130			
Toluene	30.4	0.500	"	34.9	0.203	86.5	60-124			
Ethylbenzene	7.94	0.500	"	8.38	0.260	91.6	56-141			
Xylenes (total)	38.0	1.00	"	40.6	0.754	91.7	66-132			
Surrogate: 4-BFB (FID)	*54.9*		*"*	*48.0*		*114*	*58-144*			
Surrogate: 4-BFB (PID)	*42.0*		*"*	*48.0*		*87.5*	*68-140*			

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509.924.9200 fax 509.924.9290
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541.383.9310 fax 541.382.7588
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907.563.9200 fax 907.563.9210

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4I13020: Prepared 09/13/04 Using EPA 5030B (P/T)										
Matrix Spike Dup (4I13020-MSD1)					**Source: B4I0180-05**					
Gasoline Range Hydrocarbons	507	50.0	ug/l	502	39.1	93.2	58-129	3.87	25	
Benzene	9.99	0.500	"	6.21	4.94	81.3	46-130	1.51	40	
Toluene	31.1	0.500	"	34.9	0.203	88.5	60-124	2.28	40	
Ethylbenzene	7.98	0.500	"	8.38	0.260	92.1	56-141	0.503	40	
Xylenes (total)	38.6	1.00	"	40.6	0.754	93.2	66-132	1.57	40	
Surrogate: 4-BFB (FID)	*53.8*		*"*	*48.0*		*112*	*58-144*			
Surrogate: 4-BFB (PID)	*43.3*		*"*	*48.0*		*90.2*	*68-140*			

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4I15021: Prepared 09/15/04 Using EPA 3020A										
Blank (4I15021-BLK1)										
Arsenic	ND	0.00100	mg/l							
Chromium	ND	0.00100	"							
Copper	ND	0.00100	"							
LCS (4I15021-BS1)										
Arsenic	0.0748	0.00100	mg/l	0.0800		93.5	80-120			
Chromium	0.0822	0.00100	"	0.0800		103	80-120			
Copper	0.0768	0.00100	"	0.0800		96.0	80-120			
LCS Dup (4I15021-BSD1)										
Arsenic	0.0741	0.00100	mg/l	0.0800		92.6	80-120	0.940	20	
Chromium	0.0805	0.00100	"	0.0800		101	80-120	2.09	20	
Copper	0.0752	0.00100	"	0.0800		94.0	80-120	2.11	20	
Matrix Spike (4I15021-MS1)				**Source: B4I0229-04**						
Arsenic	0.0863	0.00100	mg/l	0.0800	0.00569	101	75-125			
Chromium	0.0886	0.00100	"	0.0800	0.00498	105	75-125			
Copper	0.0747	0.00100	"	0.0800	0.00164	91.3	70-125			
Matrix Spike Dup (4I15021-MSD1)				**Source: B4I0229-04**						
Arsenic	0.0852	0.00100	mg/l	0.0800	0.00569	99.4	75-125	1.28	20	
Chromium	0.0883	0.00100	"	0.0800	0.00498	104	75-125	0.339	20	
Copper	0.0742	0.00100	"	0.0800	0.00164	90.7	70-125	0.672	20	
Post Spike (4I15021-PS1)				**Source: B4I0229-04**						
Arsenic	0.109		ug/ml	0.100	0.00569	103	75-125			
Chromium	0.109		"	0.100	0.00498	104	75-125			
Copper	0.0935		"	0.101	0.00164	91.0	75-125			

Dissolved Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4I13058: Prepared 09/13/04 Using EPA 3005A										
Blank (4I13058-BLK1)										
Arsenic	ND	0.00100	mg/l							
Chromium	ND	0.00100	"							
Copper	ND	0.00100	"							
LCS (4I13058-BS1)										
Arsenic	0.194	0.00100	mg/l	0.200		97.0	80-120			
Chromium	0.194	0.00100	"	0.200		97.0	80-120			
Copper	0.194	0.00100	"	0.200		97.0	80-120			
LCS Dup (4I13058-BSD1)										
Arsenic	0.196	0.00100	mg/l	0.200		98.0	80-120	1.03	20	
Chromium	0.197	0.00100	"	0.200		98.5	80-120	1.53	20	
Copper	0.196	0.00100	"	0.200		98.0	80-120	1.03	20	
Matrix Spike (4I13058-MS1)					**Source: B4I0229-04**					
Arsenic	0.120	0.00100	mg/l	0.100	0.00229	118	70-138			
Chromium	0.101	0.00100	"	0.100	0.00373	97.3	76-125			
Copper	0.0900	0.00100	"	0.101	0.000800	88.3	71-125			
Matrix Spike Dup (4I13058-MSD1)					**Source: B4I0229-04**					
Arsenic	0.123	0.00100	mg/l	0.100	0.00229	121	70-138	2.47	20	
Chromium	0.103	0.00100	"	0.100	0.00373	99.3	76-125	1.96	20	
Copper	0.0925	0.00100	"	0.101	0.000800	90.8	71-125	2.74	20	

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 10/06/04 17:18

Pentachlorophenol by GC/MS with Selected Ion Monitoring - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4I14008: Prepared 09/14/04 Using EPA 3520C										
Blank (4I14008-BLK1)										
Pentachlorophenol	ND	0.500	ug/l							
Surrogate: 2-FP	*35.7*		"	*50.0*		*71.4*	*60-120*			
Surrogate: Phenol-d6	*34.2*		"	*50.0*		*68.4*	*25-122*			
Surrogate: 2,4,6-TBP	*35.3*		"	*50.0*		*70.6*	*22-162*			
Surrogate: 2-FBP	*35.0*		"	*50.0*		*70.0*	*30-150*			
LCS (4I14008-BS1)										
Pentachlorophenol	16.6	0.500	ug/l	20.0		83.0	20-128			
Surrogate: 2,4,6-TBP	*58.1*		"	*50.0*		*116*	*22-162*			
LCS Dup (4I14008-BSD1)										
Pentachlorophenol	15.7	0.500	ug/l	20.0		78.5	20-128	5.57	50	
Surrogate: 2,4,6-TBP	*52.5*		"	*50.0*		*105*	*22-162*			
Matrix Spike (4I14008-MS1)					**Source: B4I0229-04**					
Pentachlorophenol	27.3	0.500	ug/l	18.9	0.708	141	20-130			Q-01
Surrogate: 2,4,6-TBP	*66.8*		"	*47.2*		*142*	*22-162*			
Matrix Spike Dup (4I14008-MSD1)					**Source: B4I0229-04**					
Pentachlorophenol	30.4	0.500	ug/l	19.0	0.708	156	20-130	10.7	50	Q-01
Surrogate: 2,4,6-TBP	*77.5*		"	*47.6*		*163*	*22-162*			*S-03*

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amar Gill, Project Manager

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 10/06/04 17:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4I14008: Prepared 09/14/04 Using EPA 3520C										
Blank (4I14008-BLK1)										
2-Methylnaphthalene	ND	0.100	ug/l							
2-Chloronaphthalene	ND	0.100	"							
Acenaphthene	ND	0.100	"							
Acenaphthylene	ND	0.100	"							
Anthracene	ND	0.100	"							
Benzo (a) anthracene	ND	0.100	"							
Benzo (a) pyrene	ND	0.100	"							
Benzo (b) fluoranthene	ND	0.100	"							
Benzo (ghi) perylene	ND	0.100	"							
Benzo (k) fluoranthene	ND	0.100	"							
Chrysene	ND	0.100	"							
Dibenz (a,h) anthracene	ND	0.100	"							
Fluoranthene	ND	0.100	"							
Fluorene	ND	0.100	"							
Indeno (1,2,3-cd) pyrene	ND	0.100	"							
Naphthalene	ND	0.100	"							
Phenanthrene	ND	0.100	"							
Pyrene	ND	0.100	"							
Surrogate: p-Terphenyl-d14	*25.1*		*"*	*50.0*		*50.2*	*20-127*			
LCS (4I14008-BS1)										
2-Methylnaphthalene	8.00	0.100	ug/l	10.0		80.0	42-120			
Acenaphthene	7.30	0.100	"	10.0		73.0	34-120			
Acenaphthylene	7.70	0.100	"	10.0		77.0	36-120			
Anthracene	8.50	0.100	"	10.0		85.0	35-138			
Benzo (a) anthracene	8.76	0.100	"	10.0		87.6	41-121			
Benzo (a) pyrene	8.52	0.100	"	10.0		85.2	33-125			
Benzo (b) fluoranthene	7.58	0.100	"	10.0		75.8	35-133			
Benzo (ghi) perylene	7.50	0.100	"	10.0		75.0	25-121			
Benzo (k) fluoranthene	7.72	0.100	"	10.0		77.2	28-127			
Chrysene	9.20	0.100	"	10.0		92.0	41-120			
Dibenz (a,h) anthracene	7.96	0.100	"	10.0		79.6	24-120			
Fluoranthene	8.94	0.100	"	10.0		89.4	33-137			
Fluorene	7.96	0.100	"	10.0		79.6	42-120			
Indeno (1,2,3-cd) pyrene	8.20	0.100	"	10.0		82.0	26-122			

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The RETEC Group, Inc.	Project:	Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number:	CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager:	Jill Nordstrom	Issued: 10/06/04 17:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4I14008: Prepared 09/14/04 Using EPA 3520C										
LCS (4I14008-BS1)										
Naphthalene	7.86	0.100	ug/l	10.0		78.6	38-120			
Phenanthrene	7.88	0.100	"	10.0		78.8	31-127			
Pyrene	8.56	0.100	"	10.0		85.6	42-125			
Surrogate: p-Terphenyl-d14	*43.2*		*"*	*50.0*		*86.4*	*20-127*			
LCS Dup (4I14008-BSD1)										
2-Methylnaphthalene	8.18	0.100	ug/l	10.0		81.8	42-120	2.22	30	
Acenaphthene	7.48	0.100	"	10.0		74.8	34-120	2.44	30	
Acenaphthylene	7.84	0.100	"	10.0		78.4	36-120	1.80	30	
Anthracene	8.34	0.100	"	10.0		83.4	35-138	1.90	30	
Benzo (a) anthracene	8.76	0.100	"	10.0		87.6	41-121	0.00	30	
Benzo (a) pyrene	8.42	0.100	"	10.0		84.2	33-125	1.18	30	
Benzo (b) fluoranthene	7.82	0.100	"	10.0		78.2	35-133	3.12	30	
Benzo (ghi) perylene	7.84	0.100	"	10.0		78.4	25-121	4.43	30	
Benzo (k) fluoranthene	8.90	0.100	"	10.0		89.0	28-127	14.2	30	
Chrysene	9.18	0.100	"	10.0		91.8	41-120	0.218	30	
Dibenz (a,h) anthracene	8.42	0.100	"	10.0		84.2	24-120	5.62	30	
Fluoranthene	9.00	0.100	"	10.0		90.0	33-137	0.669	30	
Fluorene	8.10	0.100	"	10.0		81.0	42-120	1.74	30	
Indeno (1,2,3-cd) pyrene	8.64	0.100	"	10.0		86.4	26-122	5.23	30	
Naphthalene	8.04	0.100	"	10.0		80.4	38-120	2.26	30	
Phenanthrene	7.86	0.100	"	10.0		78.6	31-127	0.254	30	
Pyrene	9.00	0.100	"	10.0		90.0	42-125	5.01	30	
Surrogate: p-Terphenyl-d14	*44.7*		*"*	*50.0*		*89.4*	*20-127*			
Matrix Spike (4I14008-MS1)					**Source: B4I0229-04**					
2-Methylnaphthalene	7.32	0.100	ug/l	9.43	0.0417	77.2	40-150			
Acenaphthene	7.23	0.100	"	9.43	ND	76.7	40-150			
Acenaphthylene	7.15	0.100	"	9.43	ND	75.8	40-150			
Anthracene	7.23	0.100	"	9.43	0.0625	76.0	40-150			
Benzo (a) anthracene	6.81	0.100	"	9.43	0.0833	71.3	40-150			
Benzo (a) pyrene	3.68	0.100	"	9.43	0.146	37.5	40-150			Q-02
Benzo (b) fluoranthene	4.15	0.100	"	9.43	0.188	42.0	40-150			
Benzo (ghi) perylene	1.91	0.100	"	9.43	0.125	18.9	40-150			Q-02
Benzo (k) fluoranthene	4.02	0.100	"	9.43	0.104	41.5	40-150			

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Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4I14008: Prepared 09/14/04 Using EPA 3520C										
Matrix Spike (4I14008-MS1)					**Source: B4I0229-04**					
Chrysene	7.02	0.100	ug/l	9.43	0.125	73.1	40-150			
Dibenz (a,h) anthracene	1.83	0.100	"	9.43	0.0625	18.7	40-150			Q-02
Fluoranthene	8.17	0.100	"	9.43	0.125	85.3	40-150			
Fluorene	7.96	0.100	"	9.43	ND	84.4	40-150			
Indeno (1,2,3-cd) pyrene	2.23	0.100	"	9.43	0.125	22.3	40-150			Q-02
Naphthalene	6.92	0.100	"	9.43	ND	73.4	40-150			
Phenanthrene	7.91	0.100	"	9.43	0.104	82.8	40-150			
Pyrene	7.64	0.100	"	9.43	0.125	79.7	40-150			
Surrogate: p-Terphenyl-d14	*43.5*		*"*	*47.2*		*92.2*	*20-127*			
Matrix Spike Dup (4I14008-MSD1)					**Source: B4I0229-04**					
2-Methylnaphthalene	7.87	0.100	ug/l	9.52	0.0417	82.2	40-150	7.24	40	
Acenaphthene	7.47	0.100	"	9.52	ND	78.5	40-150	3.27	40	
Acenaphthylene	7.30	0.100	"	9.52	ND	76.7	40-150	2.08	40	
Anthracene	7.49	0.100	"	9.52	0.0625	78.0	40-150	3.53	40	
Benzo (a) anthracene	6.55	0.100	"	9.52	0.0833	67.9	40-150	3.89	40	
Benzo (a) pyrene	3.35	0.100	"	9.52	0.146	33.7	40-150	9.39	40	Q-02
Benzo (b) fluoranthene	3.81	0.100	"	9.52	0.188	38.0	40-150	8.54	40	Q-02
Benzo (ghi) perylene	1.66	0.100	"	9.52	0.125	16.1	40-150	14.0	40	Q-02
Benzo (k) fluoranthene	3.92	0.100	"	9.52	0.104	40.1	40-150	2.52	40	
Chrysene	6.72	0.100	"	9.52	0.125	69.3	40-150	4.37	40	
Dibenz (a,h) anthracene	1.60	0.100	"	9.52	0.0625	16.2	40-150	13.4	40	Q-02
Fluoranthene	8.02	0.100	"	9.52	0.125	82.9	40-150	1.85	40	
Fluorene	7.98	0.100	"	9.52	ND	83.8	40-150	0.251	40	
Indeno (1,2,3-cd) pyrene	1.98	0.100	"	9.52	0.125	19.5	40-150	11.9	40	Q-02
Naphthalene	7.58	0.100	"	9.52	ND	79.6	40-150	9.10	40	
Phenanthrene	8.04	0.100	"	9.52	0.104	83.4	40-150	1.63	40	
Pyrene	7.43	0.100	"	9.52	0.125	76.7	40-150	2.79	40	
Surrogate: p-Terphenyl-d14	*39.0*		*"*	*47.6*		*81.9*	*20-127*			

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Notes and Definitions

E	Estimated value. The reported value exceeds the calibration range of the analysis.
E-01	Estimated value. The reported value exceeds the capacity of the detector and therefore is unreliable.
Q-01	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
Q-02	The spike recovery for this QC sample is outside of NCA established control limits due to sample matrix interference.
S-01	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
S-03	The surrogate recovery for this sample is outside of established control limits. Review of associated QC indicates the recovery for this surrogate does not represent an out-of-control condition.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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16 June 2004

Jill Nordstrom
The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

RE: Cascade Pole

Enclosed are **amended** results of analyses for samples received by the laboratory on 05/26/04 15:01. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr
PM

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

ANALYTICAL REPORT FOR SAMPLES - Amended

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-2-0504	B4E0754-01	Water	05/26/04 12:04	05/26/04 15:01
MW-3-0504	B4E0754-02	Water	05/25/04 11:03	05/26/04 15:01
MW-6-0504	B4E0754-03	Water	05/26/04 08:00	05/26/04 15:01
MW-7-0504	B4E0754-04	Water	05/25/04 15:51	05/26/04 15:01
MW-8-0504	B4E0754-05	Water	05/25/04 15:22	05/26/04 15:01
MW-9-0504	B4E0754-06	Water	05/26/04 09:53	05/26/04 15:01
MW-12-0504	B4E0754-07	Water	05/26/04 11:22	05/26/04 15:01
MW-13-0504	B4E0754-08	Water	05/25/04 09:47	05/26/04 15:01
MW-14-0504	B4E0754-09	Water	05/25/04 10:20	05/26/04 15:01
MW-15-0504	B4E0754-10	Water	05/26/04 10:47	05/26/04 15:01
MW-16-0504	B4E0754-11	Water	05/26/04 09:15	05/26/04 15:01
MW-17-0504	B4E0754-12	Water	05/26/04 10:30	05/26/04 15:01
MW-18-0504	B4E0754-13	Water	05/25/04 14:45	05/26/04 15:01
MW-70-0504	B4E0754-14	Water	05/25/04 16:05	05/26/04 15:01
UPRR-29-0504	B4E0754-15	Water	05/25/04 13:14	05/26/04 15:01
Horizontal Drain	B4E0754-16	Water	05/25/04 11:20	05/26/04 15:01

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1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

MW-9-0504 (B4E0754-06) Water Sampled: 05/26/04 09:53 Received: 05/26/04 15:01

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Gasoline Range Hydrocarbons	**40700**	500	ug/l	10	4F01006	06/01/04	06/01/04	NWTPH-Gx/8021B	
Benzene	**99.1**	5.00	"	"	"	"	"	"	
Toluene	**190**	5.00	"	"	"	"	"	"	
Ethylbenzene	**3150**	50.0	"	100	"	"	06/01/04	"	
Xylenes (total)	**1990**	10.0	"	10	"	"	06/01/04	"	
Surrogate: 4-BFB (FID)	*162 %*	*58-144*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*133 %*	*68-140*			"	"	"	"	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Kortland Orr, PM

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1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2-0504 (B4E0754-01) Water	**Sampled: 05/26/04 12:04**	**Received: 05/26/04 15:01**							
Arsenic	**0.317**	0.00100	mg/l	1	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.0191**	0.00100	"	"	"	"	"	"	
Copper	**0.0127**	0.00100	"	"	"	"	"	"	
MW-3-0504 (B4E0754-02) Water	**Sampled: 05/25/04 11:03**	**Received: 05/26/04 15:01**							
Arsenic	**3.49**	0.0200	mg/l	20	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.116**	0.00100	"	1	"	"	06/15/04	"	
Copper	**0.124**	0.00100	"	"	"	"	"	"	
MW-6-0504 (B4E0754-03) Water	**Sampled: 05/26/04 08:00**	**Received: 05/26/04 15:01**							
Arsenic	**0.0145**	0.00100	mg/l	1	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.0154**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-7-0504 (B4E0754-04) Water	**Sampled: 05/25/04 15:51**	**Received: 05/26/04 15:01**							
Arsenic	**0.00562**	0.00100	mg/l	1	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00372**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-8-0504 (B4E0754-05) Water	**Sampled: 05/25/04 15:22**	**Received: 05/26/04 15:01**							
Arsenic	**0.177**	0.00100	mg/l	1	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.0442**	0.00100	"	"	"	"	"	"	
Copper	**0.0135**	0.00100	"	"	"	"	"	"	
MW-9-0504 (B4E0754-06) Water	**Sampled: 05/26/04 09:53**	**Received: 05/26/04 15:01**							
Arsenic	**0.270**	0.00100	mg/l	1	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00181**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
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Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc.	Project:	Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number:	CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager:	Jill Nordstrom	Issued: 06/16/04 14:03

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-12-0504 (B4E0754-07) Water	**Sampled: 05/26/04 11:22**	**Received: 05/26/04 15:01**							
Arsenic	**0.00560**	0.00100	mg/l	1	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00112**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-13-0504 (B4E0754-08) Water	**Sampled: 05/25/04 09:47**	**Received: 05/26/04 15:01**							
Arsenic	**3.01**	0.0100	mg/l	10	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.0289**	0.00100	"	1	"	"	06/15/04	"	
Copper	**0.00698**	0.00100	"	"	"	"	"	"	
MW-14-0504 (B4E0754-09) Water	**Sampled: 05/25/04 10:20**	**Received: 05/26/04 15:01**							
Arsenic	**0.152**	0.00100	mg/l	1	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.101**	0.00100	"	"	"	"	"	"	
Copper	**0.0627**	0.00100	"	"	"	"	"	"	
MW-15-0504 (B4E0754-10) Water	**Sampled: 05/26/04 10:47**	**Received: 05/26/04 15:01**							
Arsenic	**0.0331**	0.00100	mg/l	1	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00953**	0.00100	"	"	"	"	"	"	
Copper	**0.0182**	0.00100	"	"	"	"	"	"	
MW-16-0504 (B4E0754-11) Water	**Sampled: 05/26/04 09:15**	**Received: 05/26/04 15:01**							
Arsenic	**0.00187**	0.00100	mg/l	1	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00132**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-17-0504 (B4E0754-12) Water	**Sampled: 05/26/04 10:30**	**Received: 05/26/04 15:01**							
Arsenic	**0.00705**	0.00100	mg/l	1	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

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The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 06/16/04 14:03

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-18-0504 (B4E0754-13) Water	**Sampled: 05/25/04 14:45**	**Received: 05/26/04 15:01**							
Arsenic	**0.00116**	0.00100	mg/l	1	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00476**	0.00100	"	"	"	"	"	"	
Copper	**0.00113**	0.00100	"	"	"	"	"	"	
MW-70-0504 (B4E0754-14) Water	**Sampled: 05/25/04 16:05**	**Received: 05/26/04 15:01**							
Arsenic	**0.00377**	0.00100	mg/l	1	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00368**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
UPRR-29-0504 (B4E0754-15) Water	**Sampled: 05/25/04 13:14**	**Received: 05/26/04 15:01**							
Arsenic	**0.628**	0.00500	mg/l	5	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.0243**	0.00100	"	1	"	"	06/15/04	"	
Copper	**0.0197**	0.00100	"	"	"	"	"	"	
Horizontal Drain (B4E0754-16) Water	**Sampled: 05/25/04 11:20**	**Received: 05/26/04 15:01**							
Arsenic	**0.407**	0.00500	mg/l	5	4F14058	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00614**	0.00100	"	1	"	"	06/15/04	"	
Copper	ND	0.00100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

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The RETEC Group, Inc.	Project:	Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number:	CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager:	Jill Nordstrom	Issued: 06/16/04 14:03

Dissolved Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2-0504 (B4E0754-01) Water	**Sampled: 05/26/04 12:04**	**Received: 05/26/04 15:01**							
Arsenic	**0.294**	0.00100	mg/l	1	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00682**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-3-0504 (B4E0754-02) Water	**Sampled: 05/25/04 11:03**	**Received: 05/26/04 15:01**							
Arsenic	**0.304**	0.00200	mg/l	2	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.0219**	0.00100	"	1	"	"	06/15/04	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-6-0504 (B4E0754-03) Water	**Sampled: 05/26/04 08:00**	**Received: 05/26/04 15:01**							
Arsenic	**0.0338**	0.00100	mg/l	1	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.0125**	0.00100	"	"	"	"	06/15/04	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-7-0504 (B4E0754-04) Water	**Sampled: 05/25/04 15:51**	**Received: 05/26/04 15:01**							
Arsenic	**0.00250**	0.00100	mg/l	1	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00561**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-8-0504 (B4E0754-05) Water	**Sampled: 05/25/04 15:22**	**Received: 05/26/04 15:01**							
Arsenic	**0.101**	0.00100	mg/l	1	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.0151**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-9-0504 (B4E0754-06) Water	**Sampled: 05/26/04 09:53**	**Received: 05/26/04 15:01**							
Arsenic	**0.272**	0.00100	mg/l	1	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00261**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	

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Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-12-0504 (B4E0754-07) Water	**Sampled: 05/26/04 11:22**	**Received: 05/26/04 15:01**							
Arsenic	**0.00543**	0.00100	mg/l	1	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00125**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-13-0504 (B4E0754-08) Water	**Sampled: 05/25/04 09:47**	**Received: 05/26/04 15:01**							
Arsenic	**2.20**	0.0100	mg/l	10	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.0188**	0.00100	"	1	"	"	06/15/04	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-14-0504 (B4E0754-09) Water	**Sampled: 05/25/04 10:20**	**Received: 05/26/04 15:01**							
Arsenic	**0.0920**	0.00100	mg/l	1	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.0113**	0.00100	"	"	"	"	"	"	
Copper	**0.0153**	0.00100	"	"	"	"	"	"	
MW-15-0504 (B4E0754-10) Water	**Sampled: 05/26/04 10:47**	**Received: 05/26/04 15:01**							
Arsenic	**0.0325**	0.00100	mg/l	1	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00116**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-16-0504 (B4E0754-11) Water	**Sampled: 05/26/04 09:15**	**Received: 05/26/04 15:01**							
Arsenic	**0.00163**	0.00100	mg/l	1	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00164**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-17-0504 (B4E0754-12) Water	**Sampled: 05/26/04 10:30**	**Received: 05/26/04 15:01**							
Arsenic	**0.00311**	0.00100	mg/l	1	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00438**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	

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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-18-0504 (B4E0754-13) Water	**Sampled: 05/25/04 14:45**	**Received: 05/26/04 15:01**							
Arsenic	**0.00136**	0.00100	mg/l	1	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00671**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-70-0504 (B4E0754-14) Water	**Sampled: 05/25/04 16:05**	**Received: 05/26/04 15:01**							
Arsenic	**0.00172**	0.00100	mg/l	1	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00784**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
UPRR-29-0504 (B4E0754-15) Water	**Sampled: 05/25/04 13:14**	**Received: 05/26/04 15:01**							
Arsenic	**0.577**	0.00500	mg/l	5	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.0152**	0.00100	"	1	"	"	06/15/04	"	
Copper	**0.00679**	0.00100	"	"	"	"	"	"	
Horizontal Drain (B4E0754-16) Water	**Sampled: 05/25/04 11:20**	**Received: 05/26/04 15:01**							
Arsenic	**0.347**	0.00500	mg/l	5	4F14057	06/14/04	06/15/04	EPA 6020	
Chromium	**0.00521**	0.00100	"	1	"	"	06/15/04	"	
Copper	ND	0.00100	"	"	"	"	"	"	

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Pentachlorophenol by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2-0504 (B4E0754-01) Water	**Sampled: 05/26/04 12:04**	**Received: 05/26/04 15:01**							
Pentachlorophenol	**2.70**	0.500	ug/l	1	4F01016	06/01/04	06/02/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*56.4 %*	*22-162*			"	"	"	"	
MW-3-0504 (B4E0754-02) Water	**Sampled: 05/25/04 11:03**	**Received: 05/26/04 15:01**							
Pentachlorophenol	ND	0.500	ug/l	1	4F01016	06/01/04	06/02/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*57.1 %*	*22-162*			"	"	"	"	
MW-6-0504 (B4E0754-03) Water	**Sampled: 05/26/04 08:00**	**Received: 05/26/04 15:01**							
Pentachlorophenol	**1.98**	0.500	ug/l	1	4F01016	06/01/04	06/02/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*60.4 %*	*22-162*			"	"	"	"	
MW-7-0504 (B4E0754-04) Water	**Sampled: 05/25/04 15:51**	**Received: 05/26/04 15:01**							
Pentachlorophenol	ND	0.500	ug/l	1	4F01016	06/01/04	06/02/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*57.8 %*	*22-162*			"	"	"	"	
MW-8-0504 (B4E0754-05) Water	**Sampled: 05/25/04 15:22**	**Received: 05/26/04 15:01**							
Pentachlorophenol	ND	0.500	ug/l	1	4F01016	06/01/04	06/03/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*55.0 %*	*22-162*			"	"	"	"	
MW-9-0504 (B4E0754-06) Water	**Sampled: 05/26/04 09:53**	**Received: 05/26/04 15:01**							
Pentachlorophenol	ND	0.500	ug/l	1	4F01016	06/01/04	06/03/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*61.4 %*	*22-162*			"	"	"	"	
MW-12-0504 (B4E0754-07) Water	**Sampled: 05/26/04 11:22**	**Received: 05/26/04 15:01**							
Pentachlorophenol	ND	0.500	ug/l	1	4F01016	06/01/04	06/03/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*56.1 %*	*22-162*			"	"	"	"	

North Creek Analytical - Bothell

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The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 06/16/04 14:03

Pentachlorophenol by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-13-0504 (B4E0754-08) Water	**Sampled: 05/25/04 09:47**	**Received: 05/26/04 15:01**							
Pentachlorophenol	**9.88**	0.500	ug/l	1	4F01016	06/01/04	06/03/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*60.5 %*	*22-162*			"	"	"	"	
MW-14-0504 (B4E0754-09) Water	**Sampled: 05/25/04 10:20**	**Received: 05/26/04 15:01**							
Pentachlorophenol	ND	0.500	ug/l	1	4F01016	06/01/04	06/03/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*57.2 %*	*22-162*			"	"	"	"	
MW-15-0504 (B4E0754-10) Water	**Sampled: 05/26/04 10:47**	**Received: 05/26/04 15:01**							
Pentachlorophenol	**1.96**	0.500	ug/l	1	4F01016	06/01/04	06/03/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*57.1 %*	*22-162*			"	"	"	"	
MW-16-0504 (B4E0754-11) Water	**Sampled: 05/26/04 09:15**	**Received: 05/26/04 15:01**							
Pentachlorophenol	ND	0.500	ug/l	1	4F01016	06/01/04	06/03/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*65.7 %*	*22-162*			"	"	"	"	
MW-17-0504 (B4E0754-12) Water	**Sampled: 05/26/04 10:30**	**Received: 05/26/04 15:01**							
Pentachlorophenol	ND	0.500	ug/l	1	4F01016	06/01/04	06/03/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*59.0 %*	*22-162*			"	"	"	"	
MW-18-0504 (B4E0754-13) Water	**Sampled: 05/25/04 14:45**	**Received: 05/26/04 15:01**							
Pentachlorophenol	ND	0.500	ug/l	1	4F01016	06/01/04	06/03/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*62.7 %*	*22-162*			"	"	"	"	
MW-70-0504 (B4E0754-14) Water	**Sampled: 05/25/04 16:05**	**Received: 05/26/04 15:01**							
Pentachlorophenol	ND	0.500	ug/l	1	4F01016	06/01/04	06/03/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*63.3 %*	*22-162*			"	"	"	"	

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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
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907.563.9200 fax 907.563.9210

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Pentachlorophenol by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UPRR-29-0504 (B4E0754-15) Water	**Sampled: 05/25/04 13:14**		**Received: 05/26/04 15:01**						
Pentachlorophenol	**2.19**	0.500	ug/l	1	4F01016	06/01/04	06/03/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*58.9 %*	*22-162*			"	"	"	"	
Horizontal Drain (B4E0754-16) Water	**Sampled: 05/25/04 11:20**		**Received: 05/26/04 15:01**						
Pentachlorophenol	**149**	5.00	ug/l	10	4F01016	06/01/04	06/04/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*63.4 %*	*22-162*			"	"	*06/03/04*	"	

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509.924.9200 fax 509.924.9290
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The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 06/16/04 14:03

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2-0504 (B4E0754-01) Water	**Sampled: 05/26/04 12:04**	**Received: 05/26/04 15:01**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4F01016	06/01/04	06/02/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	**49.2**	1.00	"	10	"	"	06/03/04	"	
Acenaphthylene	**1.23**	0.100	"	1	"	"	06/02/04	"	
Anthracene	**1.40**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.189**	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.132**	0.100	"	"	"	"	"	"	
Chrysene	**0.302**	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**2.72**	0.100	"	"	"	"	"	"	
Fluorene	**19.7**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	**0.189**	0.100	"	"	"	"	"	"	
Naphthalene	**0.887**	0.100	"	"	"	"	"	"	
Phenanthrene	**1.02**	0.100	"	"	"	"	"	"	
Pyrene	**1.26**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*47.5 %*	*20-127*			"	"	"	"	
MW-3-0504 (B4E0754-02) Water	**Sampled: 05/25/04 11:03**	**Received: 05/26/04 15:01**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4F01016	06/01/04	06/02/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	**0.267**	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	**0.114**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**0.114**	0.100	"	"	"	"	"	"	
Phenanthrene	**0.190**	0.100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3-0504 (B4E0754-02) Water	**Sampled: 05/25/04 11:03**	**Received: 05/26/04 15:01**							
Pyrene	ND	0.100	ug/l	1	4F01016	06/01/04	06/02/04	8270C-SIM	
Surrogate: p-Terphenyl-d14	*50.0 %*	*20-127*			"	"	"	"	
MW-6-0504 (B4E0754-03) Water	**Sampled: 05/26/04 08:00**	**Received: 05/26/04 15:01**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4F01016	06/01/04	06/02/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	ND	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	**0.113**	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*57.8 %*	*20-127*			"	"	"	"	
MW-7-0504 (B4E0754-04) Water	**Sampled: 05/25/04 15:51**	**Received: 05/26/04 15:01**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4F01016	06/01/04	06/02/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	ND	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
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541.383.9310 fax 541.382.7588
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1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7-0504 (B4E0754-04) Water	**Sampled: 05/25/04 15:51**	**Received: 05/26/04 15:01**							
Fluorene	ND	0.100	ug/l	1	4F01016	06/01/04	06/02/04	8270C-SIM	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*42.8 %*	*20-127*			"	"	"	"	
MW-8-0504 (B4E0754-05) Water	**Sampled: 05/25/04 15:22**	**Received: 05/26/04 15:01**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	**1.54**	0.100	"	"	"	"	"	"	
Acenaphthylene	**0.190**	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	**0.286**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**0.781**	0.100	"	"	"	"	"	"	
Phenanthrene	**0.229**	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*33.2 %*	*20-127*			"	"	"	"	

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Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
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Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9-0504 (B4E0754-06) Water	**Sampled: 05/26/04 09:53**	**Received: 05/26/04 15:01**							
2-Methylnaphthalene	**62.3**	10.0	ug/l	100	4F01016	06/01/04	06/03/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	1	"	"	06/03/04	"	
Acenaphthene	**3.36**	0.100	"	"	"	"	"	"	
Acenaphthylene	**0.226**	0.100	"	"	"	"	"	"	
Anthracene	**0.113**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	**0.491**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**4530**	100	"	1000	"	"	06/04/04	"	
Phenanthrene	**0.208**	0.100	"	1	"	"	06/03/04	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*49.2 %*	*20-127*			"	"	"	"	
MW-12-0504 (B4E0754-07) Water	**Sampled: 05/26/04 11:22**	**Received: 05/26/04 15:01**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	**0.453**	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	**0.170**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**0.189**	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	

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Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-12-0504 (B4E0754-07) Water	**Sampled: 05/26/04 11:22**	**Received: 05/26/04 15:01**							
Pyrene	ND	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
Surrogate: p-Terphenyl-d14	*38.8 %*	*20-127*			"	"	"	"	
MW-13-0504 (B4E0754-08) Water	**Sampled: 05/25/04 09:47**	**Received: 05/26/04 15:01**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	**0.500**	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	**0.115**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	**0.135**	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*48.6 %*	*20-127*			"	"	"	"	
MW-14-0504 (B4E0754-09) Water	**Sampled: 05/25/04 10:20**	**Received: 05/26/04 15:01**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	ND	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-14-0504 (B4E0754-09) Water	**Sampled: 05/25/04 10:20**	**Received: 05/26/04 15:01**							
Fluorene	ND	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*43.5 %*	*20-127*			"	"	"	"	
MW-15-0504 (B4E0754-10) Water	**Sampled: 05/26/04 10:47**	**Received: 05/26/04 15:01**							
2-Methylnaphthalene	**1.66**	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	**20.8**	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	**2.08**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	**0.629**	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	**0.171**	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.286**	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.210**	0.100	"	"	"	"	"	"	
Chrysene	**0.876**	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**7.85**	0.100	"	"	"	"	"	"	
Fluorene	**16.4**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	**0.171**	0.100	"	"	"	"	"	"	
Naphthalene	**1.01**	0.100	"	"	"	"	"	"	
Phenanthrene	**24.7**	0.100	"	"	"	"	"	"	
Pyrene	**4.34**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*26.3 %*	*20-127*			"	"	"	"	

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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
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1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

MW-16-0504 (B4E0754-11) Water Sampled: 05/26/04 09:15 Received: 05/26/04 15:01

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
2-Methylnaphthalene	**21.3**	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	**2.60**	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	**0.113**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**0.358**	0.100	"	"	"	"	"	"	
Fluorene	**0.755**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**1370**	10.0	"	100	"	"	06/04/04	"	
Phenanthrene	**0.472**	0.100	"	1	"	"	06/03/04	"	
Pyrene	**0.208**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*51.7 %*	*20-127*			"	"	"	"	

MW-17-0504 (B4E0754-12) Water Sampled: 05/26/04 10:30 Received: 05/26/04 15:01

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
2-Methylnaphthalene	ND	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	ND	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-17-0504 (B4E0754-12) Water	**Sampled: 05/26/04 10:30**	**Received: 05/26/04 15:01**							
Pyrene	ND	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
Surrogate: p-Terphenyl-d14	*63.4 %*	*20-127*			"	"	"	"	
MW-18-0504 (B4E0754-13) Water	**Sampled: 05/25/04 14:45**	**Received: 05/26/04 15:01**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	ND	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*49.3 %*	*20-127*			"	"	"	"	
MW-70-0504 (B4E0754-14) Water	**Sampled: 05/25/04 16:05**	**Received: 05/26/04 15:01**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	ND	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 06/16/04 14:03

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-70-0504 (B4E0754-14) Water Sampled: 05/25/04 16:05 Received: 05/26/04 15:01									
Fluorene	ND	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*53.6 %*	*20-127*			"	"	"	"	
UPRR-29-0504 (B4E0754-15) Water Sampled: 05/25/04 13:14 Received: 05/26/04 15:01									
2-Methylnaphthalene	ND	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	ND	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**0.151**	0.100	"	"	"	"	"	"	
Fluorene	**0.189**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	**0.151**	0.100	"	"	"	"	"	"	
Pyrene	**0.151**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*35.8 %*	*20-127*			"	"	"	"	

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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Horizontal Drain (B4E0754-16) Water Sampled: 05/25/04 11:20 Received: 05/26/04 15:01

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
2-Methylnaphthalene	**0.229**	0.100	ug/l	1	4F01016	06/01/04	06/03/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	**6.02**	0.100	"	"	"	"	"	"	
Acenaphthylene	**0.305**	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**0.229**	0.100	"	"	"	"	"	"	
Fluorene	**2.15**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**5.92**	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	**0.152**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*55.3 %*	*20-127*			"	"	"	"	

North Creek Analytical - Bothell

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Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F01006: Prepared 06/01/04 Using EPA 5030B (P/T)										
Blank (4F01006-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*43.8*		*"*	*48.0*		*91.2*	*58-144*			
Surrogate: 4-BFB (PID)	*49.8*		*"*	*48.0*		*104*	*68-140*			
LCS (4F01006-BS1)										
Gasoline Range Hydrocarbons	445	50.0	ug/l	500		89.0	80-120			
Benzene	6.74	0.500	"	6.20		109	80-120			
Toluene	33.3	0.500	"	34.8		95.7	80-120			
Ethylbenzene	8.98	0.500	"	8.35		108	80-120			
Xylenes (total)	39.7	1.00	"	40.5		98.0	80-120			
Surrogate: 4-BFB (FID)	*53.2*		*"*	*48.0*		*111*	*58-144*			
Surrogate: 4-BFB (PID)	*48.4*		*"*	*48.0*		*101*	*68-140*			
LCS Dup (4F01006-BSD1)										
Gasoline Range Hydrocarbons	507	50.0	ug/l	500		101	80-120	13.0	25	
Benzene	7.07	0.500	"	6.20		114	80-120	4.78	25	
Toluene	35.2	0.500	"	34.8		101	80-120	5.55	25	
Ethylbenzene	9.54	0.500	"	8.35		114	80-120	6.05	25	
Xylenes (total)	42.4	1.00	"	40.5		105	80-120	6.58	25	
Surrogate: 4-BFB (FID)	*57.1*		*"*	*48.0*		*119*	*58-144*			
Surrogate: 4-BFB (PID)	*51.3*		*"*	*48.0*		*107*	*68-140*			
Matrix Spike (4F01006-MS1)					**Source: B4E0708-01**					
Gasoline Range Hydrocarbons	488	50.0	ug/l	500	21.9	93.2	58-129			
Benzene	7.02	0.500	"	6.20	ND	113	46-130			
Toluene	35.7	0.500	"	34.8	0.440	101	60-124			
Ethylbenzene	8.65	0.500	"	8.35	0.200	101	56-141			
Xylenes (total)	42.7	1.00	"	40.5	0.777	104	66-132			
Surrogate: 4-BFB (FID)	*56.1*		*"*	*48.0*		*117*	*58-144*			
Surrogate: 4-BFB (PID)	*49.8*		*"*	*48.0*		*104*	*68-140*			

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1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F01006: Prepared 06/01/04 Using EPA 5030B (P/T)										
Matrix Spike Dup (4F01006-MSD1)					**Source: B4E0708-01**					
Gasoline Range Hydrocarbons	498	50.0	ug/l	500	21.9	95.2	58-129	2.03	25	
Benzene	6.96	0.500	"	6.20	ND	112	46-130	0.858	40	
Toluene	35.2	0.500	"	34.8	0.440	99.9	60-124	1.41	40	
Ethylbenzene	8.60	0.500	"	8.35	0.200	101	56-141	0.580	40	
Xylenes (total)	42.7	1.00	"	40.5	0.777	104	66-132	0.00	40	
Surrogate: 4-BFB (FID)	*55.4*		*"*	*48.0*		*115*	*58-144*			
Surrogate: 4-BFB (PID)	*49.8*		*"*	*48.0*		*104*	*68-140*			

North Creek Analytical - Bothell

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509.924.9200 fax 509.924.9290
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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F14058: Prepared 06/14/04 Using EPA 3020A										
Blank (4F14058-BLK1)										
Arsenic	ND	0.00100	mg/l							
Chromium	ND	0.00100	"							
Copper	ND	0.00100	"							
LCS (4F14058-BS1)										
Arsenic	0.0767	0.00100	mg/l	0.0800		95.9	80-120			
Chromium	0.0780	0.00100	"	0.0800		97.5	80-120			
Copper	0.0765	0.00100	"	0.0800		95.6	80-120			
LCS Dup (4F14058-BSD1)										
Arsenic	0.0768	0.00100	mg/l	0.0800		96.0	80-120	0.130	20	
Chromium	0.0789	0.00100	"	0.0800		98.6	80-120	1.15	20	
Copper	0.0774	0.00100	"	0.0800		96.8	80-120	1.17	20	
Matrix Spike (4F14058-MS1)					**Source: B4E0754-01**					
Arsenic	0.392	0.00200	mg/l	0.0800	0.317	93.7	75-125			
Chromium	0.0944	0.00100	"	0.0800	0.0191	94.1	75-125			
Copper	0.0851	0.00100	"	0.0800	0.0127	90.5	70-124			
Matrix Spike Dup (4F14058-MSD1)					**Source: B4E0754-01**					
Arsenic	0.392	0.00200	mg/l	0.0800	0.317	93.7	75-125	0.00	20	
Chromium	0.0942	0.00100	"	0.0800	0.0191	93.9	75-125	0.212	20	
Copper	0.0850	0.00100	"	0.0800	0.0127	90.4	70-124	0.118	20	
Post Spike (4F14058-PS1)					**Source: B4E0754-01**					
Arsenic	0.432		ug/ml	0.100	0.317	115	75-125			
Chromium	0.117		"	0.100	0.0191	97.9	75-125			
Copper	0.106		"	0.100	0.0127	93.3	75-125			

North Creek Analytical - Bothell

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The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 06/16/04 14:03

Dissolved Metals by EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F14057: Prepared 06/14/04 Using EPA 3005A										
Blank (4F14057-BLK1)										
Arsenic	ND	0.00100	mg/l							
Chromium	ND	0.00100	"							
Copper	ND	0.00100	"							
LCS (4F14057-BS1)										
Arsenic	0.208	0.00100	mg/l	0.200		104	80-120			
Chromium	0.204	0.00100	"	0.200		102	80-120			
Copper	0.203	0.00100	"	0.200		102	80-120			
LCS Dup (4F14057-BSD1)										
Arsenic	0.208	0.00100	mg/l	0.200		104	80-120	0.00	20	
Chromium	0.203	0.00100	"	0.200		102	80-120	0.491	20	
Copper	0.203	0.00100	"	0.200		102	80-120	0.00	20	
Matrix Spike (4F14057-MS1)					**Source: B4E0754-01**					
Arsenic	0.385	0.00200	mg/l	0.100	0.294	91.0	75-125			
Chromium	0.101	0.00100	"	0.100	0.00682	94.2	75-125			
Copper	0.0914	0.00100	"	0.100	0.000660	90.7	70-124			
Matrix Spike Dup (4F14057-MSD1)					**Source: B4E0754-01**					
Arsenic	0.381	0.00200	mg/l	0.100	0.294	87.0	75-125	1.04	20	
Chromium	0.101	0.00100	"	0.100	0.00682	94.2	75-125	0.00	20	
Copper	0.0915	0.00100	"	0.100	0.000660	90.8	70-124	0.109	20	

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Pentachlorophenol by GC/MS with Selected Ion Monitoring - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F01016: Prepared 06/01/04 Using EPA 3520C										
Blank (4F01016-BLK1)										
Pentachlorophenol	ND	0.500	ug/l							
Surrogate: 2,4,6-TBP	*23.3*		*"*	*50.0*		*46.6*	*22-162*			
LCS (4F01016-BS1)										
Pentachlorophenol	12.7	0.500	ug/l	20.0		63.5	20-128			
Surrogate: 2,4,6-TBP	*27.3*		*"*	*50.0*		*54.6*	*22-162*			
LCS Dup (4F01016-BSD1)										
Pentachlorophenol	12.0	0.500	ug/l	20.0		60.0	20-128	5.67	50	
Surrogate: 2,4,6-TBP	*26.6*		*"*	*50.0*		*53.2*	*22-162*			

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The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 06/16/04 14:03

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F01016: Prepared 06/01/04 Using EPA 3520C										
Blank (4F01016-BLK1)										
2-Methylnaphthalene	ND	0.100	ug/l							
2-Chloronaphthalene	ND	0.100	"							
Acenaphthene	ND	0.100	"							
Acenaphthylene	ND	0.100	"							
Anthracene	ND	0.100	"							
Benzo (a) anthracene	ND	0.100	"							
Benzo (a) pyrene	ND	0.100	"							
Benzo (b) fluoranthene	ND	0.100	"							
Benzo (ghi) perylene	ND	0.100	"							
Benzo (k) fluoranthene	ND	0.100	"							
Chrysene	ND	0.100	"							
Dibenz (a,h) anthracene	ND	0.100	"							
Fluoranthene	ND	0.100	"							
Fluorene	ND	0.100	"							
Indeno (1,2,3-cd) pyrene	ND	0.100	"							
Naphthalene	ND	0.100	"							
Phenanthrene	ND	0.100	"							
Pyrene	ND	0.100	"							
Surrogate: p-Terphenyl-d14	*44.1*		*"*	*50.0*		*88.2*	*20-127*			
LCS (4F01016-BS1)										
2-Methylnaphthalene	7.68	0.100	ug/l	10.0		76.8	50-150			
2-Chloronaphthalene	ND	0.100	"				80-150			
Acenaphthene	6.24	0.100	"	10.0		62.4	34-120			
Acenaphthylene	6.68	0.100	"	10.0		66.8	36-120			
Anthracene	6.90	0.100	"	10.0		69.0	35-138			
Benzo (a) anthracene	6.84	0.100	"	10.0		68.4	41-121			
Benzo (a) pyrene	6.18	0.100	"	10.0		61.8	33-125			
Benzo (b) fluoranthene	6.14	0.100	"	10.0		61.4	35-133			
Benzo (ghi) perylene	5.62	0.100	"	10.0		56.2	25-121			
Benzo (k) fluoranthene	6.82	0.100	"	10.0		68.2	28-127			
Chrysene	6.40	0.100	"	10.0		64.0	41-120			
Dibenz (a,h) anthracene	5.42	0.100	"	10.0		54.2	24-120			
Fluoranthene	7.14	0.100	"	10.0		71.4	33-137			
Fluorene	6.84	0.100	"	10.0		68.4	42-120			

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 06/16/04 14:03

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F01016: Prepared 06/01/04 Using EPA 3520C										
LCS (4F01016-BS1)										
Indeno (1,2,3-cd) pyrene	5.56	0.100	ug/l	10.0		55.6	26-122			
Naphthalene	7.52	0.100	"	10.0		75.2	38-120			
Phenanthrene	6.94	0.100	"	10.0		69.4	31-127			
Pyrene	8.32	0.100	"	10.0		83.2	42-125			
Surrogate: p-Terphenyl-d14	*41.8*		*"*	*50.0*		*83.6*	*20-127*			
LCS Dup (4F01016-BSD1)										
2-Methylnaphthalene	7.08	0.100	ug/l	10.0		70.8	50-150	8.13	25	
2-Chloronaphthalene	ND	0.100	"				80-150		30	
Acenaphthene	6.10	0.100	"	10.0		61.0	34-120	2.27	30	
Acenaphthylene	6.40	0.100	"	10.0		64.0	36-120	4.28	30	
Anthracene	6.78	0.100	"	10.0		67.8	35-138	1.75	30	
Benzo (a) anthracene	6.92	0.100	"	10.0		69.2	41-121	1.16	30	
Benzo (a) pyrene	6.76	0.100	"	10.0		67.6	33-125	8.96	30	
Benzo (b) fluoranthene	6.60	0.100	"	10.0		66.0	35-133	7.22	30	
Benzo (ghi) perylene	5.68	0.100	"	10.0		56.8	25-121	1.06	30	
Benzo (k) fluoranthene	7.28	0.100	"	10.0		72.8	28-127	6.52	30	
Chrysene	6.76	0.100	"	10.0		67.6	41-120	5.47	30	
Dibenz (a,h) anthracene	4.98	0.100	"	10.0		49.8	24-120	8.46	30	
Fluoranthene	7.42	0.100	"	10.0		74.2	33-137	3.85	30	
Fluorene	6.64	0.100	"	10.0		66.4	42-120	2.97	30	
Indeno (1,2,3-cd) pyrene	5.30	0.100	"	10.0		53.0	26-122	4.79	30	
Naphthalene	6.90	0.100	"	10.0		69.0	38-120	8.60	30	
Phenanthrene	6.60	0.100	"	10.0		66.0	31-127	5.02	30	
Pyrene	6.50	0.100	"	10.0		65.0	42-125	24.6	30	
Surrogate: p-Terphenyl-d14	*35.9*		*"*	*50.0*		*71.8*	*20-127*			

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Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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08 March 2004

Jill Nordstrom
The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

RE: Cascade Pole

Enclosed are **amended** results of analyses for samples received by the laboratory on 02/06/04 16:05. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

John M. Clawson

John Clawson
Project Manager

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
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The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 03/08/04 12:18

ANALYTICAL REPORT FOR SAMPLES - Amended

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1-0204	B4B0209-01	Water	02/06/04 11:04	02/06/04 16:05
MW-2-0204	B4B0209-02	Water	02/05/04 14:51	02/06/04 16:05
MW-3-0204	B4B0209-03	Water	02/05/04 11:18	02/06/04 16:05
MW-6-0204	B4B0209-04	Water	02/05/04 13:23	02/06/04 16:05
MW-7-0204	B4B0209-05	Water	02/04/04 16:49	02/06/04 16:05
MW-8-0204	B4B0209-06	Water	02/04/04 16:02	02/06/04 16:05
MW-9-0204	B4B0209-07	Water	02/06/04 09:20	02/06/04 16:05
MW-10-0204	B4B0209-08	Water	02/05/04 17:36	02/06/04 16:05
MW-12-0204	B4B0209-09	Water	02/05/04 15:47	02/06/04 16:05
MW-13-0204	B4B0209-10	Water	02/05/04 09:29	02/06/04 16:05
MW-14-0204	B4B0209-11	Water	02/05/04 10:25	02/06/04 16:05
MW-15-0204	B4B0209-12	Water	02/04/04 15:00	02/06/04 16:05
MW-16-0204	B4B0209-13	Water	02/04/04 14:09	02/06/04 16:05
MW-17-0204	B4B0209-14	Water	02/04/04 13:15	02/06/04 16:05
MW-18-0204	B4B0209-15	Water	02/05/04 16:53	02/06/04 16:05
UPRR-29-0204	B4B0209-16	Water	02/06/04 12:27	02/06/04 16:05
DRAIN	B4B0209-17	Water	02/06/04 08:59	02/06/04 16:05
UPRR-30-0204	B4B0209-18	Water	02/06/04 12:57	02/06/04 16:05

North Creek Analytical - Bothell

John M. Clawson

John Clawson, Project Manager

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The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 03/08/04 12:18

BTEX by EPA Method 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9-0204 (B4B0209-07) Water Sampled: 02/06/04 09:20 Received: 02/06/04 16:05									
Benzene	**95.4**	25.0	ug/l	50	4B10002	02/10/04	02/10/04	EPA 8021B	
Toluene	**208**	25.0	"	"	"	"	"	"	
Ethylbenzene	**3260**	25.0	"	"	"	"	"	"	
Xylenes (total)	**1890**	50.0	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*105 %*	*72-127*			*"*	*"*	*"*	*"*	

North Creek Analytical - Bothell

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John M. Clawson

John Clawson, Project Manager

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The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 03/08/04 12:18

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1-0204 (B4B0209-01) Water	**Sampled: 02/06/04 11:04**	**Received: 02/06/04 16:05**							
Arsenic	**0.00233**	0.00100	mg/l	1	4B11035	02/11/04	02/12/04	EPA 6020	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-2-0204 (B4B0209-02) Water	**Sampled: 02/05/04 14:51**	**Received: 02/06/04 16:05**							
Arsenic	**0.194**	0.00100	mg/l	1	4B11035	02/11/04	02/12/04	EPA 6020	
Chromium	**0.0103**	0.00100	"	"	"	"	"	"	
Copper	**0.00252**	0.00100	"	"	"	"	"	"	
MW-3-0204 (B4B0209-03) Water	**Sampled: 02/05/04 11:18**	**Received: 02/06/04 16:05**							
Arsenic	**4.57**	0.0200	mg/l	20	4B11035	02/11/04	02/12/04	EPA 6020	
Chromium	**0.0661**	0.00100	"	1	"	"	02/12/04	"	
Copper	**0.287**	0.00100	"	"	"	"	"	"	
MW-6-0204 (B4B0209-04) Water	**Sampled: 02/05/04 13:23**	**Received: 02/06/04 16:05**							
Arsenic	**0.0329**	0.00100	mg/l	1	4B11035	02/11/04	02/12/04	EPA 6020	
Chromium	**0.0184**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-7-0204 (B4B0209-05) Water	**Sampled: 02/04/04 16:49**	**Received: 02/06/04 16:05**							
Arsenic	**0.00379**	0.00100	mg/l	1	4B11035	02/11/04	02/16/04	EPA 6020	
Chromium	**0.00409**	0.00100	"	"	"	"	02/12/04	"	
Copper	**0.00124**	0.00100	"	"	"	"	"	"	
MW-8-0204 (B4B0209-06) Water	**Sampled: 02/04/04 16:02**	**Received: 02/06/04 16:05**							
Arsenic	**0.316**	0.00100	mg/l	1	4B11035	02/11/04	02/12/04	EPA 6020	
Chromium	**0.0616**	0.00100	"	"	"	"	"	"	
Copper	**0.0213**	0.00100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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John M. Clawson

John Clawson, Project Manager

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

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The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 03/08/04 12:18

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9-0204 (B4B0209-07) Water	**Sampled: 02/06/04 09:20**	**Received: 02/06/04 16:05**							
Arsenic	**0.193**	0.00100	mg/l	1	4B11035	02/11/04	02/13/04	EPA 6020	
Chromium	**0.00192**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-10-0204 (B4B0209-08) Water	**Sampled: 02/05/04 17:36**	**Received: 02/06/04 16:05**							
Arsenic	ND	0.00100	mg/l	1	4B11035	02/11/04	02/16/04	EPA 6020	
Chromium	**0.00201**	0.00100	"	"	"	"	02/13/04	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-12-0204 (B4B0209-09) Water	**Sampled: 02/05/04 15:47**	**Received: 02/06/04 16:05**							
Arsenic	**0.0127**	0.00100	mg/l	1	4B11035	02/11/04	02/16/04	EPA 6020	
Chromium	**0.00352**	0.00100	"	"	"	"	02/13/04	"	
Copper	**0.00181**	0.00100	"	"	"	"	"	"	
MW-13-0204 (B4B0209-10) Water	**Sampled: 02/05/04 09:29**	**Received: 02/06/04 16:05**							
Arsenic	**12.3**	0.100	mg/l	100	4B11035	02/11/04	02/13/04	EPA 6020	
Chromium	**0.0269**	0.00100	"	1	"	"	02/13/04	"	
Copper	**0.00618**	0.00100	"	"	"	"	"	"	
MW-14-0204 (B4B0209-11) Water	**Sampled: 02/05/04 10:25**	**Received: 02/06/04 16:05**							
Arsenic	**0.154**	0.00100	mg/l	1	4B11035	02/11/04	02/13/04	EPA 6020	
Chromium	**0.0752**	0.00100	"	"	"	"	"	"	
Copper	**0.0826**	0.00100	"	"	"	"	"	"	
MW-15-0204 (B4B0209-12) Water	**Sampled: 02/04/04 15:00**	**Received: 02/06/04 16:05**							
Arsenic	**0.0278**	0.00100	mg/l	1	4B11035	02/11/04	02/16/04	EPA 6020	
Chromium	**0.0333**	0.00100	"	"	"	"	02/13/04	"	
Copper	**0.0585**	0.00100	"	"	"	"	"	"	

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

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The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 03/08/04 12:18

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-16-0204 (B4B0209-13) Water Sampled: 02/04/04 14:09 Received: 02/06/04 16:05									
Arsenic	**0.00254**	0.00100	mg/l	1	4B11035	02/11/04	02/16/04	EPA 6020	
Chromium	**0.00149**	0.00100	"	"	"	"	02/13/04	"	
Copper	ND	0.00100	"	"	"	"	"	"	
MW-17-0204 (B4B0209-14) Water Sampled: 02/04/04 13:15 Received: 02/06/04 16:05									
Arsenic	**0.0307**	0.00100	mg/l	1	4B11035	02/11/04	02/13/04	EPA 6020	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	**0.00252**	0.00100	"	"	"	"	"	"	
MW-18-0204 (B4B0209-15) Water Sampled: 02/05/04 16:53 Received: 02/06/04 16:05									
Arsenic	**0.00122**	0.00100	mg/l	1	4B11035	02/11/04	02/16/04	EPA 6020	
Chromium	**0.00558**	0.00100	"	"	"	"	02/13/04	"	
Copper	**0.00292**	0.00100	"	"	"	"	"	"	
UPRR-29-0204 (B4B0209-16) Water Sampled: 02/06/04 12:27 Received: 02/06/04 16:05									
Arsenic	**0.139**	0.00100	mg/l	1	4B11035	02/11/04	02/13/04	EPA 6020	
Chromium	**0.0219**	0.00100	"	"	"	"	"	"	
Copper	**0.0207**	0.00100	"	"	"	"	"	"	
DRAIN (B4B0209-17) Water Sampled: 02/06/04 08:59 Received: 02/06/04 16:05									
Arsenic	**0.0126**	0.00100	mg/l	1	4B11035	02/11/04	02/16/04	EPA 6020	
Chromium	**0.00563**	0.00100	"	"	"	"	02/13/04	"	
Copper	**0.0383**	0.00100	"	"	"	"	"	"	
UPRR-30-0204 (B4B0209-18) Water Sampled: 02/06/04 12:57 Received: 02/06/04 16:05									
Arsenic	**0.131**	0.00100	mg/l	1	4B11035	02/11/04	02/13/04	EPA 6020	
Chromium	**0.0197**	0.00100	"	"	"	"	"	"	
Copper	**0.0191**	0.00100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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John M. Clawson

John Clawson, Project Manager

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 03/08/04 12:18

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1-0204 (B4B0209-01) Water	**Sampled: 02/06/04 11:04**	**Received: 02/06/04 16:05**							
Arsenic	**0.00273**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	02/17/04	"	
MW-2-0204 (B4B0209-02) Water	**Sampled: 02/05/04 14:51**	**Received: 02/06/04 16:05**							
Arsenic	**0.202**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.00787**	0.00100	"	"	"	"	"	"	
Copper	**0.00124**	0.00100	"	"	"	"	02/17/04	"	
MW-3-0204 (B4B0209-03) Water	**Sampled: 02/05/04 11:18**	**Received: 02/06/04 16:05**							
Arsenic	**4.43**	0.0200	mg/l	20	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.0284**	0.00100	"	1	"	"	02/12/04	"	
Copper	**0.00164**	0.00100	"	"	"	"	02/17/04	"	
MW-6-0204 (B4B0209-04) Water	**Sampled: 02/05/04 13:23**	**Received: 02/06/04 16:05**							
Arsenic	**0.0338**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.0136**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	02/17/04	"	
MW-7-0204 (B4B0209-05) Water	**Sampled: 02/04/04 16:49**	**Received: 02/06/04 16:05**							
Arsenic	**0.00213**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.00525**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	02/17/04	"	
MW-8-0204 (B4B0209-06) Water	**Sampled: 02/04/04 16:02**	**Received: 02/06/04 16:05**							
Arsenic	**0.276**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.0264**	0.00100	"	"	"	"	"	"	
Copper	**0.00189**	0.00100	"	"	"	"	02/17/04	"	

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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 03/08/04 12:18

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9-0204 (B4B0209-07) Water Sampled: 02/06/04 09:20 Received: 02/06/04 16:05									
Arsenic	**0.260**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.00327**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	02/17/04	"	
MW-10-0204 (B4B0209-08) Water Sampled: 02/05/04 17:36 Received: 02/06/04 16:05									
Arsenic	ND	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.00378**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	02/17/04	"	
MW-12-0204 (B4B0209-09) Water Sampled: 02/05/04 15:47 Received: 02/06/04 16:05									
Arsenic	**0.0131**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.00347**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	02/17/04	"	
MW-13-0204 (B4B0209-10) Water Sampled: 02/05/04 09:29 Received: 02/06/04 16:05									
Arsenic	**12.5**	0.100	mg/l	100	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.0172**	0.00100	"	1	"	"	02/12/04	"	
Copper	ND	0.00100	"	"	"	"	02/17/04	"	
MW-14-0204 (B4B0209-11) Water Sampled: 02/05/04 10:25 Received: 02/06/04 16:05									
Arsenic	**0.106**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.0104**	0.00100	"	"	"	"	"	"	
Copper	**0.0214**	0.00100	"	"	"	"	02/17/04	"	
MW-15-0204 (B4B0209-12) Water Sampled: 02/04/04 15:00 Received: 02/06/04 16:05									
Arsenic	**0.0215**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.00147**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	02/17/04	"	

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The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 03/08/04 12:18

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-16-0204 (B4B0209-13) Water Sampled: 02/04/04 14:09 Received: 02/06/04 16:05									
Arsenic	**0.00344**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.00244**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	02/17/04	"	
MW-17-0204 (B4B0209-14) Water Sampled: 02/04/04 13:15 Received: 02/06/04 16:05									
Arsenic	**0.0600**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.00587**	0.00100	"	"	"	"	"	"	
Copper	**0.00234**	0.00100	"	"	"	"	02/17/04	"	
MW-18-0204 (B4B0209-15) Water Sampled: 02/05/04 16:53 Received: 02/06/04 16:05									
Arsenic	**0.00100**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.00431**	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	02/17/04	"	
UPRR-29-0204 (B4B0209-16) Water Sampled: 02/06/04 12:27 Received: 02/06/04 16:05									
Arsenic	**0.123**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.00927**	0.00100	"	"	"	"	"	"	
Copper	**0.00923**	0.00100	"	"	"	"	02/17/04	"	
DRAIN (B4B0209-17) Water Sampled: 02/06/04 08:59 Received: 02/06/04 16:05									
Arsenic	**0.00862**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.00260**	0.00100	"	"	"	"	"	"	
Copper	**0.0290**	0.00100	"	"	"	"	02/17/04	"	
UPRR-30-0204 (B4B0209-18) Water Sampled: 02/06/04 12:57 Received: 02/06/04 16:05									
Arsenic	**0.118**	0.00100	mg/l	1	4B11026	02/11/04	02/12/04	EPA 6020	
Chromium	**0.00906**	0.00100	"	"	"	"	"	"	
Copper	**0.00938**	0.00100	"	"	"	"	02/17/04	"	

North Creek Analytical - Bothell

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
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The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 03/08/04 12:18

Pentachlorophenol by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1-0204 (B4B0209-01) Water	**Sampled: 02/06/04 11:04**	**Received: 02/06/04 16:05**							
Pentachlorophenol	ND	0.500	ug/l	1	4B11009	02/11/04	02/13/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*100 %*	*22-162*			"	"	"	"	
MW-2-0204 (B4B0209-02) Water	**Sampled: 02/05/04 14:51**	**Received: 02/06/04 16:05**							
Pentachlorophenol	ND	0.500	ug/l	1	4B11009	02/11/04	02/13/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*99.8 %*	*22-162*			"	"	"	"	
MW-3-0204 (B4B0209-03) Water	**Sampled: 02/05/04 11:18**	**Received: 02/06/04 16:05**							
Pentachlorophenol	ND	0.500	ug/l	1	4B11009	02/11/04	02/13/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*93.2 %*	*22-162*			"	"	"	"	
MW-6-0204 (B4B0209-04) Water	**Sampled: 02/05/04 13:23**	**Received: 02/06/04 16:05**							
Pentachlorophenol	**3.79**	0.500	ug/l	1	4B11009	02/11/04	02/13/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*91.1 %*	*22-162*			"	"	"	"	
MW-7-0204 (B4B0209-05) Water	**Sampled: 02/04/04 16:49**	**Received: 02/06/04 16:05**							
Pentachlorophenol	ND	0.500	ug/l	1	4B11009	02/11/04	02/13/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*91.2 %*	*22-162*			"	"	"	"	
MW-8-0204 (B4B0209-06) Water	**Sampled: 02/04/04 16:02**	**Received: 02/06/04 16:05**							
Pentachlorophenol	**3.79**	0.500	ug/l	1	4B11009	02/11/04	02/13/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*86.9 %*	*22-162*			"	"	"	"	
MW-9-0204 (B4B0209-07) Water	**Sampled: 02/06/04 09:20**	**Received: 02/06/04 16:05**							
Pentachlorophenol	ND	0.500	ug/l	1	4B11009	02/11/04	02/13/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*88.6 %*	*22-162*			"	"	"	"	

The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 03/08/04 12:18

Pentachlorophenol by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-10-0204 (B4B0209-08) Water	**Sampled: 02/05/04 17:36**	**Received: 02/06/04 16:05**							
Pentachlorophenol	**12.9**	0.500	ug/l	1	4B11009	02/11/04	02/13/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*88.4 %*	*22-162*			"	"	"	"	
MW-12-0204 (B4B0209-09) Water	**Sampled: 02/05/04 15:47**	**Received: 02/06/04 16:05**							
Pentachlorophenol	ND	0.500	ug/l	1	4B11009	02/11/04	02/13/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*97.9 %*	*22-162*			"	"	"	"	
MW-13-0204 (B4B0209-10) Water	**Sampled: 02/05/04 09:29**	**Received: 02/06/04 16:05**							
Pentachlorophenol	**75.8**	0.500	ug/l	1	4B11009	02/11/04	02/13/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*95.6 %*	*22-162*			"	"	"	"	
MW-14-0204 (B4B0209-11) Water	**Sampled: 02/05/04 10:25**	**Received: 02/06/04 16:05**							
Pentachlorophenol	ND	0.500	ug/l	1	4B11009	02/11/04	02/13/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*89.3 %*	*22-162*			"	"	"	"	
MW-15-0204 (B4B0209-12) Water	**Sampled: 02/04/04 15:00**	**Received: 02/06/04 16:05**							
Pentachlorophenol	**3.98**	0.500	ug/l	1	4B11009	02/11/04	02/13/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*94.1 %*	*22-162*			"	"	"	"	
MW-16-0204 (B4B0209-13) Water	**Sampled: 02/04/04 14:09**	**Received: 02/06/04 16:05**							
Pentachlorophenol	ND	5.00	ug/l	10	4B11009	02/11/04	02/17/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*114 %*	*22-162*			"	"	"	"	
MW-17-0204 (B4B0209-14) Water	**Sampled: 02/04/04 13:15**	**Received: 02/06/04 16:05**							
Pentachlorophenol	**3.83**	0.500	ug/l	1	4B11009	02/11/04	02/16/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*89.8 %*	*22-162*			"	"	"	"	

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
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The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 03/08/04 12:18

Pentachlorophenol by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-18-0204 (B4B0209-15) Water Sampled: 02/05/04 16:53 Received: 02/06/04 16:05									
Pentachlorophenol	ND	0.500	ug/l	1	4B11009	02/11/04	02/16/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*90.0 %*	*22-162*			"	"	"	"	
UPRR-29-0204 (B4B0209-16) Water Sampled: 02/06/04 12:27 Received: 02/06/04 16:05									
Pentachlorophenol	**3.77**	0.500	ug/l	1	4B11009	02/11/04	02/16/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*92.4 %*	*22-162*			"	"	"	"	
DRAIN (B4B0209-17) Water Sampled: 02/06/04 08:59 Received: 02/06/04 16:05									
Pentachlorophenol	**1160**	50.0	ug/l	100	4B11009	02/11/04	02/17/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*108 %*	*22-162*			"	"	*02/16/04*	"	
UPRR-30-0204 (B4B0209-18) Water Sampled: 02/06/04 12:57 Received: 02/06/04 16:05									**Q-29**
Pentachlorophenol	**3.87**	0.500	ug/l	1	4C03041	03/03/04	03/04/04	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*79.0 %*	*22-162*			"	"	"	"	

North Creek Analytical - Bothell

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John M. Clawson

John Clawson, Project Manager

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Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
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Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 03/08/04 12:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1-0204 (B4B0209-01) Water	**Sampled: 02/06/04 11:04**	**Received: 02/06/04 16:05**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	02/17/04	"	
Acenaphthene	ND	0.100	"	"	"	"	02/13/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*49.1 %*	*20-127*			*"*	*"*	*"*	*"*	
MW-2-0204 (B4B0209-02) Water	**Sampled: 02/05/04 14:51**	**Received: 02/06/04 16:05**							
2-Methylnaphthalene	ND	1.00	ug/l	10	4B11009	02/11/04	02/16/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	1	"	"	02/17/04	"	
Acenaphthene	**43.8**	1.00	"	10	"	"	02/16/04	"	
Acenaphthylene	**1.00**	0.100	"	1	"	"	02/13/04	"	
Anthracene	**2.04**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**2.88**	0.100	"	"	"	"	"	"	
Fluorene	**22.1**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**0.462**	0.100	"	"	"	"	"	"	
Phenanthrene	**8.62**	0.100	"	"	"	"	"	"	

North Creek Analytical - Bothell

John M. Clawson

John Clawson, Project Manager

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Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132 503.906.9200 fax 503.906.9210
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The RETEC Group, Inc.	Project:	Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number:	CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager:	Jill Nordstrom	Issued: 03/08/04 12:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2-0204 (B4B0209-02) Water	**Sampled: 02/05/04 14:51**	**Received: 02/06/04 16:05**							
Pyrene	**1.44**	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
Surrogate: p-Terphenyl-d14	*55.7 %*	*20-127*			"	"	"	"	
MW-3-0204 (B4B0209-03) Water	**Sampled: 02/05/04 11:18**	**Received: 02/06/04 16:05**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	02/17/04	"	
Acenaphthene	**0.302**	0.100	"	"	"	"	02/13/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	**0.170**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**1.26**	0.100	"	"	"	"	"	"	
Phenanthrene	**0.208**	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*28.0 %*	*20-127*			"	"	"	"	
MW-6-0204 (B4B0209-04) Water	**Sampled: 02/05/04 13:23**	**Received: 02/06/04 16:05**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	02/17/04	"	
Acenaphthene	ND	0.100	"	"	"	"	02/13/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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John M. Clawson

John Clawson, Project Manager

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Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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541.383.9310 fax 541.382.7588
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907.563.9200 fax 907.563.9210

The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 03/08/04 12:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6-0204 (B4B0209-04) Water	**Sampled: 02/05/04 13:23**		**Received: 02/06/04 16:05**						
Fluorene	ND	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*47.7 %*	*20-127*			*"*	*"*	*"*	*"*	
MW-7-0204 (B4B0209-05) Water	**Sampled: 02/04/04 16:49**		**Received: 02/06/04 16:05**						
2-Methylnaphthalene	ND	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	02/17/04	"	
Acenaphthene	ND	0.100	"	"	"	"	02/13/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*47.1 %*	*20-127*			*"*	*"*	*"*	*"*	

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 03/08/04 12:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-8-0204 (B4B0209-06) Water Sampled: 02/04/04 16:02 Received: 02/06/04 16:05									
2-Methylnaphthalene	**0.208**	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
2-Chloronaphthalene	**0.302**	0.100	"	"	"	"	02/17/04	"	
Acenaphthene	**1.60**	0.100	"	"	"	"	02/13/04	"	
Acenaphthylene	**0.264**	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	**0.340**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**2.21**	0.100	"	"	"	"	"	"	
Phenanthrene	**0.245**	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*22.7 %*	*20-127*			"	"	"	"	
MW-9-0204 (B4B0209-07) Water Sampled: 02/06/04 09:20 Received: 02/06/04 16:05									
2-Methylnaphthalene	**72.6**	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	E
2-Chloronaphthalene	ND	1.00	"	10	"	"	02/18/04	"	
Acenaphthene	**3.13**	0.100	"	1	"	"	02/13/04	"	
Acenaphthylene	**0.189**	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	**0.415**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**4980**	100	"	1000	"	"	02/16/04	"	
Phenanthrene	**0.208**	0.100	"	1	"	"	02/13/04	"	

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1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 03/08/04 12:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-9-0204 (B4B0209-07) Water	**Sampled: 02/06/04 09:20**	**Received: 02/06/04 16:05**							
Pyrene	ND	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
Surrogate: p-Terphenyl-d14	*49.2 %*	*20-127*			"	"	"	"	
MW-10-0204 (B4B0209-08) Water	**Sampled: 02/05/04 17:36**	**Received: 02/06/04 16:05**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
2-Chloronaphthalene	**0.212**	0.100	"	"	"	"	02/17/04	"	
Acenaphthene	ND	0.100	"	"	"	"	02/13/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**1.29**	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*58.2 %*	*20-127*			"	"	"	"	
MW-12-0204 (B4B0209-09) Water	**Sampled: 02/05/04 15:47**	**Received: 02/06/04 16:05**							
2-Methylnaphthalene	**0.113**	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	02/17/04	"	
Acenaphthene	**0.453**	0.100	"	"	"	"	02/13/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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John M. Clawson

John Clawson, Project Manager

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 03/08/04 12:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-12-0204 (B4B0209-09) Water	**Sampled: 02/05/04 15:47**	**Received: 02/06/04 16:05**							
Fluorene	**0.189**	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**0.302**	0.100	"	"	"	"	"	"	
Phenanthrene	**0.113**	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*39.6 %*	*20-127*			"	"	"	"	
MW-13-0204 (B4B0209-10) Water	**Sampled: 02/05/04 09:29**	**Received: 02/06/04 16:05**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
2-Chloronaphthalene	**0.547**	0.100	"	"	"	"	02/18/04	"	
Acenaphthene	**0.509**	0.100	"	"	"	"	02/13/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**0.321**	0.100	"	"	"	"	"	"	
Fluorene	**0.132**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**0.189**	0.100	"	"	"	"	"	"	
Phenanthrene	**0.189**	0.100	"	"	"	"	"	"	
Pyrene	**0.264**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*56.6 %*	*20-127*			"	"	"	"	

North Creek Analytical - Bothell

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John M. Clawson

John Clawson, Project Manager

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-14-0204 (B4B0209-11) Water	**Sampled: 02/05/04 10:25**	**Received: 02/06/04 16:05**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	02/18/04	"	
Acenaphthene	ND	0.100	"	"	"	"	02/13/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*57.8 %*	*20-127*			"	"	"	"	
MW-15-0204 (B4B0209-12) Water	**Sampled: 02/04/04 15:00**	**Received: 02/06/04 16:05**							
2-Methylnaphthalene	**3.11**	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
2-Chloronaphthalene	**0.132**	0.100	"	"	"	"	02/18/04	"	
Acenaphthene	**30.4**	0.100	"	"	"	"	02/13/04	"	
Acenaphthylene	**0.566**	0.100	"	"	"	"	"	"	
Anthracene	**3.79**	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	**0.849**	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	**0.226**	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.509**	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	**1.09**	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**10.0**	0.100	"	"	"	"	"	"	
Fluorene	**23.8**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	**3.08**	0.100	"	"	"	"	"	"	
Phenanthrene	**30.6**	0.100	"	"	"	"	"	"	

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 03/08/04 12:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-15-0204 (B4B0209-12) Water	**Sampled: 02/04/04 15:00**	**Received: 02/06/04 16:05**							
Pyrene	**5.96**	0.100	ug/l	1	4B11009	02/11/04	02/13/04	8270C-SIM	
Surrogate: p-Terphenyl-d14	*30.1 %*	*20-127*			"	"	"	"	
MW-16-0204 (B4B0209-13) Water	**Sampled: 02/04/04 14:09**	**Received: 02/06/04 16:05**							
2-Methylnaphthalene	**26.8**	1.00	ug/l	10	4B11009	02/11/04	02/17/04	8270C-SIM	
2-Chloronaphthalene	ND	1.00	"	"	"	"	02/18/04	"	
Acenaphthene	**2.83**	1.00	"	"	"	"	02/17/04	"	
Acenaphthylene	ND	1.00	"	"	"	"	"	"	
Anthracene	ND	1.00	"	"	"	"	"	"	
Benzo (a) anthracene	ND	1.00	"	"	"	"	"	"	
Benzo (a) pyrene	ND	1.00	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	1.00	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	1.00	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	1.00	"	"	"	"	"	"	
Chrysene	ND	1.00	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	1.00	"	"	"	"	"	"	
Fluoranthene	**1.32**	1.00	"	"	"	"	"	"	
Fluorene	ND	1.00	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	1.00	"	"	"	"	"	"	
Naphthalene	**1370**	10.0	"	100	"	"	02/16/04	"	
Phenanthrene	ND	1.00	"	10	"	"	02/17/04	"	
Pyrene	ND	1.00	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*69.9 %*	*20-127*			"	"	"	"	
MW-17-0204 (B4B0209-14) Water	**Sampled: 02/04/04 13:15**	**Received: 02/06/04 16:05**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4B11009	02/11/04	02/16/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	02/18/04	"	
Acenaphthene	**0.132**	0.100	"	"	"	"	02/16/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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John M. Clawson

John Clawson, Project Manager

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 03/08/04 12:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-17-0204 (B4B0209-14) Water	**Sampled: 02/04/04 13:15**	**Received: 02/06/04 16:05**							
Fluorene	ND	0.100	ug/l	1	4B11009	02/11/04	02/16/04	8270C-SIM	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*63.6 %*	*20-127*			"	"	"	"	
MW-18-0204 (B4B0209-15) Water	**Sampled: 02/05/04 16:53**	**Received: 02/06/04 16:05**							
2-Methylnaphthalene	ND	0.100	ug/l	1	4B11009	02/11/04	02/16/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	02/18/04	"	
Acenaphthene	**0.113**	0.100	"	"	"	"	02/16/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	**0.264**	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	**0.208**	0.100	"	"	"	"	"	"	
Pyrene	**0.189**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*40.5 %*	*20-127*			"	"	"	"	

North Creek Analytical - Bothell

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John Clawson, Project Manager

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

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The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 03/08/04 12:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
UPRR-29-0204 (B4B0209-16) Water	**Sampled: 02/06/04 12:27**		**Received: 02/06/04 16:05**						
2-Methylnaphthalene	ND	0.100	ug/l	1	4B11009	02/11/04	02/16/04	8270C-SIM	
2-Chloronaphthalene	ND	0.100	"	"	"	"	02/18/04	"	
Acenaphthene	**0.321**	0.100	"	"	"	"	02/16/04	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	**1.04**	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	**0.132**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*61.0 %*	*20-127*			"	"	"	"	
DRAIN (B4B0209-17) Water	**Sampled: 02/06/04 08:59**		**Received: 02/06/04 16:05**						
2-Methylnaphthalene	**113**	1.00	ug/l	10	4B11009	02/11/04	02/16/04	8270C-SIM	
2-Chloronaphthalene	ND	1.00	"	"	"	"	02/18/04	"	
Acenaphthene	**114**	1.00	"	"	"	"	02/16/04	"	
Acenaphthylene	**4.95**	1.00	"	"	"	"	"	"	
Anthracene	**857**	10.0	"	100	"	"	02/17/04	"	
Benzo (a) anthracene	**291**	1.00	"	10	"	"	02/16/04	"	
Benzo (a) pyrene	**223**	1.00	"	"	"	"	"	"	
Benzo (b) fluoranthene	**319**	1.00	"	"	"	"	"	"	
Benzo (ghi) perylene	**150**	1.00	"	"	"	"	"	"	
Benzo (k) fluoranthene	**259**	1.00	"	"	"	"	"	"	
Chrysene	**370**	1.00	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**45.9**	1.00	"	"	"	"	"	"	
Fluoranthene	**1460**	10.0	"	100	"	"	02/17/04	"	
Fluorene	**365**	1.00	"	10	"	"	02/16/04	"	
Indeno (1,2,3-cd) pyrene	**144**	1.00	"	"	"	"	"	"	
Naphthalene	**35.6**	1.00	"	"	"	"	"	"	
Phenanthrene	**1120**	10.0	"	100	"	"	02/17/04	"	

North Creek Analytical - Bothell

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John Clawson, Project Manager

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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541.383.9310 fax 541.382.7588
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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 03/08/04 12:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DRAIN (B4B0209-17) Water Sampled: 02/06/04 08:59 Received: 02/06/04 16:05									
Pyrene	**970**	10.0	ug/l	100	4B11009	02/11/04	02/17/04	8270C-SIM	
Surrogate: p-Terphenyl-d14	*58.4 %*	*20-127*			"	"	*02/16/04*	"	
UPRR-30-0204 (B4B0209-18) Water Sampled: 02/06/04 12:57 Received: 02/06/04 16:05									**Q-29**
1-Methylnaphthalene	ND	0.100	ug/l	1	4C03041	03/03/04	03/04/04	8270C-SIM	
2-Methylnaphthalene	ND	0.100	"	"	"	"	"	"	
Acenaphthene	ND	0.100	"	"	"	"	"	"	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.100	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	**0.190**	0.100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*80.3 %*	*20-127*			"	"	"	"	

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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BTEX by EPA Method 8021B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4B10002: Prepared 02/10/04 Using EPA 5030B (P/T)										
Blank (4B10002-BLK1)										
Benzene	ND	0.500	ug/l							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (PID)	*47.6*		*"*	*48.0*		*99.2*	*72-127*			
LCS (4B10002-BS1)										
Benzene	6.88	0.500	ug/l	7.38		93.2	80-120			
Toluene	35.4	0.500	"	34.9		101	80-120			
Ethylbenzene	9.44	0.500	"	8.19		115	80-120			
Xylenes (total)	44.3	1.00	"	39.7		112	80-120			
Surrogate: 4-BFB (PID)	*43.8*		*"*	*48.0*		*91.2*	*72-127*			
LCS Dup (4B10002-BSD1)										
Benzene	6.54	0.500	ug/l	7.38		88.6	80-120	5.07	40	
Toluene	33.8	0.500	"	34.9		96.8	80-120	4.62	40	
Ethylbenzene	9.00	0.500	"	8.19		110	80-120	4.77	40	
Xylenes (total)	42.4	1.00	"	39.7		107	80-120	4.38	40	
Surrogate: 4-BFB (PID)	*44.3*		*"*	*48.0*		*92.3*	*72-127*			
Matrix Spike (4B10002-MS1)					**Source: B4B0211-03**					
Benzene	11.1	0.500	ug/l	7.38	3.71	100	70-129			
Toluene	40.1	0.500	"	34.9	0.186	114	73-114			
Ethylbenzene	11.3	0.500	"	8.19	0.166	136	82-120			Q-02
Xylenes (total)	50.3	1.00	"	39.7	0.543	125	74-118			Q-02
Surrogate: 4-BFB (PID)	*44.3*		*"*	*48.0*		*92.3*	*72-127*			
Matrix Spike Dup (4B10002-MSD1)					**Source: B4B0211-03**					
Benzene	11.2	0.500	ug/l	7.38	3.71	101	70-129	0.897	40	
Toluene	40.5	0.500	"	34.9	0.186	116	73-114	0.993	40	Q-02
Ethylbenzene	10.4	0.500	"	8.19	0.166	125	82-120	8.29	40	Q-02
Xylenes (total)	51.3	1.00	"	39.7	0.543	128	74-118	1.97	40	Q-02
Surrogate: 4-BFB (PID)	*44.3*		*"*	*48.0*		*92.3*	*72-127*			

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Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4B11035: Prepared 02/11/04 Using EPA 3020A										
Blank (4B11035-BLK1)										
Arsenic	ND	0.00100	mg/l							
Chromium	ND	0.00100	"							
Copper	ND	0.00100	"							
LCS (4B11035-BS1)										
Arsenic	0.0772	0.00100	mg/l	0.0800		96.5	80-120			
Chromium	0.0799	0.00100	"	0.0800		99.9	80-120			
Copper	0.0767	0.00100	"	0.0800		95.9	80-120			
LCS Dup (4B11035-BSD1)										
Arsenic	0.0780	0.00100	mg/l	0.0800		97.5	80-120	1.03	20	
Chromium	0.0781	0.00100	"	0.0800		97.6	80-120	2.28	20	
Copper	0.0766	0.00100	"	0.0800		95.8	80-120	0.130	20	
Matrix Spike (4B11035-MS1)					**Source: B4B0209-01**					
Arsenic	0.0824	0.00100	mg/l	0.0800	0.00233	100	75-125			
Chromium	0.0780	0.00100	"	0.0800	0.000799	96.5	75-125			
Copper	0.0706	0.00100	"	0.0800	0.000458	87.7	70-124			
Matrix Spike Dup (4B11035-MSD1)					**Source: B4B0209-01**					
Arsenic	0.0814	0.00100	mg/l	0.0800	0.00233	98.8	75-125	1.22	20	
Chromium	0.0769	0.00100	"	0.0800	0.000799	95.1	75-125	1.42	20	
Copper	0.0697	0.00100	"	0.0800	0.000458	86.6	70-124	1.28	20	
Post Spike (4B11035-PS1)					**Source: B4B0209-01**					
Arsenic	0.0970	0.00100	mg/l	0.100	0.00233	94.7	75-125			
Chromium	0.0942	0.00100	"	0.100	0.000799	93.4	75-125			
Copper	0.0849	0.00100	"	0.100	0.000458	84.4	75-125			

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 03/08/04 12:18

Dissolved Metals by EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4B11026: Prepared 02/11/04 Using EPA 3005A										
Blank (4B11026-BLK1)										
Arsenic	ND	0.00100	mg/l							
Chromium	ND	0.00100	"							
Copper	ND	0.00100	"							
LCS (4B11026-BS1)										
Arsenic	0.198	0.00100	mg/l	0.200		99.0	80-120			
Chromium	0.189	0.00100	"	0.200		94.5	80-120			
Copper	0.202	0.00100	"	0.200		101	80-120			
LCS Dup (4B11026-BSD1)										
Arsenic	0.200	0.00100	mg/l	0.200		100	80-120	1.01	20	
Chromium	0.191	0.00100	"	0.200		95.5	80-120	1.05	20	
Copper	0.202	0.00100	"	0.200		101	80-120	0.00	20	
Matrix Spike (4B11026-MS1)					**Source: B4B0209-01**					
Arsenic	0.108	0.00100	mg/l	0.100	0.00273	105	75-125			
Chromium	0.0901	0.00100	"	0.100	0.000912	89.2	75-125			
Copper	0.0938	0.00100	"	0.100	0.000780	93.0	70-124			
Matrix Spike Dup (4B11026-MSD1)					**Source: B4B0209-01**					
Arsenic	0.106	0.00100	mg/l	0.100	0.00273	103	75-125	1.87	20	
Chromium	0.0907	0.00100	"	0.100	0.000912	89.8	75-125	0.664	20	
Copper	0.0931	0.00100	"	0.100	0.000780	92.3	70-124	0.749	20	

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Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 03/08/04 12:18

Pentachlorophenol by GC/MS with Selected Ion Monitoring - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4B11009: Prepared 02/11/04 Using EPA 3520C										
Blank (4B11009-BLK1)										
Pentachlorophenol	ND	0.500	ug/l							
Surrogate: 2,4,6-TBP	*39.9*		"	*50.0*		*79.8*	*22-162*			
LCS (4B11009-BS1)										
Pentachlorophenol	12.5	0.500	ug/l	20.0		62.5	20-128			
Surrogate: 2,4,6-TBP	*40.0*		"	*50.0*		*80.0*	*22-162*			
LCS Dup (4B11009-BSD1)										
Pentachlorophenol	12.1	0.500	ug/l	20.0		60.5	20-128	3.25	50	
Surrogate: 2,4,6-TBP	*42.1*		"	*50.0*		*84.2*	*22-162*			
Batch 4C03041: Prepared 03/03/04 Using EPA 3510C										
Blank (4C03041-BLK1)										
Pentachlorophenol	ND	0.500	ug/l							
Surrogate: 2,4,6-TBP	*25.3*		"	*50.0*		*50.6*	*22-162*			
LCS (4C03041-BS1)										
Pentachlorophenol	7.14	0.500	ug/l	20.0		35.7	20-128			
Surrogate: 2,4,6-TBP	*31.6*		"	*50.0*		*63.2*	*22-162*			
LCS Dup (4C03041-BSD1)										
Pentachlorophenol	6.00	0.500	ug/l	20.0		30.0	20-128	17.4	50	
Surrogate: 2,4,6-TBP	*30.4*		"	*50.0*		*60.8*	*22-162*			

North Creek Analytical - Bothell

John M. Clawson

John Clawson, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4B11009: Prepared 02/11/04 Using EPA 3520C										
Blank (4B11009-BLK1)										
2-Methylnaphthalene	ND	0.100	ug/l							
2-Chloronaphthalene	ND	0.100	"							
Acenaphthene	ND	0.100	"							
Acenaphthylene	ND	0.100	"							
Anthracene	ND	0.100	"							
Benzo (a) anthracene	ND	0.100	"							
Benzo (a) pyrene	ND	0.100	"							
Benzo (b) fluoranthene	ND	0.100	"							
Benzo (ghi) perylene	ND	0.100	"							
Benzo (k) fluoranthene	ND	0.100	"							
Chrysene	ND	0.100	"							
Dibenz (a,h) anthracene	ND	0.100	"							
Fluoranthene	ND	0.100	"							
Fluorene	ND	0.100	"							
Indeno (1,2,3-cd) pyrene	ND	0.100	"							
Naphthalene	ND	0.100	"							
Phenanthrene	ND	0.100	"							
Pyrene	ND	0.100	"							
Surrogate: p-Terphenyl-d14	*46.7*		*"*	*50.0*		*93.4*	*20-127*			
LCS (4B11009-BS1)										
Acenaphthene	7.74	0.100	ug/l	10.0		77.4	34-120			
Acenaphthylene	8.16	0.100	"	10.0		81.6	36-120			
Anthracene	7.98	0.100	"	10.0		79.8	35-138			
Benzo (a) anthracene	9.50	0.100	"	10.0		95.0	41-121			
Benzo (a) pyrene	7.62	0.100	"	10.0		76.2	33-125			
Benzo (b) fluoranthene	8.28	0.100	"	10.0		82.8	35-133			
Benzo (ghi) perylene	6.84	0.100	"	10.0		68.4	25-121			
Benzo (k) fluoranthene	8.14	0.100	"	10.0		81.4	28-127			
Chrysene	6.40	0.100	"	10.0		64.0	41-120			
Dibenz (a,h) anthracene	7.26	0.100	"	10.0		72.6	24-120			
Fluoranthene	8.52	0.100	"	10.0		85.2	33-137			
Fluorene	8.24	0.100	"	10.0		82.4	42-120			
Indeno (1,2,3-cd) pyrene	7.44	0.100	"	10.0		74.4	26-122			
Naphthalene	8.06	0.100	"	10.0		80.6	38-120			

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The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLU1-16832-400
Project Manager: Jill Nordstrom

Amended Report
Issued: 03/08/04 12:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4B11009: Prepared 02/11/04 Using EPA 3520C										
LCS (4B11009-BS1)										
Phenanthrene	8.00	0.100	ug/l	10.0		80.0	31-127			
Pyrene	8.04	0.100	"	10.0		80.4	42-125			
Surrogate: p-Terphenyl-d14	*45.7*		*"*	*50.0*		*91.4*	*20-127*			
LCS Dup (4B11009-BSD1)										
Acenaphthene	7.72	0.100	ug/l	10.0		77.2	34-120	0.259	30	
Acenaphthylene	8.44	0.100	"	10.0		84.4	36-120	3.37	30	
Anthracene	8.02	0.100	"	10.0		80.2	35-138	0.500	30	
Benzo (a) anthracene	8.24	0.100	"	10.0		82.4	41-121	14.2	30	
Benzo (a) pyrene	7.44	0.100	"	10.0		74.4	33-125	2.39	30	
Benzo (b) fluoranthene	7.12	0.100	"	10.0		71.2	35-133	15.1	30	
Benzo (ghi) perylene	6.68	0.100	"	10.0		66.8	25-121	2.37	30	
Benzo (k) fluoranthene	9.08	0.100	"	10.0		90.8	28-127	10.9	30	
Chrysene	7.42	0.100	"	10.0		74.2	41-120	14.8	30	
Dibenz (a,h) anthracene	7.04	0.100	"	10.0		70.4	24-120	3.08	30	
Fluoranthene	8.34	0.100	"	10.0		83.4	33-137	2.14	30	
Fluorene	8.18	0.100	"	10.0		81.8	42-120	0.731	30	
Indeno (1,2,3-cd) pyrene	7.24	0.100	"	10.0		72.4	26-122	2.72	30	
Naphthalene	9.46	0.100	"	10.0		94.6	38-120	16.0	30	
Phenanthrene	7.58	0.100	"	10.0		75.8	31-127	5.39	30	
Pyrene	7.72	0.100	"	10.0		77.2	42-125	4.06	30	
Surrogate: p-Terphenyl-d14	*42.0*		*"*	*50.0*		*84.0*	*20-127*			
Batch 4C03041: Prepared 03/03/04 Using EPA 3510C										
Blank (4C03041-BLK1)										
1-Methylnaphthalene	ND	0.100	ug/l							
2-Methylnaphthalene	ND	0.100	"							
Acenaphthene	ND	0.100	"							
Acenaphthylene	ND	0.100	"							
Anthracene	ND	0.100	"							
Benzo (a) anthracene	ND	0.100	"							
Benzo (a) pyrene	ND	0.100	"							
Benzo (b) fluoranthene	ND	0.100	"							
Benzo (ghi) perylene	ND	0.100	"							
Benzo (k) fluoranthene	ND	0.100	"							

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The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLU1-16832-400 Project Manager: Jill Nordstrom	**Amended Report** Issued: 03/08/04 12:18

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C03041: Prepared 03/03/04 Using EPA 3510C										
Blank (4C03041-BLK1)										
Chrysene	ND	0.100	ug/l							
Dibenz (a,h) anthracene	ND	0.100	"							
Fluoranthene	ND	0.100	"							
Fluorene	ND	0.100	"							
Indeno (1,2,3-cd) pyrene	ND	0.100	"							
Naphthalene	ND	0.100	"							
Phenanthrene	ND	0.100	"							
Pyrene	ND	0.100	"							
Surrogate: p-Terphenyl-d14	*43.3*		*"*	*50.0*		*86.6*	*20-127*			
LCS (4C03041-BS1)										
1-Methylnaphthalene	7.44	0.100	ug/l	10.0		74.4	50-150			
2-Methylnaphthalene	8.94	0.100	"	10.0		89.4	50-150			
Acenaphthene	7.04	0.100	"	10.0		70.4	34-120			
Acenaphthylene	7.68	0.100	"	10.0		76.8	36-120			
Anthracene	7.12	0.100	"	10.0		71.2	35-138			
Benzo (a) anthracene	6.36	0.100	"	10.0		63.6	41-121			
Benzo (a) pyrene	6.20	0.100	"	10.0		62.0	33-125			
Benzo (b) fluoranthene	7.54	0.100	"	10.0		75.4	35-133			
Benzo (ghi) perylene	5.80	0.100	"	10.0		58.0	25-121			
Benzo (k) fluoranthene	6.12	0.100	"	10.0		61.2	28-127			
Chrysene	5.92	0.100	"	10.0		59.2	41-120			
Dibenz (a,h) anthracene	5.72	0.100	"	10.0		57.2	24-120			
Fluoranthene	7.60	0.100	"	10.0		76.0	33-137			
Fluorene	7.74	0.100	"	10.0		77.4	42-120			
Indeno (1,2,3-cd) pyrene	5.92	0.100	"	10.0		59.2	26-122			
Naphthalene	7.76	0.100	"	10.0		77.6	38-120			
Phenanthrene	7.48	0.100	"	10.0		74.8	31-127			
Pyrene	7.34	0.100	"	10.0		73.4	42-125			
Surrogate: p-Terphenyl-d14	*40.3*		*"*	*50.0*		*80.6*	*20-127*			

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
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907.563.9200 fax 907.563.9210

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C03041: Prepared 03/03/04 Using EPA 3510C										
LCS Dup (4C03041-BSD1)										
1-Methylnaphthalene	7.22	0.100	ug/l	10.0		72.2	50-150	3.00	25	
2-Methylnaphthalene	8.62	0.100	"	10.0		86.2	50-150	3.64	25	
Acenaphthene	6.78	0.100	"	10.0		67.8	34-120	3.76	30	
Acenaphthylene	7.52	0.100	"	10.0		75.2	36-120	2.11	30	
Anthracene	7.34	0.100	"	10.0		73.4	35-138	3.04	30	
Benzo (a) anthracene	7.00	0.100	"	10.0		70.0	41-121	9.58	30	
Benzo (a) pyrene	6.56	0.100	"	10.0		65.6	33-125	5.64	30	
Benzo (b) fluoranthene	6.36	0.100	"	10.0		63.6	35-133	17.0	30	
Benzo (ghi) perylene	6.56	0.100	"	10.0		65.6	25-121	12.3	30	
Benzo (k) fluoranthene	8.22	0.100	"	10.0		82.2	28-127	29.3	30	
Chrysene	4.94	0.100	"	10.0		49.4	41-120	18.0	30	
Dibenz (a,h) anthracene	6.48	0.100	"	10.0		64.8	24-120	12.5	30	
Fluoranthene	7.56	0.100	"	10.0		75.6	33-137	0.528	30	
Fluorene	7.46	0.100	"	10.0		74.6	42-120	3.68	30	
Indeno (1,2,3-cd) pyrene	6.72	0.100	"	10.0		67.2	26-122	12.7	30	
Naphthalene	7.32	0.100	"	10.0		73.2	38-120	5.84	30	
Phenanthrene	7.14	0.100	"	10.0		71.4	31-127	4.65	30	
Pyrene	6.68	0.100	"	10.0		66.8	42-125	9.42	30	
Surrogate: p-Terphenyl-d14	*38.0*		*"*	*50.0*		*76.0*	*20-127*			

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLU1-16832-400	**Amended Report**
Seattle, WA 98134	Project Manager: Jill Nordstrom	Issued: 03/08/04 12:18

Notes and Definitions

E	Estimated value. The reported value exceeds the calibration range of the analysis.
Q-02	The spike recovery for this QC sample is outside of NCA established control limits due to sample matrix interference.
Q-29	This sample was prepared outside of the method established holding time.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
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541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

23 January 2004

Nick Bacher
The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

RE: Cascade Pole

Enclosed are the results of analyses for samples received by the laboratory on 12/17/03 12:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

John M. Clawson

John Clawson
Project Manager

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW17-0-0.5	B3L0611-01	Soil	12/15/03 09:10	12/17/03 12:15
MW17-7.5-9	B3L0611-02	Soil	12/15/03 09:35	12/17/03 12:15
MW15-0-0.5	B3L0611-03	Soil	12/15/03 12:25	12/17/03 12:15
MW15-7.5-9	B3L0611-04	Soil	12/15/03 12:40	12/17/03 12:15
MW16-0-0.5	B3L0611-05	Soil	12/15/03 15:10	12/17/03 12:15
MW16-5-6.5	B3L0611-06	Soil	12/15/03 15:20	12/17/03 12:15
MW16-7.5-9	B3L0611-07	Soil	12/15/03 15:30	12/17/03 12:15
MW18-10.5-11.5	B3L0611-08	Soil	12/16/03 12:49	12/17/03 12:15
MW18-22.5-24	B3L0611-09	Soil	12/16/03 12:53	12/17/03 12:15

North Creek Analytical - Bothell

John M. Clawson

John Clawson, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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The RETEC Group, Inc.	Project:	Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number:	CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager:	Nick Bacher	01/23/04 10:44

Total Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW17-0-0.5 (B3L0611-01) Soil	**Sampled: 12/15/03 09:10**	**Received: 12/17/03 12:15**							
Arsenic	**27.3**	0.500	mg/kg dry	1	3L23041	12/23/03	01/09/04	EPA 6020	
Chromium	**55.9**	0.500	"	"	"	"	"	"	
Copper	**62.6**	0.500	"	"	"	"	"	"	
MW17-7.5-9 (B3L0611-02) Soil	**Sampled: 12/15/03 09:35**	**Received: 12/17/03 12:15**							
Arsenic	**3.99**	0.500	mg/kg dry	1	3L23041	12/23/03	01/09/04	EPA 6020	
Chromium	**34.8**	0.500	"	"	"	"	"	"	
Copper	**22.8**	0.500	"	"	"	"	"	"	
MW15-0-0.5 (B3L0611-03) Soil	**Sampled: 12/15/03 12:25**	**Received: 12/17/03 12:15**							
Arsenic	**36.8**	0.500	mg/kg dry	1	3L23041	12/24/03	01/09/04	EPA 6020	
Chromium	**55.7**	0.500	"	"	"	"	"	"	
Copper	**65.7**	0.500	"	"	"	"	"	"	
MW15-7.5-9 (B3L0611-04) Soil	**Sampled: 12/15/03 12:40**	**Received: 12/17/03 12:15**							
Arsenic	**11.8**	0.500	mg/kg dry	1	3L23041	12/24/03	01/09/04	EPA 6020	
Chromium	**31.8**	0.500	"	"	"	"	"	"	
Copper	**35.5**	0.500	"	"	"	"	"	"	
MW16-0-0.5 (B3L0611-05) Soil	**Sampled: 12/15/03 15:10**	**Received: 12/17/03 12:15**							
Arsenic	**4.69**	0.500	mg/kg dry	1	3L23041	12/24/03	01/09/04	EPA 6020	
Chromium	**26.6**	0.500	"	"	"	"	"	"	
Copper	**26.5**	0.500	"	"	"	"	"	"	
MW16-5-6.5 (B3L0611-06) Soil	**Sampled: 12/15/03 15:20**	**Received: 12/17/03 12:15**							
Arsenic	**4.68**	0.556	mg/kg dry	1	3L23041	12/24/03	01/09/04	EPA 6020	
Chromium	**10.4**	0.556	"	"	"	"	"	"	
Copper	**20.8**	0.556	"	"	"	"	"	"	

John M. Clawson

John Clawson, Project Manager

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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
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541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW16-7.5-9 (B3L0611-07) Soil Sampled: 12/15/03 15:30 Received: 12/17/03 12:15									
Arsenic	**6.73**	0.714	mg/kg dry	1	3L23041	12/24/03	01/09/04	EPA 6020	
Chromium	**17.2**	0.714	"	"	"	"	"	"	
Copper	**36.7**	0.714	"	"	"	"	"	"	
MW18-10.5-11.5 (B3L0611-08) Soil Sampled: 12/16/03 12:49 Received: 12/17/03 12:15									
Arsenic	**11.8**	0.781	mg/kg dry	1	3L23041	12/24/03	01/09/04	EPA 6020	
Chromium	**26.4**	0.781	"	"	"	"	"	"	
Copper	**58.0**	0.781	"	"	"	"	"	"	
MW18-22.5-24 (B3L0611-09) Soil Sampled: 12/16/03 12:53 Received: 12/17/03 12:15									
Arsenic	**1.43**	0.758	mg/kg dry	1	3L29033	12/29/03	01/06/04	EPA 6020	
Chromium	**11.8**	0.758	"	"	"	"	01/07/04	"	
Copper	**19.2**	0.758	"	"	"	"	01/06/04	"	

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLCI-04199-420 Project Manager: Nick Bacher	**Reported:** 01/23/04 10:44

Pentachlorophenol by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW17-0-0.5 (B3L0611-01) Soil	**Sampled: 12/15/03 09:10**	**Received: 12/17/03 12:15**							
Pentachlorophenol	**2.52**	0.250	mg/kg dry	5	3L22028	12/22/03	12/23/03	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*114 %*	*21-148*			"	"	"	"	
MW17-7.5-9 (B3L0611-02) Soil	**Sampled: 12/15/03 09:35**	**Received: 12/17/03 12:15**							
Pentachlorophenol	ND	0.0500	mg/kg dry	1	3L22028	12/22/03	12/23/03	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*96.5 %*	*21-148*			"	"	"	"	
MW15-0-0.5 (B3L0611-03) Soil	**Sampled: 12/15/03 12:25**	**Received: 12/17/03 12:15**							
Pentachlorophenol	**10.5**	0.500	mg/kg dry	10	3L22028	12/22/03	12/23/03	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*127 %*	*21-148*			"	"	"	"	
MW15-7.5-9 (B3L0611-04) Soil	**Sampled: 12/15/03 12:40**	**Received: 12/17/03 12:15**							
Pentachlorophenol	**0.570**	0.0500	mg/kg dry	1	3L22028	12/22/03	12/23/03	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*108 %*	*21-148*			"	"	"	"	
MW16-0-0.5 (B3L0611-05) Soil	**Sampled: 12/15/03 15:10**	**Received: 12/17/03 12:15**							
Pentachlorophenol	**0.326**	0.250	mg/kg dry	5	3L22028	12/22/03	12/24/03	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*97.1 %*	*21-148*			"	"	"	"	
MW16-5-6.5 (B3L0611-06) Soil	**Sampled: 12/15/03 15:20**	**Received: 12/17/03 12:15**							
Pentachlorophenol	ND	0.0500	mg/kg dry	1	3L22028	12/22/03	12/23/03	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*97.7 %*	*21-148*			"	"	"	"	
MW16-7.5-9 (B3L0611-07) Soil	**Sampled: 12/15/03 15:30**	**Received: 12/17/03 12:15**							
Pentachlorophenol	ND	0.0500	mg/kg dry	1	3L22028	12/22/03	12/23/03	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*103 %*	*21-148*			"	"	"	"	

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

Pentachlorophenol by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW18-10.5-11.5 (B3L0611-08) Soil Sampled: 12/16/03 12:49 Received: 12/17/03 12:15									
Pentachlorophenol	**0.245**	0.0500	mg/kg dry	1	3L22028	12/22/03	12/23/03	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*99.6 %*	*21-148*			"	"	"	"	
MW18-22.5-24 (B3L0611-09) Soil Sampled: 12/16/03 12:53 Received: 12/17/03 12:15									
Pentachlorophenol	ND	0.0500	mg/kg dry	1	3L22028	12/22/03	12/23/03	EPA 8270 Mod	
Surrogate: 2,4,6-TBP	*99.0 %*	*21-148*			"	"	"	"	

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

John M. Clawson

John Clawson, Project Manager

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509.924.9200 fax 509.924.9290
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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW17-0-0.5 (B3L0611-01) Soil	**Sampled: 12/15/03 09:10**	**Received: 12/17/03 12:15**							
2-Chloronaphthalene	ND	0.0500	mg/kg dry	5	3L22028	12/22/03	12/23/03	8270C-SIM	
2-Methylnaphthalene	**0.0905**	0.0500	"	"	"	"	"	"	
Acenaphthene	ND	0.0500	"	"	"	"	"	"	
Acenaphthylene	ND	0.0500	"	"	"	"	"	"	
Anthracene	**0.0641**	0.0500	"	"	"	"	"	"	
Benzo (a) anthracene	**0.0792**	0.0500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.0500	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.109**	0.0500	"	"	"	"	"	"	
Benzo (ghi) perylene	**0.0754**	0.0500	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.143**	0.0500	"	"	"	"	"	"	
Chrysene	**0.177**	0.0500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0500	"	"	"	"	"	"	
Fluoranthene	**0.321**	0.0500	"	"	"	"	"	"	
Fluorene	ND	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	**0.0566**	0.0500	"	"	"	"	"	"	
Naphthalene	ND	0.0500	"	"	"	"	"	"	
Phenanthrene	**0.158**	0.0500	"	"	"	"	"	"	
Pyrene	**0.196**	0.0500	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*88.9 %*	*28-161*			"	"	"	"	
MW17-7.5-9 (B3L0611-02) Soil	**Sampled: 12/15/03 09:35**	**Received: 12/17/03 12:15**							
2-Chloronaphthalene	ND	0.0100	mg/kg dry	1	3L22028	12/22/03	12/23/03	8270C-SIM	
2-Methylnaphthalene	ND	0.0100	"	"	"	"	"	"	
Acenaphthene	ND	0.0100	"	"	"	"	"	"	
Acenaphthylene	ND	0.0100	"	"	"	"	"	"	
Anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) anthracene	**0.0142**	0.0100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.0100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.0100	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.0142**	0.0100	"	"	"	"	"	"	
Chrysene	**0.0126**	0.0100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0100	"	"	"	"	"	"	
Fluoranthene	**0.0205**	0.0100	"	"	"	"	"	"	
Fluorene	ND	0.0100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	"	"	"	"	"	"	
Naphthalene	ND	0.0100	"	"	"	"	"	"	
Phenanthrene	**0.0182**	0.0100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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John M. Clawson

John Clawson, Project Manager

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134

Project: Cascade Pole
Project Number: CPLCI-04199-420
Project Manager: Nick Bacher

Reported: 01/23/04 10:44

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW17-7.5-9 (B3L0611-02) Soil Sampled: 12/15/03 09:35 Received: 12/17/03 12:15									
Pyrene	**0.0221**	0.0100	mg/kg dry	1	3L22028	12/22/03	12/23/03	8270C-SIM	
Surrogate: p-Terphenyl-d14	*88.9 %*	*28-161*			"	"	"	"	
MW15-0-0.5 (B3L0611-03) Soil Sampled: 12/15/03 12:25 Received: 12/17/03 12:15									
2-Chloronaphthalene	ND	0.100	mg/kg dry	10	3L22028	12/22/03	12/23/03	8270C-SIM	
2-Methylnaphthalene	**0.182**	0.0500	"	5	"	"	"	"	
Acenaphthene	**1.18**	0.0500	"	"	"	"	"	"	
Acenaphthylene	**0.0525**	0.0500	"	"	"	"	"	"	
Anthracene	**1.22**	0.0500	"	"	"	"	"	"	
Benzo (a) anthracene	**2.33**	0.0500	"	"	"	"	"	"	
Benzo (a) pyrene	**0.833**	0.0500	"	"	"	"	"	"	
Benzo (b) fluoranthene	**1.07**	0.0500	"	"	"	"	"	"	
Benzo (ghi) perylene	**0.315**	0.0500	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.728**	0.0500	"	"	"	"	"	"	
Chrysene	**1.76**	0.0500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.136**	0.0500	"	"	"	"	"	"	
Fluoranthene	**10.4**	0.200	"	20	"	"	12/24/03	"	
Fluorene	**1.61**	0.0500	"	5	"	"	12/23/03	"	
Indeno (1,2,3-cd) pyrene	**0.343**	0.0500	"	"	"	"	"	"	
Naphthalene	**0.231**	0.0500	"	"	"	"	"	"	
Phenanthrene	**5.30**	0.0500	"	"	"	"	"	"	
Pyrene	**7.60**	0.200	"	20	"	"	12/24/03	"	
Surrogate: p-Terphenyl-d14	*110 %*	*28-161*			"	"	*12/23/03*	"	
MW15-7.5-9 (B3L0611-04) Soil Sampled: 12/15/03 12:40 Received: 12/17/03 12:15									
2-Chloronaphthalene	ND	0.0500	mg/kg dry	5	3L22028	12/22/03	12/23/03	8270C-SIM	
2-Methylnaphthalene	**0.323**	0.0500	"	"	"	"	"	"	
Acenaphthene	**4.68**	0.0500	"	"	"	"	"	"	
Acenaphthylene	**0.122**	0.0500	"	"	"	"	"	"	
Anthracene	**3.48**	0.0500	"	"	"	"	"	"	
Benzo (a) anthracene	**6.68**	0.0500	"	"	"	"	"	"	
Benzo (a) pyrene	**2.03**	0.0500	"	"	"	"	"	"	
Benzo (b) fluoranthene	**2.38**	0.0500	"	"	"	"	"	"	
Benzo (ghi) perylene	**0.809**	0.0500	"	"	"	"	"	"	
Benzo (k) fluoranthene	**1.61**	0.0500	"	"	"	"	"	"	
Chrysene	**4.09**	0.0500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.331**	0.0500	"	"	"	"	"	"	
Fluoranthene	**23.5**	0.0500	"	"	"	"	"	"	

North Creek Analytical - Bothell

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John M. Clawson

John Clawson, Project Manager

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW15-7.5-9 (B3L0611-04) Soil Sampled: 12/15/03 12:40 Received: 12/17/03 12:15									
Fluorene	**5.21**	0.0500	mg/kg dry	5	3L22028	12/22/03	12/23/03	8270C-SIM	
Indeno (1,2,3-cd) pyrene	**0.771**	0.0500	"	"	"	"	"	"	
Naphthalene	**0.151**	0.0500	"	"	"	"	"	"	
Phenanthrene	**14.6**	0.0500	"	"	"	"	"	"	
Pyrene	**14.7**	0.0500	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*99.5 %*	*28-161*			"	"	"	"	
MW16-0-0.5 (B3L0611-05) Soil Sampled: 12/15/03 15:10 Received: 12/17/03 12:15									
2-Chloronaphthalene	ND	0.100	mg/kg dry	10	3L22028	12/22/03	12/23/03	8270C-SIM	
2-Methylnaphthalene	**0.0762**	0.0500	"	5	"	"	"	"	
Acenaphthene	ND	0.0500	"	"	"	"	"	"	
Acenaphthylene	ND	0.0500	"	"	"	"	"	"	
Anthracene	**0.0623**	0.0500	"	"	"	"	"	"	
Benzo (a) anthracene	**0.0970**	0.0500	"	"	"	"	"	"	
Benzo (a) pyrene	**0.229**	0.0500	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.0935**	0.0500	"	"	"	"	"	"	
Benzo (ghi) perylene	**0.128**	0.0500	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.204**	0.0500	"	"	"	"	"	"	
Chrysene	**0.173**	0.0500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0500	"	"	"	"	"	"	
Fluoranthene	**0.222**	0.0500	"	"	"	"	"	"	
Fluorene	**0.0520**	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	**0.0727**	0.0500	"	"	"	"	"	"	
Naphthalene	ND	0.0500	"	"	"	"	"	"	
Phenanthrene	**0.211**	0.0500	"	"	"	"	"	"	
Pyrene	**0.197**	0.0500	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*85.5 %*	*28-161*			"	"	"	"	

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW16-5-6.5 (B3L0611-06) Soil	**Sampled: 12/15/03 15:20**	**Received: 12/17/03 12:15**							
2-Chloronaphthalene	ND	0.0500	mg/kg dry	5	3L22028	12/22/03	12/23/03	8270C-SIM	
2-Methylnaphthalene	**0.163**	0.0500	"	"	"	"	"	"	
Acenaphthene	**0.0514**	0.0500	"	"	"	"	"	"	
Acenaphthylene	ND	0.0500	"	"	"	"	"	"	
Anthracene	ND	0.0500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.0500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.0500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.0500	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.0500	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.0685**	0.0500	"	"	"	"	"	"	
Chrysene	**0.0514**	0.0500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0500	"	"	"	"	"	"	
Fluoranthene	**0.253**	0.0500	"	"	"	"	"	"	
Fluorene	ND	0.0500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0500	"	"	"	"	"	"	
Naphthalene	**3.29**	0.0500	"	"	"	"	"	"	
Phenanthrene	**0.141**	0.0500	"	"	"	"	"	"	
Pyrene	**0.180**	0.0500	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*88.8 %*	*28-161*			"	"	"	"	
MW16-7.5-9 (B3L0611-07) Soil	**Sampled: 12/15/03 15:30**	**Received: 12/17/03 12:15**							
2-Chloronaphthalene	ND	0.0100	mg/kg dry	1	3L22028	12/22/03	12/23/03	8270C-SIM	
2-Methylnaphthalene	**0.0285**	0.0100	"	"	"	"	"	"	
Acenaphthene	ND	0.0100	"	"	"	"	"	"	
Acenaphthylene	ND	0.0100	"	"	"	"	"	"	
Anthracene	**0.0167**	0.0100	"	"	"	"	"	"	
Benzo (a) anthracene	**0.0186**	0.0100	"	"	"	"	"	"	
Benzo (a) pyrene	**0.0167**	0.0100	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.0226**	0.0100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.0100	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.0255**	0.0100	"	"	"	"	"	"	
Chrysene	**0.0216**	0.0100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0100	"	"	"	"	"	"	
Fluoranthene	**0.0324**	0.0100	"	"	"	"	"	"	
Fluorene	**0.0108**	0.0100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.0100	"	"	"	"	"	"	
Naphthalene	**0.0343**	0.0100	"	"	"	"	"	"	
Phenanthrene	**0.0265**	0.0100	"	"	"	"	"	"	

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

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The RETEC Group, Inc. 1011 SW Klickitat Way, Suite 207 Seattle, WA 98134	Project: Cascade Pole Project Number: CPLCI-04199-420 Project Manager: Nick Bacher	**Reported:** 01/23/04 10:44

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW16-7.5-9 (B3L0611-07) Soil Sampled: 12/15/03 15:30 Received: 12/17/03 12:15									
Pyrene	**0.0579**	0.0100	mg/kg dry	1	3L22028	12/22/03	12/23/03	8270C-SIM	
Surrogate: p-Terphenyl-d14	*78.0 %*	*28-161*			"	"	"	"	
MW18-10.5-11.5 (B3L0611-08) Soil Sampled: 12/16/03 12:49 Received: 12/17/03 12:15									
2-Chloronaphthalene	ND	0.0100	mg/kg dry	1	3L22028	12/22/03	12/24/03	8270C-SIM	
2-Methylnaphthalene	**0.0229**	0.0100	"	"	"	"	"	"	
Acenaphthene	ND	0.0100	"	"	"	"	"	"	
Acenaphthylene	ND	0.0100	"	"	"	"	"	"	
Anthracene	**0.0273**	0.0100	"	"	"	"	"	"	
Benzo (a) anthracene	**0.0295**	0.0100	"	"	"	"	"	"	
Benzo (a) pyrene	**0.0317**	0.0100	"	"	"	"	"	"	
Benzo (b) fluoranthene	**0.0524**	0.0100	"	"	"	"	"	"	
Benzo (ghi) perylene	**0.0207**	0.0100	"	"	"	"	"	"	
Benzo (k) fluoranthene	**0.0469**	0.0100	"	"	"	"	"	"	
Chrysene	**0.0699**	0.0100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	**0.0109**	0.0100	"	"	"	"	"	"	
Fluoranthene	**0.0721**	0.0100	"	"	"	"	"	"	
Fluorene	**0.0164**	0.0100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	**0.0197**	0.0100	"	"	"	"	"	"	
Naphthalene	**0.0218**	0.0100	"	"	"	"	"	"	
Phenanthrene	**0.0579**	0.0100	"	"	"	"	"	"	
Pyrene	**0.0939**	0.0100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*94.1 %*	*28-161*			"	"	"	"	
MW18-22.5-24 (B3L0611-09) Soil Sampled: 12/16/03 12:53 Received: 12/17/03 12:15									
2-Chloronaphthalene	ND	0.0100	mg/kg dry	1	3L22028	12/22/03	12/23/03	8270C-SIM	
2-Methylnaphthalene	**0.0191**	0.0100	"	"	"	"	"	"	
Acenaphthene	ND	0.0100	"	"	"	"	"	"	
Acenaphthylene	ND	0.0100	"	"	"	"	"	"	
Anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.0100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.0100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.0100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.0100	"	"	"	"	"	"	
Chrysene	ND	0.0100	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.0100	"	"	"	"	"	"	
Fluoranthene	ND	0.0100	"	"	"	"	"	"	

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
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907.563.9200 fax 907.563.9210

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW18-22.5-24 (B3L0611-09) Soil Sampled: 12/16/03 12:53 Received: 12/17/03 12:15									
Fluorene	ND	0.0100	mg/kg dry	1	3L22028	12/22/03	12/23/03	8270C-SIM	
Indeno (1,2,3-cd) pyrene	ND	0.0100	"	"	"	"	"	"	
Naphthalene	ND	0.0100	"	"	"	"	"	"	
Phenanthrene	**0.0141**	0.0100	"	"	"	"	"	"	
Pyrene	ND	0.0100	"	"	"	"	"	"	
Surrogate: p-Terphenyl-d14	*80.3 %*	*28-161*			"	"	"	"	

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509.924.9200 fax 509.924.9290
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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
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The RETEC Group, Inc.	Project:	Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number:	CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager:	Nick Bacher	01/23/04 10:44

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW17-0-0.5 (B3L0611-01) Soil Sampled: 12/15/03 09:10 Received: 12/17/03 12:15									
Dry Weight	**87.5**	1.00	%	1	3L27002	12/27/03	12/31/03	BSOPSPL003R08	
MW17-7.5-9 (B3L0611-02) Soil Sampled: 12/15/03 09:35 Received: 12/17/03 12:15									
Dry Weight	**84.6**	1.00	%	1	3L27002	12/27/03	12/31/03	BSOPSPL003R08	
MW15-0-0.5 (B3L0611-03) Soil Sampled: 12/15/03 12:25 Received: 12/17/03 12:15									
Dry Weight	**94.4**	1.00	%	1	3L27002	12/27/03	12/31/03	BSOPSPL003R08	
MW15-7.5-9 (B3L0611-04) Soil Sampled: 12/15/03 12:40 Received: 12/17/03 12:15									
Dry Weight	**80.0**	1.00	%	1	3L27002	12/27/03	12/31/03	BSOPSPL003R08	
MW16-0-0.5 (B3L0611-05) Soil Sampled: 12/15/03 15:10 Received: 12/17/03 12:15									
Dry Weight	**94.7**	1.00	%	1	3L27002	12/27/03	12/31/03	BSOPSPL003R08	
MW16-5-6.5 (B3L0611-06) Soil Sampled: 12/15/03 15:20 Received: 12/17/03 12:15									
Dry Weight	**77.4**	1.00	%	1	3L27002	12/27/03	12/31/03	BSOPSPL003R08	
MW16-7.5-9 (B3L0611-07) Soil Sampled: 12/15/03 15:30 Received: 12/17/03 12:15									
Dry Weight	**68.6**	1.00	%	1	3L27002	12/27/03	12/31/03	BSOPSPL003R08	
MW18-10.5-11.5 (B3L0611-08) Soil Sampled: 12/16/03 12:49 Received: 12/17/03 12:15									
Dry Weight	**60.7**	1.00	%	1	3L27002	12/27/03	12/31/03	BSOPSPL003R08	
MW18-22.5-24 (B3L0611-09) Soil Sampled: 12/16/03 12:53 Received: 12/17/03 12:15									
Dry Weight	**81.4**	1.00	%	1	3L27002	12/27/03	12/31/03	BSOPSPL003R08	

North Creek Analytical - Bothell

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John M. Clawson

John Clawson, Project Manager

Total Metals by EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L23041: Prepared 12/23/03 Using EPA 3050B										
Blank (3L23041-BLK1)										
Arsenic	ND	0.500	mg/kg							
Chromium	ND	0.500	"							
Copper	ND	0.500	"							
LCS (3L23041-BS1)										
Arsenic	43.9	0.500	mg/kg	40.0		110	80-120			
Chromium	41.8	0.500	"	40.0		104	80-120			
Copper	38.8	0.500	"	40.0		97.0	80-120			
LCS Dup (3L23041-BSD1)										
Arsenic	43.5	0.500	mg/kg	40.4		108	80-120	0.915	20	
Chromium	42.0	0.500	"	40.4		104	80-120	0.477	20	
Copper	38.8	0.500	"	40.4		96.0	80-120	0.00	20	
Matrix Spike (3L23041-MS1)					**Source: B3L0579-01**					
Arsenic	49.7	0.500	mg/kg dry	46.3	1.98	103	72-130			
Chromium	67.5	0.500	"	46.3	28.5	84.2	53-147			
Copper	54.2	0.500	"	46.3	13.6	87.7	59-136			
Matrix Spike Dup (3L23041-MSD1)					**Source: B3L0579-01**					
Arsenic	48.7	0.500	mg/kg dry	44.9	1.98	104	72-130	2.03	30	
Chromium	61.2	0.500	"	44.9	28.5	72.8	53-147	9.79	30	
Copper	56.7	0.500	"	44.9	13.6	96.0	59-136	4.51	30	
Post Spike (3L23041-PS1)					**Source: B3L0579-01**					
Arsenic	60.8	0.500	mg/kg dry	56.1	1.98	105	75-125			
Chromium	84.5	0.500	"	56.1	28.5	99.8	75-125			
Copper	64.0	0.500	"	56.1	13.6	89.8	75-125			

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The RETEC Group, Inc.	Project:	Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number:	CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager:	Nick Bacher	01/23/04 10:44

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L29033: Prepared 12/29/03 Using EPA 3050B										
Blank (3L29033-BLK1)										
Arsenic	ND	0.500	mg/kg							
Chromium	ND	0.500	"							
Copper	ND	0.500	"							
LCS (3L29033-BS1)										
Arsenic	39.8	0.500	mg/kg	40.0		99.5	80-120			
Chromium	39.8	0.500	"	40.0		99.5	80-120			
Copper	42.9	0.500	"	40.0		107	80-120			
LCS Dup (3L29033-BSD1)										
Arsenic	40.3	0.500	mg/kg	40.0		101	80-120	1.25	20	
Chromium	41.1	0.500	"	40.0		103	80-120	3.21	20	
Copper	42.8	0.500	"	40.0		107	80-120	0.233	20	
Matrix Spike (3L29033-MS1)					**Source: B3L0652-03**					
Arsenic	44.1	0.500	mg/kg dry	45.6	3.22	89.6	72-130			
Chromium	92.2	0.500	"	45.6	34.9	126	53-147			
Copper	80.6	0.500	"	45.6	28.9	113	59-136			
Matrix Spike Dup (3L29033-MSD1)					**Source: B3L0652-03**					
Arsenic	44.3	0.500	mg/kg dry	45.6	3.22	90.1	72-130	0.452	30	
Chromium	81.3	0.500	"	45.6	34.9	102	53-147	12.6	30	
Copper	73.6	0.500	"	45.6	28.9	98.0	59-136	9.08	30	
Post Spike (3L29033-PS1)					**Source: B3L0652-03**					
Arsenic	54.8	0.500	mg/kg dry	57.0	3.22	90.5	75-125			
Copper	79.6	0.500	"	57.0	28.9	88.9	75-125			

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

John M. Clawson

John Clawson, Project Manager

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L29033: Prepared 12/29/03 Using EPA 3050B										
Post Spike (3L29033-PS2)					**Source: B3L0652-03**					
Chromium	0.257		mg/kg dry	0.200	0.0612	97.9	75-125			

The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

Pentachlorophenol by GC/MS with Selected Ion Monitoring - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L22028: Prepared 12/22/03 Using EPA 3550B										
Blank (3L22028-BLK1)										
Pentachlorophenol	ND	0.0500	mg/kg							
Surrogate: 2,4,6-TBP	*1.24*		*"*	*1.67*		*74.3*	*21-148*			
LCS (3L22028-BS1)										
Pentachlorophenol	0.639	0.0500	mg/kg	0.667		95.8	24-141			
Surrogate: 2,4,6-TBP	*1.32*		*"*	*1.67*		*79.0*	*21-148*			
LCS Dup (3L22028-BSD1)										
Pentachlorophenol	0.667	0.0500	mg/kg	0.667		100	24-141	4.29	50	
Surrogate: 2,4,6-TBP	*1.54*		*"*	*1.67*		*92.2*	*21-148*			

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L22028: Prepared 12/22/03 Using EPA 3550B										
Blank (3L22028-BLK1)										
2-Chloronaphthalene	ND	0.0100	mg/kg							
2-Methylnaphthalene	ND	0.0100	"							
Acenaphthene	ND	0.0100	"							
Acenaphthylene	ND	0.0100	"							
Anthracene	ND	0.0100	"							
Benzo (a) anthracene	ND	0.0100	"							
Benzo (a) pyrene	ND	0.0100	"							
Benzo (b) fluoranthene	ND	0.0100	"							
Benzo (ghi) perylene	ND	0.0100	"							
Benzo (k) fluoranthene	ND	0.0100	"							
Chrysene	ND	0.0100	"							
Dibenz (a,h) anthracene	ND	0.0100	"							
Fluoranthene	ND	0.0100	"							
Fluorene	ND	0.0100	"							
Indeno (1,2,3-cd) pyrene	ND	0.0100	"							
Naphthalene	ND	0.0100	"							
Phenanthrene	ND	0.0100	"							
Pyrene	ND	0.0100	"							
Surrogate: p-Terphenyl-d14	*1.57*		*"*	*1.67*		*94.0*	*28-161*			
LCS (3L22028-BS1)										
2-Methylnaphthalene	0.245	0.0100	mg/kg	0.333		73.6	60-140			
Acenaphthene	0.218	0.0100	"	0.333		65.5	53-120			
Acenaphthylene	0.245	0.0100	"	0.333		73.6	52-120			
Anthracene	0.264	0.0100	"	0.333		79.3	39-145			
Benzo (a) anthracene	0.243	0.0100	"	0.333		73.0	64-120			
Benzo (a) pyrene	0.296	0.0100	"	0.333		88.9	65-120			
Benzo (b) fluoranthene	0.299	0.0100	"	0.333		89.8	52-139			
Benzo (ghi) perylene	0.281	0.0100	"	0.333		84.4	54-125			
Benzo (k) fluoranthene	0.297	0.0100	"	0.333		89.2	47-138			
Chrysene	0.279	0.0100	"	0.333		83.8	57-120			
Dibenz (a,h) anthracene	0.296	0.0100	"	0.333		88.9	52-120			
Fluoranthene	0.296	0.0100	"	0.333		88.9	61-128			
Fluorene	0.267	0.0100	"	0.333		80.2	63-120			
Indeno (1,2,3-cd) pyrene	0.295	0.0100	"	0.333		88.6	54-128			

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L22028: Prepared 12/22/03 Using EPA 3550B										
LCS (3L22028-BS1)										
Naphthalene	0.243	0.0100	mg/kg	0.333		73.0	54-120			
Phenanthrene	0.246	0.0100	"	0.333		73.9	28-120			
Pyrene	0.232	0.0100	"	0.333		69.7	59-124			
Surrogate: p-Terphenyl-d14	*1.29*		*"*	*1.67*		*77.2*	*28-161*			
LCS Dup (3L22028-BSD1)										
2-Methylnaphthalene	0.272	0.0100	mg/kg	0.333		81.7	60-140	10.4	30	
Acenaphthene	0.251	0.0100	"	0.333		75.4	53-120	14.1	40	
Acenaphthylene	0.251	0.0100	"	0.333		75.4	52-120	2.42	40	
Anthracene	0.265	0.0100	"	0.333		79.6	39-145	0.378	40	
Benzo (a) anthracene	0.229	0.0100	"	0.333		68.8	64-120	5.93	40	
Benzo (a) pyrene	0.296	0.0100	"	0.333		88.9	65-120	0.00	40	
Benzo (b) fluoranthene	0.279	0.0100	"	0.333		83.8	52-139	6.92	40	
Benzo (ghi) perylene	0.282	0.0100	"	0.333		84.7	54-125	0.355	40	
Benzo (k) fluoranthene	0.210	0.0100	"	0.333		63.1	47-138	34.3	40	
Chrysene	0.267	0.0100	"	0.333		80.2	57-120	4.40	37	
Dibenz (a,h) anthracene	0.291	0.0100	"	0.333		87.4	52-120	1.70	40	
Fluoranthene	0.315	0.0100	"	0.333		94.6	61-128	6.22	40	
Fluorene	0.285	0.0100	"	0.333		85.6	63-120	6.52	43	
Indeno (1,2,3-cd) pyrene	0.293	0.0100	"	0.333		88.0	54-128	0.680	39	
Naphthalene	0.250	0.0100	"	0.333		75.1	54-120	2.84	40	
Phenanthrene	0.258	0.0100	"	0.333		77.5	28-120	4.76	40	
Pyrene	0.223	0.0100	"	0.333		67.0	59-124	3.96	40	
Surrogate: p-Terphenyl-d14	*1.27*		*"*	*1.67*		*76.0*	*28-161*			
Matrix Spike (3L22028-MS1)					**Source: B3L0611-01**					
2-Methylnaphthalene	0.491	0.0500	mg/kg dry	0.383	0.0905	105	50-150			
Acenaphthene	0.357	0.0500	"	0.383	0.0302	85.3	41-120			
Acenaphthylene	0.364	0.0500	"	0.383	ND	95.0	46-120			
Anthracene	0.395	0.0500	"	0.383	0.0641	86.4	23-151			
Benzo (a) anthracene	0.506	0.0500	"	0.383	0.0792	111	44-124			
Benzo (a) pyrene	0.391	0.0500	"	0.383	0.0453	90.3	21-138			
Benzo (b) fluoranthene	0.602	0.0500	"	0.383	0.109	129	32-139			
Benzo (ghi) perylene	0.345	0.0500	"	0.383	0.0754	70.4	20-140			
Benzo (k) fluoranthene	0.341	0.0500	"	0.383	0.143	51.7	23-138			

North Creek Analytical - Bothell

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John M. Clawson

John Clawson, Project Manager

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L22028: Prepared 12/22/03 Using EPA 3550B										
Matrix Spike (3L22028-MS1)					**Source: B3L0611-01**					
Chrysene	0.464	0.0500	mg/kg dry	0.383	0.177	74.9	33-126			
Dibenz (a,h) anthracene	0.353	0.0500	"	0.383	0.0377	82.3	26-125			
Fluoranthene	0.475	0.0500	"	0.383	0.321	40.2	36-141			
Fluorene	0.406	0.0500	"	0.383	0.0302	98.1	46-126			
Indeno (1,2,3-cd) pyrene	0.364	0.0500	"	0.383	0.0566	80.3	24-138			
Naphthalene	0.372	0.0500	"	0.383	ND	97.1	35-120			
Phenanthrene	0.437	0.0500	"	0.383	0.158	72.8	29-140			
Pyrene	0.445	0.0500	"	0.383	0.196	65.0	27-143			
Surrogate: p-Terphenyl-d14	*2.07*		*"*	*1.92*		*108*	*28-161*			
Matrix Spike Dup (3L22028-MSD1)					**Source: B3L0611-01**					
2-Methylnaphthalene	0.455	0.0500	mg/kg dry	0.386	0.0905	94.4	50-150	7.61	30	
Acenaphthene	0.347	0.0500	"	0.386	0.0302	82.1	41-120	2.84	50	
Acenaphthylene	0.374	0.0500	"	0.386	ND	96.9	46-120	2.71	50	
Anthracene	0.432	0.0500	"	0.386	0.0641	95.3	23-151	8.95	50	
Benzo (a) anthracene	0.467	0.0500	"	0.386	0.0792	100	44-124	8.02	50	
Benzo (a) pyrene	0.390	0.0500	"	0.386	0.0453	89.3	21-138	0.256	50	
Benzo (b) fluoranthene	0.533	0.0500	"	0.386	0.109	110	32-139	12.2	50	
Benzo (ghi) perylene	0.355	0.0500	"	0.386	0.0754	72.4	20-140	2.86	50	
Benzo (k) fluoranthene	0.344	0.0500	"	0.386	0.143	52.1	23-138	0.876	50	
Chrysene	0.405	0.0500	"	0.386	0.177	59.1	33-126	13.6	44	
Dibenz (a,h) anthracene	0.359	0.0500	"	0.386	0.0377	83.2	26-125	1.69	50	
Fluoranthene	0.386	0.0500	"	0.386	0.321	16.8	36-141	20.7	50	Q-03
Fluorene	0.394	0.0500	"	0.386	0.0302	94.2	46-126	3.00	52	
Indeno (1,2,3-cd) pyrene	0.371	0.0500	"	0.386	0.0566	81.5	24-138	1.90	43	
Naphthalene	0.355	0.0500	"	0.386	ND	92.0	35-120	4.68	50	
Phenanthrene	0.394	0.0500	"	0.386	0.158	61.1	29-140	10.3	50	
Pyrene	0.398	0.0500	"	0.386	0.196	52.3	27-143	11.2	50	
Surrogate: p-Terphenyl-d14	*2.14*		*"*	*1.93*		*111*	*28-161*			

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The RETEC Group, Inc.	Project: Cascade Pole	
1011 SW Klickitat Way, Suite 207	Project Number: CPLCI-04199-420	**Reported:**
Seattle, WA 98134	Project Manager: Nick Bacher	01/23/04 10:44

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L27002: Prepared 12/27/03 Using Dry Weight										
Blank (3L27002-BLK1)										
Dry Weight	100	1.00	%							

Notes and Definitions

Q-03	The percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte already present in the sample.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Chain of Custody Record

№ 100613

The RETEC Group, Inc.
1011 S.W. Klickitat Way, Suite 207 • Seattle, WA 98134-1162
(206) 624-9349 Phone • (206) 624-2839 Fax
www.retec.com

RETEC

Project Name: CPLC Tacoma	Project Number: CPLU1-16832
Send Report To: Nick Bacher	Sampler (Print Name): N. Bacher
Address: See above	Sampler (Print Name): C. Brackett
	Shipment Method: Hand
	Airbill Number: —
Phone: See above	Laboratory Receiving: NCA Bothell
Fax:	

Analysis Requested: SVOCs (PAH, PCP) 8270 SIM; As, Cr, Cu EPA 6010

Page 1 of 1

B3L0611

Purchase Order #:

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	SVOCs (PAH, PCP) 8270 SIM	As, Cr, Cu EPA 6010	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
MW17-0-0.5	12/15/03	0910	Soil	1	X	X		-01
MW17-7.5-9	12/15/03	0935		1	X	X		-02
MW15-0-0.5	12/15/03	1225		1	X	X		-03
MW15-7.5-9	12/15/03	1240		1	X	X		-04
MW16-0-0.5	12/15/03	1510		1	X	X		-05
MW16-5-6.5	12/15/03	1520		1	X	X		-06
MW16-7.5-9	12/15/03	1530		1	X	X		-07
MW18-10.5-11.5	12/16/03	1249		1	X	X		-08
MW18-22.5-24	12/16/03	1253		1	X	X		-09

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Nick Bacher	Cathy Gamble	12/17/03	12:15
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory): 3.0° w/o

QA/QC Level	Turnaround
Level I ☐	Routine ☐
Level II ☐	24 Hour ☐
Level III ☐	1 Week ☐
Other ☐	Other ____

Sample Receipt	
Total # Containers Received?	
COC Seals Present?	no
COC Seals Intact?	na
Received Containers Intact?	
Temperature?	3.0

White: Lab Copy Yellow: PM Copy Pink: Field Copy Gold: PM/QA/QC Copy

Analytical Technologies, Inc.
560 Naches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335
Karen L. Mixon, Laboratory Manager

ATI I.D. # 9303-119

March 31, 1993

Remediation Technologies, Inc.
1011 S.W. Klickitat Way
Suite 207
Seattle WA 98134

Attention : Linda Baker

Project Number : 3-0499-520

Project Name : Cascade Pole & Lumber Co.

Dear Ms. Baker:

On March 10, 1993, Analytical Technologies, Inc. (ATI), received 22 samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Sincerely,

Tamara B. Jerome

Tamara B. Jerome
Project Manager

TBJ/hal/elf

Enclosure

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119

SAMPLE CROSS REFERENCE SHEET

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER CO.

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9303-119-1	C1-3	03/10/93	SOIL
9303-119-2	C2-3	03/10/93	SOIL
9303-119-3	C3-3	03/09/93	SOIL
9303-119-4	C4-3	03/09/93	SOIL
9303-119-5	C5-3	03/09/93	SOIL
9303-119-6	C6-3	03/09/93	SOIL
9303-119-7	C7-3	03/09/93	SOIL
9303-119-8	C8-3	03/09/93	SOIL
9303-119-9	C11-3	03/09/93	SOIL
9303-119-10	C13-3	03/09/93	SOIL
9303-119-11	C14-3	03/09/93	SOIL
9303-119-12	C15-3	03/09/93	SOIL
9303-119-13	C16-3	03/09/93	SOIL
9303-119-14	C17-3	03/09/93	SOIL
9303-119-15	C18-3	03/09/93	SOIL
9303-119-16	C19-3	03/10/93	SOIL
9303-119-17	C20-3	03/10/93	SOIL
9303-119-18	C21-3	03/09/93	SOIL
9303-119-19	CC2-1	03/09/93	SOIL
9303-119-20	CC3-1	03/09/93	SOIL
9303-119-21	CC4-1	03/09/93	SOIL
9303-119-22	CC5-1	03/10/93	SOIL

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	22

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical**Technologies**,Inc.

ATI I.D. # 9303-119

ANALYTICAL SCHEDULE

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER CO.

ANALYSIS	TECHNIQUE	REFERENCE	LAB
SEMI-VOLATILE COMPOUNDS	GCMS	EPA 8270	R
ARSENIC	ICAP	EPA 6010	R
CHROMIUM	ICAP	EPA 6010	R
COPPER	ICAP	EPA 6010	R
ZINC	ICAP	EPA 6010	R
MOISTURE	GRAVIMETRIC	CLP SOW ILM01.0	R

R = ATI - Renton
SD = ATI - San Diego
PHX = ATI - Phoenix
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119

CASE NARRATIVE

CLIENT	:	REMEDIATION TECHNOLOGIES, INC.
PROJECT #	:	3-0499-520
PROJECT NAME	:	CASCADE POLE & LUMBER CO.

CASE NARRATIVE: SEMI-VOLATILE ORGANICS ANALYSIS

The samples associated with this accession were analyzed using EPA method 8270. The extraction procedure used for this accession was EPA method 3550.

All quality control and quality assurance parameters were within acceptable ATI limits with the exception of N-nitroso-di-n-propylamine in the blank spike. Recovery for this compound was 125 percent, outside the acceptable range of 46 - 122 percent. The matrix spike/matrix spike duplicate (MS/MSD) results were acceptable for all compounds. No other corrective action was taken. The results have been flagged appropriately.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: N/A
PROJECT #	: 3-0499-520	DATE RECEIVED	: N/A
PROJECT NAME	: CASCADE POLE & LUMBER CO.	DATE EXTRACTED	: 03/17/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 03/19/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
NAPHTHALENE	<0.17
2-METHYLNAPHTHALENE	<0.17
ACENAPHTHYLENE	<0.17
ACENAPHTHENE	<0.17
DIBENZOFURAN	<0.17
FLUORENE	<0.17
PENTACHLOROPHENOL	<0.17
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
FLUORANTHENE	<0.17
PYRENE	<0.17
BENZO(A)ANTHRACENE	<0.17
CHRYSENE	<0.17
BENZO(B)FLUORANTHENE	<0.17
BENZO(K)FLUORANTHENE	<0.17
BENZO(A)PYRENE	<0.17
INDENO(1,2,3-CD)PYRENE	<0.17
DIBENZO(A,H)ANTHRACENE	<0.17
BENZO(G,H,I)PERYLENE	<0.17

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	74	54 - 117
2-FLUOROBIPHENYL	77	56 - 127
TERPHENYL-D14	104	52 - 133
PHENOL-D5	83	47 - 105
2-FLUOROPHENOL	72	52 - 111
2,4,6-TRIBROMOPHENOL	64	35 - 126

4/07/9

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119

TENTATIVELY IDENTIFIED COMPOUNDS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: N/A
PROJECT #	: 3-0499-520	DATE RECEIVED	: N/A
PROJECT NAME	: CASCADE POLE & LUMBER CO.	DATE EXTRACTED	: 03/17/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 03/19/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119-19

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/09/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/10/93
PROJECT NAME	: CASCADE POLE & LUMBER CO.	DATE EXTRACTED	: 03/17/93
CLIENT I.D.	: CC2-1	DATE ANALYZED	: 03/19/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
NAPHTHALENE	<0.18	
2-METHYLNAPHTHALENE	<0.18	
ACENAPHTHYLENE	<0.18	
ACENAPHTHENE	0.32	
DIBENZOFURAN	<0.18	
FLUORENE	<0.18	
PENTACHLOROPHENOL	0.090	J
PHENANTHRENE	0.14	J
ANTHRACENE	0.099	J
FLUORANTHENE	1.6	
PYRENE	0.93	
BENZO(A)ANTHRACENE	0.30	
CHRYSENE	0.31	
BENZO(B)FLUORANTHENE	0.20	
BENZO(K)FLUORANTHENE	<0.18	
BENZO(A)PYRENE	0.13	J
INDENO(1,2,3-CD)PYRENE	<0.18	
DIBENZO(A,H)ANTHRACENE	<0.18	
BENZO(G,H,I)PERYLENE	<0.18	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	81	54 - 117
2-FLUOROBIPHENYL	96	56 - 127
TERPHENYL-D14	96	52 - 133
PHENOL-D5	83	47 - 105
2-FLUOROPHENOL	58	52 - 111
2,4,6-TRIBROMOPHENOL	97	35 - 126

J = Estimated value.

Kmc 4/6/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119-19

TENTATIVELY IDENTIFIED COMPOUNDS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/09/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/10/93
PROJECT NAME	: CASCADE POLE & LUMBER CO.	DATE EXTRACTED	: 03/17/93
CLIENT I.D.	: CC2-1	DATE ANALYZED	: 03/19/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.
UNKNOWN PNA	0.22		35.02
UNKNOWN PNA	0.18		26.07

Analytical**Technologies**,Inc.

ATI I.D. # 9303-119-20

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/09/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/10/93
PROJECT NAME	: CASCADE POLE & LUMBER CO.	DATE EXTRACTED	: 03/17/93
CLIENT I.D.	: CC3-1	DATE ANALYZED	: 03/19/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
NAPHTHALENE	0.59	
2-METHYLNAPHTHALENE	0.89	
ACENAPHTHYLENE	0.15	J
ACENAPHTHENE	2.2	
DIBENZOFURAN	2.2	
FLUORENE	1.3	
PENTACHLOROPHENOL	1.9	
PHENANTHRENE	5.3	
ANTHRACENE	1.6	
FLUORANTHENE	8.8	D1
PYRENE	5.4	
BENZO(A)ANTHRACENE	1.5	
CHRYSENE	1.8	
BENZO(B)FLUORANTHENE	1.1	
BENZO(K)FLUORANTHENE	0.36	
BENZO(A)PYRENE	0.50	
INDENO(1,2,3-CD)PYRENE	0.23	
DIBENZO(A,H)ANTHRACENE	<0.18	
BENZO(G,H,I)PERYLENE	0.17	J

SURROGATE PERCENT RECOVERY			LIMITS
NITROBENZENE-D5	87		54 - 117
2-FLUOROBIPHENYL	96		56 - 127
TERPHENYL-D14	106		52 - 133
PHENOL-D5	79		47 - 105
2-FLUOROPHENOL	42	H	52 - 111
2,4,6-TRIBROMOPHENOL	109		35 - 126

Kmc 4/07/93

D1 = Value from a two fold diluted analysis.
H = Out of limits.
J = Estimated value.

Analytical**Technologies,**Inc.

ATI I.D. # 9303-119-20

TENTATIVELY IDENTIFIED COMPOUNDS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/09/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/10/93
PROJECT NAME	: CASCADE POLE & LUMBER CO.	DATE EXTRACTED	: 03/17/93
CLIENT I.D.	: CC3-1	DATE ANALYZED	: 03/19/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.
NAPHTHALENE, 1-METHYL-	0.88		17.19
ANTHRACENE, 2-METHYL-	0.88		25.93
UNKNOWN PNA	0.84		26.11
UNKNOWN PNA	1.9		26.83
7H-BENZ[DE]ANTHRACEN-7-ONE	0.81		31.09

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119-21

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/09/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/10/93
PROJECT NAME	: CASCADE POLE & LUMBER CO.	DATE EXTRACTED	: 03/17/93
CLIENT I.D.	: CC4-1	DATE ANALYZED	: 03/19/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
NAPHTHALENE	0.53	
2-METHYLNAPHTHALENE	0.85	
ACENAPHTHYLENE	<0.18	
ACENAPHTHENE	3.0	
DIBENZOFURAN	2.1	
FLUORENE	2.6	
PENTACHLOROPHENOL	0.80	
PHENANTHRENE	11	D2
ANTHRACENE	1.8	
FLUORANTHENE	7.9	D2
PYRENE	4.7	
BENZO(A)ANTHRACENE	1.3	
CHRYSENE	1.4	
BENZO(B)FLUORANTHENE	0.76	
BENZO(K)FLUORANTHENE	0.27	
BENZO(A)PYRENE	0.44	
INDENO(1,2,3-CD)PYRENE	0.17	J
DIBENZO(A,H)ANTHRACENE	<0.18	
BENZO(G,H,I)PERYLENE	0.13	J

SURROGATE PERCENT RECOVERY			LIMITS
NITROBENZENE-D5	95		54 - 117
2-FLUOROBIPHENYL	98		56 - 127
TERPHENYL-D14	115		52 - 133
PHENOL-D5	82		47 - 105
2-FLUOROPHENOL	30	H kmc 4/07/93	52 - 111
2,4,6-TRIBROMOPHENOL	111		35 - 126

D2 = Value from a four fold diluted analysis.
H = Out of limits.
J = Estimated value.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119-21

TENTATIVELY IDENTIFIED COMPOUNDS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/09/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/10/93
PROJECT NAME	: CASCADE POLE & LUMBER CO.	DATE EXTRACTED	: 03/17/93
CLIENT I.D.	: CC4-1	DATE ANALYZED	: 03/19/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.
UNKNOWN PNA	1.0		26.13
UNKNOWN PNA	0.91		26.81
UNKNOWN ALKANE	0.73		23.13
ANTHRACENE, 2-METHYL-	0.65		25.85
1H-INDENE, 1-PHENYL-	0.76		25.93

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119-22

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/10/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/10/93
PROJECT NAME	: CASCADE POLE & LUMBER CO.	DATE EXTRACTED	: 03/17/93
CLIENT I.D.	: CC5-1	DATE ANALYZED	: 03/19/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
NAPHTHALENE	0.41	
2-METHYLNAPHTHALENE	0.22	
ACENAPHTHYLENE	<0.18	
ACENAPHTHENE	0.55	
DIBENZOFURAN	0.36	
FLUORENE	0.39	
PENTACHLOROPHENOL	0.21	
PHENANTHRENE	1.4	
ANTHRACENE	0.41	
FLUORANTHENE	1.2	
PYRENE	0.75	
BENZO(A)ANTHRACENE	0.17	J
CHRYSENE	0.28	
BENZO(B)FLUORANTHENE	<0.18	
BENZO(K)FLUORANTHENE	<0.18	
BENZO(A)PYRENE	<0.18	
INDENO(1,2,3-CD)PYRENE	<0.18	
DIBENZO(A,H)ANTHRACENE	<0.18	
BENZO(G,H,I)PERYLENE	<0.18	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	90	54 - 117
2-FLUOROBIPHENYL	100	56 - 127
TERPHENYL-D14	93	52 - 133
PHENOL-D5	73	47 - 105
2-FLUOROPHENOL	23 H	52 - 111
2,4,6-TRIBROMOPHENOL	100	35 - 126

H = Out of limits.
J = Estimated value.

Kmc 4/07/93

Analytical Technologies, Inc.

ATI I.D. # 9303-119-22

TENTATIVELY IDENTIFIED COMPOUNDS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/10/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/10/93
PROJECT NAME	: CASCADE POLE & LUMBER CO.	DATE EXTRACTED	: 03/17/93
CLIENT I.D.	: CC5-1	DATE ANALYZED	: 03/19/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.
UNKNOWN PNA	0.18		26.10

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119

SEMI-VOLATILE ORGANICS ANALYSIS
QUALITY CONTROL DATA

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	SAMPLE I.D. #	: 9303-119-19
PROJECT #	: 3-0499-520	DATE EXTRACTED	: 03/17/93
PROJECT NAME	: CASCADE POLE & LUMBER CO.	DATE ANALYZED	: 03/19/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270		

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
ACENAPHTHENE	0.320	3.60	3.53	89	3.25	81	8
PENTACHLOROPHENOL	<0.180	7.21	6.01	83	5.93	82	1
PYRENE	0.931	3.60	4.75	106	5.01	113	5

CONTROL LIMITS	% REC.	RPD
ACENAPHTHENE	58 - 107	21
PENTACHLOROPHENOL	36 - 140	28
PYRENE	41 - 125	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
NITROBENZENE-D5	94	93	54 - 117
2-FLUOROBIPHENYL	92	89	56 - 127
TERPHENYL-D14	102	102	52 - 133
PHENOL-D5	93	94	47 - 105
2-FLUOROPHENOL	86	86	52 - 111
2,4,6-TRIBROMOPHENOL	72	67	35 - 126

Amc 4/07/93

Analytical Technologies, Inc.

ATI I.D. # 9303-119

SEMI-VOLATILE ORGANICS ANALYSIS
QUALITY CONTROL DATA

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	SAMPLE I.D. #	: BLANK SPIKE
PROJECT #	: 3-0499-520	DATE EXTRACTED	: 03/17/93
PROJECT NAME	: CASCADE POLE & LUMBER CO.	DATE ANALYZED	: 03/19/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270		

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
ACENAPHTHENE	<0.167	3.33	3.01	90	N/A	N/A	N/A
PENTACHLOROPHENOL	<0.167	6.67	5.64	85	N/A	N/A	N/A
PYRENE	<0.167	3.33	2.89	87	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
ACENAPHTHENE	60 - 110	21
PENTACHLOROPHENOL	25 - 166	28
PYRENE	56 - 115	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
NITROBENZENE-D5	95	N/A	54 - 117
2-FLUOROBIPHENYL	87	N/A	56 - 127
TERPHENYL-D14	97	N/A	52 - 133
PHENOL-D5	70	N/A	47 - 105
2-FLUOROPHENOL	20H	N/A	52 - 111
2,4,6-TRIBROMOPHENOL	82	N/A	35 - 126

H = Out of limits.

kmc 4/07/93

Analytical Technologies, Inc.

ATI I.D. # 9303-119

METALS ANALYSIS

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER CO.

ELEMENT	DATE PREPARED	DATE ANALYZED
ARSENIC (SAMPLES -21,-22)	03/17/93	03/18/93
ARSENIC (SAMPLES -1 THROUGH -9)	03/17/93	03/18/93
ARSENIC (SAMPLE -10)	03/17/93	03/21/93
ARSENIC (SAMPLES -11 THROUGH -20)	03/22/93	03/23/93
CHROMIUM (SAMPLES -21,-22)	03/17/93	03/18/93
CHROMIUM (SAMPLES -1 THROUGH -9)	03/17/93	03/18/93
CHROMIUM (SAMPLE -10)	03/17/93	03/21/93
CHROMIUM (SAMPLES -11 THROUGH -20)	03/22/93	03/23/93
COPPER (SAMPLES -21,-22)	03/17/93	03/18/93
COPPER (SAMPLES -1 THROUGH -9)	03/17/93	03/18/93
COPPER (SAMPLE -10)	03/17/93	03/21/93
COPPER (SAMPLES -11 THROUGH -20)	03/22/93	03/23/93
ZINC (SAMPLES -21,-22)	03/17/93	03/18/93
ZINC (SAMPLES -1 THROUGH -9)	03/17/93	03/18/93
ZINC (SAMPLE -10)	03/17/93	03/21/93
ZINC (SAMPLES -11 THROUGH -20)	03/22/93	03/23/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119

METALS ANALYSIS
DATA SUMMARY

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER CO. UNITS : mg/Kg
RESULTS ARE CORRECTED FOR MOISTURE CONTENT

ATI I.D. #	CLIENT I.D.	ARSENIC	CHROMIUM	COPPER	ZINC
9303-119-1	C1-3	150	350	200	16
9303-119-2	C2-3	220	500	340	34
9303-119-3	C3-3	37	750	19	21
9303-119-4	C4-3	1,200	930	1,500	20
9303-119-5	C5-3	4,800	2,400	3,300	26
9303-119-6	C6-3	1,100	1,100	1,200	14
9303-119-7	C7-3	1,200	560	1,200	19
9303-119-8	C8-3	<13*	100	18	20
9303-119-9	C11-3	3.5	84	17	19
9303-119-10	C13-3	57	200	25	22
9303-119-11	C14-3	890	610	1,100	18
9303-119-12	C15-3	1,600	820	1,500	14
9303-119-13	C16-3	1,600	1,300	1,200	14
9303-119-14	C17-3	2,500	1,500	2,000	13
9303-119-15	C18-3	830	1,100	990	18
9303-119-16	C19-3	28	340	42	24
9303-119-17	C20-3	8.0	190	30	22
9303-119-18	C21-3	1,500	1,200	1,500	16
9303-119-19	CC2-1	4.2	47	21	15
9303-119-20	CC3-1	390	280	340	19
9303-119-21	CC4-1	520	300	660	24
9303-119-22	CC5-1	380	280	400	22
METHOD BLANK	-	<2.5	<0.50	<0.50	<0.50
METHOD BLANK	-	<2.5	<0.50	<0.50	<0.50
METHOD BLANK	-	<2.5	<0.50	<0.50	<0.50

KML 4/07/93

* Detection limit elevated due to matrix interference.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119

METALS ANALYSIS
QUALITY CONTROL DATA

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER CO.

MATRIX : SOIL

UNITS : mg/Kg

ELEMENT	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
ARSENIC	9303-119-9	3.5	5.2	39	52.8	52.6	94
ARSENIC	9303-119-16	28	27	4	91.3	61.5	103
ARSENIC	9303-146-13	<14	<14	NC	46.1	55.3	83
ARSENIC	BLANK SPIKE	<2.50	N/A	N/A	45.2	50.0	90
ARSENIC	BLANK SPIKE	<2.50	N/A	N/A	46.5	50.0	93
ARSENIC	BLANK SPIKE	<2.50	N/A	N/A	45.9	50.0	92
CHROMIUM	9303-119-9	84	89	6	123	52.6	74 kmc 4/07/9?
CHROMIUM	9303-119-16	340	390	14	418	61.5	G
CHROMIUM	9303-146-13	13	15	14	63.8	55.3	91
CHROMIUM	BLANK SPIKE	<0.50	N/A	N/A	44.2	50.0	88
CHROMIUM	BLANK SPIKE	<0.50	N/A	N/A	45.4	50.0	91
CHROMIUM	BLANK SPIKE	<0.50	N/A	N/A	44.6	50.0	89
COPPER	9303-119-9	17	16	6	61.5	52.6	85
COPPER	9303-119-16	42	44	5	105	61.5	102
COPPER	9303-146-13	12	13	8	63.7	55.3	93
COPPER	BLANK SPIKE	<0.50	N/A	N/A	46.7	50.0	93
COPPER	BLANK SPIKE	<0.50	N/A	N/A	48.0	50.0	96
COPPER	BLANK SPIKE	<0.50	N/A	N/A	47.5	50.0	95
ZINC	9303-119-9	19	18	5	63.3	52.6	84
ZINC	9303-119-16	24	19	23	71.9	61.5	78
ZINC	9303-146-13	32	43	29	80.8	55.3	88
ZINC	BLANK SPIKE	<0.50	N/A	N/A	45.1	50.0	90
ZINC	BLANK SPIKE	<0.50	N/A	N/A	46.7	50.0	93
ZINC	BLANK SPIKE	<0.50	N/A	N/A	45.3	50.0	91

NC = Not Calculable.
G = Out of limits due to high levels of target analytes in sample.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

kmc 4/07/9?

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119

GENERAL CHEMISTRY ANALYSIS

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER CO.

PARAMETER	DATE ANALYZED
MOISTURE	03/18/93

Analytical Technologies, Inc.

ATI I.D. # 9303-119

GENERAL CHEMISTRY ANALYSIS
DATA SUMMARY

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER CO.

MATRIX : SOIL
UNITS : %

ATI I.D. #	CLIENT I.D.	MOISTURE
9303-119-1	C1-3	17
9303-119-2	C2-3	18
9303-119-3	C3-3	18
9303-119-4	C4-3	18
9303-119-5	C5-3	16
9303-119-6	C6-3	12
9303-119-7	C7-3	14
9303-119-8	C8-3	6.2
9303-119-9	C11-3	6.6
9303-119-10	C13-3	7.2
9303-119-11	C14-3	11
9303-119-12	C15-3	8.5
9303-119-13	C16-3	18
9303-119-14	C17-3	14
9303-119-15	C18-3	15
9303-119-16	C19-3	20
9303-119-17	C20-3	17
9303-119-18	C21-3	15
9303-119-19	CC2-1	7.5
9303-119-20	CC3-1	5.3
9303-119-21	CC4-1	8.3
9303-119-22	CC5-1	8.8

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-119

GENERAL CHEMISTRY ANALYSIS
QUALITY CONTROL DATA

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER CO.

MATRIX : SOIL

UNITS : %

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
MOISTURE	9303-119-8	6.2	6.4	3	N/A	N/A	N/A
MOISTURE	9303-119-18	15	14	7	N/A	N/A	N/A
MOISTURE	9303-117-3	6.5	5.8	11	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

№ 5328

CHAIN OF CUSTODY RECORD 9303-119.

1/2

PROJ. NO.	PROJECT NAME	SEND RESULTS TO:
3-0199-520	Cascade Pole-Tacoma Interim Action	Linda Baker

SAMPLERS: Grant Hainsworth

RECEIVING LABORATORY: ATI

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	As, Cu, Cr, Zn	8270 (hold)					REMARKS
1	03/10/93	10:20	C1-3	2	✓	✓					
2	"	11:00	C2-3	2	✓	✓					
3	03/09/93	5:05	C3-3	2	✓	✓					
4	"	4:15	C4-3	2	✓	✓					
5	"	3:05	C5-3	2	✓	✓					
6	"	11:50	C6-3	2	✓	✓					
7	"	10:55	C7-3	2	✓	✓					
8	"	10:10	C8-3	2	✓	✓					
9	"	9:55	C11-3	2	✓	✓					
10	"	10:25	C13-3	2	✓	✓					
11	"	12:25	C14-3	2	✓	✓					
12	"	11:35	C15-3	2	✓	✓					
13	"	1:05	C16-3	2	✓	✓					
14	"	3:45	C17-3	2	✓	✓					
15	"	4:45	C18-3	2	✓	✓					
16	03/10/93	9:00	C19-3	2	✓	✓					
17	"	9:35	C20-3	2	✓	✓					

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Grant Hainsworth	03/10/93 1:05	[signature] 3/10/93 1:05 pm			

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

Shipper Information

RETEC
REMEDIATION TECHNOLOGIES INC
REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

NK C(Sampl W CC aborat TE CO TeC

Nº 5330

CHAIN OF CUSTODY RECORD

2/2

PROJ. NO.: 3-0499-520

PROJECT NAME: Cascade Pole-Tacoma Interim Action

SAMPLERS: Grant Hainsworth

RECEIVING LABORATORY: ATI

SEND RESULTS TO: Linda Baker

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	As, Cr, Cu, Zn	8270 (Hold)	8270 (PAH & PCP)	TCLP Metals (Hold)				REMARKS
18	03/09/93	12:00	C21-3	2	✓	✓						
19	"	11:40	CC2-1	3	✓		✓	✓				
20	"	12:20	CC3-1	3	✓		✓	✓				
21	"	3:25	CC4-1	3	✓		✓	✓				
22.	03/10/93	9:45	CC5-1	3	✓		✓	✓				
												Hold all TCLP Metals
												and 8270's for
												C1 through C21

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Grant Hainsworth	03/10/93 1:05	[signature] 3/10/93 1:05 pm			

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

Shipper Information

REMEDIATION TECHNOLOGIES INC
REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

Analytical Technologies, Inc.
560 Naches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335
Karen L. Mixon, Laboratory Manager

ATI I.D. # 9303-081

March 30, 1993

Remediation Technologies, Inc.
1011 S.W. Klickitat Way
Suite 207
Seattle WA 98134

Attention : Grant Hainsworth

Project Number : 3-0499-520

Project Name : Cascade Pole & Lumber-Tacoma WA

Dear Mr. Hainsworth:

On March 5, 1993, Analytical Technologies, Inc. (ATI), received 28 samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Sincerely,

Tamara B. Jerome
Project Manager

TBJ/hal/ff/elf

Enclosure

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081

SAMPLE CROSS REFERENCE SHEET

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TACOMA

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9303-081-1	P1-3	03/03/93	SOIL
9303-081-2	P2-3	03/03/93	SOIL
9303-081-3	P5-3	03/03/93	SOIL
9303-081-4	P6-3	03/03/93	SOIL
9303-081-5	P7-3	03/03/93	SOIL
9303-081-6	P8-3	03/03/93	SOIL
9303-081-7	P9-3	03/03/93	SOIL
9303-081-8	P10-3	02/26/93	SOIL
9303-081-9	P11-3	03/03/93	SOIL
9303-081-10	P12-3	03/03/93	SOIL
9303-081-11	P13-3	03/03/93	SOIL
9303-081-12	P15-3	03/03/93	SOIL
9303-081-13	P16-3	03/03/93	SOIL
9303-081-14	P17-3	03/03/93	SOIL
9303-081-15	P18-3	03/04/93	SOIL
9303-081-16	P19-3	03/04/93	SOIL
9303-081-17	P20-3	03/04/93	SOIL
9303-081-18	P21-3	03/03/93	SOIL
9303-081-19	PC1-1	03/03/93	SOIL
9303-081-20	PC2-1	03/03/93	SOIL
9303-081-21	PC3-1	03/03/93	SOIL
9303-081-22	P3-3	03/05/93	SOIL
9303-081-23	P4-3	03/05/93	SOIL
9303-081-24	P14-3	03/05/93	SOIL
9303-081-25	C9-3	03/05/93	SOIL
9303-081-26	C10-3	03/05/93	SOIL
9303-081-27	C12-3	03/05/93	SOIL
9303-081-28	CC1-1	03/05/93	SOIL

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	28

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081

ANALYTICAL SCHEDULE

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TACOMA

ANALYSIS	TECHNIQUE	REFERENCE	LAB
SEMI-VOLATILE COMPOUNDS	GCMS	EPA 8270	R
TCLP PREPARATION	-	EPA 1311	R
ARSENIC	ICAP	EPA 6010	R
BARIUM	ICAP	EPA 6010	R
CADMIUM	ICAP	EPA 6010	R
CHROMIUM	ICAP	EPA 6010	R
COPPER	ICAP	EPA 6010	R
LEAD	ICAP	EPA 6010	R
MERCURY	AA/COLD VAPOR	EPA 7470	R
SELENIUM	ICAP	EPA 6010	R
SILVER	ICAP	EPA 6010	R
ZINC	ICAP	EPA 6010	R
MOISTURE	GRAVIMETRIC	CLP SOW ILM01.0	R

R = ATI - Renton
SD = ATI - San Diego
PHX = ATI - Phoenix
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

Analytical Technologies, Inc.

ATI I.D. # 9303-081

CASE NARRATIVE

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TACOMA

CASE NARRATIVE: SEMI-VOLATILE ORGANICS ANALYSIS

The samples associated with this accession were analyzed using EPA method 8270. The extraction procedure used for this accession is EPA method 3550.

All quality control and quality assurance parameters were within acceptable ATI limits with the following exceptions: Three surrogates in sample 9303-081-28 (CC1-1) were outside recovery limits (high) due to matrix interference. Pentachlorophenol was outside recovery limits in the matrix spike/matrix spike duplicate (MS/MSD) set using sample 9303-081-4 (P6-3) due to high levels of the target analyte in the sample. N-nitroso-di-n-propylamine, acenaphthene, and 2,4-dinitrotoluene were outside recovery limits in the MS/MSD set using sample 9303-036-7 due to necessary dilution of the sample for matrix problems. Samples 9303-081-21 (PC3-1) and 9303-081-28 (CC1-1) had relative final volumes for the extracts of five mLs.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: N/A
PROJECT #	: 3-0499-520	DATE RECEIVED	: N/A
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYLPHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85

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kml 4/07/93

Analytical**Technologies**,Inc.

ATI I.D. # 9303-081

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: N/A
PROJECT #	: 3-0499-520	DATE RECEIVED	: N/A
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17
4-CHLOROPHENYL-PHENYLETHER	<0.17
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL-PHENYLETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.17
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-N-BUTYLPHTHALATE	<0.17
FLUORANTHENE	<0.17
BENZIDINE	<1.7
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3'-DICHLOROBENZIDINE	<0.34
BENZO(A)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(B)FLUORANTHENE	<0.17
BENZO(K)FLUORANTHENE	<0.17
BENZO(A)PYRENE	<0.17
INDENO(1,2,3-CD)PYRENE	<0.17
DIBENZO(A,H)ANTHRACENE	<0.17
BENZO(G,H,I)PERYLENE	<0.17

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	89	54 - 117
2-FLUOROBIPHENYL	96	56 - 127
TERPHENYL-D14	97	52 - 133
PHENOL-D5	93	47 - 105
2-FLUOROPHENOL	90	52 - 111
2,4,6-TRIBROMOPHENOL	94	35 - 126

kml 4/01/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: N/A
PROJECT #	: 3-0499-520	DATE RECEIVED	: N/A
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYLPHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85

kmc 4/17/93

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Analytical Technologies, Inc.

ATI I.D. # 9303-081

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: N/A
PROJECT #	: 3-0499-520	DATE RECEIVED	: N/A
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17
4-CHLOROPHENYL-PHENYLETHER	<0.17
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL-PHENYLETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.17
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-N-BUTYLPHTHALATE	<0.17
FLUORANTHENE	<0.17
BENZIDINE	<1.7
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3'-DICHLOROBENZIDINE	<0.34
BENZO(A)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(B)FLUORANTHENE	<0.17
BENZO(K)FLUORANTHENE	<0.17
BENZO(A)PYRENE	<0.17
INDENO(1,2,3-CD)PYRENE	<0.17
DIBENZO(A,H)ANTHRACENE	<0.17
BENZO(G,H,I)PERYLENE	<0.17

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	87	54 - 117
2-FLUOROBIPHENYL	86	56 - 127
TERPHENYL-D14	102	52 - 133
PHENOL-D5	89	47 - 105
2-FLUOROPHENOL	87	52 - 111
2,4,6-TRIBROMOPHENOL	60	35 - 126

kmc 4/6/93

Analytical Technologies, Inc.

ATI I.D. # 9303-081-1

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P1-3	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
N-NITROSODIMETHYLAMINE	<0.19	
PHENOL	<0.19	
ANILINE	<0.19	
BIS(2-CHLOROETHYL)ETHER	<0.19	
2-CHLOROPHENOL	<0.19	
1,3-DICHLOROBENZENE	<0.19	
1,4-DICHLOROBENZENE	<0.19	
BENZYL ALCOHOL	<0.19	
1,2-DICHLOROBENZENE	<0.19	
2-METHYLPHENOL	<0.19	
BIS(2-CHLOROISOPROPYL)ETHER	<0.19	
4-METHYLPHENOL	<0.19	
N-NITROSO-DI-N-PROPYLAMINE	<0.19	
HEXACHLOROETHANE	<0.19	
NITROBENZENE	<0.19	
ISOPHORONE	<0.19	
2-NITROPHENOL	<0.19	
2,4-DIMETHYLPHENOL	<0.19	
BENZOIC ACID	<0.97	
BIS(2-CHLOROETHOXY)METHANE	<0.19	
2,4-DICHLOROPHENOL	<0.19	
1,2,4-TRICHLOROBENZENE	<0.19	
NAPHTHALENE	0.43	
4-CHLOROANILINE	<0.19	
HEXACHLOROBUTADIENE	<0.19	
4-CHLORO-3-METHYLPHENOL	<0.19	
2-METHYLNAPHTHALENE	0.19	J
HEXACHLOROCYCLOPENTADIENE	<0.19	
2,4,6-TRICHLOROPHENOL	<0.19	
2,4,5-TRICHLOROPHENOL	0.18	J
2-CHLORONAPHTHALENE	<0.19	
2-NITROANILINE	<0.97	
DIMETHYLPHTHALATE	<0.19	
ACENAPHTHYLENE	<0.19	
3-NITROANILINE	<0.97	
ACENAPHTHENE	0.37	
2,4-DINITROPHENOL	<0.97	
4-NITROPHENOL	<0.97	

J = Estimated value.

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Analytical Technologies, Inc.

ATI I.D. # 9303-081-1

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P1-3	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	<0.19	
2,4-DINITROTOLUENE	<0.19	
2,6-DINITROTOLUENE	<0.19	
DIETHYLPHTHALATE	<0.19	
4-CHLOROPHENYL-PHENYLETHER	<0.19	
FLUORENE	0.40	
4-NITROANILINE	<0.97	
4,6-DINITRO-2-METHYLPHENOL	<0.97	
N-NITROSODIPHENYLAMINE	<0.19	
4-BROMOPHENYL-PHENYLETHER	<0.19	
HEXACHLOROBENZENE	<0.19	
PENTACHLOROPHENOL	5.5	
PHENANTHRENE	0.12	J
ANTHRACENE	0.25	
DI-N-BUTYLPHTHALATE	<0.19	
FLUORANTHENE	0.21	
BENZIDINE	<1.9	
PYRENE	0.16	J
BUTYLBENZYLPHTHALATE	<0.19	
3,3'-DICHLOROBENZIDINE	<0.39	
BENZO(A)ANTHRACENE	<0.19	
BIS(2-ETHYLHEXYL)PHTHALATE	<0.19	
CHRYSENE	0.11	J
DI-N-OCTYLPHTHALATE	<0.19	
BENZO(B)FLUORANTHENE	0.098	J
BENZO(K)FLUORANTHENE	<0.19	
BENZO(A)PYRENE	<0.19	
INDENO(1,2,3-CD)PYRENE	<0.19	
DIBENZO(A,H)ANTHRACENE	<0.19	
BENZO(G,H,I)PERYLENE	<0.19	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	90	54 - 117
2-FLUOROBIPHENYL	90	56 - 127
TERPHENYL-D14	95	52 - 133
PHENOL-D5	97	47 - 105
2-FLUOROPHENOL	89	52 - 111
2,4,6-TRIBROMOPHENOL	96	35 - 126

J = Estimated value.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-2

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P2-3	DATE ANALYZED	: 03/14/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.19
PHENOL	<0.19
ANILINE	<0.19
BIS(2-CHLOROETHYL)ETHER	<0.19
2-CHLOROPHENOL	<0.19
1,3-DICHLOROBENZENE	<0.19
1,4-DICHLOROBENZENE	<0.19
BENZYL ALCOHOL	<0.19
1,2-DICHLOROBENZENE	<0.19
2-METHYLPHENOL	<0.19
BIS(2-CHLOROISOPROPYL)ETHER	<0.19
4-METHYLPHENOL	<0.19
N-NITROSO-DI-N-PROPYLAMINE	<0.19
HEXACHLOROETHANE	<0.19
NITROBENZENE	<0.19
ISOPHORONE	<0.19
2-NITROPHENOL	<0.19
2,4-DIMETHYLPHENOL	<0.19
BENZOIC ACID	<0.97
BIS(2-CHLOROETHOXY)METHANE	<0.19
2,4-DICHLOROPHENOL	<0.19
1,2,4-TRICHLOROBENZENE	<0.19
NAPHTHALENE	0.12 J
4-CHLOROANILINE	<0.19
HEXACHLOROBUTADIENE	<0.19
4-CHLORO-3-METHYLPHENOL	<0.19
2-METHYLNAPHTHALENE	<0.19
HEXACHLOROCYCLOPENTADIENE	<0.19
2,4,6-TRICHLOROPHENOL	<0.19
2,4,5-TRICHLOROPHENOL	<0.97
2-CHLORONAPHTHALENE	<0.19
2-NITROANILINE	<0.97
DIMETHYLPHTHALATE	<0.19
ACENAPHTHYLENE	<0.19
3-NITROANILINE	<0.97
ACENAPHTHENE	0.19 J
2,4-DINITROPHENOL	<0.97
4-NITROPHENOL	<0.97

J = Estimated value.

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Analytical Technologies, Inc.

ATI I.D. # 9303-081-2

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P2-3	DATE ANALYZED	: 03/14/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	<0.19
2,4-DINITROTOLUENE	<0.19
2,6-DINITROTOLUENE	<0.19
DIETHYLPHTHALATE	<0.19
4-CHLOROPHENYL-PHENYLETHER	<0.19
FLUORENE	0.37
4-NITROANILINE	<0.97
4,6-DINITRO-2-METHYLPHENOL	<0.97
N-NITROSODIPHENYLAMINE	<0.19
4-BROMOPHENYL-PHENYLETHER	<0.19
HEXACHLOROBENZENE	<0.19
PENTACHLOROPHENOL	0.37
PHENANTHRENE	<0.19
ANTHRACENE	0.38
DI-N-BUTYLPHTHALATE	<0.19
FLUORANTHENE	<0.19
BENZIDINE	<1.9
PYRENE	<0.19
BUTYLBENZYLPHTHALATE	<0.19
3,3'-DICHLOROBENZIDINE	<0.39
BENZO(A)ANTHRACENE	<0.19
BIS(2-ETHYLHEXYL)PHTHALATE	<0.19
CHRYSENE	<0.19
DI-N-OCTYLPHTHALATE	<0.19
BENZO(B)FLUORANTHENE	<0.19
BENZO(K)FLUORANTHENE	<0.19
BENZO(A)PYRENE	<0.19
INDENO(1,2,3-CD)PYRENE	<0.19
DIBENZO(A,H)ANTHRACENE	<0.19
BENZO(G,H,I)PERYLENE	<0.19

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	82	54 - 117
2-FLUOROBIPHENYL	87	56 - 127
TERPHENYL-D14	99	52 - 133
PHENOL-D5	83	47 - 105
2-FLUOROPHENOL	75	52 - 111
2,4,6-TRIBROMOPHENOL	90	35 - 126

Analytical Technologies, Inc.

ATI I.D. # 9303-081-3

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P5-3	DATE ANALYZED	: 03/13/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.20
PHENOL	<0.20
ANILINE	<0.20
BIS(2-CHLOROETHYL)ETHER	<0.20
2-CHLOROPHENOL	<0.20
1,3-DICHLOROBENZENE	<0.20
1,4-DICHLOROBENZENE	<0.20
BENZYL ALCOHOL	<0.20
1,2-DICHLOROBENZENE	<0.20
2-METHYLPHENOL	<0.20
BIS(2-CHLOROISOPROPYL)ETHER	<0.20
4-METHYLPHENOL	<0.20
N-NITROSO-DI-N-PROPYLAMINE	<0.20
HEXACHLOROETHANE	<0.20
NITROBENZENE	<0.20
ISOPHORONE	<0.20
2-NITROPHENOL	<0.20
2,4-DIMETHYLPHENOL	<0.20
BENZOIC ACID	<1.0
BIS(2-CHLOROETHOXY)METHANE	<0.20
2,4-DICHLOROPHENOL	<0.20
1,2,4-TRICHLOROBENZENE	<0.20
NAPHTHALENE	<0.20
4-CHLOROANILINE	<0.20
HEXACHLOROBUTADIENE	<0.20
4-CHLORO-3-METHYLPHENOL	<0.20
2-METHYLNAPHTHALENE	<0.20
HEXACHLOROCYCLOPENTADIENE	<0.20
2,4,6-TRICHLOROPHENOL	<0.20
2,4,5-TRICHLOROPHENOL	<1.0
2-CHLORONAPHTHALENE	<0.20
2-NITROANILINE	<1.0
DIMETHYLPHTHALATE	<0.20
ACENAPHTHYLENE	<0.20
3-NITROANILINE	<1.0
ACENAPHTHENE	<0.20
2,4-DINITROPHENOL	<1.0
4-NITROPHENOL	<1.0

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AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-3

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P5-3	DATE ANALYZED	: 03/13/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	<0.20	
2,4-DINITROTOLUENE	<0.20	
2,6-DINITROTOLUENE	<0.20	
DIETHYLPHTHALATE	<0.20	
4-CHLOROPHENYL-PHENYLETHER	<0.20	
FLUORENE	<0.20	
4-NITROANILINE	<1.0	
4,6-DINITRO-2-METHYLPHENOL	<1.0	
N-NITROSODIPHENYLAMINE	<0.20	
4-BROMOPHENYL-PHENYLETHER	<0.20	
HEXACHLOROBENZENE	<0.20	
PENTACHLOROPHENOL	4.6	
PHENANTHRENE	0.22	
ANTHRACENE	0.17	J
DI-N-BUTYLPHTHALATE	<0.20	
FLUORANTHENE	0.24	
BENZIDINE	<2.0	
PYRENE	0.19	J
BUTYLBENZYLPHTHALATE	<0.20	
3,3'-DICHLOROBENZIDINE	<0.40	
BENZO(A)ANTHRACENE	<0.20	
BIS(2-ETHYLHEXYL)PHTHALATE	<0.20	
CHRYSENE	<0.20	
DI-N-OCTYLPHTHALATE	<0.20	
BENZO(B)FLUORANTHENE	<0.20	
BENZO(K)FLUORANTHENE	<0.20	
BENZO(A)PYRENE	<0.20	
INDENO(1,2,3-CD)PYRENE	<0.20	
DIBENZO(A,H)ANTHRACENE	<0.20	
BENZO(G,H,I)PERYLENE	<0.20	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	60	54 - 117
2-FLUOROBIPHENYL	61	56 - 127
TERPHENYL-D14	100	52 - 133
PHENOL-D5	62	47 - 105
2-FLUOROPHENOL	54	52 - 111
2,4,6-TRIBROMOPHENOL	74	35 - 126

J = Estimated value.

Analytical**Technologies,**Inc.

ATI I.D. # 9303-081-4

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P6-3	DATE ANALYZED	: 03/15/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.18
PHENOL	<0.18
ANILINE	<0.18
BIS(2-CHLOROETHYL)ETHER	<0.18
2-CHLOROPHENOL	<0.18
1,3-DICHLOROBENZENE	<0.18
1,4-DICHLOROBENZENE	<0.18
BENZYL ALCOHOL	<0.18
1,2-DICHLOROBENZENE	<0.18
2-METHYLPHENOL	<0.18
BIS(2-CHLOROISOPROPYL)ETHER	<0.18
4-METHYLPHENOL	<0.18
N-NITROSO-DI-N-PROPYLAMINE	<0.18
HEXACHLOROETHANE	<0.18
NITROBENZENE	<0.18
ISOPHORONE	<0.18
2-NITROPHENOL	<0.18
2,4-DIMETHYLPHENOL	<0.18
BENZOIC ACID	0.25 J
BIS(2-CHLOROETHOXY)METHANE	<0.18
2,4-DICHLOROPHENOL	<0.18
1,2,4-TRICHLOROBENZENE	<0.18
NAPHTHALENE	<0.18
4-CHLOROANILINE	<0.18
HEXACHLOROBUTADIENE	<0.18
4-CHLORO-3-METHYLPHENOL	<0.18
2-METHYLNAPHTHALENE	<0.18
HEXACHLOROCYCLOPENTADIENE	<0.18
2,4,6-TRICHLOROPHENOL	<0.18
2,4,5-TRICHLOROPHENOL	<0.93
2-CHLORONAPHTHALENE	<0.18
2-NITROANILINE	<0.93
DIMETHYLPHTHALATE	<0.18
ACENAPHTHYLENE	<0.18
3-NITROANILINE	<0.93
ACENAPHTHENE	<0.18
2,4-DINITROPHENOL	<0.93
4-NITROPHENOL	<0.93

J = Estimated value.

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AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-4

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P6-3	DATE ANALYZED	: 03/15/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	<0.18	
2,4-DINITROTOLUENE	<0.18	
2,6-DINITROTOLUENE	<0.18	
DIETHYLPHTHALATE	<0.18	
4-CHLOROPHENYL-PHENYLETHER	<0.18	
FLUORENE	<0.18	
4-NITROANILINE	<0.93	
4,6-DINITRO-2-METHYLPHENOL	<0.93	
N-NITROSODIPHENYLAMINE	<0.18	
4-BROMOPHENYL-PHENYLETHER	<0.18	
HEXACHLOROBENZENE	<0.18	
PENTACHLOROPHENOL	4.8	D2
PHENANTHRENE	<0.18	
ANTHRACENE	<0.18	
DI-N-BUTYLPHTHALATE	<0.18	
FLUORANTHENE	<0.18	
BENZIDINE	<1.8	
PYRENE	<0.18	
BUTYLBENZYLPHTHALATE	<0.18	
3,3'-DICHLOROBENZIDINE	<0.37	
BENZO(A)ANTHRACENE	<0.18	
BIS(2-ETHYLHEXYL)PHTHALATE	<0.18	
CHRYSENE	<0.18	
DI-N-OCTYLPHTHALATE	<0.18	
BENZO(B)FLUORANTHENE	<0.18	
BENZO(K)FLUORANTHENE	<0.18	
BENZO(A)PYRENE	<0.18	
INDENO(1,2,3-CD)PYRENE	<0.18	
DIBENZO(A,H)ANTHRACENE	<0.18	
BENZO(G,H,I)PERYLENE	<0.18	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	75	54 - 117
2-FLUOROBIPHENYL	91	56 - 127
TERPHENYL-D14	99	52 - 133
PHENOL-D5	79	47 - 105
2-FLUOROPHENOL	72	52 - 111
2,4,6-TRIBROMOPHENOL	97	35 - 126

D2 = Value from a four fold diluted analysis.

Analytical**Technologies,**Inc.

ATI I.D. # 9303-081-6

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P8-3	DATE ANALYZED	: 03/14/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.19
PHENOL	<0.19
ANILINE	<0.19
BIS(2-CHLOROETHYL)ETHER	<0.19
2-CHLOROPHENOL	<0.19
1,3-DICHLOROBENZENE	<0.19
1,4-DICHLOROBENZENE	<0.19
BENZYL ALCOHOL	<0.19
1,2-DICHLOROBENZENE	<0.19
2-METHYLPHENOL	<0.19
BIS(2-CHLOROISOPROPYL)ETHER	<0.19
4-METHYLPHENOL	<0.19
N-NITROSO-DI-N-PROPYLAMINE	<0.19
HEXACHLOROETHANE	<0.19
NITROBENZENE	<0.19
ISOPHORONE	<0.19
2-NITROPHENOL	<0.19
2,4-DIMETHYLPHENOL	<0.19
BENZOIC ACID	<0.96
BIS(2-CHLOROETHOXY)METHANE	<0.19
2,4-DICHLOROPHENOL	<0.19
1,2,4-TRICHLOROBENZENE	<0.19
NAPHTHALENE	<0.19
4-CHLOROANILINE	<0.19
HEXACHLOROBUTADIENE	<0.19
4-CHLORO-3-METHYLPHENOL	<0.19
2-METHYLNAPHTHALENE	<0.19
HEXACHLOROCYCLOPENTADIENE	<0.19
2,4,6-TRICHLOROPHENOL	<0.19
2,4,5-TRICHLOROPHENOL	<0.96
2-CHLORONAPHTHALENE	<0.19
2-NITROANILINE	<0.96
DIMETHYLPHTHALATE	<0.19
ACENAPHTHYLENE	<0.19
3-NITROANILINE	<0.96
ACENAPHTHENE	<0.19
2,4-DINITROPHENOL	<0.96
4-NITROPHENOL	<0.96

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Analytical Technologies, Inc.

ATI I.D. # 9303-081-6

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P8-3	DATE ANALYZED	: 03/14/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	<0.19
2,4-DINITROTOLUENE	<0.19
2,6-DINITROTOLUENE	<0.19
DIETHYLPHTHALATE	<0.19
4-CHLOROPHENYL-PHENYLETHER	<0.19
FLUORENE	<0.19
4-NITROANILINE	<0.96
4,6-DINITRO-2-METHYLPHENOL	<0.96
N-NITROSODIPHENYLAMINE	<0.19
4-BROMOPHENYL-PHENYLETHER	<0.19
HEXACHLOROBENZENE	<0.19
PENTACHLOROPHENOL	0.18 J
PHENANTHRENE	<0.19
ANTHRACENE	<0.19
DI-N-BUTYLPHTHALATE	<0.19
FLUORANTHENE	<0.19
BENZIDINE	<1.9
PYRENE	<0.19
BUTYLBENZYLPHTHALATE	<0.19
3,3'-DICHLOROBENZIDINE	<0.38
BENZO(A)ANTHRACENE	<0.19
BIS(2-ETHYLHEXYL)PHTHALATE	<0.19
CHRYSENE	<0.19
DI-N-OCTYLPHTHALATE	<0.19
BENZO(B)FLUORANTHENE	<0.19
BENZO(K)FLUORANTHENE	<0.19
BENZO(A)PYRENE	<0.19
INDENO(1,2,3-CD)PYRENE	<0.19
DIBENZO(A,H)ANTHRACENE	<0.19
BENZO(G,H,I)PERYLENE	<0.19

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	87	54 - 117
2-FLUOROBIPHENYL	89	56 - 127
TERPHENYL-D14	93	52 - 133
PHENOL-D5	87	47 - 105
2-FLUOROPHENOL	79	52 - 111
2,4,6-TRIBROMOPHENOL	79	35 - 126

J = Estimated value.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-8

SEMI-VOLATILE ORGANICS ANALYSIS DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 02/26/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P10-3	DATE ANALYZED	: 03/13/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.18
PHENOL	<0.18
ANILINE	<0.18
BIS(2-CHLOROETHYL)ETHER	<0.18
2-CHLOROPHENOL	<0.18
1,3-DICHLOROBENZENE	<0.18
1,4-DICHLOROBENZENE	<0.18
BENZYL ALCOHOL	<0.18
1,2-DICHLOROBENZENE	<0.18
2-METHYLPHENOL	<0.18
BIS(2-CHLOROISOPROPYL)ETHER	<0.18
4-METHYLPHENOL	<0.18
N-NITROSO-DI-N-PROPYLAMINE	<0.18
HEXACHLOROETHANE	<0.18
NITROBENZENE	<0.18
ISOPHORONE	<0.18
2-NITROPHENOL	<0.18
2,4-DIMETHYLPHENOL	<0.18
BENZOIC ACID	<0.90
BIS(2-CHLOROETHOXY)METHANE	<0.18
2,4-DICHLOROPHENOL	<0.18
1,2,4-TRICHLOROBENZENE	<0.18
NAPHTHALENE	<0.18
4-CHLOROANILINE	<0.18
HEXACHLOROBUTADIENE	<0.18
4-CHLORO-3-METHYLPHENOL	<0.18
2-METHYLNAPHTHALENE	<0.18
HEXACHLOROCYCLOPENTADIENE	<0.18
2,4,6-TRICHLOROPHENOL	<0.18
2,4,5-TRICHLOROPHENOL	<0.90
2-CHLORONAPHTHALENE	<0.18
2-NITROANILINE	<0.90
DIMETHYLPHTHALATE	<0.18
ACENAPHTHYLENE	<0.18
3-NITROANILINE	<0.90
ACENAPHTHENE	<0.18
2,4-DINITROPHENOL	<0.90
4-NITROPHENOL	<0.90

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AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-8

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 02/26/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P10-3	DATE ANALYZED	: 03/13/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	<0.18
2,4-DINITROTOLUENE	<0.18
2,6-DINITROTOLUENE	<0.18
DIETHYLPHTHALATE	<0.18
4-CHLOROPHENYL-PHENYLETHER	<0.18
FLUORENE	<0.18
4-NITROANILINE	<0.90
4,6-DINITRO-2-METHYLPHENOL	<0.90
N-NITROSODIPHENYLAMINE	<0.18
4-BROMOPHENYL-PHENYLETHER	<0.18
HEXACHLOROBENZENE	<0.18
PENTACHLOROPHENOL	<0.18
PHENANTHRENE	<0.18
ANTHRACENE	<0.18
DI-N-BUTYLPHTHALATE	<0.18
FLUORANTHENE	<0.18
BENZIDINE	<1.8
PYRENE	<0.18
BUTYLBENZYLPHTHALATE	<0.18
3,3'-DICHLOROBENZIDINE	<0.36
BENZO(A)ANTHRACENE	<0.18
BIS(2-ETHYLHEXYL)PHTHALATE	<0.18
CHRYSENE	<0.18
DI-N-OCTYLPHTHALATE	<0.18
BENZO(B)FLUORANTHENE	<0.18
BENZO(K)FLUORANTHENE	<0.18
BENZO(A)PYRENE	<0.18
INDENO(1,2,3-CD)PYRENE	<0.18
DIBENZO(A,H)ANTHRACENE	<0.18
BENZO(G,H,I)PERYLENE	<0.18

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	96	54 - 117
2-FLUOROBIPHENYL	83	56 - 127
TERPHENYL-D14	105	52 - 133
PHENOL-D5	88	47 - 105
2-FLUOROPHENOL	81	52 - 111
2,4,6-TRIBROMOPHENOL	52	35 - 126

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-9

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P11-3	DATE ANALYZED	: 03/14/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.18
PHENOL	<0.18
ANILINE	<0.18
BIS(2-CHLOROETHYL)ETHER	<0.18
2-CHLOROPHENOL	<0.18
1,3-DICHLOROBENZENE	<0.18
1,4-DICHLOROBENZENE	<0.18
BENZYL ALCOHOL	<0.18
1,2-DICHLOROBENZENE	<0.18
2-METHYLPHENOL	<0.18
BIS(2-CHLOROISOPROPYL)ETHER	<0.18
4-METHYLPHENOL	<0.18
N-NITROSO-DI-N-PROPYLAMINE	<0.18
HEXACHLOROETHANE	<0.18
NITROBENZENE	<0.18
ISOPHORONE	<0.18
2-NITROPHENOL	<0.18
2,4-DIMETHYLPHENOL	<0.18
BENZOIC ACID	<0.94
BIS(2-CHLOROETHOXY)METHANE	<0.18
2,4-DICHLOROPHENOL	<0.18
1,2,4-TRICHLOROBENZENE	<0.18
NAPHTHALENE	<0.18
4-CHLOROANILINE	<0.18
HEXACHLOROBUTADIENE	<0.18
4-CHLORO-3-METHYLPHENOL	<0.18
2-METHYLNAPHTHALENE	<0.18
HEXACHLOROCYCLOPENTADIENE	<0.18
2,4,6-TRICHLOROPHENOL	<0.18
2,4,5-TRICHLOROPHENOL	<0.94
2-CHLORONAPHTHALENE	<0.18
2-NITROANILINE	<0.94
DIMETHYLPHTHALATE	<0.18
ACENAPHTHYLENE	<0.18
3-NITROANILINE	<0.94
ACENAPHTHENE	<0.18
2,4-DINITROPHENOL	<0.94
4-NITROPHENOL	<0.94

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AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-9

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P11-3	DATE ANALYZED	: 03/14/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	<0.18	
2,4-DINITROTOLUENE	<0.18	
2,6-DINITROTOLUENE	<0.18	
DIETHYLPHTHALATE	<0.18	
4-CHLOROPHENYL-PHENYLETHER	<0.18	
FLUORENE	<0.18	
4-NITROANILINE	<0.94	
4,6-DINITRO-2-METHYLPHENOL	<0.94	
N-NITROSODIPHENYLAMINE	<0.18	
4-BROMOPHENYL-PHENYLETHER	<0.18	
HEXACHLOROBENZENE	<0.18	
PENTACHLOROPHENOL	0.19	
PHENANTHRENE	<0.18	
ANTHRACENE	<0.18	
DI-N-BUTYLPHTHALATE	<0.18	
FLUORANTHENE	0.10	J
BENZIDINE	<1.8	
PYRENE	<0.18	
BUTYLBENZYLPHTHALATE	<0.18	
3,3'-DICHLOROBENZIDINE	<0.38	
BENZO(A)ANTHRACENE	<0.18	
BIS(2-ETHYLHEXYL)PHTHALATE	<0.18	
CHRYSENE	<0.18	
DI-N-OCTYLPHTHALATE	<0.18	
BENZO(B)FLUORANTHENE	<0.18	
BENZO(K)FLUORANTHENE	<0.18	
BENZO(A)PYRENE	<0.18	
INDENO(1,2,3-CD)PYRENE	<0.18	
DIBENZO(A,H)ANTHRACENE	<0.18	
BENZO(G,H,I)PERYLENE	<0.18	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	84	54 - 117
2-FLUOROBIPHENYL	88	56 - 127
TERPHENYL-D14	97	52 - 133
PHENOL-D5	87	47 - 105
2-FLUOROPHENOL	80	52 - 111
2,4,6-TRIBROMOPHENOL	80	35 - 126

J = Estimated value.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-10

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P12-3	DATE ANALYZED	: 03/15/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.18
PHENOL	<0.18
ANILINE	<0.18
BIS(2-CHLOROETHYL)ETHER	<0.18
2-CHLOROPHENOL	<0.18
1,3-DICHLOROBENZENE	<0.18
1,4-DICHLOROBENZENE	<0.18
BENZYL ALCOHOL	<0.18
1,2-DICHLOROBENZENE	<0.18
2-METHYLPHENOL	<0.18
BIS(2-CHLOROISOPROPYL)ETHER	<0.18
4-METHYLPHENOL	<0.18
N-NITROSO-DI-N-PROPYLAMINE	<0.18
HEXACHLOROETHANE	<0.18
NITROBENZENE	<0.18
ISOPHORONE	<0.18
2-NITROPHENOL	<0.18
2,4-DIMETHYLPHENOL	<0.18
BENZOIC ACID	<0.90
BIS(2-CHLOROETHOXY)METHANE	<0.18
2,4-DICHLOROPHENOL	<0.18
1,2,4-TRICHLOROBENZENE	<0.18
NAPHTHALENE	0.11 J
4-CHLOROANILINE	<0.18
HEXACHLOROBUTADIENE	<0.18
4-CHLORO-3-METHYLPHENOL	<0.18
2-METHYLNAPHTHALENE	<0.18
HEXACHLOROCYCLOPENTADIENE	<0.18
2,4,6-TRICHLOROPHENOL	<0.18
2,4,5-TRICHLOROPHENOL	<0.90
2-CHLORONAPHTHALENE	<0.18
2-NITROANILINE	<0.90
DIMETHYLPHTHALATE	<0.18
ACENAPHTHYLENE	<0.18
3-NITROANILINE	<0.90
ACENAPHTHENE	<0.18
2,4-DINITROPHENOL	<0.90
4-NITROPHENOL	<0.90

J = Estimated value.

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Analytical Technologies, Inc.

ATI I.D. # 9303-081-10

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P12-3	DATE ANALYZED	: 03/15/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	<0.18
2,4-DINITROTOLUENE	<0.18
2,6-DINITROTOLUENE	<0.18
DIETHYLPHTHALATE	<0.18
4-CHLOROPHENYL-PHENYLETHER	<0.18
FLUORENE	<0.18
4-NITROANILINE	<0.90
4,6-DINITRO-2-METHYLPHENOL	<0.90
N-NITROSODIPHENYLAMINE	<0.18
4-BROMOPHENYL-PHENYLETHER	<0.18
HEXACHLOROBENZENE	<0.18
PENTACHLOROPHENOL	<0.18
PHENANTHRENE	<0.18
ANTHRACENE	<0.18
DI-N-BUTYLPHTHALATE	<0.18
FLUORANTHENE	<0.18
BENZIDINE	<1.8
PYRENE	<0.18
BUTYLBENZYLPHTHALATE	<0.18
3,3'-DICHLOROBENZIDINE	<0.36
BENZO(A)ANTHRACENE	<0.18
BIS(2-ETHYLHEXYL)PHTHALATE	<0.18
CHRYSENE	<0.18
DI-N-OCTYLPHTHALATE	<0.18
BENZO(B)FLUORANTHENE	<0.18
BENZO(K)FLUORANTHENE	<0.18
BENZO(A)PYRENE	<0.18
INDENO(1,2,3-CD)PYRENE	<0.18
DIBENZO(A,H)ANTHRACENE	<0.18
BENZO(G,H,I)PERYLENE	<0.18

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	79	54 - 117
2-FLUOROBIPHENYL	87	56 - 127
TERPHENYL-D14	88	52 - 133
PHENOL-D5	86	47 - 105
2-FLUOROPHENOL	76	52 - 111
2,4,6-TRIBROMOPHENOL	101	35 - 126

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-12

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P15-3	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.19
PHENOL	<0.19
ANILINE	<0.19
BIS(2-CHLOROETHYL)ETHER	<0.19
2-CHLOROPHENOL	<0.19
1,3-DICHLOROBENZENE	<0.19
1,4-DICHLOROBENZENE	<0.19
BENZYL ALCOHOL	<0.19
1,2-DICHLOROBENZENE	<0.19
2-METHYLPHENOL	<0.19
BIS(2-CHLOROISOPROPYL)ETHER	<0.19
4-METHYLPHENOL	0.097 J
N-NITROSO-DI-N-PROPYLAMINE	<0.19
HEXACHLOROETHANE	<0.19
NITROBENZENE	<0.19
ISOPHORONE	<0.19
2-NITROPHENOL	<0.19
2,4-DIMETHYLPHENOL	<0.19
BENZOIC ACID	<0.98
BIS(2-CHLOROETHOXY)METHANE	<0.19
2,4-DICHLOROPHENOL	<0.19
1,2,4-TRICHLOROBENZENE	<0.19
NAPHTHALENE	<0.19
4-CHLOROANILINE	<0.19
HEXACHLOROBUTADIENE	<0.19
4-CHLORO-3-METHYLPHENOL	<0.19
2-METHYLNAPHTHALENE	0.21
HEXACHLOROCYCLOPENTADIENE	<0.19
2,4,6-TRICHLOROPHENOL	<0.19
2,4,5-TRICHLOROPHENOL	<0.98
2-CHLORONAPHTHALENE	<0.19
2-NITROANILINE	<0.98
DIMETHYLPHTHALATE	<0.19
ACENAPHTHYLENE	<0.19
3-NITROANILINE	<0.98
ACENAPHTHENE	0.42
2,4-DINITROPHENOL	<0.98
4-NITROPHENOL	<0.98

J = Estimated value.

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AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-12

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P15-3	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	0.22	
2,4-DINITROTOLUENE	<0.19	
2,6-DINITROTOLUENE	<0.19	
DIETHYLPHTHALATE	<0.19	
4-CHLOROPHENYL-PHENYLETHER	<0.19	
FLUORENE	0.53	
4-NITROANILINE	<0.98	
4,6-DINITRO-2-METHYLPHENOL	<0.98	
N-NITROSODIPHENYLAMINE	<0.19	
4-BROMOPHENYL-PHENYLETHER	<0.19	
HEXACHLOROBENZENE	<0.19	
PENTACHLOROPHENOL	21	D4
PHENANTHRENE	2.0	
ANTHRACENE	0.58	
DI-N-BUTYLPHTHALATE	<0.19	
FLUORANTHENE	4.0	
BENZIDINE	<1.9	
PYRENE	2.3	
BUTYLBENZYLPHTHALATE	<0.19	
3,3'-DICHLOROBENZIDINE	<0.39	
BENZO(A)ANTHRACENE	0.46	
BIS(2-ETHYLHEXYL)PHTHALATE	<0.19	
CHRYSENE	0.78	
DI-N-OCTYLPHTHALATE	<0.19	
BENZO(B)FLUORANTHENE	0.52	
BENZO(K)FLUORANTHENE	0.16	J
BENZO(A)PYRENE	0.21	
INDENO(1,2,3-CD)PYRENE	0.11	J
DIBENZO(A,H)ANTHRACENE	<0.19	
BENZO(G,H,I)PERYLENE	<0.19	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	81	54 - 117
2-FLUOROBIPHENYL	91	56 - 127
TERPHENYL-D14	91	52 - 133
PHENOL-D5	88	47 - 105
2-FLUOROPHENOL	78	52 - 111
2,4,6-TRIBROMOPHENOL	94	35 - 126

D4 = Value from a ten fold diluted analysis.
J = Estimated value.

Analytical**Technologies**,Inc.

ATI I.D. # 9303-081-13

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P16-3	DATE ANALYZED	: 03/14/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.18
PHENOL	<0.18
ANILINE	<0.18
BIS(2-CHLOROETHYL)ETHER	<0.18
2-CHLOROPHENOL	<0.18
1,3-DICHLOROBENZENE	<0.18
1,4-DICHLOROBENZENE	<0.18
BENZYL ALCOHOL	<0.18
1,2-DICHLOROBENZENE	<0.18
2-METHYLPHENOL	<0.18
BIS(2-CHLOROISOPROPYL)ETHER	<0.18
4-METHYLPHENOL	<0.18
N-NITROSO-DI-N-PROPYLAMINE	<0.18
HEXACHLOROETHANE	<0.18
NITROBENZENE	<0.18
ISOPHORONE	<0.18
2-NITROPHENOL	<0.18
2,4-DIMETHYLPHENOL	<0.18
BENZOIC ACID	<0.93
BIS(2-CHLOROETHOXY)METHANE	<0.18
2,4-DICHLOROPHENOL	<0.18
1,2,4-TRICHLOROBENZENE	<0.18
NAPHTHALENE	0.10 J
4-CHLOROANILINE	<0.18
HEXACHLOROBUTADIENE	<0.18
4-CHLORO-3-METHYLPHENOL	<0.18
2-METHYLNAPHTHALENE	<0.18
HEXACHLOROCYCLOPENTADIENE	<0.18
2,4,6-TRICHLOROPHENOL	<0.18
2,4,5-TRICHLOROPHENOL	<0.93
2-CHLORONAPHTHALENE	<0.18
2-NITROANILINE	<0.93
DIMETHYLPHTHALATE	<0.18
ACENAPHTHYLENE	<0.18
3-NITROANILINE	<0.93
ACENAPHTHENE	<0.18
2,4-DINITROPHENOL	<0.93
4-NITROPHENOL	<0.93

J = Estimated value.

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AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-13

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P16-3	DATE ANALYZED	: 03/14/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	<0.18	
2,4-DINITROTOLUENE	<0.18	
2,6-DINITROTOLUENE	<0.18	
DIETHYLPHTHALATE	<0.18	
4-CHLOROPHENYL-PHENYLETHER	<0.18	
FLUORENE	<0.18	
4-NITROANILINE	<0.93	
4,6-DINITRO-2-METHYLPHENOL	<0.93	
N-NITROSODIPHENYLAMINE	<0.18	
4-BROMOPHENYL-PHENYLETHER	<0.18	
HEXACHLOROBENZENE	<0.18	
PENTACHLOROPHENOL	9.5	D3
PHENANTHRENE	0.26	
ANTHRACENE	0.27	
DI-N-BUTYLPHTHALATE	<0.18	
FLUORANTHENE	0.21	
BENZIDINE	<1.8	
PYRENE	0.20	
BUTYLBENZYLPHTHALATE	<0.18	
3,3'-DICHLOROBENZIDINE	<0.37	
BENZO(A)ANTHRACENE	<0.18	
BIS(2-ETHYLHEXYL)PHTHALATE	<0.18	
CHRYSENE	0.10	J
DI-N-OCTYLPHTHALATE	<0.18	
BENZO(B)FLUORANTHENE	<0.18	
BENZO(K)FLUORANTHENE	<0.18	
BENZO(A)PYRENE	<0.18	
INDENO(1,2,3-CD)PYRENE	<0.18	
DIBENZO(A,H)ANTHRACENE	<0.18	
BENZO(G,H,I)PERYLENE	<0.18	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	90	54 - 117
2-FLUOROBIPHENYL	89	56 - 127
TERPHENYL-D14	103	52 - 133
PHENOL-D5	93	47 - 105
2-FLUOROPHENOL	89	52 - 111
2,4,6-TRIBROMOPHENOL	81	35 - 126

D3 = Value from a five fold diluted analysis.
J = Estimated value.

Analytical**Technologies**,Inc.

ATI I.D. # 9303-081-15

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/04/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P18-3	DATE ANALYZED	: 03/15/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
N-NITROSODIMETHYLAMINE	<0.20	
PHENOL	<0.20	
ANILINE	<0.20	
BIS(2-CHLOROETHYL)ETHER	<0.20	
2-CHLOROPHENOL	<0.20	
1,3-DICHLOROBENZENE	<0.20	
1,4-DICHLOROBENZENE	<0.20	
BENZYL ALCOHOL	<0.20	
1,2-DICHLOROBENZENE	<0.20	
2-METHYLPHENOL	<0.20	
BIS(2-CHLOROISOPROPYL)ETHER	<0.20	
4-METHYLPHENOL	<0.20	
N-NITROSO-DI-N-PROPYLAMINE	<0.20	
HEXACHLOROETHANE	<0.20	
NITROBENZENE	<0.20	
ISOPHORONE	<0.20	
2-NITROPHENOL	<0.20	
2,4-DIMETHYLPHENOL	<0.20	
BENZOIC ACID	<1.0	
BIS(2-CHLOROETHOXY)METHANE	<0.20	
2,4-DICHLOROPHENOL	<0.20	
1,2,4-TRICHLOROBENZENE	<0.20	
NAPHTHALENE	0.25	
4-CHLOROANILINE	<0.20	
HEXACHLOROBUTADIENE	<0.20	
4-CHLORO-3-METHYLPHENOL	<0.20	
2-METHYLNAPHTHALENE	0.11	J
HEXACHLOROCYCLOPENTADIENE	<0.20	
2,4,6-TRICHLOROPHENOL	<0.20	
2,4,5-TRICHLOROPHENOL	<1.0	
2-CHLORONAPHTHALENE	<0.20	
2-NITROANILINE	<1.0	
DIMETHYLPHTHALATE	<0.20	
ACENAPHTHYLENE	<0.20	
3-NITROANILINE	<1.0	
ACENAPHTHENE	0.36	
2,4-DINITROPHENOL	<1.0	
4-NITROPHENOL	<1.0	

J = Estimated value.

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Analytical Technologies, Inc.

ATI I.D. # 9303-081-15

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TACOMA
CLIENT I.D. : P18-3
SAMPLE MATRIX : SOIL
EPA METHOD : 8270
RESULTS ARE CORRECTED FOR MOISTURE CONTENT

DATE SAMPLED : 03/04/93
DATE RECEIVED : 03/05/93
DATE EXTRACTED : 03/11/93
DATE ANALYZED : 03/15/93
UNITS : mg/Kg
DILUTION FACTOR : 1

COMPOUNDS	RESULTS	
DIBENZOFURAN	0.27	
2,4-DINITROTOLUENE	<0.20	
2,6-DINITROTOLUENE	<0.20	
DIETHYLPHTHALATE	<0.20	
4-CHLOROPHENYL-PHENYLETHER	<0.20	
FLUORENE	0.77	
4-NITROANILINE	<1.0	
4,6-DINITRO-2-METHYLPHENOL	<1.0	
N-NITROSODIPHENYLAMINE	<0.20	
4-BROMOPHENYL-PHENYLETHER	<0.20	
HEXACHLOROBENZENE	<0.20	
PENTACHLOROPHENOL	4.2	
PHENANTHRENE	0.61	
ANTHRACENE	0.74	
DI-N-BUTYLPHTHALATE	<0.20	
FLUORANTHENE	0.34	
BENZIDINE	<2.0	
PYRENE	0.29	
BUTYLBENZYLPHTHALATE	<0.20	
3,3'-DICHLOROBENZIDINE	<0.40	
BENZO(A)ANTHRACENE	<0.20	
BIS(2-ETHYLHEXYL)PHTHALATE	0.17	J
CHRYSENE	<0.20	
DI-N-OCTYLPHTHALATE	<0.20	
BENZO(B)FLUORANTHENE	<0.20	
BENZO(K)FLUORANTHENE	<0.20	
BENZO(A)PYRENE	<0.20	
INDENO(1,2,3-CD)PYRENE	<0.20	
DIBENZO(A,H)ANTHRACENE	<0.20	
BENZO(G,H,I)PERYLENE	<0.20	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	83	54 - 117
2-FLUOROBIPHENYL	96	56 - 127
TERPHENYL-D14	102	52 - 133
PHENOL-D5	91	47 - 105
2-FLUOROPHENOL	80	52 - 111
2,4,6-TRIBROMOPHENOL	76	35 - 126

J = Estimated value.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-17

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/04/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P20-3	DATE ANALYZED	: 03/22/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.21
PHENOL	<0.21
ANILINE	<0.21
BIS(2-CHLOROETHYL)ETHER	<0.21
2-CHLOROPHENOL	<0.21
1,3-DICHLOROBENZENE	<0.21
1,4-DICHLOROBENZENE	<0.21
BENZYL ALCOHOL	<0.21
1,2-DICHLOROBENZENE	<0.21
2-METHYLPHENOL	<0.21
BIS(2-CHLOROISOPROPYL)ETHER	<0.21
4-METHYLPHENOL	<0.21
N-NITROSO-DI-N-PROPYLAMINE	<0.21
HEXACHLOROETHANE	<0.21
NITROBENZENE	<0.21
ISOPHORONE	<0.21
2-NITROPHENOL	<0.21
2,4-DIMETHYLPHENOL	<0.21
BENZOIC ACID	<1.1
BIS(2-CHLOROETHOXY)METHANE	<0.21
2,4-DICHLOROPHENOL	<0.21
1,2,4-TRICHLOROBENZENE	<0.21
NAPHTHALENE	0.83
4-CHLOROANILINE	<0.21
HEXACHLOROBUTADIENE	<0.21
4-CHLORO-3-METHYLPHENOL	<0.21
2-METHYLNAPHTHALENE	5.4
HEXACHLOROCYCLOPENTADIENE	<0.21
2,4,6-TRICHLOROPHENOL	<0.21
2,4,5-TRICHLOROPHENOL	<1.1
2-CHLORONAPHTHALENE	<0.21
2-NITROANILINE	<1.1
DIMETHYLPHTHALATE	<0.21
ACENAPHTHYLENE	<0.21
3-NITROANILINE	<1.1
ACENAPHTHENE	<0.21
2,4-DINITROPHENOL	<1.1
4-NITROPHENOL	<1.1

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AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-17

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/04/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P20-3	DATE ANALYZED	: 03/22/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	1.2	
2,4-DINITROTOLUENE	<0.21	
2,6-DINITROTOLUENE	<0.21	
DIETHYLPHTHALATE	<0.21	
4-CHLOROPHENYL-PHENYLETHER	<0.21	
FLUORENE	4.2	
4-NITROANILINE	<1.1	
4,6-DINITRO-2-METHYLPHENOL	<1.1	
N-NITROSODIPHENYLAMINE	<0.21	
4-BROMOPHENYL-PHENYLETHER	<0.21	
HEXACHLOROBENZENE	<0.21	
PENTACHLOROPHENOL	34	D4
PHENANTHRENE	5.6	
ANTHRACENE	0.89	
DI-N-BUTYLPHTHALATE	<0.21	
FLUORANTHENE	1.6	
BENZIDINE	<2.1	
PYRENE	1.0	
BUTYLBENZYLPHTHALATE	<0.21	
3,3'-DICHLOROBENZIDINE	<0.43	
BENZO(A)ANTHRACENE	0.19	J
BIS(2-ETHYLHEXYL)PHTHALATE	4.6	
CHRYSENE	0.31	
DI-N-OCTYLPHTHALATE	<0.21	
BENZO(B)FLUORANTHENE	0.18	J
BENZO(K)FLUORANTHENE	<0.21	
BENZO(A)PYRENE	<0.21	
INDENO(1,2,3-CD)PYRENE	<0.21	
DIBENZO(A,H)ANTHRACENE	<0.21	
BENZO(G,H,I)PERYLENE	<0.21	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	101	54 - 117
2-FLUOROBIPHENYL	110	56 - 127
TERPHENYL-D14	104	52 - 133
PHENOL-D5	93	47 - 105
2-FLUOROPHENOL	86	52 - 111
2,4,6-TRIBROMOPHENOL	104	35 - 126

D4 = Value from a ten fold diluted analysis.
J = Estimated value.

Analytical Technologies, Inc.

ATI I.D. # 9303-081-18

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P21-3	DATE ANALYZED	: 03/15/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.19
PHENOL	<0.19
ANILINE	<0.19
BIS(2-CHLOROETHYL)ETHER	<0.19
2-CHLOROPHENOL	<0.19
1,3-DICHLOROBENZENE	<0.19
1,4-DICHLOROBENZENE	<0.19
BENZYL ALCOHOL	<0.19
1,2-DICHLOROBENZENE	<0.19
2-METHYLPHENOL	<0.19
BIS(2-CHLOROISOPROPYL)ETHER	<0.19
4-METHYLPHENOL	<0.19
N-NITROSO-DI-N-PROPYLAMINE	<0.19
HEXACHLOROETHANE	<0.19
NITROBENZENE	<0.19
ISOPHORONE	<0.19
2-NITROPHENOL	<0.19
2,4-DIMETHYLPHENOL	<0.19
BENZOIC ACID	<0.94
BIS(2-CHLOROETHOXY)METHANE	<0.19
2,4-DICHLOROPHENOL	<0.19
1,2,4-TRICHLOROBENZENE	<0.19
NAPHTHALENE	<0.19
4-CHLOROANILINE	<0.19
HEXACHLOROBUTADIENE	<0.19
4-CHLORO-3-METHYLPHENOL	<0.19
2-METHYLNAPHTHALENE	<0.19
HEXACHLOROCYCLOPENTADIENE	<0.19
2,4,6-TRICHLOROPHENOL	<0.19
2,4,5-TRICHLOROPHENOL	<0.94
2-CHLORONAPHTHALENE	<0.19
2-NITROANILINE	<0.94
DIMETHYLPHTHALATE	<0.19
ACENAPHTHYLENE	<0.19
3-NITROANILINE	<0.94
ACENAPHTHENE	<0.19
2,4-DINITROPHENOL	<0.94
4-NITROPHENOL	<0.94

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Analytical Technologies, Inc.

ATI I.D. # 9303-081-18

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P21-3	DATE ANALYZED	: 03/15/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	<0.19
2,4-DINITROTOLUENE	<0.19
2,6-DINITROTOLUENE	<0.19
DIETHYLPHTHALATE	<0.19
4-CHLOROPHENYL-PHENYLETHER	<0.19
FLUORENE	<0.19
4-NITROANILINE	<0.94
4,6-DINITRO-2-METHYLPHENOL	<0.94
N-NITROSODIPHENYLAMINE	<0.19
4-BROMOPHENYL-PHENYLETHER	<0.19
HEXACHLOROBENZENE	<0.19
PENTACHLOROPHENOL	0.91
PHENANTHRENE	0.30
ANTHRACENE	<0.19
DI-N-BUTYLPHTHALATE	<0.19
FLUORANTHENE	0.31
BENZIDINE	<1.9
PYRENE	0.22
BUTYLBENZYLPHTHALATE	<0.19
3,3'-DICHLOROBENZIDINE	<0.38
BENZO(A)ANTHRACENE	<0.19
BIS(2-ETHYLHEXYL)PHTHALATE	<0.19
CHRYSENE	<0.19
DI-N-OCTYLPHTHALATE	<0.19
BENZO(B)FLUORANTHENE	<0.19
BENZO(K)FLUORANTHENE	<0.19
BENZO(A)PYRENE	<0.19
INDENO(1,2,3-CD)PYRENE	<0.19
DIBENZO(A,H)ANTHRACENE	<0.19
BENZO(G,H,I)PERYLENE	<0.19

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	79	54 - 117
2-FLUOROBIPHENYL	86	56 - 127
TERPHENYL-D14	97	52 - 133
PHENOL-D5	84	47 - 105
2-FLUOROPHENOL	82	52 - 111
2,4,6-TRIBROMOPHENOL	72	35 - 126

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-19

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: PC1-1	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.18
PHENOL	<0.18
ANILINE	<0.18
BIS(2-CHLOROETHYL)ETHER	<0.18
2-CHLOROPHENOL	<0.18
1,3-DICHLOROBENZENE	<0.18
1,4-DICHLOROBENZENE	<0.18
BENZYL ALCOHOL	<0.18
1,2-DICHLOROBENZENE	<0.18
2-METHYLPHENOL	<0.18
BIS(2-CHLOROISOPROPYL)ETHER	<0.18
4-METHYLPHENOL	<0.18
N-NITROSO-DI-N-PROPYLAMINE	<0.18
HEXACHLOROETHANE	<0.18
NITROBENZENE	<0.18
ISOPHORONE	<0.18
2-NITROPHENOL	<0.18
2,4-DIMETHYLPHENOL	<0.18
BENZOIC ACID	<0.93
BIS(2-CHLOROETHOXY)METHANE	<0.18
2,4-DICHLOROPHENOL	<0.18
1,2,4-TRICHLOROBENZENE	<0.18
NAPHTHALENE	<0.18
4-CHLOROANILINE	<0.18
HEXACHLOROBUTADIENE	<0.18
4-CHLORO-3-METHYLPHENOL	<0.18
2-METHYLNAPHTHALENE	<0.18
HEXACHLOROCYCLOPENTADIENE	<0.18
2,4,6-TRICHLOROPHENOL	<0.18
2,4,5-TRICHLOROPHENOL	<0.93
2-CHLORONAPHTHALENE	<0.18
2-NITROANILINE	<0.93
DIMETHYLPHTHALATE	<0.18
ACENAPHTHYLENE	<0.18
3-NITROANILINE	<0.93
ACENAPHTHENE	<0.18
2,4-DINITROPHENOL	<0.93
4-NITROPHENOL	<0.93

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AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-19

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: PC1-1	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	<0.18	
2,4-DINITROTOLUENE	<0.18	
2,6-DINITROTOLUENE	<0.18	
DIETHYLPHTHALATE	<0.18	
4-CHLOROPHENYL-PHENYLETHER	<0.18	
FLUORENE	<0.18	
4-NITROANILINE	<0.93	
4,6-DINITRO-2-METHYLPHENOL	<0.93	
N-NITROSODIPHENYLAMINE	<0.18	
4-BROMOPHENYL-PHENYLETHER	<0.18	
HEXACHLOROBENZENE	<0.18	
PENTACHLOROPHENOL	2.9	
PHENANTHRENE	0.099	J
ANTHRACENE	<0.18	
DI-N-BUTYLPHTHALATE	<0.18	
FLUORANTHENE	0.19	
BENZIDINE	<1.8	
PYRENE	0.34	
BUTYLBENZYLPHTHALATE	<0.18	
3,3'-DICHLOROBENZIDINE	<0.37	
BENZO(A)ANTHRACENE	<0.18	
BIS(2-ETHYLHEXYL)PHTHALATE	<0.18	
CHRYSENE	<0.18	
DI-N-OCTYLPHTHALATE	<0.18	
BENZO(B)FLUORANTHENE	0.15	J
BENZO(K)FLUORANTHENE	<0.18	
BENZO(A)PYRENE	<0.18	
INDENO(1,2,3-CD)PYRENE	<0.18	
DIBENZO(A,H)ANTHRACENE	<0.18	
BENZO(G,H,I)PERYLENE	<0.18	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	81	54 - 117
2-FLUOROBIPHENYL	91	56 - 127
TERPHENYL-D14	91	52 - 133
PHENOL-D5	92	47 - 105
2-FLUOROPHENOL	80	52 - 111
2,4,6-TRIBROMOPHENOL	100	35 - 126

J = Estimated value.

Analytical**Technologies,**Inc.

ATI I.D. # 9303-081-21

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: PC3-1	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.97
PHENOL	<0.97
ANILINE	<0.97
BIS(2-CHLOROETHYL)ETHER	<0.97
2-CHLOROPHENOL	<0.97
1,3-DICHLOROBENZENE	<0.97
1,4-DICHLOROBENZENE	<0.97
BENZYL ALCOHOL	<0.97
1,2-DICHLOROBENZENE	<0.97
2-METHYLPHENOL	<0.97
BIS(2-CHLOROISOPROPYL)ETHER	<0.97
4-METHYLPHENOL	<0.97
N-NITROSO-DI-N-PROPYLAMINE	<0.97
HEXACHLOROETHANE	<0.97
NITROBENZENE	<0.97
ISOPHORONE	<0.97
2-NITROPHENOL	<0.97
2,4-DIMETHYLPHENOL	<0.97
BENZOIC ACID	<4.9
BIS(2-CHLOROETHOXY)METHANE	<0.97
2,4-DICHLOROPHENOL	<0.97
1,2,4-TRICHLOROBENZENE	<0.97
NAPHTHALENE	<0.97
4-CHLOROANILINE	<0.97
HEXACHLOROBUTADIENE	<0.97
4-CHLORO-3-METHYLPHENOL	<0.97
2-METHYLNAPHTHALENE	<0.97
HEXACHLOROCYCLOPENTADIENE	<0.97
2,4,6-TRICHLOROPHENOL	<0.97
2,4,5-TRICHLOROPHENOL	<4.9
2-CHLORONAPHTHALENE	<0.97
2-NITROANILINE	<4.9
DIMETHYLPHTHALATE	<0.97
ACENAPHTHYLENE	0.99
3-NITROANILINE	<4.9
ACENAPHTHENE	6.0
2,4-DINITROPHENOL	<4.9
4-NITROPHENOL	<4.9

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ATI I.D. # 9303-081-21

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/03/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: PC3-1	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	2.4	
2,4-DINITROTOLUENE	<0.97	
2,6-DINITROTOLUENE	<0.97	
DIETHYLPHTHALATE	<0.97	
4-CHLOROPHENYL-PHENYLETHER	<0.97	
FLUORENE	4.5	
4-NITROANILINE	<4.9	
4,6-DINITRO-2-METHYLPHENOL	<4.9	
N-NITROSODIPHENYLAMINE	<0.97	
4-BROMOPHENYL-PHENYLETHER	<0.97	
HEXACHLOROBENZENE	<0.97	
PENTACHLOROPHENOL	100	D2
PHENANTHRENE	15	
ANTHRACENE	5.0	
DI-N-BUTYLPHTHALATE	<0.97	
FLUORANTHENE	51	D2
BENZIDINE	<9.7	
PYRENE	24	
BUTYLBENZYLPHTHALATE	<0.97	
3,3'-DICHLOROBENZIDINE	<2.0	
BENZO(A)ANTHRACENE	5.5	
BIS(2-ETHYLHEXYL)PHTHALATE	<0.97	
CHRYSENE	8.7	
DI-N-OCTYLPHTHALATE	<0.97	
BENZO(B)FLUORANTHENE	5.3	
BENZO(K)FLUORANTHENE	1.5	
BENZO(A)PYRENE	2.0	
INDENO(1,2,3-CD)PYRENE	0.90	J
DIBENZO(A,H)ANTHRACENE	<0.97	
BENZO(G,H,I)PERYLENE	0.69	J

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	99	54 - 117
2-FLUOROBIPHENYL	112	56 - 127
TERPHENYL-D14	119	52 - 133
PHENOL-D5	117 F	47 - 105
2-FLUOROPHENOL	109	52 - 111
2,4,6-TRIBROMOPHENOL	112	35 - 126

Kmc 3/10/93

D2 = Value from a four fold diluted analysis.
J = Estimated value.
F = Out of limits due to matrix interference.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-23

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/05/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P4-3	DATE ANALYZED	: 03/14/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.21
PHENOL	<0.21
ANILINE	<0.21
BIS(2-CHLOROETHYL)ETHER	<0.21
2-CHLOROPHENOL	<0.21
1,3-DICHLOROBENZENE	<0.21
1,4-DICHLOROBENZENE	<0.21
BENZYL ALCOHOL	<0.21
1,2-DICHLOROBENZENE	<0.21
2-METHYLPHENOL	<0.21
BIS(2-CHLOROISOPROPYL)ETHER	<0.21
4-METHYLPHENOL	<0.21
N-NITROSO-DI-N-PROPYLAMINE	<0.21
HEXACHLOROETHANE	<0.21
NITROBENZENE	<0.21
ISOPHORONE	<0.21
2-NITROPHENOL	<0.21
2,4-DIMETHYLPHENOL	<0.21
BENZOIC ACID	<1.1
BIS(2-CHLOROETHOXY)METHANE	<0.21
2,4-DICHLOROPHENOL	<0.21
1,2,4-TRICHLOROBENZENE	<0.21
NAPHTHALENE	0.14 J
4-CHLOROANILINE	<0.21
HEXACHLOROBUTADIENE	<0.21
4-CHLORO-3-METHYLPHENOL	<0.21
2-METHYLNAPHTHALENE	<0.21
HEXACHLOROCYCLOPENTADIENE	<0.21
2,4,6-TRICHLOROPHENOL	<0.21
2,4,5-TRICHLOROPHENOL	<1.1
2-CHLORONAPHTHALENE	<0.21
2-NITROANILINE	<1.1
DIMETHYLPHTHALATE	<0.21
ACENAPHTHYLENE	<0.21
3-NITROANILINE	<1.1
ACENAPHTHENE	<0.21
2,4-DINITROPHENOL	<1.1
4-NITROPHENOL	<1.1

J = Estimated value.

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AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-23

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/05/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P4-3	DATE ANALYZED	: 03/14/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	<0.21	
2,4-DINITROTOLUENE	<0.21	
2,6-DINITROTOLUENE	<0.21	
DIETHYLPHTHALATE	<0.21	
4-CHLOROPHENYL-PHENYLETHER	<0.21	
FLUORENE	0.20	J
4-NITROANILINE	<1.1	
4,6-DINITRO-2-METHYLPHENOL	<1.1	
N-NITROSODIPHENYLAMINE	<0.21	
4-BROMOPHENYL-PHENYLETHER	<0.21	
HEXACHLOROBENZENE	<0.21	
PENTACHLOROPHENOL	3.7	
PHENANTHRENE	<0.21	
ANTHRACENE	0.28	
DI-N-BUTYLPHTHALATE	<0.21	
FLUORANTHENE	0.15	J
BENZIDINE	<2.1	
PYRENE	0.11	J
BUTYLBENZYLPHTHALATE	<0.21	
3,3'-DICHLOROBENZIDINE	<0.43	
BENZO(A)ANTHRACENE	<0.21	
BIS(2-ETHYLHEXYL)PHTHALATE	<0.21	
CHRYSENE	<0.21	
DI-N-OCTYLPHTHALATE	<0.21	
BENZO(B)FLUORANTHENE	<0.21	
BENZO(K)FLUORANTHENE	<0.21	
BENZO(A)PYRENE	<0.21	
INDENO(1,2,3-CD)PYRENE	<0.21	
DIBENZO(A,H)ANTHRACENE	<0.21	
BENZO(G,H,I)PERYLENE	<0.21	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	83	54 - 117
2-FLUOROBIPHENYL	84	56 - 127
TERPHENYL-D14	98	52 - 133
PHENOL-D5	82	47 - 105
2-FLUOROPHENOL	77	52 - 111
2,4,6-TRIBROMOPHENOL	94	35 - 126

J = Estimated value.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-24

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/05/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P14-3	DATE ANALYZED	: 03/13/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.18
PHENOL	<0.18
ANILINE	<0.18
BIS(2-CHLOROETHYL)ETHER	<0.18
2-CHLOROPHENOL	<0.18
1,3-DICHLOROBENZENE	<0.18
1,4-DICHLOROBENZENE	<0.18
BENZYL ALCOHOL	<0.18
1,2-DICHLOROBENZENE	<0.18
2-METHYLPHENOL	<0.18
BIS(2-CHLOROISOPROPYL)ETHER	<0.18
4-METHYLPHENOL	<0.18
N-NITROSO-DI-N-PROPYLAMINE	<0.18
HEXACHLOROETHANE	<0.18
NITROBENZENE	<0.18
ISOPHORONE	<0.18
2-NITROPHENOL	<0.18
2,4-DIMETHYLPHENOL	<0.18
BENZOIC ACID	<0.93
BIS(2-CHLOROETHOXY)METHANE	<0.18
2,4-DICHLOROPHENOL	<0.18
1,2,4-TRICHLOROBENZENE	<0.18
NAPHTHALENE	<0.18
4-CHLOROANILINE	<0.18
HEXACHLOROBUTADIENE	<0.18
4-CHLORO-3-METHYLPHENOL	<0.18
2-METHYLNAPHTHALENE	<0.18
HEXACHLOROCYCLOPENTADIENE	<0.18
2,4,6-TRICHLOROPHENOL	<0.18
2,4,5-TRICHLOROPHENOL	<0.93
2-CHLORONAPHTHALENE	<0.18
2-NITROANILINE	<0.93
DIMETHYLPHTHALATE	<0.18
ACENAPHTHYLENE	<0.18
3-NITROANILINE	<0.93
ACENAPHTHENE	<0.18
2,4-DINITROPHENOL	<0.93
4-NITROPHENOL	<0.93

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AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-24

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/05/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: P14-3	DATE ANALYZED	: 03/13/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	<0.18	
2,4-DINITROTOLUENE	<0.18	
2,6-DINITROTOLUENE	<0.18	
DIETHYLPHTHALATE	<0.18	
4-CHLOROPHENYL-PHENYLETHER	<0.18	
FLUORENE	<0.18	
4-NITROANILINE	<0.93	
4,6-DINITRO-2-METHYLPHENOL	<0.93	
N-NITROSODIPHENYLAMINE	<0.18	
4-BROMOPHENYL-PHENYLETHER	<0.18	
HEXACHLOROBENZENE	<0.18	
PENTACHLOROPHENOL	4.0	
PHENANTHRENE	<0.18	
ANTHRACENE	<0.18	
DI-N-BUTYLPHTHALATE	<0.18	
FLUORANTHENE	<0.18	
BENZIDINE	<1.8	
PYRENE	<0.18	
BUTYLBENZYLPHTHALATE	<0.18	
3,3'-DICHLOROBENZIDINE	<0.37	
BENZO(A)ANTHRACENE	<0.18	
BIS(2-ETHYLHEXYL)PHTHALATE	0.12	J
CHRYSENE	<0.18	
DI-N-OCTYLPHTHALATE	<0.18	
BENZO(B)FLUORANTHENE	<0.18	
BENZO(K)FLUORANTHENE	<0.18	
BENZO(A)PYRENE	<0.18	
INDENO(1,2,3-CD)PYRENE	<0.18	
DIBENZO(A,H)ANTHRACENE	<0.18	
BENZO(G,H,I)PERYLENE	<0.18	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	90	54 - 117
2-FLUOROBIPHENYL	86	56 - 127
TERPHENYL-D14	106	52 - 133
PHENOL-D5	87	47 - 105
2-FLUOROPHENOL	80	52 - 111
2,4,6-TRIBROMOPHENOL	66	35 - 126

J = Estimated value.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-28

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/05/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: CC1-1	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.89
PHENOL	<0.89
ANILINE	<0.89
BIS(2-CHLOROETHYL)ETHER	<0.89
2-CHLOROPHENOL	<0.89
1,3-DICHLOROBENZENE	<0.89
1,4-DICHLOROBENZENE	<0.89
BENZYL ALCOHOL	<0.89
1,2-DICHLOROBENZENE	<0.89
2-METHYLPHENOL	<0.89
BIS(2-CHLOROISOPROPYL)ETHER	<0.89
4-METHYLPHENOL	<0.89
N-NITROSO-DI-N-PROPYLAMINE	<0.89
HEXACHLOROETHANE	<0.89
NITROBENZENE	<0.89
ISOPHORONE	<0.89
2-NITROPHENOL	<0.89
2,4-DIMETHYLPHENOL	<0.89
BENZOIC ACID	<4.5
BIS(2-CHLOROETHOXY)METHANE	<0.89
2,4-DICHLOROPHENOL	<0.89
1,2,4-TRICHLOROBENZENE	<0.89
NAPHTHALENE	0.72 J J
4-CHLOROANILINE	<0.89
HEXACHLOROBUTADIENE	<0.89
4-CHLORO-3-METHYLPHENOL	<0.89
2-METHYLNAPHTHALENE	0.80 J J
HEXACHLOROCYCLOPENTADIENE	<0.89
2,4,6-TRICHLOROPHENOL	<0.89
2,4,5-TRICHLOROPHENOL	<4.5
2-CHLORONAPHTHALENE	<0.89
2-NITROANILINE	<4.5
DIMETHYLPHTHALATE	<0.89
ACENAPHTHYLENE	<0.89
3-NITROANILINE	<4.5
ACENAPHTHENE	4.6 "J"
2,4-DINITROPHENOL	<4.5
4-NITROPHENOL	<4.5

J = Estimated value.

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AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081-28

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 03/05/93
PROJECT #	: 3-0499-520	DATE RECEIVED	: 03/05/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: CC1-1	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	2.5 J
2,4-DINITROTOLUENE	<0.89
2,6-DINITROTOLUENE	<0.89
DIETHYLPHTHALATE	<0.89
4-CHLOROPHENYL-PHENYLETHER	<0.89
FLUORENE	2.0 J
4-NITROANILINE	<4.5
4,6-DINITRO-2-METHYLPHENOL	<4.5
N-NITROSODIPHENYLAMINE	<0.89
4-BROMOPHENYL-PHENYLETHER	<0.89
HEXACHLOROBENZENE	<0.89
PENTACHLOROPHENOL	3.9 J
PHENANTHRENE	7.9
ANTHRACENE	2.8
DI-N-BUTYLPHTHALATE	<0.89
FLUORANTHENE	13 J
BENZIDINE	<8.9
PYRENE	8.8 J
BUTYLBENZYLPHTHALATE	<0.89
3,3'-DICHLOROBENZIDINE	<1.8
BENZO(A)ANTHRACENE	1.9 J
BIS(2-ETHYLHEXYL)PHTHALATE	<0.89
CHRYSENE	2.9 J
DI-N-OCTYLPHTHALATE	<0.89
BENZO(B)FLUORANTHENE	2.2 J
BENZO(K)FLUORANTHENE	0.52 J J
BENZO(A)PYRENE	1.1 J
INDENO(1,2,3-CD)PYRENE	<0.89
DIBENZO(A,H)ANTHRACENE	<0.89
BENZO(G,H,I)PERYLENE	<0.89

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	100	54 - 117
2-FLUOROBIPHENYL	111	56 - 127
TERPHENYL-D14	134 F	52 - 133
PHENOL-D5	121 F	47 - 105
2-FLUOROPHENOL	116 F	52 - 111
2,4,6-TRIBROMOPHENOL	107	35 - 126

kmc 4/07/93

J = Estimated value.
F = Out of limits due to matrix interference.

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081

SEMI-VOLATILE ORGANICS ANALYSIS
QUALITY CONTROL DATA

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	SAMPLE I.D. #	: 9303-036-7
PROJECT #	: 3-0499-520	DATE EXTRACTED	: 03/11/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE ANALYZED	: 03/13/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270		

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
PHENOL	<2.11	8.44	7.63	90	7.01	83	8
2-CHLOROPHENOL	<2.11	8.44	7.06	84	6.48	77	9
1,4-DICHLOROBENZENE	<2.11	4.22	3.76	89	3.45	82	9
N-NITROSO-DI-N-PROPYLAMINE	<2.11	4.22	5.49	130F	4.93	117F	11
1,2,4-TRICHLOROBENZENE	<2.11	4.22	3.92	93	3.66	87	7
4-CHLORO-3-METHYLPHENOL	<2.11	8.44	7.46	88	7.04	83	6
ACENAPHTHENE	<2.11	4.22	5.63	133F	5.37	127F	5
4-NITROPHENOL	<10.8	8.44	3.02	36F	3.41	40F	12
2,4-DINITROTOLUENE	<2.11	4.22	4.88	116F	4.43	105	10
PENTACHLOROPHENOL	<2.11	8.44	5.29	63	5.35	63	1
PYRENE	<2.11	4.22	4.62	109	4.49	106	3

CONTROL LIMITS	% REC.	RPD
PHENOL	50 - 113	20
2-CHLOROPHENOL	45 - 112	21
1,4-DICHLOROBENZENE	52 - 100	22
N-NITROSO-DI-N-PROPYLAMINE	56 - 112	20
1,2,4-TRICHLOROBENZENE	51 - 97	20
4-CHLORO-3-METHYLPHENOL	49 - 113	20
ACENAPHTHENE	58 - 107	21
4-NITROPHENOL	42 - 140	20
2,4-DINITROTOLUENE	49 - 107	20
PENTACHLOROPHENOL	36 - 140	28
PYRENE	41 - 125	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
NITROBENZENE-D5	128F	114	54 - 117
2-FLUOROBIPHENYL	105	99	56 - 127
TERPHENYL-D14	101	93	52 - 133
PHENOL-D5	89	83	47 - 105
2-FLUOROPHENOL	80	73	52 - 111
2,4,6-TRIBROMOPHENOL	82	77	35 - 126

F = Out of limits due to matrix interference.

kmc 4/07/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081

SEMI-VOLATILE ORGANICS ANALYSIS
QUALITY CONTROL DATA

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	SAMPLE I.D. #	: 9303-081-4
PROJECT #	: 3-0499-520	DATE EXTRACTED	: 03/11/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE ANALYZED	: 03/15/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270		

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
PHENOL	<0.182	7.26	4.90	67	5.07	70	3
2-CHLOROPHENOL	<0.182	7.26	5.12	71	5.70	79	11
1,4-DICHLOROBENZENE	<0.182	3.63	2.62	72	2.76	76	5
N-NITROSO-DI-N-PROPYLAMINE	<0.182	3.63	3.01	83	3.46	95	14
1,2,4-TRICHLOROBENZENE	<0.182	3.63	2.92	80	2.90	80	1
4-CHLORO-3-METHYLPHENOL	<0.182	7.26	5.96	82	5.85	81	2
ACENAPHTHENE	<0.182	3.63	3.32	91	3.69	102	11
4-NITROPHENOL	<0.926	7.26	8.63	119	10.0	138	15
2,4-DINITROTOLUENE	<0.182	3.63	3.45	95	3.56	98	3
PENTACHLOROPHENOL	4.79	7.26	20.4	G	28.7	G	G
PYRENE	<0.182	3.63	4.14	114	3.99	110	4

CONTROL LIMITS	% REC.	RPD
PHENOL	50 - 113	20
2-CHLOROPHENOL	45 - 112	21
1,4-DICHLOROBENZENE	52 - 100	22
N-NITROSO-DI-N-PROPYLAMINE	56 - 112	20
1,2,4-TRICHLOROBENZENE	51 - 97	20
4-CHLORO-3-METHYLPHENOL	49 - 113	20
ACENAPHTHENE	58 - 107	21
4-NITROPHENOL	42 - 140	20
2,4-DINITROTOLUENE	49 - 107	20
PENTACHLOROPHENOL	36 - 140	28
PYRENE	41 - 125	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
NITROBENZENE-D5	78	90	54 - 117
2-FLUOROBIPHENYL	90	94	56 - 127
TERPHENYL-D14	108	111	52 - 133
PHENOL-D5	75	92	47 - 105
2-FLUOROPHENOL	73	84	52 - 111
2,4,6-TRIBROMOPHENOL	96	92	35 - 126

G = Out of limits due to high level of target analytes in sample.

dmc 11/01/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081

SEMI-VOLATILE ORGANICS ANALYSIS
QUALITY CONTROL DATA

CLIENT	:	REMEDIATION TECHNOLOGIES, INC.	SAMPLE I.D. #	:	BLANK SPIKE
PROJECT #	:	3-0499-520	DATE EXTRACTED	:	03/11/93
PROJECT NAME	:	CASCADE POLE & LUMBER-TACOMA	DATE ANALYZED	:	03/14/93
SAMPLE MATRIX	:	SOIL	UNITS	:	mg/Kg
EPA METHOD	:	8270			

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
PHENOL	<0.167	6.67	5.18	78	N/A	N/A	N/A
2-CHLOROPHENOL	<0.167	6.67	5.12	77	N/A	N/A	N/A
1,4-DICHLOROBENZENE	<0.167	3.33	2.61	78	N/A	N/A	N/A
N-NITROSO-DI-N-PROPYLAMINE	<0.167	3.33	3.86	116	N/A	N/A	N/A
1,2,4-TRICHLOROBENZENE	<0.167	3.33	2.42	73	N/A	N/A	N/A
4-CHLORO-3-METHYLPHENOL	<0.167	6.67	5.45	82	N/A	N/A	N/A
ACENAPHTHENE	<0.167	3.33	2.88	86	N/A	N/A	N/A
4-NITROPHENOL	<0.850	6.67	6.75	101	N/A	N/A	N/A
2,4-DINITROTOLUENE	<0.167	3.33	2.72	82	N/A	N/A	N/A
PENTACHLOROPHENOL	<0.167	6.67	5.11	77	N/A	N/A	N/A
PYRENE	<0.167	3.33	3.60	108	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
PHENOL	42 - 120	20
2-CHLOROPHENOL	42 - 113	21
1,4-DICHLOROBENZENE	54 - 106	22
N-NITROSO-DI-N-PROPYLAMINE	46 - 122	20
1,2,4-TRICHLOROBENZENE	53 - 105	20
4-CHLORO-3-METHYLPHENOL	51 - 105	20
ACENAPHTHENE	60 - 110	21
4-NITROPHENOL	24 - 156	20
2,4-DINITROTOLUENE	48 - 108	20
PENTACHLOROPHENOL	25 - 166	28
PYRENE	56 - 115	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
NITROBENZENE-D5	101	N/A	54 - 117
2-FLUOROBIPHENYL	86	N/A	56 - 127
TERPHENYL-D14	97	N/A	52 - 133
PHENOL-D5	101	N/A	47 - 105
2-FLUOROPHENOL	82	N/A	52 - 111
2,4,6-TRIBROMOPHENOL	51	N/A	35 - 126

[illegible] 4/1/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081

SEMI-VOLATILE ORGANICS ANALYSIS
QUALITY CONTROL DATA

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	SAMPLE I.D. #	: BLANK SPIKE
PROJECT #	: 3-0499-520	DATE EXTRACTED	: 03/11/93
PROJECT NAME	: CASCADE POLE & LUMBER-TACOMA	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270		

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
PHENOL	<0.167	6.67	4.90	73	N/A	N/A	N/A
2-CHLOROPHENOL	<0.167	6.67	4.65	70	N/A	N/A	N/A
1,4-DICHLOROBENZENE	<0.167	3.33	2.56	77	N/A	N/A	N/A
N-NITROSO-DI-N-PROPYLAMINE	<0.167	3.33	2.76	83	N/A	N/A	N/A
1,2,4-TRICHLOROBENZENE	<0.167	3.33	2.56	77	N/A	N/A	N/A
4-CHLORO-3-METHYLPHENOL	<0.167	6.67	4.66	70	N/A	N/A	N/A
ACENAPHTHENE	<0.167	3.33	2.50	75	N/A	N/A	N/A
4-NITROPHENOL	<0.850	6.67	6.06	91	N/A	N/A	N/A
2,4-DINITROTOLUENE	<0.167	3.33	3.09	93	N/A	N/A	N/A
PENTACHLOROPHENOL	<0.167	6.67	5.76	86	N/A	N/A	N/A
PYRENE	<0.167	3.33	2.86	86	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
PHENOL	42 - 120	20
2-CHLOROPHENOL	42 - 113	21
1,4-DICHLOROBENZENE	54 - 106	22
N-NITROSO-DI-N-PROPYLAMINE	46 - 122	20
1,2,4-TRICHLOROBENZENE	53 - 105	20
4-CHLORO-3-METHYLPHENOL	51 - 105	20
ACENAPHTHENE	60 - 110	21
4-NITROPHENOL	24 - 156	20
2,4-DINITROTOLUENE	48 - 108	20
PENTACHLOROPHENOL	25 - 166	28
PYRENE	56 - 115	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
NITROBENZENE-D5	84	N/A	54 - 117
2-FLUOROBIPHENYL	85	N/A	56 - 127
TERPHENYL-D14	96	N/A	52 - 133
PHENOL-D5	83	N/A	47 - 105
2-FLUOROPHENOL	85	N/A	52 - 111
2,4,6-TRIBROMOPHENOL	91	N/A	35 - 126

kmc 4/07/93

Analytical Technologies, Inc.

ATI I.D. # 9303-081

TCLP METALS ANALYSIS

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : LEACHATE
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TAC

ELEMENT	DATE LEACHED	DATE DIGESTED	DATE ANALYZED
ARSENIC	03/10/93	03/11/93	03/11/93
BARIUM	03/10/93	03/11/93	03/11/93
CADMIUM	03/10/93	03/11/93	03/11/93
CHROMIUM	03/10/93	03/11/93	03/11/93
LEAD	03/10/93	03/11/93	03/11/93
MERCURY	03/10/93	03/18/93	03/19/93
SELENIUM	03/10/93	03/11/93	03/11/93
SILVER	03/10/93	03/11/93	03/11/93

Analytical**Technologies**,Inc.

ATI I.D. # 9303-081

TCLP METALS ANALYSIS
DATA SUMMARY

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TAC

MATRIX : LEACHATE
UNITS : mg/L

ATI I.D. #	CLIENT I.D.	ARSENIC	BARIUM	CADMIUM
9303-081-20	PC2-1	<0.050	0.16	<0.0050
TCLP BLANK	-	<0.050	0.15	<0.0050
METHOD BLANK	-	<0.050	<0.010	<0.0050

Analytical**Technologies,**Inc.

ATI I.D. # 9303-081

TCLP METALS ANALYSIS
DATA SUMMARY

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TAC

MATRIX : LEACHATE
UNITS : mg/L

ATI I.D. #	CLIENT I.D.	CHROMIUM	LEAD	MERCURY
9303-081-20	PC2-1	<0.010	<0.030	<0.00020
TCLP BLANK	-	<0.010	<0.030	<0.00020
METHOD BLANK	-	<0.010	<0.030	<0.00020

Analytical Technologies, Inc.

ATI I.D. # 9303-081

TCLP METALS ANALYSIS
DATA SUMMARY

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TAC

MATRIX : LEACHATE
UNITS : mg/L

ATI I.D. #	CLIENT I.D.	SELENIUM	SILVER
9303-081-20	PC2-1	<0.050	<0.0050
TCLP BLANK	-	<0.050	<0.0050
METHOD BLANK	-	<0.050	<0.0050

Analytical Technologies, Inc.

ATI I.D. # 9303-081

TCLP METALS ANALYSIS
QUALITY CONTROL DATA

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TAC

MATRIX : LEACHATE
UNITS : mg/L

ELEMENT	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
ARSENIC	9303-061-8	<0.050	<0.050	NC	0.998	1.00	100
ARSENIC	BLANK SPIKE	<0.050	N/A	N/A	1.00	1.00	100
BARIUM	9303-061-8	1.0	1.1	10	2.01	1.00	101
BARIUM	BLANK SPIKE	<0.010	N/A	N/A	0.979	1.00	98
CADMIUM	9303-061-8	<0.0050	<0.0050	NC	0.878	1.00	88
CADMIUM	BLANK SPIKE	<0.0050	N/A	N/A	1.02	1.00	102
CHROMIUM	9303-061-8	<0.010	<0.010	NC	0.848	1.00	85
CHROMIUM	BLANK SPIKE	<0.010	N/A	N/A	0.952	1.00	95
LEAD	9303-061-8	1.9	2.0	5	2.96	1.00	106
LEAD	BLANK SPIKE	<0.030	N/A	N/A	0.996	1.00	100
MERCURY	9303-205-1	<0.00020	<0.00020	NC	0.00106	0.0010	106
MERCURY	BLANK SPIKE	<0.00020	N/A	N/A	0.00098	0.0010	98
SELENIUM	9303-061-8	<0.050	<0.050	NC	1.05	1.00	105
SELENIUM	BLANK SPIKE	<0.050	N/A	N/A	0.978	1.00	98
SILVER	9303-061-8	<0.0050	<0.0050	NC	0.972	1.00	97
SILVER	BLANK SPIKE	<0.0050	N/A	N/A	1.04	1.00	104

NC = Not Calculable.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

kmc 4/07/93

Analytical Technologies, Inc.

ATI I.D. # 9303-081

METALS ANALYSIS

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TAC

ELEMENT	DATE PREPARED	DATE ANALYZED
ARSENIC (SAMPLES -1,-5,-8, -11,-13,-16,-23,-25,-26)	03/11/93	03/12/93
ARSENIC (SAMPLES -27,-28)	03/17/93	03/18/93
CHROMIUM (SAMPLES -1,-5,-8, -11,-13,-16,-23,-25,-26)	03/11/93	03/12/93
CHROMIUM (SAMPLES -27,-28)	03/17/93	03/18/93
COPPER (SAMPLES -1,-5,-8, -11,-13,-16,-23,-25,-26)	03/11/93	03/12/93
COPPER (SAMPLES -27,-28)	03/17/93	03/18/93
ZINC (SAMPLES -1,-5,-8, -11,-13,-16,-23,-25,-26)	03/11/93	03/12/93
ZINC (SAMPLES -27,-28)	03/17/93	03/18/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081

METALS ANALYSIS
DATA SUMMARY

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TAC UNITS : mg/Kg
RESULTS ARE CORRECTED FOR MOISTURE CONTENT

ATI I.D. #	CLIENT I.D.	ARSENIC	CHROMIUM	COPPER	ZINC
9303-081-1	P1-3	6.0	31	14	27
9303-081-5	P7-3	<2.8	31	11	19
9303-081-8	P10-3	<2.8	8.8	8.1	15
9303-081-11	P13-3	<2.9	12	10	17
9303-081-13	P16-3	47	20	14	20
9303-081-16	P19-3	110	180	150	38
9303-081-23	P4-3	27	43	18	19
9303-081-25	C9-3	70	64	52	14
9303-081-26	C10-3	230	170	230	17
9303-081-27	C12-3	400	260	600	22
9303-081-28	CC1-1	230	200	250	23
METHOD BLANK	-	<2.5	<0.50	<0.50	<0.50
METHOD BLANK	-	<2.5	<0.50	<0.50	<0.50

KmL 4/07/13

AnalyticalTechnologies,Inc.

ATI I.D. # 9303-081

METALS ANALYSIS
QUALITY CONTROL DATA

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TAC UNITS : mg/Kg

ELEMENT	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
ARSENIC	9303-081-26	230	240	4	295	55.8	116
ARSENIC	9303-083-10	18	20	11	66.6	52.9	92
ARSENIC	BLANK SPIKE	<2.5	N/A	N/A	42.1	50.0	84
ARSENIC	BLANK SPIKE	<2.5	N/A	N/A	45.9	50.0	92
CHROMIUM	9303-081-26	170	170	0	244	55.8	G
CHROMIUM	9303-083-10	19	18	5	68.9	52.9	94
CHROMIUM	BLANK SPIKE	<0.50	N/A	N/A	44.1	50.0	88
CHROMIUM	BLANK SPIKE	<0.50	N/A	N/A	44.6	50.0	89
COPPER	9303-081-26	230	270	16	324	55.8	G
COPPER	9303-083-10	12	11	9	63.6	52.9	98
COPPER	BLANK SPIKE	<0.50	N/A	N/A	45.7	50.0	91
COPPER	BLANK SPIKE	<0.50	N/A	N/A	47.5	50.0	95
ZINC	9303-081-26	17	16	6	60.0	55.8	77
ZINC	9303-083-10	37	35	6	126	52.9	F
ZINC	BLANK SPIKE	<0.50	N/A	N/A	43.3	50.0	87
ZINC	BLANK SPIKE	<0.50	N/A	N/A	45.3	50.0	91

NC = Not Calculable.
F = Out of limits due to matrix interference.
G = Out of limits due to high levels of target analytes in sample.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Lmc
4/17/93

Analytical**Technologies,**Inc.

ATI I.D. # 9303-081

GENERAL CHEMISTRY ANALYSIS

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TAC

PARAMETER	DATE ANALYZED
MOISTURE (SAMPLES -5 THROUGH -28)	03/15/93
MOISTURE (SAMPLES -1 THROUGH -4)	03/16/93

Analytical Technologies, Inc.

ATI I.D. # 9303-081

GENERAL CHEMISTRY ANALYSIS
DATA SUMMARY

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TAC UNITS : %

ATI I.D. #	CLIENT I.D.	MOISTURE
9303-081-1	P1-3	12
9303-081-2	P2-3	12
9303-081-3	P5-3	16
9303-081-4	P6-3	8.2
9303-081-5	P7-3	7.5
9303-081-6	P8-3	11
9303-081-7	P9-3	5.9
9303-081-8	P10-3	5.1
9303-081-9	P11-3	9.7
9303-081-10	P12-3	5.5
9303-081-11	P13-3	8.7
9303-081-12	P15-3	13
9303-081-13	P16-3	8.8
9303-081-14	P17-3	19
9303-081-15	P18-3	15
9303-081-16	P19-3	17
9303-081-17	P20-3	20
9303-081-18	P21-3	10
9303-081-19	PC1-1	8.3
9303-081-20	PC2-1	9.5
9303-081-21	PC3-1	14
9303-081-22	P3-3	21
9303-081-23	P4-3	21
9303-081-24	P14-3	8.3
9303-081-25	C9-3	7.9
9303-081-26	C10-3	8.2
9303-081-27	C12-3	6.6
9303-081-28	CC1-1	6.2

Analytical**Technologies,**Inc.

ATI I.D. # 9303-081

GENERAL CHEMISTRY ANALYSIS
QUALITY CONTROL DATA

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-520
PROJECT NAME : CASCADE POLE & LUMBER-TAC

MATRIX : SOIL
UNITS : %

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
MOISTURE	9303-081-14	19	21	10	N/A	N/A	N/A
MOISTURE	9303-081-24	8.3	8.2	1	N/A	N/A	N/A
MOISTURE	9303-081-27	6.6	6.6	0	N/A	N/A	N/A
MOISTURE	9303-125-16	9.6	10	4	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

№ 5325

CHAIN OF CUSTODY RECORD

9303-081

1/2

PROJ. NO.	PROJECT NAME
3-0499-520	Cascade Pole - Tacoma

SAMPLERS: Grant Hainsworth

RECEIVING LABORATORY: ATI

SEND RESULTS TO: Linda Baker

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	Archive	8270 (PCP & PAH)	As, Cr, Cu, Zn					REMARKS
1	03/03/93	6:35	P1-3	3	✓	✓	✓					
2	〃	5:55	P2-3	2	✓	✓						
3	〃	4:00	P5-3	2	✓	✓						
4	〃	1:25	P6-3	2	✓	✓						
5	〃	1:45	P7-3	2	✓		✓					
6	〃	12:00	P8-3	2	✓	✓						
7	〃	11:45	P9-3	1	✓							
8	02/26/93	10:55	P10-3	3	✓	✓	✓					
9	03/03/93	10:25	P11-3	2	✓	✓						
10	〃	11:25	P12-3	2	✓	✓						
11	〃	1:00	P13-3	2	✓		✓					
12	〃	2:50	P15-3	2	✓	✓						
13	〃	3:25	P16-3	3	✓	✓	✓					
14	〃	4:20	P17-3	1	✓							
15	03/04/93	3:40	P18-3	2	✓	✓						
16	〃	3:15	P19-3	2	✓		✓					
17	〃	4:25	P20-3	2	✓	✓						

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Grant Hainsworth	03/05/93 4:25	[signature] 3/5/93 4:20			

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
-			

Shipper Information

RETEC REMEDIATION TECHNOLOGIES INC
REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PINK COPY - Sampler YELLOW COPY - Laboratory

Nº 5326

CHAIN OF CUSTODY RECORD

9303-081

2/2

PROJ. NO.	PROJECT NAME	SEND RESULTS TO:
3-0499-520	Cascade Pole - Tacoma	Linda Baker

SAMPLERS: Grant Hainsworth

RECEIVING LABORATORY: ATI

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	Archive	8270 (PCP & PAH)	(As, Cr, Cu, Zn)	TCLP Metals				REMARKS
18	03/03/93	10:35	P21-3	2	✓	✓						
19	03/03/93	12:10	PC1-1	1		✓						
20	03/03/93	3:00	PC2-1	1				✓				
21	03/03/93	4:40	PC3-1	1		✓						
22	03/05/93	10:20	P3-3	1	✓							
23	"	11:45	P4-3	3	✓	✓	✓					
24	"	12:00	P14-3	2	✓	✓						
25	03/05/93	1:45	C9-3	2		✓	✓					Hold 8270
26	"	3:15	C10-3	2		✓	✓					Hold 8270
27	"	2:35	C12-3	2		✓	✓					Hold 8270
28	"		CC1-1	3		✓	✓	✓				Hold TCLP Metals

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Grant Hainsworth	03/05/93 4:25	[signature] 3/5/93 4:30			

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

Shipper Information

RETEC
REMEDIATION TECHNOLOGIES INC
REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

INK C Sampl W CC aborat TE CO eTeC

AnalyticalTechnologies,Inc. 560 Naches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335
Karen L. Mixon, Laboratory Manager

ATI I.D. # 9302-193

March 28, 1993

Remediation Technologies, Inc.
1011 S.W. Klickitat Way
Suite 207
Seattle WA 98134

Attention : Linda Baker

Project Number : 3-0499-510

Project Name : Cascade Pole-Tacoma WA

Dear Ms. Baker:

On February 24, 1993, Analytical Technologies, Inc. (ATI), received 41 samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Sincerely,

Tamara B. Jerome

Tamara B. Jerome
Project Manager

TBJ/hal/ff

Enclosure

Analytical Technologies, Inc.

ATI I.D. # 9302-193

SAMPLE CROSS REFERENCE SHEET

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-510
PROJECT NAME : CASCADE POLE-TACOMA WA

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9302-193-1	PV1A-1	02/22/93	SOIL
9302-193-2	PV1A-2	02/22/93	SOIL
9302-193-3	PV1B-1	02/22/93	SOIL
9302-193-4	PV1B-2	02/22/93	SOIL
9302-193-5	PV1C-1	02/22/93	SOIL
9302-193-6	PV1C-2	02/22/93	SOIL
9302-193-7	PV1D-1	02/22/93	SOIL
9302-193-8	PV1D-2	02/22/93	SOIL
9302-193-9	PV1E-1	02/22/93	SOIL
9302-193-10	PV1E-2	02/22/93	SOIL
9302-193-11	PV2-1	02/23/93	SOIL
9302-193-12	PV2-2	02/23/93	SOIL
9302-193-13	PV2-3	02/23/93	SOIL
9302-193-14	PV2-4	02/23/93	SOIL
9302-193-15	PV2-5	02/23/93	SOIL
9302-193-16	PV2-6	02/23/93	SOIL
9302-193-17	PV2-7	02/23/93	SOIL
9302-193-18	PV2-8	02/23/93	SOIL
9302-193-19	PV3-1	02/23/93	SOIL
9302-193-20	PV3-2	02/23/93	SOIL
9302-193-21	PV3-3	02/23/93	SOIL
9302-193-22	PV3-4	02/23/93	SOIL
9302-193-23	PV3-5	02/23/93	SOIL
9302-193-24	PV3-6	02/23/93	SOIL
9302-193-25	PV3-7	02/23/93	SOIL
9302-193-26	PV3-8	02/23/93	SOIL
9302-193-27	PV3-9	02/23/93	SOIL
9302-193-28	PV3-10	02/24/93	SOIL
9302-193-29	PV3-11	02/24/93	SOIL
9302-193-30	PV3-12	02/24/93	SOIL

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AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193

SAMPLE CROSS REFERENCE SHEET
CONTINUED

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-510
PROJECT NAME : CASCADE POLE-TACOMA WA

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9302-193-31	PV3-13	02/24/93	SOIL
9302-193-32	PV3-14	02/24/93	SOIL
9302-193-33	PV3-15	02/24/93	SOIL
9302-193-34	PV3-16	02/24/93	SOIL
9302-193-35	PV3-17	02/24/93	SOIL
9302-193-36	PV3-18	02/24/93	SOIL
9302-193-37	PV3-19	02/24/93	SOIL
9302-193-38	PV3-20	02/24/93	SOIL
9302-193-39	PV3-21	02/24/93	SOIL
9302-193-40	PV2B-1	02/24/93	SOIL
9302-193-41	PV2B-2	02/24/93	SOIL

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	41

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical**Technologies**,Inc.

ATI I.D. # 9302-193

ANALYTICAL SCHEDULE

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-510
PROJECT NAME : CASCADE POLE-TACOMA WA

ANALYSIS	TECHNIQUE	REFERENCE	LAB
SEMI-VOLATILE COMPOUNDS	GCMS	EPA 8270	R
ARSENIC	ICAP	EPA 6010	R
CHROMIUM	ICAP	EPA 6010	R
COPPER	ICAP	EPA 6010	R
ZINC	ICAP	EPA 6010	R
MOISTURE	GRAVIMETRIC	CLP SOW ILM01.0	R

R = ATI - Renton
SD = ATI - San Diego
PHX = ATI - Phoenix
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193

CASE NARRATIVE

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-510
PROJECT NAME : CASCADE POLE-TACOMA WA

CASE NARRATIVE: SEMI-VOLATILE ORGANICS ANALYSIS

The samples associated with this accession number were analyzed using EPA method 8270. The extraction procedure used was EPA method 3550.

The method blanks contained phthalates at levels below five times the reporting limit. All surrogate percent recoveries were within ATI control limits. The matrix spike recoveries and matrix spike/matrix spike duplicate (MS/MSD) relative percent differences (RPDs) were within ATI control limits with the exception of pentachlorophenol, which recovered high due to high levels of the target analyte in the sample. All blank spike (BS) recoveries are within ATI control limits. All sample analytical hold times were met.

In the initial calibration standards, the relative standard deviations are below 25% for all calibration check compounds and below 30% for all other compounds. In the continuing calibration, the percent differences are below 25% for all continuing calibration check compounds. The relative response factors are above the minimum for all system performance check compounds in the initial and continuing calibration standards.

The daily tuning and mass calibration met all EPA criteria for this method. All sample internal standard areas are within 50% and 200% of the daily continuing calibration internal standard areas.

All quality control and quality assurance parameters were within acceptable ATI limits except as noted. Phenol failed RPD criteria by one RPD unit (21, range maximum is 20). No corrective action was taken other than to flag the result appropriately.

Analytical Technologies, Inc.

ATI I.D. # 9302-193

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: N/A
PROJECT #	: 3-0499-510	DATE RECEIVED	: N/A
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/04/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 03/09/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYLPHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85

KMC 4/07/93

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AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: N/A
PROJECT #	: 3-0499-510	DATE RECEIVED	: N/A
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/04/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 03/09/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17
4-CHLOROPHENYL-PHENYLETHER	<0.17
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL-PHENYLETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.17
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-N-BUTYLPHTHALATE	<0.17
FLUORANTHENE	<0.17
BENZIDINE	<1.7
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3'-DICHLOROBENZIDINE	<0.34
BENZO(A)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(B)FLUORANTHENE	<0.17
BENZO(K)FLUORANTHENE	<0.17
BENZO(A)PYRENE	<0.17
INDENO(1,2,3-CD)PYRENE	<0.17
DIBENZO(A,H)ANTHRACENE	<0.17
BENZO(G,H,I)PERYLENE	<0.17

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	88	54 - 117
2-FLUOROBIPHENYL	98	56 - 127
TERPHENYL-D14	97	52 - 133
PHENOL-D5	96	47 - 105
2-FLUOROPHENOL	89	52 - 111
2,4,6-TRIBROMOPHENOL	106	35 - 126

nmc 4/07/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: N/A
PROJECT #	: 3-0499-510	DATE RECEIVED	: N/A
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.17
PHENOL	<0.17
ANILINE	<0.17
BIS(2-CHLOROETHYL)ETHER	<0.17
2-CHLOROPHENOL	<0.17
1,3-DICHLOROBENZENE	<0.17
1,4-DICHLOROBENZENE	<0.17
BENZYL ALCOHOL	<0.17
1,2-DICHLOROBENZENE	<0.17
2-METHYLPHENOL	<0.17
BIS(2-CHLOROISOPROPYL)ETHER	<0.17
4-METHYLPHENOL	<0.17
N-NITROSO-DI-N-PROPYLAMINE	<0.17
HEXACHLOROETHANE	<0.17
NITROBENZENE	<0.17
ISOPHORONE	<0.17
2-NITROPHENOL	<0.17
2,4-DIMETHYLPHENOL	<0.17
BENZOIC ACID	<0.85
BIS(2-CHLOROETHOXY)METHANE	<0.17
2,4-DICHLOROPHENOL	<0.17
1,2,4-TRICHLOROBENZENE	<0.17
NAPHTHALENE	<0.17
4-CHLOROANILINE	<0.17
HEXACHLOROBUTADIENE	<0.17
4-CHLORO-3-METHYLPHENOL	<0.17
2-METHYLNAPHTHALENE	<0.17
HEXACHLOROCYCLOPENTADIENE	<0.17
2,4,6-TRICHLOROPHENOL	<0.17
2,4,5-TRICHLOROPHENOL	<0.85
2-CHLORONAPHTHALENE	<0.17
2-NITROANILINE	<0.85
DIMETHYLPHTHALATE	<0.17
ACENAPHTHYLENE	<0.17
3-NITROANILINE	<0.85
ACENAPHTHENE	<0.17
2,4-DINITROPHENOL	<0.85
4-NITROPHENOL	<0.85

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Kmc 4/6/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: N/A
PROJECT #	: 3-0499-510	DATE RECEIVED	: N/A
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/11/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	<0.17
2,4-DINITROTOLUENE	<0.17
2,6-DINITROTOLUENE	<0.17
DIETHYLPHTHALATE	<0.17
4-CHLOROPHENYL-PHENYLETHER	<0.17
FLUORENE	<0.17
4-NITROANILINE	<0.85
4,6-DINITRO-2-METHYLPHENOL	<0.85
N-NITROSODIPHENYLAMINE	<0.17
4-BROMOPHENYL-PHENYLETHER	<0.17
HEXACHLOROBENZENE	<0.17
PENTACHLOROPHENOL	<0.17
PHENANTHRENE	<0.17
ANTHRACENE	<0.17
DI-N-BUTYLPHTHALATE	<0.17
FLUORANTHENE	<0.17
BENZIDINE	<1.7
PYRENE	<0.17
BUTYLBENZYLPHTHALATE	<0.17
3,3'-DICHLOROBENZIDINE	<0.34
BENZO(A)ANTHRACENE	<0.17
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17
CHRYSENE	<0.17
DI-N-OCTYLPHTHALATE	<0.17
BENZO(B)FLUORANTHENE	<0.17
BENZO(K)FLUORANTHENE	<0.17
BENZO(A)PYRENE	<0.17
INDENO(1,2,3-CD)PYRENE	<0.17
DIBENZO(A,H)ANTHRACENE	<0.17
BENZO(G,H,I)PERYLENE	<0.17

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	87	54 - 117
2-FLUOROBIPHENYL	86	56 - 127
TERPHENYL-D14	102	52 - 133
PHENOL-D5	89	47 - 105
2-FLUOROPHENOL	87	52 - 111
2,4,6-TRIBROMOPHENOL	60	35 - 126

Km 4/07/93

Analytical**Technologies,**Inc.

ATI I.D. # 9302-193-7

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 02/22/93
PROJECT #	: 3-0499-510	DATE RECEIVED	: 02/24/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/04/93
CLIENT I.D.	: PV1D-1	DATE ANALYZED	: 03/09/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.18
PHENOL	<0.18
ANILINE	<0.18
BIS(2-CHLOROETHYL)ETHER	<0.18
2-CHLOROPHENOL	<0.18
1,3-DICHLOROBENZENE	<0.18
1,4-DICHLOROBENZENE	<0.18
BENZYL ALCOHOL	<0.18
1,2-DICHLOROBENZENE	<0.18
2-METHYLPHENOL	<0.18
BIS(2-CHLOROISOPROPYL)ETHER	<0.18
4-METHYLPHENOL	<0.18
N-NITROSO-DI-N-PROPYLAMINE	<0.18
HEXACHLOROETHANE	<0.18
NITROBENZENE	<0.18
ISOPHORONE	<0.18
2-NITROPHENOL	<0.18
2,4-DIMETHYLPHENOL	<0.18
BENZOIC ACID	<0.94
BIS(2-CHLOROETHOXY)METHANE	<0.18
2,4-DICHLOROPHENOL	<0.18
1,2,4-TRICHLOROBENZENE	<0.18
NAPHTHALENE	<0.18
4-CHLOROANILINE	<0.18
HEXACHLOROBUTADIENE	<0.18
4-CHLORO-3-METHYLPHENOL	<0.18
2-METHYLNAPHTHALENE	<0.18
HEXACHLOROCYCLOPENTADIENE	<0.18
2,4,6-TRICHLOROPHENOL	<0.18
2,4,5-TRICHLOROPHENOL	<0.94
2-CHLORONAPHTHALENE	<0.18
2-NITROANILINE	<0.94
DIMETHYLPHTHALATE	<0.18
ACENAPHTHYLENE	<0.18
3-NITROANILINE	<0.94
ACENAPHTHENE	<0.18
2,4-DINITROPHENOL	<0.94
4-NITROPHENOL	<0.94

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AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193-7

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 02/22/93
PROJECT #	: 3-0499-510	DATE RECEIVED	: 02/24/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/04/93
CLIENT I.D.	: PV1D-1	DATE ANALYZED	: 03/09/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	<0.18
2,4-DINITROTOLUENE	<0.18
2,6-DINITROTOLUENE	<0.18
DIETHYLPHTHALATE	<0.18
4-CHLOROPHENYL-PHENYLETHER	<0.18
FLUORENE	<0.18
4-NITROANILINE	<0.94
4,6-DINITRO-2-METHYLPHENOL	<0.94
N-NITROSODIPHENYLAMINE	<0.18
4-BROMOPHENYL-PHENYLETHER	<0.18
HEXACHLOROBENZENE	<0.18
PENTACHLOROPHENOL	<0.18
PHENANTHRENE	<0.18
ANTHRACENE	<0.18
DI-N-BUTYLPHTHALATE	<0.18
FLUORANTHENE	<0.18
BENZIDINE	<1.8
PYRENE	<0.18
BUTYLBENZYLPHTHALATE	<0.18
3,3'-DICHLOROBENZIDINE	<0.38
BENZO(A)ANTHRACENE	<0.18
BIS(2-ETHYLHEXYL)PHTHALATE	<0.18
CHRYSENE	<0.18
DI-N-OCTYLPHTHALATE	<0.18
BENZO(B)FLUORANTHENE	<0.18
BENZO(K)FLUORANTHENE	<0.18
BENZO(A)PYRENE	<0.18
INDENO(1,2,3-CD)PYRENE	<0.18
DIBENZO(A,H)ANTHRACENE	<0.18
BENZO(G,H,I)PERYLENE	<0.18

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	95	54 - 117
2-FLUOROBIPHENYL	100	56 - 127
TERPHENYL-D14	98	52 - 133
PHENOL-D5	99	47 - 105
2-FLUOROPHENOL	96	52 - 111
2,4,6-TRIBROMOPHENOL	104	35 - 126

AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193-11

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 02/23/93
PROJECT #	: 3-0499-510	DATE RECEIVED	: 02/24/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/04/93
CLIENT I.D.	: PV2-1	DATE ANALYZED	: 03/09/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.19
PHENOL	<0.19
ANILINE	<0.19
BIS(2-CHLOROETHYL)ETHER	<0.19
2-CHLOROPHENOL	<0.19
1,3-DICHLOROBENZENE	<0.19
1,4-DICHLOROBENZENE	<0.19
BENZYL ALCOHOL	<0.19
1,2-DICHLOROBENZENE	<0.19
2-METHYLPHENOL	<0.19
BIS(2-CHLOROISOPROPYL)ETHER	<0.19
4-METHYLPHENOL	<0.19
N-NITROSO-DI-N-PROPYLAMINE	<0.19
HEXACHLOROETHANE	<0.19
NITROBENZENE	<0.19
ISOPHORONE	<0.19
2-NITROPHENOL	<0.19
2,4-DIMETHYLPHENOL	<0.19
BENZOIC ACID	<0.99
BIS(2-CHLOROETHOXY)METHANE	<0.19
2,4-DICHLOROPHENOL	<0.19
1,2,4-TRICHLOROBENZENE	<0.19
NAPHTHALENE	<0.19
4-CHLOROANILINE	<0.19
HEXACHLOROBUTADIENE	<0.19
4-CHLORO-3-METHYLPHENOL	<0.19
2-METHYLNAPHTHALENE	<0.19
HEXACHLOROCYCLOPENTADIENE	<0.19
2,4,6-TRICHLOROPHENOL	<0.19
2,4,5-TRICHLOROPHENOL	<0.99
2-CHLORONAPHTHALENE	<0.19
2-NITROANILINE	<0.99
DIMETHYLPHTHALATE	<0.19
ACENAPHTHYLENE	<0.19
3-NITROANILINE	<0.99
ACENAPHTHENE	<0.19
2,4-DINITROPHENOL	<0.99
4-NITROPHENOL	<0.99

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AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193-11

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 02/23/93
PROJECT #	: 3-0499-510	DATE RECEIVED	: 02/24/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/04/93
CLIENT I.D.	: PV2-1	DATE ANALYZED	: 03/09/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	<0.19
2,4-DINITROTOLUENE	<0.19
2,6-DINITROTOLUENE	<0.19
DIETHYLPHTHALATE	<0.19
4-CHLOROPHENYL-PHENYLETHER	<0.19
FLUORENE	<0.19
4-NITROANILINE	<0.99
4,6-DINITRO-2-METHYLPHENOL	<0.99
N-NITROSODIPHENYLAMINE	<0.19
4-BROMOPHENYL-PHENYLETHER	<0.19
HEXACHLOROBENZENE	<0.19
PENTACHLOROPHENOL	<0.19
PHENANTHRENE	<0.19
ANTHRACENE	<0.19
DI-N-BUTYLPHTHALATE	<0.19
FLUORANTHENE	<0.19
BENZIDINE	<1.9
PYRENE	<0.19
BUTYLBENZYLPHTHALATE	<0.19
3,3'-DICHLOROBENZIDINE	<0.40
BENZO(A)ANTHRACENE	<0.19
BIS(2-ETHYLHEXYL)PHTHALATE	<0.19
CHRYSENE	<0.19
DI-N-OCTYLPHTHALATE	<0.19
BENZO(B)FLUORANTHENE	<0.19
BENZO(K)FLUORANTHENE	<0.19
BENZO(A)PYRENE	<0.19
INDENO(1,2,3-CD)PYRENE	<0.19
DIBENZO(A,H)ANTHRACENE	<0.19
BENZO(G,H,I)PERYLENE	<0.19

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	96	54 - 117
2-FLUOROBIPHENYL	96	56 - 127
TERPHENYL-D14	94	52 - 133
PHENOL-D5	96	47 - 105
2-FLUOROPHENOL	92	52 - 111
2,4,6-TRIBROMOPHENOL	110	35 - 126

Analytical Technologies, Inc.

ATI I.D. # 9302-193-19

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 02/23/93
PROJECT #	: 3-0499-510	DATE RECEIVED	: 02/24/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/04/93
CLIENT I.D.	: PV3-1	DATE ANALYZED	: 03/10/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
N-NITROSODIMETHYLAMINE	<0.19	
PHENOL	<0.19	
ANILINE	<0.19	
BIS(2-CHLOROETHYL)ETHER	<0.19	
2-CHLOROPHENOL	<0.19	
1,3-DICHLOROBENZENE	<0.19	
1,4-DICHLOROBENZENE	<0.19	
BENZYL ALCOHOL	<0.19	
1,2-DICHLOROBENZENE	<0.19	
2-METHYLPHENOL	<0.19	
BIS(2-CHLOROISOPROPYL)ETHER	<0.19	
4-METHYLPHENOL	<0.19	
N-NITROSO-DI-N-PROPYLAMINE	<0.19	
HEXACHLOROETHANE	<0.19	
NITROBENZENE	<0.19	
ISOPHORONE	<0.19	
2-NITROPHENOL	<0.19	
2,4-DIMETHYLPHENOL	<0.19	
BENZOIC ACID	0.33	J
BIS(2-CHLOROETHOXY)METHANE	<0.19	
2,4-DICHLOROPHENOL	<0.19	
1,2,4-TRICHLOROBENZENE	<0.19	
NAPHTHALENE	0.12	J
4-CHLOROANILINE	<0.19	
HEXACHLOROBUTADIENE	<0.19	
4-CHLORO-3-METHYLPHENOL	<0.19	
2-METHYLNAPHTHALENE	<0.19	
HEXACHLOROCYCLOPENTADIENE	<0.19	
2,4,6-TRICHLOROPHENOL	<0.19	
2,4,5-TRICHLOROPHENOL	<0.99	
2-CHLORONAPHTHALENE	<0.19	
2-NITROANILINE	<0.99	
DIMETHYLPHTHALATE	<0.19	
ACENAPHTHYLENE	0.14	J
3-NITROANILINE	<0.99	
ACENAPHTHENE	0.11	J
2,4-DINITROPHENOL	<0.99	
4-NITROPHENOL	<0.99	

J = Estimated value.

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AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193-19

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	:	02/23/93
PROJECT #	: 3-0499-510	DATE RECEIVED	:	02/24/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	:	03/04/93
CLIENT I.D.	: PV3-1	DATE ANALYZED	:	03/10/93
SAMPLE MATRIX	: SOIL	UNITS	:	mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	:	1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	0.11	J
2,4-DINITROTOLUENE	<0.19	
2,6-DINITROTOLUENE	<0.19	
DIETHYLPHTHALATE	<0.19	
4-CHLOROPHENYL-PHENYLETHER	<0.19	
FLUORENE	0.18	J
4-NITROANILINE	<0.99	
4,6-DINITRO-2-METHYLPHENOL	<0.99	
N-NITROSODIPHENYLAMINE	<0.19	
4-BROMOPHENYL-PHENYLETHER	<0.19	
HEXACHLOROBENZENE	<0.19	
PENTACHLOROPHENOL	<0.19	
PHENANTHRENE	1.1	
ANTHRACENE	0.60	
DI-N-BUTYLPHTHALATE	<0.19	
FLUORANTHENE	1.9	
BENZIDINE	<1.9	
PYRENE	1.5	
BUTYLBENZYLPHTHALATE	<0.19	
3,3'-DICHLOROBENZIDINE	<0.40	
BENZO(A)ANTHRACENE	0.57	
BIS(2-ETHYLHEXYL)PHTHALATE	0.12	J
CHRYSENE	0.68	
DI-N-OCTYLPHTHALATE	<0.19	
BENZO(B)FLUORANTHENE	0.76	
BENZO(K)FLUORANTHENE	0.27	
BENZO(A)PYRENE	0.35	
INDENO(1,2,3-CD)PYRENE	0.35	
DIBENZO(A,H)ANTHRACENE	<0.19	
BENZO(G,H,I)PERYLENE	0.36	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	93	54 - 117
2-FLUOROBIPHENYL	96	56 - 127
TERPHENYL-D14	104	52 - 133
PHENOL-D5	98	47 - 105
2-FLUOROPHENOL	90	52 - 111
2,4,6-TRIBROMOPHENOL	111	35 - 126

J = Estimated value.

Analytical**Technologies,**Inc.

ATI I.D. # 9302-193-27

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 02/23/93
PROJECT #	: 3-0499-510	DATE RECEIVED	: 02/24/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/11/93*
CLIENT I.D.	: PV3-9	DATE ANALYZED	: 03/15/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.18
PHENOL	<0.18
ANILINE	<0.18
BIS(2-CHLOROETHYL)ETHER	<0.18
2-CHLOROPHENOL	<0.18
1,3-DICHLOROBENZENE	<0.18
1,4-DICHLOROBENZENE	<0.18
BENZYL ALCOHOL	<0.18
1,2-DICHLOROBENZENE	<0.18
2-METHYLPHENOL	<0.18
BIS(2-CHLOROISOPROPYL)ETHER	<0.18
4-METHYLPHENOL	<0.18
N-NITROSO-DI-N-PROPYLAMINE	<0.18
HEXACHLOROETHANE	<0.18
NITROBENZENE	<0.18
ISOPHORONE	<0.18
2-NITROPHENOL	<0.18
2,4-DIMETHYLPHENOL	<0.18
BENZOIC ACID	<0.90
BIS(2-CHLOROETHOXY)METHANE	<0.18
2,4-DICHLOROPHENOL	<0.18
1,2,4-TRICHLOROBENZENE	<0.18
NAPHTHALENE	<0.18
4-CHLOROANILINE	<0.18
HEXACHLOROBUTADIENE	<0.18
4-CHLORO-3-METHYLPHENOL	<0.18
2-METHYLNAPHTHALENE	<0.18
HEXACHLOROCYCLOPENTADIENE	<0.18
2,4,6-TRICHLOROPHENOL	<0.18
2,4,5-TRICHLOROPHENOL	<0.90
2-CHLORONAPHTHALENE	<0.18
2-NITROANILINE	<0.90
DIMETHYLPHTHALATE	<0.18
ACENAPHTHYLENE	<0.18
3-NITROANILINE	<0.90
ACENAPHTHENE	<0.18
2,4-DINITROPHENOL	<0.90
4-NITROPHENOL	<0.90

* Extracted past the recommended 14 day hold time.

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AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193-27

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 02/23/93
PROJECT #	: 3-0499-510	DATE RECEIVED	: 02/24/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/11/93*
CLIENT I.D.	: PV3-9	DATE ANALYZED	: 03/15/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
DIBENZOFURAN	<0.18
2,4-DINITROTOLUENE	<0.18
2,6-DINITROTOLUENE	<0.18
DIETHYLPHTHALATE	<0.18
4-CHLOROPHENYL-PHENYLETHER	<0.18
FLUORENE	<0.18
4-NITROANILINE	<0.90
4,6-DINITRO-2-METHYLPHENOL	<0.90
N-NITROSODIPHENYLAMINE	<0.18
4-BROMOPHENYL-PHENYLETHER	<0.18
HEXACHLOROBENZENE	<0.18
PENTACHLOROPHENOL	<0.18
PHENANTHRENE	<0.18
ANTHRACENE	<0.18
DI-N-BUTYLPHTHALATE	<0.18
FLUORANTHENE	<0.18
BENZIDINE	<1.8
PYRENE	<0.18
BUTYLBENZYLPHTHALATE	<0.18
3,3'-DICHLOROBENZIDINE	<0.36
BENZO(A)ANTHRACENE	<0.18
BIS(2-ETHYLHEXYL)PHTHALATE	0.12 J "J"
CHRYSENE	<0.18
DI-N-OCTYLPHTHALATE	<0.18
BENZO(B)FLUORANTHENE	<0.18
BENZO(K)FLUORANTHENE	<0.18
BENZO(A)PYRENE	<0.18
INDENO(1,2,3-CD)PYRENE	<0.18
DIBENZO(A,H)ANTHRACENE	<0.18
BENZO(G,H,I)PERYLENE	<0.18

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	85	54 - 117
2-FLUOROBIPHENYL	86	56 - 127
TERPHENYL-D14	104	52 - 133
PHENOL-D5	84	47 - 105
2-FLUOROPHENOL	82	52 - 111
2,4,6-TRIBROMOPHENOL	68	35 - 126

J = Estimated value.
* Extracted past the recommended 14 day hold time.

Kml 4/07/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193-37

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 02/24/93
PROJECT #	: 3-0499-510	DATE RECEIVED	: 02/24/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/04/93
CLIENT I.D.	: PV3-19	DATE ANALYZED	: 03/09/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<0.18
PHENOL	<0.18
ANILINE	<0.18
BIS(2-CHLOROETHYL)ETHER	<0.18
2-CHLOROPHENOL	<0.18
1,3-DICHLOROBENZENE	<0.18
1,4-DICHLOROBENZENE	<0.18
BENZYL ALCOHOL	<0.18
1,2-DICHLOROBENZENE	<0.18
2-METHYLPHENOL	<0.18
BIS(2-CHLOROISOPROPYL)ETHER	<0.18
4-METHYLPHENOL	<0.18
N-NITROSO-DI-N-PROPYLAMINE	<0.18
HEXACHLOROETHANE	<0.18
NITROBENZENE	<0.18
ISOPHORONE	<0.18
2-NITROPHENOL	<0.18
2,4-DIMETHYLPHENOL	<0.18
BENZOIC ACID	<0.93
BIS(2-CHLOROETHOXY)METHANE	<0.18
2,4-DICHLOROPHENOL	<0.18
1,2,4-TRICHLOROBENZENE	<0.18
NAPHTHALENE	<0.18
4-CHLOROANILINE	<0.18
HEXACHLOROBUTADIENE	<0.18
4-CHLORO-3-METHYLPHENOL	<0.18
2-METHYLNAPHTHALENE	<0.18
HEXACHLOROCYCLOPENTADIENE	<0.18
2,4,6-TRICHLOROPHENOL	<0.18
2,4,5-TRICHLOROPHENOL	<0.93
2-CHLORONAPHTHALENE	<0.18
2-NITROANILINE	<0.93
DIMETHYLPHTHALATE	<0.18
ACENAPHTHYLENE	<0.18
3-NITROANILINE	<0.93
ACENAPHTHENE	<0.18
2,4-DINITROPHENOL	<0.93
4-NITROPHENOL	<0.93

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Analytical**Technologies,**Inc.

ATI I.D. # 9302-193-37

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	DATE SAMPLED	: 02/24/93
PROJECT #	: 3-0499-510	DATE RECEIVED	: 02/24/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE EXTRACTED	: 03/04/93
CLIENT I.D.	: PV3-19	DATE ANALYZED	: 03/09/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS	
DIBENZOFURAN	<0.18	
2,4-DINITROTOLUENE	<0.18	
2,6-DINITROTOLUENE	<0.18	
DIETHYLPHTHALATE	<0.18	
4-CHLOROPHENYL-PHENYLETHER	<0.18	
FLUORENE	<0.18	
4-NITROANILINE	<0.93	
4,6-DINITRO-2-METHYLPHENOL	<0.93	
N-NITROSODIPHENYLAMINE	<0.18	
4-BROMOPHENYL-PHENYLETHER	<0.18	
HEXACHLOROBENZENE	<0.18	
PENTACHLOROPHENOL	0.099	J
PHENANTHRENE	<0.18	
ANTHRACENE	0.13	J
DI-N-BUTYLPHTHALATE	<0.18	
FLUORANTHENE	0.15	J
BENZIDINE	<1.8	
PYRENE	0.14	J
BUTYLBENZYLPHTHALATE	<0.18	
3,3'-DICHLOROBENZIDINE	<0.37	
BENZO(A)ANTHRACENE	<0.18	
BIS(2-ETHYLHEXYL)PHTHALATE	<0.18	
CHRYSENE	0.28	
DI-N-OCTYLPHTHALATE	<0.18	
BENZO(B)FLUORANTHENE	0.32	
BENZO(K)FLUORANTHENE	0.12	J
BENZO(A)PYRENE	0.14	J
INDENO(1,2,3-CD)PYRENE	0.13	J
DIBENZO(A,H)ANTHRACENE	<0.18	
BENZO(G,H,I)PERYLENE	<0.18	

SURROGATE PERCENT RECOVERY		LIMITS
NITROBENZENE-D5	93	54 - 117
2-FLUOROBIPHENYL	98	56 - 127
TERPHENYL-D14	98	52 - 133
PHENOL-D5	97	47 - 105
2-FLUOROPHENOL	91	52 - 111
2,4,6-TRIBROMOPHENOL	101	35 - 126

J = Estimated value.

Analytical Technologies, Inc.

ATI I.D. # 9302-193

SEMI-VOLATILE ORGANICS ANALYSIS
QUALITY CONTROL DATA

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	SAMPLE I.D. #	:	9302-193-37
PROJECT #	: 3-0499-510	DATE EXTRACTED	:	03/04/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE ANALYZED	:	03/09/93
SAMPLE MATRIX	: SOIL	UNITS	:	mg/Kg
EPA METHOD	: 8270			

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
PHENOL	<0.183	7.33	4.70	64	5.79	79	21H
2-CHLOROPHENOL	<0.183	7.33	4.62	63	5.40	74	16
1,4-DICHLOROBENZENE	<0.183	3.66	2.49	68	2.94	80	17
N-NITROSO-DI-N-PROPYLAMINE	<0.183	3.66	2.95	81	3.39	93	14
1,2,4-TRICHLOROBENZENE	<0.183	3.66	2.58	70	2.90	79	12
4-CHLORO-3-METHYLPHENOL	<0.183	7.33	5.72	78	6.02	82	5
ACENAPHTHENE	<0.183	3.66	3.02	83	3.18	87	5
4-NITROPHENOL	<0.934	7.33	7.08	97	6.62	90	7
2,4-DINITROTOLUENE	<0.183	3.66	3.15	86	3.09	84	2
PENTACHLOROPHENOL	<0.183	7.33	6.55	89	6.69	91	2
PYRENE	<0.183	3.66	3.84	105	3.39	93	12

CONTROL LIMITS	% REC.	RPD
PHENOL	50 - 113	20
2-CHLOROPHENOL	45 - 112	21
1,4-DICHLOROBENZENE	52 - 100	22
N-NITROSO-DI-N-PROPYLAMINE	56 - 112	20
1,2,4-TRICHLOROBENZENE	51 - 97	20
4-CHLORO-3-METHYLPHENOL	49 - 113	20
ACENAPHTHENE	58 - 107	21
4-NITROPHENOL	42 - 140	20
2,4-DINITROTOLUENE	49 - 107	20
PENTACHLOROPHENOL	36 - 140	28
PYRENE	41 - 125	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
NITROBENZENE-D5	83	95	54 - 117
2-FLUOROBIPHENYL	91	102	56 - 127
TERPHENYL-D14	100	96	52 - 133
PHENOL-D5	82	95	47 - 105
2-FLUOROPHENOL	79	94	52 - 111
2,4,6-TRIBROMOPHENOL	103	100	35 - 126

H = Out of limits.

KML 4/07/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193

SEMI-VOLATILE ORGANICS ANALYSIS
QUALITY CONTROL DATA

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	SAMPLE I.D. #	:	9303-081-4
PROJECT #	: 3-0499-510	DATE EXTRACTED	:	03/11/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE ANALYZED	:	03/15/93
SAMPLE MATRIX	: SOIL	UNITS	:	mg/Kg
EPA METHOD	: 8270			

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
PHENOL	<0.182	7.26	4.90	67	5.07	70	3
2-CHLOROPHENOL	<0.182	7.26	5.12	71	5.70	79	11
1,4-DICHLOROBENZENE	<0.182	3.63	2.62	72	2.76	76	5
N-NITROSO-DI-N-PROPYLAMINE	<0.182	3.63	3.01	83	3.46	95	14
1,2,4-TRICHLOROBENZENE	<0.182	3.63	2.92	80	2.90	80	1
4-CHLORO-3-METHYLPHENOL	<0.182	7.26	5.96	82	5.85	81	2
ACENAPHTHENE	<0.182	3.63	3.32	91	3.69	102	11
4-NITROPHENOL	<0.926	7.26	8.63	119	10.0	138	15
2,4-DINITROTOLUENE	<0.182	3.63	3.45	95	3.56	98	3
PENTACHLOROPHENOL	4.79	7.26	20.4	G	28.7	G	34G
PYRENE	<0.182	3.63	4.14	114	3.99	110	4

CONTROL LIMITS	% REC.	RPD
PHENOL	50 - 113	20
2-CHLOROPHENOL	45 - 112	21
1,4-DICHLOROBENZENE	52 - 100	22
N-NITROSO-DI-N-PROPYLAMINE	56 - 112	20
1,2,4-TRICHLOROBENZENE	51 - 97	20
4-CHLORO-3-METHYLPHENOL	49 - 113	20
ACENAPHTHENE	58 - 107	21
4-NITROPHENOL	42 - 140	20
2,4-DINITROTOLUENE	49 - 107	20
PENTACHLOROPHENOL	36 - 140	28
PYRENE	41 - 125	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
NITROBENZENE-D5	78	90	54 - 117
2-FLUOROBIPHENYL	90	94	56 - 127
TERPHENYL-D14	108	111	52 - 133
PHENOL-D5	75	92	47 - 105
2-FLUOROPHENOL	73	84	52 - 111
2,4,6-TRIBROMOPHENOL	96	92	35 - 126

G = Out of limits due to high level of target analytes in sample.

kmc 4/07/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193

SEMI-VOLATILE ORGANICS ANALYSIS
QUALITY CONTROL DATA

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	SAMPLE I.D. #	: BLANK SPIKE
PROJECT #	: 3-0499-510	DATE EXTRACTED	: 03/04/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE ANALYZED	: 03/09/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270		

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
PHENOL	<0.167	6.67	4.89	73	N/A	N/A	N/A
2-CHLOROPHENOL	<0.167	6.67	4.91	74	N/A	N/A	N/A
1,4-DICHLOROBENZENE	<0.167	3.33	2.73	82	N/A	N/A	N/A
N-NITROSO-DI-N-PROPYLAMINE	<0.167	3.33	2.95	89	N/A	N/A	N/A
1,2,4-TRICHLOROBENZENE	<0.167	3.33	2.69	81	N/A	N/A	N/A
4-CHLORO-3-METHYLPHENOL	<0.167	6.67	4.85	73	N/A	N/A	N/A
ACENAPHTHENE	<0.167	3.33	2.82	85	N/A	N/A	N/A
4-NITROPHENOL	<0.850	6.67	5.50	82	N/A	N/A	N/A
2,4-DINITROTOLUENE	<0.167	3.33	2.79	84	N/A	N/A	N/A
PENTACHLOROPHENOL	<0.167	6.67	5.87	88	N/A	N/A	N/A
PYRENE	<0.167	3.33	2.86	86	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
PHENOL	42 - 120	20
2-CHLOROPHENOL	42 - 113	21
1,4-DICHLOROBENZENE	54 - 106	22
N-NITROSO-DI-N-PROPYLAMINE	46 - 122	20
1,2,4-TRICHLOROBENZENE	53 - 105	20
4-CHLORO-3-METHYLPHENOL	51 - 105	20
ACENAPHTHENE	60 - 110	21
4-NITROPHENOL	24 - 156	20
2,4-DINITROTOLUENE	48 - 108	20
PENTACHLOROPHENOL	25 - 166	28
PYRENE	56 - 115	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
NITROBENZENE-D5	94	N/A	54 - 117
2-FLUOROBIPHENYL	97	N/A	56 - 127
TERPHENYL-D14	101	N/A	52 - 133
PHENOL-D5	94	N/A	47 - 105
2-FLUOROPHENOL	92	N/A	52 - 111
2,4,6-TRIBROMOPHENOL	104	N/A	35 - 126

Kmc 4/07/93

Analytical Technologies, Inc.

ATI I.D. # 9302-193

SEMI-VOLATILE ORGANICS ANALYSIS
QUALITY CONTROL DATA

CLIENT	: REMEDIATION TECHNOLOGIES, INC.	SAMPLE I.D. #	: BLANK SPIKE
PROJECT #	: 3-0499-510	DATE EXTRACTED	: 03/11/93
PROJECT NAME	: CASCADE POLE-TACOMA WA	DATE ANALYZED	: 03/16/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270		

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
PHENOL	<0.167	6.67	4.90	73	N/A	N/A	N/A
2-CHLOROPHENOL	<0.167	6.67	4.65	70	N/A	N/A	N/A
1,4-DICHLOROBENZENE	<0.167	3.33	2.56	77	N/A	N/A	N/A
N-NITROSO-DI-N-PROPYLAMINE	<0.167	3.33	2.76	83	N/A	N/A	N/A
1,2,4-TRICHLOROBENZENE	<0.167	3.33	2.56	77	N/A	N/A	N/A
4-CHLORO-3-METHYLPHENOL	<0.167	6.67	4.66	70	N/A	N/A	N/A
ACENAPHTHENE	<0.167	3.33	2.50	75	N/A	N/A	N/A
4-NITROPHENOL	<0.850	6.67	6.06	91	N/A	N/A	N/A
2,4-DINITROTOLUENE	<0.167	3.33	3.09	93	N/A	N/A	N/A
PENTACHLOROPHENOL	<0.167	6.67	5.76	86	N/A	N/A	N/A
PYRENE	<0.167	3.33	2.86	86	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
PHENOL	42 - 120	20
2-CHLOROPHENOL	42 - 113	21
1,4-DICHLOROBENZENE	54 - 106	22
N-NITROSO-DI-N-PROPYLAMINE	46 - 122	20
1,2,4-TRICHLOROBENZENE	53 - 105	20
4-CHLORO-3-METHYLPHENOL	51 - 105	20
ACENAPHTHENE	60 - 110	21
4-NITROPHENOL	24 - 156	20
2,4-DINITROTOLUENE	48 - 108	20
PENTACHLOROPHENOL	25 - 166	28
PYRENE	56 - 115	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
NITROBENZENE-D5	84	N/A	54 - 117
2-FLUOROBIPHENYL	85	N/A	56 - 127
TERPHENYL-D14	96	N/A	52 - 133
PHENOL-D5	83	N/A	47 - 105
2-FLUOROPHENOL	85	N/A	52 - 111
2,4,6-TRIBROMOPHENOL	91	N/A	35 - 126

Km 4/07/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193

METALS ANALYSIS

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-510
PROJECT NAME : CASCADE POLE-TACOMA WA

ELEMENT	DATE PREPARED	DATE ANALYZED
ARSENIC (SAMPLE -21)	02/27/93	03/01/93
ARSENIC (SAMPLES -1 THROUGH -20)	02/27/93	03/02/93
ARSENIC (SAMPLES -22 THROUGH -31)	03/01/93	03/03/93
ARSENIC (SAMPLES -32 THROUGH -41)	03/06/93	03/09/93
CHROMIUM (SAMPLE -21)	02/27/93	03/01/93
CHROMIUM (SAMPLES -1 THROUGH -20)	02/27/93	03/02/93
CHROMIUM (SAMPLES -22 THROUGH -41)	03/01/93	03/03/93
COPPER (SAMPLE -21)	02/27/93	03/01/93
COPPER (SAMPLES -1 THROUGH -20)	02/27/93	03/02/93
COPPER (SAMPLES -22 THROUGH -31)	03/01/93	03/03/93
COPPER (SAMPLES -32 THROUGH -41)	03/06/93	03/09/93
ZINC (SAMPLE -21)	02/27/93	03/01/93
ZINC (SAMPLES -19, -20)	02/27/93	03/02/93
ZINC (SAMPLES -22 THROUGH -39)	03/01/93	03/03/93

Analytical**Technologies,**Inc.

ATI I.D. # 9302-193

METALS ANALYSIS
DATA SUMMARY

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-510
PROJECT NAME : CASCADE POLE-TACOMA WA UNITS : mg/Kg
RESULTS ARE CORRECTED FOR MOISTURE CONTENT

ATI I.D. #	CLIENT I.D.	ARSENIC	CHROMIUM	COPPER	ZINC
9302-193-1	PV1A-1	3.1	14	20	-
9302-193-2	PV1A-2	<2.9	8.6	13	-
9302-193-3	PV1B-1	11	20	29	-
9302-193-4	PV1B-2	4.6	13	19	-
9302-193-5	PV1C-1	<3.2	12	17	-
9302-193-6	PV1C-2	<2.9	11	12	-
9302-193-7	PV1D-1	<2.8	9.2	11	-
9302-193-8	PV1D-2	<3.2	17	15	-
9302-193-9	PV1E-1	3.6	12	14	-
9302-193-10	PV1E-2	<3.1	8.0	9.6	-
9302-193-11	PV2-1	<3.2	95	14	-
9302-193-12	PV2-2	340	120	68	-
9302-193-13	PV2-3	25	16	20	-
9302-193-14	PV2-4	190	63	19	-
9302-193-15	PV2-5	9.1	44	18	-
9302-193-16	PV2-6	92	54	29	-
9302-193-17	PV2-7	64	69	84	-
9302-193-18	PV2-8	6.0	26	24	-
9302-193-19	PV3-1	47	20	190	590
9302-193-20	PV3-2	<3.0	20	18	35
9302-193-21	PV3-3	6.8	15	19	45
9302-193-22	PV3-4	<2.8	15	13	24
9302-193-23	PV3-5	<2.6	19	15	28
9302-193-24	PV3-6	<2.7	15	33	60
9302-193-25	PV3-7	<2.7	12	20	33
9302-193-26	PV3-8	4.6	13	22	40
9302-193-27	PV3-9	<2.6	18	16	27
9302-193-28	PV3-10	<2.7	12	13	20
9302-193-29	PV3-11	5.1	21	22	30
9302-193-30	PV3-12	18	36	29	25
9302-193-31	PV3-13	15	21	25	35
9302-193-32	PV3-14	4.5	21	21	27
9302-193-33	PV3-15	<2.7	25	17	33
9302-193-34	PV3-16	11	29	25	31
9302-193-35	PV3-17	6.3	33	23	34
9302-193-36	PV3-18	<2.8	25	20	70
9302-193-37	PV3-19	39	16	51	120
9302-193-38	PV3-20	<2.7	16	13	22
9302-193-39	PV3-21	<2.8	16	16	28
9302-193-40	PV2B-1	120	75	73	-
9302-193-41	PV2B-2	34	17	41	-
METHOD BLANK	-	<2.5	<0.50	<0.50	<0.50
METHOD BLANK	-	<2.5	<0.50	<0.50	<0.50
METHOD BLANK	-	<2.5	<0.50	<0.50	<0.50
METHOD BLANK	-	<2.5	-	<0.50	-

Kmc 4/07/93

AnalyticalTechnologies,Inc.

ATI I.D. # 9302-193

METALS ANALYSIS
QUALITY CONTROL DATA

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-510
PROJECT NAME : CASCADE POLE-TACOMA WA UNITS : mg/Kg

ELEMENT	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
ARSENIC	9302-193-5	<3.2	<3.2	NC	59.8	64.5	93
ARSENIC	9302-193-20	<3.0	<3.0	NC	56.2	57.1	98
ARSENIC	9302-193-21	6.8	5.7	18	59.1	57.8	90
ARSENIC	9302-193-31	15	12	22	56.8	53.8	78
ARSENIC	9302-193-41	34	34	0	96.5	54.9	114
ARSENIC	BLANK SPIKE	<2.5	N/A	N/A	47.5	50.0	95
ARSENIC	BLANK SPIKE	<2.5	N/A	N/A	47.4	50.0	95
ARSENIC	BLANK SPIKE	<2.5	N/A	N/A	44.9	50.0	90
ARSENIC	BLANK SPIKE	<2.5	N/A	N/A	46.4	50.0	93
CHROMIUM	9302-193-5	12	11	9	66.0	64.5	84
CHROMIUM	9302-193-20	20	17	16	67.0	57.1	82
CHROMIUM	9302-193-21	15	13	14	64.1	57.8	85
CHROMIUM	9302-193-31	21	19	10	63.7	53.8	79
CHROMIUM	9302-193-41	17	18	6	65.7	57.1	85
CHROMIUM	BLANK SPIKE	<0.50	N/A	N/A	45.4	50.0	91
CHROMIUM	BLANK SPIKE	<0.50	N/A	N/A	43.3	50.0	87
CHROMIUM	BLANK SPIKE	<0.50	N/A	N/A	44.5	50.0	89
COPPER	9302-193-5	17	17	0	75.0	64.5	90
COPPER	9302-193-20	18	17	6	69.8	57.1	91
COPPER	9302-193-21	19	17	11	72.9	57.8	93
COPPER	9302-193-31	25	21	17	70.4	53.8	84
COPPER	9302-193-41	41	39	5	90.3	54.9	90
COPPER	BLANK SPIKE	<0.50	N/A	N/A	47.3	50.0	95
COPPER	BLANK SPIKE	<0.50	N/A	N/A	48.2	50.0	96
COPPER	BLANK SPIKE	<0.50	N/A	N/A	45.9	50.0	92
COPPER	BLANK SPIKE	<0.50	N/A	N/A	47.4	50.0	95
ZINC	9302-193-20	35	34	3	85.1	57.1	88
ZINC	9302-193-21	45	38	17	94.6	57.8	86
ZINC	9302-193-31	35	34	3	82.4	53.8	88
ZINC	9302-193-41	18	18	0	65.9	57.1	84
ZINC	BLANK SPIKE	<0.50	N/A	N/A	46.2	50.0	92
ZINC	BLANK SPIKE	<0.50	N/A	N/A	45.6	50.0	91
ZINC	BLANK SPIKE	<0.50	N/A	N/A	43.6	50.0	87

NC = Not Calculable.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Amr 3/10/93

Analytical Technologies, Inc.

ATI I.D. # 9302-193

GENERAL CHEMISTRY ANALYSIS

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-510
PROJECT NAME : CASCADE POLE-TACOMA WA

PARAMETER	DATE ANALYZED
MOISTURE (SAMPLES -1 THROUGH -38)	03/01/93
MOISTURE (SAMPLES -39,-40)	03/03/93
MOISTURE (SAMPLE -41)	03/04/93

Analytical Technologies, Inc.

ATI I.D. # 9302-193

GENERAL CHEMISTRY ANALYSIS
DATA SUMMARY

CLIENT : REMEDIATION TECHNOLOGIES, INC.
PROJECT # : 3-0499-510
PROJECT NAME : CASCADE POLE-TACOMA WA

MATRIX : SOIL
UNITS : %

ATI I.D. #	CLIENT I.D.	MOISTURE
9302-193-1	PV1A-1	9.2
9302-193-2	PV1A-2	12
9302-193-3	PV1B-1	7.0
9302-193-4	PV1B-2	13
9302-193-5	PV1C-1	17
9302-193-6	PV1C-2	9.0
9302-193-7	PV1D-1	9.7
9302-193-8	PV1D-2	14
9302-193-9	PV1E-1	12
9302-193-10	PV1E-2	12
9302-193-11	PV2-1	14
9302-193-12	PV2-2	10
9302-193-13	PV2-3	4.5
9302-193-14	PV2-4	5.8
9302-193-15	PV2-5	5.6
9302-193-16	PV2-6	5.6
9302-193-17	PV2-7	8.4
9302-193-18	PV2-8	5.6
9302-193-19	PV3-1	14
9302-193-20	PV3-2	10
9302-193-21	PV3-3	8.5
9302-193-22	PV3-4	6.7
9302-193-23	PV3-5	7.0
9302-193-24	PV3-6	5.6
9302-193-25	PV3-7	4.8
9302-193-26	PV3-8	6.7
9302-193-27	PV3-9	5.5
9302-193-28	PV3-10	6.0
9302-193-29	PV3-11	6.3
9302-193-30	PV3-12	6.6
9302-193-31	PV3-13	6.8
9302-193-32	PV3-14	7.0
9302-193-33	PV3-15	9.7
9302-193-34	PV3-16	5.9
9302-193-35	PV3-17	6.8
9302-193-36	PV3-18	9.4
9302-193-37	PV3-19	9.0
9302-193-38	PV3-20	7.2
9302-193-39	PV3-21	9.5
9302-193-40	PV2B-1	7.0
9302-193-41	PV2B-2	9.6

Analytical Technologies, Inc.

ATI I.D. # 9302-193

GENERAL CHEMISTRY ANALYSIS
QUALITY CONTROL DATA

CLIENT : REMEDIATION TECHNOLOGIES, INC. MATRIX : SOIL
PROJECT # : 3-0499-510
PROJECT NAME : CASCADE POLE-TACOMA WA UNITS : %

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
MOISTURE	9302-193-18	5.6	5.3	6	N/A	N/A	N/A
MOISTURE	9302-193-28	6.0	6.1	2	N/A	N/A	N/A
MOISTURE	9302-193-38	7.2	8.3	14	N/A	N/A	N/A
MOISTURE	9302-197-13	6.9	6.5	6	N/A	N/A	N/A
MOISTURE	9302-240-1	19	18	5	N/A	N/A	N/A
MOISTURE	9303-001-1	17	17	0	N/A	N/A	N/A
MOISTURE	9303-004-1	21	21	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

kmc 4/07/93

5318

CHAIN OF CUSTODY RECORD

9302 - 193

13

PROJ. NO.: 3-0499-510

PROJECT NAME: Cascade Pole - Interim Action

SEND RESULTS TO: Linda Baker

SAMPLERS: Grant Hainsworth

RECEIVING LABORATORY: ATI

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	As, Cr, Cu 8270							REMARKS
1	02/22/93	1:00	PV1A-1	1	✓							- Bill Cascade Pole
2	"	1:15	PV1A-2	1	✓							directly
3	"	3:15	PV1B-1	1	✓							
4	"	3:30	PV1B-2	1	✓							
5	"	1:35	PV1C-1	1	✓							
6	"	1:50	PV1C-2	1	✓							
7	"	4:00	PV1D-1	1	✓	X	- 1135 3/2/93					
8	"	3:45	PV1D-2	1	✓							
9	"	2:05	PV1E-1	1	✓							
10	"	2:20	PV1E-2	1	✓							
11	02/23/93	8:45	PV2-1	1	✓	X	- 1135 3/2/93					
12	"	9:00	PV2-2	1	✓							
13	"	9:50	PV2-3	1	✓							
14	"	9:20	PV2-4	1	✓							
15	"	10:15	PV2-5	1	✓							
16	"	10:35	PV2-6	1	✓							
17	"	11:55	PV2-7	1	✓							

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Grant Hainsworth	02/24/93 5:00	[signature] 2/24/93 5:00			

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

Shipper Information: Delivered ~~by hand~~ (courier retec)

ReTeC REMEDIATION TECHNOLOGIES INC

REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PINK COPY - Sampler YELLOW COPY - Laboratory WHITE COPY - ReTeC

5320

CHAIN OF CUSTODY RECORD

9302-193

2/3

PROJ. NO.	PROJECT NAME	SEND RESULTS TO:
3-0199-510	Cascade Pole - Interim Action	Linda Baker

SAMPLERS: Grant Hainsworth

RECEIVING LABORATORY: ATI

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	As, Cr, Cu	As, Cr, Cu, Zn	8270				REMARKS
18	02/23/93	11:30	PV2-8	1	✓						
19	"	3:20	PV3-1	1		✓	X - TBT 7/8/93				
20	"	4:25	PV3-2	1		✓					
21	"	5:25	PV3-3	1		✓					
22	"	5:45	PV3-4	1		✓					
23	"	4:45	PV3-5	1		✓					
24	"	3:40	PV3-6	1		✓					
25	"	4:05	PV3-7	1		✓					
26	"	5:05	PV3-8	1		✓					
27	"	6:05	PV3-9	1		✓	X				
~~28~~											
~~7~~ 2/24/93	4										

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Grant Hainsworth	02/24/93 5:00	[signature] 2/24/93 500			

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

Shipper Information: Delivered ~~by Hand~~ (Baker courier)

REMEDIATION TECHNOLOGIES INC
REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

NK CC Sampl W CO borat E COF TeC

№ 5322

CHAIN OF CUSTODY RECORD

9302-193

3/3

PROJ. NO.: 3-0499-510
PROJECT NAME: Cascade Pole - Interim Action
SAMPLERS: Grant Hainsworth
RECEIVING LABORATORY: ATI
SEND RESULTS TO:

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	As, Cr, Cu, Zn	As, Cr, Cu	8270					REMARKS
28	02/24/93	10:20	PV3-10	1	✓							
29	"	12:35	PV3-11	1	✓							
30	"	3:10	PV3-12	1	✓							
31	"	1:50	PV3-13	1	✓							
32	"	12:00	PV3-14	1	✓							
33	"	10:40	PV3-15	1	✓							
34	"	11:05	PV3-16	1	✓							
35	"	11:35	PV3-17	1	✓							
36	"	2:25	PV3-18	1	✓	✓ TBS 3/10/93						
37	"	2:45	PV3-19	1	✓	~~X~~	X					
38	"	3:20	PV3-20	1	✓							
39	"	10:50	PV3-21	1	✓							
40	"	3:30	PV2B-1	1		✓						
41	"	3:40	PV2B-2	1		✓						

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Grant Hainsworth	02/24/93 5:00	[signature] 2/24/93 500			

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time

Shipper Information: Delivered by ~~hand~~ (Peta courier)

RETEC
REMEDIATION TECHNOLOGIES INC
REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PINK COPY - Sampler YELLOW COPY - Laboratory WHITE COPY - ReTeC

ANALYTICAL
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333 Ninth Ave. North
Seattle, WA 98109-5187
(206) 621-6490
(206) 621-7523 (FAX)

25 March 1993

Linda Baker
Remediation Technologies Inc.
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134

RE: Client Project: 3-0499-520 Cascade Pole - Tacoma
ARI Project: #D201

Dear Ms. Baker,

Please find enclosed the original chain-of-custody (COC) record and results for the above referenced project. Twelve soil samples were received on 3/10/93, in good condition. There were no discrepancies between the COCs and sample container labels.

There was some difficulty performing the co-precipitation preparation method on the first sample delivery group from this project. The method was finally successful with 1 to 10 dilutions of the samples, and the samples in this delivery group were analyzed without incident of note. Sample P8-3 was used as a QC sample, and spike recovery and RPD reports are included as documentation. Two check standards were also analyzed and results are reported at the end of this package.

A copy of this package will be kept on file with ARI should you require any further information or copies of additional documentation. If you have any questions please feel free to call any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kate Stegemoeller

Kate Stegemoeller
Project Coordinator
206-340-2866, ext. 117

KAS/ks

Enclosures

cc: file #D201

EXPLANATION OF INORGANIC DATA REPORT CODES

The columns labeled 'PREP', 'C', and 'M' contain important information about your analyses. The codes are defined below.

PREPARATION CODES

These 3-letter codes describe methods used to prepare samples for analysis:

AEN USEPA, Metals in air filters
AHM ARI, Mercury in air filters
AHN ARI, Metals in air filters
ANN NIOSH 7300, Metals in air filters
CAN AOAC (1984) 25.024, Metals in earthenware
DE6 EPA 600/4-79-020 218.5, Cr(VI) in water
DMM DMN followed by TMM, Dissolved mercury
DMN Filtered through .45u filter, Dissolved metals
EW6 EWN followed by DE6
EWM EWN followed by TMM
EWN USEPA SW-846 1310, EP Toxicity
FHP ARI, Metals in tissue ($HNO_3/HClO_4$)
FPP PSEP, Metals in tissue ($HNO_3/HClO_4$)
FRM Journal, Mercury in tissue
FRN Journal, Metals in tissue (HNO_3/H_2O_2)
KRN ARI, Concentration by coprecipitation
LEM USEPA, TCLP followed by TMM
LEN USEPA, TCLP Extraction
MHM ARI, Mercury in miscellaneous materials
MHN ARI, Metals in miscellaneous materials
OAM ARI, Mercury in oil, grease or tar
OAN ARI, Metals in oil, grease or tar
PHM ARI, Mercury in wipes
PHN ARI, Metals in wipes
RCC USEPA CLP, Water digestion, HCl matrix
RCN USEPA CLP, Water digestion, HNO_3 matrix
REC EPA 600/4-79-020 4.1.4, HCl matrix
REI EPA 600/4-79-020 200.7 and 9.4
REN EPA 600/4-79-020 4.1.4, HNO_3 matrix
RMA EPA 600/4-79-020 206.2
RWC USEPA SW-846 3005
SCC USEPA CLP, Soil digestion, HCl matrix
SCM USEPA CLP, Mercury in soil
SCN USEPA CLP, Soil digestion, HNO_3 matrix
SEM EPA 600/4-79-020 245.5, Mercury in soil
SHF ARI, Metals in soil, HF digestion
SMN Agronomy,Metals in soil, Water extract
SMM SMN followed by DMM, Dissolved mercury
SSC Standard Methods 302C, Sb/Sn in soil
SSN Standard Methods 302C, Soil digestion
SSS Standard Methods 302C, Ti in soil
SW6 USEPA SW-846 3060, Cr(VI) in soil
SWC USEPA SW-846 3050, HCl matrix
SWN USEPA SW-846 3050, HNO_3 matrix
SWR USEPA SW-846 Modified 3005, Sb by GFAAS
TEC EPA 600/4-79-020 4.1.3, HCl matrix
TEG EPA 600/4-79-020 272.1, Silver in water
TEI EPA 600/4-79-020 200.7 and 9.3
TEN EPA 600/4-79-020 4.1.3, HNO_3 matrix
THG ARI, Silver in photographic solutions
TMM EPA 600/4-79-020 245.1, Mercury in water
TSC Standard Methods 302C, Sb/Sn in water
TSN Standard Methods 302D
TSS Standard Methods 302E, Ti in water
TWC USEPA SW-846 3010, HCl matrix
TWG USEPA SW-846 7760, Silver in water
TWN USEPA SW-846 3020, HNO_3 matrix
WMN EPA 600/4-79-020, Preserved, undigested water
XSC Standard Methods 302B

CONCENTRATION CODES

These codes are used to qualify reported concentrations:

U No analyte was detected. The reported value is the lower limit of detection.

METHOD CODES

These codes signify the instrumental technique used for analysis:

CVA Cold Vapor Atomic Absorption Spectrophotometry
FLA Flame Atomic Absorption Spectrophotometry
GFA Graphite Furnace Atomic Absorption Spectrophotometry
ICP Inductively Coupled Plasma Atomic Emission Spectrometry

№ 5327

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	SEND RESULTS TO:
3-0499-520	Cascade Pole - Tacoma	Linda Baker

SAMPLERS: Grant Hainsworth

RECEIVING LABORATORY: AAI

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	Cr+6 (w-Precip)							REMARKS
	03/03/93	12:00	P8-3	1	✓							
	03/04/93	3:40	P18-3	1	✓							
	03/05/93	1:45	C9-3	1	✓							
	03/10/93	10:20	C1-3	1	✓							
	03/09/93	5:05	C3-3	1	✓							
	"	3:05	C5-3	1	✓							
	"	10:55	C7-3	1	✓							
	"	9:55	C11-3	1	✓							
	"	10:25	C13-3	1	✓							
	"	11:35	C15-3	1	✓							
	"	3:45	C17-3	1	✓							
	03/10/93	9:00	C19-3	1	✓							

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Grant Hainsworth	03/10/93 3:00 pm				

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
		Shelley Miller	3/10/93 17:10

Shipper Information: FNA Courier

RETEC
REMEDIATION TECHNOLOGIES INC

REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

RE # C-01

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Seattle, WA 98109-5187
(206) 621-6490
(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: A
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 94.19

ID number: P8-3
Project: Cascade-Pole
Description:
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/22/93

4/07/93

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333 Ninth Ave. North
Seattle, WA 98109-5187
(206) 621-6490
(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: ADUP
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 94.19

ID number: P8-3
Project: Cascade-Pole
Description: Laboratory Duplicate
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/22/93

KMC 4/07/93

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Matrix Duplicate Quality Control Report

Client: Retec
Client's sample ID: P8-3
ARI sample ID: D201 ADUP
Units: mg/kg-dry

Analyte	Meth	Original Sample	Matrix Duplicate	RPD	Control Limit	Q
Chromium(VI)	ICP	U 1	U 1	0.0	± 1	L

RPD = Relative Percent Difference

'Q' codes: '*' = control limit not met
'L' = RPD not valid, alternate limit = ± detection limit

Knu
4/07/93

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ARI job number: D201
ARI Sample number: ASPK
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 94.19

ID number: P8-3
Project: Cascade-Pole
Description: Matrix Spike
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	17 mg/kg-dry		1	DE6	ICP	03/22/93

Kmc 4/07/93

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(206) 621-7523 (FAX)

Matrix Spike Quality Control Report

Client: Retec
Client's sample ID: P8-3
ARI sample ID: D201 ASPK
Units: mg/kg-dry

Analyte	Meth	Sample	Matrix Spike	Spike Added	%R	Control Limit	Q
Chromium(VI)	ICP	0	17	21	81.0	75-125%	

%R = Percent Recovery

'Q' codes: 'N' = control limit not met
'H' = %R not applicable, sample concentration too high

KML
4/07/95

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(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: B
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 82.03

ID number: P18-3
Project: Cascade-Pole
Description:
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/22/93

4/07/93

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(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: D
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 83.52

ID number: C1-3
Project: Cascade-Pole
Description:
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	60 mg/kg-dry		1	DE6	ICP	03/22/93

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(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: E
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 80.66

ID number: C3-3
Project: Cascade-Pole
Description:
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	2 mg/kg-dry		1	DE6	ICP	03/22/93

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(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: F
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 85.45

ID number: C5-3
Project: Cascade-Pole
Description:
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	160 mg/kg-dry		1	DE6	ICP	03/22/93

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Seattle, WA 98109-5187
(206) 621-6490
(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: G
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 87.49

ID number: C7-3
Project: Cascade-Pole
Description:
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	96 mg/kg-dry		1	DE6	ICP	03/22/93

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(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: C
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 94.72

ID number: C9-3
Project: Cascade-Pole
Description:
Sampled: / /
Received: 03/10/93

Released by:

ANALYTICAL RESULTS

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	3 mg/kg-dry		1	DE6	ICP	03/22/93

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333 Ninth Ave. North
Seattle, WA 98109-5187
(206) 621-6490
(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: H
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 92.96

ID number: C11-3
Project: Cascade-Pole
Description:
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	20 mg/kg-dry		1	DE6	ICP	03/22/93

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(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: I
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 94.74

ID number: C13-3
Project: Cascade-Pole
Description:
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	33 mg/kg-dry		1	DE6	ICP	03/23/93

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ARI job number: D201
ARI Sample number: J
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 91.21

ID number: C15-3
Project: Cascade-Pole
Description:
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	74 mg/kg-dry		1	DE6	ICP	03/23/93

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Seattle, WA 98109-5187
(206) 621-6490
(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: K
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 86.60

ID number: C17-3
Project: Cascade-Pole
Description:
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	160 mg/kg-dry		1	DE6	ICP	03/23/93

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(206) 621-6490
(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: L
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 80.88

ID number: C19-3
Project: Cascade-Pole
Description:
Sampled: / /
Received: 03/10/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/23/93

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(206) 621-6490
(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: MB
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 100.0

ID number:
Project: Cascade-Pole
Description: Method Blank
Sampled: / /
Received: / /

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/22/93

4/27/93

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(206) 621-6490
(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: CHK1
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 0.00

ID number:
Project: Cascade-Pole
Description: 0.010 Check Standard
Sampled: / /
Received: / /

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	0.010 mg/L		0.005	DE6	ICP	03/22/93

KMS 4/6/93

ANALYTICAL RESOURCES INCORPORATED

Analytical Chemists & Consultants

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Seattle, WA 98109-5187
(206) 621-6490
(206) 621-7523 (FAX)

ARI job number: D201
ARI Sample number: CHK2
Client: Retec
Contact: Linda Baker
Matrix: Soil

% Solids: 0.00

ID number:
Project: Cascade-Pole
Description: 0.500 Check Standard
Sampled: / /
Received: / /

Released by: BK

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	0.438 mg/L		0.005	DE6	ICP	03/22/93

nm 4/10/92

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(206) 621-6490
(206) 621-7523 (FAX)

24 March 1993

Linda Baker
Remediation Technologies Inc.
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134

RE: Client Project: 3-0499-510 Cascade Pole - Interim Action
ARI Project: #D098, D098 II

Dear Ms. Baker,

Please find enclosed the original chain-of-custody (COC) records and results for the above referenced project. Twenty soil samples were received on 2/25/93, in good condition. There were no discrepancies between the COCs and sample container labels.

As we discussed, there was some difficulty performing the co-precipitation preparation method on these samples. The method was finally successful with 1 to 10 dilutions of the samples. Unfortunately, as I informed you, when the samples were being analyzed on the ICP instrument the nebulizer became clogged and five of the samples were lost. These were replaced on 3/15 (the accompanying memo is included here), and the remaining analyses proceeded without incident of note.

A copy of this package will be kept on file with ARI should you require any further information or copies of additional documentation. If you have any questions please feel free to call any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kate Stegemoeller

Kate Stegemoeller
Project Coordinator
206-340-2866, ext. 117

KAS/ks

Enclosures

cc: file #D098

№ 5319

CHAIN OF CUSTODY RECORD

/2

PROJ. NO.	PROJECT NAME	SEND RESULTS TO:
3-0499-510	Cascade Pole - Interim Action	Linda Baker

SAMPLERS: Grant Hainsworth

RECEIVING LABORATORY: ARI

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	Cr, Cu (Co-Precip.)							REMARKS
	02/22/93	3:30	PV1B-2	1	✓							- Bill Cascade Pole
	"	1:35	PV1C-1	1	✓							directly
	"	3:45	PV1D-2	1	✓							
	"	2:05	PV1E-1	1	✓							
	02/23/93	8:45	PV2-1	1	✓							
	"	9:20	PV2-4	1	✓							
	"	10:15	PV2-5	1	✓							
	"	11:30	PV2-8	1	✓							
	"	3:20	PV3-1	1	✓							
	"	5:25	PV3-3	1	✓							
	"	4:45	PV3-5	1	✓							
	"	4:05	PV3-7	1	✓							
	"	6:05	PV3-9	1	✓							

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Grant Hainsworth	02/24/93 5:45				

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
		Shelby Miller	2/25/93 11:10

Shipper Information: Courier to lab

REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

RETEC REMEDIATION TECHNOLOGIES INC

PINK COPY - Sam... YELLOW COPY - Laboratory WHITE COPY - ReTeC

ARI # JM98

2/2

№ 5321

CHAIN OF CUSTODY RECORD

PROJ. NO.: 3-0499-510

PROJECT NAME: Cascade Pole - Interim Action

SAMPLERS: Grant Hainsworth

RECEIVING LABORATORY: ARI

SEND RESULTS TO: Linda Baker

LAB I.D. NO.	DATE	TIME	SAMPLE NO.	NO. OF CONTAINERS	Cr +6 (Co-precip)							REMARKS
	02/21/93	12:35	PV3-11	1	✓							
	11	1:50	PV3-13	1	✓							
	11	10:40	PV3-15	1	✓							
	11	11:35	PV3-17	1	✓							
	11	2:45	PV3-19	1	✓							
	11	10:50	PV3-21	1	✓							
	11	3:30	PV2B-1	1	✓							

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Grant Hainsworth	02/24/93 5:45				

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
		Shelby Miller	2/25/93 11:10

Shipper Information: Courier to lab.

RETEC
REMEDIATION TECHNOLOGIES INC

REMEDIATION TECHNOLOGIES
1011 S.W. Klickitat Way
Suite 207
Seattle, WA 98134
(206) 624-9349

PINK COPY - Sampler YELLOW COPY - Laboratory WHITE COPY - ReTeC

ARI# D098

REMEDIATION TECHNOLOGIES INC

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Suite 207
Seattle, WA 98134
(206) 624-9349
FAX (206) 624-2839

TRANSMITTAL LETTER

TO: ARI
333 Ninth Ave. N
Seattle, WA 98109-5187

ATTN: Kate

DATE: 03-15-93

JOB NO.: 3-0499-520

SUBJECT: Cr +6 by Co-Precipitation Analyses.

ENCLOSED PLEASE FIND:

Samples PV2-4, PV2-5, PV2-8, PV3-1 & PV3-3

REMARKS:

Job D098

SHOULD YOU HAVE ANY QUESTIONS, PLEASE FEEL FREE TO CALL ME.

SINCERELY,

REMEDIATION TECHNOLOGIES, INC.

Grant

CC:

EXPLANATION OF INORGANIC DATA REPORT CODES

The columns labeled 'PREP', 'C', and 'M' contain important information about your analyses. The codes are defined below.

PREPARATION CODES

These 3-letter codes describe methods used to prepare samples for analysis:

AEN	USEPA, Metals in air filters
AHM	ARI, Mercury in air filters
AHN	ARI, Metals in air filters
ANN	NIOSH 7300, Metals in air filters
CAN	AOAC (1984) 25.024, Metals in earthenware
DE6	EPA 600/4-79-020 218.5, Cr(VI) in water
DMM	DMN followed by TMM, Dissolved mercury
DMN	Filtered through .45u filter, Dissolved metals
EW6	EWN followed by DE6
EWM	EWN followed by TMM
EWN	USEPA SW-846 1310, EP Toxicity
FHP	ARI, Metals in tissue ($HNO_3/HClO_4$)
FPP	PSEP, Metals in tissue ($HNO_3/HClO_4$)
FRM	Journal, Mercury in tissue
FRN	Journal, Metals in tissue (HNO_3/H_2O_2)
KRN	ARI, Concentration by coprecipitation
LEM	USEPA, TCLP followed by TMM
LEN	USEPA, TCLP Extraction
MHM	ARI, Mercury in miscellaneous materials
MHN	ARI, Metals in miscellaneous materials
OAM	ARI, Mercury in oil, grease or tar
OAN	ARI, Metals in oil, grease or tar
PHM	ARI, Mercury in wipes
PHN	ARI, Metals in wipes
RCC	USEPA CLP, Water digestion, HCl matrix
RCN	USEPA CLP, Water digestion, HNO_3 matrix
REC	EPA 600/4-79-020 4.1.4, HCl matrix
REI	EPA 600/4-79-020 200.7 and 9.4
REN	EPA 600/4-79-020 4.1.4, HNO_3 matrix
RMA	EPA 600/4-79-020 206.2
RWC	USEPA SW-846 3005
SCC	USEPA CLP, Soil digestion, HCl matrix
SCM	USEPA CLP, Mercury in soil
SCN	USEPA CLP, Soil digestion, HNO_3 matrix
SEM	EPA 600/4-79-020 245.5, Mercury in soil
SHF	ARI, Metals in soil, HF digestion
SMN	Agronomy,Metals in soil, Water extract
SMM	SMN followed by DMM, Dissolved mercury
SSC	Standard Methods 302C, Sb/Sn in soil
SSN	Standard Methods 302C, Soil digestion
SSS	Standard Methods 302C, Ti in soil
SW6	USEPA SW-846 3060, Cr(VI) in soil
SWC	USEPA SW-846 3050, HCl matrix
SWN	USEPA SW-846 3050, HNO_3 matrix
SWR	USEPA SW-846 Modified 3005, Sb by GFAAS
TEC	EPA 600/4-79-020 4.1.3, HCl matrix
TEG	EPA 600/4-79-020 272.1, Silver in water
TEI	EPA 600/4-79-020 200.7 and 9.3
TEN	EPA 600/4-79-020 4.1.3, HNO_3 matrix
THG	ARI, Silver in photographic solutions
TMM	EPA 600/4-79-020 245.1, Mercury in water
TSC	Standard Methods 302C, Sb/Sn in water
TSN	Standard Methods 302D
TSS	Standard Methods 302E, Ti in water
TWC	USEPA SW-846 3010, HCl matrix
TWG	USEPA SW-846 7760, Silver in water
TWN	USEPA SW-846 3020, HNO_3 matrix
WMN	EPA 600/4-79-020, Preserved, undigested water
XSC	Standard Methods 302B

CONCENTRATION CODES

These codes are used to qualify reported concentrations:

U No analyte was detected. The reported value is the lower limit of detection.

METHOD CODES

These codes signify the instrumental technique used for analysis:

CVA	Cold Vapor Atomic Absorption Spectrophotometry
FLA	Flame Atomic Absorption Spectrophotometry
GFA	Graphite Furnace Atomic Absorption Spectrophotometry
ICP	Inductively Coupled Plasma Atomic Emission Spectrometry

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(206) 621-7523 (FAX)

ARI job number: D098
ARI Sample number: A
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 83.62

ID number: PV1B-2
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by: BK

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/05/93

U =

<1

Kmc
3/7/93

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ARI job number: D098
ARI Sample number: ADUP
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 83.62

ID number: PV1B-2
Project: Cascade Pole
Description: Laboratory Duplicate
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/05/93

ignore

Kmc 4/7/93

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Matrix Duplicate Quality Control Report

Client: Retec
Client's sample ID: PV1B-2
ARI sample ID: D098 ADUP
Units: mg/kg-dry

Analyte	Meth	Original Sample	Matrix Duplicate	RPD	Control Limit	Q
Chromium(VI)	ICP	U 1	U 1	0.0	± 1	L

RPD = Relative Percent Difference

'Q' codes: '*' = control limit not met
'L' = RPD not valid, alternate limit = ± detection limit

Ignore

kmc 4/7/93

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ARI job number: D098
ARI Sample number: ASPK
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 83.62

ID number: PV1B-2
Project: Cascade Pole
Description: Matrix Spike
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	21 mg/kg-dry		1	DE6	ICP	03/05/93

Ignore

kmc 4/7/93

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Matrix Spike Quality Control Report

Client: Retec
Client's sample ID: PV1B-2
ARI sample ID: D098 ASPK
Units: mg/kg-dry

Analyte	Meth	Sample	Matrix Spike	Spike Added	%R	Control Limit	Q
Chromium(VI)	ICP	0	21	24	87.5	75-125%	

%R = Percent Recovery

'Q' codes: 'N' = control limit not met
'H' = %R not applicable, sample concentration too high

Kmc 4/7/93

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ARI job number: D098
ARI Sample number: B
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 84.10

ID number: PV1C-1
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: C
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 86.84

ID number: PV1D-2
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: D
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 88.33

ID number: PV1E-1
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: E
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 84.72

ID number: PV2-1
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by: BK

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: F
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 94.21

ID number: PV2-4
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/22/93

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ARI job number: D098
ARI Sample number: G
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 95.16

ID number: PV2-5
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by: RJK

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/22/93

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ARI job number: D098
ARI Sample number: H
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 93.90

ID number: PV2-8
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/22/93

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ARI job number: D098
ARI Sample number: I
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 89.20

ID number: PV3-1
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/22/93

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ARI job number: D098
ARI Sample number: J
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 92.17

ID number: PV3-3
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/22/93

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ARI job number: D098
ARI Sample number: K
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 93.83

ID number: PV3-5
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

ANALYTICAL RESULTS

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: L
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 94.98

ID number: PV3-7
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: M
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 94.85

ID number: PV3-9
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by: BK

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: N
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 93.43

ID number: PV3-11
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: O
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 93.80

ID number: PV3-13
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: P
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 90.02

ID number: PV3-15
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: Q
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 92.75

ID number: PV3-17
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: R
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 91.71

ID number: PV3-19
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: S
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 90.43

ID number: PV3-21
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: T
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 92.57

ID number: PV2B-1
Project: Cascade Pole
Description:
Sampled: / /
Received: 02/25/93

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/08/93

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ARI job number: D098
ARI Sample number: CHK1
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 0.00

ID number:
Project: Cascade Pole
Description: 0.010 Check Standard
Sampled: / /
Received: / /

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	0.010 mg/L		0.005	DE6	ICP	03/05/93

kmc
4/07/93

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ARI job number: D098
ARI Sample number: CHK2
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 0.00

ID number:
Project: Cascade Pole
Description: 0.500 Check Standard
Sampled: / /
Received: / /

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	0.427 mg/L		0.005	DE6	ICP	03/05/93

4/07/93

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ARI job number: D098
ARI Sample number: MB
Client: Retec
Contact: Grant Hainsworth
Matrix: Soil

% Solids: 100.0

ID number:
Project: Cascade Pole
Description: Method Blank
Sampled: / /
Received: / /

Released by:

A N A L Y T I C A L   R E S U L T S

CAS Number	Analyte	Concentration	C	LOD	Prep	M	Analyzed
7440-47-3	Chromium(VI)	1 mg/kg-dry	U	1	DE6	ICP	03/05/93

Kmc
4/07/93

APPENDIX F

HISTORICAL SOIL DATA MEMORANDUM

AECOM Environment
710 2nd Avenue, Suite 1000, Seattle, WA 98104
T 206.624.9349   F 206.623.3793   www.aecom.com

Memorandum

Date: August 12, 2009

To: Stan Leja, Department of Ecology

From: Renee Knecht, AECOM Environment

Subject: Cascade Pole and Lumber Company Historic Soil Data and Soil Management Information (insert to RI/FS Appendix A)

Distribution: Ted Smith   Les Lonning   Linda Baker

The Remedial Investigation and Feasibility Study (RI/FS) for the Cascade Pole and Lumber Company (CPLC) facility in Tacoma, Washington (RETEC 2007) summarizes past soil sampling. This Addendum to the RI/FS provides additional historic information on soil sampling and documents remaining soil conditions.[1]

Over the past two decades, CPLC has collected and analyzed soil samples as a part of several investigations and interim actions. The timing of investigations and actions, and the scope of soil sampling are summarized in Table 1 and discussed in Section 3.3 and 4.0 of the RI/FS. These investigations and actions involved the sampling of both soils that have remained onsite and are capped, and soils which were disposed of offsite. Soil sampling results are presented on Tables 2 and 3 and are organized by area of interest. Figures 1 and 2 delineate the areas of interest and show all soil sample locations. These areas are as follows:

1) shallow and deeper soil (samples collected during monitoring well installation);

2) paving area 1;

3) paving area 2;

4) paving area 3;

5) Transfer Table;

6) CA-B drip pad (formerly the CCA drip pad); and

7) PCP drip pad.

[1] This information has been provided in the RI/FS Work Plan and other previous documents and is included in Appendix A of the RI/FS for completeness as requested by the Washington Department of Ecology.

Table 2 includes soil data that has been either regraded during paving activities or left in place. Table 3 includes the soil data which has been excavated and shipped off site to a hazardous waste facility. The investigation and remedial activities associated with soil sampling events are as follows:

Site-wide Monitoring Well Investigation of Shallow and Deeper Soils: Soil samples were collected to evaluate soil conditions during installation of monitoring wells in 1991, 1996, and 2003. All soil from these sampling events remains on site and capped.

Paving Areas 1, 2 and 3: Soil results collected prior to paving in areas 1, 2 and 3 were evaluated (1993 MTCA health based levels for industrial use property) and found to be acceptable to stay on site (RETEC, 1993). The soils from these areas were re-graded and paved over as approved by EPA in their January 20, 1993 letter to Les Lonning of CPLC (attached) and as discussed with the Washington State Department of Ecology (Ecology) at project meetings. Excess soil from paving area 1 was graded on to paving area 4 and paved. Based on historical use information, paving area 5 was outside the area of interest of the RI/FS. Additional paving in area 5 was completed to limit infiltration and improve the stormwater treatment.

Transfer Table: The transfer table soil was sampled in 1991 and shallow soil was excavated during the transfer table interim action in 1999. Approximately two feet of soil from the floor of the transfer table was removed as shown on Figure 2. Excavation did not include soil beneath the ordinary high water table (approximately 2 feet below the base of the transfer table pit floor) as the removal of these soils would have compromised the transfer table structure and impacts below the water table would be addressed by the horizontal drain (RETEC, 1993 and ThermoRetec, 2000). Excavated soil from the eastern and central portions of the transfer table was disposed of at a permitted Subtitle C landfill. A contained-in determination was secured for excavated soil from the western portion of the transfer table and this soil was disposed of a Subtitle D landfill. The remaining soil was covered with a concrete containment pad..

Drip Pads: The CA-B drip pad (formerly the CCA drip pad), and the PCP drip pad were upgraded to further contain and control potential releases from the operations of wood treating in accordance with RCRA 40 CFR Part 264 Subpart W. The top three feet of each drip pad footprint was excavated. An additional foot from the central portion of the CA-B drip pad area was excavated to remove soil with elevated metals concentrations. The excavation was completed according to plan (RETEC, 1993). Soils from these excavations were handled according to the letter of understanding from Thomas Eaton of Ecology to Edward Smith of CPLC dated July 2, 1993 and were disposed off site at a permitted Subtitle C facility.

Arsenic is the only chemical exceeding current MTCA Method C cleanup levels[2] in soil (87.5 mg/kg) at the CPLC facility. Soil concentrations are less than an order of magnitude above the MTCA Method C industrial criteria in shallow soils in the process area (transfer table, drip pads and surrounding areas), in paving area 2, at one location in paving area 1 and at MW-4. All these areas are capped, preventing direct contact with soil and limiting infiltration.

[2] Based on a direct contact exposure pathway.

Table 1 Summary of Previous Soil Investigations and Interim Actions

Area	Date Sampled	Data Collected	Report Title
Site-Wide Monitoring Well Soil Data	January and March 1991	Well installation, surface and subsurface soil sampling were completed in three areas of concern: (1) downgradient of the treated lumber storage area; (2) transfer table; and (3) down-gradient of the butt vat (MW-1 to MW-11)	*Interim Report (RETEC, 1991)*
	December 1996	Well installation, surface and subsurface soil sampling were completed near the northern property boundary (MW-12 to MW-14)	*Progress Report (RETEC, January 10, 1997)*
	December 2003	Well installation, surface and subsurface soil sampling were completed to provide additional information on the subsurface stratigraphy, contaminant distribution and quantify soil quality in the deeper aquifer (MW-15 to MW-18)	*Revised Remedial Investigation and Feasibility Study (RETEC, 2007)*
Paving Areas 1, 2, and 3	January 1991	Shallow soil sampling in paving area 2 (a to d)	*Interim Report (RETEC, 1991)*
	June 1991	Shallow soil sampling in paving area 1 (062 to 069)	*Draft Interim Action Work Plan for the Proposed Paving, Drip Pad and Transfer Table Areas (RETEC, 1992)*
	February 1993	Shallow soil sampling in paving areas 1, 2, and 3 (PV1s, PV2s, and PV3s)	*Interim Action Report (RETEC, 1993)*
Transfer Table	January 1991	Shallow soil sampling in the transfer table area (e to i)	*Interim Report (RETEC, 1991)*
	October 1999	Soil sampling near butt vat	*Transfer Table Pit Upgrade Completion Report (RETEC, 2000)*
Drip Pads	March 1993	Soil sampling within the CA-B (formerly the CCA) and PCP drip pad areas	*Interim Action Report (RETEC, 1993)*

Table 2 Soil Results Regraded or Left in Place On-Site

Area:	Monitoring Wells Installed in 1991																				
Sample Number/ID:	S-1-.5	S-1-3	S-1-11.5	S-2-.5	S-2-3	S-2-5	S-2-10.5	S-3-1.5	S-3-2.5	S-3-5	S-3-7.5	S-4-.5	S-4-3	S-4-5	S-5-1	S-5-2.5	S-5-5	S-5-10	S-6-2	S-6-4.5	S-6-15
Location ID:	MW-1	MW-1	MW-1	MW-2	MW-2	MW-2	MW-2	MW-3	MW-3	MW-3	MW-3	MW-4	MW-4	MW-4	MW-5	MW-5	MW-5	MW-5	MW-6	MW-6	MW-6
Sample Depth (ft):	0-0.5	2.5-3	11-11.5	0-0.5	2.5-3	4.5-5	10-10.5	1-1.5	2.5-3	4.5-5	7-7.5	0-0.5	2.5-3	4.5-5	0.5-1	2.5-3	4.5-5	9.5-10	1.5-2	4-4.5	4-4.5
Sample Date:	1/22	1/22	1/22	1/23	1/23	1/23	1/23	1/24	1/24	1/24	1/24	1/23	1/23	1/23	1/24	1/24	1/24	1/24	1/25	1/25	1/25
Laboratory ID (a):	168-1	168-2	168-3	168-8	168-9	168-10	168-11	196-8	196-9	196-10	196-11	168-4	168-5	168-6	196-4	196-5	196-7	196-6	196-1	196-2	196-12
Inorganics (mg/kg)																					
Arsenic	**1.0**	**2.2**	**5**	**19**	**1.4**	**5.4**	**2.8**	**40**	**57**	**110**	**18**	**3.3**	**110**	**5.4**	**1.4**	**4.8**	**4.4**	**3.7**	**120**	**12**	**4.7**
Chromium	**9.5**	**16**	**10**	**30**	**5.6**	**10**	**8.8**	**14**	**100**	**13**	**10**	**9.4**	**31**	**5.1**	**9**	**20**	**10**	**8**	**200**	**51**	**58**
Copper	**30**	**26**	**40**	**9.3**	**9.2**	**15**	**32**	**9**	**13**	**19**	**12**	**21**	**5400**	**6.2**	**11**	**23**	**27**	**33**	**30**	**46**	**19**
Hexavalent Chromium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**3.6**	**1.8**	**1.2**	**1.3**	<0.1	<0.1	<0.1	**1.6**	<1.0	**2**	<1.0	**7.1**	**3.4**	**2.8**
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics (mg/kg)																					
Phenol	<0.17	<0.17	<0.25	<0.17	<0.17	<0.34	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.68	<0.17	<0.34	<0.34	<0.17
2-Methylphenol	<0.17	<0.17	<0.25	<0.17	<0.17	<0.34	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.68	<0.17	<0.34	<0.34	<0.17
4-Methylphenol	<0.17	<0.17	<0.25	<0.17	<0.17	<0.34	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.68	<0.17	<0.34	<0.34	<0.17
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic Acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	<0.17	<0.17	<0.25	<0.17	<0.17	<0.34	<0.34	<0.17	<0.17	**0.15** J	<0.17	<0.17	**0.23**	<0.17	<0.17	<0.34	**2.4**	**0.26**	**1.7**	**1.8**	<0.17
2-Methylnaphthalene	<0.17	<0.17	<0.25	<0.17	<0.17	<0.34	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	**0.16** J	<0.17	<0.17	<0.34	<0.68	<0.17	<0.34	<0.34	<0.17
4-Chloro-3-Methylphenol	<0.17	<0.17	<0.25	<0.17	<0.17	<0.34	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	**0.58** J	<0.17	**3.4**	**1.2**	<0.17
Acenaphthylene	<0.17	<0.17	<0.25	<0.17	<0.17	**0.5**	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	**0.11** J	<0.17	<0.17	<0.34	<0.68	<0.17	**0.18** J	**2.9**	<0.17
Acenaphthene	<0.17	<0.17	<0.25	<0.17	<0.17	<0.34	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	**0.27**	<0.17	<0.17	<0.34	<0.68	<0.17	**7.4**	**0.7**	<0.17
Dibenzofuran	<0.17	<0.17	<0.25	<0.17	<0.17	<0.34	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	**0.10** J	<0.17	<0.17	<0.34	<0.68	<0.17	**4.2**	<0.34	<0.17
Fluorene	<0.17	<0.17	<0.25	<0.17	<0.17	<0.34	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	**0.16** J	<0.17	<0.17	<0.34	<0.68	<0.17	**5.1**	**2.3**	<0.17
Pentachlorophenol	<0.85	<0.85	<1.3	<0.85	<0.85	**92** D	<1.7	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	**2.9**	**19**	<0.85	**3.3**	<0.17	<0.85
Phenanthrene	<0.17	<0.17	<0.25	<0.17	<0.17	<0.34	**0.2** J	<0.17	<0.17	<0.17	**0.09** J	<0.17	**1.2**	<0.17	**0.098** J	<0.34	<0.68	**0.093** J	**12**	**11**	<0.17
Anthracene	<0.17	<0.17	<0.25	<0.17	<0.17	0.72	**0.19** J	<0.17	<0.17	<0.17	**0.14** J	<0.17	**0.37**	<0.17	**0.095** J	<0.34	<0.68	<0.17	**3.9**	**3.8**	<0.17
Fluoranthene	<0.17	<0.17	<0.25	<0.17	<0.17	**2.7**	<0.34	<0.17	<0.17	<0.17	**0.095** J	<0.17	**1.3**	<0.17	<0.17	<0.34	<0.68	<0.17	**9.4**	**9.2**	<0.17
Pyrene	<0.17	<0.17	<0.25	<0.17	<0.17	**4.4**	<0.34	<0.17	<0.17	<0.17	**0.14** J	<0.17	**1.4**	<0.17	<0.17	<0.34	<0.68	**0.11** J	**7.1**	**10**	<0.17
Benzo(ghi)perylene	<0.17	<0.17	<0.25	<0.17	<0.17	<0.34	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	**0.52**	<0.17	<0.17	<0.34	<0.68	<0.17	**0.17** J	**2.0**	<0.17
RISc Test Kit - PCP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	<0.17	<0.17	<0.25	<0.17	<0.17	**3.1**	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	**0.66**	<0.17	<0.17	<0.34	<0.68	**0.087** J	**1.7**	**3.7**	<0.17
Chrysene	<0.17	<0.17	<0.25	<0.17	<0.17	**3.1**	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	**0.86**	<0.17	<0.17	<0.34	<0.68	**0.092** J	**1.6**	**3.5**	<0.17
Benzo(b)fluoranthene	<0.17	<0.17	<0.25	<0.17	<0.17	**2.9**	<0.34	<0.17	**0.097** J	<0.17	<0.17	<0.17	**1.7**	<0.17	<0.17	<0.34	<0.68	<0.17	**0.76**	**2.5**	<0.17
Benzo(k)fluoranthene	<0.17	<0.17	<0.25	<0.17	<0.17	**0.72**	<0.34	<0.17	**0.21**	<0.17	**0.13** J	<0.17	**1.9**	<0.17	<0.17	**0.22** J	<0.68	**0.17**	**2.9**	**11**	<0.17
Benzo(a)pyrene	<0.17	<0.17	<0.25	<0.17	<0.17	**2.4**	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	**1.2**	<0.17	<0.17	<0.34	<0.68	<0.17	**0.8**	**4.5**	<0.17
Indeno(123-cd)pyrene	<0.17	<0.17	<0.25	<0.17	<0.17	**0.59**	<0.34	<0.17	**0.5**	<0.17	**0.25**	<0.17	**0.49**	<0.17	<0.17	**0.70**	**0.67** J	**0.28**	**3**	**0.37**	<0.17
Dibenzo(ah)anthracene	<0.17	<0.17	<0.25	<0.17	<0.17	<0.34	<0.34	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.68	<0.17	<0.34	<0.34	<0.17
B(a)P equivalency	0.2567	0.257	0.3775	0.257	0.2567	**3.196**	0.513	0.2567	**0.286**	0.257	**0.2607**	0.2567	**1.701**	0.2567	0.2567	**0.5374**	**1.0258**	**0.2586**	**1.686**	**6.326**	0.2567
TCLP Analysis (mg/L)																					
Arsenic	NA	NA	NA	**0.021**	<0.005	<0.005	**0.012**	NA	NA	**0.091**	**0.006**	NA	NA	NA	<0.005	**0.011**	**0.017**	**0.006**	NA	<0.005	NA
Chromium	NA	NA	NA	**0.06**	<0.02	<0.02	<0.02	NA	NA	**0.03**	<0.02	NA	NA	NA	<0.02	<0.02	<0.02	<0.02	NA	**0.04**	NA

D = 20

Notes:
(a) = Laboratory ID numbers start with prefix 9101 through MW-6 and 9103 for MW-7 through MW-11
Bold = Detected concentration
J = Estimated value less than detection limit
NA = not analyzed
D = Value obtained from a diluted sample

Table 2 Soil Results Regraded or Left in Place On-Site

Area:	Monitoring Wells Installed in 1991																				
Sample Number/ID:	S-6-6.5	S-7-1	S-7-2.5	S-7-5	S-8-0.5	S-8-2.5	S-8-5	S-9-1	S-9-2.5	S-9-5	S-9-7.5	S-9-15	S-10-1.5	S-10-3	S-10-5	S-11-0.5	S-11-2.5	S-11-5	MW-12-2.0	MW-12-6.0a	MW-12-6.0b
Location ID:	MW-6	MW-7	MW-7	MW-7	MW8	MW8	MW8	MW9	MW9	MW9	MW-9	MW9	MW-10	MW10	MW10	MW11	MW11	MW11	MW-12	MW-12	MW-12-Dup
Sample Depth (ft):	6-6.5	1	2.5	5	0.5	2.5	5	1	2.5	5	7.5	15	1.5	3	5	0.5	2.5	5	2.0	6.0	6.0
Sample Date:	1/25	3/20	3/20	3/20	3/19	3/19	3/19	3/20	3/20	3/20	3/20		3/19	3/19	3/19	3/18	3/18	3/18			
Laboratory ID (a):	196-3	197-15	197-16	197-17	197-7	197-8	197-9	197-10	197-11	197-12	197-13	197-14	197-4	197-5	197-6	197-1	197-2	197-3	612043-6	612043-7	612043-8
Inorganics (mg/kg)																					
Arsenic	**2.6**	**130**	**1.5**	**6.9**	**65.4**	**224.0**	**20.7**	**3.6**	**5.9**	**12.9**	**9.2**	N/A	**3.3**	**3.4**	**5.6**	**2.6**	**9.1**	**2.2**	**160**	**1.8**	**1.5**
Chromium	**210**	**8.3**	**42**	**7.9**	**13.0**	**50.0**	**12.0**	**30.0**	**12**	**11**	**21**	N/A	**42.0**	**32.0**	**8.1**	**5.6**	**16.0**	**18.0**	**29**	**7.6**	**7.6**
Copper	**23**	**6.1**	**6.2**	**8.2**	**20.0**	**16.0**	**19.0**	**35.0**	**8.4**	**35**	**17**	N/A	**37.0**	**29.0**	**25.0**	**15.0**	**30.0**	**19.0**	**67**	**9.6**	**8.2**
Hexavalent Chromium	**20**	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	N/A	<1	<1	<1	<1	<1	<1	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics (mg/kg)																					
Phenol	<0.17	<0.17	<0.17	<0.17	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	<0.25	<0.22	NA	NA	NA
2-Methylphenol	<0.17	<0.17	<0.17	0.061 J	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	<0.25	<0.22	NA	NA	NA
4-Methylphenol	<0.17	<0.17	<0.17	0.051 J	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	<0.25	<0.22	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic Acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	<0.17	<0.17	<0.17	**1.2**	<0.23	<0.23	**0.66**	<0.23	**2.7**	**5.0**	**3.3**	**2.8**	<0.25	<0.25	<0.26	<0.21	<0.25	<0.22	<0.35	**0.012** J	<0.19
2-Methylnaphthalene	<0.17	<0.17	<0.17	<0.17	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	<0.25	<0.22	**0.023** J	<0.2	<0.19
4-Chloro-3-Methylphenol	<0.17	<0.17	<0.17	**0.14** J	<0.23	<0.23	**0.091** J	<0.23	**0.085** J	**0.30**	**0.16** J	**0.12** J	<0.25	<0.25	<0.26	<0.21	<0.25	<0.22	NA	NA	NA
Acenaphthylene	<0.17	<0.17	<0.17	<0.17	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	**0.32**	<0.22	<0.35	<0.2	<0.19
Acenaphthene	<0.17	<0.17	<0.17	**0.12** J	<0.23	<0.23	**0.12** J	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	<0.25	<0.22	<0.35	<0.2	<0.19
Dibenzofuran	<0.17	<0.17	<0.17	**0.045** J	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	<0.25	<0.22	<0.35	<0.2	<0.19
Fluorene	<0.17	<0.17	<0.17	**0.048** J	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	**0.22** J	<0.22	<0.35	<0.2	<0.19
Pentachlorophenol	<0.85	<0.85	**0.15** J	**0.15** J	<1.1	**0.38**	**0.49**	<1.1	<1.3	**0.33**	<1.3	<1.2	<1.3	<1.2	<1.3	<1.1	<1.3	<1.1	**0.044** J	<0.2	<0.19
Phenanthrene	<0.17	<0.17	<0.17	**0.047** J	<0.23	<0.23	<0.26	**0.098** J	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	**0.066** J	<0.21	**2.2**	<0.22	**0.079** J	<0.2	<0.19
Anthracene	<0.17	<0.17	<0.17	<0.17	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	**0.56**	<0.22	**0.042** J	<0.2	<0.19
Fluoranthene	<0.17	<0.17	<0.17	**0.057** J	<0.23	<0.23	<0.26	**0.14** J	<0.26	<0.25	<0.26	**0.059** J	<0.25	<0.25	<0.26	<0.21	**2.9**	<0.22	**0.14**	**0.009** J	<0.19
Pyrene	<0.17	<0.17	<0.17	**0.084** J	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	**0.054** J	<0.25	<0.25	<0.26	<0.21	**3.3**	<0.22	**0.15** J	<0.2	<0.19
Benzo(ghi)perylene	<0.17	<0.17	<0.17	<0.17	<0.23	<0.23	<0.26	**0.05** J	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	**0.85**	<0.22	<0.35	<0.2	<0.19
RISc Test Kit - PCP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	<0.17	<0.17	<0.17	<0.17	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	**1.7**	<0.22	**0.045** J	<0.2	<0.19
Chrysene	<0.17	<0.17	<0.17	**0.045** J	<0.23	<0.23	**0.068** J	**0.079** J	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	**2.0**	<0.22	**0.094** J	<0.2	<0.19
Benzo(b)fluoranthene	<0.17	<0.17	<0.17	<0.17	<0.23	<0.23	**0.12** J	**0.091** J	<0.26	<0.25	<0.26	**0.043** J	<0.25	<0.25	<0.26	<0.21	**2.3**	<0.22	**0.093** J	<0.2	<0.19
Benzo(k)fluoranthene	<0.17	<0.17	<0.17	<0.17	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	**1.3**	<0.22	**0.077** J	<0.2	<0.19
Benzo(a)pyrene	<0.17	<0.17	<0.17	<0.17	<0.23	<0.23	**0.067** J	**0.09** J	<0.26	<0.25	<0.26	**0.043** J	<0.25	<0.25	<0.26	<0.21	**1.9**	<0.22	**0.059** J	<0.2	<0.19
Indeno(123-cd)pyrene	<0.17	<0.17	<0.17	<0.17	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	**0.81**	<0.22	**0.036** J	<0.2	<0.19
Dibenzo(ah)anthracene	<0.17	<0.17	<0.17	<0.17	<0.23	<0.23	<0.26	<0.23	<0.26	<0.25	<0.26	<0.24	<0.25	<0.25	<0.26	<0.21	**0.33**	<0.22	<0.35	<0.2	<0.19
B(a)P equivalency	0.2567	0.2567	0.2567	**0.2555**	0.3473	0.3473	**0.184**	**0.192**	0.393	0.3775	0.393	**0.146**	0.3775	0.3775	0.393	0.317	**2.564**	0.3322	**0.12004**	0.302	0.2869
TCLP Analysis (mg/L)																					
Arsenic	NA	NA	NA	<0.05	<0.05	0.50	<0.05	NA	<0.05	<0.05	<0.05	NA	NA	<0.05	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	<0.005	<0.05	**0.50**	<0.05	NA	<0.05	<0.05	<0.05	NA	NA	<0.05	NA	NA	NA	NA	NA	NA	NA

Notes:
(a) = Laboratory ID numbers start with prefix 9101 through MW-6 and 9103 for MW-7 through MW-11
Bold = Detected concentration
J = Estimated value less than detection limit
NA = not analyzed
D = Value obtained from a diluted sample

Table 2 Soil Results Regraded or Left in Place On-Site

Area:	Monitoring Wells Installed in 1991					Monitoring Wells Installed in 2003								
Sample Number/ID:	MW-12-8.5	MW-13-0.5	MW-13-10.9	MW-13-5.0	MW-14-22.5	**MW15-0-0.5**	**MW15-7.5-9**	**MW16-0-0.5**	**MW16-5-6.5**	**MW16-7.5-9**	**MW17-0-0.5**	**MW17-7.5-9**	**MW18-10.5-11.5**	**MW18-22.5-24**
Location ID:	MW-12	MW-13	MW-13	MW-13	MW-14	**MW-15**	**MW-15**	**MW-16**	**MW-16**	**MW-16**	**MW-17**	**MW-17**	**MW-18**	**MW-18**
Sample Depth (ft):	8.5	0.5	10.9	5.0	22.5	0-0.5	7.5-9	0-0.5	5-6.5	7.5-9	0-0.5	7.5-9	10.5-11.5	22.5-24
Sample Date:						12/15/2003	12/15/2003	12/15/2003	12/15/2003	12/15/2003	12/15/2003	12/15/2003	12/16/2003	12/16/2003
Laboratory ID (a):	612043-9	612043-1	612043-3	612043-2	612043-5									
Inorganics (mg/kg)														
Arsenic	**12**	**7.7**	**9.9**	**1.8**	**2.1**	**36.8**	**11.8**	**4.69**	**4.68**	**6.73**	**27.3**	**3.99**	**11.8**	**1.43**
Chromium	**16**	**6.5**	**11**	**5.8**	**6.3**	**55.7**	**31.8**	**26.6**	**10.4**	**17.2**	**55.9**	**34.8**	**26.4**	**11.8**
Copper	**42**	**11**	**43**	**16**	**9.6**	**65.7**	**35.5**	**26.5**	**20.8**	**36.7**	**62.6**	**22.8**	**58**	**19.2**
Hexavalent Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics (mg/kg)														
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic Acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	**0.56** J	**0.13** J	**0.18** J	**0.017** J	<0.21	**0.231**	**0.151**	< 0.05	**3.29**	**0.0343**	< 0.05	< 0.01	**0.0218**	< 0.01
2-Methylnaphthalene	**0.23** J	**0.078** J	**0.1** J	<0.2	**0.027** J	**0.182**	**0.323**	**0.0762**	**0.163**	**0.0285**	**0.0905**	< 0.01	**0.0229**	**0.0191**
4-Chloro-3-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	<2	<0.36	<0.51	<0.2	<0.21	**0.0525**	**0.122**	< 0.05	< 0.05	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01
Acenaphthene	**0.56** J	**0.12** J	<0.51	<0.2	<0.21	**1.18**	**4.68**	< 0.05	**0.0514**	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01
Dibenzofuran	**0.13** J	**0.11** J	**0.083** J	<0.2	<0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	**0.31** J	**0.15** J	**0.046** J	<0.2	<0.21	**1.61**	**5.21**	**0.052**	< 0.05	**0.0108**	< 0.05	< 0.01	**0.0164**	< 0.01
Pentachlorophenol	<2	<0.36	<0.51	<0.2	<0.21	**10.5**	**0.57**	**0.326**	< 0.05	< 0.05	**2.52**	< 0.05	**0.245**	< 0.05
Phenanthrene	**0.89** J	**1**	**0.15** J	<0.2	**0.018** J	**5.3**	**14.6**	**0.211**	**0.141**	**0.0265**	**0.158**	**0.0182**	**0.0579**	**0.0141**
Anthracene	**0.23** J	**0.25** J	**0.043** J	<0.2	<0.21	**1.22**	**3.48**	**0.0623**	< 0.05	**0.0167**	**0.0641**	< 0.01	**0.0273**	< 0.01
Fluoranthene	**1.1** J	**1.1**	**0.096** J	<0.2	<0.21	**10.4**	**23.5**	**0.222**	**0.253**	**0.0324**	**0.321**	**0.0205**	**0.0721**	< 0.01
Pyrene	**1** J	**0.73**	**0.13** J	<0.2	<0.21	**7.6**	**14.7**	**0.197**	**0.18**	**0.0579**	**0.196**	**0.0221**	**0.0939**	< 0.01
Benzo(ghi)perylene	**0.19** J	**0.12** J	<0.51	<0.2	<0.21	**0.315**	**0.809**	**0.128**	< 0.05	< 0.01	**0.0754**	< 0.01	**0.0207**	< 0.01
RISc Test Kit - PCP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	**0.38** J	**0.35** J	**0.044** J	<0.2	<0.21	**2.33**	**6.68**	**0.097**	< 0.05	**0.0186**	**0.0792**	**0.0142**	**0.0295**	< 0.01
Chrysene	**0.52** J	**0.41**	**0.078** J	<0.2	<0.21	**1.76**	**4.09**	**0.173**	**0.0514**	**0.0216**	**0.177**	**0.0126**	**0.0699**	< 0.01
Benzo(b)fluoranthene	**0.33** J	**0.38**	<0.51	<0.2	<0.21	**1.07**	**2.38**	**0.0935**	< 0.05	**0.0226**	**0.109**	< 0.01	**0.0524**	< 0.01
Benzo(k)fluoranthene	**0.36** J	**0.32** J	<0.51	<0.2	<0.21	**0.728**	**1.61**	**0.204**	**0.0685**	**0.0255**	**0.143**	**0.0142**	**0.0469**	< 0.01
Benzo(a)pyrene	**0.39** J	**0.33** J	**0.041** J	<0.2	<0.21	**0.833**	**2.03**	**0.229**	< 0.05	**0.0167**	< 0.05	< 0.01	**0.0317**	< 0.01
Indeno(123-cd)pyrene	<2	**0.14** J	<0.51	<0.2	<0.21	**0.343**	**0.771**	**0.0727**	< 0.05	< 0.01	**0.0566**	< 0.01	**0.0197**	< 0.01
Dibenzo(ah)anthracene	<2	**0.026** J	<0.51	<0.2	<0.21	**0.136**	**0.331**	< 0.05	< 0.05	< 0.01	< 0.05	< 0.01	**0.0109**	< 0.01
B(a)P equivalency	**0.9022**	**0.4557**	**0.25018**	0.302	0.3171	**1.3113**	**3.2481**	**0.28245**	**0.07736**	**0.025586**	**0.09555**	**0.015966**	**0.048339**	0.0151
TCLP Analysis (mg/L)														
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
(a) = Laboratory ID numbers start with prefix 9101 through MW-6 and 9103 for MW-7 through MW-11
Bold = Detected concentration
J = Estimated value less than detection limit
NA = not analyzed
D = Value obtained from a diluted sample

Table 2 Soil Results Regraded or Left in Place On-Site

Area:	Paving Area 1																		Paving Area 2					
Sample Number/ID:	062	063	064	065	066	067	068	069	PV1A-1	PV1A-2	PV1B-1	PV1B-2	PV1C-1	PV1C-2	PV1D-1	PV1D-2	PV1E-1	PV1E-2	S-a-.5	S-a-.5	S-a-3	S-b-.5	S-b-3	S-c-.5
Location ID:																								
Sample Depth (ft):	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0.3-0.8	(dup)	2.5-3	0.3-0.8	2.5-3	0.3-0.8
Sample Date:	6/24/91	6/24/91	6/24/91	6/24/91	6/24/91	6/24/91	6/24/91	6/24/91	2/22/93	2/22/93	2/22/93	2/22/93	2/22/93	2/22/93	2/22/93	2/22/93	2/22/93	2/22/93	1/26/91	1/26/91	1/26/91	1/26/91	1/26/91	1/26/91
Laboratory ID (a):	57877	57878	57879	57880	57881	57882	57883	57884	193-1	193-2	193-3	193-4	193-5	193-6	193-7	193-8	193-9	193-10	207-1	207-7	207-2	207-3	207-4	207-5
Inorganics (mg/kg)																								
Arsenic	<8	**33**	<8	<8	**14**	**175**	**27**	<8	**3.1**	<2.9	**11**	**4.6**	<3.2	<2.9	<2.8	<3.2	**3.6**	<3.1	**34**	**29**	**6**	**2.8**	**3.4**	**5.3**
Chromium	**11**	**80.4**	**12.5**	**21.6**	**11.6**	**100**	**18.5**	**7.8**	**14**	**8.6**	**20**	**13**	**12**	**11**	**9.2**	**17**	**12**	**8.0**	**42**	**76**	**19**	**16**	**26**	**36**
Copper	NA	NA	NA	NA	NA	NA	NA	NA	**20**	**13**	**29**	**19**	**17**	**12**	**11**	**15**	**14**	**9.6**	**56**	**63**	**17**	**13**	**31**	**15**
Hexavalent Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	<1	<1	NA	<1	<1	<1	<1	<1	3.0
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics (mg/kg)																								
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Benzoic Acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.94	NA	NA	NA	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85
Naphthalene	<0.33	<0.33	<0.33	<0.33	<0.33	<1.65	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
2-Methylnaphthalene	<0.33	<0.33	<0.33	<0.33	<0.33	<1.65	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
4-Chloro-3-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	<0.33	<0.33	<0.33	<0.33	<0.33	**1.1** J	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Acenaphthene	<0.33	**0.37**	<0.33	<0.33	<0.33	<1.65	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Fluorene	**0.53**	**0.69**	<0.33	<0.33	<0.33	<1.65	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Pentachlorophenol	**22**	**3.3**	**2.9**	**3.7**	**2.0**	**110**	**1.2** J	1.1 J	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85
Phenanthrene	**0.69**	**2.1**	<0.33	<0.33	<0.33	<1.65	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Anthracene	<0.33	**0.65**	<0.33	<0.33	<0.33	**1.1** J	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Fluoranthene	<0.33	**2.5**	<0.33	**0.22** J	**0.50**	**2.6**	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	**0.17**
Pyrene	<0.33	**1.7**	<0.33	**0.45**	**0.38**	<1.65	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	**0.12**
Benzo(ghi)perylene	<0.33	<0.33	<0.33	<0.33	<0.33	<1.65	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
RISc Test Kit - PCP	NA	NA	NA	NA	NA	NA	NA	NA	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	<0.33	**0.61**	<0.33	<0.33	<0.33	**1.5** J	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Chrysene	<0.33	**0.77**	<0.33	**0.18** J	**0.19** J	**3.4**	**0.16** J	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Benzo(b)fluoranthene	<0.33	**0.32** J	<0.33	**0.16** J	<0.33	**3.2**	**0.17** J	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	**0.088** J	<0.17	<0.17	<0.17	<0.17	<0.17
Benzo(k)fluoranthene	<0.33	**0.22** J	<0.33	<0.33	<0.33	**1.7**	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	**0.19**	<0.17	<0.17	<0.17	<0.17	**0.11**
Benzo(a)pyrene	<0.33	**0.20** J	<0.33	<0.33	<0.33	<1.65	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Indeno(123-cd)pyrene	<0.33	<0.33	<0.33	<0.33	<0.33	<1.65	<0.33	<0.33	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	<0.17	<0.17	<0.17	<0.17	**0.10** J	<0.17
Dibenzo(ah)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B(a)P equivalency	0.4653	**0.356**	0.4653	**0.447**	**0.464**	**2.489**	**0.448**	0.4653							0.2538				**0.234**	0.2397	0.2397	0.2397	**0.23**	**0.2337**
TCLP Analysis (mg/L)																								
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.028	<0.005	**0.012**	**0.012**	<0.005	**0.061**
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020	<0.020	<0.020	<0.020	<0.020	<0.020

Notes:
(a) = Laboratory ID numbers start with prefix 9101 through MW-6 and 9103 for MW-7 through MW-11
Bold = Detected concentration
J = Estimated value less than detection limit
NA = not analyzed
D = Value obtained from a diluted sample

Table 2 Soil Results Regraded or Left in Place On-Site

Area:	Paving Area 2													Paving Area 3										
Sample Number/ID:	**S-c-3**	**S-d-.5**	**S-d-3**	**PV2-1**	**PV2-2**	**PV2-3**	**PV2-4**	**PV2-5**	**PV2-6**	**PV2-7**	**PV2-8**	**PV2B-1**	**PV2B-2**	**PV3-3**	**PV3-4**	**PV3-5**	**PV3-6**	**PV3-7**	**PV3-8**	**PV3-9**	**PV3-10**	**PV3-11**	**PV3-12**	**PV3-13**
Location ID:																								
Sample Depth (ft):	**2.5-3**	**0.3-0.8**	**2.5-3**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**
Sample Date:	**1/26/91**	**1/25/93**	**1/25/93**	**2/23/93**	**2/22/93**	**2/22/93**	**2/22/93**	**2/22/93**	**2/22/93**	**2/22/93**	**2/22/93**	**2/24/93**	**2/24/93**	**2/23/93**	**2/23/93**	**2/23/93**	**2/23/93**	**2/23/93**	**2/23/93**	**2/23/93**	**2/24/93**	**2/24/93**	**2/24/93**	**2/24/93**
Laboratory ID (a):	**207-6**	**196-13**	**196-14**	**193-11**	**193-12**	**193-13**	**193-14**	**193-15**	**193-16**	**193-17**	**193-18**	**193-40**	**193-41**	**193-21**	**193-22**	**193-23**	**193-24**	**193-25**	**193-26**	**193-27**	**193-28**	**193-29**	**193-30**	**193-31**
Inorganics (mg/kg)																								
Arsenic	**3.4**	**100**	**7.2**	<3.2	**340**	**25**	**190**	**9.1**	**92**	**64**	**6.0**	**120**	**34**	**6.8**	<2.8	<2.6	<2.7	<2.7	**4.6**	<2.6	<2.7	**5.1**	**18**	**15**
Chromium	**33**	**45**	**26**	**95**	**120**	**16**	**63**	**44**	**54**	**69**	**26**	**75**	**17**	**15**	**15**	**19**	**15**	**12**	**13**	**18**	**12**	**21**	**36**	**21**
Copper	**28**	**19**	**34**	**14**	**68**	**20**	**19**	**18**	**29**	**84**	**24**	**73**	**41**	**19**	**13**	**15**	**33**	**20**	**22**	**16**	**13**	**22**	**29**	**25**
Hexavalent Chromium	<1	**4.8**	**5.0**	<1	NA	NA	<1	<1	NA	NA	<1	<1	NA	<1	NA	<1	NA	<1	NA	<1		<1	NA	<1
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**45**	**24**	**28**	**60**	**33**	**40**	**27**	**20**	**30**	**25**	**35**
Semivolatile Organics (mg/kg)																								
Phenol	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
2-Methylphenol	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
4-Methylphenol	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
2,4-Dimethylphenol	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Benzoic Acid	<0.85	<0.85	<0.85	<0.99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.90	NA	NA	NA	NA
Naphthalene	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
2-Methylnaphthalene	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
4-Chloro-3-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Acenaphthene	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Dibenzofuran	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Fluorene	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Pentachlorophenol	<0.85	<0.85	<0.85	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Phenanthrene	<0.17	<0.17	**0.16**	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Anthracene	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Fluoranthene	<0.17	<0.17	**0.19**	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Pyrene	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Benzo(ghi)perylene	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
RISc Test Kit - PCP	NA	NA	NA	<80	NA	NA	<80	<80	NA	NA	<80	<80	NA	<80	<80	<80	<80	<80	<80	>80	<80	<80	<80	<80
Benzo(a)anthracene	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Chrysene	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Benzo(b)fluoranthene	<0.17	<0.17	0.095	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Benzo(k)fluoranthene	<0.17	**0.09**	**0.21**	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Benzo(a)pyrene	<0.17	<0.17	<0.17	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Indeno(123-cd)pyrene	<0.17	<0.17	**0.56**	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA
Dibenzo(ah)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B(a)P equivalency	0.2397	**0.2317**	**0.2752**	0.2679																0.2538				
TCLP Analysis (mg/L)																								
Arsenic	<0.005	**0.303**	**0.028**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA
Chromium	<0.020	**0.040**	<0.020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	NA	NA

Notes:
(a) = Laboratory ID numbers start with prefix 9101 through MW-6 and 9103 for MW-7 through MW-11
Bold = Detected concentration
J = Estimated value less than detection limit
NA = not analyzed
D = Value obtained from a diluted sample

Table 2 Soil Results Regraded or Left in Place On-Site

Area:	Paving Area 3								Transfer Table							CA-B Drip Pad (Former CCA Drip Pad)									
Sample Number/ID:	PV3-14	PV3-15	PV3-21*	PV3-16	PV3-17	PV3-18	PV3-19	PV3-20	TT- 1-4FT	S-e-4	S-f-4	S-g-4	S-h-4	S-i-2	S-i-4	C1-3	C2-3	C3-3	C8-3	C9-3	C10-3	C11-3	C13-3	C19-3	C20-3
Location ID:									-	Auger E	Auger F	Auger G	Auger H	Auger I	Auger I										
Sample Depth (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	1-4 ft	3.5-4	3.5-4	3.5-4	3.5-4	2-2.5	3.5-4	3.0-3.25	3.0-3.5	3.0-3.5	3.0-4.0	3-3.5	3.0-4.0	3.0-4.0	3.0-4.0	3.0-3.8	3.0-3.25
Sample Date:	2/24/93	2/24/93	2/24/93	2/24/93	2/24/93	2/24/93	2/24/93	2/24/93	10/22/99	1/25/91	1/25/91	1/25/91	1/25/91	1/25/91	1/25/91	3/10/93	3/10/93	3/9/93	3/9/93	3/5/93	3/5/93	3/9/93	3/9/93	3/10/93	3/10/93
Laboratory ID (a):	193-32	193-33	193-39	193-34	193-35	193-36	193-37	193-38	85038-01	196-17	196-20	196-23	196-26	196-28	196-29	119-1	119-2	119-3	119-8	081-25	081-26	119-9	119-10	119-16	119-17
Inorganics (mg/kg)																									
Arsenic	**4.5**	<2.7	<2.8	**11**	**6.3**	<2.8	**39**	<2.7	NA	**390**	**45**	**27**	**93**	**290**	**72**	**150**	**220**	**37**	<13	**70**	**230**	**3.5**	**57**	**28**	**8**
Chromium	**21**	**25**	**16**	**29**	**33**	**25**	**16**	**16**	NA	**4.3**	**740**	**62**	**12**	**73**	**47**	**350**	**500**	**750**	**100**	**64**	**170**	**84**	**200**	**340**	**190**
Copper	**21**	**17**	**16**	**25**	**23**	**20**	**51**	**13**	NA	**12**	**27**	**42**	**61**	**340**	**580**	**200**	**340**	**19**	**18**	**52**	**230**	**17**	**25**	**42**	**30**
Hexavalent Chromium	NA	<1	<1	NA	<1	NA	<1	NA	NA	**1.6**	**20**	**5.8**	<1	**22**	**2.3**	**60**	NA	**2**	NA	**3**	NA	**20**	**33**	<1	NA
Zinc	**27**	**33**	**28**	**31**	**34**	**70**	**120**	**22**	NA	NA	NA	NA	NA	NA	NA	**16**	**34**	**21**	**20**	**14**	**17**	**19**	**22**	**24**	**22**
Semivolatile Organics (mg/kg)																									
Phenol	NA	NA	NA	NA	NA	NA	<0.18	NA	**0.84**	<0.17	<0.17	<0.17	**0.51**	<0.17	<0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	<0.17	<0.17	<0.17	**0.30**	<0.17	<0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	<0.17	<0.17	<0.17	**0.10** J	<0.17	<0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic Acid	NA	NA	NA	NA	NA	NA	<0.93	NA	NA	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	<0.18	NA	**1.2**	**0.76**	**1.8**	<0.17	**0.34**	<0.17	**0.45**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	**0.18**	**0.71**	<0.17	<0.17	<0.17	**0.64**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	< 0.021	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	<0.18	NA	< 0.021	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	<0.18	NA	**2.3**	**0.22**	**0.54**	<0.17	<0.17	<0.17	**0.82**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	<0.18	NA	NA	<0.17	**0.49**	<0.17	<0.17	<0.17	**0.51**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	<0.18	NA	**2.3**	<0.17	**0.39**	<0.17	<0.17	<0.17	**0.68**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	NA	**0.099** J	NA	< 0.11	<0.85	<0.85	**0.32**	**2.1**	1.7	<0.85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	<0.18	NA	**5.5**	<0.17	**0.54**	<0.17	**0.17**	**0.18**	**1.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	**0.13** J	NA	**0.56**	<0.17	**0.14** J	<0.17	**0.15** J	**0.52**	**0.22**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	**0.15** J	NA	**1.8**	<0.17	**0.19**	<0.17	**0.56**	**0.40**	**0.65**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	**0.14** J	NA	**1.3**	<0.17	**0.15** J	<0.17	**0.56**	**0.31**	**0.42**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	NA	NA	NA	NA	NA	NA	<0.18	NA	< 0.021	<0.17	<0.17	<0.17	<0.17	**0.11** J	<0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RISc Test Kit - PCP	<80	<80	<80	<80	<80	<80	<80	<80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	<0.18	NA	**0.28**	<0.17	<0.17	<0.17	**0.15** J	**0.32**	**0.095** J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	**0.28**	NA	**0.27**	<0.17	<0.17	<0.17	**0.16** J	**0.33**	**0.1** J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	**0.32**	NA	**0.13**	<0.17	<0.17	<0.17	**0.15** J	**0.42**	**0.17** J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	**0.12** J	NA	**0.051**	<0.17	**0.19**	**0.12** J	**0.41**	**1.6**	**0.45**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	**0.14** J	NA	**0.081**	<0.17	<0.17	<0.17	<0.17	**0.19**	<0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(123-cd)pyrene	NA	NA	NA	NA	NA	NA	**0.13** J	NA	**0.021**	<0.17	<0.17	<0.17	<0.17	**0.14** J	<0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(ah)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	< 0.021	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B(a)P equivalency							**0.2178**		**0.134**	0.2397	**0.242**	**0.235**	**0.26**	**0.441**	**0.26**										
TCLP Analysis (mg/L)																									
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.011**	**0.032**	**0.081**	**0.44**	**2.8**	**1.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02	**0.34**	**0.31**	<0.02	**0.09**	**0.03**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

* - Duplicate of sample PV3-15

Notes:
(a) = Laboratory ID numbers start with prefix 9101 through MW-6 and 9103 for MW-7 through MW-11
Bold = Detected concentration
J = Estimated value less than detection limit
NA = not analyzed
D = Value obtained from a diluted sample

Table 2 Soil Results Regraded or Left in Place On-Site

Area:	PCP Drip Pad																	
Sample Number/ID:	P1-3	P2-3	P4-3	P5-3	P6-3	P7-3	P8-3	P10-3	P11-3	P21-3*	P12-3	P13-3	P14-3	P15-3	P16-3	P18-3	P19-3	P20-3
Location ID:																		
Sample Depth (ft):	3.0	3.0-3.5	3.0-3.5	3.0-4.0	3.0-4.0	3.0-4.0	3.0-4.0	3.0-4.0	3.0-4.0	3.0-4.0	3.0-4.0	3.0-4.0	3.0-4.0	3.0-3.5	3.0-4.0	3.0-3.5	3.0-3.5	3.0
Sample Date:	3/3/93	3/3/93	3/5/93	3/3/93	3/3/93	3/3/93	3/3/93	2/26/93	3/3/93	3/3/93	3/3/93	3/3/93	3/5/93	3/3/93	3/3/93	3/4/93	3/4/93	3/4/93
Laboratory ID (a):	081-1	081-2	081-23	081-3	081-4	081-5	081-6	081-8	081-9	081-18	081-10	081-11	081-24	081-12	081-13	081-15	081-16	081-17
Inorganics (mg/kg)																		
Arsenic	**6**	NA	**27**	NA	NA	<2.8	NA	<2.8	NA	NA	NA	<2.9	NA	NA	**47**	NA	**110**	NA
Chromium	**31**	NA	**43**	NA	NA	**31**	NA	**8.8**	NA	NA	NA	**12**	NA	NA	**20**	NA	**180**	NA
Copper	**14**	NA	**18**	NA	NA	**11**	NA	**8.1**	NA	NA	NA	**10**	NA	NA	**14**	NA	**150**	NA
Hexavalent Chromium	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Zinc	**27**	NA	**19**	NA	NA	**19**	NA	**15**	NA	NA	NA	**17**	NA	NA	**20**	NA	**38**	NA
Semivolatile Organics (mg/kg)																		
Phenol	<0.19	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	<0.19	<0.18	<0.20	NA	<0.21
2-Methylphenol	<0.19	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	<0.19	<0.18	<0.20	NA	<0.21
4-Methylphenol	<0.19	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	**0.097** J	<0.18	<0.20	NA	<0.21
2,4-Dimethylphenol	<0.19	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	<0.19	<0.18	<0.20	NA	<0.21
Benzoic Acid	<0.97	<0.97	<1.1	<1.0	**0.25** J	NA	<0.96	<0.90	<0.94	<0.94	<0.90	NA	<0.93	<0.98	<0.93	<1.0	NA	<1.1
Naphthalene	**0.43**	**0.12** J	**0.14** J	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	0.11 J	NA	<0.18	<0.19	**0.1** J	**0.25**	NA	**0.83**
2-Methylnaphthalene	**0.19** J	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	**0.21**	<0.18	**0.11** J	NA	**5.4**
4-Chloro-3-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	<0.19	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	<0.19	<0.18	<0.20	NA	<0.21
Acenaphthene	**0.37**	**0.19** J	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	**0.42**	<0.18	**0.36**	NA	<0.21
Dibenzofuran	<0.19	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	**0.22**	<0.18	**0.27**	NA	**1.2**
Fluorene	**0.40**	**0.37**	**0.20** J	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	**0.53**	<0.18	**0.77**	NA	**4.2**
Pentachlorophenol	**5.5**	**0.37**	**3.7**	**4.6**	**4.8** D	NA	**0.18** J	<0.18	**0.19**	**0.91**	<0.18	NA	**4.0**	**21** D	**9.5** D	**4.2**	NA	**34** D
Phenanthrene	**0.12** J	<0.19	<0.21	**0.22**	<0.18	NA	<0.19	<0.18	<0.18	**0.30**	<0.18	NA	<0.18	**2.0**	**0.26**	**0.61**	NA	**5.6**
Anthracene	**0.25**	**0.38**	**0.28**	**0.17** J	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	**0.58**	**0.27**	**0.74**	NA	**0.89**
Fluoranthene	**0.21**	<0.19	**0.15** J	**0.24**	<0.18	NA	<0.19	<0.18	**0.10** J	**0.31**	<0.18	NA	<0.18	**4.0**	**0.21**	**0.34**	NA	**1.6**
Pyrene	**0.16** J	<0.19	**0.11** J	**0.19** J	<0.18	NA	<0.19	<0.18	<0.18	**0.22**	<0.18	NA	<0.18	**2.3**	**0.20**	**0.29**	NA	**1.0**
Benzo(ghi)perylene	<0.19	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	<0.19	<0.18	<0.20	NA	<0.21
RISc Test Kit - PCP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	<0.19	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	**0.46**	<0.18	<0.20	NA	**0.19** J
Chrysene	**0.11** J	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	**0.78**	**0.10** J	<0.20	NA	**0.31**
Benzo(b)fluoranthene	**0.098** J	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	**0.52**	<0.18	<0.20	NA	**0.18** J
Benzo(k)fluoranthene	<0.19	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	**0.16** J	<0.18	<0.20	NA	<0.21
Benzo(a)pyrene	<0.19	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	**0.21**	<0.18	<0.20	NA	<0.21
Indeno(123-cd)pyrene	<0.19	<0.19	<0.21	<0.20	<0.18	NA	<0.19	<0.18	<0.18	<0.19	<0.18	NA	<0.18	**0.11** J	<0.18	<0.20	NA	<0.21
Dibenzo(ah)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B(a)P equivalency	**0.258**	0.2679	0.2961	0.282	0.2538			0.2538	0.2538	0.2679	0.254		0.2538	**0.343**	**0.253**	0.282		**0.292**
TCLP Analysis (mg/L)																		
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
(a) = Laboratory ID numbers start with prefix 9101 through MW-6 and 9103 for MW-7 through MW-11
Bold = Detected concentration
J = Estimated value less than detection limit
NA = not analyzed
D = Value obtained from a diluted sample

Table 3 Soil Results Shipped Off-Site

Area:	Transfer Table												CCA Drip Pad							
Sample Number:	S-e-.5	S-e-2	S-f-.5	S-f-2	S-g-.5	S-g-2	S-g-.5	S-g-2	S-h-.5	S-j-.5	S-h-2	S-i-.5	C4-3	C5-3	C6-3	C21-3*	C7-3	C12-3	C14-3	C15-3
Location ID:	Auger E	Auger E	Auger F	Auger F	Auger G	Auger G	Auger G	Auger G	Auger H	Auger H	Auger H	Auger I								
Sample Depth (ft):	0.3-0.8	1.7-2.1	0.3-0.8	1.7-2.1	0.3-0.8	1.7-2.1	0.3-0.8	1.7-2.1	0.3-0.8	0.3-0.8	1.7-2.1	0.7-1.2	3.0-3.5	3.0-3.25	3.0-4.0	3.0-4.0	3.0-4.0	3.0-4.0	3.0-3.5	3.0-4.0
Sample Date:	1/25/91	1/25/91	1/25/91	1/25/91	1/25/91	1/25/91	1/25/91	1/25/91	1/25/91	1/25/91	1/25/91	1/25/91	3/9/93	3/9/93	3/9/93	3/9/93	3/9/93	3/5/93	3/9/93	3/9/93
Laboratory ID (a):	196-15	196-16	196-18	196-19	196-21	196-22	196-21	196-22	196-24	196-30	196-25	196-27	119-4	119-5	119-6	119-18	119-7	081-27	119-11	119-12
Inorganics (mg/kg)																				
Arsenic	**31**	**3.2**	**40**	**55**	**400**	**400**	**400**	**400**	**62**	**69**	**200**	**1800**	**1200**	**4800**	**1100**	**1500**	**1200**	**400**	**890**	**1600**
Chromium	**36**	**5.3**	**53**	**360**	**540**	**990**	**540**	**990**	**32**	**23**	**34**	**150**	**930**	**2400**	**1100**	**1200**	**560**	**260**	**610**	**820**
Copper	**16**	**9.2**	**66**	**12**	**1300**	**410**	**1300**	**410**	**480**	**230**	**120**	**5900**	**1500**	**3300**	**1200**	**1500**	**1200**	**600**	**1100**	**1500**
Hexavalent Chromium	**4.8**	<1	**2.8**	**16**	**200**	**230**	**200**	**230**	**1.9**	**1.5**	**3**	**13**	NA	**160**	NA	NA	**96**	NA	NA	**74**
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**20**	**26**	**14**	**16**	**19**	**22**	**18**	**14**
Semivolatile Organics (mg/kg)																				
Phenol	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.17	<0.34	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.17	<0.34	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.17	<0.34	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.17 J	<0.34	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic Acid	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<1.7	<0.85	<0.85	<1.7	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	<0.17	<0.17	<0.17	0.11 J	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.17	<0.34	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.17	<0.34	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.17	0.62	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	0.24 J	<0.17	<0.17	<0.34	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.17	<0.34	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.17	<0.34	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	<0.85	<0.85	**0.48** J	<0.85	**0.80** J	**0.54** J	**0.80** J	**0.54** J	**17**	**1.3**	<0.85	**8.9**	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	<0.17	<0.17	**0.12** J	<0.17	<0.17	<0.17	<0.17	<0.17	**0.36**	<0.17	0.19	**0.51**	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<0.17	<0.17	**0.12** J	<0.17	<0.17	<0.17	<0.17	<0.17	**0.28** J	**0.12** J	<0.17 J	**2.2**	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	<0.17	<0.17	**0.57**	<0.17	<0.17	<0.17	<0.17	<0.17	**3.4**	**0.15** J	<0.17	**1.9**	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	<0.17	<0.17	**0.39**	<0.17	<0.17	<0.17	<0.17	<0.17	**3.6**	**0.31**	<0.17	**1.6**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.17	**1.1**	NA	NA	NA	NA	NA	NA	NA	NA
RISc Test Kit - PCP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	<0.17	<0.17	**0.095** J	<0.17	<0.17	<0.17	<0.17	<0.17	**0.60**	**0.096** J	<0.17 J	**0.68**	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	<0.17	<0.17	**0.23**	<0.17	<0.17	<0.17	<0.17	<0.17	**1.0**	**0.11** J	<0.17 J	**2.0**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	<0.17	<0.17	**0.19**	<0.17	<0.17	<0.17	<0.17	<0.17	**0.54**	**0.15** J	<0.17 J	**2.9**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	<0.17	<0.17	**1.6**	**0.095** J	**0.23**	**0.32**	**0.23**	0.32	**2.0**	**0.38**	<0.17	**5.4**	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	<0.17	<0.17	**0.11** J	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.17	**2.1**	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(123-cd)pyrene	<0.17	<0.17	**0.14** J	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.17	**1.4**	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(ah)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B(a)P equivalency	0.2397	0.2397	**0.315**	**0.232**	**0.246**	**0.2547**	**0.2457**	0.255	**0.70**	**0.251**	0.24	**3.158**	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Analysis (mg/L)																				
Arsenic	**0.047**	<0.005	**0.039**	**0.43**	**2.8**	**11**	**2.8**	**11**	**2.9**	**0.89**	**1.1**	**12**	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	**0.03**	<0.02	**0.02**	**0.06**	**15**	**15**	**15**	**15**	**0.04**	<0.02	<0.02	**0.12**	NA	NA	NA	NA	NA	NA	NA	NA

Notes: NA – Sample not analyzed for this parameter
J = Estimated value less than detection limit
(a)=Laboratory ID numbers start with prefix 9101
Bold = Detected concentration
D = Value obtained from a diluted sample
JM – Estimated concentration due to matrix effects on surrogate recoveries

Table 3 Soil Results Shipped Off-Site

Area:	CCA Drip Pad								PCP Drip Pad	
Sample Number:	**C16-3**	**C17-3**	**C18-3**	**CC1-1**	**CC2-1**	**CC3-1**	**CC4-1**	**CC5-1**	**PC1-1**	**PC3-1**
Location ID:										
Sample Depth (ft):	**3.0-4.0**	**3.0-3.25**	**3.0-3.25**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**	**0-2**
Sample Date:	**3/9/93**	**3/9/93**	**3/9/93**	**3/5/93**	**3/9/93**	**3/9/93**	**3/9/93**	**3/10/93**	**3/3/93**	**3/3/93**
Laboratory ID (a):	**119-13**	**119-14**	**119-15**	**081-28**	**119-19**	**119-20**	**119-21**	**119-22**	**081-19**	**081-21**
Inorganics (mg/kg)										
Arsenic	**1600**	**2500**	**830**	**230**	**4.2**	**390**	**520**	**380**	NA	NA
Chromium	**1300**	**1500**	**1100**	**200**	**47**	**280**	**300**	**280**	NA	NA
Copper	**1200**	**2000**	**990**	**250**	**21**	**340**	**660**	**400**	NA	NA
Hexavalent Chromium	NA	**160**	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	**14**	**13**	**18**	**23**	**15**	**19**	**24**	**22**	NA	NA
Semivolatile Organics (mg/kg)										
Phenol	NA	NA	NA	<0.89	<0.18	<0.18	<0.18	<0.18	<0.18	<0.97
2-Methylphenol	NA	NA	NA	<0.89	<0.18	<0.18	<0.18	<0.18	<0.18	<0.97
4-Methylphenol	NA	NA	NA	<0.89	<0.18	<0.18	<0.18	<0.18	<0.18	<0.97
2,4-Dimethylphenol	NA	NA	NA	<0.89	<0.18	<0.18	<0.18	<0.18	<0.18	<0.97
Benzoic Acid	NA	NA	NA	<4.5	<0.92	<0.90	<0.93	<0.93	<0.93	**<4.9**
Naphthalene	NA	NA	NA	**0.72** J	<0.18	**0.59**	**0.53**	**0.41**	<0.18	<0.97
2-Methylnaphthalene	NA	NA	NA	**0.80** J	<0.18	**0.89**	**0.85**	**0.22**	<0.18	<0.97
Acenaphthylene	NA	NA	NA	<0.89	<0.18	**0.15** J	<0.18	<0.18	<0.18	**0.99**
Acenaphthene	NA	NA	NA	**4.6** JM	**0.32**	**2.2**	**3.0**	**0.55**	<0.18	**6.0**
Dibenzofuran	NA	NA	NA	**2.5** JM	<0.18	**2.2**	**2.1**	**0.36**	<0.18	**2.4**
Fluorene	NA	NA	NA	**2.0** JM	<0.18	**1.3**	**2.6**	**0.39**	<0.18	**4.5**
Pentachlorophenol	NA	NA	NA	**3.9** JM	**0.09** J	**1.9**	**0.80**	**0.21**	**2.9**	**100** D
Phenanthrene	NA	NA	NA	**7.9** JM	**0.14** J	**5.3**	**11** D	**1.4**	**0.099** J	**15**
Anthracene	NA	NA	NA	**2.8** JM	**0.099** J	**1.6**	**1.8**	**0.41**	<0.18	**5.0**
Fluoranthene	NA	NA	NA	**1.3** JM	**1.6**	**8.8** D	**7.9** D	**1.2**	**0.19**	**51** D
Pyrene	NA	NA	NA	**8.8** JM	**0.93**	**5.4**	**4.7**	**0.75**	**0.34**	**24**
Benzo(ghi)perylene	NA	NA	NA	<0.89	<0.18	**0.17** J	**0.13** J	<0.18	<0.18	**0.69** J
RISc Test Kit - PCP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	**1.9** JM	**0.30**	**1.5**	**1.3**	**0.17** J	<0.18	**5.5**
Chrysene	NA	NA	NA	**2.9**	**0.31**	**1.8**	**1.4**	**0.28**	<0.18	**8.7**
Benzo(b)fluoranthene	NA	NA	NA	**2.2**	**0.20**	**1.1**	**0.76**	<0.18	**0.15** J	**5.3**
Benzo(k)fluoranthene	NA	NA	NA	**0.52** J	<0.18	**0.36**	**0.27**	<0.18	<0.18	**1.5**
Benzo(a)pyrene	NA	NA	NA	**1.1**	**0.13** J	**0.50**	**0.44**	<0.18	<0.18	**2.0**
Indeno(123-cd)pyrene	NA	NA	NA	<0.89	<0.18	**0.23**	**0.17** J	<0.18	<0.18	**0.90** J
Dibenzo(ah)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B(a)P equivalency	NA	NA	NA	**1.68**	**0.22**	**0.837**	**0.704**	**0.2538**	**0.251**	**3.407**
TCLP Analysis (mg/L)										
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes: NA – Sample not analyzed for this parameter
J = Estimated value less than detection limit
(a)=Laboratory ID numbers start with prefix 9101
Bold = Detected concentration
D = Value obtained from a diluted sample
JM – Estimated concentration due to matrix effects on surrogate recoveries

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

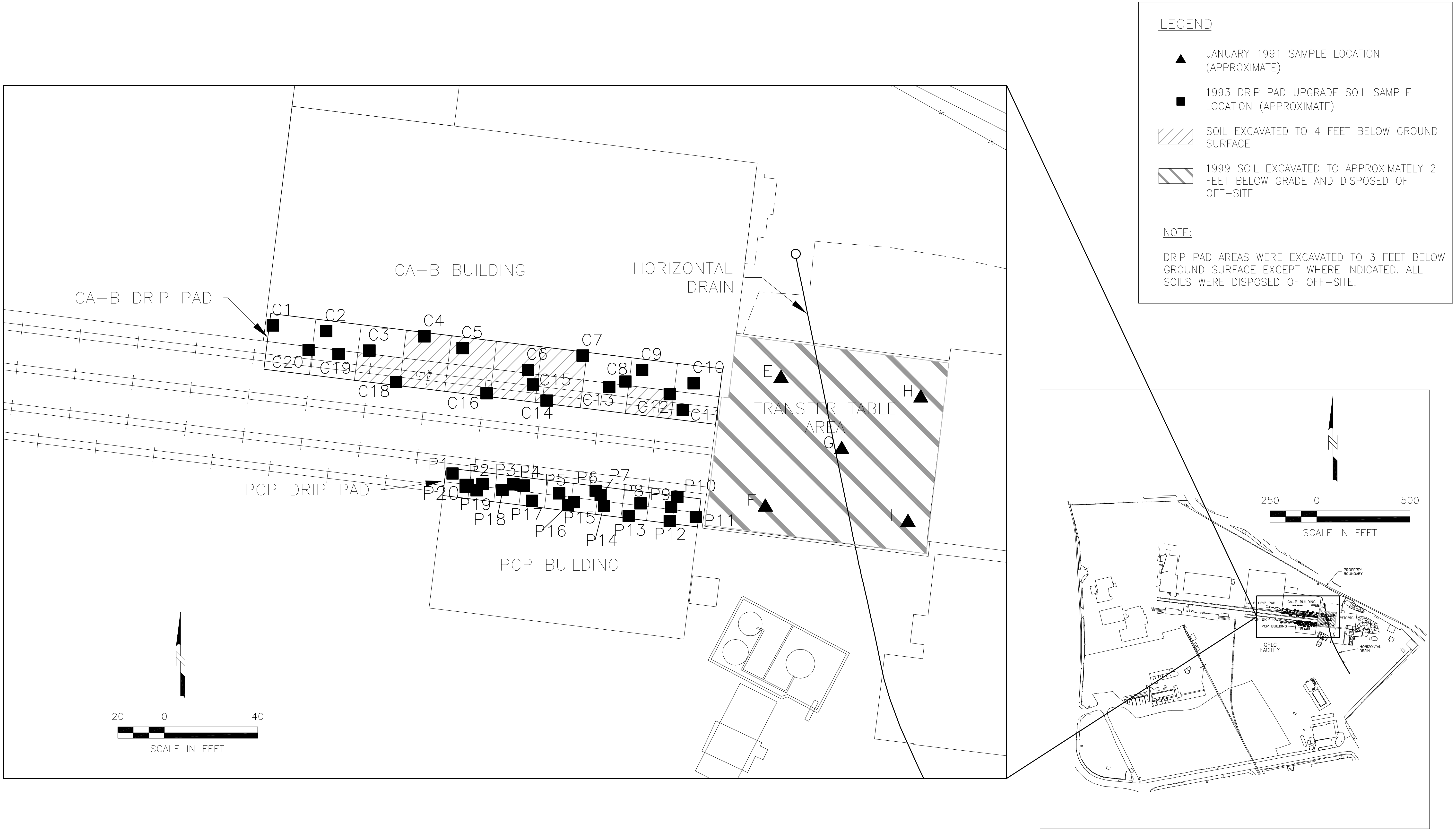
04530-015-0200

DATE: 06/16/09 DRWN: E.M./SEA

PROCESSING AREA HISTORIC SOIL SAMPLING LOCATIONS SOIL REMAINING ON-SITE

FIGURE 1

File: L:\Cascade Lumber\all_samp_locations.dwg Layout: FIGURE 1 User: marshalle Plotted: Aug 12, 2009 - 2:09pm Xref's:



AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
04530-015-0200

DATE: 06/16/09 | DRWN: E.M./SEA

CA-B, PCP DRIP PADS AND TRANSFER TABLE HISTORIC SAMPLING LOCATIONS

FIGURE 2

File: L:\Cascade Lumber\all_samp_locations.dwg Layout: FIGURE 2 User: marshalle Plotted: Aug 12, 2009 - 2:09pm Xref's:

JAN 2 2 1993

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

JAN 2 0 1993

Reply To
Attn Of: HW-104

Les Lonning
Vice President of Environmental Affairs
Cascade Pole Company
P.O. Box 1496
Tacoma, Washington 98401-1496

Dear Mr. Lonning:

The U.S. Environmental Protection Agency (EPA) has reviewed the analytical data which Cascade Pole obtained from samples of the approximately 1450 yd^3 soil pile at the Cascade Pole facility in Tacoma. You submitted the data after EPA approved a sampling plan with the objective of determining whether the soil, which is contaminated with federal-only listed waste F032, should be managed as a hazardous waste, in accordance with the principles of EPA's "contained-in" policy.

It is EPA Region 10's opinion that the constituents for which F032 was listed are present in the soil pile at concentrations which do not warrant management of the pile as hazardous waste in an industrial setting. EPA will not require you to dispose of the waste at a licensed hazardous waste land disposal or incineration facility provided Cascade Pole manage the soil within the following constraints:

- The soil must be maintained on the Cascade Pole facility premises in Tacoma or disposed as a special waste according to Washington Department of Ecology directives and approvals;

- If the soil is maintained on site, it must be managed in a fashion (such as paving) which minimizes both run-off to surface water and infiltration to ground water.

If the above conditions are not met at any time after you receive this letter, EPA may reverse its decision and require that the soil be managed as hazardous waste.

Please note that this application of the contained-in policy, like any such application, is particular only to the site-, waste-, and media-specific conditions for which the decision is rendered. No inference of the explicit or implicit inclusion in this decision of other contaminated media at this facility or any other facility would be legitimate.

If you have any questions regarding this matter, please contact Marcia Bailey of my staff at (206) 553-0684.

Sincerely,

M Gearheard

Michael F. Gearheard, Chief
Waste Management Branch

cc: Kay Seiler, Washington Department of Ecology, SWRO
David Polivka, Washington Department of Ecology, SWRO
Dru Butler, Washington Department of Ecology

APPENDIX G-1

1991 TO 2004 GROUNDWATER ANALYTICAL RESULTS

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Sample Location	MW-1								
Sample Date	**03/29/91**	**07/10/91**	**10/02/91**	**10/02/91 Dup**	**01/08/92**	**01/24/00**	**02/27/01**	**01/24/02**	**2/6/2004**
SEMIVOLATILE ORGANICS (ug/L)									
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 50	< 50	< 50	< 5	< 50	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 10	< 10	< 10	< 5	< 10	NA	NA	NA	NA
2,4-Dichlorophenol	< 10	< 10	< 10	< 3	< 10	NA	NA	NA	NA
2,4-Dimethylphenol	< 10	< 10	< 10	< 2	< 10	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	< 0.095	< 0.095	< 10	< 0.1
2-Methylphenol	< 10	< 10	< 10	< 1	< 10	NA	NA	NA	NA
4-Methylphenol	< 10	< 10	< 10	< 1	< 10	NA	NA	NA	NA
Dibenzofuran	< 10	< 10	< 10	< 1	< 10	NA	NA	NA	NA
Pentachlorophenol	< 5	< 16	< 5	< 5	< 5	< 0.48	< 0.49	< 0.5	< 0.5
Phenol	< 10	< 10	< 10	< 2	< 10	NA	NA	NA	NA
Tetrachlorophenol (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs									
Benzo(a)anthracene	< 10	< 10	< 10	< 1	< 10	< 0.095	< 0.095	< 0.1	< 0.1
Benzo(a)pyrene	< 10	< 10	< 10	< 1	< 10	< 0.095	< 0.095	**0.476**	< 0.1
Benzo(b)fluoranthene	< 10	< 10	< 10	< 1	< 10	< 0.095	< 0.095	**0.324**	< 0.1
Benzo(k)fluoranthene	< 10	< 10	< 10	< 1	< 10	< 0.095	< 0.095	< 0.1	< 0.1
Chrysene	< 10	< 10	< 10	< 1	< 10	< 0.095	< 0.095	< 0.1	< 0.1
Dibenzo(a,h)anthracene	< 10	< 10	< 10	< 1	< 10	< 0.095	< 0.095	**0.476**	< 0.1
Indeno(1,2,3-cd)pyrene	< 10	< 10	< 10	< 1	< 10	< 0.095	< 0.095	**0.343**	< 0.1
Total CPAH	0	0	0	0	0	0	0	1.62	0
Non-Carcinogenic PAHs									
2-Methylnaphthalene	< 10	< 10	< 10	< 1	< 10	**0.1**	< 0.095	**0.495**	< 0.1
Acenaphthene	< 10	< 10	< 10	< 1	< 10	**0.076 J**	< 0.095	< 0.1	< 0.1
Acenaphthylene	< 10	< 10	< 10	< 1	< 10	< 0.095	< 0.095	< 0.1	< 0.1
Anthracene	< 10	< 10	< 10	< 1	< 10	**0.048 J**	< 0.095	**0.21**	< 0.1
Benzo(g,h,i)perylene	< 10	< 10	< 10	< 1	< 10	< 0.095	< 0.095	**0.171**	< 0.1
Fluoranthene	< 10	< 10	< 10	< 1	< 10	< 0.095	< 0.095	**0.171**	< 0.1
Fluorene	< 10	< 10	< 10	< 1	< 10	**0.048 J**	< 0.095	< 0.1	< 0.1
Naphthalene	< 10	< 10	< 10	**0.5 J**	< 10	**0.2**	< 0.095	**0.324**	< 0.1
Phenanthrene	< 10	< 10	< 10	< 1	< 10	**0.057 J**	< 0.095	**0.114**	< 0.1
Pyrene	< 10	< 10	< 10	< 1	< 10	< 0.095	< 0.095	**0.59**	< 0.1
Total LPAH	0	0	0	0.5	0	0.529	0	2.08	0.00
INORGANICS - DISSOLVED (mg/L)									
Arsenic	< 0.005	**0.012**	**0.004**	NA	**0.0075**	**0.02**	**0.017**	**0.004**	**0.0027**
Chromium	< 0.005	< 0.012	< 0.01	NA	< 0.01	< 0.01	< 0.01	< 0.001	< 0.001
Copper	**0.01**	< 0.006	< 0.02	NA	< 0.05	< 0.02	< 0.01	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)									
Arsenic	**0.007**	**0.03**	NA	NA	NA	**0.037**	**0.0051**	**0.0212**	**0.0023**
Chromium	**0.065**	**0.069**	NA	NA	NA	< 0.01	< 0.01	**0.0066**	< **0.001**
Copper	**0.075**	**0.18**	NA	NA	NA	< 0.02	**0.013**	**0.0113**	< **0.001**
Hexavalent Chromium (Method 7195)	NA	< 0.01	< 0.005	NA	< 0.005	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	< 0.01	NA	< 0.01	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULT

Sample Location	MW-2													
Sample Date	03/28/91	07/11/91	10/03/91	01/07/92	01/02/97	01/13/99	08/06/99	01/24/00	02/27/01	01/24/02	1/30/03	2/5/2004	05/26/04	09/08/04
SEMIVOLATILE ORGANICS (ug/L)														
1-Methylnaphthalene	NA	NA	NA	NA	< 3.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 50	< 50	< 50	< 50	< 0.38	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 10	< 10	< 10	< 10	< 0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	< 10	< 10	< 10	8.9 J	< 0.94	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	< 0.093	< 0.19	< 0.095	< 0.095	< 10	< 10	< 0.1	< 0.1	< 0.1
2-Methylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	38	31	48	36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	160	14 J	< 5	22	0.74	12	0.54	1.5	0.98	1.81	< 0.5	< 0.5	2.7	117
Phenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachlorophenol (total)	NA	NA	NA	NA	0.15 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs														
Benzo(a)anthracene	< 10	< 10	< 10	< 10	0.11	0.52	0.23	0.63	0.12	< 0.1	< 0.1	< 0.1	< 0.1	0.245
Benzo(a)pyrene	< 10	< 10	< 10	< 10	0.13	1.7	0.14	0.6	0.095	0.876	< 0.1	< 0.1	< 0.1	0.132
Benzo(b)fluoranthene	< 10	< 10	< 10	< 10	0.31	3.5	0.46	1	0.29	0.8	< 0.1	< 0.1	0.189	0.189
Benzo(k)fluoranthene	< 10	< 10	< 10	< 10	0.11	0.92	0.19	0.37	0.095	< 0.1	< 0.1	< 0.1	0.132	0.132
Chrysene	< 10	< 10	< 10	< 10	0.27	2	0.47	0.72	0.27	< 0.1	< 0.1	< 0.1	0.302	0.283
Dibenzo(a,h)anthracene	< 10	< 10	< 10	< 10	< 0.094	< 0.093	< 0.096	< 0.095	< 0.095	0.743	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	< 10	< 10	< 10	< 10	0.17	1.4	< 0.096	0.46	0.15	1.07	< 0.1	< 0.1	0.189	< 0.1
Total CPAH	0	0	0	0	1.1	10.04	1.49	3.78	1.02	3.49	0	0	0.812	0.981
Non-Carcinogenic PAHs														
2-Methylnaphthalene	7.2 J	< 10	< 10	< 10	43	0.59	0.11	0.6	2.7	0.248	< 0.1	< 1	< 0.1	< 0.1
Acenaphthene	110	85	120	88	45	38	31	< 0.095	270	36.3	137	43.8	49.2	191
Acenaphthylene	2.2 J	< 10	< 10	< 10	2.8	0.43	0.24	1.2	7.6	1.49	3.08	1	1.23	8.47
Anthracene	< 10	< 10	< 10	< 10	0.096	3	0.94	2.2	4	3.05	2.68	2.04	1.4	2.45
Benzo(g,h,i)perylene	< 10	< 10	< 10	< 10	0.14	1.1	0.12	0.42	0.15	0.819	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	< 10	< 10	< 10	< 10	0.99	2.5	0.99	1.2	1.7	4	1.64	2.88	2.72	2.38
Fluorene	41	38	48	36	24	19	25	35	91	21.6	56.2	22.1	19.7	68.5
Naphthalene	22	32	51	28	10	48	34	24	78	4.42	2.58	0.462	0.887	270
Phenanthrene	5.5 J	7 J	13	9.3 J	0.57	1.2	0.29	11	57	7.79	7.43	8.62	1.02	5.53
Pyrene	< 10	< 10	< 10	< 10	0.7	1.4	1.2	0.61	0.82	2.57	0.377	1.44	1.26	1.51
Total LPAH	187.9	162	232	161.3	127.3	115.22	93.89	76.23	512.97	82.3	211	82.34	77.42	549.84
INORGANICS - DISSOLVED (mg/L)														
Arsenic	0.94	1.43	4	1.3	NA	0.62	NA	0.93	0.57	0.376	0.377	0.202	0.294	0.244
Chromium	< 0.02	0.007	0.02	< 0.010	NA	0.042	NA	0.012	< 0.01	0.0063	0.00538	0.0079	0.0068	0.0132
Copper	0.014	< 0.003	< 0.02	< 0.050	NA	< 0.02	NA	< 0.02	< 0.01	0.0014	0.00213	0.0012	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)														
Arsenic	1.5	1.36	NA	NA	0.8	NA	0.97	0.6	0.41	0.774	0.396	0.194	0.317	0.261
Chromium	0.07	0.03	NA	NA	0.034	NA	0.17	0.15	0.045	0.431	0.00777	0.0103	0.0191	0.0193
Copper	0.093	0.051	NA	NA	< 0.01	NA	0.079	0.037	0.011	0.118	0.00284	0.0025	0.0127	0.0072
Hexavalent Chromium (Method 7195)	N/A	0.048	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	< 0.01	NA	< 0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULT

Sample Location	MW-3													
Sample Date	03/28/91	07/11/91	10/02/91	01/08/92	01/14/99	01/14/99 Dup	08/06/99	01/24/00	02/27/01	01/24/02	1/31/03	2/5/2004	05/25/04	09/08/04
SEMIVOLATILE ORGANICS (ug/L)														
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 50	< 50	< 50	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	< 0.094	< 0.094	< 0.19	< 0.095	< 0.095	< 10	< 10	< 0.1	< 0.1	< 0.1
2-Methylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	13	< 16	3 J	3.6 J	1.9	2.4	6.4	4	1.9	3.48	< 0.5	< 0.5	< 0.5	2.57
Phenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachlorophenol (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs														
Benzo(a)anthracene	< 10	< 10	< 10	< 10	0.25	0.33	0.12	1	0.74	1.21	< 0.1	< 0.1	< 0.1	0.151
Benzo(a)pyrene	< 10	< 10	< 10	< 10	0.34	0.38	0.19	1.2	0.72	1.23	< 0.1	< 0.1	< 0.1	0.17
Benzo(b)fluoranthene	< 10	< 10	< 10	< 10	0.44	0.68	< 0.095	2.1	1.1	2.1	< 0.1	< 0.1	< 0.1	0.189
Benzo(k)fluoranthene	< 10	< 10	< 10	< 10	0.25	0.2	< 0.095	1	0.62	0.731	< 0.1	< 0.1	< 0.1	0.17
Chrysene	< 10	< 10	< 10	< 10	0.28	0.43	0.32	1.7	0.79	1.31	< 0.1	< 0.1	< 0.1	0.189
Dibenzo(a,h)anthracene	< 10	< 10	< 10	< 10	< 0.094	< 0.094	< 0.095	0.067 J	< 0.095	0.635	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	< 10	< 10	< 10	< 10	0.32	0.43	< 0.095	1.3	0.79	1.12	< 0.1	< 0.1	< 0.1	0.113
Total CPAH	0	0	0	0	1.88	2.45	0.63	8.367	4.76	8.34	0	0	0	0.982
Non-Carcinogenic PAHs														
2-Methylnaphthalene	< 10	< 10	< 10	< 10	< 0.094	< 0.094	< 0.095	0.076 J	< 0.095	0.558	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	< 10	< 10	< 10	< 10	< 0.094	< 0.094	0.25	0.26	< 0.095	< 0.1	0.151	0.302	0.267	0.321
Acenaphthylene	< 10	< 10	< 10	< 10	0.17	0.14	0.15	0.33	0.16	0.327	0.113	< 0.1	< 0.1	< 0.1
Anthracene	< 10	< 10	< 10	< 10	0.58	0.59	0.88	1.3	0.71	0.923	< 0.1	< 0.1	< 0.1	0.264
Benzo(g,h,i)perylene	< 10	< 10	< 10	< 10	0.34	0.38	< 0.095	1.2	0.64	1.1	< 0.1	< 0.1	< 0.1	0.132
Fluoranthene	< 10	< 10	< 10	< 10	0.52	0.67	0.51	3.7	1.8	2.46	< 0.1	< 0.1	< 0.1	0.113
Fluorene	< 10	< 10	< 10	< 10	< 0.094	< 0.094	0.12	0.21	0.13	< 0.1	0.132	0.17	0.114	0.208
Naphthalene	< 10	< 10	< 10	< 10	0.14	0.13	0.16	1.2	< 0.095	0.423	0.358	1.26	0.114	< 0.1
Phenanthrene	< 10	< 10	< 10	< 10	0.19	0.34	0.29	1.4	0.71	1	0.811	0.208	0.19	0.132
Pyrene	< 10	< 10	< 10	< 10	0.39	0.57	1.1	2.6	1.4	2.23	< 0.1	< 0.1	< 0.1	0.113
Total LPAH	0	0	0	0	2.33	2.82	3.46	12.276	5.55	9.02	1.565	1.94	0.69	1.28
INORGANICS - DISSOLVED (mg/L)														
Arsenic	0.95	3.3	0.92	0.93	9.9	10	NA	7.5	7.7	7.7	7.69	4.43	0.304	3.53
Chromium	0.69	150	18	1.3	0.020	0.020	NA	0.022	0.018	0.0267	0.0229	0.0284	0.0219	0.0285
Copper	0.022	2.5	0.5	0.30	0.32	0.33	NA	0.15	0.02	0.01	0.00199	0.0016	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)														
Arsenic	1.6	NA	NA	NA	NA	NA	8.4	9.7	9.2	14.6	8.37	4.57	3.49	3.95
Chromium	1.9	NA	NA	NA	NA	NA	1.7	2.4	1.6	5.38	0.0943	0.0661	0.116	0.0822
Copper	0.11	NA	NA	NA	NA	NA	3.7	5.2	3	9.44	0.125	0.287	0.124	0.0428
Hexavalent Chromium (Method 7195)	NA	180	15.6	0.945	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.36	NA	18.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULT

Sample Location	MW-4						
Sample Date	03/29/91	07/10/91	10/02/91	01/07/92	01/24/00	02/27/01	01/24/02
SEMIVOLATILE ORGANICS (ug/L)							
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 50	< 50	< 50	< 50	NA	NA	NA
2,4,6-Trichlorophenol	< 10	< 10	< 10	< 10	NA	NA	NA
2,4-Dichlorophenol	< 10	< 10	< 10	< 10	NA	NA	NA
2,4-Dimethylphenol	< 10	< 10	< 10	< 10	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	< 0.095	< 0.095	< 10
2-Methylphenol	< 10	< 10	< 10	< 10	NA	NA	NA
4-Methylphenol	< 10	< 10	< 10	< 10	NA	NA	NA
Dibenzofuran	< 10	< 10	< 10	< 10	NA	NA	NA
Pentachlorophenol	< 5	< 16	< 5	< 5	< 0.48	< 0.52	< 0.5
Phenol	< 10	< 10	< 10	< 10	NA	NA	NA
Tetrachlorophenol (total)	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs							
Benzo(a)anthracene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1
Benzo(a)pyrene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1
Benzo(b)fluoranthene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1
Benzo(k)fluoranthene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1
Chrysene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1
Dibenzo(a,h)anthracene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1
Indeno(1,2,3-cd)pyrene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1
Total CPAH	0	0	0	0	0	0	0
Non-Carcinogenic PAHs							
2-Methylnaphthalene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	**0.476**
Acenaphthene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1
Acenaphthylene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1
Anthracene	< 10	< 10	< 10	< 10	**0.13**	**0.093**	**0.248**
Benzo(g,h,i)perylene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1
Fluoranthene	< 10	< 10	< 10	< 10	**0.067 J**	< 0.095	< 0.1
Fluorene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1
Naphthalene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1
Phenanthrene	< 10	< 10	< 10	< 10	**0.067 J**	< 0.095	< 0.1
Pyrene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	**0.495**
Total LPAH	0	0	0	0	0.264	0.093	1.22
INORGANICS - DISSOLVED (mg/L)							
Arsenic	**0.016**	**0.022**	**0.023**	**0.016**	**0.058**	**0.1**	**0.0276** J
Chromium	< 0.005	< 0.006	< 0.01	< 0.01	< 0.01	< 0.01	< 0.001
Copper	**0.01**	< 0.003	< 0.02	< 0.05	< 0.02	< 0.01	**0.0014**
INORGANICS - TOTAL (mg/L)							
Arsenic	NA	**0.033**	NA	N/A	**0.095**	**0.093**	**0.0649**
Chromium	NA	**0.024**	NA	N/A	< 0.01	< 0.01	**0.0033**
Copper	NA	**0.11**	NA	N/A	**0.023**	**0.01**	**0.0039**
Hexavalent Chromium (Method 7195)	NA	< 0.01	< 0.005	< 0.005	NA	NA	NA
Hexavalent Chromium (Method 7196)	< 0.01	NA	< 0.01	N/A	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

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Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULT

Sample Location	MW-5										
Sample Date	03/29/91	07/10/91	10/02/91	10/02/91 Dup	01/07/92	01/14/99	08/06/99	01/24/00	02/27/01	01/24/02	1/30/03
SEMIVOLATILE ORGANICS (ug/L)											
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 50	< 500	< 250	C	25 J	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 10	< 100	< 50	18	< 10	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	< 10	< 100	< 50	10 M	15	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	< 10	< 100	33 J	25 M	28	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	0.17	< 0.2	< 0.095	< 0.095	< 10	< 10
2-Methylphenol	91	< 100	55	47 M	13	NA	NA	NA	NA	NA	NA
4-Methylphenol	96	< 100	96	72	76	NA	NA	NA	NA	NA	NA
Dibenzofuran	< 10	< 100	< 50	2.5	< 10	NA	NA	NA	NA	NA	NA
Pentachlorophenol	3,400	2,900	2,500	2,900	3,100	13	5.4	< 0.48	< 0.51	7.14	< 0.5
Phenol	110	80 J	130	47	82	NA	NA	NA	NA	NA	NA
Tetrachlorophenol (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs											
Benzo(a)anthracene	< 10	< 100	< 50	< 1	< 10	0.19	< 0.1	< 0.095	< 0.095	5.9	< 0.1
Benzo(a)pyrene	< 10	< 100	< 50	< 1	< 10	< 0.095	< 0.1	< 0.095	< 0.095	5.52	< 0.1
Benzo(b)fluoranthene	< 10	< 100	< 50	< 1	< 10	0.24	< 0.1	< 0.095	< 0.095	7.33	< 0.1
Benzo(k)fluoranthene	< 10	< 100	< 50	< 1	< 10	< 0.095	< 0.1	< 0.095	< 0.095	2.29	< 0.1
Chrysene	< 10	< 100	< 50	< 1	< 10	< 0.095	< 0.1	< 0.095	< 0.095	4.48	< 0.1
Dibenzo(a,h)anthracene	< 10	< 100	< 50	< 1	< 10	< 0.095	< 0.1	< 0.095	< 0.095	2.76	< 0.1
Indeno(1,2,3-cd)pyrene	< 10	< 100	< 50	< 1	< 10	< 0.095	< 0.1	< 0.095	< 0.095	3.81	< 0.1
Total CPAH	0	0	0	0	0	0.43	0	0	0	32.1	0
Non-Carcinogenic PAHs											
2-Methylnaphthalene	52	< 100	47 J	45	35	25	24	50	23	35.2	85.9
Acenaphthene	10	< 100	< 50	< 1	62 J	9.6	16	7.9	6.9	10.4	5.81
Acenaphthylene	< 10	< 100	< 50	< 1	< 10	0.54	0.43	< 0.095	< 0.095	< 0.5	< 0.1
Anthracene	1.2 J	< 100	< 50	< 1	< 10	1.1	0.83	0.63	0.33	2	0.302
Benzo(g,h,i)perylene	< 10	< 100	< 50	< 1	< 10	< 0.095	< 0.1	< 0.095	< 0.095	3.33	< 0.1
Fluoranthene	0.9 J	< 100	< 50	0.7 J	< 10	0.86	< 0.1	0.89	< 0.095	6.76	< 0.1
Fluorene	< 10	< 100	< 50	2.7	< 10	11	6.7	3.8	4.7	8.76	2.11
Naphthalene	890	840	1,500	1,500	1,300	1,100	510	1,500	410	1,190	2,790
Phenanthrene	4.7 J	< 100	< 50	4.1	< 10	1.3	1.7	2.3	1.3	3.62	1.21
Pyrene	0.8 J	< 100	< 50	0.4 J	< 10	0.53	0.99	0.49	< 0.095	6.67	< 0.1
Total LPAH	959.6	840	1547	1552.9	1397	1149.9	560.65	1566	446.23	1267	2885
INORGANICS - DISSOLVED (mg/L)											
Arsenic	2.6	2.2	2.1	NA	1.9	0.33	NA	0.41	0.4	0.152	0.133
Chromium	0.009	0.01	0.01	NA	< 0.010	0.023	NA	< 0.01	< 0.01	0.0031	0.00178
Copper	0.013	< 0.003	< 0.02	NA	< 0.050	< 0.002	NA	< 0.02	< 0.01	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)											
Arsenic	2.5	1.5	NA	NA	NA	NA	0.57	0.76	0.41	0.79	0.122
Chromium	0.086	0.014	NA	NA	NA	NA	0.014	0.029	0.011	0.008	0.00216
Copper	0.16	0.013	NA	NA	NA	NA	0.047	0.027	0.027	0.0096	0.0387
Hexavalent Chromium (Method 7195)	NA	< 0.010	< 0.005	NA	< 0.005	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	< 0.01	NA	< 0.01	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

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Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

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Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MW-6																
Sample Date	03/28/91	07/11/91	07/11/91 Dup	10/03/91 Dup	10/03/91	01/08/92	01/08/92 Dup	01/14/99	08/06/99	01/24/00	02/27/01	02/27/01 Dup	01/24/02	01/30/03	2/5/2004	05/26/04	09/08/04
SEMIVOLATILE ORGANICS (ug/L)																	
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 50	< 50	< 50	< 50	< 50	< 50	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	NA	< 0.093	< 0.19	< 0.095	< 0.095	< 0.095	< 10	< 10	< 0.1	< 0.1	< 0.1
2-Methylphenol	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	**110**	**54**	**54**	**96**	**63**	**69**	**69**	**68**	**1.7**	**1.8**	< 0.5	< 0.5	**1.42**	**2.36**	**3.79**	**1.98**	< 0.5
Phenol	< 10	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachlorophenol (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs																	
Benzo(a)anthracene	**1.4** J	< 10	< 10	< 10	< 10	< 10	< 10	**0.21**	**0.15**	**0.26**	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	**0.22**	< 0.097	**0.17**	< 0.095	< 0.095	**0.481**	< 0.1	< 0.1	< 0.1	**0.132**
Benzo(b)fluoranthene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	**0.36**	< 0.097	**0.16**	< 0.095	< 0.095	**0.385**	< 0.1	< 0.1	< 0.1	**0.151**
Benzo(k)fluoranthene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	**0.13**	< 0.097	**0.1**	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	**0.113**
Chrysene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	**0.26**	**0.28**	**0.21**	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 0.093	< 0.097	< 0.095	< 0.095	< 0.095	**0.481**	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 0.093	< 0.097	**0.18**	< 0.095	< 0.095	**0.365**	< 0.1	< 0.1	< 0.1	< 0.1
Total CPAH	1.4	0	0	0	0	0	0	1.18	0.43	1.08	0	0	1.71	0	0	0	0.396
Non-Carcinogenic PAHs																	
2-Methylnaphthalene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 0.093	**0.28**	< 0.095	**0.11**	< 0.095	**0.577**	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	**0.33**	**0.29**	< 0.095	**0.089**	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 0.093	< 0.097	< 0.095	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	**0.27**	**0.2**	**0.39**	**0.2**	**0.19**	**0.442**	< 0.1	< 0.1	< 0.1	**0.151**
Benzo(g,h,i)perylene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	**0.14**	< 0.097	**0.17**	< 0.095	< 0.095	**0.192**	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	**0.6**	**0.37**	**0.51**	< 0.095	**0.21**	**0.269**	< 0.1	< 0.1	< 0.1	**0.208**
Fluorene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	**0.21**	**0.23**	**0.18**	**0.11**	**0.099**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	**0.23**	**9.2**	**1.8**	**1.7**	< 0.095	**1.04**	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	< 10	< 10	< 10	< 10	< 10	< 10	< 10	**0.12**	**0.33**	**0.18**	< 0.095	< 0.095	< 0.1	**0.264**	< 0.1	**0.113**	< 0.1
Pyrene	**2.1** J	< 10	< 10	< 10	< 10	< 10	< 10	**0.4**	**0.52**	**0.43**	< 0.095	< 0.095	**0.673**	< 0.1	< 0.1	< 0.1	**0.208**
Total LPAH	2.1	0	0	0	0	0	0	2.3	11.42	3.66	2.209	0.499	3.19	0.264	0.00	0.113	0.567
INORGANICS - DISSOLVED (mg/L)																	
Arsenic	**0.25**	**0.054**	**0.049**	**0.016**	**0.019**	**0.0074**	**0.0072**	**0.092**	NA	**0.36**	**0.038**	**0.036**	**0.0953**	**0.0064**	**0.0338**	**0.0338**	**0.0115**
Chromium	**23**	**26**	**28**	**5.7**	**5.6**	**2.3**	**2.4**	**0.017**	NA	**0.015**	**0.015**	**0.015**	**0.0167**	**0.0155**	**0.0136**	**0.0125**	**0.0227**
Copper	**0.013**	< 0.003	< 0.003	< 0.02	< 0.02	< 0.050	< 0.050	< 0.002	NA	< 0.02	< 0.01	< 0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)																	
Arsenic	**0.72**	NA	NA	NA	NA	NA	NA	NA	**0.98**	**0.28**	**0.079**	**0.12**	**0.116**	**0.00853**	**0.0329**	**0.0145**	**0.0098**
Chromium	**24**	NA	NA	NA	NA	NA	NA	NA	**3.2**	**0.3**	**0.34**	**0.63**	**0.256**	**0.0205**	**0.0184**	**0.0154**	**0.0316**
Copper	**0.16**	NA	NA	NA	NA	NA	NA	NA	**0.55**	**0.025**	**0.037**	**0.056**	**0.0199**	**0.00175**	< 0.001	< 0.001	0.0012
Hexavalent Chromium (Method 7195)	NA	**30**	**31**	**4.04**	**4.27**	**1.22**	**1.32**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	**5.9**	NA	NA	**6.07**	**6.06**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

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Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULT

Sample Location	MW-7														
Sample Date	03/29/91	07/11/91	10/02/91	01/07/92	01/14/99	08/06/99	01/24/00	02/27/01	01/24/02	1/30/03	1/30/03 Dup	2/4/2004	05/25/04	05/25/04 (dup)	09/08/04
SEMIVOLATILE ORGANICS (ug/L)															
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 50	< 50	< 50	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	< 0.095	< 0.19	< 0.095	< 0.095	< 10	< 10	< 10	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	**11**	< 16	**3 J**	**53**	**1.5**	< 0.48	**0.66**	< 0.47	**1.13**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**0.708 J**
Phenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachlorophenol (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs															
Benzo(a)anthracene	< 10	< 10	< 10	< 10	**0.6**	< 0.095	**0.12**	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	< 10	< 10	< 10	< 10	**0.7**	< 0.095	**0.067 J**	< 0.095	**0.865**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.146 J**
Benzo(b)fluoranthene	< 10	< 10	< 10	< 10	**0.85**	**0.18**	**0.14**	< 0.095	**0.481**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.188**
Benzo(k)fluoranthene	< 10	< 10	< 10	< 10	**0.33**	< 0.095	**0.1**	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.104**
Chrysene	< 10	< 10	< 10	< 10	**0.74**	< 0.095	**0.13**	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.125**
Dibenzo(a,h)anthracene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1 UJ
Indeno(1,2,3-cd)pyrene	< 10	< 10	< 10	< 10	**0.41**	< 0.095	**0.057 J**	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.125 J**
Total CPAH	0	0	0	0	3.63	0.18	0.614	0	1.35	0	0	0	0	0	0.688
Non-Carcinogenic PAHs															
2-Methylnaphthalene	**0.6 J**	< 10	< 10	< 10	**0.26**	< 0.095	< 0.095	< 0.095	**0.115**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	**0.7 J**	< 10	< 10	< 10	**0.26**	< 0.095	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	< 10	< 10	< 10	< 10	**1.3**	< 0.095	**0.12**	**0.12**	**0.365**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	< 10	< 10	< 10	< 10	**0.33**	< 0.095	**0.048 J**	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.125 J**
Fluoranthene	< 10	< 10	< 10	< 10	**2**	**0.16**	**0.56**	< 0.095	**0.712**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.125**
Fluorene	< 10	< 10	< 10	< 10	**0.41**	< 0.095	**0.086 J**	**0.076**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	**2.8 J**	< 10	< 10	< 10	**4.9**	< 0.095	< 0.095	< 0.095	**0.346**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	< 10	< 10	< 10	< 10	**1.4**	**0.1**	**0.47**	**0.12**	**0.346**	< 0.1	**0.132**	< 0.1	< 0.1	< 0.1	**0.104**
Pyrene	< 10	< 10	< 10	< 10	**1.3**	**0.32**	**0.3**	< 0.095	**0.577**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.125**
Total LPAH	4.1	0	0	0	12.16	0.58	1.584	0.316	2.46	0	0.132	0	0	0	0.479
INORGANICS - DISSOLVED (mg/L)															
Arsenic	< 0.005	< 0.005	**0.019**	< 0.050	**0.015**	NA	**0.0054**	**0.0047**	**0.0022**	**0.00232**	**0.00172**	**0.0021**	**0.0025**	**0.0017**	**0.0023**
Chromium	< 0.005	**0.009**	< 0.01	< 0.010	**0.055**	NA	< 0.01	< 0.01	**0.0066**	**0.0032**	**0.00363**	**0.00525**	**0.00561 J**	**0.00784 J**	**0.00373**
Copper	**0.01**	**0.005**	< 0.02	< 0.050	< 0.01	NA	< 0.02	< 0.01	**0.0017**	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)															
Arsenic	**0.007**	**0.014**	NA	NA	NA	< 0.2	**0.0069**	**0.04**	**0.0056**	**0.00593**	**0.00597**	**0.00379**	**0.00562 J**	**0.00377 J**	**0.00569**
Chromium	**0.035**	**0.031**	NA	NA	NA	< 0.01	< 0.01	< 0.01	**0.0056**	**0.00613**	**0.00646**	**0.00409**	**0.00372**	**0.00368**	**0.00498**
Copper	**0.033**	**0.042**	NA	NA	NA	**0.040**	**0.021**	**0.014**	**0.007**	**0.0033**	**0.00304**	0.00124	< 0.001	< 0.001	**0.00164**
Hexavalent Chromium (Method 7195)	NA	**0.053**	< 0.005	**0.006**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	< 0.01	NA	< 0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULT

Sample Location	MW-8													
Sample Date	03/29/91	07/11/91	10/03/91	01/08/92	01/08/92 Dup	01/14/99	08/06/99	01/24/00	02/27/01	01/24/02	1/30/03	2/4/2004	05/25/04	09/08/04
SEMIVOLATILE ORGANICS (ug/L)														
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 50	< 50	< 50	< 50	< 50	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	< 0.094	< 0.19	< 0.095	< 0.095	< 10	< 10	0.302	< 0.1	< 0.1
2-Methylphenol	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	1.3 J	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	140	63	56	69	76	3.9	17	0.91	< 0.47	3.33	3.64	3.79	< 0.5	1.16
Phenol	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachlorophenol (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs														
Benzo(a)anthracene	< 10	< 10	< 10	< 10	< 10	< 0.094	< 0.096	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	< 10	< 10	< 10	< 10	< 10	0.17	< 0.096	0.11	0.13	< 0.1	< 0.1	< 0.1	< 0.1	0.152
Benzo(b)fluoranthene	< 10	< 10	< 10	< 10	< 10	0.29	< 0.096	0.086 J	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	< 10	< 10	< 10	< 10	< 10	< 0.094	< 0.096	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	< 10	< 10	< 10	< 10	< 10	< 0.094	< 0.096	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	< 10	< 10	< 10	< 10	< 10	< 0.094	< 0.096	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	< 10	< 10	< 10	< 10	< 10	0.26	< 0.096	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	0.133
Total CPAH	0	0	0	0	0	0.908	0	0.196	0.23	0	0	0	0	0.285
Non-Carcinogenic PAHs														
2-Methylnaphthalene	1.5 J	< 10	< 10	< 10	< 10	< 0.094	0.30	< 0.095	< 0.095	0.21	< 0.1	0.208	< 0.1	0.248
Acenaphthene	3.6 J	< 10	6.2 J	< 10	9.7 J	0.1	0.31	< 0.095	0.32	1.31	0.698	1.6	1.54	3.33
Acenaphthylene	< 10	< 10	< 10	< 10	< 10	0.22	0.14	0.067 J	< 0.095	< 0.1	0.151	0.264	0.19	0.4
Anthracene	1.6 J	< 10	< 10	< 10	< 10	0.61	< 0.096	0.15	0.24	< 0.1	< 0.1	< 0.1	< 0.1	0.286
Benzo(g,h,i)perylene	< 10	< 10	< 10	< 10	< 10	0.31	< 0.096	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	0.133
Fluoranthene	< 10	< 10	< 10	< 10	< 10	0.24	< 0.096	0.17	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	1.4 J	< 10	< 10	< 10	5.2 J	0.13	< 0.096	0.086 J	0.18	< 0.1	0.283	0.34	0.286	0.743
Naphthalene	8.8 J	< 10	28	11	18	0.37	0.81	0.1	0.48	1.07	0.377	2.21	0.781	2.36
Phenanthrene	1.1 J	< 10	< 10	< 10	< 10	0.22	0.65	0.1	0.25	< 0.1	0.509	0.245	0.229	0.21
Pyrene	< 10	< 10	< 10	< 10	< 10	0.24	< 0.096	0.13	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total LPAH	18	0	34.2	11	32.9	2.44	2.21	0.803	1.47	2.59	2.018	4.867	3.026	7.71
INORGANICS - DISSOLVED (mg/L)														
Arsenic	0.81	1.16	0.47	1.8	NA	0.43	NA	0.3	0.41	0.914	0.35	0.276	0.101	0.33
Chromium	0.077	0.027	0.02	0.049	NA	0.026	NA	0.015	< 0.01	0.0321	0.0117	0.0264	0.0151	0.0122
Copper	0.016	< 0.003	< 0.02	0.0051	NA	0.0055	NA	< 0.02	< 0.01	0.0016	< 0.001	0.0019	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)														
Arsenic	2	NA	NA	NA	NA	NA	0.92	NA	0.75	1.26	0.476	0.316	0.177	0.379
Chromium	0.28	NA	NA	NA	NA	NA	0.44	0.67	0.21	0.148	0.0496	0.0616	0.0442	0.0509
Copper	0.095	NA	NA	NA	NA	NA	0.11	0.22	0.095	0.0458	0.0154	0.0213	0.0135	0.0142
Hexavalent Chromium (Method 7195)	NA	0.14	< 0.005	0.009	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	< 0.01	NA	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

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Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULT

Sample Location	MW-9															
Sample Date	03/28/91	03/28/91 Dup	07/11/91	10/03/91	01/08/92	01/13/99	08/06/99	08/06/99 Dup	01/24/00	01/24/00 Dup	2/27/2001	01/24/02	1/30/03	2/6/2004	05/26/04	09/08/04
SEMIVOLATILE ORGANICS (ug/L)																
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	**5.2 J**	< 50	< 500	< 50	< 200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 10	< 10	< 100	< 10	< 40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	< 10	< 10	< 100	< 50	< 40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	**36**	**31**	< 100	< 50	< 40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	**0.097**	< 0.19	< 0.19	< 0.95	< 0.95	**3.5**	< 10	< 10	< 1	< 0.1	< 0.1
2-Methylphenol	< 10	< 10	< 100	< 50	< 40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	**44**	**40**	< 100	< 50	**39 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	< 10	< 10	< 100	< 50	< 40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	**430**	**350**	**450**	**300**	**180**	**650**	**310 J**	**240 J**	**500**	**420**	< 0.47	< 0.5	**2.62**	< 0.5	< 0.5	< 0.5
Phenol	< 10	< 10	< 100	< 50	**56**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachlorophenol (total)									NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs																
Benzo(a)anthracene	< 10	< 10	< 100	< 50	< 40	< 0.097	< 0.096	< 0.096	< 0.95	< 0.95	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	< 10	< 10	< 100	< 50	< 40	< 0.097	< 0.096	< 0.096	< 0.95	< 0.95	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	< 10	< 10	< 100	< 50	< 40	< 0.097	< 0.096	< 0.096	< 0.95	< 0.95	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	< 10	< 10	< 100	< 50	< 40	< 0.097	< 0.096	< 0.096	< 0.95	< 0.95	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	< 10	< 10	< 100	< 50	< 40	< 0.097	< 0.096	< 0.096	< 0.95	< 0.95	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	< 10	< 10	< 100	< 50	< 40	< 0.097	< 0.096	< 0.096	< 0.95	< 0.95	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	< 10	< 10	< 100	< 50	< 40	< 0.097	< 0.096	< 0.096	< 0.95	< 0.95	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total CPAH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-Carcinogenic PAHs																
2-Methylnaphthalene	**100**	**89**	< 100	**54**	**61**	**25**	**47**	**43**	**70**	**56**	**51**	**63.7**	**51.2 E**	**72.6 J**	**62.3**	**30.2**
Acenaphthene	< 10	< 10	< 100	< 50	< 40	**3.9**	**10**	**9.6**	**4.1**	**3.6**	**3.2**	**3.14**	**2.92**	**3.13**	**3.36**	**2.77**
Acenaphthylene	**5.3 J**	**4.9**	< 100	< 250	< 40	**0.28**	< 0.096	**0.39**	< 0.95	< 0.95	< 0.095	< 0.1	< 0.1	**0.189**	**0.226**	**0.245**
Anthracene	< 10	< 10	< 100	< 50	< 40	**0.17**	**0.31**	< 0.096	< 0.95	< 0.95	**0.2**	< 0.1	**0.132**	< 0.1	0.113	**0.17**
Benzo(g,h,i)perylene	< 10	< 10	< 100	< 50	< 40	< 0.097	< 0.096	< 0.096	< 0.95	< 0.95	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	< 10	< 10	< 100	< 50	< 40	**0.37**	< 0.096	< 0.096	< 0.95	< 0.95	**0.59**	< 0.1	< 0.1	< 0.1	< 0.1	**0.113**
Fluorene	< 10	< 10	< 100	< 50	< 40	**0.55**	**0.71**	**0.66**	**0.48 J**	**0.48 J**	< 0.095	< 0.1	**0.283**	**0.415**	**0.491**	**0.377**
Naphthalene	**3,900**	**3,700**	**2,560**	**6,800**	**4,700**	**19**	**5,600**	**4,700**	**3,300**	**3,000**	**4,800**	**1,790**	**4,410**	**4,980**	**4,530**	**2,640**
Phenanthrene	< 10	< 10	< 100	< 50	< 40	**0.33**	**0.43**	< 0.096	**0.57 J**	**0.57 J**	**0.45**	< 0.1	**0.245**	**0.208**	**0.208**	**0.321**
Pyrene	< 10	< 10	< 100	< 50	< 40	**0.21**	< 0.096	< 0.096	< 0.95	< 0.95	**0.44**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total LPAH	4005.3	3793.9	2560	6854	4761	49.81	5658.5	4753.7	3375.2	3060.7	4855.9	1857	4465	5056.5	4596.59	2674.2
INORGANICS - DISSOLVED (mg/L)																
Arsenic	**0.5**	**0.46**	**0.5**	**0.44**	**0.38**	**0.35**	NA	NA	**0.4**	**0.4**	**0.2**	**0.122**	**0.0856**	**0.26**	**0.272**	**0.329**
Chromium	< 0.02	< 0.02	< 0.006	< 0.01	< 0.010	**0.015**	NA	NA	< 0.01	< 0.01	< 0.01	**0.0028**	**0.00128**	**0.0033**	**0.00261**	**0.00243**
Copper	**0.012**	**0.011**	< 0.003	< 0.02	**0.0051**	< 0.002	NA	NA	< 0.02	< 0.02	< 0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)																
Arsenic	**0.52**	**0.5**	**0.34**	NA	NA	NA	**0.48**	**0.40**	**0.29**	**0.28**	**0.18**	**0.155**	**0.0794**	**0.193**	**0.27**	**0.321**
Chromium	< 0.02	< 0.02	**0.024**	NA	NA	NA	**0.020**	**0.013**	**0.013**	**0.013**	**0.019**	**0.0038**	**0.00164**	**0.0019**	**0.00181**	**0.00266**
Copper	**0.017**	**0.011**	**0.05**	NA	NA	NA	**0.059**	**0.035**	**0.038**	**0.022**	**0.049**	**0.0059**	< 0.001	< 0.001	< 0.001	< 0.001
Hexavalent Chromium (Method 7195)	NA	NA	**0.048**	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	< 0.01	< 0.01	NA	**0.05**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MW-5												
Sample Date	07/10/91	10/02/91	01/07/92	02/27/01	01/24/02								
VOLATILE ORGANICS (ug/L)													
Benzene	**94**	**88**	**74**	**14**	**41.7**								
Toluene	**790 D**	**570**	**580 D**	**12**	**60.9**								
Ethylbenzene	**690 D**	**580 D**	**590**	**200**	**642**								
m&p-Xylene	NA	NA	NA	**120**	NA								
o-Xylene	NA	NA	NA	**71**	NA								
Total Xylenes	**920 D**	**640 D**	**920 D**	**71**	**342**								

Notes:
B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.
D - The reported result for this analytewas calculated based on a secondary dilution factor.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Sample Location	MW-9										
Sample Date	07/11/91	10/03/91	01/08/92	02/27/01	01/24/02	02/06/04	05/26/04	09/08/04			
VOLATILE ORGANICS (ug/L)											
Benzene	**660 D**	**680**	**680 D**	**130**	**195**	**95.4**	**99.1 J**	**79.1 J**			
Toluene	**320**	**2800**	**3100 D**	**170**	**161**	**208**	**190 J**	**132 J**			
Ethylbenzene	**650 D**	**8,600**	**8,200 D**	**850**	**3,340**	**3,260**	**3,150 J**	**2,260 J**			
m&p-Xylene	NA	NA	NA	**730**	NA	NA	NA	NA			
o-Xylene	NA	NA	NA	**440**	NA	NA	NA	NA			
Total Xylenes	**810 D**	**4,300**	**5,900 D**	**1,170**	**996**	**1,890**	**1,990 J**	**1,260 J**			

Notes:
B - Analyte found in blank.
J - Estimated value less than detection limit.
NA - Not analyzed.
D - The reported result for this analytewas calculated based on a secondary dilution factor.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MW-10									
Sample Date	03/28/91	07/10/91	10/02/91	01/07/92	01/24/00	02/27/01	01/24/02	2/5/2004	09/08/04	09/08/04 (Dup)
SEMIVOLATILE ORGANICS (ug/L)										
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 50	< 50	< 50	< 50	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	< 0.095	< 0.095	< 10	**0.212**	< 0.1	< 0.1
2-Methylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA
4-Methylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA
Dibenzofuran	< 10	< 10	< 10	< 10	< 0.095	< 0.095	NA	NA	NA	NA
Pentachlorophenol	< 5	< 16	< 5	< 5	**0.55**	< 0.52	< 0.5	**12.9**	**1.79** J	**2.6** J
Phenol	< 10	< 10	< 10	< 10	< 0.095	< 0.095	NA	NA	NA	NA
Tetrachlorophenol (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs										
Benzo(a)anthracene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	**0.462**	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	< 10	< 10	< 10	< 10	**0.057** J	< 0.095	**0.308**	< 0.1	< 0.1	**0.113**
Benzo(k)fluoranthene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	**0.113**
Chrysene	< 10	< 10	< 10	< 10	**0.067** J	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	**0.481**	< 0.1	**0.171** J	**0.868** J
Indeno(1,2,3-cd)pyrene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	**0.346**	< 0.1	< 0.1	0.113
Total CPAH	0	0	0	0	0.124	0	1.60	0	0.171	1.094
Non-Carcinogenic PAHs										
2-Methylnaphthalene	< 10	< 10	< 10	< 10	**0.12**	< 0.095	**0.519**	< 0.1	**0.171**	< 0.1
Acenaphthene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	< 10	< 10	< 10	< 10	**0.18**	**0.14**	**0.346**	< 0.1	**0.19**	**0.17**
Benzo(g,h,i)perylene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	**0.154**	< 0.1	< 0.1	< 0.1
Fluoranthene	< 10	< 10	< 10	< 10	**0.16**	< 0.095	< 0.1	< 0.1	**0.152**	**0.132**
Fluorene	< 10	< 10	< 10	< 10	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	< 10	< 10	< 10	< 10	**6.6**	< 0.095	**0.885**	**1.29**	**6.15**	**6.17**
Phenanthrene	< 10	< 10	< 10	< 10	**0.13**	< 0.095	< 0.1	< 0.1	**0.152**	**0.132**
Pyrene	< 10	< 10	< 10	< 10	**0.11**	< 0.095	**0.577**	< 0.1	**0.171**	**0.151**
Total LPAH	0	0	0	0	7.3	0.14	2.48	1.29	6.99	6.76
INORGANICS - DISSOLVED (mg/L)										
Arsenic	< 0.005	< 0.005	< 0.002	< 0.050	**0.0067**	**0.0019**	**0.0031**	< 0.001	**0.0035**	**0.0034**
Chromium	< 0.02	< 0.006	< 0.01	< 0.010	< 0.01	< 0.01	**0.0032**	**0.0038**	**0.0589**	**0.057**
Copper	**0.012**	< 0.005	< 0.02	< 0.050	< 0.02	< 0.01	**0.0011**	< 0.001	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)										
Arsenic	**0.03**	**0.011**	NA	NA	**0.012**	**0.0092**	**0.0045**	< 0.001	**0.0036**	**0.0036**
Chromium	**0.07**	**0.026**	NA	NA	**0.02**	**0.031**	**0.0113**	**0.002**	**0.0721**	**0.0729**
Copper	**0.14**	**0.075**	NA	NA	**0.051**	**0.07**	**0.0274**	< 0.001	**0.0013**	**0.0025**
Hexavalent Chromium (Method 7195)	NA	< 0.010	< 0.005	< 0.005	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	< 0.01	NA	< 0.01	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysi

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Sample Location	MW-11							
Sample Date	03/28/91	07/10/91	10/02/91	01/07/92	01/13/99	01/24/00	02/27/01	01/24/02
SEMIVOLATILE ORGANICS (ug/L)								
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 50	< 50	< 50	< 50	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA
2,4-Dichlorophenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA
2,4-Dimethylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	< 0.094	< 0.095	1.4	< 10
2-Methylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA
4-Methylphenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA
Dibenzofuran	< 10	< 10	< 10	< 10	NA	NA	NA	NA
Pentachlorophenol	< 5	< 16	< 5	< 5	**0.5**	< 0.48	**2.8**	**0.99**
Phenol	< 10	< 10	< 10	< 10	NA	NA	NA	NA
Tetrachlorophenol (total)	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs								
Benzo(a)anthracene	< 10	< 10	< 10	< 10	**0.12**	< 0.095	< 0.095	< 0.1
Benzo(a)pyrene	< 10	< 10	< 10	< 10	**0.21**	< 0.095	< 0.095	< 0.1
Benzo(b)fluoranthene	< 10	< 10	< 10	< 10	**0.4**	< 0.095	< 0.095	< 0.1
Benzo(k)fluoranthene	< 10	< 10	< 10	< 10	**0.14**	< 0.095	< 0.095	< 0.1
Chrysene	< 10	< 10	< 10	< 10	**0.25**	< 0.095	< 0.095	< 0.1
Dibenzo(a,h)anthracene	< 10	< 10	< 10	< 10	< 0.094	< 0.095	< 0.095	< 0.1
Indeno(1,2,3-cd)pyrene	< 10	< 10	< 10	< 10	< 0.094	< 0.095	< 0.095	< 0.1
Total CPAH	0	0	0	0	1.12	0	0	0
Non-Carcinogenic PAHs								
2-Methylnaphthalene	< 10	< 10	< 10	< 10	< 0.094	< 0.095	**0.18**	< 0.1
Acenaphthene	< 10	< 10	< 10	< 10	< 0.094	< 0.095	**0.095**	< 0.1
Acenaphthylene	< 10	< 10	< 10	< 10	< 0.094	< 0.095	< 0.095	< 0.1
Anthracene	< 10	< 10	< 10	< 10	< 0.094	< 0.095	**0.26**	**0.21**
Benzo(g,h,i)perylene	< 10	< 10	< 10	< 10	**0.21**	< 0.095	< 0.095	< 0.1
Fluoranthene	< 10	< 10	< 10	< 10	**0.42**	**0.076 J**	**0.84**	**0.4**
Fluorene	< 10	< 10	< 10	< 10	< 0.094	< 0.095	< 0.095	< 0.1
Naphthalene	< 10	< 10	< 10	< 10	**0.13**	**0.12**	**14**	**1.41**
Phenanthrene	< 10	< 10	< 10	< 10	**0.12**	**0.086 J**	**0.17**	< 0.1
Pyrene	< 10	< 10	< 10	< 10	**0.27**	< 0.095	**0.43**	**0.248**
Total LPAH	0	0	0	0	1.15	0.282	15.975	2.27
INORGANICS - DISSOLVED (mg/L)								
Arsenic	< 0.005	**0.006**	**0.005**	< 0.050	**0.005**	**0.11**	**0.083**	**0.0074**
Chromium	< 0.02	< 0.006	< 0.01	< 0.010	**0.090**	< 0.01	< 0.01	**0.0016**
Copper	**0.008**	< 0.003	< 0.02	< 0.050	< 0.002	< 0.02	< 0.01	**0.0014**
INORGANICS - TOTAL (mg/L)								
Arsenic	**0.025**	**0.01**	NA	NA	NA	**0.23**	**0.067**	**0.019**
Chromium	**0.1**	**0.026**	NA	NA	NA	**0.03**	< 0.01	**0.0031**
Copper	**0.033**	**0.039**	NA	NA	NA	**0.027**	**0.021**	**0.009**
Hexavalent Chromium (Method 7195)	NA	< 0.010	< 0.005	< 0.005	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	**0.03**	NA	< 0.01	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

s by EPA Method 6010 in July 19 Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysi

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Sample Location	MW-12									
Sample Date	**01/02/97**	**01/13/99**	**08/06/99**	**01/24/00**	**02/27/01**	**01/24/02**	**1/30/03**	**2/5/2004**	**05/26/04**	**09/08/04**
SEMIVOLATILE ORGANICS (ug/L)										
1-Methylnaphthalene	< 0.47	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 0.38	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	< 0.94	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	< 0.095	< 0.2	< 0.095	< 0.095	< 10	< 10	< 0.1	< 0.1	< 0.1
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	< 0.047 J	< 0.48	< 0.5	< 0.48	< 0.47	< 0.5	< 0.5	< 0.5	< 0.5	**1.62**
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachlorophenol (total)	< 0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs										
Benzo(a)anthracene	< 0.047	**0.14**	< 0.1	< 0.095	< 0.095	< 0.1	< 0.1 J	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	< 0.047	**0.11**	< 0.1	**0.11**	**0.11**	**0.743**	< 0.1 J	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	< 0.094	**0.13**	< 0.1	**0.14**	**0.12**	**0.324**	< 0.1 J	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	< 0.047	**0.14**	< 0.1	< 0.095	**0.12**	< 0.1	< 0.1 J	< 0.1	< 0.1	< 0.1
Chrysene	< 0.047	**0.23**	< 0.1	**0.086 J**	**0.15**	< 0.1	< 0.1 J	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	< 0.094	< 0.095	< 0.1	< 0.095	< 0.095	< 0.1	< 0.1 J	< 0.1	< 0.1	**0.151**
Indeno(1,2,3-cd)pyrene	< 0.047	< 0.095	< 0.1	< 0.095	< 0.095	< 0.1	< 0.1 J	< 0.1	< 0.1	< 0.1
Total CPAH	0	0.75	0	0.336	0.5	1.07	0	0	0	0.151
Non-Carcinogenic PAHs										
2-Methylnaphthalene	**0.47**	< 0.095	< 0.1	**0.16**	**0.24**	**0.248**	< 0.1 J	**0.113**	< 0.1	**0.226**
Acenaphthene	< 0.47	**0.99**	**3.8**	**1.7**	**2.3**	**2**	**0.321 J**	**0.453**	**0.453**	**1.43**
Acenaphthylene	< 0.94	< 0.095	< 0.1	< 0.095	< 0.095	< 0.1	< 0.1 J	< 0.1	< 0.1	< 0.1
Anthracene	< 0.047	**0.23**	**0.27**	**0.34**	**0.28**	< 0.1	**0.132 J**	< 0.1	< 0.1	**0.189**
Benzo(g,h,i)perylene	< 0.094	< 0.095	< 0.1	**0.076 J**	< 0.095	< 0.1	< 0.1 J	< 0.1	< 0.1	< 0.1
Fluoranthene	**0.18**	**0.51**	**0.21**	**0.51**	**0.75**	**0.61**	< 0.1 J	< 0.1	< 0.1	**0.245**
Fluorene	< 0.094	**0.53**	**0.69**	**0.72**	**0.98**	**0.724**	**0.132 J**	**0.189**	**0.17**	**0.566**
Naphthalene	< 0.47	**0.22**	**4.7**	**0.62**	**1**	**0.857**	< 0.1 J	**0.302**	**0.189**	**0.434**
Phenanthrene	**0.08**	**0.16**	**0.24**	**0.32**	**0.8**	**0.629**	< 0.1 J	**0.113**	< 0.1	**0.509**
Pyrene	< 0.047	**0.39**	**0.37**	**0.45**	**0.54**	**0.438**	< 0.1 J	< 0.1	< 0.1	**0.226**
Total LPAH	0.73	3.03	10.28	4.896	6.89	5.51	0.585	1.17	0.812	3.825
INORGANICS - DISSOLVED (mg/L)										
Arsenic	NA	**0.025**	NA	**0.033**	**0.036**	**0.011**	**0.00826**	**0.0131**	**0.0054**	**0.0173**
Chromium	NA	**0.021**	NA	< 0.01	< 0.01	**0.0024**	< 0.001	**0.0035**	**0.0013**	**0.0017**
Copper	NA	**0.0021**	NA	< 0.02	< 0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)										
Arsenic	**0.0095**	NA	< 0.2	**0.026**	**0.028**	**0.0189**	**0.016**	**0.0127**	**0.0056**	**0.0164**
Chromium	< 0.01	NA	**0.036**	**0.012**	**0.013**	**0.0081**	**0.0152**	**0.0035**	**0.0011**	**0.0023**
Copper	< 0.01	NA	**0.077**	< 0.02	**0.026**	**0.0162**	**0.0194**	**0.0018**	< 0.001	**0.0014**
Hexavalent Chromium (Method 7195)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

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Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

s by EPA Method 6010 in July 19 Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Sample Location	MW-13											
Sample Date	**01/02/97**	**01/02/97 Dup**	**01/14/99**	**08/06/99**	**01/24/00**	**02/27/01**	**01/24/02**	**01/24/02 Dup**	**1/31/03**	**2/5/2004**	**05/25/04**	**09/08/04**
SEMIVOLATILE ORGANICS (ug/L)												
1-Methylnaphthalene	< 0.47	< 0.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 0.38	< 0.38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 0.19	< 0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	< 0.94	< 0.94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	< 0.094	< 0.2	< 0.095	0.1	< 10	< 10	< 10	**0.547**	< 0.1	< 0.1
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	**0.03 J**	**0.027 J**	**0.22 J**	< 0.5	**17**	< 0.47	**33.5**	**34.2**	**14.9**	**75.8**	**9.88**	**2.89**
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachlorophenol (total)	< 0.19	< 0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs												
Benzo(a)anthracene	< 0.047	< 0.047	**0.22**	< 0.1	< 0.095	< 0.095	< 0.5	< 0.5	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	< 0.047	< 0.047	**0.25**	< 0.1	< 0.095	< 0.095	< 0.5 J	**2.35 J**	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	< 0.094	< 0.094	**0.51**	< 0.1	**0.076 J**	**0.11**	< 0.5 J	**1.47 J**	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	< 0.047	< 0.047	**0.19**	< 0.1	< 0.095	< 0.095	< 0.5	< 0.5	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	< 0.047	< 0.047	**0.33**	< 0.1	**0.1**	**0.11**	< 0.5	< 0.5	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	< 0.094	< 0.094	< 0.094	< 0.1	< 0.095	< 0.095	< 0.5	< 0.5	< 0.1	< 0.1	< 0.1	**0.151**
Indeno(1,2,3-cd)pyrene	< 0.047	< 0.047	**0.19**	< 0.1	< 0.095	< 0.095	< 0.5	**1.76**	< 0.1	< 0.1	< 0.1	< 0.1
Total CPAH	0	0	1.69	0	0.176	0.22	0	5.58	0	0	0	0.151
Non-Carcinogenic PAHs												
2-Methylnaphthalene	< 0.47	< 0.47	< 0.094	< 0.1	**0.048 J**	< 0.095	**2.45**	**2.35**	**0.208**	< 0.1	< 0.1	< 0.1
Acenaphthene	< 0.47	< 0.47	**0.35**	**1.7**	**0.41**	**0.85**	< 0.5	< 0.5	**0.604**	**0.509**	**0.5**	**1.81**
Acenaphthylene	< 0.94	< 0.94	< 0.094	< 0.1	**0.057 J**	< 0.095	< 0.5	< 0.5	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	< 0.047	**0.11**	**0.45**	**0.37**	**0.63**	**0.33**	**1.27**	**1.27**	< 0.1	< 0.1	< 0.1	**0.264**
Benzo(g,h,i)perylene	< 0.094	< 0.094	**0.15**	< 0.1	< 0.095	< 0.095	< 0.5	**0.784**	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	**0.13**	**0.13**	**0.88**	**0.16**	**0.22**	**0.39**	< 0.5	**0.588**	< 0.1	**0.321**	< 0.1	**0.132**
Fluorene	< 0.094	< 0.094	**0.12**	**0.11**	**0.1**	**0.16**	< 0.5	< 0.5	**0.264**	**0.132**	**0.115**	**0.302**
Naphthalene	< 0.47	< 0.47	**0.92**	**3.2**	**1.1**	**0.23**	**4.02 J**	< 0.5 J	**0.245**	**0.189**	< 0.1	**1.26**
Phenanthrene	**0.18**	**0.18**	**0.29**	< 0.1	**0.15**	**0.21**	< 0.5	< 0.5	**0.66**	**0.189**	**0.135**	**0.113**
Pyrene	**0.091**	**0.077**	**0.62**	**0.19**	**0.19**	**0.25**	**2.65**	**2.84**	< 0.1	**0.264**	< 0.1	**0.132**
Total LPAH	0.401	0.497	3.78	5.73	2.905	2.42	10.4	7.83	1.981	1.604	0.75	4.013
INORGANICS - DISSOLVED (mg/L)												
Arsenic	NA	NA	**0.081**	NA	NA	**1.6**	**3.44 J**	**5.02 J**	**6.76**	**12.5**	**2.2**	**0.261**
Chromium	NA	NA	**0.017**	NA	**0.016**	**1.8**	**0.009**	**0.0082**	**0.0334**	**0.0172**	**0.0188**	**0.0675**
Copper	NA	NA	< 0.002	NA	< 0.02	**0.32**	< 0.001	< 0.001	**0.168**	< 0.001	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)												
Arsenic	**0.034**	**0.033**	NA	**1.7**	NA	**7**	**7.38 J**	**5.36 J**	**6.72**	**12.3**	**3.01**	**0.289**
Chromium	< 0.01	< 0.01	NA	**1.2**	**0.18**	**7**	**0.349**	**0.276**	**0.066**	**0.0269**	**0.0289**	**0.105**
Copper	< 0.01	< 0.01	NA	**0.075**	< 0.02	**5**	**0.424 J**	**0.31 J**	**0.301**	**0.0062**	**0.007**	**0.0061**
Hexavalent Chromium (Method 7195)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Sample Location / Sample Date	01/02/97	01/14/99	08/06/99	01/24/00	02/27/01	01/24/02	1/31/03	2/5/2004	05/25/04	09/08/04
SEMIVOLATILE ORGANICS (ug/L)										
1-Methylnaphthalene	< 0.47	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	< 0.38	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	< 0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	< 0.94	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	< 0.093	< 0.19	< 0.095	< 0.095	< 10	< 10	< 0.1	< 0.1	< 0.1
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	**0.035 J**	< 0.47	< 0.49	< 0.48	**0.21**	**1.43**	**2.68**	< 0.5	< 0.5	< 0.5
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachlorophenol (total)	< 0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs										
Benzo(a)anthracene	< 0.047	**0.26**	< 0.097	**0.6**	**0.21**	**0.552**	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	< 0.047	**0.24**	< 0.097	**0.76**	**0.21**	**0.686**	**0.151**	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	< 0.094	**0.51**	< 0.097	**1.1**	**0.3**	**1.01**	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	< 0.047	**0.21**	< 0.097	**0.49**	**0.12**	**0.267**	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	< 0.047	**0.3**	< 0.097	**0.93**	**0.29**	**0.8**	**0.132**	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	< 0.094	< 0.093	< 0.097	< 0.095	< 0.095	**0.514**	< 0.1	< 0.1	< 0.1	**0.151**
Indeno(1,2,3-cd)pyrene	< 0.047	**0.21**	< 0.097	**0.61**	< 0.095	**0.61**	< 0.1	< 0.1	< 0.1	< 0.1
Total CPAH	0	1.73	0	4.49	1.13	4.44	0.283	0	0	0.151
Non-Carcinogenic PAHs										
2-Methylnaphthalene	< 0.47	< 0.093	< 0.097	**0.057 J**	< 0.095	**0.514**	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	< 0.47	< 0.093	< 0.097	**0.067 J**	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	< 0.94	< 0.093	< 0.097	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	< 0.047	**0.1**	< 0.097	**0.3**	**0.16**	**0.343**	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	< 0.094	**0.21**	< 0.097	**0.56**	**0.2**	**0.457**	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	< 0.094	**0.54**	**0.12**	**2.5**	**0.7**	**1.81**	**0.151**	< 0.1	< 0.1	< 0.1
Fluorene	< 0.094	< 0.093	< 0.097	**0.086 J**	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	< 0.47	< 0.093	< 0.097	**0.086 J**	< 0.095	**0.857**	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	< 0.047	**0.12**	< 0.097	**0.47**	0.095	**0.305**	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	< 0.047	**0.45**	**0.14**	**1.5**	**0.64**	**1.7**	< 0.1	< 0.1	< 0.1	< 0.1
Total LPAH	0	1.42	0.26	5.626	1.795	5.99	0.151	0	0	0
INORGANICS - DISSOLVED (mg/L)										
Arsenic	NA	**0.013**	NA	**0.04**	**0.83**	**0.199**	**0.178**	**0.106**	**0.092**	**0.0704**
Chromium	NA	**0.040**	NA	< 0.01	**0.12**	**0.0375**	**0.0159**	**0.0104**	**0.0113**	**0.0091**
Copper	NA	**0.0022**	NA	< 0.02	**0.12**	**0.108**	**0.0672**	**0.0214**	**0.0153**	**0.0126**
INORGANICS - TOTAL (mg/L)										
Arsenic	< 0.005	NA	**0.28**	**0.17**	**1.9**	**0.809**	**0.625**	**0.154**	**0.152**	**0.112**
Chromium	< 0.01	NA	**0.54**	**0.17**	**2**	**0.644**	**0.529**	**0.0752**	**0.101**	**0.0676**
Copper	< 0.01	NA	**0.31**	**0.097**	**1.5**	**0.586**	**0.522**	**0.0826**	**0.0627**	**0.0542**
Hexavalent Chromium (Method 7195)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MW-15				
Sample Date	2/4/2004	05/26/04	09/08/04		
SEMIVOLATILE ORGANICS (ug/L)					
1-Methylnaphthalene	NA	NA	NA		
2,4,5-Trichlorophenol	NA	NA	NA		
2,4,6-Trichlorophenol	NA	NA	NA		
2,4-Dichlorophenol	NA	NA	NA		
2,4-Dimethylphenol	NA	NA	NA		
2-Chloronaphthalene	**0.132**	< 0.1	< 0.167		
2-Methylphenol	NA	NA	NA		
4-Methylphenol	NA	NA	NA		
Dibenzofuran	NA	NA	NA		
Pentachlorophenol	**3.98**	**1.96**	**6.1**		
Phenol	NA	NA	NA		
Tetrachlorophenol (total)	NA	NA	NA		
Carcinogenic PAHs					
Benzo(a)anthracene	**0.849**	**0.629**	**1.17**		
Benzo(a)pyrene	**0.226**	**0.171**	**0.333**		
Benzo(b)fluoranthene	**0.509**	**0.286**	**1.03**		
Benzo(k)fluoranthene	< 0.1	**0.21**	**1.27**		
Chrysene	**1.09**	**0.876**	**1.57**		
Dibenzo(a,h)anthracene	< 0.1	< 0.1	**0.3**		
Indeno(1,2,3-cd)pyrene	< 0.1	**0.171**	**0.167**		
Total CPAH	2.674	2.343	5.84		
Non-Carcinogenic PAHs					
2-Methylnaphthalene	**3.11**	**1.66**	**1.6**		
Acenaphthene	**30.4**	**20.8**	**27.2**		
Acenaphthylene	**0.566**	< 0.1	**8.63**		
Anthracene	**3.79**	**2.08**	**2.9**		
Benzo(g,h,i)perylene	< 0.1	< 0.1	**0.167**		
Fluoranthene	**10**	**7.85**	**11.4**		
Fluorene	**23.8**	**16.4**	**20.4**		
Naphthalene	**3.08**	**1.01**	**1.27**		
Phenanthrene	**30.6**	**24.7**	**28.4**		
Pyrene	**5.96**	**4.34**	**7.1**		
Total LPAH	111.31	78.84	109.07		
INORGANICS - DISSOLVED (mg/L)					
Arsenic	**0.0215**	**0.0325**	**0.0072**		
Chromium	**0.0015**	**0.0012**	**0.0012**		
Copper	< 0.001	< 0.001	< 0.001		
INORGANICS - TOTAL (mg/L)					
Arsenic	**0.0278**	**0.0331**	**0.0091**		
Chromium	**0.0333**	**0.0095**	**0.0123**		
Copper	**0.0585**	**0.0182**	**0.0221**		
Hexavalent Chromium (Method 7195)	NA	NA	NA		
Hexavalent Chromium (Method 7196)	NA	NA	NA		

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Sample Location	MW-16				
Sample Date	**2/4/2004**	**05/26/04**	**09/08/04**		
SEMIVOLATILE ORGANICS (ug/L)					
1-Methylnaphthalene	NA	NA	NA		
2,4,5-Trichlorophenol	NA	NA	NA		
2,4,6-Trichlorophenol	NA	NA	NA		
2,4-Dichlorophenol	NA	NA	NA		
2,4-Dimethylphenol	NA	NA	NA		
2-Chloronaphthalene	< 1	< 0.1	< 0.1		
2-Methylphenol	NA	NA	NA		
4-Methylphenol	NA	NA	NA		
Dibenzofuran	NA	NA	NA		
Pentachlorophenol	< 5	< 0.5	**1.7**		
Phenol	NA	NA	NA		
Tetrachlorophenol (total)	NA	NA	NA		
Carcinogenic PAHs					
Benzo(a)anthracene	< 1	< 0.1	**0.114**		
Benzo(a)pyrene	< 1	< 0.1	< 0.1		
Benzo(b)fluoranthene	< 1	< 0.1	< 0.1		
Benzo(k)fluoranthene	< 1	< 0.1	< 0.1		
Chrysene	< 1	< 0.1	**0.114**		
Dibenzo(a,h)anthracene	< 1	< 0.1	**0.152**		
Indeno(1,2,3-cd)pyrene	< 1	< 0.1	< 0.1		
Total CPAH	0	0	0.38		
Non-Carcinogenic PAHs					
2-Methylnaphthalene	**26.8**	**21.3**	**13.7**		
Acenaphthene	**2.83**	**2.6**	**2.99**		
Acenaphthylene	< 1	< 0.1	< 0.1		
Anthracene	< 1	**0.113**	**0.21**		
Benzo(g,h,i)perylene	< 1	< 0.1	< 0.1		
Fluoranthene	**1.32**	**0.358**	**0.343**		
Fluorene	< 1	**0.755**	**0.705**		
Naphthalene	**1370**	**1370**	**1280**		
Phenanthrene	< 1	**0.472**	**0.552**		
Pyrene	< 1	**0.208**	**0.362**		
Total LPAH	1401	1395.8	1298.9		
INORGANICS - DISSOLVED (mg/L)					
Arsenic	**0.0034**	**0.0016**	**0.0051**		
Chromium	**0.0024**	**0.0016**	< 0.001		
Copper	< 0.001	< 0.001	< 0.001		
INORGANICS - TOTAL (mg/L)					
Arsenic	**0.0025**	**0.0019**	**0.0053**		
Chromium	**0.0015**	**0.0013**	**0.0045**		
Copper	< 0.001	< 0.001	**0.0087**		
Hexavalent Chromium (Method 7195)	NA	NA	NA		
Hexavalent Chromium (Method 7196)	NA	NA	NA		

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Sample Location	MW-17				
Sample Date	2/4/2004	05/26/04	09/08/04		
SEMIVOLATILE ORGANICS (ug/L)					
1-Methylnaphthalene	NA	NA	NA		
2,4,5-Trichlorophenol	NA	NA	NA		
2,4,6-Trichlorophenol	NA	NA	NA		
2,4-Dichlorophenol	NA	NA	NA		
2,4-Dimethylphenol	NA	NA	NA		
2-Chloronaphthalene	< 0.1	< 0.1	< 0.1		
2-Methylphenol	NA	NA	NA		
4-Methylphenol	NA	NA	NA		
Dibenzofuran	NA	NA	NA		
Pentachlorophenol	**3.83**	< 0.5	**1.62**		
Phenol	NA	NA	NA		
Tetrachlorophenol (total)	NA	NA	NA		
Carcinogenic PAHs					
Benzo(a)anthracene	< 0.1	< 0.1	< 0.1		
Benzo(a)pyrene	< 0.1	< 0.1	< 0.1		
Benzo(b)fluoranthene	< 0.1	< 0.1	< 0.1		
Benzo(k)fluoranthene	< 0.1	< 0.1	< 0.1		
Chrysene	< 0.1	< 0.1	< 0.1		
Dibenzo(a,h)anthracene	< 0.1	< 0.1	< 0.1		
Indeno(1,2,3-cd)pyrene	< 0.1	< 0.1	< 0.1		
Total CPAH	0	0	0		
Non-Carcinogenic PAHs					
2-Methylnaphthalene	< 0.1	< 0.1	< 0.1		
Acenaphthene	**0.132**	< 0.1	< 0.1		
Acenaphthylene	< 0.1	< 0.1	< 0.1		
Anthracene	< 0.1	< 0.1	< 0.1		
Benzo(g,h,i)perylene	< 0.1	< 0.1	< 0.1		
Fluoranthene	< 0.1	< 0.1	< 0.1		
Fluorene	< 0.1	< 0.1	**0.152**		
Naphthalene	< 0.1	< 0.1	< 0.1		
Phenanthrene	< 0.1	< 0.1	**0.114**		
Pyrene	< 0.1	< 0.1	**0.171**		
Total LPAH	0.132	0	0.437		
INORGANICS - DISSOLVED (mg/L)					
Arsenic	**0.06**	**0.0031**	**0.052**		
Chromium	**0.0059**	**0.0044**	**0.0029**		
Copper	**0.002**	< 0.001	**0.0016**		
INORGANICS - TOTAL (mg/L)					
Arsenic	**0.0307**	**0.0071**	**0.0485**		
Chromium	< 0.001	< 0.001	**0.0016**		
Copper	**0.0025**	< 0.001	**0.0024**		
Hexavalent Chromium (Method 7195)	NA	NA	NA		
Hexavalent Chromium (Method 7196)	NA	NA	NA		

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Sample Location	**MW-18**				
Sample Date	**2/5/2004**	**05/25/04**	**09/08/04**		
SEMIVOLATILE ORGANICS (ug/L)					
1-Methylnaphthalene	NA	NA	NA		
2,4,5-Trichlorophenol	NA	NA	NA		
2,4,6-Trichlorophenol	NA	NA	NA		
2,4-Dichlorophenol	NA	NA	NA		
2,4-Dimethylphenol	NA	NA	NA		
2-Chloronaphthalene	< 0.1	< 0.1	< 0.1		
2-Methylphenol	NA	NA	NA		
4-Methylphenol	NA	NA	NA		
Dibenzofuran	NA	NA	NA		
Pentachlorophenol	< 0.5	< 0.5	< 0.5		
Phenol	NA	NA	NA		
Tetrachlorophenol (total)	NA	NA	NA		
Carcinogenic PAHs					
Benzo(a)anthracene	< 0.1	< 0.1	< 0.1		
Benzo(a)pyrene	< 0.1	< 0.1	< 0.1		
Benzo(b)fluoranthene	< 0.1	< 0.1	< 0.1		
Benzo(k)fluoranthene	< 0.1	< 0.1	< 0.1		
Chrysene	< 0.1	< 0.1	**0.113**		
Dibenzo(a,h)anthracene	< 0.1	< 0.1	**0.132**		
Indeno(1,2,3-cd)pyrene	< 0.1	< 0.1	< 0.1		
Total CPAH	0	0	0.245		
Non-Carcinogenic PAHs					
2-Methylnaphthalene	< 0.1	< 0.1	< 0.1		
Acenaphthene	**0.113**	< 0.1	< 0.1		
Acenaphthylene	< 0.1	< 0.1	< 0.1		
Anthracene	< 0.1	< 0.1	< 0.1		
Benzo(g,h,i)perylene	< 0.1	< 0.1	< 0.1		
Fluoranthene	**0.264**	< 0.1	**0.226**		
Fluorene	< 0.1	< 0.1	< 0.1		
Naphthalene	< 0.1	< 0.1	< 0.1		
Phenanthrene	**0.208**	< 0.1	< 0.1		
Pyrene	**0.189**	< 0.1	**0.189**		
Total LPAH	0.774	0	0.415		
INORGANICS - DISSOLVED (mg/L)					
Arsenic	**0.001**	**0.0014**	< 0.001		
Chromium	**0.0043**	**0.0067**	**0.0038**		
Copper	< 0.001	< 0.001	< 0.001		
INORGANICS - TOTAL (mg/L)					
Arsenic	**0.0012**	**0.0012**	< 0.001		
Chromium	**0.0056**	**0.0048**	**0.0051**		
Copper	**0.0029**	**0.0011**	**0.003**		
Hexavalent Chromium (Method 7195)	NA	NA	NA		
Hexavalent Chromium (Method 7196)	NA	NA	NA		

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	HORIZONTAL DRAIN						
Sample Date	01/24/00	02/27/01	01/24/02	1/30/03	3/12/04	05/25/04	10/14/04
SEMIVOLATILE ORGANICS (ug/L)							
1-Methylnaphthalene	NA	NA	NA	NA	20.8	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	< 0.095	< 0.095	< 10	< 10	< 1	< 0.1	< 0.1
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	170	50	69.1	116	276	149	5.3
Phenol	NA	NA	NA	NA	NA	NA	NA
Tetrachlorophenol (total)	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs							
Benzo(a)anthracene	< 0.095	< 0.095	< 0.1	0.132	< 1	< 0.1	1.73
Benzo(a)pyrene	< 0.095	< 0.095	< 0.1	< 0.1	< 1	< 0.1	< 0.5
Benzo(b)fluoranthene	< 0.095	< 0.095	< 0.1	< 0.1	< 1	< 0.1	< 0.5
Benzo(k)fluoranthene	< 0.095	< 0.095	< 0.1	< 0.1	< 1	< 0.1	< 0.5
Chrysene	< 0.095	< 0.095	< 0.1	0.113	< 1	< 0.1	< 0.5
Dibenzo(a,h)anthracene	< 0.095	< 0.095	< 0.1	< 0.1	< 1	< 0.1	< 0.5
Indeno(1,2,3-cd)pyrene	< 0.095	< 0.095	< 0.1	< 0.1	< 1	< 0.1	< 0.5
Total CPAH	0	0	0	0.245	0	0	1.73
Non-Carcinogenic PAHs							
2-Methylnaphthalene	32	2.2	14.4	25.8	30.5	0.229	< 0.5
Acenaphthene	14	6.7	11.1	12.8	8.74	6.02	5.19
Acenaphthylene	0.52	< 0.095	< 0.1	< 0.1	< 1	0.305	< 0.5
Anthracene	1.2	0.79	0.971	1.19	< 1	< 0.1	< 0.5
Benzo(g,h,i)perylene	< 0.095	< 0.095	< 0.1	< 0.1	< 1	< 0.1	< 0.5
Fluoranthene	< 0.095	0.27	0.457	1.21	< 1	0.229	1.01
Fluorene	6.6	< 0.095	5.35	5.74	3.88	2.15	2.5
Naphthalene	370	2.3	159	805	1240	5.92	6.64
Phenanthrene	7.8	< 0.095	3.54	6.23	2.33	< 0.1	1.27
Pyrene	1.4	0.24	0.724	0.83	< 1	0.152	0.821
Total LPAH	433.52	12.5	196	858.8	1285.45	15.005	14.931
INORGANICS - DISSOLVED (mg/L)							
Arsenic	0.97	0.33	0.297	0.587	0.699	0.347	NA
Chromium	< 0.01	< 0.01	0.004	0.00499	0.0216	0.0052	NA
Copper	< 0.02	< 0.01	< 0.001	< 0.001	0.0175	< 0.001	NA
INORGANICS - TOTAL (mg/L)							
Arsenic	0.59	0.27	0.924	0.582	0.603	0.407	8.96
Chromium	0.011	< 0.01	0.0174	0.00701	< 0.01	0.0061	0.0893
Copper	< 0.02	< 0.01	0.0064	< 0.001	< 0.01	< 0.001	< 0.001
Hexavalent Chromium (Method 7195)	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Sample Location	UPRR-29									
Sample Date	01/14/99	08/06/99	01/24/00	02/27/01	01/24/02	1/30/03	2/6/2004	2/6/2004 DUP	05/25/04	09/08/04
SEMIVOLATILE ORGANICS (ug/L)										
1-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	< 0.094	< 0.19	< 0.095	0.35	< 10	< 10	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	**1.2**	< 0.48	**0.95**	< 0.52	**1.26**	**2.57**	**3.77**	**3.87** J	**2.19**	**1.85**
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachlorophenol (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carcinogenic PAHs										
Benzo(a)anthracene	**0.25**	**0.39**	**0.37**	**0.24**	< 0.1	< 0.1	< 0.1	< 0.1 R	< 0.1	< 0.1
Benzo(a)pyrene	**0.27**	< 0.096	**0.29**	< 0.095	**0.52**	< 0.1	< 0.1	< 0.1 R	< 0.1	< 0.1
Benzo(b)fluoranthene	**0.35**	**0.42**	**0.33**	**0.22**	**0.38**	< 0.1	< 0.1	< 0.1 R	< 0.1	< 0.1
Benzo(k)fluoranthene	**0.11**	**0.15**	**0.33**	**0.22**	< 0.1	< 0.1	< 0.1	< 0.1 R	< 0.1	< 0.1
Chrysene	**0.36**	**0.39**	**0.33**	**0.26**	< 0.1	< 0.1	< 0.1	< 0.1 R	< 0.1	< 0.1
Dibenzo(a,h)anthracene	< 0.094	< 0.096	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1 R	< 0.1	**0.152**
Indeno(1,2,3-cd)pyrene	< 0.094	< 0.096	< 0.095	< 0.095	**0.38**	< 0.1	< 0.1	< 0.1 R	< 0.1	< 0.1
Total CPAH	1.34	1.35	1.65	0.94	1.28	0	0	0	0	0.152
Non-Carcinogenic PAHs										
2-Methylnaphthalene	< 0.094	< 0.096	< 0.095	< 0.095	**0.5**	< 0.1	< 0.1	< 0.1 R	< 0.1	< 0.1
Acenaphthene	**0.17**	< 0.096	**0.46**	**0.45**	< 0.1	< 0.1	**0.321**	< 0.1 R	< 0.1	**0.495**
Acenaphthylene	**0.16**	< 0.096	< 0.095	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1 R	< 0.1	< 0.1
Anthracene	**0.78**	**1.7**	**0.83**	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1 R	< 0.1	**0.419**
Benzo(g,h,i)perylene	< 0.094	< 0.096	< 0.095	< 0.095	**0.18**	< 0.1	< 0.1	< 0.1 R	< 0.1	< 0.1
Fluoranthene	**1.5**	**2.2**	**1.5**	**0.75**	**0.44**	< 0.1	< 0.1	< 0.1 R	**0.151**	**0.267**
Fluorene	**0.58**	**4.5**	**1.2**	**2.3**	**1**	< 0.1	**1.04**	< 0.1 R	**0.189**	**1.5**
Naphthalene	**0.19**	**0.22**	**0.11**	< 0.095	**1.24**	< 0.1	< 0.1	< 0.1 R	< 0.1	< 0.1
Phenanthrene	**1.2**	**7.8**	**0.71**	< 0.095	< 0.1	< 0.1	< 0.1	< 0.1 R	**0.151**	< 0.1
Pyrene	**1.3**	**5.3**	**2.4**	**1.1**	**0.9**	< 0.1	**0.132**	**0.19** J	**0.151**	**0.305**
Total LPAH	5.88	21.72	7.21	4.6	4.26	0	1.49	0.19	0.64	2.99
INORGANICS - DISSOLVED (mg/L)										
Arsenic	**0.54**	NA	**0.31**	**0.21**	**0.176**	**0.126**	**0.123**	**0.118**	**0.577**	**0.209**
Chromium	**0.017**	NA	**0.011**	< 0.01	**0.0082**	**0.00499**	**0.00927**	**0.00906**	**0.0152**	**0.00348**
Copper	**0.005**	NA	< 0.02	< 0.01	**0.0055**	**0.0182**	**0.00923**	**0.00938**	**0.00679**	< 0.001
INORGANICS - TOTAL (mg/L)										
Arsenic	NA	**1.0**	**0.26**	**0.34**	**0.197**	**0.155**	**0.139**	**0.131**	**0.628**	**0.339**
Chromium	NA	**0.033**	**0.025**	**0.026**	**0.025**	**0.0263**	**0.0219**	**0.0197**	**0.0243**	**0.00898**
Copper	NA	**0.024**	< 0.02	**0.031**	**0.0195**	**0.0338**	**0.0207**	**0.0191**	**0.0197**	**0.00774**
Hexavalent Chromium (Method 7195)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

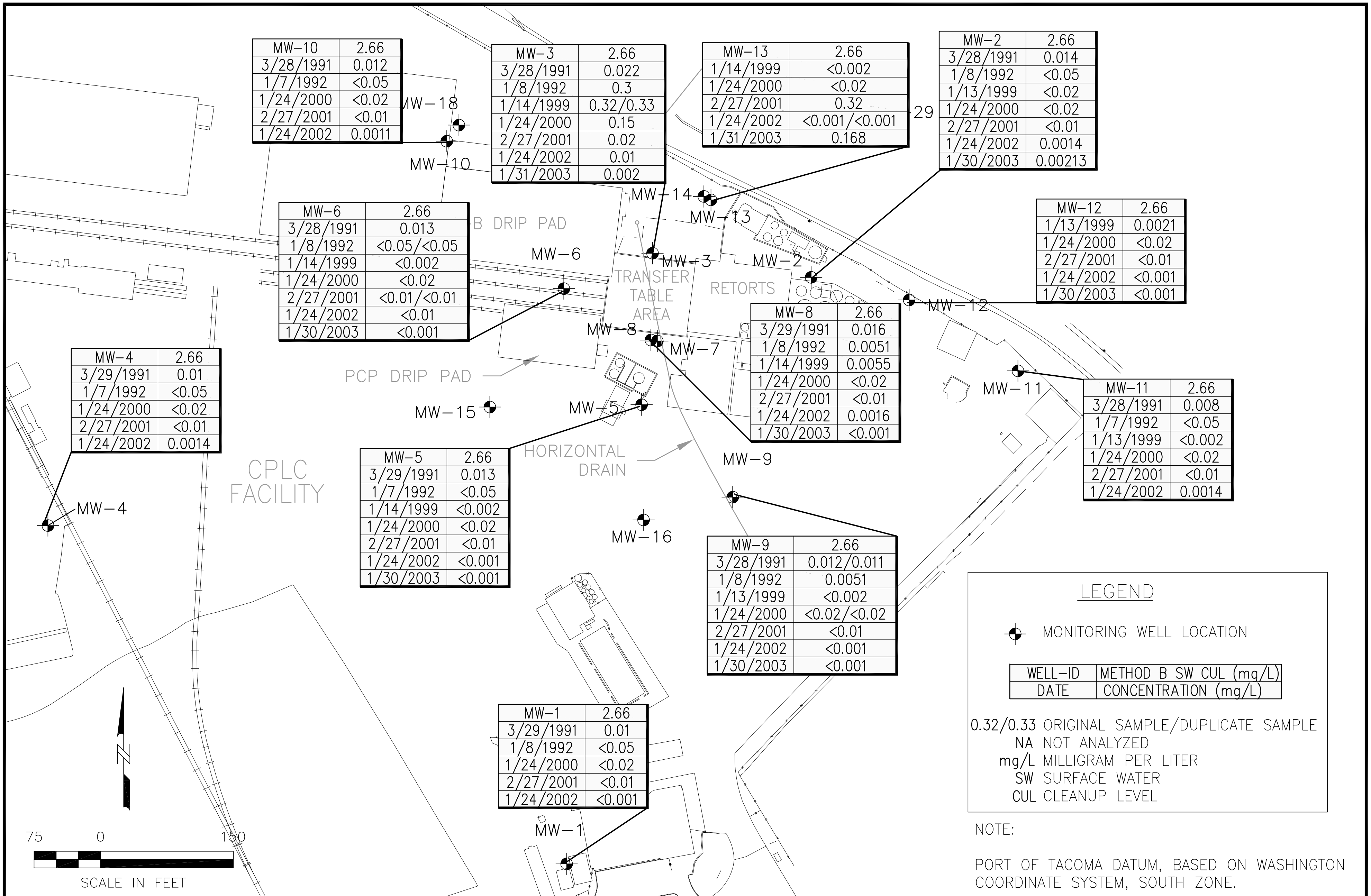
Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.



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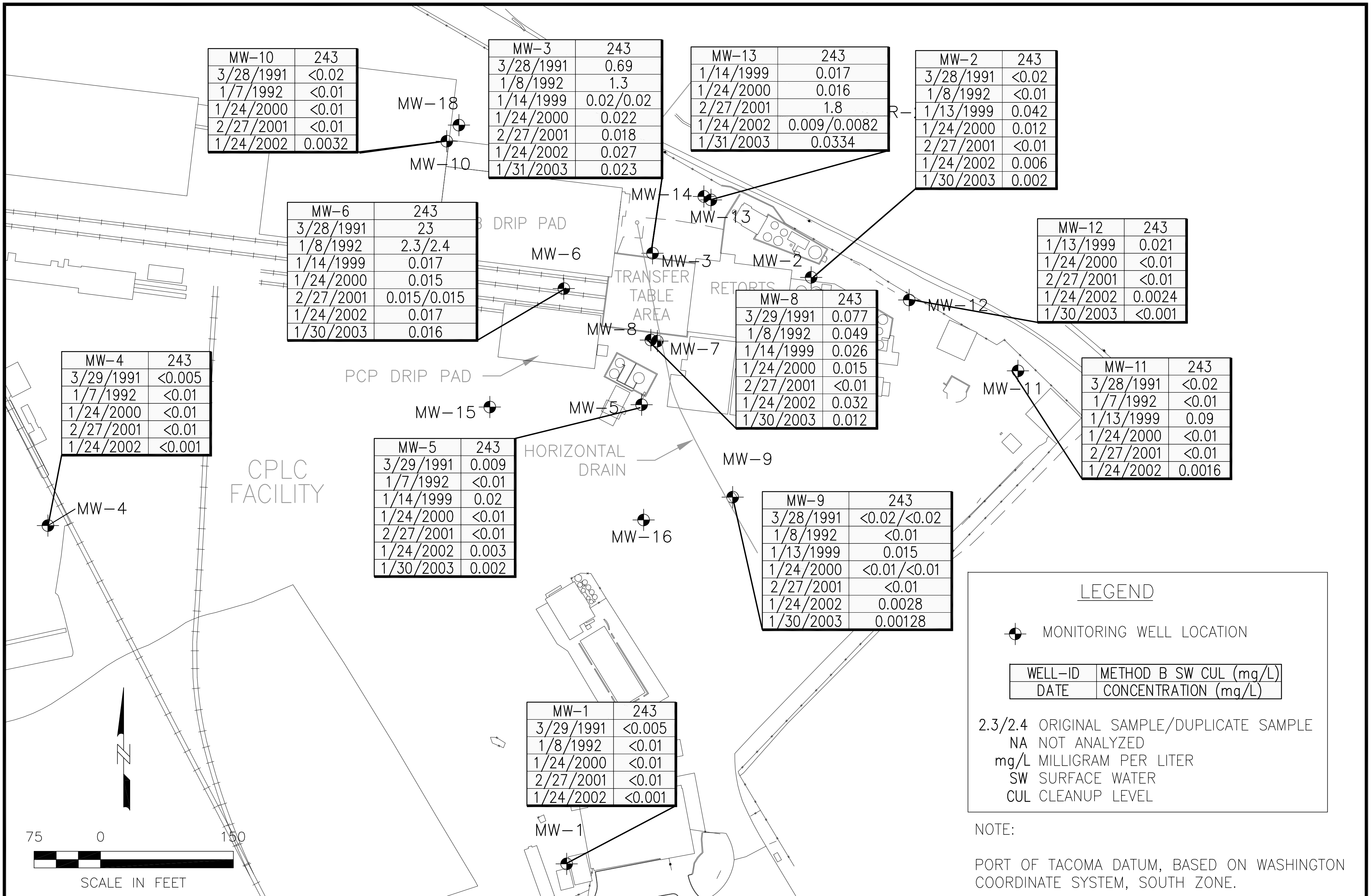
TACOMA, WASHINGTON

60137201-0200

CONCENTRATIONS OF COPPER IN SHALLOW GROUNDWATER - 1991 TO 2003

DATE: 12/08/09 | DRWN: E.M/SEA

FIGURE 3-18



MW-10	243
3/28/1991	<0.02
1/7/1992	<0.01
1/24/2000	<0.01
2/27/2001	<0.01
1/24/2002	0.0032

MW-3	243
3/28/1991	0.69
1/8/1992	1.3
1/14/1999	0.02/0.02
1/24/2000	0.022
2/27/2001	0.018
1/24/2002	0.027
1/31/2003	0.023

MW-13	243
1/14/1999	0.017
1/24/2000	0.016
2/27/2001	1.8
1/24/2002	0.009/0.0082
1/31/2003	0.0334

MW-2	243
3/28/1991	<0.02
1/8/1992	<0.01
1/13/1999	0.042
1/24/2000	0.012
2/27/2001	<0.01
1/24/2002	0.006
1/30/2003	0.002

MW-6	243
3/28/1991	23
1/8/1992	2.3/2.4
1/14/1999	0.017
1/24/2000	0.015
2/27/2001	0.015/0.015
1/24/2002	0.017
1/30/2003	0.016

MW-12	243
1/13/1999	0.021
1/24/2000	<0.01
2/27/2001	<0.01
1/24/2002	0.0024
1/30/2003	<0.001

MW-8	243
3/29/1991	0.077
1/8/1992	0.049
1/14/1999	0.026
1/24/2000	0.015
2/27/2001	<0.01
1/24/2002	0.032
1/30/2003	0.012

MW-4	243
3/29/1991	<0.005
1/7/1992	<0.01
1/24/2000	<0.01
2/27/2001	<0.01
1/24/2002	<0.001

MW-11	243
3/28/1991	<0.02
1/7/1992	<0.01
1/13/1999	0.09
1/24/2000	<0.01
2/27/2001	<0.01
1/24/2002	0.0016

MW-5	243
3/29/1991	0.009
1/7/1992	<0.01
1/14/1999	0.02
1/24/2000	<0.01
2/27/2001	<0.01
1/24/2002	0.003
1/30/2003	0.002

MW-9	243
3/28/1991	<0.02/<0.02
1/8/1992	<0.01
1/13/1999	0.015
1/24/2000	<0.01/<0.01
2/27/2001	<0.01
1/24/2002	0.0028
1/30/2003	0.00128

MW-1	243
3/29/1991	<0.005
1/8/1992	<0.01
1/24/2000	<0.01
2/27/2001	<0.01
1/24/2002	<0.001

LEGEND

MONITORING WELL LOCATION

WELL-ID	METHOD B SW CUL (mg/L)
DATE	CONCENTRATION (mg/L)

2.3/2.4 ORIGINAL SAMPLE/DUPLICATE SAMPLE
NA NOT ANALYZED
mg/L MILLIGRAM PER LITER
SW SURFACE WATER
CUL CLEANUP LEVEL

NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

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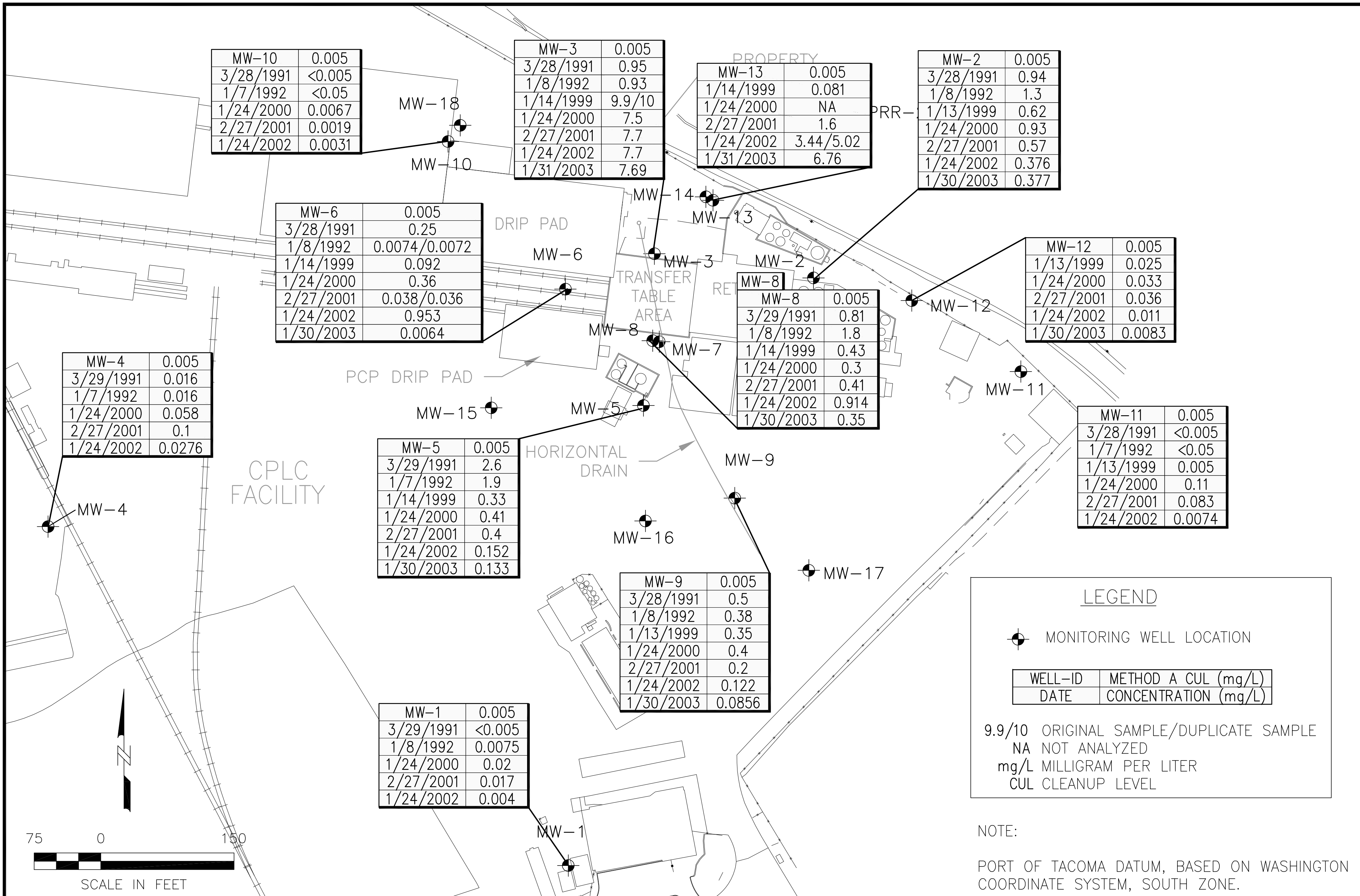
CONCENTRATIONS OF CHROMIUM IN SHALLOW GROUNDWATER - 1991 TO 2003

FIGURE 3-19

File: G:\PROJECTS\CADD\Cascade Lumber\REVISED RI-FS\arsenic_shallow-3-20.dwg Layout: FIGURE User: oliveriam Plotted: Apr 21, 2011 - 3:26pm Xref's:



MW-10	0.005
3/28/1991	<0.005
1/7/1992	<0.05
1/24/2000	0.0067
2/27/2001	0.0019
1/24/2002	0.0031

MW-3	0.005
3/28/1991	0.95
1/8/1992	0.93
1/14/1999	9.9/10
1/24/2000	7.5
2/27/2001	7.7
1/24/2002	7.7
1/31/2003	7.69

MW-13	0.005
1/14/1999	0.081
1/24/2000	NA
2/27/2001	1.6
1/24/2002	3.44/5.02
1/31/2003	6.76

MW-2	0.005
3/28/1991	0.94
1/8/1992	1.3
1/13/1999	0.62
1/24/2000	0.93
2/27/2001	0.57
1/24/2002	0.376
1/30/2003	0.377

MW-6	0.005
3/28/1991	0.25
1/8/1992	0.0074/0.0072
1/14/1999	0.092
1/24/2000	0.36
2/27/2001	0.038/0.036
1/24/2002	0.953
1/30/2003	0.0064

MW-12	0.005
1/13/1999	0.025
1/24/2000	0.033
2/27/2001	0.036
1/24/2002	0.011
1/30/2003	0.0083

MW-8	0.005
3/29/1991	0.81
1/8/1992	1.8
1/14/1999	0.43
1/24/2000	0.3
2/27/2001	0.41
1/24/2002	0.914
1/30/2003	0.35

MW-4	0.005
3/29/1991	0.016
1/7/1992	0.016
1/24/2000	0.058
2/27/2001	0.1
1/24/2002	0.0276

MW-11	0.005
3/28/1991	<0.005
1/7/1992	<0.05
1/13/1999	0.005
1/24/2000	0.11
2/27/2001	0.083
1/24/2002	0.0074

MW-5	0.005
3/29/1991	2.6
1/7/1992	1.9
1/14/1999	0.33
1/24/2000	0.41
2/27/2001	0.4
1/24/2002	0.152
1/30/2003	0.133

MW-9	0.005
3/28/1991	0.5
1/8/1992	0.38
1/13/1999	0.35
1/24/2000	0.4
2/27/2001	0.2
1/24/2002	0.122
1/30/2003	0.0856

MW-1	0.005
3/29/1991	<0.005
1/8/1992	0.0075
1/24/2000	0.02
2/27/2001	0.017
1/24/2002	0.004

LEGEND

MONITORING WELL LOCATION

WELL-ID	METHOD A CUL (mg/L)
DATE	CONCENTRATION (mg/L)

9.9/10 ORIGINAL SAMPLE/DUPLICATE SAMPLE
NA NOT ANALYZED
mg/L MILLIGRAM PER LITER
CUL CLEANUP LEVEL

NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

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TACOMA, WASHINGTON

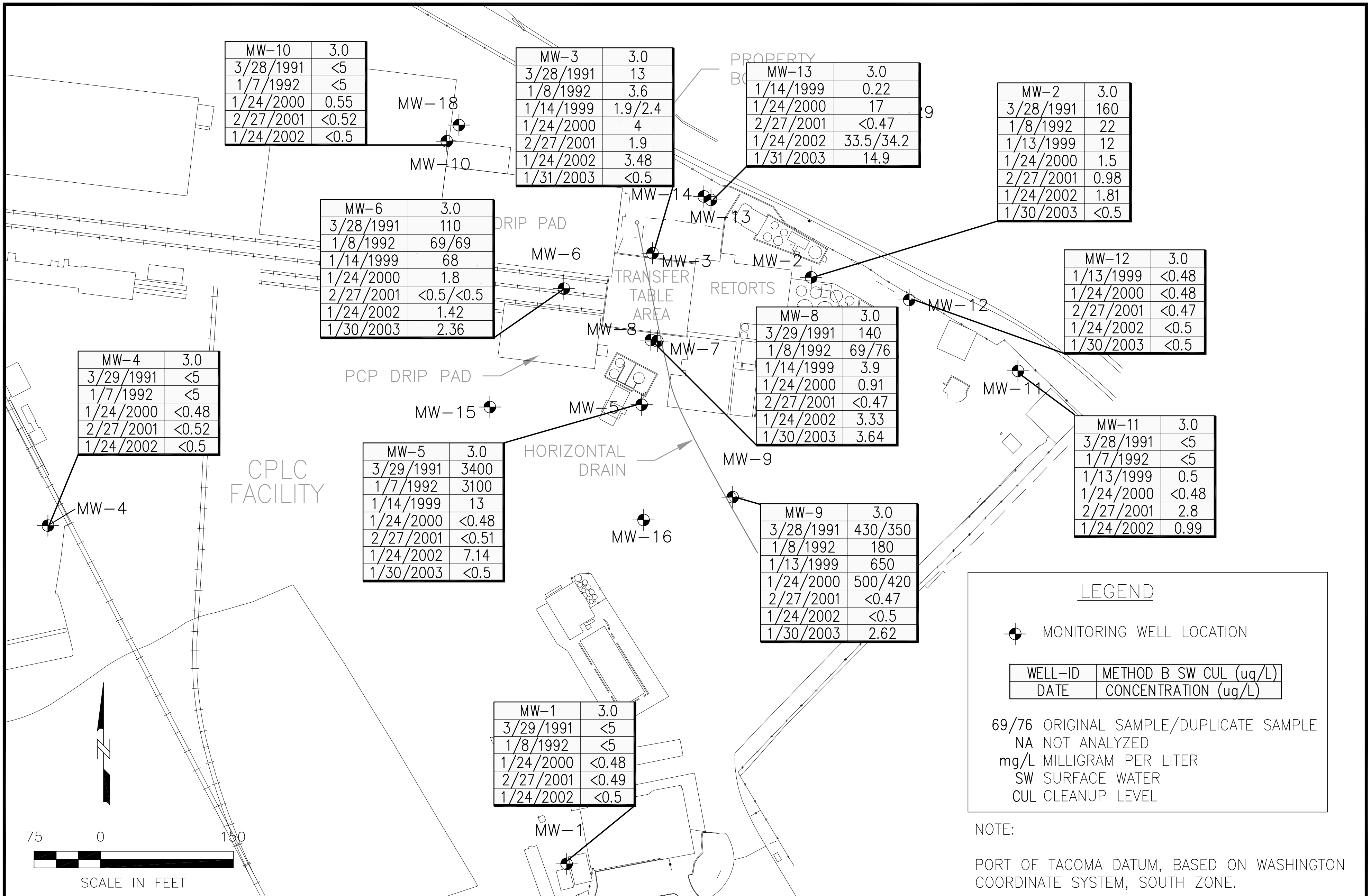
60137201-0200

DATE: 12/08/09 DRWN: E.M/SEA

CONCENTRATIONS OF ARSENIC IN SHALLOW GROUNDWATER - 1991 TO 2003

FIGURE 3-20

File: G:\PROJECTS\CADD\Cascade Lumber\REVISED RI-FS\PCP_shallow-3-21.dwg Layout: FIGURE User: oliveriam Plotted: Apr 21, 2011 - 3:31pm Xref's:



WELL-ID	METHOD B SW CUL (ug/L)
DATE	CONCENTRATION (ug/L)

MW-10	3.0
3/28/1991	<5
1/7/1992	<5
1/24/2000	0.55
2/27/2001	<0.52
1/24/2002	<0.5

MW-3	3.0
3/28/1991	13
1/8/1992	3.6
1/14/1999	1.9/2.4
1/24/2000	4
2/27/2001	1.9
1/24/2002	3.48
1/31/2003	<0.5

MW-13	3.0
1/14/1999	0.22
1/24/2000	17
2/27/2001	<0.47
1/24/2002	33.5/34.2
1/31/2003	14.9

MW-2	3.0
3/28/1991	160
1/8/1992	22
1/13/1999	12
1/24/2000	1.5
2/27/2001	0.98
1/24/2002	1.81
1/30/2003	<0.5

MW-6	3.0
3/28/1991	110
1/8/1992	69/69
1/14/1999	68
1/24/2000	1.8
2/27/2001	<0.5/<0.5
1/24/2002	1.42
1/30/2003	2.36

MW-12	3.0
1/13/1999	<0.48
1/24/2000	<0.48
2/27/2001	<0.47
1/24/2002	<0.5
1/30/2003	<0.5

MW-8	3.0
3/29/1991	140
1/8/1992	69/76
1/14/1999	3.9
1/24/2000	0.91
2/27/2001	<0.47
1/24/2002	3.33
1/30/2003	3.64

MW-4	3.0
3/29/1991	<5
1/7/1992	<5
1/24/2000	<0.48
2/27/2001	<0.52
1/24/2002	<0.5

MW-11	3.0
3/28/1991	<5
1/7/1992	<5
1/13/1999	0.5
1/24/2000	<0.48
2/27/2001	2.8
1/24/2002	0.99

MW-5	3.0
3/29/1991	3400
1/7/1992	3100
1/14/1999	13
1/24/2000	<0.48
2/27/2001	<0.51
1/24/2002	7.14
1/30/2003	<0.5

MW-9	3.0
3/28/1991	430/350
1/8/1992	180
1/13/1999	650
1/24/2000	500/420
2/27/2001	<0.47
1/24/2002	<0.5
1/30/2003	2.62

MW-1	3.0
3/29/1991	<5
1/8/1992	<5
1/24/2000	<0.48
2/27/2001	<0.49
1/24/2002	<0.5

NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

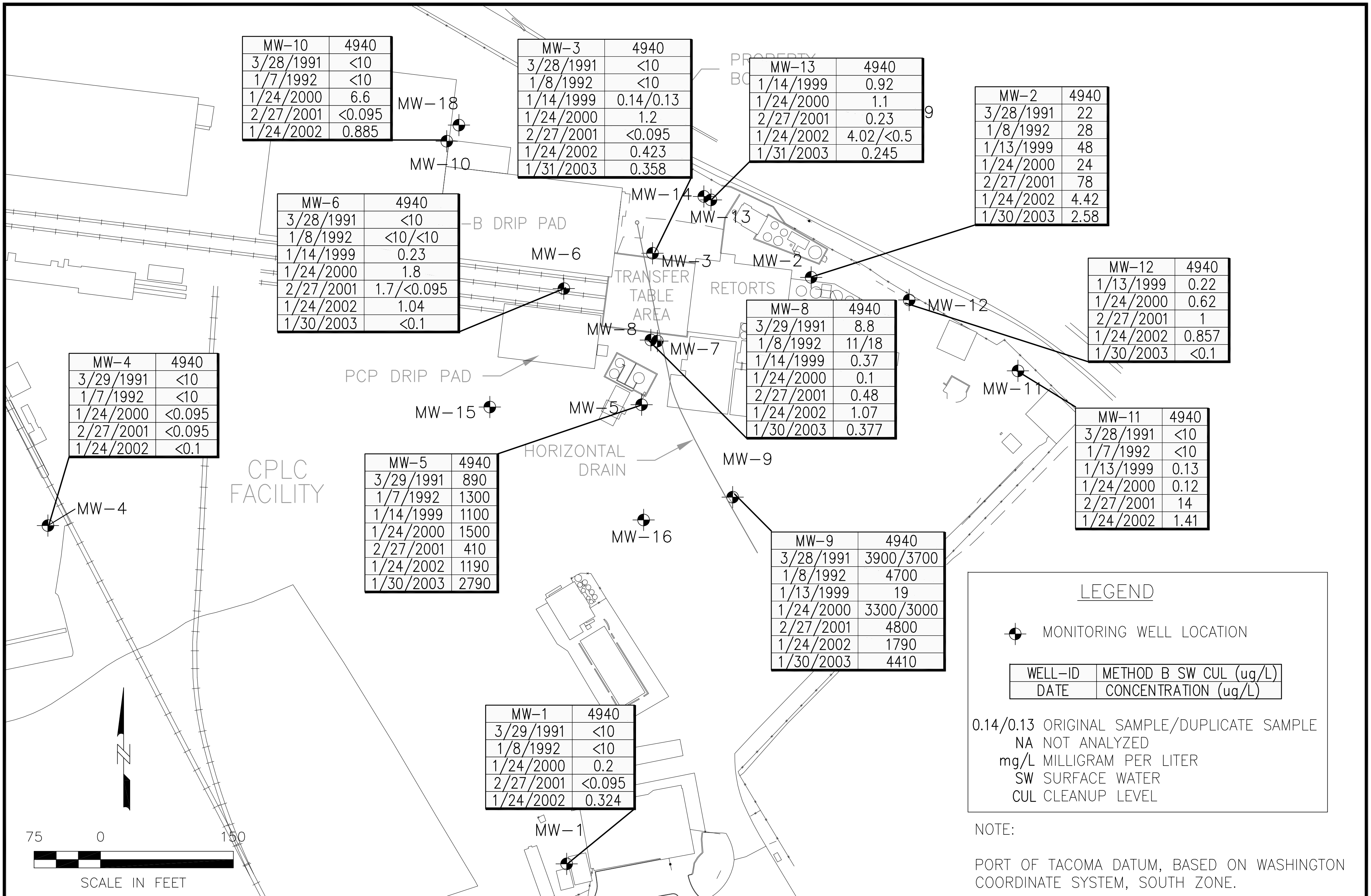
60137201-0200

CONCENTRATIONS OF PENTACHLOROPHENOL IN SHALLOW GROUNDWATER - 1991 TO 2003

DATE: 12/08/09 | DRWN: E.M/SEA

FIGURE 3-21

File: G:\PROJECTS\CADD\Cascade Lumber\REVISED RI-FS\napthalene_shallow-3-22.dwg Layout: FIGURE User: oliveriam Plotted: Apr 21, 2011 - 3:32pm Xref's:



MW-10	4940
3/28/1991	<10
1/7/1992	<10
1/24/2000	6.6
2/27/2001	<0.095
1/24/2002	0.885

MW-3	4940
3/28/1991	<10
1/8/1992	<10
1/14/1999	0.14/0.13
1/24/2000	1.2
2/27/2001	<0.095
1/24/2002	0.423
1/31/2003	0.358

MW-13	4940
1/14/1999	0.92
1/24/2000	1.1
2/27/2001	0.23
1/24/2002	4.02/<0.5
1/31/2003	0.245

MW-2	4940
3/28/1991	22
1/8/1992	28
1/13/1999	48
1/24/2000	24
2/27/2001	78
1/24/2002	4.42
1/30/2003	2.58

MW-6	4940
3/28/1991	<10
1/8/1992	<10/<10
1/14/1999	0.23
1/24/2000	1.8
2/27/2001	1.7/<0.095
1/24/2002	1.04
1/30/2003	<0.1

MW-12	4940
1/13/1999	0.22
1/24/2000	0.62
2/27/2001	1
1/24/2002	0.857
1/30/2003	<0.1

MW-8	4940
3/29/1991	8.8
1/8/1992	11/18
1/14/1999	0.37
1/24/2000	0.1
2/27/2001	0.48
1/24/2002	1.07
1/30/2003	0.377

MW-4	4940
3/29/1991	<10
1/7/1992	<10
1/24/2000	<0.095
2/27/2001	<0.095
1/24/2002	<0.1

MW-11	4940
3/28/1991	<10
1/7/1992	<10
1/13/1999	0.13
1/24/2000	0.12
2/27/2001	14
1/24/2002	1.41

MW-5	4940
3/29/1991	890
1/7/1992	1300
1/14/1999	1100
1/24/2000	1500
2/27/2001	410
1/24/2002	1190
1/30/2003	2790

MW-9	4940
3/28/1991	3900/3700
1/8/1992	4700
1/13/1999	19
1/24/2000	3300/3000
2/27/2001	4800
1/24/2002	1790
1/30/2003	4410

MW-1	4940
3/29/1991	<10
1/8/1992	<10
1/24/2000	0.2
2/27/2001	<0.095
1/24/2002	0.324

LEGEND

MONITORING WELL LOCATION

WELL-ID	METHOD B SW CUL (ug/L)
DATE	CONCENTRATION (ug/L)

0.14/0.13 ORIGINAL SAMPLE/DUPLICATE SAMPLE
NA NOT ANALYZED
mg/L MILLIGRAM PER LITER
SW SURFACE WATER
CUL CLEANUP LEVEL

NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

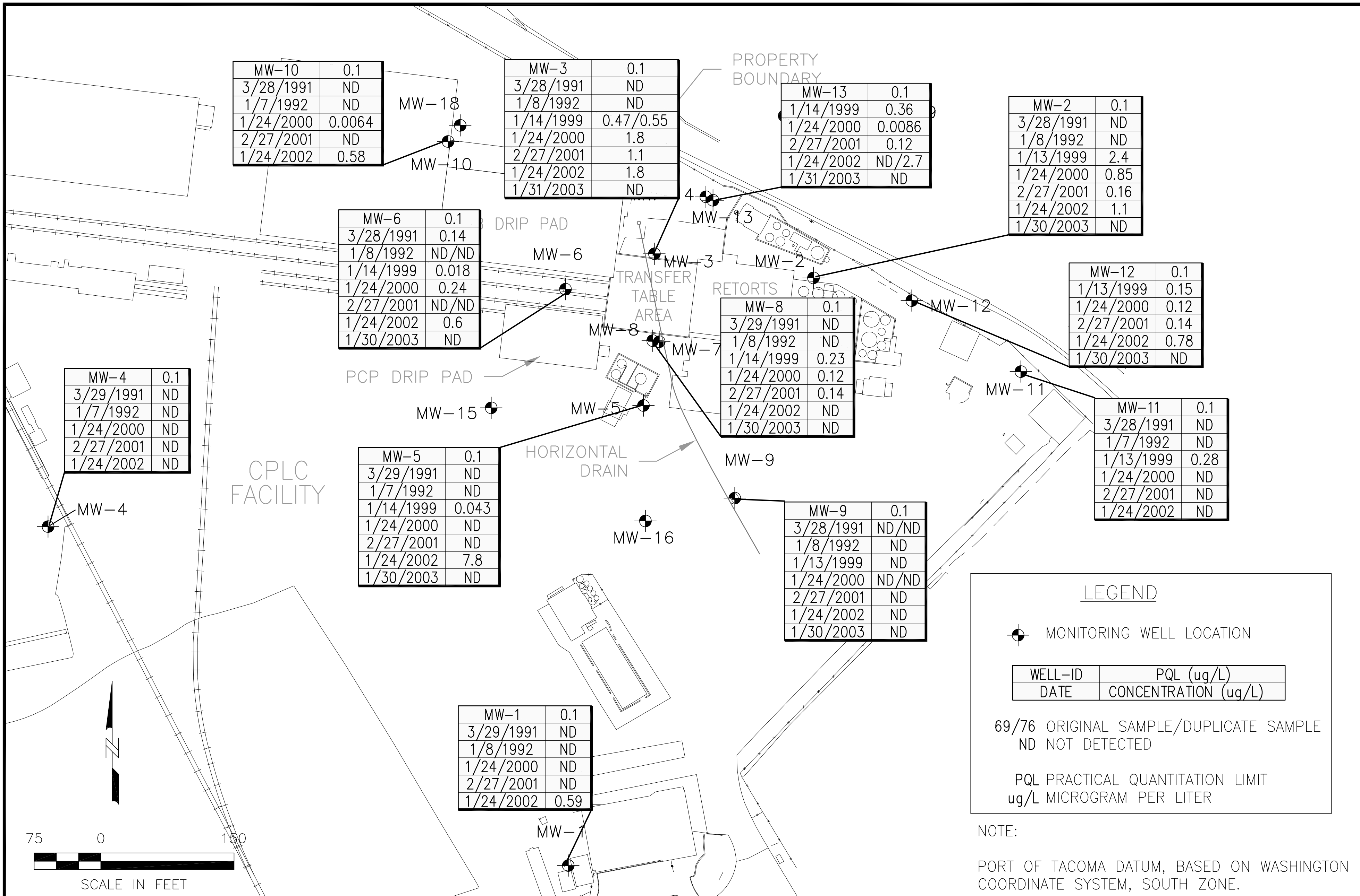
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0200

CONCENTRATIONS OF NAPTHALENE IN SHALLOW GROUNDWATER - 1991 TO 2003

DATE: 12/08/09 | DRWN: E.M/SEA

FIGURE 3-22



AECOM

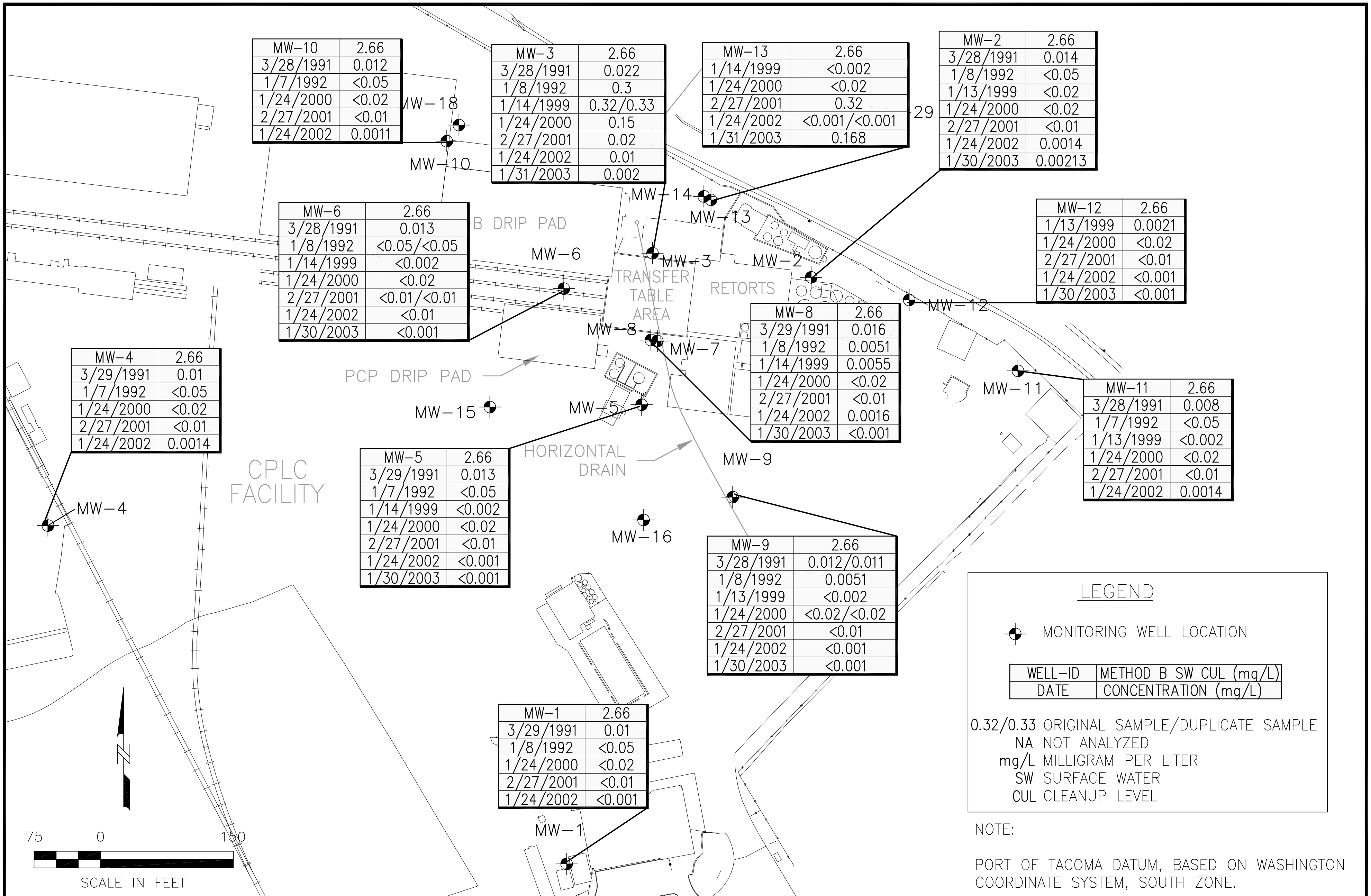
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0200

CONCENTRATIONS OF TOTAL cPAH IN SHALLOW GROUNDWATER 1991 TO 2003

DATE: 12/08/09 | DRWN: E.M/SEA

FIGURE 3-23



MW-10	2.66
3/28/1991	0.012
1/7/1992	<0.05
1/24/2000	<0.02
2/27/2001	<0.01
1/24/2002	0.0011

MW-3	2.66
3/28/1991	0.022
1/8/1992	0.3
1/14/1999	0.32/0.33
1/24/2000	0.15
2/27/2001	0.02
1/24/2002	0.01
1/31/2003	0.002

MW-13	2.66
1/14/1999	<0.002
1/24/2000	<0.02
2/27/2001	0.32
1/24/2002	<0.001/<0.001
1/31/2003	0.168

MW-2	2.66
3/28/1991	0.014
1/8/1992	<0.05
1/13/1999	<0.02
1/24/2000	<0.02
2/27/2001	<0.01
1/24/2002	0.0014
1/30/2003	0.00213

MW-6	2.66
3/28/1991	0.013
1/8/1992	<0.05/<0.05
1/14/1999	<0.002
1/24/2000	<0.02
2/27/2001	<0.01/<0.01
1/24/2002	<0.01
1/30/2003	<0.001

MW-12	2.66
1/13/1999	0.0021
1/24/2000	<0.02
2/27/2001	<0.01
1/24/2002	<0.001
1/30/2003	<0.001

MW-8	2.66
3/29/1991	0.016
1/8/1992	0.0051
1/14/1999	0.0055
1/24/2000	<0.02
2/27/2001	<0.01
1/24/2002	0.0016
1/30/2003	<0.001

MW-4	2.66
3/29/1991	0.01
1/7/1992	<0.05
1/24/2000	<0.02
2/27/2001	<0.01
1/24/2002	0.0014

MW-11	2.66
3/28/1991	0.008
1/7/1992	<0.05
1/13/1999	<0.002
1/24/2000	<0.02
2/27/2001	<0.01
1/24/2002	0.0014

MW-5	2.66
3/29/1991	0.013
1/7/1992	<0.05
1/14/1999	<0.002
1/24/2000	<0.02
2/27/2001	<0.01
1/24/2002	<0.001
1/30/2003	<0.001

MW-9	2.66
3/28/1991	0.012/0.011
1/8/1992	0.0051
1/13/1999	<0.002
1/24/2000	<0.02/<0.02
2/27/2001	<0.01
1/24/2002	<0.001
1/30/2003	<0.001

MW-1	2.66
3/29/1991	0.01
1/8/1992	<0.05
1/24/2000	<0.02
2/27/2001	<0.01
1/24/2002	<0.001

LEGEND

MONITORING WELL LOCATION

WELL-ID	METHOD B SW CUL (mg/L)
DATE	CONCENTRATION (mg/L)

0.32/0.33 ORIGINAL SAMPLE/DUPLICATE SAMPLE
NA NOT ANALYZED
mg/L MILLIGRAM PER LITER
SW SURFACE WATER
CUL CLEANUP LEVEL

NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

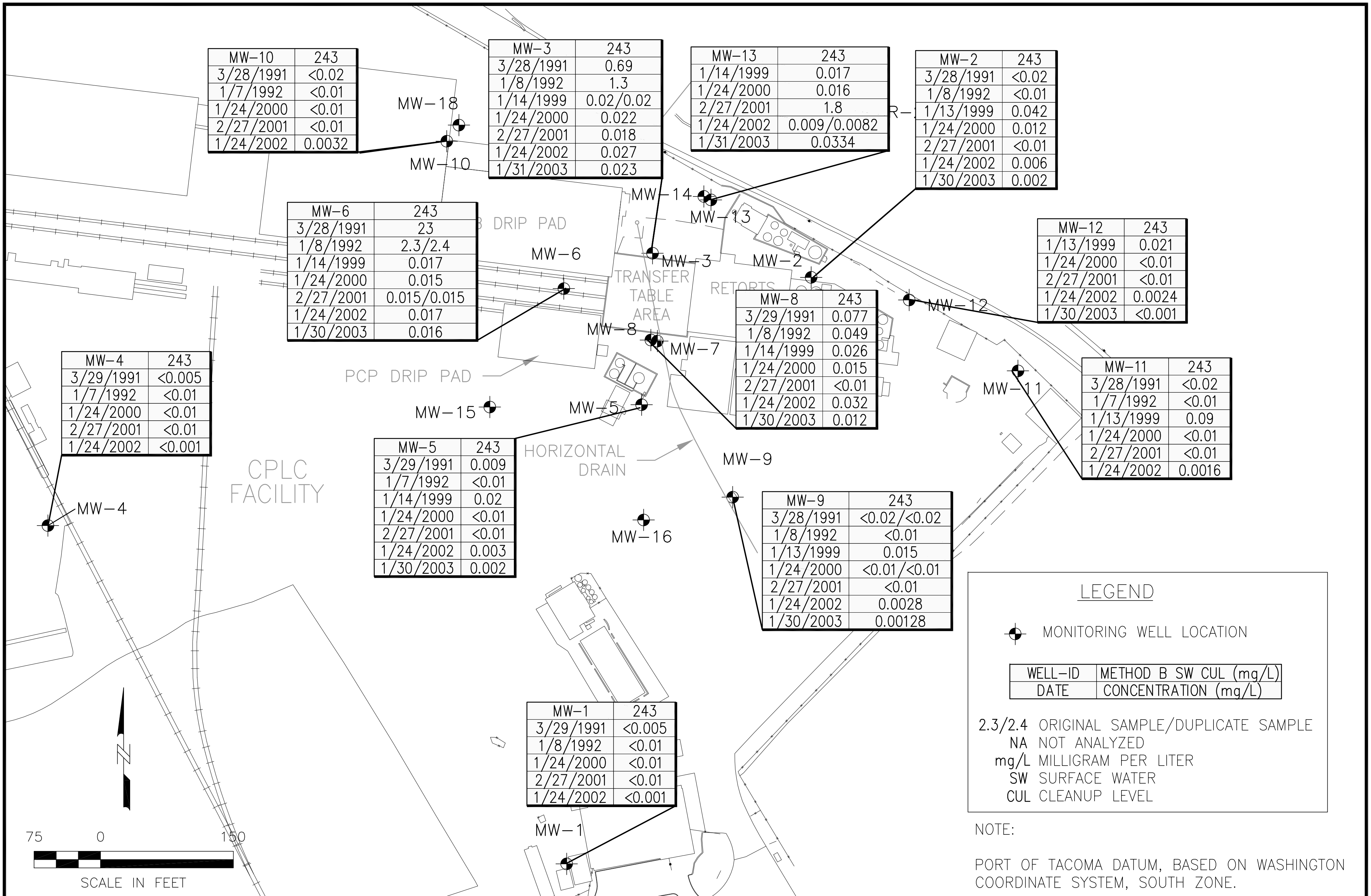
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0200

DATE: 12/08/09 | DRWN: E.M/SEA

CONCENTRATIONS OF COPPER IN SHALLOW GROUNDWATER - 1991 TO 2003

FIGURE 3-18



MW-10	243
3/28/1991	<0.02
1/7/1992	<0.01
1/24/2000	<0.01
2/27/2001	<0.01
1/24/2002	0.0032

MW-3	243
3/28/1991	0.69
1/8/1992	1.3
1/14/1999	0.02/0.02
1/24/2000	0.022
2/27/2001	0.018
1/24/2002	0.027
1/31/2003	0.023

MW-13	243
1/14/1999	0.017
1/24/2000	0.016
2/27/2001	1.8
1/24/2002	0.009/0.0082
1/31/2003	0.0334

MW-2	243
3/28/1991	<0.02
1/8/1992	<0.01
1/13/1999	0.042
1/24/2000	0.012
2/27/2001	<0.01
1/24/2002	0.006
1/30/2003	0.002

MW-6	243
3/28/1991	23
1/8/1992	2.3/2.4
1/14/1999	0.017
1/24/2000	0.015
2/27/2001	0.015/0.015
1/24/2002	0.017
1/30/2003	0.016

MW-12	243
1/13/1999	0.021
1/24/2000	<0.01
2/27/2001	<0.01
1/24/2002	0.0024
1/30/2003	<0.001

MW-8	243
3/29/1991	0.077
1/8/1992	0.049
1/14/1999	0.026
1/24/2000	0.015
2/27/2001	<0.01
1/24/2002	0.032
1/30/2003	0.012

MW-4	243
3/29/1991	<0.005
1/7/1992	<0.01
1/24/2000	<0.01
2/27/2001	<0.01
1/24/2002	<0.001

MW-11	243
3/28/1991	<0.02
1/7/1992	<0.01
1/13/1999	0.09
1/24/2000	<0.01
2/27/2001	<0.01
1/24/2002	0.0016

MW-5	243
3/29/1991	0.009
1/7/1992	<0.01
1/14/1999	0.02
1/24/2000	<0.01
2/27/2001	<0.01
1/24/2002	0.003
1/30/2003	0.002

MW-9	243
3/28/1991	<0.02/<0.02
1/8/1992	<0.01
1/13/1999	0.015
1/24/2000	<0.01/<0.01
2/27/2001	<0.01
1/24/2002	0.0028
1/30/2003	0.00128

MW-1	243
3/29/1991	<0.005
1/8/1992	<0.01
1/24/2000	<0.01
2/27/2001	<0.01
1/24/2002	<0.001

LEGEND

MONITORING WELL LOCATION

WELL-ID	METHOD B SW CUL (mg/L)
DATE	CONCENTRATION (mg/L)

2.3/2.4 ORIGINAL SAMPLE/DUPLICATE SAMPLE
NA NOT ANALYZED
mg/L MILLIGRAM PER LITER
SW SURFACE WATER
CUL CLEANUP LEVEL

NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

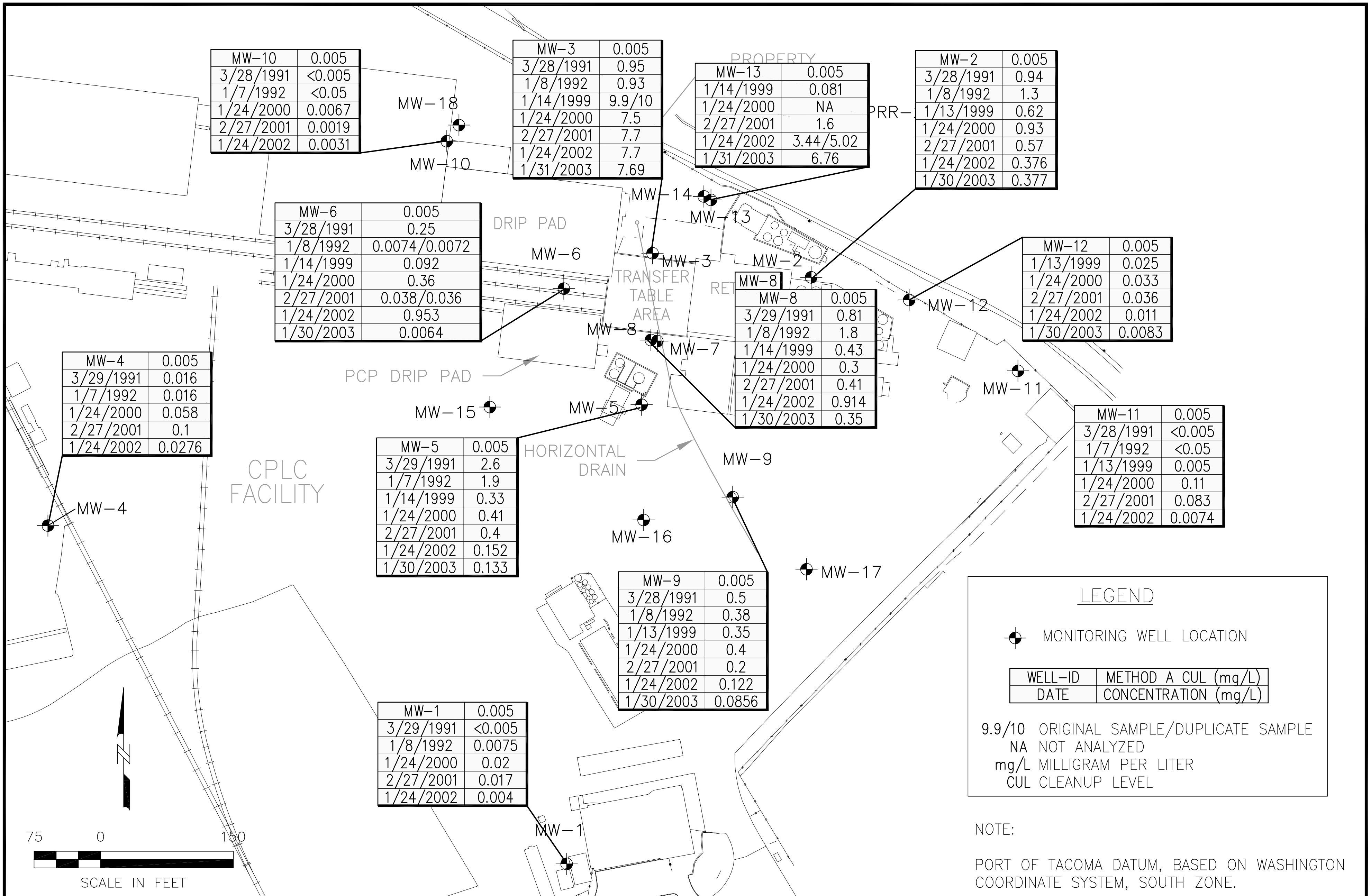
60137201-0200

DATE: 12/08/09 DRWN: E.M/SEA

CONCENTRATIONS OF CHROMIUM IN SHALLOW GROUNDWATER - 1991 TO 2003

FIGURE 3-19

File: G:\PROJECTS\CADD\Cascade Lumber\REVISED RI-FS\arsenic_shallow-3-20.dwg Layout: FIGURE User: oliveriam Plotted: Apr 21, 2011 - 3:26pm Xref's:



AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

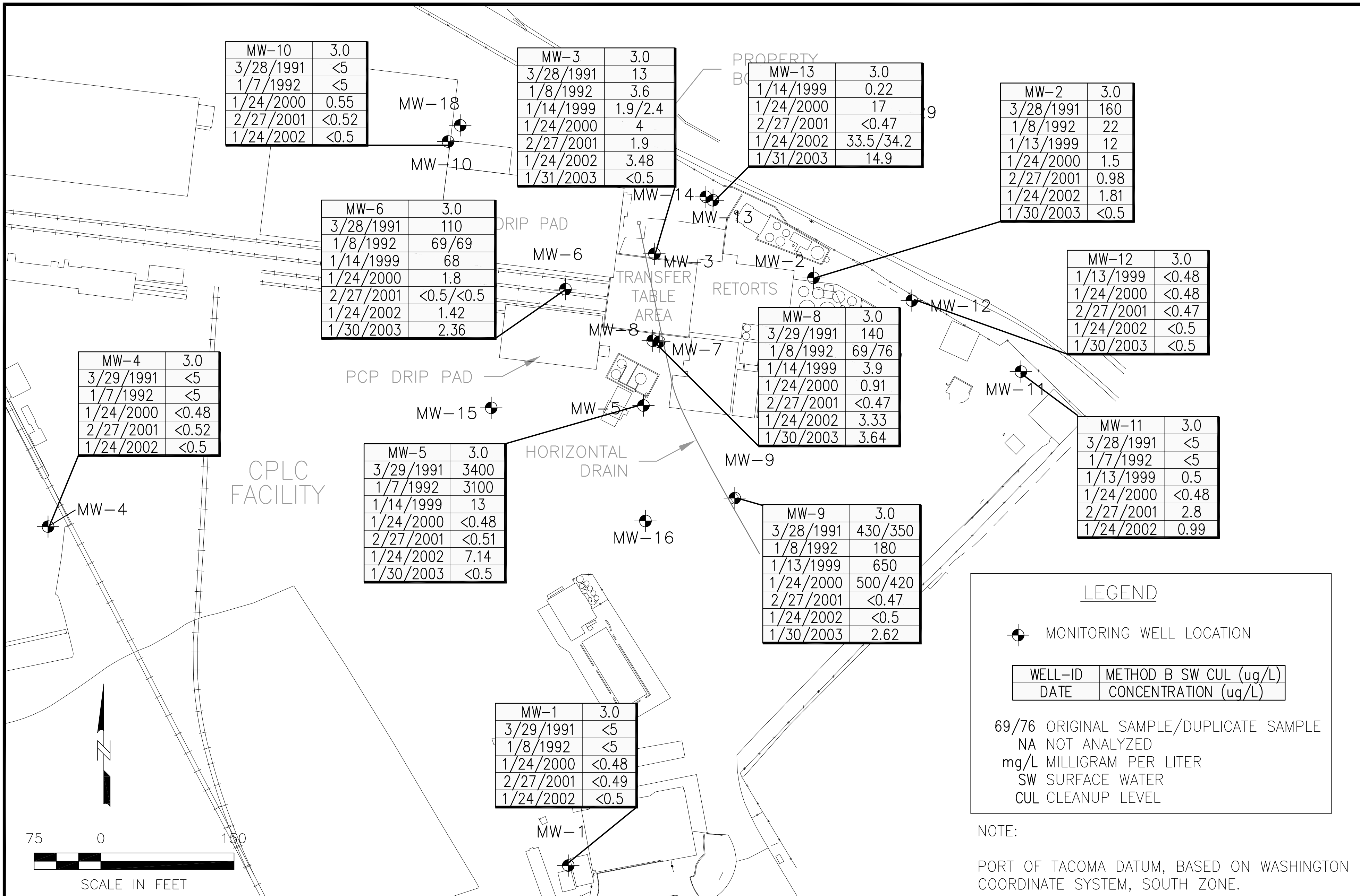
60137201-0200

DATE: 12/08/09 DRWN: E.M/SEA

CONCENTRATIONS OF ARSENIC IN SHALLOW GROUNDWATER - 1991 TO 2003

FIGURE 3-20

File: G:\PROJECTS\CADD\Cascade Lumber\REVISED RI-FS\PCP_shallow-3-21.dwg Layout: FIGURE User: oliveriam Plotted: Apr 21, 2011 - 3:31pm Xref's:



MW-10	3.0
3/28/1991	<5
1/7/1992	<5
1/24/2000	0.55
2/27/2001	<0.52
1/24/2002	<0.5

MW-3	3.0
3/28/1991	13
1/8/1992	3.6
1/14/1999	1.9/2.4
1/24/2000	4
2/27/2001	1.9
1/24/2002	3.48
1/31/2003	<0.5

MW-13	3.0
1/14/1999	0.22
1/24/2000	17
2/27/2001	<0.47
1/24/2002	33.5/34.2
1/31/2003	14.9

MW-2	3.0
3/28/1991	160
1/8/1992	22
1/13/1999	12
1/24/2000	1.5
2/27/2001	0.98
1/24/2002	1.81
1/30/2003	<0.5

MW-6	3.0
3/28/1991	110
1/8/1992	69/69
1/14/1999	68
1/24/2000	1.8
2/27/2001	<0.5/<0.5
1/24/2002	1.42
1/30/2003	2.36

MW-12	3.0
1/13/1999	<0.48
1/24/2000	<0.48
2/27/2001	<0.47
1/24/2002	<0.5
1/30/2003	<0.5

MW-8	3.0
3/29/1991	140
1/8/1992	69/76
1/14/1999	3.9
1/24/2000	0.91
2/27/2001	<0.47
1/24/2002	3.33
1/30/2003	3.64

MW-4	3.0
3/29/1991	<5
1/7/1992	<5
1/24/2000	<0.48
2/27/2001	<0.52
1/24/2002	<0.5

MW-11	3.0
3/28/1991	<5
1/7/1992	<5
1/13/1999	0.5
1/24/2000	<0.48
2/27/2001	2.8
1/24/2002	0.99

MW-5	3.0
3/29/1991	3400
1/7/1992	3100
1/14/1999	13
1/24/2000	<0.48
2/27/2001	<0.51
1/24/2002	7.14
1/30/2003	<0.5

MW-9	3.0
3/28/1991	430/350
1/8/1992	180
1/13/1999	650
1/24/2000	500/420
2/27/2001	<0.47
1/24/2002	<0.5
1/30/2003	2.62

MW-1	3.0
3/29/1991	<5
1/8/1992	<5
1/24/2000	<0.48
2/27/2001	<0.49
1/24/2002	<0.5

LEGEND

MONITORING WELL LOCATION

WELL-ID	METHOD B SW CUL (ug/L)
DATE	CONCENTRATION (ug/L)

69/76 ORIGINAL SAMPLE/DUPLICATE SAMPLE
NA NOT ANALYZED
mg/L MILLIGRAM PER LITER
SW SURFACE WATER
CUL CLEANUP LEVEL

NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

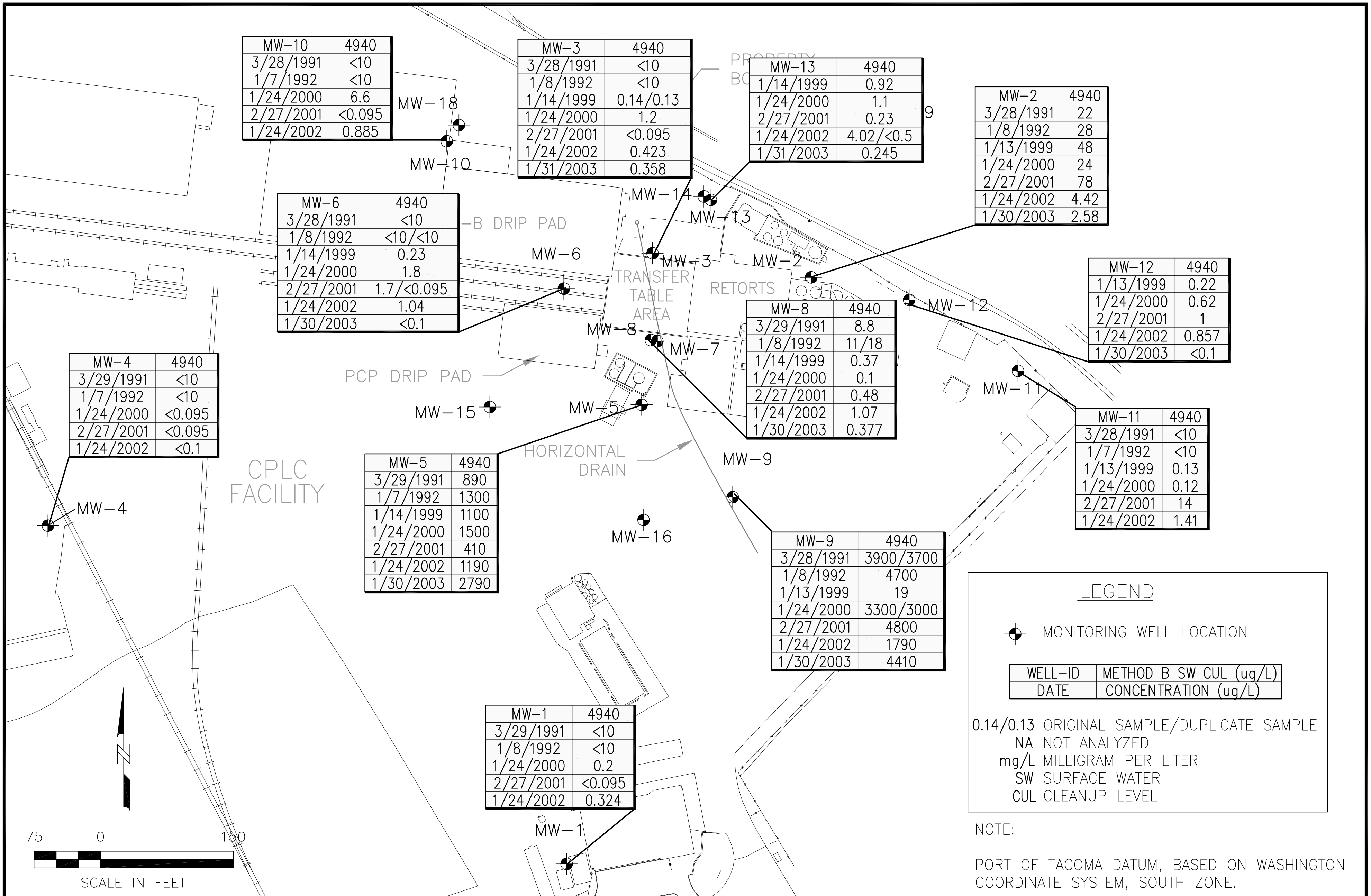
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0200

DATE: 12/08/09 DRWN: E.M/SEA

CONCENTRATIONS OF PENTACHLOROPHENOL IN SHALLOW GROUNDWATER - 1991 TO 2003

FIGURE 3-21



MW-10	4940
3/28/1991	<10
1/7/1992	<10
1/24/2000	6.6
2/27/2001	<0.095
1/24/2002	0.885

MW-3	4940
3/28/1991	<10
1/8/1992	<10
1/14/1999	0.14/0.13
1/24/2000	1.2
2/27/2001	<0.095
1/24/2002	0.423
1/31/2003	0.358

MW-13	4940
1/14/1999	0.92
1/24/2000	1.1
2/27/2001	0.23
1/24/2002	4.02/<0.5
1/31/2003	0.245

MW-2	4940
3/28/1991	22
1/8/1992	28
1/13/1999	48
1/24/2000	24
2/27/2001	78
1/24/2002	4.42
1/30/2003	2.58

MW-6	4940
3/28/1991	<10
1/8/1992	<10/<10
1/14/1999	0.23
1/24/2000	1.8
2/27/2001	1.7/<0.095
1/24/2002	1.04
1/30/2003	<0.1

MW-12	4940
1/13/1999	0.22
1/24/2000	0.62
2/27/2001	1
1/24/2002	0.857
1/30/2003	<0.1

MW-8	4940
3/29/1991	8.8
1/8/1992	11/18
1/14/1999	0.37
1/24/2000	0.1
2/27/2001	0.48
1/24/2002	1.07
1/30/2003	0.377

MW-4	4940
3/29/1991	<10
1/7/1992	<10
1/24/2000	<0.095
2/27/2001	<0.095
1/24/2002	<0.1

MW-11	4940
3/28/1991	<10
1/7/1992	<10
1/13/1999	0.13
1/24/2000	0.12
2/27/2001	14
1/24/2002	1.41

MW-5	4940
3/29/1991	890
1/7/1992	1300
1/14/1999	1100
1/24/2000	1500
2/27/2001	410
1/24/2002	1190
1/30/2003	2790

MW-9	4940
3/28/1991	3900/3700
1/8/1992	4700
1/13/1999	19
1/24/2000	3300/3000
2/27/2001	4800
1/24/2002	1790
1/30/2003	4410

MW-1	4940
3/29/1991	<10
1/8/1992	<10
1/24/2000	0.2
2/27/2001	<0.095
1/24/2002	0.324

WELL-ID	METHOD B SW CUL (ug/L)
DATE	CONCENTRATION (ug/L)

0.14/0.13 ORIGINAL SAMPLE/DUPLICATE SAMPLE
NA NOT ANALYZED
mg/L MILLIGRAM PER LITER
SW SURFACE WATER
CUL CLEANUP LEVEL

NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

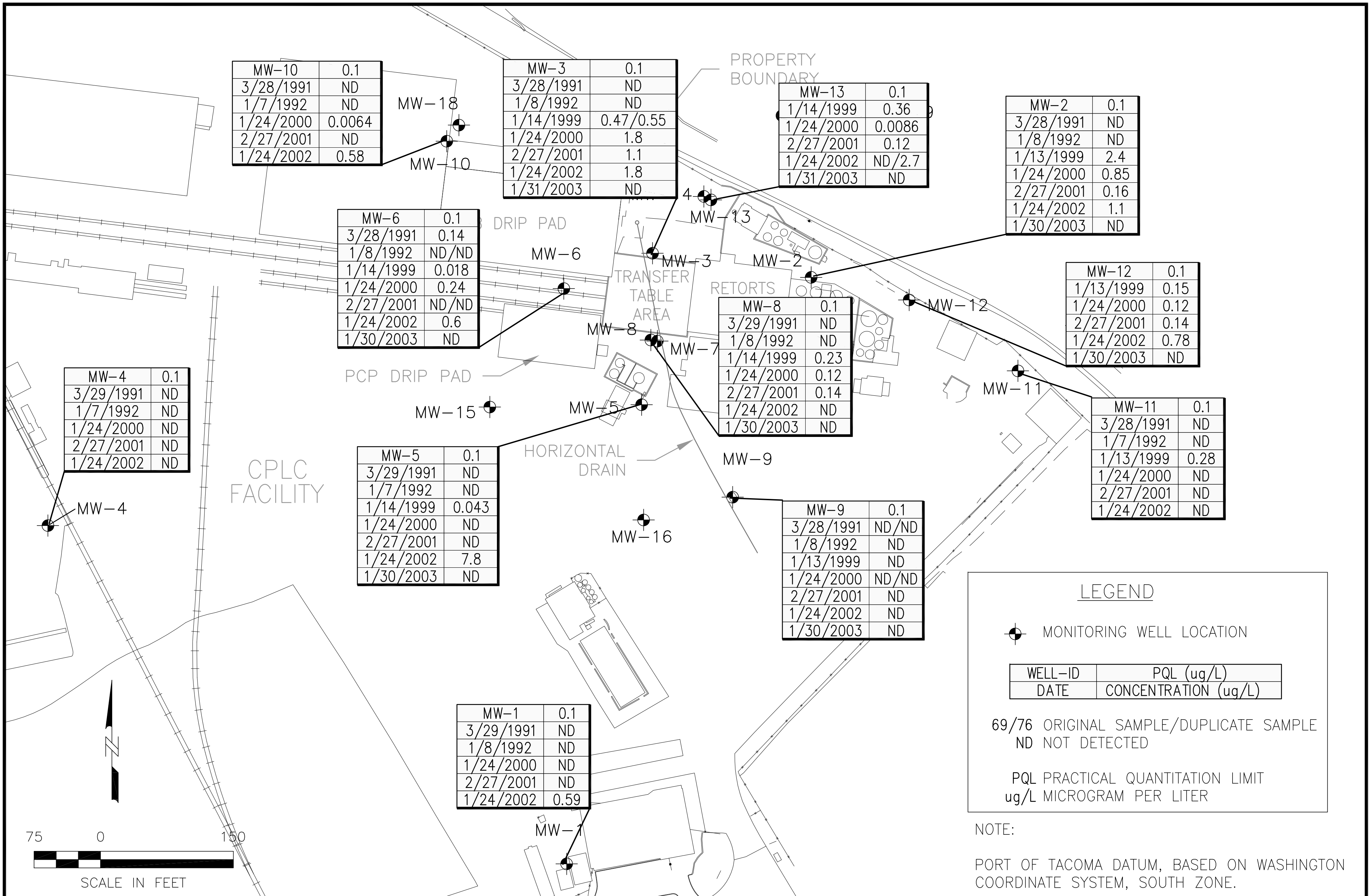
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0200

DATE: 12/08/09 DRWN: E.M/SEA

CONCENTRATIONS OF NAPTHALENE IN SHALLOW GROUNDWATER - 1991 TO 2003

FIGURE 3-22



MW-10	0.1
3/28/1991	ND
1/7/1992	ND
1/24/2000	0.0064
2/27/2001	ND
1/24/2002	0.58

MW-3	0.1
3/28/1991	ND
1/8/1992	ND
1/14/1999	0.47/0.55
1/24/2000	1.8
2/27/2001	1.1
1/24/2002	1.8
1/31/2003	ND

MW-13	0.1
1/14/1999	0.36
1/24/2000	0.0086
2/27/2001	0.12
1/24/2002	ND/2.7
1/31/2003	ND

MW-2	0.1
3/28/1991	ND
1/8/1992	ND
1/13/1999	2.4
1/24/2000	0.85
2/27/2001	0.16
1/24/2002	1.1
1/30/2003	ND

MW-6	0.1
3/28/1991	0.14
1/8/1992	ND/ND
1/14/1999	0.018
1/24/2000	0.24
2/27/2001	ND/ND
1/24/2002	0.6
1/30/2003	ND

MW-12	0.1
1/13/1999	0.15
1/24/2000	0.12
2/27/2001	0.14
1/24/2002	0.78
1/30/2003	ND

MW-8	0.1
3/29/1991	ND
1/8/1992	ND
1/14/1999	0.23
1/24/2000	0.12
2/27/2001	0.14
1/24/2002	ND
1/30/2003	ND

MW-4	0.1
3/29/1991	ND
1/7/1992	ND
1/24/2000	ND
2/27/2001	ND
1/24/2002	ND

MW-11	0.1
3/28/1991	ND
1/7/1992	ND
1/13/1999	0.28
1/24/2000	ND
2/27/2001	ND
1/24/2002	ND

MW-5	0.1
3/29/1991	ND
1/7/1992	ND
1/14/1999	0.043
1/24/2000	ND
2/27/2001	ND
1/24/2002	7.8
1/30/2003	ND

MW-9	0.1
3/28/1991	ND/ND
1/8/1992	ND
1/13/1999	ND
1/24/2000	ND/ND
2/27/2001	ND
1/24/2002	ND
1/30/2003	ND

MW-1	0.1
3/29/1991	ND
1/8/1992	ND
1/24/2000	ND
2/27/2001	ND
1/24/2002	0.59

LEGEND

WELL-ID	PQL (ug/L)
DATE	CONCENTRATION (ug/L)

69/76 ORIGINAL SAMPLE/DUPLICATE SAMPLE
ND NOT DETECTED

PQL PRACTICAL QUANTITATION LIMIT
ug/L MICROGRAM PER LITER

NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

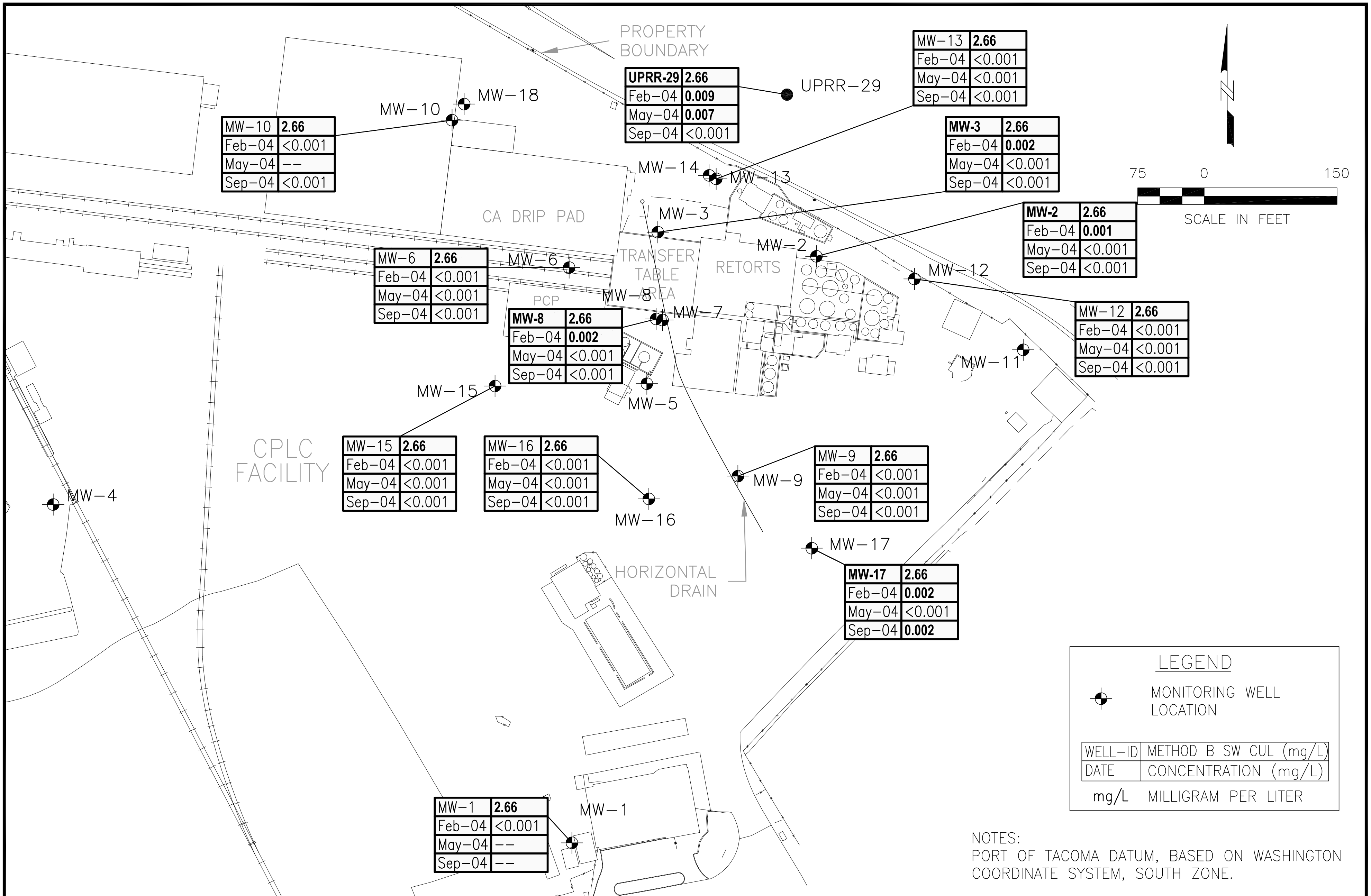
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0200

DATE: 12/08/09 DRWN: E.M/SEA

CONCENTRATIONS OF TOTAL cPAH IN SHALLOW GROUNDWATER 1991 TO 2003

FIGURE 3-23



RETEC

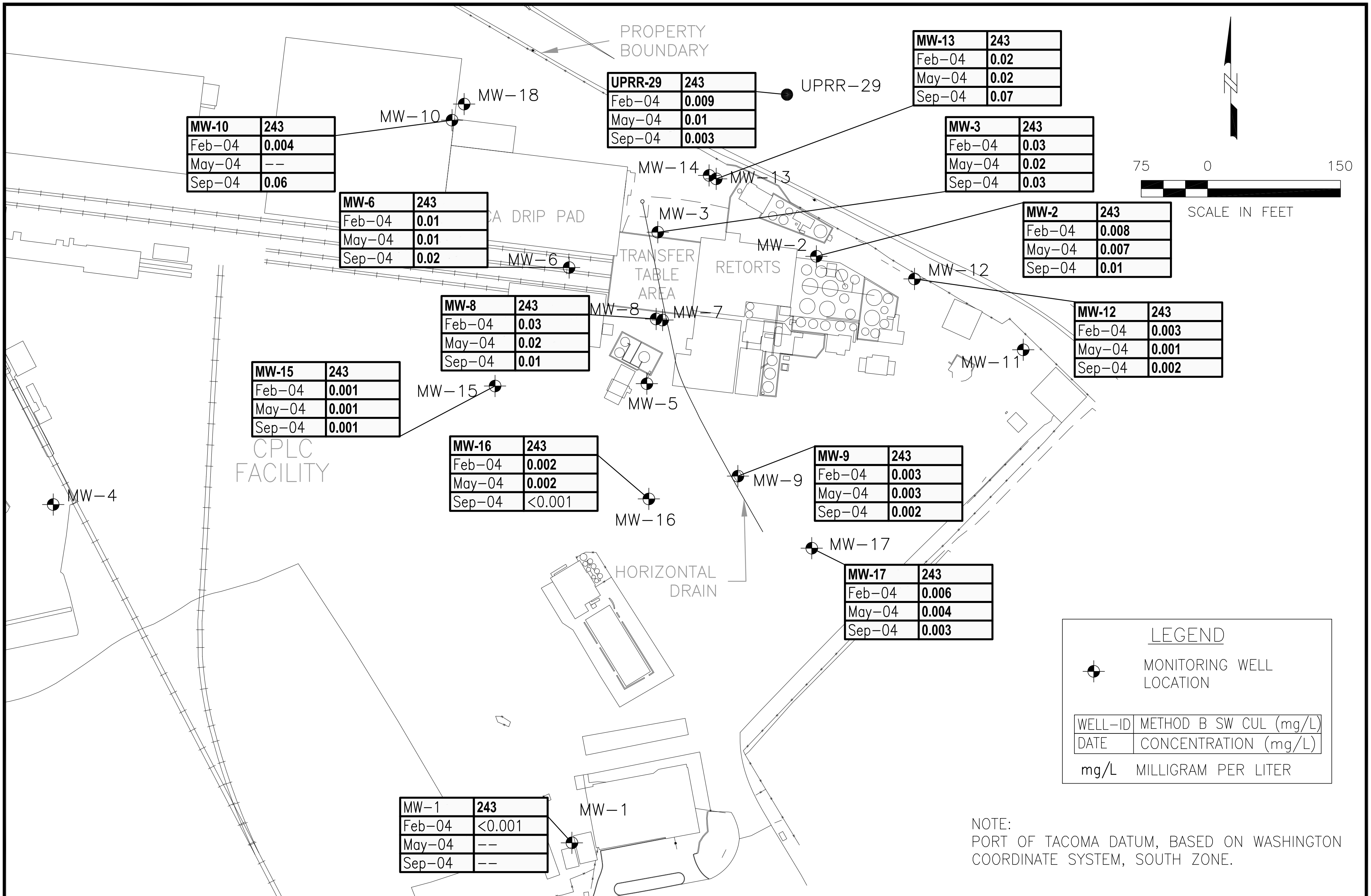
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLU1-16832-500

DATE: 2/14/07 DRWN: E.M./SEA

CONCENTRATIONS OF COPPER IN SHALLOW AQUIFER - 2004

FIGURE 3-24

File: G:\PROJECTS\CADD\Cascade Lumber\Figures_021711\FIGURE 3-25_16832S087.dwg Layout: fig 3-25 User: oliveriam Plotted: Apr 21, 2011 - 4:08pm Xref's:



RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

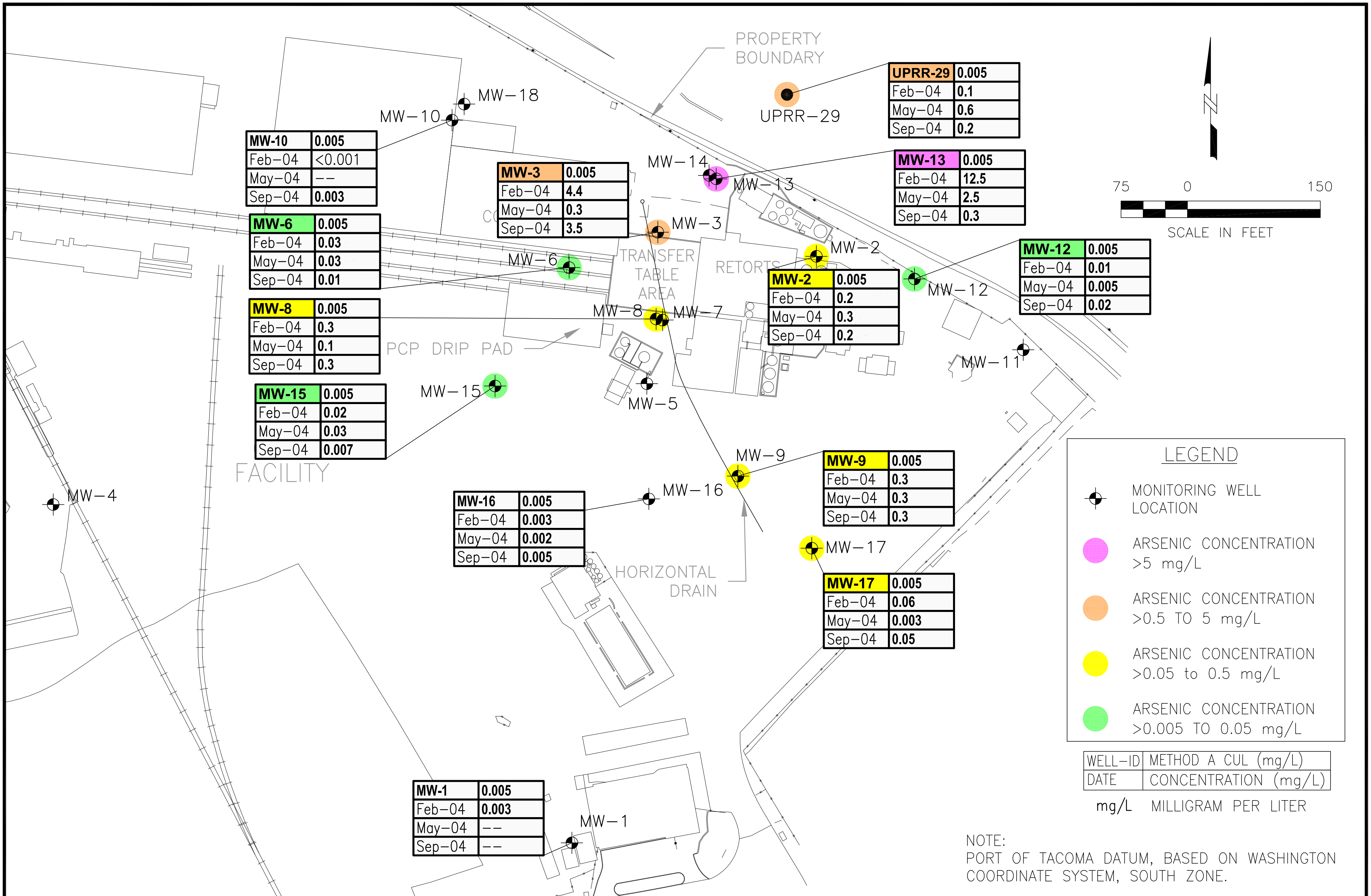
CPLU1-16832-500

CONCENTRATIONS OF CHROMIUM IN SHALLOW AQUIFER - 2004

DATE: 2/14/07 DRWN: E.M./SEA

FIGURE 3-25

File: G:\PROJECTS\CADD\Cascade Lumber\Figures_021711\FIGURE 3-26_16832S088.dwg Layout: fig 3-1926 User: oliveriam Plotted: Apr 21, 2011 - 4:07pm Xref's:



RETEC

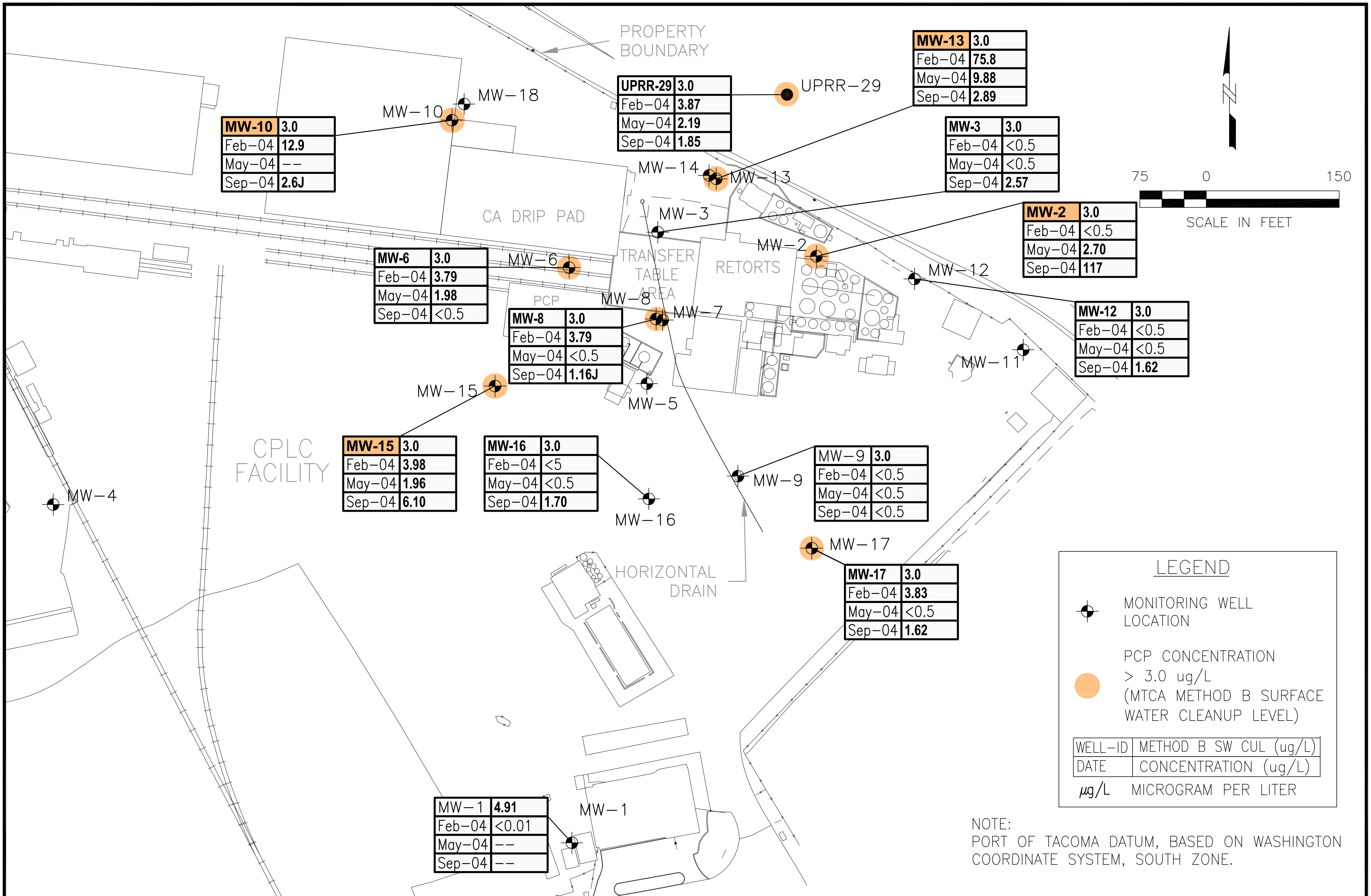
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLU1-16832-500

DATE: 2/14/07 | DRWN: E.M./SEA

CONCENTRATIONS OF ARSENIC IN SHALLOW AQUIFER - 2004

FIGURE 3-26

File: G:\PROJECTS\CADD\Cascade Lumber\Figures_021711\FIGURE 3-27_16832S080.dwg Layout: fig 3-27 User: oliveriam Plotted: Apr 21, 2011 - 4:04pm Xref's:



RETEC

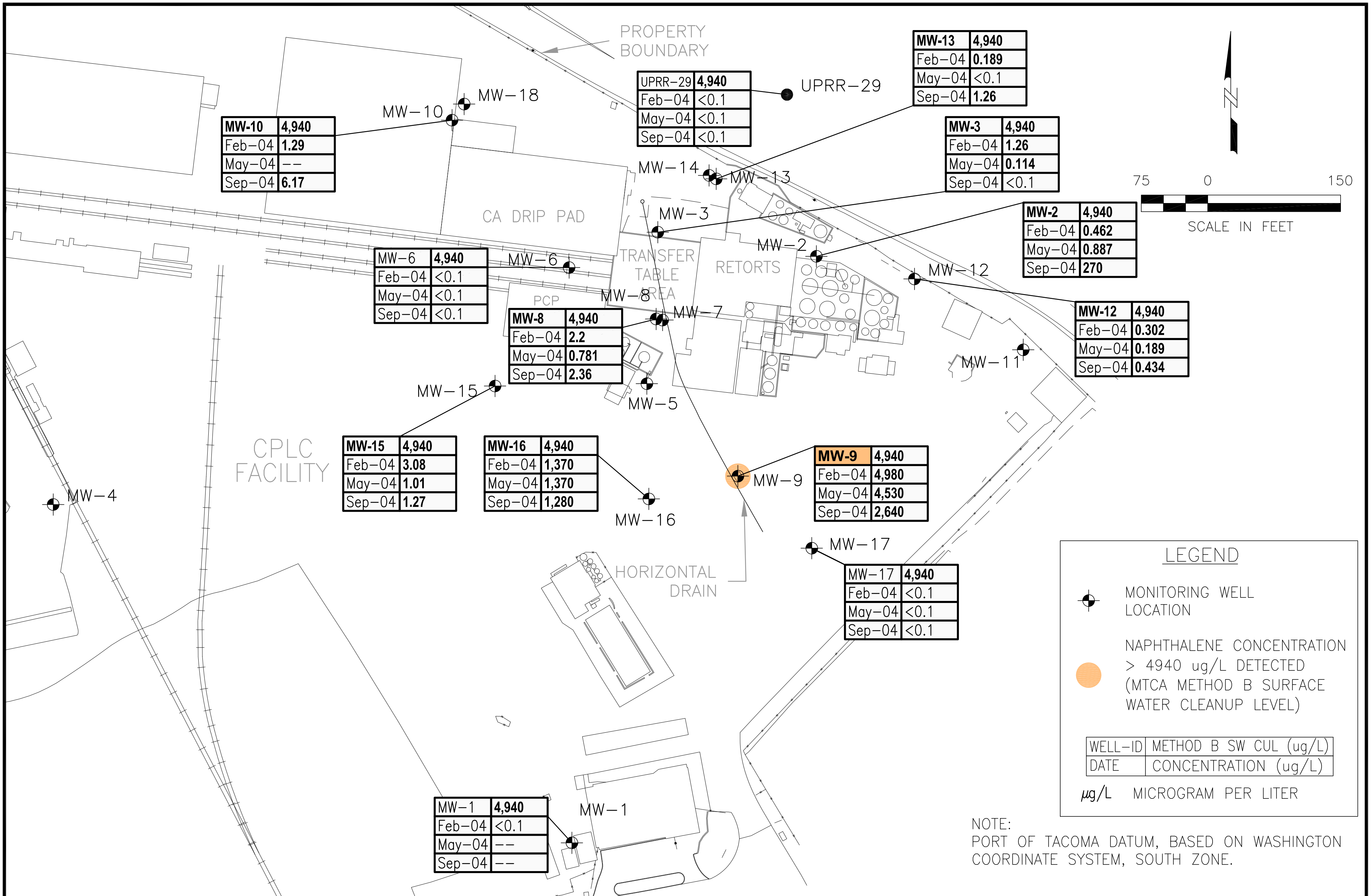
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLU1-16832-500

CONCENTRATIONS OF PCP IN SHALLOW AQUIFER - 2004

DATE: 2/14/07 | DRWN: E.M./SEA

FIGURE 3-27

File: G:\PROJECTS\CADD\Cascade Lumber\Figures_021711\FIGURE 3-28_16832S081.dwg Layout: fig 3-28 User: oliveriam Plotted: Apr 21, 2011 - 4:14pm Xref's:



RETEC

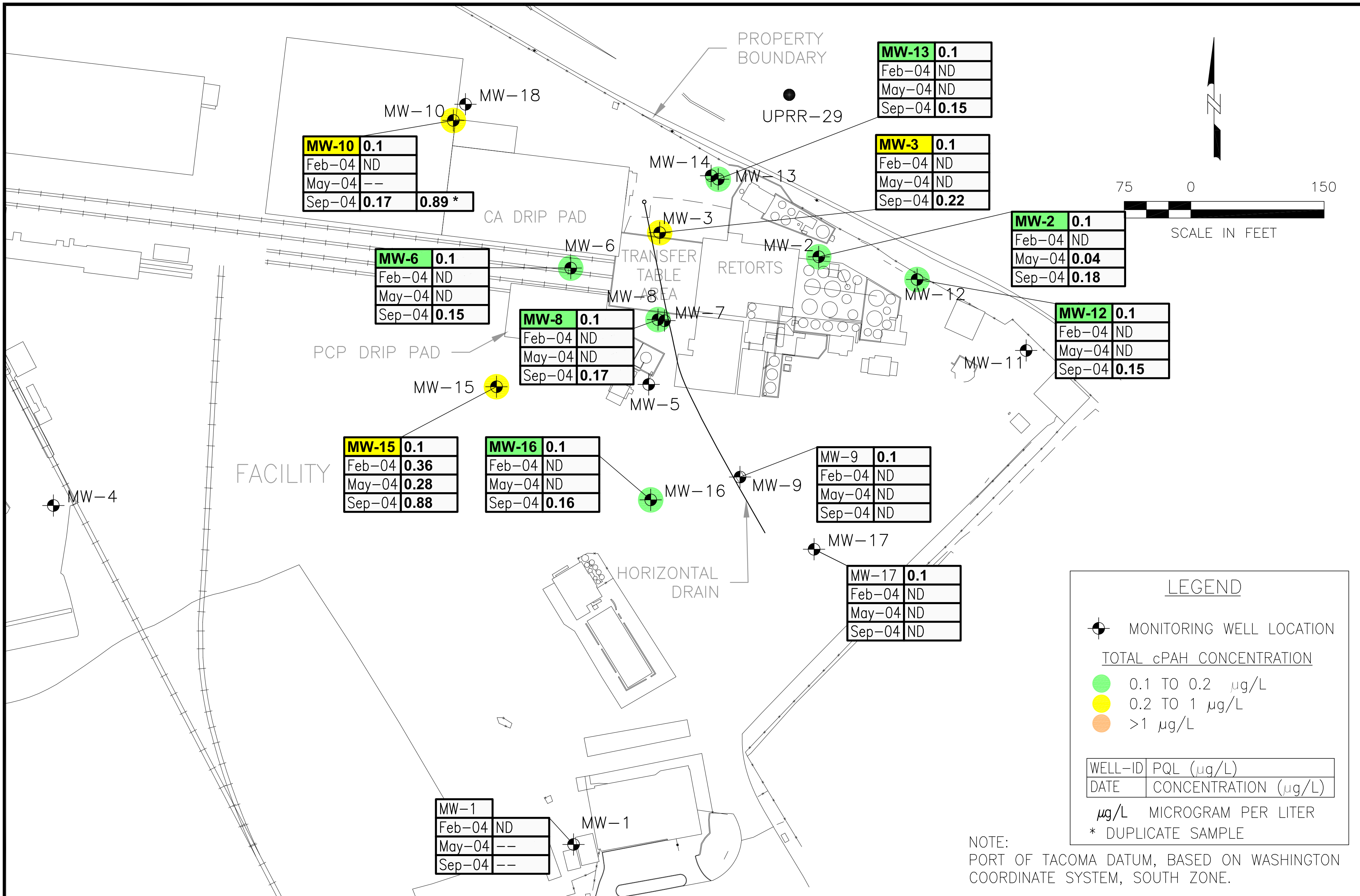
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

CPLU1-16832-500

DATE: 2/14/07 | DRWN: E.M./SEA

CONCENTRATIONS OF NAPHTHALENE IN SHALLOW AQUIFER - 2004

FIGURE 3-28



MW-13	0.1
Feb-04	ND
May-04	ND
Sep-04	**0.15**

MW-10	0.1	
Feb-04	ND	
May-04	--	
Sep-04	**0.17**	**0.89 ***

MW-3	0.1
Feb-04	ND
May-04	ND
Sep-04	**0.22**

MW-2	0.1
Feb-04	ND
May-04	**0.04**
Sep-04	**0.18**

MW-6	0.1
Feb-04	ND
May-04	ND
Sep-04	**0.15**

MW-8	0.1
Feb-04	ND
May-04	ND
Sep-04	**0.17**

MW-12	0.1
Feb-04	ND
May-04	ND
Sep-04	**0.15**

MW-15	0.1
Feb-04	**0.36**
May-04	**0.28**
Sep-04	**0.88**

MW-16	0.1
Feb-04	ND
May-04	ND
Sep-04	**0.16**

MW-9	0.1
Feb-04	ND
May-04	ND
Sep-04	ND

MW-17	0.1
Feb-04	ND
May-04	ND
Sep-04	ND

MW-1	
Feb-04	ND
May-04	--
Sep-04	--

LEGEND

MONITORING WELL LOCATION

TOTAL cPAH CONCENTRATION

0.1 TO 0.2 μg/L

0.2 TO 1 μg/L

>1 μg/L

WELL-ID	PQL (μg/L)
DATE	CONCENTRATION (μg/L)

μg/L MICROGRAM PER LITER

* DUPLICATE SAMPLE

NOTE:
PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

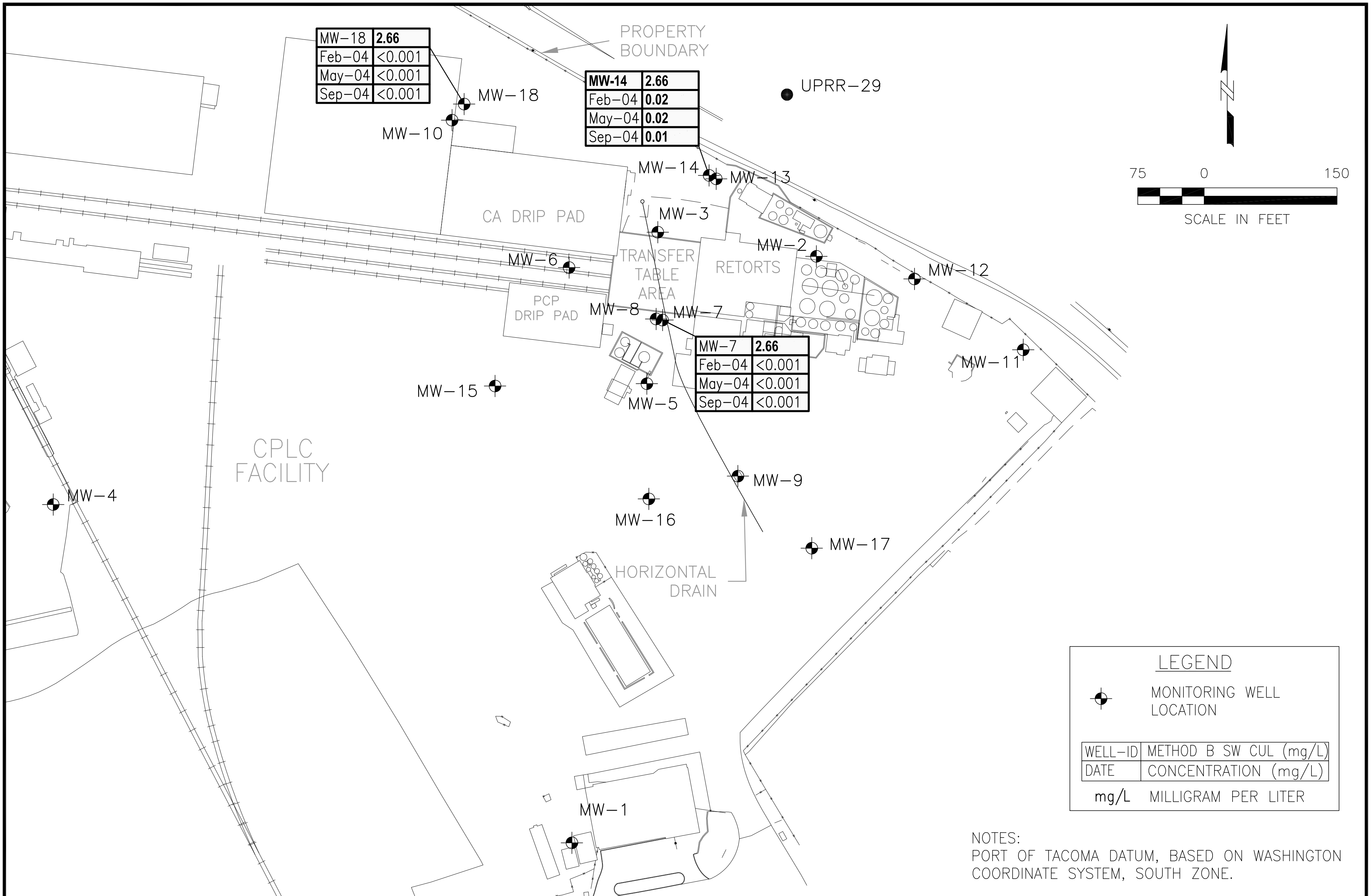
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLC1-16832-500

DATE: 2/14/07 DRWN: E.M./SEA

TOTAL CPAH CONCENTRATIONS IN SHALLOW AQUIFER - 2004

FIGURE 3-29

File: G:\PROJECTS\CADD\Cascade Lumber\Figures_021711\FIGURE 3-30_16832S082.dwg Layout: FIGURE 3-30 User: oliveriam Plotted: Apr 21, 2011 - 4:12pm Xref's:



NOTES:
PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

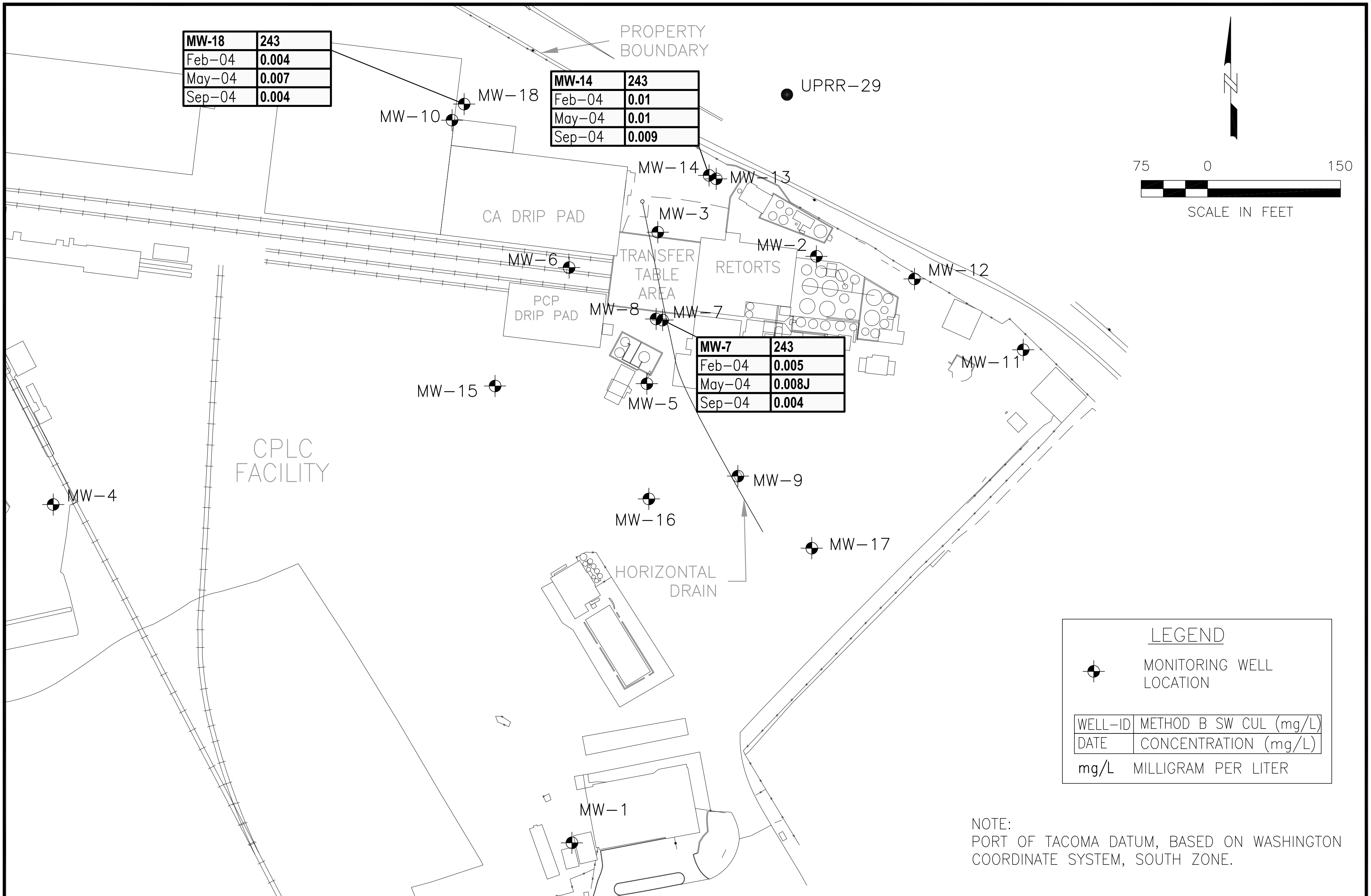
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLU1-16832-500

CONCENTRATIONS OF COPPER IN DEEPER AQUIFER - 2004

DATE: 2/14/07 | DRWN: E.M./SEA

FIGURE 3-30

File: G:\PROJECTS\CADD\Cascade Lumber\Figures_021711\FIGURE 3-31_16832S083.dwg Layout: FIGURE 3-31 User: oliveriam Plotted: Apr 21, 2011 - 3:56pm Xref's:



RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

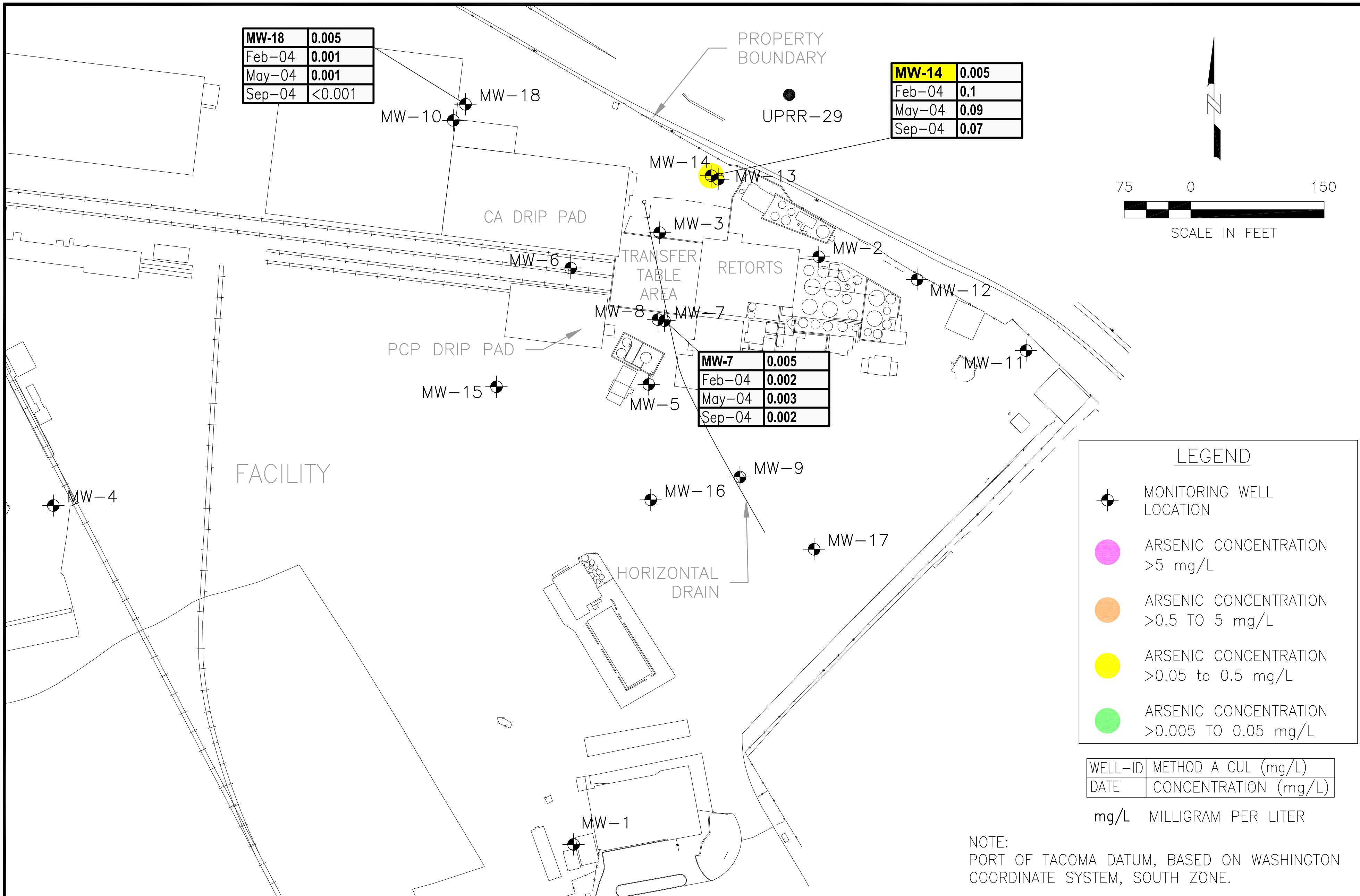
CPLU1-16832-500

DATE: 2/14/07 | DRWN: E.M./SEA

CONCENTRATIONS OF CHROMIUM IN DEEPER AQUIFER - 2004

FIGURE 3-31

File: G:\PROJECTS\CADD\Cascade Lumber\Figures_021711\FIGURE 3-32_16832S089.dwg Layout: FIGURE 3-32 User: oliveriam Plotted: Apr 21, 2011 - 4:10pm Xref's:



RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

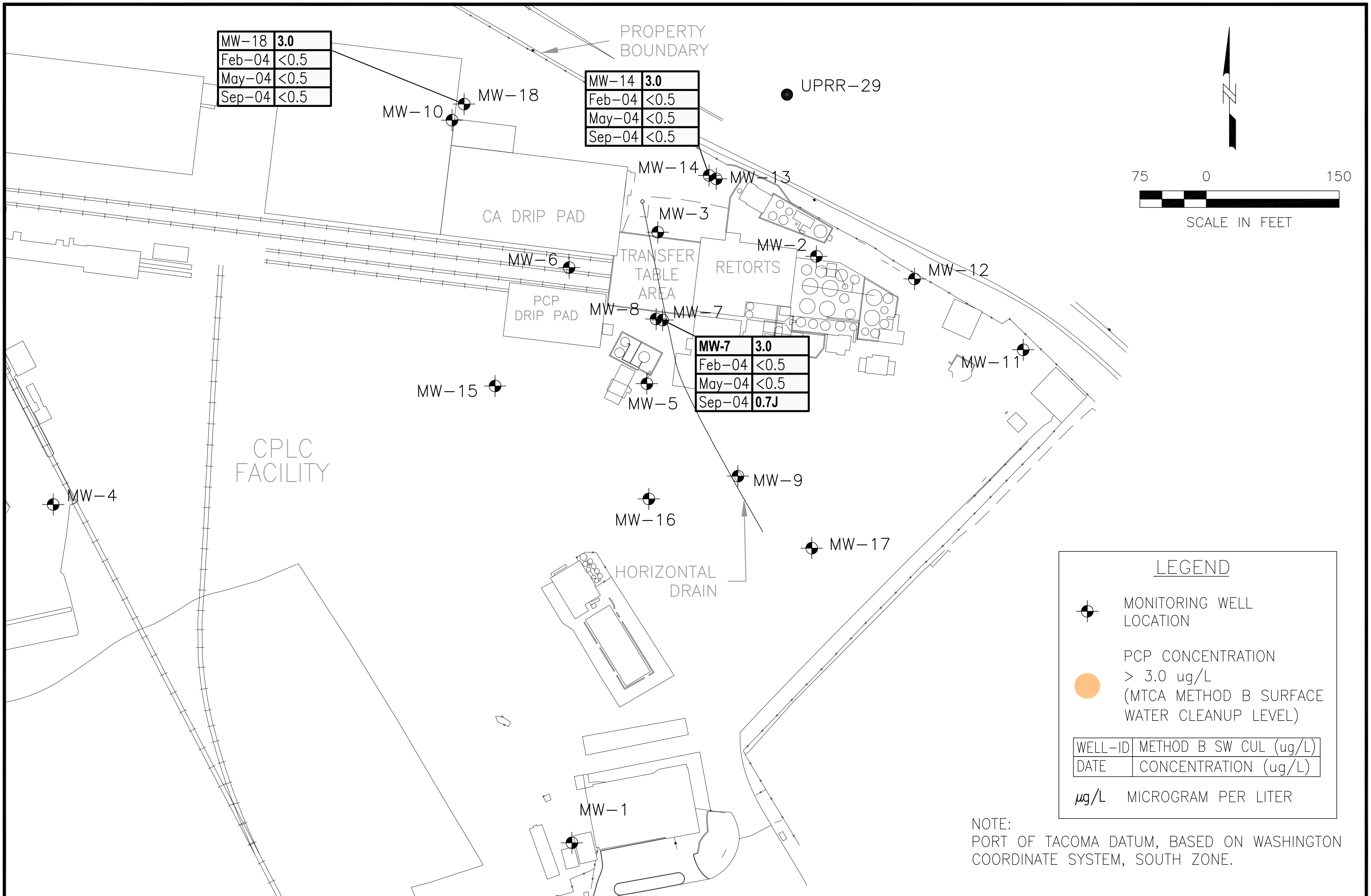
CPLU1-16832-500

CONCENTRATIONS OF ARSENIC IN DEEPER AQUIFER - 2004

DATE: 2/14/07 | DRWN: E.M./SEA

FIGURE 3-32

File: G:\PROJECTS\CADD\Cascade Lumber\Figures_021711\FIGURE 3-33_16832S084.dwg Layout: fig 3-33 User: oliveriam Plotted: Apr 21, 2011 - 3:54pm Xref's:



RETEC

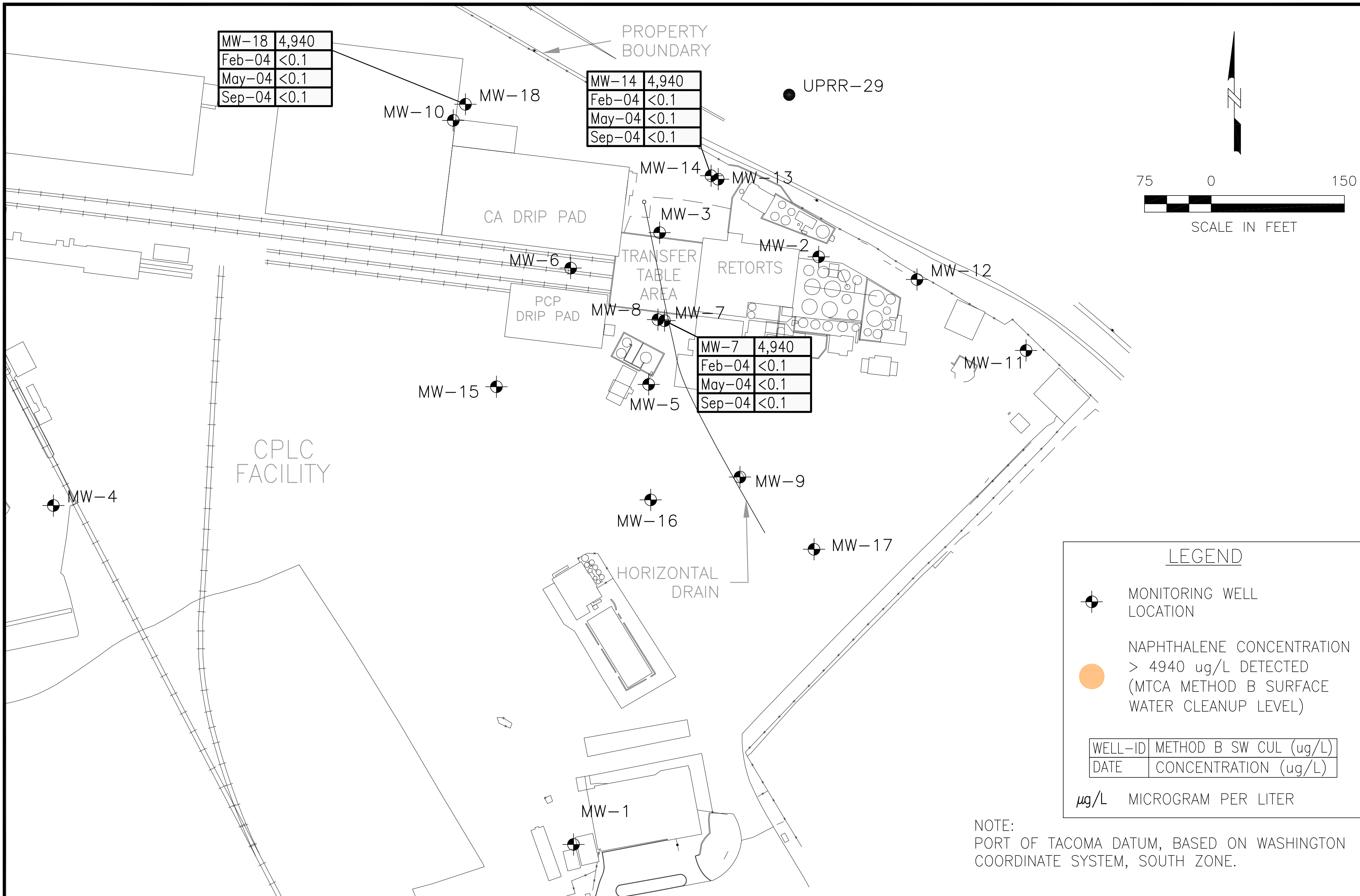
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

CPLU1-16832-500

CONCENTRATIONS OF PCP IN DEEPER AQUIFER - 2004

DATE: 2/14/07 | DRWN: E.M./SEA

FIGURE 3-33



MW-18	4,940
Feb-04	<0.1
May-04	<0.1
Sep-04	<0.1

MW-14	4,940
Feb-04	<0.1
May-04	<0.1
Sep-04	<0.1

MW-7	4,940
Feb-04	<0.1
May-04	<0.1
Sep-04	<0.1

LEGEND

MONITORING WELL LOCATION

NAPHTHALENE CONCENTRATION > 4940 ug/L DETECTED (MTCA METHOD B SURFACE WATER CLEANUP LEVEL)

WELL-ID	METHOD B SW CUL (ug/L)
DATE	CONCENTRATION (ug/L)

μg/L MICROGRAM PER LITER

NOTE:
PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

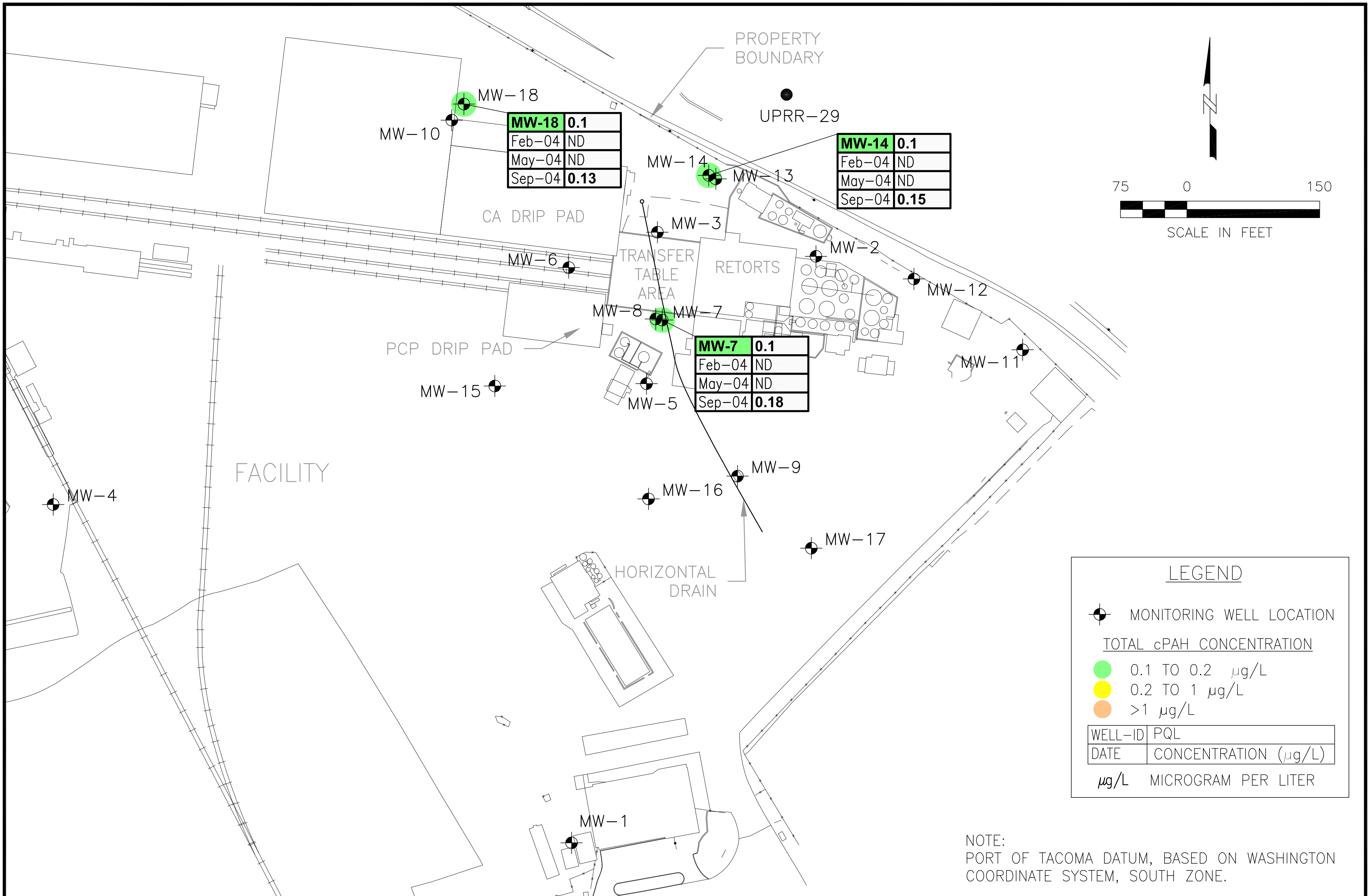
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLU1-16832-500

DATE: 2/14/07 | DRWN: E.M./SEA

CONCENTRATIONS OF NAPHTHALENE IN DEEPER AQUIFER - 2004

FIGURE 3-34

File: G:\PROJECTS\CADD\Cascade Lumber\Figures_021711\FIGURE 3-35_16832S090.dwg Layout: fig 3-35 User: oliveriam Plotted: Apr 21, 2011 - 3:45pm Xref's:



RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

CPLC1-16832-500

TOTAL CPAH CONCENTRATIONS IN DEEPER AQUIFER - 2004

DATE: 2/14/07 | DRWN: E.M./SEA

FIGURE 3-35

APPENDIX G-2

2005 TO 2010 GROUNDWATER MONITORING RESULTS MEMORANDUM

AECOM
710 2nd Avenue, Suite 1000
Seattle, WA 98104

206.624.9349 tel
206.623.3793 fax

Memorandum

To	Stan Leja, Department of Ecology	Page	1
CC	Ted Smith and Les Lonning, Cascade Pole and Lumber Company, Linda Baker, AECOM		
Subject	RI/FS Addendum B – Cascade Pole and Lumber Company Groundwater Results from 2005 through 2010		
From	Renee Knecht, AECOM Environment		
Date	November 11, 2010		

The first draft of the Remedial Investigation and Feasibility Study (RI/FS) for the Cascade Pole and Lumber Company (MCPLC) facility in Tacoma, Washington (RETEC 2005) was submitted to the Washington Department of Ecology (Ecology) in 2005. As such, the RI/FS summarizes groundwater results only through 2004. This Addendum to the RI/FS provides subsequent groundwater data results from 2004 through 2010.

Since the field data collection for the RI/FS was completed in 2004, groundwater has been sampled annually in accordance with Agreed Order No. DE 92HS-S146. The monitoring wells sampled from 2005 through 2007 were completed per the *Final Work Plan for a Remedial Investigation/Feasibility Study* (The RETEC Group, 2004) and included monitoring wells MW-2, MW-3, MW-6 through MW-10, MW-12, through MW-18 and UPRR-29 and MW-5 added in 2006. Monitoring wells sampled from 2007 to 2010 were completed per the *Groundwater Interim Action Implementation Report* (the RETEC Group, 1999) and included monitoring wells MW-2, MW-3, MW-5 through MW-9, MW-12 through MW-14 and UPRR-29. All groundwater results are presented on the attached table.

Ecology requested additional iso-concentration and groundwater elevation contour maps in their general comment 1 and specific comment 4. Figures depicting the iso-concentration contours of arsenic, chromium, copper and pentachlorophenol (PCP) and groundwater elevation contour maps from 2001 to 2010 are attached.

Detailed information of the annual sampling events is presented in the annual groundwater monitoring reports 2001 through 2010.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-1 2/6/2004	MW-2 2/5/2004	MW-2 05/26/04	MW-2 09/08/04	MW-2 1/27/2005	MW-2 1/24/2006	MW-2 2/1/2007	MW-2 01/31/08	MW-2 01/31/08 Dup	MW-2 01/27/09	MW-2 01/21/10
SEMIVOLATILE ORGANICS (ug/L)														
1-Methylnaphthalene	-	-		NA	NA	NA	NA	NA	18.4	8.95	86.3	85.7	40.2 J	73
2-Chloronaphthalene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 9.9	< 9.43	< 9.43	< 0.028
Pentachlorophenol	3 (B)	0.729 (B)		< 0.5	< 0.5	2.7	117	2.11	7.18	< 2.36	15.4	10.9	1.84	0.98
Carcinogenic PAHs														
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	0.245	< 0.1	< 0.0952	0.00943	< 1.98	< 1.89	< 0.943	< 0.0094
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	< 0.1	0.132	< 0.1	< 0.0952	0.0172	< 1.98	< 1.89	< 0.943	< 0.019
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.189	0.189	< 0.1	< 0.0952	0.0231	< 1.98	< 1.89	< 0.943	0.02
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.132	0.132	< 0.1	< 0.0952	0.0177	< 1.98	< 1.89	< 0.943	< 0.0094
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	0.302	0.283	0.456	< 0.0952	< 0.00943	< 1.98	< 1.89	< 0.943	0.013
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 1.98	< 1.89	< 0.943	< 0.0094
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.189	< 0.1	< 0.1	< 0.0952	< 0.00943	< 1.98	< 1.89	< 0.943	< 0.0094
Total CPAH	-	0.1 (A)		0	0	0.054	0.191	0.0046	0	0.0222	0	0	0	0.00213
Non-Carcinogenic PAHs														
2-Methylnaphthalene	-	-		< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	0.269	< 1.98	< 1.89	< 9.43	0.42
Acenaphthene	643 (B)	960 (B)		< 0.1	43.8	49.2	191	255	40.2	86.4	232	242	186 J	200
Acenaphthylene	-	-		< 0.1	1	1.23	8.47	14	1.94	3.05	6.34	6.42	< 9.43	3
Anthracene	25900 (B)	4800 (B)		< 0.1	2.04	1.4	2.45	5.19	3.16	3.42	7.52	8.3	11.1	3.5
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 1.98	< 1.89	< 9.43	< 0.0094
Fluoranthene	90.2 (B)	640 (B)		< 0.1	2.88	2.72	2.38	5.56	3.35	4.25 J	6.73	6.79	< 9.43	3.9
Fluorene	3460 (B)	640 (B)		< 0.1	22.1	19.7	68.5	97.4	26.6	35.2	93.1	98.1	92.9	78
Naphthalene	9880 (B)	0.32 (B)		< 0.1	0.462	0.887	270	187	31.9	4.27 J	32.5	31.3	9.83 J	34
Phenanthrene	-	-		< 0.1	8.62	1.02	5.53	49.1	30.7	52.5	73.3	77	62.6	51
Pyrene	2590 (B)	480 (B)		< 0.1	1.44	1.26	1.51	2.84	1.93	1.77	4.36	4.53	< 9.43	2.3
Total LPAH	-	-		0.00	82.34	77.42	549.84	616	140	191.13	455.85	474.44	390.72	375.7
INORGANICS - DISSOLVED (mg/L)														
Arsenic	9.82E-05 (B)	0.005 (A)		0.0027	0.202	0.294	0.244	0.282	0.481	0.207 J+	0.205	0.272	0.29	0.19 J-
Chromium	-	0.05 (A)		< 0.001	0.0079	0.0068	0.0132	0.0085	0.02	0.0111	0.00279	0.00341	0.00249	0.0039
Copper	2.66 (B)	0.59 (B)		< 0.001	0.0012	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
INORGANICS - TOTAL (mg/L)														
Arsenic	9.82E-05 (B)	0.005 (A)		0.0023	0.194	0.317	0.261	0.276	0.515	0.227	0.238	0.252	0.3	0.23 J-
Chromium	-	0.05 (A)		< 0.001	0.0103	0.0191	0.0193	0.0137	0.0282	0.013	0.00466	0.00385	0.00432	0.0084
Copper	2.66 (B)	0.59 (B)		< 0.001	0.0025	0.0127	0.0072	0.0053	0.009	0.00618	0.00162	< 0.001	0.00105	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MTCA	MTCA	MW-3									MW-5				
Sample Date	SURFACE WATER	GROUNDWATER	2/5/2004	05/25/04	09/08/04	1/27/2005	1/24/2006	2/1/2007	1/31/2008	01/28/09	01/21/10	1/25/2006	2/1/2007	1/31/2008	1/28/2009	1/22/10
SEMIVOLATILE ORGANICS (ug/L)																
1-Methylnaphthalene	-	-	NA	NA	NA	NA	0.118	1.98	0.62	< 0.0943	0.16	8.3 J	12.7	16.7	< 48.1	25
2-Chloronaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.943	< 10	< 9.43	< 0.028	< 0.0952	< 0.943	< 9.62	< 9.62	< 0.028
Pentachlorophenol	3 (B)	0.729 (B)	< 0.5	< 0.5	2.57	2.16	< 0.476	2.4	0.8	1.44	0.075	< 0.476	< 0.472	< 24.5	1.47	0.31
Carcinogenic PAHs																
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	0.151	< 0.1	< 0.0952	< 0.0943	< 0.1	< 0.00943	0.03	< 0.0952	0.143	< 4.9	< 4.81	0.019
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	0.17	< 0.1	< 0.0952	< 0.0943	< 0.1	< 0.00943	0.035	< 0.0952	< 0.0943	< 4.9	< 4.81	< 0.019
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	0.189	< 0.1	< 0.0952	< 0.0943	< 0.1	< 0.00943	0.095	< 0.0952	< 0.0943	< 4.9	< 4.81	0.03
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	0.17	< 0.1	< 0.0952	< 0.0943	< 0.1	< 0.00943	0.02	< 0.0952	< 0.0943	< 4.9	< 4.81	0.011
Chrysene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	0.189	< 0.1	< 0.0952	< 0.0943	< 0.1	< 0.00943	0.043	< 0.0952	< 0.0943	< 4.9	< 4.81	0.03
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	0.123	< 0.1	< 0.00943	0.01	< 0.0952	< 0.0943	< 4.9	< 4.81	< 0.0094
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	0.113	< 0.1	< 0.0952	0.121	< 0.1	< 0.00943	0.041	< 0.0952	< 0.0943	< 4.9	< 4.81	< 0.0094
Total CPAH	-	0.1 (A)	0	0	0.2342	0	0	0.0244	0	0	0.05503	0	0.0143	0	0	0.0063
Non-Carcinogenic PAHs																
2-Methylnaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	0.252 J	0.1	< 0.0943	0.047	10.2 J	3.4	11.8	< 48.1	31
Acenaphthene	643 (B)	960 (B)	0.302	0.267	0.321	0.338	0.324	2.02	1.3	0.972	1.4	4.53	4.84	< 4.9	< 48.1	7.3
Acenaphthylene	-	-	< 0.1	< 0.1	< 0.1	0.206	< 0.0952	0.255 J	< 0.1	< 0.0943	0.062	0.175	< 0.943	< 4.9	< 48.1	0.28
Anthracene	25900 (B)	4800 (B)	< 0.1	< 0.1	0.264	0.769	< 0.0952	1.03	0.18	< 0.0943	0.28	< 0.0952	0.644 J	< 4.9	< 48.1	0.088
Benzo(g,h,i)perylene	-	-	< 0.1	< 0.1	0.132	0.104	< 0.0952	0.126 J	< 0.1	< 0.0943	0.043	< 0.0952	< 0.943	< 4.9	< 48.1	< 0.0094
Fluoranthene	90.2 (B)	640 (B)	< 0.1	< 0.1	0.113	< 0.1	< 0.0952	0.142 J	< 0.1	< 0.0943	0.085	0.0952	0.223 J	< 4.9	< 48.1	0.082
Fluorene	3460 (B)	640 (B)	0.17	0.114	0.208	0.181	< 0.0952	< 0.943	0.34	0.141	0.23	1.74	1.52	< 4.9	< 48.1	3.2
Naphthalene	9880 (B)	0.32 (B)	1.26	0.114	< 0.1	0.383	0.368	1.95	0.28	< 0.0943	0.33	1,810	625	885	495	1100
Phenanthrene	-	-	0.208	0.19	0.132	0.11	< 0.0952	0.216 J	< 0.1	< 0.0943	0.048	0.88	1.1	< 4.9	< 48.1	0.85
Pyrene	2590 (B)	480 (B)	< 0.1	< 0.1	0.113	0.1	< 0.0952	0.163 J	< 0.1	< 0.0943	0.075	< 0.0952	0.216 J	< 4.9	< 48.1	0.076
Total LPAH	-	-	1.94	0.69	1.28	2.19	0.69	6.154	2.2	1.113	1.63	1828	636.943	896.8	495	495
INORGANICS - DISSOLVED (mg/L)																
Arsenic	9.82E-05 (B)	0.005 (A)	4.43	0.304	3.53	2.78	0.422	1.59 J+	0.586	0.303	2.6 J-	0.142	0.183 J+	0.177	0.0245	0.063 J-
Chromium	-	0.05 (A)	0.0284	0.0219	0.0285	0.0228	1.4	0.0824	0.0465	0.026	0.026	0.00162	0.00337	0.00365	< 0.001	< 0.002
Copper	2.66 (B)	0.59 (B)	0.0016	< 0.001	< 0.001	< 0.001	0.0012	0.00231	0.00157	< 0.001	< 0.005	< 0.001	< 0.001	0.001	< 0.001	< 0.005
INORGANICS - TOTAL (mg/L)																
Arsenic	9.82E-05 (B)	0.005 (A)	4.57	3.49	3.95	3.26	0.626	1.73	0.527	1.43	4.6 J-	0.154	0.212	0.139	0.145	0.13 J-
Chromium	-	0.05 (A)	0.0661	0.116	0.0822	0.191	1.68	0.128	0.068	0.113	0.13	0.00186	0.00181	0.00189	0.00169	0.003
Copper	2.66 (B)	0.59 (B)	0.287	0.124	0.0428	0.204	0.12	0.0743	0.0188	0.0507	0.1	< 0.001	0.00157	0.00131	< 0.001	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-6 2/5/2004	05/26/04	09/08/04	1/27/2005	1/25/2006	2/1/2007	1/31/2008	1/28/2009	1/21/2010
SEMIVOLATILE ORGANICS (ug/L)												
1-Methylnaphthalene	-	-		NA	NA	NA	NA	< 0.0952	0.0505 J	< 0.0962	< 0.0943	0.028
2-Chloronaphthalene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 9.62	< 9.43	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)		3.79	1.98	< 0.5	< 0.5	< 0.476	2.45	0.731	5.43	0.14
Carcinogenic PAHs												
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	0.013
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	0.132	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.019
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.151	< 0.1	< 0.0952	< 0.00943	< 0.0962	0.0157	0.011
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.113	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0095
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	0.0254	0.017
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0095
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0095
Total CPAH	-	0.1 (A)		0	0	0.1584	0	0	0	0	0.001824	0.00257
Non-Carcinogenic PAHs												
2-Methylnaphthalene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	0.0534 J	< 0.0962	< 0.0943	0.017
Acenaphthene	643 (B)	960 (B)		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0962	< 0.0943	0.061
Acenaphthylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	0.0746 J	< 0.0962	< 0.0943	0.026
Anthracene	25900 (B)	4800 (B)		< 0.1	< 0.1	0.151	0.481	< 0.0952	0.634	0.135	< 0.0943	0.12
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0962	< 0.0943	< 0.0095
Fluoranthene	90.2 (B)	640 (B)		< 0.1	< 0.1	0.208	0.117	< 0.0952	< 0.0943	< 0.0962	0.105	0.077
Fluorene	3460 (B)	640 (B)		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0962	< 0.0943	0.048
Naphthalene	9880 (B)	0.32 (B)		< 0.1	< 0.1	< 0.1	< 0.1	0.143	0.0237 J	0.115	0.132	0.019
Phenanthrene	-	-		< 0.1	0.113	< 0.1	< 0.1	< 0.0952	0.0403 J	< 0.0962	< 0.0943	0.023
Pyrene	2590 (B)	480 (B)		< 0.1	< 0.1	0.208	0.136	< 0.0952	< 0.0943	0.115	0.118	0.074
Total LPAH	-	-		0.00	0.113	0.567	0.734	0.143	0.826	0.365	0.355	0.17
INORGANICS - DISSOLVED (mg/L)												
Arsenic	9.82E-05 (B)	0.005 (A)		0.0338	0.0338	0.0115	0.0123	0.0431	0.023 J+	0.00512	0.00221	< 0.002 J
Chromium	-	0.05 (A)		0.0136	0.0125	0.0227	0.0222	0.02	0.0253	0.0265	0.0139	0.016
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
INORGANICS - TOTAL (mg/L)												
Arsenic	9.82E-05 (B)	0.005 (A)		0.0329	0.0145	0.0098	0.0115	0.0431	0.0321	0.00513	0.00603	0.004 J-
Chromium	-	0.05 (A)		0.0184	0.0154	0.0316	0.0224	0.0259	0.0267	0.025	0.0278	0.031
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	0.0012	< 0.001	< 0.001	0.00097 J	0.00171	0.00213	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-7 2/4/2004	05/25/04	05/25/04 (dup)	09/08/04	1/28/2005	02/23/05	1/25/2006	2/2/2007	1/31/2008	1/27/2009	1/21/2010
SEMIVOLATILE ORGANICS (ug/L)														
1-Methylnaphthalene	-	-		NA	NA	NA	NA	NA	NA	< 0.0952	0.272 J	< 0.0943	< 0.0943	0.05
2-Chloronaphthalene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	0.373	NA	< 0.0952	< 0.0952	< 9.43	< 9.43	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)		< 0.5	< 0.5	< 0.5	0.708 J	139	< 0.5	< 0.476	1.6	0.509	1.79	0.049
Carcinogenic PAHs														
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0952	0.0748	< 0.0943	0.043	0.023
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	< 0.1	0.146 J	< 0.1	NA	< 0.0952	0.0913	< 0.0943	0.0578	0.025
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	0.188	< 0.1	NA	< 0.0952	0.0808	< 0.0943	0.0567 J	0.038
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	0.104	< 0.1	NA	< 0.0952	0.102	< 0.0943	0.0588 J	0.013
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	< 0.1	0.125	< 0.1	NA	< 0.0952	0.086	< 0.0943	0.0657	0.022
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1 UJ	< 0.1	NA	< 0.0952	< 0.00952	< 0.0943	< 0.00943	< 0.0095
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	0.125 J	< 0.1	NA	< 0.0952	0.108	< 0.0943	0.046	0.016
Total CPAH	-	0.1 (A)		0	0	0	0.189	0	NA	0	0.129	0	0.0789	0.0342
Non-Carcinogenic PAHs														
2-Methylnaphthalene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0952	< 0.0952	< 0.0943	< 0.0943	0.071
Acenaphthene	643 (B)	960 (B)		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0952	< 0.0952	< 0.0943	< 0.0943	0.022
Acenaphthylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0952	< 0.0952	< 0.0943	< 0.0943	< 0.0095
Anthracene	25900 (B)	4800 (B)		< 0.1	< 0.1	< 0.1	< 0.1	0.463	NA	< 0.0952	0.208	< 0.0943	0.23	0.059
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	< 0.1	0.125 J	< 0.1	NA	< 0.0952	0.104	< 0.0943	< 0.0943	0.017
Fluoranthene	90.2 (B)	640 (B)		< 0.1	< 0.1	< 0.1	0.125	< 0.1	NA	< 0.0952	0.121	0.113	< 0.0943	0.05
Fluorene	3460 (B)	640 (B)		< 0.1	< 0.1	< 0.1	< 0.1	0.13	NA	< 0.0952	< 0.0952	0.113	< 0.0943	0.013
Naphthalene	9880 (B)	0.32 (B)		< 0.1	< 0.1	< 0.1	< 0.1	0.39	NA	< 0.0952	0.0621 J	< 0.0943	< 0.0943	0.28
Phenanthrene	-	-		< 0.1	< 0.1	< 0.1	0.104	< 0.1	NA	< 0.0952	0.065 J	< 0.0943	< 0.0943	0.052
Pyrene	2590 (B)	480 (B)		< 0.1	< 0.1	< 0.1	0.125	< 0.1	NA	< 0.0952	0.112	0.113	< 0.0943	0.046
Total LPAH	-	-		0	0	0	0.479	0.983	NA	0	0.6721	0.339	0.23	0.61
INORGANICS - DISSOLVED (mg/L)														
Arsenic	9.82E-05 (B)	0.005 (A)		0.0021	0.0025	0.0017	0.0023	0.0024	NA	0.0013	< 0.01	0.00221	0.00148	< 0.002
Chromium	-	0.05 (A)		0.00525	0.00561 J	0.00784 J	0.00373	0.00611	NA	0.00468	0.00685	0.00503	0.00537	0.0059
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	< 0.001	0.001	< 0.001	< 0.001	< 0.005
INORGANICS - TOTAL (mg/L)														
Arsenic	9.82E-05 (B)	0.005 (A)		0.00379	0.00562 J	0.00377 J	0.00569	0.00492	NA	0.00486	0.00393	0.00367	0.00241	0.0022
Chromium	-	0.05 (A)		0.00409	0.00372	0.00368	0.00498	0.00468	NA	0.00389	0.00356	0.00363	0.00335	0.018
Copper	2.66 (B)	0.59 (B)		0.00124	< 0.001	< 0.001	0.00164	0.00102	NA	0.00103	0.00103	0.00248	< 0.001	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-8 2/4/2004	 05/25/04	 09/08/04	 1/28/2005	 1/25/2006	 2/1/2007	 1/31/2008	 1/28/2009	 1/21/2010
SEMIVOLATILE ORGANICS (ug/L)												
1-Methylnaphthalene	-	-		NA	NA	NA	NA	**0.373**	**0.65** J	**3.08**	**0.673**	**3.7** J
2-Chloronaphthalene	-	-		**0.302**	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.952	< 9.8	< 9.43	< 0.028
Pentachlorophenol	3 (B)	0.729 (B)		**3.79**	< 0.5	**1.16**	**2.32**	**0.493**	**1.94**	**0.627**	**2**	**0.057**
Carcinogenic PAHs												
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	**0.015** J
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	**0.152**	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	< 0.019 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	**0.017** J
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	< 0.0094 J
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	**0.032** J
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	< 0.0094 J
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	**0.133**	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	**0.011** J
Total CPAH	-	0.1 (A)		0	0	**0.165**	0	0	0	0	0	**0.00462**
Non-Carcinogenic PAHs												
2-Methylnaphthalene	-	-		**0.208**	< 0.1	**0.248**	< 0.1	< 0.0952	**0.274 J**	**3.29**	< 0.189	**0.43 J**
Acenaphthene	643 (B)	960 (B)		**1.6**	**1.54**	**3.33**	**2.46**	**0.73**	**1.58**	**4.98**	**2.02**	**7.7 J**
Acenaphthylene	-	-		**0.264**	**0.19**	**0.4**	**0.41**	< 0.0952	**0.674 J**	**0.216**	< 0.189	< 0.94 J
Anthracene	25900 (B)	4800 (B)		< 0.1	< 0.1	**0.286**	**0.998**	**0.152**	**1.51**	**0.333**	< 0.189	**0.2 J**
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	**0.133**	< 0.1	< 0.0952	< 0.952	< 0.098	< 0.189	**0.01 J**
Fluoranthene	90.2 (B)	640 (B)		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.952	< 0.098	< 0.189	< 0.0094 J
Fluorene	3460 (B)	640 (B)		**0.34**	**0.286**	**0.743**	**0.5**	**0.11**	**0.347 J**	**0.706**	**0.262**	**1.2 J**
Naphthalene	9880 (B)	0.32 (B)		**2.21**	**0.781**	**2.36**	**0.315**	**0.358**	**0.332 J**	**15.5**	**0.871**	**22 J**
Phenanthrene	-	-		**0.245**	**0.229**	**0.21**	**0.242**	< 0.0952	< 0.952	< 0.098	< 0.189	**0.1 J**
Pyrene	2590 (B)	480 (B)		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.952	< 0.098	< 0.189	**0.021 J**
Total LPAH	-	-		4.867	3.026	7.71	4.925	1.35	4.717	25.025	3.153	31.661
INORGANICS - DISSOLVED (mg/L)												
Arsenic	9.82E-05 (B)	0.005 (A)		**0.276**	**0.101**	**0.33**	**0.169**	**0.234**	**0.163** J+	**0.209**	**0.00951**	**0.0057** J-
Chromium	-	0.05 (A)		**0.0264**	**0.0151**	**0.0122**	**0.0155**	**0.0306**	**0.0262**	**0.0115**	**0.00664**	**0.01**
Copper	2.66 (B)	0.59 (B)		**0.0019**	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
INORGANICS - TOTAL (mg/L)												
Arsenic	9.82E-05 (B)	0.005 (A)		**0.316**	**0.177**	**0.379**	**0.203**	**0.286**	**0.213**	**0.144**	**0.374**	**0.37** J-
Chromium	-	0.05 (A)		**0.0616**	**0.0442**	**0.0509**	**0.0339**	**0.0458**	**0.0317**	**0.0115**	**0.0479**	**0.036**
Copper	2.66 (B)	0.59 (B)		**0.0213**	**0.0135**	**0.0142**	**0.016**	**0.0136**	**0.00492**	**0.00167**	**0.0164**	**0.01**
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and ar

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-9 2/6/2004	05/26/04	09/08/04	1/27/2005	1/25/2006	2/1/2007	1/31/2008	1/28/2009	1/21/2010	1/21/2010 Dup
SEMIVOLATILE ORGANICS (ug/L)													
1-Methylnaphthalene	-	-		NA	NA	NA	NA	2.73 J	18.5 J	38.1	< 189	12	13
2-Chloronaphthalene	-	-		< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 94.3	< 9.52	< 9.43	< 0.029	< 0.028
Pentachlorophenol	3 (B)	0.729 (B)		< 0.5	< 0.5	< 0.5	2.16	3.36	< 9.43	< 47.6	2.54	0.082 J	0.047 J
Carcinogenic PAHs													
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	0.014	< 0.0094
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.019	< 0.019
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	0.01	< 0.0094
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	< 0.1	0.438	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094
Total CPAH	-	0.1 (A)		0	0	0	0.00438	0	0	0	0	0.0024	0
Non-Carcinogenic PAHs													
2-Methylnaphthalene	-	-		72.6 J	62.3	30.2	81.2	4.03	< 94.3	55.2	< 189	11	13
Acenaphthene	643 (B)	960 (B)		3.13	3.36	2.77	4.72	2.05	< 94.3	< 9.52	< 189	1 J	1.6 J
Acenaphthylene	-	-		0.189	0.226	0.245	0.356	0.12	< 94.3	< 9.52	< 189	0.046 J	0.069 J
Anthracene	25900 (B)	4800 (B)		< 0.1	0.113	0.17	0.348	< 0.0952	< 94.3	< 9.52	< 189	0.048 J	0.032 J
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 94.3	< 9.52	< 189	< 0.0095	< 0.0094
Fluoranthene	90.2 (B)	640 (B)		< 0.1	< 0.1	0.113	0.287	< 0.0952	< 94.3	< 9.52	< 189	0.045 J	0.025 J
Fluorene	3460 (B)	640 (B)		0.415	0.491	0.377	0.662	0.217	< 94.3	< 9.52	< 189	0.08 J	0.11 J
Naphthalene	9880 (B)	0.32 (B)		4,980	4,530	2,640	6,480	3,030	3,690	3,570	6,140	570	770
Phenanthrene	-	-		0.208	0.208	0.321	0.475	0.164	< 94.3	< 9.52	< 189	0.12 J	0.068 J
Pyrene	2590 (B)	480 (B)		< 0.1	< 0.1	< 0.1	0.285	< 0.0952	< 94.3	< 9.52	< 189	0.049 J	0.026 J
Total LPAH	-	-		5056.5	4596.585	2674.196	6568.333	3,037	3,690	3,625	6,140	582	785
INORGANICS - DISSOLVED (mg/L)													
Arsenic	9.82E-05 (B)	0.005 (A)		0.26	0.272	0.329	0.16	0.107	0.121 J+	0.0285	0.00831	0.037 J-	0.039
Chromium	-	0.05 (A)		0.0033	0.00261	0.00243	0.00338	0.0307	0.0041	0.00335	< 0.001	< 0.002	< 0.002
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)													
Arsenic	9.82E-05 (B)	0.005 (A)		0.193	0.27	0.321	0.156	0.116	0.129	0.0924	0.125	0.066 J-	0.071 J-
Chromium	-	0.05 (A)		0.0019	0.00181	0.00266	0.00192	0.04150	0.0029	0.00141	0.00146	0.0024	0.0028
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	0.00187	0.00059 J	< 0.001	< 0.001	< 0.005	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA		
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA		

ıalysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MTCA	MTCA	MW-9							
Sample Date	SURFACE WATER	GROUNDWATER	02/06/04	05/26/04	05/26/04	02/23/05	01/25/06	02/02/07	01/31/08	01/27/09
VOLATILE ORGANICS (ug/L)										
Benzene	43	1.51	**95.4**	**99.1 J**	**79.1 J**	**106**	**83.4**	**89.3**	**95.5**	**91.5**
Toluene	48,500	1,600	**208**	**190 J**	**132 J**	**482**	**203**	**229**	**111**	**53**
Ethylbenzene	-	-	**3,260**	**3,150 J**	**2,260 J**	**4,200**	**2,580**	**3,220**	**2,950**	**2,320**
m&p-Xylene	-	16,000	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	-	16,000	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	-	16,000	**1,890**	**1,990 J**	**1,260 J**	**2,500**	**1,540**	**1,640**	**1,470**	**849**

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed.

D - The reported result for this analytewas calculated based on a secondary dilution factor.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-10 2/5/2004	09/08/04	09/08/04 (Dup)	1/27/2005	1/27/2005 (Dup)	02/23/05	1/25/2006	2/2/2007
SEMIVOLATILE ORGANICS (ug/L)											
1-Methylnaphthalene	-	-		NA	NA	NA	NA	NA	NA	**0.111**	**1.31**
2-Chloronaphthalene	-	-		**0.212**	< 0.1	< 0.1	**0.478 J**	< 0.1 UJ	NA	< 0.0943	< 0.0943
Pentachlorophenol	3 (B)	0.729 (B)		**12.9**	**1.79 J**	**2.6 J**	**155 J**	**40.3 J**	**461**	**59.1**	< 0.472
Carcinogenic PAHs											
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.109**	NA	< 0.0943	< 0.00943
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0943	< 0.00943
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	**0.113**	< 0.1	< 0.1	NA	< 0.0943	< 0.00943
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	**0.113**	< 0.1	< 0.1	NA	< 0.0943	< 0.00943
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	< 0.1	< 0.1 UJ	**0.476 J**	NA	< 0.0943	< 0.00943
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	**0.171 J**	**0.868 J**	< 0.1	< 0.1	NA	< 0.0943	< 0.00943
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.113	< 0.1	< 0.1	NA	< 0.0943	< 0.00943
Total CPAH	-	0.1 (A)		0	**0.0171**	**0.121**	0	**0.0157**	NA	0	0
Non-Carcinogenic PAHs											
2-Methylnaphthalene	-	-		< 0.1	**0.171**	< 0.1	< 0.1	< 0.1	NA	< 0.0943	**0.678**
Acenaphthene	643 (B)	960 (B)		< 0.1	< 0.1	< 0.1	< 0.1 UJ	**0.747 J**	NA	< 0.0943	**0.131**
Acenaphthylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0943	**0.366**
Anthracene	25900 (B)	4800 (B)		< 0.1	**0.19**	**0.17**	**0.282 J**	**0.541 J**	NA	< 0.0943	**0.437**
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0943	< 0.0943
Fluoranthene	90.2 (B)	640 (B)		< 0.1	**0.152**	**0.132**	< 0.1 **UJ**	**0.4 J**	NA	< 0.0943	< 0.0943
Fluorene	3460 (B)	640 (B)		< 0.1	< 0.1	< 0.1	< 0.1 **UJ**	**0.23 J**	NA	< 0.0943	**0.146**
Naphthalene	9880 (B)	0.32 (B)		**1.29**	**6.15**	**6.17**	**0.823 J**	**2.14 J**	NA	**1.68**	**14.3**
Phenanthrene	-	-		< 0.1	**0.152**	**0.132**	< 0.1 **UJ**	**0.265 J**	NA	< 0.0943	**0.0925**
Pyrene	2590 (B)	480 (B)		< 0.1	**0.171**	**0.151**	< 0.1 **UJ**	**0.362 J**	NA	< 0.0943	< 0.0943
Total LPAH	-	-		1.29	6.99	6.76	1.105	4.69	NA	1.68	16.1505
INORGANICS - DISSOLVED (mg/L)											
Arsenic	9.82E-05 (B)	0.005 (A)		< 0.001	**0.0035**	**0.0034**	< 0.001	**0.0012**	NA	< 0.001	< 0.01
Chromium	-	0.05 (A)		**0.0038**	**0.0589**	**0.057**	**0.0159**	**0.0159**	NA	**0.0319**	**0.0101**
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)											
Arsenic	9.82E-05 (B)	0.005 (A)		< 0.001	**0.0036**	**0.0036**	< 0.001	< 0.001	NA	< 0.001	**0.00218**
Chromium	-	0.05 (A)		**0.002**	**0.0721**	**0.0729**	**0.0154**	**0.0164**	NA	**0.0337**	**0.00987**
Copper	2.66 (B)	0.59 (B)		< 0.001	**0.0013**	**0.0025**	< 0.001	< 0.001	NA	**0.0012**	**0.00241**
Hexavalent Chromium (Method 7195)	0.81 (B)	-		NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-		NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation accordi

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MTCA	MTCA	MW-12								
Sample Date	SURFACE WATER	GROUNDWATER	2/5/2004	05/26/04	09/08/04	1/27/2005	1/24/2006	2/1/2007	1/31/2008	1/27/2009	1/21/2010
SEMIVOLATILE ORGANICS (ug/L)											
1-Methylnaphthalene	-	-	NA	NA	NA	NA	< 0.0952	**0.109**	< 0.0971	< 0.00943	**0.03**
2-Chloronaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 9.71	< 9.43	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)	< 0.5	< 0.5	**1.62**	< 0.5	< 0.476	< 0.472	**0.563**	< 0.472	**0.037**
Carcinogenic PAHs											
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.0095
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.019
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.0095
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.0095
Chrysene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.0095
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	**0.151**	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.0095
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.0095
Total CPAH	-	0.1 (A)	0	0	**0.0151**	0	0	0	0	0	0
Non-Carcinogenic PAHs											
2-Methylnaphthalene	-	-	**0.113**	< 0.1	**0.226**	< 0.1	< 0.0952	**0.0574 J**	< 0.0971	< 0.0943	**0.023**
Acenaphthene	643 (B)	960 (B)	**0.453**	**0.453**	**1.43**	**0.67**	**0.189**	**0.351**	**0.175**	**0.152 J**	**0.16**
Acenaphthylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0971	< 0.0943	< 0.0095
Anthracene	25900 (B)	4800 (B)	< 0.1	< 0.1	**0.189**	**0.184**	< 0.0952	**0.235**	< 0.0971	< 0.0943	**0.043**
Benzo(g,h,i)perylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0971	< 0.0943	< 0.0095
Fluoranthene	90.2 (B)	640 (B)	< 0.1	< 0.1	**0.245**	< 0.1	< 0.0952	< 0.0943	< 0.0971	< 0.0943	**0.016**
Fluorene	3460 (B)	640 (B)	**0.189**	**0.17**	**0.566**	**0.282**	< 0.0952	**0.13**	< 0.0971	< 0.0943	**0.055**
Naphthalene	9880 (B)	0.32 (B)	**0.302**	**0.189**	**0.434**	**0.157**	< 0.0952	**0.0342 J**	< 0.0971	< 0.0943	**0.092**
Phenanthrene	-	-	**0.113**	< 0.1	**0.509**	**0.138**	< 0.0952	**0.0532 J**	< 0.0971	< 0.0943	**0.029**
Pyrene	2590 (B)	480 (B)	< 0.1	< 0.1	**0.226**	< 0.1	< 0.0952	< 0.0943	< 0.0971	< 0.0943	**0.015**
Total LPAH	-	-	1.17	0.812	3.825	1.431	0.189	0.8608	0.175	0.152	0.433
INORGANICS - DISSOLVED (mg/L)											
Arsenic	9.82E-05 (B)	0.005 (A)	**0.0131**	**0.0054**	**0.0173**	**0.0037**	**0.0067**	< 0.01	**0.00486**	**0.00129**	< 0.002 J
Chromium	-	0.05 (A)	**0.0035**	**0.0013**	**0.0017**	**0.0016**	**0.0025**	**0.00318**	**0.00116**	< 0.001	**0.0038**
Copper	2.66 (B)	0.59 (B)	< 0.001	< 0.001	< 0.001	< 0.001	**0.0016**	< 0.001	< 0.001	< 0.001	< 0.005
INORGANICS - TOTAL (mg/L)											
Arsenic	9.82E-05 (B)	0.005 (A)	**0.0127**	**0.0056**	**0.0164**	**0.0051**	**0.0064**	**0.00409**	**0.00426**	**0.00175**	**0.0046 J-**
Chromium	-	0.05 (A)	**0.0035**	**0.0011**	**0.0023**	**0.0013**	**0.0031**	**0.00272**	**0.00121**	< 0.001	**0.0065**
Copper	2.66 (B)	0.59 (B)	**0.0018**	< 0.001	**0.0014**	< 0.001	**0.0025**	**0.00114**	**0.00127**	< 0.001	0.0064
Hexavalent Chromium (Method 7195)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA

ng to EPA Method 7195 and analysis by EPA Method 6010 in July 1991

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MTCA	MTCA	MW-13								
Sample Date	SURFACE WATER	GROUNDWATER	2/5/2004	05/25/04	09/08/04	1/27/2005	1/24/2006	2/1/2007	1/31/2008	1/28/2009	1/21/2010
SEMIVOLATILE ORGANICS (ug/L)											
1-Methylnaphthalene	-	-	NA	NA	NA	NA	**0.112**	**0.0976**	**0.115**	**0.218**	**0.15**
2-Chloronaphthalene	-	-	**0.547**	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 9.62	< 9.43	< 0.028
Pentachlorophenol	3 (B)	0.729 (B)	**75.8**	**9.88**	**2.89**	< 0.5	**16.6**	**33**	**1.06**	**1.71**	**0.38**
Carcinogenic PAHs											
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	**0.0323**	< 0.0094
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.019
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0094
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0094
Chrysene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0094
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	**0.151**	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0094
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0094
Total CPAH	-	0.1 (A)	0	0	**0.0151**	0	0	0	0	**0.00323**	0
Non-Carcinogenic PAHs											
2-Methylnaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	**0.0196 J**	< 0.0962	< 0.0943	**0.048**
Acenaphthene	643 (B)	960 (B)	**0.509**	**0.5**	**1.81**	< 0.1	**0.39**	**0.418**	**0.75**	**1.06**	**0.43**
Acenaphthylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	**0.0569 J**	< 0.0962	**0.0957**	**0.022**
Anthracene	25900 (B)	4800 (B)	< 0.1	< 0.1	**0.264**	**0.185**	< 0.0952	**0.661**	**0.154**	**0.086**	**0.089**
Benzo(g,h,i)perylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0962	< 0.0943	< 0.0094
Fluoranthene	90.2 (B)	640 (B)	**0.321**	< 0.1	**0.132**	< 0.1	**0.128**	**0.0782 J**	< 0.0962	**0.112**	**0.053**
Fluorene	3460 (B)	640 (B)	**0.132**	**0.115**	**0.302**	< 0.1	< 0.0952	**0.0995**	**0.135**	**0.245**	**0.099**
Naphthalene	9880 (B)	0.32 (B)	**0.189**	< 0.1	**1.26**	< 0.1	**0.446**	**0.365**	**0.442**	**0.462**	**0.31**
Phenanthrene	-	-	**0.189**	**0.135**	**0.113**	< 0.1	< 0.0952	**0.119**	< 0.0962	< 0.0943	**0.028**
Pyrene	2590 (B)	480 (B)	**0.264**	< 0.1	**0.132**	**0.104**	**0.101**	**0.0825 J**	< 0.0962	< 0.0943	**0.048**
Total LPAH	-	-	1.604	0.75	4.013	0.289	1.065	1.8997	1.481	2.0607	1.127
INORGANICS - DISSOLVED (mg/L)											
Arsenic	9.82E-05 (B)	0.005 (A)	**12.5**	**2.2**	**0.261**	**2.94**	**4.09**	**6.7**	**1.3**	**0.438**	**5.8** J-
Chromium	-	0.05 (A)	**0.0172**	**0.0188**	**0.0675**	**0.0317**	**0.0148**	**0.0152**	**0.0149**	**0.0085**	**0.0085**
Copper	2.66 (B)	0.59 (B)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005
INORGANICS - TOTAL (mg/L)											
Arsenic	9.82E-05 (B)	0.005 (A)	**12.3**	**3.01**	**0.289**	**2.84**	**4.47**	**7.79**	**1.24**	**1.16**	**7.2** J-
Chromium	-	0.05 (A)	**0.0269**	**0.0289**	**0.105**	**0.0364**	**0.0196**	**0.0148**	**0.0132**	**0.0122**	**0.014**
Copper	2.66 (B)	0.59 (B)	**0.0062**	**0.007**	**0.0061**	**0.0039**	**0.0017**	**0.00281**	**0.00149**	**0.00153**	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated value less than detection limit. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 a

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MTCA	MTCA	MW-14								
Sample Date	SURFACE WATER	GROUNDWATER	2/5/2004	05/25/04	09/08/04	1/27/2005	1/24/2006	2/2/2007	1/31/2008	1/28/2009	1/21/2010
SEMIVOLATILE ORGANICS (ug/L)											
1-Methylnaphthalene	-	-	NA	NA	NA	NA	< 0.0952	< 0.0943	< 0.0952	< 0.0943	**0.024**
2-Chloronaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 9.52	< 9.43	< 0.028
Pentachlorophenol	3 (B)	0.729 (B)	< 0.5	< 0.5	< 0.5	< 0.5	< 0.476	< 0.472	**0.495**	< 0.472	**0.036**
Carcinogenic PAHs											
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.0094
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.019
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.0094
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.0094
Chrysene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.0094
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	**0.151**	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.0094
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.0094
Total CPAH	-	0.1 (A)	0	0	**0.0151**	0	0	0	0	0	0
Non-Carcinogenic PAHs											
2-Methylnaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	**0.042**
Acenaphthene	643 (B)	960 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	**0.011**
Acenaphthylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	< 0.0094
Anthracene	25900 (B)	4800 (B)	< 0.1	< 0.1	< 0.1	0.125	< 0.0952	**0.202**	< 0.0952	**0.221**	**0.05**
Benzo(g,h,i)perylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	< 0.0094
Fluoranthene	90.2 (B)	640 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	< 0.0094
Fluorene	3460 (B)	640 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	< 0.0094
Naphthalene	9880 (B)	0.32 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	**0.17**
Phenanthrene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	**0.114**	< 0.0943	**0.03**
Pyrene	2590 (B)	480 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	**0.013**
Total LPAH	-	-	0	0	0	0	0	0.202	0.114	0.221	0.316
INORGANICS - DISSOLVED (mg/L)											
Arsenic	9.82E-05 (B)	0.005 (A)	**0.106**	**0.092**	**0.0704**	**0.102**	**0.0256**	**0.0031 J+**	**0.0127**	**0.00202**	< 0.002
Chromium	-	0.05 (A)	**0.0104**	**0.0113**	**0.0091**	**0.0106**	**0.0062**	**0.0071**	**0.00544**	**0.00216**	**0.0043**
Copper	2.66 (B)	0.59 (B)	**0.0214**	**0.0153**	**0.0126**	**0.0102**	**0.0045**	< 0.00135	< 0.001	< 0.001	< 0.005
INORGANICS - TOTAL (mg/L)											
Arsenic	9.82E-05 (B)	0.005 (A)	**0.154**	**0.152**	**0.112**	**0.215**	**0.0514**	**0.064**	**0.0409**	**0.00884**	**0.014**
Chromium	-	0.05 (A)	**0.0752**	**0.101**	**0.0676**	**0.201**	**0.0348**	**0.0605**	**0.0599**	**0.00741**	**0.03**
Copper	2.66 (B)	0.59 (B)	**0.0826**	**0.0627**	**0.0542**	**0.136**	**0.0374**	**0.0391**	**0.028**	**0.00364**	**0.01**
Hexavalent Chromium (Method 7195)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA

and analysis by EPA Method 6010 in July 1991

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-15 2/4/2004	MW-15 05/26/04	MW-15 09/08/04	MW-15 1/27/2005	MW-15 1/24/2006	MW-15 2/1/2007	MW-16 2/4/2004	MW-16 05/26/04	MW-16 09/08/04	MW-16 1/27/2005	MW-16 1/24/2006	MW-16 1/24/2006 (Dup)	MW-16 2/2/2007	MW-16 2/2/2007 (Dup)
SEMIVOLATILE ORGANICS (ug/L)																	
1-Methylnaphthalene	-	-		NA	NA	NA	NA	**1.16**	**1.07**	NA	NA	NA	NA	**4.78 J**	**4.46 J**	**7.24 J**	**17.5 J**
2-Chloronaphthalene	-	-		**0.132**	< 0.1	< 0.167	< 0.1	< 0.0952	< 0.0943	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 95.2	< 0.952
Pentachlorophenol	3 (B)	0.729 (B)		**3.98**	**1.96**	**6.1**	**2.92**	< 0.476	**2.42**	< 5	< 0.5	**1.7**	< 0.5	< 0.476	< 0.476	< 9.52 J	**1.94 J**
Carcinogenic PAHs																	
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	**0.849**	**0.629**	**1.17**	**0.628**	**0.337**	**0.367**	< 1	< 0.1	**0.114**	< 0.1	< 0.0952	< 0.0952	< 9.52	< 0.0952
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	**0.226**	**0.171**	**0.333**	**0.192**	**0.122**	**0.102**	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 9.52	< 0.0952
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	**0.509**	**0.286**	**1.03**	**0.302**	**0.263**	**0.166**	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 9.52	< 0.0952
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	**0.21**	**1.27**	**0.224**	**0.13**	**0.145**	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 9.52	< 0.0952
Chrysene	0.0296 (B)	0.012 (B)	0.01	**1.09**	**0.876**	**1.57**	**1.19**	**0.55**	**0.515**	< 1	< 0.1	**0.114**	**0.427**	< 0.0952	< 0.0952	< 9.52	< 0.0952
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	**0.3**	< 0.1	< 0.0952	**0.0237**	< 1	< 0.1	**0.152**	< 0.1	< 0.0952	< 0.0952	< 9.52	< 0.0952
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	**0.171**	**0.167**	< 0.1	< 0.0952	**0.0436**	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 9.52	< 0.0952
Total CPAH	-	0.1 (A)		**0.373**	**0.309**	**0.742**	**0.319**	**0.201**	**0.182**	0	0	**0.0277**	**0.0043**	0	0	0	0
Non-Carcinogenic PAHs																	
2-Methylnaphthalene	-	-		**3.11**	**1.66**	**1.6**	**0.902**	**0.499**	**0.522**	**26.8**	**21.3**	**13.7**	**28.9**	**5.89 J**	**5.53 J**	**7.62 J**	**23.2 J**
Acenaphthene	643 (B)	960 (B)		**30.4**	**20.8**	**27.2**	**19.4**	**10.4**	**17**	**2.83**	**2.6**	**2.99**	**3.72**	**2.26**	**2.4**	< 95.2 J	**2.62 J**
Acenaphthylene	-	-		**0.566**	< 0.1	**8.63**	**0.204**	< 0.0952	**0.201**	< 1	< 0.1	< 0.1	**0.156**	**0.122**	**0.114**	< 95.2	**0.192 J**
Anthracene	25900 (B)	4800 (B)		**3.79**	**2.08**	**2.9**	**2.63**	**1.18**	**1.84**	< 1	**0.113**	**0.21**	**0.301**	< 0.0952	< 0.0952	< 95.2	**0.372 J**
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	**0.167**	< 0.1	< 0.0952	**0.0496 J**	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 95.2	< 0.952
Fluoranthene	90.2 (B)	640 (B)		**10**	**7.85**	**11.4**	**7.11**	**4.08**	**7.46**	**1.32**	**0.358**	**0.343**	**0.43**	**0.187**	**0.149**	< 95.2	**0.235 J**
Fluorene	3460 (B)	640 (B)		**23.8**	**16.4**	**20.4**	**14.5**	**6.84**	**11**	< 1	**0.755**	**0.705**	**0.949**	**0.491**	**0.53**	< 95.2	**0.59 J**
Naphthalene	9880 (B)	0.32 (B)		**3.08**	**1.01**	**1.27**	**1.06**	**0.189**	**0.137**	**1370**	**1370**	**1280**	**1620**	**1450**	**1590**	**1,360**	**1170**
Phenanthrene	-	-		**30.6**	**24.7**	**28.4**	**23.3**	**10.7**	**19**	< 1	**0.472**	**0.552**	**0.598**	**0.229**	**0.208**	< 95.2	**0.324 J**
Pyrene	2590 (B)	480 (B)		**5.96**	**4.34**	**7.1**	**5.3**	**2.63**	**2.46**	< 1	**0.208**	**0.362**	**0.436**	**0.152**	**0.137**	< 95.2	**0.254 J**
Total LPAH	-	-		111.31	78.84	109.07	74.406	36.518	59.6696	1401	1395.8	1298.9	1655.5	1459.3	1599.1	1,368	1,198
INORGANICS - DISSOLVED (mg/L)																	
Arsenic	9.82E-05 (B)	0.005 (A)		**0.0215**	**0.0325**	**0.0072**	**0.00466**	**0.00209**	**0.00051 J+**	**0.0034**	**0.0016**	**0.0051**	**0.0015**	**0.0016**	**0.0011**	< 0.01	< 0.01
Chromium	-	0.05 (A)		**0.0015**	**0.0012**	**0.0012**	**0.00429**	**0.0433**	**0.00675**	**0.0024**	**0.0016**	< 0.001	**0.0033**	**0.002**	**0.0021**	**0.00292**	**0.00273**
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)																	
Arsenic	9.82E-05 (B)	0.005 (A)		**0.0278**	**0.0331**	**0.0091**	**0.0086**	**0.00281**	**0.0019**	**0.0025**	**0.0019**	**0.0053**	**0.0016**	**0.0014**	< 0.001	< 0.001	< 0.001
Chromium	-	0.05 (A)		**0.0333**	**0.0095**	**0.0123**	**0.0101**	**0.05**	**0.00998**	**0.0015**	**0.0013**	**0.0045**	**0.0028**	**0.0018**	**0.0017**	**0.0014**	**0.00131**
Copper	2.66 (B)	0.59 (B)		**0.0585**	**0.0182**	**0.0221**	**0.0176**	**0.0048**	**0.009**	< 0.001	< 0.001	**0.0087**	**0.0034**	< 0.001	< 0.001	**0.00074 J**	**0.00071 J**
Hexavalent Chromium (Method 7195)	0.81 (B)	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed.

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

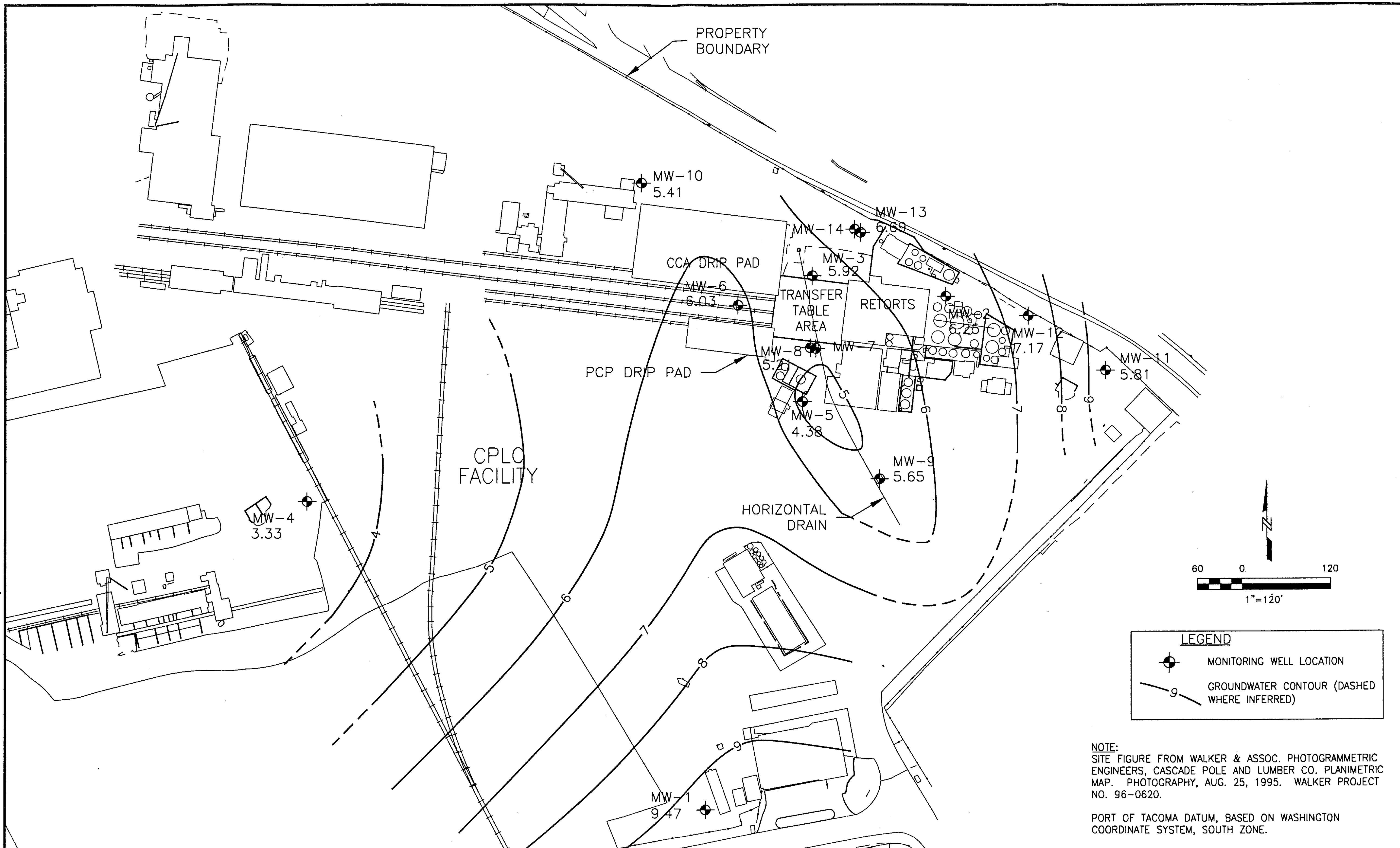
Sample Location	MTCA	MTCA	MW-17						MW-18						
Sample Date	SURFACE WATER	GROUNDWATER	2/4/2004	05/26/04	09/08/04	1/27/2005	1/25/2006	2/2/2007	2/5/2004	05/25/04	09/08/04	1/27/2005	1/27/2005	1/25/2006	2/2/2007
SEMIVOLATILE ORGANICS (ug/L)															
1-Methylnaphthalene	-	-	NA	NA	NA	NA	< 0.0943	0.108	NA	NA	NA	NA	NA	< 0.0952	< 0.0943
2-Chloronaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.0943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943
Pentachlorophenol	3 (B)	0.729 (B)	3.83	< 0.5	1.62	< 0.5	< 0.472	< 0.472	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.476	< 0.472
Carcinogenic PAHs															
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943
Chrysene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	0.113	< 0.1	< 0.1	< 0.0952	< 0.00943
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	0.132	< 0.1	< 0.1	< 0.0952	< 0.00943
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943
Total CPAH	-	0.1 (A)	0	0	0	0	0	0	0	0	0.0143	0	0	0	0
Non-Carcinogenic PAHs															
2-Methylnaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	0.137	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943
Acenaphthene	643 (B)	960 (B)	0.132	< 0.1	< 0.1	0.112	0.111	0.0964	0.113	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943
Acenaphthylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	0.0178 J	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	0.0943
Anthracene	25900 (B)	4800 (B)	< 0.1	< 0.1	< 0.1	0.131	< 0.0943	0.188	< 0.1	< 0.1	< 0.1	0.113	0.113	< 0.0952	0.25
Benzo(g,h,i)perylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.0943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943
Fluoranthene	90.2 (B)	640 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.0943	0.264	< 0.1	0.226	< 0.1	< 0.1	< 0.0952	0.0943
Fluorene	3460 (B)	640 (B)	< 0.1	< 0.1	0.152	0.11	< 0.0943	0.0516 J	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943
Naphthalene	9880 (B)	0.32 (B)	< 0.1	< 0.1	< 0.1	0.17	0.272	8.77	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	0.0943
Phenanthrene	-	-	< 0.1	< 0.1	0.114	0.133	< 0.0943	0.457 J	0.208	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943
Pyrene	2590 (B)	480 (B)	< 0.1	< 0.1	0.171	< 0.1	< 0.0943	0.538 J	0.189	< 0.1	0.189	< 0.1	< 0.1	< 0.0952	0.0943
Total LPAH	-	-	0.132	0	0.437	0.656	0.383	10.2558	0.774	0	0.415	0.113	0.113	0	0.25
INORGANICS - DISSOLVED (mg/L)															
Arsenic	9.82E-05 (B)	0.005 (A)	0.06	0.0031	0.052	0.0448	0.0359	0.0141 J+	0.001	0.0014	< 0.001	0.0018	0.0018	< 0.001	0.00034 J+
Chromium	-	0.05 (A)	0.0059	0.0044	0.0029	0.0086	0.0293	0.0103	0.0043	0.0067	0.0038	0.0077	0.0077	0.0047	0.00887
Copper	2.66 (B)	0.59 (B)	0.002	< 0.001	0.0016	0.0014	0.0014	< 0.00128	< 0.001	< 0.001	< 0.001	0.0012	0.0012	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)															
Arsenic	9.82E-05 (B)	0.005 (A)	0.0307	0.0071	0.0485	0.0373	0.0321	0.0357	0.0012	0.0012	< 0.001	0.0011	0.0011	< 0.001	< 0.001
Chromium	-	0.05 (A)	< 0.001	< 0.001	0.0016	0.0019	0.0326	0.00354	0.0056	0.0048	0.0051	0.0054	0.0054	0.0069	0.00763
Copper	2.66 (B)	0.59 (B)	0.0025	< 0.001	0.0024	0.0024	0.0018	0.0017	0.0029	0.0011	0.003	0.002	0.002	0.0023	0.00208
Hexavalent Chromium (Method 7195)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MTCA	MTCA		HORIZONTAL DRAIN								
Sample Date	SURFACE WATER	GROUNDWATER	TEF	3/12/04	05/25/04	10/14/04	1/27/2005	1/25/2006	2/2/2007	1/31/2008	1/28/2009	1/21/2010
SEMIVOLATILE ORGANICS (ug/L)												
1-Methylnaphthalene	-	-		**20.8**	NA	NA	NA	**4.33**	**19.1**	**2.49**	**0.97**	**23**
2-Chloronaphthalene	-	-		< 1	< 0.1	< 0.1	**2.6**	< 0.0952	< 0.952	< 9.43	< 9.71	< 0.028
Pentachlorophenol	3 (B)	0.729 (B)		**276**	**149**	**5.3**	**67.1**	**15.6**	**17.4**	**3.15**	**3.83**	< 1.9
Carcinogenic PAHs												
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 1	< 0.1	**1.73**	< 0.1	< 0.0952	**0.174**	< 0.0943	**0.0507**	**0.013 J**
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 1	< 0.1	< 0.5	< 0.1	< 0.0952	< 0.0952	< 0.0943	< 0.00971	< 0.019 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 1	< 0.1	< 0.5	< 0.1	< 0.0952	< 0.0952	< 0.0943	< 0.00971	< 0.0094 J
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 1	< 0.1	< 0.5	< 0.1	< 0.0952	< 0.0952	< 0.0943	< 0.00971	< 0.0094 J
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 1	< 0.1	< 0.5	**0.342**	< 0.0952	**0.174**	< 0.0943	**0.0517**	**0.011 J**
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 1	< 0.1	< 0.5	< 0.1	< 0.0952	**0.113**	< 0.0943	< 0.00971	< 0.0094 J
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 1	< 0.1	< 0.5	< 0.1	< 0.0952	**0.111**	< 0.0943	< 0.00971	< 0.0094 J
Total CPAH	-	0.1 (A)		0	0	**0.173**	**0.0034**	0	**0.0415**	0	**0.00559**	**0.00141**
Non-Carcinogenic PAHs												
2-Methylnaphthalene	-	-		**30.5**	**0.229**	< 0.5	**19.8**	**1.47**	**12.9**	**0.283**	< 0.0971	**16**
Acenaphthene	643 (B)	960 (B)		**8.74**	**6.02**	**5.19**	**10.8**	**3.98**	**15.7**	**4.11**	**2.59**	**11**
Acenaphthylene	-	-		< 1	**0.305**	< 0.5	**0.474**	**0.107**	**0.53 J**	**0.132**	**1.43**	< 1.9
Anthracene	25900 (B)	4800 (B)		< 1	< 0.1	< 0.5	**1.03**	**0.154**	**0.93 J**	**0.245**	**0.617**	**0.24 J**
Benzo(g,h,i)perylene	-	-		< 1	< 0.1	< 0.5	< 0.1	< 0.0952	**0.127 J**	< 0.0943	< 0.0971	< 0.0094 J
Fluoranthene	90.2 (B)	640 (B)		< 1	**0.229**	**1.01**	**0.364**	**0.269**	**0.718 J**	**0.283**	**0.247**	**0.15 J**
Fluorene	3460 (B)	640 (B)		**3.88**	**2.15**	**2.5**	**4.39**	**1.29**	**5.31**	**1.38**	**0.524**	**2**
Naphthalene	9880 (B)	0.32 (B)		**1240**	**5.92**	**6.64**	**741**	**34.1**	**128**	**0.113**	**0.142**	**580**
Phenanthrene	-	-		**2.33**	< 0.1	**1.27**	**2.51**	**0.179**	**3.45**	**0.245**	**0.115**	**0.85 J**
Pyrene	2590 (B)	480 (B)		< 1	**0.152**	**0.821**	**0.311**	**0.219**	**0.582 J**	**0.264**	**0.506**	**0.11 J**
Total LPAH	-	-		1285.45	15.005	14.931	780.68	41.768	168.247	7.055	6.171	
INORGANICS - DISSOLVED (mg/L)												
Arsenic	9.82E-05 (B)	0.005 (A)		**0.699**	**0.347**	NA	**1.49**	**0.178**	**0.978 J+**	**0.131**	**0.26**	**0.0032**
Chromium	-	0.05 (A)		**0.0216**	**0.0052**	NA	**0.0079**	**0.004**	**0.00772**	**0.00445**	**0.00335**	**0.0049**
Copper	2.66 (B)	0.59 (B)		**0.0175**	< 0.001	NA	< 0.001	0.0773	< 0.001	**0.00103**	**0.00353**	< 0.005
INORGANICS - TOTAL (mg/L)												
Arsenic	9.82E-05 (B)	0.005 (A)		**0.603**	**0.407**	**8.96**	**1.74**	**0.318**	**1.14**	**1.09**	**0.646**	**1.8 J-**
Chromium	-	0.05 (A)		< 0.01	**0.0061**	**0.0893**	**0.01**	**0.0068**	**0.00847**	**0.00574**	**0.00415**	**0.0082**
Copper	2.66 (B)	0.59 (B)		< 0.01	< 0.001	< 0.001	< 0.001	**0.202**	**0.00154**	**0.00207**	**0.00901**	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	-		NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-		NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	UPRR-29 2/6/2004	UPRR-29 2/6/2004 DUP	UPRR-29 05/25/04	UPRR-29 09/08/04	UPRR-29 1/27/2005	UPRR-29 1/25/2006	UPRR-29 02/02/07	UPRR-29 2/1/2008	UPRR-29 1/28/2009	UPRR-29 1/28/2009 DUP	UPRR-29 1/21/2010
SEMIVOLATILE ORGANICS (ug/L)													
1-Methylnaphthalene	-	-	NA	NA	NA	NA	NA	< 0.0943	**0.0193** J	< 0.0971	< 0.00943	< 0.00943	0.016
2-Chloronaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.0943	< 9.71	< 9.43	< 9.43	< 0.028
Pentachlorophenol	3 (B)	0.729 (B)	**3.77**	**3.87** J	**2.19**	**1.85**	**3.2**	**1.29**	**1.62**	**0.816**	**3.02** J	**3.1** J	**0.14**
Carcinogenic PAHs													
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.0971	**0.0218**	**0.0182**	< 0.0094
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.0971	**0.0222**	**0.0168**	< 0.019
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.0971	**0.025**	**0.019**	**0.012**
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.0971	**0.0205**	**0.0111**	< 0.0094
Chrysene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.0971	**0.0245**	**0.0161**	< 0.0094
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	**0.152**	< 0.1	< 0.0943	< 0.00943	< 0.0971	< 0.00943	< 0.00943	< 0.0094
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.0971	**0.0245**	**0.0188**	< 0.0094
Total CPAH	-	0.1 (A)	0	0	0	**0.0152**	0	0	0	0	**0.0316**	**0.0237**	**0.0012**
Non-Carcinogenic PAHs													
2-Methylnaphthalene	-	-	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.0943	< 0.0971	< 0.0943	< 0.0943	**0.03**
Acenaphthene	643 (B)	960 (B)	**0.321**	< 0.1 R	< 0.1	**0.495**	< 0.1	< 0.0943	< 0.0943	< 0.0971	**0.157**	**0.119**	< 0.0094
Acenaphthylene	-	-	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	**0.559** J	< 0.0971	< 0.0943	< 0.0943	< 0.0094
Anthracene	25900 (B)	4800 (B)	< 0.1	< 0.1 R	< 0.1	**0.419**	**0.481**	< 0.0943	**0.510**	**0.0971**	**0.518**	**0.418**	**0.046**
Benzo(g,h,i)perylene	-	-	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.0943	< 0.0971	< 0.0943	< 0.0943	< 0.0094
Fluoranthene	90.2 (B)	640 (B)	< 0.1	< 0.1 R	**0.151**	**0.267**	< 0.1	< 0.0943	**0.639** J	< 0.0971	< 0.0943	< 0.0943	**0.016**
Fluorene	3460 (B)	640 (B)	**1.04**	< 0.1 R	**0.189**	**1.5**	**0.187**	< 0.0943	< 0.0943	< 0.0971	**0.303**	**0.23**	< 0.0094
Naphthalene	9880 (B)	0.32 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	**0.425**	**0.478**	< 0.0971	< 0.0943	< 0.0943	**0.045**
Phenanthrene	-	-	< 0.1	< 0.1 R	**0.151**	< 0.1	< 0.1	< 0.0943	< 0.0943	< 0.0971	**0.281**	**0.232**	**0.018**
Pyrene	2590 (B)	480 (B)	**0.132**	**0.19** J	**0.151**	**0.305**	< 0.1	< 0.0943	**0.102**	< 0.0971	< 0.0943	< 0.0943	**0.017**
Total LPAH	-	-	1.49	0.19	0.64	2.99	0.67	0.43	2.288	0.0971	1.259	0.999	0.172
INORGANICS - DISSOLVED (mg/L)													
Arsenic	9.82E-05 (B)	0.005 (A)	**0.123**	**0.118**	**0.577**	**0.209**	**0.384**	**0.353**	**0.275** J+	**0.17**	**0.208**	**0.206**	**0.06**
Chromium	-	0.05 (A)	**0.00927**	**0.00906**	**0.0152**	**0.00348**	**0.00533**	**0.00154**	**0.00243**	**0.00918**	**0.00284**	**0.00346**	**0.0038**
Copper	2.66 (B)	0.59 (B)	**0.00923**	**0.00938**	**0.00679**	< 0.001	**0.0303**	**0.00884**	**0.0135**	**0.016**	**0.0113**	**0.0128**	**0.011**
INORGANICS - TOTAL (mg/L)													
Arsenic	9.82E-05 (B)	0.005 (A)	**0.139**	**0.131**	**0.628**	**0.339**	**0.397**	**0.356**	**0.29**	**0.176**	**0.23**	**0.23**	**0.065** J-
Chromium	-	0.05 (A)	**0.0219**	**0.0197**	**0.0243**	**0.00898**	**0.0106**	**0.00551**	**0.00669**	**0.0138**	**0.00544**	**0.00527**	**0.0039**
Copper	2.66 (B)	0.59 (B)	**0.0207**	**0.0191**	**0.0197**	**0.00774**	**0.0557**	**0.0192**	**0.0259**	**0.0258**	**0.0188**	**0.0186**	**0.017**
Hexavalent Chromium (Method 7195)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA



ThermoRetec

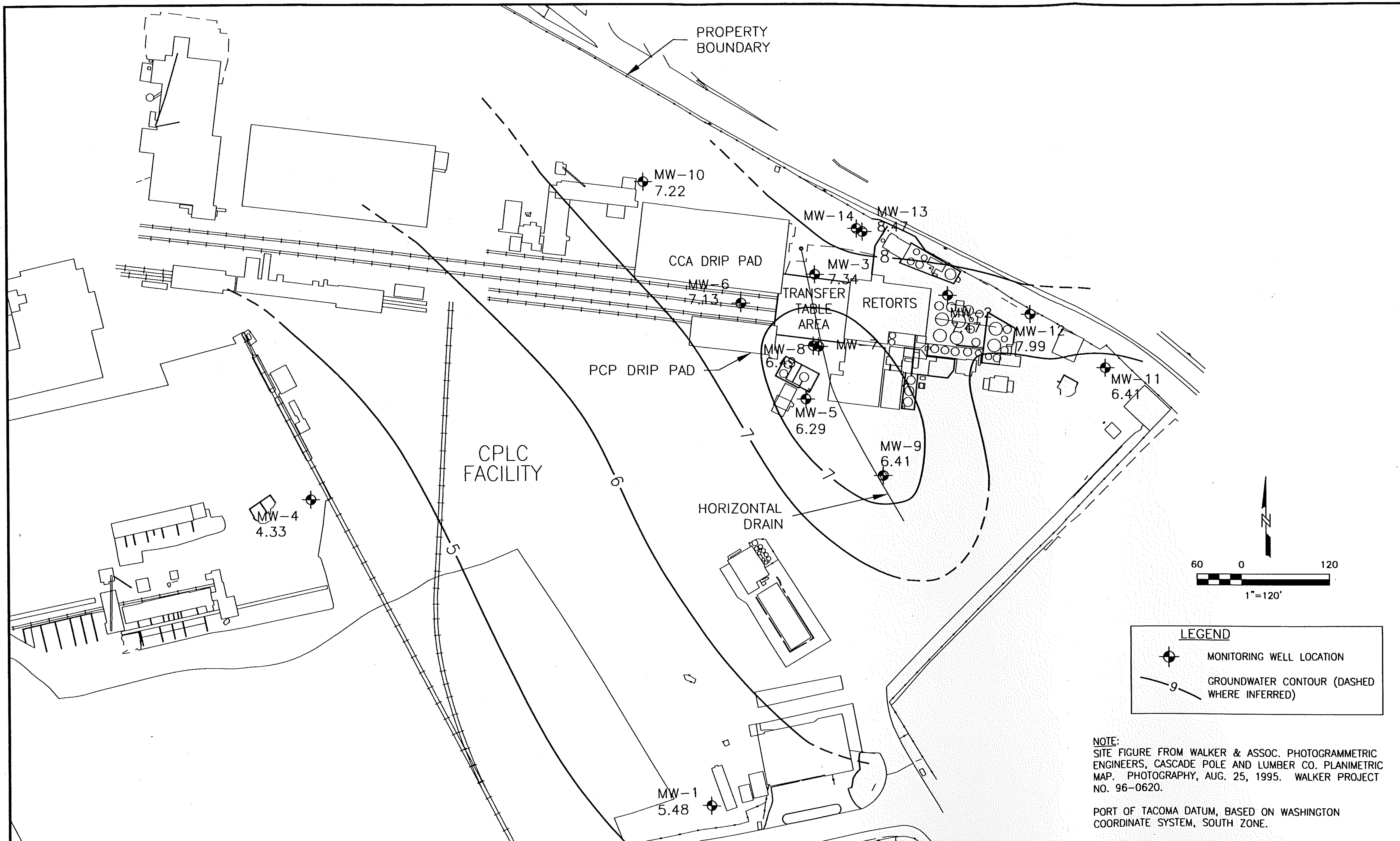
CASCADE POLE AND LUMBER COMPANY

CPLC1-04199-420

DATE: 03/06/01 | DRWN: N.S. | FILE: 4199s068

POTENTIOMETRIC SURFACE MAP
FEBRUARY 27, 2001
CASCADE POLE & LUMBER CO.
TACOMA, WASHINGTON

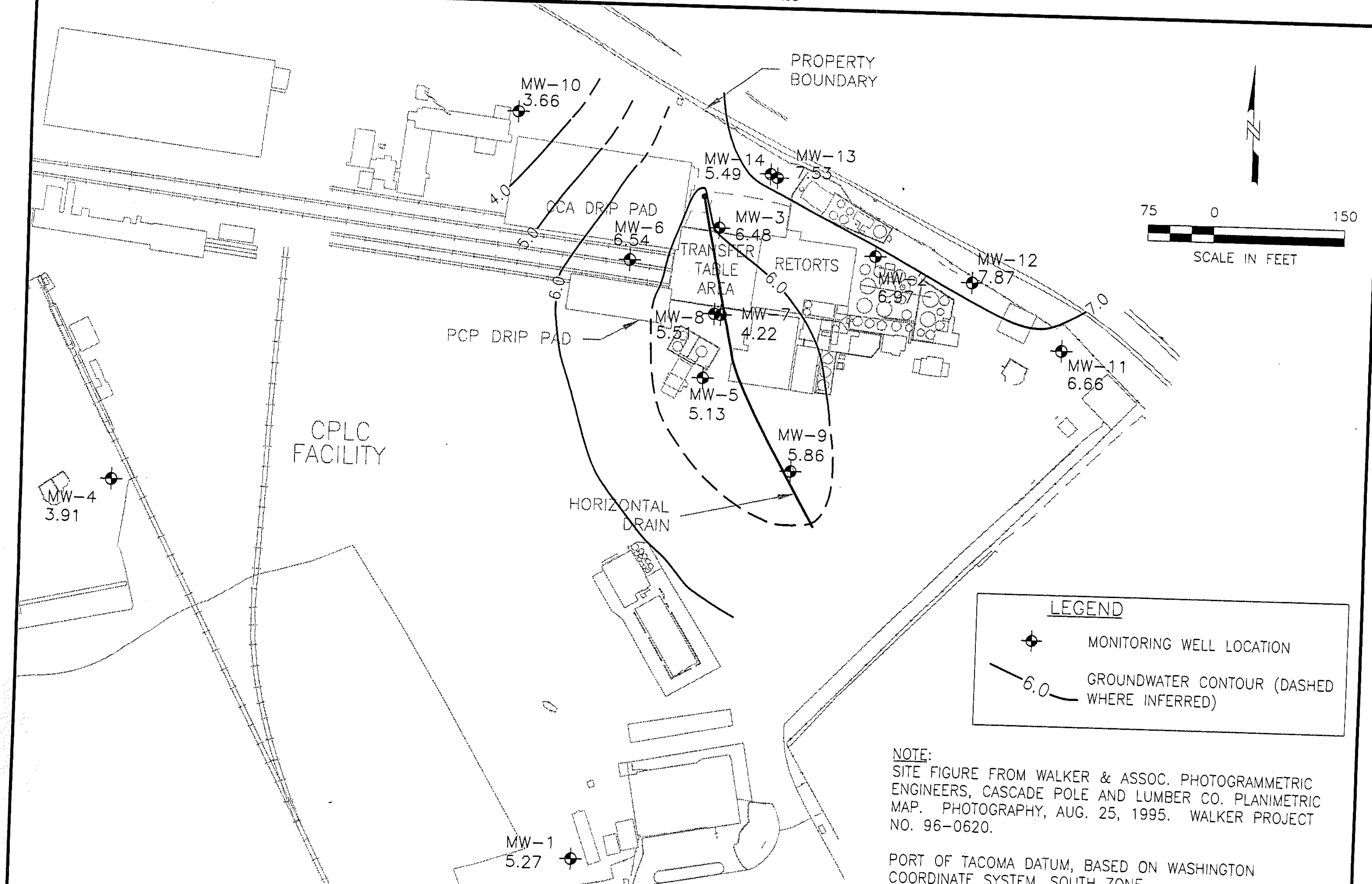
FIGURE 6



RETEC

CASCADE POLE AND LUMBER COMPANY CPLC1-04199-420			POTENTIOMETRIC SURFACE MAP JANUARY 24, 2002 CASCADE POLE & LUMBER CO. TACOMA, WASHINGTON	
DATE: 4/10/02	DRWN: N.J.S./SEA	FILE: 4199s096	LAYOUT: Layout1	FIGURE 6

File: H:\4199\4199s102.dwg Layout: ANSI_AI-LJ User: astenberg Plotted: Apr 02, 2003 - 2:15pm Xref's: 0499BAS5

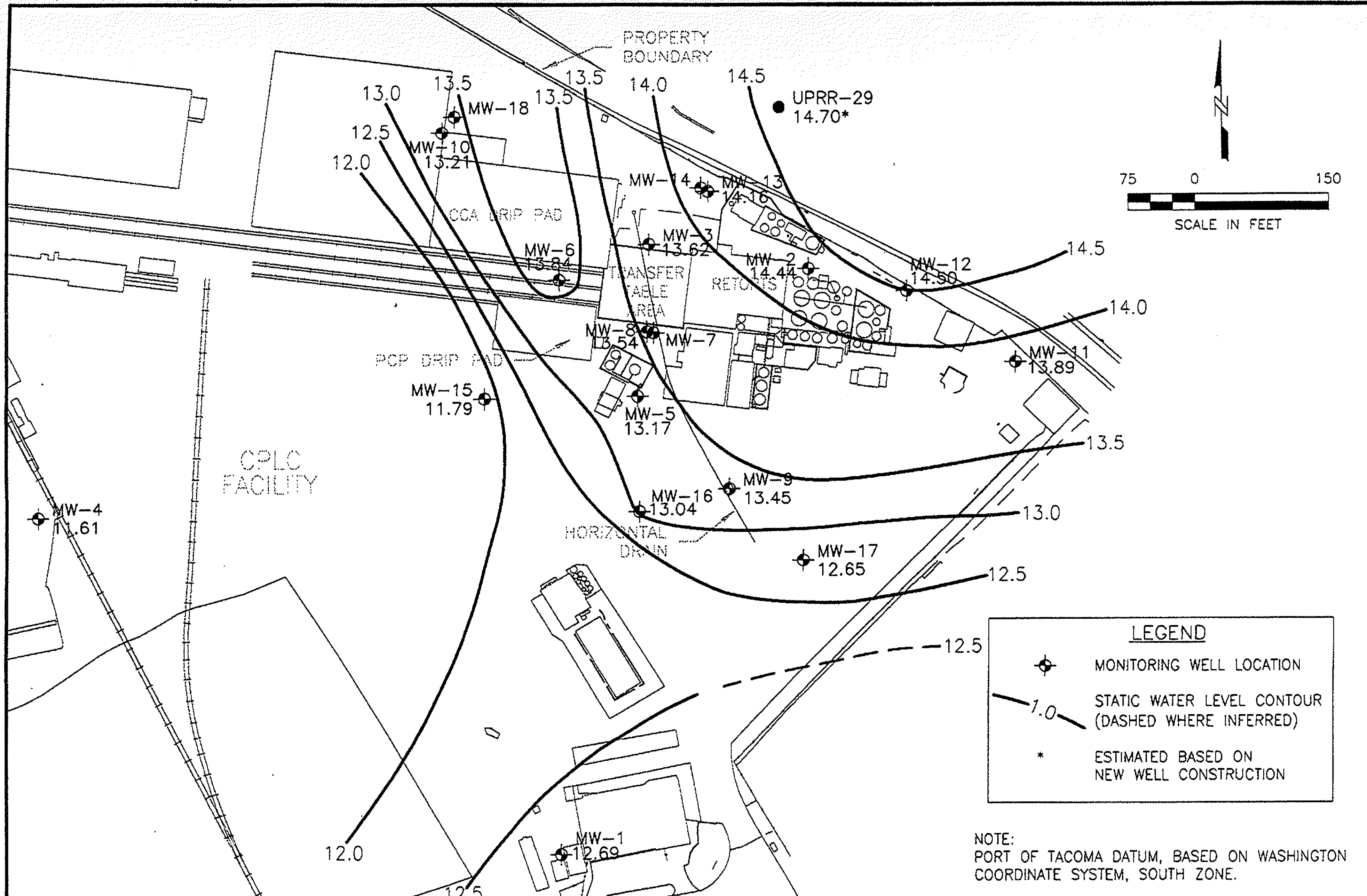


NOTE:
SITE FIGURE FROM WALKER & ASSOC. PHOTOGRAMMETRIC ENGINEERS, CASCADE POLE AND LUMBER CO. PLANIMETRIC MAP. PHOTOGRAPHY, AUG. 25, 1995. WALKER PROJECT NO. 96-0620.

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

CASCADE POLE AND LUMBER COMPANY CPLC1-04199-420	POTENTIOMETRIC SURFACE MAP JANUARY 31, 2003 CASCADE POLE & LUMBER CO. TACOMA, WASHINGTON
DATE: 04/02/03 DRWN: A.S./SEA	FIGURE 6



RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

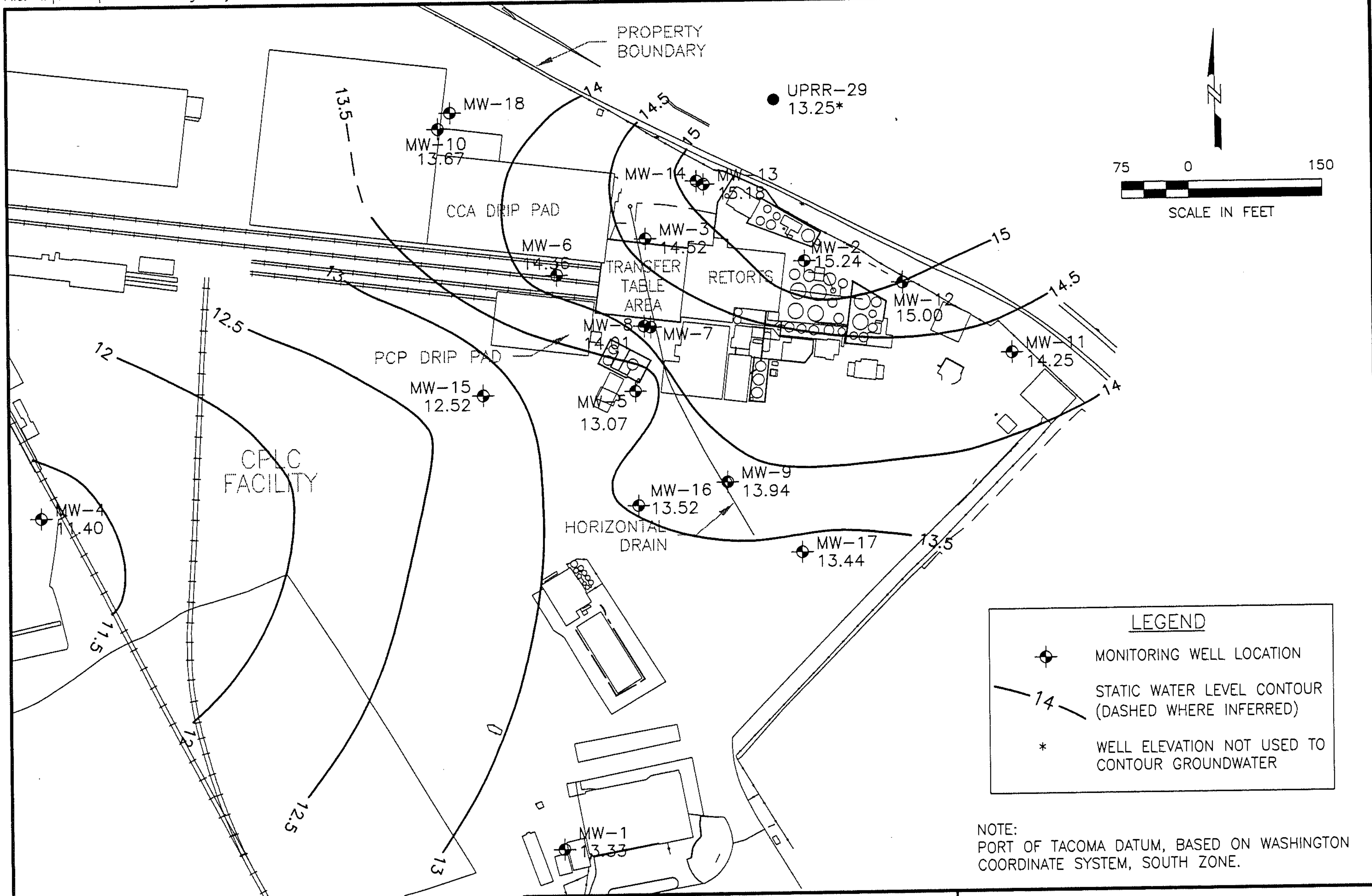
CPLU1-16832-500

DATE: 5/02/05 | DRWN: A.S./SEA

POTENTIOMETRIC SURFACE
SHALLOW AQUIFER
JANUARY 27, 2005

FIGURE 11

File: H:\16832\16832S076.dwg Layout: FIGURE 11 User: astenberg Plotted: Apr 13, 2006 - 11:23am Xref's: 0499BAS6, 0499BAS6, 0499BAS6



RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

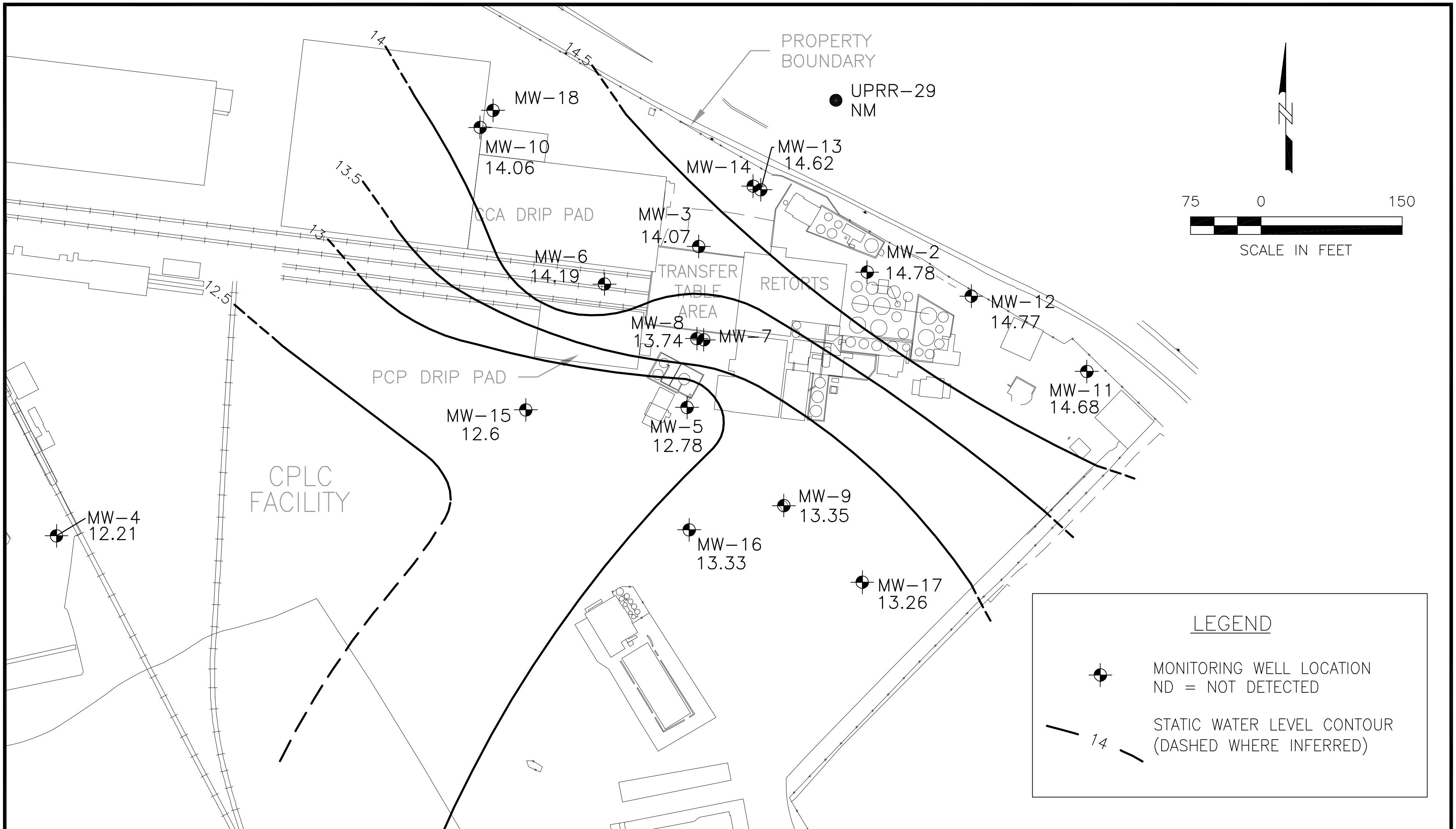
CPLU1-16832-500

DATE: 04/13/06 DRWN: A.S./SEA

POTENTIOMETRIC SURFACE SHALLOW AQUIFER JANUARY 2006

FIGURE 11

File: H:\16832\16832S110.dwg Layout: FIG 11 User: emarshall Plotted: May 03, 2007 - 8:57am Xref's:



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

ENSR | AECOM

Merged with ENSR in 2007

RETEC

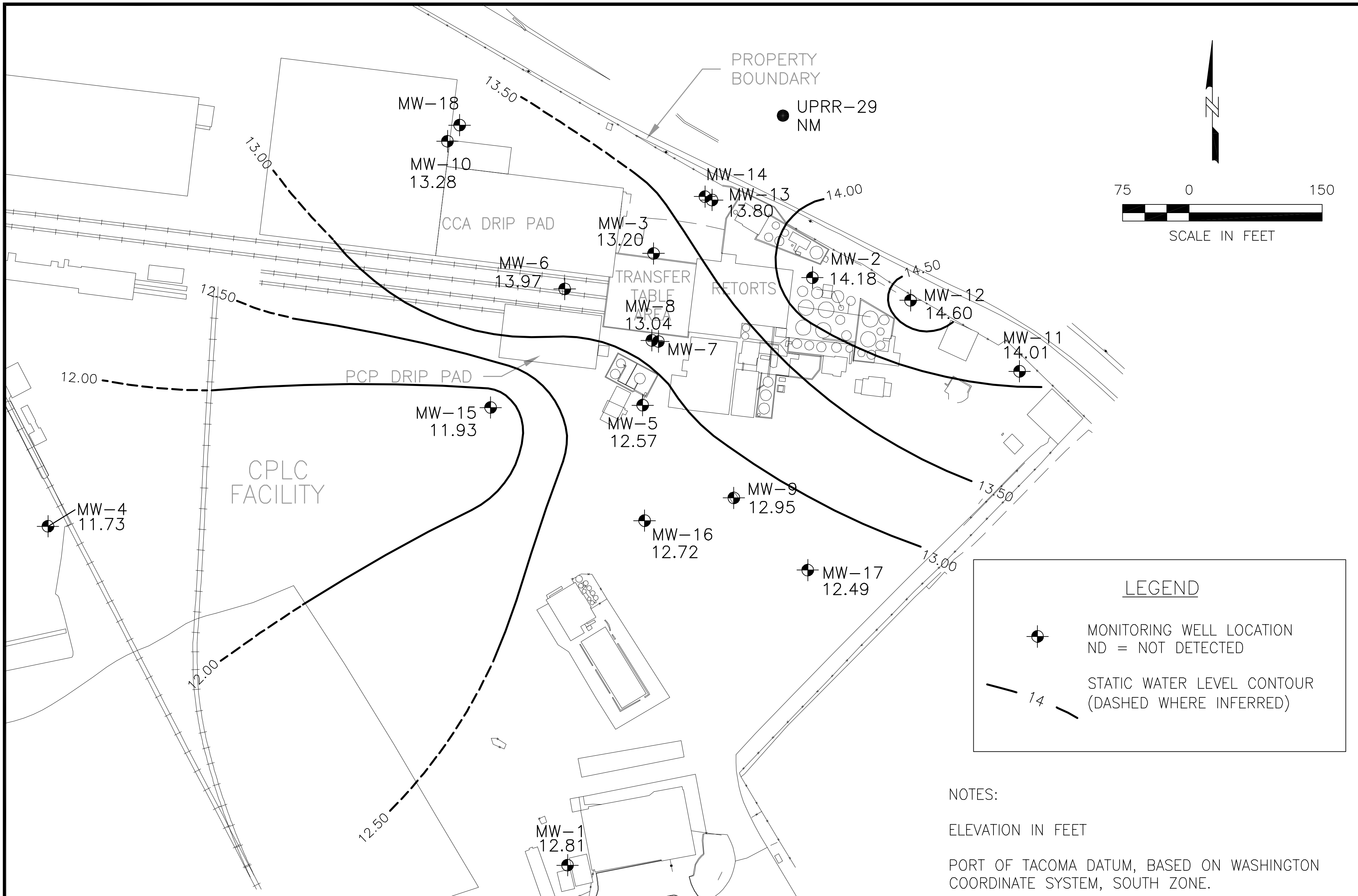
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

CPLC1-16832-500

POTENTIOMETRIC SURFACE
SHALLOW AQUIFER
FEBRUARY 2007

DATE: 05/03/07 DRWN: E.M./SEA

FIGURE 11



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

ENSR | AECOM

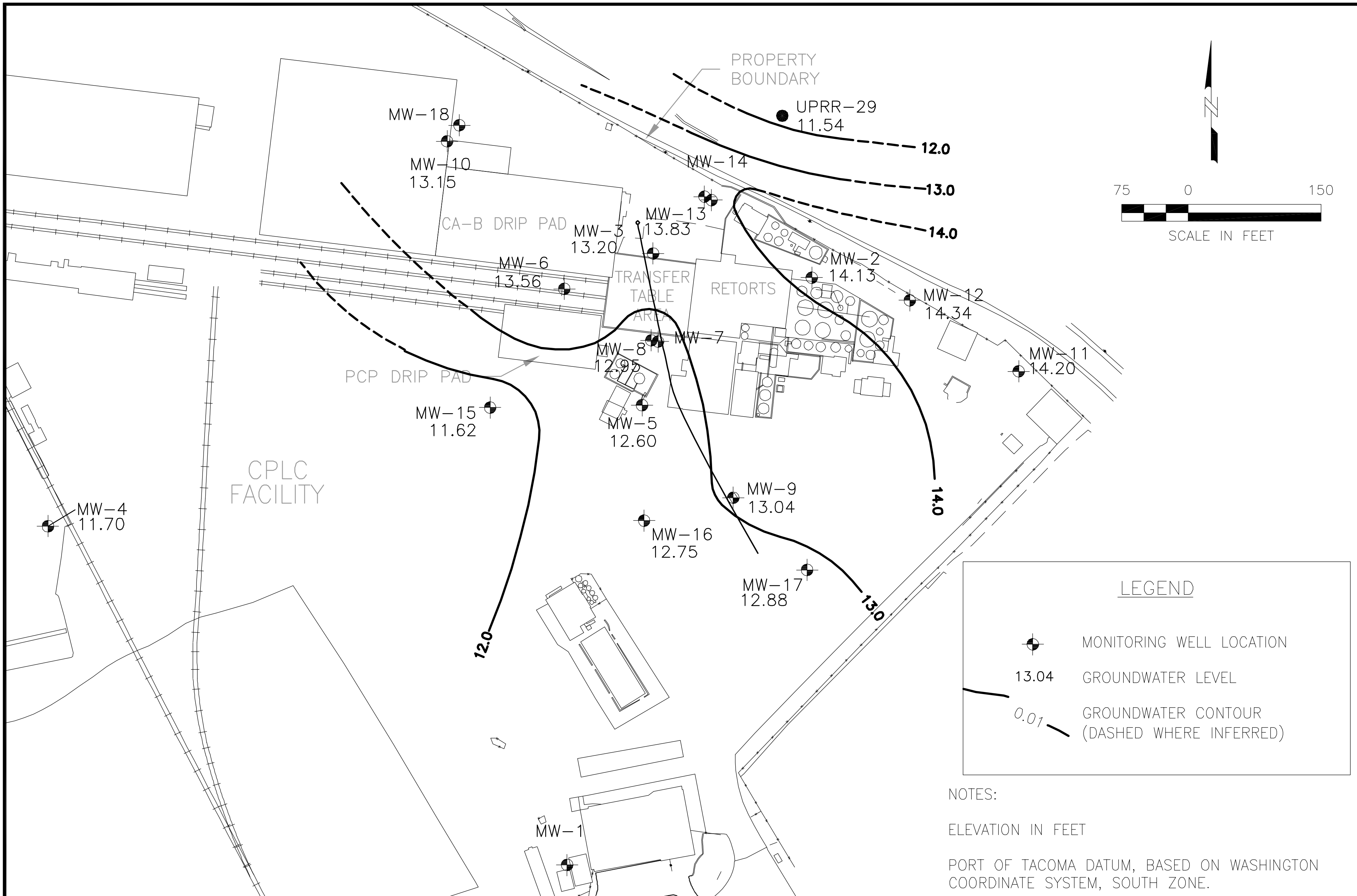
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

CPLC1-16832-500

POTENTIOMETRIC SURFACE
SHALLOW AQUIFER
JANUARY 2008

DATE: 03/10/08 | DRWN: E.M./SEA

FIGURE 11



LEGEND

MONITORING WELL LOCATION

13.04 GROUNDWATER LEVEL

0.01 GROUNDWATER CONTOUR (DASHED WHERE INFERRED)

NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

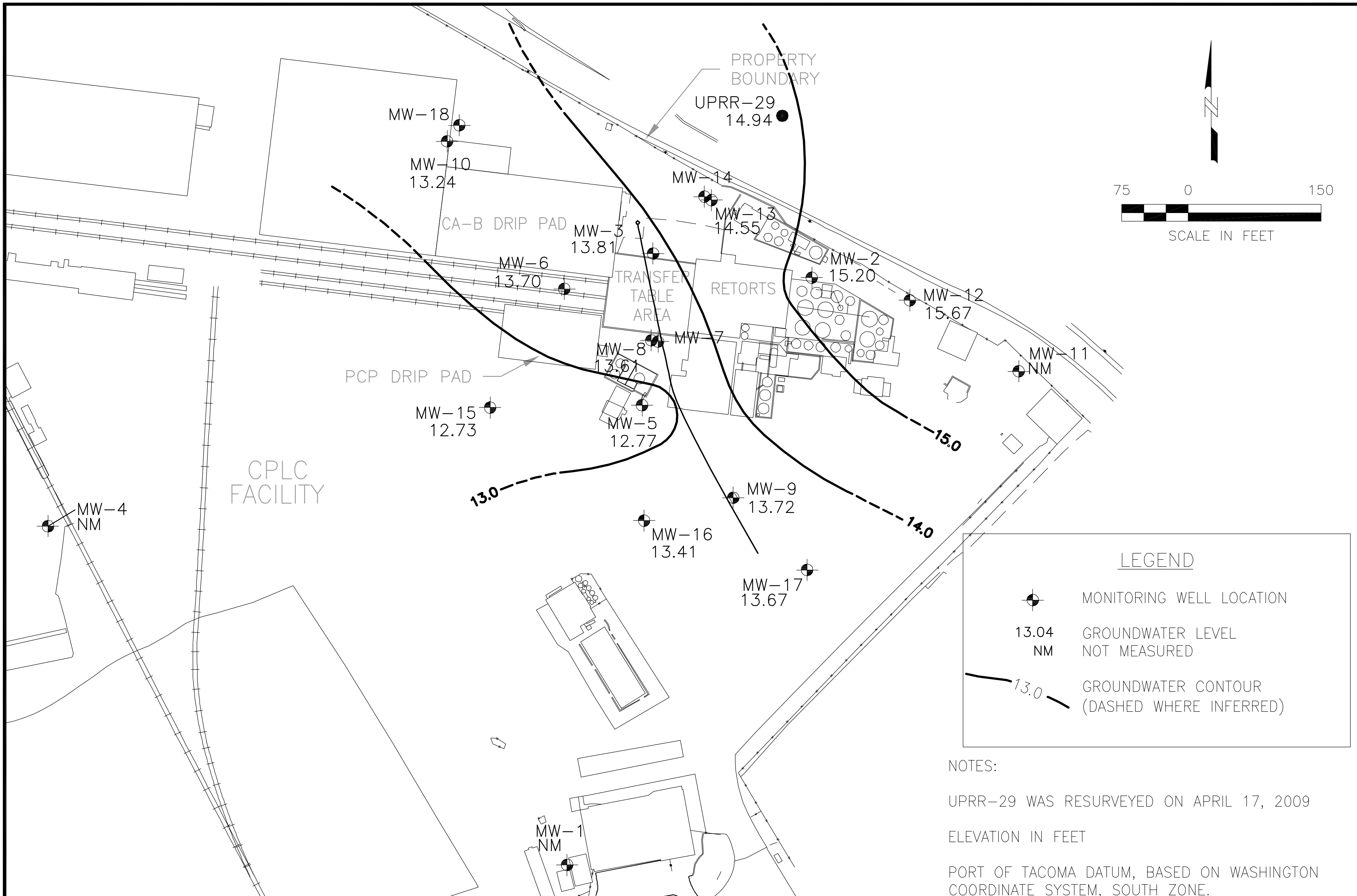
04530-015-300

GROUNDWATER LEVELS
JANUARY 2009

DATE: 04/16/09 | DRWN: E.M./SEA

FIGURE 11

File: M:\Cascade Lumber\Annual GW Report\2010\shallow_gw_level.dwg Layout: FIGURE 11 User: MarshallE Plotted: Mar 25, 2010 - 9:55am Xref's:



LEGEND

MONITORING WELL LOCATION

13.04 GROUNDWATER LEVEL

NM NOT MEASURED

13.0 GROUNDWATER CONTOUR (DASHED WHERE INFERRED)

NOTES:

UPRR-29 WAS RESURVEYED ON APRIL 17, 2009

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

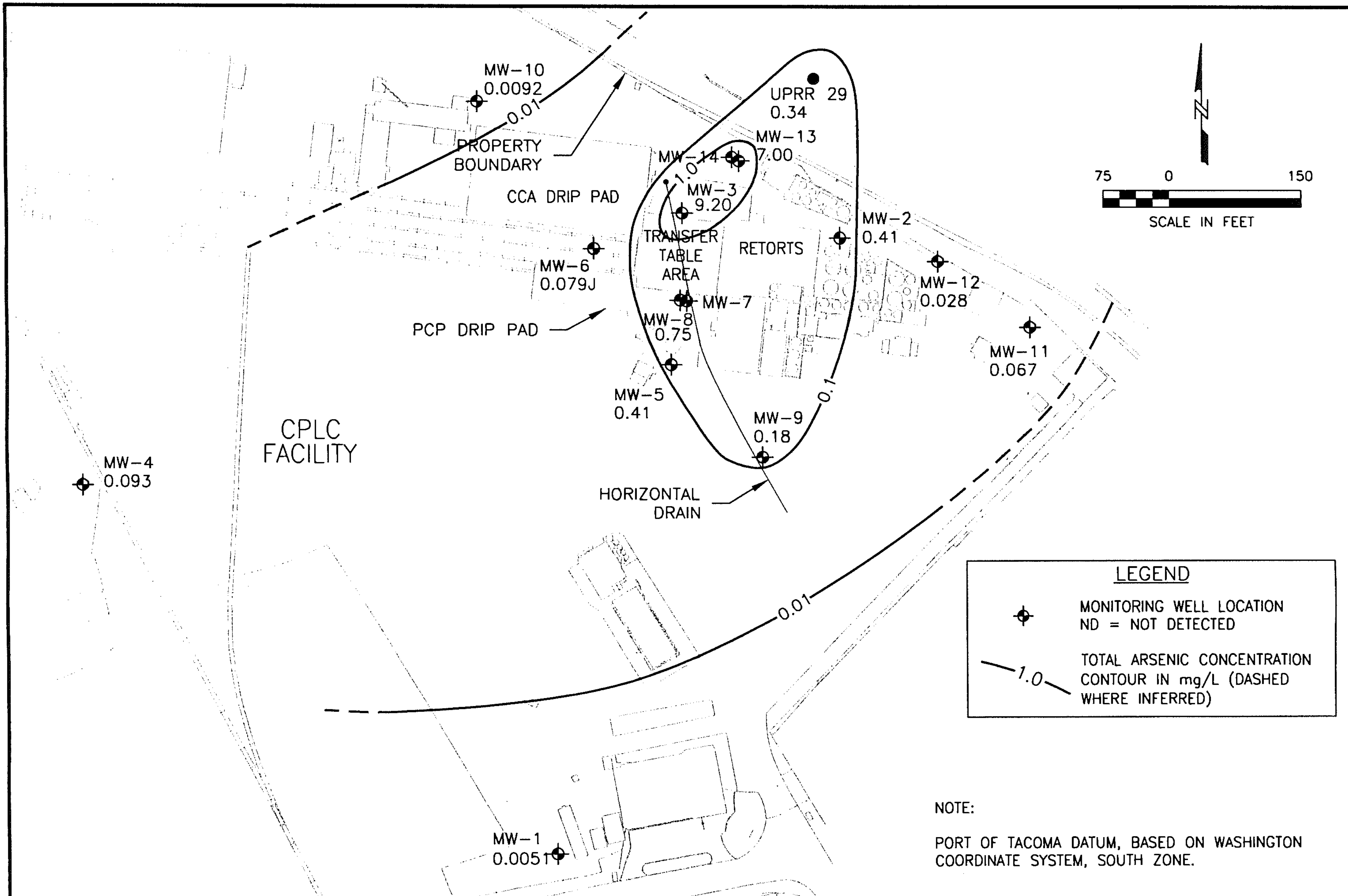
AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
60137021-0300

DATE: 03/25/10 | DRWN: E.M./SEA

GROUNDWATER LEVELS JANUARY 2010

FIGURE 11

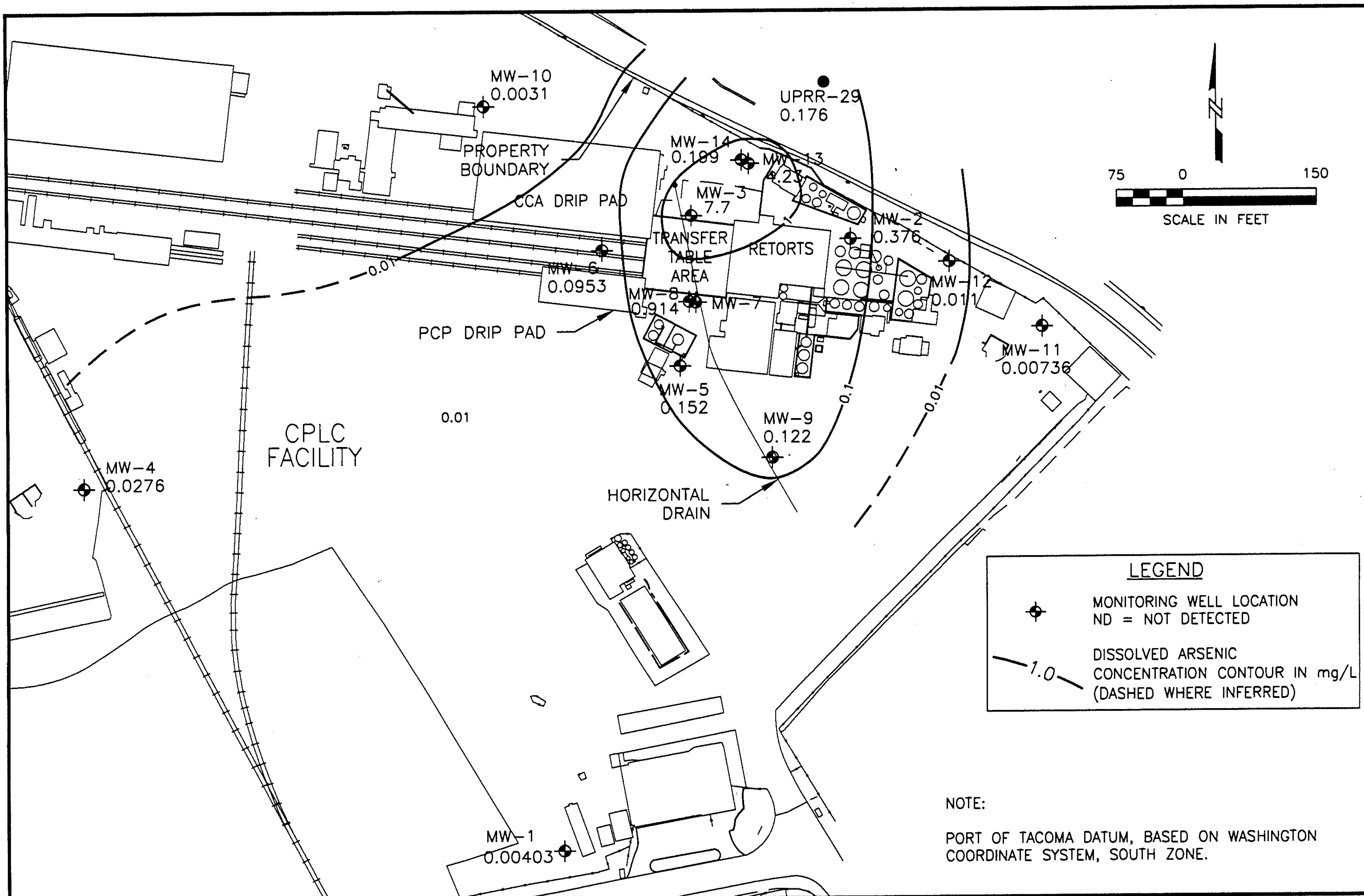


NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

ThermoRetec

CASCADE POLE AND LUMBER COMPANY CPLC1-04199-420			ARSENIC CONCENTRATION ISOPLETH MAP FEBRUARY 27, 2001
DATE: 05/23/01	DRWN: N.S.	FILE: 4199s073	FIGURE 3



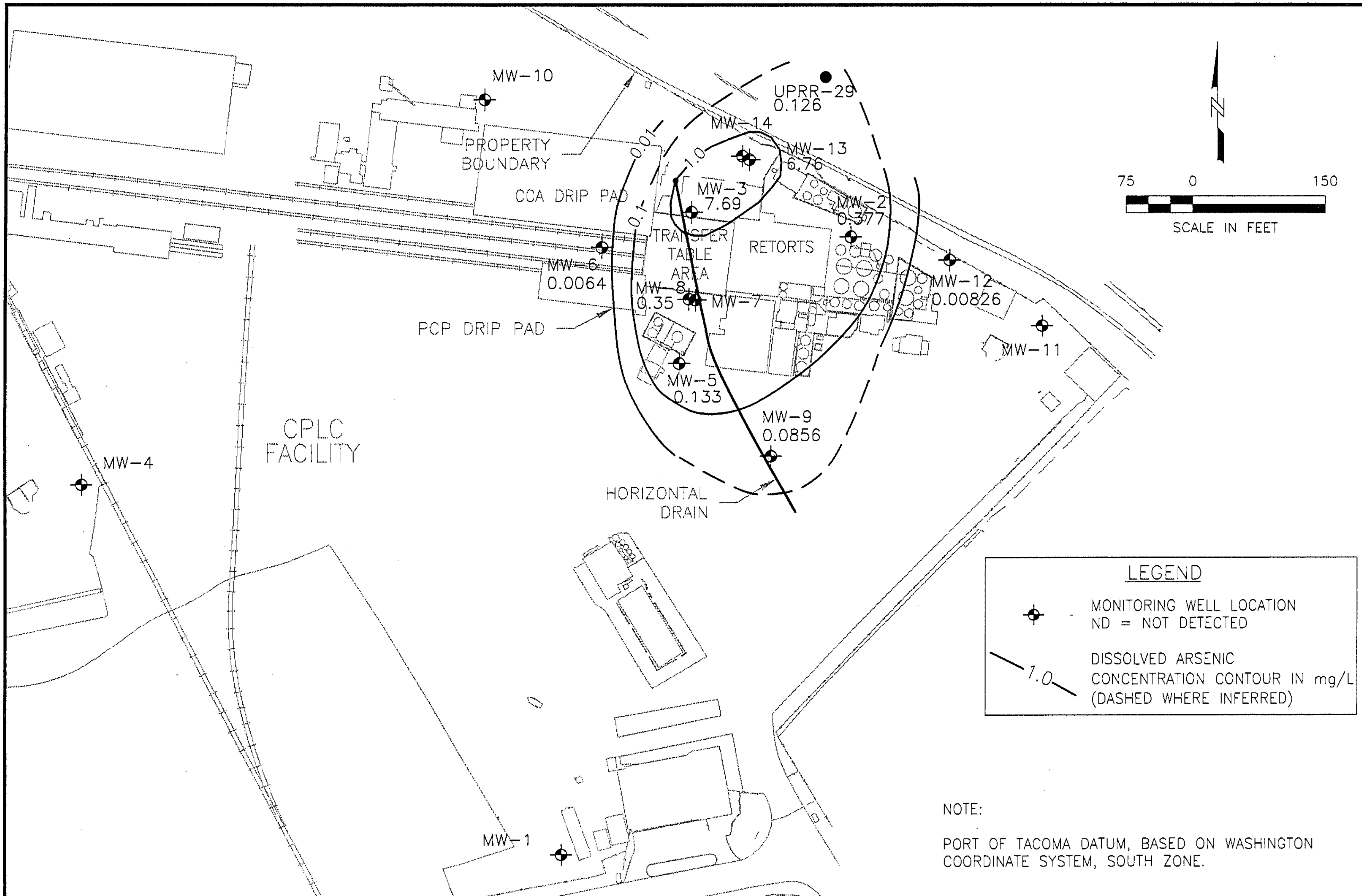
RETEC

CASCADE POLE AND
LUMBER COMPANY

CPLC1-04199-420

ARSENIC CONCENTRATION ISOPLETH MAP
JANUARY 24, 2002

DATE: 2/15/02	DRWN: A.S./SEA	FILE: 4199s093	LAYOUT: Layout1	FIGURE 3



RETEC

CASCADE POLE AND LUMBER COMPANY

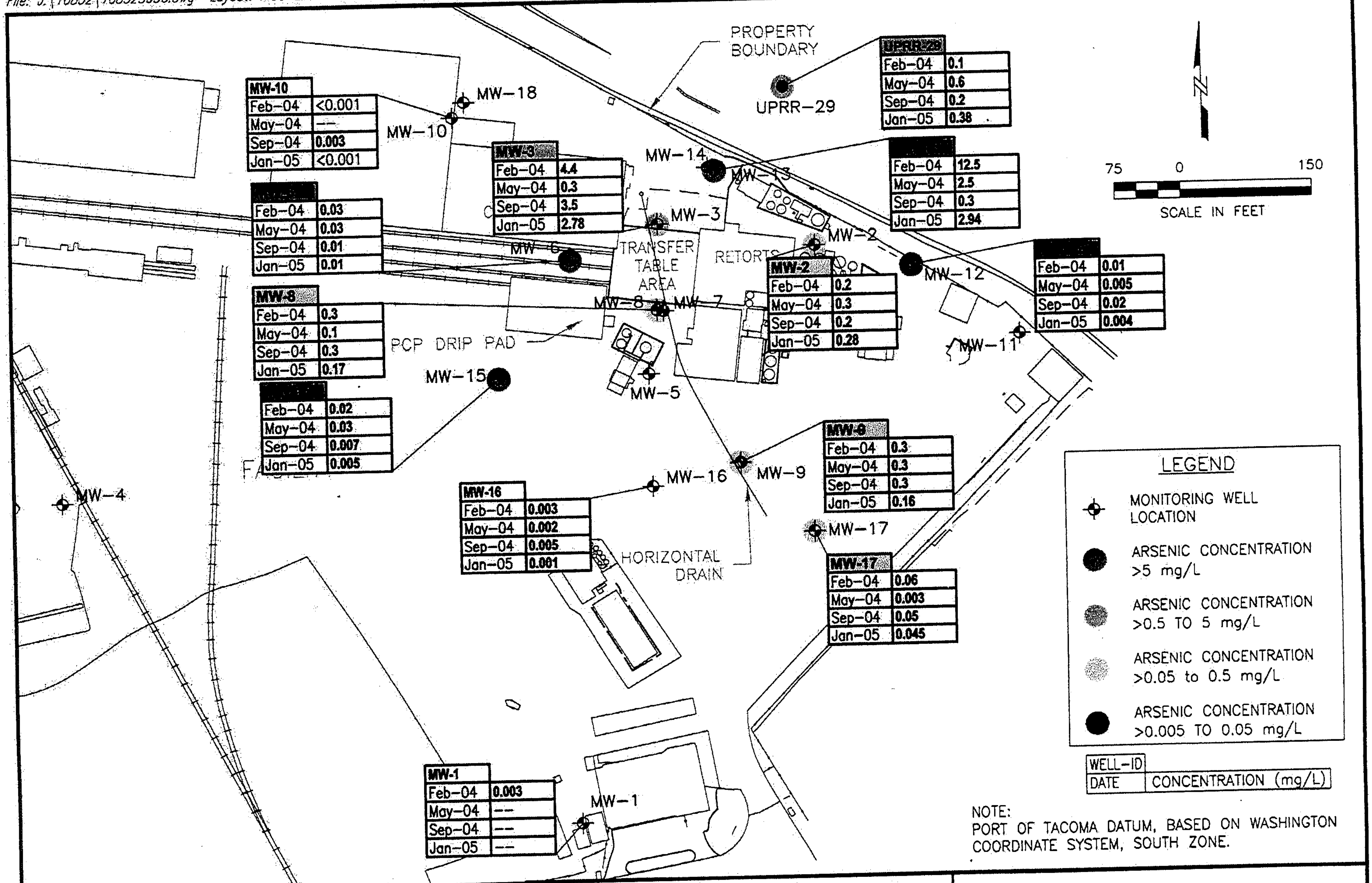
CPLC1-04199-420

DATE: 04/02/03 DRWN: A.S./SEA

ARSENIC GROUNDWATER CONCENTRATION ISOPLETH MAP JANUARY 31, 2003

FIGURE 3

File: J:\16832\16832S056.dwg Layout: FIGURE 3 User: mwilliamson Plotted: May 02, 2005 - 12:05pm Xref's:



RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

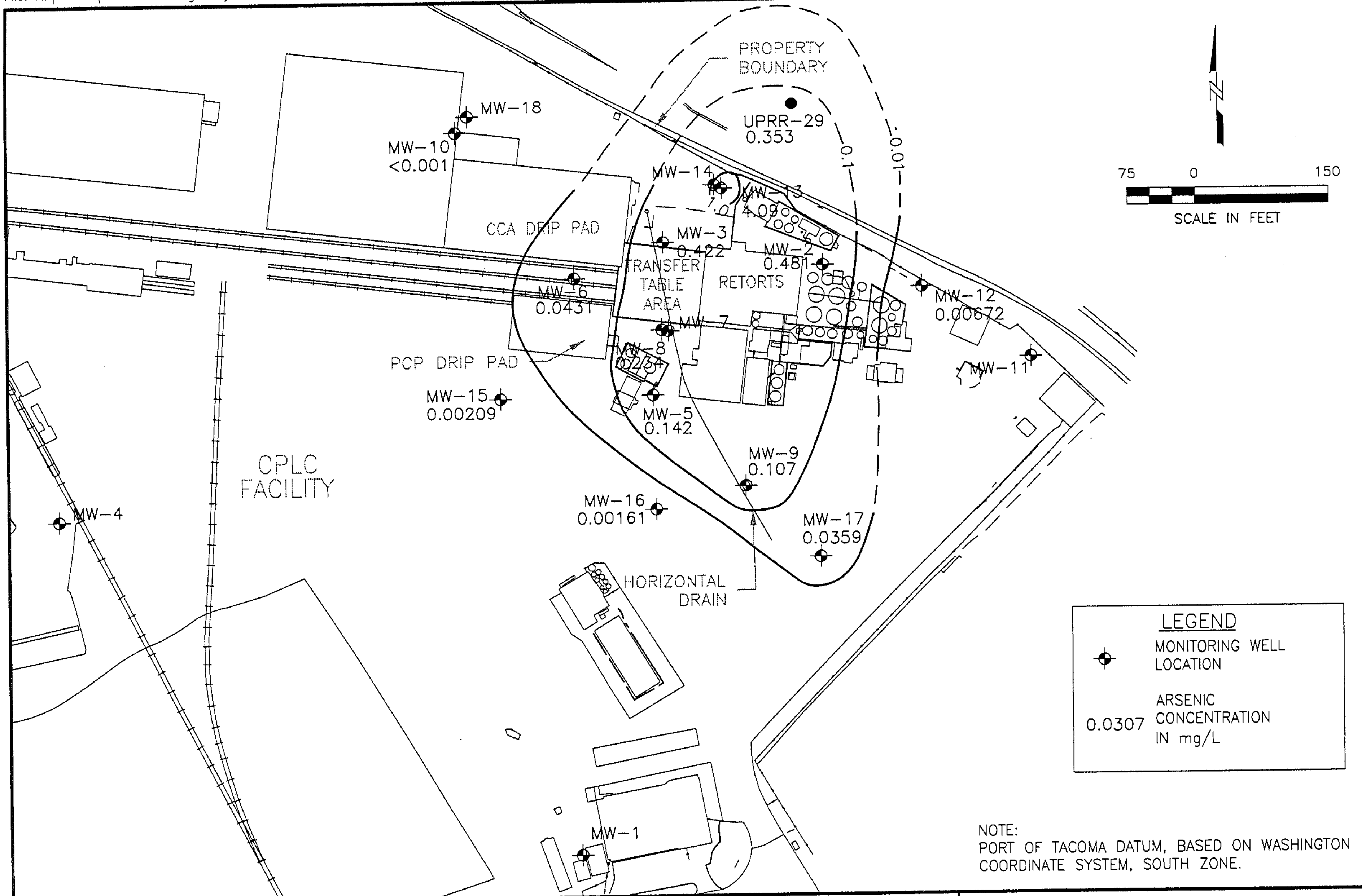
CPLU1-16832-500

DATE: 5/02/05 DRWN: A.S./SEA

CONCENTRATIONS OF ARSENIC IN SHALLOW AQUIFER 2004-2005

FIGURE 3

File: H:\16832\16832S068.dwg Layout: FIGURE 3 User: astenberg Plotted: Apr 13, 2006 - 12:13pm Xref's: 0499BAS6, 0499BAS6



NOTE:
PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

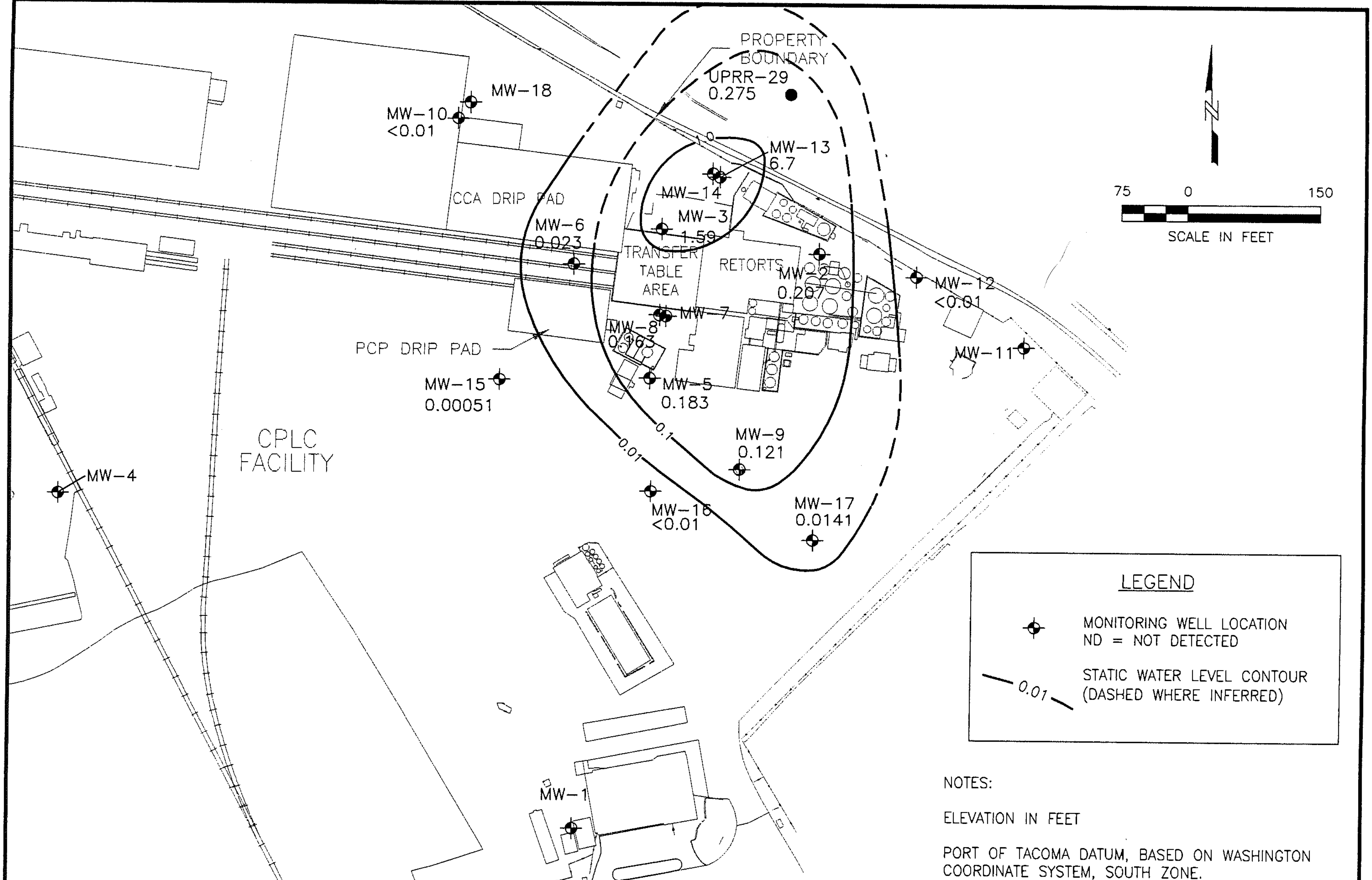
CPLU1-16832-500

DATE: 04/13/06 DRWN: A.S./SEA

CONCENTRATIONS OF ARSENIC IN SHALLOW AQUIFER JANUARY 2006

FIGURE 3

File: H:\16832\16832S106.dwg Layout: FIG 3 User: emarshall Plotted: Mar 20, 2007 - 2:23pm Xref's:



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

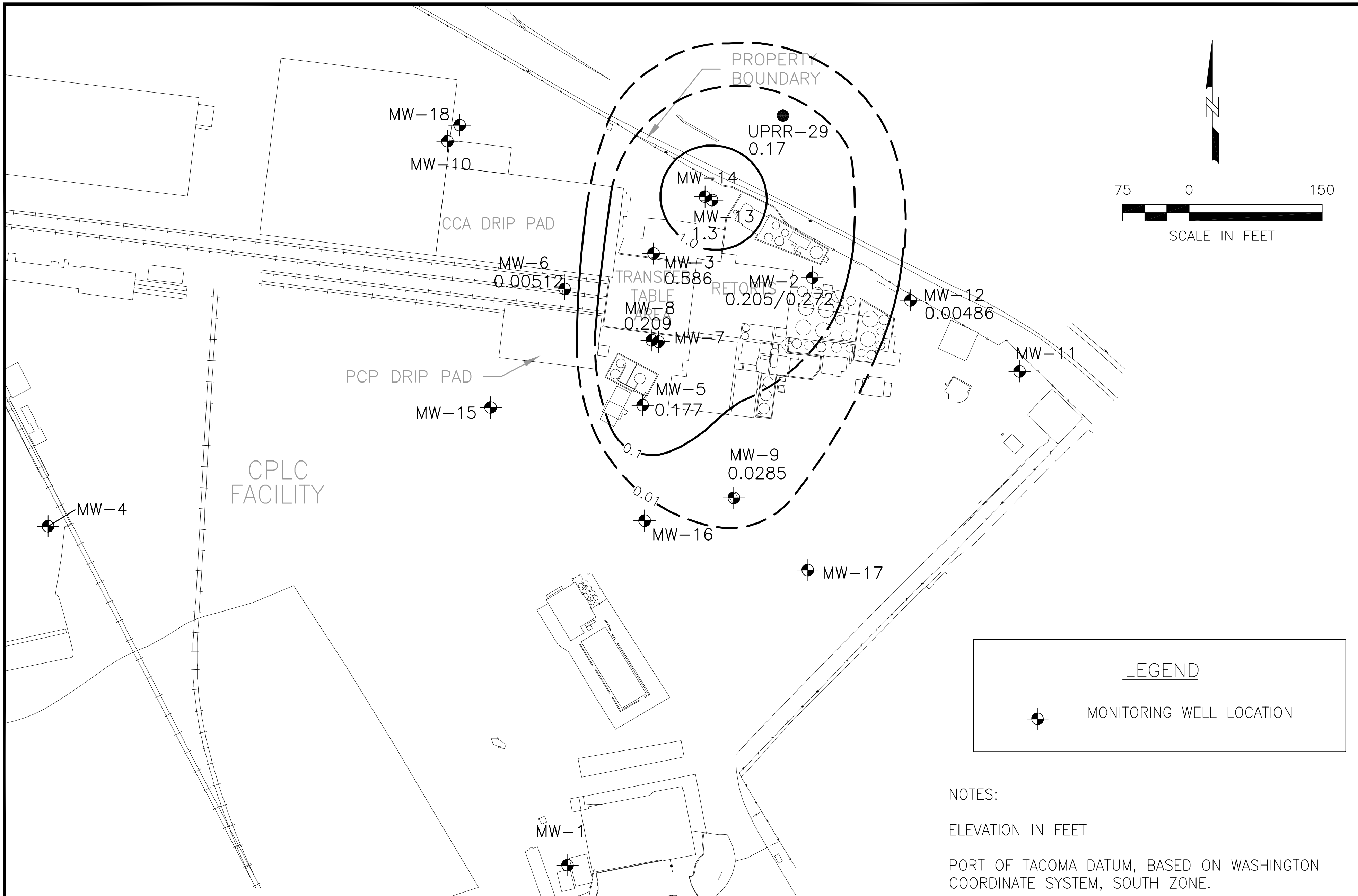
RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLC1-16832-500

CONCENTRATIONS OF ARSENIC IN SHALLOW AQUIFER FEBRUARY 2007

DATE: 3/20/07 | DRWN: E.M./SEA

FIGURE 3



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

ENSR | AECOM

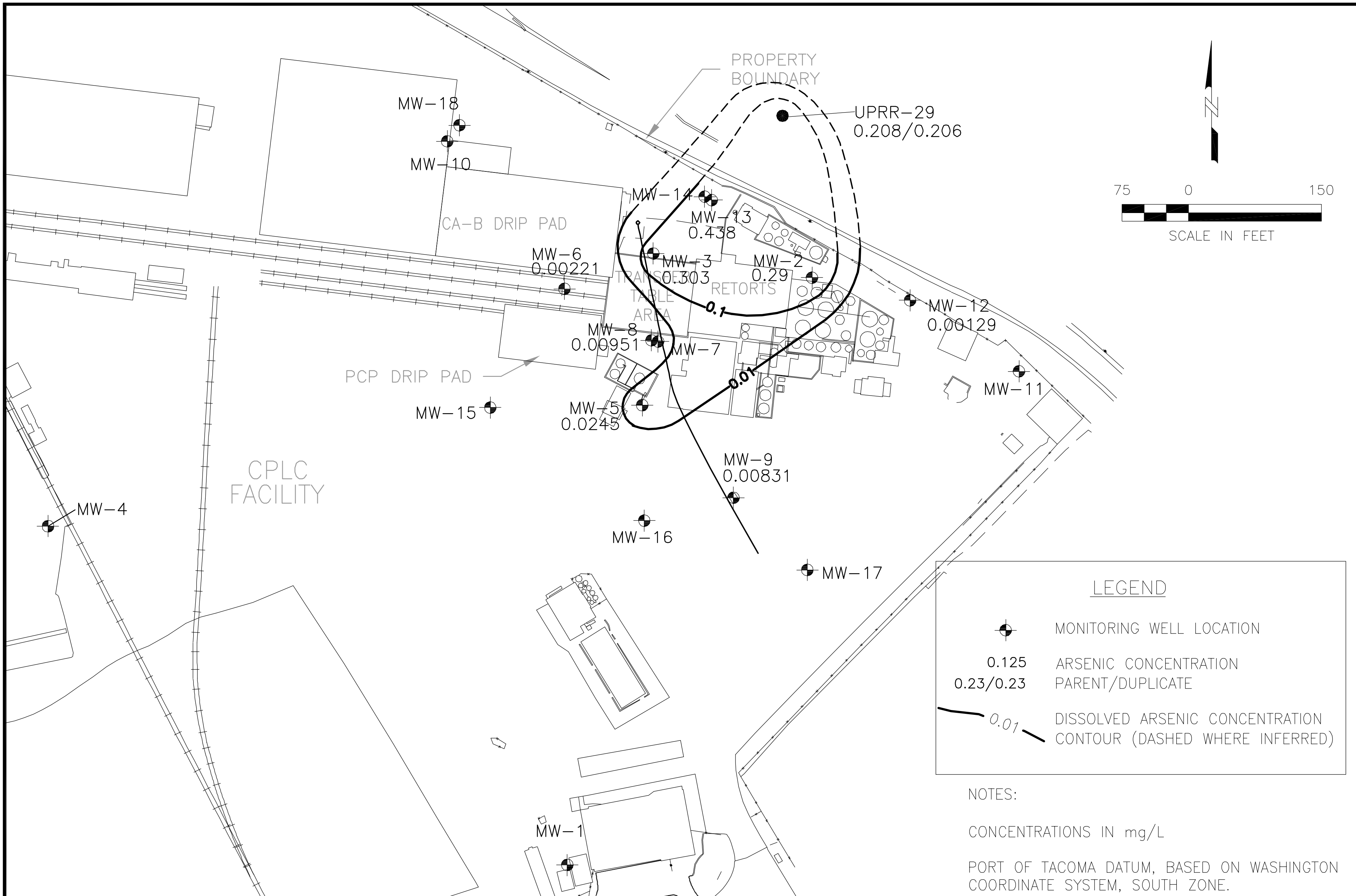
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

04530-015-300

CONCENTRATIONS OF ARSENIC IN SHALLOW AQUIFER JANUARY 2008

DATE: 03/10/08 | DRWN: E.M./SEA

FIGURE 3



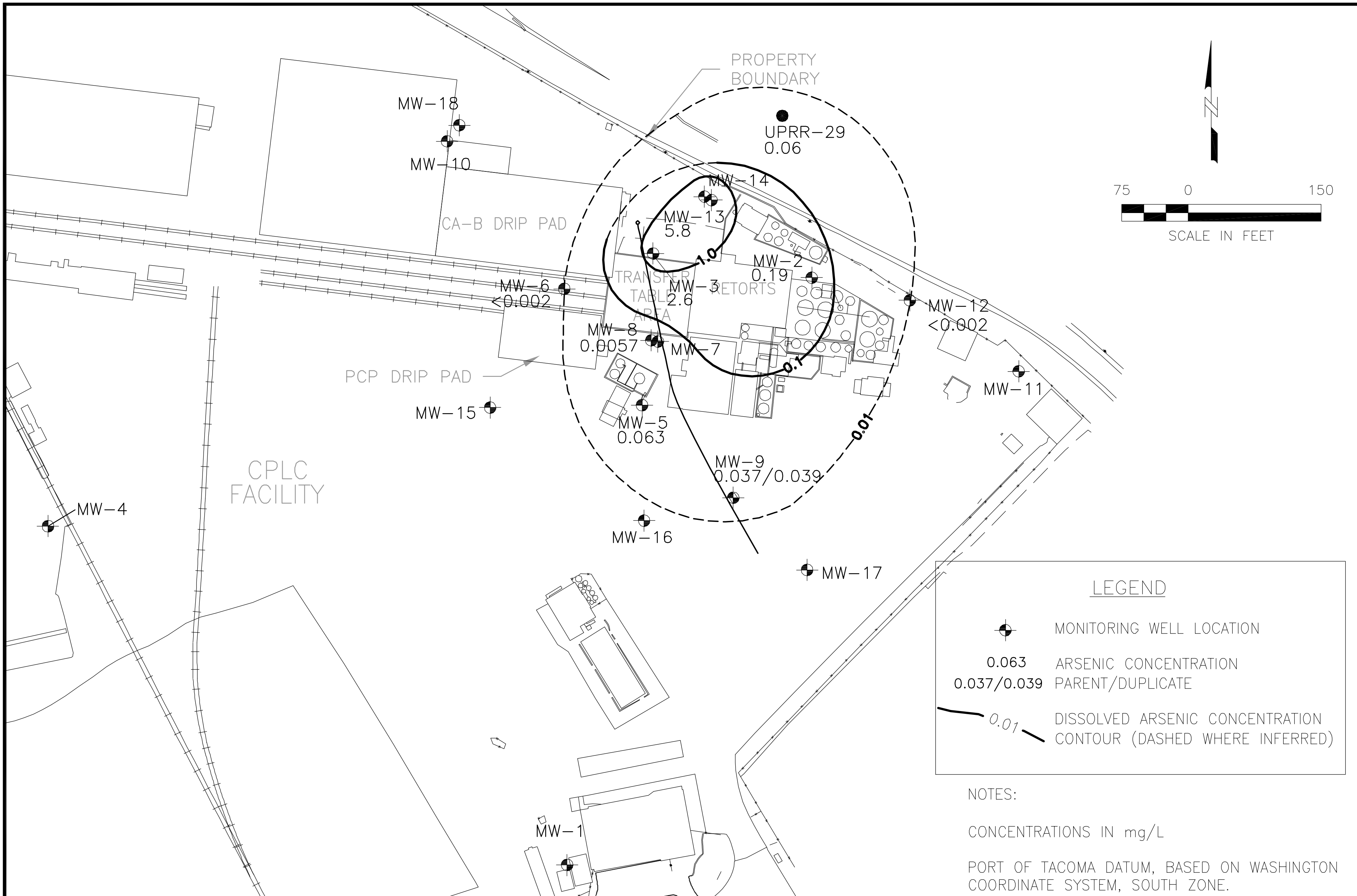
NOTES:

CONCENTRATIONS IN mg/L

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM	CASCADE POLE AND LUMBER COMPANY TACOMA, WASHINGTON 04530-015-0300	**CONCENTRATIONS OF ARSENIC IN SHALLOW AQUIFER JANUARY 2009**
	DATE: 4/17/09	DRWN: E.M./SEA	**FIGURE 3**

File: M:\Cascade Lumber\Annual GW Report\2010\arsenic_shallow_1-10.dwg Layout: FIGURE 3 User: MarshallE Plotted: Mar 25, 2010 - 10:38am Xref's:



NOTES:

CONCENTRATIONS IN mg/L

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

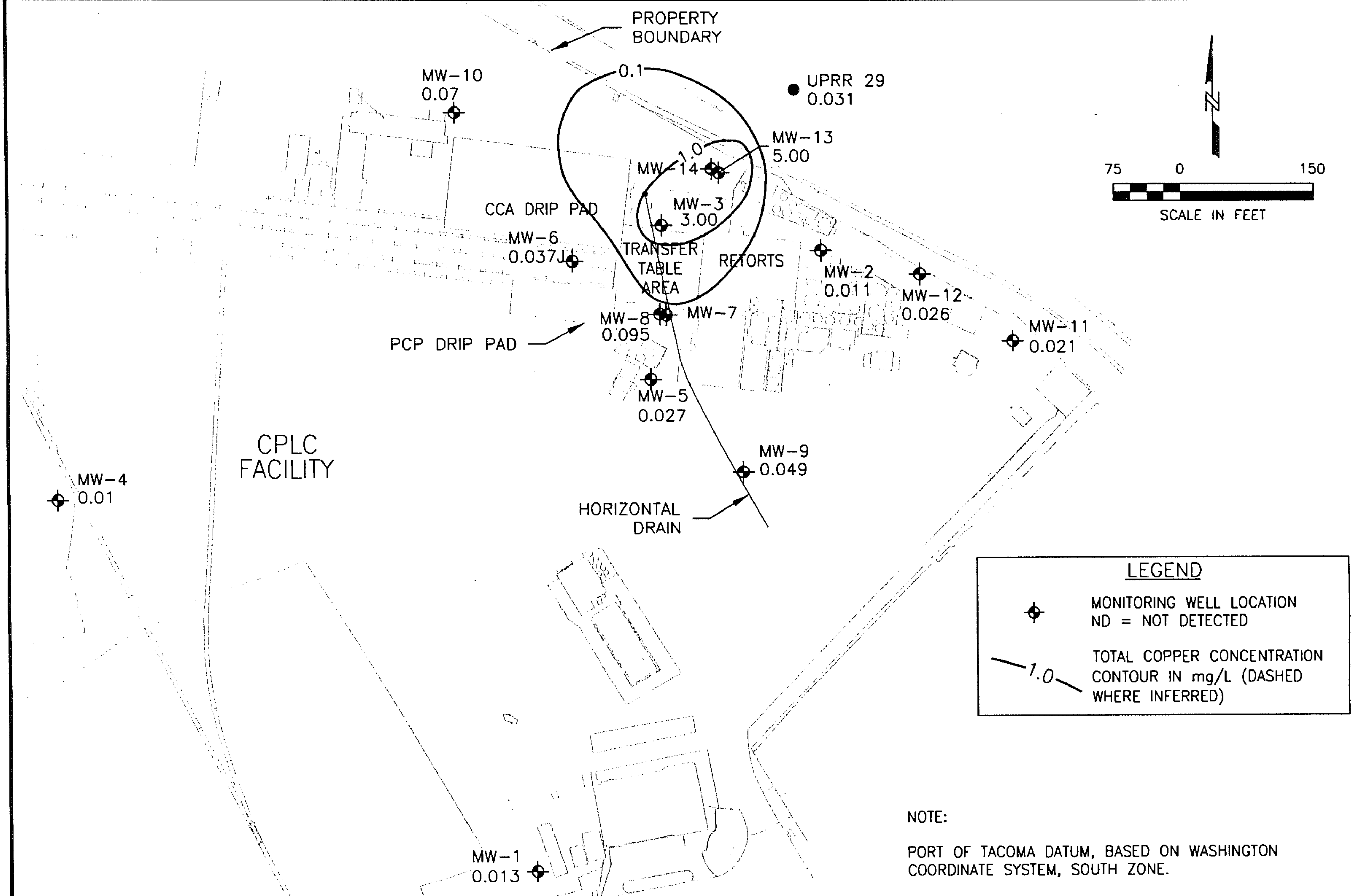
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0300

DATE: 03/25/10 DRWN: E.M./SEA

CONCENTRATIONS OF ARSENIC IN SHALLOW AQUIFER JANUARY 2010

FIGURE 3



NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

ThermoRetec

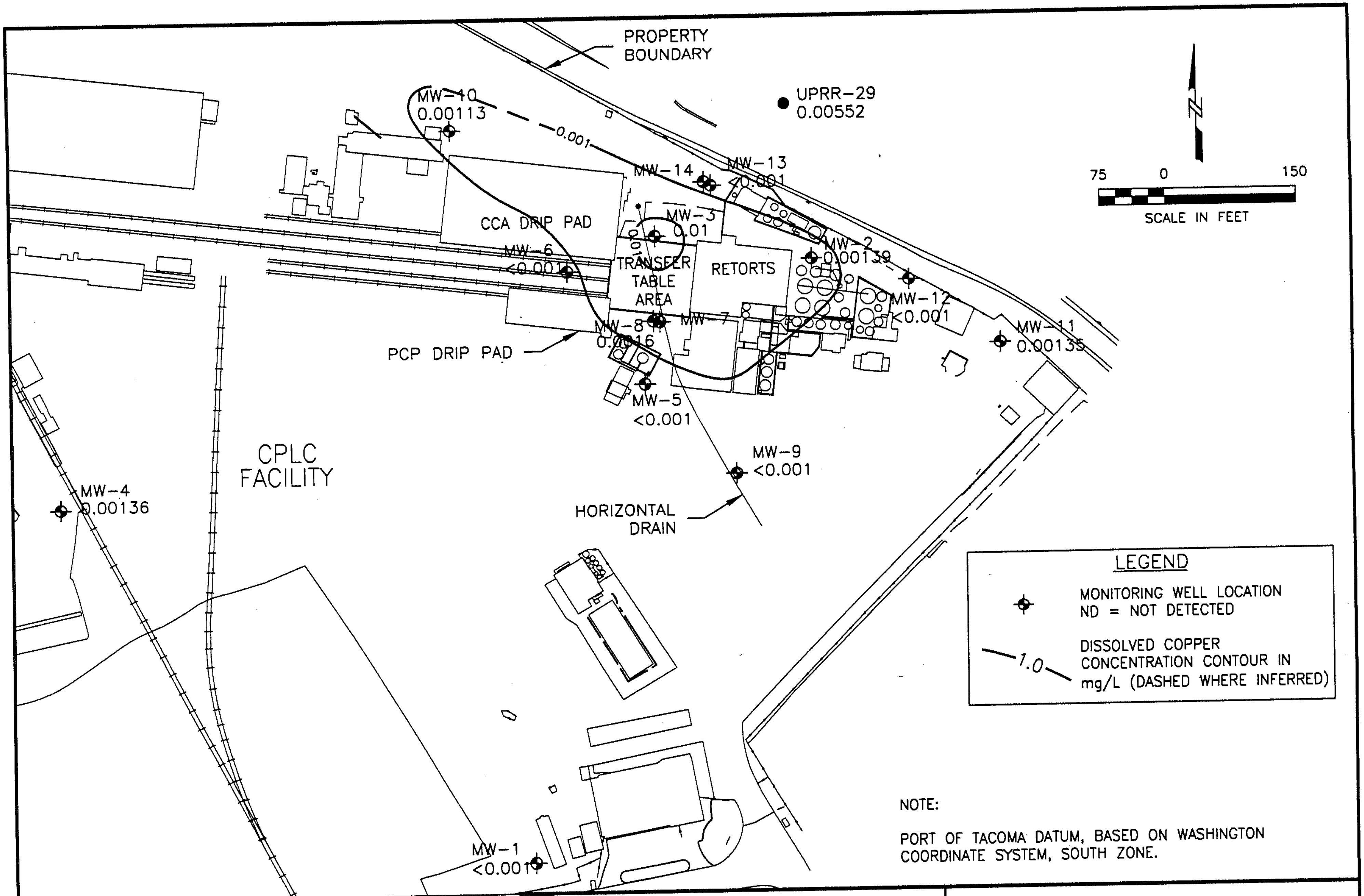
CASCADE POLE AND LUMBER COMPANY

CPLC1-04199-420

COPPER CONCENTRATION ISOPLETH MAP
FEBRUARY 27,2001

DATE: 05/23/01 | DRWN: N.S. | FILE: 4199s071

FIGURE 1



RETEC

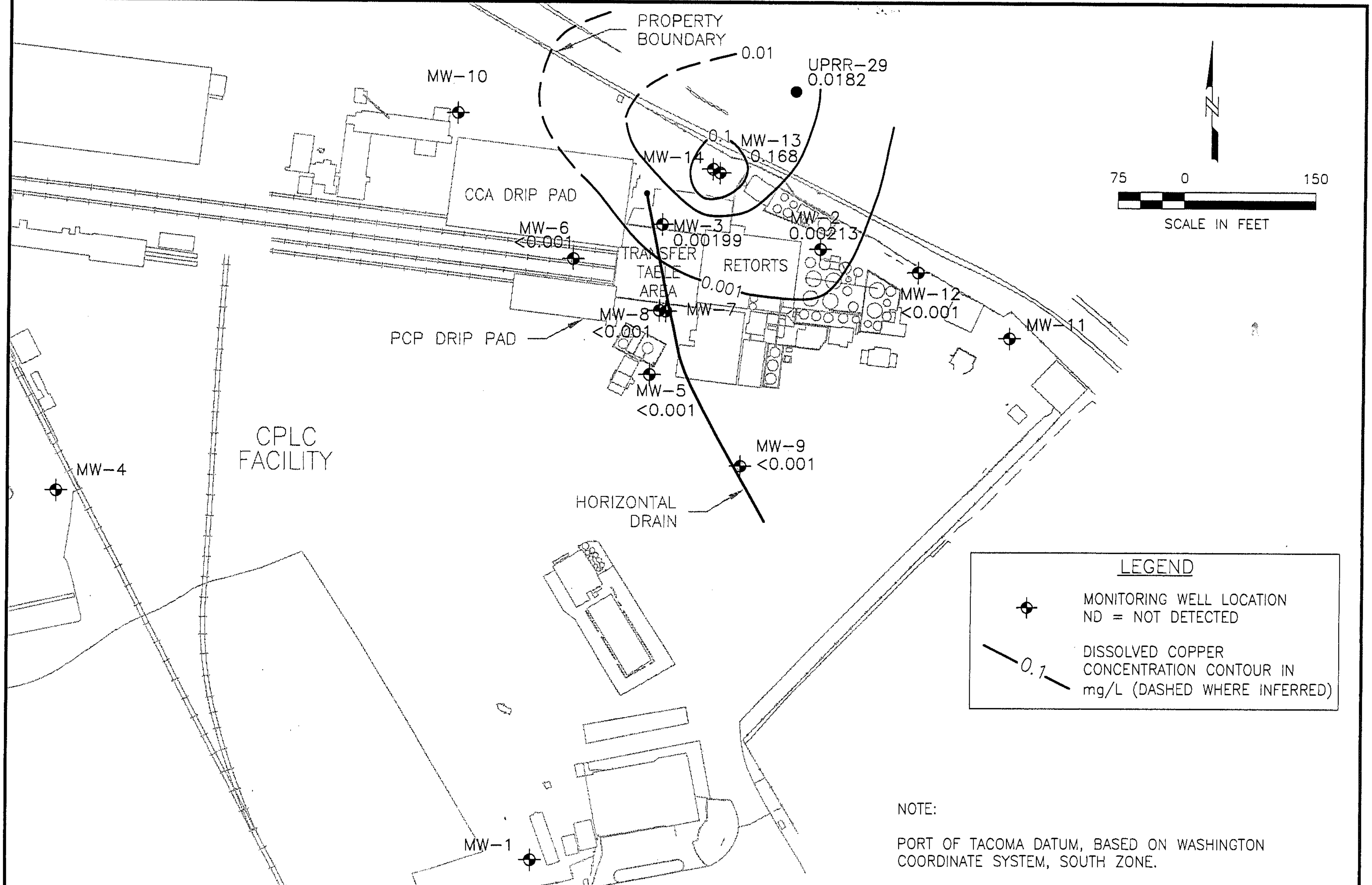
CASCADE POLE AND
LUMBER COMPANY

CPLC1-04199-420

COPPER CONCENTRATION ISOPLETH MAP
JANUARY 24, 2002

DATE: 2/15/02	DRWN: A.S./SEA	FILE: 4199s091	LAYOUT: Layout1	**FIGURE 1**

File: H:\4199\4199s097.dwg Layout: Layout1 User: astenberg Plotted: Apr 02, 2003 - 1:10pm Xref's: 0499BAS5



RETEC

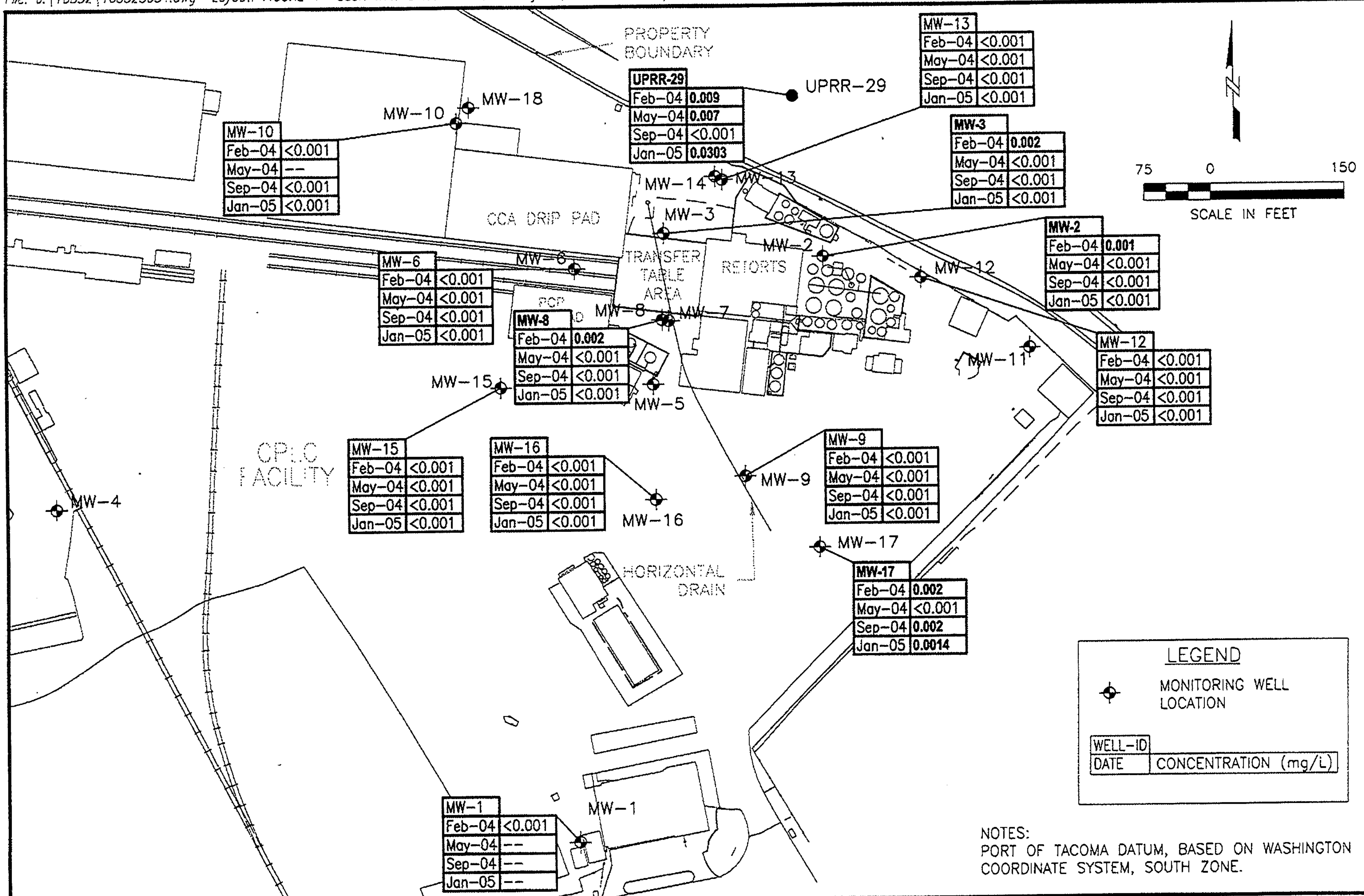
CASCADE POLE AND LUMBER COMPANY

CPLC1-04199-420

COPPER GROUNDWATER CONCENTRATION ISOPLETH MAP JANUARY 31, 2003

DATE: 04/02/03	DRWN: A.S./SEA		**FIGURE 1**

File: J:\16832\16832S054.dwg Layout: FIGURE 1 User: mwilliamson Plotted: May 02, 2005 - 12:11pm Xref's:



RETEC

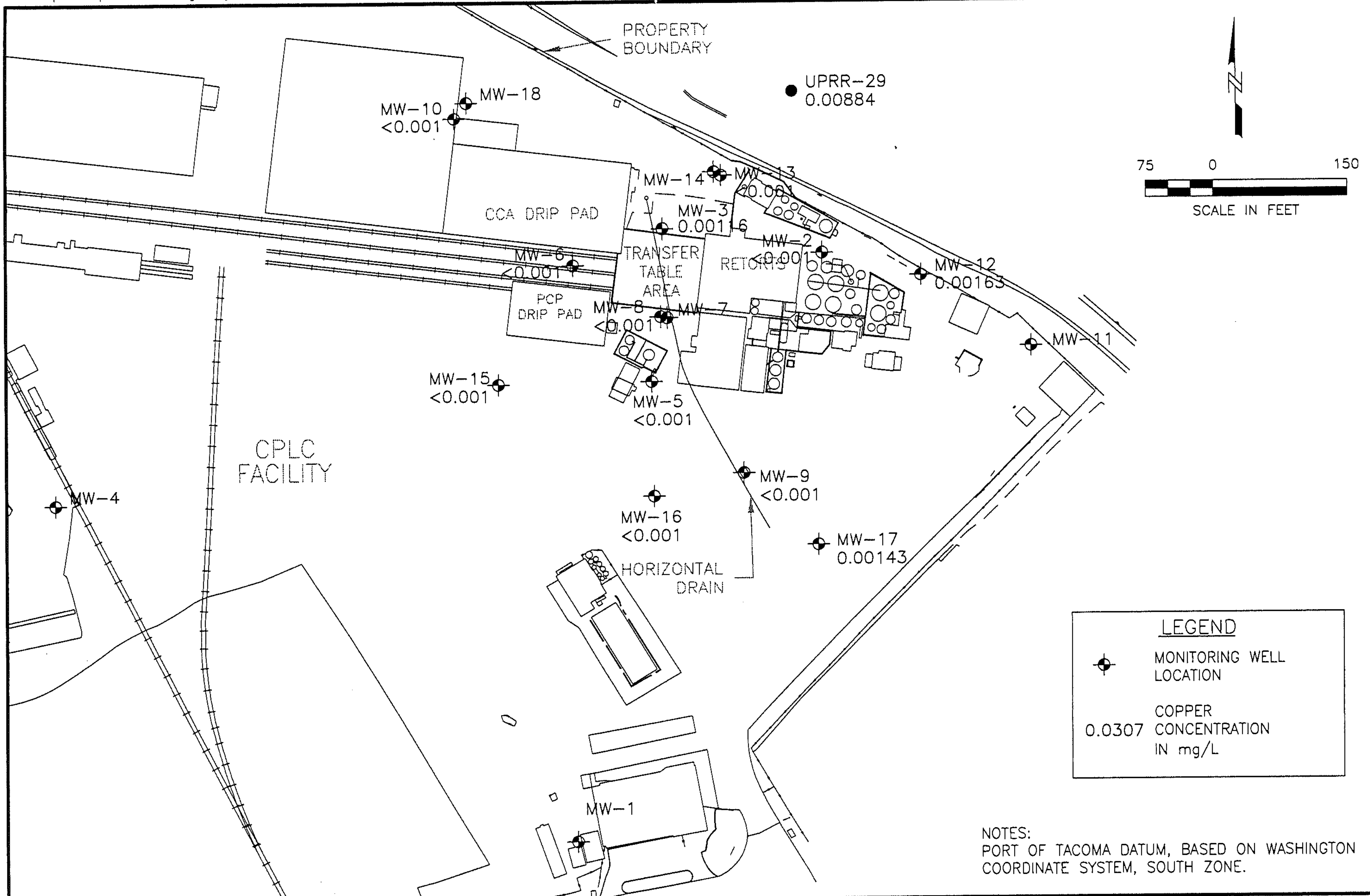
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLU1-16832-500

DATE: 5/02/05 DRWN: A.S./SEA

CONCENTRATIONS OF COPPER IN SHALLOW AQUIFER 2004-2005

FIGURE 1

File: H:\16832\16832S066.dwg Layout: FIGURE 1 User: astenberg Plotted: Apr 13, 2006 - 12:23pm Xref's: 0499BAS6, 0499BAS6, Cscdplan



RETEC

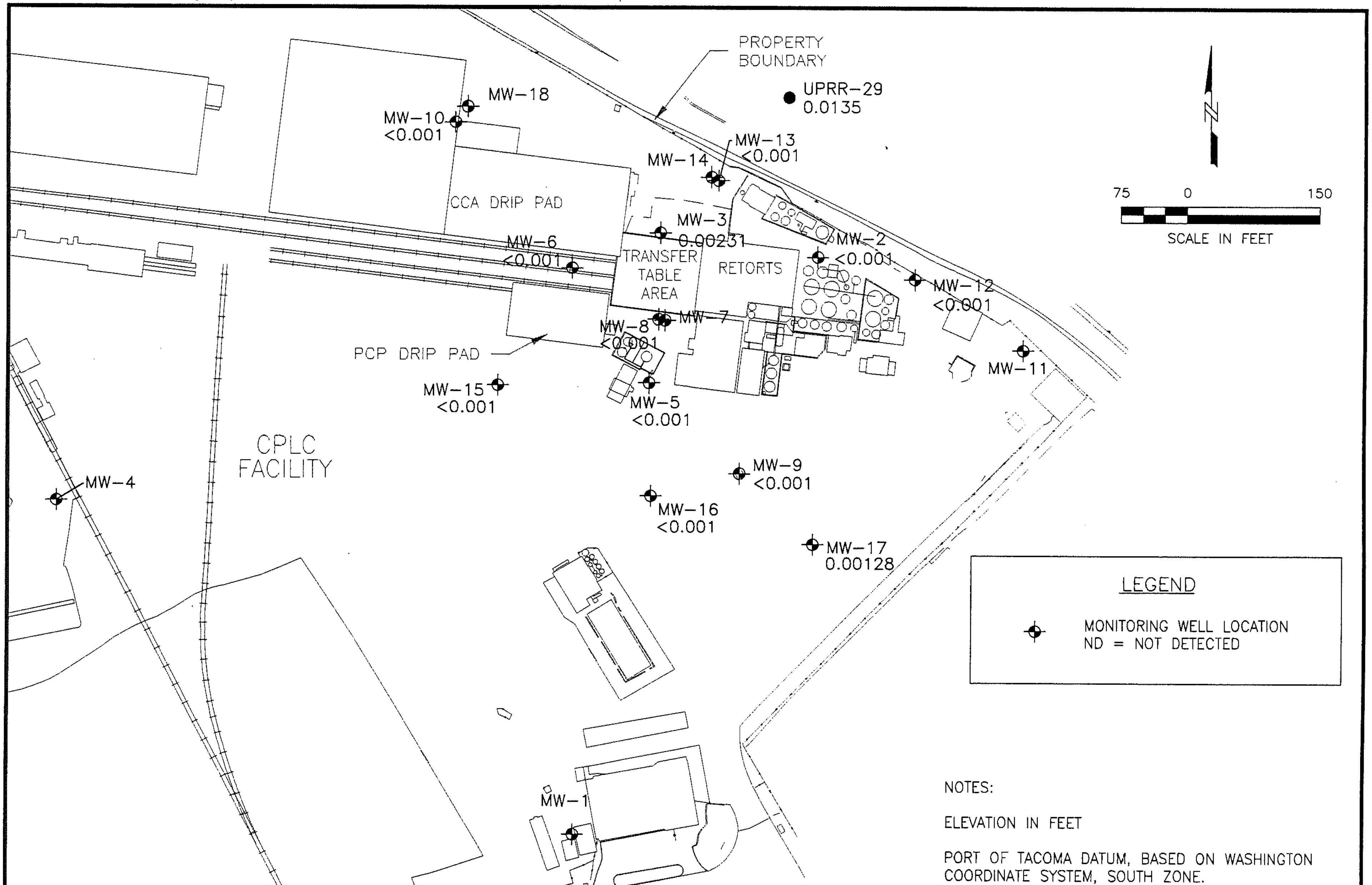
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLU1-16832-500

DATE: 04/13/06 | DRWN: A.S./SEA

CONCENTRATIONS OF COPPER IN SHALLOW AQUIFER JANUARY 2006

FIGURE 1

File: H:\16832\16832S104.dwg Layout: FIG 1 User: emarshall Plotted: Mar 20, 2007 - 1:52pm Xref's:



LEGEND

MONITORING WELL LOCATION
ND = NOT DETECTED

NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

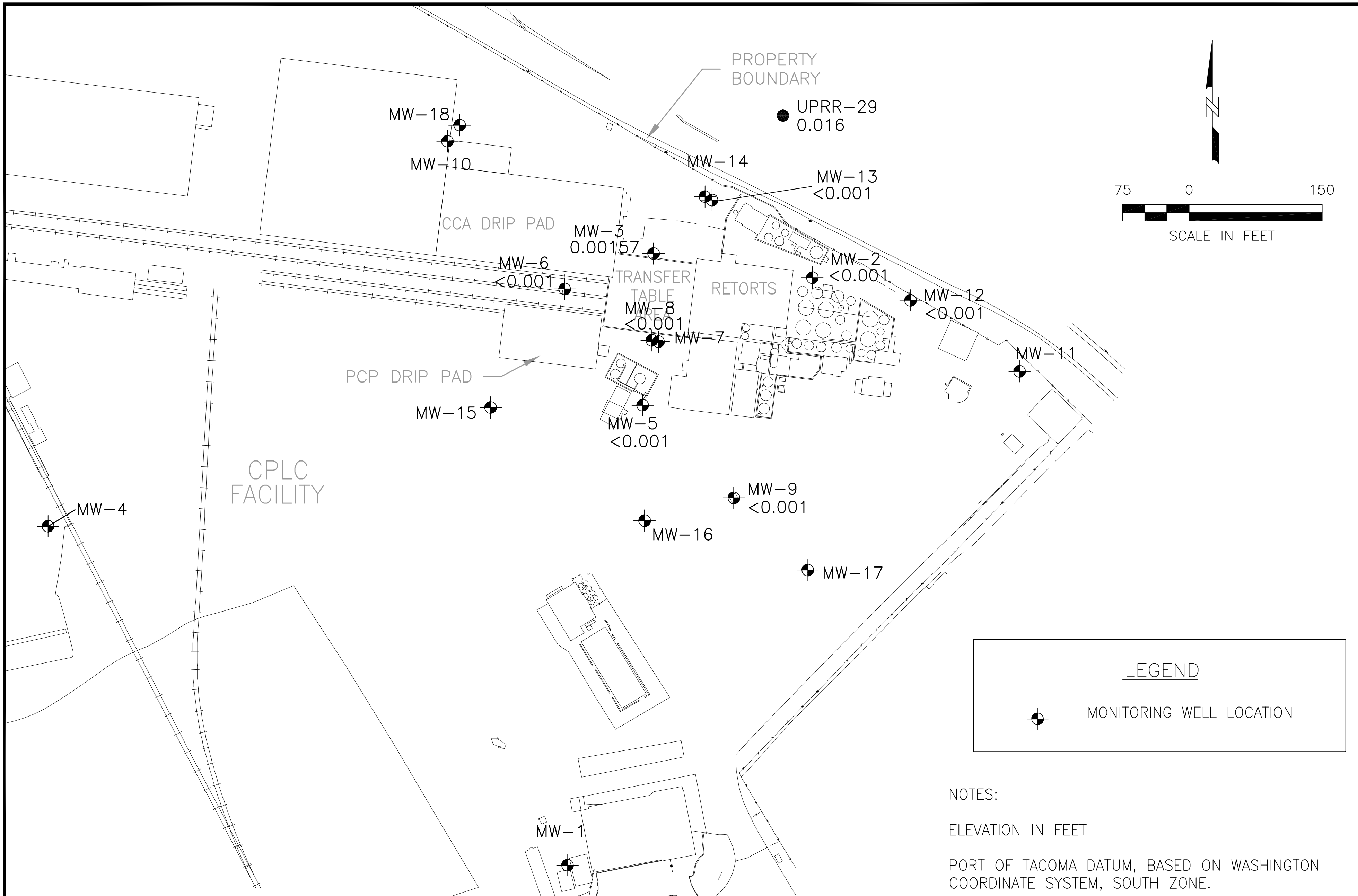
RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLC1-16832-500

DATE: 3/20/07 | DRWN: E.M./SEA

CONCENTRATIONS OF COPPER IN SHALLOW AQUIFER FEBRUARY 2007

FIGURE 1



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

ENSR | AECOM

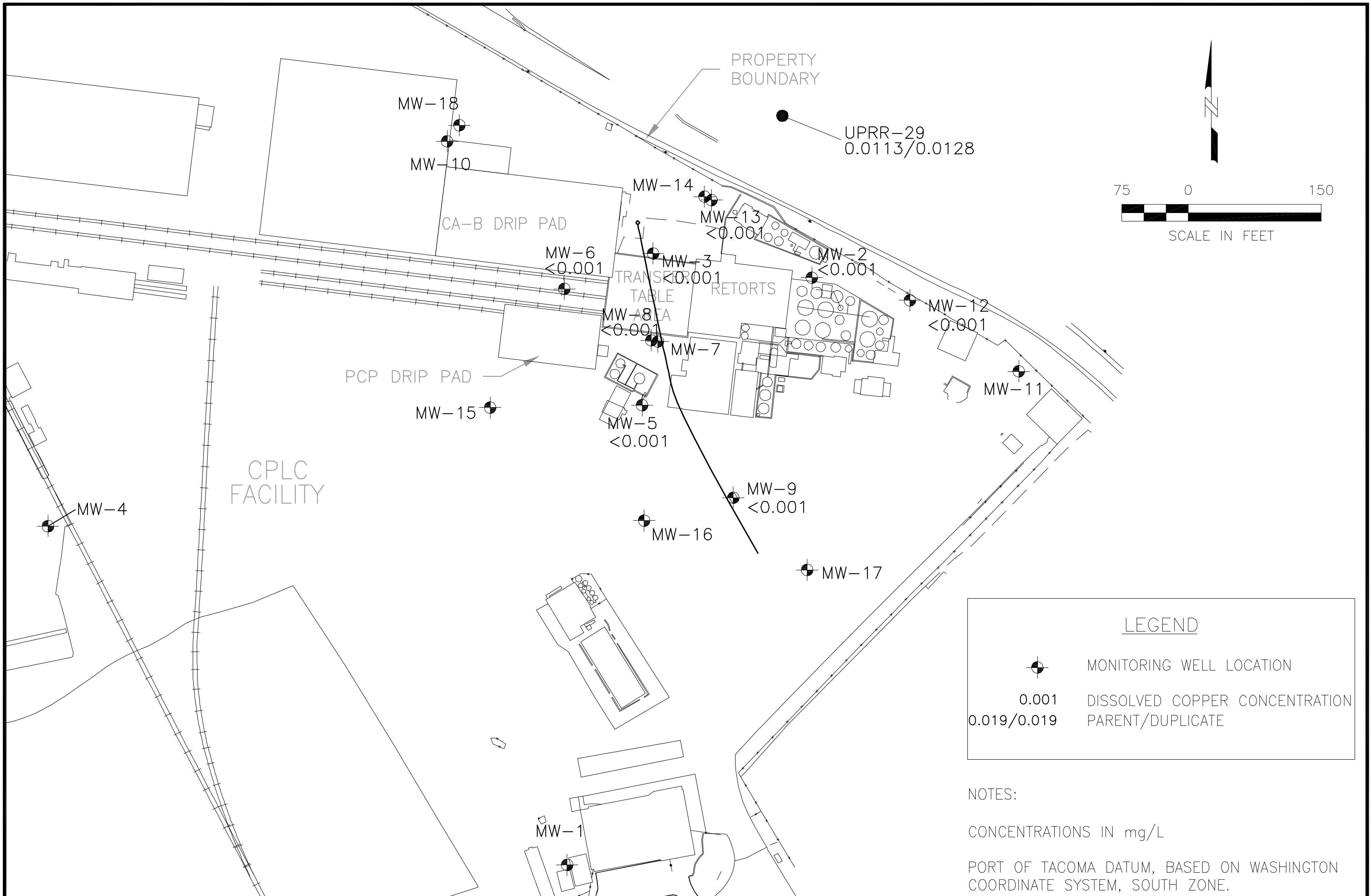
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

04530-015-300

CONCENTRATIONS OF COPPER IN SHALLOW AQUIFER JANUARY 2008

DATE: 03/10/08 | DRWN: E.M./SEA

FIGURE 1



AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

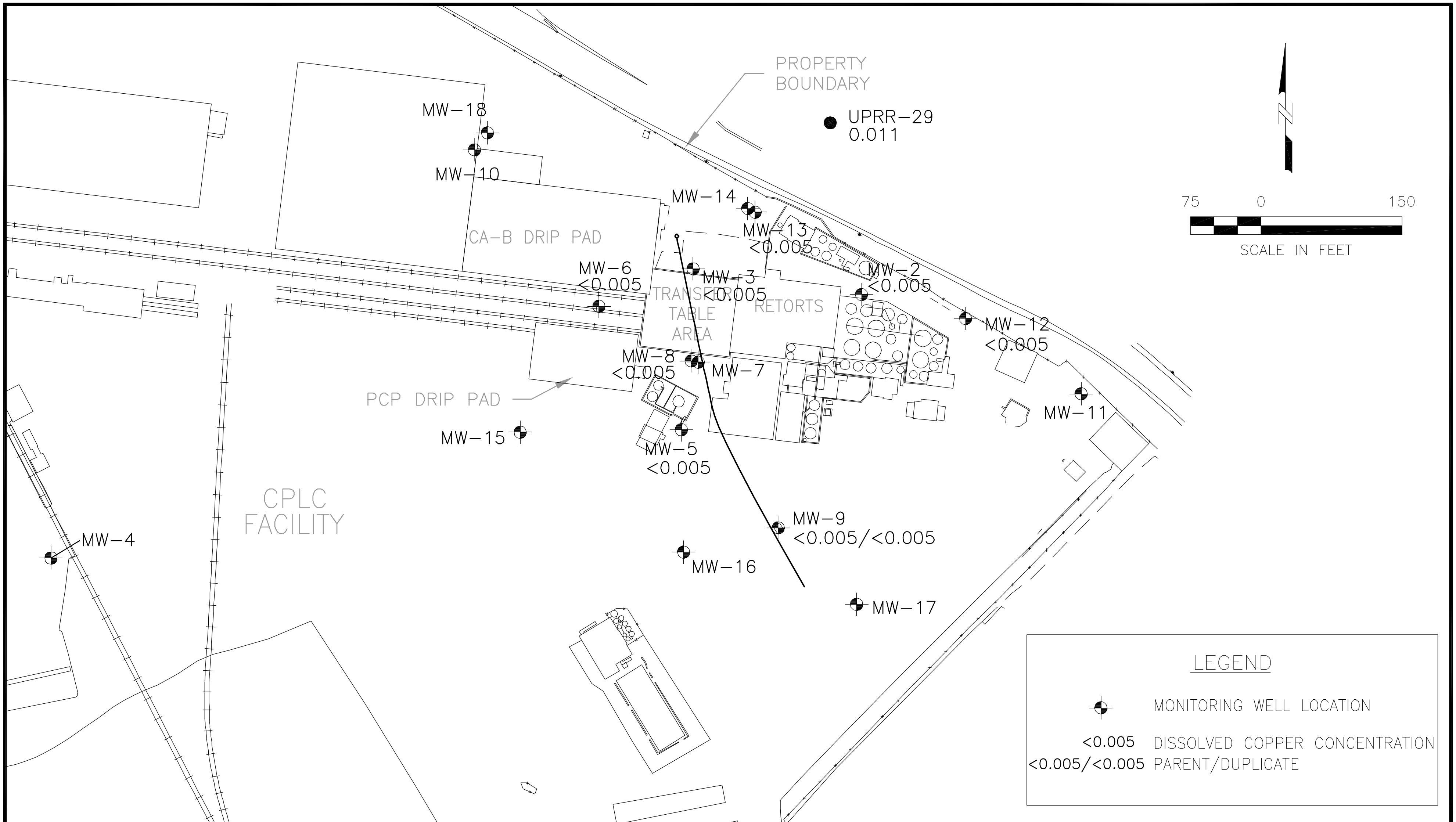
04530-015-0300

CONCENTRATIONS OF COPPER IN SHALLOW AQUIFER JANUARY 2009

DATE: 4/17/09 | DRWN: E.M./SEA

FIGURE 1

File: M:\Cascade Lumber\Annual GW Report\2010\copper_shallow_1-10.dwg Layout: FIGURE 1 User: MarshallE Plotted: Mar 25, 2010 - 10:19am Xref's:



NOTES:

CONCENTRATIONS IN mg/L

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

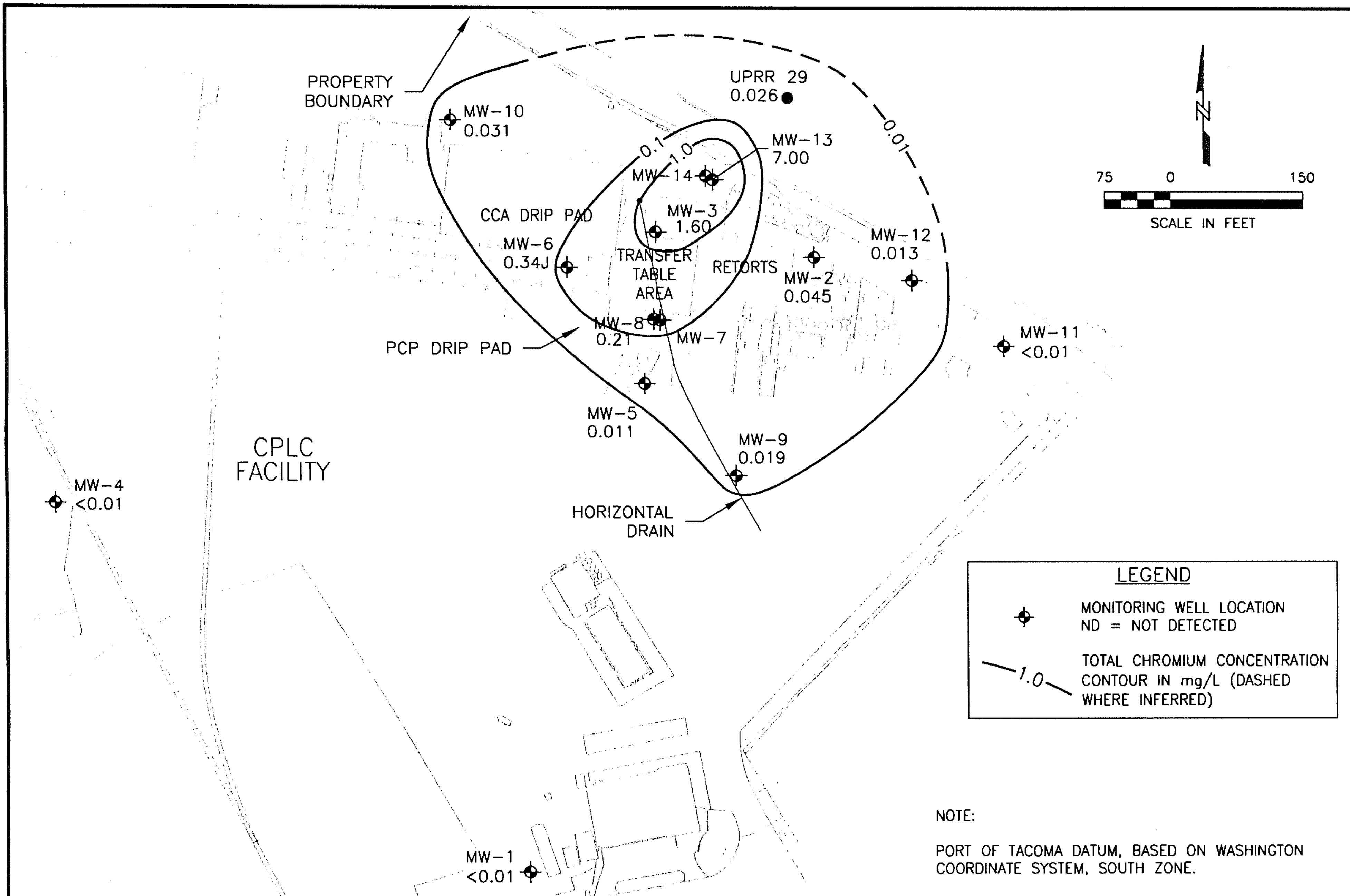
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0300

DATE: 03/25/10 | DRWN: E.M./SEA

CONCENTRATIONS OF COPPER IN SHALLOW AQUIFER JANUARY 2010

FIGURE 1



ThermoRetec

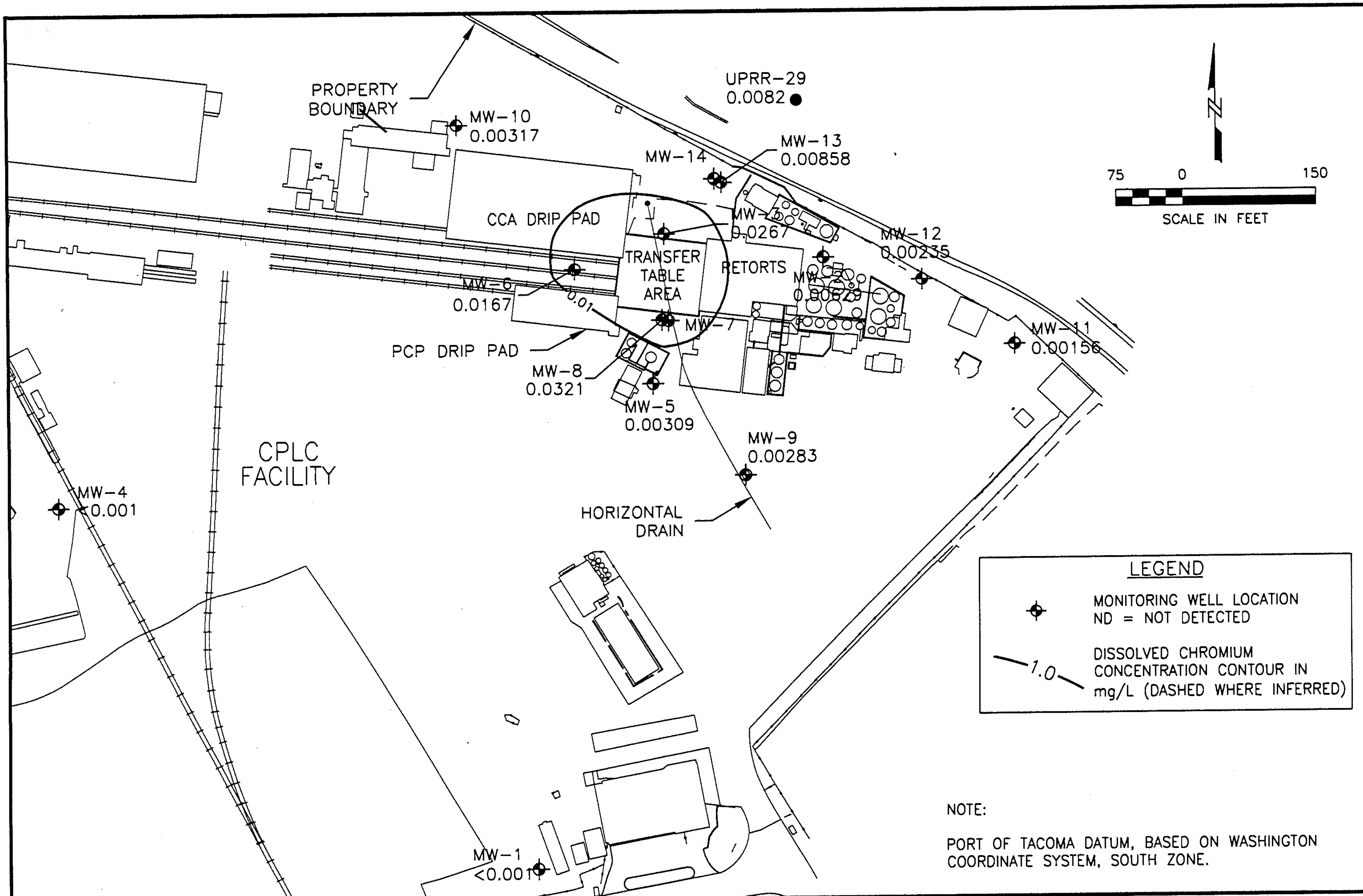
CASCADE POLE AND LUMBER COMPANY

CPLC1-04199-420

CHROMIUM CONCENTRATION ISOPLETH MAP FEBRUARY 27, 2001

DATE: 05/23/01 | DRWN: N.S. | FILE: 4199s072

FIGURE 2



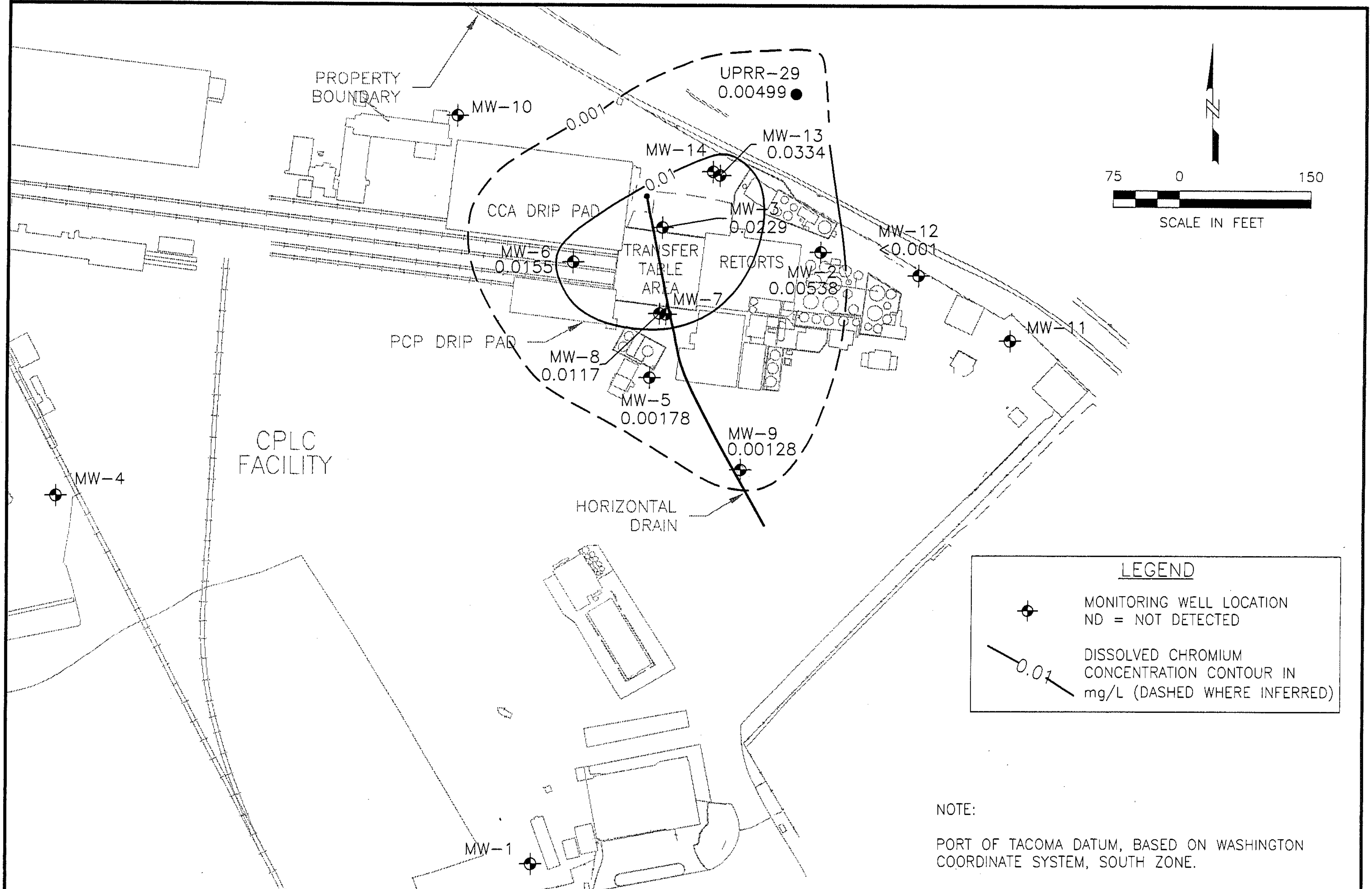
NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

CASCADE POLE AND LUMBER COMPANY CPLC1-04199-420			CHROMIUM CONCENTRATION ISOPLETH MAP JANUARY 24, 2002	
DATE: 2/15/02	DRWN: A.S./SEA	FILE: 4199s092	LAYOUT: Layout1	FIGURE 2

File: H:\4199\4199s098.dwg Layout: Layout1 User: astenberg Plotted: Apr 02, 2003 - 1:32pm Xref's: 0499BAS5



RETEC

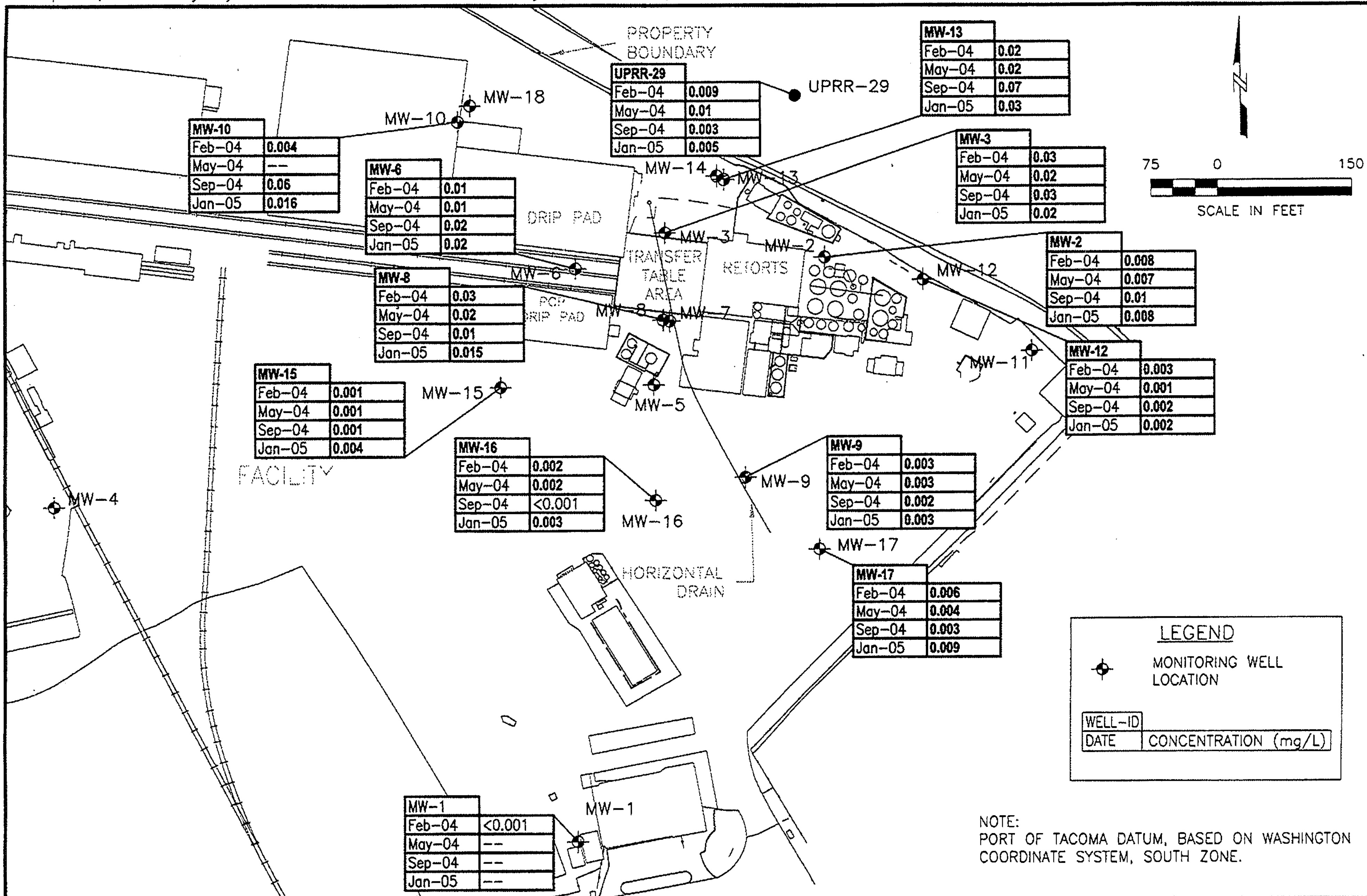
CASCADE POLE AND LUMBER COMPANY

CPLC1-04199-420

CHROMIUM GROUNDWATER CONCENTRATION ISOPLETH MAP JANUARY 31, 2003

DATE: 04/02/03 | DRWN: A.S./SEA

FIGURE 2



MW-13	
Feb-04	0.02
May-04	0.02
Sep-04	0.07
Jan-05	0.03

UPRR-29	
Feb-04	0.009
May-04	0.01
Sep-04	0.003
Jan-05	0.005

MW-10	
Feb-04	0.004
May-04	--
Sep-04	0.06
Jan-05	0.016

MW-6	
Feb-04	0.01
May-04	0.01
Sep-04	0.02
Jan-05	0.02

MW-3	
Feb-04	0.03
May-04	0.02
Sep-04	0.03
Jan-05	0.02

MW-2	
Feb-04	0.008
May-04	0.007
Sep-04	0.01
Jan-05	0.008

MW-8	
Feb-04	0.03
May-04	0.02
Sep-04	0.01
Jan-05	0.015

MW-12	
Feb-04	0.003
May-04	0.001
Sep-04	0.002
Jan-05	0.002

MW-15	
Feb-04	0.001
May-04	0.001
Sep-04	0.001
Jan-05	0.004

MW-16	
Feb-04	0.002
May-04	0.002
Sep-04	<0.001
Jan-05	0.003

MW-9	
Feb-04	0.003
May-04	0.003
Sep-04	0.002
Jan-05	0.003

MW-17	
Feb-04	0.006
May-04	0.004
Sep-04	0.003
Jan-05	0.009

MW-1	
Feb-04	<0.001
May-04	--
Sep-04	--
Jan-05	--

NOTE:
PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

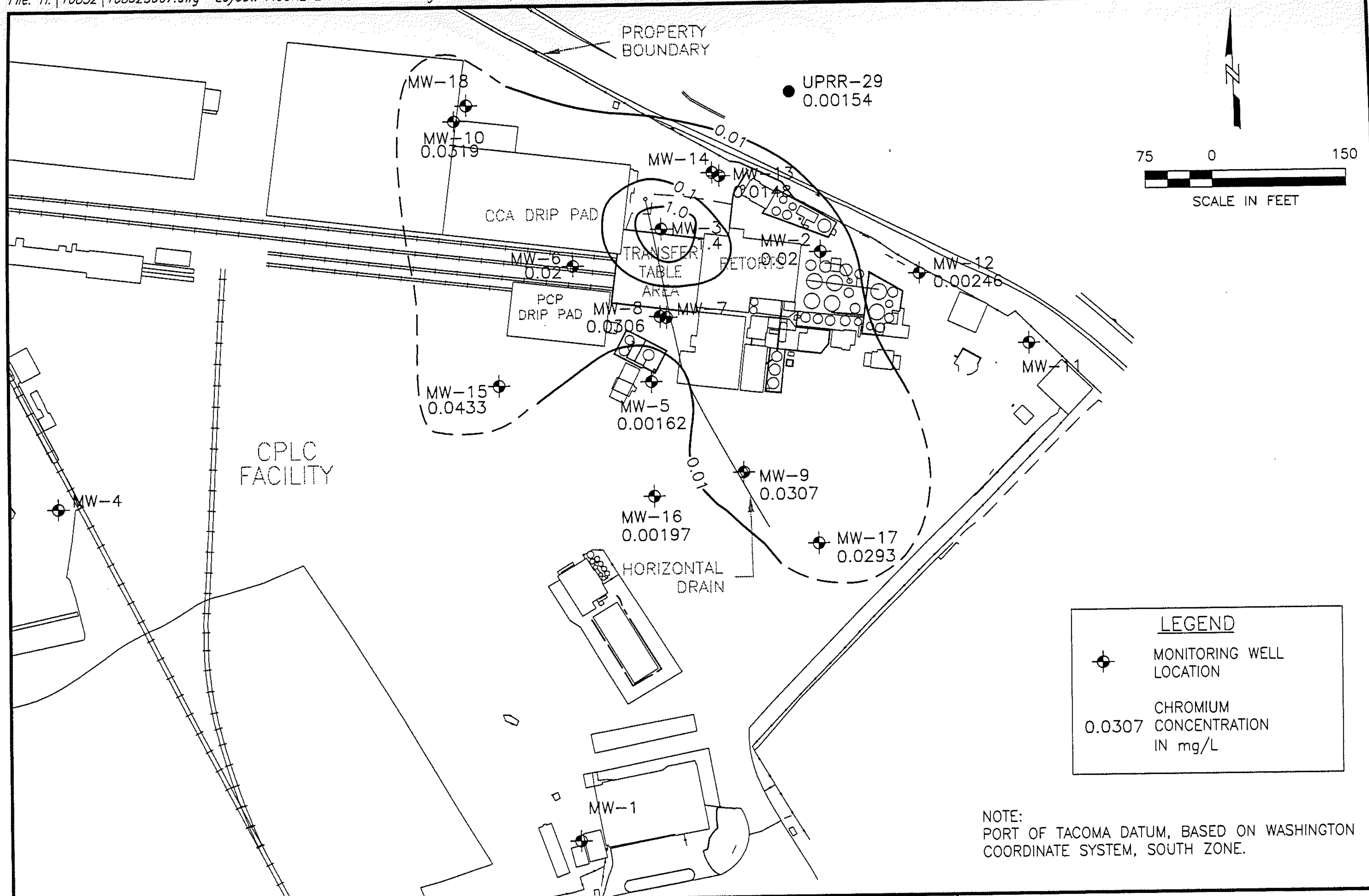
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLU1-16832-500

DATE: 5/02/05 DRWN: A.S./SEA

CONCENTRATIONS OF CHROMIUM IN SHALLOW AQUIFER 2004-2005

FIGURE 2

File: H:\16832\16832S067.dwg Layout: FIGURE 2 User: astenberg Plotted: Apr 13, 2006 - 12:22pm Xref's: 0499BAS6, 0499BAS6, Cscdplan



RETEC

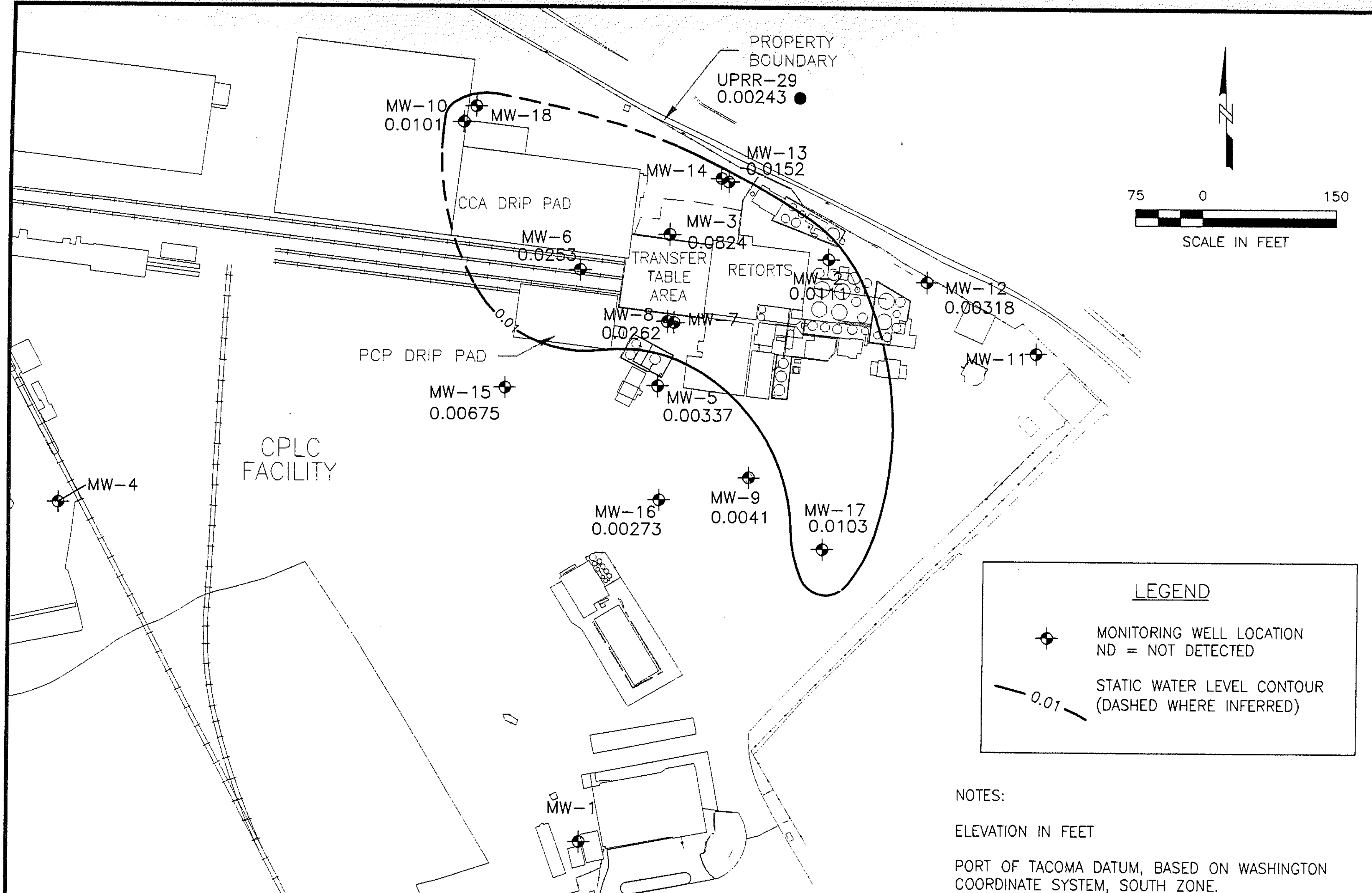
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLU1-16832-500

DATE: 04/13/06 | DRWN: A.S./SEA

CONCENTRATIONS OF CHROMIUM IN SHALLOW AQUIFER JANUARY 2006

FIGURE 2

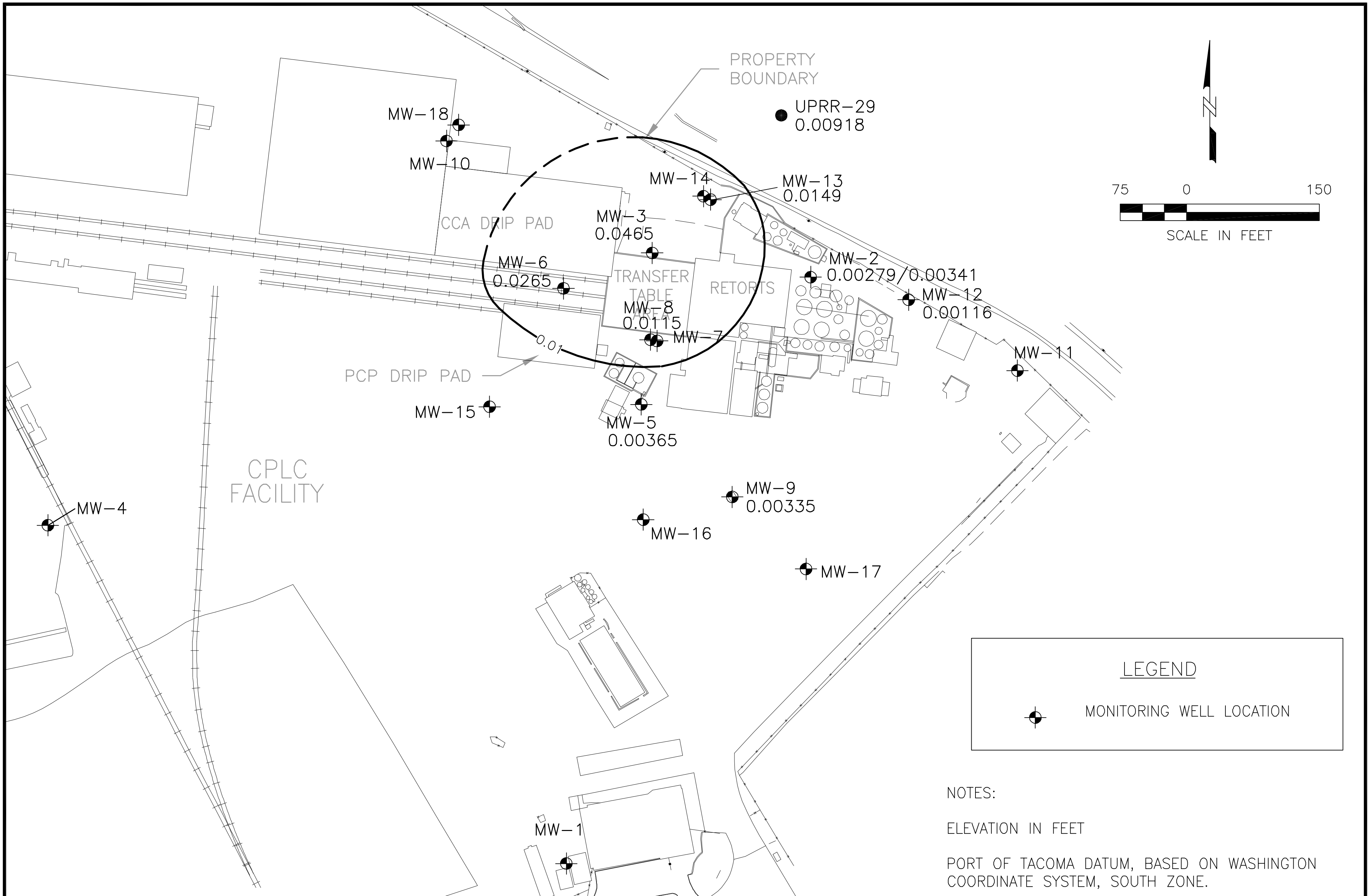
File: H:\16832\16832S107.dwg Layout: FIG 2 User: emarshall Plotted: Mar 20, 2007 - 2:14pm Xref's:



RETEC

CASCADE POLE AND LUMBER COMPANY TACOMA, WASHINGTON CPLC1-16832-500	**CONCENTRATIONS OF CHROMIUM IN SHALLOW AQUIFER FEBRUARY 2007**
DATE: 3/20/07 DRWN: E.M./SEA	**FIGURE 2**

File: L:\Cascade Lumber\04530-015-S005.dwg Layout: FIG 2 User: emarshall Plotted: Mar 10, 2008 - 1:55pm Xref's:



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

ENSR | AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

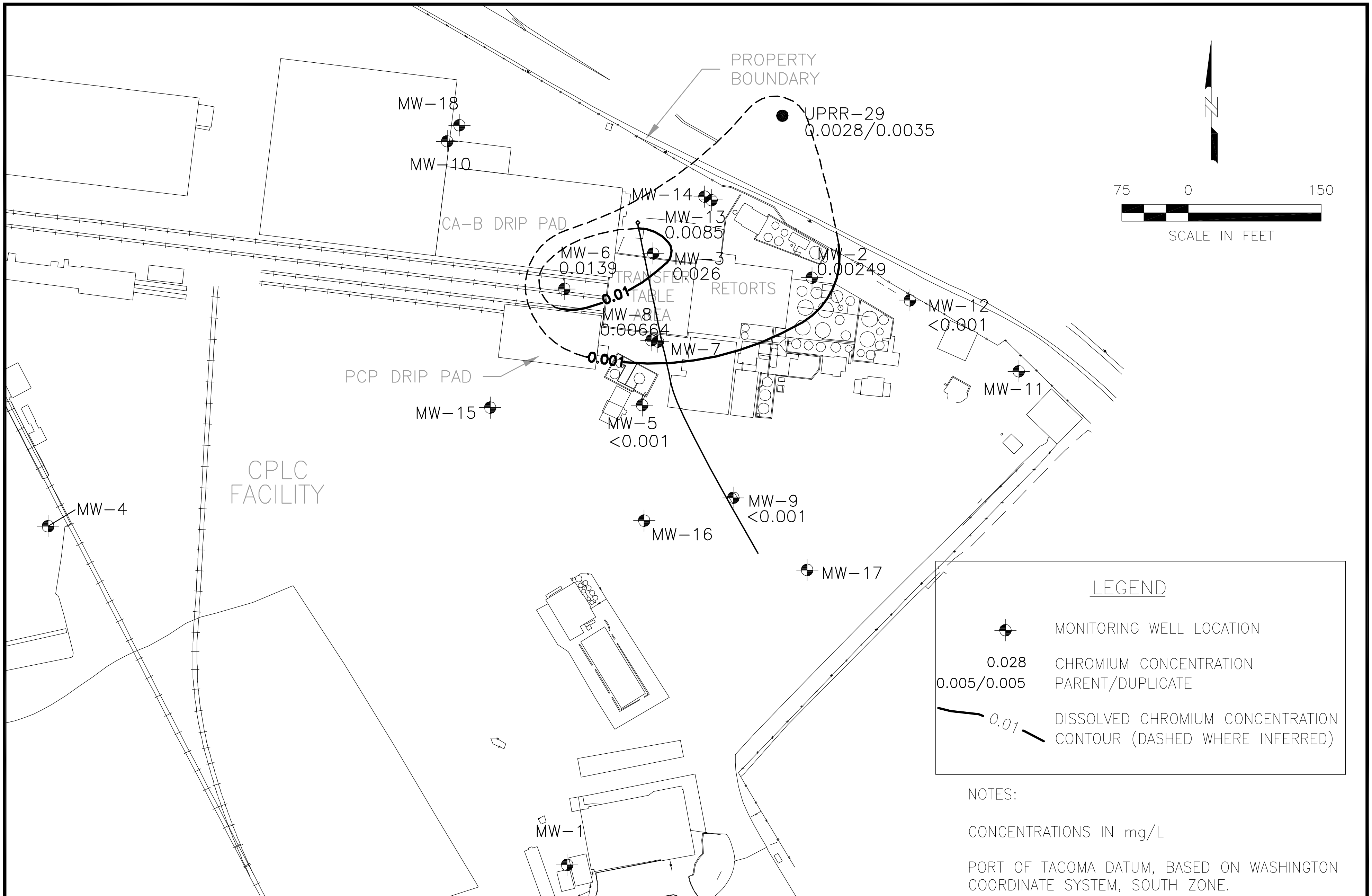
04530-015-300

CONCENTRATIONS OF CHROMIUM IN SHALLOW AQUIFER JANUARY 2008

DATE: 03/10/08 | DRWN: E.M./SEA

FIGURE 2

File: L:\Cascade Lumber\chromium_shallow_1-09.dwg Layout: FIGURE 2 User: MarshallE Plotted: Apr 17, 2009 - 9:09am Xref's:



AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

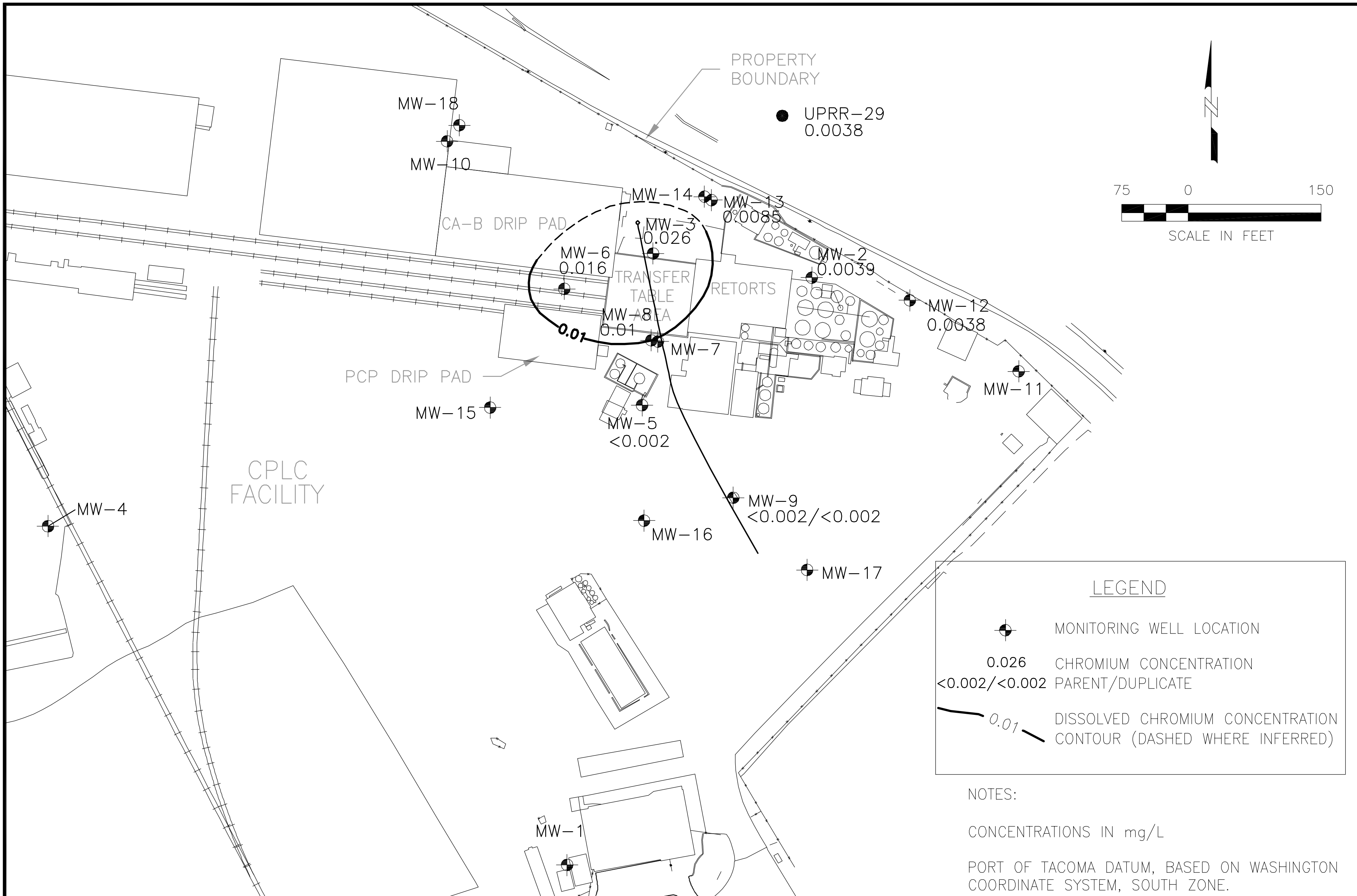
04530-015-0300

CONCENTRATIONS OF CHROMIUM IN SHALLOW AQUIFER JANUARY 2009

DATE: 4/17/09 | DRWN: E.M./SEA

FIGURE 2

File: M:\Cascade Lumber\Annual GW Report\2010\chromium_shallow_1-10.dwg Layout: FIGURE 2 User: MarshallE Plotted: Mar 25, 2010 - 10:25am Xref's:



AECOM

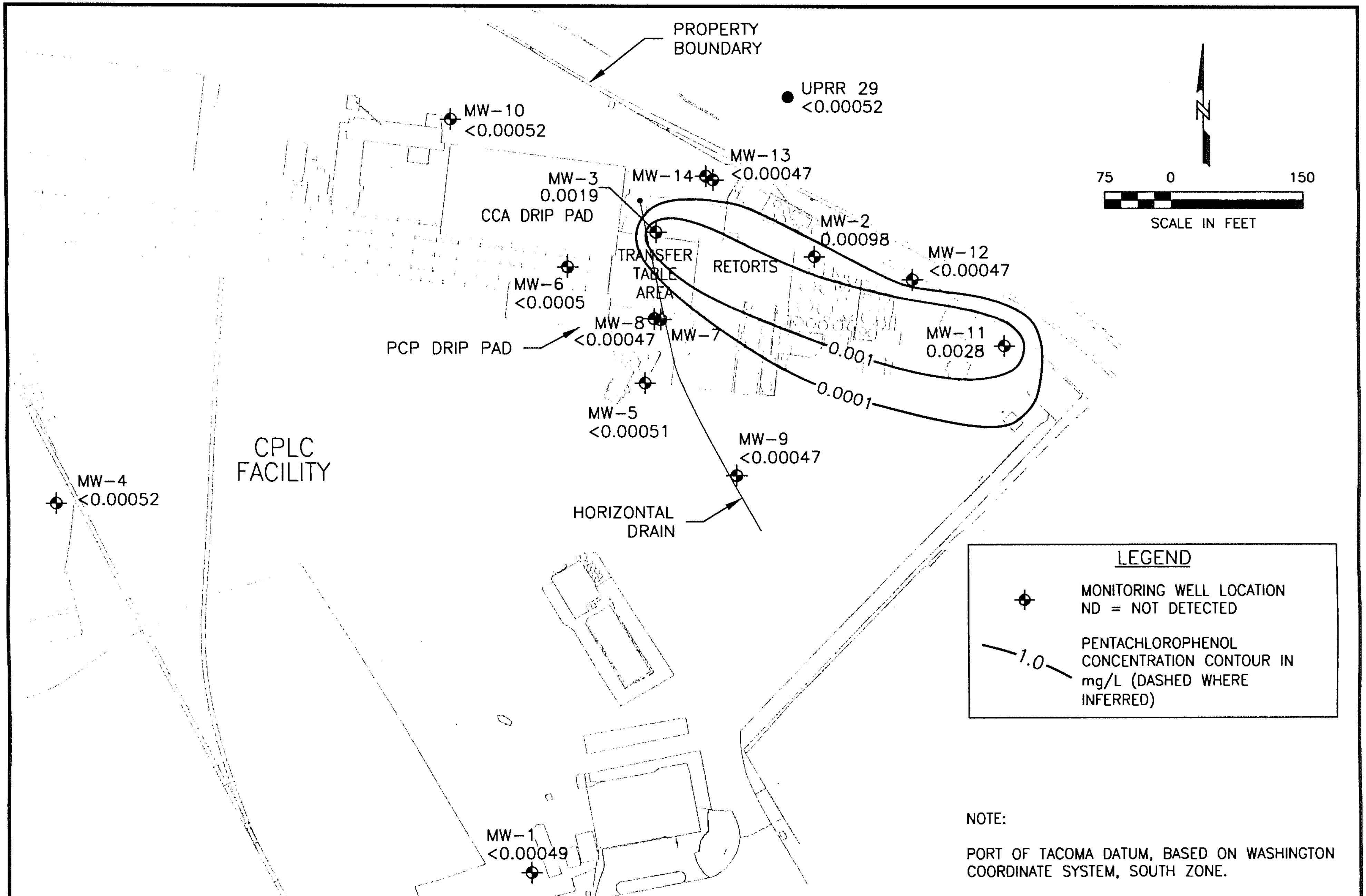
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0300

DATE: 03/25/10 | DRWN: E.M./SEA

CONCENTRATIONS OF CHROMIUM IN SHALLOW AQUIFER JANUARY 2010

FIGURE 2



ThermoRetec

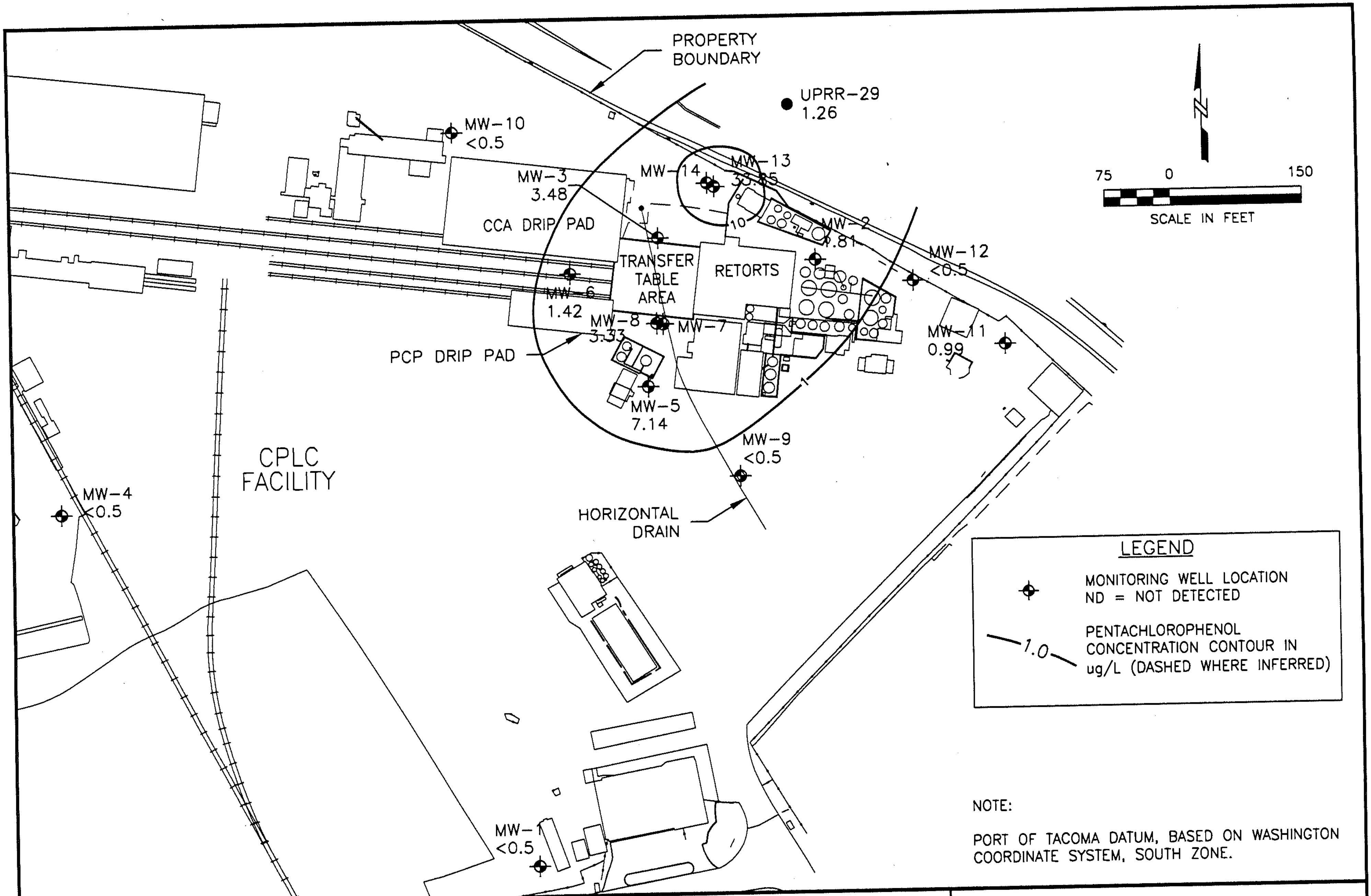
CASCADE POLE AND LUMBER COMPANY

CPLC1-04199-420

PENTACHLOROPHENOL CONCENTRATION ISOPLETH MAP FEBRUARY 27, 2001

DATE: 05/23/01 | DRWN: N.S. | FILE: 4199s074

FIGURE 4



RETEC

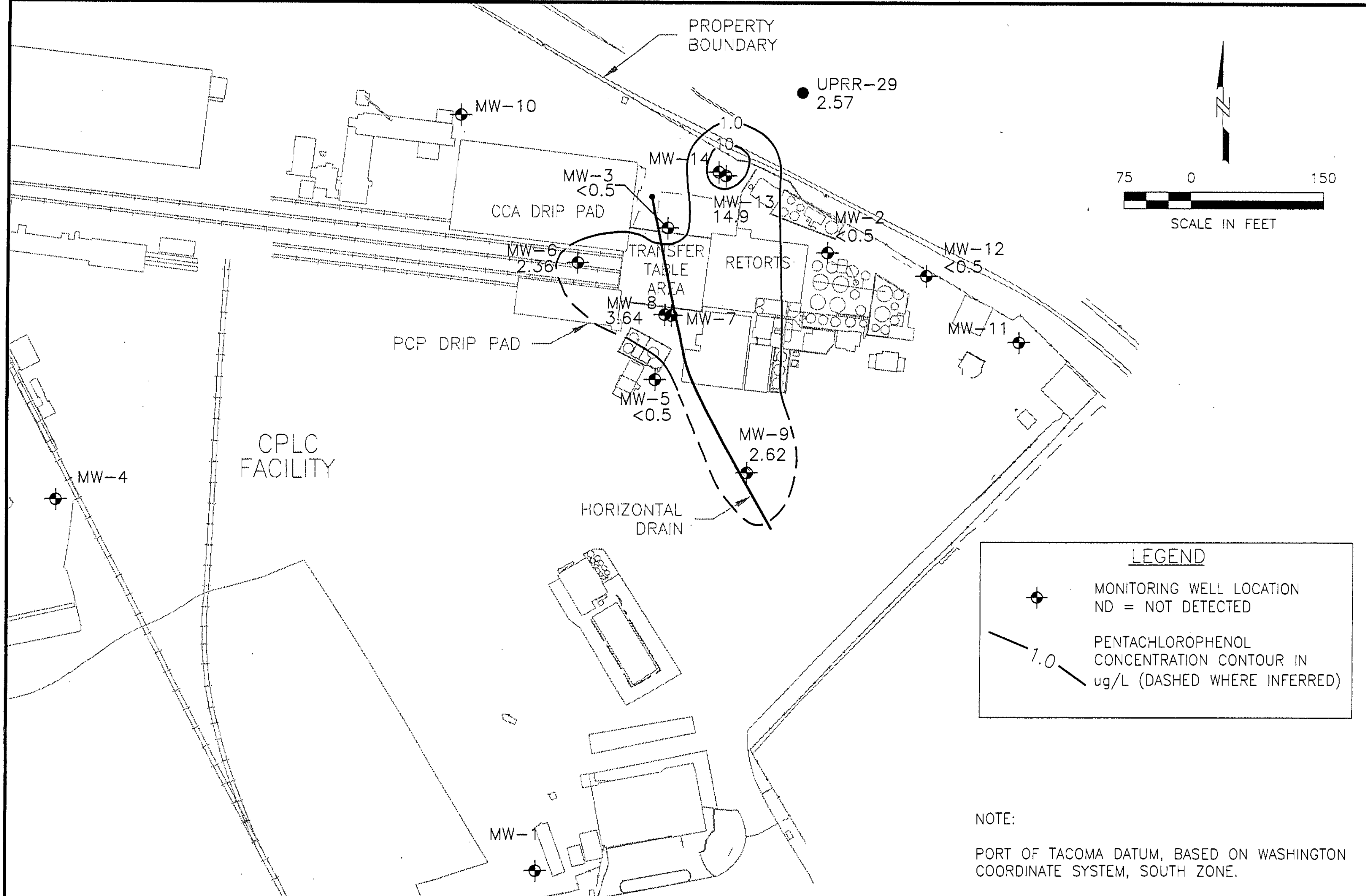
CASCADE POLE AND LUMBER COMPANY

CPLC1-04199-420

PENTACHLOROPHENOL CONCENTRATION ISOPLETH MAP JANUARY 24, 2002

DATE: 2/15/02	DRWN: A.S./SEA	FILE: 4199s094	LAYOUT: Layout1	**FIGURE 4**

File: H:\4199\4199s100.dwg Layout: Layout1 User: astenberg Plotted: Apr 02, 2003 - 1:44pm Xref's: 0499BAS5



LEGEND

MONITORING WELL LOCATION
ND = NOT DETECTED

1.0 — PENTACHLOROPHENOL CONCENTRATION CONTOUR IN ug/L (DASHED WHERE INFERRED)

NOTE:

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

RETEC

CASCADE POLE AND LUMBER COMPANY

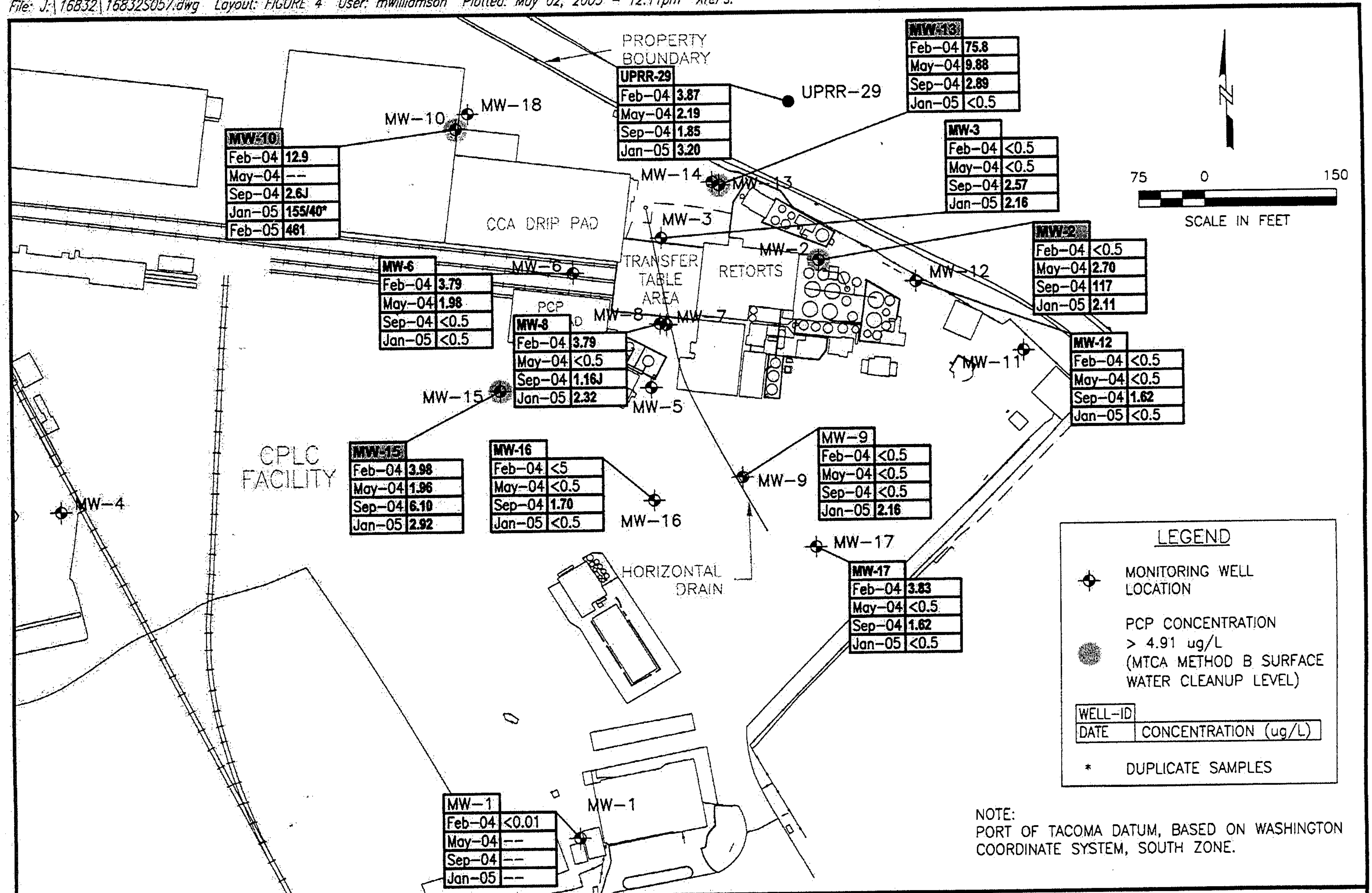
CPLC1-04199-420

PENTACHLOROPHENOL GROUNDWATER CONCENTRATION ISOPLETH MAP JANUARY 31, 2003

DATE: 04/02/03 | DRWN: A.S./SEA

FIGURE 4

File: J:\16832\16832S057.dwg Layout: FIGURE 4 User: mwilliamson Plotted: May 02, 2005 - 12:11pm Xref's:



RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

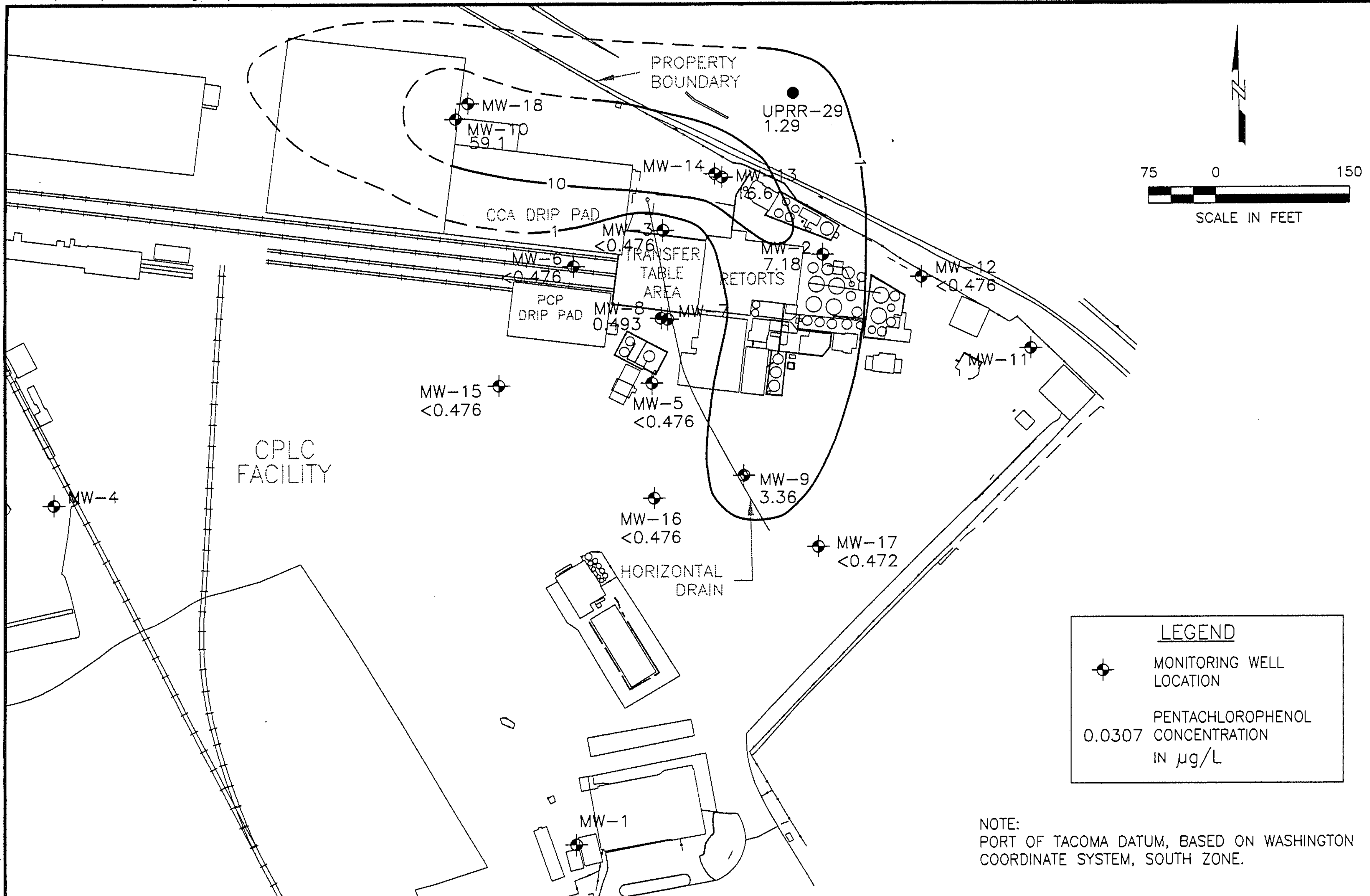
CPLU1-16832-500

DATE: 5/02/05 DRWN: A.S./SEA

CONCENTRATIONS OF PCP IN SHALLOW AQUIFER 2004-2005

FIGURE 4

File: H:\16832\16832S069.dwg Layout: FIGURE 4 User: astenberg Plotted: Apr 13, 2006 - 12:06pm Xref's: 0499BAS6, 0499BAS6



RETEC

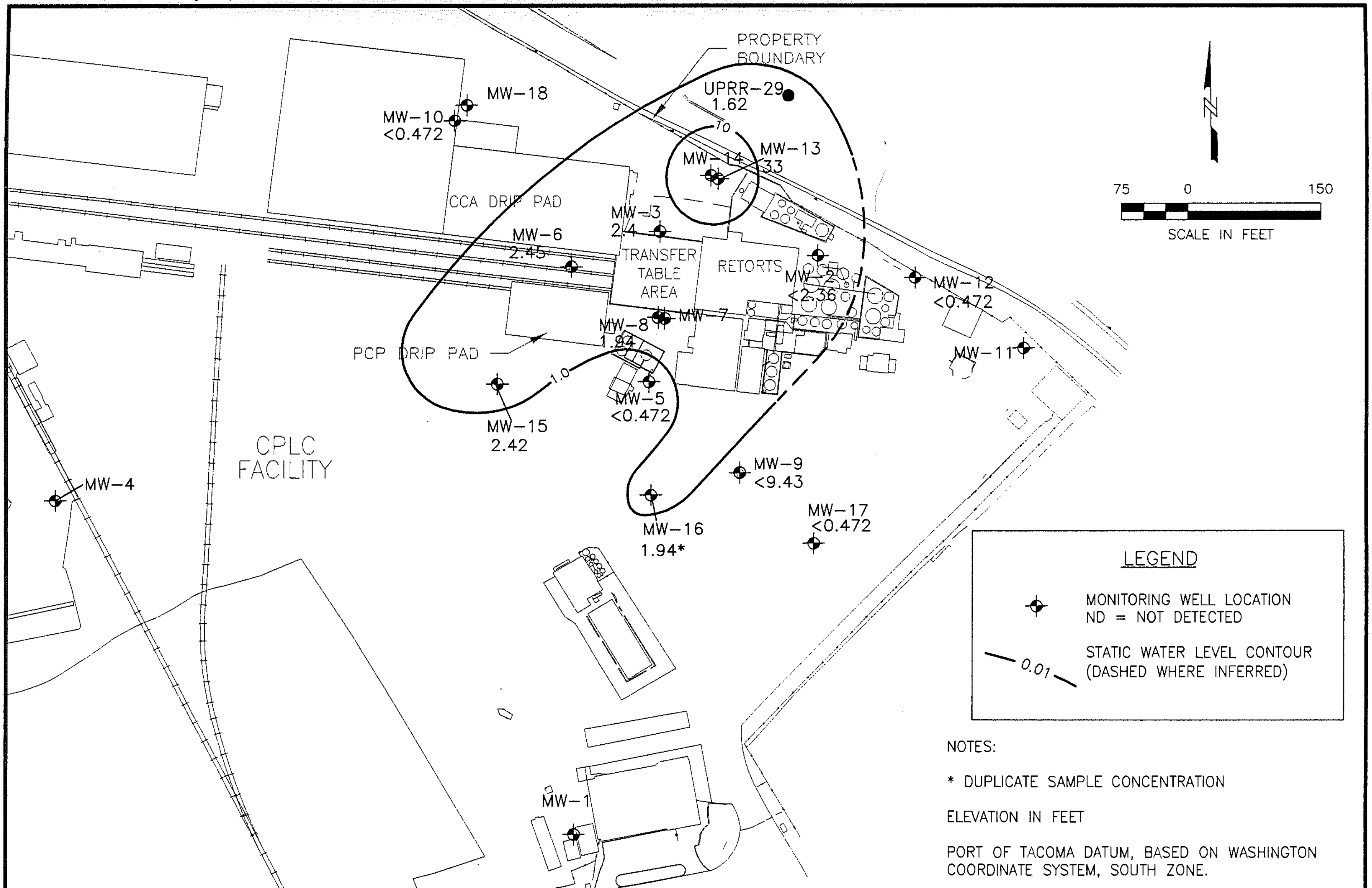
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLU1-16832-500

DATE: 04/13/06 | DRWN: A.S./SEA

CONCENTRATIONS OF PCP IN SHALLOW AQUIFER JANUARY 2006

FIGURE 4

File: H:\16832\16832S108.dwg Layout: FIG 4 User: emarshall Plotted: Mar 20, 2007 - 2:28pm Xref's:

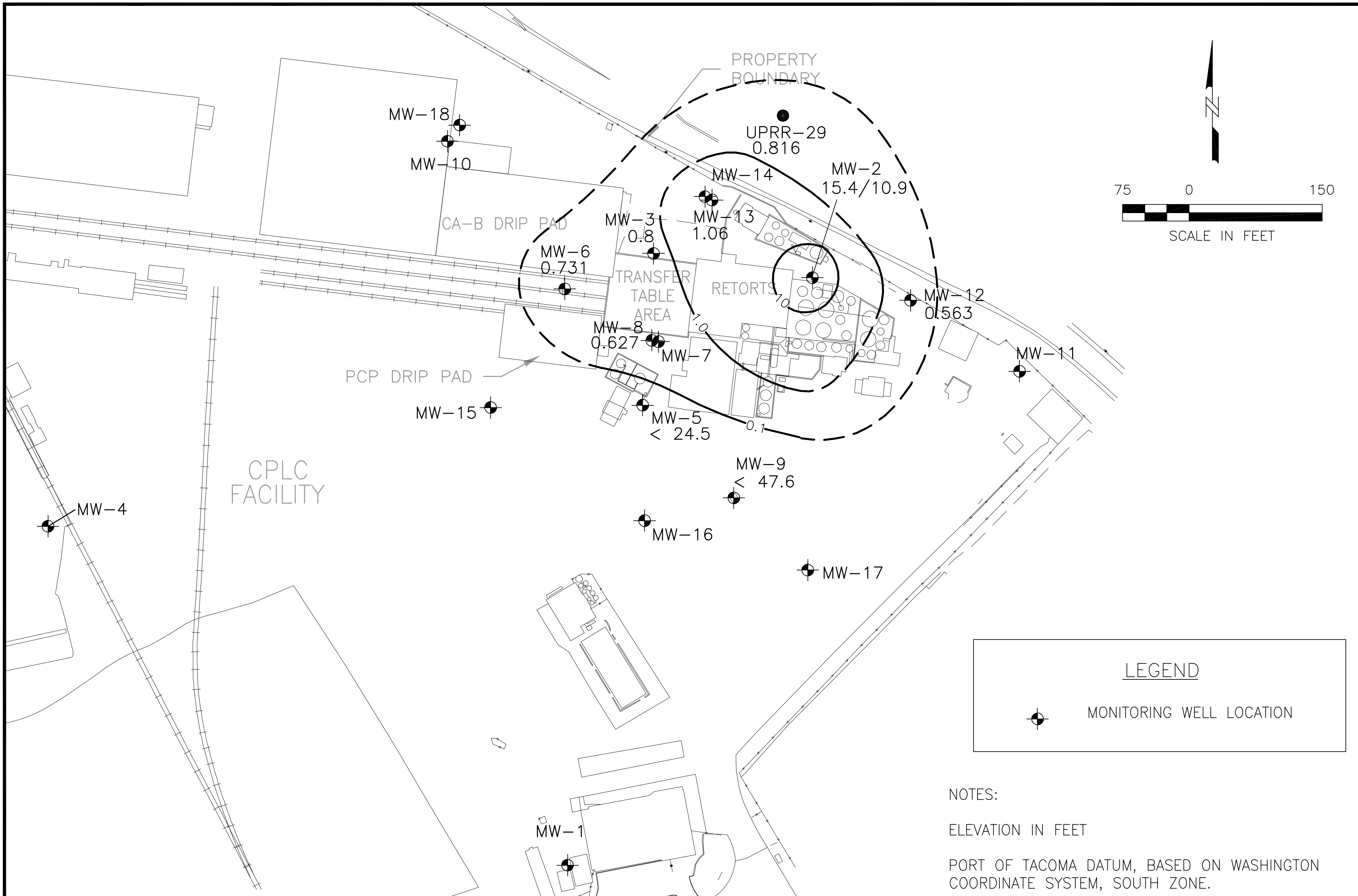


RETEC

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
CPLC1-16832-500

CONCENTRATIONS OF PCP IN SHALLOW AQUIFER FEBRUARY 2007

DATE: 3/20/07	DRWN: E.M./SEA		**FIGURE 4**



NOTES:

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

ENSR | AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

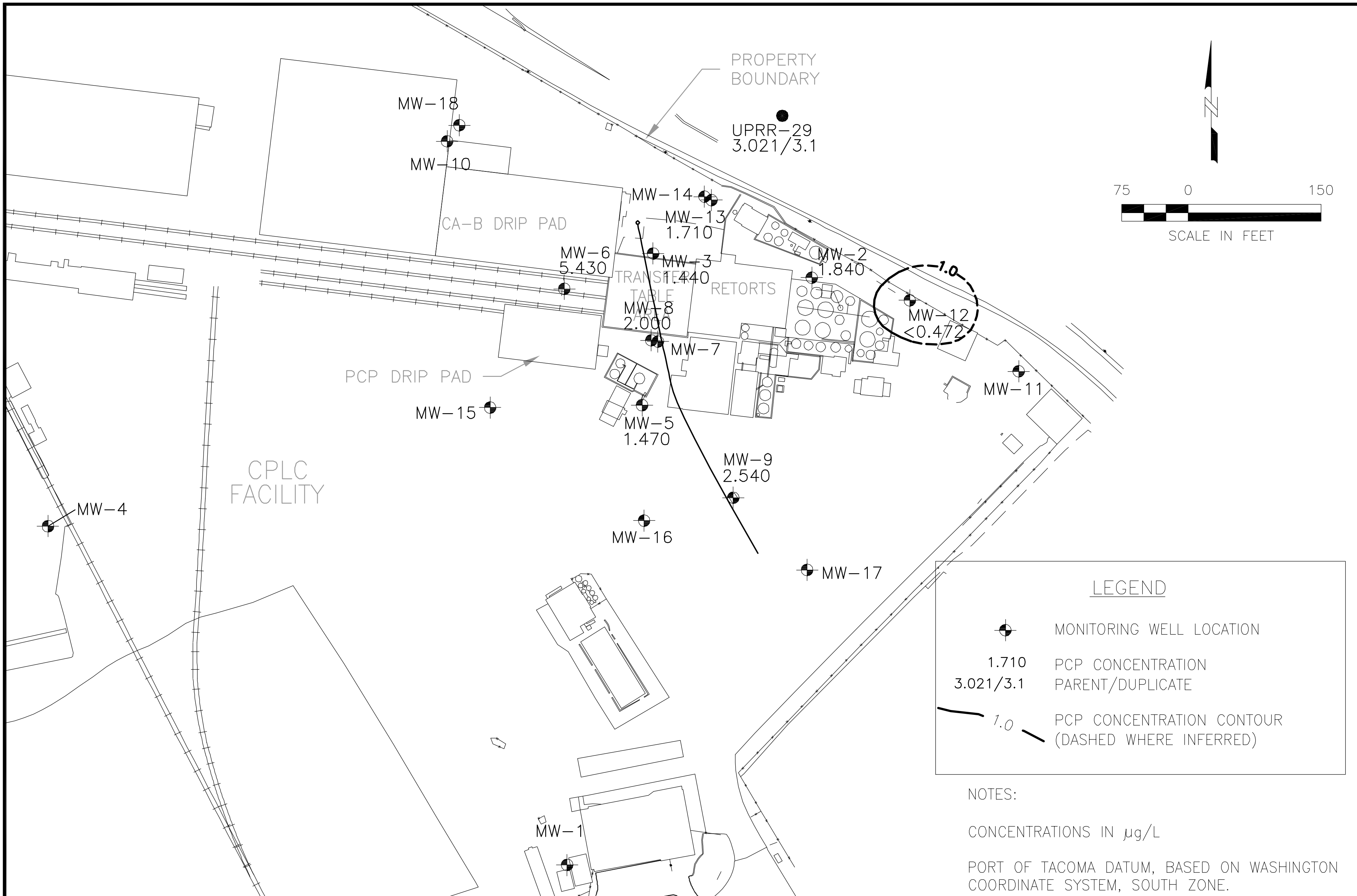
04530-015-300

CONCENTRATIONS OF PCP IN SHALLOW AQUIFER JANUARY 2008

DATE: 4/1/08 | DRWN: E.M./SEA

FIGURE 4

File: L:\Cascade Lumber\PCP_shallow_1-09.dwg Layout: FIGURE 4 User: MarshallE Plotted: Apr 16, 2009 - 8:23am Xref's:



AECOM

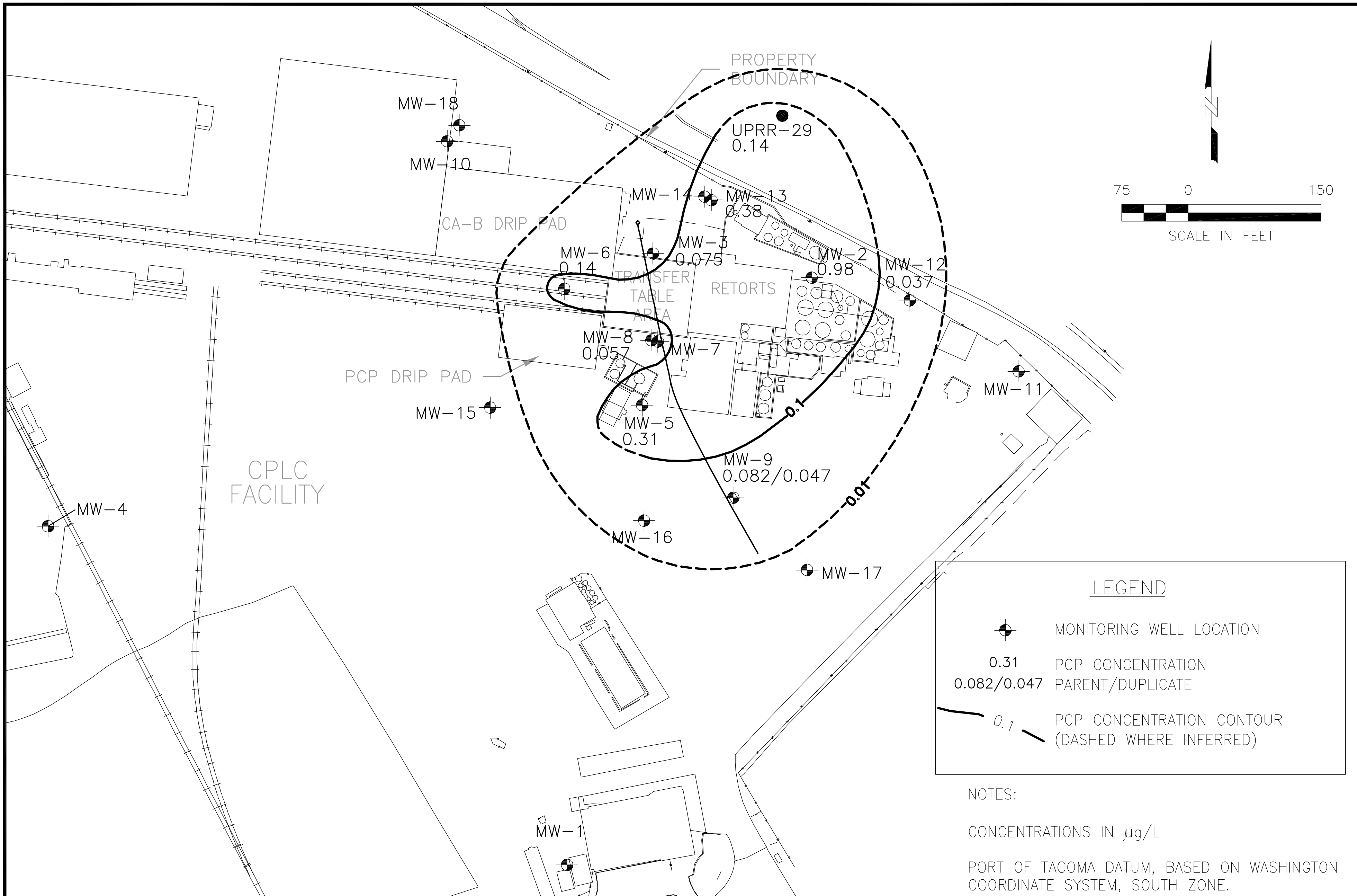
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

04530-015-0300

DATE: 03/19/09 | DRWN: E.M./SEA

CONCENTRATIONS OF PCP IN SHALLOW AQUIFER JANUARY 2009

FIGURE 4



LEGEND

MONITORING WELL LOCATION

0.31 PCP CONCENTRATION
0.082/0.047 PARENT/DUPLICATE

0.1 PCP CONCENTRATION CONTOUR (DASHED WHERE INFERRED)

NOTES:

CONCENTRATIONS IN μg/L

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0300

CONCENTRATIONS OF PCP IN SHALLOW AQUIFER JANUARY 2010

DATE: 03/25/10 | DRWN: E.M./SEA

FIGURE 4

APPENDIX G-3

2012 ANNUAL SITE-WIDE GROUNDWATER MONITORING REPORT

CASCADE POLE & LUMBER COMPANY

P.O. Box 1496, Tacoma, Washington 98401-1496
1640 East Marc, Tacoma, Washington 98421-2939
Phone: (253) 572-3033; Fax: (253) 627-0764

April 23, 2012

Mr. Stan Leja
Washington Department of Ecology
P.O. Box 47775
Olympia, WA 98504-7775

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

RE: Summary Report
Annual Site-Wide Groundwater Monitoring
Year 2012
Cascade Pole & Lumber Company
Agreed Order No. DE 92HS-S146

Dear Mr. Leja:

Cascade Pole & Lumber Company (CPLC) is pleased to submit this report summarizing the analytical results of the annual site-wide groundwater monitoring conducted in accordance with Agreed Order No. DE 92HS-S146 at the CPLC facility in Tacoma, Washington.

BACKGROUND

The groundwater sampling was conducted on February 7 and 8, 2012 to monitor the concentrations of chemicals of concern (COC) and to evaluate the effectiveness of interim actions in containing impacted groundwater and reducing COC concentrations in groundwater.

The COC identified at the CPLC facility are polycyclic aromatic hydrocarbons (PAHs), pentachlorophenol (PCP), and copper, chromium and arsenic compounds (CCA). Groundwater sampling was completed as specified in the *Groundwater Interim Action Implementation Report (The Retec Group, 1999) and the Final Work Plan for a Remedial Investigation/Feasibility Study (The Retec Group, 2004).* The analytical results are summarized in Table 1.

In general, groundwater quality has been relatively stable over the past eighteen years. Some changes have been observed related to facility improvements during this period. Since the early 1990s, CPLC implemented several facility upgrades to improve groundwater quality. These actions consisted of:

- Grading and paving treated wood storage areas in 1992 and 1993 to minimize surface water infiltration,
- Constructing covered drip pads west of the transfer table area in 1993 to capture drippage of preservatives,

- Installing a horizontal drain beneath the transfer table pit and adjacent areas in 1997 to hydraulically contain impacted groundwater, and
- Excavating impacted soil above the water table and lining the transfer table pit in 1999 to remove potential contaminant sources.

GROUNDWATER SAMPLING METHODS

Groundwater samples were collected using low-flow techniques as approved by the Washington Department of Ecology (WDOE). Purging was performed for all monitoring wells prior to sample collection. At each well location, field parameters were continuously monitored and recorded on sampling forms during the low-flow purging. Sampling field forms are provided in Appendix C. After the field parameters stabilized, the samples were taken through clean, disposable tubing attached to a low-flow pumping apparatus. Water level measurements were made using a water level probe as described in the Remedial Investigation/Feasibility Study (RI/FS) Work Plan. The water level probe was decontaminated between each monitoring well location.

Groundwater samples were stored in a cooler with ice and transported to Test America Laboratory in Fife Washington under the appropriate chain of custody.

LABORATORY ANALYTICAL METHODS

All groundwater samples were analyzed for the following parameters:

- PAHs by EPA Method 8270-SIM
- Total metals by EPA Method 6020
- Dissolved metals by EPA Method 6020

The groundwater sample from MW-9 was also analyzed for BTEX by EPA Method 8021B.

The groundwater analytical results have been validated. The data validation memorandum and the laboratory reports are attached in Appendix B and Appendix C, respectively.

SUMMARY OF ANALYTICAL RESULTS

Analytical results are presented in Table 1. Sampling results from the previous eight years are also included in Table 1 for comparison. Analytical results from wells MW-7, MW-14 and MW-18 represent groundwater quality in the lower aquifer. The analytical results from the remaining wells represent groundwater quality in the upper aquifer. Concentration maps for dissolved metals (copper, chromium, and arsenic), PCP, and naphthalene in the upper aquifer are shown on Figures 1 through 5, respectively. Concentration maps for dissolved metals (copper, chromium, and arsenic), PCP, and naphthalene in the lower aquifer are shown on Figures 6 through 10, respectively. The following can be inferred from the analytical results:

- Groundwater concentrations for copper were all below the MTCA Method B surface water cleanup level (2.66 mg/L). Copper concentrations were below the detection limit of 0.005 all on-site wells. The only positive detection for copper was in the off-site, up gradient UPRR-29 well at 0.015 mg/L. The. Copper concentrations have remained stable (Figures 1 and 6).

- Low levels of chromium ranging from below detection (< 0.002) to 0.019 mg/L were observed in monitoring wells located in the treating area (Figure 2). All results were below the MTCA Method B surface water cleanup Level (243 mg/L). In general, the chromium concentrations have remained stable, or decreased over time (Figures 2 and 7).

- Groundwater with concentrations above the MTCA Method A surface water cleanup level for arsenic (5 ug/L) was observed in shallow monitoring wells located in the treating area (Figure 3). The levels were the highest in MW-2, 3, 5 and 13 and decreased in areas away from the treating plant. Arsenic levels in the deep well MW-7 was below the detection limit and the Clean up level of 5 ug/L. Arsenic in deep well MW-14 was detected at 5.4 ug/L; slightly above the Clean up level of 5 ug/L (Figure 8).

- All groundwater sampling results for PCP were significantly below the MTCA Method B surface water cleanup level (3 ug/L) (Table 1, Figure 4). These results indicate a general reduction in the pentachlorophenol concentrations at the site (Figures 4 and 9).

- PAH concentrations have remained fairly stable in most monitoring wells. Naphthalene is the primary PAH found at the CPLC facility. Figures 5 and 10 depict concentration isopleths for naphthalene in the upper and lower aquifer monitoring wells, respectively. All groundwater sampling results revealed naphthalene concentrations below the MTCA Method B surface water cleanup level (9,880 ug/L).

- The PCP concentration in the discharge water from the horizontal drain was 0.18 ug/L. This concentration was less than in recent years and it supports the trend that the PCP concentration in groundwater has decreased over time.

The sampling data continues to show that groundwater impacts are primarily centered in the treating area. Interim actions have been implemented over the past fifteen years to eliminate sources. CPLC plans to continue operating the horizontal drain and sampling annually as described in the *Groundwater Interim Action Implementation Report* (ThermoRetec, 1999) and will complete future sampling as detailed in the RI/FS Work Plan.

GROUNDWATER FLOW

The depth to groundwater is generally quite shallow, ranging from approximately 4 to 8.5 feet below ground surface. Figures 11 and 12 provide a depiction of the potentiometric surface of the upper aquifer and the lower aquifer, respectively, on February 7, 2012 and shows that groundwater at the facility flows generally west within both aquifers and the upper aquifer is influenced by the horizontal well. Table 2 summarizes the groundwater elevation data collected in 2012 through February 2012. No significant seasonal variations in groundwater flow directions have been noted; although the static water levels measured in individual wells fluctuated seasonally by approximately 1 to 3 feet. Groundwater elevations were highest during winter months (January through March) and a minimum in the fall (September and October).

REFERENCE

The Retec Group, 1999. *Groundwater Interim Action Implementation Report.* Cascade Pole and Lumber Company.

The Retec Group, 2004. *Final Work Plan for a Remedial Investigation/Feasibility Study.* Cascade Pole and Lumber Company.

◆ ◆ ◆

Please feel free to contact me at (253) 572-3033 or Renee Knecht at (206) 624-9349 should you have any questions.

Sincerely,
Cascade Pole & Lumber Company

Edward Smith
Environmental Specialist

Enclosures:

copies: Les Lonning, CPLC
Renee Knecht, AECOM Environment

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Table 1

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MTCA	MTCA		MW-1	MW-2											
Sample Date	SURFACE WATER	GROUNDWATER	TEF	2/6/2004	2/5/2004	05/26/04	09/08/04	1/27/2005	1/24/2006	2/1/2007	01/31/08	01/31/08 Dup	01/27/09	01/21/10	02/09/11	2/7/2012
SEMIVOLATILE ORGANICS (ug/L)																
1-Methylnaphthalene	-	-		NA	NA	NA	NA	NA	18.4	8.95	86.3	85.7	40.2 J	73	8.9	1.9
2-Chloronaphthalene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 9.9	< 9.43	< 9.43	< 0.028	NA	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)		< 0.5	< 0.5	2.7	117	2.11	7.18	< 2.36	15.4	10.9	1.84	0.98	0.1	0.11
Carcinogenic PAHs																
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	0.245	< 0.1	< 0.0952	0.00943	< 1.98	< 1.89	< 0.943	< 0.0094	< 0.094	0.03
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	< 0.1	0.132	< 0.1	< 0.0952	0.0172	< 1.98	< 1.89	< 0.943	< 0.019	< 0.19	< 0.038 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.189	0.189	< 0.1	< 0.0952	0.0231	< 1.98	< 1.89	< 0.943	0.02	< 0.094	0.02
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.132	0.132	< 0.1	< 0.0952	0.0177	< 1.98	< 1.89	< 0.943	< 0.0094	< 0.094	< 0.019
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	0.302	0.283	0.456	< 0.0952	< 0.00943	< 1.98	< 1.89	< 0.943	0.013	< 0.094	0.03
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 1.98	< 1.89	< 0.943	< 0.0094	< 0.094	< 0.019
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.189	< 0.1	< 0.1	< 0.0952	< 0.00943	< 1.98	< 1.89	< 0.943	< 0.0094	< 0.094	< 0.019
Total CPAH	-	0.1 (A)		0	0	0.054	0.191	0.0046	0	0.0222	0	0	0	0.00213	0	0.0053
Non-Carcinogenic PAHs																
2-Methylnaphthalene	-	-		< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	0.269	< 1.98	< 1.89	< 9.43	0.42	< 0.12	0.031
Acenaphthene	643 (B)	960 (B)		< 0.1	43.8	49.2	191	255	40.2	86.4	232	242	186 J	200	140	100
Acenaphthylene	-	-		< 0.1	1	1.23	8.47	14	1.94	3.05	6.34	6.42	< 9.43	3	3.6	2.2
Anthracene	25900 (B)	4800 (B)		< 0.1	2.04	1.4	2.45	5.19	3.16	3.42	7.52	8.3	11.1	3.5	4.5	3.8
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 1.98	< 1.89	< 9.43	< 0.0094	< 0.094	0.019
Fluoranthene	90.2 (B)	640 (B)		< 0.1	2.88	2.72	2.38	5.56	3.35	4.25 J	6.73	6.79	< 9.43	3.9	8.6	7.1
Fluorene	3460 (B)	640 (B)		< 0.1	22.1	19.7	68.5	97.4	26.6	35.2	93.1	98.1	92.9	78	63	64
Naphthalene	9880 (B)	0.32 (B)		< 0.1	0.462	0.887	270	187	31.9	4.27 J	32.5	31.3	9.83 J	34	0.73	0.24
Phenanthrene	-	-		< 0.1	8.62	1.02	5.53	49.1	30.7	52.5	73.3	77	62.6	51	35	5.1
Pyrene	2590 (B)	480 (B)		< 0.1	1.44	1.26	1.51	2.84	1.93	1.77	4.36	4.53	< 9.43	2.3	4.7	4.6
Total LPAH	-	-		0.00	82.34	77.42	549.84	616	140	191.13	455.85	474.44	390.72	375.7	260	187
INORGANICS - DISSOLVED (mg/L)																
Arsenic	9.82E-05 (B)	0.005 (A)		0.0027	0.202	0.294	0.244	0.282	0.481	0.207 J+	0.205	0.272	0.29	0.19 J-	0.23	0.47
Chromium	-	0.05 (A)		< 0.001	0.0079	0.0068	0.0132	0.0085	0.02	0.0111	0.00279	0.00341	0.00249	0.0039	0.003	0.002
Copper	2.66 (B)	0.59 (B)		< 0.001	0.0012	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)																
Arsenic	9.82E-05 (B)	0.005 (A)		0.0023	0.194	0.317	0.261	0.276	0.515	0.227	0.238	0.252	0.3	0.23 J-	0.29	0.48
Chromium	-	0.05 (A)		< 0.001	0.0103	0.0191	0.0193	0.0137	0.0282	0.013	0.00466	0.00385	0.00432	0.0084	0.0057	0.0054
Copper	2.66 (B)	0.59 (B)		< 0.001	0.0025	0.0127	0.0072	0.0053	0.009	0.00618	0.00162	< 0.001	0.00105	< 0.005	< 0.005	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MTCA	MTCA	MW-3										
Sample Date	SURFACE WATER	GROUNDWATER	2/5/2004	05/25/04	09/08/04	1/27/2005	1/24/2006	2/1/2007	1/31/2008	01/28/09	01/21/10	02/09/11	2/7/2012
SEMIVOLATILE ORGANICS (ug/L)													
1-Methylnaphthalene	-	-	NA	NA	NA	NA	0.118	1.98	0.62	< 0.0943	0.16	< 0.094	0.052
2-Chloronaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.943	< 10	< 9.43	< 0.028	NA	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)	< 0.5	< 0.5	2.57	2.16	< 0.476	2.4	0.8	1.44	0.075	< 0.094	0.14
Carcinogenic PAHs													
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	0.151	< 0.1	< 0.0952	< 0.0943	< 0.1	< 0.00943	0.03	< 0.094	0.02
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	0.17	< 0.1	< 0.0952	< 0.0943	< 0.1	< 0.00943	0.035	< 0.19	< 0.038 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	0.189	< 0.1	< 0.0952	< 0.0943	< 0.1	< 0.00943	0.095	< 0.094	0.043
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	0.17	< 0.1	< 0.0952	< 0.0943	< 0.1	< 0.00943	0.02	< 0.094	< 0.019
Chrysene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	0.189	< 0.1	< 0.0952	< 0.0943	< 0.1	< 0.00943	0.043	< 0.094	0.027
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	0.123	< 0.1	< 0.00943	0.01	< 0.094	< 0.019
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	0.113	< 0.1	< 0.0952	0.121	< 0.1	< 0.00943	0.041	< 0.094	0.028
Total CPAH	-	0.1 (A)	0	0	0.2342	0	0	0.0244	0	0	0.05503	0	0.009
Non-Carcinogenic PAHs													
2-Methylnaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	0.252 J	0.1	< 0.0943	0.047	< 0.12	< 0.025
Acenaphthene	643 (B)	960 (B)	0.302	0.267	0.321	0.338	0.324	2.02	1.3	0.972	1.4	3.4	1.2
Acenaphthylene	-	-	< 0.1	< 0.1	< 0.1	0.206	< 0.0952	0.255 J	< 0.1	< 0.0943	0.062	< 0.094	0.083
Anthracene	25900 (B)	4800 (B)	< 0.1	< 0.1	0.264	0.769	< 0.0952	1.03	0.18	< 0.0943	0.28	0.24	0.29
Benzo(g,h,i)perylene	-	-	< 0.1	< 0.1	0.132	0.104	< 0.0952	0.126 J	< 0.1	< 0.0943	0.043	< 0.094	0.028
Fluoranthene	90.2 (B)	640 (B)	< 0.1	< 0.1	0.113	< 0.1	< 0.0952	0.142 J	< 0.1	< 0.0943	0.085	< 0.094	0.054
Fluorene	3460 (B)	640 (B)	0.17	0.114	0.208	0.181	< 0.0952	< 0.943	0.34	0.141	0.23	0.38	0.17
Naphthalene	9880 (B)	0.32 (B)	1.26	0.114	< 0.1	0.383	0.368	1.95	0.28	< 0.0943	0.33	< 0.094	0.069
Phenanthrene	-	-	0.208	0.19	0.132	0.11	< 0.0952	0.216 J	< 0.1	< 0.0943	0.048	< 0.094	0.028
Pyrene	2590 (B)	480 (B)	< 0.1	< 0.1	0.113	0.1	< 0.0952	0.163 J	< 0.1	< 0.0943	0.075	< 0.094	0.058
Total LPAH	-	-	1.94	0.69	1.28	2.19	0.69	6.154	2.2	1.113	1.63	3.78	1.98
INORGANICS - DISSOLVED (mg/L)													
Arsenic	9.82E-05 (B)	0.005 (A)	4.43	0.304	3.53	2.78	0.422	1.59 J+	0.586	0.303	2.6 J-	2.5	2.6
Chromium	-	0.05 (A)	0.0284	0.0219	0.0285	0.0228	1.4	0.0824	0.0465	0.026	0.026	0.016	0.019
Copper	2.66 (B)	0.59 (B)	0.0016	< 0.001	< 0.001	< 0.001	0.0012	0.00231	0.00157	< 0.001	< 0.005	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)													
Arsenic	9.82E-05 (B)	0.005 (A)	4.57	3.49	3.95	3.26	0.626	1.73	0.527	1.43	4.6 J-	3.7	3.2
Chromium	-	0.05 (A)	0.0661	0.116	0.0822	0.191	1.68	0.128	0.068	0.113	0.13	0.039	0.083
Copper	2.66 (B)	0.59 (B)	0.287	0.124	0.0428	0.204	0.12	0.0743	0.0188	0.0507	0.1	0.026	0.095
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	*MTCA*	*MTCA*	*MW-5*						
Sample Date	*SURFACE WATER*	*GROUNDWATER*	*1/25/2006*	*2/1/2007*	*1/31/2008*	*1/28/2009*	*1/22/10*	*2/10/11*	*2/7/2012*
SEMIVOLATILE ORGANICS (ug/L)									
1-Methylnaphthalene	-	-	***8.3*** ***J***	***12.7***	***16.7***	< 48.1	25	***16***	***13***
2-Chloronaphthalene	-	-	< 0.0952	< 0.943	< 9.62	< 9.62	< 0.028	NA	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)	< 0.476	< 0.472	< 24.5	***1.47***	***0.31***	***0.17***	***0.18*** ***J***
Carcinogenic PAHs									
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.0952	***0.143***	< 4.9	< 4.81	***0.019***	< 0.094	***0.14***
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.0952	< 0.0943	< 4.9	< 4.81	< 0.019	< 0.019	< 0.19 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.0952	< 0.0943	< 4.9	< 4.81	***0.03***	< 0.094	***0.21***
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.0952	< 0.0943	< 4.9	< 4.81	***0.011***	< 0.094	< 0.096
Chrysene	0.0296 (B)	0.012 (B)	< 0.0952	< 0.0943	< 4.9	< 4.81	***0.03***	< 0.094	***0.2***
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.0952	< 0.0943	< 4.9	< 4.81	< 0.0094	< 0.094	< 0.096
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.0952	< 0.0943	< 4.9	< 4.81	< 0.0094	< 0.094	***0.12***
Total CPAH	-	0.1 (A)	0	***0.0143***	0	0	***0.0063***	0	***0.049***
Non-Carcinogenic PAHs									
2-Methylnaphthalene	-	-	***10.2*** ***J***	***3.4***	***11.8***	< 48.1	31	***17***	***19***
Acenaphthene	643 (B)	960 (B)	***4.53***	***4.84***	< 4.9	< 48.1	7.3	***6.6***	***5***
Acenaphthylene	-	-	***0.175***	< 0.943	< 4.9	< 48.1	0.28	***0.2***	***0.19***
Anthracene	25900 (B)	4800 (B)	< 0.0952	***0.644*** ***J***	< 4.9	< 48.1	0.088	***0.13***	***0.23***
Benzo(g,h,i)perylene	-	-	< 0.0952	< 0.943	< 4.9	< 48.1	< 0.0094	< 0.094	***0.14***
Fluoranthene	90.2 (B)	640 (B)	***0.0952***	***0.223*** ***J***	< 4.9	< 48.1	0.082	***0.11***	***0.25***
Fluorene	3460 (B)	640 (B)	***1.74***	***1.52***	< 4.9	< 48.1	3.2	***2.4***	***5.3***
Naphthalene	9880 (B)	0.32 (B)	***1,810***	***625***	***885***	***495***	***1100***	***520***	***550***
Phenanthrene	-	-	***0.88***	***1.1***	< 4.9	< 48.1	0.85	***1.1***	***1***
Pyrene	2590 (B)	480 (B)	< 0.0952	***0.216*** ***J***	< 4.9	< 48.1	0.076	***0.1***	***0.3***
Total LPAH	-	-	1828	636.943	896.8	495	1143	548	***581***
INORGANICS - DISSOLVED (mg/L)									
Arsenic	9.82E-05 (B)	0.005 (A)	***0.142***	***0.183*** J+	***0.177***	***0.0245***	***0.063*** J-	***0.009***	***0.57***
Chromium	-	0.05 (A)	***0.00162***	***0.00337***	***0.00365***	< 0.001	< 0.002	***0.002***	< 0.002
Copper	2.66 (B)	0.59 (B)	< 0.001	< 0.001	0.001	< 0.001	< 0.005	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)									
Arsenic	9.82E-05 (B)	0.005 (A)	***0.154***	***0.212***	***0.139***	***0.145***	***0.13*** J-	***0.1***	***0.61***
Chromium	-	0.05 (A)	***0.00186***	***0.00181***	***0.00189***	***0.00169***	***0.003***	***0.003***	< 0.002
Copper	2.66 (B)	0.59 (B)	< ***0.001***	***0.00157***	***0.00131***	< 0.001	< 0.005	< 0.005	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MTCA	MTCA	MW-9													
Sample Date	SURFACE WATER	GROUNDWATER	02/06/04	05/26/04	05/26/04	02/23/05	01/25/06	02/02/07	01/31/08	01/27/09	01/21/10	01/21/10 FD	02/09/11	02/10/11 FD	2/8/2012	2/8/2012 FD
VOLATILE ORGANICS (ug/L)																
Benzene	43	1.51	95.4	99.1 J	79.1 J	106	83.4	89.3	95.5	91.5	21	23	32	29	15	14
Toluene	48,500	1,600	208	190 J	132 J	482	203	229	111	53	1.3	1.2	6.5	6.7	2.0	2.1
Ethylbenzene	-	-	3,260	3,150 J	2,260 J	4,200	2,580	3,220	2,950	2,320	150	150	180	190	87	88
m&p-Xylene	-	16,000	NA	NA	NA	NA	NA	NA	NA	NA	10	9.8	19	18	6.7	6.7
o-Xylene	-	16,000	NA	NA	NA	NA	NA	NA	NA	NA	6.4	6	17	17	9.7	9.7
Total Xylenes	-	16,000	1,890	1,990 J	1,260 J	2,500	1,540	1,640	1,470	849	NA	NA	NA	NA	NA	NA

Notes:
B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed.
D - The reported result for this analytewas calculated based on a secondary dilution factor.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-6 2/5/2004	05/26/04	09/08/04	1/27/2005	1/25/2006	2/1/2007	1/31/2008	1/28/2009	1/21/2010	2/10/2011	2/7/2012
SEMIVOLATILE ORGANICS (ug/L)														
1-Methylnaphthalene	-	-		NA	NA	NA	NA	< 0.0952	0.0505 J	< 0.0962	< 0.0943	0.028	< 0.094	0.025
2-Chloronaphthalene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 9.62	< 9.43	< 0.029	NA	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)		3.79	1.98	< 0.5	< 0.5	< 0.476	2.45	0.731	5.43	0.14	0.37	0.43
Carcinogenic PAHs														
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	0.013	< 0.094	< 0.019
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	0.132	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.019	< 0.019	< 0.038 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.151	< 0.1	< 0.0952	< 0.00943	< 0.0962	0.0157	0.011	< 0.094	< 0.019
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.113	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0095	< 0.094	< 0.019
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	0.0254	0.017	< 0.094	0.025
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0095	< 0.094	< 0.019
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0095	< 0.094	< 0.019
Total CPAH	-	0.1 (A)		0	0	0.1584	0	0	0	0	0.00182	0.00257	0	0.00025
Non-Carcinogenic PAHs														
2-Methylnaphthalene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	0.0534 J	< 0.0962	< 0.0943	0.017	< 0.12	< 0.025
Acenaphthene	643 (B)	960 (B)		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0962	< 0.0943	0.061	< 0.094	0.043
Acenaphthylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	0.0746 J	< 0.0962	< 0.0943	0.026	< 0.094	< 0.019
Anthracene	25900 (B)	4800 (B)		< 0.1	< 0.1	0.151	0.481	< 0.0952	0.634	0.135	< 0.0943	0.12	0.1	0.092
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0962	< 0.0943	< 0.0095	< 0.094	< 0.019
Fluoranthene	90.2 (B)	640 (B)		< 0.1	< 0.1	0.208	0.117	< 0.0952	< 0.0943	< 0.0962	0.105	0.077	< 0.094	0.081
Fluorene	3460 (B)	640 (B)		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0962	< 0.0943	0.048	< 0.094	0.051
Naphthalene	9880 (B)	0.32 (B)		< 0.1	< 0.1	< 0.1	< 0.1	0.143	0.0237 J	0.115	0.132	0.019	< 0.094	0.52
Phenanthrene	-	-		< 0.1	0.113	< 0.1	< 0.1	< 0.0952	0.0403 J	< 0.0962	< 0.0943	0.023	< 0.094	< 0.019
Pyrene	2590 (B)	480 (B)		< 0.1	< 0.1	0.208	0.136	< 0.0952	< 0.0943	0.115	0.118	0.074	< 0.094	0.081
Total LPAH	-	-		0.00	0.113	0.567	0.734	0.143	0.826	0.365	0.355	0.17	0.1	0.868
INORGANICS - DISSOLVED (mg/L)														
Arsenic	9.82E-05 (B)	0.005 (A)		0.0338	0.0338	0.0115	0.0123	0.0431	0.023 J+	0.00512	0.00221	< 0.002 J	< 0.002	0.013
Chromium	-	0.05 (A)		0.0136	0.0125	0.0227	0.0222	0.02	0.0253	0.0265	0.0139	0.016	0.011	0.015
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)														
Arsenic	9.82E-05 (B)	0.005 (A)		0.0329	0.0145	0.0098	0.0115	0.0431	0.0321	0.00513	0.00603	0.004 J-	0.0073	0.013
Chromium	-	0.05 (A)		0.0184	0.0154	0.0316	0.0224	0.0259	0.0267	0.025	0.0278	0.031	0.023	0.021
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	0.0012	< 0.001	< 0.001	0.00097 J	0.00171	0.00213	< 0.005	< 0.005	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

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Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-7 2/4/2004	05/25/04	05/25/04 (dup)	09/08/04	1/28/2005	02/23/05	1/25/2006	2/2/2007	1/31/2008	1/27/2009	1/21/2010	2/9/2011	2/8/2012
SEMIVOLATILE ORGANICS (ug/L)																
1-Methylnaphthalene	-	-		NA	NA	NA	NA	NA	NA	< 0.0952	0.272 J	< 0.0943	< 0.0943	0.05	< 0.094	0.025
2-Chloronaphthalene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	0.373	NA	< 0.0952	< 0.0952	< 9.43	< 9.43	< 0.029	NA	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)		< 0.5	< 0.5	< 0.5	0.708 J	139	< 0.5	< 0.476	1.6	0.509	1.79	0.049	< 0.094	0.028
Carcinogenic PAHs																
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0952	0.0748	< 0.0943	0.043	0.023	< 0.094	< 0.019
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	< 0.1	0.146 J	< 0.1	NA	< 0.0952	0.0913	< 0.0943	0.0578	0.025	< 0.19	< 0.038 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	0.188	< 0.1	NA	< 0.0952	0.0808	< 0.0943	0.0567 J	0.038	< 0.094	0.021
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	0.104	< 0.1	NA	< 0.0952	0.102	< 0.0943	0.0588 J	0.013	< 0.094	< 0.019
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	< 0.1	0.125	< 0.1	NA	< 0.0952	0.086	< 0.0943	0.0657	0.022	< 0.094	< 0.019
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1 UJ	< 0.1	NA	< 0.0952	< 0.00952	< 0.0943	< 0.00943	< 0.0095	< 0.094	< 0.019
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	0.125 J	< 0.1	NA	< 0.0952	0.108	< 0.0943	0.046	0.016	< 0.094	< 0.019
Total CPAH	-	0.1 (A)		0	0	0	0.189	0	NA	0	0.129	0	0.0789	0.0342	0	0.0021
Non-Carcinogenic PAHs																
2-Methylnaphthalene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0952	< 0.0952	< 0.0943	< 0.0943	0.071	< 0.12	< 0.025
Acenaphthene	643 (B)	960 (B)		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0952	< 0.0952	< 0.0943	< 0.0943	0.022	< 0.094	< 0.019
Acenaphthylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0952	< 0.0952	< 0.0943	< 0.0943	< 0.0095	< 0.094	< 0.019
Anthracene	25900 (B)	4800 (B)		< 0.1	< 0.1	< 0.1	< 0.1	0.463	NA	< 0.0952	0.208	< 0.0943	0.23	0.059	< 0.094	0.061
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	< 0.1	0.125 J	< 0.1	NA	< 0.0952	0.104	< 0.0943	< 0.0943	0.017	< 0.094	< 0.019
Fluoranthene	90.2 (B)	640 (B)		< 0.1	< 0.1	< 0.1	0.125	< 0.1	NA	< 0.0952	0.121	0.113	< 0.0943	0.05	< 0.094	0.023
Fluorene	3460 (B)	640 (B)		< 0.1	< 0.1	< 0.1	< 0.1	0.13	NA	< 0.0952	< 0.0952	0.113	< 0.0943	0.013	< 0.094	0.043
Naphthalene	9880 (B)	0.32 (B)		< 0.1	< 0.1	< 0.1	< 0.1	0.39	NA	< 0.0952	0.0621 J	< 0.0943	< 0.0943	0.28	< 0.094	0.032
Phenanthrene	-	-		< 0.1	< 0.1	< 0.1	0.104	< 0.1	NA	< 0.0952	0.065 J	< 0.0943	< 0.0943	0.052	< 0.094	0.031
Pyrene	2590 (B)	480 (B)		< 0.1	< 0.1	< 0.1	0.125	< 0.1	NA	< 0.0952	0.112	0.113	< 0.0943	0.046	< 0.094	0.019
Total LPAH	-	-		0	0	0	0.479	0.983	NA	0	0.6721	0.339	0.23	0.61	0	0.209
INORGANICS - DISSOLVED (mg/L)																
Arsenic	9.82E-05 (B)	0.005 (A)		0.0021	0.0025	0.0017	0.0023	0.0024	NA	0.0013	< 0.01	0.00221	0.00148	< 0.002	< 0.002	< 0.005
Chromium	-	0.05 (A)		0.00525	0.00561 J	0.00784 J	0.00373	0.00611	NA	0.00468	0.00685	0.00503	0.00537	0.0059	0.003	< 0.002
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	< 0.001	0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)																
Arsenic	9.82E-05 (B)	0.005 (A)		0.00379	0.00562 J	0.00377 J	0.00569	0.00492	NA	0.00486	0.00393	0.00367	0.00241	0.0022	< 0.002	< 0.005
Chromium	-	0.05 (A)		0.00409	0.00372	0.00368	0.00498	0.00468	NA	0.00389	0.00356	0.00363	0.00335	0.018	0.0051	0.0031
Copper	2.66 (B)	0.59 (B)		0.00124	< 0.001	< 0.001	0.00164	0.00102	NA	0.00103	0.00103	0.00248	< 0.001	< 0.005	< 0.005	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-8 2/4/2004	05/25/04	09/08/04	1/28/2005	1/25/2006	2/1/2007	1/31/2008	1/28/2009	1/21/2010	2/9/2011	2/7/2012
SEMIVOLATILE ORGANICS (ug/L)														
1-Methylnaphthalene	-	-		NA	NA	NA	NA	0.373	0.65 J	3.08	0.673	3.7 J	1.2	0.91
2-Chloronaphthalene	-	-		0.302	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.952	< 9.8	< 9.43	< 0.028	NA	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)		3.79	< 0.5	1.16	2.32	0.493	1.94	0.627	2	0.057	0.3	0.28
Carcinogenic PAHs														
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	0.015 J	< 0.094	< 0.019
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	0.152	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	< 0.019 J	< 0.19	< 0.038 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	0.017 J	< 0.094	< 0.019
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	< 0.0094 J	< 0.094	< 0.019
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	0.032 J	< 0.094	< 0.019
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	< 0.0094 J	< 0.094	< 0.019
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.133	< 0.1	< 0.0952	< 0.0952	< 0.098	< 0.0189	0.011 J	< 0.094	< 0.019
Total CPAH	-	0.1 (A)		0	0	0.165	0	0	0	0	0	0.00462	0	0
Non-Carcinogenic PAHs														
2-Methylnaphthalene	-	-		0.208	< 0.1	0.248	< 0.1	< 0.0952	0.274 J	3.29	< 0.189	0.43 J	< 0.12	0.039
Acenaphthene	643 (B)	960 (B)		1.6	1.54	3.33	2.46	0.73	1.58	4.98	2.02	7.7 J	5.6	5.9
Acenaphthylene	-	-		0.264	0.19	0.4	0.41	< 0.0952	0.674 J	0.216	< 0.189	< 0.94 J	0.19	0.26
Anthracene	25900 (B)	4800 (B)		< 0.1	< 0.1	0.286	0.998	0.152	1.51	0.333	< 0.189	0.2 J	0.32	0.56
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	0.133	< 0.1	< 0.0952	< 0.952	< 0.098	< 0.189	0.01 J	< 0.094	< 0.019
Fluoranthene	90.2 (B)	640 (B)		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.952	< 0.098	< 0.189	< 0.0094 J	< 0.094	< 0.019
Fluorene	3460 (B)	640 (B)		0.34	0.286	0.743	0.5	0.11	0.347 J	0.706	0.262	1.2 J	1.3	1.1
Naphthalene	9880 (B)	0.32 (B)		2.21	0.781	2.36	0.315	0.358	0.332 J	15.5	0.871	22 J	0.25	2.5
Phenanthrene	-	-		0.245	0.229	0.21	0.242	< 0.0952	< 0.952	< 0.098	< 0.189	0.1 J	< 0.094	0.045
Pyrene	2590 (B)	480 (B)		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.952	< 0.098	< 0.189	0.021 J	< 0.094	0.1
Total LPAH	-	-		4.867	3.026	7.71	4.925	1.35	4.717	25.0	3.153	31.7	8	10.5
INORGANICS - DISSOLVED (mg/L)														
Arsenic	9.82E-05 (B)	0.005 (A)		0.276	0.101	0.33	0.169	0.234	0.163 J+	0.209	0.00951	0.0057 J-	< 0.002	0.21
Chromium	-	0.05 (A)		0.0264	0.0151	0.0122	0.0155	0.0306	0.0262	0.0115	0.00664	0.01	0.014	0.01
Copper	2.66 (B)	0.59 (B)		0.0019	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)														
Arsenic	9.82E-05 (B)	0.005 (A)		0.316	0.177	0.379	0.203	0.286	0.213	0.144	0.374	0.37 J-	0.27	0.44
Chromium	-	0.05 (A)		0.0616	0.0442	0.0509	0.0339	0.0458	0.0317	0.0115	0.0479	0.036	0.03	0.025
Copper	2.66 (B)	0.59 (B)		0.0213	0.0135	0.0142	0.016	0.0136	0.00492	0.00167	0.0164	0.01	0.0062	0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-9 2/6/2004	05/26/04	09/08/04	1/27/2005	1/25/2006	2/1/2007	1/31/2008	1/28/2009	1/21/2010	1/21/2010 Dup	2/9/2011	2/9/2011 Dup	2/8/2012	2/8/2012 Dup
SEMIVOLATILE ORGANICS (ug/L)																	
1-Methylnaphthalene	-	-		NA	NA	NA	NA	2.73 J	18.5 J	38.1	< 189	12	13	14	14	9.1	7.9
2-Chloronaphthalene	-	-		< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 94.3	< 9.52	< 9.43	< 0.029	< 0.028	NA	NA	< 0.029	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)		< 0.5	< 0.5	< 0.5	2.16	3.36	< 9.43	< 47.6	2.54	0.082 J	0.047 J	< 0.094	< 0.098	< 0.096	< 0.096
Carcinogenic PAHs																	
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	0.014	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.019	< 0.019	< 0.19	< 0.2	< 0.19 J	< 0.19 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	0.01	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	< 0.1	0.438	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Total CPAH	-	0.1 (A)		0	0	0	0.00438	0	0	0	0	0.0024	0	0	0	0	0
Non-Carcinogenic PAHs																	
2-Methylnaphthalene	-	-		72.6 J	62.3	30.2	81.2	4.03	< 94.3	55.2	< 189	11	13	11	11	3.1	2.8
Acenaphthene	643 (B)	960 (B)		3.13	3.36	2.77	4.72	2.05	< 94.3	< 9.52	< 189	1 J	1.6 J	1.3	1.2	1.1	0.89
Acenaphthylene	-	-		0.189	0.226	0.245	0.356	0.12	< 94.3	< 9.52	< 189	0.046 J	0.069 J	< 0.094	< 0.098	< 0.096	< 0.096
Anthracene	25900 (B)	4800 (B)		< 0.1	0.113	0.17	0.348	< 0.0952	< 94.3	< 9.52	< 189	0.048 J	0.032 J	< 0.094	< 0.098	< 0.096	< 0.096
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 94.3	< 9.52	< 189	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Fluoranthene	90.2 (B)	640 (B)		< 0.1	< 0.1	0.113	0.287	< 0.0952	< 94.3	< 9.52	< 189	0.045 J	0.025 J	< 0.094	< 0.098	< 0.096	< 0.096
Fluorene	3460 (B)	640 (B)		0.415	0.491	0.377	0.662	0.217	< 94.3	< 9.52	< 189	0.08 J	0.11 J	< 0.094	< 0.098	< 0.096	< 0.096
Naphthalene	9880 (B)	0.32 (B)		4,980	4,530	2,640	6,480	3,030	3,690	3,570	6,140	570	770	880	850	410	320
Phenanthrene	-	-		0.208	0.208	0.321	0.475	0.164	< 94.3	< 9.52	< 189	0.12 J	0.088 J	< 0.094	< 0.098	< 0.096	< 0.096
Pyrene	2590 (B)	480 (B)		< 0.1	< 0.1	< 0.1	0.285	< 0.0952	< 94.3	< 9.52	< 189	0.049 J	0.026 J	< 0.094	< 0.098	< 0.096	< 0.096
Total LPAH	-	-		5056.5	4596.59	2674.2	6568.33	3,037	3,690	3,625	6,140	582	785	892	862	414	324
INORGANICS - DISSOLVED (mg/L)																	
Arsenic	9.82E-05 (B)	0.005 (A)		0.26	0.272	0.329	0.16	0.107	0.121 J+	0.0285	0.00831	0.037 J-	0.039	0.022	0.024	0.079	0.075
Chromium	-	0.05 (A)		0.0033	0.00261	0.00243	0.00338	0.0307	0.0041	0.00335	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)																	
Arsenic	9.82E-05 (B)	0.005 (A)		0.193	0.27	0.321	0.156	0.116	0.129	0.0924	0.125	0.066 J-	0.071 J-	0.083	0.084	0.077	0.081
Chromium	-	0.05 (A)		0.0019	0.00181	0.00266	0.00192	0.04150	0.0029	0.00141	0.00146	0.0024	0.0028	0.0026	0.0027	< 0.002	< 0.002
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	0.00187	0.00059 J	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

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Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

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SEMIVOLATILE ORGANICS (ug/L)																	
1-Methylnaphthalene	-	-		NA	NA	NA	NA	2.73 J	18.5 J	38.1	< 189	12	13	14	14	9.1	7.9
2-Chloronaphthalene	-	-		< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 94.3	< 9.52	< 9.43	< 0.029	< 0.028	NA	NA	< 0.029	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)		< 0.5	< 0.5	< 0.5	2.16	3.36	< 9.43	< 47.6	2.54	0.082 J	0.047 J	< 0.094	< 0.098	< 0.096	< 0.096
Carcinogenic PAHs																	
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	0.014	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.019	< 0.019	< 0.19	< 0.2	< 0.19 J	< 0.19 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	0.01	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	< 0.1	0.438	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Total CPAH	-	0.1 (A)		0	0	0	0.00438	0	0	0	0	0.0024	0	0	0	0	0
Non-Carcinogenic PAHs																	
2-Methylnaphthalene	-	-		72.6 J	62.3	30.2	81.2	4.03	< 94.3	55.2	< 189	11	13	11	11	3.1	2.8
Acenaphthene	643 (B)	960 (B)		3.13	3.36	2.77	4.72	2.05	< 94.3	< 9.52	< 189	1 J	1.6 J	1.3	1.2	1.1	0.89
Acenaphthylene	-	-		0.189	0.226	0.245	0.356	0.12	< 94.3	< 9.52	< 189	0.046 J	0.069 J	< 0.094	< 0.098	< 0.096	< 0.096
Anthracene	25900 (B)	4800 (B)		< 0.1	0.113	0.17	0.348	< 0.0952	< 94.3	< 9.52	< 189	0.048 J	0.032 J	< 0.094	< 0.098	< 0.096	< 0.096
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 94.3	< 9.52	< 189	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Fluoranthene	90.2 (B)	640 (B)		< 0.1	< 0.1	0.113	0.287	< 0.0952	< 94.3	< 9.52	< 189	0.045 J	0.025 J	< 0.094	< 0.098	< 0.096	< 0.096
Fluorene	3460 (B)	640 (B)		0.415	0.491	0.377	0.662	0.217	< 94.3	< 9.52	< 189	0.08 J	0.11 J	< 0.094	< 0.098	< 0.096	< 0.096
Naphthalene	9880 (B)	0.32 (B)		4,980	4,530	2,640	6,480	3,030	3,690	3,570	6,140	570	770	880	850	410	320
Phenanthrene	-	-		0.208	0.208	0.321	0.475	0.164	< 94.3	< 9.52	< 189	0.12 J	0.088 J	< 0.094	< 0.098	< 0.096	< 0.096
Pyrene	2590 (B)	480 (B)		< 0.1	< 0.1	< 0.1	0.285	< 0.0952	< 94.3	< 9.52	< 189	0.049 J	0.026 J	< 0.094	< 0.098	< 0.096	< 0.096
Total LPAH	-	-		5056.5	4596.59	2674.2	6568.33	3,037	3,690	3,625	6,140	582	785	892	862	414	324
INORGANICS - DISSOLVED (mg/L)																	
Arsenic	9.82E-05 (B)	0.005 (A)		0.26	0.272	0.329	0.16	0.107	0.121 J+	0.0285	0.00831	0.037 J-	0.039	0.022	0.024	0.079	0.075
Chromium	-	0.05 (A)		0.0033	0.00261	0.00243	0.00338	0.0307	0.0041	0.00335	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)																	
Arsenic	9.82E-05 (B)	0.005 (A)		0.193	0.27	0.321	0.156	0.116	0.129	0.0924	0.125	0.066 J-	0.071 J-	0.083	0.084	0.077	0.081
Chromium	-	0.05 (A)		0.0019	0.00181	0.00266	0.00192	0.04150	0.0029	0.00141	0.00146	0.0024	0.0028	0.0026	0.0027	< 0.002	< 0.002
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	0.00187	0.00059 J	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-9 2/6/2004	05/26/04	09/08/04	1/27/2005	1/25/2006	2/1/2007	1/31/2008	1/28/2009	1/21/2010	1/21/2010 Dup	2/9/2011	2/9/2011 Dup	2/8/2012	2/8/2012 Dup
SEMIVOLATILE ORGANICS (ug/L)																	
1-Methylnaphthalene	-	-		NA	NA	NA	NA	2.73 J	18.5 J	38.1	< 189	12	13	14	14	9.1	7.9
2-Chloronaphthalene	-	-		< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 94.3	< 9.52	< 9.43	< 0.029	< 0.028	NA	NA	< 0.029	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)		< 0.5	< 0.5	< 0.5	2.16	3.36	< 9.43	< 47.6	2.54	0.082 J	0.047 J	< 0.094	< 0.098	< 0.096	< 0.096
Carcinogenic PAHs																	
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	0.014	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.019	< 0.019	< 0.19	< 0.2	< 0.19 J	< 0.19 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	0.01	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	< 0.1	0.438	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 9.43	< 9.52	< 18.9	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Total CPAH	-	0.1 (A)		0	0	0	0.00438	0	0	0	0	0.0024	0	0	0	0	0
Non-Carcinogenic PAHs																	
2-Methylnaphthalene	-	-		72.6 J	62.3	30.2	81.2	4.03	< 94.3	55.2	< 189	11	13	11	11	3.1	2.8
Acenaphthene	643 (B)	960 (B)		3.13	3.36	2.77	4.72	2.05	< 94.3	< 9.52	< 189	1 J	1.6 J	1.3	1.2	1.1	0.89
Acenaphthylene	-	-		0.189	0.226	0.245	0.356	0.12	< 94.3	< 9.52	< 189	0.046 J	0.069 J	< 0.094	< 0.098	< 0.096	< 0.096
Anthracene	25900 (B)	4800 (B)		< 0.1	0.113	0.17	0.348	< 0.0952	< 94.3	< 9.52	< 189	0.048 J	0.032 J	< 0.094	< 0.098	< 0.096	< 0.096
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 94.3	< 9.52	< 189	< 0.0095	< 0.0094	< 0.094	< 0.098	< 0.096	< 0.096
Fluoranthene	90.2 (B)	640 (B)		< 0.1	< 0.1	0.113	0.287	< 0.0952	< 94.3	< 9.52	< 189	0.045 J	0.025 J	< 0.094	< 0.098	< 0.096	< 0.096
Fluorene	3460 (B)	640 (B)		0.415	0.491	0.377	0.662	0.217	< 94.3	< 9.52	< 189	0.08 J	0.11 J	< 0.094	< 0.098	< 0.096	< 0.096
Naphthalene	9880 (B)	0.32 (B)		4,980	4,530	2,640	6,480	3,030	3,690	3,570	6,140	570	770	880	850	410	320
Phenanthrene	-	-		0.208	0.208	0.321	0.475	0.164	< 94.3	< 9.52	< 189	0.12 J	0.068 J	< 0.094	< 0.098	< 0.096	< 0.096
Pyrene	2590 (B)	480 (B)		< 0.1	< 0.1	< 0.1	0.285	< 0.0952	< 94.3	< 9.52	< 189	0.049 J	0.026 J	< 0.094	< 0.098	< 0.096	< 0.096
Total LPAH	-	-		5056.5	4596.59	2674.2	6568.33	3,037	3,690	3,625	6,140	582	785	892	862	414	324
INORGANICS - DISSOLVED (mg/L)																	
Arsenic	9.82E-05 (B)	0.005 (A)		0.26	0.272	0.329	0.16	0.107	0.121 J+	0.0285	0.00831	0.037 J-	0.039	0.022	0.024	0.079	0.075
Chromium	-	0.05 (A)		0.0033	0.00261	0.00243	0.00338	0.0307	0.0041	0.00335	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)																	
Arsenic	9.82E-05 (B)	0.005 (A)		0.193	0.27	0.321	0.156	0.116	0.129	0.0924	0.125	0.066 J-	0.071 J-	0.083	0.084	0.077	0.081
Chromium	-	0.05 (A)		0.0019	0.00181	0.00266	0.00192	0.04150	0.0029	0.00141	0.00146	0.0024	0.0028	0.0026	0.0027	< 0.002	< 0.002
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	0.00187	0.00059 J	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	16000 (B)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

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Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-10 2/5/2004	MW-10 09/08/04	MW-10 09/08/04 (Dup)	MW-10 1/27/2005	MW-10 1/27/2005 (Dup)	MW-10 02/23/05	MW-10 1/25/2006	MW-10 2/2/2007
SEMIVOLATILE ORGANICS (ug/L)											
1-Methylnaphthalene	-	-		NA	NA	NA	NA	NA	NA	0.111	1.31
2-Chloronaphthalene	-	-		0.212	< 0.1	< 0.1	0.478 J	< 0.1 UJ	NA	< 0.0943	< 0.0943
Pentachlorophenol	3 (B)	0.729 (B)		12.9	1.79 J	2.6 J	155 J	40.3 J	461	59.1	< 0.472
Carcinogenic PAHs											
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.109	NA	< 0.0943	< 0.00943
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0943	< 0.00943
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.113	< 0.1	< 0.1	NA	< 0.0943	< 0.00943
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.113	< 0.1	< 0.1	NA	< 0.0943	< 0.00943
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 0.1	< 0.1	< 0.1	< 0.1 UJ	0.476 J	NA	< 0.0943	< 0.00943
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	0.171 J	0.868 J	< 0.1	< 0.1	NA	< 0.0943	< 0.00943
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.113	< 0.1	< 0.1	NA	< 0.0943	< 0.00943
Total CPAH	-	0.1 (A)		0	0.0171	0.121	0	0.0157	NA	0	0
Non-Carcinogenic PAHs											
2-Methylnaphthalene	-	-		< 0.1	0.171	< 0.1	< 0.1	< 0.1	NA	< 0.0943	0.678
Acenaphthene	643 (B)	960 (B)		< 0.1	< 0.1	< 0.1	< 0.1 UJ	0.747 J	NA	< 0.0943	0.131
Acenaphthylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0943	0.366
Anthracene	25900 (B)	4800 (B)		< 0.1	0.19	0.17	0.282 J	0.541 J	NA	< 0.0943	0.437
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	< 0.0943	< 0.0943
Fluoranthene	90.2 (B)	640 (B)		< 0.1	0.152	0.132	< 0.1 UJ	0.4 J	NA	< 0.0943	< 0.0943
Fluorene	3460 (B)	640 (B)		< 0.1	< 0.1	< 0.1	< 0.1 UJ	0.23 J	NA	< 0.0943	0.146
Naphthalene	9880 (B)	0.32 (B)		1.29	6.15	6.17	0.823 J	2.14 J	NA	1.68	14.3
Phenanthrene	-	-		< 0.1	0.152	0.132	< 0.1 UJ	0.265 J	NA	< 0.0943	0.0925
Pyrene	2590 (B)	480 (B)		< 0.1	0.171	0.151	< 0.1 UJ	0.362 J	NA	< 0.0943	< 0.0943
Total LPAH	-	-		1.29	6.99	6.76	1.105	4.69	NA	1.68	16.15
INORGANICS - DISSOLVED (mg/L)											
Arsenic	9.82E-05 (B)	0.005 (A)		< 0.001	0.0035	0.0034	< 0.001	0.0012	NA	< 0.001	< 0.01
Chromium	-	0.05 (A)		0.0038	0.0589	0.057	0.0159	0.0159	NA	0.0319	0.0101
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	NA	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)											
Arsenic	9.82E-05 (B)	0.005 (A)		< 0.001	0.0036	0.0036	< 0.001	< 0.001	NA	< 0.001	0.00218
Chromium	-	0.05 (A)		0.002	0.0721	0.0729	0.0154	0.0164	NA	0.0337	0.00987
Copper	2.66 (B)	0.59 (B)		< 0.001	0.0013	0.0025	< 0.001	< 0.001	NA	0.0012	0.00241
Hexavalent Chromium (Method 7195)	0.81 (B)	-		NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-		NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

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Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	MW-12 2/5/2004	05/26/04	09/08/04	1/27/2005	1/24/2006	2/1/2007	1/31/2008	1/27/2009	1/21/2010	2/9/2011	2/7/2012
SEMIVOLATILE ORGANICS (ug/L)													
1-Methylnaphthalene	-	-	NA	NA	NA	NA	< 0.0952	***0.109***	< 0.0971	< 0.00943	***0.03***	< 0.094	< 0.0096
2-Chloronaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 9.71	< 9.43	< 0.029	NA	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)	< 0.5	< 0.5	***1.62***	< 0.5	< 0.476	< 0.472	***0.563***	< 0.472	***0.037***	< 0.094	< 0.0096
Carcinogenic PAHs													
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.0095	< 0.094	< 0.0096
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.019	< 0.19	< 0.019 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.0095	< 0.094	< 0.0096
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.0095	< 0.094	< 0.0096
Chrysene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.0095	< 0.094	< 0.0096
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	***0.151***	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.0095	< 0.094	< 0.0096
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0971	< 0.00943	< 0.0095	< 0.094	< 0.0096
Total CPAH	-	0.1 (A)	0	0	***0.0151***	0	0	0	0	0	0	0	0
Non-Carcinogenic PAHs													
2-Methylnaphthalene	-	-	***0.113***	< 0.1	***0.226***	< 0.1	< 0.0952	***0.0574*** J	< 0.0971	< 0.0943	***0.023***	< 0.12	< 0.013
Acenaphthene	643 (B)	960 (B)	***0.453***	***0.453***	***1.43***	***0.67***	***0.189***	***0.351***	***0.175***	***0.152*** J	***0.16***	***0.2***	***0.17***
Acenaphthylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0971	< 0.0943	< 0.0095	< 0.094	< 0.0096
Anthracene	25900 (B)	4800 (B)	< 0.1	< 0.1	***0.189***	***0.184***	< 0.0952	***0.235***	< 0.0971	< 0.0943	***0.043***	< 0.094	***0.037***
Benzo(g,h,i)perylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0971	< 0.0943	< 0.0095	< 0.094	< 0.0096
Fluoranthene	90.2 (B)	640 (B)	< 0.1	< 0.1	***0.245***	< 0.1	< 0.0952	< 0.0943	< 0.0971	< 0.0943	***0.016***	< 0.094	***0.043***
Fluorene	3460 (B)	640 (B)	***0.189***	***0.17***	***0.566***	***0.282***	< 0.0952	***0.13***	< 0.0971	< 0.0943	***0.055***	< 0.094	***0.068***
Naphthalene	9880 (B)	0.32 (B)	***0.302***	***0.189***	***0.434***	***0.157***	< 0.0952	***0.0342*** J	< 0.0971	< 0.0943	***0.092***	< 0.094	***0.01***
Phenanthrene	-	-	***0.113***	< 0.1	***0.509***	***0.138***	< 0.0952	***0.0532*** J	< 0.0971	< 0.0943	***0.029***	< 0.094	***0.033***
Pyrene	2590 (B)	480 (B)	< 0.1	< 0.1	***0.226***	< 0.1	< 0.0952	< 0.0943	< 0.0971	< 0.0943	***0.015***	< 0.094	***0.042***
Total LPAH	-	-	***1.17***	***0.81***	***3.83***	***1.43***	***0.189***	***0.8608***	***0.175***	***0.152***	***0.433***	***0.2***	***0.403***
INORGANICS - DISSOLVED (mg/L)													
Arsenic	9.82E-05 (B)	0.005 (A)	***0.0131***	***0.0054***	***0.0173***	***0.0037***	***0.0067***	< 0.01	***0.00486***	***0.00129***	< 0.002 J	***0.0044***	***0.007***
Chromium	-	0.05 (A)	***0.0035***	***0.0013***	***0.0017***	***0.0016***	***0.0025***	***0.00318***	***0.00116***	< 0.001	***0.0038***	***0.0034***	< 0.002
Copper	2.66 (B)	0.59 (B)	< 0.001	< 0.001	< 0.001	< 0.001	***0.0016***	< 0.001	< 0.001	< 0.001	< 0.005	***0.0069***	< 0.005
INORGANICS - TOTAL (mg/L)													
Arsenic	9.82E-05 (B)	0.005 (A)	***0.0127***	***0.0056***	***0.0164***	***0.0051***	***0.0064***	***0.00409***	***0.00426***	***0.00175***	***0.0046*** J-	***0.0032***	***0.0077***
Chromium	-	0.05 (A)	***0.0035***	***0.0011***	***0.0023***	***0.0013***	***0.0031***	***0.00272***	***0.00121***	< 0.001	***0.0065***	***0.0038***	< 0.002
Copper	2.66 (B)	0.59 (B)	***0.0018***	< 0.001	***0.0014***	< 0.001	***0.0025***	***0.00114***	***0.00127***	< 0.001	0.0064	< 0.005	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	MW-13 2/5/2004	05/25/04	09/08/04	1/27/2005	1/24/2006	2/1/2007	1/31/2008	1/28/2009	1/21/2010	2/9/2011	2/7/2012
SEMIVOLATILE ORGANICS (ug/L)													
1-Methylnaphthalene	-	-	NA	NA	NA	NA	***0.112***	***0.0976***	***0.115***	***0.218***	***0.15***	< 0.094	***0.092***
2-Chloronaphthalene	-	-	***0.547***	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 9.62	< 9.43	< 0.028	NA	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)	***75.8***	***9.88***	***2.89***	< 0.5	***16.6***	***33***	***1.06***	***1.71***	***0.38***	< 0.094	***0.85***
Carcinogenic PAHs													
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	***0.0323***	< 0.0094	< 0.094	< 0.019
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.019	< 0.19	< 0.038 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0094	< 0.094	< 0.019
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0094	< 0.094	< 0.019
Chrysene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0094	< 0.094	***0.033***
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	***0.151***	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0094	< 0.094	< 0.019
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0962	< 0.00943	< 0.0094	< 0.094	< 0.019
Total CPAH	-	0.1 (A)	0	0	***0.0151***	0	0	0	0	***0.00323***	0	0	***0.00033***
Non-Carcinogenic PAHs													
2-Methylnaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	***0.0196*** J	< 0.0962	< 0.0943	***0.048***	< 0.12	< 0.025
Acenaphthene	643 (B)	960 (B)	***0.509***	***0.5***	***1.81***	< 0.1	***0.39***	***0.418***	***0.75***	***1.06***	***0.43***	***0.61***	***0.62***
Acenaphthylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	***0.0569*** J	< 0.0962	***0.0957***	***0.022***	< 0.094	***0.039***
Anthracene	25900 (B)	4800 (B)	< 0.1	< 0.1	***0.264***	***0.185***	< 0.0952	***0.661***	***0.154***	***0.086***	***0.089***	***0.14***	***0.16***
Benzo(g,h,i)perylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0962	< 0.0943	< 0.0094	< 0.094	< 0.019
Fluoranthene	90.2 (B)	640 (B)	***0.321***	< 0.1	***0.132***	< 0.1	***0.128***	***0.0782*** J	< 0.0962	***0.112***	***0.053***	< 0.094	***0.046***
Fluorene	3460 (B)	640 (B)	***0.132***	***0.115***	***0.302***	< 0.1	< 0.0952	***0.0995***	***0.135***	***0.245***	***0.099***	***0.13***	***0.18***
Naphthalene	9880 (B)	0.32 (B)	***0.189***	< 0.1	***1.26***	< 0.1	***0.446***	***0.365***	***0.442***	***0.462***	***0.31***	***0.26***	***0.12***
Phenanthrene	-	-	***0.189***	***0.135***	***0.113***	< 0.1	< 0.0952	***0.119***	< 0.0962	< 0.0943	***0.028***	< 0.094	***0.03***
Pyrene	2590 (B)	480 (B)	***0.264***	< 0.1	***0.132***	***0.104***	***0.101***	***0.0825*** J	< 0.0962	< 0.0943	***0.048***	< 0.094	***0.056***
Total LPAH	-	-	***1.604***	***0.75***	***4.013***	***0.289***	***1.065***	***1.900***	***1.481***	***2.061***	***1.127***	***1.14***	***1.251***
INORGANICS - DISSOLVED (mg/L)													
Arsenic	9.82E-05 (B)	0.005 (A)	***12.5***	***2.2***	***0.261***	***2.94***	***4.09***	***6.7***	***1.3***	***0.438***	***5.8*** J-	***4.6***	***3.8***
Chromium	-	0.05 (A)	***0.0172***	***0.0188***	***0.0675***	***0.0317***	***0.0148***	***0.0152***	***0.0149***	***0.0085***	***0.0085***	***0.0085***	***0.0094***
Copper	2.66 (B)	0.59 (B)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)													
Arsenic	9.82E-05 (B)	0.005 (A)	***12.3***	***3.01***	***0.289***	***2.84***	***4.47***	***7.79***	***1.24***	***1.16***	***7.2*** J-	***5.6***	***3.9***
Chromium	-	0.05 (A)	***0.0269***	***0.0289***	***0.105***	***0.0364***	***0.0196***	***0.0148***	***0.0132***	***0.0122***	***0.014***	***0.014***	***0.012***
Copper	2.66 (B)	0.59 (B)	***0.0062***	***0.007***	***0.0061***	***0.0039***	***0.0017***	***0.00281***	***0.00149***	***0.00153***	< 0.005	< 0.005	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MTCA	MTCA	MW-14										
Sample Date	SURFACE WATER	GROUNDWATER	2/5/2004	05/25/04	09/08/04	1/27/2005	1/24/2006	2/2/2007	1/31/2008	1/28/2009	1/21/2010	2/9/2011	2/7/2012
SEMIVOLATILE ORGANICS (ug/L)													
1-Methylnaphthalene	-	-	NA	NA	NA	NA	< 0.0952	< 0.0943	< 0.0952	< 0.0943	**0.024**	< 0.095	**0.023** J
2-Chloronaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 9.52	< 9.43	< 0.028	NA	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)	< 0.5	< 0.5	< 0.5	< 0.5	< 0.476	< 0.472	**0.495**	< 0.472	**0.036**	< 0.095	< 0.019
Carcinogenic PAHs													
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.0094	< 0.095	< 0.019
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.019	< 0.19	< 0.038 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.0094	< 0.095	< 0.019 J
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.0094	< 0.095	< 0.019 J
Chrysene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.0094	< 0.095	< 0.019
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	**0.151**	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.0094	< 0.095	< 0.019
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943	< 0.0952	< 0.00943	< 0.0094	< 0.095	< 0.019
Total CPAH	-	0.1 (A)	0	0	**0.0151**	0	0	0	0	0	0	0	0
Non-Carcinogenic PAHs													
2-Methylnaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	**0.042**	< 0.12	< 0.025
Acenaphthene	643 (B)	960 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	**0.011**	< 0.095	< 0.019 J
Acenaphthylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	< 0.0094	< 0.095	< 0.019 J
Anthracene	25900 (B)	4800 (B)	< 0.1	< 0.1	< 0.1	0.125	< 0.0952	**0.202**	< 0.0952	**0.221**	**0.05**	< 0.095	**0.046**
Benzo(g,h,i)perylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	< 0.0094	< 0.095	< 0.019
Fluoranthene	90.2 (B)	640 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	< 0.0094	< 0.095	< 0.019
Fluorene	3460 (B)	640 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	< 0.0094	< 0.095	< 0.019 J
Naphthalene	9880 (B)	0.32 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	**0.17**	< 0.095	**0.037** J
Phenanthrene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	**0.114**	< 0.0943	**0.03**	< 0.095	**0.02**
Pyrene	2590 (B)	480 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943	< 0.0952	< 0.0943	**0.013**	< 0.095	**0.02**
Total LPAH	-	-	0	0	0	0	0	0.202	0.114	0.221	**0.316**	0	**0.123**
INORGANICS - DISSOLVED (mg/L)													
Arsenic	9.82E-05 (B)	0.005 (A)	**0.106**	**0.092**	**0.0704**	**0.102**	**0.0256**	**0.0031** J+	**0.0127**	**0.00202**	< 0.002	< 0.002	**0.0054**
Chromium	-	0.05 (A)	**0.0104**	**0.0113**	**0.0091**	**0.0106**	**0.0062**	**0.0071**	**0.00544**	**0.00216**	**0.0043**	**0.0035**	**0.0025**
Copper	2.66 (B)	0.59 (B)	**0.0214**	**0.0153**	**0.0126**	**0.0102**	**0.0045**	< 0.00135	< 0.001	< 0.001	< 0.005	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)													
Arsenic	9.82E-05 (B)	0.005 (A)	**0.154**	**0.152**	**0.112**	**0.215**	**0.0514**	**0.064**	**0.0409**	**0.00884**	**0.014** J-	**0.0076**	**0.06**
Chromium	-	0.05 (A)	**0.0752**	**0.101**	**0.0676**	**0.201**	**0.0348**	**0.0605**	**0.0599**	**0.00741**	**0.03**	**0.018**	**0.11**
Copper	2.66 (B)	0.59 (B)	**0.0826**	**0.0627**	**0.0542**	**0.136**	**0.0374**	**0.0391**	**0.028**	**0.00364**	**0.01**	**0.0063**	**0.026**
Hexavalent Chromium (Method 7195)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

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Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	MW-15 2/4/2004	MW-15 05/26/04	MW-15 09/08/04	MW-15 1/27/2005	MW-15 1/24/2006	MW-15 2/1/2007	MW-16 2/4/2004	MW-16 05/26/04	MW-16 09/08/04	MW-16 1/27/2005	MW-16 1/24/2006	MW-16 1/24/2006 (Dup)	MW-16 2/2/2007	MW-16 2/2/2007 (Dup)
SEMIVOLATILE ORGANICS (ug/L)																	
1-Methylnaphthalene	-	-		NA	NA	NA	NA	1.16	1.07	NA	NA	NA	NA	4.78 J	4.46 J	7.24 J	17.5 J
2-Chloronaphthalene	-	-		0.132	< 0.1	< 0.167	< 0.1	< 0.0952	< 0.0943	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 95.2	< 0.952
Pentachlorophenol	3 (B)	0.729 (B)		3.98	1.96	6.1	2.92	< 0.476	2.42	< 5	< 0.5	1.7	< 0.5	< 0.476	< 0.476	< 9.52 J	1.94 J
Carcinogenic PAHs																	
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	0.849	0.629	1.17	0.628	0.337	0.367	< 1	< 0.1	0.114	< 0.1	< 0.0952	< 0.0952	< 9.52	< 0.0952
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	0.226	0.171	0.333	0.192	0.122	0.102	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 9.52	< 0.0952
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	0.509	0.286	1.03	0.302	0.263	0.166	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 9.52	< 0.0952
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 0.1	0.21	1.27	0.224	0.13	0.145	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 9.52	< 0.0952
Chrysene	0.0296 (B)	0.012 (B)	0.01	1.09	0.876	1.57	1.19	0.55	0.515	< 1	< 0.1	0.114	0.427	< 0.0952	< 0.0952	< 9.52	< 0.0952
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 0.1	< 0.1	0.3	< 0.1	< 0.0952	0.0237	< 1	< 0.1	0.152	< 0.1	< 0.0952	< 0.0952	< 9.52	< 0.0952
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 0.1	0.171	0.167	< 0.1	< 0.0952	0.0436	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 9.52	< 0.0952
Total CPAH	-	0.1 (A)		0.373	0.309	0.742	0.319	0.201	0.182	0	0	0.0277	0.0043	0	0	0	0
Non-Carcinogenic PAHs																	
2-Methylnaphthalene	-	-		3.11	1.66	1.6	0.902	0.499	0.522	26.8	21.3	13.7	28.9	5.89 J	5.53 J	7.62 J	23.2 J
Acenaphthene	643 (B)	960 (B)		30.4	20.8	27.2	19.4	10.4	17	2.83	2.6	2.99	3.72	2.26	2.4	< 95.2 J	2.62 J
Acenaphthylene	-	-		0.566	< 0.1	8.63	0.204	< 0.0952	0.201	< 1	< 0.1	< 0.1	0.156	0.122	0.114	< 95.2	0.192 J
Anthracene	25900 (B)	4800 (B)		3.79	2.08	2.9	2.63	1.18	1.84	< 1	0.113	0.21	0.301	< 0.0952	< 0.0952	< 95.2	0.372 J
Benzo(g,h,i)perylene	-	-		< 0.1	< 0.1	0.167	< 0.1	< 0.0952	0.0496 J	< 1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0952	< 95.2	< 0.952
Fluoranthene	90.2 (B)	640 (B)		10	7.85	11.4	7.11	4.08	7.46	1.32	0.358	0.343	0.43	0.187	0.149	< 95.2	0.235 J
Fluorene	3460 (B)	640 (B)		23.8	16.4	20.4	14.5	6.84	11	< 1	0.755	0.705	0.949	0.491	0.53	< 95.2	0.59 J
Naphthalene	9880 (B)	0.32 (B)		3.08	1.01	1.27	1.06	0.189	0.137	1370	1370	1280	1620	1450	1590	1,360	1170
Phenanthrene	-	-		30.6	24.7	28.4	23.3	10.7	19	< 1	0.472	0.552	0.598	0.229	0.208	< 95.2	0.324 J
Pyrene	2590 (B)	480 (B)		5.96	4.34	7.1	5.3	2.63	2.46	< 1	0.208	0.362	0.436	0.152	0.137	< 95.2	0.254 J
Total LPAH	-	-		111.31	78.84	109.07	74.406	36.518	59.6696	1401	1395.8	1298.9	1655.5	1459.3	1599.1	1,368	1,198
INORGANICS - DISSOLVED (mg/L)																	
Arsenic	9.82E-05 (B)	0.005 (A)		0.0215	0.0325	0.0072	0.0047	0.0021	0.00051 J+	0.0034	0.0016	0.0051	0.0015	0.0016	0.0011	< 0.01	< 0.01
Chromium	-	0.05 (A)		0.0015	0.0012	0.0012	0.0043	0.0433	0.00675	0.0024	0.0016	< 0.001	0.0033	0.002	0.0021	0.00292	0.00273
Copper	2.66 (B)	0.59 (B)		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)																	
Arsenic	9.82E-05 (B)	0.005 (A)		0.0278	0.0331	0.0091	0.0086	0.0028	0.0019	0.0025	0.0019	0.0053	0.0016	0.0014	< 0.001	< 0.001	< 0.001
Chromium	-	0.05 (A)		0.0333	0.0095	0.0123	0.0101	0.05	0.00998	0.0015	0.0013	0.0045	0.0028	0.0018	0.0017	0.0014	0.00131
Copper	2.66 (B)	0.59 (B)		0.0585	0.0182	0.0221	0.0176	0.0048	0.009	< 0.001	< 0.001	0.0087	0.0034	< 0.001	< 0.001	0.00074 J	0.00071 J
Hexavalent Chromium (Method 7195)	0.81 (B)	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992, using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location	MTCA	MTCA	MW-17						MW-18						
Sample Date	SURFACE WATER	GROUNDWATER	2/4/2004	05/26/04	09/08/04	1/27/2005	1/25/2006	2/2/2007	2/5/2004	05/25/04	09/08/04	1/27/2005	1/27/2005	1/25/2006	2/2/2007
SEMIVOLATILE ORGANICS (ug/L)															
1-Methylnaphthalene	-	-	NA	NA	NA	NA	< 0.0943	***0.108***	NA	NA	NA	NA	NA	< 0.0952	< 0.0943
2-Chloronaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.0943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943
Pentachlorophenol	3 (B)	0.729 (B)	***3.83***	< 0.5	***1.62***	< 0.5	< 0.472	< 0.472	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.476	< 0.472
Carcinogenic PAHs															
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943
Chrysene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	***0.113***	< 0.1	< 0.1	< 0.0952	< 0.00943
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	***0.132***	< 0.1	< 0.1	< 0.0952	< 0.00943
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.00943
Total CPAH	-	0.1 (A)	0	0	0	0	0	0	0	0	***0.0143***	0	0	0	0
Non-Carcinogenic PAHs															
2-Methylnaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	***0.137***	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943
Acenaphthene	643 (B)	960 (B)	***0.132***	< 0.1	< 0.1	***0.112***	***0.111***	***0.0964***	***0.113***	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943
Acenaphthylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	***0.0178*** J	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	0.0943
Anthracene	25900 (B)	4800 (B)	< 0.1	< 0.1	< 0.1	***0.131***	< 0.0943	***0.188***	< 0.1	< 0.1	< 0.1	***0.113***	***0.113***	< 0.0952	***0.25***
Benzo(g,h,i)perylene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.0943	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943
Fluoranthene	90.2 (B)	640 (B)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.0943	***0.264***	< 0.1	***0.226***	< 0.1	< 0.1	< 0.0952	0.0943
Fluorene	3460 (B)	640 (B)	< 0.1	< 0.1	***0.152***	***0.11***	< 0.0943	***0.0516*** J	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943
Naphthalene	9880 (B)	0.32 (B)	< 0.1	< 0.1	< 0.1	***0.17***	***0.272***	***8.77***	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	0.0943
Phenanthrene	-	-	< 0.1	< 0.1	***0.114***	***0.133***	< 0.0943	***0.457*** J	***0.208***	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0952	< 0.0943
Pyrene	2590 (B)	480 (B)	< 0.1	< 0.1	***0.171***	< 0.1	< 0.0943	***0.538*** J	***0.189***	< 0.1	***0.189***	< 0.1	< 0.1	< 0.0952	0.0943
Total LPAH	-	-	0.132	0	0.437	0.656	0.383	10.2558	0.774	0	0.415	0.113	0.113	0	0.25
INORGANICS - DISSOLVED (mg/L)															
Arsenic	9.82E-05 (B)	0.005 (A)	***0.06***	***0.0031***	***0.052***	***0.0448***	***0.0359***	***0.0141*** J+	***0.001***	***0.0014***	< 0.001	***0.0018***	***0.0018***	< 0.001	***0.00034*** J+
Chromium	-	0.05 (A)	***0.0059***	***0.0044***	***0.0029***	***0.0086***	***0.0293***	***0.0103***	***0.0043***	***0.0067***	***0.0038***	***0.0077***	***0.0077***	***0.0047***	***0.00887***
Copper	2.66 (B)	0.59 (B)	***0.002***	< 0.001	***0.0016***	***0.0014***	***0.0014***	< 0.00128	< 0.001	< 0.001	< 0.001	***0.0012***	***0.0012***	< 0.001	< 0.001
INORGANICS - TOTAL (mg/L)															
Arsenic	9.82E-05 (B)	0.005 (A)	***0.0307***	***0.0071***	***0.0485***	***0.0373***	***0.0321***	***0.0357***	***0.0012***	***0.0012***	< 0.001	***0.0011***	***0.0011***	< 0.001	< 0.001
Chromium	-	0.05 (A)	< 0.001	< 0.001	***0.0016***	***0.0019***	***0.0326***	***0.00354***	***0.0056***	***0.0048***	***0.0051***	***0.0054***	***0.0054***	***0.0069***	***0.00763***
Copper	2.66 (B)	0.59 (B)	***0.0025***	< 0.001	***0.0024***	***0.0024***	***0.0018***	***0.0017***	***0.0029***	***0.0011***	***0.003***	***0.002***	***0.002***	***0.0023***	***0.00208***
Hexavalent Chromium (Method 7195)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ATI using EPA Method 7195 and 7196 in October 1991 and January 1992, using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location / Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	TEF	HORIZONTAL DRAIN 3/12/04	05/25/04	10/14/04	1/27/2005	1/25/2006	2/2/2007	1/31/2008	1/28/2009	1/21/2010	2/9/2011	2/8/2012
SEMIVOLATILE ORGANICS (ug/L)														
1-Methylnaphthalene	-	-		20.8	NA	NA	NA	4.33	19.1	2.49	0.97	23	10	< 0.096
2-Chloronaphthalene	-	-		< 1	< 0.1	< 0.1	2.6	< 0.0952	< 0.952	< 9.43	< 9.71	< 0.028	NA	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)		276	149	5.3	67.1	15.6	17.4	3.15	3.83	< 1.9	21	1.9
Carcinogenic PAHs														
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	0.1	< 1	< 0.1	1.73	< 0.1	< 0.0952	0.174	< 0.0943	0.0507	0.013 J	< 0.096	< 0.096
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	1	< 1	< 0.1	< 0.5	< 0.1	< 0.0952	< 0.0952	< 0.0943	< 0.00971	< 0.019 J	< 0.19	< 0.19 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 1	< 0.1	< 0.5	< 0.1	< 0.0952	< 0.0952	< 0.0943	< 0.00971	< 0.0094 J	< 0.096	< 0.096
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	0.1	< 1	< 0.1	< 0.5	< 0.1	< 0.0952	< 0.0952	< 0.0943	< 0.00971	< 0.0094 J	< 0.096	< 0.096
Chrysene	0.0296 (B)	0.012 (B)	0.01	< 1	< 0.1	< 0.5	0.342	< 0.0952	0.174	< 0.0943	0.0517	0.011 J	< 0.096	< 0.096
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	0.1	< 1	< 0.1	< 0.5	< 0.1	< 0.0952	0.113	< 0.0943	< 0.00971	< 0.0094 J	< 0.096	< 0.096
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	0.1	< 1	< 0.1	< 0.5	< 0.1	< 0.0952	0.111	< 0.0943	< 0.00971	< 0.0094 J	< 0.096	< 0.096
Total CPAH	-	0.1 (A)		0	0	0.173	0.0034	0	0.0415	0	0.00559	0.00141	0	0
Non-Carcinogenic PAHs														
2-Methylnaphthalene	-	-		30.5	0.229	< 0.5	19.8	1.47	12.9	0.283	< 0.0971	16	3.9	< 0.13
Acenaphthene	643 (B)	960 (B)		8.74	6.02	5.19	10.8	3.98	15.7	4.11	2.59	11	10	0.34
Acenaphthylene	-	-		< 1	0.305	< 0.5	0.474	0.107	0.53 J	0.132	1.43	< 1.9	0.3	< 0.096
Anthracene	25900 (B)	4800 (B)		< 1	< 0.1	< 0.5	1.03	0.154	0.93 J	0.245	0.617	0.24 J	0.14	0.21
Benzo(g,h,i)perylene	-	-		< 1	< 0.1	< 0.5	< 0.1	< 0.0952	0.127 J	< 0.0943	< 0.0971	< 0.0094 J	< 0.096	< 0.096
Fluoranthene	90.2 (B)	640 (B)		< 1	0.229	1.01	0.364	0.269	0.718 J	0.283	0.247	0.15 J	0.19	< 0.096
Fluorene	3460 (B)	640 (B)		3.88	2.15	2.5	4.39	1.29	5.31	1.38	0.524	2	2.1	0.099
Naphthalene	9880 (B)	0.32 (B)		1240	5.92	6.64	741	34.1	128	0.113	0.142	580	59	0.14
Phenanthrene	-	-		2.33	< 0.1	1.27	2.51	0.179	3.45	0.245	0.115	0.85 J	0.7	< 0.096
Pyrene	2590 (B)	480 (B)		< 1	0.152	0.821	0.311	0.219	0.582 J	0.264	0.506	0.11 J	0.15	< 0.096
Total LPAH	-	-		1285	15.0	14.9	781	41.8	168	7.1	6.171	596	72.58	0.789
INORGANICS - DISSOLVED (mg/L)														
Arsenic	9.82E-05 (B)	0.005 (A)		0.699	0.347	NA	1.49	0.178	0.978 J+	0.131	0.26	0.0032	0.041	0.12
Chromium	-	0.05 (A)		0.0216	0.0052	NA	0.0079	0.004	0.00772	0.00445	0.00335	0.0049	0.0046	0.0036
Copper	2.66 (B)	0.59 (B)		0.0175	< 0.001	NA	< 0.001	0.0773	< 0.001	0.00103	0.00353	< 0.005	< 0.005	< 0.005
INORGANICS - TOTAL (mg/L)														
Arsenic	9.82E-05 (B)	0.005 (A)		0.603	0.407	8.96	1.74	0.318	1.14	1.09	0.646	1.8 J-	0.57	0.32
Chromium	-	0.05 (A)		< 0.01	0.0061	0.0893	0.01	0.0068	0.00847	0.00574	0.00415	0.0082	0.0068	0.0045
Copper	2.66 (B)	0.59 (B)		< 0.01	< 0.001	< 0.001	< 0.001	0.202	0.00154	0.00207	0.00901	< 0.005	0.022	< 0.005
Hexavalent Chromium (Method 7195)	0.81 (B)	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

TABLE 1. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS.

Sample Location Sample Date	MTCA SURFACE WATER	MTCA GROUNDWATER	UPRR-29 2/6/2004	2/6/2004 DUP	05/25/04	09/08/04	1/27/2005	1/25/2006	02/02/07	2/1/2008	1/28/2009	1/28/2009 DUP	1/21/2010	2/10/2011	2/8/2012
SEMIVOLATILE ORGANICS (ug/L)															
1-Methylnaphthalene	-	-	NA	NA	NA	NA	NA	< 0.0943	0.0193 J	< 0.0971	< 0.00943	< 0.00943	0.016	10	< 0.019
2-Chloronaphthalene	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.0943	< 9.71	< 9.43	< 9.43	< 0.028	NA	< 0.029
Pentachlorophenol	3 (B)	0.729 (B)	3.77	3.87 J	2.19	1.85	3.2	1.29	1.62	0.816	3.02 J	3.1 J	0.14	21	0.18
Carcinogenic PAHs															
Benzo(a)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.0971	0.0218	0.0182	< 0.0094	< 0.096	< 0.019
Benzo(a)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.0971	0.0222	0.0168	< 0.019	< 0.19	< 0.038 J
Benzo(b)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.0971	0.025	0.019	0.012	< 0.096	< 0.019
Benzo(k)fluoranthene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.0971	0.0205	0.0111	< 0.0094	< 0.096	< 0.019
Chrysene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.0971	0.0245	0.0161	< 0.0094	< 0.096	< 0.019
Dibenzo(a,h)anthracene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	0.152	< 0.1	< 0.0943	< 0.00943	< 0.0971	< 0.00943	< 0.00943	< 0.0094	< 0.096	< 0.019
Indeno(1,2,3-cd)pyrene	0.0296 (B)	0.012 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.00943	< 0.0971	0.0245	0.0188	< 0.0094	< 0.096	< 0.019
Total CPAH	-	0.1 (A)	0	0	0	0.0152	0	0	0	0	0.0316	0.023671	0.0012	0	0
Non-Carcinogenic PAHs															
2-Methylnaphthalene	-	-	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.0943	< 0.0971	< 0.0943	< 0.0943	0.03	3.9	< 0.025
Acenaphthene	643 (B)	960 (B)	0.321	< 0.1 R	< 0.1	0.495	< 0.1	< 0.0943	< 0.0943	< 0.0971	0.157	0.119	< 0.0094	10	< 0.019
Acenaphthylene	-	-	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	0.559 J	< 0.0971	< 0.0943	< 0.0943	< 0.0094	0.3	< 0.019
Anthracene	25900 (B)	4800 (B)	< 0.1	< 0.1 R	< 0.1	0.419	0.481	< 0.0943	0.510	0.0971	0.518	0.418	0.046	0.14	0.028
Benzo(g,h,i)perylene	-	-	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	< 0.0943	< 0.0943	< 0.0971	< 0.0943	< 0.0943	< 0.0094	< 0.096	< 0.019
Fluoranthene	90.2 (B)	640 (B)	< 0.1	< 0.1 R	0.151	0.267	< 0.1	< 0.0943	0.639 J	< 0.0971	< 0.0943	< 0.0943	0.016	0.19	< 0.019
Fluorene	3460 (B)	640 (B)	1.04	< 0.1 R	0.189	1.5	0.187	< 0.0943	< 0.0943	< 0.0971	0.303	0.23	< 0.0094	2.1	< 0.019
Naphthalene	9880 (B)	0.32 (B)	< 0.1	< 0.1 R	< 0.1	< 0.1	< 0.1	0.425	0.478	< 0.0971	< 0.0943	< 0.0943	0.045	59	< 0.019
Phenanthrene	-	-	< 0.1	< 0.1 R	0.151	< 0.1	< 0.1	< 0.0943	< 0.0943	< 0.0971	0.281	0.232	0.018	0.7	< 0.019
Pyrene	2590 (B)	480 (B)	0.132	0.19 J	0.151	0.305	< 0.1	< 0.0943	0.102	< 0.0971	< 0.0943	< 0.0943	0.017	0.15	< 0.019
Total LPAH	-	-	1.49	0.19	0.64	2.99	0.67	0.43	2.288	0.0971	1.259	0.999	0.172	76.48	0.028
INORGANICS - DISSOLVED (mg/L)															
Arsenic	9.82E-05 (B)	0.005 (A)	0.123	0.118	0.577	0.209	0.384	0.353	0.275 J+	0.17	0.208	0.206	0.06	0.041	0.058
Chromium	-	0.05 (A)	0.00927	0.00906	0.0152	0.00348	0.00533	0.00154	0.00243	0.00918	0.00284	0.00346	0.0038	0.0046	< 0.002
Copper	2.66 (B)	0.59 (B)	0.00923	0.00938	0.00679	< 0.001	0.0303	0.00884	0.0135	0.016	0.0113	0.0128	0.011	< 0.005	0.015
INORGANICS - TOTAL (mg/L)															
Arsenic	9.82E-05 (B)	0.005 (A)	0.139	0.131	0.628	0.339	0.397	0.356	0.29	0.176	0.23	0.23	0.065 J-	0.57	0.064
Chromium	-	0.05 (A)	0.0219	0.0197	0.0243	0.00898	0.0106	0.00551	0.00669	0.0138	0.00544	0.00527	0.0039	0.0068	0.0029
Copper	2.66 (B)	0.59 (B)	0.0207	0.0191	0.0197	0.00774	0.0557	0.0192	0.0259	0.0258	0.0188	0.0186	0.017	0.022	0.026
Hexavalent Chromium (Method 7195)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium (Method 7196)	0.81 (B)	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

B - Analyte found in blank. J - Estimated concentration. NA - Not analyzed. J- - estimated concentration, biased low

C - 2,4,6- and 2,4,5-trichlorophenol coelute; total concentration reported as 2,4,6-trichlorophenol.

M - Chromatogram signature does not meet EPA spectral classification; laboratory believes compound present.

Chlorinated phenols were analyzed by EPA Method 8040 and PAHS were analyzed by EPA Method 8310 in 1997.

Volatile organic analysis was completed by EPA Method 8020 in July 1991 and January 1992, and EPA Method 8240 in October 1991 and January 1992.

Semivolatile organic analysis was completed by EPA Method 8270 in 1999.

Hexavalent chromium analyzed by ATI using EPA Method 7196 in March 1991 and by Sound Analytical Services

Hexavalent chromium analyzed by ARI using EPA Method 7195 and 7196 in October 1991 and January 1992; using extraction by coprecipitation according to EPA Method 7195 and analysis by EPA Method 6010 in July 1991.

Table 2

Table 2 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	January 21, 2010 Depth to Water (feet)	January 21, 2010 Groundwater Elevation (feet MSL)	February 1, 2010 Depth to Water (feet)	February 1, 2010 Groundwater Elevation (feet MSL)	March 1, 2010 Depth to Water (feet)	March 1, 2010 Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	NM	NM	NM	NM
MW-2	19.38	4.18	15.20	4.45	14.93	4.33	15.05
MW-3	20.16	6.35	13.81	6.19	13.97	6.23	13.93
MW-4	19.00	NM	NM	NM	NM	NM	NM
MW-5	20.17	NM	NM	NM	NM	NM	NM
MW-6	20.17	6.47	13.70	6.36	13.81	6.20	13.97
MW-7	19.44	6.93	12.51	7.37	12.07	7.54	11.90
MW-8	21.49	7.88	13.61	7.78	13.71	7.66	13.83
MW-9	18.44	4.72	13.72	4.82	13.62	4.76	13.68
MW-10	19.57	6.33	13.24	6.19	13.38	5.94	13.63
MW-11	19.21	NM	NM	NM	NM	NM	NM
MW-12	19.79	4.12	15.67	4.48	15.31	4.42	15.37
MW-13	19.81	5.26	14.55	5.44	14.37	5.19	14.62
MW-14	19.76	7.02	12.74	7.52	12.24	7.56	12.20
MW-15	19.42	6.69	12.73	6.72	12.70	6.65	12.77
MW-16	18.22	4.81	13.41	4.74	13.48	4.73	13.49
MW-17	21.04	7.37	13.67	7.54	13.50	7.53	13.51
MW-18	19.69	7.37	12.32	7.78	11.91	7.82	11.87
UPRR-29	16.50	NM	NM	NM	NM	NM	NM

NOTES: NM - Not measured.

Vertical Datum:

P.O.T. circa 1995

subtract 7.22 to get to City of Tacoma MSL

BM - Monument at intersection of Milwaukee and Lincoln

RCA 95 Survey: 18.49

City of Tacoma: 11.27 MSL

Table 2 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	March 31, 2010 Depth to Water (feet)	March 31, 2010 Groundwater Elevation (feet MSL)	May 3, 2010 Depth to Water (feet)	May 3, 2010 Groundwater Elevation (feet MSL)	June 7, 2010 Depth to Water (feet)	June 7, 2010 Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	NM	NM	NM	NM
MW-2	19.38	4.12	15.26	4.70	14.68	4.72	14.66
MW-3	20.16	6.46	13.70	6.44	13.72	6.46	13.70
MW-4	19.00	NM	NM	NM	NM	NM	NM
MW-5	20.17	NM	NM	NM	NM	NM	NM
MW-6	20.17	6.24	13.93	6.32	13.85	6.28	13.89
MW-7	19.44	7.68	11.76	7.74	11.70	7.82	11.62
MW-8	21.49	7.78	13.71	7.75	13.74	7.96	13.53
MW-9	18.44	4.62	13.82	4.92	13.52	5.08	13.36
MW-10	19.57	5.91	13.66	5.86	13.71	5.88	13.69
MW-11	19.21	NM	NM	NM	NM	NM	NM
MW-12	19.79	4.28	15.51	4.79	15.00	5.08	14.71
MW-13	19.81	5.17	14.64	5.57	14.24	5.44	14.37
MW-14	19.76	7.79	11.97	7.86	11.90	7.92	11.84
MW-15	19.42	6.79	12.63	6.62	12.80	6.79	12.63
MW-16	18.22	5.28	12.94	5.12	13.10	5.12	13.10
MW-17	21.04	7.69	13.35	7.26	13.78	7.26	13.78
MW-18	19.69	8.02	11.67	8.17	11.52	8.17	11.52
UPRR-29	16.50	NM	NM	NM	NM	NM	NM

NOTES: NM - Not measured.

Vertical Datum:

P.O.T. circa 1995

subtract 7.22 to get to City of Tacoma MSL

BM - Monument at intersection of Milwaukee and Lincoln

RCA 95 Survey: 18.49

City of Tacoma: 11.27 MSL

Table 2 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	July 30, 2010 Depth to Water (feet)	July 30, 2010 Groundwater Elevation (feet MSL)	September 1, 2010 Depth to Water (feet)	September 1, 2010 Groundwater Elevation (feet MSL)	September 30, 2010 Depth to Water (feet)	September 30, 2010 Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	NM	NM	NM	NM
MW-2	19.38	5.60	13.78	5.94	13.44	5.74	13.64
MW-3	20.16	6.98	13.18	7.49	12.67	6.96	13.20
MW-4	19.00	NM	NM	NM	NM	NM	NM
MW-5	20.17	NM	NM	NM	NM	NM	NM
MW-6	20.17	6.78	13.39	7.32	12.85	7.14	13.03
MW-7	19.44	8.52	10.92	8.91	10.53	8.70	10.74
MW-8	21.49	8.37	13.12	8.79	12.70	8.69	12.80
MW-9	18.44	5.28	13.16	5.28	13.16	5.60	12.84
MW-10	19.57	6.16	13.41	6.49	13.08	6.68	12.89
MW-11	19.21	NM	NM	NM	NM	NM	NM
MW-12	19.79	5.98	13.81	6.06	13.73	5.96	13.83
MW-13	19.81	6.19	13.62	6.60	13.21	6.32	13.49
MW-14	19.76	8.64	11.12	9.10	10.66	8.89	10.87
MW-15	19.42	7.10	12.32	7.49	11.93	7.48	11.94
MW-16	18.22	5.53	12.69	5.89	12.33	5.68	12.54
MW-17	21.04	7.96	13.08	8.46	12.58	8.29	12.75
MW-18	19.69	8.91	10.78	9.36	10.33	9.22	10.47
UPRR-29	16.50	NM	NM	NM	NM	NM	NM

NOTES: NM - Not measured.

Vertical Datum:

P.O.T. circa 1995

subtract 7.22 to get to City of Tacoma MSL

BM - Monument at intersection of Milwaukee and Lincoln

RCA 95 Survey: 18.49

City of Tacoma: 11.27 MSL

Table 2 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	November 3, 2010 Depth to Water (feet)	November 3, 2010 Groundwater Elevation (feet MSL)	December 1, 2010 Depth to Water (feet)	December 1, 2010 Groundwater Elevation (feet MSL)	December 28, 2010 Depth to Water (feet)	December 28, 2010 Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	NM	NM	NM	NM
MW-2	19.38	5.26	14.12	5.04	14.34	4.69	14.69
MW-3	20.16	6.72	13.44	6.39	13.77	6.10	14.06
MW-4	19.00	NM	NM	NM	NM	NM	NM
MW-5	20.17	NM	NM	NM	NM	NM	NM
MW-6	20.17	6.72	13.45	6.38	13.79	6.23	13.94
MW-7	19.44	8.34	11.10	8.23	11.21	7.46	11.98
MW-8	21.49	8.60	12.89	8.24	13.25	7.86	13.63
MW-9	18.44	5.64	12.80	5.27	13.17	5.18	13.26
MW-10	19.57	6.68	12.89	6.42	13.15	6.13	13.44
MW-11	19.21	NM	NM	NM	NM	NM	NM
MW-12	19.79	5.28	14.51	5.19	14.60	5.14	14.65
MW-13	19.81	5.97	13.84	5.64	14.17	5.30	14.51
MW-14	19.76	8.51	11.25	8.38	11.38	7.63	12.13
MW-15	19.42	7.47	11.95	7.38	12.04	6.92	12.50
MW-16	18.22	5.17	13.05	5.50	12.72	5.16	13.06
MW-17	21.04	8.48	12.56	8.32	12.72	7.82	13.22
MW-18	19.69	8.76	10.93	8.61	11.08	7.92	11.77
UPRR-29	16.50	NM	NM	NM	NM	NM	NM

NOTES: NM - Not measured.

Vertical Datum:

P.O.T. circa 1995

subtract 7.22 to get to City of Tacoma MSL

BM - Monument at intersection of Milwaukee and Lincoln

RCA 95 Survey: 18.49

City of Tacoma: 11.27 MSL

Table 2 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	January 28, 2011 Depth to Water (feet)	January 28, 2011 Groundwater Elevation (feet MSL)	February 9, 2011 Depth to Water (feet)	February 9, 2011 Groundwater Elevation (feet MSL)	March 3, 2011 Depth to Water (feet)	March 3, 2011 Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	5.62	13.51	NM	NM
MW-2	19.38	4.78	14.60	4.89	14.49	4.62	14.76
MW-3	20.16	6.04	14.12	6.36	13.80	6.23	13.93
MW-4	19.00	NM	NM	6.76	12.24	NM	NM
MW-5	20.17	NM	NM	7.51	12.66	NM	NM
MW-6	20.17	5.98	14.19	6.19	13.98	6.18	13.99
MW-7	19.44	7.38	12.06	8.14	11.30	7.92	11.52
MW-8	21.49	7.64	13.85	7.95	13.54	7.82	13.67
MW-9	18.44	4.82	13.62	5.01	13.43	4.88	13.56
MW-10	19.57	5.91	13.66	6.92	12.65	5.93	13.64
MW-11	19.21	NM	NM	5.11	14.10	NM	NM
MW-12	19.79	5.24	14.55	5.13	14.66	5.09	14.70
MW-13	19.81	5.28	14.53	5.58	14.23	5.28	14.53
MW-14	19.76	7.58	12.18	8.24	11.52	8.08	11.68
MW-15	19.42	6.68	12.74	6.88	12.54	6.89	12.53
MW-16	18.22	4.82	13.40	5.29	12.93	5.26	12.96
MW-17	21.04	7.44	13.60	7.97	13.07	7.96	13.08
MW-18	19.69	7.86	11.83	8.42	11.27	8.30	11.39
UPRR-29	16.50	NM	NM	4.47	12.03	NM	NM

NOTES: NM - Not measured.

Vertical Datum:

P.O.T. circa 1995

subtract 7.22 to get to City of Tacoma MSL

BM - Monument at intersection of Milwaukee and Lincoln

RCA 95 Survey: 18.49

City of Tacoma: 11.27 MSL

Table 2 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	April 1, 2011 Depth to Water (feet)	April 1, 2011 Groundwater Elevation (feet MSL)	April 29, 2011 Depth to Water (feet)	April 29, 2011 Groundwater Elevation (feet MSL)	May 31, 2011 Depth to Water (feet)	May 31, 2011 Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	NM	NM	NM	NM
MW-2	19.38	4.46	14.92	4.53	14.85	4.87	14.51
MW-3	20.16	6.06	14.10	5.98	14.18	6.13	14.03
MW-4	19.00	NM	NM	NM	NM	NM	NM
MW-5	20.17	NM	NM	NM	NM	NM	NM
MW-6	20.17	6.01	14.16	5.88	14.29	6.60	13.57
MW-7	19.44	7.43	12.01	7.97	11.47	7.86	11.58
MW-8	21.49	7.57	13.92	7.59	13.90	7.59	13.90
MW-9	18.44	4.83	13.61	4.48	13.96	4.42	14.02
MW-10	19.57	5.74	13.83	5.61	13.96	5.61	13.96
MW-11	19.21	NM	NM	NM	NM	NM	NM
MW-12	19.79	4.98	14.81	4.99	14.80	5.27	14.52
MW-13	19.81	4.96	14.85	5.11	14.70	5.36	14.45
MW-14	19.76	7.59	12.17	8.04	11.72	7.97	11.79
MW-15	19.42	6.56	12.86	6.46	12.96	6.36	13.06
MW-16	18.22	5.20	13.02	5.21	13.01	5.48	12.74
MW-17	21.04	7.38	13.66	7.68	13.36	7.42	13.62
MW-18	19.69	7.82	11.87	8.34	11.35	8.22	11.47
UPRR-29	16.50	NM	NM	NM	NM	NM	NM

NOTES: NM - Not measured.

Vertical Datum:

P.O.T. circa 1995

subtract 7.22 to get to City of Tacoma MSL

BM - Monument at intersection of Milwaukee and Lincoln

RCA 95 Survey: 18.49

City of Tacoma: 11.27 MSL

Table 2 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	June 30, 2011 Depth to Water (feet)	June 30, 2011 Groundwater Elevation (feet MSL)	August 2, 2011 Depth to Water (feet)	August 2, 2011 Groundwater Elevation (feet MSL)	August 31, 2011 Depth to Water (feet)	August 31, 2011 Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	NM	NM	NM	NM
MW-2	19.38	5.30	14.08	5.66	13.72	5.96	13.42
MW-3	20.16	6.46	13.70	7.76	12.40	7.02	13.14
MW-4	19.00	NM	NM	NM	NM	NM	NM
MW-5	20.17	NM	NM	NM	NM	NM	NM
MW-6	20.17	6.52	13.65	6.83	13.34	7.10	13.07
MW-7	19.44	8.16	11.28	8.49	10.95	8.86	10.58
MW-8	21.49	7.94	13.55	8.19	13.30	8.49	13.00
MW-9	18.44	4.93	13.51	5.20	13.24	5.16	13.28
MW-10	19.57	5.93	13.64	6.24	13.33	6.48	13.09
MW-11	19.21	NM	NM	NM	NM	NM	NM
MW-12	19.79	5.66	14.13	6.06	13.73	6.34	13.45
MW-13	19.81	5.84	13.97	6.13	13.68	6.48	13.33
MW-14	19.76	8.33	11.43	8.66	11.10	8.98	10.78
MW-15	19.42	6.77	12.65	7.08	12.34	7.35	12.07
MW-16	18.22	5.44	12.78	5.04	13.18	5.52	12.70
MW-17	21.04	7.93	13.11	7.96	13.08	8.28	12.76
MW-18	19.69	8.48	11.21	8.65	11.04	9.12	10.57
UPRR-29	16.50	NM	NM	NM	NM	NM	NM

NOTES: NM - Not measured.

Vertical Datum:

P.O.T. circa 1995

subtract 7.22 to get to City of Tacoma MSL

BM - Monument at intersection of Milwaukee and Lincoln

RCA 95 Survey: 18.49

City of Tacoma: 11.27 MSL

Table 2 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	October 3, 2011 Depth to Water (feet)	October 3, 2011 Groundwater Elevation (feet MSL)	October 31, 2011 Depth to Water (feet)	October 31, 2011 Groundwater Elevation (feet MSL)	November 30, 2011 Depth to Water (feet)	November 30, 2011 Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	NM	NM	NM	NM
MW-2	19.38	5.96	13.42	5.72	13.66	5.32	14.06
MW-3	20.16	7.28	12.88	7.29	12.87	7.00	13.16
MW-4	19.00	NM	NM	NM	NM	NM	NM
MW-5	20.17	NM	NM	NM	NM	NM	NM
MW-6	20.17	7.34	12.83	7.26	12.91	7.01	13.16
MW-7	19.44	8.87	10.57	9.08	10.36	8.61	10.83
MW-8	21.49	8.79	12.70	8.92	12.57	8.71	12.78
MW-9	18.44	5.88	12.56	5.56	12.88	5.48	12.96
MW-10	19.57	6.78	12.79	6.89	12.68	6.89	12.68
MW-11	19.21	NM	NM	NM	NM	NM	NM
MW-12	19.79	5.67	14.12	5.62	14.17	5.43	14.36
MW-13	19.81	6.74	13.07	6.62	13.19	6.31	13.50
MW-14	19.76	8.98	10.78	9.32	10.44	8.97	10.79
MW-15	19.42	7.62	11.80	7.82	11.60	7.71	11.71
MW-16	18.22	5.72	12.50	5.89	12.33	5.86	12.36
MW-17	21.04	8.50	12.54	8.96	12.08	8.94	12.10
MW-18	19.69	9.26	10.43	9.44	10.25	9.01	10.68
UPRR-29	16.50	NM	NM	NM	NM	NM	NM

NOTES: NM - Not measured.

Vertical Datum:

P.O.T. circa 1995

subtract 7.22 to get to City of Tacoma MSL

BM - Monument at intersection of Milwaukee and Lincoln

RCA 95 Survey: 18.49

City of Tacoma: 11.27 MSL

Table 2 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	January 3, 2012 Depth to Water (feet)	January 3, 2012 Groundwater Elevation (feet MSL)	January 31, 2012 Depth to Water (feet)	January 31, 2012 Groundwater Elevation (feet MSL)	February 7, 2012 Depth to Water (feet)	February 7, 2012 Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM	NM	NM	5.88	13.25
MW-2	19.38	5.23	14.15	4.69	14.69	4.99	14.39
MW-3	20.16	7.03	13.13	6.49	13.67	6.44	13.72
MW-4	19.00	NM	NM	NM	NM	7.10	11.90
MW-5	20.17	NM	NM	NM	NM	7.32	12.85
MW-6	20.17	7.18	12.99	7.51	12.66	6.48	13.69
MW-7	19.44	8.55	10.89	7.97	11.47	7.93	11.51
MW-8	21.49	8.59	12.90	8.13	13.36	8.10	13.39
MW-9	18.44	5.48	12.96	5.20	13.24	5.60	12.84
MW-10	19.57	6.89	12.68	7.59	11.98	6.47	13.10
MW-11	19.21	NM	NM	NM	NM	5.90	13.31
MW-12	19.79	5.29	14.50	5.06	14.73	5.35	14.44
MW-13	19.81	6.18	13.63	5.44	14.37	5.58	14.23
MW-14	19.76	8.76	11.00	8.08	11.68	8.40	11.36
MW-15	19.42	7.68	11.74	7.36	12.06	7.18	12.24
MW-16	18.22	5.78	12.44	5.34	12.88	5.18	13.04
MW-17	21.04	8.78	12.26	8.24	12.80	7.98	13.06
MW-18	19.69	8.92	10.77	8.33	11.36	8.33	11.36
UPRR-29	16.50	NM	NM	NM	NM	NM	NM

NOTES: NM - Not measured.

Vertical Datum:

P.O.T. circa 1995

subtract 7.22 to get to City of Tacoma MSL

BM - Monument at intersection of Milwaukee and Lincoln

RCA 95 Survey: 18.49

City of Tacoma: 11.27 MSL

Table 2 Groundwater Elevation Data for the Cascade Pole & Lumber Company Tacoma Facility

Well Number	PVC Elevation (feet)	February 29, 2012 Depth to Water (feet)	February 29, 2012 Groundwater Elevation (feet MSL)
MW-1	19.13	NM	NM
MW-2	19.38	4.89	14.49
MW-3	20.16	6.38	13.78
MW-4	19.00	NM	NM
MW-5	20.17	NM	NM
MW-6	20.17	6.56	13.61
MW-7	19.44	7.82	11.62
MW-8	21.49	7.92	13.57
MW-9	18.44	4.82	13.62
MW-10	19.57	6.24	13.33
MW-11	19.21	NM	NM
MW-12	19.79	5.81	13.98
MW-13	19.81	5.56	14.25
MW-14	19.76	7.94	11.82
MW-15	19.42	7.04	12.38
MW-16	18.22	4.96	13.26
MW-17	21.04	7.64	13.40
MW-18	19.69	8.22	11.47
UPRR-29	16.50	NM	NM

NOTES: NM - Not measured.

Vertical Datum:

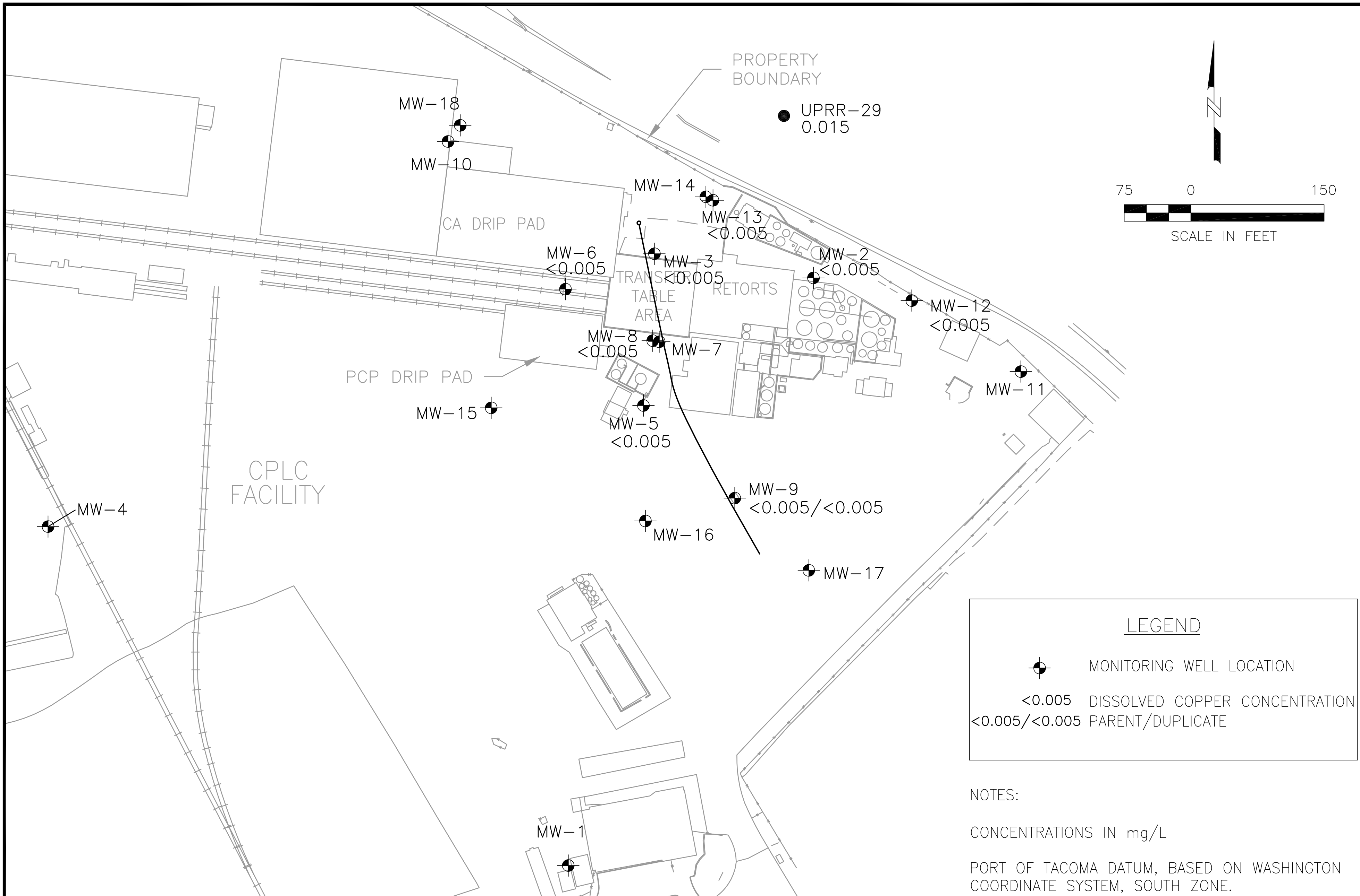
P.O.T. circa 1995

subtract 7.22 to get to City of Tacoma MSL

BM - Monument at intersection of Milwaukee and Lincoln

RCA 95 Survey: 18.49

City of Tacoma: 11.27 MSL



LEGEND

	MONITORING WELL LOCATION
<0.005	DISSOLVED COPPER CONCENTRATION
<0.005/<0.005	PARENT/DUPLICATE

NOTES:

CONCENTRATIONS IN mg/L

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

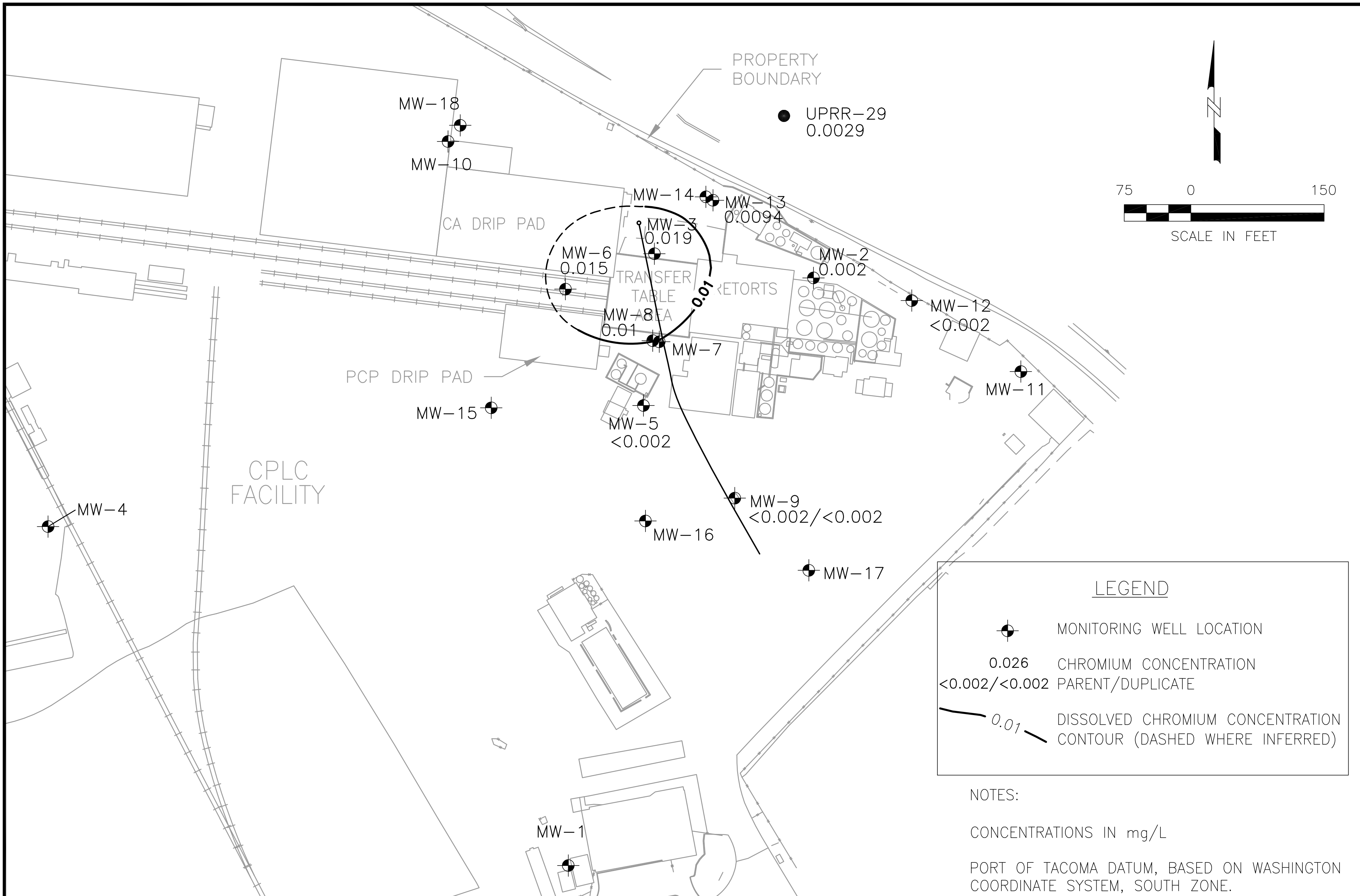
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0300

DATE: 03/20/12 | DRWN: M.O./SEA

CONCENTRATIONS OF COPPER IN SHALLOW AQUIFER FEBRUARY 2012

FIGURE 1



LEGEND

MONITORING WELL LOCATION

0.026 / <0.002/<0.002 — CHROMIUM CONCENTRATION PARENT/DUPLICATE

0.01 — DISSOLVED CHROMIUM CONCENTRATION CONTOUR (DASHED WHERE INFERRED)

NOTES:

CONCENTRATIONS IN mg/L

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

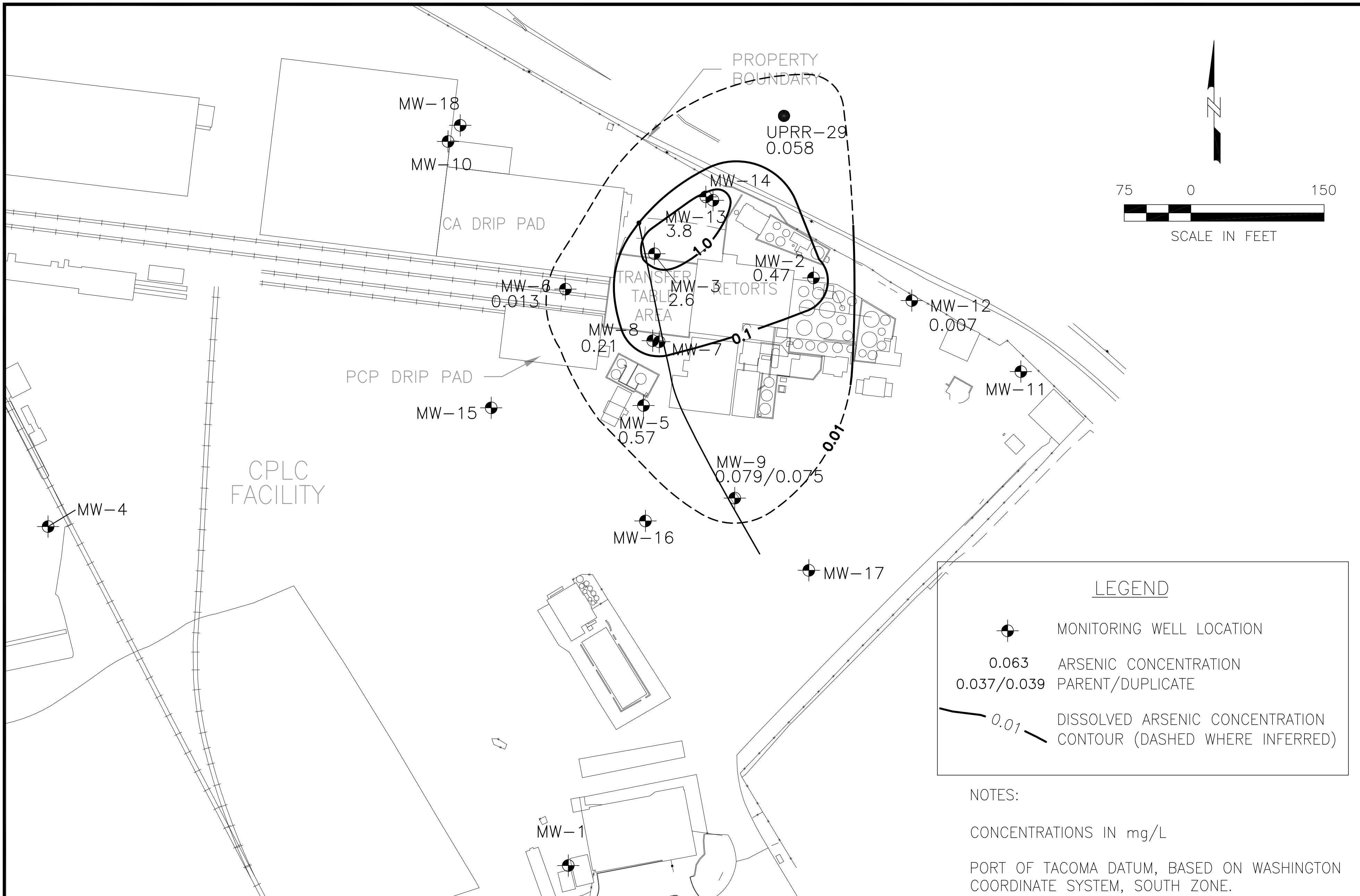
60137201-0300

DATE: 03/20/12 | DRWN: M.O./SEA

CONCENTRATIONS OF CHROMIUM IN SHALLOW AQUIFER FEBRUARY 2012

FIGURE 2

File: G:\PROJECTS\CADD\Cascade Lumber\Annual GW Report\2012\arsenic_shallow_2-12.dwg Layout: FIGURE 3 User: oliveriam Plotted: Mar 21, 2012 - 5:53pm Xref's:



NOTES:

CONCENTRATIONS IN mg/L

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

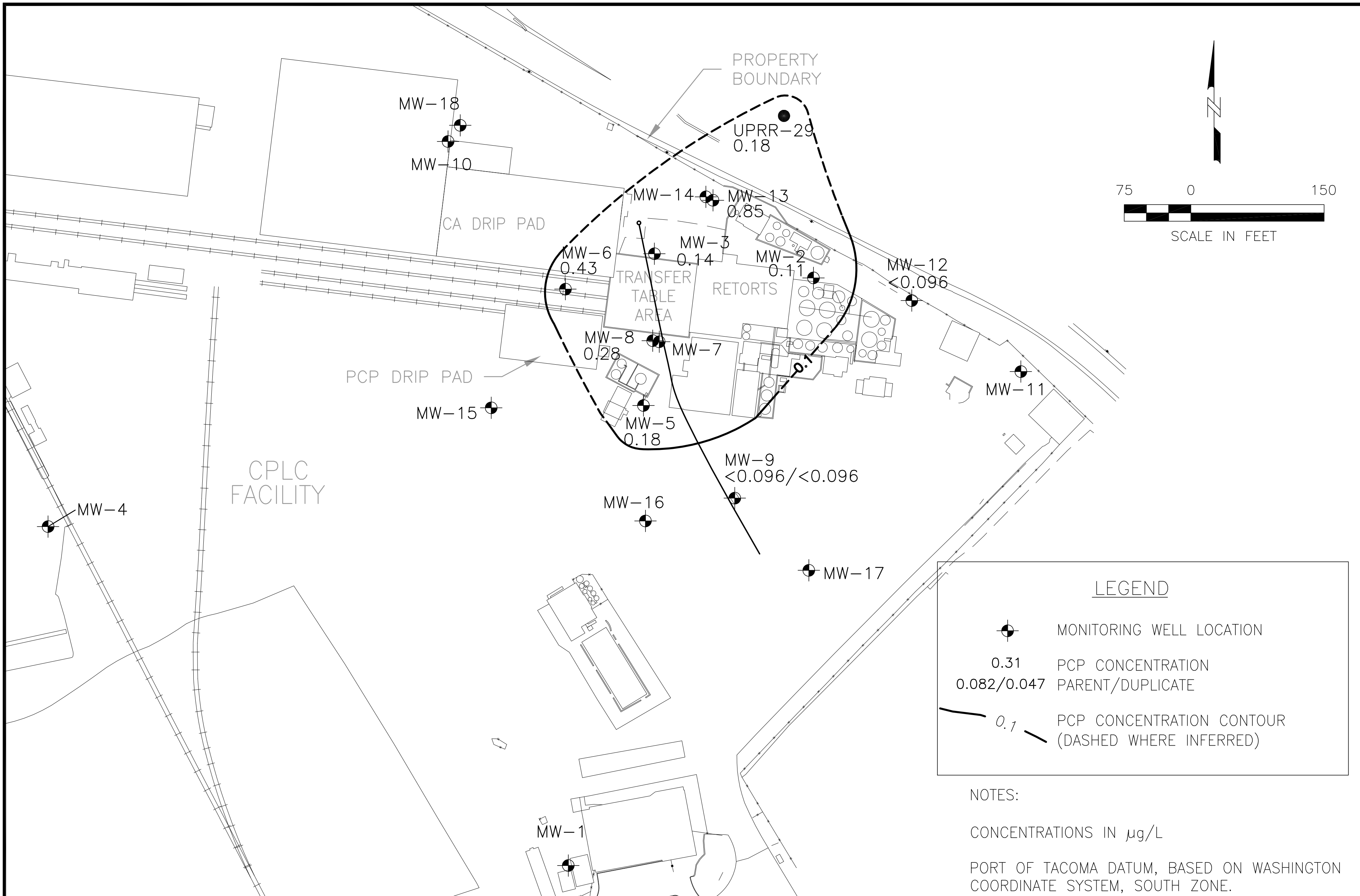
60137201-0300

DATE: 03/20/12 DRWN: M.O./SEA

CONCENTRATIONS OF ARSENIC IN SHALLOW AQUIFER FEBRUARY 2012

FIGURE 3

File: G:\PROJECTS\CADD\Cascade Lumber\Annual GW Report\2012\PCP_shallow_2-12.dwg Layout: FIGURE 4 User: oliveriam Plotted: Mar 21, 2012 - 6:00pm Xref's:



LEGEND

MONITORING WELL LOCATION

0.31 PCP CONCENTRATION
0.082/0.047 PARENT/DUPLICATE

0.1 PCP CONCENTRATION CONTOUR (DASHED WHERE INFERRED)

NOTES:

CONCENTRATIONS IN $\mu g/L$

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

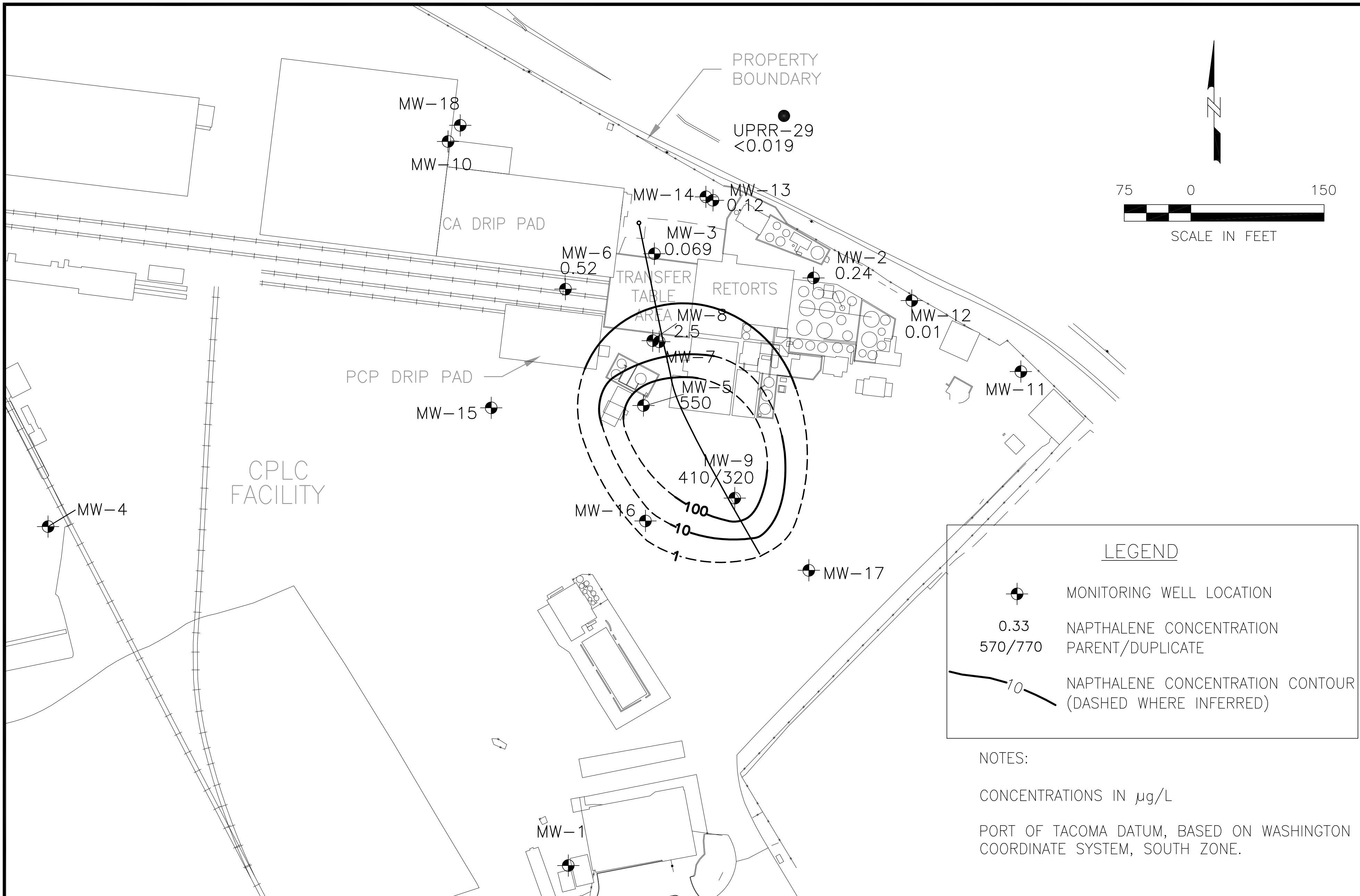
60137201-0300

DATE: 03/20/12 | DRWN: M.O./SEA

CONCENTRATIONS OF PCP IN SHALLOW AQUIFER FEBRUARY 2012

FIGURE 4

File: G:\PROJECTS\CADD\Cascade Lumber\Annual GW Report\2012\napthalene_shallow_2-12.dwg Layout: FIGURE 5 User: oliveriam Plotted: Mar 22, 2012 - 9:35am Xref's:



NOTES:

CONCENTRATIONS IN $\mu g/L$

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

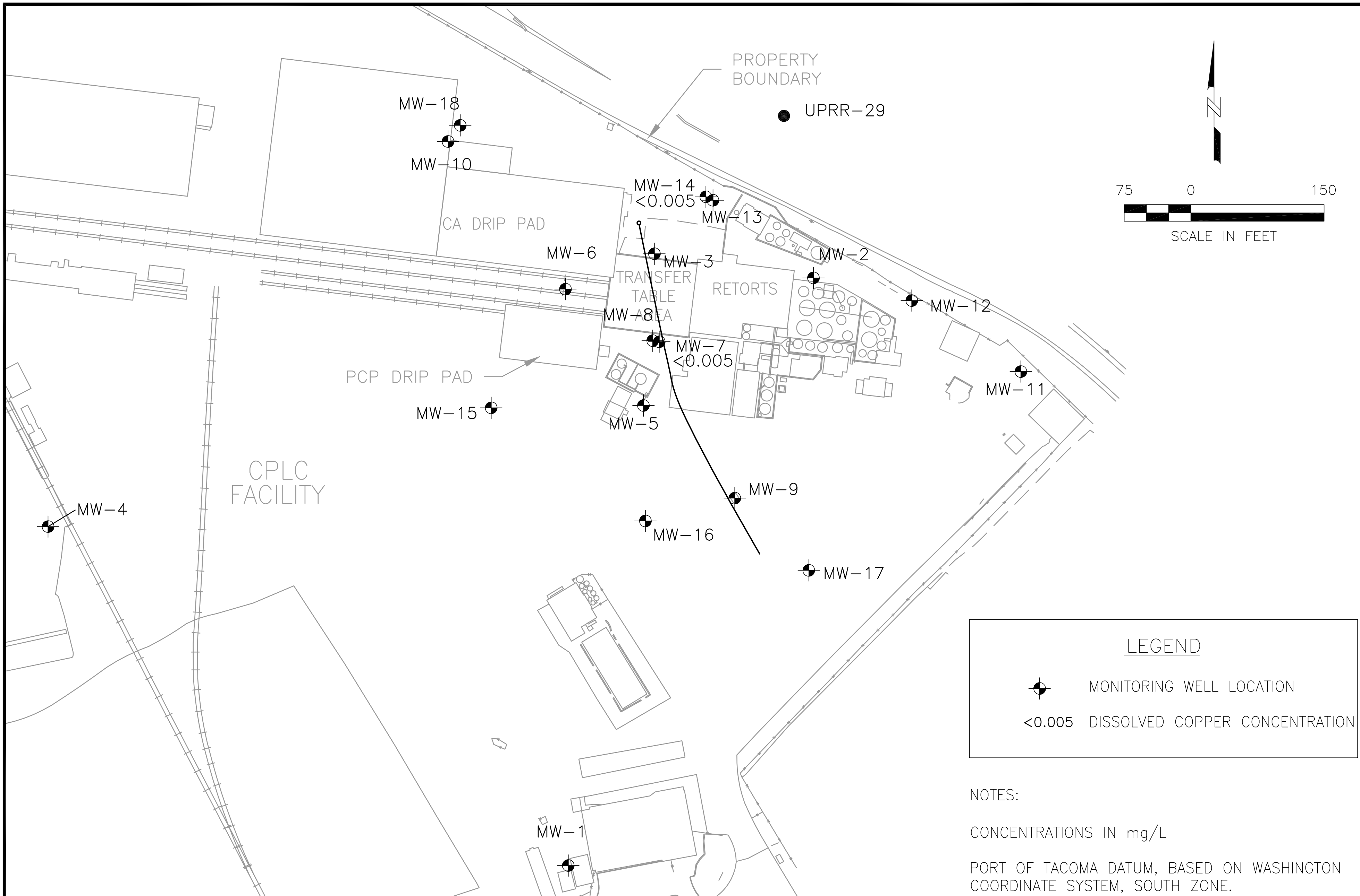
60137201-0300

DATE: 03/20/12 DRWN: M.O./SEA

CONCENTRATIONS OF NAPTHALENE IN SHALLOW AQUIFER FEBRUARY 2012

FIGURE 5

File: G:\PROJECTS\CADD\Cascade Lumber\Annual GW Report\2012\copper_deep_2-12.dwg Layout: FIGURE 6 User: oliveriam Plotted: Mar 20, 2012 - 5:14pm Xref's:



LEGEND

MONITORING WELL LOCATION

<0.005 DISSOLVED COPPER CONCENTRATION

NOTES:

CONCENTRATIONS IN mg/L

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

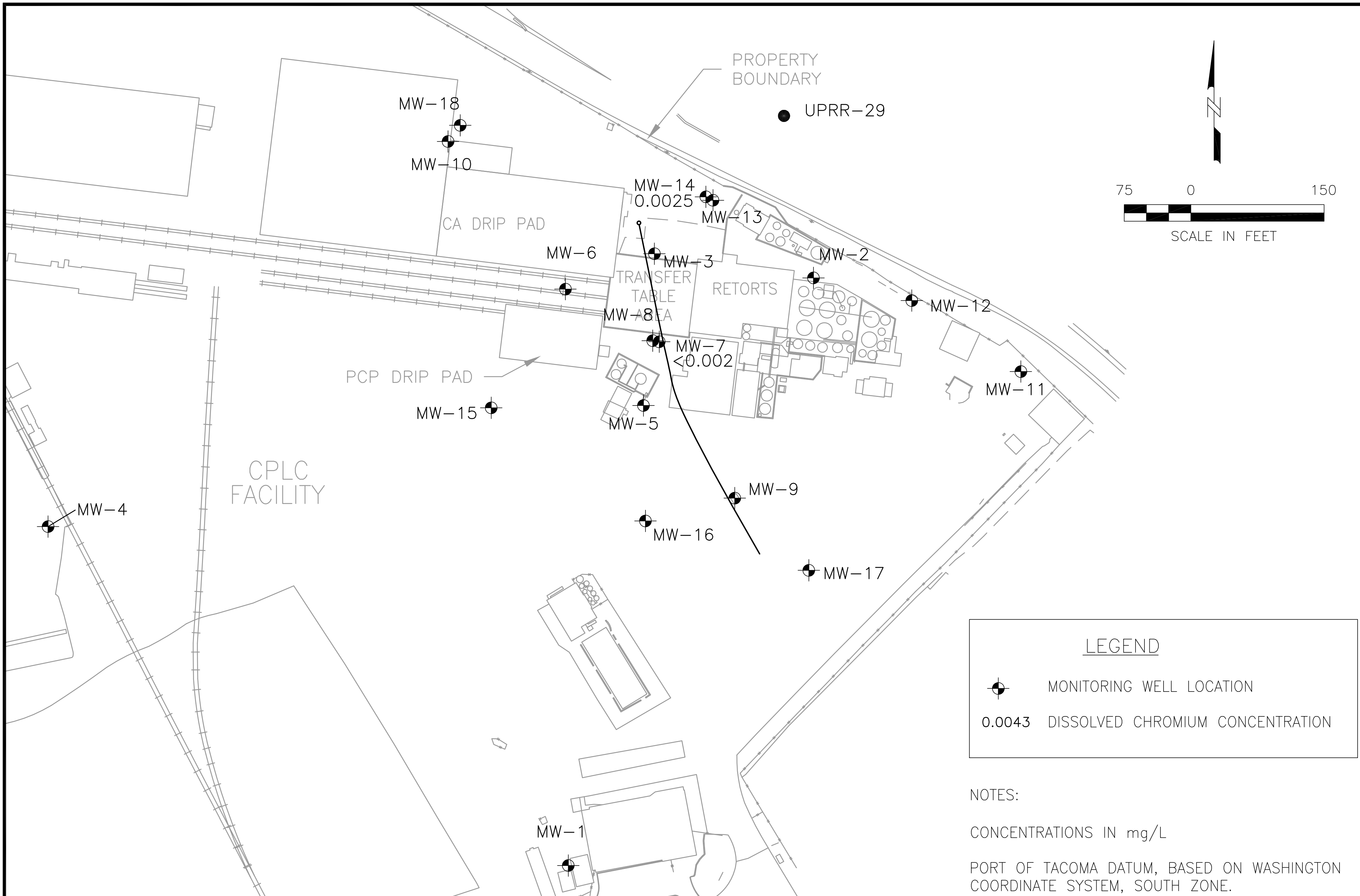
60137201-0300

DATE: 03/20/12 DRWN: M.O./SEA

CONCENTRATIONS OF COPPER IN DEEP AQUIFER FEBRUARY 2012

FIGURE 6

File: G:\PROJECTS\CADD\Cascade Lumber\Annual GW Report\2012\chromium_deep_2-12.dwg Layout: FIGURE 7 User: oliveriam Plotted: Mar 20, 2012 - 5:16pm Xref's:



LEGEND

(symbol)	MONITORING WELL LOCATION
0.0043	DISSOLVED CHROMIUM CONCENTRATION

NOTES:

CONCENTRATIONS IN mg/L

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

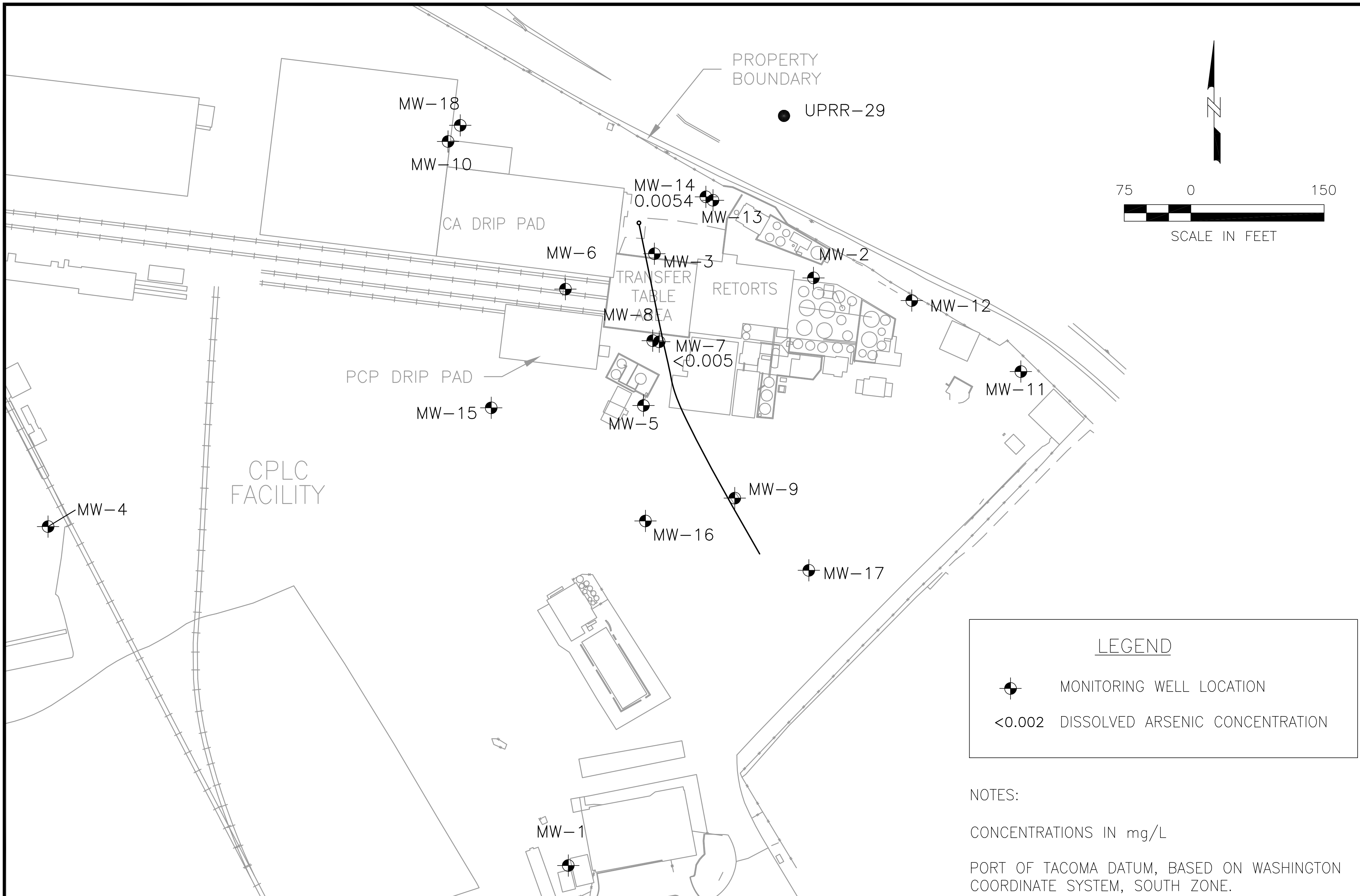
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0300

DATE: 03/20/12 DRWN: M.O./SEA

CONCENTRATIONS OF CHROMIUM IN DEEP AQUIFER FEBRUARY 2012

FIGURE 7



LEGEND

MONITORING WELL LOCATION

<0.002 DISSOLVED ARSENIC CONCENTRATION

NOTES:

CONCENTRATIONS IN mg/L

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

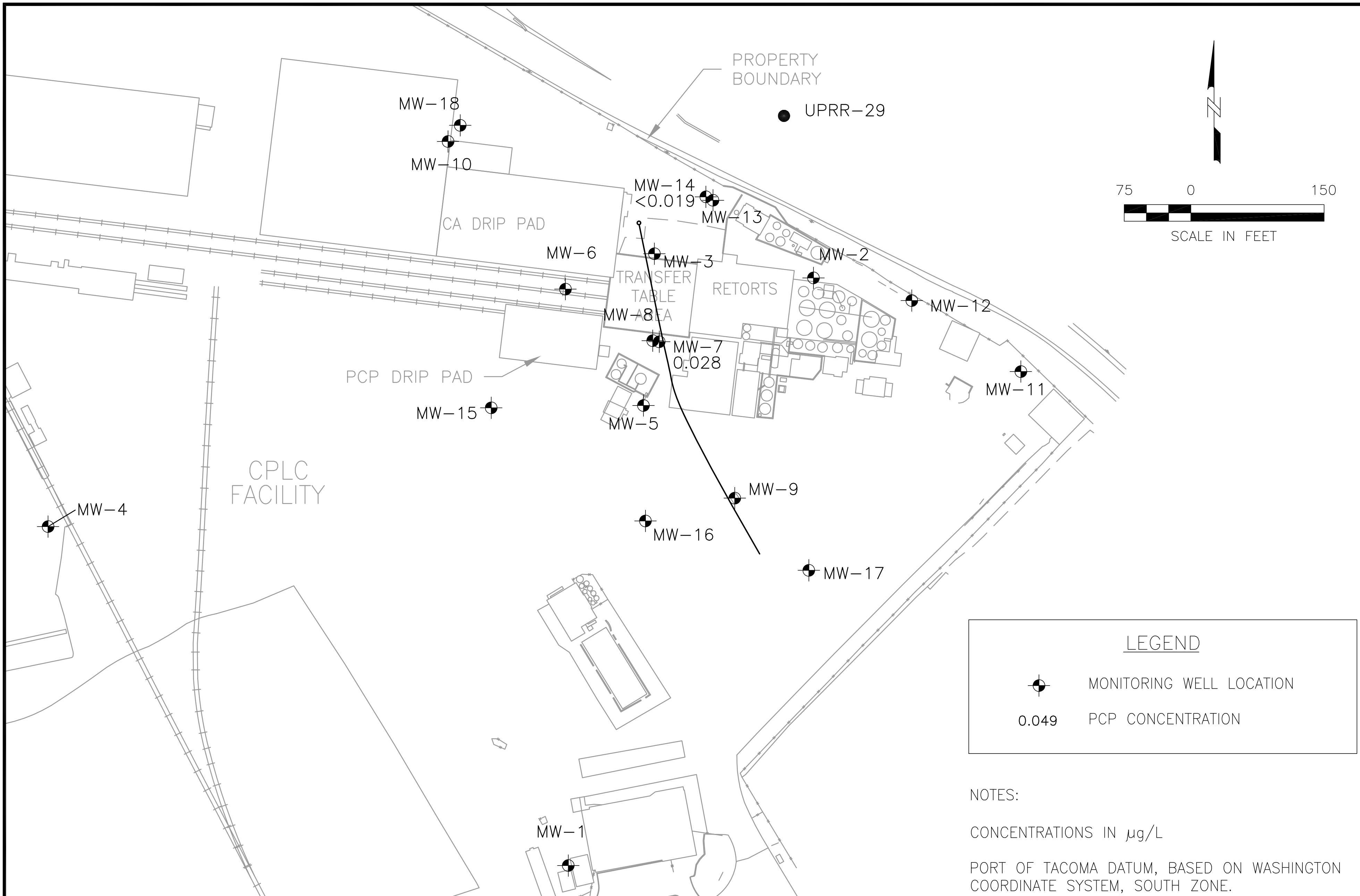
60137201-0300

DATE: 03/20/12 DRWN: M.O./SEA

CONCENTRATIONS OF ARSENIC IN DEEP AQUIFER FEBRUARY 2012

FIGURE 8

File: G:\PROJECTS\CADD\Cascade Lumber\Annual GW Report\2012\PCP_deep_2-12.dwg Layout: FIGURE 9 User: oliveriam Plotted: Mar 20, 2012 - 5:22pm Xref's:



LEGEND

(symbol)	MONITORING WELL LOCATION
0.049	PCP CONCENTRATION

NOTES:

CONCENTRATIONS IN $\mu g/L$

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

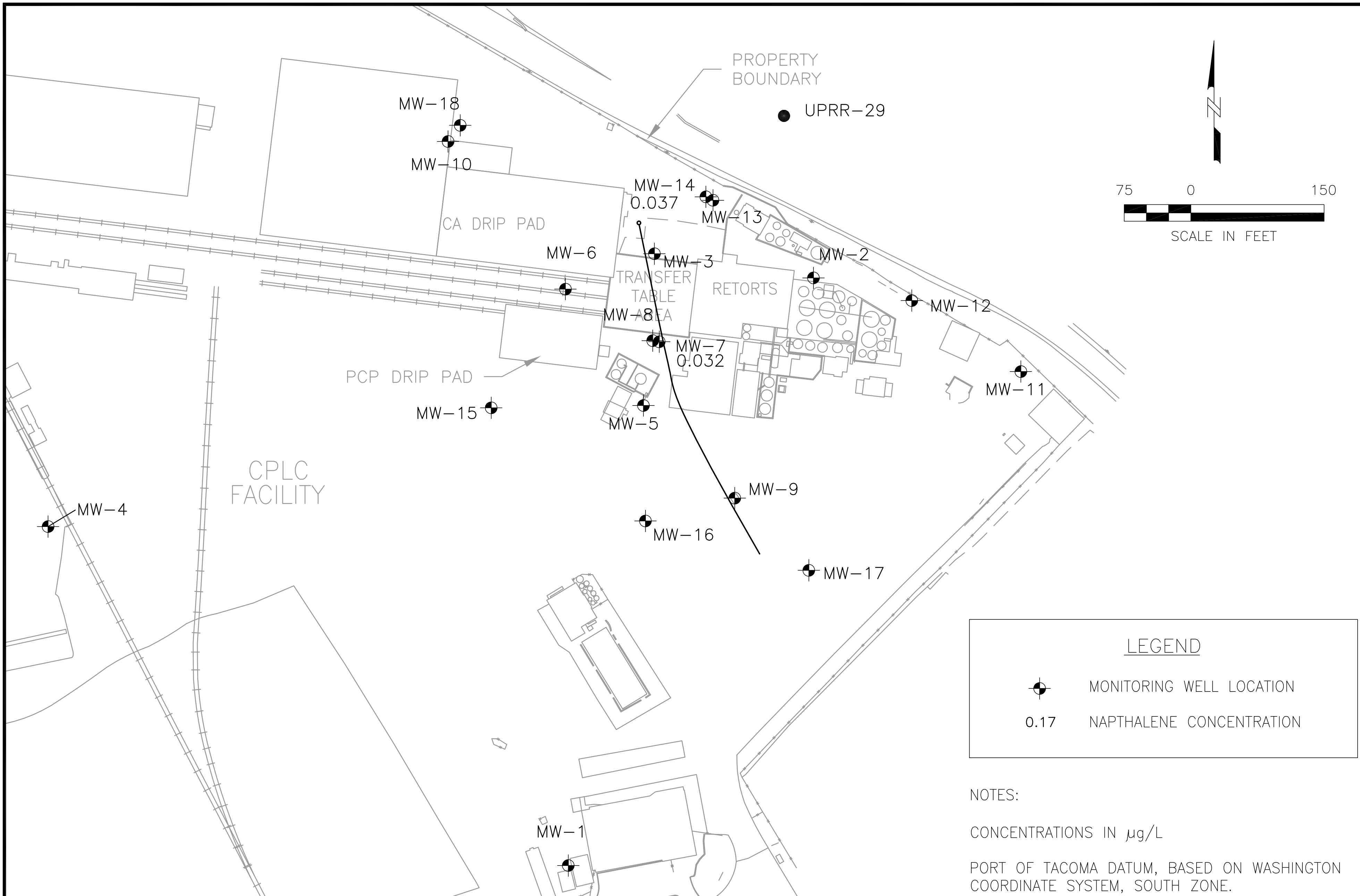
AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON
60137201-0300

DATE: 03/20/12 DRWN: M.O./SEA

CONCENTRATIONS OF PCP IN DEEP AQUIFER FEBRUARY 2012

FIGURE 9



LEGEND

MONITORING WELL LOCATION

0.17 NAPTHALENE CONCENTRATION

NOTES:

CONCENTRATIONS IN $\mu g/L$

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

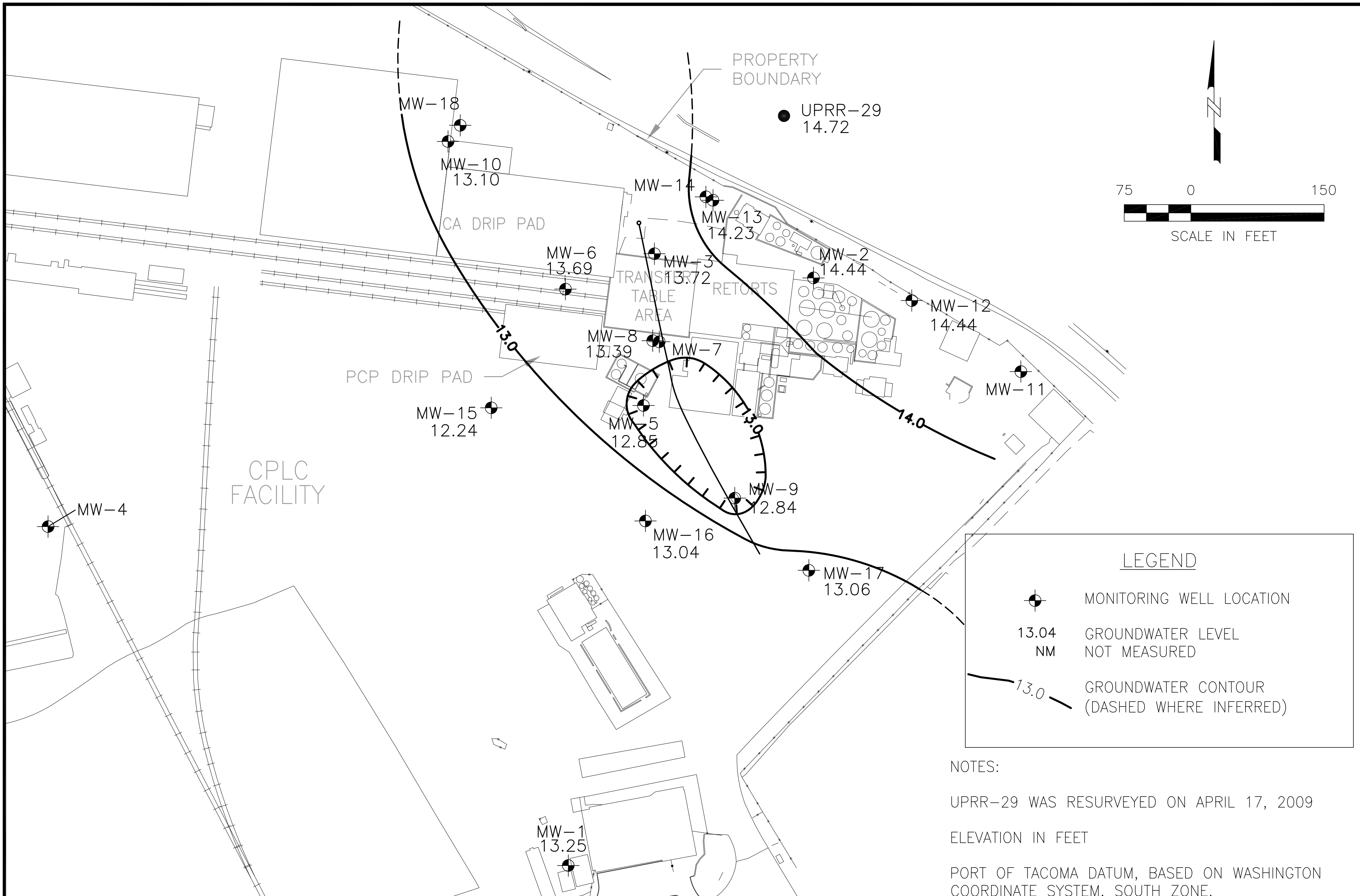
CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

60137201-0300

DATE: 03/20/12 DRWN: M.O./SEA

CONCENTRATIONS OF NAPTHALENE IN DEEP AQUIFER FEBRUARY 2012

FIGURE 10



LEGEND

	MONITORING WELL LOCATION
13.04	GROUNDWATER LEVEL
NM	NOT MEASURED
13.0	GROUNDWATER CONTOUR (DASHED WHERE INFERRED)

NOTES:

UPRR-29 WAS RESURVEYED ON APRIL 17, 2009

ELEVATION IN FEET

PORT OF TACOMA DATUM, BASED ON WASHINGTON COORDINATE SYSTEM, SOUTH ZONE.

AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

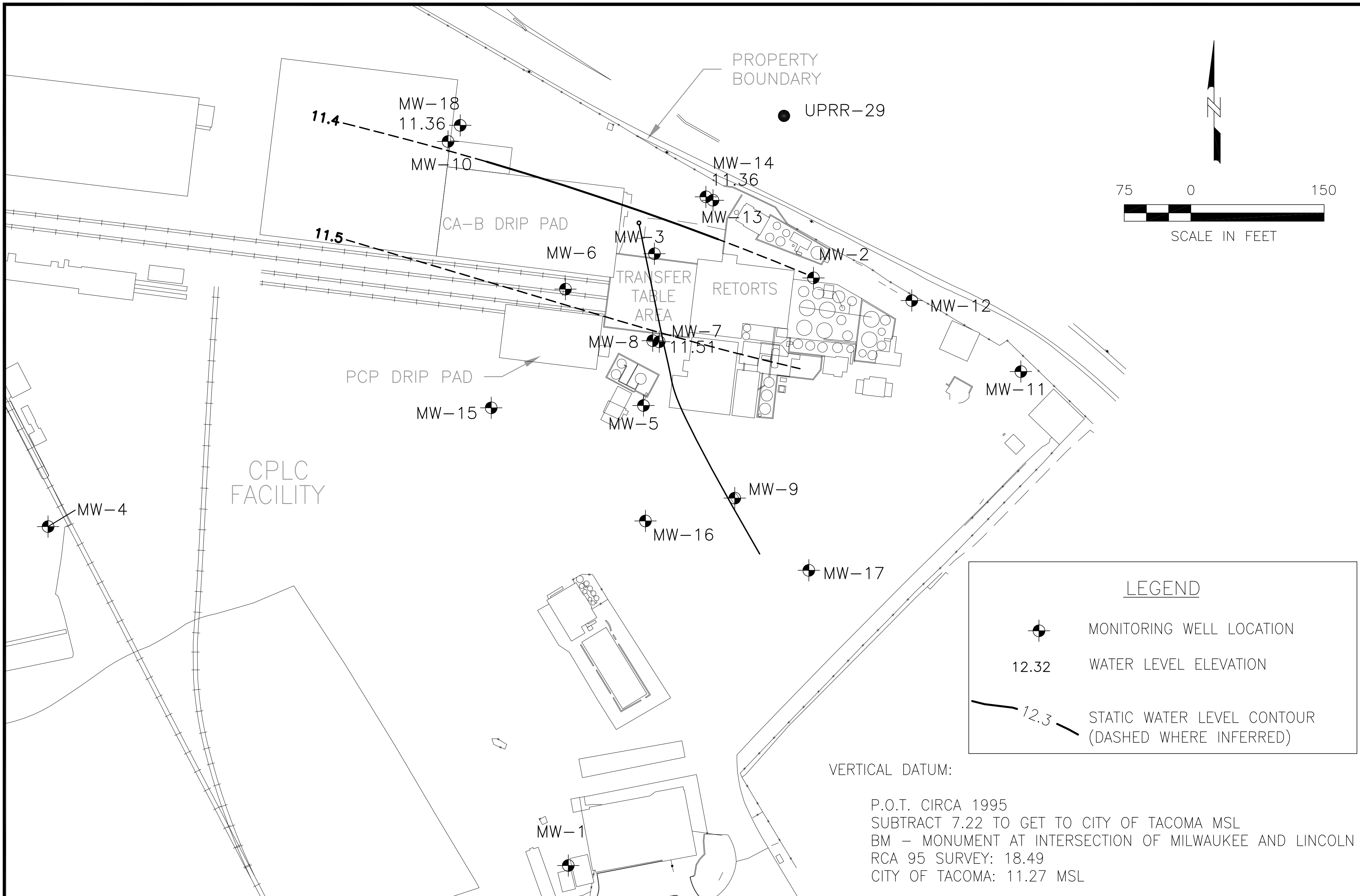
60137021-0300

GROUNDWATER LEVELS
FEBRUARY 2012

DATE: 03/21/12 DRWN: M.O./SEA

FIGURE 11

File: G:\PROJECTS\CADD\Cascade Lumber\Annual GW Report\2012\potentio_deep_2-12.dwg Layout: FIGURE 12 User: oliveriam Plotted: Mar 21, 2012 - 5:07pm Xref's:



AECOM

CASCADE POLE AND LUMBER COMPANY
TACOMA, WASHINGTON

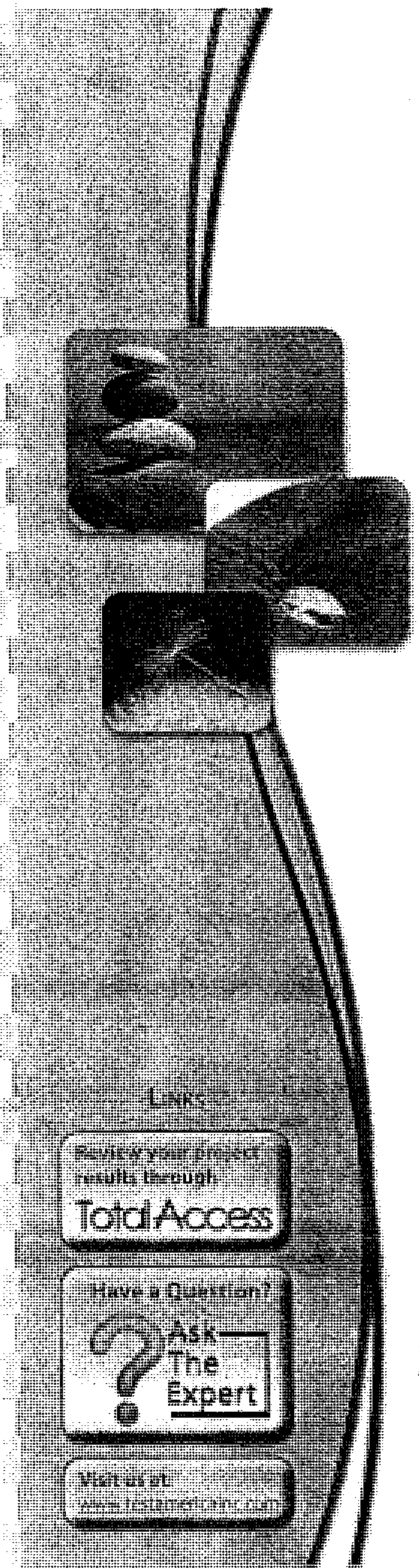
60137201-0300

POTENTIOMETRIC SURFACE MAP
DEEP AQUIFER
FEBRUARY 2012

DATE: 03/21/12 | DRWN: M.O./SEA

FIGURE 12

Appendix B



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-31109-1
Client Project/Site: McFarland Cascade (CPLC)

For:
AECOM, Inc.
710 Second Avenue
Suite 1000
Seattle, Washington 98104

Attn: Renee Knecht

Pamela R. Johnson

Authorized for release by:
2/23/2012 10:51:26 AM
Pam Johnson
Project Manager I
pamr.johnson@testamericainc.com

Designee for

Kristine Allen
Project Manager I
kristine.allen@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Job ID: 580-31109-1

Laboratory: TestAmerica Seattle

Narrative

Receipt
Several sample containers lack the sample collection times. The samples were logged in per the information provided on the Chain-of-Custody (COC).

One amber container has two labels attached to it. One label has "UPRR-29-0212" and the other label has "HW-1-0212". The sample is presumed to be UPRR-29-0212, (580-31109-1), because both ambers for HW-1-0212 (580-31109-5) are present.

All other samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

GC/MS Semi VOA - Method 8270 SIM
The following samples UPRR-29-0212 (580-31109-1), MW-7-0212 (580-31109-2), MW-9-0212 (580-31109-3), MW-90-0212 (580-31109-4), were diluted prior to analysis due to the nature of the sample matrix. Elevated reporting limits (RLs) are provided.

In analytical batch 105401, the laboratory control sample (LCS) for prep batch 105110 recovered low for the following analyte: benzo(a)pyrene. This recovery is within the marginal exceedance limits; re-extraction and/or re-analysis was not performed. Data have been qualified and reported.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Client Sample ID: UPRR-29-0212

Date Collected: 02/08/12 08:30
Date Received: 02/09/12 12:45

Lab Sample ID: 580-31109-1

Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
2-Methylnaphthalene	ND		0.025		ug/L		02/10/12 11:59	02/15/12 18:54	2
1-Methylnaphthalene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Acenaphthylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Acenaphthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Fluorene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Phenanthrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Anthracene	**0.028**		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Benzo[a]anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Chrysene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Benzo[b]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 18:54	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Benzo[g,h,i]perylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2
Pentachlorophenol	**0.18**		0.019		ug/L		02/10/12 11:59	02/15/12 18:54	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*76*		*20 - 150*	*02/10/12 11:59*	*02/15/12 18:54*	*2*
2,4,6-Tribromophenol	*66*		*44 - 125*	*02/10/12 11:59*	*02/15/12 18:54*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 14:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*94*		*20 - 134*	*02/10/12 11:59*	*02/15/12 14:15*	*1*
Phenol-d5	*85*		*55 - 125*	*02/10/12 11:59*	*02/15/12 14:15*	*1*
2,4,6-Tribromophenol	*83*		*44 - 125*	*02/10/12 11:59*	*02/15/12 14:15*	*1*
Nitrobenzene-d5	*77*		*62 - 125*	*02/10/12 11:59*	*02/15/12 14:15*	*1*
2-Fluorobiphenyl	*76*		*66 - 140*	*02/10/12 11:59*	*02/15/12 14:15*	*1*
Terphenyl-d14	*75*		*20 - 150*	*02/10/12 11:59*	*02/15/12 14:15*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.064**		0.0050		mg/L		02/16/12 10:46	02/16/12 16:46	5
Chromium	**0.0029**		0.0020		mg/L		02/16/12 10:46	02/16/12 16:46	5
Copper	**0.026**		0.0050		mg/L		02/16/12 10:46	02/16/12 16:46	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.058**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:16	5
Chromium	ND		0.0020		mg/L		02/16/12 10:46	02/16/12 17:16	5
Copper	**0.015**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:16	5

Client Sample Results

Client: AECOM, Inc. TestAmerica Job ID: 580-31109-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-7-0212 Lab Sample ID: 580-31109-2

Date Collected: 02/08/12 09:45 Matrix: Water
Date Received: 02/09/12 12:45

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.032**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
2-Methylnaphthalene	ND		0.025		ug/L		02/10/12 11:59	02/15/12 19:13	2
1-Methylnaphthalene	**0.025**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Acenaphthylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Acenaphthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Fluorene	**0.043**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Phenanthrene	**0.031**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Anthracene	**0.061**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Fluoranthene	**0.023**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Pyrene	**0.019**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Benzo[a]anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Chrysene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Benzo[b]fluoranthene	**0.021**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 19:13	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Benzo[g,h,i]perylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2
Pentachlorophenol	**0.028**		0.019		ug/L		02/10/12 11:59	02/15/12 19:13	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*73*		*20 - 150*	*02/10/12 11:59*	*02/15/12 19:13*	*2*
2,4,6-Tribromophenol	*93*		*44 - 125*	*02/10/12 11:59*	*02/15/12 19:13*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*99*		*20 - 134*	*02/10/12 11:59*	*02/15/12 14:36*	*1*
Phenol-d5	*94*		*55 - 125*	*02/10/12 11:59*	*02/15/12 14:36*	*1*
2,4,6-Tribromophenol	*94*		*44 - 125*	*02/10/12 11:59*	*02/15/12 14:36*	*1*
Nitrobenzene-d5	*88*		*62 - 125*	*02/10/12 11:59*	*02/15/12 14:36*	*1*
2-Fluorobiphenyl	*78*		*66 - 140*	*02/10/12 11:59*	*02/15/12 14:36*	*1*
Terphenyl-d14	*91*		*20 - 150*	*02/10/12 11:59*	*02/15/12 14:36*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 16:51	5
Chromium	**0.0031**		0.0020		mg/L		02/16/12 10:46	02/16/12 16:51	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 16:51	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:21	5
Chromium	ND		0.0020		mg/L		02/16/12 10:46	02/16/12 17:21	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:21	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Client Sample ID: MW-9-0212
Date Collected: 02/08/12 11:00
Date Received: 02/09/12 12:45

Lab Sample ID: 580-31109-3
Matrix: Water

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Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**15**		1.0		ug/L			02/10/12 20:53	1
Toluene	**2.0**		1.0		ug/L			02/10/12 20:53	1
Ethylbenzene	**87**		1.0		ug/L			02/10/12 20:53	1
m-Xylene & p-Xylene	**6.7**		2.0		ug/L			02/10/12 20:53	1
o-Xylene	**9.7**		1.0		ug/L			02/10/12 20:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*101*		*80 - 120*		*02/10/12 20:53*	*1*
Toluene-d8 (Surr)	*105*		*85 - 120*		*02/10/12 20:53*	*1*
Ethylbenzene-d10	*107*		*80 - 120*		*02/10/12 20:53*	*1*
Trifluorotoluene (Surr)	*111*		*80 - 120*		*02/10/12 20:53*	*1*
4-Bromofluorobenzene (Surr)	*119*		*75 - 120*		*02/10/12 20:53*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	**3.1**		0.13		ug/L		02/10/12 11:59	02/15/12 21:48	10
1-Methylnaphthalene	**9.1**		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Acenaphthylene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Acenaphthene	**1.1**		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Fluorene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Phenanthrene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Pyrene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Benzo[a]anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Chrysene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Benzo[b]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Benzo[k]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Benzo[a]pyrene	ND	*	0.19		ug/L		02/10/12 11:59	02/15/12 21:48	10
Indeno[1,2,3-cd]pyrene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Dibenz(a,h)anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Benzo[g,h,i]perylene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10
Pentachlorophenol	ND		0.096		ug/L		02/10/12 11:59	02/15/12 21:48	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*87*		*20 - 150*	*02/10/12 11:59*	*02/15/12 21:48*	*10*
2,4,6-Tribromophenol	*103*		*44 - 125*	*02/10/12 11:59*	*02/15/12 21:48*	*10*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**410**		4.8		ug/L		02/10/12 11:59	02/15/12 19:33	500

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 14:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*98*		*20 - 134*	*02/10/12 11:59*	*02/15/12 14:56*	*1*
Phenol-d5	*96*		*55 - 125*	*02/10/12 11:59*	*02/15/12 14:56*	*1*
2,4,6-Tribromophenol	*97*		*44 - 125*	*02/10/12 11:59*	*02/15/12 14:56*	*1*
Nitrobenzene-d5	*97*		*62 - 125*	*02/10/12 11:59*	*02/15/12 14:56*	*1*
2-Fluorobiphenyl	*81*		*66 - 140*	*02/10/12 11:59*	*02/15/12 14:56*	*1*

Client Sample Results

Client: AECOM, Inc. TestAmerica Job ID: 580-31109-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-9-0212 **Lab Sample ID: 580-31109-3**
Date Collected: 02/08/12 11:00 **Matrix: Water**
Date Received: 02/09/12 12:45

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*85*		*20 - 150*	*02/10/12 11:59*	*02/15/12 14:56*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.077**		0.0050		mg/L		02/16/12 10:46	02/16/12 16:56	5
Chromium	ND		0.0020		mg/L		02/16/12 10:46	02/16/12 16:56	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 16:56	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.079**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:26	5
Chromium	ND		0.0020		mg/L		02/16/12 10:46	02/16/12 17:26	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:26	5

Client Sample Results

Client Sample ID: MW-90-0212
Date Collected: 02/08/12 10:00
Date Received: 02/09/12 12:45

Lab Sample ID: 580-31109-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	14		1.0		ug/L			02/10/12 21:18	1
Toluene	2.1		1.0		ug/L			02/10/12 21:18	1
Ethylbenzene	88		1.0		ug/L			02/10/12 21:18	1
m-Xylene & p-Xylene	6.7		2.0		ug/L			02/10/12 21:18	1
o-Xylene	9.7		1.0		ug/L			02/10/12 21:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*99*		*80 - 120*		*02/10/12 21:18*	*1*
Toluene-d8 (Surr)	*104*		*85 - 120*		*02/10/12 21:18*	*1*
Ethylbenzene-d10	*107*		*80 - 120*		*02/10/12 21:18*	*1*
Trifluorotoluene (Surr)	*112*		*80 - 120*		*02/10/12 21:18*	*1*
4-Bromofluorobenzene (Surr)	*117*		*75 - 120*		*02/10/12 21:18*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	2.8		0.13		ug/L		02/10/12 11:59	02/15/12 22:07	10
1-Methylnaphthalene	7.9		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Acenaphthylene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Acenaphthene	0.89		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Fluorene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Phenanthrene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Pyrene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Benzo[a]anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Chrysene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Benzo[b]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Benzo[k]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Benzo[a]pyrene	ND	*	0.19		ug/L		02/10/12 11:59	02/15/12 22:07	10
Indeno[1,2,3-cd]pyrene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Dibenz(a,h)anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Benzo[g,h,i]perylene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10
Pentachlorophenol	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:07	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*78*		*20 - 150*	*02/10/12 11:59*	*02/15/12 22:07*	*10*
2,4,6-Tribromophenol	*77*		*44 - 125*	*02/10/12 11:59*	*02/15/12 22:07*	*10*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	320		4.8		ug/L		02/10/12 11:59	02/15/12 19:52	500

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 15:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*95*		*20 - 134*	*02/10/12 11:59*	*02/15/12 15:16*	*1*
Phenol-d5	*85*		*55 - 125*	*02/10/12 11:59*	*02/15/12 15:16*	*1*
2,4,6-Tribromophenol	*91*		*44 - 125*	*02/10/12 11:59*	*02/15/12 15:16*	*1*
Nitrobenzene-d5	*82*		*62 - 125*	*02/10/12 11:59*	*02/15/12 15:16*	*1*
2-Fluorobiphenyl	*74*		*66 - 140*	*02/10/12 11:59*	*02/15/12 15:16*	*1*

Client Sample Results

Client: AECOM, Inc. TestAmerica Job ID: 580-31109-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-90-0212 **Lab Sample ID: 580-31109-4**
Date Collected: 02/08/12 10:00 **Matrix: Water**
Date Received: 02/09/12 12:45

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*81*		*20 - 150*	*02/10/12 11:59*	*02/15/12 15:16*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.081**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:01	5
Chromium	ND		0.0020		mg/L		02/16/12 10:46	02/16/12 17:01	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:01	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.075**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:40	5
Chromium	ND		0.0020		mg/L		02/16/12 10:46	02/16/12 17:40	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:40	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Client Sample ID: HW-1-0212
Date Collected: 02/08/12 11:35
Date Received: 02/09/12 12:45

Lab Sample ID: 580-31109-5
Matrix: Water

5

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.14**		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
2-Methylnaphthalene	ND		0.13		ug/L		02/10/12 11:59	02/20/12 16:46	10
1-Methylnaphthalene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Acenaphthylene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Acenaphthene	**0.34**		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Fluorene	**0.099**		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Phenanthrene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Anthracene	**0.21**		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Pyrene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Benzo[a]anthracene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Chrysene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Benzo[b]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Benzo[k]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Benzo[a]pyrene	ND	*	0.19		ug/L		02/10/12 11:59	02/20/12 16:46	10
Indeno[1,2,3-cd]pyrene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Dibenz(a,h)anthracene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Benzo[g,h,i]perylene	ND		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10
Pentachlorophenol	**1.9**		0.096		ug/L		02/10/12 11:59	02/20/12 16:46	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*84*		*20 - 150*	*02/10/12 11:59*	*02/20/12 16:46*	*10*
2,4,6-Tribromophenol	*74*		*44 - 125*	*02/10/12 11:59*	*02/20/12 16:46*	*10*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 15:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*96*		*20 - 134*	*02/10/12 11:59*	*02/15/12 15:37*	*1*
Phenol-d5	*91*		*55 - 125*	*02/10/12 11:59*	*02/15/12 15:37*	*1*
2,4,6-Tribromophenol	*91*		*44 - 125*	*02/10/12 11:59*	*02/15/12 15:37*	*1*
Nitrobenzene-d5	*88*		*62 - 125*	*02/10/12 11:59*	*02/15/12 15:37*	*1*
2-Fluorobiphenyl	*66*		*66 - 140*	*02/10/12 11:59*	*02/15/12 15:37*	*1*
Terphenyl-d14	*81*		*20 - 150*	*02/10/12 11:59*	*02/15/12 15:37*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.32**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:06	5
Chromium	**0.0045**		0.0020		mg/L		02/16/12 10:46	02/16/12 17:06	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:06	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.12**		0.0050		mg/L		02/16/12 10:46	02/16/12 17:45	5
Chromium	**0.0036**		0.0020		mg/L		02/16/12 10:46	02/16/12 17:45	5
Copper	ND		0.0050		mg/L		02/16/12 10:46	02/16/12 17:45	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Client Sample ID: TB-1-0212
Date Collected: 02/08/12 00:00
Date Received: 02/09/12 12:45

Lab Sample ID: 580-31109-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			02/10/12 20:28	1
Toluene	ND		1.0		ug/L			02/10/12 20:28	1
Ethylbenzene	ND		1.0		ug/L			02/10/12 20:28	1
m-Xylene & p-Xylene	ND		2.0		ug/L			02/10/12 20:28	1
o-Xylene	ND		1.0		ug/L			02/10/12 20:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*100*		*80 - 120*		*02/10/12 20:28*	*1*
Toluene-d8 (Surr)	*104*		*85 - 120*		*02/10/12 20:28*	*1*
Ethylbenzene-d10	*105*		*80 - 120*		*02/10/12 20:28*	*1*
Trifluorotoluene (Surr)	*111*		*80 - 120*		*02/10/12 20:28*	*1*
4-Bromofluorobenzene (Surr)	*112*		*75 - 120*		*02/10/12 20:28*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-105087/4
Matrix: Water
Analysis Batch: 105087

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			02/10/12 11:40	1
Toluene	ND		1.0		ug/L			02/10/12 11:40	1
Ethylbenzene	ND		1.0		ug/L			02/10/12 11:40	1
m-Xylene & p-Xylene	ND		2.0		ug/L			02/10/12 11:40	1
o-Xylene	ND		1.0		ug/L			02/10/12 11:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*100*		*80 - 120*		*02/10/12 11:40*	*1*
Toluene-d8 (Surr)	*104*		*85 - 120*		*02/10/12 11:40*	*1*
Ethylbenzene-d10	*104*		*80 - 120*		*02/10/12 11:40*	*1*
Trifluorotoluene (Surr)	*104*		*80 - 120*		*02/10/12 11:40*	*1*
4-Bromofluorobenzene (Surr)	*112*		*75 - 120*		*02/10/12 11:40*	*1*

Lab Sample ID: LCS 580-105087/5
Matrix: Water
Analysis Batch: 105087

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	27.2		ug/L		109	80 - 120
Toluene	25.0	26.3		ug/L		105	75 - 120
Ethylbenzene	25.0	25.5		ug/L		102	75 - 125
m-Xylene & p-Xylene	50.0	52.7		ug/L		105	75 - 130
o-Xylene	25.0	26.9		ug/L		108	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Fluorobenzene (Surr)	*100*		*80 - 120*
Toluene-d8 (Surr)	*104*		*85 - 120*
Ethylbenzene-d10	*104*		*80 - 120*
Trifluorotoluene (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*113*		*75 - 120*

Lab Sample ID: LCSD 580-105087/6
Matrix: Water
Analysis Batch: 105087

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	25.0	27.0		ug/L		108	80 - 120	1	30
Toluene	25.0	26.1		ug/L		104	75 - 120	1	30
Ethylbenzene	25.0	25.1		ug/L		100	75 - 125	2	30
m-Xylene & p-Xylene	50.0	52.6		ug/L		105	75 - 130	0	30
o-Xylene	25.0	27.0		ug/L		108	80 - 120	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Fluorobenzene (Surr)	*101*		*80 - 120*
Toluene-d8 (Surr)	*104*		*85 - 120*
Ethylbenzene-d10	*105*		*80 - 120*
Trifluorotoluene (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*113*		*75 - 120*

QC Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-105110/1-A
Matrix: Water
Analysis Batch: 105390

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.030		ug/L		02/10/12 11:57	02/15/12 10:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*85*		*20 - 134*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
Phenol-d5	*88*		*55 - 125*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
2,4,6-Tribromophenol	*63*		*44 - 125*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
Nitrobenzene-d5	*73*		*62 - 125*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
2-Fluorobiphenyl	*71*		*66 - 140*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
Terphenyl-d14	*80*		*20 - 150*	*02/10/12 11:57*	*02/15/12 10:11*	*1*

Lab Sample ID: LCS 580-105110/2-A
Matrix: Water
Analysis Batch: 105390

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chloronaphthalene	1.00	0.923		ug/L		92	65 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*83*		*20 - 134*
Phenol-d5	*87*		*55 - 125*
2,4,6-Tribromophenol	*74*		*44 - 125*
Nitrobenzene-d5	*77*		*62 - 125*
2-Fluorobiphenyl	*81*		*66 - 140*
Terphenyl-d14	*88*		*20 - 150*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-105110/1-A
Matrix: Water
Analysis Batch: 105401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
2-Methylnaphthalene	ND		0.013		ug/L		02/10/12 11:57	02/15/12 12:54	1
1-Methylnaphthalene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Acenaphthylene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Acenaphthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Fluorene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Phenanthrene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Anthracene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Fluoranthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Pyrene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[a]anthracene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Chrysene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[b]fluoranthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[k]fluoranthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[a]pyrene	ND		0.020		ug/L		02/10/12 11:57	02/15/12 12:54	1
Indeno[1,2,3-cd]pyrene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Dibenz(a,h)anthracene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-105110/1-A
Matrix: Water
Analysis Batch: 105401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Pentachlorophenol	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*64*		*20 - 150*	*02/10/12 11:57*	*02/15/12 12:54*	*1*
2,4,6-Tribromophenol	*70*		*44 - 125*	*02/10/12 11:57*	*02/15/12 12:54*	*1*

Lab Sample ID: LCS 580-105110/2-A
Matrix: Water
Analysis Batch: 105401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	1.00	0.774		ug/L		77	65 - 125
2-Methylnaphthalene	1.00	0.739		ug/L		74	65 - 125
1-Methylnaphthalene	1.00	0.749		ug/L		75	65 - 125
Acenaphthylene	0.999	0.788		ug/L		79	70 - 125
Acenaphthene	1.00	0.788		ug/L		79	65 - 125
Fluorene	1.00	1.11		ug/L		111	70 - 125
Phenanthrene	1.00	0.813		ug/L		81	70 - 125
Anthracene	1.00	0.615		ug/L		62	60 - 125
Fluoranthene	1.00	0.868		ug/L		87	75 - 125
Pyrene	1.00	0.838		ug/L		84	75 - 125
Benzo[a]anthracene	1.00	0.744		ug/L		74	70 - 125
Chrysene	1.00	0.859		ug/L		86	75 - 125
Benzo[b]fluoranthene	1.00	0.769		ug/L		77	70 - 125
Benzo[k]fluoranthene	1.00	0.851		ug/L		85	70 - 125
Benzo[a]pyrene	1.00	0.486	*	ug/L		49	55 - 125
Indeno[1,2,3-cd]pyrene	1.00	1.00		ug/L		100	65 - 125
Dibenz(a,h)anthracene	0.999	1.05		ug/L		105	65 - 130
Benzo[g,h,i]perylene	1.00	0.969		ug/L		97	65 - 125
Pentachlorophenol	0.999	0.336		ug/L		34	20 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*72*		*20 - 150*
2,4,6-Tribromophenol	*71*		*44 - 125*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: LCS 580-105509/20-A
Matrix: Water
Analysis Batch: 105574

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 105509

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	4.11		mg/L		103	80 - 120
Chromium	0.400	0.408		mg/L		102	80 - 120
Copper	0.500	0.514		mg/L		103	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-105509/21-A
Matrix: Water
Analysis Batch: 105574

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 105509

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.00	4.12		mg/L		103	80 - 120	0	20
Chromium	0.400	0.408		mg/L		102	80 - 120	0	20
Copper	0.500	0.521		mg/L		104	80 - 120	1	20

Lab Sample ID: MB 580-104979/6-B
Matrix: Water
Analysis Batch: 105574

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 105509

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010		mg/L		02/16/12 10:46	02/16/12 15:47	1
Chromium	ND		0.00040		mg/L		02/16/12 10:46	02/16/12 15:47	1
Copper	ND		0.0010		mg/L		02/16/12 10:46	02/16/12 15:47	1

Lab Chronicle

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Client Sample ID: UPRR-29-0212 **Lab Sample ID: 580-31109-1**
Date Collected: 02/08/12 08:30 **Matrix: Water**
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 14:15	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 18:54	CM	TAL SEA
Total Recoverable	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105574	02/16/12 16:46	FCW	TAL SEA
Dissolved	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Dissolved	Analysis	6020		5	105574	02/16/12 17:16	FCW	TAL SEA

Client Sample ID: MW-7-0212 **Lab Sample ID: 580-31109-2**
Date Collected: 02/08/12 09:45 **Matrix: Water**
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 14:36	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 19:13	CM	TAL SEA
Total Recoverable	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105574	02/16/12 16:51	FCW	TAL SEA
Dissolved	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Dissolved	Analysis	6020		5	105574	02/16/12 17:21	FCW	TAL SEA

Client Sample ID: MW-9-0212 **Lab Sample ID: 580-31109-3**
Date Collected: 02/08/12 11:00 **Matrix: Water**
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105087	02/10/12 20:53	JMB	TAL SEA
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 14:56	AP	TAL SEA
Total/NA	Prep	3520C	DL		105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C SIM	DL	500	105401	02/15/12 19:33	CM	TAL SEA
Total/NA	Analysis	8270C SIM		10	105401	02/15/12 21:48	CM	TAL SEA
Total Recoverable	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105574	02/16/12 16:56	FCW	TAL SEA
Dissolved	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Dissolved	Analysis	6020		5	105574	02/16/12 17:26	FCW	TAL SEA

Client Sample ID: MW-90-0212 **Lab Sample ID: 580-31109-4**
Date Collected: 02/08/12 10:00 **Matrix: Water**
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105087	02/10/12 21:18	JMB	TAL SEA
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA

Lab Chronicle

Client: AECOM, Inc. TestAmerica Job ID: 580-31109-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-90-0212 **Lab Sample ID: 580-31109-4**
Date Collected: 02/08/12 10:00 **Matrix: Water**
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270C		1	105390	02/15/12 15:16	AP	TAL SEA
Total/NA	Prep	3520C	DL		105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C SIM	DL	500	105401	02/15/12 19:52	CM	TAL SEA
Total/NA	Analysis	8270C SIM		10	105401	02/15/12 22:07	CM	TAL SEA
Total Recoverable	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105574	02/16/12 17:01	FCW	TAL SEA
Dissolved	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Dissolved	Analysis	6020		5	105574	02/16/12 17:40	FCW	TAL SEA

Client Sample ID: HW-1-0212 **Lab Sample ID: 580-31109-5**
Date Collected: 02/08/12 11:35 **Matrix: Water**
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 15:37	AP	TAL SEA
Total/NA	Analysis	8270C SIM		10	105684	02/20/12 16:46	AP	TAL SEA
Total Recoverable	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105574	02/16/12 17:06	FCW	TAL SEA
Dissolved	Prep	3005A			105509	02/16/12 10:46	PAB	TAL SEA
Dissolved	Analysis	6020		5	105574	02/16/12 17:45	FCW	TAL SEA

Client Sample ID: TB-1-0212 **Lab Sample ID: 580-31109-6**
Date Collected: 02/08/12 00:00 **Matrix: Water**
Date Received: 02/09/12 12:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	105087	02/10/12 20:28	JMB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Seattle	Alaska	Alaska UST	10	UST-022
TestAmerica Seattle	Alaska	TA-Port Heiden Mobile Lab	10	UST-093
TestAmerica Seattle	California	NELAC	9	1115CA
TestAmerica Seattle	Florida	NELAC	4	E871074
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Louisiana	NELAC	6	05016
TestAmerica Seattle	Montana	MT DEQ UST	8	N/A
TestAmerica Seattle	Oregon	NELAC	10	WA100007
TestAmerica Seattle	USDA	USDA		P330-11-00222
TestAmerica Seattle	Washington	State Program	10	C553

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31109-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-31109-1	UPRR-29-0212	Water	02/08/12 08:30	02/09/12 12:45
580-31109-2	MW-7-0212	Water	02/08/12 09:45	02/09/12 12:45
580-31109-3	MW-9-0212	Water	02/08/12 11:00	02/09/12 12:45
580-31109-4	MW-90-0212	Water	02/08/12 10:00	02/09/12 12:45
580-31109-5	HW-1-0212	Water	02/08/12 11:35	02/09/12 12:45
580-31109-6	TB-1-0212	Water	02/08/12 00:00	02/09/12 12:45

TestAmerica
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TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☐ Rush
☒ Short Hold cu

Chain of Custody Record

Client: AEcom Environment — DIRECT BILL TO McFARLAND CASCADE CPLC
Address: 710 2ND AVE STE 1000
City: SEATTLE State: WA Zip Code: 98104
Project Name and Location (State): McFARLAND CASCADE (CPLC)
Contract/Purchase Order/Quote No.:

Client Contact: RENEE KNECHT / FRED MERRILL
Telephone Number (Area Code)/Fax Number: 206-403-4259 / 206-403-4241
Sampler: F. MERRILL
Lab Contact: KRIS
Billing Contact: TED SMITH McFARLAND CASCADE

Date: 2/8/12
Lab Number: 31109
Chain of Custody Number: 12984
Page 1 of 1

Analysis (Attach list if more space is needed)

Special Instructions/Conditions of Receipt

	Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PENTACHLOROPHENOL	PAH	2-CHLORONAPHTHALENE	DISS METALS	TOTAL METALS	BTEX
-1	UPRR-29-0212	2/8/12	0830		X					X	~~X~~			X	X	X	X	X	
-2	MW-7-0212	2/8/12	0945		X					X	~~X~~			X	X	X	X	X	
-3	MW-9-0212	2/8/12	1100		X					X	X			X	X	X	X	X	X
-4	MW-90-0212	2/8/12	1000		X					X	X			X	X	X	X	X	X
-5	HW-1-0212	2/8/12	1135		X					X				X	X	X	X	X	
-6	TB-1-0212										X								X

Cooler/TB/Dig/IR cor 1.3 unc 1.3 — Cooler Dsc [illegible] @ Lab — Wet Packs Packing bubble — w/o
Cooler/TB/Dig/IR cor 5.3 unc 5.2 — Cooler Dsc [illegible] @ Lab — Wet Packs Packing bubble — w/o — client drop off

Cooler: ☐ Yes ☐ No Cooler Temp: ____
Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown
Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other STANDARD
QC Requirements (Specify):

	Sign/Print	Date	Time		Sign/Print	Date	Time
1. Relinquished By	[signature] FRED D MERRILL	2/8/12	1245	1. Received By	Cathy Gamble	2/8/12	12:45
2. Relinquished By				2. Received By			
3. Relinquished By				3. Received By			

Comments: NOTE SHORT HOLD TIME FOR LAB FILTERED DISS METALS

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

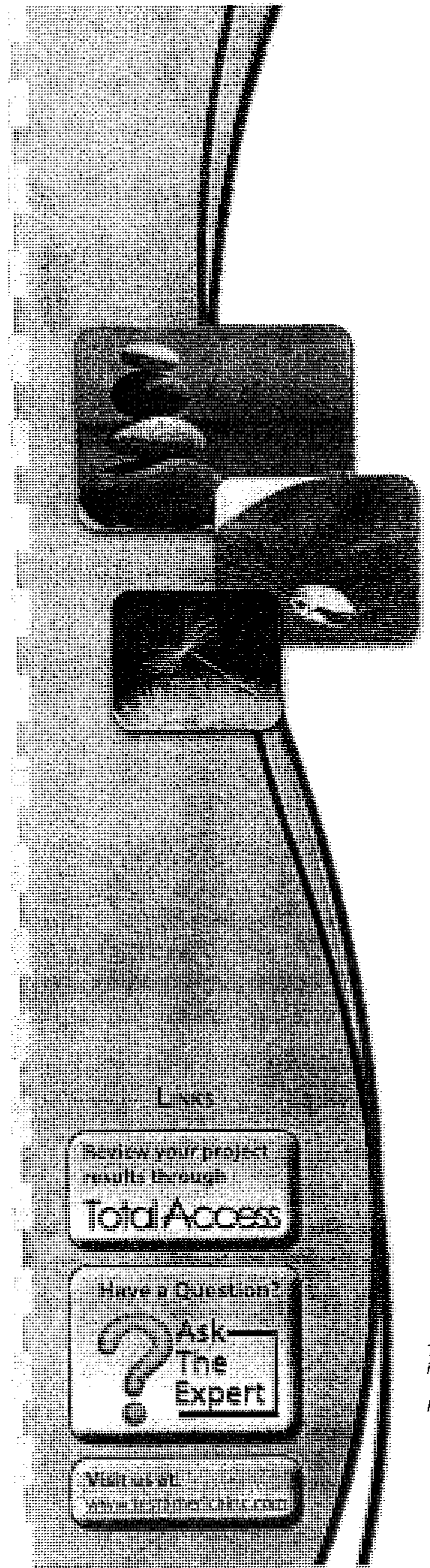
Client: AECOM, Inc.

Job Number: 580-31109-1

Login Number: 31109
List Number: 1
Creator: Gamble, Cathy

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	False	One amber has two labels-UPRR-29 and HW-1
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-31087-1
Client Project/Site: McFarland Cascade (CPLC)

For:
AECOM, Inc.
710 Second Avenue
Suite 1000
Seattle, Washington 98104

Attn: Renee Knecht

Kristine D. Allen

Authorized for release by:
2/21/2012 4:54:18 PM

Kristine Allen
Project Manager I
kristine.allen@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Job ID: 580-31087-1

Laboratory: TestAmerica Seattle

Narrative

Receipt
All samples were received in good condition within temperature requirements.

GC/MS Semi VOA - Method 8270C
2-Fluorobiphenyl recovery for the following samples was outside control limits: MW-14-0212 (580-31087-1), MW-14-0212 (580-31087-1 MSD), MW-5-0212 (580-31087-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. Results have been X flagged and reported.

GC/MS Semi VOA - Method 8270C SIM
The following samples were diluted prior to analysis due to the nature of the sample matrix: MW-14-0212 (580-31087-1), MW-13-0212 (580-31087-2), MW-6-0212 (580-31087-3), MW-2-0212 (580-31087-4), MW-5-0212 (580-31087-6), MW-8-0212 (580-31087-7), MW-3-0212 (580-31087-8), MW-14-0212 (580-31087-1 MS), MW-14-0212 (580-31087-1 MSD). Elevated reporting limits (RLs) are provided.

2,4,6-Tribromophenol surrogate recovery for the following sample was outside control limits: MW-5-0212 (580-31087-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. Results have been X flagged and reported.

The laboratory control sample (LCS) for analysis batch 105401 recovered low for the following analyte: benzo(a)pyrene. This recovery is within the marginal exceedance limits; re-extraction and/or re-analysis was not performed. Data have been qualified and reported.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analysis batch 105401 were outside control limits. Data have been qualified and reported.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Definitions/Glossary

Client: AECOM, Inc. TestAmerica Job ID: 580-31087-1
Project/Site: McFarland Cascade (CPLC)

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
*	LCS or LCSD exceeds the control limits
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: AECOM, Inc. TestAmerica Job ID: 580-31087-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-14-0212 **Lab Sample ID: 580-31087-1**
Date Collected: 02/07/12 09:40 **Matrix: Water**
Date Received: 02/07/12 15:50

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Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.037**		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
2-Methylnaphthalene	ND		0.025		ug/L		02/10/12 11:59	02/15/12 20:30	2
1-Methylnaphthalene	**0.023**		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Acenaphthylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Acenaphthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Fluorene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Phenanthrene	**0.020**		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Anthracene	**0.046**		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Pyrene	**0.020**		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Benzo[a]anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Chrysene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Benzo[b]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 20:30	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Benzo[g,h,i]perylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2
Pentachlorophenol	ND		0.019		ug/L		02/10/12 11:59	02/15/12 20:30	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*95*		*20 - 150*	*02/10/12 11:59*	*02/15/12 20:30*	*2*
2,4,6-Tribromophenol	*63*		*44 - 125*	*02/10/12 11:59*	*02/15/12 20:30*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 10:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*65*		*20 - 134*	*02/10/12 11:59*	*02/15/12 10:52*	*1*
Phenol-d5	*73*		*55 - 125*	*02/10/12 11:59*	*02/15/12 10:52*	*1*
2,4,6-Tribromophenol	*93*		*44 - 125*	*02/10/12 11:59*	*02/15/12 10:52*	*1*
Nitrobenzene-d5	*69*		*62 - 125*	*02/10/12 11:59*	*02/15/12 10:52*	*1*
2-Fluorobiphenyl	*63*	*X*	*66 - 140*	*02/10/12 11:59*	*02/15/12 10:52*	*1*
Terphenyl-d14	*76*		*20 - 150*	*02/10/12 11:59*	*02/15/12 10:52*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.060**		0.0050		mg/L		02/14/12 12:04	02/15/12 11:30	5
Chromium	**0.11**		0.0020		mg/L		02/14/12 12:04	02/15/12 11:30	5
Copper	**0.026**		0.0050		mg/L		02/14/12 12:04	02/15/12 11:30	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0054**		0.0050		mg/L		02/14/12 12:04	02/15/12 12:48	5
Chromium	**0.0025**		0.0020		mg/L		02/14/12 12:04	02/15/12 12:48	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 12:48	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-13-0212

Lab Sample ID: 580-31087-2

Date Collected: 02/07/12 10:10
Date Received: 02/07/12 15:50

Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.12		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
2-Methylnaphthalene	ND		0.025		ug/L		02/10/12 11:59	02/15/12 17:56	2
1-Methylnaphthalene	0.092		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Acenaphthylene	0.039		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Acenaphthene	0.62		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Fluorene	0.18		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Phenanthrene	0.030		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Anthracene	0.16		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Fluoranthene	0.046		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Pyrene	0.056		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Benzo[a]anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Chrysene	0.033		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Benzo[b]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 17:56	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Benzo[g,h,i]perylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2
Pentachlorophenol	0.85		0.019		ug/L		02/10/12 11:59	02/15/12 17:56	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*85*		*20 - 150*	*02/10/12 11:59*	*02/15/12 17:56*	*2*
2,4,6-Tribromophenol	*79*		*44 - 125*	*02/10/12 11:59*	*02/15/12 17:56*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 11:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*72*		*20 - 134*	*02/10/12 11:59*	*02/15/12 11:53*	*1*
Phenol-d5	*80*		*55 - 125*	*02/10/12 11:59*	*02/15/12 11:53*	*1*
2,4,6-Tribromophenol	*83*		*44 - 125*	*02/10/12 11:59*	*02/15/12 11:53*	*1*
Nitrobenzene-d5	*72*		*62 - 125*	*02/10/12 11:59*	*02/15/12 11:53*	*1*
2-Fluorobiphenyl	*73*		*66 - 140*	*02/10/12 11:59*	*02/15/12 11:53*	*1*
Terphenyl-d14	*80*		*20 - 150*	*02/10/12 11:59*	*02/15/12 11:53*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.9		0.0050		mg/L		02/14/12 12:04	02/15/12 12:14	5
Chromium	0.012		0.0020		mg/L		02/14/12 12:04	02/15/12 12:14	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 12:14	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.8		0.0050		mg/L		02/14/12 12:04	02/15/12 13:13	5
Chromium	0.0094		0.0020		mg/L		02/14/12 12:04	02/15/12 13:13	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:13	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-6-0212
Date Collected: 02/07/12 12:00
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-3
Matrix: Water

5

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.52**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
2-Methylnaphthalene	ND		0.025		ug/L		02/10/12 11:59	02/15/12 16:58	2
1-Methylnaphthalene	**0.025**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Acenaphthylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Acenaphthene	**0.043**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Fluorene	**0.051**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Phenanthrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Anthracene	**0.092**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Fluoranthene	**0.081**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Pyrene	**0.081**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Benzo[a]anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Chrysene	**0.025**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Benzo[b]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 16:58	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Benzo[g,h,i]perylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2
Pentachlorophenol	**0.43**		0.019		ug/L		02/10/12 11:59	02/15/12 16:58	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*93*		*20 - 150*	*02/10/12 11:59*	*02/15/12 16:58*	*2*
2,4,6-Tribromophenol	*88*		*44 - 125*	*02/10/12 11:59*	*02/15/12 16:58*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 12:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*78*		*20 - 134*	*02/10/12 11:59*	*02/15/12 12:13*	*1*
Phenol-d5	*83*		*55 - 125*	*02/10/12 11:59*	*02/15/12 12:13*	*1*
2,4,6-Tribromophenol	*91*		*44 - 125*	*02/10/12 11:59*	*02/15/12 12:13*	*1*
Nitrobenzene-d5	*78*		*62 - 125*	*02/10/12 11:59*	*02/15/12 12:13*	*1*
2-Fluorobiphenyl	*76*		*66 - 140*	*02/10/12 11:59*	*02/15/12 12:13*	*1*
Terphenyl-d14	*79*		*20 - 150*	*02/10/12 11:59*	*02/15/12 12:13*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.013**		0.0050		mg/L		02/14/12 12:04	02/15/12 12:19	5
Chromium	**0.021**		0.0020		mg/L		02/14/12 12:04	02/15/12 12:19	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 12:19	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.013**		0.0050		mg/L		02/14/12 12:04	02/15/12 13:18	5
Chromium	**0.015**		0.0020		mg/L		02/14/12 12:04	02/15/12 13:18	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:18	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-2-0212
Date Collected: 02/07/12 12:45
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-4
Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.24		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
2-Methylnaphthalene	0.031		0.025		ug/L		02/10/12 11:59	02/15/12 17:17	2
1-Methylnaphthalene	1.9		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Acenaphthylene	2.2		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Phenanthrene	5.1		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Anthracene	3.8		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Fluoranthene	7.1		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Pyrene	4.6		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Benzo[a]anthracene	0.030		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Chrysene	0.030		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Benzo[b]fluoranthene	0.020		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 17:17	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Benzo[g,h,i]perylene	0.019		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2
Pentachlorophenol	0.11		0.019		ug/L		02/10/12 11:59	02/15/12 17:17	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*77*		*20 - 150*	*02/10/12 11:59*	*02/15/12 17:17*	*2*
2,4,6-Tribromophenol	*72*		*44 - 125*	*02/10/12 11:59*	*02/15/12 17:17*	*2*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	100		0.48		ug/L		02/10/12 11:59	02/20/12 16:27	50
Fluorene	64		0.48		ug/L		02/10/12 11:59	02/20/12 16:27	50

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 12:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*82*		*20 - 134*	*02/10/12 11:59*	*02/15/12 12:33*	*1*
Phenol-d5	*82*		*55 - 125*	*02/10/12 11:59*	*02/15/12 12:33*	*1*
2,4,6-Tribromophenol	*84*		*44 - 125*	*02/10/12 11:59*	*02/15/12 12:33*	*1*
Nitrobenzene-d5	*70*		*62 - 125*	*02/10/12 11:59*	*02/15/12 12:33*	*1*
2-Fluorobiphenyl	*69*		*66 - 140*	*02/10/12 11:59*	*02/15/12 12:33*	*1*
Terphenyl-d14	*74*		*20 - 150*	*02/10/12 11:59*	*02/15/12 12:33*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.48		0.0050		mg/L		02/14/12 12:04	02/15/12 12:24	5
Chromium	0.0054		0.0020		mg/L		02/14/12 12:04	02/15/12 12:24	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 12:24	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.47		0.0050		mg/L		02/14/12 12:04	02/15/12 13:23	5
Chromium	0.0020		0.0020		mg/L		02/14/12 12:04	02/15/12 13:23	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:23	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-12-0212
Date Collected: 02/07/12 13:30
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-5
Matrix: Water

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Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.010**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
2-Methylnaphthalene	ND		0.013		ug/L		02/10/12 11:59	02/15/12 17:37	1
1-Methylnaphthalene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Acenaphthylene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Acenaphthene	**0.17**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Fluorene	**0.068**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Phenanthrene	**0.033**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Anthracene	**0.037**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Fluoranthene	**0.043**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Pyrene	**0.042**		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Benzo[a]anthracene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Chrysene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Benzo[b]fluoranthene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Benzo[k]fluoranthene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Benzo[a]pyrene	ND	*	0.019		ug/L		02/10/12 11:59	02/15/12 17:37	1
Indeno[1,2,3-cd]pyrene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Dibenz(a,h)anthracene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Benzo[g,h,i]perylene	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1
Pentachlorophenol	ND		0.0096		ug/L		02/10/12 11:59	02/15/12 17:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*79*		*20 - 150*	*02/10/12 11:59*	*02/15/12 17:37*	*1*
2,4,6-Tribromophenol	*66*		*44 - 125*	*02/10/12 11:59*	*02/15/12 17:37*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 12:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*73*		*20 - 134*	*02/10/12 11:59*	*02/15/12 12:54*	*1*
Phenol-d5	*79*		*55 - 125*	*02/10/12 11:59*	*02/15/12 12:54*	*1*
2,4,6-Tribromophenol	*86*		*44 - 125*	*02/10/12 11:59*	*02/15/12 12:54*	*1*
Nitrobenzene-d5	*72*		*62 - 125*	*02/10/12 11:59*	*02/15/12 12:54*	*1*
2-Fluorobiphenyl	*73*		*66 - 140*	*02/10/12 11:59*	*02/15/12 12:54*	*1*
Terphenyl-d14	*83*		*20 - 150*	*02/10/12 11:59*	*02/15/12 12:54*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0077**		0.0050		mg/L		02/14/12 12:04	02/15/12 12:29	5
Chromium	ND		0.0020		mg/L		02/14/12 12:04	02/15/12 12:29	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 12:29	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0070**		0.0050		mg/L		02/14/12 12:04	02/15/12 13:28	5
Chromium	ND		0.0020		mg/L		02/14/12 12:04	02/15/12 13:28	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:28	5

Client Sample Results

Client: AECOM, Inc. TestAmerica Job ID: 580-31087-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-5-0212 **Lab Sample ID: 580-31087-6**
Date Collected: 02/07/12 13:55 Matrix: Water
Date Received: 02/07/12 15:50

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	19		0.13		ug/L		02/10/12 11:59	02/15/12 22:26	10
1-Methylnaphthalene	13		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Acenaphthylene	0.19		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Acenaphthene	5.0		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Fluorene	5.3		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Phenanthrene	1.0		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Anthracene	0.23		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Fluoranthene	0.25		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Pyrene	0.30		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Benzo[a]anthracene	0.14		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Chrysene	0.20		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Benzo[b]fluoranthene	0.21		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Benzo[k]fluoranthene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Benzo[a]pyrene	ND	*	0.19		ug/L		02/10/12 11:59	02/15/12 22:26	10
Indeno[1,2,3-cd]pyrene	0.12		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Dibenz(a,h)anthracene	ND		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Benzo[g,h,i]perylene	0.14		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10
Pentachlorophenol	0.18		0.096		ug/L		02/10/12 11:59	02/15/12 22:26	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*67*		*20 - 150*	*02/10/12 11:59*	*02/15/12 22:26*	*10*
2,4,6-Tribromophenol	*133*	*X*	*44 - 125*	*02/10/12 11:59*	*02/15/12 22:26*	*10*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	550		9.6		ug/L		02/10/12 11:59	02/15/12 21:28	1000

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 13:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*71*		*20 - 134*	*02/10/12 11:59*	*02/15/12 13:14*	*1*
Phenol-d5	*92*		*55 - 125*	*02/10/12 11:59*	*02/15/12 13:14*	*1*
2,4,6-Tribromophenol	*84*		*44 - 125*	*02/10/12 11:59*	*02/15/12 13:14*	*1*
Nitrobenzene-d5	*64*		*62 - 125*	*02/10/12 11:59*	*02/15/12 13:14*	*1*
2-Fluorobiphenyl	*59*	*X*	*66 - 140*	*02/10/12 11:59*	*02/15/12 13:14*	*1*
Terphenyl-d14	*98*		*20 - 150*	*02/10/12 11:59*	*02/15/12 13:14*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.61		0.0050		mg/L		02/14/12 12:04	02/15/12 12:34	5
Chromium	ND		0.0020		mg/L		02/14/12 12:04	02/15/12 12:34	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 12:34	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.57		0.0050		mg/L		02/14/12 12:04	02/15/12 13:33	5
Chromium	ND		0.0020		mg/L		02/14/12 12:04	02/15/12 13:33	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:33	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

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Client Sample ID: MW-8-0212

Date Collected: 02/07/12 14:10
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-7

Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	2.5		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
2-Methylnaphthalene	0.039		0.025		ug/L		02/10/12 11:59	02/15/12 18:15	2
1-Methylnaphthalene	0.91		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Acenaphthylene	0.26		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Acenaphthene	5.9		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Fluorene	1.1		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Phenanthrene	0.045		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Anthracene	0.56		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Pyrene	0.10		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Benzo[a]anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Chrysene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Benzo[b]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 18:15	2
Indeno[1,2,3-cd]pyrene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Benzo[g,h,i]perylene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2
Pentachlorophenol	0.28		0.019		ug/L		02/10/12 11:59	02/15/12 18:15	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*92*		*20 - 150*	*02/10/12 11:59*	*02/15/12 18:15*	*2*
2,4,6-Tribromophenol	*112*		*44 - 125*	*02/10/12 11:59*	*02/15/12 18:15*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*99*		*20 - 134*	*02/10/12 11:59*	*02/15/12 13:35*	*1*
Phenol-d5	*89*		*55 - 125*	*02/10/12 11:59*	*02/15/12 13:35*	*1*
2,4,6-Tribromophenol	*98*		*44 - 125*	*02/10/12 11:59*	*02/15/12 13:35*	*1*
Nitrobenzene-d5	*80*		*62 - 125*	*02/10/12 11:59*	*02/15/12 13:35*	*1*
2-Fluorobiphenyl	*94*		*66 - 140*	*02/10/12 11:59*	*02/15/12 13:35*	*1*
Terphenyl-d14	*140*		*20 - 150*	*02/10/12 11:59*	*02/15/12 13:35*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.44		0.0050		mg/L		02/14/12 12:04	02/15/12 12:38	5
Chromium	0.025		0.0020		mg/L		02/14/12 12:04	02/15/12 12:38	5
Copper	0.0050		0.0050		mg/L		02/14/12 12:04	02/15/12 12:38	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.21		0.0050		mg/L		02/14/12 12:04	02/15/12 13:37	5
Chromium	0.010		0.0020		mg/L		02/14/12 12:04	02/15/12 13:37	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:37	5

Client Sample Results

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-3-0212
Date Collected: 02/07/12 14:40
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-8
Matrix: Water

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.069**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
2-Methylnaphthalene	ND		0.025		ug/L		02/10/12 11:59	02/15/12 18:35	2
1-Methylnaphthalene	**0.052**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Acenaphthylene	**0.083**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Acenaphthene	**1.2**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Fluorene	**0.17**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Phenanthrene	**0.028**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Anthracene	**0.29**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Fluoranthene	**0.054**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Pyrene	**0.058**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Benzo[a]anthracene	**0.020**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Chrysene	**0.027**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Benzo[b]fluoranthene	**0.043**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Benzo[k]fluoranthene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Benzo[a]pyrene	ND	*	0.038		ug/L		02/10/12 11:59	02/15/12 18:35	2
Indeno[1,2,3-cd]pyrene	**0.028**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Dibenz(a,h)anthracene	ND		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Benzo[g,h,i]perylene	**0.028**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2
Pentachlorophenol	**0.14**		0.019		ug/L		02/10/12 11:59	02/15/12 18:35	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*75*		*20 - 150*	*02/10/12 11:59*	*02/15/12 18:35*	*2*
2,4,6-Tribromophenol	*103*		*44 - 125*	*02/10/12 11:59*	*02/15/12 18:35*	*2*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.029		ug/L		02/10/12 11:59	02/15/12 13:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*78*		*20 - 134*	*02/10/12 11:59*	*02/15/12 13:55*	*1*
Phenol-d5	*83*		*55 - 125*	*02/10/12 11:59*	*02/15/12 13:55*	*1*
2,4,6-Tribromophenol	*77*		*44 - 125*	*02/10/12 11:59*	*02/15/12 13:55*	*1*
Nitrobenzene-d5	*75*		*62 - 125*	*02/10/12 11:59*	*02/15/12 13:55*	*1*
2-Fluorobiphenyl	*72*		*66 - 140*	*02/10/12 11:59*	*02/15/12 13:55*	*1*
Terphenyl-d14	*90*		*20 - 150*	*02/10/12 11:59*	*02/15/12 13:55*	*1*

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**3.2**		0.0050		mg/L		02/14/12 12:04	02/15/12 12:43	5
Chromium	**0.083**		0.0020		mg/L		02/14/12 12:04	02/15/12 12:43	5
Copper	**0.095**		0.0050		mg/L		02/14/12 12:04	02/15/12 12:43	5

Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**2.6**		0.0050		mg/L		02/14/12 12:04	02/15/12 13:42	5
Chromium	**0.019**		0.0020		mg/L		02/14/12 12:04	02/15/12 13:42	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 13:42	5

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-105110/1-A
Matrix: Water
Analysis Batch: 105390

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		0.030		ug/L		02/10/12 11:57	02/15/12 10:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*85*		*20 - 134*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
Phenol-d5	*88*		*55 - 125*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
2,4,6-Tribromophenol	*63*		*44 - 125*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
Nitrobenzene-d5	*73*		*62 - 125*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
2-Fluorobiphenyl	*71*		*66 - 140*	*02/10/12 11:57*	*02/15/12 10:11*	*1*
Terphenyl-d14	*80*		*20 - 150*	*02/10/12 11:57*	*02/15/12 10:11*	*1*

Lab Sample ID: LCS 580-105110/2-A
Matrix: Water
Analysis Batch: 105390

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chloronaphthalene	1.00	0.923		ug/L		92	65 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*83*		*20 - 134*
Phenol-d5	*87*		*55 - 125*
2,4,6-Tribromophenol	*74*		*44 - 125*
Nitrobenzene-d5	*77*		*62 - 125*
2-Fluorobiphenyl	*81*		*66 - 140*
Terphenyl-d14	*88*		*20 - 150*

Lab Sample ID: 580-31087-1 MS
Matrix: Water
Analysis Batch: 105390

Client Sample ID: MW-14-0212
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Chloronaphthalene	ND		0.963	0.748		ug/L		78	65 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorophenol	*90*		*20 - 134*
Phenol-d5	*90*		*55 - 125*
2,4,6-Tribromophenol	*91*		*44 - 125*
Nitrobenzene-d5	*75*		*62 - 125*
2-Fluorobiphenyl	*69*		*66 - 140*
Terphenyl-d14	*79*		*20 - 150*

Lab Sample ID: 580-31087-1 MSD
Matrix: Water
Analysis Batch: 105390

Client Sample ID: MW-14-0212
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Chloronaphthalene	ND		0.963	0.655		ug/L		68	65 - 125	13	20

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-31087-1 MSD
Matrix: Water
Analysis Batch: 105390

Client Sample ID: MW-14-0212
Prep Type: Total/NA
Prep Batch: 105110

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorophenol	*81*		*20 - 134*
Phenol-d5	*81*		*55 - 125*
2,4,6-Tribromophenol	*88*		*44 - 125*
Nitrobenzene-d5	*70*		*62 - 125*
2-Fluorobiphenyl	*62*	*X*	*66 - 140*
Terphenyl-d14	*73*		*20 - 150*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-105110/1-A
Matrix: Water
Analysis Batch: 105401

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 105110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
2-Methylnaphthalene	ND		0.013		ug/L		02/10/12 11:57	02/15/12 12:54	1
1-Methylnaphthalene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Acenaphthylene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Acenaphthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Fluorene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Phenanthrene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Anthracene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Fluoranthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Pyrene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[a]anthracene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Chrysene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[b]fluoranthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[k]fluoranthene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[a]pyrene	ND		0.020		ug/L		02/10/12 11:57	02/15/12 12:54	1
Indeno[1,2,3-cd]pyrene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Dibenz(a,h)anthracene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Benzo[g,h,i]perylene	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1
Pentachlorophenol	ND		0.010		ug/L		02/10/12 11:57	02/15/12 12:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*64*		*20 - 150*	*02/10/12 11:57*	*02/15/12 12:54*	*1*
2,4,6-Tribromophenol	*70*		*44 - 125*	*02/10/12 11:57*	*02/15/12 12:54*	*1*

Lab Sample ID: LCS 580-105110/2-A
Matrix: Water
Analysis Batch: 105401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	1.00	0.774		ug/L		77	65 - 125
2-Methylnaphthalene	1.00	0.739		ug/L		74	65 - 125
1-Methylnaphthalene	1.00	0.749		ug/L		75	65 - 125
Acenaphthylene	0.999	0.788		ug/L		79	70 - 125
Acenaphthene	1.00	0.788		ug/L		79	65 - 125
Fluorene	1.00	1.11		ug/L		111	70 - 125

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-105110/2-A
Matrix: Water
Analysis Batch: 105401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenanthrene	1.00	0.813		ug/L		81	70 - 125
Anthracene	1.00	0.615		ug/L		62	60 - 125
Fluoranthene	1.00	0.868		ug/L		87	75 - 125
Pyrene	1.00	0.838		ug/L		84	75 - 125
Benzo[a]anthracene	1.00	0.744		ug/L		74	70 - 125
Chrysene	1.00	0.859		ug/L		86	75 - 125
Benzo[b]fluoranthene	1.00	0.769		ug/L		77	70 - 125
Benzo[k]fluoranthene	1.00	0.851		ug/L		85	70 - 125
Benzo[a]pyrene	1.00	0.486	*	ug/L		49	55 - 125
Indeno[1,2,3-cd]pyrene	1.00	1.00		ug/L		100	65 - 125
Dibenz(a,h)anthracene	0.999	1.05		ug/L		105	65 - 130
Benzo[g,h,i]perylene	1.00	0.969		ug/L		97	65 - 125
Pentachlorophenol	0.999	0.336		ug/L		34	20 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*72*		*20 - 150*
2,4,6-Tribromophenol	*71*		*44 - 125*

Lab Sample ID: 580-31087-1 MS
Matrix: Water
Analysis Batch: 105401

Client Sample ID: MW-14-0212
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	0.037		0.961	0.768		ug/L		76	65 - 125
2-Methylnaphthalene	ND		0.963	0.746		ug/L		77	65 - 125
1-Methylnaphthalene	0.023		0.963	0.828		ug/L		84	65 - 125
Acenaphthylene	ND		0.961	0.455	F	ug/L		47	70 - 125
Acenaphthene	ND		0.963	0.613	F	ug/L		64	65 - 125
Fluorene	ND		0.964	0.596	F	ug/L		62	70 - 125
Phenanthrene	0.020		0.961	0.860		ug/L		87	70 - 125
Anthracene	0.046		0.961	0.678		ug/L		66	60 - 125
Fluoranthene	ND		0.963	0.834		ug/L		85	75 - 125
Pyrene	0.020		0.963	0.862		ug/L		88	75 - 125
Benzo[a]anthracene	ND		0.962	0.847		ug/L		87	70 - 125
Chrysene	ND		0.961	0.957		ug/L		98	75 - 125
Benzo[b]fluoranthene	ND		0.962	0.696		ug/L		71	70 - 125
Benzo[k]fluoranthene	ND		0.963	0.630	F	ug/L		65	70 - 125
Benzo[a]pyrene	ND	*	0.961	0.552		ug/L		56	55 - 125
Indeno[1,2,3-cd]pyrene	ND		0.962	0.790		ug/L		81	65 - 125
Dibenz(a,h)anthracene	ND		0.960	0.816		ug/L		84	65 - 130
Benzo[g,h,i]perylene	ND		0.961	0.735		ug/L		75	65 - 125
Pentachlorophenol	ND		0.960	0.652		ug/L		68	20 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Terphenyl-d14	*71*		*20 - 150*
2,4,6-Tribromophenol	*68*		*44 - 125*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 580-31087-1 MSD
Matrix: Water
Analysis Batch: 105401

Client Sample ID: MW-14-0212
Prep Type: Total/NA
Prep Batch: 105110

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	0.037		0.961	0.632	F	ug/L		62	65 - 125	19	20
2-Methylnaphthalene	ND		0.963	0.640		ug/L		66	65 - 125	15	20
1-Methylnaphthalene	0.023		0.963	0.643	F	ug/L		64	65 - 125	25	20
Acenaphthylene	ND		0.961	0.468	F	ug/L		49	70 - 125	3	20
Acenaphthene	ND		0.963	0.586	F	ug/L		61	65 - 125	5	20
Fluorene	ND		0.964	0.655	F	ug/L		68	70 - 125	10	20
Phenanthrene	0.020		0.961	0.877		ug/L		89	70 - 125	2	20
Anthracene	0.046		0.961	0.669		ug/L		65	60 - 125	1	20
Fluoranthene	ND		0.963	0.745		ug/L		76	75 - 125	11	20
Pyrene	0.020		0.963	0.765		ug/L		77	75 - 125	12	20
Benzo[a]anthracene	ND		0.962	0.851		ug/L		87	70 - 125	0	20
Chrysene	ND		0.961	0.932		ug/L		96	75 - 125	3	20
Benzo[b]fluoranthene	ND		0.962	0.639	F	ug/L		65	70 - 125	8	20
Benzo[k]fluoranthene	ND		0.963	0.597	F	ug/L		61	70 - 125	5	20
Benzo[a]pyrene	ND	*	0.961	0.554		ug/L		56	55 - 125	0	20
Indeno[1,2,3-cd]pyrene	ND		0.962	0.728		ug/L		75	65 - 125	8	20
Dibenz(a,h)anthracene	ND		0.960	0.735		ug/L		76	65 - 130	10	20
Benzo[g,h,i]perylene	ND		0.961	0.676		ug/L		69	65 - 125	8	20
Pentachlorophenol	ND		0.960	0.634		ug/L		66	20 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Terphenyl-d14	*99*		*20 - 150*
2,4,6-Tribromophenol	*74*		*44 - 125*

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: LCS 580-105297/23-A
Matrix: Water
Analysis Batch: 105476

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 105297

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	4.04		mg/L		101	80 - 120
Chromium	0.400	0.406		mg/L		101	80 - 120
Copper	0.500	0.510		mg/L		102	80 - 120

Lab Sample ID: LCSD 580-105297/24-A
Matrix: Water
Analysis Batch: 105476

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 105297

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.00	4.06		mg/L		102	80 - 120	0	20
Chromium	0.400	0.406		mg/L		101	80 - 120	0	20
Copper	0.500	0.508		mg/L		102	80 - 120	1	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 580-31087-1 MS
Matrix: Water
Analysis Batch: 105476

Client Sample ID: MW-14-0212
Prep Type: Total Recoverable
Prep Batch: 105297

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.060		4.00	4.27		mg/L		105	80 - 120
Chromium	0.11		0.400	0.512		mg/L		101	80 - 120
Copper	0.026		0.500	0.543		mg/L		103	80 - 120

Lab Sample ID: 580-31087-1 MSD
Matrix: Water
Analysis Batch: 105476

Client Sample ID: MW-14-0212
Prep Type: Total Recoverable
Prep Batch: 105297

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.060		4.00	4.30		mg/L		106	80 - 120	1	20
Chromium	0.11		0.400	0.506		mg/L		99	80 - 120	1	20
Copper	0.026		0.500	0.546		mg/L		104	80 - 120	1	20

Lab Sample ID: 580-31087-1 DU
Matrix: Water
Analysis Batch: 105476

Client Sample ID: MW-14-0212
Prep Type: Total Recoverable
Prep Batch: 105297

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.060		0.0586		mg/L		2	20
Chromium	0.11		0.107		mg/L		1	20
Copper	0.026		0.0252		mg/L		2	20

Lab Sample ID: MB 580-104893/11-B
Matrix: Water
Analysis Batch: 105476

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 105297

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 11:20	5
Chromium	ND		0.0020		mg/L		02/14/12 12:04	02/15/12 11:20	5
Copper	ND		0.0050		mg/L		02/14/12 12:04	02/15/12 11:20	5

Lab Sample ID: 580-31087-1 MS
Matrix: Water
Analysis Batch: 105476

Client Sample ID: MW-14-0212
Prep Type: Dissolved
Prep Batch: 105297

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0054		4.00	4.29		mg/L		107	80 - 120
Chromium	0.0025		0.400	0.428		mg/L		106	80 - 120
Copper	ND		0.500	0.530		mg/L		105	80 - 120

Lab Sample ID: 580-31087-1 MSD
Matrix: Water
Analysis Batch: 105476

Client Sample ID: MW-14-0212
Prep Type: Dissolved
Prep Batch: 105297

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.0054		4.00	4.17		mg/L		104	80 - 120	3	20
Chromium	0.0025		0.400	0.417		mg/L		104	80 - 120	3	20
Copper	ND		0.500	0.512		mg/L		102	80 - 120	3	20

Lab Chronicle

Client: AECOM, Inc. TestAmerica Job ID: 580-31087-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-14-0212 **Lab Sample ID: 580-31087-1**
Date Collected: 02/07/12 09:40 **Matrix: Water**
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 10:52	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 20:30	CM	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 12:48	FCW	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 11:30	FCW	TAL SEA

Client Sample ID: MW-13-0212 **Lab Sample ID: 580-31087-2**
Date Collected: 02/07/12 10:10 **Matrix: Water**
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 11:53	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 17:56	CM	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:14	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 13:13	FCW	TAL SEA

Client Sample ID: MW-6-0212 **Lab Sample ID: 580-31087-3**
Date Collected: 02/07/12 12:00 **Matrix: Water**
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 12:13	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 16:58	CM	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:19	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 13:18	FCW	TAL SEA

Client Sample ID: MW-2-0212 **Lab Sample ID: 580-31087-4**
Date Collected: 02/07/12 12:45 **Matrix: Water**
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 12:33	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 17:17	CM	TAL SEA
Total/NA	Prep	3520C	DL		105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C SIM	DL	50	105684	02/20/12 16:27	AP	TAL SEA

Lab Chronicle

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Client Sample ID: MW-2-0212
Date Collected: 02/07/12 12:45
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:24	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 13:23	FCW	TAL SEA

Client Sample ID: MW-12-0212
Date Collected: 02/07/12 13:30
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 12:54	AP	TAL SEA
Total/NA	Analysis	8270C SIM		1	105401	02/15/12 17:37	CM	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:29	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 13:28	FCW	TAL SEA

Client Sample ID: MW-5-0212
Date Collected: 02/07/12 13:55
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 13:14	AP	TAL SEA
Total/NA	Prep	3520C	DL		105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C SIM	DL	1000	105401	02/15/12 21:28	CM	TAL SEA
Total/NA	Analysis	8270C SIM		10	105401	02/15/12 22:26	CM	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:34	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 13:33	FCW	TAL SEA

Client Sample ID: MW-8-0212
Date Collected: 02/07/12 14:10
Date Received: 02/07/12 15:50

Lab Sample ID: 580-31087-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 13:35	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 18:15	CM	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:38	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA

Lab Chronicle

Client: AECOM, Inc. TestAmerica Job ID: 580-31087-1
Project/Site: McFarland Cascade (CPLC)

Client Sample ID: MW-8-0212 **Lab Sample ID: 580-31087-7**
Date Collected: 02/07/12 14:10 **Matrix: Water**
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6020		5	105476	02/15/12 13:37	FCW	TAL SEA

Client Sample ID: MW-3-0212 **Lab Sample ID: 580-31087-8**
Date Collected: 02/07/12 14:40 **Matrix: Water**
Date Received: 02/07/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			105110	02/10/12 11:59	RD	TAL SEA
Total/NA	Analysis	8270C		1	105390	02/15/12 13:55	AP	TAL SEA
Total/NA	Analysis	8270C SIM		2	105401	02/15/12 18:35	CM	TAL SEA
Total Recoverable	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Total Recoverable	Analysis	6020		5	105476	02/15/12 12:43	FCW	TAL SEA
Dissolved	Prep	3005A			105297	02/14/12 12:04	PAB	TAL SEA
Dissolved	Analysis	6020		5	105476	02/15/12 13:42	FCW	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Seattle	Alaska	Alaska UST	10	UST-022
TestAmerica Seattle	Alaska	TA-Port Heiden Mobile Lab	10	UST-093
TestAmerica Seattle	California	NELAC	9	1115CA
TestAmerica Seattle	Florida	NELAC	4	E871074
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Louisiana	NELAC	6	05016
TestAmerica Seattle	Montana	MT DEQ UST	8	N/A
TestAmerica Seattle	Oregon	NELAC	10	WA100007
TestAmerica Seattle	USDA	USDA		P330-11-00222
TestAmerica Seattle	Washington	State Program	10	C553

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: AECOM, Inc.
Project/Site: McFarland Cascade (CPLC)

TestAmerica Job ID: 580-31087-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-31087-1	MW-14-0212	Water	02/07/12 09:40	02/07/12 15:50
580-31087-2	MW-13-0212	Water	02/07/12 10:10	02/07/12 15:50
580-31087-3	MW-6-0212	Water	02/07/12 12:00	02/07/12 15:50
580-31087-4	MW-2-0212	Water	02/07/12 12:45	02/07/12 15:50
580-31087-5	MW-12-0212	Water	02/07/12 13:30	02/07/12 15:50
580-31087-6	MW-5-0212	Water	02/07/12 13:55	02/07/12 15:50
580-31087-7	MW-8-0212	Water	02/07/12 14:10	02/07/12 15:50
580-31087-8	MW-3-0212	Water	02/07/12 14:40	02/07/12 15:50

10

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☐ Rush
☒ Short Hold *As ck

Chain of Custody Record

Chain of Custody Number 12983
Page 1 of 1

Client: AECOM ENVIRONMENT — DIRECT BILL TO MCFARLAND CASCADE (CPLC)
Address: 710 2ND AVE STE 1000
City: SEATTLE State: WA Zip Code: 98104
Project Name and Location (State): MCFARLAND CASCADE (CPLC)
Contract/Purchase Order/Quote No.:

Client Contact: RENEE KNECHT / FRED MERRILL
Telephone Number (Area Code)/Fax Number: 206-403-4259 / 206-403-4241
Sampler: F. MERRILL
Lab Contact: KRIS
Billing Contact: TED SMITH MCFARLAND CASCADE

Date: 2/7/12
Lab Number: 31087

Analysis (Attach list if more space is needed): PENTACHLOROPHENOL; PAH; 2-CHLORONAPTHALENE; DISS METALS * LAB FILTERED; TOTAL METALS

	Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PENTACHLOROPHENOL	PAH	2-CHLORONAPTHALENE	DISS METALS	TOTAL METALS	Special Instructions/ Conditions of Receipt
-1	MW-14-0212	2/7/12	0940		X			X		X				X	X	X	X	X	MS/MSD
-2	MW-13-0212	2/7/12	1010		X			X		X				X	X	X	X	X	
-3	MW-6-0212	2/7/12	1200		X			X		X				X	X	X	X	X	
-4	MW-2-0212	2/7/12	1245		X			X		X				X	X	X	X	X	
-5	MW-12-0212	2/7/12	1330		X			X		X				X	X	X	X	X	
-6	MW-5-0212	2/7/12	1355		X			X		X				X	X	X	X	X	
-7	MW-8-0212	2/7/12	1410		X			X		X				X	X	X	X	X	
-8	MW-3-0212	2/7/12	1440		X			X		X				X	X	X	X	X	

Cooler/TB Dig/IR cor 0.5 unc 0.3 Cooler Dsc Lg Green/blu @ Lab Wet/Packs Packing bubble

Cooler/TB Dig/IR cor 3.2 unc 3.0 Cooler Dsc lg Blue/wh @ Lab Wet/Packs Packing bubble

Cooler/TB Dig/IR cor 4.3 unc 4.1 Cooler Dsc Lg Red/wh @ Lab Wet/Packs Packing bubble

A2

Cooler ☐ Yes ☐ No Cooler Temp:

Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days) ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other STANDARD

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By Sign/Print: FRED D MERRILL	2/7/12	1550	1. Received By Sign/Print: Tom / Blankinship	2/7/12	1550
2. Relinquished By Sign/Print:			2. Received By Sign/Print:		
3. Relinquished By Sign/Print:			3. Received By Sign/Print:		

Comments: NOTE SHORT HOLD FOR LAB FILTERED DISS-METALS

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 580-31087-1

Login Number: 31087
List Number: 1
Creator: Blankinship, Tom

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix C

GROUNDWATER SAMPLING LOG

PROJECT NAME CPLC
PROJECT NO. 60137201-0300
DATE 2/ /2012

WELL NO.
SAMPLED BY F.M
WEATHER

WELL INFORMATION		
DEPTH TO WATER	(TOC-ft)	
	(wl.prot.-ft)	
DEPTH OF WELL	(ft)	
WELL DIAMETER	(inches)	
FEET OF WATER		
PRODUCT THICK	(ft)	
WELL CONDITION		
TUBING DEPTH	(ft)	

PURGE DATA													
START PURGE TIME:													
TIME													
DTW	(Ft-TOC)												
FLOW RATE	(mL/min)												
TEMPERATURE	(°C)												
CONDUCTIVITY	(umhos/cm)												
D. O.	(mg/L)												
pH (units)	(units)												
ORP	(mv)												
TURBIDITY	(NTU)												

PURGE DATA Continued from Above													
TIME													
DTW	(Ft-TOC)												
FLOW RATE	(mL/min)												
TEMPERATURE	(°C)												
CONDUCTIVITY	(umhos/cm)												
D. O.	(mg/L)												
pH (units)	(units)												
ORP	(mv)												
TURBIDITY	(NTU)												
PURGE AND SAMPLE EQUIPT:													

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV.
MW- -0212		2-Chloronapthalene	1L Amber	1	None
MW- -0212		PAH	1L Amber	1	None
MW- -0212		Total Metals	500 mL Poly	1	HNO3
MW- -0212		Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:
TOC=Top of well casing
wl.prot.=top of well protector

comments:

2/7/12

Well Number	PVC Elevation (feet)	Depth to Water (feet)	
MW-1	19.13	5.89	NM
MW-2	19.38	6.94	
MW-3	20.16	6.44	
MW-4	19.00	7.10	NM
MW-5	20.17	7.32	NM
MW-6	20.17	6.48	
MW-7	19.44	7.43	
MW-8	21.49	8.10	
MW-9	18.44	5.60	
MW-10	19.57	6.47	
MW-11	19.21	5.90	NM
MW-12	19.79	5.35	
MW-13	19.81	5.58	
MW-14	19.76	8.40	
MW-15	19.42	7.18	
MW-16	18.22	5.18	
MW-17	21.04	7.48	
MW-18	19.69	8.33	
UPRR-29	16.50	4.46	NM

NM - Do Not Measure

AECOM

710 2nd Ave Suite 1000 Seattle, WA

Daily Tailgate H&S Meeting Attendance Sheet

AECOM Project No.: ____________

Client Site No.: ____________

Project Name: CPLL McFARLAND

Project Activities: GW SAMPLING

Presented By: F. MERRILL

Date: 2/8/12

Topics Discussed:

- [x] Contents of Site HASP
- [x] Review JSAs/JLAs
- [x] Stop Work Authority
- [x] Site Safety Officer: F. MERRILL

Topics Discussed:

- [x] Incidents need to be reported as soon as possible.

Required PPE:

- [ ] Steel Toe Boots
- [x] Hard Hat
- [x] Traffic Vest
- [x] Safety Glasses
- [x] Nitrile Gloves
- [x] Hearing Protection (NA)
- [x] Long Sleeves
- [ ] Long Pants
- [ ] Knee Pads
- [ ] Other:

Contaminants of Concern:

- [ ] Petroleum Products
- [x] Other:

Emergency Procedures:

Meeting Location: FRONT GATE McFARLAND

Nearest Hospital:

Safety Equipment Locations:

- [x] First Aid Kit:
- [x] Eye Wash Station:
- [x] Fire Extinguisher:

Driving:

- [x] Accidents are costly
- [x] Back up safely
- [ ] Cell phone use not permitted
- [x] All Onsite Equipment / Vehicles Inspected Prior to Work

General Housekeeping:

- [x] Clean as We Go
- [x] Location to Store Drums:

Weather:

Traffic Control Plan:

- [x] Cones/Barricades
- [ ] Other:

Physical Hazards:

- [x] Slips, Trips and Falls
- [x] Safe Lifting Technique
- [x] Pinch Points
- [x] Biological
- [ ] Other:

- [ ] Site Specific Hazards: ____________

Attendees: Name	Signature	Company

AECOM

710 2nd Ave Suite 1000 Seattle, WA

Daily Tailgate H&S Meeting Attendance Sheet

AECOM Project No.: ______ Client Site No.: ______

Project Name: FRED MERRILL Project Activities: GW SAMPLING

Presented By: McFARLAND CASCADE Date: 2/7/12

Topics Discussed:	Topics Discussed:
☒ Contents of Site HASP	☒ Incidents need to be reported as soon as possible.
☒ Review JSAs/JLAs	
☒ Stop Work Authority	
☒ Site Safety Officer: F. MERRILL	

Required PPE:

- ☒ Steel Toe Boots
- ☒ Hard Hat
- ☒ Traffic Vest
- ☒ Safety Glasses
- ☒ Nitrile Gloves
- ☐ Hearing Protection
- ☒ Long Sleeves
- ☒ Long Pants
- ☐ Knee Pads
- ☐ Other:

Contaminants of Concern:

- ☒ Petroleum Products UPRR29
- ☒ Other: PAH, PCP. 2-CHLORONAP.

Emergency Procedures:

Meeting Location: FRONT GATE CPLL

Nearest Hospital:

Safety Equipment Locations:

- ☒ First Aid Kit:
- ☒ Eye Wash Station:
- ☒ Fire Extinguisher:

Driving:

- ☒ Accidents are costly
- ☒ Back up safely
- ☒ Cell phone use not permitted
- ☒ All Onsite Equipment / Vehicles Inspected Prior to Work

General Housekeeping:

- ☒ Clean as We Go
- ☐ Location to Store Drums: NA

Weather: 55°F Sunny

Traffic Control Plan:

- ☒ Cones/Barricades
- ☒ Other:

Physical Hazards:

- ☒ Slips, Trips and Falls
- ☒ Safe Lifting Technique
- ☒ Pinch Points
- ☒ Biological
- ☐ Other:

☒ Site Specific Hazards: LARGE EQUIP. SLIPS/TRIPS

Attendees:

Name	Signature	Company
F. MERRILL	[signature]	AECOM

AECOM **Field Activity Log** Page: 1 of

Project Name: MCFARLAND CASCADE CPLC
Completed By: F. MERRILL
Project Number:
Date: 2/8/2012
Field Activity: GW SAMPLING
Weather: RAIN SHOWERS
Personnel on site: FM

0730 ARRIVE @ UPRR-29 — SET UP & CALIBRATE EQUIP. REVIEW H&S HAZARDS
0756 BEGIN PURGING UPRR29 NOTICE SHEEN. IN PURGE H_2O.
0830 BEGIN SAMPLING UPRR-29-0212
0900 DEPART UPRR-29
0918 MOVE TO MW-7 / BEGIN PURGING
0945 BEGIN SAMPLING MW-7-0212
1030 BEGIN PURGING MW-9.
1100 BEGIN SAMPLING MW-9-0212
1135 FILL HWT BOTTLES AFTER LOWERING PERISTALTIC TUBING INTO ~~WELL~~ TANK & USING PUMP TO SAMPLE H_2O.
~~1140~~ 1150 DEPART CPLC (MCFARLAND), PICK UP ~~ICE~~ ADDITIONAL ICE FOR SAMPLES
1245 DROP OFF SAMPLES @ TEST AMERICA.
DEPART FOR VAN RETURN & EQUIP. RETURN.

[signature]

GROUNDWATER SAMPLING LOG

PROJECT NAME	CPLC	**WELL NO.**	HW-1
PROJECT NO.	60137201-0300	**SAMPLED BY**	F.M
DATE	2/8 /2012	**WEATHER**	

WELL INFORMATION		
DEPTH TO WATER		(TOC-ft)
		(wl.prot.-ft)
DEPTH OF WELL	NA	(ft)
WELL DIAMETER		(inches)
FEET OF WATER		
PRODUCT THICK		(ft)
WELL CONDITION		
TUBING DEPTH		(ft)

PURGE DATA													
START PURGE TIME:													
TIME													
DTW	(Ft-TOC)												
FLOW RATE	(mL/min)												
TEMPERATURE	(°C)												
CONDUCTIVITY	(S/m)												
D. O.	(mg/L)												
pH (units)	(units)												
ORP	(mv)												
TURBIDITY	(NTU)												
PURGE DATA Continued from Above													
TIME													
DTW	(Ft-TOC)												
FLOW RATE	(mL/min)												
TEMPERATURE	(°C)												
CONDUCTIVITY	(S/m)												
D. O.	(mg/L)												
pH (units)	(units)												
ORP	(mv)												
TURBIDITY	(NTU)												
PURGE AND SAMPLE EQUIPT:													

NO PARAMETERS COLLECTED

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV.
Hw ~~MW-~~ 1 -0212	1135	2-Chloronapthalene	1L Amber	1	None
Hw ~~MW-~~ 1 -0212	1135	PAH	1L Amber	1	None
Hw ~~MW-~~ 1 -0212	1135	Total Metals	500 mL Poly	1	HNO3
Hw ~~MW-~~ 1 -0212	1135	Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:
TOC=Top of well casing
wl.prot.=top of well protector

comments: NO PARAMETERS COLLECTED ON HORIZONTAL WELL

GROUNDWATER SAMPLING LOG

PROJECT NAME CPLC
PROJECT NO. 60137201-0300
DATE 2/8/2012

WELL NO. MW-9
SAMPLED BY F.M
WEATHER

Collect Duplicate
Time Labled on COC: 1000
ID labeled on COC: ~~A000~~ MW-90-0212

WELL INFORMATION		
DEPTH TO WATER	5.60	(TOC-ft) (wl.prot.-ft)
DEPTH OF WELL	10	(ft)
WELL DIAMETER	2"	(inches)
FEET OF WATER	4.4	
PRODUCT THICK	—	(ft) SCREEN 5-10
WELL CONDITION	Good	
TUBING DEPTH	7.5	(ft)

PURGE DATA												
START PURGE TIME:	1030											
TIME	1050	1053	1056									
DTW (Ft-TOC)	5.60	5.60	5.60									
FLOW RATE (mL/min)	200	200	200									
TEMPERATURE (°C)	10.09	10.08	10.13									
CONDUCTIVITY ~~(S/m)~~ mS/cm	22.04	22.12	22.16									
D. O. (mg/L)	0.10	0.10	0.09									
pH (units) (units)	6.06	6.06	6.05									
ORP (mv)	-49.4	-47.6	-46.6									
TURBIDITY (NTU)	1.51	1.70	0.84									

PURGE DATA Continued from Above												
TIME												
DTW (Ft-TOC)												
FLOW RATE (mL/min)												
TEMPERATURE (°C)												
CONDUCTIVITY (S/m)												
D. O. (mg/L)												
pH (units) (units)												
ORP (mv)												
TURBIDITY (NTU)												
PURGE AND SAMPLE EQUIPT:												

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV.
MW- 9 -0212	1100	2-Chloronapthalene	1L Amber	1	None
MW- 9 -0212	1100	PAH	1L Amber	1	None
MW- 9 -0212	1100	Total Metals	500 mL Poly	1	HNO3
MW- 9 -0212	1100	Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:
TOC=Top of well casing
wl.prot.=top of well protector

comments: WL METER WORKS INTERMITTENTLY - DTW VISUALLY INSP. FROM ABOVE WELL

GROUNDWATER SAMPLING LOG

PROJECT NAME	CPLC	**WELL NO.**	MW-7
PROJECT NO.	60137201-0300	**SAMPLED BY**	F.M
DATE	2/8/2012	**WEATHER**	

WELL INFORMATION			
DEPTH TO WATER	7.93	(TOC-ft)	
		(wl.prot.-ft)	
DEPTH OF WELL	25'	(ft)	
WELL DIAMETER	2"	(inches)	
FEET OF WATER	17.07		
PRODUCT THICK	—	(ft)	20.25
WELL CONDITION	GOOD		
TUBING DEPTH		(ft)	

PURGE DATA													
START PURGE TIME:		0918											
TIME	0923	~~6:58~~	0931	0938	0941	0944							
DTW	(Ft-TOC)	7.98	7.98	7.98	7.98	7.98							
FLOW RATE	(mL/min)	150	150	150	150	150							
TEMPERATURE	(°C)	13.49	13.59	13.66	13.68	13.67							
CONDUCTIVITY	(S/m)	1.531	1.572	1581	15.84	1.584							
D. O.	(mg/L)	0.30	0.18	0.13	0.14	0.13							
pH (units)	(units)	6.92	6.92	~~6.69~~ 6.90	6.89	6.90							
ORP	(mv)	-171.6	-171.6	-178.2	-179.0	-179.7							
TURBIDITY	(NTU)	1.52	0.98	1.26	0.87	1.01							

PURGE DATA Continued from Above													
TIME													
DTW	(Ft-TOC)												
FLOW RATE	(mL/min)												
TEMPERATURE	(°C)												
CONDUCTIVITY	(S/m)												
D. O.	(mg/L)												
pH (units)	(units)												
ORP	(mv)												
TURBIDITY	(NTU)												
PURGE AND SAMPLE EQUIPT:													

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV.
MW- 7 -0212	0945	2-Chloronapthalene	1L Amber	1	None
MW- 7 -0212	0945	PAH	1L Amber	1	None
MW- 7 -0212	0945	Total Metals	500 mL Poly	1	HNO3
MW- 7 -0212	0945	Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:

TOC=Top of well casing

wl.prot.=top of well protector

comments:

GROUNDWATER SAMPLING LOG

PROJECT NAME	CPLC	**WELL NO.**	UPRR-29
PROJECT NO.	60137201-0300	**SAMPLED BY**	F.M
DATE	2/8/2012	**WEATHER**	

WELL INFORMATION		
DEPTH TO WATER		(TOC-ft)
	4.46	(wl.prot.-ft)
DEPTH OF WELL	15	(ft)
WELL DIAMETER	2"	(inches)
FEET OF WATER		
PRODUCT THICK		(ft) SCREEN 10-15
WELL CONDITION		
TUBING DEPTH		(ft)

PURGE DATA													
START PURGE TIME:		0750											
TIME		0809	0812	0815	0818	0821	0824	0827					
DTW	(Ft-TOC)	~~5.48~~	4.49	4.49	4.49	4.49	4.49	4.49					
FLOW RATE	(mL/min)	150	150	150	150	150	150	150					
TEMPERATURE	(°C)	9.01	8.98	8.98	8.86	8.78	8.86	8.85					
CONDUCTIVITY	(S/m)	0.148	0.107	0.107	0.107	.106	0.106	0.104					
D. O.	(mg/L)	1.96	2.07	2.08	2.37	2.51	2.61	2.46					
pH (units)	(units)	6.77	6.52	6.44	6.43	6.43	6.43	6.40					
ORP	(mv)	128.4	133.2	126.4	118.6	109.3	106.6	103.7					
TURBIDITY	(NTU)	11.0	8.17	6.47	5.83	4.82	5.41	5.41					

PURGE DATA Continued from Above													
TIME													
DTW	(Ft-TOC)												
FLOW RATE	(mL/min)												
TEMPERATURE	(°C)												
CONDUCTIVITY	(S/m)												
D. O.	(mg/L)												
pH (units)	(units)												
ORP	(mv)												
TURBIDITY	(NTU)												
PURGE AND SAMPLE EQUIPT:													

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV.
UPRR-~~MW~~-29 -0212	0830	2-Chloronapthalene	1L Amber	1	None
UPRR-~~MW~~-29 -0212	0830	PAH	1L Amber	1	None
UPRR-MW-29 -0212	0830	Total Metals	500 mL Poly	1	HNO3
UPRR-MW-29 -0212	0830	Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:
TOC=Top of well casing
wl.prot.=top of well protector

comments: ~~BIS~~ (6) SHEEN PRESENT IN PURGE H_2O, NOTICE SUBSTANTIAL HC ODOR ON PROBE POST SAMPLING.

AECOM **Field Activity Log** Page: 1 of 1

Project Name: McFarland Cascade CPLC
Project Number:
Field Activity: GW Sampling

Completed By: Fred Merrill
Date: 2/7/12
Weather: Sunny ~55°F
Personnel on site: FM

0740 Arrive onsite, Don PPE, Review H&S plan.
0754 Begin purging MW-5 - notice drawdown in well, based on previous experience
Purge well dry & allow well to recharge.
0800 Set up on MW-8, purge well @ 0810, notice well experiencing extreme
drawdown. Continue to purge dry. Return to MW-5, pack up equip after
allowing well to purge dry. Return to MW-8, collect equip. Move to MW-3
0840 Well MW-3 experiencing extreme drawdown, purge well dry.
0900 Set up on MW-14 & MW-13; Begin purging MW-14
0930 Begin purging MW-13.
0940 Sample MW-14-0212 - collect MS/MSD
~~1010~~ 1010 Sample MW-13-0212
1040 Collect ice from service station
1131 Begin purging MW-6
1200 Begin sampling MW-6-0212
1222 Begin purging MW-2
1245 Begin sampling MW-2-0212; Ted Smith shows me where to sample MW-1
& suggests to first turn off pump to holding tank & to ~~drop~~ lower
peristaltic tubing into holding tank. Will sample MW-1 tomorrow.
1300 Begin purging MW-12
1330 Begin sampling MW-12
1355 Return to MW-5 to sample well recharge
1410 Return to MW-8 to sample well recharge
1440 Return to MW-3 to sample well recharge
1515 Depart site for lab drop off. Fill out COC
1550 Drop off samples.

2/7/12

GROUNDWATER SAMPLING LOG

PROJECT NAME CPLC
PROJECT NO. 60137201-0300
DATE 2/7/2012

WELL NO. MW-3
SAMPLED BY F.M
WEATHER

WELL INFORMATION		
DEPTH TO WATER	6.44	(TOC-ft)
		(wl.prot.-ft)
DEPTH OF WELL	10.5	(ft)
WELL DIAMETER		(inches)
FEET OF WATER		
PRODUCT THICK		(ft) SCREEN 5.5-10.5
WELL CONDITION		
TUBING DEPTH		(ft)

PURGE DATA													
START PURGE TIME:		0840											
TIME		1450											
DTW	(Ft-TOC)	—											
FLOW RATE	(mL/min)	—											
TEMPERATURE	(°C)	17.69											
CONDUCTIVITY	(S/m)	0.779											
D. O.	(mg/L)	0.51											
pH (units)	(units)	6.11											
ORP	(mv)	-303											
TURBIDITY	(NTU)	5.83											

PURGE DATA Continued from Above													
TIME													
DTW	(Ft-TOC)												
FLOW RATE	(mL/min)												
TEMPERATURE	(°C)												
CONDUCTIVITY	(S/m)												
D. O.	(mg/L)												
pH (units)	(units)												
ORP	(mv)												
TURBIDITY	(NTU)												
PURGE AND SAMPLE EQUIPT:													

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV.
MW-3 -0212	1440	2-Chloronapthalene	1L Amber	1	None
MW-3 -0212	1440	PAH	1L Amber	1	None
MW-3 -0212	1440	Total Metals	500 mL Poly	1	HNO3
MW-3 -0212	1040	Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:
TOC=Top of well casing
wl.prot.=top of well protector

comments: PURGE DRY. NOTICE EXTREME DRAWDOWN AFTER PURGING @ MOD -> LOW PURGE RATE. CONTINUE PURGING WELL DRY. WILL RETURN LATER IN DAY TO COLLECT GW SAMPLES.

* PARAMETERS COLLECTED AFTER SAMPLING DUE TO LIMITED SAMPLE VOLUME.

GROUNDWATER SAMPLING LOG

PROJECT NAME	CPLC	**WELL NO.**	MW-8
PROJECT NO.	60137201-0300	**SAMPLED BY**	F.M
DATE	2/7/2012	**WEATHER**	

WELL INFORMATION			
DEPTH TO WATER		(TOC-ft)	
	5.60	(wl.prot.-ft)	
DEPTH OF WELL	10	(ft)	
WELL DIAMETER	2"	(inches)	
FEET OF WATER	4.4		
PRODUCT THICK	—	(ft)	SCREEN 5-10 FEET
WELL CONDITION	GOOD		
TUBING DEPTH	~9.5 FEET	(ft)	DUE TO DRAWDOWN.

PURGE DATA													
START PURGE TIME:		0810											
TIME		1420											
DTW	(Ft-TOC)	—											
FLOW RATE	(mL/min)	—											
TEMPERATURE	(°C)	11.81											
CONDUCTIVITY	(S/m)	0.593											
D. O.	(mg/L)	0.50											
pH (units)	(units)	6.13											
ORP	(mv)	-21.8											
TURBIDITY	(NTU)	5.83											

PURGE DATA Continued from Above													
TIME													
DTW	(Ft-TOC)												
FLOW RATE	(mL/min)												
TEMPERATURE	(°C)												
CONDUCTIVITY	(S/m)												
D. O.	(mg/L)												
pH (units)	(units)												
ORP	(mv)												
TURBIDITY	(NTU)												
PURGE AND SAMPLE EQUIPT:													

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV
MW- 8 -0212	~~1415~~ 1410	2-Chloronapthalene	1L Amber	1	None
MW- 8 -0212	~~1415~~ 1410	PAH	1L Amber	1	None
MW- 8 -0212	~~1415~~ 1410	Total Metals	500 mL Poly	1	HNO3
MW- 8 -0212	~~1415~~ 1410	Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:

TOC=Top of well casing

wl.prot.=top of well protector

comments: PURGE WELL DRY, NOTICE EXTREME DRAWDOWN ~~AT~~ WHILE PURGING @ MOD. TO LOW RATE CONTINUE TO PURGE PURGE DRY & WILL RETURN LATER IN DAY TO COLLECT RECHARGED H_2O.

* PARAMETERS COLLECTED AFTER SAMPLING DUE TO LOW SAMPLE VOLUME

GROUNDWATER SAMPLING LOG

PROJECT NAME	CPLC	**WELL NO.**	MW-5
PROJECT NO.	60137201-0300	**SAMPLED BY**	F.M
DATE	2/7/2012	**WEATHER**	

WELL INFORMATION		
DEPTH TO WATER		(TOC-ft)
	7.32	(wl.prot.-ft)
DEPTH OF WELL		(ft)
WELL DIAMETER		(inches)
FEET OF WATER		
PRODUCT THICK		(ft)
WELL CONDITION		
TUBING DEPTH		(ft)

PURGE DATA

START PURGE TIME:		PURGE WELL DRY @ 0754											
TIME	*	1411											
DTW	(Ft-TOC)	—											
FLOW RATE	(mL/min)	—											
TEMPERATURE	(°C)	14.81											
CONDUCTIVITY	mS/cm (S/m)	1.317											
D. O.	(mg/L)	0.35											
pH (units)	(units)	6.15											
ORP	(mv)	-62.0											
TURBIDITY	(NTU)	6.15											

PURGE DATA Continued from Above

TIME													
DTW	(Ft-TOC)												
FLOW RATE	(mL/min)												
TEMPERATURE	(°C)												
CONDUCTIVITY	(S/m)												
D. O.	(mg/L)												
pH (units)	(units)												
ORP	(mv)												
TURBIDITY	(NTU)												
PURGE AND SAMPLE EQUIPT:													

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV.
MW- -0212	1355	2-Chloronapthalene	1L Amber	1	None
MW- -0212	1355	PAH	1L Amber	1	None
MW- -0212	1355	Total Metals	500 mL Poly	1	HNO3
MW- -0212	1355	Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:

TOC=Top of well casing

wl.prot.=top of well protector

comments: NOTICED EXTREME DRAWDOWN WHILE PURGING @ MODERATE RATE. BASED ON PREVIOUS EXPERIENCE, PURGE WELL DRY; WILL RETURN LATER IN DAY TO COLLECT RECHARGED H_2O.

* PARAMETERS COLLECTED AFTER SAMPLES WERE COLLECTED. DUE TO LIMITED VOLUME

GROUNDWATER SAMPLING LOG

PROJECT NAME	CPLC	**WELL NO.**	MW-12
PROJECT NO.	60137201-0300	**SAMPLED BY**	F.M
DATE	2/7/2012	**WEATHER**	

WELL INFORMATION		
DEPTH TO WATER		(TOC-ft)
	5.35	(wl.prot.-ft)
DEPTH OF WELL	12	(ft)
WELL DIAMETER	2"	(inches)
FEET OF WATER	6.65	
PRODUCT THICK	—	(ft) SCREEN 5-12
WELL CONDITION	GOOD	
TUBING DEPTH	~8.5	(ft)

PURGE DATA				
START PURGE TIME:		1300		
TIME		1320	1323	1326
DTW	(Ft-TOC)	6.80	6.80	6.80
FLOW RATE	(mL/min)	100	100	100
TEMPERATURE	(°C)	10.39	10.36	10.38
CONDUCTIVITY	(S/m)	0.164	0.166	0.165
D. O.	(mg/L)	1.79	1.94	1.82
pH (units)	(units)	6.47	6.47	6.47
ORP	(mv)	-263	-269	-260
TURBIDITY	(NTU)	1.94	2.45	3.18

PURGE DATA Continued from Above	
TIME	
DTW	(Ft-TOC)
FLOW RATE	(mL/min)
TEMPERATURE	(°C)
CONDUCTIVITY	(S/m)
D. O.	(mg/L)
pH (units)	(units)
ORP	(mv)
TURBIDITY	(NTU)
PURGE AND SAMPLE EQUIPT:	

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV.
MW- 17 -0212	1330	2-Chloronapthalene	1L Amber	1	None
MW- 12 -0212	1330	PAH	1L Amber	1	None
MW- 12 -0212	1330	Total Metals	500 mL Poly	1	HNO3
MW- 12 -0212	1330	Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:

TOC=Top of well casing

wl.prot.=top of well protector

comments: NOTICE DRAWDOWN @ MW-12 - REDUCED flow TO 100 mL/min

GROUNDWATER SAMPLING LOG

PROJECT NAME CPLC
ROJECT NO. 60137201-0300
IATE 2/7/2012

WELL NO. MW-2
SAMPLED BY F.M
WEATHER

WELL INFORMATION		
EPTH TO WATER		(TOC-ft)
	4.98	(wl.prot.-ft)
DEPTH OF WELL	10.5	(ft)
VELL DIAMETER	2"	(inches)
EET OF WATER	5.56	
PRODUCT THICK	—	(ft) SCREEN 5.5-10.5
WELL CONDITION	GOOD	
TUBING DEPTH	~ 8 ft	(ft)

PURGE DATA

START PURGE TIME:		1222												
TIME		1238	1241	1244										
DTW	(Ft-TOC)	5.20	5.20	5.20										
FLOW RATE	(mL/min)	150	150	150										
TEMPERATURE	(°C)	12.12	12.13	12.13										
CONDUCTIVITY	(S/m)	0.758	0.762	0.756										
D. O.	(mg/L)	0.11	0.10	0.08										
pH (units)	(units)	6.44	6.45	6.47										
ORP	(mv)	-47.7	-48.6	-50.5										
TURBIDITY	(NTU)	5.00	9.03	5.55										

PURGE DATA Continued from Above

TIME														
DTW	(Ft-TOC)													
FLOW RATE	(mL/min)													
TEMPERATURE	(°C)													
CONDUCTIVITY	(S/m)													
D. O.	(mg/L)													
pH (units)	(units)													
ORP	(mv)													
TURBIDITY	(NTU)													
PURGE AND SAMPLE EQUIPT:														

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV.
MW- 2 -0212	1245	2-Chloronapthalene	1L Amber	1	None
MW- 2 -0212	1245	PAH	1L Amber	1	None
MW- 2 -0212	1245	Total Metals	500 mL Poly	1	HNO3
MW- 2 -0212	1245	Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:
TOC=Top of well casing
wl.prot.=top of well protector

comments: BIO FLOC INTERMITTENTLY ENTERS FLOW CELL & ~~well~~ CAUSES TURBIDITY TO FLUCTUATE; WILL NOT USE TURBIDITY AS A STABILIZATION PARAM.

GROUNDWATER SAMPLING LOG

PROJECT NAME CPLC
PROJECT NO. 60137201-0300
DATE 2/ ~~7~~7/2012

WELL NO. MW-6
SAMPLED BY F.M
WEATHER

WELL INFORMATION		
DEPTH TO WATER	6.48	(TOC-ft) (wl.prot.-ft)
DEPTH OF WELL	12'	(ft)
WELL DIAMETER	~~12~~ 2"	(inches)
FEET OF WATER	5.52	
PRODUCT THICK	—	(ft) Screen 7-12
WELL CONDITION	Good	
TUBING DEPTH	~9.5	(ft)

PURGE DATA												
START PURGE TIME:	1131											
TIME	1141	1144	1147	1150	1153	1156						
DTW (Ft-TOC)	7.05	7.26	7.49	7.54	7.60	7.62						
FLOW RATE (mL/min)	150	150	150	~~150~~	~~150~~	~~150~~						
TEMPERATURE (°C)	11.61	11.45	11.32	11.30	11.41	11.41						
CONDUCTIVITY (S/m)	0.383	0.341	0.327	0.328	0.337	0.341						
D. O. (mg/L)	0.59	0.40	0.29	0.24	0.22	~~0.22~~	0.22					
pH (units) (units)	6.19	6.18	6.19	6.22	6.26	6.29						
ORP (mv)	-48.0	-44.8	-43.0	-45.0	-48.0	-50.3						
TURBIDITY (NTU)	3.93	2.05	1.27	1.04	1.34	1.05						

PURGE DATA Continued from Above												
TIME												
DTW (Ft-TOC)												
FLOW RATE (mL/min)												
TEMPERATURE (°C)												
CONDUCTIVITY (S/m)												
D. O. (mg/L)												
pH (units) (units)												
ORP (mv)												
TURBIDITY (NTU)												
PURGE AND SAMPLE EQUIPT:												

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV.
MW- 6 -0212	1200	2-Chloronapthalene	1L Amber	1	None
MW- 6 -0212	1200	PAH	1L Amber	1	None
MW- 6 -0212	1200	Total Metals	500 mL Poly	1	HNO3
MW- 6 -0212	1200	Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:
TOC=Top of well casing
wl.prot.=top of well protector

comments:

GROUNDWATER SAMPLING LOG

PROJECT NAME CPLC
PROJECT NO. 60137201-0300
DATE 2/7/2012

WELL NO. MW-13
SAMPLED BY F.M
WEATHER

Collect MS/MSD - FM

WELL INFORMATION			
DEPTH TO WATER	5.58	(TOC-ft) (wl.prot.-ft)	
DEPTH OF WELL	11.5	(ft)	
WELL DIAMETER	2"	(inches)	
FEET OF WATER	5.92		
PRODUCT THICK	—	(ft)	SCREEN 6.5-11.5
WELL CONDITION	Good		
TUBING DEPTH	~9	(ft)	

PURGE DATA													
START PURGE TIME:	0930												
TIME	0959	1002	1005										
DTW (Ft-TOC)	5.85	5.85	5.85										
FLOW RATE (mL/min)	150	150	150										
TEMPERATURE (°C)	10.58	10.58	10.58										
CONDUCTIVITY mS/cm (S/m)	0.504	0.502	0.50										
D.O. (mg/L)	0.20	0.20	0.20										
pH (units) (units)	6.56	6.56	6.57										
ORP (mv)	-103.2	-102.8	-102.8										
TURBIDITY (NTU)	0.87	0.85	0.63										

PURGE DATA Continued from Above													
TIME													
DTW (Ft-TOC)													
FLOW RATE (mL/min)													
TEMPERATURE (°C)													
CONDUCTIVITY (S/m)													
D.O. (mg/L)													
pH (units) (units)													
ORP (mv)													
TURBIDITY (NTU)													
PURGE AND SAMPLE EQUIPT:													

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV.
MW-13-0212	1010	2-Chloronapthalene	1L Amber	1	None
MW-13-0212	1010	PAH	1L Amber	1	None
MW-13-0212	1010	Total Metals	500 mL Poly	1	HNO3
MW-13-0212	1010	Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:
TOC=Top of well casing
wl.prot.=top of well protector

comments:

GROUNDWATER SAMPLING LOG

PROJECT NAME CPLC
PROJECT NO. 60137201-0300
DATE 2/2 /2012

WELL NO. MW-14
SAMPLED BY F.M
WEATHER

Collect MS/MSD

WELL INFORMATION			
DEPTH TO WATER	8.09	(TOC-ft) (wl.prot.-ft)	
DEPTH OF WELL	24.75	(ft)	
WELL DIAMETER	2"	(inches)	
FEET OF WATER	16.66		
PRODUCT THICK	—	(ft)	15 - 24.75
WELL CONDITION	Good		
TUBING DEPTH	~ 21	(ft)	

PURGE DATA													
START PURGE TIME:		0900											
TIME		0918	0921	924	0927	0930	0933	0936					
DTW	(Ft-TOC)	8.15	8.15	8.15	8.15	8.15	8.15	8.15					
FLOW RATE	(mL/min)	150	150	150	150	150	150	150					
TEMPERATURE	(°C)	12.65	12.73	12.76	12.81	12.87	12.90	12.93					
CONDUCTIVITY	(S/m)	1.414	1.435	1.445	1.449	1.451	1.454	14.55					
D. O.	(mg/L)	0.33	0.36	0.23	0.21	0.18	0.17	0.16					
pH (units)	(units)	7.01	7.00	7.02	6.97	7.03	7.04	7.05					
ORP	(mv)	-154.7	-161.5	-165.3	-166.7	-169.0	-170.0	-170.7					
TURBIDITY	(NTU)	7.33	5.45	4.14	10.09	9.97	5.51	7.33					

PURGE DATA Continued from Above													
TIME													
DTW	(Ft-TOC)												
FLOW RATE	(mL/min)												
TEMPERATURE	(°C)												
CONDUCTIVITY	(S/m)												
D. O.	(mg/L)												
pH (units)	(units)												
ORP	(mv)												
TURBIDITY	(NTU)												
PURGE AND SAMPLE EQUIPT:													

SAMPLE ID	SAMPLE	ANALYSIS	CONTAINER	# of BOTTLES	PRESERV.
MW- 14 -0212	0940	2-Chloronapthalene	1L Amber	1	None
MW- 14 -0212	0940	PAH	1L Amber	1	None
MW- 14 -0212	0940	Total Metals	500 mL Poly	1	HNO3
MW- 14 -0212	0940	Dissolved Metals - Lab Filtered	500 mL Poly	1	None
MW- -0212		BTEX (Only on MW-9)	40 mL	3	HNO3

ADDITIONAL INFORMATION:
TOC=Top of well casing
wl.prot.=top of well protector

comments: ~~App~~ Bio-floc intermittently enters peri tubing which is influencing turbidity readings. Turb ranges from 5-10 NTU based on other parameters will sample.
Collect MS/MSD

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☐ Rush
☑ Short Hold

Chain of Custody Record

Client: AECOM Environment (Direct bill to McFarland Cascade CPLC)	Client Contact: Renee Knight / Fred Merrill	Date: 2/8/12	Chain of Custody Number: 12984
Address: 710 2nd Ave Ste 1000	Telephone Number (Area Code)/Fax Number: 206-403-4259 / 206-403-4241	Lab Number:	Page 1 of 1
City: Seattle; State: WA; Zip Code: 98104	Sampler: F. Merrill; Lab Contact: Kris		
Project Name and Location (State): McFarland Cascade (CPLC)	Billing Contact: Ted Smith McFarland Cascade		
Contract/Purchase Order/Quote No.			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: [illegible]	PAH	[illegible]	[illegible]	[illegible]	BTEX	Special Instructions/ Conditions of Receipt
UPRR-29-0212	2/8/12	0830		X						X	X			X	X	X	X	X		
MW-7-0212	2/8/12	0945		X						X	X			X	X	X	X	X		
MW-9-0212	2/8/12	1100		X						X	X			X	X	X	X	X	X	
MW-90-0212	2/8/12	1000		X						X	X			X	X	X	X	X	X	
HW-1-0212	2/8/12	1135		X						X				X	X	X	X	X		
TB-1-0212											X								X	

Cooler: ☐ Yes ☐ No Cooler Temp: ____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other Standard

QC Requirements (Specify)

1. Relinquished By Sign/Print: Fred D. Merrill	Date: 2/8/12	Time: 1245	1. Received By Sign/Print: Cathy Gamble	Date: 2/8/12	Time: 12:45
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments: Note Short Hold Time for Lab Filtered Diss Metals

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☐ Rush
☒ Short Hold

Chain of Custody Record

Client: AECOM ENVIRONMENT — DIRECT BILL TO MCFARLAND CASCADE (CPLC)
Client Contact: RENEE KNIGHT / FRED MERRILL
Date: 2/7/12
Chain of Custody Number: 12983
Address: 710 2ND AVE STE 1000
Telephone Number (Area Code)/Fax Number: 206-403-4259 / 206-403-4241
Lab Number:
Page 1 of 1
City: SEATTLE
State: WA
Zip Code: 98104
Sampler: F. MERRILL
Lab Contact: KRIS
Project Name and Location (State): MCFARLAND CASCADE (CPLC)
Billing Contact: TED SMITH MCFARLAND CASCADE
Contract/Purchase Order/Quote No.:

Analysis (Attach list if more space is needed)

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	PENTACHLOROPHENOL	PAH	[illegible]	DISS METALS *	TOTAL METALS	Special Instructions/Conditions of Receipt
MW-14-0212	2/7/12	0940		X			X		X				X	X	X	X	X	MS/MSD
MW-13-0212	2/7/12	1010		X			X		X				X	X	X	X	X	
MW-6-0212	2/7/12	1200		X			X		X				X	X	X	X	X	
MW-2-0212	2/7/12	1245		X			X		X				X	X	X	X	X	
MW-12-0212	2/7/12	1330		X			X		X				X	X	X	X	X	
MW-5-0212	2/7/12	1355		X			X		X				X	X	X	X	X	
MW-8-0212	2/7/12	1410		X			X		X				X	X	X	X	X	
MW-3-0212	2/7/12	1440		X			X		X				X	X	X	X	X	

Cooler: ☐ Yes ☐ No Cooler Temp: ____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other STANDARD

QC Requirements (Specify):

	Sign/Print	Date	Time		Sign/Print	Date	Time
1. Relinquished By	FRED D MERRILL	2/7/12	1550	1. Received By	/ Blankinship	2/7/12	1550
2. Relinquished By				2. Received By			
3. Relinquished By				3. Received By			

Comments: NOTE SHORT HOLD FOR LAB FILTERED DISS METALS

*1 - As, Cu ... FILTER

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

APPENDIX G-4

2013 WELL MW-4 MONITORING RESULTS MEMORANDUM

MEMORANDUM

To:	Ted Smith	Date:	August 21, 2013
From:	Heather Hirsch, LHG	Project:	9081.01.05

RE: MW-4 Sample Results - July 8, 2013
Cascade Pole & Lumber Company, Tacoma, Washington

Maul Foster & Alongi, Inc. (MFA) collected groundwater samples from monitoring well MW-4 on July 8, 2013 using standard low-flow sampling techniques. Water quality parameters were measured during pore volume removal prior to sample collection and are provided in the attached field sampling data sheet. The samples were analyzed for indicator hazardous substances (IHS) approved by the Washington State Department of Ecology (Ecology) for the site and compared to site-specific cleanup levels as identified in Table 5-4 of the October 29, 2012 version of the draft Remedial Investigation/Feasibility Study prepared by AECOM.

Samples were analyzed for the following:

- Polycyclic aromatic hydrocarbons (PAHs) by US Environmental Protection Agency (USEPA) method 8270C selective ion monitoring (SIM)
- Benzene, ethylbenzene, toluene, and xylenes (BETX) by USEPA method 8260B
- Total and dissolved arsenic, chromium, and copper by USEPA method 6020
- Hexavalent chromium by SM 3500CR D

A field duplicate sample was also collected and analyzed for total and dissolved arsenic, chromium, and copper.

The July 8, 2013 sample results, as well as historical results from samples collected in 1991, 1992, 2000, 2001, and 2002, are provided in the attached table. The laboratory analytical report for the July 8, 2013 samples is also attached.

Analytical data and the laboratory's internal quality assurance and quality control data were reviewed to assess whether they meet data quality objectives. A data validation memorandum summarizing the data evaluation procedures, usability of data, and deviations from the specific laboratory methods is attached. The data are considered acceptable for their intended use with the appropriate data qualifiers assigned.

Attachments: Field Sampling Data Sheet
Table – Monitoring Well MW-4 Results
Laboratory Analytical Report
Data Validation Memorandum

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	McFarland Cascade	**Sample Location**	MW4
Project #	8091.01.05	**Sampler**	AWV
Project Name		**Sampling Date**	7/8/13
Sampling Event		**Sample Name**	MW4-070813
Sub Area		**Sample Depth**	8.22
FSDS QA:		**Easting** / **Northing** / **TOC**	

Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness) DTP-DTW	(Water Column) DTB-DTW	(Gallons/ft x Water Column) Pore Volume
7/8/13	1130	12.99		7.22		5.77	.94

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
P-Pump	1157	0.8	0.34	6.08	18.59	389	0.19	-26.2	2.62
	1207	1.6	0.40	6.09	18.79	371	0.15	-32.0	2.45
	1217	2.5	0.40	6.10	18.57	388	0.10	-33.9	2.62
	1230	3.5	0.40	6.11	18.60	388	0.05	-35.9	2.01
	1240	5.0	0.40	6.12	18.52	398	0.03	-35.4	2.03
Final Field Parameters									

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations: Clear and colorless.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
P-Pump	GW	1240	VOA-Glass	3	No
			Amber Glass	2	~~Yes~~ No
			White Poly	~~2~~ 4	~~No~~ Yes
			Yellow Poly		No
			Green Poly		No
			Red Total Poly	2	No
			Red Dissolved Poly	2	Yes
			Total Bottles	0	

General Sampling Comments

Begin purge @ 1139.
Water level holding steady at 7.30.
Sample name MW4-070813 includes 3 VOA's, 2 Ambers, 2 white poly, 1 red total and 1 red dissolved. MW4-070813-DUP includes 2 white poly, 1 red total and 1 red dissolved.

calibrate YSI @ 1100 -
Spec Cond 1322 to 1413
pH 7.0 7.1 to 7.0
4.0 3.98 to 4.0
10.0 9.98 to 10.0
ORP 218.6 to 220
DO

Signature

Table - Monitoring Well MW-4 Results (µg/L)
Cascade Pole Lumber Company
Tacoma, Washington

Location:		MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4
Sample name:		unknown	unknown	unknown	unknown	unknown	unknown	unknown	MW4-070813	MW4-070813-DUP
Collection date:		3/29/1991	7/10/1991	10/2/1991	1/7/1992	1/24/2000	2/27/2001	1/24/2002	7/8/2013	7/8/2013
	Cleanup Levels[a]									
Volatile Organic Compounds (VOCs)										
Benzene	22.7	--	--	--	--	--	--	--	1.0 U	--
Ethylbenzene	1382	--	--	--	--	--	--	--	1.0 U	--
m-Xylene & p-Xylene	NV	--	--	--	--	--	--	--	2.0 U	--
o-Xylene	NV	--	--	--	--	--	--	--	1.0 U	--
Toluene	3780	--	--	--	--	--	--	--	1.0 U	--
Total Xylenes[b]	1000	--	--	--	--	--	--	--	ND	--
Polycyclic Aromatic Hydrocarbons (PAHs)										
1-Methylnaphthalene	NV	--	--	--	--	--	--	--	0.020 U	--
2-Methylnaphthalene	NV	10 U	10 U	10 U	10 U	0.095 U	0.095 U	**0.476**	0.026 U	--
Acenaphthene	161	10 U	10 U	10 U	10 U	0.095 U	0.095 U	0.1 U	0.020 U	--
Acenaphthylene	NV	10 U	10 U	10 U	10 U	0.095 U	0.095 U	0.1 U	0.020 U	--
Anthracene	12950	10 U	10 U	10 U	10 U	**0.13**	**0.093**	**0.248**	**0.032**	--
Benzo(a)anthracene	NV	10 U	10 U	10 U	10 U	0.095 U	0.095 U	0.1 U	0.020 U	--
Benzo(a)pyrene	NV	10 U	10 U	10 U	10 U	0.095 U	0.095 U	0.1 U	0.020 U	--
Benzo(b)fluoranthene	NV	10 U	10 U	10 U	10 U	0.095 U	0.095 U	0.1 U	0.020 U	--
Benzo(g,h,i)perylene	NV	10 U	10 U	10 U	10 U	0.095 U	0.095 U	0.1 U	0.020 U	--
Benzo(k)fluoranthene	NV	10 U	10 U	10 U	10 U	0.095 U	0.095 U	0.1 U	0.020 U	--
Chrysene	NV	10 U	10 U	10 U	10 U	0.095 U	0.095 U	0.1 U	0.020 U	--
Dibenz(a,h)anthracene	NV	10 U	10 U	10 U	10 U	0.095 U	0.095 U	0.1 U	0.020 U	--
Fluoranthene	15	10 U	10 U	10 U	10 U	**0.067** J	0.095 U	0.1 U	0.020 U	--
Fluorene	1730	10 U	10 U	10 U	10 U	0.095 U	0.095 U	0.1 U	0.020 U	--
Indeno(1,2,3-cd)pyrene	NV	10 U	10 U	10 U	10 U	0.095 U	0.095 U	0.1 U	0.020 U	--
Naphthalene	4940	10 U	10 U	10 U	10 U	0.095 U	0.095 U	0.1 U	**0.022**	--
Pentachlorophenol	3	5 U	16 U	5 U	5 U	0.48 U	0.52 U	0.5 U	0.140 U	--
Phenanthrene	NV	10 U	10 U	10 U	10 U	**0.067** J	0.095 U	0.1 U	0.020 U	--
Pyrene	648	10 U	10 U	10 U	10 U	0.095 U	0.095 U	**0.495**	0.020 U	--
cPAH TEQ	0.1	ND	ND	ND	ND	ND	ND	ND	ND	--
Dissolved Metals										
Arsenic	5	**16**	**22**	**23**	**16**	**58**	**100**	**27.6**	**20**	**22**
Chromium	121500	5 U	6 U	10 U	10 U	10 U	10 U	1 U	**1.1**	2.0 U
Copper	2660	**10**	3 U	20 U	50 U	20 U	10 U	**1.4**	2.0 U	5.0 U
Total Metals										
Arsenic	5	--	**33**	--	--	**95**	**93**	**64.9**	**19**	**20**
Chromium	121500	--	**24**	--	--	10 U	10 U	**3.3**	**1.0**	2.0 U
Copper	2660	--	**110**	--	--	**23**	**10**	**3.9**	2.0 U	5.0 U
Total Hexavalent Chromium										
Hexavalent Chromium	NV	10 U	10 U	5 U	5 U	--	--	--	12 U	--

Table - Monitoring Well MW-4 Results (μg/L)
Cascade Pole Lumber Company
Tacoma, Washington

Notes:

Cleanup level exceedances are highlighted.

Detections are **bold**.

Laboratory analytical methods and data validation procedures have not been verified for the historical (pre-2003) samples.

[a] = Cleanup levels are adjusted site-specific cleanup levels.

[b] = Total xylenes are the sum of m,p-xylenes and o-xylene.

-- = Not analyzed.

J = Estimated value. Detected at a concentration less than the method reporting limit.

cPAH TEQ = carcinogenic polycyclic aromatic hydrocarbon toxic equivalency quotient. Calculated from cPAH results.

ND = Not detected.

NV = No value.

μg/L = micrograms per liter (parts per billion [ppb]).

U = Analyte was not detected at or above method reporting limit.

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-39254-1
Client Project/Site: 9081.01.05
Revision: 1

For:
Maul Foster & Alongi Inc
1329 North State Street
Suite 301
Bellingham, Washington 98225

Attn: Heather Hirsch

Pamela R. Johnson

Authorized for release by:
8/1/2013 1:16:36 PM

Pam Johnson, Project Manager I
pamr.johnson@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: Maul Foster & Alongi Inc
Project/Site: 9081.01.05

TestAmerica Job ID: 580-39254-1

Job ID: 580-39254-1

Laboratory: TestAmerica Seattle

Narrative

Receipt
The samples were received on 7/8/2013 3:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 15.2º C.

Per Heather Hirsch 7/9/13 @ 9:11am cancel the dissolved hexavalent chromium analysis. The filtering process is performed in the hexavalent chromium analyses; therefore, a dissoved sample is not required.

3-HCL vials were provided for the Trip Blank sample but all analysis were requested on the Chain-of-Custody (COC). As this is a trip blank sample only the 8021 Btex analysis will be performed on this sample.

GC/MS VOA
No analytical or quality issues were noted.

GC/MS Semi VOA - Method 8270C SIM
The method blank MB 580-139543/1-A contained PCP above the RL. The associated sample has a detection below 10x the value in the method blank. The sample has been qualified "B" and reported at client request.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry - Method SM 3500 CR D
The matrix spike (MS) recoveries for batch 139526 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria. The data has been qualified "F" and reported.

No other analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.

General Chemistry

Qualifier	Qualifier Description
F	MS or MSD exceeds the control limits
F	MS or MSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Maul Foster & Alongi Inc
Project/Site: 9081.01.05

TestAmerica Job ID: 580-39254-1

Client Sample ID: MW4-070813
Date Collected: 07/08/13 12:40
Date Received: 07/08/13 15:45

Lab Sample ID: 580-39254-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			07/17/13 14:38	1
Toluene	ND		1.0		ug/L			07/17/13 14:38	1
Ethylbenzene	ND		1.0		ug/L			07/17/13 14:38	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/17/13 14:38	1
o-Xylene	ND		1.0		ug/L			07/17/13 14:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*100*		*80 - 120*		*07/17/13 14:38*	*1*
Toluene-d8 (Surr)	*107*		*85 - 120*		*07/17/13 14:38*	*1*
Ethylbenzene-d10	*116*		*80 - 120*		*07/17/13 14:38*	*1*
Trifluorotoluene (Surr)	*102*		*80 - 120*		*07/17/13 14:38*	*1*
4-Bromofluorobenzene (Surr)	*110*		*75 - 120*		*07/17/13 14:38*	*1*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.022**		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
2-Methylnaphthalene	ND		0.026		ug/L		07/09/13 13:38	07/24/13 11:31	1
1-Methylnaphthalene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Acenaphthylene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Acenaphthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Fluorene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Phenanthrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Anthracene	**0.032**		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Fluoranthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Pyrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Benzo[a]anthracene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Chrysene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Benzo[b]fluoranthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Benzo[k]fluoranthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Benzo[a]pyrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Indeno[1,2,3-cd]pyrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Dibenz(a,h)anthracene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Benzo[g,h,i]perylene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1
Pentachlorophenol	**0.14**	**B**	0.020		ug/L		07/09/13 13:38	07/24/13 11:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*134*		*20 - 150*	*07/09/13 13:38*	*07/24/13 11:31*	*1*
2,4,6-Tribromophenol	*116*		*44 - 125*	*07/09/13 13:38*	*07/24/13 11:31*	*1*

Method: 6020 - Dissolved Metals by ICP-MS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.020**		0.0020		mg/L		07/11/13 13:30	07/12/13 10:51	2
Chromium	**0.0011**		0.00080		mg/L		07/11/13 13:30	07/12/13 10:51	2
Copper	ND		0.0020		mg/L		07/11/13 13:30	07/12/13 10:51	2

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.019**		0.0020		mg/L		07/11/13 13:30	07/12/13 10:42	2
Chromium	**0.0010**		0.00080		mg/L		07/11/13 13:30	07/12/13 10:42	2
Copper	ND		0.0020		mg/L		07/11/13 13:30	07/12/13 10:42	2

Client: Maul Foster & Alongi Inc
Project/Site: 9081.01.05

TestAmerica Job ID: 580-39254-1

Client Sample ID: MW4-070813
Date Collected: 07/08/13 12:40
Date Received: 07/08/13 15:45

Lab Sample ID: 580-39254-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.012		mg/L			07/09/13 11:02	1

Client Sample ID: Trip Blank

Lab Sample ID: 580-39254-2

Date Collected: 07/08/13 00:00
Date Received: 07/08/13 15:45
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			07/17/13 15:00	1
Toluene	ND		1.0		ug/L			07/17/13 15:00	1
Ethylbenzene	ND		1.0		ug/L			07/17/13 15:00	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/17/13 15:00	1
o-Xylene	ND		1.0		ug/L			07/17/13 15:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*99*		*80 - 120*		*07/17/13 15:00*	*1*
Toluene-d8 (Surr)	*103*		*85 - 120*		*07/17/13 15:00*	*1*
Ethylbenzene-d10	*112*		*80 - 120*		*07/17/13 15:00*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 120*		*07/17/13 15:00*	*1*
4-Bromofluorobenzene (Surr)	*106*		*75 - 120*		*07/17/13 15:00*	*1*

Client Sample ID: MW4-070813-DUP
Date Collected: 07/08/13 12:40
Date Received: 07/08/13 15:45

Lab Sample ID: 580-39254-3
Matrix: Water

Method: 6020 - Dissolved Metals by ICP-MS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.022**		0.0050		mg/L		07/30/13 12:00	07/31/13 14:05	5
Chromium	ND		0.0020		mg/L		07/30/13 12:00	07/31/13 14:05	5
Copper	ND		0.0050		mg/L		07/30/13 12:00	07/31/13 14:05	5

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.020**		0.0050		mg/L		07/30/13 12:00	07/31/13 14:01	5
Chromium	ND		0.0020		mg/L		07/30/13 12:00	07/31/13 14:01	5
Copper	ND		0.0050		mg/L		07/30/13 12:00	07/31/13 14:01	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.012		mg/L			07/09/13 11:02	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-140201/4
Matrix: Water
Analysis Batch: 140201

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			07/17/13 13:32	1
Toluene	ND		1.0		ug/L			07/17/13 13:32	1
Ethylbenzene	ND		1.0		ug/L			07/17/13 13:32	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/17/13 13:32	1
o-Xylene	ND		1.0		ug/L			07/17/13 13:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Fluorobenzene (Surr)	*99*		*80 - 120*		*07/17/13 13:32*	*1*
Toluene-d8 (Surr)	*105*		*85 - 120*		*07/17/13 13:32*	*1*
Ethylbenzene-d10	*111*		*80 - 120*		*07/17/13 13:32*	*1*
Trifluorotoluene (Surr)	*94*		*80 - 120*		*07/17/13 13:32*	*1*
4-Bromofluorobenzene (Surr)	*107*		*75 - 120*		*07/17/13 13:32*	*1*

Lab Sample ID: LCS 580-140201/5
Matrix: Water
Analysis Batch: 140201

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	25.8		ug/L		103	80 - 120
Toluene	25.0	22.9		ug/L		91	75 - 120
Ethylbenzene	25.0	22.2		ug/L		89	75 - 125
m-Xylene & p-Xylene	50.0	47.1		ug/L		94	75 - 130
o-Xylene	25.0	24.3		ug/L		97	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Fluorobenzene (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*103*		*85 - 120*
Ethylbenzene-d10	*112*		*80 - 120*
Trifluorotoluene (Surr)	*88*		*80 - 120*
4-Bromofluorobenzene (Surr)	*107*		*75 - 120*

Lab Sample ID: LCSD 580-140201/6
Matrix: Water
Analysis Batch: 140201

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	25.0	28.2		ug/L		113	80 - 120	9	30
Toluene	25.0	23.0		ug/L		92	75 - 120	1	30
Ethylbenzene	25.0	23.7		ug/L		95	75 - 125	7	30
m-Xylene & p-Xylene	50.0	49.6		ug/L		99	75 - 130	5	30
o-Xylene	25.0	24.5		ug/L		98	80 - 120	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Fluorobenzene (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*104*		*85 - 120*
Ethylbenzene-d10	*112*		*80 - 120*
Trifluorotoluene (Surr)	*95*		*80 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-140201/6
Matrix: Water
Analysis Batch: 140201

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*75 - 120*

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-139543/1-A
Matrix: Water
Analysis Batch: 140734

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 139543

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
2-Methylnaphthalene	ND		0.026		ug/L		07/09/13 13:38	07/24/13 10:26	1
1-Methylnaphthalene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Acenaphthylene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Acenaphthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Fluorene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Phenanthrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Anthracene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Fluoranthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Pyrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Benzo[a]anthracene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Chrysene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Benzo[b]fluoranthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Benzo[k]fluoranthene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Benzo[a]pyrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Indeno[1,2,3-cd]pyrene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Dibenz(a,h)anthracene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Benzo[g,h,i]perylene	ND		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1
Pentachlorophenol	0.0388		0.020		ug/L		07/09/13 13:38	07/24/13 10:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*133*		*20 - 150*	*07/09/13 13:38*	*07/24/13 10:26*	*1*
2,4,6-Tribromophenol	*73*		*44 - 125*	*07/09/13 13:38*	*07/24/13 10:26*	*1*

Lab Sample ID: LCS 580-139543/2-A
Matrix: Water
Analysis Batch: 140734

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 139543

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	2.01	1.45		ug/L		72	60 - 125
2-Methylnaphthalene	2.00	1.45		ug/L		72	60 - 125
1-Methylnaphthalene	2.01	1.53		ug/L		76	60 - 125
Acenaphthylene	2.00	1.58		ug/L		79	65 - 125
Acenaphthene	2.00	1.62		ug/L		81	65 - 125
Fluorene	2.02	2.10		ug/L		104	70 - 125
Phenanthrene	2.01	1.97		ug/L		98	75 - 125
Anthracene	2.00	1.59		ug/L		79	50 - 125
Fluoranthene	2.00	2.31		ug/L		115	70 - 125

Client: Maul Foster & Alongi Inc
Project/Site: 9081.01.05

TestAmerica Job ID: 580-39254-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-139543/2-A
Matrix: Water
Analysis Batch: 140734

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 139543

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pyrene	2.00	2.30		ug/L		115	70 - 125
Benzo[a]anthracene	2.00	2.32		ug/L		116	65 - 125
Chrysene	1.93	2.23		ug/L		116	70 - 125
Benzo[b]fluoranthene	2.00	2.41		ug/L		120	70 - 125
Benzo[k]fluoranthene	2.00	2.31		ug/L		115	70 - 125
Benzo[a]pyrene	2.00	1.72		ug/L		86	45 - 125
Indeno[1,2,3-cd]pyrene	2.01	2.26		ug/L		112	75 - 125
Dibenz(a,h)anthracene	2.00	2.28		ug/L		114	75 - 130
Benzo[g,h,i]perylene	2.00	2.16		ug/L		108	75 - 125
Pentachlorophenol	1.97	2.10		ug/L		107	20 - 145

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*124*		*20 - 150*
2,4,6-Tribromophenol	*96*		*44 - 125*

Lab Sample ID: LCSD 580-139543/3-A
Matrix: Water
Analysis Batch: 140734

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 139543

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	2.01	1.44		ug/L		72	60 - 125	0	20
2-Methylnaphthalene	2.00	1.54		ug/L		77	60 - 125	6	20
1-Methylnaphthalene	2.01	1.63		ug/L		81	60 - 125	6	20
Acenaphthylene	2.00	1.65		ug/L		83	65 - 125	5	20
Acenaphthene	2.00	1.72		ug/L		86	65 - 125	6	20
Fluorene	2.02	2.19		ug/L		109	70 - 125	4	20
Phenanthrene	2.01	2.01		ug/L		100	75 - 125	2	20
Anthracene	2.00	1.53		ug/L		77	50 - 125	3	20
Fluoranthene	2.00	2.38		ug/L		119	70 - 125	3	20
Pyrene	2.00	2.34		ug/L		117	70 - 125	2	20
Benzo[a]anthracene	2.00	2.36		ug/L		118	65 - 125	2	20
Chrysene	1.93	2.31		ug/L		120	70 - 125	3	20
Benzo[b]fluoranthene	2.00	2.49		ug/L		124	70 - 125	3	20
Benzo[k]fluoranthene	2.00	2.46		ug/L		123	70 - 125	6	20
Benzo[a]pyrene	2.00	1.65		ug/L		82	45 - 125	4	20
Indeno[1,2,3-cd]pyrene	2.01	2.32		ug/L		115	75 - 125	2	20
Dibenz(a,h)anthracene	2.00	2.42		ug/L		121	75 - 130	6	20
Benzo[g,h,i]perylene	2.00	2.29		ug/L		115	75 - 125	6	20
Pentachlorophenol	1.97	2.15		ug/L		109	20 - 145	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Terphenyl-d14	*122*		*20 - 150*
2,4,6-Tribromophenol	*91*		*44 - 125*

1 2 3 4 5 6 7 8 9 10 11

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: 580-39254-1 DU
Matrix: Water
Analysis Batch: 139846

Client Sample ID: MW4-070813-DUP
Prep Type: Total Recoverable
Prep Batch: 139769

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.019		0.0196		mg/L		5	20
Chromium	0.0010		0.00111		mg/L		6	20
Copper	ND		ND		mg/L		NC	20

Method: 6020 - Dissolved Metals by ICP-MS

Lab Sample ID: LCS 580-139769/15-A
Matrix: Water
Analysis Batch: 139846

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 139769

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	4.03		mg/L		101	80 - 120
Chromium	0.400	0.396		mg/L		99	80 - 120
Copper	0.500	0.504		mg/L		101	80 - 120

Lab Sample ID: LCSD 580-139769/16-A
Matrix: Water
Analysis Batch: 139846

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 139769

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.00	4.02		mg/L		101	80 - 120	0	20
Chromium	0.400	0.404		mg/L		101	80 - 120	2	20
Copper	0.500	0.501		mg/L		100	80 - 120	1	20

Lab Sample ID: LCSSRM 580-139769/17-A
Matrix: Water
Analysis Batch: 139846

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 139769

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	4.03		mg/L		101	80 - 120
Chromium	0.400	0.394		mg/L		98	80 - 120
Copper	0.500	0.502		mg/L		100	80 - 120

Lab Sample ID: LCS 580-141217/20-A
Matrix: Water
Analysis Batch: 141361

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 141217

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.00	4.11		mg/L		103	80 - 120
Chromium	0.400	0.410		mg/L		103	80 - 120
Copper	0.500	0.523		mg/L		105	80 - 120

Lab Sample ID: LCSD 580-141217/21-A
Matrix: Water
Analysis Batch: 141361

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 141217

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.00	4.12		mg/L		103	80 - 120	0	20
Chromium	0.400	0.409		mg/L		102	80 - 120	0	20

Method: 6020 - Dissolved Metals by ICP-MS (Continued)

Lab Sample ID: LCSD 580-141217/21-A
Matrix: Water
Analysis Batch: 141361

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 141217

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper	0.500	0.521		mg/L		104	80 - 120	0	20

Lab Sample ID: MB 580-138995/4-B
Matrix: Water
Analysis Batch: 139846

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 139769

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0020		mg/L		07/11/13 13:30	07/12/13 09:31	2
Chromium	ND		0.00080		mg/L		07/11/13 13:30	07/12/13 09:31	2
Copper	ND		0.0020		mg/L		07/11/13 13:30	07/12/13 09:31	2

Lab Sample ID: 580-39254-1 DU
Matrix: Water
Analysis Batch: 139846

Client Sample ID: MW4-070813-DUP
Prep Type: Dissolved
Prep Batch: 139769

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.020		0.0201		mg/L		0.3	20
Chromium	0.0011		0.00115		mg/L		6	20
Copper	ND		ND		mg/L		NC	20

Lab Sample ID: MB 580-141158/5-B
Matrix: Water
Analysis Batch: 141361

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 141217

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0050		mg/L		07/30/13 12:09	07/31/13 12:45	5
Chromium	ND		0.0020		mg/L		07/30/13 12:09	07/31/13 12:45	5
Copper	ND		0.0050		mg/L		07/30/13 12:09	07/31/13 12:45	5

Method: SM 3500 CR D - Chromium, Hexavalent

Lab Sample ID: MB 580-139526/1
Matrix: Water
Analysis Batch: 139526

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.012		mg/L			07/09/13 10:59	1

Lab Sample ID: LCS 580-139526/2
Matrix: Water
Analysis Batch: 139526

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	0.200	0.181		mg/L		91	90 - 110

1 2 3 4 5 6 7 8 9 10 11

Method: SM 3500 CR D - Chromium, Hexavalent (Continued)

Lab Sample ID: 580-39254-1 MS
Matrix: Water
Analysis Batch: 139526

Client Sample ID: MW4-070813
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		0.200	0.144	F	mg/L		72	85 - 115

Lab Sample ID: 580-39254-1 DU
Matrix: Water
Analysis Batch: 139526

Client Sample ID: MW4-070813-DUP
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chromium, hexavalent	ND		ND		mg/L		NC	25

Lab Sample ID: MB 580-141422/1
Matrix: Water
Analysis Batch: 141422

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.012		mg/L			07/09/13 10:59	1

Lab Sample ID: LCS 580-141422/2
Matrix: Water
Analysis Batch: 141422

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	0.200	0.181		mg/L		91	90 - 110

Lab Sample ID: 580-39254-3 MS
Matrix: Water
Analysis Batch: 141422

Client Sample ID: MW4-070813-DUP
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		0.200	0.144	F	mg/L		72	85 - 115

Lab Sample ID: 580-39254-3 DU
Matrix: Water
Analysis Batch: 141422

Client Sample ID: MW4-070813-DUP
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chromium, hexavalent	ND		ND		mg/L		NC	25

Client Sample ID: MW4-070813 — Lab Sample ID: 580-39254-1

Date Collected: 07/08/13 12:40 — **Matrix: Water**

Date Received: 07/08/13 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	140201	07/17/13 14:38	EB1	TAL SEA
Total/NA	Prep	3520C			139543	07/09/13 13:38	ALC	TAL SEA
Total/NA	Analysis	8270C SIM		1	140734	07/24/13 11:31	EKK	TAL SEA
Total Recoverable	Prep	3005A			139769	07/11/13 13:30	PAB	TAL SEA
Total Recoverable	Analysis	6020		2	139846	07/12/13 10:42	FCW	TAL SEA
Dissolved	Prep	3005A			139769	07/11/13 13:30	PAB	TAL SEA
Dissolved	Analysis	6020		2	139846	07/12/13 10:51	FCW	TAL SEA
Total/NA	Analysis	SM 3500 CR D		1	139526	07/09/13 11:02	RSB	TAL SEA

Client Sample ID: Trip Blank — Lab Sample ID: 580-39254-2

Date Collected: 07/08/13 00:00 — **Matrix: Water**

Date Received: 07/08/13 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	140201	07/17/13 15:00	EB1	TAL SEA

Client Sample ID: MW4-070813-DUP — Lab Sample ID: 580-39254-3

Date Collected: 07/08/13 12:40 — **Matrix: Water**

Date Received: 07/08/13 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			141217	07/30/13 12:00	KJV	TAL SEA
Total Recoverable	Analysis	6020		5	141361	07/31/13 14:01	FCW	TAL SEA
Dissolved	Prep	3005A			141217	07/30/13 12:00	KJV	TAL SEA
Dissolved	Analysis	6020		5	141361	07/31/13 14:05	FCW	TAL SEA
Total/NA	Analysis	SM 3500 CR D		1	141422	07/09/13 11:02	RSB	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: Maul Foster & Alongi Inc
Project/Site: 9081.01.05

TestAmerica Job ID: 580-39254-1

Laboratory: TestAmerica Seattle

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-04-14
California	NELAP	9	01115CA	01-31-14
L-A-B	DoD ELAP		L2236	01-19-16
L-A-B	ISO/IEC 17025		L2236	01-19-16
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-06-13
USDA	Federal		P330-11-00222	05-20-14
Washington	State Program	10	C553	02-17-14

Sample Summary

Client: Maul Foster & Alongi Inc
Project/Site: 9081.01.05

TestAmerica Job ID: 580-39254-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-39254-1	MW4-070813	Water	07/08/13 12:40	07/08/13 15:45
580-39254-2	Trip Blank	Water	07/08/13 00:00	07/08/13 15:45
580-39254-3	MW4-070813-DUP	Water	07/08/13 12:40	07/08/13 15:45

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax 253.922.5047

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

39254

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact		Project Manager: Heather Hirsch	Site Contact: Ted Smith	Date: 7/8/13	COC No:
Your Company Name here	Maul Foster & Alongi	Tel/Fax: 360 594 6257	Lab Contact:	Carrier:	____ of ____ COCs
Address	400 E Mill Plain Blvd	**Analysis Turnaround Time**			Sampler:
City/State/Zip	Vancouver WA 98660	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(xxx) xxx-xxxx	Phone 360 694 2691	TAT if different from Below ____			Walk-in Client:
(xxx) xxx-xxxx	FAX	☒ 2 weeks			Lab Sampling:
Project Name:	9081.01.05	☐ 1 week			
Site:	McFarland Cascade Tacoma WA	☐ 2 days			Job / SDG No.:
P O #	9081.01.05	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PAH, PCP by 8270-SIM	BETX by 8021	Dissolved HexCr by 3500	Total HexCr by 3500 Cr	Dissolved As, Cu, Cr by 6020	Total As, Cu, Cr by 6020	Sample Specific Notes:
MW4-070813	7/8/13	1240		W	9	Y		X	X	X	X	X	X	
MW4-070813-DUP	7/8/13	1240		W	4	Y				X	X	X	X	
Trip Blank	7/8/13			W	3			X	X	X	X	X X	X	
														Client drop lg Reef/wh wet/bubble
														AITB= 15.2/15.7 w/o

580-39254 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments: Please contact Heather Hirsh and Andrew Vidourek with lab results. hhirsch@maulfoster.com
Bill to: McFarland Cascade Pole and Lumber Co
Ted Smith
PO Box 1496 Tacoma WA 98401-1496
avidourek@maulfoster.com
Email lab results

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: ____ Corr'd: ____		Therm ID No.: ____
Relinquished by: Andrew Vidourek	Company: MFA	Date/Time: 7/8/13 1545	Received by: [signature]	Company: TA-Sea	Date/Time: 7/8/13 1545
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.2, dated 04/02/2013

Login Sample Receipt Checklist

Client: Maul Foster & Alongi Inc

Job Number: 580-39254-1

Login Number: 39254

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	no
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 9081.01.05 | JULY 30, 2013 | MCFARLAND CASCADE

This report reviews the analytical results for groundwater samples collected by the Maul Foster & Alongi, Inc. (MFA) project team on the Cascade Pole & Lumber site located at 1640 Marc Road, Tacoma, Washington. The samples were collected on July 8, 2013.

TestAmerica (TA) performed the analyses. TA report number J39254-1 UDS Level 2 Report Rev(1) was reviewed. The analyses performed are listed below.

Analysis	Reference
Hexavalent chromium	SM 3500CR D
Semi Volatile Organic Compounds (SVOCs)	USEPA 8270C SIM
Total and dissolved metals	USEPA 6020
Volatile Organic Compounds (VOCs)	USEPA 8260B

USEPA = U.S. Environmental Protection Agency
SIM = Selective Ion Monitoring
SM = Standard Methods for the Examination of Water and Wastewater

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of USEPA procedures (USEPA, 2008, 2010) and appropriate laboratory and method-specific guidelines (TA, 2013; USEPA, 1986).

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

Extractions and analyses were performed within the recommended holding time criteria.

Preservation and Sample Storage

The samples were preserved appropriately. Temperature upon receipt at the laboratory was 15.2°C, which is above the recommended storage temperature range of 2-6°C. The samples were stored on ice and delivered to the laboratory approximately 3 hours after sampling. The samples were stored appropriately, so no results were qualified.

BLANKS

Method Blanks

Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the method blanks were associated with all samples prepared in the analytical batch. USEPA Method 6020 total and dissolved metals were processed in the same analytical batch by the laboratory. Method blanks were reported for USEPA Method 6020 dissolved metals for analytical batches 139769 and 141217. Method blanks for USEPA Method 6020 total metals were not reported for either batch.

If an analyte was detected in a sample and in the associated method blank, the sample result was qualified if the concentration was less than ten times the method blank concentration. Method reporting limits (MRLs) were elevated to the concentration detected in the samples, and results were qualified as not detected "U" at the elevated MRL. Based on pentachlorophenol contamination (0.0388 micrograms per liter [μg/L]) in the USEPA Method 8270C method blank, the reviewer qualified results for the following samples:

Sample	Component	Original Result (μg/L)	Qualified Result (μg/L)
MW4-070813	Pentachlorophenol	0.14	0.14 U

All remaining laboratory method blanks were non-detect.

Trip Blanks

A trip blank was submitted with the sample delivery group. The trip blank was non-detect.

Equipment Rinsate Blanks

Equipment rinsate blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples. All surrogate recoveries were within acceptance limits for percent recovery.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) RESULTS

MS/MSD results are used to evaluate laboratory precision and accuracy. All MS/MSD samples were extracted and analyzed at the required frequency.

The MS for Standard Method 3500CR D exceeded the lower acceptance limit for hexavalent chromium. This exceedance was minor and the batch LCS met acceptance criteria; thus no associated results were qualified.

All remaining MS/MSD recoveries were within acceptance limits for percent recovery and relative percent differences (RPDs).

LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. All duplicate samples were extracted and analyzed at the required frequency. All RPDs were within acceptance limits.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE (LCS/LCSD) RESULTS

An LCS/LCSD is spiked with target analytes to provide information on laboratory precision and accuracy. USEPA Method 6020 total and dissolved metals were processed in the same analytical batch by the laboratory. LCS/LCSDs were reported for USEPA Method 6020 total metals for analytical batches 139769 and 141217. LCS/LCSDs for USEPA Method 6020 dissolved metals were not reported for either batch.

The remaining LCS/LCSD were extracted and analyzed at the required frequency. All LCS/LCSD analytes were within acceptance limits for percent recovery and RPD.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. One field duplicate was submitted for analysis (MW4-070813/MW4-070813-DUP). MFA uses acceptance criteria of 100 percent RPD for results that are less than five times the MRL, or 50 percent RPD for results that are greater than five times the MRL. Non-detect data are not used in the evaluation of field duplicate results. All analytes were within the acceptance criteria.

REPORTING LIMITS

TA used routine reporting limits for non-detect results, except when samples required dilutions because of limited sample or extract volume, high analyte concentrations, and/or matrix interferences.

DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies.

The COC shows a request for benzene, ethylbenzene, toluene, and xylenes (BETX) analysis by USEPA Method 8021. The analysis was performed by USEPA Method 8260B instead.

The USEPA Method 6020 total metals batch QC is reported under the "Dissolved Metals" heading in the QC Sample Results section of the laboratory report.

No additional issues were found.

TA. 2013. Quality Assurance Manual. TestAmerica Laboratories, Inc. Seattle, Washington.

USEPA. 1986. Test methods for evaluating solid waste: physical/chemical methods. EPA-530/SW-846. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. September (revision 6, February 2007).

USEPA. 2008. USEPA contract laboratory program, national functional guidelines for organics data review. EPA 540/R-08/01. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. June.

USEPA. 2010. USEPA contract laboratory program national functional guidelines for inorganic superfund data review. EPA 540/R-10/011. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. January.

APPENDIX H

STORMWATER MANAGEMENT SYSTEM DETAILS

November 21, 2006

Mr. John Diamant, P.E.
Industrial Facility Manager
Water Quality Program
Department of Ecology
P.O. Box 47775
Olympia, WA 98504-7775

RE: McFarland Cascade Pole & Lumber Company
NPDES Permit No. WA-0037953
Stormwater Treatment System Upgrades (Outfall 001 and 002)

Dear Mr. Diamant:

As indicated in correspondence to Ms. Sherri Greenup dated May 18, 2006, McFarland Cascade Pole and Lumber Company (MCPLC) has proposed upgrades to the existing stormwater treatment systems at outfalls 001 and 002. The primary objectives are to improve process control and increase the activated carbon utilization rate. These objectives will be achieved by adding treatment vessels (carbon and mixed media) and stormwater storage capacity.

The treatment system upgrade plan is contained herein. The final upgrade plan has been completed and the major upgrade components have been selected. MCPLC plans to complete the upgrades as soon as possible, based on contractor availability and equipment delivery schedules. The work will be sequenced such that the treatment systems will remain fully functional during the upgrade process.

<u>Outfall 001 – Description of Existing System</u>

Stormwater in the 001 drainage (treated and untreated pole storage areas) is collected through a network of catch basins and storm drains that route the stormwater to a treatment system (See Site Location Map – Figure 1). The catch basins are equipped with inserts and/or hay bales to control floating and settleable solids. The current treatment system consists of an oil/water separator, four mixed-media filters, four 2,500-lb carbon units, and pH controller

Within the 001 system, the stormwater passes through the four-compartment separator to remove sinking solids, floating solids, oils and greases. Dual pumps, located in the fourth compartment, collect stormwater from the separator and pump it through the mixed media and carbon filters.

The four mixed-media filters consist of several layers of gravel and sand that remove fine-grained solids from stormwater. After the mixed media filters, stormwater passes through the four carbon units. The mixed media and carbon units operate in parallel mode. Dissolved contaminants are removed from the stormwater by adsorbing to the activated carbon media. The effectiveness of the treatment system to remove dissolved contaminants, or its removal efficiency, is primarily dependent on the contact time between the stormwater and the activated carbon media. MCPLC collects influent and effluent samples from the 001 system to evaluate removal efficiency and monitor breakthrough conditions of the carbon units.

Outfall 001 – Description of System Upgrade

The proposed upgrade will permit treatment through two sets of carbon vessels operating in series. This will allow water quality monitoring of the influent, mid-point (between the dual sets of carbon vessels) and effluent water (after the second set of carbon vessels). The ability to monitor the midpoint sample location will greatly improve the process control and effluent water quality. Carbon utilization will also improve because the primary, or lead bed, may be used past the current operational control point without adversely affecting water quality. The additional carbon vessels will increase the amount of carbon in the system from 10,000 to 60,000 pounds.

The proposed upgrade will convert the existing carbon filters to mixed-media vessels and will add two dual vessel carbon filtration systems (a Calgon Carbon Model 10 and a Calgon Carbon Model 7.5). Product literature from Calgon Carbon Corporation in contained in Attachment 1. The added carbon units will each be operated in series immediately down stream of the eight mixed media filters operating in parallel. The mixed-media filters will be equipped with automated valves and a control panel to provide the for the automatic backwashing operation. The actuated valve assemblies and control panel will be provided by Everfilt Corporation. Product information on the Everfilt control panel is contained in Attachment 2. A flow diagram and general equipment layout diagram for the upgraded 001 system are provided on Figures 2 and 3, respectively.

In addition to the major upgrade components, MCPLC will also install the following auxiliary equipment to the upgraded system:

- Add a 45,000-gallon influent equalization tank
- Replace existing 10,000 gallon backwash water settling tank with an 18,400 gallon tank.
- Add two 25-horse power centrifugal pumps between the equalization tank and mixed-media filters.

The influent equalization tank will allow for improved treatment efficiency of the downstream mixed media and carbon filtration units. The larger backwash tank will allow for longer settling times before the water is reprocessed through the treatment system. The capacity of the resulting system will meet or exceed the performance of the existing system.

Outfall 002 – Description of Existing System

The treatment system at Outfall 002 is similar to that of Outfall 001. The 002 system treats stormwater from the CBA-treated-wood storage and untreated lumber storage areas. All catch basins are equipped with inserts and/or hay bales to control floating and settleable solids. The treatment system consists of two in-ground continuous deflective system separating (CDS) units, an automatic filtration unit with self-cleaning mechanism, a dual-vessel carbon-filtration unit and pH controller.

The stormwater from drainage basin 002 is collected via networks of storm drains, and flows treated through the CDS units before being collected in the wet well at the northwest corner of the site. The CDS units removed large particles, oil and greases. The existing pump station (CB-232) is used to transfer stormwater into the 285,000-gallon storage/equalization tank. From the tank, stormwater is pumped to the wood treatment plant and/or directed, in a controlled manner, through the three decant valves to the stormwater treatment system. Stormwater in the wet well is then pumped to the above ground treatment system located immediately north of the maintenance shop. The above ground treatment system consists of an automatic filtration unit with self-cleaning mechanism (Amiad Filter) and a dual vessel carbon unit. The Amiad filter removes suspended solids from the stormwater prior to carbon adsorption. The carbon filtration unit has two vessels, each with a capacity for 20,000 pounds of activated carbon. Primarily, dissolved contaminants are removed from the stormwater by adsorbing to the activated carbon; however, this media also removes fine-grained suspended solids. The ability of the treatment system to remove dissolved contaminants, or its removal efficiency, is primarily dependent on the contact time between the stormwater and the activated carbon media. The dual vessel carbon unit typically operates in parallel (See figure 1).

Outfall 002 – Description of System Upgrade

The proposed upgrade will add a mixed-media filtration unit and a second pair of 20,000-pound carbon vessels (Calgon Carbon Model 10) to the existing treatment system. Product literature from Calgon Carbon Corporation is contained in Attachment 1. The mixed-media unit will consist of six, six-foot diameter vessels operating in parallel. The system will include a control panel that will provide for the automatic back washing function. The new mixed-media system will be installed between the existing Amiad Filter and the carbon filtration units. The mixed-media system will be provided by Everfilt Corporation. Product information on the Everfilt control panel and mixed-media filters are contained in Attachments 2 and 3, respectively. The additional carbon vessels will double the amount of activated carbon in the system and will double the contact time. The ability to monitor the midpoint sample location will greatly improve the process control and effluent water quality. Carbon utilization will also improve because the primary, or lead bed, may be used past the current operational control point without adversely effecting water quality. A flow diagram and general equipment layout diagram for the upgraded 002 system are provided on Figures 2 and 4, respectively.

In addition to the major upgrade components, MCPLC will also install the following auxiliary equipment to the upgraded system:

- Add a 150,000-gallon influent equalization tank
- Replace existing 15,000 gallon backwash water settling tank with a 25,000 gallon tank.
- Add two 25-horse power centrifugal pumps between the equalization tank and mixed-media filters.

The influent equalization tank will allow for improved treatment efficiency of the downstream Amiad filter, mixed-media filters and carbon units. The larger backwash tank will allow for longer settling times before the water is reprocessed through the treatment system. The capacity of the resulting system will meet or exceed the performance of the existing system (See Figure 2, Process and flow diagram).

Conclusion

MCPLC is committed to make significant improvements to the existing stormwater treatment systems. The planned upgrades will be scheduled soon as possible and completion date for the project will be based on contractor availability and equipment delivery schedules. Please note that the work will be sequenced such that the treatment systems remain fully functional during the upgrade process. A revised Stormwater Operation and Maintenance Plan will be submitted within 30-days of project completion.

Please feel free to contact me at (253) 572-3033 should you have any questions.

Sincerely,
McFarland Cascade Pole & Lumber Company

Edward Smith
Environmental Specialist

Attachments:

Copies: Les Lonning, MCPLC
Steve Taylor, MFA

OPERATION AND MAINTENANCE MANUAL
RECORD OF REVIEW AND AMENDMENTS

Reviews and amendments to the *Operation and Maintenance (O&M) Manual* for the McFarland Cascade Pole & Lumber Company in Tacoma, Washington are summarized below, in accordance with Section 5.0 of the manual. The Environmental Specialist is responsible for maintaining the operational copy of this manual.

RECORD OF REVIEW

Date		**Reviewed By**		**Comments**
8/30/02		ECS		Reviewed Original Document
1/27/03		ECS		Annual Review
8/13/03		ECS		Monitoring Revision
12/31/03		ECS		Annual Review and update
01/31/05		ECS		Annual Review and update
01/16/06		ECS		Annual Review and update
5/11/06		ECS		Storage Yard Sweeping Revision

RECORD OF AMENDMENTS

Date		**Change Number**		**Summary of Amendments**		**Environmental Specialist Initials**
1/27/03		1		Amend Fig. 1 - add lumber storage building, PCP drip pad building addition and storage track drainage structures.		ECS
1/27/03		2		Amend Figure 3 to add clarity		ECS
1/27/03		3		Add Flow switch information to Appendix A, and Flow meter information to Appendices A and B.		ECS
8/13/03		4		Routine System Monitoring improved to include influent monitoring for arsenic		ECS
12/31/03		5		Discontinued use of CCA, minor equipment and vendor changes, company name change.		ECS
01/31/05		6		Addition of storage tank and related equipment		ECS
01/16/06		7		Improved outfall monitoring		ECS
5/11/06		8		Improved storage yard sweeping maintenance procedure		ECS

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1.0 INTRODUCTION

McFarland Cascade Pole & Lumber Company (MCPLC) developed this Operation and Maintenance (O&M) Plan as part of the requirements specified in the *National Pollutant Discharge Elimination System* (NPDES) Permit No. WA0037953 and in accordance with Washington Administrative Code (WAC) 173-240-150. The objective of this O&M plan is to document:

- maintenance procedures for on-site stormwater treatment systems in order to prevent equipment breakdowns that could lead to discharges of stormwater pollutants,
- monitoring schedule for the on-site stormwater treatment systems, and
- emergency procedures for plant shutdown and cleanup in event of wastewater system upset or failure,

This O&M Plan is intended for use as a site manual by the systems operators. The plan references manufacturer-supplied literature for the various equipment items that comprise the stormwater treatment systems.

MCPLC also prepared the following plans in accordance with guidance documents issued by the Washington State Department of Ecology (Ecology) and the Environmental Protection Agency (EPA):

- Stormwater Pollution Prevention Plan (SWPPP)
- Spill Prevention Control and Countermeasure (SPCC) and Contingency Plan
- Drip Pad Management Program
- Contingency Plan for Incidental and Infrequent Drippage in the Treated Storage Yard
- Pollution Prevention Plan

These plans are maintained by the Environmental Specialist in a central, readily accessible location in the main office. The Environmental Specialist will review this O&M Plan annually for discrepancies and will update the Plan as required. A letter confirming the annual review will be submitted to Washington Department of Ecology (WDOE).

1.1 FACILITY DESCRIPTION

MCPLC has operated a wood preserving plant on the Tacoma Tide Flats at 1640 E. Marc Avenue in Tacoma, Washington since 1974. The MCPLC wood treating facility is a 43-acre property located approximately 200 feet east of the Puyallup River and 1,000 feet south of the Milwaukee Waterway (Figure 1). The plant is surrounded by other industrial facilities. The mean temperature at the facility varies between approximately 40°F in January and 80°F in July. Based on data for 1990 through 2004, the site receives an annual average precipitation of 36.1 inches. MCPLC is a zero discharger for process wastewater.

1.2 MCPLC'S INDUSTRIAL ACTIVITIES

Wood products treated at the site include utility poles and lumber. Primary, wood preservatives used at MCPLC include Pentachlorophenol (PCP) and Copper Azole (CA-B). Use of Chrome Copper Arsenate (CCA) for residential use products was discontinued December 31, 2003; however, CCA may still be used to a minor extent for industrial use products.

Utility poles, cross arms, and lumber are ordered by customers and treated to industry or customer specifications. Raw poles are peeled, allowed to air season, pressure treated with PCP or thermal treated, and shipped to a customer or stored in the PCP/creosote treated wood storage yard. Lumber is purchased from various sawmills, stained, pressure treated with CA-B, and shipped to retail outlets or stored in the CA-B treated wood storage yard.

MCPLC currently operates four retorts and one butt vat. Typically, one retort is used for PCP pressure treatment, while the remaining three retorts are used for CA-B pressure treatment. The butt vat is used for PCP thermal treatment. None of the stormwater coming in contact with this processing equipment is discharged through the NPDES outfalls. The retorts are situated under a roof to prevent contact with stormwater.

Utility poles and lumber are transferred to the retorts via two sets of small-gauge rails on the transfer table. These rails are used to transfer untreated wood to the four retorts and to convey treated wood from the retorts to the drip pads. Treated wood from the drip pads is later transferred to the appropriate storage yard or building.

In addition to the wood-preservative operations, MCPLC also operates various wood fabrication and related activities including lumber and pole incising, pole cutting and framing, as well as lumber staining.

1.3 AREAS FOR STORMWATER MANAGEMENT

The stormwater collection system at MCPLC is divided into two storm drain networks based on activities conducted and chemical used in each area (Figure 1).

- CA-B treated wood storage area
- PCP treated wood storage area
- Untreated pole and dimension lumber storage areas

1.4 FACILITIES FOR STORMWATER MANAGEMENT

MCPLC's facility is approximately 95% paved. The average annual rainfall at the facility is approximately 40 inches, which is equivalent to approximately 25-million gallons of stormwater discharged each year. MCPLC manages stormwater runoff from two drainage basins. Drainage basin 001 receives stormwater runoff from the PCP treated wood storage yard, whereas, drainage basin 002 receives stormwater runoff from the CA-B treated wood storage area.

MCPLC has implemented several best management practices (BMPs) as recommended in guidance documents published by the EPA and Ecology. BMPs implemented at MCPLC include upgrading the facility with permanent and temporary fixtures. Permanent fixtures include asphalt pavement. Temporary fixtures include catch basin inserts. A complete list of BMPs that were implemented at MCPLC is documented in the SWPPP.

1.4.1 Drainage Basin 001

Stormwater in the PCP treated-wood storage areas is collected through a network of catch basins and storm drains that route the stormwater to a treatment system prior to discharging to Outfall 001 via a drainage ditch by Lincoln Avenue. All catch basins are equipped with inserts and/or hay bails to control floating and settleable solids. The treatment system at Outfall 001 consists of:

- Oil/water separator for removal of oil and grease.
- Mixed-media filter for removal of solids.
- Granular activated carbon (GAC) adsorption unit for removal of organic contaminants.
- pH controller for pH adjustment.

1.4.2 Drainage Basin 002

Stormwater in the CA-B treated-wood storage area is collected through a network of catch basins and storm drains that route the water to a treatment system prior to discharging to the Puyallup River via an 8-port diffuser. All catch basins are equipped with inserts and/or hay bails to control floating and settleable solids. A 285,000 gallon stormwater storage tank was constructed within the 002 basin in 2004. Water from this tank can be pumped back to the wood treatment plant for re-use and/or directed to the 002 treatment system. Stormwater from this area is recycled and reused as CA-B make-up water to the maximum extent practicable. The treatment system at Outfall 002 consists of:

- One 285,000 gallon storage tank
- Two Continuous Deflective Separation (CDS) Units for the removal of floating and settleable solids.
- Automatic Filtration Unit with Self Cleaning Mechanism for the removal of fine suspended solids.
- Granular activated carbon (GAC) adsorption unit for removal of organic contaminants.
- pH controller for pH adjustment.
- An eight port diffuser system.

2.0 TREATMENT SYSTEM OPERATION AND MAINTENANCE

MCPLC is currently operating under a site specific stormwater permit (WA0037953). The effective date of the permit was March 15, 2003, and it expires March 15, 2007. The permit stipulates the regular monthly sampling at MCPLC's permitted Outfalls 001 and 002. These sampling parameters are detailed on Table 1.

2.1 OUTFALL 001 TREATMENT SYSTEM

The treatment system at Outfall 001 is designed to treat stormwater collected through the storm drain network in the PCP/creosote treated wood storage areas. All catch basins are equipped with inserts and/or hay bails to control floating and settleable solids. The treatment system consists of an oil/water separator, four mixed-media filters, four 2,500-lb carbon units, and a pH controller. The process and flow diagram is depicted on Figure 2.

2.1.1 Operation

The stormwater is passed through the four-compartment oil/water separator. The first compartment is used to separate large solids; the second to settle out smaller solids ("sinkables"); and the third to separate floating solids. The fourth compartment has two sumps that collect stormwater from the separator and pumps it through the mixed-media and carbon filters at approximately 710 gpm.

The four mixed-media filters consist of several layers of gravels and sand and are used to remove solids from stormwater. The mixed-media filters are backwashed when the solids build up causes an increase in pressure difference and decrease in pumping rate.

The stormwater from the mixed-media filters then passes through four carbon units. The carbon units are operated in parallel mode. PCP, polycyclic aromatic hydrocarbons (PAHs), and oil & grease (O&G) are removed from the stormwater by adsorbing to the surface of GAC.

Per the NPDES permit, MCPLC collects effluent samples from the 001 SWTS effluent for analysis of the chemical parameters listed in Table 1. In addition, MCPLC collects the influent samples to determine the removal efficiency and breakthrough conditions of the carbon units.

Beginning in December 2005, MCPLC initiated an improved discharge monitoring plan. Under the improved plan, the discharge at Outfall 001 will be sampled twice per month for pentachlorophenol after 10-million gallons are treated, or by the fifth month after the carbon media is changed; which ever occurs first. This improved plan will more closely monitor treatment system performance and effluent quality. Under the revised plan, the carbon media will be changed if the effluent concentration of pentachlorophenol is more than 70% of the discharge limit.

The effluent from the carbon units is monitored for pH. The pH of the effluent is adjusted as necessary by the pH controller.

2.1.2 Maintenance

In the event of an upset due to plant maintenance activities, severe stormwater events, start ups or shut downs, or other causes, the treatment system will be monitored for pressure buildup, oil sheen, and other unusual effluent characteristics. In addition, effluent samples will be collected in the event of chemical spills that impact stormwater. Absorbents and flow-control valves will be used in the event of spills to prevent chemicals from entering the storm drain network.

Manufacturer's literature and maintenance procedures for the treatment system at Outfall 001 are provided in Appendix A.

2.2 OUTFALL 002 TREATMENT SYSTEM

The treatment system at Outfall 002 is similar to that of Outfall 001. The treatment system at Outfall 002 is designed to treat stormwater runoff collected through the storm drain network in the CBA-treated-wood storage area. All catch basin are equipped with inserts and/or hay bails to control floating and settleable solids. The treatment system consists of two CDS units, an automatic filtration unit with self-cleaning mechanism, a dual-vessel carbon-filtration unit, a pH controller and an eight-port diffuser. A 285,000 gallon storage tank was installed in the 002 drainage in 2004. This tank is used to temporally store and equalize the stormwater within the 002 basin. Stored water is returned to the wood treatment plant for re-use and/or directed in a controlled manner to the 002 stormwater treatment system. Process diagrams and manufacturer’s information on the tank and pump equipment are provided in Appendix B.

2.2.1 Operation

The stormwater from drainage basin 002 is collected via networks of storm drains, and is treated through a CDS unit before being collected in the wet well at the northwest corner of the site. With the recent addition of the stormwater storage tank, the existing pump station (CB-232) is also used to transfer stormwater into the storage/equalization tank. From the tank, stormwater will be pumped to the wood treatment plant and/or directed, in a controlled manner through the three decant valves (STV-1 through STV-3) to the stormwater treatment system at outfall 002. Process diagrams and manufacturer’s information on the tank and related pump equipment are provided in Appendix B.

Stormwater in the wet well is then pumped to an above-ground treatment system located immediately north of the maintenance shop. Following treatment, the stormwater is discharged through the 8-port diffuser that lies at the bottom of the Puyallup River. The treatment system and diffuser are designed to operate at 6-month 24-hour storm event of 1.066 cubic feet per second (cfs). Per the NPDES permit, MCPLC collects effluent samples from the treatment system units for analysis of the parameters listed in Table 1.

Beginning in December 2005, MCPLC initiated an improved monitoring plan. Under the improved plan, the discharge at Outfall 002 will be sampled twice per month for pentachlorophenol after 14-million gallons are treated, or by the fifth month after the carbon media is changed; which ever occurs first. This improved plan will more closely monitor treatment system performance and effluent quality. Under the revised plan, the carbon media will be changed if the effluent concentration of copper is more than 70% of the discharge limit.

During severe storms resulting in flow rates greater than design capacity, excess stormwater will be discharged through the bypass. Per Condition S5.B of the NPDES permit, MCPLC is required to submit a report to WDOE within 30 days of the bypass indicating the magnitude of the storm event that caused the bypass, how long the bypass lasted, and the quality of the bypass.

The above-ground treatment system consists of an automatic filtration unit with self-cleaning mechanism and a dual vessel carbon unit. The automatic filtration unit is designed to remove suspended solids from the stormwater prior to carbon adsorption. The carbon filtration unit has two vessels, each with a capacity for 20,000 pounds of activated carbon. PCP, polycyclic aromatic hydrocarbons (PAHs), and oil & grease (O&G) are removed from the stormwater by adsorbing to the surface of GAC. The system can be operated in series or in parallel. It is anticipated that the system will be operated in parallel during high flow conditions.

The effluent from the carbon units is monitored for pH. The pH of the effluent is adjusted as necessary by the pH controller.

2.2.2 Maintenance

In the event of an upset due to plant maintenance activities, severe stormwater events, start ups or shut downs, or other causes, the treatment system will be monitored for pressure buildup, oil sheen, and other unusual effluent characteristics. In addition, effluent samples will be collected in the event of chemical spills that impact stormwater. Absorbents and flow control valves will be used in the event of spills to prevent chemicals from entering the storm drain network.

Manufacturer's literature and maintenance procedures for the treatment system at Outfall 001 are provided in Appendix B.

2.3 TREATMENT SYSTEM OPERATION

Both treatment systems at Outfalls 001 and 002 are designed to run without a full-time operator. The required maintenance duties can be divided into the following categories:

- Routine system monitoring
- Catch basin insert monitoring and solids removable
- CDS unit monitoring and solids removal
- Storage Tank monitoring and solids removal (Only at Outfall 002)
- Mixed-media filter backwashing (Only at Outfall 001)
- Automatic Filter self test (Only at Outfall 002)
- Carbon backwashing
- Carbon change out
- Management of residuals

2.3.1 Routine System Monitoring

Routine monitoring should be conducted to ensure proper operation of the treatment systems and the need for servicing individual equipment items. Monitoring should be conducted either on a daily basis or following a storm event and should include visual inspection for leaks or other obvious signs of operational problems. Line pressures and piping condition should be regularly checked. Inspection logs are included in Appendix C.

Monthly effluent monitoring is required per Condition S2 of the NPDES permit. In addition to effluent sampling, the influent to the treatment systems will be collected regularly to determine removal efficiency and to detect breakthrough conditions of the carbon units. Specifically, pentachlorophenol and arsenic influent samples will be collected at the 001 treatment system concurrent with the monthly discharge sampling. The pentachlorophenol sampling is used to determine the removal efficiency. The efficiency should be greater than 50%. The breakthrough concentrations will be set at 70% of the PCP and/or PAH discharge limits.

Influent samples for arsenic, chromium and copper are also collected monthly at the 001 and 002 systems. These results are used to monitor the potential build up of selected metals in the granular activated carbon. The carbon media will be changed if the effluent concentration exceeds the influent concentration and the effluent exceeds 70% of the discharge limitation.

2.3.2 Catch Basin Insert Monitoring and Solids Removal

Inserts are installed in catch basins throughout the facility. Periodically, the insets are inspected and absorbents and filters are changed as required. Typically, the catch basins are inspected once per month in the dry season (June - September) and twice per month in the rain season (October-May).

Catch basins and storm drains are cleaned out once a year or as necessary to assure that the design capacity for stormwater conveyance is maintained.

2.3.3 Storage Yard Sweeping/Inspection

MCPLC employs a program of regular site housekeeping and sweeping to prevent the accumulation of materials (wood debris and wind blown particulate) that may impede surface stormwater flow and may contribute to stormwater pollution. MCPLC uses an automated street sweeper (Tenet Sentinel) to address large open areas that are accessible to main vacuum system under the body of the sweeper and to the articulated brush. In areas of the site inaccessible to the automated sweeper, MCPLC uses manual sweeping methods. Appendix C contains sweeping inspection forms.

2.3.4 CDS Units Monitoring and Solids Removal

The CDS units are installed in the two major gravity storm drains that enter the wet well in the 002 Outfall drainage area. These units remove and collect floating and settleable solids from the influent to the treatment system. Solids collected in these units collect in a sump below the screen assembly. The accumulation of solids is periodically monitored in conjunction with the catch basin insert inspections. It is anticipated that the units will have to be cleaned approximately twice per year.

2.3.5 Storage Tank Monitoring and Solids Removal

The 285,000 gallon storage tank was installed adjacent to CB-232 within the 002 drainage area. CB-232 functions as a pump station and is equipped with two 7.5-horse power (HP) submersible pumps (P-1 and P-2). Pumps P-1 and P-2 lift stormwater from the pump station into the storage tank at a maximum rate of approximately 700-gallons per minute (gpm). The equipment layout and process flow diagrams are included as Figures 1 and 2, respectively (Appendix B). Flows exceeding the pump capacity will be discharged from the pump station to the storm drain that enters the 002 stormwater treatment system.

Stormwater held in the tank is released through a series of decanting valves and a flow control valve to the 002 treatment system via existing storm drains and wet well (See Figures 2 and 3 – Appendix B). The tank is also equipped with an over-flow port approximately 6 inches from the top that will be connected to the decanting line. The valves will be adjusted throughout the rain season to obtain the optimum balance between retention time and available storage capacity.

Stormwater in the tank is also returned to the wood treating plant to the extent practicable. Operation of this system will utilize a new 5-HP centrifugal pump (P-3) that is mounted at ground level adjacent to the tank. P-3 will return up to 400 gpm to the treatment plant.

Solids (residuals) that accumulate in the tank will be closely monitored to accurately establish the required cleanout frequency. Based on experience to date, the tank should require cleaning every two years. This effort will be completed concurrent with the cleaning of other tanks, catch basins and storm drains within the existing 002 stormwater treatment system using an eductor truck and suction line to remove and collect the settled materials. The sludge will be dewatered and disposed of at a permitted disposal facility per applicable state and federal regulations.

2.3.6 Mixed-Media Filter Backwashing

Backwashing will periodically be required to remove solids from the mixed-media filter. This normally is conducted in conjunction with carbon backwashing. Backwashing should be performed when the differential pressure exceeds 15 psig. The backwashing procedure is included in Appendix A.

2.3.7 Automatic Filter Self Test

The Automatic Filter is self-maintaining, however the manufacturer recommends that the cleaning cycle be activated prior to long periods of inactivity. The self-test function will be activated when long periods without rainfall are anticipated and periodically during the rainy season, to confirm that the cleaning step is functioning properly and adequately reduces the differential pressure across the filter.

2.3.8 Carbon Backwashing

Backwashing will periodically be required to remove fine solids from the carbon units. Backwashing should be performed when the line pressure exceeds 15 psig. The backwashing procedures are included in Appendices A and B for the 001 and 002 system, respectively.

2.3.9 Carbon Change Out

Once breakthrough conditions are reached, spent carbon will be replaced with fresh regenerated carbon. The vessels are changed sequentially as needed to maintain operations during the change out. Spent carbon will be transferred from the carbon units into a bulk storage bin or other bulk containers. Steps required for fresh carbon transfer from the delivery vehicle to the empty carbon units and specific information regarding initial backwash of the fresh carbon are presented in the carbon system operations manual. Approximately 50,000 lbs. of fresh carbon is stored at the MCPLC facility at all times.

2.3.10 Management of Residuals

The primary waste products associated with operation of the stormwater treatment system are spent carbon, used catch-basin inserts, and miscellaneous disposables such as gloves, rags, etc. Used catch-basin inserts and other disposables will be stored in approved waste containers. Spent carbon is typically removed in bulk containers or dedicated carbon transfer vacuum trailer. All residual materials will be disposed in a manner consistent with the state and federal waste regulations.

3.0 NPDES PERMIT REQUIREMENTS

MCPLC is authorized to discharge treated stormwater under the NPDES permit, which was issued by Ecology on February 7, 2002. The terms and conditions of the permit are effective through March 15, 2007.

Monthly flow measurements are recorded for each outfall. Analytical results of the effluent samples are reported to WDOE by the 30th day of the month following the completed monitoring period.

4.0 SAFETY

The operation and maintenance of the treatment system should follow established industry, health, and safety programs and procedures. Special care must be taken when working in and around equipment with moving parts. If work must be performed on such equipment, the main control switch must be turned off, and a safety lock must be attached. MCPLC's lock-out/tag-out procedure will be implemented when working on electrical or mechanical equipment.

Saturated spent carbon removes oxygen from the air causing a severe hazard to workers inside enclosed or confined spaces. Manufacturer's change-out procedure and safety recommendations should be followed. MCPLC's Confined Space Entry Procedure will be implemented if entering the GAC unit is necessary.

5.0 PLAN REVIEW AND AMENDMENTS

The O&M Plan for MCPLC is maintained by the Environmental Specialist in a central, readily accessible location in the main office. A copy of the O&M Plan has been submitted to Ecology.

MCPLC will modify the O&M Plan whenever there is a change in design, construction, operation, or maintenance that causes the O&M Plan to be less or more effective in controlling pollutants. The O&M Plan will also be modified whenever a self-inspection reveals that the description of potential pollutant sources or established pollution prevention measures and controls are inadequate. Appropriate modifications will be accomplished within two weeks of such determination. The proposed modifications to the O&M Plan will be submitted to Ecology at least 30 days in advance of implementing the proposed changes, unless Ecology approves immediate implementation.

The Environmental Specialist is responsible for the preparation and implementation of amendments to this plan. The Environmental Specialist keeps a copy of any amendments to this plan, and notes such amendments on the *Amendments and Revisions* page at the front of the plan. Copies of each amendment are also distributed to facility personnel that have been provided with a copy of the plan. The Environmental Specialist will review this O&M Plan annually for discrepancies and will update the Plan as required. A letter confirming the annual review will be submitted to WDOE.

TABLE 1. SUMMARY OF DISCHARGE SAMPLING PARAMETERS

Outfall 001	**Outfall 002**
Pentachlorophenol (PCP)	Pentachlorophenol (PCP)
Arsenic (As)	Arsenic (As)
Copper (Cu)	Copper (Cu)
Chromium (Cr)	Chromium (Cr)
Polynuclear Aromatic Hydrocarbons (PAHs)	Polynuclear Aromatic Hydrocarbons (PAHs)
Oil & Grease	Oil & Grease
PH	PH
Total Suspended Solids (TSS)	Total Suspended Solids (TSS)

OUTFALL 001 - CATCH BASIN INSERTS

Suppliers:	RKL Enterprises 11745 SE 60th Place Bellevue, WA 98006 (206) 948-7928	Lucas Environmental P.O. Box 65173 University Place, WA 98464 (253) 926-1188
Model:	Stream Guard Trash and Debris Insert	Life Saver Insert

The sediment filters are placed in catch basins throughout the facility. The filters are inspected, and cleaned as needed, monthly during the dry months (June - September) and twice monthly during the rain season (October - May) by the Sweeper. The filters that need to be replaced are removed from the catch basin and placed in 55-gallon DOT approved drums for disposal.

OUTFALL 001 - OIL/WATER SEPARATOR

MCPLC operates an in-ground gravity-fed oil/water separator in the 001 drainage area. The separator is a part of the stormwater treatment system at Outfall 001 with capacity of approximately 20,000 gallons. The separator is cleaned during the annual storm drain cleanout. The Environmental Specialist is responsible for inspecting the oil/water separator.

OUTFALL 001 - MIXED–MEDIA FILTER

MCPLC operates four mixed-media filter vessels in parallel. The mixed-media filter consists of well-sorted gravel.

The water pumps at Outfall 001 consist of two submersible pumps capable of pumping 110 and 710 gallons per minute (gpm). When the pressure difference between the outlet and inlet of the mixed-media filter increases the filter is backwashed. The Lab Technician is responsible for backwashing the mixed-media filter. The filter was last changed out in 1989.

Backwash Procedure

1. Shut off the pumps
2. Close all decant valves on the backwash storage tank.
3. Open valve on sight glass of the backwash storage tank.
4. Open valve on the 4-inch pipe that drains into the oil/water separator. This valve is located by the backwash storage tank.
5. Close all valves on the mixed-media filter vessel.
6. Close the bleeder valve on the city water line, and then slowly open the 4-inch city water line.
7. Slowly open valve located at the bottom of the filter vessel. When the vessel is full, slowly open the valve on top of the filter vessel. Do not open more than 1/3 way because the filter media will be blown out.
8. Water should be draining into the oil/water separator. When the water turns turbid, close the valve on the 4-inch pipe for water to drain into the backwash tank.
9. When clean, close the valve on top and bottom of the filter vessel.
10. Repeat steps 7 through 9 for other filter vessels.
11. When returning the filter system to operation, leave all four valves closed. Shut off the 4-inch valve on the city water line.
12. Slowly open the bleeder valve on the city water line.
13. Open green valve on the filter vessel.
14. Close the valve and drain the sight glass.

OUTFALL 001 - CARBON ADSORPTION UNIT

Supplier: Calgon Carbon Corporation (Carbon Only)
Box 360795
Pittsburgh, PA 15251-6795
(800) 548-1999

Model: Granular Activated Carbon

The Outfall 001 GAC units are operated in parallel. Each unit contains approximately 2,500 lb of GAC. The frequency of the GAC change out is based on the concentrations of PCP influent and effluent. Because the GAC units are in parallel, MCPLC changes out the GAC in the unit when the PCP and/or PAH concentration in the effluent is approximately 70% of the corresponding effluent limitation. The PCP discharge limit at Outfall 001 is 81 ppb.

Beginning in December 2005, MCPLC improved the monitoring plan. Under the improved plan, the discharge will be sampled twice per month for pentachlorophenol after 10-million gallons are treated, or by the fifth month after the carbon media is changed; which ever occurs first. This improved plan will more closely monitor treatment system performance and effluent quality. The Lab Technician is responsible for notifying the Environmental Specialist if change out is required.

OUTFALL 001 - pH CONTROLLER

Supplier: Flow Products Incorporated
P.O. Box 537
Kent, WA 980350
(253) 872-0227

Model: Liquitron Series DP5000 pH Controller

The instruction manual for the pH controller is attached herein. The pH control monitors and receives inputs from the pH probe and the flow meter. The pH probe is installed on the discharge side of the treatment system. If the pH is outside of the accepted range, and the flow meter detects that the treatment system is operating, the chemical feed pump is activated to supply the required pH adjustment chemical in the influent side of the treatment system. The flow rate of the chemical feed pump is also proportional to the flow rate of the treatment system as measured by the discharge flow meter. The chemical feed pump will continue to operate until the pH measure in the discharge is within the accepted range.

The most frequently replaced part is the pH electrode, which deteriorates with time. Refillable electrodes should be checked for level frequently and replenished with filling solution as necessary. An electrode may also fail because of:

- Aging (slow response to changing pH)
- Coatings over the glass bulb (slow response to changing pH)
- Abrasion of the glass bulb (shift in calibration)
- Chemical attack
- Breakage

The pH controller should be checked daily for instability or lack of response. The electrode should be cleaned or replaced as necessary. The input cables should be checked for damage. The Lab Technician is responsible for inspecting the pH controller.

OUTFALL 001 - Flow Meter

Supplier: Flow Products Incorporated
P.O. Box 537
Kent, WA 980350
(253) 872-0227

Model: Seametrics IP101B Insertion Meter/FT 420 Flow Computer

The flow meter and flow computer instruction manuals are attached herein. This flow meter is used to measure the flow rate and the total flow from the discharge of the treatment system. The flow meter also sends a signal to the pH controller that control the proportion flow rate of the chemical feed pump as necessary (See description of pH Controller for additional details).

The flow meter should be checked daily during times when the system is operating to insure that the proper flow measurements are being recorded.

OUTFALL 002 - CATCH BASIN INSERTS

Suppliers:	RKL Enterprises 11745 SE 60th Place Bellevue, WA 98006 (206) 948-7928	Lucas Environmental P.O. Box 65173 University Place, WA 98464 (253) 926-1188
Model:	Stream Guard Trash and Debris Insert	Life Saver Insert

The sediment filters are placed in catch basins throughout the facility. The filters are inspected, and cleaned as needed, monthly during the dry months (June - September) and twice monthly during the rain season (October - May) by the Sweeper. The filters that need to be replaced are removed from the catch basin and placed in 55-gallon DOT approved drums for disposal.

OUTFALL 002 - CONTINUOUS DEFLECTIVE SEPARATION UNITS (CDS)

Supplier: CDS Technologies
P.O. Box 11305
755 NE Columbia BLVD
Portland, OR 97211
(503) 240-3529

Model: CDS Unit 1 - Model PMSU30_20
CDS Unit 2 - Model PMSU40_30

The CDS units are installed in the two major gravity storm drains that enter the wet well in the 002 Outfall drainage area (See Figure 1). Solids collected in these units collect in a sump below the screen assembly. The accumulation of solids is periodically monitored in conjunction with the catch-basin insert inspections. The sweeper is responsible for notifying the Environmental Specialist if cleaning is required. It is anticipated that the units will have to be cleaned approximately twice per year. An evactor truck will be used to clean the CDS units.

OUTFALL 002 - OIL/WATER SEPARATOR

MCPLC operates a gravity-fed oil/water separator in the 002 drainage area. The separator is immediately downstream of the maintenance shop and is intended to control oil and grease related to the vehicle servicing operations. This oil/water separator has a capacity of approximately 10,000 gallons. The separator is cleaned during the annual storm drain cleanout. The Environmental Specialist is responsible for inspecting the oil/water separators.

OUTFALL 002 - AUTOMATIC FILTRATION UNIT (AMIAD)

Supplier: Amiad Filtration Systems
2220 Celsius Avenue
Oxnard, CA 93030
(800) 969-4055

Model: Amiad SAF 6000

The Automatic Filter is self-maintaining, however the manufacturer recommends that the cleaning cycle be activated prior to long periods of inactivity. The self-test function will be activated when long periods without rainfall are anticipated and periodically during the rainy season to confirm that the cleaning step is functioning properly and adequately reduces the differential pressure across the filter. The Lab Technician is responsible for monitoring the performance of the Amiad filter unit.

OUTFALL 002 - CARBON ADSORPTION UNIT

Supplier: Calgon Carbon Corporation
Box 360795
Pittsburgh, PA 15251-6795
(800) 548-1999

Model: Model 10 Dual Vessel Granular Activated Carbon Adsorber

The Outfall 002 GAC units can be operated in series or in parallel. Each unit contains approximately 20,000 lbs of GAC. The frequency of the GAC change out is based on the concentrations of PCP influent and effluent. If the GAC units are operated in parallel, MCPLC will change out the GAC in the unit when the PCP and/or PAH concentration in the effluent is approximately 70% of the corresponding effluent limitation. If the system is operated in series, the lead carbon vessel will be changed when the removal efficiency drops below 50%.

Beginning in December 2005, MCPLC improved the monitoring plan. Under the improved plan, the discharge will be sampled twice per month for copper after 14-million gallons are treated, or by the fifth month after the carbon media is changed; which ever occurs first. This improved plan will more closely monitor treatment system performance and effluent quality. The Lab Technician is responsible for notifying the Environmental Specialist if change out is required.

Backwashing will periodically be required to remove fine solids from the carbon units. Backwashing should be performed when the differential pressure exceeds 15 psig. The back washing procedure is detailed in the attached manufacturer's literature.

OUTFALL 002 - PUMPS

Suppliers: **25 H.P. Wet well pumps (P1 and P2)**
Ebara International Corporation/
Northwest Pump and Equipment Company
2800 NW 31st Avenue
Portland, OR 97210
(503) 227-7867

5 H.P. Sump pump (P-4)
Gould's Pump Company/
Paramount Supply Company
1401 Thorne Road
Tacoma, WA 98421
(253) 383-3111

15 H.P. Back flush pump (P3)
Grundfos Corporation/
Paramount Supply Company
1401 Thorne Road
Tacoma, WA 98421
(253) 383-3111

Model: P1 and P2 - 100DLMF618 (25 H.P.)
P3 - CR90-1-1 (15 H.P.)
P4 – WS D4 (3888D4) (5 H.P.)

Two, 25 horsepower (H.P.) submersible pumps (P1 and P2) transfer stormwater from the wet well to the treatment pad located immediately north of the maintenance shop. A 15 H.P. centrifugal pump located on the treatment pad is used to back flush the activated carbon units. A five horsepower (5-H.P.) submersible pump (P4) is installed in a sump in the approximate center of the treatment pad. Pump P4 transfers back flush effluent from the automatic filter (F-1), and stormwater that collects on the treatment pad, to storage tank T-2. Manufacturer's literature is attached.

OUTFALL 002 - Valves

Supplier: ABZ Valve Company/
Paramount Supply Company
1401 Thorne Road
Tacoma, WA 98421
(253) 383-3111

Model: ABZ Model 929, Cast Iron body, 316 Stainless stem, EPDM (food) grade seat

Flow control valves located on the treatment pad consist primarily of 6" diameter butterfly valves. The valves are oriented as shown in the process flow diagram (Figure 3) during normal operation. Manufacturer's literature is attached.

OUTFALL 002 - Wet well, Diffuser and Tide gate

Supplier: Red Valve Company
700 N. Bell Avenue
Carnegie, PA 15106
(412) 279-0041

Model: Diffuser-Series 35 (3")
Tide gate-TF-II (30")

A wet well with dual pump system collects stormwater from the 002 drainage area and transfers it to the treatment system located immediately north of the maintenance building. The pumps (P1 and P2) are controlled by a series of float switches as shown on the attached construction drawing. Under normal operation the treated stormwater is discharged to the Puyallup River via the 8-port diffuser. If the design flow is exceeded, stormwater is also discharge via the 30" tide gate. During the time the tide gate is used, the upper float switch is activated and the duration of the bypass is recorded on an hour meter. The discharge is also sampled during by-pass events.

Red Valve Tide Flex check valves are used on the diffuser and the tide gate to prevent back flow onto the site during periods of high river stage. The diffuser is inspected on an annual basis and an inspection report is submitted to WDOE within 30-days of the inspection. Manufacturer's literature is attached.

OUTFALL 002 - pH CONTROLLER

Supplier: Flow Products Incorporated
P.O. Box 537
Kent, WA 98035
(253) 872-0227

Model: Liquitron Series DP5000 pH Controller

The instruction manual for the pH controller is attached herein. The pH controller monitors and receives inputs from the pH probe and the flow meter. The pH probe is installed on the discharge side of the treatment system. If the pH is outside of the accepted range, and the flow meter detects that the treatment system is operating, the chemical feed pump is activated to supply the required pH adjustment chemical in the influent side of the treatment system. The flow rate of the chemical feed pump is also proportional to the flow rate of the treatment system as measured by the discharge flow meter. The chemical feed pump will continue to operate until the pH measure in the discharge is within the accepted range.

The most frequently replaced part is the pH electrode, which deteriorates with time. Refillable electrodes should be checked for level frequently and replenished with filling solution as necessary. An electrode may also fail because of:

- Aging (slow response to changing pH)
- Coatings over the glass bulb (slow response to changing pH)
- Abrasion of the glass bulb (shift in calibration)
- Chemical attack
- Breakage

The pH controller should be checked daily for instability or lack of response. The electrode should be cleaned or replaced as necessary. The input cables should be checked for damage. The Lab Technician is responsible for inspecting the pH controller.

OUTFALL 002 - Flow Meter

Supplier: Flow Products Incorporated
P.O. Box 537
Kent, WA 98035
(253) 872-0227

Model: Seametrics IP101B Insertion Meter/FT 420 Flow Computer

The flow meter and flow computer instruction manuals are attached herein. This flow meter is used to measure the flow rate and the total flow from the discharge of the treatment system. The flow meter also sends a signal to the pH controller that controls the proportion flow rate of the chemical feed pump as necessary (See description of pH Controller for additional details).

The flow meter should be checked daily during times when the system is operating to insure that the proper flow measurements are being recorded.

OUTFALL 002 – STORAGE TANK & PUMPS

Suppliers: 285,000 GALLON STORAGE TANK
Columbian TekTank
P.O. Box 996
Parsons, KS 67358
(620) 421-0200

7.5 **H.P. Wet well pumps (P1 and P2)**
Ebara International Corporation/
Northwest Pump and Equipment Company
2800 NW 31st Avenue
Portland, OR 97210
(503) 227-7867

5 **H.P. Wet well pumps (P3)**
Aurora Pumps/
Northwest Pump and Equipment Company
2800 NW 31st Avenue
Portland, OR 97210
(503) 227-7867

An above ground tank with a nominal capacity of 285,000 gallons (41.59 feet diameter, 28.06 feet high) located adjacent to the pump station (CB-232) returns stormwater to the wood treatment plant for reuse and directs stormwater to the 002 stormwater treatment system. Tank schematics are attached for reference.

The existing pump station (CB-232) is used to transfer stormwater into the storage/equalization tank. From the tank, stormwater is pumped to the wood treatment plant (Pump P-3) for reuse and/or is directed, in a controlled manner; through the three decant valves (STV-1 through STV-3) to the stormwater treatment system at outfall 002. The tank is also equipped with an over-flow port approximately 6 inches from the top that will be connected to the decanting line. The valves will be adjusted throughout the rain season to obtain the optimum balance between retention time and available storage capacity

The tank improves the existing stormwater management system at the facility by:

- increasing the volume of stormwater that can be reused in the wood treatment process,
- equalizing the flow into the 002 stormwater treatment system,
- reducing solids loading to 002 treatment stormwater treatment system
- increasing the effective treatment capacity and reducing the potential for authorized stormwater bypasses.

OUTFALL 002 – STORAGE TANK & PUMPS (cont.)

Two 7.5-horse power (HP) submersible pumps (P-1 and P-2) are installed in the pump station. Pumps P-1 and P-2 lift stormwater from the pump station into the storage tank at a maximum rate of approximately 600-gallons per minute (gpm). The equipment layout and process flow diagrams are included as Figures 1 and 2, respectively. Flows exceeding the pump capacity are discharged from the pump station to the storm drain that enters the 002 stormwater treatment system.

APPENDIX I

BIOSCREEN INPUT AND OUTPUT

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence *Version 1.4*

Keesler AFB
SWMU 66

Run Name

Data Input Instructions:

115 → 1. *Enter value directly....or*
or 2. *Calculate by filling in grey*
0.02 *cells below. (To restore formulas, hit button below).*

Variable* → *Data used directly in model.*

20 → *Value calculated by model.* *(Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	3.3	*(ft/yr)*
or		*or*	
Hydraulic Conductivity	*K*	1.9E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.005	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	10.0	*(ft)*
Transverse Dispersivity*	*alpha y*	1.0	*(ft)*
Vertical Dispersivity*	*alpha z*	0.5	*(ft)*
or		*or*	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

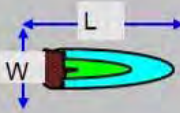
Retardation Factor*	*R*	1.0	*(-)*
or		*or*	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	0.0E+0	*(per yr)*
or		*or*	
Solute Half-Life	*t-half*	0.15	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	440	*(ft)*
Modeled Area Width*	500	*(ft)*
Simulation Time*	66	*(yr)*



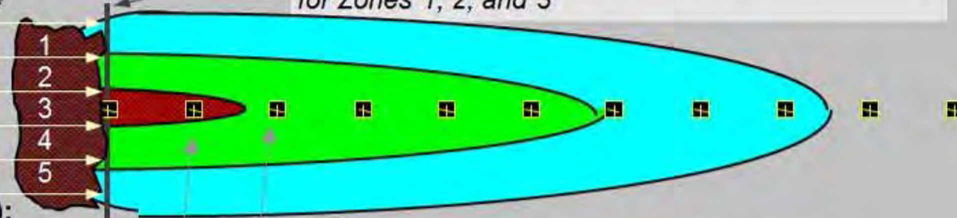
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*	Zone
		1
		2
1509	0.02	3
0	0	4
0	0	5

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

<1	<1	*(yr)*
Inst. React.	1st Order	
Soluble Mass	0	*(Kg)*

In Source NAPL, Soil

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	44	88	132	176	220	264	308	352	396	440

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE

View Output

RUN ARRAY

View Output

Help

Recalculate

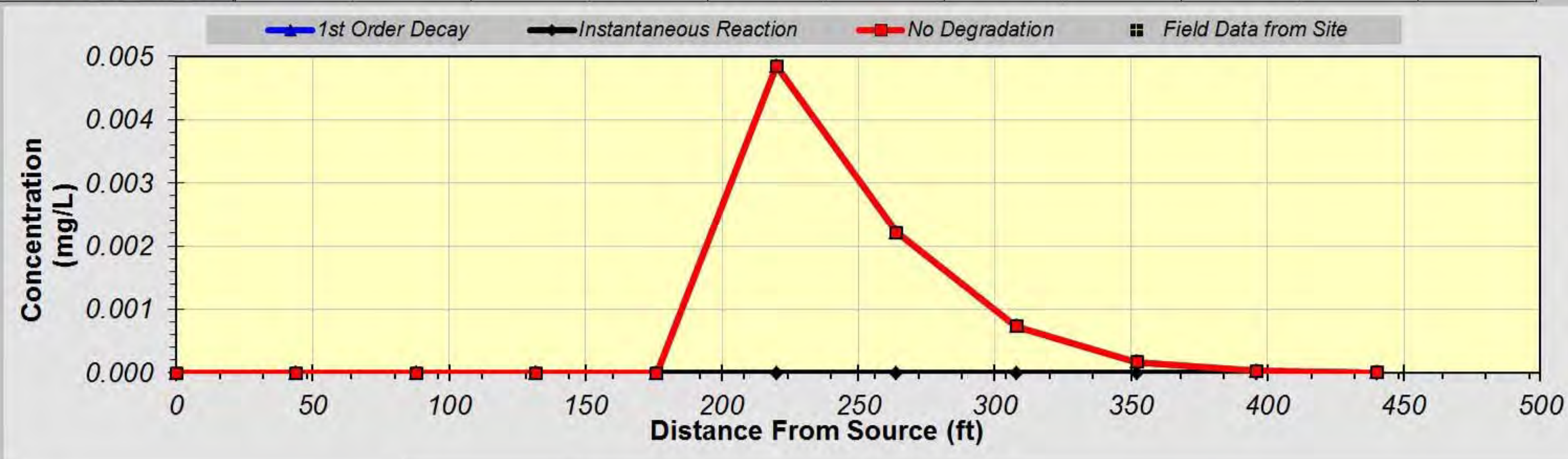
Paste Example Dataset

Restore Formulas for Vs,

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	44	88	132	176	220	264	308	352	396	440
No Degradation	0.000	0.000	0.000	0.000	0.005	0.002	0.001	0.000	0.000	0.000	
1st Order Decay	0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction											
Field Data from Site											



Calculate Animation

Time:

66 Years

Return to

Recalculate This

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence

Version 1.4

Keesler AFB
SWMU 66
Run Name

Data Input Instructions:

115	1. Enter value directly....or
↑ or	2. Calculate by filling in grey cells below. (To restore formulas, hit button below).
0.02	
Variable*	Data used directly in model.
20	Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	3.3	*(ft/yr)*
or		↑ *or*	
Hydraulic Conductivity	*K*	1.9E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.005	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	10.0	*(ft)*
Transverse Dispersivity*	*alpha y*	1.0	*(ft)*
Vertical Dispersivity*	*alpha z*	0.5	*(ft)*
or		↑ *or*	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

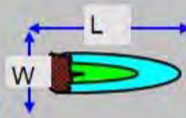
Retardation Factor*	*R*	1.0	*(-)*
or		↑ *or*	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	0.0E+0	*(per yr)*
or		↑ *or*	
Solute Half-Life	*t-half*	0.15	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	893	*(ft)*
Modeled Area Width*	500	*(ft)*
Simulation Time*	189	*(yr)*



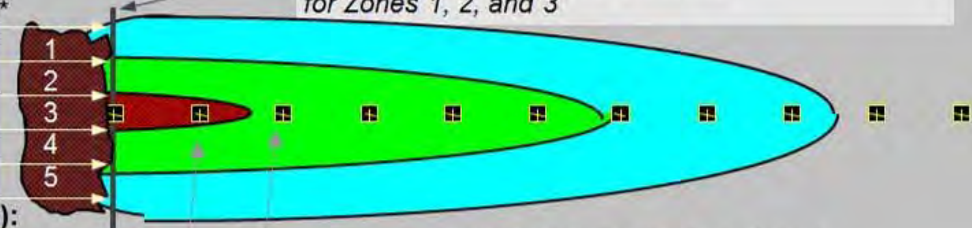
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 *(ft)*

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones:

Zone	Width* (ft)	Conc. (mg/L)*
1		
2		
3	1509	0.02
4	0	0
5	0	0



View of Plume Looking Down

Source Halflife (see Help):

<1	<1	*(yr)*
Inst. React.	1st Order	
Soluble Mass	0	*(Kg)*

In Source NAPL, Soil

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)											
Dist. from Source (ft)	0	89	179	268	357	447	536	625	714	804	893

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE | **View Output**

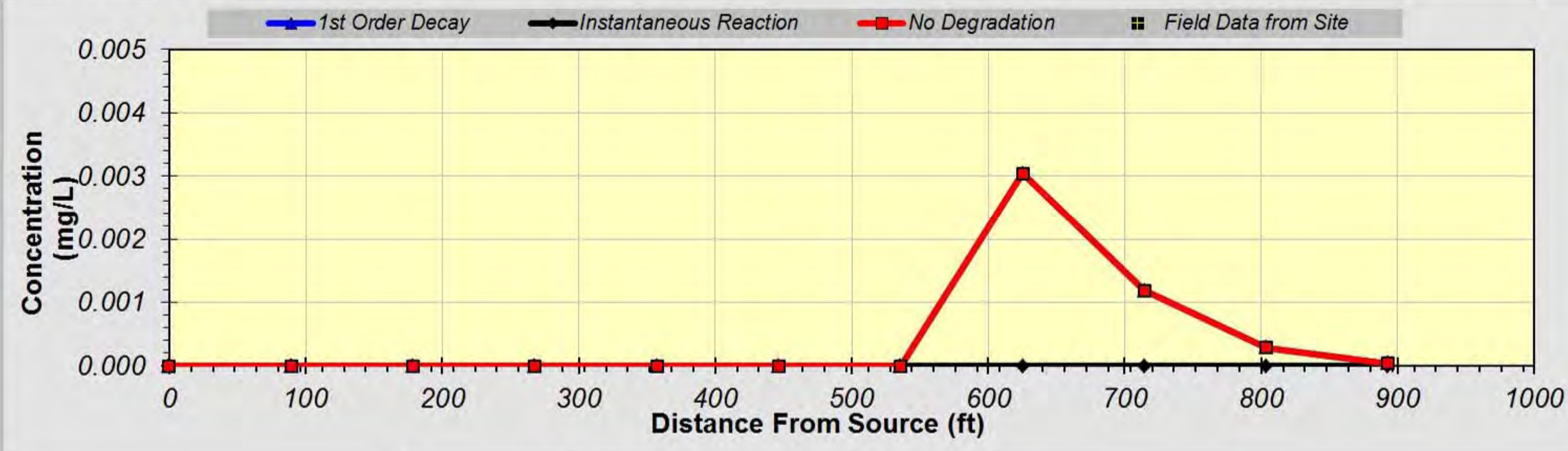
RUN ARRAY | **View Output**

Help | Recalculate | Paste Example Dataset | Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	89	179	268	357	447	536	625	714	804	893
No Degradation	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.001	0.000	0.000	
	0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.000	0.000	0.000	0.000
1st Order Decay											
Inst. Reaction											
Field Data from Site											



Calculate Animation

Time:

189 Years

Return to

Recalculate This

APPENDIX J
DISPROPORTIONATE COST ANALYSIS

Table 1 - Cost Estimate for Alternative 1
Cascade Pole and Lumber Facility, Tacoma Washington

February 18, 2011

Item	Task	Quantity	Units	Unit Cost	Extended Cost	Basis/Source
Capital Items						
1	Interim Actions Completed					
	Paving	1	LS	$2,614,000	$2,614,000	Actual Costs from CPLC
	Drip Pad Construction	1	LS	$1,636,000	$1,636,000	Actual Costs from CPLC
	Installation and Operation of Horizontal Drain	1	LS	$282,000	$282,000	Actual Costs from CPLC
	Transfer Table Pit Upgrade	1	LS	$205,000	$205,000	Actual Costs from CPLC
	Phased Closure of the CCA Drip Pad	1	LS	$88,000	$88,000	Actual Costs from CPLC
	Past Maintenance of the Paved Areas	1	LS	$315,000	$315,000	Actual Costs from CPLC
	Past Maintenance of the Drip Pad	1	LS	$175,000	$175,000	Actual Costs from CPLC
2	Inspection and Monitoring					
	Inspection and Monitoring Plan	1	LS	$10,000	$10,000	Previous Projects
	Inspection and Monitoring	10	YEAR	$30,000	$300,000	Previous Projects
	Maintenance of the Paved Areas	30	YEAR	$45,000	$1,350,000	Current Annual Costs from CPLC
	Maintenance of the Drip Pad	30	YEAR	$25,000	$750,000	Current Annual Costs from CPLC
3	Compliance Monitoring /Reporting					
	Compliance Monitoring Plan	1	LS	$10,000	$10,000	Previous Projects
	Installation of Shallow Groundwater Wells	4	WELL	$3,000	$12,000	Previous Projects
	Installation of Deep Groundwater Wells	2	WELL	$3,500	$7,000	Previous Projects
	Protection Monitoring/Reporting	4	EVENT	$8,000	$32,000	Previous Projects
	Performance Monitoring/Reporting	8	EVENT	$6,000	$48,000	Previous Projects
	Confirmational Monitoring /Reporting	6	EVENT	$4,000	$24,000	Previous Projects
	Additional Monitoring (Triggered during above monitoring events)	4	EVENT	$4,800	$19,200	Previous Projects
	SUB TOTAL				**$7,877,200**	
	CAPITAL COST					
	Contingency			10%	$256,220	
	Sales Tax			9%	$225,474	
	Project Management			10%	$256,220	
	Agency Review and Oversight			2%	$157,544	
	TOTAL COST				**$8,773,000**	

Net Present Value Estimate for Alternative 1

Cascade Pole and Lumber Facility, Tacoma Washington

Year	Cost Factor	Interim Actions Completed	Inspection and Monitoring	Compliance Monitoring /Reporting	Project Management	Sub Total Annual	Contingency	Agency Review and Oversight	Sales Tax	Total Annual Cost	Discounted Annual	Discount Rate
0	1											1.03
1	0.971	$5,315,000	$10,000		$23,293	$5,348,293	$23,293	$14,322	$7,516	$5,393,423	$5,236,333	
2	0.943		$100,000	$37,000	$23,293	$160,293	$23,293	$14,322	$7,516	$205,423	$193,631	
3	0.915		$100,000	$8,000	$23,293	$131,293	$23,293	$14,322	$7,516	$176,423	$161,452	
4	0.888		$100,000	$8,000	$23,293	$131,293	$23,293	$14,322	$7,516	$176,423	$156,750	
5	0.863		$100,000	$8,000	$23,293	$131,293	$23,293	$14,322	$7,516	$176,423	$152,184	
6	0.837		$100,000	$24,000	$23,293	$147,293	$23,293	$14,322	$7,516	$192,423	$161,152	
7	0.813		$100,000	$24,000	$23,293	$147,293	$23,293	$14,322	$7,516	$192,423	$156,458	
8	0.789		$100,000	$8,000	$23,293	$131,293	$23,293	$14,322	$7,516	$176,423	$139,270	
9	0.766		$100,000	$8,000	$23,293	$131,293	$23,293	$14,322	$7,516	$176,423	$135,214	
10	0.744		$100,000	$8,000	$23,293	$131,293	$23,293	$14,322	$7,516	$176,423	$131,276	
11	0.722		$100,000	$19,200	$23,293	$142,493	$23,293	$14,322	$7,516	$187,623	$135,543	
12	0.701		$70,000			$70,000	$13,485		$7,516	$91,001	$63,826	
13	0.681		$70,000			$70,000	$13,485		$7,516	$91,001	$61,967	
14	0.661		$70,000			$70,000	$13,485		$7,516	$91,001	$60,162	
15	0.642		$70,000			$70,000	$13,485		$7,516	$91,001	$58,410	
16	0.623		$70,000			$70,000	$13,485		$7,516	$91,001	$56,709	
17	0.605		$70,000			$70,000	$13,485		$7,516	$91,001	$55,057	
18	0.587		$70,000			$70,000	$13,485		$7,516	$91,001	$53,454	
19	0.570		$70,000			$70,000	$13,485		$7,516	$91,001	$51,897	
20	0.554		$70,000			$70,000	$13,485		$7,516	$91,001	$50,385	
21	0.538		$70,000			$70,000	$13,485		$7,516	$91,001	$48,918	
22	0.522		$70,000			$70,000	$13,485		$7,516	$91,001	$47,493	
23	0.507		$70,000			$70,000	$13,485		$7,516	$91,001	$46,109	
24	0.492		$70,000			$70,000	$13,485		$7,516	$91,001	$44,766	
25	0.478		$70,000			$70,000	$13,485		$7,516	$91,001	$43,463	
26	0.464		$70,000			$70,000	$13,485		$7,516	$91,001	$42,197	
27	0.450		$70,000			$70,000	$13,485		$7,516	$91,001	$40,968	
28	0.437		$70,000			$70,000	$13,485		$7,516	$91,001	$39,774	
29	0.424		$70,000			$70,000	$13,485		$7,516	$91,001	$38,616	
30	0.412		$70,000			$70,000	$13,485		$7,516	$91,001	$37,491	

Total Annual Costs $8,959,000

Net Present Worth **$7,700,926**

Table 2 - Cost Estimate for Alternative 2
Cascade Pole and Lumber Facility, Tacoma Washington

Item	Task	Quantity	Units	Unit Cost	Extended Cost
Capital Items					
1	Interim Actions Completed				
	Paving	1	LS	$2,614,000	$2,614,000
	Drip Pad Construction	1	LS	$1,636,000	$1,636,000
	Installation and Operation of Horizontal Drain	1	LS	$282,000	$282,000
	Transfer Table Pit Upgrade	1	LS	$205,000	$205,000
	Phased Closure of the CCA Drip Pad	1	LS	$88,000	$88,000
	Past Maintenance of the Paved Areas	1	LS	$315,000	$315,000
	Past Maintenance of the Drip Pad	1	LS	$175,000	$175,000
2	Inspection and Monitoring				
	Inspection and Monitoring Plan	1	LS	$10,000	$10,000
	Inspection and Monitoring	10	YEAR	$30,000	$300,000
	Maintenance of the Paved Areas	30	YEAR	$45,000	$1,350,000
	Maintenance of the Drip Pad	30	YEAR	$25,000	$750,000
3	Groundwater				
	In Situ Biodegradation Using ORC	4	EVENT	$1,500	$6,000
	Immobilization of Metals Using MRC	6	EVENT	$11,000	$66,000
4	Compliance Monitoring /Reporting				
	Compliance Monitoring Plan	1	LS	$10,000	$10,000
	Installation of Shallow Groundwater Wells	4	WELL	$3,000	$12,000
	Installation of Deep Groundwater Wells	2	WELL	$3,500	$7,000
	Protection Monitoring/Reporting	4	EVENT	$8,000	$32,000
	Performance Monitoring/Reporting	8	EVENT	$6,000	$48,000
	Confirmational Monitoring /Reporting	6	EVENT	$4,000	$24,000
	Additional Monitoring (Triggered during above monitoring events)	4	EVENT	$4,800	$19,200
	SUB TOTAL				**$7,949,200**
	CAPITAL COST				
	Construction Contingency			30%	$790,260
	Sales Tax			9%	$231,810
	Project Management and Remedial Design			20%	$526,840
	Construction Management			10%	$263,420
	Agency Review and Oversight			2%	$52,684
	TOTAL COST				**$9,814,000**

Net Present Value Estimate for Alternative 2

Cascade Pole and Lumber Facility, Tacoma Washington

Year	Cost Factor	Interim Actions Completed	In Situ Biodegradation Using ORC	Immobilization of Metals Using MRC	Inspection and Monitoring	Compliance Monitoring /Reporting	Project Management	Construction Manageme	Sub Total Annual	Contingency	Agency Review and Oversight	Sales Tax	Total Annual Cost	Discounted Annual	Discount Rate
0	1														1.03
1	0.971	$5,140,000			$10,000		$47,895	$131,710	$5,329,605	$71,842	$4,789	$7,727	$5,413,963	$5,256,275	
2	0.943		$6,000	$66,000	$100,000	$37,000	$47,895	$131,710	$388,605	$71,842	$4,789	$7,727	$472,963	$445,813	
3	0.915				$100,000	$8,000	$47,895		$155,895	$71,842	$4,789	$7,727	$240,253	$219,865	
4	0.888				$100,000	$8,000	$47,895		$155,895	$71,842	$4,789	$7,727	$240,253	$213,462	
5	0.863				$100,000	$8,000	$47,895		$155,895	$71,842	$4,789	$7,727	$240,253	$207,244	
6	0.837				$100,000	$24,000	$47,895		$171,895	$71,842	$4,789	$7,727	$256,253	$214,608	
7	0.813				$100,000	$24,000	$47,895		$171,895	$71,842	$4,789	$7,727	$256,253	$208,357	
8	0.789				$100,000	$8,000	$47,895		$155,895	$71,842	$4,789	$7,727	$240,253	$189,658	
9	0.766				$100,000	$8,000	$47,895		$155,895	$71,842	$4,789	$7,727	$240,253	$184,134	
10	0.744				$100,000	$8,000	$47,895		$155,895	$71,842	$4,789	$7,727	$240,253	$178,771	
11	0.722				$100,000	$19,200	$47,895		$167,095	$71,842	$4,789	$7,727	$251,453	$181,655	
12	0.701				$70,000				$70,000	$41,593		$7,727	$119,320	$83,688	
13	0.681				$70,000				$70,000	$41,593		$7,727	$119,320	$81,251	
14	0.661				$70,000				$70,000	$41,593		$7,727	$119,320	$78,884	
15	0.642				$70,000				$70,000	$41,593		$7,727	$119,320	$76,587	
16	0.623				$70,000				$70,000	$41,593		$7,727	$119,320	$74,356	
17	0.605				$70,000				$70,000	$41,593		$7,727	$119,320	$72,190	
18	0.587				$70,000				$70,000	$41,593		$7,727	$119,320	$70,088	
19	0.570				$70,000				$70,000	$41,593		$7,727	$119,320	$68,046	
20	0.554				$70,000				$70,000	$41,593		$7,727	$119,320	$66,064	
21	0.538				$70,000				$70,000	$41,593		$7,727	$119,320	$64,140	
22	0.522				$70,000				$70,000	$41,593		$7,727	$119,320	$62,272	
23	0.507				$70,000				$70,000	$41,593		$7,727	$119,320	$60,458	
24	0.492				$70,000				$70,000	$41,593		$7,727	$119,320	$58,697	
25	0.478				$70,000				$70,000	$41,593		$7,727	$119,320	$56,988	
26	0.464				$70,000				$70,000	$41,593		$7,727	$119,320	$55,328	
27	0.450				$70,000				$70,000	$41,593		$7,727	$119,320	$53,716	
28	0.437				$70,000				$70,000	$41,593		$7,727	$119,320	$52,152	
29	0.424				$70,000				$70,000	$41,593		$7,727	$119,320	$50,633	
30	0.412				$70,000				$70,000	$41,593		$7,727	$119,320	$49,158	

Total Annual Costs $10,359,000

Net Present Worth **$8,734,538**

Table 3 - Cost Estimate for Alternative 3
Cascade Pole and Lumber Facility, Tacoma Washington

February 18, 2011

Item	Task	Quantity	Units	Unit Cost	Extended Cost	Basis/Source
Capital Items						
1	Interim Actions Completed					
	Paving	1	LS	$2,614,000	$2,614,000	Actual Costs from CPLC
	Drip Pad Construction	1	LS	$1,636,000	$1,636,000	Actual Costs from CPLC
	Installation and Operation of Horizontal Drain	1	LS	$282,000	$282,000	Actual Costs from CPLC
	Transfer Table Pit Upgrade	1	LS	$205,000	$205,000	Actual Costs from CPLC
	Phased Closure of the CCA Drip Pad	1	LS	$88,000	$88,000	Actual Costs from CPLC
	Past Maintenance of the Paved Areas	1	LS	$315,000	$315,000	Actual Costs from CPLC
	Past Maintenance of the Drip Pad	1	LS	$175,000	$175,000	Actual Costs from CPLC
2	Inspection and Monitoring					
	Inspection and Monitoring Plan	1	LS	$10,000	$10,000	Previous Projects
	Inspection and Monitoring	10	YEAR	$30,000	$300,000	Previous Projects
	Maintenance of the Paved Areas	30	YEAR	$45,000	$1,350,000	Current Annual Costs from CPLC
	Maintenance of the Drip Pad	30	YEAR	$25,000	$750,000	Current Annual Costs from CPLC
3	Groundwater					
	Expansion of the Groundwater Recovery System	1	LS	$376,000	$376,000	Based on Installation Cost
5	Compliance Monitoring /Reporting					
	Compliance Monitoring Plan	1	LS	$10,000	$10,000	Previous Projects
	Installation of Shallow Groundwater Wells	4	WELL	$3,000	$12,000	Previous Projects
	Installation of Deep Groundwater Wells	2	WELL	$3,500	$7,000	Previous Projects
	Protection Monitoring/Reporting	4	EVENT	$8,000	$32,000	Previous Projects
	Performance Monitoring/Reporting	8	EVENT	$6,000	$48,000	Previous Projects
	Confirmational Monitoring /Reporting	6	EVENT	$4,000	$24,000	Previous Projects
	Additional Monitoring (Triggered during above monitoring events)	4	EVENT	$4,800	$19,200	Previous Projects
	SUB TOTAL				**$8,253,200**	
	CAPITAL COST					
	Construction Contingency			30%	$881,460	
	Sales Tax			9%	$258,562	
	Project Management and Remedial Design			20%	$587,640	
	Construction Management			10%	$293,820	
	Agency Review and Oversight			2%	$58,764	
	TOTAL COST				**$10,333,000**	

Internal Notes (fore review)
1. Cost presented in 2011 dollars.
2. Assume 4 years of annual monitoring per FS. Cost based on 2010 sampling and reporting cost
3. Assumes qrt sampling for 2 years, per FS.
4. Assumes semiannual sampling, 3 years, per FS.
5. Sales tax was not applied to completed actions (item 1). Costs used in item 1 include sales tax.

Net Present Value Estimate for Alternative 3

Cascade Pole and Lumber Facility, Tacoma Washington

Year	Cost Factor	Interim Actions Completed	Expansion of the Groundwater Recovery System	Inspection and Monitoring	Compliance Monitoring /Reporting	Project Management	Construction Management	Sub Total Annual	Contingency	Agency Review and Oversight	Sales Tax	Total Annual Cost	Discounted Annual	Discount Rate
0	1													1.03
1	0.971	$5,140,000		$10,000		$53,422	$146,910	$5,350,332	$80,133	$5,342	$23,506	$5,459,312	$5,300,303	
2	0.943		$376,000	$100,000	$37,000	$53,422	$146,910	$713,332	$80,133	$5,342	$23,506	$822,312	$775,108	
3	0.915			$100,000	$8,000	$53,422		$161,422	$80,133	$5,342	$23,506	$270,402	$247,456	
4	0.888			$100,000	$8,000	$53,422		$161,422	$80,133	$5,342	$23,506	$270,402	$240,249	
5	0.863			$100,000	$8,000	$53,422		$161,422	$80,133	$5,342	$23,506	$270,402	$233,251	
6	0.837			$100,000	$24,000	$53,422		$177,422	$80,133	$5,342	$23,506	$286,402	$239,857	
7	0.813			$100,000	$24,000	$53,422		$177,422	$80,133	$5,342	$23,506	$286,402	$232,871	
8	0.789			$100,000	$8,000	$53,422		$161,422	$80,133	$5,342	$23,506	$270,402	$213,458	
9	0.766			$100,000	$8,000	$53,422		$161,422	$80,133	$5,342	$23,506	$270,402	$207,241	
10	0.744			$100,000	$8,000	$53,422		$161,422	$80,133	$5,342	$23,506	$270,402	$201,205	
11	0.722			$100,000	$19,200	$53,422		$172,622	$80,133	$5,342	$23,506	$281,602	$203,436	
12	0.701			$70,000				$70,000	$46,393		$13,609	$130,001	$91,180	
13	0.681			$70,000				$70,000	$46,393		$13,609	$130,001	$88,524	
14	0.661			$70,000				$70,000	$46,393		$13,609	$130,001	$85,946	
15	0.642			$70,000				$70,000	$46,393		$13,609	$130,001	$83,443	
16	0.623			$70,000				$70,000	$46,393		$13,609	$130,001	$81,012	
17	0.605			$70,000				$70,000	$46,393		$13,609	$130,001	$78,653	
18	0.587			$70,000				$70,000	$46,393		$13,609	$130,001	$76,362	
19	0.570			$70,000				$70,000	$46,393		$13,609	$130,001	$74,138	
20	0.554			$70,000				$70,000	$46,393		$13,609	$130,001	$71,978	
21	0.538			$70,000				$70,000	$46,393		$13,609	$130,001	$69,882	
22	0.522			$70,000				$70,000	$46,393		$13,609	$130,001	$67,847	
23	0.507			$70,000				$70,000	$46,393		$13,609	$130,001	$65,871	
24	0.492			$70,000				$70,000	$46,393		$13,609	$130,001	$63,952	
25	0.478			$70,000				$70,000	$46,393		$13,609	$130,001	$62,089	
26	0.464			$70,000				$70,000	$46,393		$13,609	$130,001	$60,281	
27	0.450			$70,000				$70,000	$46,393		$13,609	$130,001	$58,525	
28	0.437			$70,000				$70,000	$46,393		$13,609	$130,001	$56,820	
29	0.424			$70,000				$70,000	$46,393		$13,609	$130,001	$55,166	
30	0.412			$70,000				$70,000	$46,393		$13,609	$130,001	$53,559	
											Total Annual Costs	$11,228,000		
											Net Present Worth		**$9,439,664**	

Table 4 - Alternative 4
Cascade Pole and Lumber Facility, Tacoma Washington

Item	Task	Quantity	Units	Unit Cost	Extended Cost
Capital Items					
1	Interim Actions Completed				
	Paving	1	LS	$2,614,000	$2,614,000
	Drip Pad Construction	1	LS	$1,636,000	$1,636,000
	Installation and Operation of Horizontal Drain	1	LS	$282,000	$282,000
	Transfer Table Pit Upgrade	1	LS	$205,000	$205,000
	Phased Closure of the CCA Drip Pad	1	LS	$88,000	$88,000
	Past Maintenance of the Paved Areas	1	LS	$315,000	$315,000
	Past Maintenance of the Drip Pad	1	LS	$175,000	$175,000
2	Inspection and Monitoring				
	Inspection and Monitoring Plan	1	LS	$10,000	$10,000
	Inspection and Monitoring	10	YEAR	$30,000	$300,000
	Maintenance of the Paved Areas	30	YEAR	$45,000	$1,350,000
	Maintenance of the Drip Pad	30	YEAR	$25,000	$750,000
3	Soil Excavation				
	Mobilization/Demobilization	1	LS	$30,000	$30,000
	Impacted Material Excavation	4224	CY	$7	$29,568
	Backfill Purchase	6,336	TON	$9	$57,024
	Backfill	6,336	TON	$4	$25,344
	Load Excavated Soils	6,336	TON	$2	$12,672
	Disposal of Impacted Soils	6,336	TON	$65	$411,836
	Pave Areas	4,224	CY	$4	$14,784
	Confirmation Excavation Sampling	1	LS	$12,800	$12,800
	Replacement of Groundwater Monitoring Wells	3	WELL	$3,500	$10,500
	Additional shoring and safety precautions near Transfer Table Area	1	LS	$35,000	$35,000
	Plant Closure During Excavation Activities	10	DAY	$245,000	$2,450,000
4	Compliance Monitoring /Reporting				
	Compliance Monitoring Plan	1	LS	$10,000	$10,000
	Installation of Shallow Groundwater Wells	4	WELL	$3,000	$12,000
	Installation of Deep Groundwater Wells	2	WELL	$3,500	$7,000
	Protection Monitoring/Reporting	4	EVENT	$8,000	$32,000
	Performance Monitoring/Reporting	8	EVENT	$6,000	$48,000
	Confirmational Monitoring /Reporting	6	EVENT	$4,000	$24,000
	Additional Monitoring (Triggered during above monitoring events)	4	EVENT	$4,800	$19,200
	SUB TOTAL				**$10,966,727**
	CAPITAL COST				
	Construction Contingency			30%	$1,695,518
	Sales Tax			9%	$497,352
	Project Management and Remedial Design			20%	$1,130,345
	Construction Management			10%	$565,173
	Agency Review and Oversight			2%	$113,035
	TOTAL COST				**$14,968,000**

Net Present Value Estimate for Alternative 4

Cascade Pole and Lumber Facility, Tacoma Washington

Year	Cost Factor	Interim Actions Completed	Soil Excavation	Inspection and Monitoring	Compliance Monitoring /Reporting	Project Managemen t	Constructio n Managemen	Sub Total Annual	Contingency	Agency Review and Oversight	Sales Tax	Total Annual Cost	Discounted Annual	Discount Rate
0	1													1.03
1	0.971	$5,140,000	$3,089,527	$10,000		$102,759	$565,173	$8,907,459	$154,138	$10,276	$45,214	$9,117,086	$8,851,540	
2	0.943			$100,000	$37,000	$102,759		$239,759	$154,138	$10,276	$45,214	$449,386	$423,590	
3	0.915			$100,000	$8,000	$102,759		$210,759	$154,138	$10,276	$45,214	$420,386	$384,713	
4	0.888			$100,000	$8,000	$102,759		$210,759	$154,138	$10,276	$45,214	$420,386	$373,508	
5	0.863			$100,000	$8,000	$102,759		$210,759	$154,138	$10,276	$45,214	$420,386	$362,629	
6	0.837			$100,000	$24,000	$102,759		$226,759	$154,138	$10,276	$45,214	$436,386	$365,467	
7	0.813			$100,000	$24,000	$102,759		$226,759	$154,138	$10,276	$45,214	$436,386	$354,822	
8	0.789			$100,000	$8,000	$102,759		$210,759	$154,138	$10,276	$45,214	$420,386	$331,857	
9	0.766			$100,000	$8,000	$102,759		$210,759	$154,138	$10,276	$45,214	$420,386	$322,191	
10	0.744			$100,000	$8,000	$102,759		$210,759	$154,138	$10,276	$45,214	$420,386	$312,807	
11	0.722			$100,000	$19,200	$102,759		$221,959	$154,138	$10,276	$45,214	$431,586	$311,787	
12	0.701			$70,000				$70,000			$26,176	$96,176	$67,456	
13	0.681			$70,000				$70,000			$26,176	$96,176	$65,491	
14	0.661			$70,000				$70,000			$26,176	$96,176	$63,584	
15	0.642			$70,000				$70,000			$26,176	$96,176	$61,732	
16	0.623			$70,000				$70,000			$26,176	$96,176	$59,934	
17	0.605			$70,000				$70,000			$26,176	$96,176	$58,188	
18	0.587			$70,000				$70,000			$26,176	$96,176	$56,494	
19	0.570			$70,000				$70,000			$26,176	$96,176	$54,848	
20	0.554			$70,000				$70,000			$26,176	$96,176	$53,251	
21	0.538			$70,000				$70,000			$26,176	$96,176	$51,700	
22	0.522			$70,000				$70,000			$26,176	$96,176	$50,194	
23	0.507			$70,000				$70,000			$26,176	$96,176	$48,732	
24	0.492			$70,000				$70,000			$26,176	$96,176	$47,312	
25	0.478			$70,000				$70,000			$26,176	$96,176	$45,934	
26	0.464			$70,000				$70,000			$26,176	$96,176	$44,596	
27	0.450			$70,000				$70,000			$26,176	$96,176	$43,298	
28	0.437			$70,000				$70,000			$26,176	$96,176	$42,036	
29	0.424			$70,000				$70,000			$26,176	$96,176	$40,812	
30	0.412			$70,000				$70,000			$26,176	$96,176	$39,623	
											Total Annual Costs	$15,221,000		
											Net Present Worth		**$13,390,127**	